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Ecological Appraisal

Land at; Sussex Topiary, Naldretts Lane, Rudgwick, Horsham, RH12 3BU

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31st October 2019

Project No: P3423

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Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	RW	BH	Oct 2019	N/A	

Report Summary

1. The Ecology Co-op has been commissioned by Mr Tim Bloxham to undertake a Phase 1 Habitat Survey and protected species appraisal of land at Sussex Topiary. A site survey visit was carried out by Dr Ryan Walker, CEnv, MCIEEM on the 10th October 2019, to map the habitat types and evaluate the site for its potential to support EU and UK protected species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints to a proposal to develop the site to support a four-pitch static caravan site.

2. The site supports the following four habitats; bare ground (J4), other habitat (a heap of stone chippings) (J5), buildings (a field shelter for ponies) (J3.6) and improved grassland (B4). All habitats are of limited value to biodiversity and the site is dominated by improved grassland. There is a hedge beyond the eastern boundary of the site and five ponds approximately 100m to the southwest of the site.

3. The five ponds approximately 100m to the southwest of the site score highly as part of the Habitat Suitability Index (HSI) for great crested newts, however the proposed works are unlikely to impact any terrestrial or aquatic habitat potentially suitable for newts.

4. No further survey work for protected species is recommended as part of this proposed development. However, it must be ensured that the improved grassland is kept short (below 5cm in height) through continued heavy grazing or regular mowing/stimming to prevent longer grassland habitats from establishing prior to construction.

5. External lighting should be designed to be ecologically sensitive in line with guidance produced by the Bat Conservation Trust to avoid impacting foraging bats in particular along the hedge beyond the eastern site boundary.

6. In line with NPPF guidelines management and ecological enhancement measures to improve the five ponds for biodiversity are recommended and detailed in Section 4.11.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake an Ecological Appraisal of Land at Sussex Topiary, Naldretts Lane, Rudgwick, Horsham, RH12 3BU by Mr. Tim Bloxham. This report presents the findings of a walkover survey undertaken by Dr Ryan Walker a full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), Chartered Environmentalist (CEnv) and Natural England Level 2 class bat licence holder on 10th October 2019. It provides details on the potential for any protected species and/or habitats to be present at the site and an assessment of the potential ecological constraints to the proposed development. Recommendations for further surveys that are likely to be required to inform a planning application and meet any required Ecological Impact Assessment (EcIA) of the proposal are provided. Where appropriate, measures to avoid, mitigate and/or compensate for impacts are outlined.

1.2 Background

The site is located at Sussex Topiary, Naldretts Lane, Rudgwick, Horsham, RH12 3BU (see Figure 1). The central grid reference for the site is TQ086320.

This is a 0.3 ha. site comprising predominantly of an access track, spoil pile of stone chippings and improved grassland, currently used as a pony paddock. Five ponds lie approximately 100m to the southwest of the proposed development. The location of the site is shown in Figure 1. The proposal is for a four-pitch static caravan site (see Figure 2).

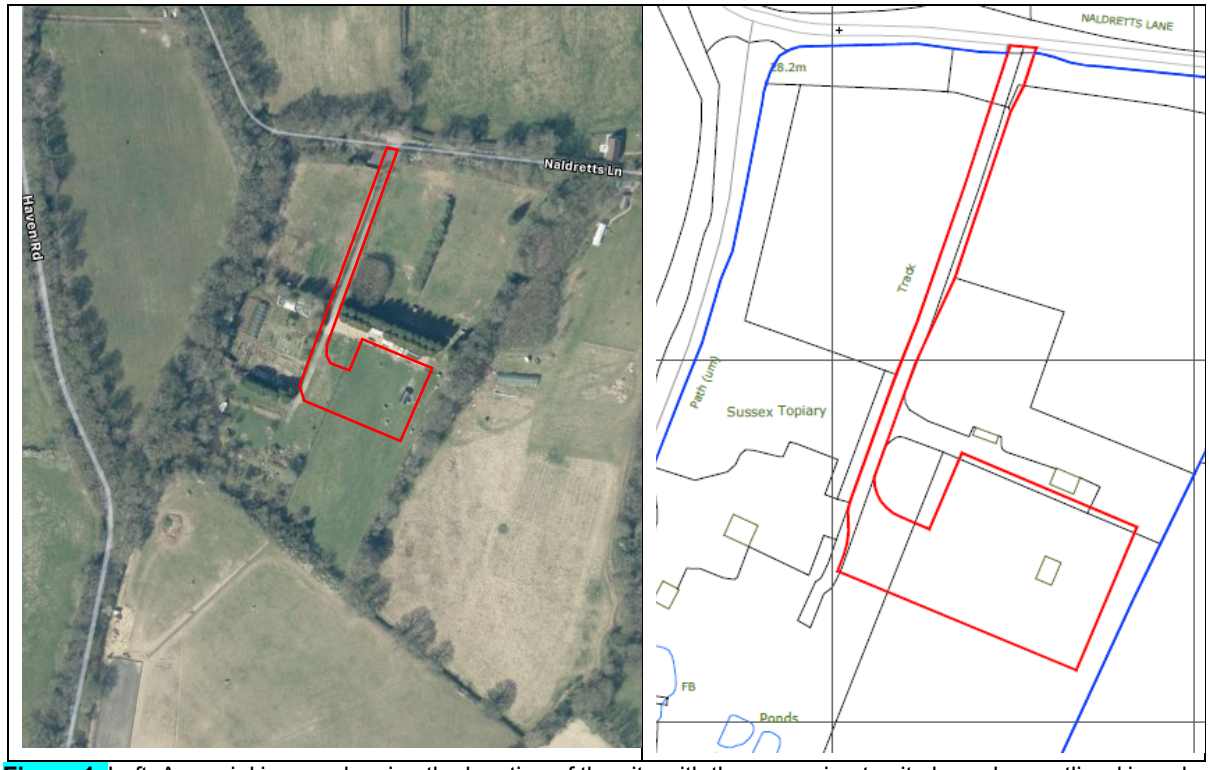

Figure 1. Left: An aerial image showing the location of the site with the approximate site boundary outlined in red. Image produced courtesy of Google maps (Map data ©2019 Google). Right: The approximate site boundary which

is outlined in red,

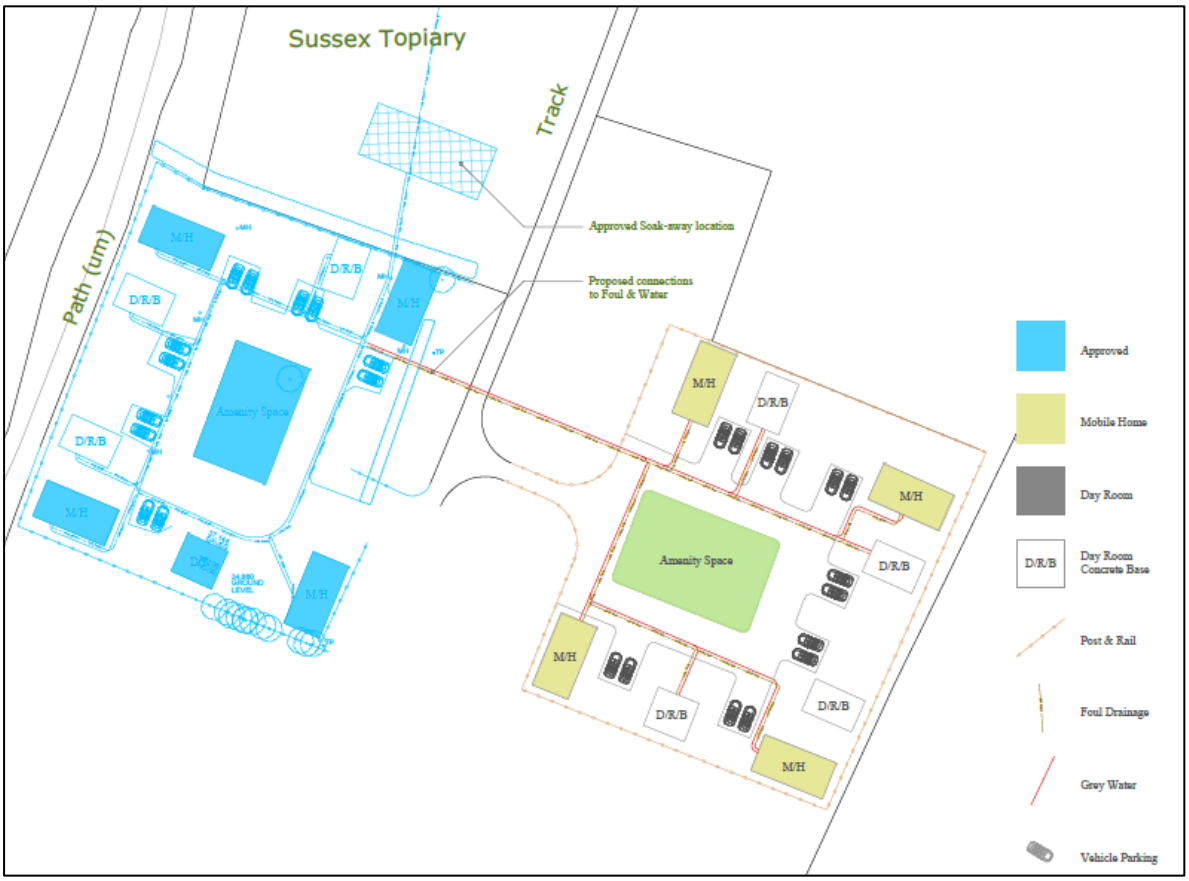

Figure 2. The proposed layout of the caravan site to the right of the image and approved layout (in blue) of the part constructed to the west. Images produced by PROwe Planning Solutions.

1.3 Policy and Legislation

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

Where possible this report has provided 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.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal (CIEEM 2017)[1], the Guidelines for Ecological Report Writing, Second Edition (CIEEM 2017)[2]

[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, Wincheter.

and the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018)[3].

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 Sussex Biological Records Centre (SxBRC) within a radius of 1km 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 *Austropotamobius pallipes*) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats, 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 bats, great crested newts and reptiles.

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

2.2 Phase 1 Habitat Survey

A site walkover survey was undertaken on 10th October 2019, during which the habitats contained within the site were described and evaluated in accordance with standard Phase 1 Habitat Survey Methodology[4]. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grasslands, were recorded.

A phase 1 habitat survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of Phase 1 survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

Data was gathered through a site walk-over survey and use of on-line aerial photography to broadly categorise the habitats present using the JNCC Phase 1 classifications. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as local and national Biodiversity Action Plan habitats are highlighted.

The Phase 1 Survey methodology is a recognised tool for initial scoping of potential ecological constraints and identifying potential impacts as part of the planning application process.

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[3] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

[4] JNCC (2010) Handbook for Phase 1 habitat survey: A technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

As part of the 'Extended' Phase 1 Habitat Survey, the site features were evaluated for their potential to support legally protected species and 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 and any specific limitations to the survey, such as access constraints, are set out in Section 3.12.

2.3 Badgers

The walkover survey included a comprehensive search for evidence of badger *Meles meles* activity, for example setts, footprints, latrines, well-worn paths, and foraging marks. Special attention was paid to boundary features such as hedgerows, woodland edge, earth banks, and fence lines, where signs of badger activity is often concentrated. The methodology follows that of Harris et al 1989[5]. Any limitations to the survey for badgers are set out in Section 3.11.

2.4 Bats

Bats can use a wide range of features 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.

A detailed building inspection was carried out, looking for potential access points and 'potential roosting features (PRFs)' that bats could use and any evidence indicating the presence of bats using the building, such as rub marks, staining or droppings. This included a ground-based external inspection around and internal inspection of any enclosed loft spaces or roof voids, where safe access was possible. All of the buildings and structures across the site were assessed. A high-powered torch was used for both the internal and external assessment.

The potential for roosting bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with best practice. Any evidence confirming the presence of bats that was found was clearly recorded including photos and samples taken (e.g. droppings) where appropriate.

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats.

2.5 Breeding Birds

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

[5] Harris, S, Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. Mammal Society.

Conservation Concern (Eaton *et al.* 2015)[6] and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

The site was broadly assessed for its potential to support hazel dormouse. 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 (Bright et al 2006)[7].

2.7 Great Crested Newt

A desk study was undertaken to identify ponds and wet ditches within 500m 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 (H.S.I.) (Oldham et al 2000)[8]. The value of the site for terrestrially foraging great crested newts and any features that might be used by hibernating newts have also been assessed.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)[9]. Any survey or access limitations are clearly set out in Section 3.11.

2.8 Reptiles

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

2.9 Other notable species

The site habitats were broadly assessed for their potential to support species of principle importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals

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[6] Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, Leigh., Musgrove, A., Noble, D., Stroud, D., Gregory, R. (2015*) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds 108, pp 708-746.

[7] Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.

[8] 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.

[9] English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

such as harvest mouse, hedgehog, brown hare, and many bird species. The site was broadly assessed for it's potential to support important invertebrate assemblages with specific attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

3 BASELINE CONDITIONS

3.1 Designated Sites

There are no statutory designated sites within 2km of the site. The closest designated site is Slinfold Stream and Quarry SSSI approximately 3.7km to the east of the site. Smithwood and Tittlesfold Copse Local Wildlife Site is approximately 700m to the southeast of the site (Figure 3).

There are no granted EPS licenses for mitigation projects within 1km of the site boundaries.

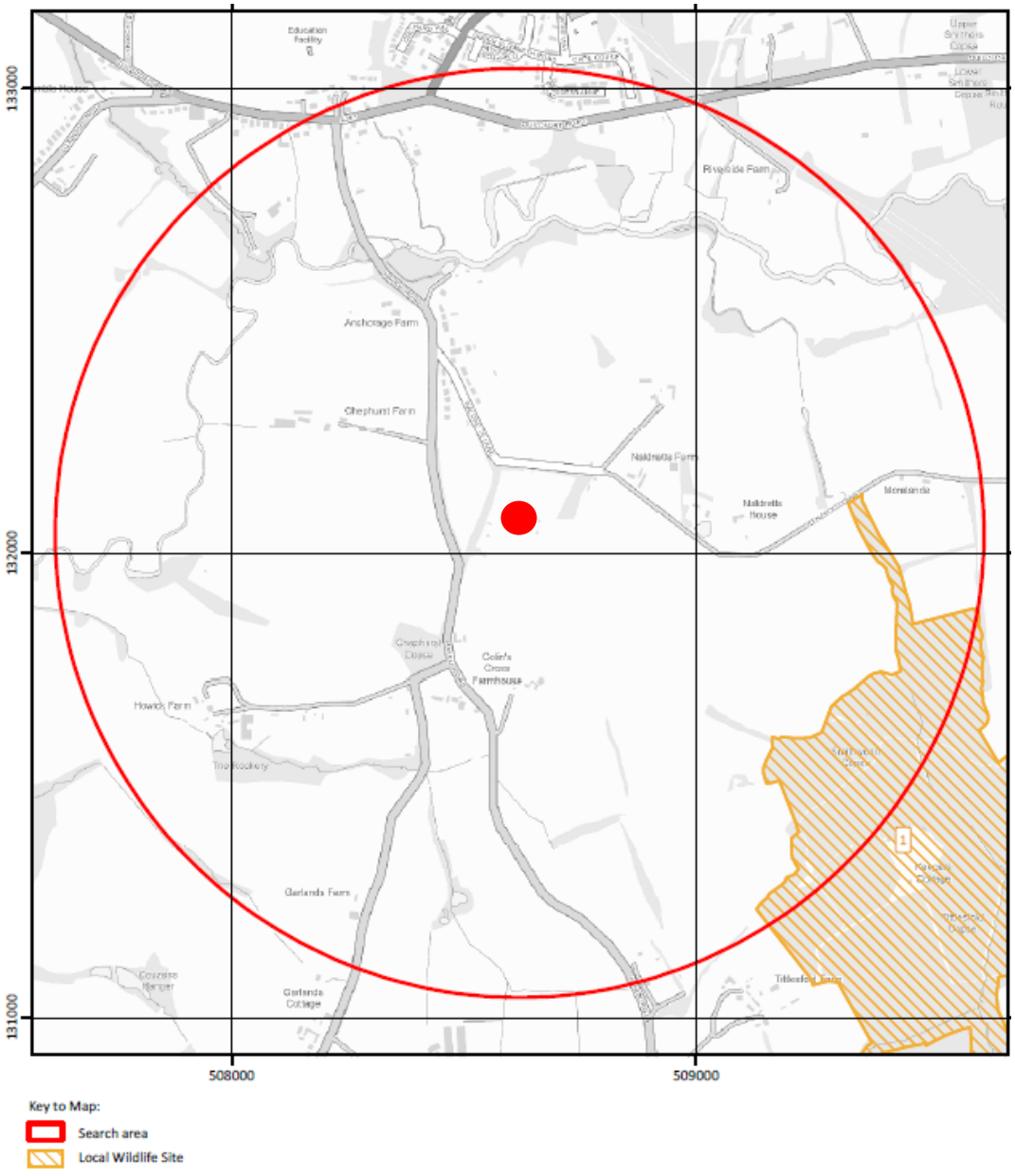

Figure 3. Designated sites within a radius of 1km of the application site (indicated with a red dot). The brown block

to the southeast of the sites shows the location of Smiths wood and Tittleswood copse Local Wildlife Site. Images produced courtesy of SxBRC.

3.2 Phase 1 Habitats

The site is largely of poor ecological value and dominated by a bare ground access track and an area of grazed, improved grassland. There is a field shelter for horses contained within the site.

The surrounding habitat includes a a block of 0.8 ha. of board leaved woodland, a UK Biodiversity Action Plan Habitat (UKBAP), approximately 100m to the northeast of the site. A development that includes two small dwellings is situated directly to the west. There are five ponds approximately 100m to the southwest of the site. The wider landscape supports a mix of grazing pasture, small blocks of woodland and hedgerows (Figure 1).

Table 1 below lists the Phase 1 Habitat categories found at the site, with target notes on specific features of interest and the general species composition. Note that detailed information on buildings and ponds with respect to bats and great crested newts are presented in the following sections. The Phase 1 Habitat Map for the site and key to the standard mapping symbols used are presented in Figure 4.

Table 1. The Phase 1 habitats contained within the site.

Habitat type	JNCC Code	Area (Ha)/ Length (meters)	Target note including general species composition
Bare ground	J4	0.10	A track which provides access to the site off of Naldretts Lane.
Other habitat	J5	0.02	A large spoil heap of stone chippings is located to the west of the site (Figure 5)
Buildings	J3.6	0.001	A shelter is present within pony paddock (Figure 6 & 7). This is described in detail in Section 3.4.
Improved grassland	B4	0.02	A large proportion of the site is comprised of a tightly grazed improved grazed, that is grazed by ponies and dominated by perennial rye grass *Lolium perenne* (Figure 5 & 6)

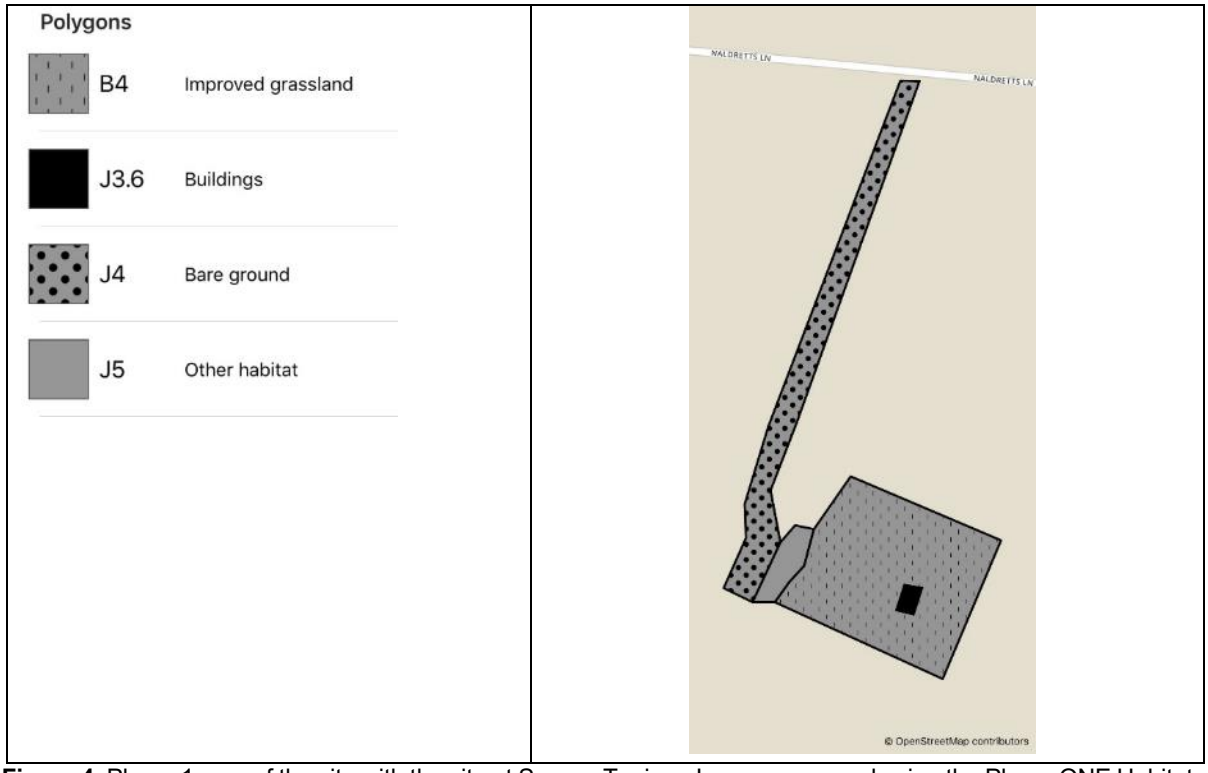

Figure 4. Phase 1 map of the site with the site at Sussex Topiary. Images prepared using the Phase ONE Habitat Survey Toolkit PRO, Department of Biological and Medical Sciences, Oxford Brookes University 1.4.0.



Figure 5. The heavily grazed pony paddock which dominates the site is shown in the foreground with the large spoil heap of stone chippings shown in the left.



Figure 6. View of the tightly grazed pony paddock which dominates the site. The field shelter is shown in the background.

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 some evidence of badger activity would have been observed.

Records of badgers are not provided by the SxBRC, due to the sensitive nature of this information.

3.4 Bats

There are no mature trees contained within the site supporting features that could be considered potentially suitable for supporting roosting bats.

The field shelter within the pony paddock is constructed of well-fitting shiplap and upon inspection appears devoid of any gaps that could be considered potentially suitable for supporting crevice roosting bats such as the pipistrelle species upon the external aspects of the structure (Figure 7). The internal aspects are well lit and subjected to constant disturbance from horses (Figure 7), there appears no evidence to suggest recent use by void roosting bats such as the long-eared species. The field shelter supports a ‘negligible’ potential to support roosting bats.

The majority of the site is comprised of tightly grazed improved grassland unlikely to support a diversity of invertebrates and therefore considered to have lower foraging value for bats, although more common species may forage here as part of a wider resource. The hedge beyond the eastern boundary of the site could support potential commuting and foraging pathways for bats.

SxBRC provided five bat records in the search area comprising four identified species which are detailed in Table 2 below.



Figure 7. Left -The field shelter within pony paddock. Right – The internal aspect of the field shelter

Table 2. Bat records returned within a 1km radius of the site.

Species	Number of Records
Common pipistrelle *Pipistrellus pipistrellus*	2
Soprano pipistrelle *Pipistrelle pygmaeus*	1
Serotine *Eptesicus serotinus*	1
Myotis sp.	1

3.5 Breeding Birds

The site is largely devoid of habitat that could be considered potentially suitable for supporting nesting birds during the spring or summer months. There are no hedgerows, trees or areas of vegetation proposed to be impacted by the works. The improved grassland is well grazed and subjected to constant disturbance from horses (Figure 6), thus making it unsuitable for ground nesting species such as skylark *Alauda arvensis.*

SxBRC provided numerous bird records for the search area concerning a total of 82 species. Most of these species are relatively common and widespread, but the list includes 45 species of principle importance for conservation (S41 NERC Act 2007), and 17 species listed on Schedule 1 of the Wildlife and Countryside Act.

3.6 Dormice

The site contains no woodland, scrub or hedgerows suitable for dormice and the species is highly unlikely to be present. SxBRC did not provide any records for dormouse in the search area.

3.7 Great Crested Newts and other amphibians

There are no ponds contained within the site. However, there are five ponds approximately 100m to the southwest of the proposed development site (see Figure 8).

Table 3 summarises the HSI scores for the five ponds to the southwest of the site. Full details of the HSI calculations are presented in Appendix 2. Despite ponds 1, 2, 3 and 5 scoring well, it would appear that no terrestrial or aquatic habitat is present upon the site that could be potentially suitable for supporting populations of great crested newts or will be impacted by the proposed works.

The SxBRC provided four records for great crested newts within 1km of the site. SxBRC also provided the records for the following other amphibians; four records for smooth newt *Lissotriton vulgaris*, four records for palmate newt *Lissotriton helvetica* and eight records for common frog *Rana temporaria*.

Table 3. Descriptions and HSI results of ponds within 250m of the site.

Pond (Fig. 8)	NGR	Description	H.S.I value	Interpretation	Survey recommendations
1 (Fig. 9)	TQ 08552 32011	Small pond heavily shaded by trees, supporting a small island.	0.75	'Good' suitability	No further surveys required as proposed development will not impact aquatic or terrestrial habitat
2 (Fig. 10)	TQ 08573 31997	Small pond, very little shading, supporting high amounts of invasive *Elodea* sp. and parrots feather *Myriophyllum aquaticum*	0.72	'Good' suitability	No further surveys required as proposed development will not impact aquatic or terrestrial habitat
3 (Fig. 11)	TQ 08568 31988	Small pond, suffering from clogging from macrophytes including invasive *Elodea* sp. and parrots feather	0.63	'Average Suitability'	No further surveys required as proposed development will not impact aquatic or terrestrial habitat
4 (Fig. 12)	TQ 08577 31983	Small pond suffering from clogging by macrophytes including high amounts of invasive parrots feather.	0.56	'Below average' suitability	No further surveys required as proposed development will not impact aquatic or terrestrial habitat
5 (Fig. 13)	TQ 08583 31992	Small pond, very little shading, supporting high amounts of invasive *Elodea sp.*	0.67	'Average suitability	No further surveys required as proposed development will not impact aquatic or terrestrial habitat

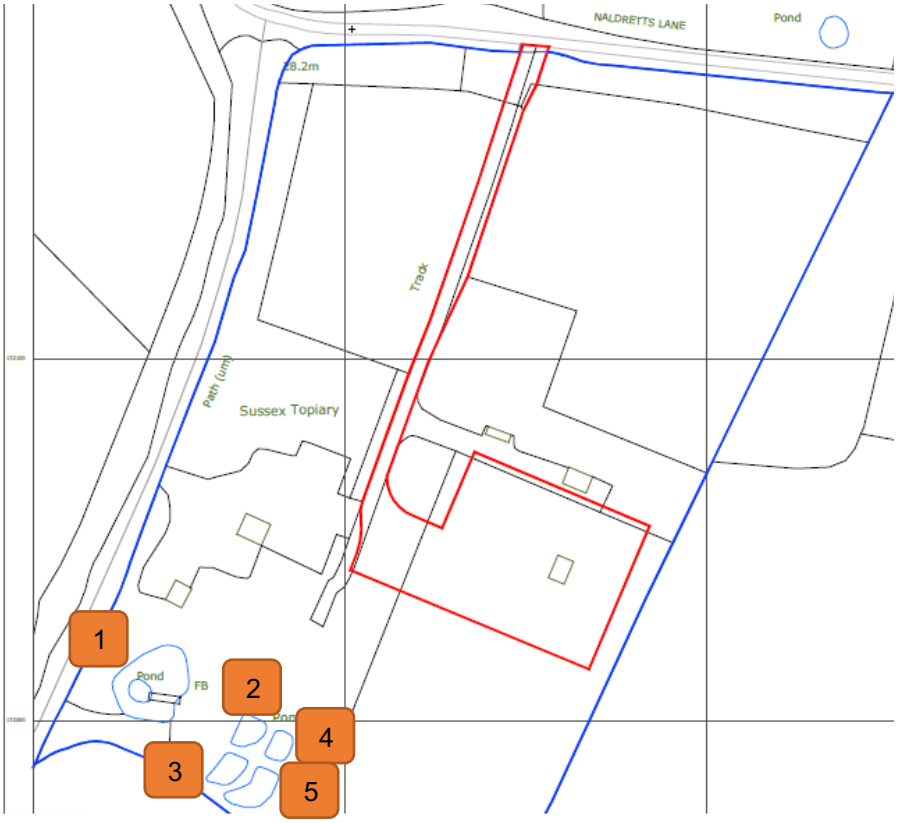

Figure 8. Relative locations of the five ponds to the southwest of the site.



Figure 9. Pond 1, supporting a HSI score of 0.75 ('Good' suitability).



Figure 10. Pond 2, supporting a HSI score of 0.72 ('Good' suitability).



Figure 11. Pond 3, supporting a HSI score of 0.63 ('Average' suitability).



Figure 12. Pond 4 supporting a HSI score of 0.56 ('Below average' suitability).



Figure 13. Pond 5, supporting a HSI score of 0.67 ('Average' suitability).

3.8 Reptiles

The site contains no suitable habitat for reptiles and comprises almost exclusively hard standing and tightly grazed grassland. SxBRC provided three reptile records in the search area, including slow worm, grass snake and common lizard.

3.9 Invasive non-native species

No evidence of invasive non-native species was found during the survey. SxBRC provided seven records of invasive plant species in the search area.

3.10 Other notable species

The site has limited opportunities for supporting potential for habitats that could support other notable species. SxBRC has recorded the following species within 1km of the site within the last 10 years; red squirrel *Sciurus vulgaris* and hedgehog *Erinaceus europaeus*.

3.11 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.

4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

4.1 Designated sites

There are no designated sites within 1km of the site. Smithwood and Tittlesfold Copse Local Wildlife Site is located approximately 700m to the southeast of the site. Due to the distance between the site and the LWS, construction phase impacts such as dust, lighting, physical damage and noise, are considered unlikely to negatively impact this site.

4.2 Habitats

The habitats; bare ground, tightly grazed improved grassland and a pile of stone chippings, contained within the site are of limited ecological value.

4.3 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on

or near of the proposed construction zone. No further mitigation for badgers is advised, however if any signs of digging by large animals is identified on or near to the site prior to construction, then an ecologist should be contacted for advice.

With no badger presence identified, the impact of this development upon badgers is considered to be neutral.

4.4 Bats

In accordance with the Bat Conservation Trust guidelines, the overall potential for the field shelter within the site to support bats is rated as negligible, and no further surveys in relation to roosting bats is considered necessary. The impact of this development upon roosting bats is therefore considered to be neutral.

The hedgerow to the east of the site could be used by foraging and commuting bats as part of a wider resource across the landscape. 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 should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 3).

With the implementation of a 'ecologically sensitive lighting scheme' there is likely to be a neutral impact from this development upon foraging and commuting bats.

4.5 Breeding Birds

There is very limited habitat within the site that could be considered potentially suitable for supporting nesting birds and there will be no loss of trees, shrubs or hedgerows. Therefore, no mitigation or further surveys are required in relation to nesting birds. The impact of this development upon nesting birds is therefore considered to be neutral.

4.6 Dormice

The proposed development does not result in significant impacts on the woodland, hedgerow and scrub habitats contained within or bordering the site. Therefore, it is very unlikely that this proposed development will impact upon populations of dormice and the impact of this development upon dormice is considered to be neutral.

4.7 Great Crested Newts

No further surveys are recommended with respect to great crested newts on account of the proposed development not impacting any aquatic or terrestrial habitat potentially used by newts. Therefore, no further survey work in relation to great crested newts is considered necessary and the impact of this development upon reptiles is considered to be neutral.

However, as a precautionary measure all the improved grassland within the site must maintained short to prevent longer grassland and potentially suitable terrestrial habitat for this species from establishing. This must take place through continued heavy grazing or regular strimming/mowing to keep a short turf below 5cm in height until construction.

4.8 Reptiles

The proposed development will not result in any loss or impact to habitats that could potentially support reptiles with the site dominated by tightly grassed improved grassland. Therefore, no further survey or mitigation work in relation to reptiles is considered necessary and the impact of this development upon reptiles is considered to be neutral.

However, as a precautionary measure the improved grassland must be maintained short (below 5cm in height) until construction as detailed in the above section.

4.9 Invasive non-native species

No further survey or mitigation work in relation to non-native species is considered necessary.

4.10 Other notable species

No further survey or mitigation work in relation to other notable species such as hedgehogs is considered necessary.

4.11 Enhancement opportunities

The ponds to the southwest of the site are under the ownership of the developer. There is a reasonable chance that these ponds are being used as a breeding ponds by great crested newts, given that a number of recent records for the species have been recorded within 1km of this site. Ponds are also a National Biodiversity Action Plan Habitat (UKBAP) and are considered one of the most rapidly declining habitats within the UK.

There is an ideal opportunity for enhancement of these ponds to benefit local biodiversity and possibly local great created newt populations. The following simple pond management methods could be applied.

1. Pond 1 is heavily shaded by trees in particular willows. These willows could be coppiced on a five-year rotation cycle. The coppicing will open up the pond allowing more sunlight to help improve macrophyte growth and improve water quality through reducing leaf litter within the waterbody. The wood produced from the coppicing should be stacked in habitat piles around the pond, creating hibernacula for amphibians and other species. Coppicing should be undertaken during the winter months.
2. Pond 1 should be dredged, having the sediment and decaying leaf litter removed every 5-10 years during winter months. This material can then be heaped at the side of the pond creating valuable habitat and hibernacula for a number of species.

3. Ponds 2, 3 and 4 are heavily impacted by parrots feather and *Elodea* sp. which have inundated both of these three ponds. Both species are listed on Schedule 9 of the Wildlife and Countryside Act and it is an offence to plant or otherwise cause this species to spread or grow in the wild and therefore these species should be controlled. These ponds would benefit from being dredged every 5 years. Dredging is the most effect way to remove parrots feather and *Elodea sp*. by removing fragments of the plant species to prevent regrowth. The reduction in the parrots feather and *Elodea* growth will improve macrophyte diversity within the pond. This dredged material should be heaped at the side of the ponds. Between dredging careful pulling out of stems by hand would help eradicate small colonies with material to be removed from the water as soon as possible to prevent regrowth from fragments.

Such enhancement measures are in line with the recommendations of the NPPF (See Appendix 1) and as such would be considered favourably when determining the planning application.

4.12 Conclusions

This site contains four habitats of very limited conservation value. These habitats do not have the potential to support any protected species. However, it must be ensured that the improved grassland is kept short (below 5cm in height) through continued heavy grazing or regular mowing/stimming to prevent longer grassland habitats from establishing prior to construction. The hedge beyond the eastern boundary of the site has the potential to be used by foraging and commuting bats and external lighting within the proposed development should be designed in accordance with the Bat Conservation Trust Guidance (Appendix 3).

There are five ponds within 100m of the southwest boundary of the site with the potential to support populations of great created newts. These ponds are under the same ownership of the developer. Management and enhancement measures for improve these ponds for biodiversity are suggested in line with NPPF.

If any protected species are found during the proposed work, work should be stopped immediately, and an ecologist must be contacted for advice.

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 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' (SPAs), designated under the Birds Directive, SACs 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 (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 receive the highest level of protection under this regulation 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 on the integrity of the site 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.

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 2018)[10] 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 174b, 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) [11]. 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.

[10] [10] HM Government (2018). 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/728643/Revised_NPPF_2018.pdf.

[11] 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.

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 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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Defra (2013) Progress Update. Available at: www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013.

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APPENDIX 2 – Great crested newt 'Habitat Suitability Index' values

Table 1. HSI calculation for ponds assessed during the survey.

	Pond 1		**Pond 2**		**Pond 3**	
NGR	**TQ 08552 32011**		**TQ 08573 31997**		**TQ 08568 31988**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	SE England	1.00	SE England	1.00	SE England
Pond area	1.00	600m^2	0.10	48m^2	0.10	48m^2
Pond drying	0.90	Never	1.00	Rarely	0.50	Sometimes
Water quality	0.67	Moderate	1.00	Good	0.67	Moderate
Shade cover	0.40	90%	1.00	10%	1.00	5%
Water-fowl	1.00	absent	1.00	Absent	0.67	Minor
Fish presence	0.67	Possible	0.67	Possible	0.67	Possible
No. ponds	1.00	4	1.00	4	1.00	4
Terrestrial habitat	0.67	Moderate	0.67	Moderate	0.67	Moderate
Macrophytes	0.51	20%	0.90	90%	1.00	80%
H.S.I. value	**0.75**	**'Good' suitability**	**0.72**	**'Good' suitability**	**0.63**	**'Average' suitability**

	Pond 4		**Pond 5**	
NGR	**TQ 08577 31983**		**TQ 08583 31992**	
SI attribute	**SI value**	**Notes**	**SI value**	**Notes**
Location	1.00	SE England	1.00	SE England
Pond area	0.16	80m^2	0.13	64m^2
Pond drying	0.10	Frequent	1.00	Rarely
Water quality	0.67	Moderate	0.67	Moderate
Shade cover	1.00	0%	1.00	30%
Water-fowl	0.67	Minor	0.67	Minor
Fish presence	0.67	Possible	0.67	Possible
No. ponds	1.00	4	1.00	4
Terrestrial habitat	0.67	Moderate	0.67	Moderate
Macrophytes	1.00	80%	0.71	40%
H.S.I. value	**0.56**	**'Below average' suitability**	**0.67**	**'Average' suitability**

APPENDIX 3 - 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 on 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[12] should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which 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 on 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
- Consider 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. Consider 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 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

[12] 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/



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*

End.