

Ecological Impact Assessment of land at Trem-y-Glog

Llanarmon Dyffryn Ceiriog

Powys

LL20 7LD

(central grid ref SJ15593280)

By Churton Ecology
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SUMMARY

Background

Churton Ecology was instructed by Halls Holdings to carry out an Ecological Assessment of land at Trem-y-Glog, Llanarmon Dyffryn Ceiriog, Powys, LL20 7LD (central GR SJ56951642). The proposal is an outline application for two detached dwellings on existing pasture. The site is approximately 0.28ha.

Method of study

A desk study and an Extended Phase 1 habitat survey were carried out in order to assess the current ecological value of the site and to identify potential impacts and ecological constraints and make recommendations for general mitigation, compensation and further surveys, as appropriate.

Baseline ecological conditions

There are two internationally (also nationally) designated sites in the 2km surround – the Afon Ceiriog and the Berwyns. Other priority habitats in the 1km surround include an area of non-ancient deciduous woodland to the north of the river, and hedgerows.

The site largely comprises pasture within a larger field of the same, with a single mature Oak tree in the south-west corner, and garden fence boundaries along the north and east.

The Afon Ceiriog is considered to be an important ecological feature in the site's area of influence. None of the habitats on the site class as UK priority ones and are, therefore, not considered to be important ecological features of the site but the Oak (as a mature tree) is considered to be an important ecological feature but in a site context only.

Bats (foraging and commuting only) are the only species group considered to be an important ecological feature of the site.

Mitigation and enhancements

With mitigation measures in place for the Afon Ceiriog, the site Oak, bats (foraging and commuting) and breeding birds i) following any local requirements re sewage ii) retaining the Oak if possible iii) protecting the Oak (if retained) during construction works iv) a sensitive lighting plan and v) shrub and tree removal outside the bird nesting season, there will be no significant negative effect on bats and birds.

With enhancements in place (planting a native hedgerow along the south boundary and installing bat and bird boxes on the new buildings there may be an increase (or maintenance) in the biodiversity value of the site/site surrounds.

1 INTRODUCTION

Churton Ecology was instructed by Halls Holdings to carry out an Ecological Assessment of land at Trem-y-Glog, Llanarmon Dyffryn Ceiriog, Powys, LL20 7LD (central GR SJ56951642).

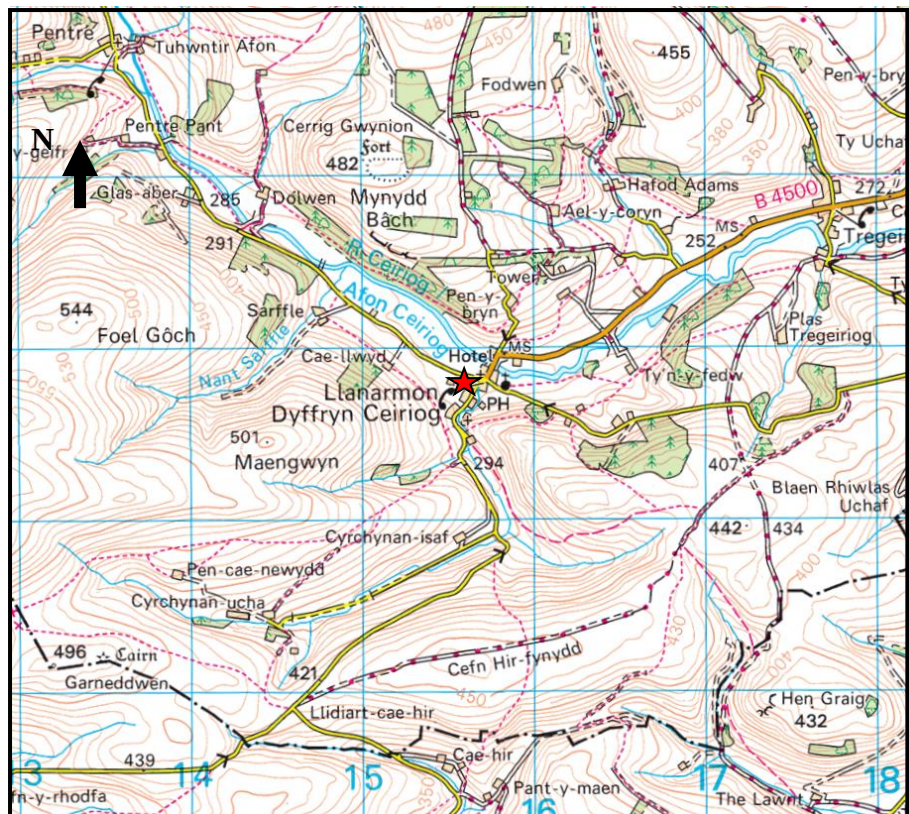


Figure 1: Site location (red star) OS map licence no.100048619



Figure 2: Plan of site

The proposal is an outline application for two detached dwellings on existing pasture. The site is approximately 0.28ha.

The Ecological Assessment aimed to i) identify and evaluate ecological information with relevance to the proposed works, based on the results of a field survey and desk study ii) identify and assess any potential significant impacts associated with proposed development (before and after mitigation) iii) identify any further survey work or mitigation measures that might be necessary iv) identify appropriate enhancement measures.

2 METHODOLOGY

2.1 Scope of the ecological appraisal

The ecological features considered included i) all habitats within the site and the immediate surrounds, noting presence or not of priority habitats ii) presence and/or potential for presence of protected, priority or notable species within the site and the immediate surrounds iii) potential Great Crested Newt breeding habitats within 250m of the site and iv) presence of special sites for nature conservation in the wider surrounds that might be affected by the development.

2.2 Desk study

A desk study was carried out to identify protected species and habitats as well as national and local designated sites within 1km of the site. Searches were conducted using the following sources:

- MAGIC maps
- NBN

OS maps and aerial photographs were used to identify landscape features of potential ecological interest including hedgerows, tree-lines, ponds, streams, ditches and areas of likely (semi-) natural value.

2.3 Habitat survey

A habitat survey of the site and immediate surrounds was conducted on 27/01/21 by Kate Thorne based on the JNCC (2010) Phase 1 methodology. This is represented on the habitat map in Figure 3.

In the text, plant species are referred to using their English names. Nomenclature follows Stace, C. (2011) New Flora of the British Isles.

All habitats were assessed, and their importance/value noted based on botanic diversity and/or their potential to support uncommon or rare species of fauna (e.g. axiophytes/Red Data Book species).

2.4 Protected species survey

A range of protected and priority species surveys was also carried out on 27/01/21.

2.4.1 Bat species

Roost survey

All buildings and trees on and close to the site were assessed largely from the ground for their potential to support bat roosts.

Habitat Assessment

A general habitat suitability assessment of the site and surrounds was carried out to determine their value as foraging and commuting habitat.

2.4.2 Great Crested Newt

Aquatic habitats

Ponds within 250m of the site were sought using OS maps and aerial photographs. None were noted.

Terrestrial habitat

The habitats on site and in the surrounds were assessed for their suitability to provide resting places or areas suitable for shelter or protection (referred to as terrestrial habitats). The potential for newts to traverse the site and any dispersal limitations that might interrupt such migrations were also considered.

2.4.3 Badger

Burrows were sought on site and within a 30m surround (at least).

Other evidence of site use, such as latrine pits, paths, snuffle holes, feeding remains and hairs (in burrow spoil or snagged along trails) were also sought.

2.4.4 Reptiles

The habitats within the site were assessed for their potential to support the 'widespread' reptile species. Areas were assessed for their potential to provide permanent, seasonal and/or temporary reptile habitats.

2.4.5 Birds

Field survey

Birds seen or heard during the survey were recorded and old nests were attributed to species where possible.

Habitat Suitability Assessment

Habitats, with potential to support common, priority or Schedule 1 species of nesting bird were identified within the site and the immediate surrounds.

2.4.6 Other protected or priority species

Habitats were assessed for their suitability to support other protected and priority species. Where no suitable habitats exist and/or where no impacts can be reasonably predicted, species can be discounted from further survey or assessment (in this instance Dormouse, Otter, Water Vole and White-clawed Crayfish).

3 RESULTS AND EVALUATION

3.1 Designated sites

3.1.1 Statutory sites

There are two internationally designated sites in the 2km surround.

The Afon Ceiriog runs at 160m distance to the north of the site; this is included in the internationally designated site 'River Dee and Lake Bala Special Area of Conservation' and in the nationally designated site 'River Dee SSSI'. The large area of upland (24,271ha) – the Berywns - which flanks the Ceiriog Valley to the west, south-west and north-west, has two international designations - Special Protection Area (Berwyn SPA) and Special Area of Conservation (Berwyn and South Clwyd Mountains SAC) - as well as national status as the Berwyn SSSI. All three areas extend to within 2.2km of the site. A relatively small area, which is closest to the site at 1km distance to the south-west, does not have SAC status.

The primary reason for the Berwyns SAC designation is for its blanket bog and European dry heath, with some additional habitats being qualifying features.

The Berwyns is the most important upland in Wales for breeding birds. The SPA designation relates to its supporting a wide range of bird species including internationally significant numbers of Hen Harrier, Merlin, Peregrine and Red Kite,

The SSSI designation for the Berwyns also relates to blanket bog and European dry heath, the above bird species, Black Grouse, Welsh Clearwing and to its upland breeding bird assemblage' [Hen

Harrier, Merlin, Peregrine, Black Grouse, Golden Plover, Dunlin, Snipe, Curlew, Shorteared Owl, Whinchat, Stonechat, Wheatear, Ring Ouzel, Raven and Chough].

The primary reason for the SAC designation for the Afon Ceiriog, as part of a much larger site, is the presence of 'water course of plain to montane level', Atlantic Salmon and Floating Water-plantain with the presence of some additional species being qualifying features – Sea, Brook & River Lamprey, Bullhead and Otter.

The SSSI designation for the Afon Ceiriog relates to many of the SAC features above but also includes some saltmarsh and associated flora (not relevant to the Afon Ceiriog section), also Club-tailed Dragonfly (lower reaches of the Dee) and other aquatic invertebrates (this list includes the Freshwater Pearl-mussel). The Afon Ceiriog is one of the important tributaries of the Dee for salmon spawning. Other migratory fish (other than Salmon and the Lampreys) using the overall river system are Sea Trout and Eel. Other non-migratory fish (other than Bullhead) are Brook Lamprey, Brown Trout and Grayling, also some coarse fish in the middle and lower reaches of the Dee.

3.1.2 Other priority habitats

In addition to the priority habitats in the 1km covered by national designations – these include river and heathland at least – there is an area of non-ancient deciduous woodland to the north of the river, and hedgerows. Other non-priority woodland includes a few small areas of conifer woodland.

3.2 Habitats on site and in the immediate surrounds

3.2.1 Overview and evaluation of habitats

The site is part of a larger field of pasture, with a small separate area of lawn in the north-east and a small separate area of hard standing in the north-west. The whole field is bordered on the east and north by housing, with these boundaries predominantly fence with a few garden shrubs. The west and south boundaries of the field are remnant hedgerows with infrequent mature native shrubs and mature trees. A line of mature shrub and tree also runs north-south between the houses and the south boundary of the field, only its north end (marked by a mature Oak) is just on site.

Evaluation

None of the habitats on the site class as UK priority ones and are, therefore, not considered to be important ecological features of the site. However, the mature Oak is considered to be an important ecological feature in a site context only.

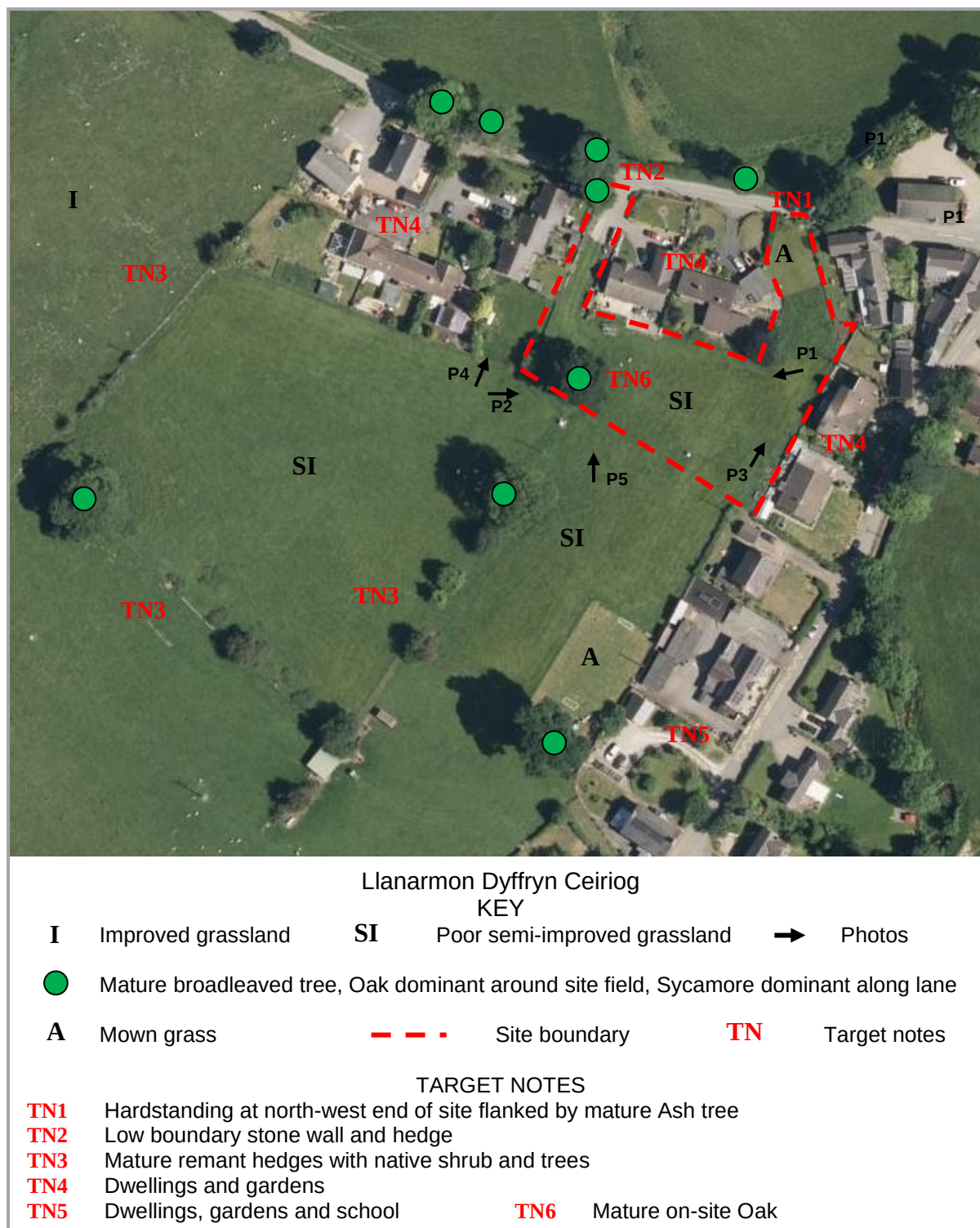


Figure 3: Habitat 'map' of Llanarmon development site, set into aerial photo (Bing) by Churton Ecology Jan 2021

3.2.2 Site habitat descriptions

Grassland

The grassland over the site and immediate surrounds (all in the same field) is very shortly grazed (by sheep). The few grasses and herbs identified [Rye-grass, Yorkshire-fog,

Creeping & Meadow Buttercup, Common Mouse-ear, Common Sorrel and Ribwort Plantain] are typical of poor semi-improved grassland. Nuisance weeds include some localised Dock and Spear Thistle, also some Nettle. The mown grassland in the north-east is similar but is a slightly longer mossier sward.



Photo 1: site viewed from the east



Photo 2: site viewed from the south-west,
Oak on corner of site



Photo 3: NE part of site viewed from the south



Photo 4: NW part of site viewed from the south

Boundary features

The dwellings and gardens surrounding the site are almost entirely fences with some garden shrubs along the garden side. The remnant hedges (TN3) around and across the larger field overall comprise mature Hazel, Blackthorn and Sallow. A few Oak trees in these boundaries are large mature ones. The Oak on the south-west corner of the site has a dbh of approximately 90cms; it is largely intact with some small branches of dead wood.



Photo 5: mature Oak by SW corner of site

Site entrance features

The north east entrance to the site (TN1) has a section of old stone retaining wall with a very small section of remnant hedge (Hazel and Sycamore). The wall supports a few shade-loving ground plants - Herb Robert, Wood Avens and Polypody (fern) – with some non-naïve Alkanet.



Photo 6: north boundary (laneside) of NE corner



Photo 7: north boundary (laneside) of NW corner

The north-west entrance (TN2) is a joint access with one of the nearby houses (on the left/east). A mature Ash is present close to the access. The lane alongside the two arms of the site has a trimmed hedge with frequent mature trees - Sycamore dominant with some Ash.



Photo 8: Laneside along north of of the two site access points, viewed from the west. Red arrows = entrances to site

3.2.3 Habitats in the surrounds

The site is located in a small village in a rural location in the Afon Ceiriog Valley with the Berwyns dominating the surrounds

3.2.4 Flora

All the plant species found on site during the survey are common species.

3.3 Protected and priority species

3.3.1 Bats

Roosts

The nearby houses have the potential to support bat roosts. No bat roost features were noted in the Oak tree on the corner of the site but other mature trees in the surrounds are of an age and type that may support bat roosts.

Foraging and commuting

The grassland on the site offers poor foraging habitat but the trees and remnant hedges (largely just off site) offer some opportunities for foraging and commuting.

Evaluation

Since bats (foraging and commuting may use the corner Oak tree for foraging and as a link to a linear feature - the old hedgerow - foraging and commuting bats may be an important ecological feature in a site context.

3.3.2 Great Crested Newt

Aquatic habitat

There are no mapped ponds within 250m of the application site and there is nothing to indicate the potential presence of another unmapped (garden) pond (from aerial photography).

Terrestrial habitat and evaluation

The site has almost no suitability as terrestrial habitat for this species apart from the stone wall by the north-east entrance. Without nearby breeding habitat and, given the isolation of the wall, GCN is highly unlikely to be present on or near the site and is not considered to be an important ecological feature of the site. No further survey, impact assessment or mitigation is required in relation to it.

3.3.3 Badger

No evidence of Badger was noted and no setts were found within 30m of the site.

Badger is considered to be an important ecological feature of the site.

3.3.4 Reptiles

With its very short sward, the site lacks any suitability for reptiles.

Reptiles are, therefore, not considered to be an important ecological feature of the site.

3.3.5 Birds

Field survey

Only a very few birds were noted during the field survey due largely to the survey being outside the bird breeding season and the weather being poor. House Sparrow was noted in the surrounds and Hedge Sparrow in the laneside hedge. There is very little suitable habitat on the site for ground birds or hedgerow species to breed. The mature Oak in the site corner may have opportunities for tree nesting species to breed but no obvious holes were noted for species such as Barn Owl or Tawny Owl. Smaller species such as Woodpecker and Nuthatch may nest here or at least forage in the tree. Barn Owl has been noted in the area and Woodpecker using the site tree (pers. comment by neighbour).

Evaluation

Breeding birds are not considered to be an important ecological feature of the site.

3.3.6 Other priority species

No evidence of or potential for other protected or priority species was noted. Some species may use the site but the site is unlikely to be essential for maintaining populations.

3.4 Survey limitations

There were no significant survey limitations.

3.5 Further survey recommendations

None are required.

3.6 Personnel

Kate Thorne has over twenty years experience surveying sites for development and conservation purposes, covering Ecological Impact Assessment, botanical and vegetation surveys, and surveys for the range of protected species most typically relevant to planning proposals. She holds NE and NRW bat and Dormouse survey and mitigation licences and is an accredited agent to survey for Great Crested Newt. She holds an IdQ in Vascular Plants (Natural History Museum) and has been a botanical tutor for the Field Studies Council and Keele University (also the BSBI county recorder for vascular plants in Montgomeryshire) and has years of experience assessing and monitoring vegetation. She is also experienced in breeding bird survey techniques.

4 ASSESSMENT OF IMPACTS AND EFFECTS

This section identifies and describes all the potential impacts (with significant effects) which might arise from development of the site in the absence of avoidance measures and/or mitigation, only on important ecological features (habitats or species) identified in the 'Results & Evaluation'. Impacts cover those in the construction and operational phases.

The significance of any residual effects is further discussed with mitigation in place, and/or suggested enhancements.

The Afon Ceiriog is considered to be an important ecological feature in the site's area of influence.

None of the habitats on the site class as UK priority ones and are, therefore, not considered to be important ecological features of the site. However, the mature on-site Oak is considered to be an important ecological feature of the site. Bats (foraging and commuting only) are the only species group considered to be an important ecological feature of the site.

4.1 Habitat assessment

4.1.1 Designated sites in the surrounds

Potential (pre-mitigation) impacts

The MAGIC map impact zones

On the MAGIC maps, impact zones around designated sites have been drawn up. Although Wales is not included, the mapped impact zones cover ground to within 2km of the site and the impacts are likely to be very similar. It shows that there could be an adverse impact from i) Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m² and/or 2) General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, **sewage treatment works**, other incineration/ combustion.

At this site, consideration should be given to the sewage management at this site, given its close proximity to a river with international status. The site is likely to be linked up to the local mains sewer.

4.1.2 Site habitats

Potential impacts before mitigation

There will be loss of around 0.28ha of non priority habitat which will not have any significant adverse effect on biodiversity but the loss of the corner Oak could have a significant negative effect at a site level. The loss may be direct (through felling) or indirectly by carrying out works within its root protection zone.

Significance of residual effects after avoidance and mitigation

Loss (direct or indirect) of the mature corner Oak should be avoided if possible, in order to retain what little biodiversity there is on this site.

With its root protection zone avoided and protected during works (if the tree is to be retained), there will be no indirect loss.

4.2 Protected species

4.2.1 Bats

Potential (pre-mitigation) impacts

There will be minimal loss of foraging and commuting habitat if the corner Oak is removed.

Excessive illumination of the site boundary features (including the nearby lane), could result in the potential disturbance of foraging & commuting habitats likely to be used by bats and, thereby, adversely affecting any nearby roosts.

Significance of residual effects after mitigation

With mitigation in place - a sensitive lighting plan - there will be no significant negative effect on bats.

After enhancement

The provision of bat boxes on the new buildings could enhance the site for bats.

4.2.2 Birds*Potential (pre-mitigation) impacts*

Loss of a very few nesting sites for birds - the tiny north-east section of hedgerow and, possibly, the mature corner Oak - is unlikely to have a significant negative effect on breeding birds.

However, works (in the construction phase) that may damage or destroy a nest of any wild bird whilst it is in use must be avoided during any development as this would constitute an offence.

Significance of residual effects after mitigation

With mitigation in place - removal of tree and shrub outside the breeding season - there will be no significant effect on biodiversity and any offence against breeding birds will be avoided.

After enhancement

The provision of nesting boxes for species associated with housing (e.g. House Sparrow and Starling), and/or garden birds, will enhance the site for breeding birds and could have a positive impact on this species group.

4.3 Legal statusBats

All UK bat species are protected under both UK and European Law. Essentially this makes it unlawful to; deliberately capture, injure or kill a bat; intentionally or recklessly disturb a bat whilst it occupies a roost or deliberately cause disturbance to a bat or group of bats; damage or destroy the roosting site of a bat; intentionally or recklessly obstruct access to a bat roost.

Notably, legal protection gives absolute protection to bat roosts and their continued functionality, regardless of deliberate, intentional or reckless action. Legal protection also extends to seasonal roosts which are not always occupied by bats throughout the year.

Disturbance caused through excessive noise or lighting and/or alterations to the landscape could potentially impact on bat roosting, foraging and/or commuting habitats and may have legal implications with regards European disturbance/roost deterioration laws. It is therefore the duty of the relevant competent authority to take habitat severance, disturbance and land use change issues and their potential for impact on bat populations into consideration when assessing applications for the relevant consent.

Birds

With the exception of Schedule 1 listed bird species, which receive a higher level of protection against breeding disturbance, all common species of bird are protected during their breeding activities under the Wildlife and Countryside Act 1981.

Essentially, this makes it an offence to intentionally take, damage or destroy the nest of any wild bird whilst that nest is occupied or being built; intentionally take or destroy the egg of any wild bird.

5 PROPOSED AVOIDANCE MEASURES, MITIGATION AND ENHANCEMENT

5.1 Avoidance measures and mitigation

5.1.1 Trees

To avoid indirect loss to the corner Oak (if retained), Heras fencing should be in place around the tree, during construction works, at a distance of 10.5m from the the trunk.

5.1.2 Bats

To avoid possible disturbance to foraging and roosting bats, external lighting must be avoided or minimised along the garden boundaries adjacent to the site, and along the lane. It is also best practice to minimise external lighting throughout the site (for the sake of foraging bats and all nocturnal wildlife) and there should be no allowance for permanent security lighting. Where required, lighting must be reduced to its most practical level and fixed on low columns with light spread kept well-below the horizontal using cowls, hoods, screens or simply by downward directionality. Bollards with low level lighting may be appropriate, provided the bulbs are shielded from any of the peripheral features thought likely to be used by bats.

Bulbs must be low intensity with a narrow or UV reduced spectrum (<150W, high or low pressure sodium types or LEDs). LED lamps are appropriate and effectively reduce light-spill and can be set with precise directionality. PIR systems [if applicable] must be set on a short timer and responsive only to larger moving objects and can be set with precise directionality. PIR systems [if applicable] must be set on a short timer and responsive only to larger moving objects.

Note: refer to Bats and Artificial Lighting in the UK (Bat Conservation Trust) for further information <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

5.1.3 Birds

The nests of actively breeding birds in shrub or tree should be avoided during the works period.

If nests are encountered then works should cease or avoid that area until the young have departed the nest. Construction works that may affect nesting birds, including tree and scrub removal, should be carried out as follows:

- During the nesting season between March 1st and August 31st after an ecologist has inspected the hedgerow, tree, shrub or field margins for signs of nesting birds. This is highly likely to result in delays to the project and it is not recommended.
- Between 31st August and March 1st - outside the breeding season - when birds are unlikely to be nesting. This is the most suitable or preferred means of mitigation.
- After bird access into the hedgerow, tree or shrub has been suitably obstructed prior to March 1st. This may work better for hedgerow or shrub removal but is impractical for use with trees and the field margins. Typically connected lengths of debris netting can be draped over the hedgerow/shrub and pegged tightly into the ground either side.

5.1.4 Other

The following points are generally considered to be good practice procedures:

- If any trench is left open overnight then it will be left with a sloping end or ramp to provide an escape route for any animal that may fall in.
- If pipe work is left open overnight, then the open end will be capped off to prevent animals seeking refuge and becoming trapped when work resumes.

5.2 Enhancements

Habitats

A native hedgerow along the south boundary of the site would enhance the site for wildlife.

Bat boxes

Integral or integrated bat boxes can be built into the walls or masonry of a house. 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.

Alternatively there are a number of ready-made external bat boxes suitable for buildings. These should be made of durable materials, such as ecostyrocete or woodcrete.

The 1FR or 2FR Schwegler bat tube is designed to be built into the masonry. The box does not require any maintenance. Unlike the 1FR, the 2FR has transverse connecting holes which allow several tubes to be placed next to each other in modular form in order to create a much larger space. It is recommended that at least three units are connected together.

Most bat species will use higher positioned boxes (around 4m up). At this site, a single box should be placed high up by the eaves, which can also help shelter the box from the weather. The aspect of the box should capture sun for part of the day (e.g. the south-east to south-west aspect).

Bird boxes

Several priority and/or declining bird species are dependent on buildings. Bird boxes could be placed on the building e.g. a Sparrow 'terrace'.

Additional bird boxes, placed on buildings or in trees around the wider garden, could include ones suitable for other small birds (e.g. Tit and Robin). Schwegler bird boxes (or other makes of long-lasting woodcrete construction) of different sizes (to suit different species of small birds) are recommended, as follows, and should be placed at a height of 1.5 – 3m. Unless there are trees or buildings which shade the box during the day, face the box between north and east, thus avoiding strong sunlight and the wettest winds.

1B Schwegler nest boxes with 26mm hole x 1

1B Schwegler nest boxes with 32mm hole x 1 (2-3m height)

2H Schwegler open fronted boxes x 1 (below 2m, well hidden in vegetation).

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