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Preliminary Ecological Appraisal

Land at Broad Oak, Herne Bay Road, Canterbury

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Report Summary

1. The Ecology Co-op has been commissioned by Fairfax Properties to undertake a Preliminary Ecological Appraisal at a piece of land in Broad Oak, Canterbury. A site walkover survey visit was carried out by Dan Bennett BSc, MCIEEM and Natural England Level 2 Bat Survey Class Licence holder on 28th November 2022, to evaluate the habitat value of the site and its potential to support EU and UK protected/notable species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints and opportunities in relation to a proposal for residential housing development on the site.

2. The site is located in a semi-rural location north of the village of Broad Oak, located to the north-east of Canterbury. The site measures 9.3 ha and consists of four fields of neutral and modified grassland with boundaries between fields and around the site formed of scrub, hedgerows, scattered trees and wire fencing. The surrounding habitats consists of arable farmland to the north and west, open countryside and a small patch of ancient woodland to the east, and residential properties to the south.

3. The site is located within the "Zone of Influence" of six designated sites and increased recreational pressure as a result of the proposed development may negatively impact these areas. A Habitats Regulations Assessment (Stage 1) is likely to be required.

4. Further surveys for the following species are recommended:

- **Presence/absence (eDNA sampling) of ponds located within 250m of the site boundary, between 15th April and 30th June.**
- **Presence/absence survey for common dormouse, using a series of nest-tubes attached to hedgerows and trees to be checked monthly between April and October.**
- **Presence/absence survey for common reptiles, with a minimum of eight site visits in suitable weather conditions between April to October.**
- **Breeding bird survey comprising a minimum of six visits between March and June.**
- **Bat activity surveys involving a combination of walked transects and static detector monitoring over a minimum of three visits between May and September.**

5. Precautionary measures should also be put in place with regards to breeding birds when removing vegetation to ensure there are no breaches of the Wildlife and Countryside Act (1981). An "ecologically sensitive lighting scheme" with regards to bats and dormice should be implemented in accordance with guidance produced by the Bat Conservation Trust.

6. The habitats contained on the existing site have relatively low intrinsic biodiversity value, although the hedgerows may function as important corridors for dispersal. The proposed scheme current layout retains these hedgerows where possible, although short sections are removed to make way for access roads. Standard mitigation measures will bring any direct impacts on protected species to an acceptable level and there is scope for significant biodiversity enhancement to be incorporated into the design to achieve the 10% minimum net gain in biodiversity expectation in future.

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1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a Preliminary Ecological Appraisal (PEA) of land at Broad Oak, Canterbury by Fairfax Properties. This report presents the findings of a walkover survey undertaken by Dan Bennett BSc, MCIEEM and Natural England Level 2 Bat Survey Class Licence holder on 28th November 2022. It provides details on the potential for any protected/notable species and/or habitats to be present at the site and a simple assessment of the potential ecological constraints and opportunities in relation to the conversion of the site into residential housing. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EcIA) of the proposal are provided where necessary, and possible measures to avoid, mitigate and/or compensate for significant adverse effects are summarised. The potential to incorporate ecological enhancement measures as part of the scheme is discussed, in addition to any requirement to achieve biodiversity net gain.

This PEA report is designed to inform the client and their team (as appropriate) about the initial findings of the site walkover and desk study research in relation to the site proposals, highlighting the key ecological constraints and opportunities, and any further survey requirements. It is not intended for submission in support of a planning application but can be used to inform a future Ecological Impact Assessment (EcIA) and allocation of the site in the local plan.

1.2 Background

The site at Broad Oak is a collection of fields measuring 9.3 ha located on the northern side of the village of Broad Oak, north-east of Canterbury (see Figures 1 and 2). These fields are separated by boundaries comprising shrubs, scattered trees and hedgerows, and the boundaries at the edges of the site are formed of scrub, hedgerows, and wire fencing. The site is located in a semi-rural location, with arable farmland extending to the north and west, open countryside and woodland to the east, and is backed by a row of residential properties to the south. Figure 1 shows the boundary of the site.

The site is located at Broad Oak, Herne Bay Road, Canterbury, Kent CT2 0QX. The central grid reference for the site Is TR 1714 6164.

The proposed development/project includes conversion of the site into residential properties. Details of the proposal are illustrated in Figure 2.

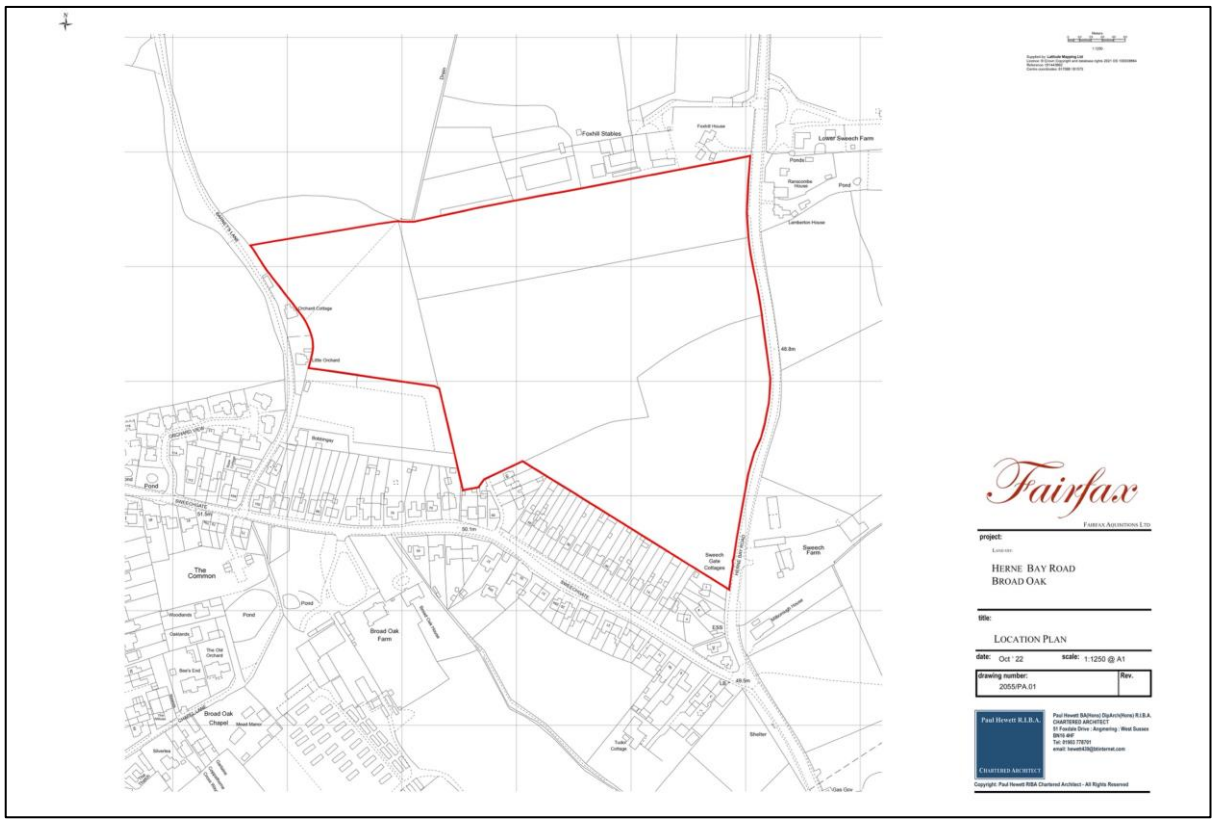

Figure 1. Site plan of Broad Oak, provided by Fairfax Properties.

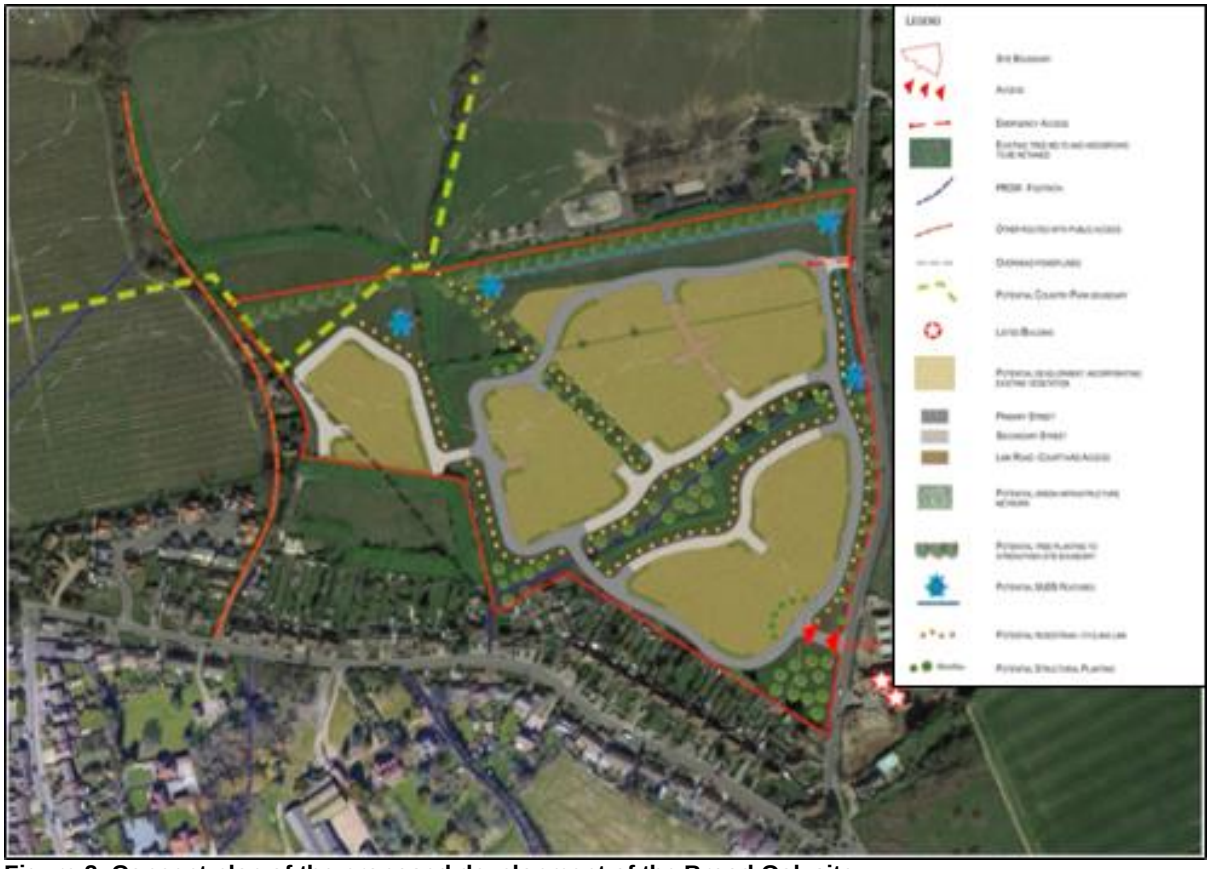

Figure 2. Concept plan of the proposed development of the Broad Oak site.

1.3 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna, invertebrate species and flora, and current nature conservation planning policy is outlined in Appendix 1 of this report.

Where possible, this report provides guidance on how the proposal can be designed to meet the requirements of both local planning policy and the National Planning Policy Framework (NPPF). Details of the NPPF can be found in Appendix 1 and relevant local planning policy by Canterbury District Council is provided in Appendix 2.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal[1], but also consider the Guidelines for Ecological Report Writing, Second Edition[2].

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from the Kent and Medway Biological Records Centre within a radius of 2km of the site.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice *Muscardinus avellanarius*) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats, such as grassland and heathland, are also relevant to great crested newts, reptiles and a wide variety of notable species of conservation concern.

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and European Protected Species (EPS) licences granted in relation to the survey site.

2.2 Field Survey

A site walkover survey was undertaken on 28th November 2022, during which the habitats contained within the site were described and evaluated. Since this site is relatively small in scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive UKHab mapping of the site. All habitat types contained within the site, together with the dominant

[1] CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.
[2] CIEEM (2017). *Guidelines for Ecological Report Writing, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

botanical species and indicators of important habitat types, such as ancient woodland or unimproved grassland, have simply been listed and described where identified.

Habitats and features at the site were evaluated for their potential to support legally protected species and/or species of conservation interest. In addition, observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded.

Details of the preliminary survey methods for each legally protected species are given below. Any site-specific limitations to the survey, e.g., access constraints or seasonal constraints, are set out in section 3.12.

2.3 Badgers

Badgers *Meles meles* exploit a range of habitats, including gardens, coniferous woodland, deciduous woodland, mixed woodland and arable land. They live in an underground system of tunnels and nesting chambers, known as a sett, with territories ranging from 30ha to 150ha or more.

Habitats within the site and surrounding area were broadly assessed for their potential to support badgers. Any signs of badger activity, for example setts, footprints, latrines, well-worn paths and foraging marks, were recorded. Further surveys were recommended as appropriate.

2.4 Bats

Bats can use a wide range of features for roosting purposes, including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark.

Trees were broadly assessed for their potential to support roosting bats and further surveys are recommended as appropriate.

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats. Further surveys are recommended as appropriate.

2.5 Breeding Birds

Birds can use a wide range of natural and artificial habitats when breeding, including trees, hedgerows, fields, houses and garden sheds. The habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages, and breeding birds. Any birds identified during the site visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern[3] and those species afforded special protection on

[3] Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. British Birds 114, pp 723-747.

Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

Dormice are found in deciduous woodland and hedgerows, feeding on flowers, pollen, fruits, insects and nuts, favouring hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum* for food and as bedding. The site was broadly assessed for its potential to support dormice. This included use of on-line mapping resources to assess the surrounding area for connectivity to large blocks of woodland, scrub and extensive hedgerow networks.

Further surveys are recommended as appropriate in accordance with best practice guidance[4].

2.7 Great Crested Newt

Great crested newts breed in ponds during the spring and spend the rest of the year feeding on invertebrates primarily in semi-natural habitats including woodland, hedgerows, marshes and tussocky grassland. A desk study was undertaken to identify ponds and wet ditches within 250m of the site that might support breeding great crested newts. Where access permission was granted, or ponds could be viewed from public roads or footpaths, the ponds were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI) (Oldham et al 2000)[5]. The suitability of terrestrial habitat contained on the site for foraging and resting great crested newts and any features that might be used by hibernating newts has also been assessed.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)[6].

2.8 Reptiles

The common lizard *Zootoca vivipara*, slow worm *Anguis fragilis,* grass snake *Natrix helvetica* and adder *Vipera berus* are widespread species that can be found in any suitable habitats, whereas smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* have much more restricted and isolated populations on lowland heathland and sand dunes.

Habitats on the site were broadly assessed for their potential to support reptiles. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub). Further surveys are recommended as appropriate.

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[4] Bright, P., Morris, P. and Mitchell-Jones, T. (2006). *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.
[5] Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.
[6] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

2.9 Riparian Wildlife

Any watercourses identified during the desk study or field survey were assessed for their suitability to support otter *Lutra lutra*, water vole *Arvicola amphibius* and American mink *Neovison vison*. Suitable habitat includes grassy banks along slow-moving rivers, ditches, streams, lakes, ponds, canals, as well as marshland and upland. Field signs include faeces, latrines, feeding stations, burrows, footprints and runs or pathways. Further surveys are recommended as appropriate.

2.10 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, and many bird species. The site was broadly assessed for its potential to support important invertebrate assemblages with particular attention paid to features such as standing deadwood, wet flushes, bare earth banks and botanically rich areas.

3 BASELINE CONDITIONS

3.1 Designated Sites and Granted EPS Licences

There are six designated sites within 2km of the site at Broad Oak, the closest, Sturry Pit SSSI, is located 0.9km away (Figure 3). Note that the Blean Complex SAC has three separate sites that are all more than 2km from the site, the closest of which is East Blean Woods, which is approximately 2.4km to the north-east. Full details of these designated sites are provided in Table 1 below.

There are three granted EPS licences for mitigation projects within 1km of the site boundary (Figure 4), all concerning great-crested newts. The closest EPS licence to the site is located 347m away south-west. There are no granted EPS licences for other species.

The surrounding landscape has small blocks of ancient and semi-natural woodland around the site to the east and south, the closest is located 305m away to the east. There are also blocks of priority habitat semi-natural deciduous woodland to the south and west (Figure 5).

Table 1. Designated sites to Broad Oak

Site name	Designation	Features listed on citation	Proximity
Sturry Pit SSSI	SSSI	Former quarry, part of the Paleolithic and Pleistocene Thames Terrace sequence and containing Pleistocene gravels which has yielded numerous "Middle Acheulian" hand axes. Not designated for ecological features.	0.9km south-east
West Blean and Thornden Woods SSSI	SSSI	A mixture of ancient semi-natural woodland and conifer plantation with over 50 species of breeding bird recorded together with nationally scarce invertebrate species, including the specially protected heath fritillary butterfly *Mellicta athalia*. The site also supports an important local population of hazel	1km south-west

		dormouse.	
Stodmarsh SSSI	SSSI	A wetland site in the River Great Stour valley containing open water, extensive reedbeds, scrub and alder *Alnus glutinosa* carr. The site is important for breeding birds and includes breeding populations of rare Cetti's warbler *Cettia cetti* and bearded tit *Panurus biarmicus*. The site also contains rare aquatic plants such as sharp-leaved pondweed *Potamogeton acutifolius* and rootless duckweed *Wolffia arrhizal*..	1.5km south-east
Stodmarsh	RAMSAR	The above SSSI qualifies as a wetland site supporting eight British Red Data book invertebrate species, two nationally rare plants and a diverse assemblage of wetland bird species, including water rail *Rallus aquaticus* and ruff *Philomachus pugnax*.	1.7km south-east
Stodmarsh	SAC	The above SSSI qualifies as an SAC for supporting a sizeable population of the Desmoulin's whorl snail *Vertigo moulinsiana*, an Annex II species which lives on the river Stour floodplain together with a range of other species.	1.7km south-east
Stodmarsh	SPA	Wetland site with an important breeding bird assemblage including 13 Annex II listed bird species.	1.7km south-east

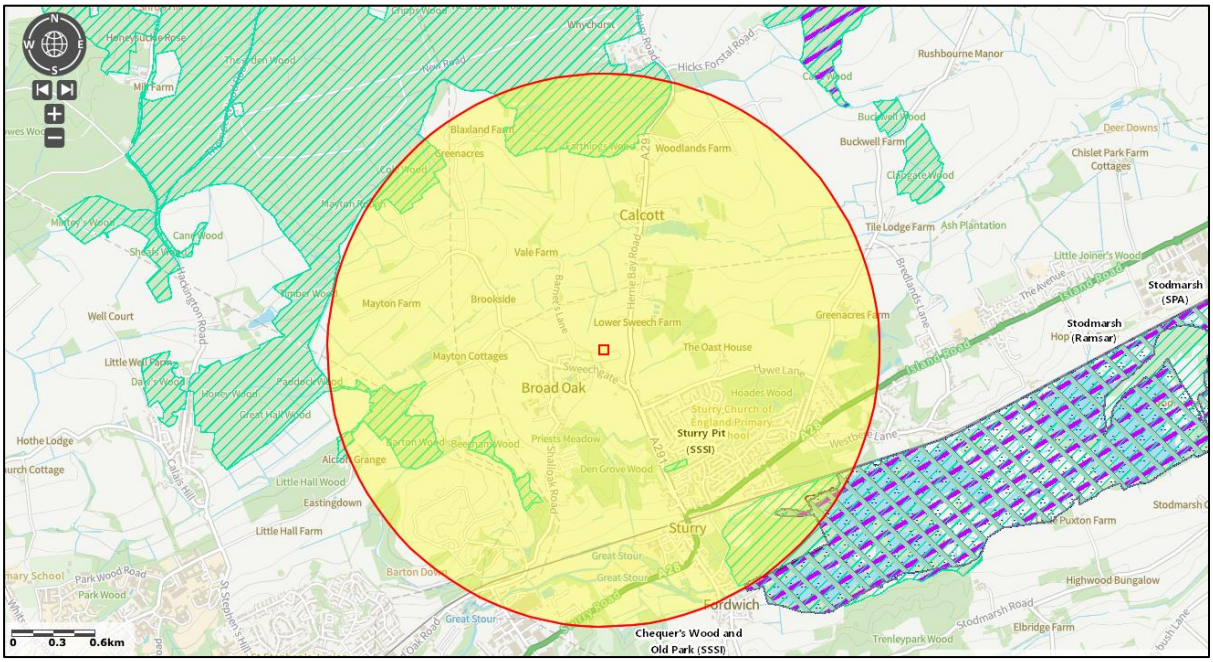

Figure 2. Designated sites within a radius of 2km of the application site. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

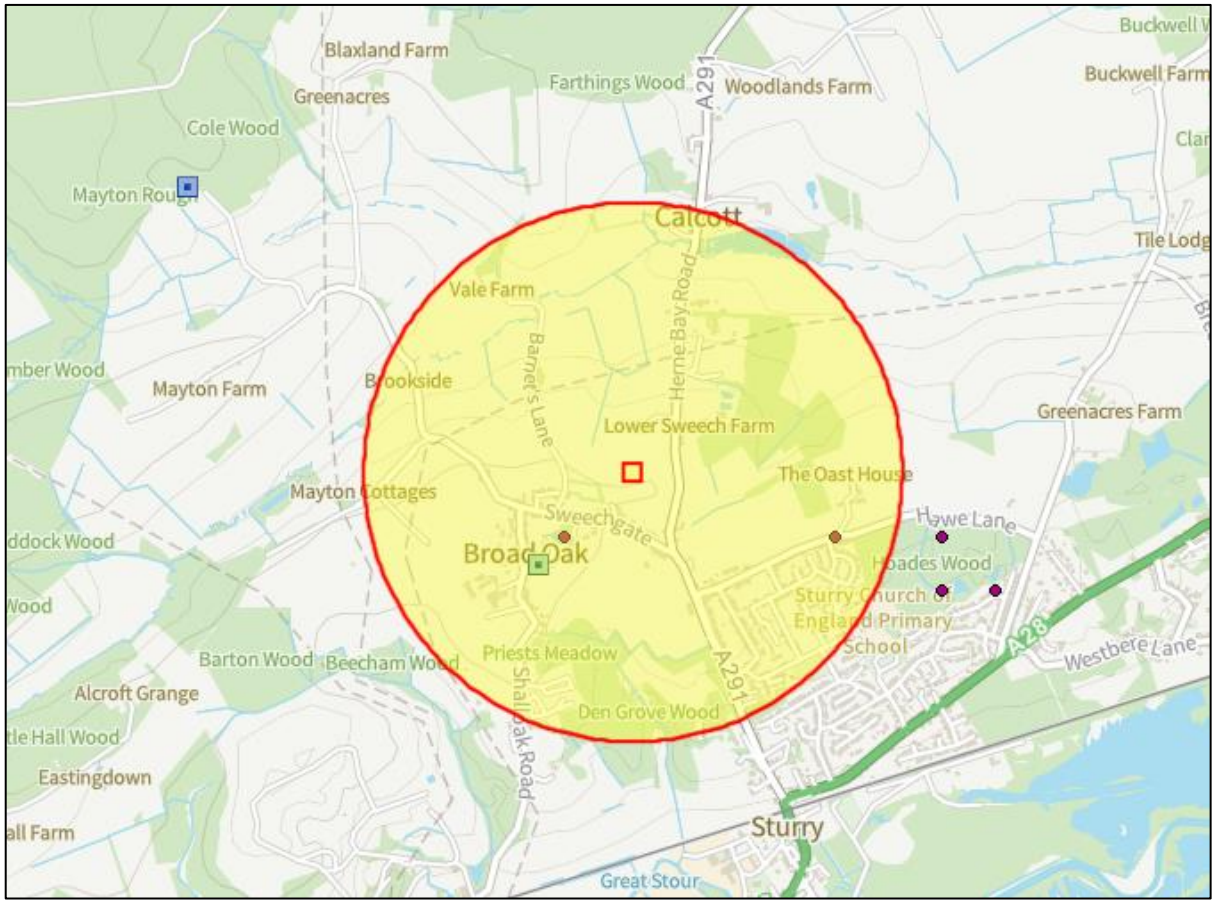

Figure 3. Granted EPS licences within 1km of the application site. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

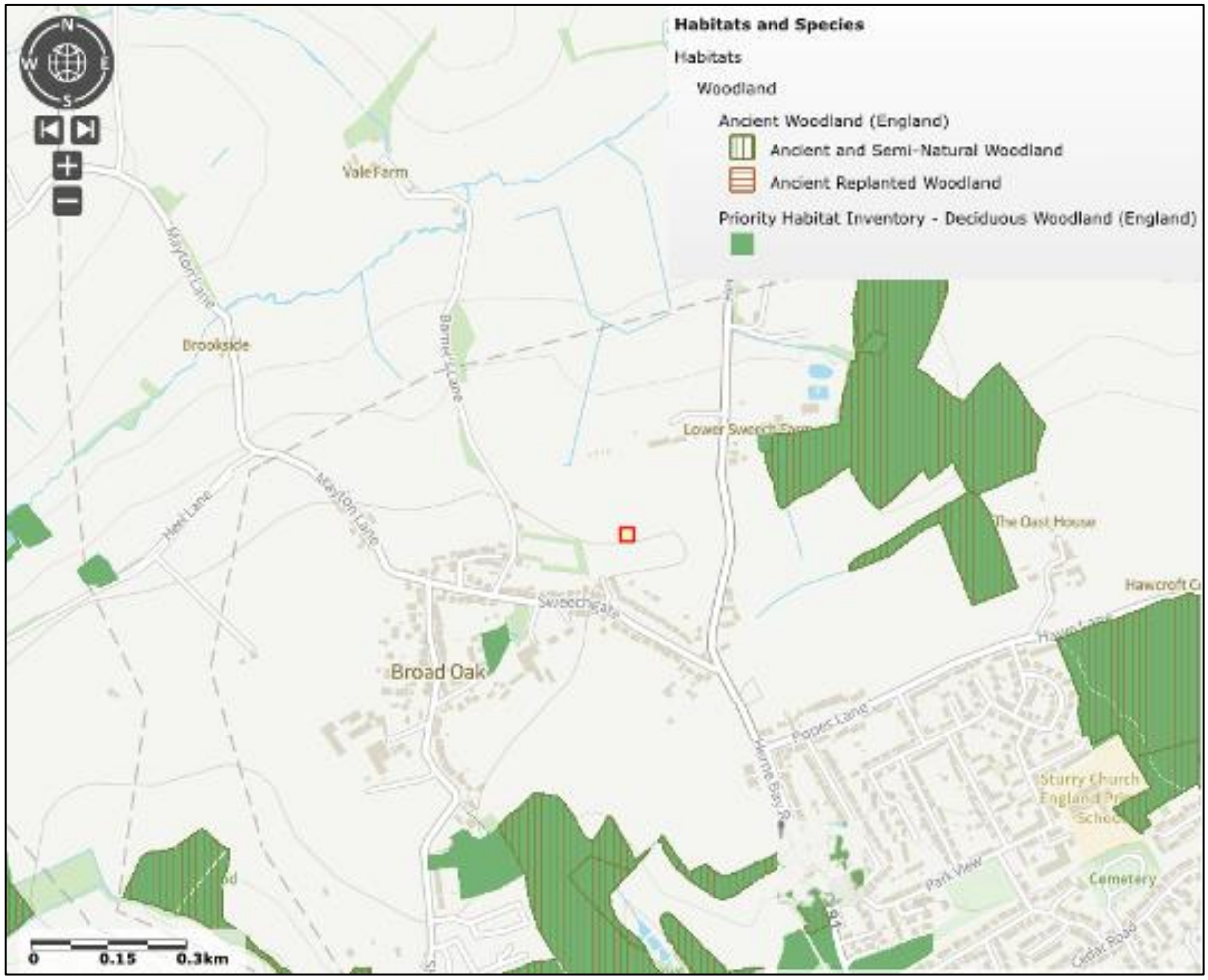

Figure 4. Habitats of importance for nature conservation. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The proposed site at Broad Oak comprises four pasture fields with boundaries between them and around the site formed by a mix of bramble scrub, hedgerows with scattered trees and in places, post and wire fencing. Table 2 lists these habitats and their species composition.

Table 2. Habitat types within Broad Oak, with location of these areas referenced to Figure 6. Abundance levels of species have been recorded using the DAFOR scale- D= Dominant, A=Abundant, F= Frequent, O= Occasional and R= Rare.

UK Hab Habitat Type	**Description (Including Species Composition and relative abundance DAFOR scale)**
Modified Grassland (g4)	High fertility 'improved' grassland dominated by perennial rye grass *Lolium perenne* (D) and in wetter zones, Yorkshire fog *Holcus lanatus* (F) and creeping bent *Agrostis stolonifera* (F). Forbs are generally infrequent and indicative of high soil fertility, such as broad leaved dock *Rumex obtusifolius* (O), common hogweed *Herecleum sphondylium* (R), creeping buttercup *Ranunculus repens* (O), creeping thistle *Cirsium arvense* (O), common ragwort *Jacobeaea vulgaris* (R), yarrow *Achillea millefolium* (O), ox-eye daisy *Leucanthemum vulagre* (O), rough hawksbeard *Crepis bienis* and

	smooth hawksbeard *Crepis capillaris*. This is the predominant habitat type and occurs over the three largest fields.
Arrhenatherum Grassland (g3c5)	The narrow field to the north supports a very dense sward of coarse grass dominated by false oat grass (*Arrhenatherum elatius*) with small amounts of red fescue, *Festuca rubra* (O) and common sorrel *Rumex acetosa* (O). The most easterly part of the central field also contains this habitat around a former muck-heap, now removed but marked by advantageous colonists such as fat hen *Chenopodium album*, groundsel *Senecio vulgaris*, wild radish *Raphanus raphanistrum*, bristly ox-tongue *Helmintheca echiudes*, cow parsley *Antheriscus sylvetris*, common nettle, common hogweed and ground ivy *Glechoma hederacea*.
Other neutral grassland (g3c)	The field to the west has a sward that is also indicative of high fertility, but rye grass does not dominate. The grassland comprises Yorkshire fog (F), red fescue (F), false oat grass (O) with bristly ox-tongue (O), creeping buttercup (O), creeping thistle, common ragwort , white clover *Trifolium repens (O) and* common fleabane *Pulicaria dysenterica.* .
Bramble Scrub (h3d)	Dense bramble scrub with occasional shrubs and small trees occurs intermittently along the boundary between the central fields, which has recently been flail-cut back to reduce encroachment. It also forms the boundary with the rear gardens of houses to the south. Species recorded are bramble *Rubus fruticosus* (D), hawthorn *Crataegus monogyna* (O), wild cherry *Prunus avium*, holly *Ilex aquifolium*., silver birch, ivy, cleavers, *Buddleja davidii*, walnut *Juglans regia* (R), common nettle *Urtica dioica*(O), common hogweed, (O) greengage *Prunus domestica italica*, cleavers *Galium aparine* and elder *Sambucus nigra.*
Scattered Trees (11)	There are a few groups of semi-mature trees along some field boundaries including goat willow *Salix caprea*, English oak *Quercus rober* with some ivy *Hedera helix*.
Species-poor Hedgerow	A species-poor hedgerow runs adjacent to the main road on the eastern boundary of the site. It has recently been flailed into a box shape, approximately 3m wide and 4m high, and contains hawthorn (D), blackthorn *Prunus spinosa*, (F) wych elm *Ulmus glabra* (O), field maple *Acer camperstre* (R), willow sp. (R), ivy (R). The western field is bordered on all sides by hedgerow dominated by blackthorn and hawthorn, with elder, bramble, dogrose, field maple *Acer campestre* and a group of semi-mature English oak towards the northern side.
Fence (69) with Scattered Trees (11)	A post and wire fence forms the boundary between the northern and central fields, and bridges gaps in the hedgerow, with rough grasses and ruderal herbs together with some young trees, including bramble (F), common nettle (F) common fleabane *Pulicaria dysenterica* and silver birch *Betula pendula* (R).
Other Hedgerow (h2b)	The boundary between the residential property adjacent to the western field is a non-native garden hedge dominated by *Cotoneaster* sp.
Dry Oak-dominated Woodland (w1f5) with Blackthorn Scrub (h3a)	Along the southern boundary of the western field there is a small belt of scrub and deciduous woodland dominated by planted *Prunus* sp. with semi-mature English oaks, bramble (O), ivy (O), ash (O) and dog rose (O).

Photograph 1. Bramble scrub and scattered trees that denote the boundaries between fields within the site.

Photograph 2. Wire fence with scattered trees.

Photograph 3. Species-poor hedgerow bordering the site.

Photograph 5. Ornamental hedgerow, dominated by *Cotoneaster sp.*.

3.3 Badgers

No signs of any badger activity were seen during the survey assessment, though there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, then evidence of badger activity would have been observed.

The Kent and Medway Biological Record Centre provided seven records of badger in the search area. The closest of these was at 1.6km from the boundary of the site.

3.4 Bats

There are no buildings on site. The scattered trees at the site boundaries were broadly assessed for bat roost potential. A collection of semi-mature trees on the eastern side of the site contained some loose bark which was assessed to have very low bat roost potential. All other trees on site were assessed to have negligible potential.

The habitats contained within the site are considered to have moderate value to bats; the pasture is likely to be productive for insect prey at certain times when abundant species are on the wing (e.g. *Tipula paludosa*), but probably lacks diversity and continuity of supply. The scrub, trees and bramble

offer some shelter and provide linear features allowing commuting and foraging bats to reach more favourable habitats in the surrounding landscape.

The Kent and Medway biodiversity records search found 1,344 records of 9 species of bat, details of which are provided in Table 3 below. This is a large number of records but it is important to note that the search area of 5km radius includes the Blean complex SSSI and SAC, which includes large tracts of ancient woodland, and Stodmarsh National Nature Reserve, both of which are well-studied for bats by the Kent Bat Group.

Table 3. Bat records returned with a 5k radius of the site.

Species Common name/ *Scientific name*	**Number of Records**
Common pipistrelle bat *Pipistrellus pipistrellus*	460
Soprano pipistrelle bat *P. pygmaeus*	282
Nathusius' pipistrelle bat *P. nathusii*	12
Brown long-eared bat *Plecotus auritus*	160
Serotine bat *Eptesicus serotinus*	39
Noctule bat *Nyctalus noctula*	114
Daubenton's bat *Myotis daubentonii*	163
Whiskered bat *Myotis mystacinus*	18
Natterer's bat *Myotis nattereri*	96

3.5 Breeding Birds

The scrub, hedgerows and scattered trees that delineate the boundaries on the site all have the potential to support a variety of common nesting birds, and the grassland may have potential for ground-nesting skylark *Alauda arvensis*. During the survey the following common birds were sighted: chaffinch *Fringilla coelebs*, blue tit *Cyanistes caeruleus*, blackbird *Turdus merula*, bullfinch *Pyrrhula pyrrhula*, house sparrow *Passer domesticus*, dunnock *Prunella modularis*, magpie *Pica pica*, long-tailed tit *Aegithalos caudatus*, fieldfare *Turdus pilaris* and goldfinch *Carduelis carduelis*.

The Kent and Medway biodiversity records search found 19,967 records of 212 species within 5km of the site. As for bats, many of these records originate from the surrounding designated sites.

3.6 Dormice

The hedgerows, bramble scrub and scattered trees bordering the fields and site are potentially suitable for common dormouse. The site's juxtaposition with hedgerows connecting it to small blocks of semi-natural woodland, and proximity to the large tracts of ancient woodland of the Blean complex make it highly likely that this species is present.

The Kent and Medway biological record centre identified 22 dormouse records in the 2km search area. The closest of these was at 1.3km to the north of the site boundary.

3.7 Great Crested Newts and other Amphibians

There are no ponds contained on the proposed site, however there are seven ponds within 250m of the site boundary, all of which are potentially suitable for breeding great crested newts. Two ponds situated in a small area of semi-natural woodland were assessed during the site visit – these ponds appeared to have been recently cleared out and restored and it is suspected that this might have been supported by the Kent District Licensing Scheme. The ponds to the west appear to be associated with the recent new residential development. A further cluster of ponds to the north-east of the site are on private land and were not assessed. There are several ponds within 500m of the site, including two newly excavated ponds to the south-west that were assessed as part of the survey (see P1 and P2 in Figure 6). Other ponds identified through Magic and Google Maps could not be assessed. These ponds are detailed in Table 4.

The Kent and Medway biodiversity records search indicates the presence of great crested newt, smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus*, common frog *Rana temporaria*, marsh frog *Pelophylax ridibundus* and common toad *Bufo bufo* within 2km of the site.

This site has moderate potential to support great crested newts as despite a lack of ponds on site there are some sheltering opportunities in the hedgerows and scrub, as well as high potential surrounding habitat that commuting individuals may pass through the site to reach.

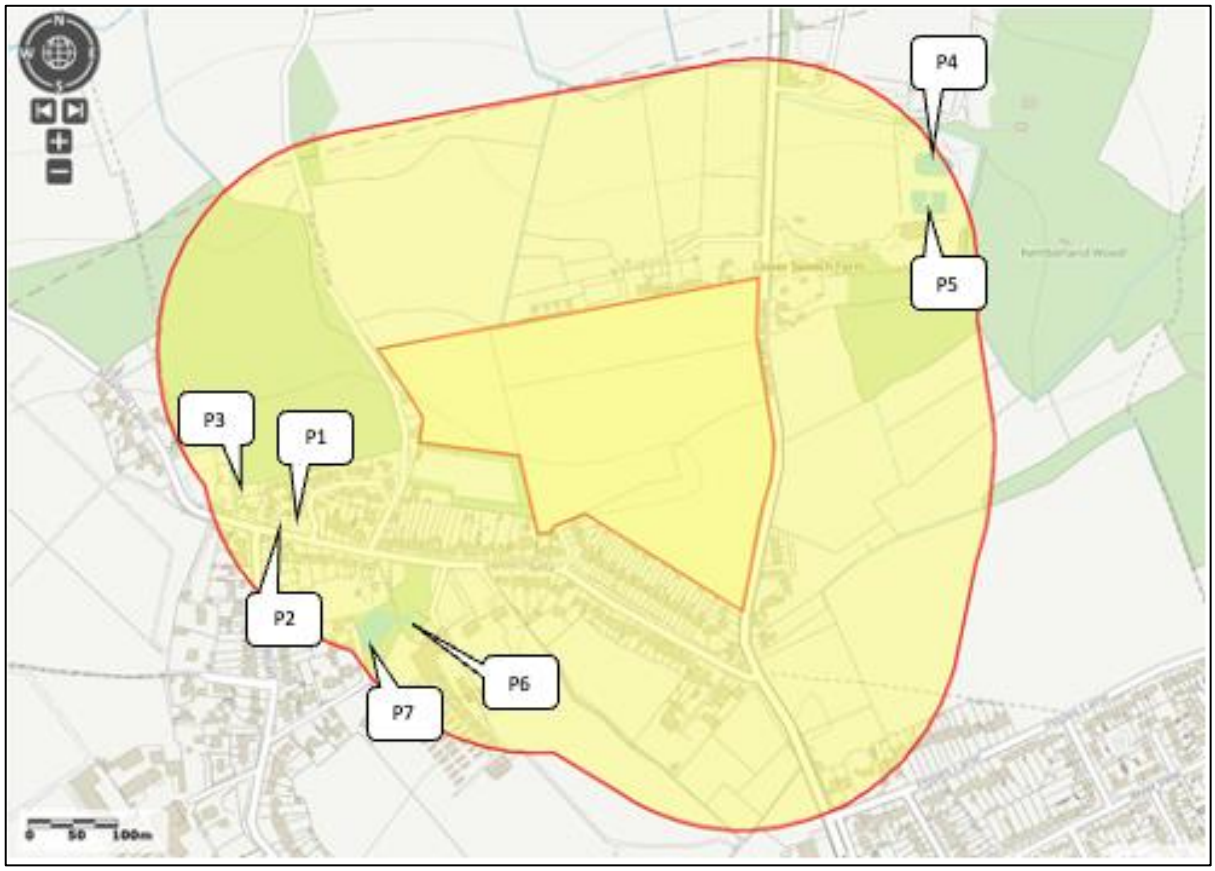

Figure 7. Ponds within 250m of the site (red dots). Other ponds indicated by Magic could be not confirmed to exist so have not been included. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

Table 4. Pond descriptions within 500m site. Calculations of HSI value can be found in Appendix 3.

Pond	NGR	Description	HSI value	Interpretation	Survey recommendations
P1	TR 1676 6152	Artificial pond next to a housing estate, shaded with trees	0.88	'Excellent' suitability	eDNA and population survey
P2	TR 1678 6151	Artificial pond located in a small open public garden space	0.79	"Good suitability"	eDNA and population survey
P3	TR 1672 6155	Small pond located at the back of a housing estate	N/A	Could not be assessed	Obtain access for scoping
P4	TR 1750 6192	Large pond at the back of an industrial estate. Shaded by trees and plants growing on the water.	N/A	Could not be assessed	Obtain access for scoping
P5	TR 1750 6188	Large pond at the back of an industrial estate. Some trees around edge as well plants growing on the water.	N/A	Could not be assessed	Obtain access for scoping
P6	TR 16883 61411	Small pond adjacent to wooded area, recently re-excavated.	0.79	'good suitability'	eDNA and population survey
P7	TR 16884 61412	Large pond within small wooded area, recently excavated.	0.88	'excellent suitability'	eDNA and population survey

3.8 Reptiles

Depending upon the management of the pasture fields, there is likely to be tall grassland habitat suitable for common reptiles available through the season. The boundary features will act as a refuge with cover throughout the year and potential hibernation sites available. The fields do not appear to be used for grazing and are likely to be cut for hay/silage at certain times. The presence of common reptile species is therefore uncertain without appropriate surveys.

The Kent and Medway biodiversity records search indicates the presence of slow worm, common lizard, adder and grass snake within 2km of the site.

3.9 Riparian Wildlife

There are no watercourses passing through or within 500m of the site boundaries.

The Kent and Medway biodiversity records search indicates the presence of otter, water vole and American mink within 2km of the site.

3.10 Invasive Non-native Species

One of the hedgerows located on the western site boundary contains an invasive *Cotoneaster sp*. However, this is a managed ornamental hedgerow forming part of a garden that borders the site and is unlikely to be affected as part of any development. Buddleja was also recorded along the southern boundary of the proposed site.

The Kent and Medway biodiversity records search indicates the presence of several invasive plant species, including Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens gladulifera* and winter heliotrope *Petasites fragrans* within 2km of the site.

3.11 Other Notable Species

The pasture, scrub and bordering hedgerow have high suitability for nesting, foraging and commuting hedgehogs. These habitats are also suitable for harvest mouse, especially where the grassland is allowed to grow tall. Kent and Medway Biodiversity Records Centre provided 27 records of hedgehog, as well as records of brown hare and harvest mouse within 2km of the site.

Based on the habitat types contained on the proposed site for development, it is unlikely that it supports important terrestrial invertebrate assemblages although a diverse range of common and widespread species may be present.

3.12 Survey Limitations

An initial site assessment such as this is only able to act like a 'snapshot' to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey but may be evident at other times of the year. For this reason, habitats are assessed for their potential to support some species, even where no direct evidence (such as droppings) has been found. Additionally, it was not possible to access three ponds identified to be within 500m of the site, meaning suitability for amphibians in these ponds could not assessed.

The site visit was undertaken in late November, a sub-optimal time of year for botanical surveys, although it is considered that enough evidence was gathered to accurately characterise the broad habitat types.

4 IMPACT APPRAISAL

4.1 Designated Sites

The proposed site for residential development may potentially result in indirect impacts on the surrounding designated sites through contributing to increased recreational pressure. It is likely that a 'Habitats Regulations Assessment would be required prior to planning approvals, starting with a screening document ('Stage 1') that identifies whether there are any 'likely significant effects' either

alone or in combination with other plans or projects. If this is the case, appropriate mitigation will be necessary that may include provision of an alternative green space.

4.2 Habitats

The redevelopment of the site into residential housing will result in the direct loss of neutral and modified grassland habitat. These habitats are common and widespread and are therefore considered to be of low ecological value. The scrub and hedgerows on the site boundaries will be mostly retained as part of the site proposal and therefore connectivity to other sites for commuting animals will not be impacted.

It is recommended that a Habitat Creation and Management Plan (HCMP) is prepared to provide detailed information on how habitats will be protected and enhanced, in addition to species-specific enhancements. The development should aim to achieve a 10% Biodiversity Net Gain demonstrated through a Biodiversity Impact Calculation using the DEFRA Biodiversity Metric 2.0.

4.3 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on or near to the proposed construction zone. However, the habitat contained on the site is suitable for badger foraging and they are almost certainly using the site from time to time. Badgers could potentially establish new setts in the intervening period between this assessment and commencement of a development, so it is important to remain vigilant and further walkover surveys are recommended to update information on them at the appropriate time.

4.4 Bats

In accordance with the Bat Conservation Trust guidelines, the overall potential for the site trees to support bats is rated as ‘negligible’, and no further surveys or mitigation is considered necessary. The proposed development would not require the demolition of any buildings.

The proposed development of the site includes removal of the pasture habitats which will directly impact foraging opportunities for bats. The hedgerows and scrub at the site boundaries will mostly be retained as part of the proposal. Therefore, the linear features will remain intact for bats to commute to other high-quality habitat such as the ancient woodland to the north, provided that the effects of lighting are taken into account. Bat activity surveys are recommended to allow a better understanding of the importance of the site to bats and potential effects of the development proposals on the existing bat population using the site and within the zone of influence. In accordance with current survey guidelines, this should include a minimum of three walked transect surveys and three static logger assessments spread across the active season (April to mid-October).

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development is likely to require an ‘ecologically sensitive lighting scheme’ in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 4).

4.5 Breeding Birds

In the absence of mitigation, the loss of pasture to the proposed development would potentially impact on nesting birds. Based on the habitat types present, the site is likely only to support common and widespread species of low conservation importance, but potentially farmland bird 'priority species such as the yellowhammer, linnet and ground-nesting skylark may use the site from time to time.

Surveys are recommended to determine the importance of the breeding bird assemblages supported by the site and inform a planning application.

Direct impacts on breeding birds can be avoided by timing vegetation clearance and site preparation outside the nesting season. The loss of skylark nesting habitat, if they occur would probably require off-site compensation in nearby arable farmland.

4.6 Dormice

The proposed development does not impact directly on any ancient woodland habitats, with only small sections of the scrub and hedgerows being removed to make way for access roads. The loss of this habitat represents a very small proportion of that available in the wider landscape and is unlikely to be significant as a severance impact because alternative routes around the site are available. However, a dormouse presence/absence survey is recommended to inform an impact assessment for this species. Where impacts on hazel dormice cannot be avoided as part of the development, an EPS licence will need to be obtained that sets out appropriate mitigation and compensation measures.

As dormice are nocturnal, it is important that the potential for disturbance from artificial lights is considered, as for bats (see Appendix 4).

4.7 Great Crested Newts

While the site contains predominantly unsuitable habitat to support great crested newts, several ponds are located within 250m of the site, including two ponds west of the site that were assessed to have "excellent" and "good" suitability respectively. Should any of these ponds support a population of great crested newts, their presence on site cannot be ruled out.

It is recommended that access is sought to all ponds within 250m of the site boundaries to undertake a Habitat Suitability Index (HSI) assessment to determine if they have potential to support great crested newts. Where these ponds are identified to have 'below average' or above suitability further survey effort will be required to identified if a great crested newt population is present. This is likely to include an environmental DNA (eDNA) sampling which can be completed between mid-April and the end of June and subsequent population survey where the results of the eDNA survey are positive.

If the presence of great created newts is confirmed within these ponds to the west and north-east of the site, a mitigation strategy will need to be developed which is likely to require the need for a European Protected Species (EPS) licence to allow the development to proceed legally. Mitigation and compensation measures would be required under such a licence, for example careful timing of

activities, trapping out of the site and translocation of great crested newts to a receptor site which would be enhanced to support them.

Alternatively, the scheme could be registered with the Kent Area District Licencing Scheme in advance of the planning application. This does not necessarily require surveys but eDNA surveys are still recommended as they would inform the need for a licence and would provide a more accurate impact assessment. The district licencing scheme has the advantage that it can be secured in advance of a planning application and so provides improved certainty for planning authorities.

4.8 Reptiles

The proposed development would result in the loss of potentially suitable reptile habitat at the site, principally around the edges of the fields as most of the open pasture is sub-optimal habitat. The proposed scheme carries a risk of direct impacts on reptiles and a survey is therefore recommended for this site to better quantify this risk. The standard approach to reptile presence/absence surveys requires a minimum of eight site visits, first to set out artificial refuges ('reptile mats'), followed by seven survey visits. The optimal months for survey are April, May and September.

If presence of reptiles is confirmed through such a survey, a reptile mitigation strategy is likely to be required by the planning authority. This would probably involve the capture and translocation of reptiles to a suitable receptor site nearby.

4.9 Other Notable Species

The hedgehog has suffered dramatic declines in population in recent decades[7] although it remains fairly widespread. Habitats within the site have the potential to be used by this species for foraging, commuting and shelter and some of this will be lost during the proposal. Where any suitable habitats for hedgehogs are removed, site preparation must be preceded by a hand search to ensure that, in the event a hedgehog is present, it can be moved safely to suitable habitat outside of the impact zone. If any hedgehogs are identified in hibernation (between November and early March usually), then either the area where the hedgehog is found should remain undisturbed or, at the discretion of a suitably qualified ecologist, it may be possible to move the animal with the material that it is hibernating to a safe location.

Depending on the type of grassland management at the site, further surveys are recommended for harvest mouse as appropriate.

[7] British Wildlife (December 2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86)

5 OPPORTUNITIES FOR ENHANCEMENT

The proposed development will result in permanent loss of neutral and modified grassland habitat and consequently a net loss of biodiversity, but this can be compensated for through habitat creation and enhancement to provide areas of higher quality habitat on site designed to benefit insects, birds and bats. Any planting scheme should include native shrub species and flowering species known to encourage insect diversity. Such enhancement measures are in line with the recommendations of the NPPF and as such would be considered favourably when determining the planning application.

The developer is encouraged to consider including integral bat roosting opportunities into the building fabrics such as bat tiles and internal voids/access points for bats. For example, Schwegler 1FF boxes could be placed on the south-west and south-east facing elevations of the properties and purpose-designed bat tiles onto the south-east roof (Figure 6). As best practice, the lighting scheme should be designed to minimize light spill (see Bat Conservation Trust website), around these roosting features and potential commuting routes. Additionally, bird boxes for common garden birds could be installed within the trees around the site, placed on the southern faces of the trunks, at least 3m above the ground and facing away from the prevailing winds, with a clear flight path. Figure 7 shows suitable boxes. These boxes are suitable for a variety of common birds such as (but not limited to) coal tit *Periparus ater*, great tit *Parus major*, blue tit, nuthatch *Sitta europea* and possibly wren *Troglodytes troglodytes*. Other suitable bat and bird boxes are available.

Figure 6. Left, Schwegler 1FF Bat box, and right, a bat access tile.

Figure 7. From left to right: Vivara Pro Seville 28mm Woodstone Nest Box, Vivara Pro Barcelona Woodstone Open Nest Box, and a Traditional Wooden Nest Box.

Most of the hedgerows and shrub along the site boundaries are being retained as part of the proposal, and it is recommended that these are infilled with additional planting of native species to improve connectivity and species diversity for commuting and foraging animals. The species planted should be proficient fruiting/nut bearing species, which are known to benefit a range of species including birds and small mammals. Species could include, but are not limited to: pedunculate oak, field maple, beech *Fagus sylvatica*, sweet chestnut *Castanea sativa* and hawthorn. Hazel and honeysuckle could additionally be planted are these are likely to improve to potential of the hedgerows to support dormice.

By creating a buffer zone of a species-rich wildflower meadow along the boundaries of the site, it will serve to protect the retained hedgerow and enhance the wildlife corridors through the site and maintain connectivity across the landscape. The planting of native wildflowers increases biodiversity through encouraging insect diversity, in turn attracting reptiles, small mammals and birds . It is recommended that the EM1- Basic General Purpose Meadow Mixture, available from Emorsgate Seeds (www.wildseed.co.uk) is used for this purpose due to its robust wildflowers suitable for a range of soil types. Table 5 details the composition of this mixture. Please note, other commercial seed mixes suitable for on-site soils can be used but must be native and include a diverse species mix.

Table 5. Composition of "EM1- Basic General Purpose Meadow Mixture.

%	Latin name	Common name
Wildflowers		
0.3	*Achillea millefolium*	Yarrow
1.5	*Centaurea nigra*	Common Knapweed
1.5	*Leucanthemum vulgare*	Oxeye Daisy- (Moon Daisy)
1.5	*Malva moschata*	Musk Mallow
3	*Plantago lanceolata*	Ribwort Plantain
1	*Poterium sanguisorba ssp. sanguisorba*	Salad Burnet
0.2	*Ranunculus acris*	Meadow Buttercup
0.5	*Rhianthus minor*	Yellow Rattle
Grasses		
9	*Agrostis capillaris*	Common Bent
31.5	*Cynosurus cristatus*	Crested Dogstail
27	*Festuca rubra*	Red Fescue
4.5	*Phleum bertolonii*	Smaller Cat's-tail
18	*Poa pratensis*	Smooth-stalked Meadow-grass

6 CONCLUSIONS

The land at Broad Oak comprises of four fields of neutral and modified grassland surrounded and separated by scrub, hedgerows, scattered trees and wire fencing. The redevelopment of the site into residential properties will result in the loss of modified grassland managed as pasture, a common and widespread habitat with low ecological value.

The site lies within the "Zone of Influence" of six designated sites- Sturry Pit SSSI, West Blean and Thornden SSSI, Stodmarsh SSSI, Stodmarsh RAMSAR, Stodmarsh SAC and Stodmarsh SPA. Increased recreational pressure as a result of the development may impact these sites and a Habitat Regulations Assessment (HRA) is likely to be required.

The following surveys are recommended prior to any planning application for residential development on this site:

1. Breeding bird survey focussing on farmland birds including skylark
2. Common dormouse presence/absence survey
3. Great crested newt H-S-I assessment followed by eDNA sampling of all ponds identified within 250m of the site boundaries.
4. Common reptile presence/absence survey.

On balance, the proposed site for residential development is not likely to support any ecological features that have high importance to nature conservation. The impacts upon species assemblages that may occur can be mitigated against relatively easily by following standard best practices. The habitats contained within the site are common and widespread across the landscape and their loss can be compensated by a combination of on-site landscape planting and off-setting, as informed by a Biodiversity Net Gain Calculation.

To minimise habitat loss and impacts on protected species, the proposed scheme should be designed to incorporate the retention of the existing boundary hedgerow, scrub and scattered trees where possible. The proposed scheme should include an ecologically sensitive lighting scheme , in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 4).

It is important that no habitat clearance or other site preparation work should be undertaken until planning permission has been granted and all relevant protections for habitats of importance and protected species have been detailed and implemented. Please be advised that any work to remove or modify habitats outside of typical management may undermine a future planning application.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op, info@ecologyco-op.co.uk, www.ecologyco-op.co.uk, Office: 01798 861800.

APPENDIX 1 – Wildlife Legislation and National Planning Policy

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The 'Birds Directive', 'Habitats Directive' and 'Natura 2000 Sites'

The Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive") sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of 'Special Protection Areas' (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive") directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive (for example Bechstein's bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*. Together with 'Special Areas of Conservation' (SACs), SPAs form a network across Europe of protected areas known as the 'Natura 2000 sites'.

Annex IV lists species in need of more strict protection, these are known as "European Protected Species (EPS)". All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The 'Habitats Regulations'

The Conservation of Habitats and Species Regulations 2017, as amended (the "Habitats Regulations") is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 regulations") in England and Wales.

'Natura 2000' sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where 'likely significant effects' to the conservation objectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a *breeding or resting place* of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- a licence can be granted for the purposes of "preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53 (2) (e);
- a licence can be granted if "there are no satisfactory alternatives" to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended.

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example, Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the

Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

Protection of Badgers Act (1992)

The badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021)[8] sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*." The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)[9]. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021 (Stanbury et al, 2021), which provides an

[8] HM Government (2021). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

[9] HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

up to date assessment of the conservation status of birds in the UK.

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Wildlife and Countryside Act (WCA) (1981). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/1981/69/contents

APPENDIX 2 – Canterbury District Local Plan (2017)

Table 6. Local policy plan for Canterbury District Council.

Policy Number/Title	Policy Summary
LB5 - Sites of international conservation importance	No development will be permitted if it may have an adverse effect on an SAC, SPA or Ramsar site alone or in combination with another plan. It will need to be considered by Canterbury City Council to work out appropriate mitigation and these must be funded by the developer.
LB6 - SSSIs	Development on or near SSSIs is not usually permitted but may only be permitted if: • the objectives of that designated site won't be affected by the development; or • these adverse effects cannot be avoided and there is no other site which would make for less impacts, in this case the impacts must be fully mitigated or clearly outweighed by social and economic benefits of the site.
LB7 - Locally designated sites	Development which may affect Local Wildlife Sites, LNRs will only be permitted if the justification for the proposals clearly outweighs any harm to the intrinsic nature conservation value of the site and when it is permitted, the mitigation should be carefully considered. If this mitigation isn't adequate, compensatory habitat creation will be needed.
LB8 - Landscape scale biodiversity network	New development needs to show that it will avoid fragmentation of existing habitats and support the creation of coherent ecological networks through both rural and urban areas, retain existing ecological features (ancient woodland, rivers, hedgerows, grassland, wetlands etc), lighting should be sensitively designed to prevent disturbance to protected species and habitats should have improved connectivity.
LB9 - Protection, mitigation, enhancement and increased connectivity for species and habitats of principal importance	Developers will be expected to pay for ecological surveys to be undertaken and submit the results with their proposals. If impacts on wildlife will be too significant the council will need the developer to find a suitable alternative site and if not, the application may be refused. Development to these sites will not be permitted unless: there are no reasonable alternatives, adequate mitigation is planned in advance and proven to the council, overall mitigation is secured long-term to then prevent further development to the surrounding area, the development also funds the management of habitats.
LB10 - Trees, hedgerows and woodland	Development should be designed to retain trees, hedgerows and woodland which make a good contribution to the amenity of the site and surrounding area. The council will refuse plans which could threaten the future retention of trees, hedgerows and woodland unless, the social and economic need outweighs the negative impacts or

	adequate mitigation, and compensation measures can be implemented.

APPENDIX 3 – Great Crested Newt 'Habitat Suitability Index' Values

Table 7. HSI calculation for ponds assessed during the survey.

	Pond 1		**Pond 2**	
NGR	**TR 1676 6152**		**TR 1678 6151**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	SE England	1.00	SE England
Pond area	0.16	80m^2	0.12	60m^2
Pond drying	1.00	Rarely	1.00	Rarely
Water quality	1.00	Good	1.00	Good
Shade cover	1.00	10%	1.00	10%
Waterfowl	1.00	Absent	1.00	Absent
Fish presence	1.00	Absent	1.00	Absent
No. ponds	1.00	9	1.00	9
Terrestrial habitat	0.67	Moderate	1.00	Moderate
Macrophytes	0.56	25%	0.31	25%
HSI value	**0.75**	**'Good' suitability**	**0.73**	**'Good' suitability**

	Pond 6		**Pond 7**	
NGR	**TR 1676 6152**		**TR 1678 6151**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	SE England	1.00	SE England
Pond area	0.90	1334m^2	0.29	146m^2
Pond drying	1.00	Rarely	1.00	Rarely
Water quality	1.00	Good	1.00	Good
Shade cover	0.20	100%	1.00	50%
Waterfowl	1.00	Absent	1.00	Absent
Fish presence	1.00	Absent	1.00	Absent
No. ponds	1.00	9	1.00	9
Terrestrial habitat	1.00	Good	1.00	Good
Macrophytes	0.31	0%	0.31	0%
HSI value	**0.88**	**'Excellent' suitability**	**0.79**	**'Good' suitability**

APPENDIX 4 – Reducing Impacts of Artificial Light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust[10] should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist

[10] Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

and lighting professional determine there is a likely significant effect upon key bat habitat and features;

- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking;* as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

Further reading:

Buglife (2011) A review of the impact of artificial light on invertebrates.

Royal Commission on Environmental Pollution (2009) Artificial light in the environment. HMSO, London. Available at: https://www.gov.uk/government/publications/artificial-light-in-the-environment

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available

at: http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: https://www.gov.uk/guidance/light-pollution

Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: https://www.theilp.org.uk/resources/free-resources/

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSguidelines8_lightpollution.pdf?v=1542109376

End.