



Jockey's Hall- Ref: MSUF 058 Eco PEA  
EcoCheck Ref: JH\_145 PEA Acorus

---

Jockey's Hall, Jockey's Lane, Stowmarket, Suffolk, IP14 2NH

## Preliminary Ecological Appraisal

Date: February 2024

---

### 1. Introduction and Proposals

- 1.1. Eco-Check has been commissioned by Acorus Rural Property Services in regard to ecological matters relating to a planning application submitted to Mid-Suffolk District Council for the **erection** of 3 dwellings on land adjacent to Jockeys Hall (following demolition of existing buildings). A preliminary ecological appraisal was undertaken on 13<sup>th</sup> December 2023 to update surveys by Adonis Ecology in March 2019 and a great crested newt survey and mitigation report by Framlingham Environmental in April 2020, the latter of which confirmed a small population of great crested newt. The site is centred at grid reference: TM026563. The site would include tree and hedge planting, landscaping and post and rail fencing.
- 1.2. The site consisted predominantly of old farm buildings, now used mostly as storage buildings for a commercial business adjacent to the site. Between the buildings was predominantly bare earth, gravel or broken concrete. To the east of the site was a small area of short-cut amenity grassland, a small pond and a low number of mature trees. The proposal is to demolish all of the existing buildings and construct three new dwellings, whilst retaining the existing pond and mature trees.

### 2. Site Location and Surroundings

- 2.1. The site was located next to Jockey's Hall, at the end of the single-track Jockey's Lane, approximately 1.5km to the west of the small village of Combs, and approximately 3.4km to the southwest of the town of Stowmarket. The site consisted predominantly of old farm buildings, now used mostly as storage buildings for a commercial business adjacent to the site. Between the buildings was predominantly bare earth, gravel or broken concrete. To the east of the site was a small area of short-cut amenity grassland, a small pond (P1) and a low number of mature trees. The application site comprises a roughly rectangular shaped parcel of land extending to approximately 0.71ha. The site consists of a single enclosed field and is accessed via an existing agricultural access from a farm track off Church Road to the north.
- 2.2. The site was bordered on the western side by the continuing Jockey's Lane which was a dirt track at this point. A native hedgerow was present on the far side of the track, with an arable field beyond. To the north were further old farm buildings used for commercial purposes, with the dwelling and garden of Jockey's Hall beyond, followed by another arable field. To the south and east of the site, the short grassland area of the site continued for approximately 70m to the south and 90m to the east. The grassland was bordered by a hedgerow on both sides, with further arable fields beyond. Finally, at the northeast corner of

the site is a double row of Lombardy poplar *Populus nigra* 'Italica' which continued for approximately 90m to the east. Further out, the landscape is dominated by arable farmland with large fields and few hedgerows. There are occasional individual dwellings and commercial properties, as well as the small villages of Great Finborough approximately 1.8km to the northwest and Little Finborough approximately 2km to the south of the site, and the town of Stowmarket starting approximately 1.7km to the northeast.

- 2.3 The 1:10000 ordnance survey map provided by Promap showed two ponds and one drain within 500m of the site, the drain being approximately 140m to the southeast, the ponds being approximately 470m to the southeast and 480m to the north of the site respectively (Google Earth, 2023, Magic 2024). The on-site pond P1 does not appear on maps but is immediately east of the buildings to be demolished.
- 2.4 There were no woodlands within 500m of the site, the closest being a small, narrow, linear strip of woodland approximately 515m to the northeast of the site. This woodland was not ecologically well linked to the site (Google Earth, 2023). There were other small areas of woodland approximately 780m to the southwest of the site, but the closest medium sized woodland was approximately 2.6km to the east of the site (SBIS, 2019).

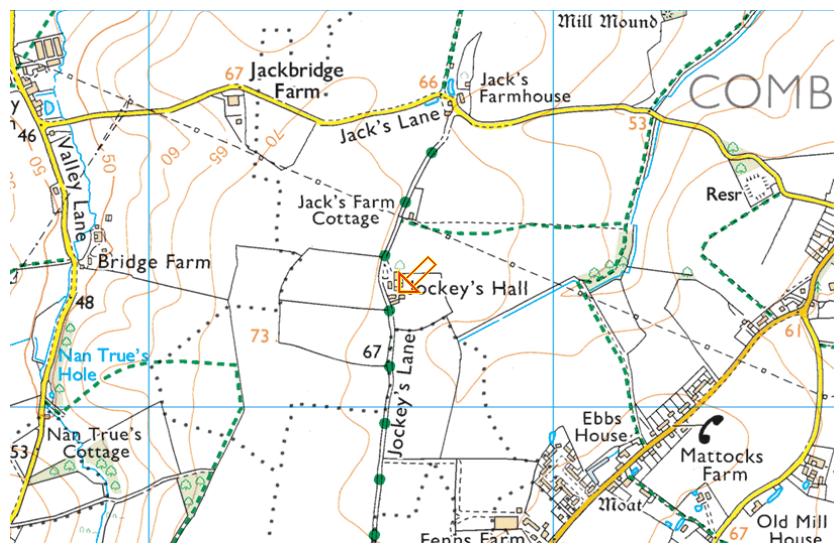


Figure 1. Site Location Map – StreetMap 2024

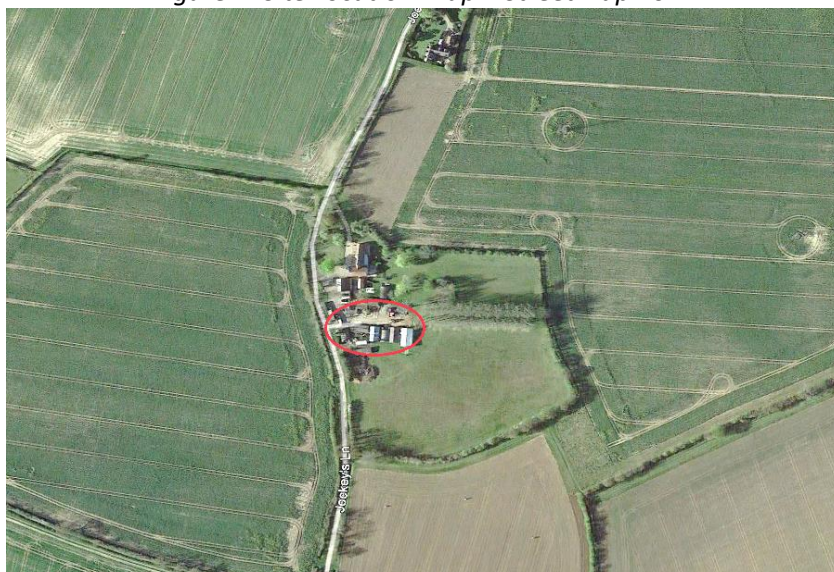


Figure 2. Aerial View of Site – Google Earth- March 2023

### 3. Methodology

#### Desktop Information

- 3.1. In order to compile background information on the site and its immediate surroundings, ecological information, including background records of protected, rare and notable species from the site and surrounding area have been obtained from Suffolk Biodiversity Records Information Service (SBIS) with data requested on the basis of a search area of 2km.
- 3.2. Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England. In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site. Relevant information is reproduced in Figure 3 and Appendix 1, where appropriate.
- 3.3. In addition, the Woodland Trust database was searched for any records of ancient, veteran or notable trees within or adjacent to the site.

#### Survey Work

- 3.4. An ecological walkover survey was carried out on 13<sup>th</sup> December 2023 by James Hodson of Eco-Check Ltd, an experienced ecological consultant with a BSc (Hons) in Environmental Sciences and MSc in Environmental Impact Assessment and licensed to undertake bat surveys and to disturb bats under Natural England Level 2 Bat Survey License 2017-30927-CLS-CLS and great crested newts 2018-36283-CLS-CLS. The site was surveyed in order to ascertain the general ecological value of the land contained within the boundaries of the site, to identify the main habitats and ecological features present and update the findings of previous surveys.
- 3.5. The site was surveyed based on standard Phase 1 Habitat Survey methodology<sup>1</sup>, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal<sup>2</sup> to record details on the actual or potential presence of any notable or protected species or habitats.
- 3.6. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. The nomenclature used for plant species is based on the Botanical Society for the British Isles (BSBI) Checklist.
- 3.7. General faunal activity, such as mammals or birds observed visually or by call during the course of the surveys was recorded. The potential for the site to support any protected, rare or notable faunal species was also appraised.

---

<sup>1</sup> Joint Nature Conservation Committee (2010, as amended) '*Handbook for Phase 1 habitat survey: A technique for environmental audit.*'

<sup>2</sup> Chartered Institute for Ecology and Environmental Management (CIEEM) (2017) '*Guidelines for Preliminary Ecological Appraisal.*'

- 3.8. A preliminary bat roost assessment (PRA) and nesting bird survey of the buildings was carried out from ground level to eaves level looking for evidence of bats and possible bat access points. An inspection was carried out inside the buildings looking for evidence of bats and bat roosting sites. In examining the buildings for barn owls, a search was made for evidence of barn owls (feathers, pellets and faecal 'splashes' on timbers), their nest sites and the birds themselves. The buildings were also assessed for potential to support nesting or roosting barn owls and other nesting birds.
- 3.9. In examining the buildings for bats, particular attention was given to any gaps in which bats may roost. It is important to remember that bats are difficult to survey and find and it is usually signs of their activity rather than their actual presence that indicates the existence of a bat roosting site. The presence of moth and butterfly wings for example can indicate bat presence. Bat droppings on walls, floors and flat surfaces can be used to identify species. Floors, walls, supports, and exposed surfaces were inspected for bat droppings, bat urine, feeding remains, oil staining from the fur of bats (indication of frequent use of a particular site), clean cob-web free areas on the ridge boards or crevices and wear of substrates caused by the movement of bats in and out of potential roost exit holes over a long period of time. Beneath ledges, the ground was examined for feathers, pellets and birdlime that could indicate occupation by barn owls.
- 3.10. The pond (P1) on site was checked for suitability and likelihood of presence of great crested newts by applying the Habitat Suitability Index (HSI) assessment as developed by Oldham *et al.* (2000).

#### Survey constraints/limitations

- 3.11. All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The Phase 1 habitat survey was undertaken outside the optimal season of May to September which provides a less robust assessment of botanical interest across the site, however given the historical use as an agricultural yard and disturbed agricultural land this is not considered to be a significant constraint. All the site habitats were clearly evident and relative confidence is given in the survey findings.
- 3.12. Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey.

---

<sup>3</sup> Statutory designation include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR).

<sup>4</sup> Non-statutory sites are designated by local authorities and protected through the planning process (e.g., County Wildlife Sites, Sites of Importance for Nature Conservation or Local Wildlife Sites).

<sup>5</sup> Legally protected species include those listed in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981; Schedule 2 of the Conservation of Species and Habitats (Amendment EU Exit) Regulations 2019; or in the Protection of Badgers Act 1992 (as amended).

<sup>6</sup> Notable species include Species of Principal Importance under the Natural Environment and Rural Communities Act 2006; Local Biodiversity Action Plan (LBAP) species; Birds of Conservation Concern (Eaton *et al.*, 2009); and/or Red Data Book/nationally notable species (JNCC, undated).

## 4. Survey Results, Discussion and Recommendations

### Ecological Designations <sup>3 4</sup>

- 4.1. There were no statutory designated wildlife sites within 2km of the proposed development site (SBIS, 2019). The closest statutory wildlife site was Church Meadow Local Nature Reserve (LNR) approximately 2.35km to the northeast of the site, with the closest nationally designated site being Combs Wood Site of Special Scientific Interest (SSSI) approximately 2.6km to the east of the site. The closest Natura 2000 site was the Stour and Orwell Estuaries Special Protection Area (SPA) and Ramsar site almost 20km to the southeast of the site (MAGIC, 2024).

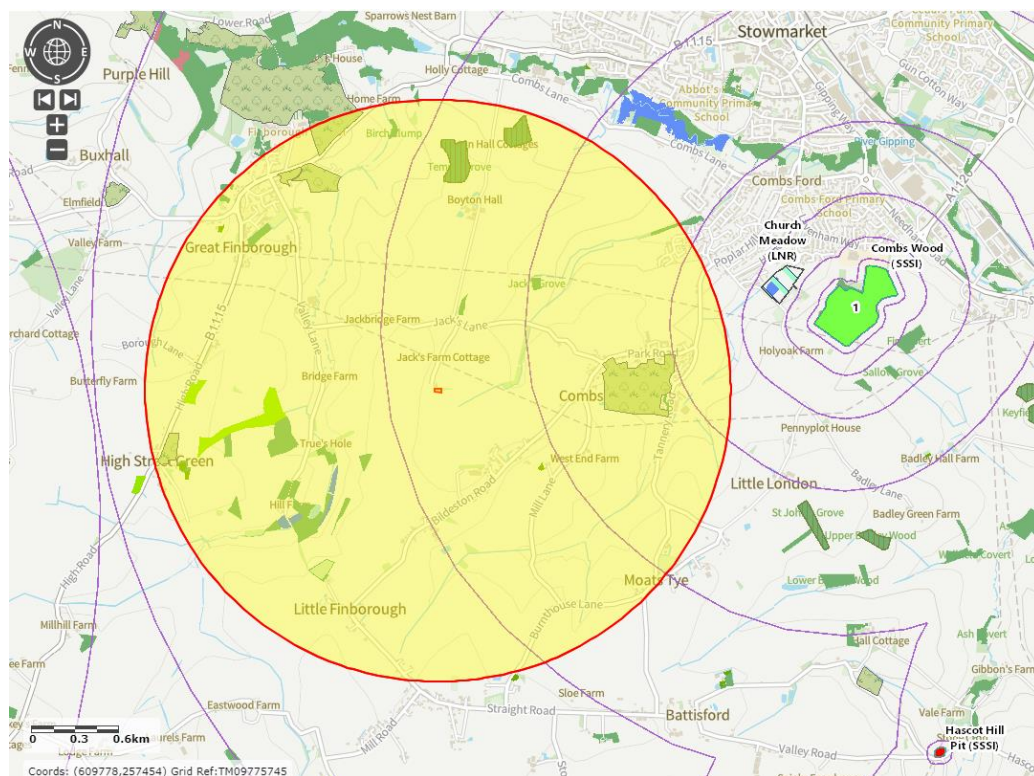


Figure 3. Magic Search Map- 2km

- 4.2. There are three non-statutory wildlife sites within 2km of the proposed development site (SBIS, 2019), these being:
- Hill Farm Wood County Wildlife Site (CWS), a small area of ancient woodland coppice approximately 1km to the west of the site, with various native standards as well as some old crab apple *Malus sylvestris* and young elm *Ulmus* sp., and a number of uncommon herbs, including herb-Paris *Paris quadrifolia*, sanicle *Sanicula europaea* and early-purple orchid *Orchis mascula*;
  - Temple Grove CWS approximately 1.4km north of the site, an area of unmanaged ancient woodland with ash *Fraxinus excelsior* and field maple *Acer campestre* coppice and a hazel *Corylus avellana* understorey, as well as significant areas of bramble *Rubus fruticosus* agg. and common nettle *Urtica dioica* and small areas containing ancient woodland indicator species;

- Dales Wood CWS approximately 1.75km north of the site, another small area of ancient Woodland with stools of ash coppice, some hazel understorey, as well as a good number of ancient woodland indicator species.
- 4.3. No international level statutory ecological designations have been identified within 5km of the site, whilst information available on the MAGIC database identifies that site is included within the Impact Risk Zones (IRZs) of Combs Wood SSSI however the development proposal does not fall within the scope for consultation with Natural England as the development is for less than 10 new dwellings.
  - 4.4. Priority habitats within the search radius included coastal and floodplain grazing marsh, lowland meadows, ancient woodland, woodpasture and parkland and traditional orchard.
  - 4.5. Overall, given the distance and separation of all identified ecological designations from the site, along with the size and scale of the proposals, the proposed development of the site is unlikely to result in any adverse significant effects on any such designations in isolation, which do not therefore appear to represent a potential constraint or require further consideration in regard to the proposed development.

#### Habitats and Ecological Features

- 4.6. **Survey Results.** The site largely consisted of nine disused farm buildings, which were now used as storage for the adjacent commercial business and associated 'yard' areas which consisted of bare earth, gravel and broken concrete, parts of which had been recently excavated to conduct a contamination assessment of the soils. Within the yard areas were numerous pieces of rubble, wood, refuse and other materials, including some small piles of wood and other materials which may provide shelter opportunities for some small animals. Adjacent to the two willow trees is a small (approximately 7m x 9m) pond (P1).
- 4.7. Modified grassland borders the aprons and buildings and supports a high proportion (approximately 50% or more) of Perennial Rye-grass (*Lolium perenne*), with scattered rarely occurring Meadow Grasses *Poa* sp., Soft Brome (*Bromus hordeaceus*) and Yorkshire Fog (*Holcus lanatus*). Forbs were recorded to be similarly scattered and rarely occurring, largely associated with the margins and poached areas and include nipplewort (*Lapsana communis*), ground ivy (*Glechoma hederacea*), white clover (*Trifolium repens*), daisy (*Bellis perennis*), bristly ox-tongue (*Helminthotheca echioides*), creeping thistle (*Cirsium arvense*), nettle (*Urtica dioica*), ribwort plantain (*Plantago lanceolata*), docks (*Rumex spp*). Flowering plants included white dead nettle (*Lamium album*), herb Robert (*Geranium robertium*), cleavers (*Galium aparine*), buttercup (*Ranunculus repens*), purple dead nettle (*Lamium purpureum*), cut-leaved cranesbill (*Geranium dissectum*) and Dove's foot cranesbill (*Geranium molle*). The grassland had no tussocks, and no ground cracks, crevices or holes which may provide shelter opportunities for small animals.
- 4.8. To the northeast of the site were a number of mature trees, most of which were Lombardy poplar, some of these forming an avenue of trees which continued further to the east of the site. None of these trees had any potential for roosting bats and no signs or evidence of roosting bats were found. There were also two mature weeping willow *Salix babylonica* trees one of which had a small rot hole in the trunk which provided very low potential for roosting bats. The trees and hedgerows on site were considered to provide a small amount of likely moderate value habitat for common nesting birds.

- 4.9. On the western roadside boundary of the site was a 2m high, blackthorn *Prunus spinosa* and field maple dominated hedgerow, with some ash standards. One of these had some minor ivy covering, but none were considered to have any potential for roosting bats. This hedgerow continued for approximately 20m to the south, beyond the site boundary, where it consisted of a 5m high blackthorn and hawthorn *Crataegus monogyna* dominated hedgerow, and this continued further to the south after an approximate 15m gap. As the hedgerow was more than 20m long and consisted predominantly of native species, it was considered to meet the criteria for Section 41 Hedgerow habitat.
- 4.10. **Evaluation.** The grassland present forming the internal areas of the site was recorded to be clearly species-poor, supporting a limited range of common and widespread species, with a high proportion of Perennial Ryegrass indicating considerable agricultural improvement (modified grassland). The survey work was undertaken at a sub-optimal time for grassland survey, however it is clear that the grassland present is typical of species-poor, agriculturally improved and amenity grassland which is therefore unlikely to be of any raised ecological value, nor represent a constraint on the proposals.
- 4.11. Other vegetation within the internal parts of the site is limited to common ruderal and ephemeral weed species. The western boundary hedge and mature trees present which in terms of habitat value provide some raised interest in the context of the site (see below in regard to faunal considerations). Where possible, it is recommended that the existing trees and hedging are retained under any proposed development layout, with suitable protective measures (e.g. the use of temporary fencing, including in line with any relevant arboricultural recommendations and best practice, including BS5837) put in place during any construction works.
- 4.12. Due to a lack of suitable access a detailed bat roost assessment of the trees was not undertaken but a ground-based survey indicated that some may contain potential roost features and so the trees must not be disturbed without a detailed roost assessment being undertaken.
- 4.13. The proposals offer the opportunity to enhance the site with new tree and hedge planting, particularly the east and south boundary with the open field as well as green open spaces within the site.

#### Faunal Considerations <sup>5 6</sup>

- 4.14. **Background Records.** A search for designated sites and historical species records within 2km of the site was requested from Suffolk Biodiversity Information Service (SBIS). No specific records of any fully protected, rare or notable species within the site itself, were identified based on the desktop study undertaken, whilst the nature of the habitats are such that it would appear unlikely to support certain species such as water vole, otter, hazel dormouse and white clawed crayfish.
- 4.15. A data search of 5km revealed records of at least 6 species of bat (brown long-eared bat (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), serotine (*Eptesicus serotinus*), natterer's (*Myotis nattereri*), noctule (*Nyctlaus noctule*) and daubenton's (*Myotis daubentonii*). There are no EPS licenses in respect of bats within a 2km radius.

There are 4 records for great crested newt 2010-2020, 3 records are to the east >1km and to the west >1km.

There is 1 record of grass snake (*Natrix Helvetica*) 2021 approximately 830m east of the site. There are 3 records of water vole (*Arvicola amphibius*), nearest 880m south-west.

There are 10 records of brown hare (*Lepus europaeus*) most recent 2018 and 48 records for hedgehog (*Erinaceus europaeus*) most recent 2022. None of the records appear to be of particular relevance to the site itself, whilst the majority are well-removed from the site. In any event, the site is located within the core range of these species, such that their presence within the surrounding search area is unsurprising.

4.16. **Badger.** A walkover of the site and bordering habitats found no evidence of badger setts or badger activity. However, it was considered that vegetated habitats on site provided a small amount of moderate value foraging habitat for badgers and, given the arable surroundings provided low potential for badgers, if a sett was present in the surroundings, badgers may on occasion pass through the site or visit the site to forage. Given the size of the site, regular disturbance, human presence and lack of evidence for this species, it is unlikely that the site forms an important resource for this species, which does not, therefore appear to represent a potential constraint, nor require any further consideration in regard to the current proposals. The permanent grassland does provide foraging habits for badgers, and it is recommended that the site is surveyed again prior to any works commencing.

#### 4.17. **Bats-Preliminary Building Roost Assessment-**

A preliminary bat roost assessment was made of the buildings on site marked as No.1-No.9 below. The buildings and their potential to support roosting bats is detailed below.

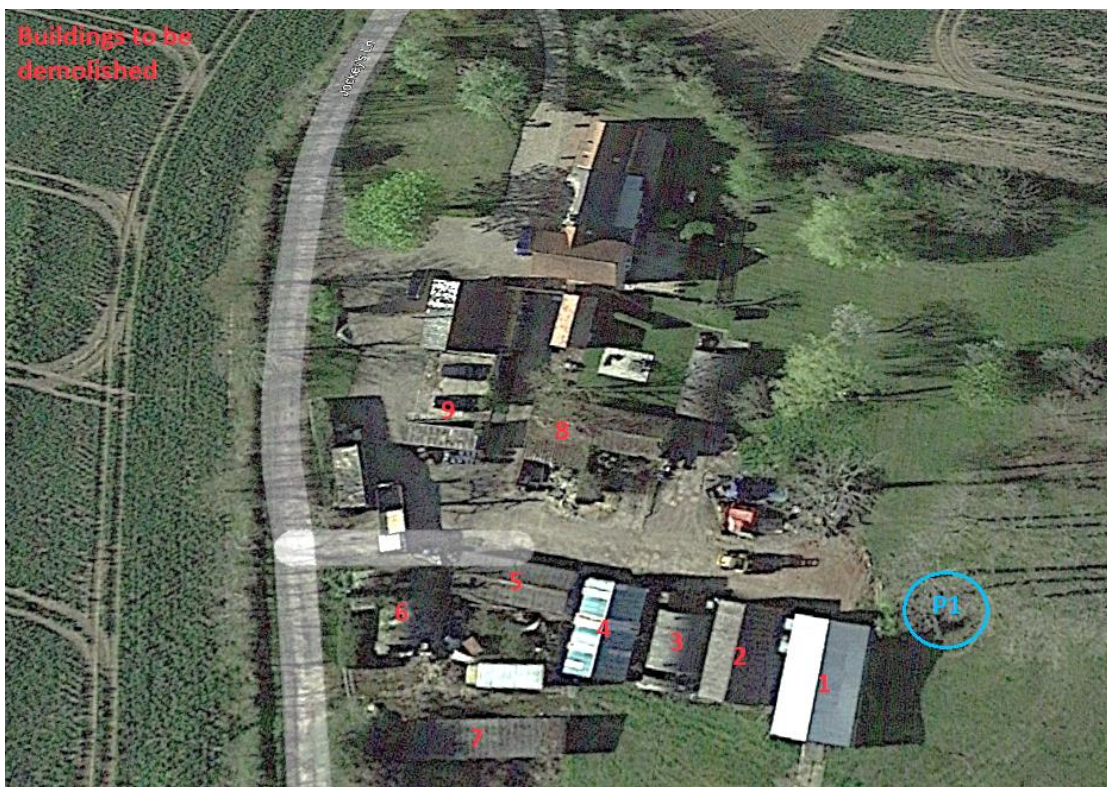


Figure 4. Buildings subject to bat roost assessment and nesting bird survey



Building Number Reference	Construction	Evidence of Bats or birds	Bat Roost Potential
1-	Timber frame, concrete block base, featheredge boarding and corrugated tin sheet roof. Glazed windows and well-sealed to wildlife.	No	Negligible
2	Concrete block construction, timber frame roof with corrugated fibreboard over. Featheredge gables with broken sections and open to wildlife	Little owl has been using as a roost site.	Negligible
3	Arched fibreboard structure, brick gable ends missing, open to wildlife but breezy and bright.	No	Negligible
4	Timber frame, concrete base and floor, corrugated tin sheet sides and roof. Skylights.	No	Negligible
5	Stable block timber frame construction. Corrugated fibreboard roof, windows in both gables, ply lined. Hole in roof at front and large hole in rear wall.	Pigeon nest	Negligible
6	Corrugated fibreboard and concrete block, no rear wall, concrete floor.	No	Negligible
7	Derelict pig pen structure, concrete block construction, fibreboard roof.	No	Negligible
8	Brick construction, timber frame roof with fibreboard roof, painted walls and block work partitions. Open to wildlife with broken roof.	Pigeon nest	Negligible
9	Collapsed derelict structure and hard standing	No	Negligible

Table-1 Description of buildings subject to demolition

The proposed development has the potential to kill, injure and disturb individual bats and has the potential to damage/ destroy bat roosts if present. The surveys however confirm the absence of roosting bats with relative confidence due to the lack of any evidence of bats and negligible roost potential, primarily due to the construction, condition and lack of sufficient shelter and thermal conditions.

Should works be required to the identified mature trees (e.g. to address arboricultural management requirements and/or for health and safety) a suitably qualified ecologist should first be contacted for further advice, which could include precautionary mitigation measures such as detailed inspection prior to works and/or the use of soft-felling techniques in the absence of any evidence for the presence of bats. A number of the trees surveyed were covered in creeping ivy which may cover potential roosting features PRS' or itself provide roosting opportunities beneath the lattices.

4.18. In terms of foraging and commuting bats, the internal areas of the site are less likely to be used by foraging and commuting bats. Nonetheless, the trees and hedges provide corridors and navigational features for potential use by bats. It is recommended that new native

planting and vegetation be provided within the site as part of the proposals (in particular linking with and extending the retained boundary vegetation), with any new lighting designed to ensure the boundary features and vegetation remain unlit, forming dark corridors for use by bats, subject to which, no further surveys or consideration would appear to be required in regard to this group in relation to the proposed development of the site.

**4.19. Great Crested Newt.**

Adjacent to the two willow trees is a small (approximately 7m x 9m) pond (P1). The HSI assessment conducted for this pond gave a result of 0.55, meaning the pond is considered 'Below Average' in suitability for breeding great crested newts. Great crested newt eggs were found within the pond on site which confirms the pond is used as a breeding site for great crested newts. The pond will not be directly affected by the proposed development, and therefore, the impact upon breeding great crested newts from the proposed development was considered to be negligible. The closest other pond to the site was approximately 470m away, although there was a single drain closer than this. Given the limited availability of alternative breeding habitat in the near surroundings, the general low value of surrounding habitats for great crested newts (large fields with limited hedgerows) and the small size of the pond on the site, it was considered unlikely that any more than a low population would be found in the local area.

Subsequent surveys by Framlingham Environmental in April 2020 confirmed a small population of great crested newt. The grassland on site was considered to provide little in the way of shelter or foraging habitat for great crested newts. The hedgerow may provide some potential shelter and foraging habitat, as well as cracks around the base of larger trees, though the hedgerow was poorly linked to the pond, with only the bare earth/gravel yard and buildings between them. Piles of wood, refuse and other materials laying on the floor within the yard were considered to provide a moderate number of potential shelter opportunities.

<b>Habitat Suitability Criteria</b>	<b>Score for Pond On Site</b>
Geographic location	1
Pond area (m <sup>2</sup> )	0.05
Desiccation rate	0.5
Water quality	0.67
Shoreline shade (%)	1
Waterfowl	1
Presence of fish	1
Ponds within 1km	1
Terrestrial habitat quality	0.33
Macrophyte cover (%)	0.5
<b>HSI Score</b>	<b>0.55</b> <b>(Below Average)</b>

Table 2- HSI Assessment of pond P1 (Adonis Ecology)

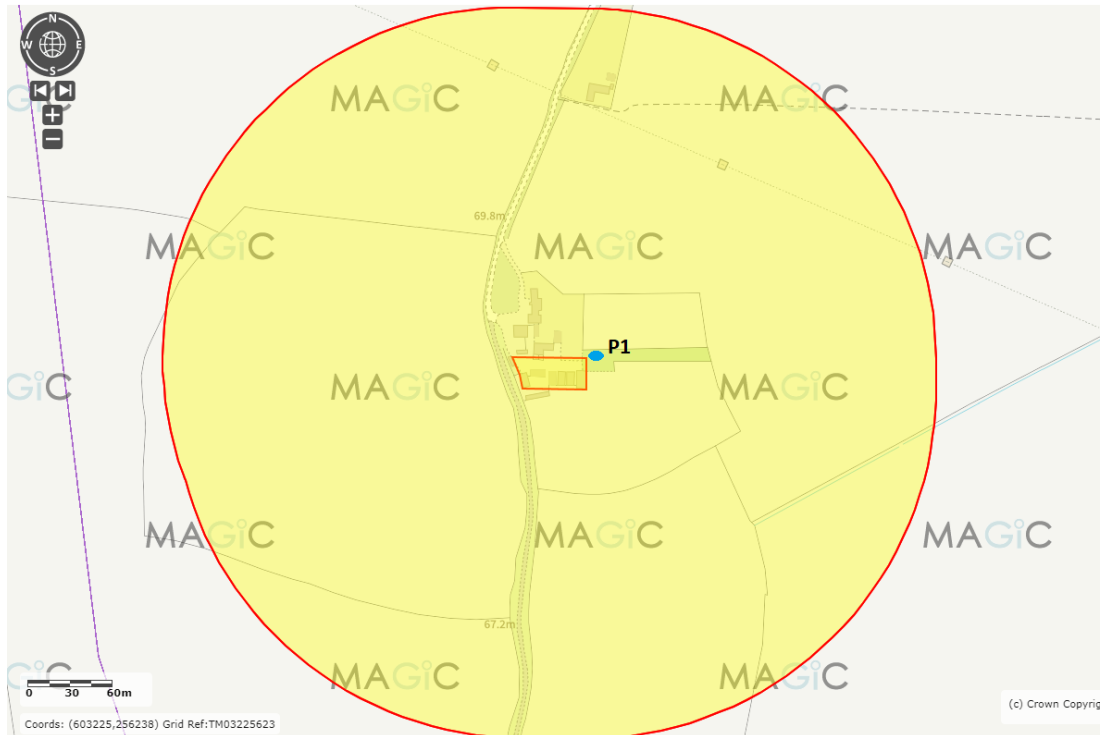


Figure 5– Pond Search Map 250m

- 4.20. Given the known presence of great crested newts on the site, and the moderate potential for sheltering great crested newts within the site, it was considered that the proposed development, without mitigation, would pose a moderate risk of impact to a small population of great crested newts.
- 4.21. It is highlighted that a GCN Low Impact Class licence will be required prior to commencement of the proposed works. Therefore, as population surveys have not been conducted for this application to inform the provision of the European Protected Species Licence (due the ponds being dry at the time of survey), a precautionary approach is considered appropriate in line with Natural England’s Licencing Policy 4: *(Natural England may accept a lower than standard survey effort where: the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring; the ecological impacts of development can be predicted with sufficient certainty; and mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of any EPS.)*. This approach is considered appropriate for this application as the ecological impacts of development can be predicted with sufficient certainty and the compensation measures proposed will provide positive benefits for any local Great Crested Newt Population within the local area.
- 4.22. **Reptiles.**

There were records of grass snake in the 2km radius data search (SBIS, 2019) and it was considered that the pond on site provided a small amount of potential foraging habitat for grass snakes. The remainder of the site provided little potential habitat for grass snakes. However, it was considered possible that if present in the local area, they may on occasion use piles of wood, refuse and other materials laying on the floor within the yard for shelter. Given the low likelihood of grass snakes (or any other reptiles) occurring on site and the wide-ranging nature of grass snakes, the loss of these features was considered to pose a negligible risk of impact to any local population of grass snakes or any other reptiles. Further, any

mitigation proposed for great crested newts, which will likely consist of hand dismantling of potential refuges amongst other works, would reduce any risk of harm to individual snakes or other reptiles to negligible.

4.23. Nonetheless, the very small areas of taller grass and ruderal vegetation along the west hedgerow superficially provide suitable opportunities for individual reptiles should they be present and accordingly, it is recommended that any works affecting these areas are undertaken following initial management of vegetation (e.g. strimming or cutting in line with the existing site management) in order to render the habitats unsuitable for wandering reptiles and encourage any individual that may be present to disperse to retained/offsite habitats away from worked areas, thereby safeguarding them and avoiding any potential offence.

4.24. Subject to the implementation of this very minor consideration, it is extremely unlikely that the proposed development would result in any significant adverse effects on reptiles, such that no further consideration would appear to be required in regard to this group.

4.25. **Birds.**

The site contains trees, hedges and buildings that would provide particular opportunities to support nesting birds. Evidence of nesting birds was found in the hedgerows, buildings and trees including wren (*Troglodytes troglodytes*), blackbird (*Turdus merula*), little owl (*Athene Noctua*) and pigeon. No evidence of barn owls (*Tyto alba*) was found inside the building. Nonetheless, the vegetation present (in particular the boundary hedgerows and trees) provide opportunities for use by common nesting birds.

4.26. Where possible under any proposals for the site, it is recommended that the existing tree and boundary vegetation/hedgerows be retained and protected such that these continue to provide potential for use by birds.

4.27. In any event, in order to safeguard any individual birds during the proposed works and ensure compliance with the legislation in this regard, it is recommended that any demolition works or clearance of suitable nesting vegetation (in particular removal of the encroaching vegetation around the buildings) be undertaken outside of the bird nesting season (i.e. outside of March to August inclusive). Should this not be possible, areas due to be worked on should first be checked by a suitably qualified ecologist in order to confirm the absence of any active nests immediately-prior to removal. Any active nests identified would need to be retained and protected until the end of the nesting season or until the birds have fledged. Subject to such measures, the proposals are unlikely to result in any significant effects on bird species, whilst the opportunity exists for enhancements in relation to this group through the provision of new bird boxes and boundary vegetation.

4.28. **Other Species.**

No evidence for the presence of any other protected, rare or notable faunal species was previously recorded at the site, whilst the nature of the habitats is such that they are unlikely to provide suitable opportunities for any such species. Hedgehogs are likely to be present within the surrounding area and so any arisings from clearance must be burnt the same day, chipped or removed from the site to prevent hedgehogs using them as refuge/hibernacula.

4.29. Overall, on the basis of the survey work undertaken, subject to the minor considerations, measures and safeguards set out above, the proposed development is unlikely to result in any significant harm to any protected, rare or notable species such that faunal considerations do not appear likely to represent a constraint on the proposed development, nor require further specific survey or consideration.

#### 4.30 **Habitats**

No priority habitats are considered likely to be impacted due to the absence of such habitats within the application area, with the exception of the west roadside boundary hedge. The hedgerow on the western boundary was considered to qualify as Section 41 hedgerow habitat. As it was understood that this feature will be retained within the proposed development, there would be no loss of this Section 41 habitat from the site. Further, with enhancement of the site through creation of additional native hedgerow habitat, there could be an increase in this habitat on the site. Due to the presence of breeding great crested newts in the pond on site, the pond was considered to qualify as Section 41 pond habitat. As it was understood that this feature will be retained within the proposed development, there would be no loss of this Section 41 habitat from the site.

4.31 Although the site falls within the Impact Risk Zone of the closest SSSI, there was no requirement to consult Natural England on the type of development planned for the site. It was considered the proposed development site did not support any habitats similar to this SSSI and would be unlikely to support any species of interest that occur within the designated wildlife site. Given the small scale of the proposed development (two dwellings) and the significant distance to any Natura 2000 site (almost 20km), the likelihood of new residents visiting that site on any regular basis was considered to be negligible. Therefore, the risk of impact to any statutory wildlife sites from the proposed development was considered to be negligible.

<b>Ecological Feature</b>	<b>Scale of Value</b>	<b>Unmitigated Impact</b>	<b>Confidence Level</b>	<b>Residual or Long-Term Impact</b>
<b>Sites of International Importance</b>	International	Neutral	Likely	Neutral
<b>Sites of National Importance</b>	National	Neutral	Likely	Neutral
<b>Sites of Local Importance</b>	District	Neutral	Likely	Neutral
<b>Habitats</b>	Parish	Minor Adverse Neutral	Likely	Minor Positive
<b>Green Infrastructure</b>	Parish	Neutral	Likely	Minor Positive
<b>Reptiles</b>	Parish	Minor Adverse- Neutral	Likely	Neutral
<b>Great Crested Newts</b>	Site Only	Minor Adverse	Likely	Minor Adverse-Neutral
<b>Rare/Scarce Plant Species</b>	Low	Neutral	Certain	Neutral
<b>Veteran Trees</b>	Negligible	Negligible	Certain	-
<b>Invertebrates</b>	Parish/District	Minor Adverse- Neutral	Likely	Neutral
<b>Amphibians excluding GCN)</b>	Negligible	Negligible	Certain	Neutral
<b>Breeding Birds</b>	Parish	Minor Adverse	Likely	Neutral
<b>Wintering Birds</b>	Negligible	Negligible	Certain	-
<b>Aquatic Mammals</b>	Negligible	Negligible	Certain	-
<b>Terrestrial Mammals</b>	Parish	Minor Adverse - Neutral	Likely	Neutral
<b>Roosting Bats</b>	Parish	Negligible	Likely	Neutral/Minor Positive
<b>Foraging/Commuting Bats</b>	Parish	Minor Adverse- Neutral	Certain	Neutral

Table 3 – Summary of ecological features, unmitigated impact and residual impact with mitigation

## 5. Mitigation and Enhancements

The development proposals for this site have been considered in terms of the mitigation hierarchy (BSI 2013)<sup>7</sup>. This consists of a 4-point framework of reference as reproduced below:

Avoidance, mitigation, compensation, and enhancement measures can be secured through planning conditions or obligations.

1. Avoidance should be the primary objective of any proposal.

If protected species are discovered on site either before or during the proposed works, all works should stop a suitably qualified ecologist should be contacted for advice on mitigation before continuing. Requirements below outline how impacts to reptiles, great crested newt, birds and small mammals such as hedgehogs can be avoided.

2. Mitigation measures aim to reduce or remove impacts.

Mitigation for this site should take the form of informed landscape planting and retention of boundary habitats to maintain a corridor for wildlife around and through the site.

3. Compensation is considered to be the last step on the hierarchy

Compensation 'should only be used in exceptional circumstances and as a last resort after all options for avoidance and mitigation have been fully considered' (BSI 2013). No compensation measures are considered necessary for these proposals.

4. Enhancement measures

These aim to provide opportunities for ecological gain as part of a development proposal in line with the NPPF<sup>8</sup>. Suggestions for enhancement are provided below in Section 6.

---

<sup>7</sup> BSI (2013). The British Standard BS 42020:2013 Biodiversity a Code of practice for planning and development

<sup>8</sup> National Planning Policy Framework (NPPF) July 2021

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

5.1. In line with the above considerations, the following mitigation measures are recommended in relation under the proposed development, subject to which the proposals are unlikely to result in any significant adverse effects on ecological receptors at the site:

- Retention and protection of existing trees and boundary hedgerows (subject to any relevant arboricultural considerations/BS5837);
- Infill hedgerow/native planting to provide enhanced corridors for wildlife movement;
- Sensitive design of any lighting scheme to ensure boundary corridors remain dark for use by nocturnal/crepuscular species such as bats along the hedgerow and tree line;
- Precautionary approach to vegetation clearance in relation to nesting birds. Grass to be cut initially to no less than 100mm and left for 48 hours before cutting short or strip to bare soil.

5.2. In addition, the proposals present the opportunity to incorporate a number of ecological enhancements (in particular associated with the retained boundary features and any open space areas), including the following:

- New native planting, including hedgerows, trees, scrub and wildflower grassland;
- Incorporation of new bat roosting and bird nesting opportunities with bird and bat boxes.

5.3. Birds – To increase nesting opportunities generally, nest boxes should be installed. Installation of the nest boxes will be supervised by 'Eco- Check Ltd' or an experienced ecologist to ensure the correct positioning for each species. The types of nest boxes will cover a range of species and could include;

- 2 x Eco-Roost or Schwegler (32mm)
- 2 x Eco-Roost or Schwegler (28mm)
- 1 x Eco-Roost or Schwegler swift box
- 1 x Eco-Roost or Schwegler deep nest box for robins
- 1 x Eco-Roost or Schwegler triple chamber house sparrow box

5.4. Bats- As a biodiversity enhancement, areas for bats to roost in should be created and could include;

- 1 x Eco roost Kent bat box
- 1x Eco roost summer and winter roost box
- 1 x Eco roost internal bat hibernation box
- 2 x bat bricks

These boxes are to be installed on the buildings or boundary trees, ideally one on each elevation to provide the best variation in temperature, shelter and flight lines. If only one elevation is used this should be south-east facing as this provides the most shelter and warmth.

5.5. To provide a shelter for small mammals and herpetofauna an artificial refugia/hibernaculum to be created within a quiet corner of the site adjacent to the pond. This will also serve as a receptor site in the event any wildlife needs relocating away from the working areas.



- 5.6 It is recommended that areas of species rich amenity wildflower grassland are created within the site such that, in combination with new native landscape planting, opportunities for biodiversity will be maximised under the proposals. Consideration should be given to the laying of wildflower turfs, comprising locally appropriate native species, to establish wildflower grassland. This would ensure rapid establishment of these habitats and reduce the timeframe for delivering the range of ecological benefits that are proposed. Areas of bare soil and disturbed ground to be seeded with a species rich wildflower grass seed mix such as Emorsgate EM-4 or WFG20 species rich amenity grass in the garden. This would make a positive contribution towards a biodiversity net gain as the existing grassland is predominantly rye grass.
- 5.7 There are also a number of records of Hedgehog, a UK Priority Species, in the surrounding area. To maintain connectivity for this species, all boundaries (including garden boundaries) should be made permeable to hedgehogs. This can be achieved by using hedgerow boundaries or gaps of 13x13cm, at ground level, in fences and walls.
- 5.8 Bee Bricks - It is recommended that a number of bee bricks be incorporated within the proposed development thereby increasing nesting opportunities for declining populations of non-swarming solitary bee populations. Ideally, bee bricks should be located within suitable south-facing walls (where architectural design allows), located at least 1m off the ground. The bricks should be unobstructed by vegetation.
- 5.9 **Habitat Creation/Enhancement**

With the exception of the access, parking and building, the remainder of the site will form vegetated garden and modified grassland with introduction of additional trees, hedges and ornamental plants and shrubs. The proposal has scope for a new native mixed species hedge along the east boundary with the field which would serve to provide a biodiversity net gain. Details of suitable hedge planting is detailed below.

*Hedge Planting Schedule:*

Hedging will be planted between October and April when the ground is moist and free from frost, set out in a staggered pattern in two rows 40cms apart. The native species will consist of 50% hawthorn (*Crataegus monogyna*) with a mixture of at least five of the following species: field maple (*Acer campestre*), hazel (*Corylus avellana*), hornbeam (*Carpinus betulus*), holly (*Ilex aquafolium*), dogwood (*Cornus sanguinea*) and guelder rose (*Viburnum opulus*).

The hedgerow shrubs will be planted as a mixture, but with the supplementary species (guelder rose, spindle and dog wood) distributed in groups of 3 or 4 at a minimum of 2m spacing ensuring that the plants are incorporated into both rows and not in a single line within one row. They will be planted as bare root plants 40-60cm high, and individually protected by 0.6 m biodegradable Tubex wide mouthed shrub guards supported by a 0.75 m pressure treated softwood stake, or by 0.6m biodegradable spiral guards supported by a cane. The hedges will be maintained until fully established with losses replaced annually, and then managed by biennial flailing to achieve the characteristic box or 'A'-shape profile. The hedgerow mix is beneficial to wildlife and planting to the following specification:

PLANTING SCHEDULE				
HEDGEROW MIX (as necessary)				
SPECIES	DENSITY	AGE	ROOT	HEIGHT
50% Hawthorn ( <i>Crataegus monogyna</i> )	0.45m	1+1 or 1/1	BR	40-60cm
10% Field maple ( <i>Acer campestre</i> )	0.45m	1+1 or 1/1	BR	40-60cm
10% Guelder Rose ( <i>Viburnum opulus</i> )	0.45m	1+1 or 1/1	BR	40-60cm
10% Hazel ( <i>Corylus avellana</i> )	0.45m	1+1 or 1/1	BR	20-30cm
5% Dog Wood ( <i>Cornus sanguinea</i> )	0.45m	1+1 or 1/1	BR	20-30cm
5% Holly ( <i>Ilex aquifolium</i> )	0.45m	1+1 or 1/1	CG-3l	40-60cm
5% Dog Rose ( <i>Rosa canina</i> )	0.45m	1+1 or 1/1	BR	40-60cm
5% Hornbeam ( <i>Carpinus betulus</i> )	0.45m	1+1 or 1/1	BR	40-60cm

Table 4. Hedgerow Planting Mix

## 6. Summary and Conclusions

- 6.1. This report sets out the results of the preliminary ecological survey work and consideration undertaken in respect of the site during December 2023 and previous surveys in 2019 and 2020, in order to inform the proposed development of the site for residential use.
- 6.2. The survey work undertaken at the site has confirmed the current position in regard to habitats and potential for and/or presence of protected species. Overall, the habitats present within the internal areas appear to support species-poor improved grassland habitats, buildings and common perennial and ephemeral weed species which are unlikely to support any particularly raised ecological value nor support significant populations, or use by protected, rare or notable faunal species. Nonetheless, it is recommended that, where possible initial demolition and vegetation clearance works and should be timed to avoid the bird nesting season to minimise any risk of harm to any nesting bird species that may be present (and thereby avoid any offence).
- 6.3. Based on the survey work undertaken and subject to the implementation of the measures and recommendations set out, there is no evidence to suggest there are any over-riding ecological constraints to the current proposals for the site other than for great crested newt and nesting birds.
- 6.4. It is advised that if a period of more than 2 years passes between the date of this survey and the commencement of demolition, clearance and construction works then a further site survey should be made in addition to the pre-works checks outlined above.

## 7. Ecological Conditions and Recommendations for Further Surveys

We suggest that any habitat loss associated with the proposal can be adequately mitigated through landscaping, planting and other biodiversity enhancement measures. The following advisory recommendations include:

- Destruction of in-use nests or harm to adult birds caused by building works or cutting trees/hedgerows on site during the main breeding bird season (1st March to 31st August). If works commence during this period, a nesting bird survey must first be undertaken by an appointed ecological clerk of works (ECoW).
- **PRIOR TO COMMENCEMENT: SUBMISSION OF A COPY OF A EUROPEAN PROTECTED SPECIES MITIGATION LICENCE FOR GREAT CRESTED NEWT**

*“The following works shall not in in any circumstances commence unless the local planning authority has been provided with either:*

*a) a licence issued by Natural England pursuant to Regulation 55 of The Conservation of Habitats and Species Regulations 2017 (as amended) authorizing the specified activity/development to go ahead; or*

*b) a method statement supplied by an individual registered to use a Low Impact Class Licence for Great Crested Newt; or*

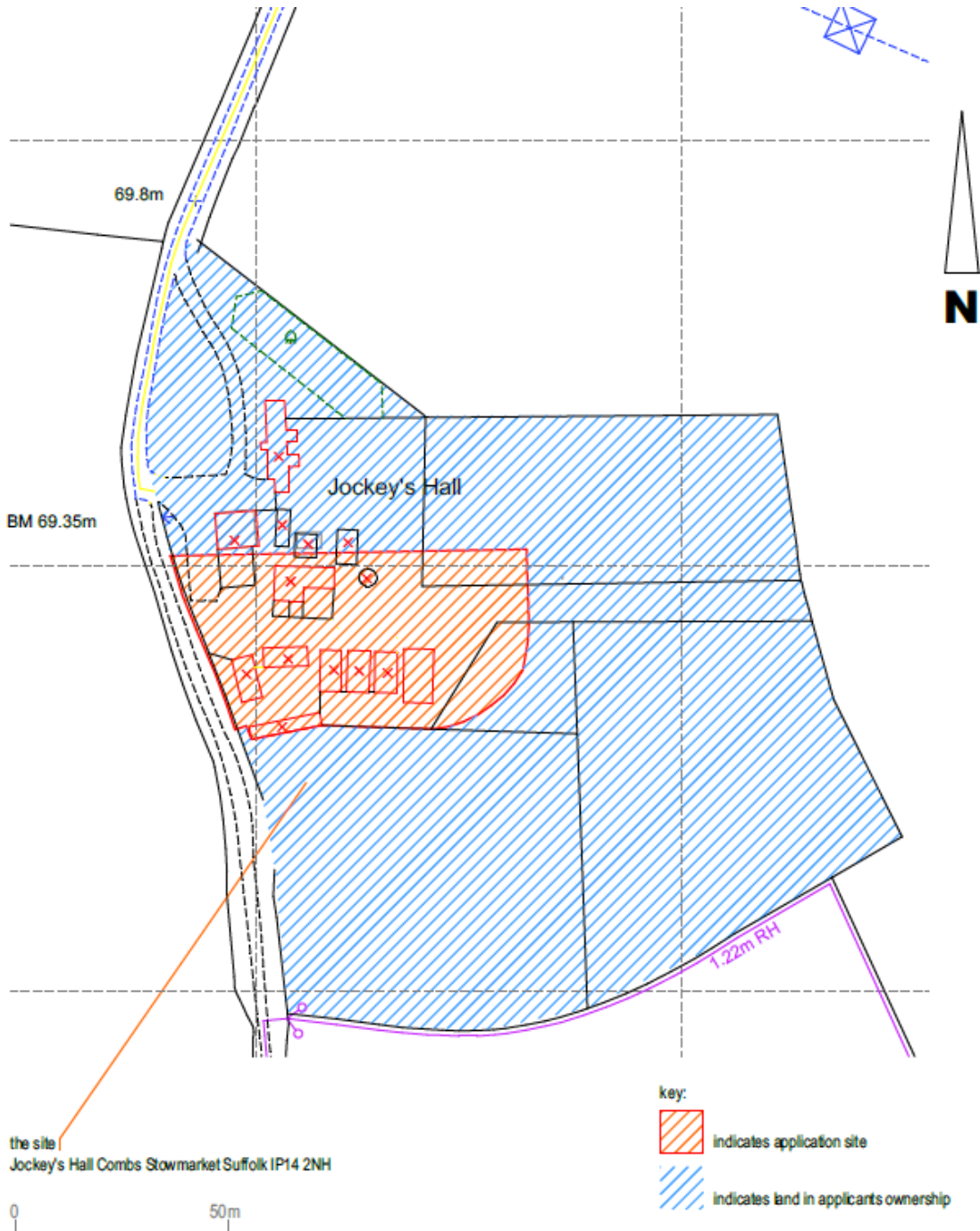
*c) a statement in writing from the relevant licensing body to the effect that it does not consider that the specified activity/development will require a licence.”*

- Site Clearance- Due to the presence of suitable habitat for badgers it is recommended that a further detailed badger survey of the site and any land areas within 30m are re-surveyed prior to works commencing.
- A wildlife sensitive lighting design scheme & biodiversity enhancement strategy document has been prepared by Eco-Check and is submitted within this application to ensure a biodiversity net gain can be achieved.

## 8. References

- British Standards Institution (2013). BS42020 – Biodiversity – Code of practice for planning and development.
- CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2015) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2<sup>nd</sup> Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
- Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10, Froglife, Halesworth
- Gent T & Gibson S (2003)- *Herpetofauna Workers Manual*. JNCC, Peterborough.
- Hill, D, Fasha M, Tucker G, Shewry M & Shaw P (2005) *Handbook of Biodiversity Methods: Survey Evaluation and Monitoring*, Cambridge University Press, Cambridge
- Collins, J (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3<sup>rd</sup> edition*, Bat Conservation Trust.
- DEFRA (2005) *Fifth Quinquennial Review of Schedules 5 and 8 of The Wildlife and Countryside Act 1981*. Department for Environmental, Food and Rural Affairs, London.
- JNCC, (1993). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit* (2010 reprint). Joint Nature Conservation Committee, Peterborough.
- JNCC, (2006). Handbook for using the National Vegetation Classification*. J.S. Rodwell, 2006 Joint Nature Conservation Committee.
- Joint Nature Conservation Committee, 2003. *Herpetofauna Worker's Manual*. JNCC Publications, Peterborough.
- Froglife (2001), *Great Crested Newt Conservation Handbook*, Froglife, Halesworth, Suffolk
- Mitchell-Jones, & McLeish, A.P. Ed. (2004), 3<sup>rd</sup> Edition *Bat Workers' Manual*

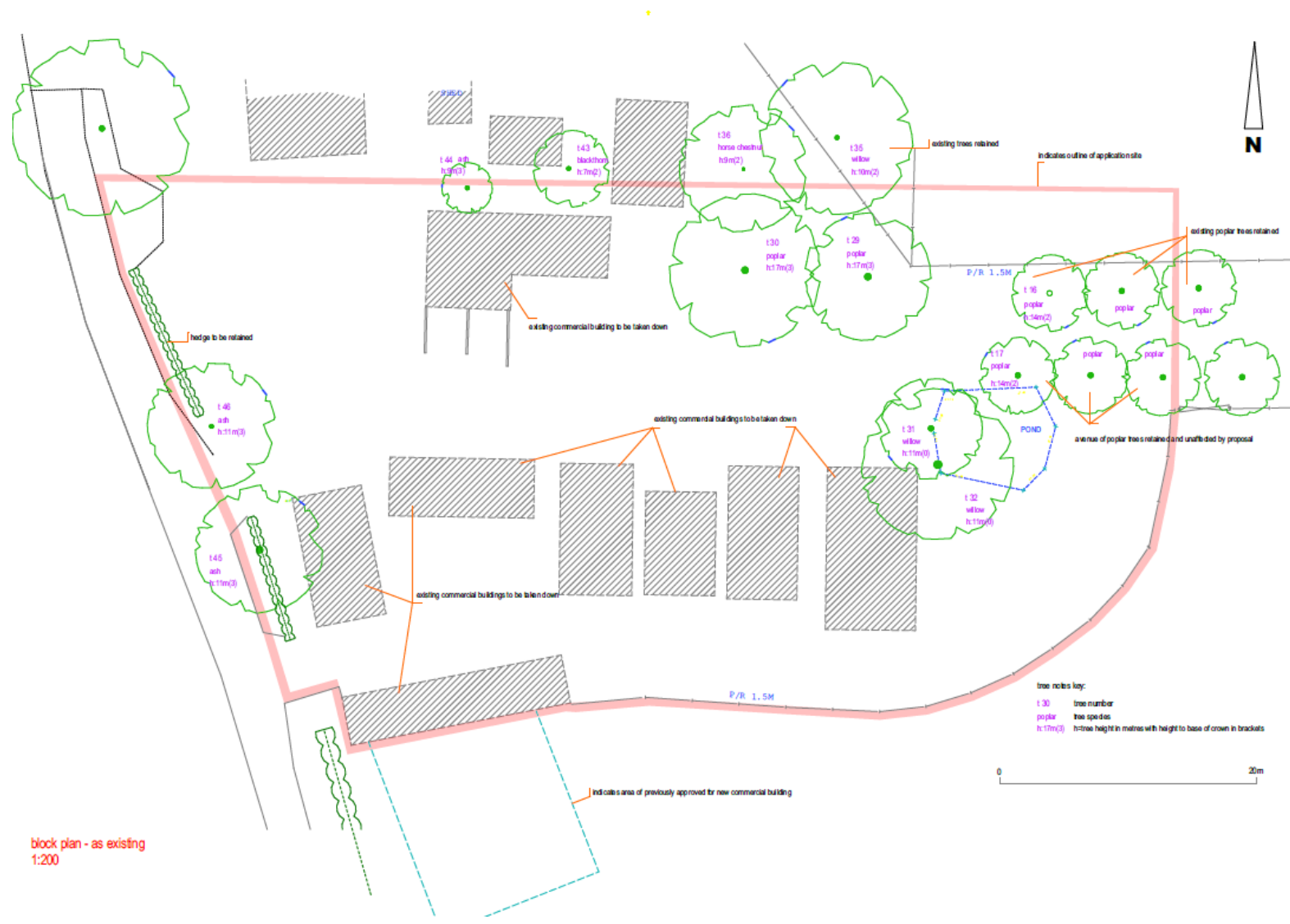
# Plan 057/ECO1



location plan  
1:1250

use only for the purposes of establishing the location of the site

## Site Location and Application Area



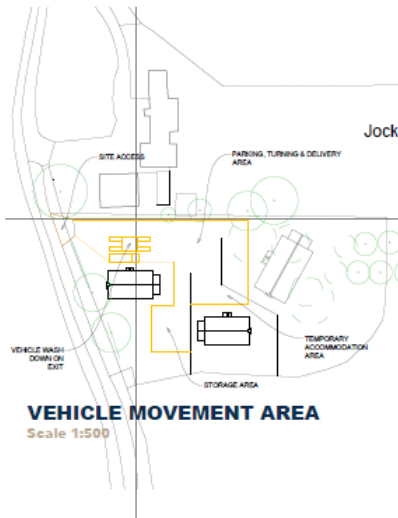
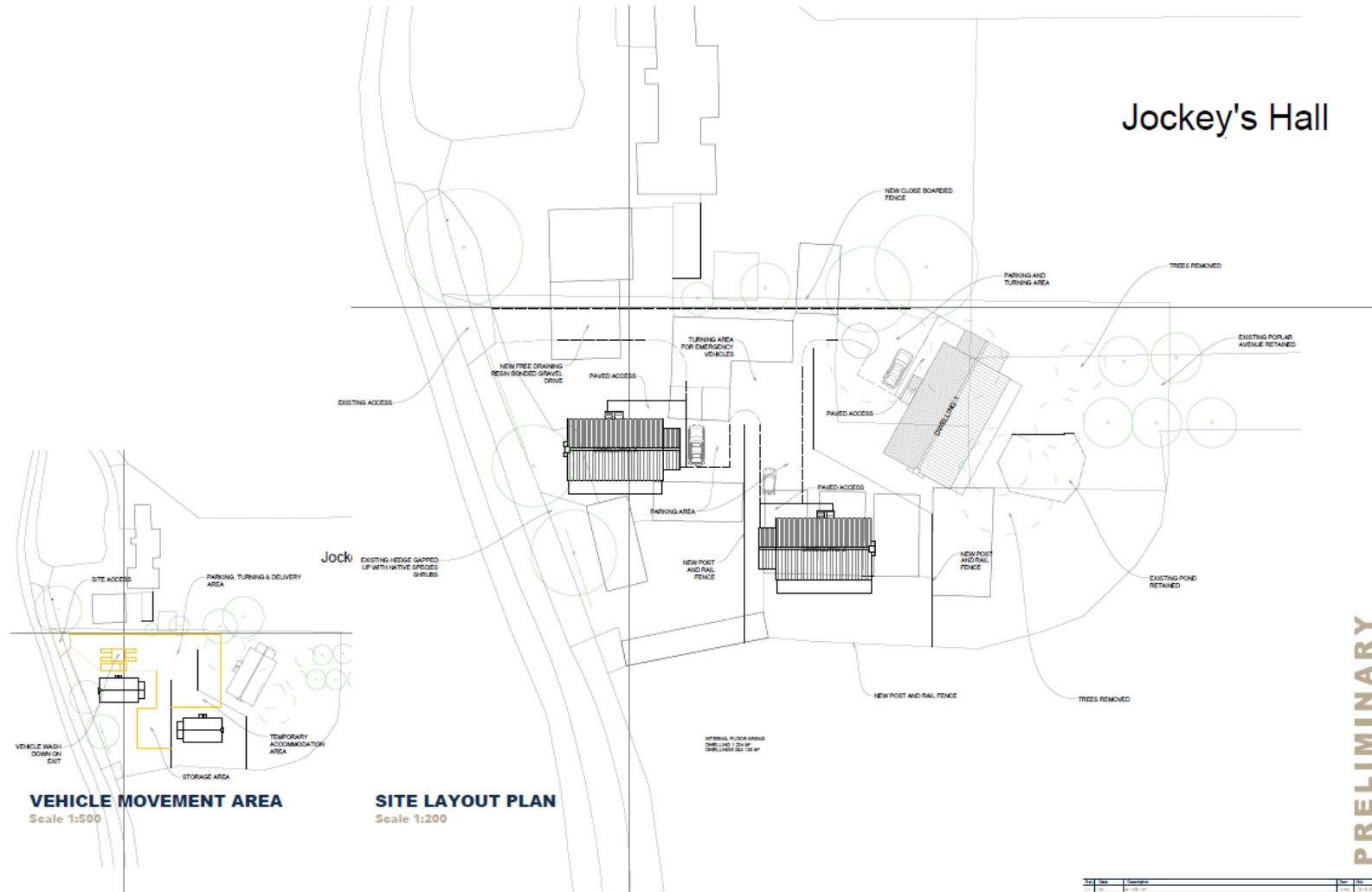
block plan - as existing  
1:200

Block Plan-Existing

tree notes key:  
 T 30 tree number  
 poplar tree species  
 h:17m(3) h:tree height in metres with height to base of crown in brackets

0 20m

# Jockey's Hall



**SITE LAYOUT PLAN**  
Scale 1:200

- NOTES:**
1. Use of site boundaries and all dimensions to be checked on site and any discrepancies reported to the client immediately.
  2. All dimensions are given in meters. All dimensions are rounded up to the nearest millimetre. All dimensions are given in meters. All dimensions are rounded up to the nearest millimetre.
  3. The drawings are confidential and cannot be used for any other purpose without the written consent of ACORUS.
  4. All dimensions are given in meters. All dimensions are rounded up to the nearest millimetre.



No.	Date	Description	By	Check
1	02/21	ISSUED		

MR & MRS JACOBY  
PROPOSED HEALTH CARE DEVELOPMENT  
JOCKEY'S HALL COMES B114 2NH  
PROPOSED SITE LAYOUT

1:50	1:200	1:1000	1:10000
2112	101	4444	



**PRELIMINARY**

Block Plan-Proposed Site Layout

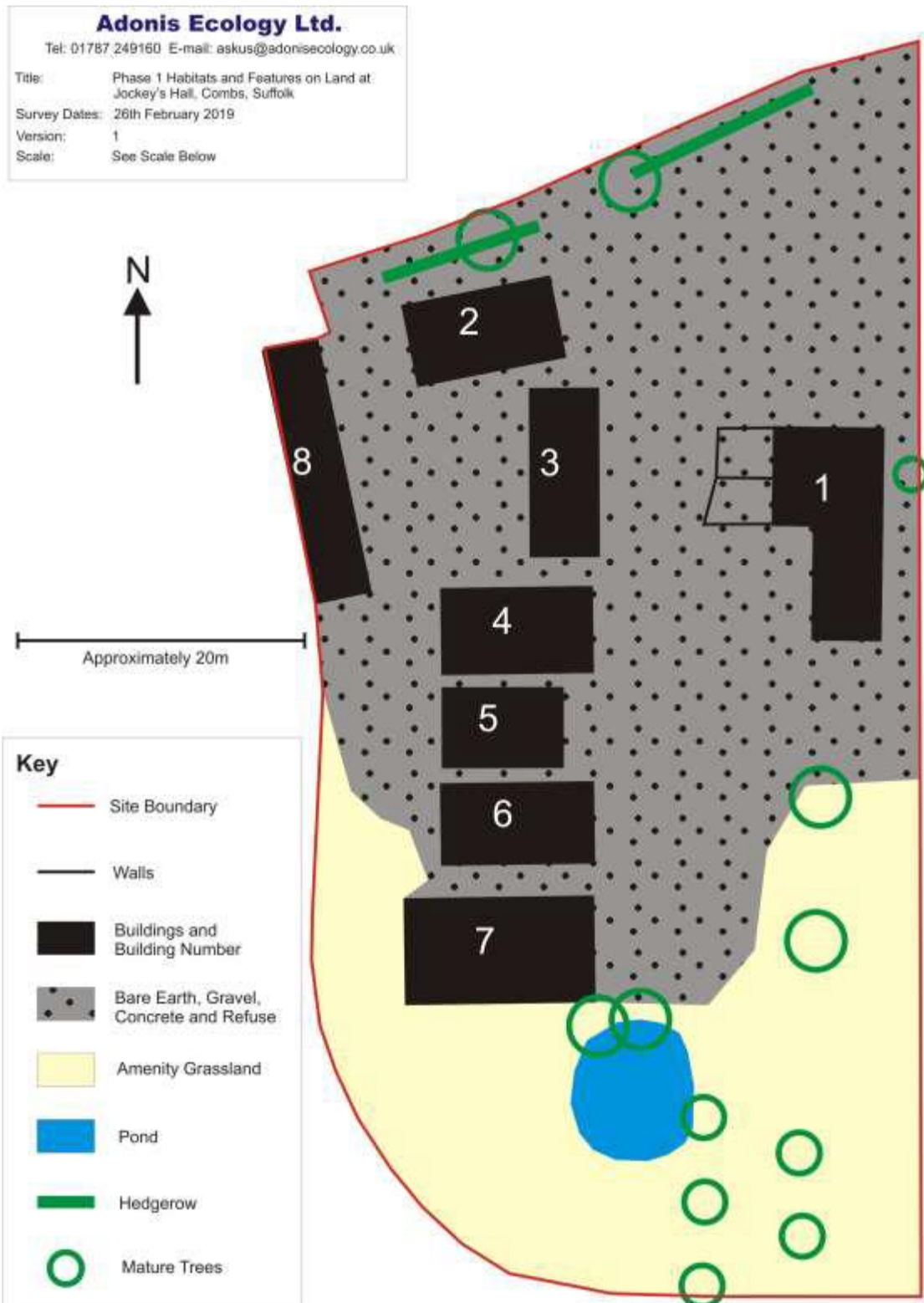
# Plan 057/ECO2



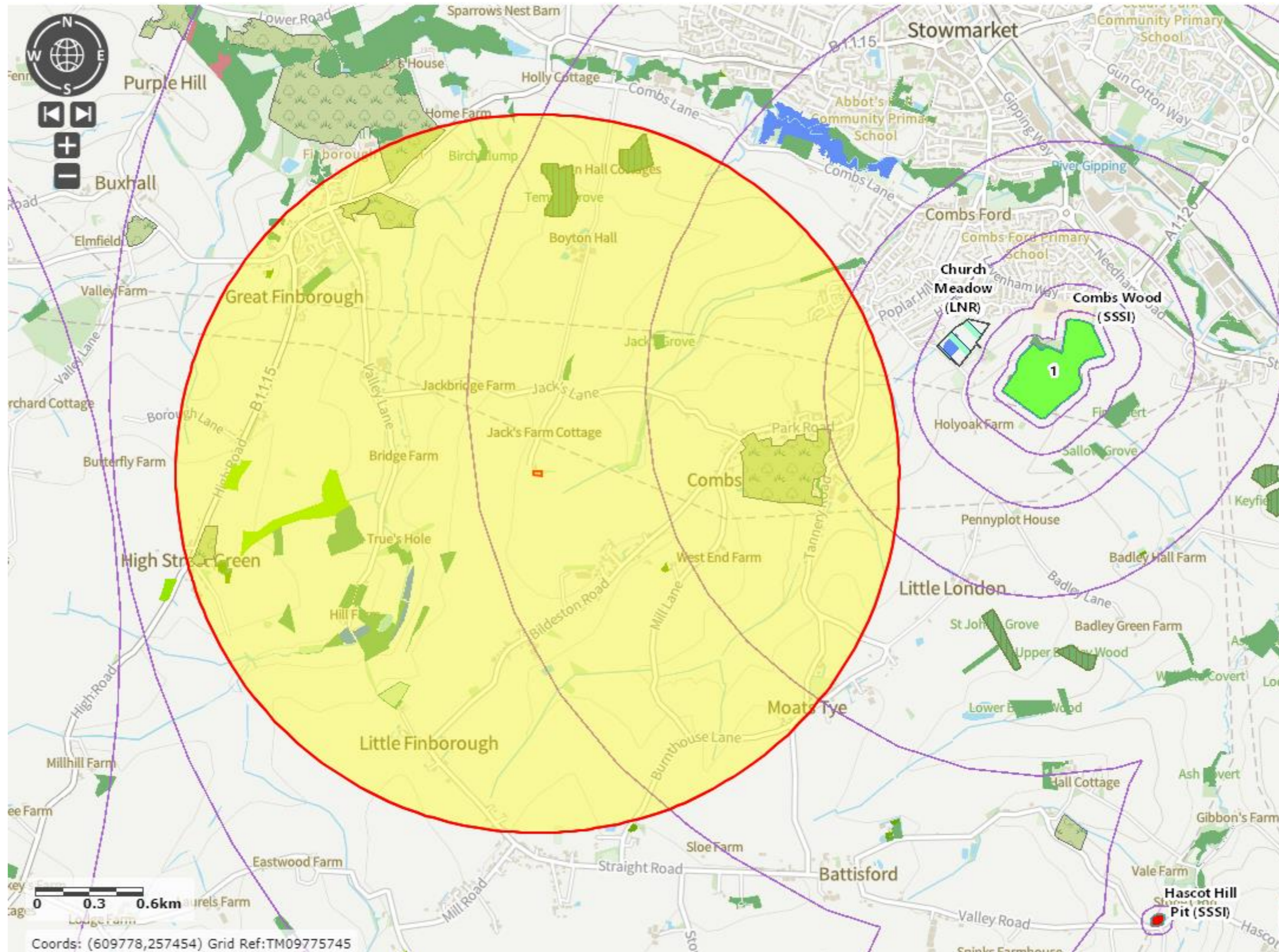


# Appendix 1

## Habitat Map




## Designations



## Examples of Bat Boxes

It is important that the bat boxes are positioned sufficiently high above the ground to dissuade ground predators, a minimum of 4m up; and at a distance from sources of artificial lighting. The boxes should be located on the west, south and east facing sides of the trees / buildings giving bats a range of microclimates through the year and direct access to foraging and commuting habitat along site boundaries.

Schwegler 1FF Bat Box		<p>The 1FF bat box can be sited in trees or on buildings. Size: 43cm high x 27cm wide x 14cm deep.</p>
Schwegler 2F Bat Box		<p>The 2F bat box can be sited in trees or on buildings. Size: 33cm high x 16cm diameter.</p>
1FQ Schwegler Bat Roost (For External Walls)		<p>Suitable for a variety of crevice-dwelling bats, for larger roosts or maternity groups. Internal layout provides 3 different areas where bats can roost, offering different levels of light and temperature. Gaps ranging from 1.5cm to 3.5cm wide offering various places for bats to roost. Suitable to erect on most types of external brick, timber or concrete structures. Size: 60cm high x 35cm wide x 9cm deep.</p>
Improved Roost-Maternity Bat Box		<p>A large 3 crevice bat box. 3 separate crevices each with different temperature characteristics. Suitable for larger roosts or maternity groups of small crevice-dwelling species such as pipistrelle bats. Suitable to erect on buildings or trees. Size: 49cm high x 26cm wide x 13cm deep.</p>
Timber Double Chamber Bat Box		<p>This bat box is suitable for siting on trees in gardens or woodland and requires no annual maintenance. Should not be painted or treated with any type of preservative, as these can harm the bats. Size: 31.3cm high x 16cm wide x 16cm deep.</p>
The Kent Bat Box		<p>Made from untreated rough-sawn timbers ca.20mm thick. Crevices can be between 15mm and 25mm wide. Suitable to fit to walls, other flat surfaces or trees. Approximate dimensions (boxes vary in size): 24cm wide x 47.5cm high x 17cm deep.</p>

## Bird Nesting Habitat

### CedarPlus Nest Box

Available with 2 entrance hole sizes:

**32mm hole** – suitable for great, marsh and coal tits, redstart, nuthatch, pied flycatcher, house sparrow and tree sparrows.

**26mm hole** – to allow access only to blue, marsh and coal tits (and possibly wrens).

Height: 370mm; Width: 156mm; Depth: 175mm



### Schwegler 1B Bird Box

The 1B nest box will attract a wide range of species and is available with different entrance hole sizes to prevent birds from competing with each other for the boxes.

It is available in 4 colours: brown, green, white and red. The nest box can be attached to the tree or wall using an aluminium nail or by hanging over a branch and is made from Woodcrete to ensure that it is long-lasting.

Entrance hole sizes:

**32mm hole** – will attract great, blue, marsh, coal and crested tit, redstart, nuthatch, collared and pied flycatcher, wryneck, tree and house sparrow.

**26mm hole** – suits blue, marsh, coal and crested tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole.

**Oval hole (29x55mm)** – suits redstarts because more light enters the brood chamber. It is also suitable for all other species which nest in the 32mm boxes.

Height: 23cm; Diameter: 16cm



### No. 10 Schwegler Swallow Nest

The Swallow Nest No. 10 consists of a woodcrete nesting bowl which is attached to a wooden panel of formaldehyde-free chipboard. The nest should be placed inside outbuildings such as sheds, barns or stables leaving a distance of at least 35mm between the top of the nest and wall top. Ensure there is always access for the birds through an open window or skylight, or other high level access (minimum of 50mm (H) x 70mm (W) gap). Multiple nests should not be placed at less than 1m intervals.

To avoid problems with droppings accumulating, a droppings board could be placed beneath each nest box to collect the droppings.



**Eco-Roost Bat Brick**  
<https://www.eco-roost.co.uk/shop?Collection=Bat+Bricks>



**Eco-Roost Double Chamber Bat Box**  
<https://www.eco-roost.co.uk/product-page/kent-hibernation-rect>



**Eco-Roost Double Kent Box**  
<https://www.eco-roost.co.uk/product-page/kent-style-rect-large>



**Eco-Roost 28mm, 32mm and Open fronted bird boxes**  
<https://www.eco-roost.co.uk/product-page/tit-sparrow-front-fall>





## Artificial lighting and wildlife

### Interim Guidance: Recommendations to help minimise the impact artificial lighting

Wherever human habitation spreads, so does artificial lighting. This increase in lighting has been shown to have an adverse effect on our native wildlife, particularly on those species that have evolved to be active during the hours of darkness. Consequently, development needs to carefully consider what lighting is necessary and reduce any unnecessary lighting, both temporally and spatially. When the impacts on different species groups are reviewed, the solutions proposed have commonalities that form the basis of good practice. These are outlined in the following document.

#### Overview of impacts

##### Invertebrates

Artificial light significantly disrupts natural patterns of light and dark, disturbing invertebrate feeding, breeding and movement, which may reduce and fragment populations. Some invertebrates, such as moths, are attracted to artificial lights at night. It is estimated that as many as a third of flying insects that are attracted to external lights will die as a result of their encounter.<sup>1</sup> Insects can become disoriented and exhausted making them more susceptible to predation. In addition, the polarisation of light by shiny surfaces attracts insects, particularly egg laying females away from water. Reflected light has the potential to attract pollinators and impact on their populations, predators and pollination rates. Many invertebrates natural rhythms depend upon day-night and seasonal and lunar changes which can be adversely affected by artificial lighting levels.

It is not always easy to disentangle the effects of lighting on moths from other impacts of urbanisation. However, it is known that UV and green and blue light, which have short wavelengths and high frequencies, are seen by most insects and are highly attractive to them. Where a light source has a UV component, male moths in particular will be drawn to it. Most light-induced changes in physiology and behaviour are likely to be detrimental. They discern it to be 'light', so they do not fly to feed or mate.<sup>2</sup>

##### Birds

There are several aspects of changes to bird behaviour to take into account. The phenomenon of robins and other birds singing by the light of a street light or other external lighting installations is well known, and research has shown that singing did not have a significant effect on the bird's body mass regulation. However, it was felt that the continual lack of sleep was likely to be detrimental to the birds' survival and could disrupt the long-term circadian rhythm that dictates the onset of the breeding season<sup>3</sup>. Many species of bird migrate at night and there are well-documented cases of the mass mortality of nocturnal migrating birds as they strike tall lit buildings. Other UK bird species that are particularly sensitive to artificial lighting are long-eared owls, black-tailed godwit and stone curlew.<sup>4</sup>

<sup>1</sup> Bruce-White C and Shardlow M (2011) A Review of the Impact of Artificial Light on Invertebrates - See more at: <http://www.buglife.org.uk/advice-and-publications/publications/campaigns-and-reports/review-impact-artificial-light#sthash.s7GPA1vL.dpuf>

<sup>2</sup> As above

<sup>3</sup> Pollard A. (2009) Visual constraints on bird behaviour. University of Cardiff

<sup>4</sup> Rodriguez A., Garcia A.M., Cervera F. and Palacios V. (2006) Landscape and anti-predation determinants of nest site selection, nest distribution and productivity in Mediterranean population of Long-eared Owls, *Asio otus*. *Ibis*, 148(1), pp. 133-145

## Mammals

A number of our British mammals are nocturnal and have adapted their lifestyle so that they are active in the dark in order to avoid predators. Artificial illumination of the areas in which these mammals are active and foraging is likely to be disturbing to their normal activities and their foraging areas could be lost in this way. It is thought that the most pronounced effect is likely to be on small mammals due to their need to avoid predators. However, this in itself has a knock-on effect on those predators.

The detrimental effect of artificial lighting is most clearly seen in bats. Our resident bat species have all suffered dramatic reductions in their numbers in the past century. Light falling on a bat roost exit point, regardless of species, will at least delay bats from emerging, which shortens the amount of time available to them for foraging. As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed. At worst, the bats may feel compelled to abandon the roost. Bats are faithful to their roosts over many years and disturbance of this sort can have a significant effect on the future of the colony. It is likely to be deemed a breach of the national and European legislation that protects British bats and their roosts.

In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats and their use of commuting routes. There are two aspects to this: one is the attraction that short wave length light (UV and blue light) has to a range of insects; the other is the presence of lit conditions.

As mentioned, many night-flying species of insect are attracted to lamps that emit short wavelength component. Studies have shown that, although noctules, serotines, pipistrelle and Leisler's bats, take advantage of the concentration of insects around white street lights as a source of prey, this behaviour is not true for all bat species. The slower flying, broad-winged species, such as long-eared bats, barbastelle, greater and lesser horseshoe bats and the *Myotis* species (which include Brandt's, whiskered, Daubenton's, Natterer's and Bechstein's bats) generally avoid external lights.

Lighting can be particularly harmful if it illuminates important foraging habitats such as river corridors, woodland edges and hedgerows used by bats. Studies have shown that continuous lighting along roads creates barriers which some bat species cannot cross<sup>5</sup>. It is also known that insects are attracted to lit areas from further afield. This could result in adjacent habitats supporting reduced numbers of insects, causing a further impact on the ability of light-avoiding bats to feed.

These are just a few examples of the effects of artificial lighting on British wildlife, with migratory fish, amphibians, some flowering plants, a number of bird species, glow worms and a range of other invertebrates all exhibiting changes in their behaviour as a result of this unnatural lighting.

## Recommendations

### Survey and Planning

The potential impacts of obtrusive light on wildlife should be a routine consideration in the Environmental Impact Assessment (EIA) process<sup>6</sup>. Risks should be eliminated or minimised wherever possible. Some locations are particularly sensitive to obtrusive light and lighting schemes in these areas should be carefully planned.

In August 2013, Planning Minister Nick Boles launched the new National Online Planning Guidance Resource aimed at providing clearer protection for our natural and historic environment. The guidance looks at when lighting pollution concerns should be considered and is covered within one of the on line planning practice

---

<sup>5</sup> Stone E. L., Jones G and Harriss (2009) Street lighting disturbs commuting bats. *Current Biology*, 19, pp 1-5

<sup>6</sup> See also: Institution of Lighting Professionals - Professional Lighting Guide (PLG 04) Guidance on undertaking lighting environmental impact assessments)

guides<sup>7</sup>. The guide provides an overview for planners with links to documents that aim to give planners an overview of the subject through the following discussion points:

1. When is obtrusive light / light pollution relevant to planning?
2. What factors should be considered when assessing whether a development proposal might have implications for obtrusive lighting / light pollution?
3. What factors are relevant when considering where light shines?
4. What factors are relevant when considering how much the light shines?
5. What factors are relevant when considering possible ecological impact?

This can help planners reach the right design through the setting of appropriate conditions relating to performance and mitigation measures at the planning stage.

The Institution of Lighting Professionals (ILP) recommends that Local Planning Authorities specify internationally recognised environmental zones for exterior lighting control within their Development Plans<sup>8</sup>. In instances lacking classification, it may be necessary to request a Baseline Lighting Assessment/Survey conducted by a Lighting Professional in order to inform the classification of areas, particularly for large-scale schemes and major infrastructure projects.

When assessing or commissioning projects that include the installation of lighting schemes, particularly those subject to the EIA process, the following should be considered and relayed to applicants:

- *Ecological consultants should confirm the presence of any sensitive fauna and flora, advising the lighting designers of bat routes and roosts and other areas of importance in order to ensure that reports correspond with each other.*
- *Ecological consultants should consider the need for quantitative lighting measurements. In some instances it may be necessary for further lighting measurements to be taken. For example, outside an important bat roost. These should follow best practice guidance from the ILP and would ideally be conducted by a Lighting Professional.*
- *Where appropriate, professional lighting designers should be consulted to design and model appropriate installations that achieve the task but mitigate the impacts. This should be done at the earliest opportunity. Early decisions can play a key role in mitigating the impact from lighting.*
- *Reports submitted should outline the impacts of lighting in relation to ecology, making clear reference to the ecological findings, highlighting any sensitive areas and detail proposed mitigation. Consideration should also be given to internal lighting where appropriate.*
- *Post-installation checks and sign off upon commissioning should be carried out by the lighting designer to ensure that the lighting installation has been installed in accordance with the design, that predictions were accurate and mitigation methods have been successful.*

## Principles and design considerations

### *Do not*

- *provide excessive lighting. Use only the minimum amount of light needed for the task.*
- *directly illuminate bat roosts or important areas for nesting birds*

### *Avoid*

- *installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.*
- *using reflective surfaces under lights.*

---

<sup>7</sup><http://planningguidance.planningportal.gov.uk/blog/guidance/light-pollution/when-is-light-pollution-relevant-to-planning/>

<sup>8</sup>Institution of Lighting Professionals (2011) Guidance Notes for the Reduction of Obtrusive Light GN01:2011.



## Appendix 2- Photos of buildings and habitats











## Copyright

The copyright of this document remains with Eco-Check Ltd. The contents of this document therefore must not be disseminated, copied or reproduced in whole or in part for any purpose without the written consent of Eco-Check Ltd.

## Legal Guidance

The information set out within this report in no way constitutes a legal opinion on the relevant legislation (refer to the original legislation). The opinion of a legal professional should be sought if further advice is required.

## Liability

This report has been prepared for the exclusive use of the commissioning client and unless otherwise agreed in writing by Eco-Check, no other party may use, or rely on the contents of the report. No liability is accepted by Eco-Check for any use of this report, other than for the purposes for which it was originally prepared and provided. No warranty, express or implied, is made as to the advice in this report. This report contains sensitive information relating to protected species. The information contained herein must not be disseminated without the prior written consent of Eco-Check Ltd.