

BBC Caversham, Berkshire

Ecological Appraisal

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Executive Summary

- i) **Introduction.** Aspect Ecology was commissioned by Beechcroft Developments Ltd in September 2021 to undertake an ecological appraisal in respect of proposed development of land at BBC Caversham, Berkshire.
- ii) **Proposals.** The proposals are for development of the site to provide new care provision, in the form of new residential dwellings, and via the conversion of an existing mansion building to provide new apartment type accommodation, along with associated access and landscaping.
- iii) **Survey.** The site was surveyed in 2018 and November 2021, based on standard extended Phase 1 methodology. In addition, a general appraisal of faunal species was undertaken to record the potential presence of any protected, rare or notable species, with specific surveys conducted in respect of bats, Badger, Great Crested Newts and reptiles.
- iv) **Ecological Designations.** The site itself is not subject to any statutory or non-statutory ecological designations. The nearest statutory designation is Clayfield Copse Local Nature Reserve (which is also a Local Wildlife Site) located approximately 0.3km northeast of the site. The nearest non-statutory designation is Rotherfield Way Copse Local Wildlife Site located approximately 0.3km west of the site. All of the ecological designations in the surrounding area are physically well removed and separated from the site by existing residential development and are therefore unlikely to be adversely affected by the proposals.
- v) **Habitats.** The site comprises a variety of habitats, which collectively comprise part of the historic landholding of Caversham Park, including buildings / hardstanding, areas of semi-improved and amenity grassland, dense scrub and amenity planting. Features of ecological importance include areas of woodland, veteran and mature trees, a traditional orchard, hedgerows /treelines and a matrix of trees / scrub / grassland, which are all of at least local ecological value. The proposals for the site retain the majority of those features of ecological importance.
- vi) **Protected Species.** The site offers numerous opportunities for roosting bats, foraging and commuting bats, Badger, other mammals, amphibians and reptiles, as well as foraging and nesting opportunities for birds. However, survey work undertaken recorded the majority of protected species to be absent from the site and not to pose a constraint to the proposals. Where required, a number of mitigation measures have been proposed which will need to be implemented in order to ensure that the proposed development safeguards protected species. However, such species groups do not pose an overriding constraint to development of the site.
- vii) **Enhancements.** The proposals present the opportunity to secure a number of biodiversity net gains, through the creation of new wildflower grassland, the enhancement of the woodland, scrub / tree matrix and orchard habitat, the provision of new planting including species-rich native hedgerows and faunal enhancements such as the provision of bat and bird boxes.
- viii) **Summary.** In summary, the proposals have sought to minimise impacts on biodiversity and subject to the implementation of appropriate avoidance, mitigation and compensation measures, it is considered unlikely that the proposals will result in significant harm.

1 Introduction

1.1 Background and Proposals

1.1.1 Aspect Ecology was commissioned by Beechcroft Developments Ltd in September 2021 to undertake an Ecological Appraisal in respect of proposed development of land at BBC Caversham, Berkshire, centred at grid reference SU 72409 76361 (see Plan 5022/ECO1), hereafter referred to as 'the site'.

1.1.2 Aspect Ecology previously undertook ecological survey and assessment work at the site in 2018, inclusive of wider land at Caversham Park, referred to as the 'survey area' where appropriate.

1.1.3 The proposals are for *Redevelopment of Caversham Park for;*

- *64 assisted living units (Class C2) for the over 55's through conversion of Caversham Park House;*
- *64 bed care home (Class C2);*
- *61 age restricted retirement dwellings (class C3);*
- *5 market dwellings (class C3);*
- *28 affordable dwellings (class C3); and*
- *refurbishment and extension of the existing pavilion to provide enhanced changing facilities, café/studio and sports provision comprising 2 no. croquet lawns, 2 no. bowling greens, an additional tennis court, refurbishment of the existing tennis court and associated parking and landscaping following the demolition of unsympathetic extensions and associated outbuildings to the main house and removal of twentieth century satellite dishes and associated infrastructure."*

1.2 Site Overview

1.2.1 The site is located in the north of Caversham, within the historic grounds of Caversham Park. The site is bound to the north by Lowfield Road beyond which lies existing residential development. The site is bound by wider land as part of Caversham Park to the south (primarily comprising grassland and woodland / tree cover), beyond which lies Reading Cemetery & Crematorium, Micklands Primary School and residential development. To the east and west the site is bound by existing residential development.

1.2.2 The site itself encompasses part of Caversham Park, formerly in use by BBC Monitoring and BBC Radio Berkshire. The site comprises a number of buildings converted for office use, surrounded by areas of hardstanding and landscaping, including large areas of grassland interspersed with tree and shrub planting. An area of woodland is also present within the east of the site, in addition to an orchard, hedgerows / treelines and a number of veteran trees. Other areas of woodland, and 3 ponds are additionally located within the wider survey area, in close proximity to the southern site boundary.

1.3 Purpose of the Report

1.3.1 This report documents the methods and findings of the baseline ecology surveys and desktop study carried out in order to establish the existing ecological interest of the site, and subsequently provides an appraisal of the likely ecological effects of the proposals. The importance of the habitats and species present is evaluated. Where necessary, avoidance, mitigation and compensation measures are proposed so as to safeguard any significant existing ecological interest within the site and where appropriate, opportunities for

ecological enhancement are identified with reference to national conservation priorities and local Biodiversity Action Plans (BAPs).

2 Methodology

2.1 Desktop Study

- 2.1.1 In order to compile background information on the site and its immediate surroundings the Thames Valley Environmental Records Centre (TVERC) were contacted in October 2021, with data requested on the basis of a search radius of 2km.
- 2.1.2 Where information has been received from the above organisation(s) this is reproduced at Appendix 5022/3 and on Plan 5022/ECO2, where appropriate.
- 2.1.3 Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England, with an extended search radius (15km). In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site. Relevant information is reproduced at Appendix 5022/3 and on Plan 5022/ECO2, where appropriate.
- 2.1.4 In addition, the Woodland Trust database was searched for any records of ancient, veteran or notable trees within or adjacent to the site.

2.2 Habitat Survey

- 2.2.1 The site was surveyed in June to August 2018 (inclusive of wider land at Caversham Park, the 'survey area') and in November 2021 in order to ascertain the general ecological value of the land contained within the boundaries of the site and to identify the main habitats and ecological features present.
- 2.2.2 The site was surveyed based on standard Phase 1 Habitat Survey methodology¹, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal² to record details on the actual or potential presence of any notable or protected species or habitats.
- 2.2.3 Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. The nomenclature used for plant species is based on the Botanical Society for the British Isles (BSBI) Checklist.

2.3 Faunal Surveys

- 2.3.1 General faunal activity, such as mammals or birds observed visually or by call during the course of the surveys was recorded. Specific attention was also paid to the potential presence of any protected, rare or notable species, and specific consideration was given to bats, Badger, Great Crested Newt and reptiles as described below.

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

² Chartered Institute for Ecology and Environmental Management (CIEEM) (2013) '*Guidelines for Preliminary Ecological Appraisal.*'

2.3.2 The specific faunal survey work completed in 2018 is still be considered to be within its 'shelf life'³, and as such is suitable to inform planning. However, in order to provide additional refinement to this planning submission, as far as seasonal windows permitted, this survey work was updated in 2021 (including daytime bat roosting assessments of buildings / trees, Badger and reptiles), in order to provide the most current understanding of the site possible. Given that the site has remained broadly unchanged, remaining survey work completed in 2018 only in respect of bats (foraging /commuting, emergence / re-entry) and Great Crested Newts is considered to remain sufficient to fully inform this ecological appraisal.

2.3.3 All 2018 survey work included wider land at Caversham Park, the 'survey area'.

Bats⁴

Visual Inspection Surveys

2.3.4 **Buildings.** Buildings within the site were subject to specific internal and external inspection surveys using ladders, torches and binoculars where necessary in June 2018 and September 2021.

2.3.5 During the external inspections, particular attention was given to any potential roost features or access points, such as broken or lifted roof tiles, lifted lead flashing, soffit boxes, weatherboarding, hanging tiles, etc. and for any external signs of use by bats such as accumulations of bat droppings or staining. Binoculars were used to inspect any inaccessible areas more closely where appropriate.

2.3.6 During the internal inspections, evidence for the presence of bats was searched for with particular attention paid to any loft voids and relevant potential roost features and locations, such as ridge boards, rafters, purlins, gable walls, and mortise joints. Specific searches were made for bat droppings that can indicate present or past use and extent of use, whilst other signs that can indicate the possible presence of bats were also searched for, e.g. presence of stained areas, feeding remains, corpses, etc.

2.3.7 **Trees.** Trees were assessed for their suitability to support roosting bats based on the presence of features such as holes, cracks, splits or loose bark. Suitability for roosting bats was rated based on relevant guidance⁶ as:

- Negligible;
- Low;
- Moderate; or
- High.

2.3.8 Any potential roost features identified were also inspected for any signs indicating possible use by bats, e.g. staining, scratch marks, bat droppings, etc.

Dusk Emergence/ Dawn Re-entry Survey

³ <https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/>

⁴ Surveys based on: English Nature (2004) 'Bat Mitigation Guidelines' and Collins, J. (ed.) (2016) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).' Bat Conservation Trust

⁶ Collins, J. (ed.) (2016) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).' Bat Conservation Trust

2.3.9 Dusk emergence and dawn re-entry surveys were carried out between August and September 2018 to identify any bats roosting in buildings highlighted to have potential to support roosting bats.

2.3.10 Surveyors employed Echometer EM3 or EM Touch handheld bat detectors alongside BatBox Duet detectors to aid identification of any bats observed. At dusk, surveyors were in position 15-30 minutes prior to sunset, remaining in place for approximately 2 hours. At dawn, surveyors were in place approximately 1.5 – 2 hours before sunrise and remained in place until sunrise. This survey method aims to identify any roosting bats emerging from or returning to potential roost sites.

2.3.11 This survey work was carried out during suitable weather conditions, as set out in Tables 2.1 and 2.2 below.

Table 2.1. Dusk survey details.

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
16/08/2018	Start time: 20:09 End time: 22:24 Sunset: 20:24	B4 and B8	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 0% cloud, BF3, 16°C
Comments: The survey was undertaken by 3 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
22/08/2018	Start time: 19:58 End time: 21:51 Sunset: 20:13	B1	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 100% cloud, BF2, 20°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
29/08/2018	Start time: 19:43 End time: 21:27 Sunset: 19:58	B2, B3 and B10	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 30% cloud, BF1, 17°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
05/09/2018	Start time: 19:26 End time: 21:11 Sunset: 19:41	B1	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 95% cloud, BF3, 16°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				

BF0 = calm, BF12 = hurricane force.

Table 2.2. Dawn survey details.

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
17/08/2018	Start time: 04:22 End time: 06:07 Sunrise: 05:52	B9 and B10	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 0% cloud, BF2, 9°C
Comments: The survey was undertaken by 3 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
23/08/2018	Start time: 04:31 End time: 06:16 Sunrise: 06:01	B1	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 100% cloud, BF1, 18°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				

30/08/2018	Start time: 04:43 End time: 06:28 Sunrise: 06:13	B4 and B11	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 10% cloud, BF2, 9°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
06/09/2018	Start time: 04:52 End time: 06:39 Sunrise: 06:24	B1	Bat Box Duet connected to MP3 recorders, Anabat SD2 and Echo Meter EM3.	Dry, 0% cloud, BF1, 10°C
Comments: The survey was undertaken by 5 surveyors under direction of licence holder 2016-26609-CLS-CLS.				

BF0 = calm, BF12 = hurricane force.

Activity Surveys

- 2.3.12 Walked transect surveys were undertaken in June, July and September 2018 to ascertain the level of usage of the site by foraging or commuting bats. This survey method involves walking planned transect routes with key listening points, specifically covering habitats/features with particular potential for commuting or foraging bats. Echometer EM3 or EM Touch handheld bat detectors were employed alongside BatBox Duet detectors to aid identification of any bats observed. Each transect was walked from approximately 15 minutes prior to sunset, for 2-3 hours, with a minimum 3 minute stop at each listening point. This methodology was repeated for 1.5 - 2 hours prior to sunrise to complete the dawn survey.
- 2.3.13 This survey work was carried out during suitable weather conditions, as set out in Tables 2.3 below.

Table 2.3. Walked transect survey details.

Date	Start & end times & time of sunset	Transect / location	Equipment used	Weather
06/06/2018	Start time: 21:16 End time: 23:24 Sunset: 21:16	Transect A	Anabat SD2 and Echo Meter EM3.	Dry, 10% cloud, BF3, 16°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
16/07/2018	Start time: 21:14 End time: 23:14 Sunset: 21:14	Transect A (reversed)	Anabat SD2 and Echo Meter EM3.	Dry, 40% cloud, BF3, 21°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2016-26609-CLS-CLS.				
13/09/2018	Start time: 19:24 End time: 21:41 Sunset: 19:24	Transect A	Anabat SD2 and Echo Meter EM3.	Dry, 50% cloud, BF1-2, 15°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2016-26609-CLS-CLS.				

BF0 = calm, BF12 = hurricane force

- 2.3.14 Automated static detector surveys were also carried out during which Song Meter 2 (SM2) detectors were positioned at two locations within the site from the 20th to 30th June 2018 to record any bat activity. The two SM2 detectors were deployed in the same locations between the 13th and 20th September 2018. Detector 1 was situated within the area of tree cover within the north western portion of the site, adjacent to the orchard habitat, whilst detector 2 was located to the north of the eastern portion of woodland within the site (see Plan 5022/ECO4). The detectors were set to switch on approximately 30 minutes before sunset and switch off approximately 30 minutes after sunrise. The weather conditions during the static detector surveys are provided in Table 2.4 and Table 2.5 below.

Table 2.4. Automated detector survey details.

Survey Date	Weather Conditions		
	Wind (BF)	Average Temp(°)	Precipitation
20/06/2018	BF2-4	19	None
21/06/2018	BF2-4	13	None
22/06/2018	BF2-3	12	None
23/06/2018	BF2-4	13	None
24/06/2018	BF3	16	None
25/06/2018	BF4	18	None
26/06/2018	BF5	19	None
27/06/2018	BF5	18	None
28/06/2018	BF3-5	18	None

Table 2.5. Automated detector survey details.

Survey Date	Weather Conditions		
	Wind (BF)	Average Temp(°)	Precipitation
13/09/2018	BF3-4	16	None
14/09/2018	BF5	12	None
15/09/2018	BF4-5	18	None
16/09/2018	BF6	18	None
17/09/2018	BF6-7	20	None
18/09/2018	BF6-7	18	None
19/09/2018	BF7-8	19	None
20/09/2018	BF7-9	17	None

BF0 = calm, BF12 = hurricane force

Analysis of Bat Survey Recordings

- 2.3.15 All bat calls were analysed using BatSound v.3.30© and Analook W v4.2 to verify the species recorded during the survey work. Where recordings could not be reliably attributed to species (such as for *Myotis* species) or where overlaps between otherwise distinguishable species occur (such as in Pipistrelle bat calls around 40kHz or 50kHz) calls were identified to genus level; in the case of calls which could not be distinguished between *Nyctalus* sp. and *Serotine*, these have been labelled as 'unidentified big bat' species.

Badger (*Meles meles*)⁷

- 2.3.16 A detailed Badger survey was carried out in June 2018 and November 2021. The survey comprised two main elements. The first element involved searching for evidence of Badger setts. For any setts that were encountered, each sett entrance was noted and mapped. The following information was recorded:

- Number and location of well used / active entrances; these are clear from any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently;
- Number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance; and

⁷ Based on: Mammal Society (1989) 'Occasional Publication No. 9 – Surveying Badgers'

- Number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.3.17 The second element involved searching for signs of Badger activity such as well-worn paths and push-throughs, snagged hair, footprints, latrines and foraging signs, so as to build up a picture of any use of the site by Badger.

Reptiles¹¹

2.3.18 Given the presence of potentially suitable reptile habitat within the site, a specific survey was undertaken to establish the presence/absence of common reptile species between September and October 2018, and September and October 2021.

2.3.19 In 2018 a total of 230 50x50cm sheets of thick roofing felt were placed within suitable areas across the wider Caversham Park land to act as artificial refugia, which represents a density of 6.1 refugia per hectare. In 2021 a total of 150 sheets were used within the site only, which represents a density of 12.2 refugia per hectare. The refugia, or 'tins', provide shelter and heat up more quickly than their surroundings in the morning and can remain warmer than their surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature, which allows them to forage earlier and later in the day. Therefore, checking the refugia at appropriate times of the day (morning and evening) enables the presence/absence of common reptiles to be determined.

2.3.20 The refugia remained undisturbed for approximately 1-2 weeks to allow reptiles to find and start using them. Following this initial bedding-in period, refugia were checked at appropriate times of the day on seven occasions during suitable weather conditions, as set out below in Table 2.6 and 2.7 below.

Table 2.6. Reptile survey dates and weather conditions (2018).

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°)	Cloud Cover (%)	Precipitation
13/09/2018	1-2	17	75	None
20/09/2018	1	15	100	Light rain
24/09/2018	3	14	30	None
27/09/2018	4	19	0	None
05/10/2018	2	18	80	None
16/10/2018	2	15	100	None
23/10/2018	3	14	50	None

BF0 = calm, BF12 = hurricane force

¹¹ Surveys based on: Froglife Advice Sheet 10 (1999) 'Reptile Survey - an introduction to planning, conducting and interpreting surveys for snake and lizard conservation.'

Table 2.7. Reptile survey dates and weather conditions (2021).

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°)	Cloud Cover (%)	Precipitation
11/09/2021	2	16-18	100	None
20/09/2021	3	18	30	None
26/09/2021	1	15-18	100	None
28/09/2021	2	15	20	Light rain for first 10 minutes
04/10/2021	2	12-14	10	None
06/10/2021	3-4	12-13	20	None
08/10/2021	2	10-13	10	None

BF0 = calm, BF12 = hurricane force

- 2.3.21 In addition, reptiles basking in the open or partial cover were actively searched for in suitable locations across the site through direct observation. Existing natural objects (e.g. logs and rocks) and artificial refugia (e.g. debris, tyres, etc.) were also searched, where present, for reptiles or evidence of reptiles (e.g. sloughed skin).

Great Crested Newt (*Triturus cristatus*)

Habitat Suitability Index (HSI)

- 2.3.22 As a first step in identifying the potential presence of Great Crested Newt at the site, a Habitat Suitability Index (HSI) study was undertaken of all relevant water bodies within 250m¹² of the site boundary (based on a review of Ordnance Survey mapping and satellite imagery). Guidance set out within Natural England's Method Statement template, to be used when applying for a Great Crested Newt development licence, states that surveys of ponds within 500m of the site boundary are only required when '(a) data indicates that the pond(s) has potential to support a large Great Crested Newt population, (b) the footprint contains particularly favourable habitat, (c) the development would have a substantial negative effect on that habitat and (d) there is an absence of dispersal barriers.' Given that in this instance, none of the four points listed above are applicable to the site, it is considered that survey of ponds within 500m of the site boundary is not required, and that survey of ponds within 250m represents adequate survey effort.

- 2.3.23 An HSI study is used to assess the potential of water bodies to support Great Crested Newt. It is undertaken by attributing a score to a number of factors that can affect the presence or absence of this species. Ten factors are utilised in an HSI assessment, as described below:

- *SI1 Location.* The location of the water body within Great Britain;
- *SI2 Pond area.* The size of the water body;
- *SI3 Permanence.* How often the water body dries out;
- *SI4 Water Quality.* The water quality, based primarily on invertebrate diversity;
- *SI5 Shade.* The percentage of the perimeter of the water body that is shaded;
- *SI6 Fowl.* The presence or absence of water fowl;
- *SI7 Fish.* The presence or absence of fish;

¹² 250m is the typical maximum migratory range of this species, see English Nature (2004) 'An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*'. English Nature Research Report 576

- *SI8 Pond Count*. The number of water bodies within 1km of the surveyed water body (not counting those on the far side of major barriers such as roads);
- *SI9 Terrestrial*. The quality of terrestrial habitat surrounding the water body; and
- *SI10 Macrophytes*. The percentage cover of the surface area of the water body covered by macrophytes (aquatic plants).

2.3.24 The overall suitability of the water body is then determined by entering these figures into an equation devised by Oldham *et al.* (2000)¹³. The suitability of water bodies is classed into one of five categories, either 'poor', 'below average', 'average', 'good' or 'excellent'.

2.3.25 This HSI study was undertaken in line with the guidelines developed by Oldham *et al.* and subsequently adapted by ARG UK (2010)¹⁴. A suitably experienced ecologist undertook the assessment in line with these guidelines, with the study also supplemented by desktop research where appropriate.

Detailed presence / absence survey

2.3.26 Three offsite ponds, P1a, P1b and P2 (see Plan 5022/ECO3) were subject to further specific Great Crested Newt survey between May and June 2018, with ponds P1a and P1b having been identified through the HSI assessment as having 'good' potential to support Great Crested Newt.

2.3.27 Surveys were undertaken in suitable weather conditions, using at least three methods per visit (where possible) in accordance with the 'Great Crested Newt Mitigation Guidelines'¹⁷ to determine the presence or absence of Great Crested Newt. Suitable weather conditions are those nights when the night-time air temperature is 5°C or warmer. All surveys were conducted during such conditions.

2.3.28 Torch surveys involved the use of high-powered torches (min. 50,000 candlepower) to count the number of each amphibian species present. As recommended by the guidance, the entire margin of each water body was walked once, slowly searching for Great Crested Newt.

2.3.29 Bottle-trapping involved setting traps made from 2-litre plastic bottles around the pond margins, and leaving the traps in place overnight before checking them the following morning. A density of one trap every two metres of shoreline was employed, where possible, as recommended by the guidance.

2.3.30 In theory, netting involves sampling for a period dictated by the size of the water body, and the guidance recommends 15 minutes of search time for every 50 metres of shoreline. In practice, where undertaken, the search time significantly exceeded this value.

2.3.31 Where suitable vegetation was present within the waterbody, egg searching took place. This involved searching for newt eggs amongst vegetation and unfolding leaves where necessary to confirm species identification. As recommended by the guidance, once a Great Crested Newt egg had been identified no further egg searching was carried out.

2.3.32 Terrestrial habitats were also searched for Great Crested Newts. This involved searching under logs, rocks and debris, which are favoured resting places.

¹³ Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) 'Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*)'. Herpetological Journal 10 (4), 143-155

¹⁴ Amphibian & Reptile Groups of the UK (2010) 'ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index'

¹⁷ Surveys based on: English Nature (2001) 'Great Crested Newt Mitigation Guidelines'

2.4 Survey Constraints and Limitations

- 2.4.1 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The initial Phase 1 habitat survey was undertaken within the optimal season therefore allowing a robust assessment of habitats and botanical interest across the site. The update Phase 1 habitat survey was undertaken outside the optimal season, albeit the nature of the habitats within the site allowed for the broad habitat types to be identified and for an adequate assessment of the intrinsic ecological interest of the site to be made.
- 2.4.2 Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey.
- 2.4.3 A recognised limitation of the bat activity surveys is that bat detectors can only provide an index of activity rather than absolute numbers of bats. Therefore, the results of the bat activity surveys should only be considered indicative of the amount of use bats make of an area rather than the abundance of bats. In addition, some bat species, e.g. Brown Long-eared Bat, are difficult to detect due to their quiet echolocation calls.
- 2.4.4 Minor limitations were experienced during the Great Crested Newt presence/ absence survey work as it was not possible to bottle-trap ponds P1a and P1b, as these ponds were lined, whilst pond P2 was too deep to bottle-trap. Nevertheless, in line with the 'Great Crested Newt Mitigation Guidelines'²¹, three survey methods were utilised during the survey work (comprising torch surveys, egg searching and netting) such that it is considered that sufficient survey effort has been undertaken to inform the proposed development.
- 2.4.5 From a review of Ordnance Survey mapping and satellite imagery, a single additional offsite pond was identified within 250m of the northern site boundary. However, given the presence of existing dispersal barriers between this pond and the site (in the form of a number of heavily trafficked roads), it is considered that (despite the minor limitations experienced) an adequate appraisal with respect to Great Crested Newts has been completed. In any case, Natural England guidance²² states that, whilst Great Crest Newts can commute over 250m from their breeding ponds, studies suggest that newts more typically remain within a core terrestrial habitat of approximately 63m surrounding their breeding pond. Accordingly, it is considered that the inability to survey this offsite pond does not pose an overriding constraint to the proposals.
- 2.4.6 Full access was available to all other areas of the survey area and it is therefore considered that the surveys undertaken allow a robust assessment of habitats and botanical interest across the survey area to be made. Further specific consideration of constraints in respect of individual species or issues are set out within the body of the text as appropriate.

²¹ Surveys based on: English Nature (2001) 'Great Crested Newt Mitigation Guidelines'

²² Natural England set out (within the guidance document 'An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*, English Nature, 2002/3) the findings of various research projects, the results of which Natural England then subsequently rely upon to corroborate their approach to mitigation for this species. Such research includes papers by Jehle (2000) which determined that 95% of summer refuges were located within a terrestrial zone of 63m around ponds, and Jehle and Arntzen (2000), which recorded 64% of newts within 20m of the pond edge. Accordingly, this research identifies that there exists an important core area of habitat for Great Crested Newts within the immediate vicinity of ponds.

2.5 Ecological Evaluation Methodology

- 2.5.1 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)²³, which involves identifying ‘important ecological features’ within a defined geographical context (i.e. international, national, regional, county, district, local or site importance). For full details refer to Appendix 5022/1.

2.6 National Policy Approach to Biodiversity in the Planning System

- 2.6.1 The National Planning Policy Framework (NPPF)²⁴ describes the Government’s national policies on ‘conserving and enhancing the natural environment’ (Chapter 15). NPPF is accompanied by Planning Practice Guidance on ‘Biodiversity, ecosystems and green infrastructure’ and ODPM Circular 06/2005²⁵.

- 2.6.2 NPPF takes forward the Government’s strategic objective to halt overall biodiversity loss²⁶, as set out at Paragraph 174, which states that planning policies and decisions should contribute to and enhance the natural and local environment by:

‘minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures’

- 2.6.3 The approach to dealing with biodiversity in the context of planning applications is set out at Paragraph 180:

‘When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*

²³ CIEEM (2018) ‘Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine’, ver. 1.1, Chartered Institute of Ecology and Environmental Management, Winchester

²⁴ Ministry of Housing, Communities & Local Government (2021) ‘National Planning Policy Framework’

²⁵ ODPM (2006) ‘Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice’

²⁶ DEFRA (2011) ‘Biodiversity 2020: A strategy for England’s wildlife and ecosystem services’

- d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'*

2.6.4 The above approach encapsulates the 'mitigation hierarchy' described in British Standard BS 42020:2019²⁷, which involves the following step-wise process:

- **Avoidance** – avoiding adverse effects through good design;
- **Mitigation** – where it is unavoidable, mitigation measures should be employed to minimise adverse effects;
- **Compensation** – where residual effects remain after mitigation it may be necessary to provide compensation to offset any harm; and
- **Enhancement** – planning decisions often present the opportunity to deliver benefits for biodiversity, which can also be explored alongside the above measures to resolve potential adverse effects.

2.6.5 The measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development (BS 42020:2019, section 5.5).

2.7 Local Policy

2.7.1 Current planning policy within Reading Borough Council is set out within the Reading Borough Local Plan (adopted November 2019). Policies relevant to nature conservation and the site are set out below:

2.7.2 EN12: Biodiversity and the Green Network.

a) The identified Green Network, the key elements of which are shown on the Proposals Map, shall be maintained, protected, consolidated, extended and enhanced. Permission will not be granted for development that negatively affects the sites with identified interest or fragments the overall network. The Green Network comprises:

- Sites with identified biodiversity interest - Local Wildlife Sites, Local Nature Reserves, Biodiversity Opportunity Areas, protected and priority species and their habitats, Priority and Biodiversity Action Plan habitats, and the River Thames and all its tributaries (including the River Kennet and the Kennet & Avon Canal); and
- Areas with potential for biodiversity value and which stitch the Green Network together – designated Local Green Space and open green spaces, and existing and potential Green Links.

New development shall demonstrate how the location and type of green space, landscaping and water features provided within a scheme have been arranged such that they maintain or link into the existing Green Network and contribute to its consolidation. Such features should be designed to maximise the opportunities for enhancing this network. All new development should maximise opportunities to create new assets and links into areas where opportunities are as yet unidentified on the Proposals Map.

²⁷ British Standards Institution (2013) 'Biodiversity – Code of practice for planning and development', BS 42020:2019

b) On all sites, development should not result in a net loss of biodiversity and geodiversity, and should provide a net gain for biodiversity wherever possible. Development should:

- Protect and wherever possible enhance features of biodiversity interest on and adjacent to the application site, incorporating and integrating them into development proposals wherever practicable; and
- Provide new tree planting, wildlife friendly landscaping and ecological enhancements (such as wildlife ponds, bird and bat boxes) wherever practicable.

In exceptional circumstances where the need for development clearly outweighs the need to protect the value of the site, and it is demonstrated that the impacts cannot be: 1) avoided; 2) mitigated or; 3) compensated for on-site; then new development will provide off-site compensation to ensure that there is “no net loss” of biodiversity. Provision of off-site compensation shall be calculated in accordance with nationally or locally recognised guidance and metrics. It should not replace existing alternative habitats, and should be provided prior to development.

2.7.3 **EN14: Trees, Hedges and Woodlands.**

Individual trees, groups of trees, hedges and woodlands will be protected from damage or removal where they are of importance, and Reading’s vegetation cover will be extended. The quality of waterside vegetation will be maintained or enhanced.

New development shall make provision for tree retention and planting within the application site, particularly on the street frontage, or off-site in appropriate situations, to improve the level of tree coverage within the Borough, to maintain and enhance the character and appearance of the area in which a site is located, to provide for biodiversity and to contribute to measures to reduce carbon and adapt to climate change. Measures must be in place to ensure that these trees are adequately maintained.

2.7.4 **CA2: Caversham Park.**

Development will not negatively affect significant trees or areas of biodiversity importance.

3 Ecological Designations

3.1 Statutory Designations

Description

- 3.1.1 The statutory designations of ecological importance that occur within the local area are shown on Plan 5022/ECO2. The nearest statutory designation is Clayfield Copse Local Nature Reserve (LNR) and Local Wildlife Site (LWS) located approximately 0.3km to the north of the site. The LNR is designated on the basis of it containing ancient woodland. The next nearest statutory designation is McIlroy Park LNR located approximately 4.5km to the south-west of the site. McIlroy Park LNR is designated for the presence of ancient woodland and a large area of species rich acid grassland.

Evaluation

- 3.1.2 The site itself is not subject to any statutory ecological designations. A single international designation is present within 15km of the site in the form of Hartslock Wood Special Area of Conservation (SAC). It is considered that, as the SAC is located over 10km from the site, no direct adverse effects on European-level ecological designations are anticipated from the site proposals.
- 3.1.3 All statutory ecological designations in the surrounding area are well separated from the site by existing development and given the nature and scale of the proposals, these designations are unlikely to be affected.

3.2 Non-statutory Designations

Description

- 3.2.1 The non-statutory designations of nature conservation interest that occur within the local area are shown on Plan 5022/ECO2. The nearest non-statutory designation is Rotherfield Way Copse LWS located approximately 0.3km to the west of the site. The LWS is designated on the basis of it supporting an area of broad-leaved woodland within a predominantly urban area. The next nearest non-statutory designation is Blackhouse Wood LWS located approximately 0.6km to the north-east of the site.

Evaluation

- 3.2.2 The site itself is not subject to any non-statutory nature conservation designations. All non-statutory designations in the surrounding area are well separated from the site by existing development and given the nature and scale of the proposals, these designations are unlikely to be affected.

3.3 Priority Habitats, Ancient Woodland and Notable Trees

Description

- 3.3.1 Information gathered from the Ancient Tree Inventory highlights that 9 veteran trees are present within the site, comprising Oak *Quercus robur*, Lime *Tilia platyphyllos x cordata* = *T. x europaea*, Scots Pine *Pinus sylvestris*, Hornbeam *Carpinus betulus* and Orchard Apple *Malus pumila*. In addition, a single notable tree Scots Pine *Pinus sylvestris* was also recorded.

- 3.3.2 The Priority Habitats Deciduous Woodland, Traditional Orchard and Woodpasture and Parkland were identified from the MAGIC database within and adjacent to the site.
- 3.3.3 The nearest area of Ancient Woodland to the site is present within Clayfield Copse LNR/LWS, located 0.3km to the north east of the site.

Evaluation

- 3.3.4 Subject to the implementation of appropriate mitigation measures (as discussed below in Chapter 4) it is unlikely that any notable or veteran trees will be significantly affected by the proposals.
- 3.3.5 The presence of Priority Habitats within and adjacent to the site is discussed further in Chapter 4 below.

3.4 **Summary**

- 3.4.1 In summary, the site itself is not subject to any statutory or non-statutory ecological designations (although a number of veteran trees are present within the site) and, subject to the implementation of appropriate mitigation measures (as described below in relation to the veteran and notable trees), it is unlikely that any such designations in the surrounding area will be significantly affected by the proposals.

4 Habitats and Ecological Features

4.1 Background Records

- 4.1.1 No specific records of any protected, rare or notable plant species from within or immediately adjacent to the site are included within the information returned from Thames Valley Environmental Records Centre (TVERC). A number of records of the protected species Bluebell *Hyacinthoides non-scripta* were returned from TVERC, dating between 2004 and 2014. Priority Species were also returned from TVERC including Dwarf Spurge *Euphorbia exigua*, Sanicle *Sanicula europaea* and Wild Strawberry *Fragaria vesca* dating between 1995 and 2009. None of the above protected / priority species were recorded within or adjacent to the site, whilst no evidence for the presence of any of these species within the site was recorded during the survey work undertaken.

4.2 Overview

- 4.2.1 The habitats and ecological features present within the site are described below and evaluated in terms of whether they constitute an important ecological feature and their level of importance, taking into account the status of habitat types and the presence of rare plant communities or individual plant species of elevated interest. The likely effects of the proposals on the habitats and ecological features are then assessed. The value of habitats for the fauna they may support is considered separately in Chapter 5 below.

- 4.2.2 The following habitats/ecological features were identified within/adjacent to the site:

- Woodland;
- Trees and Tree Lines;
- Orchard;
- Hedgerows;
- Grassland;
- Matrix of Trees, Scrub and Grassland;
- Dense and Scattered Scrub;
- Tall Ruderal Vegetation;
- Ponds;
- Amenity Planting;
- Invasive Species; and
- Buildings, Other Structures and Hardstanding.

- 4.2.3 The locations of these habitat types and features are illustrated on Plan 5022/ECO3 and described in detail below.

4.3 Priority Habitats

- 4.3.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats which are of principal importance for conservation in England. This list is largely derived from the 'Priority Habitats' listed under the former UK

Biodiversity Action Plan (BAP), which continue to be regarded as priority habitats under the subsequent country-level biodiversity strategies.

- 4.3.2 Of the habitats within the site, the woodland, orchard and hedgerow habitats have been identified as the Priority Habitats 'Lowland Mixed Deciduous Woodland', 'Traditional Orchard' and 'Hedgerows' in MAGIC respectively. This is discussed further below.

4.4 Woodland

Description

- 4.4.1 A single woodland habitat is present within the eastern section of the site, which also extends offsite, whilst two additional areas are located immediately adjacent to the west and south of the site (labelled W1 – W3 on Plan 5022/ECO3), each of which is described below.

- 4.4.2 **Woodland W1:** Woodland W1, located within the east of the site and extending to the wider survey area to the south, was recorded to be a well-structured mixed woodland, supporting a largely closed canopy. At the southern and central extent of the woodland the canopy was noted to be dominated by semi-mature and mature trees, including Yew *Taxus baccata*, Beech *Fagus sylvatica* and Oak *Quercus robur*, along with more occasional coniferous species (particularly within the western portion of woodland W1). In addition, woodland W1 also contains two notable trees, these being a Yew and Horse Chestnut *Aesculus hippocastanum*, along with to a single veteran Cedar of Lebanon *Cedrus libani*. Woodland W1 was noted to also include a well-defined understorey comprising both scattered and dense concentrations of young trees and scrub, including saplings of the species recorded within the canopy in addition to frequent Holly *Ilex aquifolium*, Silver Birch *Betula pendula*, Sycamore *Acer pseudoplatanus*, Lime *Tilia platyphyllos* x *cordata* = *T. x europaea*, Hornbeam *Carpinus betulus* and Elm *Ulmus* sp.. In addition, a significant coverage of non-native Cherry Laurel *Prunus laurocerasus* has also been recorded within woodland W1, which has appeared to encroached from the nearby areas of amenity planting. In addition, scattered Rhododendron *Rhododendron ponticum* was recorded within this area of woodland, which is discussed further below. Whilst areas of bare ground and piles of deadwood are present within woodland W1, a notable ground flora is also present within this area, including species such as Foxglove *Digitalis purpurea*, Common Ragwort *Senecio jacobaea*, Pendulous Sedge *Carex pendula*, Common Sorrel *Rumex acetosa* subsp. *acetosa*, Common Nettle *Urtica dioica* and Yorkshire-fog *Holcus lanatus*, along with a number of short mown grassland areas located under the semi-mature and mature trees present at the north western edge of W1. A number of log piles are present throughout W1.

- 4.4.3 With regard to its variations in composition, woodland W1 was recorded to vary somewhat throughout, however the northern portion of this woodland was noted to differ significantly in its composition and structure. Indeed, the northern onsite portion of W1 was recorded to be dominated by young to semi-mature Ash *Fraxinus excelsior*, Elm, Sycamore and Cherry *Prunus* sp., with only a small number of mature Oak and Beech trees present. Furthermore, the understorey within this northern portion of W1 was noted to be dominated by overgrown Cherry Laurel, Bramble *Rubus fruticosus* agg., Hawthorn *Crataegus monogyna*, Holly, Hornbeam and Rhododendron. However, although the predominance of a dense scrubby understorey has resulted in a lack of ground flora growth within this area, some limited ground flora species were recorded, including Hedge Woundwort *Stachys sylvatica*, Cleavers *Galium aparine* and Common Nettle.

- 4.4.4 Whilst the eastern edge of the woodland abuts the adjacent road, such that there is an abrupt boundary to the woodland, the southern portion of W1 is situated adjacent to the

grassland fields to the south of the site and, as a result, a natural ecotone consisting of young trees and scrub is present.

- 4.4.5 **Woodland W2 (offsite):** Woodland W2, present within the wider survey area adjacent to the southern site boundary and surrounding pond 'P2', was also recorded to be a well-structured mixed woodland and supported a closed canopy in the majority, albeit with a number of canopy openings present which have enabled Common Nettle and Bramble to colonise. In comparison to W1, W2 was noted to contain a higher proportion of young and semi-mature trees, although mature trees were also recorded throughout the woodland.
- 4.4.6 The canopy of woodland W2 was recorded to be dominated by mature Oak, Yew, and Hornbeam, along with more occasional young to mature Horse Chestnut, Sycamore, Cherry, Lime, Cypress *Cupressus* sp., Ash *Fraxinus excelsior* and Field Maple *Acer campestre*. In addition, woodland W2 also contains a number of notable trees, comprising Yew, Turkey Oak *Quercus cerris*, and Giant Sequoia *Sequoiadendron giganteum*, along with two veteran Lime and Oriental Plane *Platanus orientalis*. A number of these trees have been subject to some form of management, with evidence that attempts have been made to remove the dense Ivy *Hedera helix* covering from a number of the more mature trees recorded at the time of survey. Woodland W2 was noted to also support a well-defined understorey comprising Hawthorn, Holly, Hornbeam, Willow *Salix* sp., Elder *Sambucus nigra* and occasional to frequent Cherry Laurel (particularly within the west of woodland W2). Woodland W2 also supported a notable ground flora community, including a number of herbaceous species such as Ivy, Common Nettle, Common Ragwort, Ground-Ivy *Glechoma hederacea*, Hedge Mustard *Sisymbrium officinale*, Greater Plantain *Plantago major*, Daisy *Bellis perennis*, Broad-leaved Dock *Rumex obtusifolius*, in addition to frequent sedges and grasses, particularly Yorkshire-fog. As was recorded within woodland W1, a number of piles of deadwood were recorded within woodland W2.
- 4.4.7 In terms of variation across the woodland, woodland W2 is relatively uniform, albeit fewer mature trees were recorded within the northern portion of this woodland, whilst stands of Rhododendron were also recorded within this area.
- 4.4.8 **Woodland W3 (offsite):** Woodland W3, located adjacent to the western site boundary, is the smallest area of woodland within the survey area and was noted to be structurally and compositionally distinct from woodlands W1 and W2. Indeed woodland W3 was recorded to comprise only a small number of early mature trees, with the canopy being dominated by semi-mature Oak, Beech, Yew, Lime, Hornbeam, Sycamore and occasional young Hawthorn and Elm. In stark contrast to the woodland habitat present elsewhere within the site, woodland W3 did not support an understory or ground flora community, with the woodland recorded to support a significant coverage of bare ground. The 2021 survey work did however identify a limited ground flora beginning to develop, with species present including Garlic Mustard *Alliaria petiolata*, Common Nettle *Urtica dioica*, Cow Parsley *Anthriscus sylvestris* and Green Alkanet *Pentaglottis sempervirens*.

Evaluation

- 4.4.9 Overall, woodlands W1 and W2 within / adjacent to the site are considered to be of a good structure, comprising a number of mature canopy trees, with established understoreys and distinct ground flora components present. As highlighted above, these areas of woodland have been identified in the national Priority habitat database as the Priority Habitat 'Lowland Mixed Deciduous Woodland' and, given that the species composition of woodlands W1 and W2 are consistent with that of the Priority Habitat criteria, it is considered that woodlands W1 and W2 represent areas of 'Lowland Mixed Deciduous

Woodland'²⁸ within the site. Whilst woodland W3 was noted to lack a significant understory and ground flora component, the presence of a tree canopy in this area is such that it is also considered likely to qualify as 'Lowland Mixed Deciduous Woodland' Priority Habitat (albeit of a lower quality). As a result, the areas of woodland within / adjacent to the site are considered to be important ecological features of value at least of local level.

4.4.10 It is understood that the woodland within /adjacent to the site will be fully retained under the proposals and as such, subject to recommended safeguards set out at Chapter 6 below, the woodland will be retained and protected under the proposals, whilst new planting will combine with the existing trees to provide new opportunities for wildlife.

4.4.11 In addition to being of value in their own rights, the woodland habitats within the site are also likely to provide sheltering and foraging opportunities for a range of wildlife, particularly nesting birds, Badger, bats and invertebrates. Such opportunities afforded to fauna by this habitat will be discussed below in Chapter 5, whilst sensitive management measures are recommended at Section 6, in order to increase the value of the woodland for wildlife.

4.5 Trees and Tree Lines

Description

4.5.1 **Scattered Trees:** Numerous young to mature standard trees are present with the site, which are present both at the site boundaries and within the main body of the site. Trees located within the site were recorded to vary in age from young to mature and comprise largely native species, such as Oak, Lime, Poplar, Yew, Hornbeam, Cherry, Silver Birch, Elm, Sycamore, Field Maple, Horse Chestnut, Beech, Hornbeam, Ash, Holly, Willow, Hybrid Cockspur Thorn *Crataegus x lavalleei*, Hybrid Black Poplar *Populus x canadensis*, Blackthorn *Prunus spinosa* and Rowan, along with a number of additional coniferous trees. In addition, as previously highlighted in Chapter 3, a number of veteran trees (Oak, Lime and Hornbeam) and notable trees (Scots Pine) are also present within the site. During the 2021 survey work, a number of Poplars were noted to have been felled, or partially removed (apparently due to safety requirements, with the remaining extent of the tree comprising standing deadwood).

4.5.2 In addition, a number of tree lines were also recorded within the site (labelled TL1 – TL3 on Plan 5022/ ECO3), each of which is described in detail below.

4.5.3 **Tree Line TL1:** Tree line TL1, which is located within the east of the site and set atop an embankment with a closely associated wall, was recorded to form a dense and continuous feature and appeared to be subject to a degree of management (with such management restricted to the lower 3m of the tree line, above which the feature is outgrown in nature). TL1 was recorded to chiefly comprise young to semi-mature Hazel *Corylus avellana* (which displayed evidence of previous coppicing), Yew, Elm, Ash, Sycamore, Cherry, Oak, Field Maple, Hawthorn, Rose and Elder, whilst a number of mature standard Ash and Oak trees were also recorded within treeline TL1. During the 2021 survey work, the species composition of TL1 was noted to include more frequent Elm and Yew. The ground flora beneath the tree line was noted to be relatively sparse at the time of survey (likely due to the overshadowing from the tree line itself) and comprised of Bramble, Ivy, Willowherb *Epilobium* sp., Wood Avens *Geum urbanum*, Cherry Laurel and Cotoneaster *Cotoneaster* sp.

²⁸ UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

- 4.5.4 **Tree Line TL2:** Tree line TL2, which is located at the eastern site boundary, was recorded to be somewhat gappy in nature and much thinner than TL1. Nevertheless, in addition to a number of young to semi-mature Ash and Sycamore, TL2 chiefly comprised a number of mature Oak trees, the canopies of which overlapped to form a continuous landscape feature. The understory of TL2 was recorded to be dominated by Cherry Laurel. The ground flora beneath the tree line comprised of Broad-leaved Dock Common Nettle, Ragwort, Ivy, Hogweed *Heracleum sphondylium*, Dandelion *Taraxacum officinale* agg. and False Oat-grass *Arrhenatherum elatius*. In addition, a ditch runs through treeline TL2, which was recorded to be relatively shallow and dry at the time of survey.
- 4.5.5 **Tree Line TL3:** Tree line TL3, present along the eastern site boundary, was recorded to be a wide, double staggered feature, with a small earth bund located between the two parallel lines of trees. The tree line was recorded to comprise a number of semi-mature trees, including Cherry, Beech, Lime, Field Maple, Sycamore, Horse Chestnut, Norway Maple *Acer platanoides*, Silver Maple *Acer saccharinum* and Cherry Plum *Prunus cerasifera*. TL3 did not support a significant understorey at the time of survey, with understory vegetation comprising only of Hawthorn scrub and a small number of self-seeded Field Maple saplings, along with a small number of planted Lime and Dogwood *Cornus sanguinea* saplings. The ground flora beneath contained of a number of herbaceous species, including Herb-Robert *Geranium robertianum*, Creeping Buttercup *Ranunculus repens*, Garlic Mustard and Common Field-Speedwell *Veronica persicaria*.

Evaluation

- 4.5.6 The young to semi-mature scattered trees recorded within the site are currently of limited ecological interest in their own right. Nevertheless, a number of mature and veteran trees are also present throughout the site (including within the areas of woodland). These mature trees, particularly the veteran specimens, are considered to be irreplaceable habitats and are therefore of at least ecological value at the local level. The treelines within the site comprise young to mature trees, which collectively form continuous features across the site. The tree lines within the site are considered to be of value in their own right, (particularly the mature trees within tree lines TL1 and TL2), offering notable opportunities for a range of faunal species and functioning as connective habitat throughout the site and are therefore considered to be of at least value at the local level.
- 4.5.7 It is understood that the majority of trees within the site and adjacent to its boundaries are to be fully retained under the proposals and as such, subject to recommended safeguards set out at Chapter 6 below, the trees within the site will be retained and protected under the proposals. Some relatively minor losses will occur to trees within field F2 and at the eastern section of the site, in order to facilitate the development footprint. New planting at the site will compensate for any losses to these trees, which in addition to recommended enhancement measures for the treelines (see Section 6 below), will combine with the existing trees to provide new opportunities for wildlife.

4.6 Orchard

Description

- 4.6.1 A traditional orchard is present within the west of the site (see Plan 5022/ECO3). This orchard was recorded to comprise at least 30 fruit trees, with the age of fruit trees recorded to vary from semi-mature to mature, along with a small number of young self-seeded saplings. In addition, as highlighted above at Chapter 3, the orchard habitat also supports two veteran Orchard Apple trees *Malus pumila*. The fruit trees were recorded to have been predominantly planted at intervals of approximately 6-10m, with species present including

Apple, Cherry and Pear *Pyrus* sp. In addition, occasional non-fruit trees were observed within the orchard, though such trees were only occasional in nature. Overall, the fruit trees within the orchard appeared to be healthy (albeit some older individuals support large rot holes, the number of which having increased by the 2021 survey work) and the number of fruit trees present creates a relatively well-sized orchard.

- 4.6.2 The orchard trees were set within an area of amenity grassland, which was recorded to be managed relatively frequently, such that it is predominantly maintained as a short sward amenity grassland, albeit is allowed to grow to a long sward for short durations.

Evaluation

- 4.6.3 As highlighted above, the orchard habitat within the site has been identified on MAGIC as the Priority Habitat 'Traditional Orchard' (see Appendix 5022/1). 'Traditional Orchard' habitat is defined by its structure²⁹, with open-grown trees planted at regularly intervals set within herbaceous vegetation. As a result, it is considered that the orchard habitat within the site is likely to represent 'Traditional Orchard' habitat.

- 4.6.4 Prime 'Traditional Orchard' habitat is recognised as that which 'consists of grazed grassland with fruit trees of varying age structure, with an abundance of standing and fallen dead and decaying wood,' whilst the value of orchards to wildlife depends upon 'the mosaic of habitats they encompass, including fruit trees, scrub, hedgerows, hedgerow trees, non-fruit trees within the orchard, the orchard floor habitats, fallen deadwood, and associated features such as ponds and streams'. As the orchard habitat within the site does not appear to be subject to sensitive management (promoting the development of a species rich ground flora) and lacks supporting features such as wildflower grassland, hedgerows and waterbodies, it is considered that the value of the onsite orchard is somewhat limited. Nevertheless, the fruit trees present are in generally in good health and include two veteran Orchard Apple trees, whilst the varieties of fruit tree may be of some local interest (with varieties currently unknown at this stage), such that the overall orchard is considered to be an important ecological feature of ecological value at the local level.

- 4.6.5 The orchard is understood to be fully retained under the proposals and as such, subject to recommended safeguards set out at Chapter 6 below, the orchard within the site will be retained and protected under the proposals, whilst the opportunity exists for significant enhancements to be made to this habitat, such as via the provision of new hedgerow planting and wildflower grassland (described in detail at Chapter 6).

4.7 Hedgerows

Description

- 4.7.1 Four hedgerows are present within the site, located within the west and east of the site and along the northern site boundary (see Plan 5022/ECO3), with an additional small section of

²⁹ UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

ornamental hedging located around the buildings. The hedgerows are described in more detail in Table 4.1 below.

Table 4.1. Hedgerow descriptions.

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify [#]
H1	3-6m	0.5 – 1m	<u>Hawthorn (D)</u> , <u>Elm</u> , <u>Holly</u> and <u>Oak</u>	<4	Dominated by leaf litter, along with <u>Lord and Ladies</u> , Cleavers, Ivy, Garlic Mustard and occasional species consistent with the adjacent grassland.	<10% gaps	Dense and continuous feature. Appears more outgrown and managed than during the 2018 survey work.	N
H2	2.5m	1m	<u>Hawthorn (D)</u> , <u>Holly</u> , <u>Yew</u> and <u>Oak</u> , along with infrequent <u>Hazel</u> , <u>Elm</u> and Cherry Laurel	<4	Species consistent with the adjacent grassland, with an increased incidence of Ivy and Honesty, and Garlic Mustard additionally recorded.	<10% gaps	Appears more outgrown and less managed than during the 2018 survey work. Thin feature covered by significant Ivy growth.	N
H3	2.5m	1m	<u>Hawthorn</u> , <u>Ash</u> , Sycamore, Cherry Laurel, Firethorn <i>Pyracantha</i> sp., <i>Viburnum tinus</i>	<4	Species consistent with the adjacent grassland, plus Ivy.	<10% gaps	Dense and continuous feature. Appears subject to management but somewhat outgrown at time of survey. New planting appears to have occurred since the 2018 survey work.	N
H4	2-2.5m	1-1.5m	<u>Holly</u> , <u>Privet</u> , <u>Oak</u> , <u>Ash</u> , <u>Elm</u> , <u>Wild Cherry</u> , Leylandii, Sycamore, Bramble	≤4	Common Dandelion, Garlic Mustard, Herb Robert	<10% gaps	Well manged, relatively dense and continuous.	N

Dominant woody species underlined, woodland ground flora species (as listed under Schedule 2 of the Hedgerows Regulations 1997) underlined, y = young, sm = semi-mature, m = mature, pv = possible veteran, B = bank, W = wall, br = bridleway, f/p = footpath, b/w = byway

* estimated average number of woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) in any one 30m stretch

[#] likely to qualify – as ‘important’ under the wildlife and landscape criteria of the Hedgerows Regulations 1997

Evaluation

4.7.2 Whilst the hedgerows recorded within the site are relatively substantial and appear to be subject to some limited management, based on the number of woody species and associated features, hedgerows H1 – H4 are unlikely to qualify as ecologically ‘important’

under the Hedgerows Regulations 1997. Nevertheless, all of the hedgerows within the site are likely to qualify as a Priority Habitat based on the standard definition³⁰, which includes all hedgerows (>20m long and <5m wide) consisting predominantly (≥80%) of at least one native woody species. It has been estimated that approximately 84% of countryside hedgerows in GB qualify as a Priority Habitat under this definition.³⁶ On this basis, the hedgerows within the site are considered to form features of ecological importance, although given the relatively limited network present, are only of importance at the local level.

- 4.7.3 The majority of hedgerows will be retained under the proposals, albeit minor losses will occur to hedgerow H4 in order to facilitate access. Losses to this hedgerow will be compensated for by new planting at the site, which will provide greater connectivity of habitats through the site, and subsequent new opportunities for wildlife.

4.8 Grassland

Description

- 4.8.1 A number of areas of grassland are present within the site, the main areas of which are labelled F1 – F2 on Plan 5022/ECO3, as described below.
- 4.8.2 **Field F1:** Grassland Area F1 is dominated by areas of long sward grassland (approx. 0.5-2m in height), along with areas of short sward grassland which appear to be subject to more regular management in the form of mowing to ground level, likely due to its function in part as a recreational sports field. In addition, a number of short sward paths have been mown through the areas of long sward grassland. During the 2021 survey work, field F1 had been subject to a recent cut, albeit this appeared to be the result of a late season cut, rather than a long term change in the field's management, as the distinction between long sward and short sward areas of grassland is still evident. The grassland sward was recorded to be dominated by grasses, including Yorkshire-fog, Cock's-foot, Meadow-grasses *Poa* sp. and Sweet Vernal-grass *Anthoxanthum odoratum*, along with some occasional herbaceous species, such as Creeping Buttercup and Yarrow *Achillea millefolium*.
- 4.8.3 Where trees are present within and at the edges of grassland area F1, over shading has allowed the colonisation of some a number of shade tolerant species, including Forget-me-not *Myosotis* sp., ground ivy, Ivy, Garlic Mustard and occasional Foxglove, in addition to a number of mosses.
- 4.8.4 **Field F2:** Grassland area F2 comprises managed areas of short sward grassland, measuring approx. 5-10cm at the time of survey, along with areas of unmanaged grassland which form narrow margins of approx. 0.5-1m in width around field F2. The grassland sward was recorded to be dominated by grasses, with a particular local dominance of False Oat-grass *Arrhenatherum elatius*, in addition to a number of herbaceous species such as Creeping Cinquefoil *Potentilla reptans*, Ribwort Plantain *Plantago lanceolata* and Bird's-foot Trefoil *Lotus* sp. A number of young to semi-mature trees are also present within field F2, including Eucalyptus *Eucalyptus* sp., Turkey Oak, Apple, Beech, Oak, Horse Chestnut, Norway Maple, Sycamore, Ash, Lime, Cherry and Field Maple.

³⁰ Based on: Biodiversity Reporting and Information Group (2011) 'UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions', ed. Ant Maddock

Evaluation

- 4.8.5 Overall, the grassland within the site supports only a modest diversity of common and widespread species and based on the type and abundance of species present it can be classified as semi-improved grassland³¹. Whilst fields F1 – F2 have been recorded on the MAGIC database as the Priority Habitat ‘Wood Pasture and Parkland’ (see Appendix 5022/1), it is considered that the grassland habitat within the site do not accord with this Priority Habitat definition³². Although a number of veteran trees are present or in close association within the onsite grassland habitat (a key feature of the ‘Wood Pasture and Parkland’ Priority habitat), particularly within field F2, the majority of the grassland habitat is subject to regular management by the onsite groundskeepers. Accordingly, as the grassland habitat within grassland areas F1-2 does not support grazing animals, the presence of which contributes to the invertebrate and fungal diversity of the Priority habitat, and supports only a limited number of microhabitats, being predominantly maintained at a short sward, it is not considered to qualify as a Priority habitat.
- 4.8.6 Accordingly, as semi-improved grassland is not uncommon in the local and surrounding area, the grassland habitat within the site is not considered to be of value outside of a site context and therefore does not form an important ecological feature.
- 4.8.7 Areas of grassland will be subject to land take in order to facilitate the development, primarily including field F2 and an area within the eastern section of the site. Although not of ecological value beyond the context of the site, the provision of new species-rich wildflower grassland at the site will compensate for such losses.

4.9 Matrix of Trees, Scrub and Grassland

Description

- 4.9.1 A matrix of trees, scrub and grassland is present along the northern site boundary (as shown on Plan 5022/ECO3). This area of planting is a matrix of different habitats comprising of long sward semi-improved grassland, scattered scrub and a number of young to semi-mature trees. The tree and scrub cover within this matrix was noted to vary in density, with some areas forming a dense closed canopy and others comprising more open areas dominated by scattered scrub, and comprised species consistent with those recorded elsewhere at the site, such as Hazel, Horse Chestnut, Field Maple, Lime, Oak and Bramble. The grassland in this habitat matrix was noted to be dominated by areas of a long sward, with a number of short mown pathways throughout and some areas of a more tussocky nature within the north of this area, which comprised species consistent with those previously described above. In addition, where the tree and scrub cover has formed a dense, close canopy, a higher incidence of ruderal species, such as Cleavers and Garlic Mustard was recorded.

Evaluation

- 4.9.2 As highlighted above, this area of the site has been recorded on the MAGIC database as the Priority Habitat ‘Wood Pasture and Parkland’ (see Appendix 5022/1), however due to the absence of grazing animals, it is considered that this habitat matrix does not accord with this Priority Habitat definition³³. Nevertheless, the scattered scrub component of this habitat matrix has created variations in abiotic conditions which likely affords opportunities

³¹ Natural England (2010) ‘Higher Level Stewardship – Farm Environment Plan (FEP) Manual’, 3rd Edition

³² Based on: Biodiversity Reporting and Information Group (2011) ‘UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions’, ed. Ant Maddock

³³ Based on: Biodiversity Reporting and Information Group (2011) ‘UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions’, ed. Ant Maddock

to a number of species/species groups such as reptiles, invertebrates and birds. As such, given the predominance of native species and the varied habitat this area creates and despite the urban location and relatively small extent of the area, it is considered that matrix of trees, scrub and grassland is an important ecological feature at the local level.

4.10 Ponds (offsite)

Description

4.10.1 Three ponds are located within the wider survey area, close to the southern site boundary (labelled P1a, P1b and P2 on Plan 5022 /ECO3), which are described in Table 4.2 below:

Table 4.2. Pond descriptions.

Pond no.	Brief description	Approx. size	Shading	Aquatic/ emergent & marginal vegetation	Comments
P1a	Ornamental amenity pond	15x6m	Some light shading from adjacent trees and ornamental planting, mostly open	Some limited Yellow Iris <i>Iris pseudacorus</i> and Gypsywort <i>Lycopus europaeus</i> , however majority of the pond is choked with New Zealand Pigmyweed <i>Crassula helmsii</i> .	Small amenity pond set within an amenity grassland and surrounded by ornamental planting. Shallow sloping banks support relatively clear water of approx. 0.25-0.5m in depth. Separated from P1b by approx. 0.5m.
P1b	Ornamental amenity pond	15x7m	Some light shading from adjacent trees and ornamental planting, mostly open	Some limited Yellow Iris <i>Iris pseudacorus</i> and Gypsywort <i>Lycopus europaeus</i> , however majority of the pond is choked with New Zealand Pigmyweed <i>Crassula helmsii</i> .	Small amenity pond set within an amenity grassland and surrounded by ornamental planting. Shallow sloping banks support relatively clear water of approx. 0.25-0.5m in depth. Separated from P1a by approx. 0.5m.
P2	Large fishing pond	200x30m	Shaded along approx. 80% margin by surrounding woodland canopy, however body of the pond is open.	Pond banks dominated by species consistent with the surrounding grassland. Limited aquatic and emergent vegetation, including Yellow Iris <i>Iris pseudacorus</i> , Gypsywort <i>Lycopus europaeus</i> and Water-lily <i>Nymphaea</i> sp.	Large linear amenity pond set within steep vertical banks, reinforced by wire mesh. Supports turbid water over 2m in depth. Mown grassland path surrounds the pond. Stocked with approx. 500 fish (Carp, Perch, and Bream) c. 10ya.

Evaluation

4.10.2 The ponds within the survey area were recorded to support only a limited range of common and widespread species, with much of the vegetation surrounding ponds P1a and P1b comprising ornamental non-native species of limited ecological value. Indeed, as described in Table 4.1 above and set out in further detail below, ponds P1a and P1b have become choked with New Zealand Pigmyweed *Crassula helmsii*, which is listed as a schedule 9 invasive species in the Wildlife and Countryside Act 1981 (as amended) and, accordingly recommendations are set out within Chapter 6 for its removal. Similarly, the relatively poor water quality of pond P2, in addition to its stocking with fish, limits the ecological value of P2. As a result, although ponds are listed as a UK BAP Priority Habitat and listed under the local BAP, given that the water in the ponds did not appear to be of a high quality, and as no protected, rare, or notable species were recorded (as discussed in Chapter 5 below), the

ponds are not considered to fit the description for a habitat of principle importance under Section 41 of the NERC Act 2006.

- 4.10.3 Therefore, as the nearby ponds do not meet the criteria of a priority habitat and are surrounded predominately by ornamental planting, in addition to pond P2's historical usage as an angling lake, the ecological interest of the onsite ponds is considered to be limited. Nevertheless, opportunities are afforded to amphibians and invertebrates in an otherwise urban context such that these waterbodies, particularly P1, are considered to be features of ecological importance at the site level.

4.11 Invasive Species

Description

- 4.11.1 During the course of the survey work undertaken, a significant coverage of New Zealand Pigmyweed was recorded within offsite ponds P1a and P1b. New Zealand Pigmyweed is listed in the Wildlife and Countryside Act 1981 (as amended) under schedule 9 Part II which makes it an offence to cause to grow in the wild any plant listed on the schedule. As such, all relevant precautions should be taken when carrying out actions that could potentially spread the plant.
- 4.11.2 Occasional Cotoneaster species were also recorded within the site associated with the areas of amenity planting surrounding the buildings within the site (as shown at Plan 5022/ECO3). Several Cotoneaster species are included within the Schedule 9 list, albeit it was not possible to distinguish whether the Cotoneaster species present include any of those listed.

Evaluation

- 4.11.3 New Zealand Pigmyweed and select Cotoneaster species are listed under Schedule 9 Part II of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to cause to grow in the wild any plant listed on the schedule. As a result, it is considered that the presence of these species is detrimental to the ecological value of the site and wider land. Further discussions of this issue, along with a number of recommendations for removing these species, are included at Chapter 6 below.

4.12 Habitat Evaluation Summary

- 4.12.1 On the basis of the above, the following habitats within and adjacent to the site are considered to form important ecological features:

Table 4.3: Summary of habitats that constitute Important Ecological Features.

Habitat	Level
Woodland	At least Local
Trees and Tree Lines (including veteran and notable trees)	At least Local
Orchard	Local
Hedgerows	Site – Local
Ponds (wider survey area only)	Site
Invasive Species	Detrimental

4.13 Other Habitats

- 4.13.1 Areas of scattered scrub were also recorded to be present within the site, comprising species such as Oak, Hawthorn, Rose, Blackthorn, Hazel and Poplar. Bramble thickets, areas of dense scrub and some limited areas of tall ruderal vegetation were also recorded within the site, which measured approximately 2.5m – 3m in height in places.
- 4.13.2 Areas of amenity planting were recorded within the site, located in close association with the onsite buildings. These areas were noted to be largely ornamental in nature and well managed, with little evidence of colonisation by native weeds. As highlighted above, invasive *Cotoneaster* species were recorded within the onsite amenity planting. A number of amenity Cherry Laurel hedges were also recorded within the site, which appeared to be subject to regular management to a box and formed dense and continuous features. Some considerable encroachment of Cherry Laurel from the amenity hedgerow into woodland W1 was recorded during the survey work undertaken.
- 4.13.3 A number of buildings and other structures are also present within the site (labelled B1 – B11 at Plan 5022/ECO3), along with associated areas of hardstanding in the form of existing access roads and areas of car parking. These habitats were all limited in extent, are of intrinsically negligible ecological value.
- 4.13.4 In summary, these other habitats are dominated by common and widespread species, and are not considered to be of any particular value outside of a site context. As such, they do not constitute important ecological features.

5 Faunal Use of the Site

5.1 Overview

- 5.1.1 During the survey work, general observations were made of any faunal use of the site with specific attention paid to the potential presence of protected or notable species. Specific survey work was undertaken in respect of Badgers, bats, reptiles and Great Crested Newt, with the results described below.

5.2 Priority Species

- 5.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of principal importance for conservation in England. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority species under the subsequent country-level biodiversity strategies. During the survey work undertaken, no Priority Species were recorded within the site.

5.3 Bats

- 5.3.1 **Legislation.** All British bats are classed as European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended) and are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). As such, both bats and their roosts (breeding sites and resting places) receive full protection under the legislation (see Appendix 5022/2 for detailed provisions). If proposed development work is likely to result in an offence a licence may need to be obtained from Natural England which would be subject to appropriate measures to safeguard bats. Given all bats are protected species, they are considered to represent important ecological features. A number of bat species are also considered S41 Priority Species.

- 5.3.2 **Background Records.** No specific records of bats from within or adjacent to the site were returned from the desktop study. Information received from the LRC returned records of Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared bat *Plecotus auritus*, Daubenton's Bat *Myotis daubentonii*, Serotine Bat *Eptesicus serotinus*, Natterer's bat *Myotis nattereri* and Noctule bat *Nyctalus noctula*. The closest records are located approximately 0.27km west of the site boundary, and include Soprano Pipistrelle, Common Pipistrelle, Noctule and Brown Long-eared bat, all dated 2013.

5.3.3 Survey Results

Visual Inspection Surveys

Buildings

- 5.3.4 A detailed visual inspection was undertaken of all the buildings within the site in 2018 and 2021, the results of which are detailed in Appendix 5022/4. In summary, buildings B5, B6 and B7 displayed no features of roosting potential for bats and are assessed as providing negligible opportunities to roosting bats, whilst the remaining buildings within the site exhibited a number of potential roosting opportunities for bats and overall are assessed as providing some elevated suitability for roosting bats. Whilst no evidence of roosting bats within the onsite buildings was recorded from the daytime inspection surveys (e.g.

droppings, staining, feeding remains, etc), the external survey revealed a number of features (such as missing and lifted roof tiles, missing ridge tiles, lifted lead flashing etc.) which were considered to provide potential for roosting bats. As a result, buildings B2, B3, B8, B9 and B11 were considered to be of low potential to roosting bats, whilst buildings B1, B4 and B10 were considered to be of moderate potential for roosting bats.

Trees

- 5.3.5 A number of semi-mature, mature and veteran trees, in addition to areas of woodland, are present within / adjacent to site. The results of the tree assessment work undertaken at the site in 2018 and 2021 are illustrated on Plan 5022/ECO3 and summarised at Appendix 5022/5. In summary, a number of trees of elevated roosting potential are present throughout the site, whilst all areas of woodland within /adjacent to the site are considered to offer elevated roosting potential.

Dusk and Dawn Surveys

Emergence / re-entry surveys (buildings)

- 5.3.6 As highlighted above, buildings B2, B3, B8, B9 and B11 exhibited low suitability for roosting bats, whilst buildings B1, B4 and B10 exhibited moderate suitability for roosting bats and were therefore all subject to further survey work in the form of dusk emergence and dawn re-entry surveys. The results of the dusk emergence and dawn re-entry surveys are summarised in Table 5.2 below.

Table 5.1. Emergence / re-entry survey results.

Building	Date	Sunset/ sunrise	Emergence/ re-entry	Summary of other activity
B1	22/08/18 – 23/08/18 (dusk/ dawn)	Sunset: 20:13 Sunrise: 06:01	None	Occasional passes by Common Pipistrelle, along with infrequent Soprano Pipistrelle and <i>Nyctalus/Eptesicus</i> .
	05/09/18 – 06/09/18 (dusk/ dawn)	Sunset: 19:41 Sunrise: 06:24	None	Very occasional passes by Common Pipistrelle, Soprano Pipistrelle and <i>Nyctalus/Eptesicus</i> , predominantly during the dusk survey period. Single <i>Nyctalus/Eptesicus</i> recorded during dawn survey.
B2	29/08/18 (dusk)	Sunset: 19:57	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle, along with very occasional <i>Nyctalus/Eptesicus</i> and <i>Myotis</i> sp.
B3	29/08/18 (dusk)	Sunset: 19:57	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle, along with very occasional <i>Nyctalus/Eptesicus</i> and <i>Myotis</i> sp.
B4	16/08/18 (dusk)	Sunset: 20:24	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle along with two Brown Long-eared Bat passes.

Building	Date	Sunset/ sunrise	Emergence/ re-entry	Summary of other activity
	30/08/18 (dawn)	Sunrise: 06:13	None	Very infrequent passes by Common Pipistrelle and Soprano Pipistrelle.
B8	16/08/18 (dusk)	Sunset: 20:24	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle along with two Brown Long-eared Bat passes.
B9	17/08/18 (dawn)	Sunrise: 05:52	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle along with a single Brown Long-eared Bat.
B10	17/08/18 (dawn)	Sunrise: 05:52	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle along with a single Brown Long-eared Bat.
	29/08/18 (dusk)	Sunset: 19:57	None	Occasional passes by Common Pipistrelle and Soprano Pipistrelle, along with very occasional <i>Nyctalus/Eptesicus</i> and <i>Myotis</i> sp.
B11	30/08/18 (dawn)	Sunrise: 06:13	None	Very infrequent passes by Common Pipistrelle and Soprano Pipistrelle.

5.3.7 As shown by the above results, during the dusk and dawn surveys with respect to the buildings within the site, Common Pipistrelle and Soprano Pipistrelle were the most commonly recorded species, together with less frequent *Nyctalus/Eptesicus* sp. and individual Brown Long-eared bats. No evidence of bats emerging/ re-entering the buildings subject to survey was recorded, such that it is unlikely that roosting bats are utilising the buildings within the site.

Activity surveys (foraging /commuting)

5.3.8 The woodland, hedgerows, tree lines / trees and scrub within the site, offer potential opportunities for foraging bats as they are likely to support a reasonable biomass of invertebrate prey. In addition, the woodland, tree lines and hedgerows form linear corridors that could act as navigational aids for commuting bats and provide connectivity to similar off-site habitats in the surrounding area. As such, bat activity surveys were undertaken at the wider survey area between June and September 2018.

5.3.9 **Manual walked transect surveys.** The detailed activity survey results are illustrated on Plan 5022/ECO4, with summary tables provided below.

Table 5.2. Results of the dusk walked transect on 6th June 2018.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	41	91
Soprano Pipistrelle	3	7
<i>Myotis</i> sp.	1	2
Total	45	100

Table 5.3. Results of the dusk walked transect on 16th July 2018.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	21	35
Soprano Pipistrelle	36	61
<i>Myotis</i> sp.	1	2
<i>Nyctalus/Eptesicus</i> sp.	1	2
Total	59	100

Table 5.4. Results of the dusk walked transect on 13th September 2018.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	11	44
Soprano Pipistrelle	3	12
<i>Myotis</i> sp.	6	24
<i>Nyctalus/Eptesicus</i> sp.	1	4
Unidentified Bat	4	16
Total	25	100

- 5.3.10 As shown by the above results, during the walked transect surveys, Common Pipistrelle and Soprano Pipistrelle was the most commonly recorded species, accounting for 57% and 33% of all registrations respectively. *Myotis* sp. were recorded to a lesser extent, accounting for 5% of registrations. *Nyctalus/Eptesicus* sp. Bats were also recorded but on a very infrequent basis, accounting for only 2% of all registrations, whilst a number of unidentified bats were also recorded during the walked transect surveys.
- 5.3.11 During the walked transects, the highest levels of bat activity were recorded within close proximity to the woodland habitat within the survey area, in addition to some elevated activity around pond P2, with comparatively lower levels of bat activity recorded within the centre of the survey area.
- 5.3.12 **Remote Detector Surveys.** Whilst a greater diversity of bats was recorded by the remote static detectors that were placed within the survey area during June and September 2018, the overwhelming majority of registrations were attributed to Common Pipistrelle and Soprano Pipistrelle bats. Indeed, the static detectors were located in close proximity to the areas of long sward grassland within the north of the survey area and recorded a relatively high level of bat activity within the survey area. This gives credence to the conclusion that the site is of some value to foraging bats.

5.3.13 Evaluation and Assessment of Likely Effects

Roosting

Buildings

- 5.3.14 Whilst buildings B1, B2, B3, B4, B8, B9, B10 and B11 are considered to provide suitability for roosting bats, no evidence of roosting bats was recorded during the survey work undertaken. Nonetheless, bats are dynamic animals and as such it remains possible that individuals could colonise the site in the future. Natural England guidance in respect of European Protected Species³⁷ such as bats advises that, even where proposals are reasonably unlikely to result in any offence, such that licensing is not required, reasonable precautions should be taken to minimise the risk to protected species in the unlikely event that they should be found during the course of the activity. Accordingly, recommended precautionary mitigation measures are set out at Chapter 6 below and subject to their implementation it is considered that bats will be fully safeguarded under the proposals.

Trees

- 5.3.15 A large number of trees within the site are considered to provide opportunities to roosting bats (as shown at Appendix 5022/5) and, as a result, it is considered that the onsite trees form important ecological features at the local level for roosting bats. The scheme has been sensitively designed such that the vast majority of trees with bat potential will be retained under the proposals, however a small number are located within / in close proximity to the development footprint. Should any of these trees require removal, this could potentially affect this species group. Accordingly, recommendations have been made below in relation to the loss of any such trees within the site. In addition, some indirect effects such as increased light spill may result from any future development of the site and as such, safeguards are set out at Chapter 6 to ensure that roosting bats, in the event that they are present within the site, are fully safeguarded under any future proposals.

Foraging / Commuting

- 5.3.16 As noted above, the areas of woodland, hedgerows, tree lines, groups of trees and scrub within / adjacent to the site offer foraging/commuting habitat for bats and, indeed, foraging and commuting bats were recorded during the activity surveys. However, this combination of habitat types occurs relatively frequently in the surrounding area (particularly to the north of the site) and taking this into the account, together with the levels of activity and species recorded during the survey work, the site is considered to be of no more than local level value to bats.
- 5.3.17 The habitats of elevated value to foraging and commuting bats, notably the trees / relines, scrub and areas of woodland within / adjacent to the site, have largely been retained under the proposals due to a sensitive design scheme, whilst new planting at the site will provide new opportunities for this species group. Therefore, subject to the implementation of appropriate mitigation measures, the minor reduction in sub-optimal bat foraging habitat is unlikely to pose a significant constraint to development at the site. Such measures will include the provision of 'dark zones' at the site, new foraging opportunities from new wildflower and hedgerow planting, and increased roosting opportunities via the provision of bat roost boxes. Further details are set out in Section 6 below.

³⁷ Natural England (2013) 'European Protected Species: Mitigation Licensing - How to get a licence (WML-G12)'

- 5.3.18 Accordingly, subject to the implementation of the recommendations outlined at Chapter 6 below, along with other ecological enhancements, it is considered that the conservation status of local bat populations will be fully safeguarded under the scheme.

5.4 Badger

- 5.4.1 **Legislation.** Badger receive legislative protection under the Protection of Badgers Act 1992 (see Appendix 5022/2 for detailed provisions), and as such should be assessed as an important ecological feature. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It is the duty of planning authorities to consider the conservation and welfare impacts of development upon Badger and issue permissions accordingly.
- 5.4.2 Licences can be obtained from Natural England for development activities that would otherwise be unlawful under the legislation. Guidance on the types of activity that should be licensed is laid out in the relevant best practice guidance.^{39, 40}
- 5.4.3 **Survey Results and Evaluation.** A number of Badger setts have been recorded within the wider survey area, however the closest of these is located at least 50m from the development footprint within an area of retained woodland, and therefore no direct adverse effects will occur to any Badger setts under the proposals. General safeguards are set out in Section 6 below, should any Badgers enter the site during construction works.
- 5.4.4 A moderate amount of land take will occur under the proposals, including areas of open grassland. Such habitat is likely to provide some foraging opportunities for Badger, however there is substantial similar habitat retained within the site, and in particular within the wider land to the south of the site. Therefore the loss of the grassland to the proposals is considered to be of only minor consequence to foraging badgers, which in any case will benefit from increased foraging opportunities from the new planting to be provided at the site.

5.5 Other Mammals

- 5.5.1 **Legislation.** A number of other UK mammal species do not receive direct legislative protection relevant to development activities but may receive protection against acts of cruelty (e.g. under the Wild Mammals (Protection) Act 1996). In addition, a number of these mammal species are S41 Priority Species and should be assessed as important ecological features.
- 5.5.2 **Background Records.** No specific records of other mammals from within or adjacent to the site were returned from the desktop study. A number of records of Hedgehog *Erinaceus europaeus* (Priority Species) was returned from within the search area around the site, the closest of which is located 0.14km north of the site, dated 2013.
- 5.5.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Other mammal species likely to utilise the site, such as Fox *Vulpes vulpes*, remain common in both a local and national context, and as mentioned above do not receive specific legislative protection in a development context.

³⁹ English Nature (2002) 'Badgers and Development'

⁴⁰ Natural England (2011) 'Badgers and Development: A Guide to Best Practice and Licensing', Interim Guidance Document

As such, these species are not a material planning consideration and the loss of potential opportunities for these species to the proposals is of negligible significance.

- 5.5.4 The desktop study returned background records of Hedgehog within the surrounding area, a Priority Species suffering significant declines. The site offers potential opportunities for this species, particularly in the form of areas of denser scrub, tall grassland, hedgerows and woodland, although habitats are unlikely to be of importance in a local context, and Hedgehog is considered to be of importance at a site level only. The majority of suitable habitat areas are retained under the proposals, whilst new planting at the site will provide new opportunities for this species. In any event, abundant similar opportunities are present within the local area and there is no evidence to suggest the proposals will significantly affect local populations of this species. However, it is recommended that precautionary safeguards are put in place to minimise the risk of harm to Hedgehog in the event this species is present, as detailed in Chapter 6 below.

5.6 Amphibians

- 5.6.1 **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). Great Crested Newt is protected under the Act and is also classed as a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). As such, both Great Crested Newt and habitats utilised by this species are afforded protection (see Appendix 5022/2 for detailed provisions). Great Crested Newt is also a S41 Priority Species, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*. As such, these species should be assessed as important ecological features.
- 5.6.2 **Background Records.** No specific records of Great Crested Newt from within or adjacent to the site were returned from the desktop study. A number of records of Common Frog were returned from the search area surrounding the site.
- 5.6.3 **Survey Results.** As discussed at section 4 previously, a number of ponds are located within the wider survey area, labelled P1a – P2 on Plan 5022/ECO3. An initial appraisal of each pond was made using the HSI system to identify potential suitability to support Great Crested Newt, see Table 5.5, below.

Table 5.5. HSI survey results.

Pond	Suitability Indices										HSI Score	Suitability
	SI 1 Location	SI 2 Pond Area	SI 3 Pond Drying	SI 4 Water Quality	SI 5 Shade	SI 6 Water Fowl	SI 7 Fish	SI 8 Ponds	SI 9 Terrestrial Habitat	SI 10 Macrophytes		
Onsite Ponds												
P1a	1	0.2	1	0.67	0.9	1	1	0.65	1	0.5	0.72	Good
P1b	1	0.2	1	0.67	0.9	1	1	0.65	1	0.5	0.72	Good
P2	1	0.8	0.9	0.67	0.6	1	0.01	0.65	1	0.5	0.50	Below Average

- 5.6.4 In summary, of the three ponds which were subject to assessment, ponds P1a and P1b were found to be of 'good' potential to support Great Crested Newts, while pond P2 was found to be of 'below average' potential. Due to the potentially suitable terrestrial habitat within

the site and the favourable HSI scores, specific Great Crested Newt survey work was undertaken on ponds P1a, P1b and P2 between May and June 2018, the results of which are summarised in Table 5.6 below.

Table 5.6. Great Crested Newt survey results summary.

Pond Ref.	GCN Present	GCN Peak Count	GCN Population Size Class	Smooth Newt Peak Count	Palmate Newt Peak Count	Other amphibians	Fish
P1a	N	-	-	23	0	x	x
P1b	N	-	-	106	0	Common Frog	x
P2	N	-	-	1	0	Common Frog	European Perch
Summed across ponds		-	-				

5.6.5 Evaluation and Assessment of Likely Effects. As can be seen from Table 5.6, no Great Crested Newts were recorded during the specific survey work conducted within the site. Indeed, whilst a high number of Smooth Newts *Lissotriton vulgaris* were recorded within the onsite ponds, few amphibians of any other species were recorded. Accordingly, it is considered unlikely that Great Crested Newt is present within the site and is therefore unlikely to pose a constraint to the proposals.

5.7 Reptiles

5.7.1 Legislation. All six species of British reptile are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which protects individuals against intentional killing or injury. Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* receive additional protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 5022/2 for detailed provisions. All six reptile species are also S41 Priority Species. As such, all reptile species should be assessed as important ecological features.

5.7.2 Background Records. Information returned from the TVERC returned a number of records for Grass Snake *Natrix natrix*, Adder *Vipera berus* and Slow-worm *Anguis fragilis*, the closest of which was that of a Adder located approximately 1km to the south of the site, dated 2008.

5.7.3 Survey Results. Due to the presence of suitable habitat within the site, in the form of the areas of long sward grassland and scrub, specific survey work for reptiles was undertaken at the site in 2018 and 2021, the results of which are summarised in Tables 5.7 and 5.8 below and illustrated on Plan 5022/ECO4.

Table 5.7. Reptile survey results summary - 2018.

Visit	Date	Common Lizard		Slow Worm		Grass Snake		Other Species
		Adult	Juv.	Adult	Juv.	Adult	Juv.	
1	13/09/2018	0	0	0	0	0	0	0
2	20/09/2018	0	0	0	0	0	0	0
3	24/09/2018	0	0	0	0	0	0	Field Vole
4	27/09/2018	0	0	0	0	0	0	0
5	05/10/2018	0	0	0	0	0	0	0
6	16/10/2018	0	0	0	0	0	0	0
7	23/10/2018	0	0	0	0	0	0	0
Peak Count		0		0		0		

Table 5.8. Reptile survey results summary - 2021.

Visit	Date	Common Lizard		Slow Worm		Grass Snake		Other Species
		Adult	Juv.	Adult	Juv.	Adult	Juv.	
1	11/09/2021	0	0	0	0	0	0	Palmate Newt
2	20/09/2021	0	0	0	0	0	0	0
3	26/09/2021	0	0	0	0	0	0	0
4	28/09/2021	0	0	0	0	0	0	0
5	04/10/2021	0	0	0	0	0	0	0
6	06/10/2021	0	0	0	0	0	0	0
7	08/10/2021	0	0	0	0	0	0	0
Peak Count		0		0		0		

5.7.4 Evaluation and Assessment of Likely Effects. As can be seen from Tables 5.7 and 5.8 above, no reptiles were recorded within the site during the survey work undertaken. Nevertheless, suitable habitat is present within the site in the form of long sward grassland (albeit much of the grassland habitat within the site is subject to regular management, which somewhat reduces its potential suitability to support reptile species), in addition to the compost heaps and log piles within the site, which are likely to offer some limited shelter and hibernation opportunities for species such as Grass Snake (for which records have been returned from the site's surroundings).

5.7.5 As such, whilst reptiles are unlikely to make regular use of the site, this species group may potentially utilise the site on an opportunistic basis. Accordingly, it is considered that this species group does pose a significant constraint to the proposals. Nevertheless, the potential remains for the killing or injury of common reptiles during site clearance / construction works. As such in order to fully safeguard this species, it is recommended that a precautionary habitat manipulation exercise is undertaken within the site, as set out at Chapter 6 below.

5.8 Birds

5.8.1 Legislation. All wild birds and their nests receive protection under Section 1 of the Wildlife and Countryside Act 1981 (as amended) in respect of killing and injury, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed. Species included on Schedule 1 of the Act receive greater protection and are subject to special penalties (see Appendix 5022/2 for detailed provisions).

5.8.2 Conservation Status. The conservation importance of British bird species is categorised based on a number of criteria including the level of threat to a species' population status⁴⁴. Species are listed as Green, Amber or Red. Red Listed species are considered to be of the highest conservation concern being either globally threatened and or experiencing a high/rapid level of population decline (>50% over the past 25 years). A number of birds are also S41 Priority Species. Red and Amber listed species and priority species should be assessed as important ecological features.

5.8.3 Background Records. Information from the data search included records for several bird species in the vicinity of the site, including within the 1km x 1km OS grid square which contains the site. Records include the Red Listed species Swift *Apus apus*, House Martin

⁴⁴ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) 'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man' British Birds 108, pp.708-746

Delichon urbicum, Lapwing *Vanellus vanellus* and House Sparrow *Passer domesticus* which are also all Priority Species. None of the records originate from within the site itself.

5.8.4 Survey Results. Several species of bird were observed within the site during the Phase 1 survey including: Wood Pigeon *Columba palumbus*, Red Kite *Milvus milvus*, Robin *Erithacus rubecula*, Blackbird *Turdus merula*, Collared Dove *Streptopelia decaocto*, Pheasant *Phasianus colchicus*, Magpie *Pica pica* and Swift *Apus apus*.

5.8.5 Evaluation. Given the habitats present, the site is likely to support a range of common bird species as well as potentially several declining species. The hedgerows, trees and woodland provide potential nesting and foraging habitat for a range of bird species. Given the areas of dense scrub, woodland and trees across portions of the site, it is considered likely that the site is of importance to birds, though only at the local level. The proposals will result in the loss of a small section of hedgerow at the western site boundary in order to facilitate site access, and some small areas of dense scrub / trees, which could potentially affect any nesting birds that may be present at the time of works. Accordingly, a number of safeguards in respect of nesting birds are proposed, as detailed in Chapter 6 below. In the long-term, new nesting opportunities will be available for birds as described in Chapter 6 below.

5.9 Invertebrates

5.9.1 Legislation. A number of invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In addition, Large Blue Butterfly *Maculinea arion*, Fisher's Estuarine Moth *Gortyna borelii lunata* and Lesser Whirlpool Ram's-horn Snail *Anisus vorticulus* receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 5022/2 for detailed provisions. A number of invertebrates are also S41 Priority Species. Where such species are present, they should be assessed as important ecological features.

5.9.2 Background Records. No specific records of invertebrates were returned from within the site. A number of records of Stag Beetle *Lucanus cervus* (Priority Species) were returned within information received from TVERC, with the closest located adjacent to the south-west site boundary, whilst a single record of Wall Butterfly *Lasiommata megera* is located approximately 0.22km southwest of the site (dated 1988).

5.9.3 Survey Results and Evaluation. No evidence for the presence of any protected, rare or notable invertebrate species was recorded within the site. The development footprint is largely restricted to areas of grassland, which is likely to support only a limited diversity of invertebrates. The retained woodland and trees within / adjacent to site are likely to provide opportunities for the Priority Species Stag Beetle, which is known to be present in close proximity to the site, and recommendations are set out at Section 6 below in order to safeguard and provide new opportunities for this species. Overall, given the nature of the proposals, it is considered unlikely that they will result in significant harm to any protected, rare or notable invertebrate populations, and indeed new planting at the site will likely provide new opportunities for this species group.

5.10 Summary

5.10.1 On the basis of the above, a summary of the evaluation of fauna is provided below:

Table 5.8: Summary of faunal evaluation.

Faunal Species / Group	Level
Roosting Bats - buildings	Likely Absent
Roosting Bats - trees	Local
Foraging and Commuting Bats	Local
Badger	Absent (from site)
Great Crested Newt	Likely Absent
Reptiles	Likely Absent
Birds	Local
Invertebrates	Local (Stag Beetle)

- 5.10.2 Other fauna supported by the site include non-priority species of mammals, amphibians and invertebrates. However, these species do not form important ecological features.

6 Mitigation Measures and Biodiversity Net Gains

6.1 Mitigation

- 6.1.1 Based on the habitats, ecological features and associated fauna identified within / adjacent to the site, it is proposed that the following mitigation measures (**MM1 – 12**) are implemented under the proposals. Further, detailed mitigation strategies or method statements can be secured via suitably-worded planning conditions, as recommended by relevant best practice guidance (BS 42020:2019).

Woodland, Hedgerows and Trees

- 6.1.2 **MM1 – Hedgerow and Tree Protection.** All hedgerows and trees to be retained within the proposed development shall be protected during construction in line with standard arboriculturalist best practice (BS5837:2012) or as otherwise directed by a suitably competent arboriculturalist. This will involve the use of protective fencing or other methods appropriate to safeguard the root protection areas of retained woodland / trees / hedgerows.
- 6.1.3 **MM1a – Veteran Tree Protection.** Given their status as irreplaceable habitats (as set out at paragraph 175C of the NPPF), all veteran trees within the site have been retained under the proposals. In line with Natural England's standing advice, all veteran trees should be retained within a buffer zone measuring at least 15 times larger than the diameter of the tree, or a buffer zone that extends 5m from the edge of each tree's canopy if that area is larger than 15 times the tree's diameter. Such trees should ideally be linked with a species rich ground flora in order to maximise their value. Careful consideration should also be given to the control of recreational effects, with a planting strategy developed (including provisions such as dense scrub to prevent heavy foot traffic) that minimises compaction within the root plate of the veteran trees. This is reflected in the landscape masterplan, which proposes wildflower grassland across this area, and the addition of scattered scrub in these locations could assist with minimising footfall.
- 6.1.4 **MM2 – Woodland Protective Fencing.** Under the current proposals, although kept to minimum, some of the new residential curtilage will back on to areas of retained woodland / tree cover, including woodland W1, W2 and the tree / scrub mosaic in the north east section of the site. It is recommended that the extent of the residential curtilage be demarked by fencing, installed along the edge of these habitats, comprising a wooden post and rail fence, securely concreted into the ground. The provision of such fencing will clearly demark the extent of residential gardens, reducing the risk of anthropogenic effects such as fly-tipping and informal garden extensions. In addition, this design of fencing will enable light to reach the woodland / tree cover, whilst also allowing informal cutting to be undertaken when required.

Wildflower Grassland

- 6.1.5 **MM3 – Provision of New Compensatory Wildflower Grassland.** Areas of grassland will be subject to land take in order to facilitate the development footprint. In order to compensate for these losses, it is recommended that retained areas of grassland throughout the site are enhanced in order to provide substantial new areas of wildflower grassland. Suitable locations for providing new wildflower grassland include retained grassland around the central sports / recreation fields, grassland surrounding trees within the western section of the site, within the retained orchard and surrounding the tree / scrub cover within the eastern section of the site. This would make a positive contribution towards the Reading

Biodiversity Action Plan (BAP), which lists 'Lowland Meadows' as a priority. The provision of new wildflower grassland will be achieved through the sowing of an appropriate seed mix suited to clay soil present at the site (such as Emorsgate EM4F), bulb planting and sensitive low-intensity management (please see additional details on creating wildflower grassland under orchard enhancement measures at EE6).

Waterbodies

6.1.6 MM4 – Pollution Prevention. In order to safeguard the ponds located in the wider survey area against any potential run-off or pollution events during construction, the following safeguards will be implemented:

- Storage areas for chemicals, fuels, etc. will be sited well away from the watercourse (minimum 10m), and stored on an impervious base within an oil-tight bund with no drainage outlet. Spill kits with sand, earth or commercial products approved for the stored materials shall be kept close to storage areas for use in case of spillages;
- Where possible, and with prior agreement of the sewage undertaker, silty water should be disposed of to the foul sewer or via another suitable form of disposal, e.g. tanker off-site;
- Water washing of vehicles, particularly those carrying fresh concrete and cement, mixing plant, etc. will be carried out in a contained area as far from the watercourse as practicable (minimum 10m), to avoid contamination; and
- Refuelling of plant will take place in a designated area, on an impermeable surface, away from the watercourse (minimum 10m).

6.1.7 Post-development, the drainage system for the development will ensure the watercourse is not subject to adverse changes in surface water run-off or quality.

Invasive Species

6.1.8 MM5 - Invasive Species Safeguards. Species of Cotoneaster were recorded within the site (in addition to New Zealand Pygmyweed and Rhododendron within the wider survey area), which are all listed on Schedule 9 Part II of the Wildlife and Countryside Act 1981. It is an offence to cause to grow in the wild, any plant listed on the schedule. As such, all relevant precautions should be taken when carrying out actions that could potentially spread these plants. The government has set out guidance on what can be considered 'causing to grow in the wild' within a response to the Schedule 9 review which states:

"We would expect that where plants listed in Schedule 9 are grown in private gardens, amenity areas etc., reasonable measures will be taken to confine them to the cultivated area so as to prevent their spreading to the wider environment and beyond the landowner's control. It is our view that any failure to do so, which in turn results in the plant spreading to the wild, could be considered as 'causing to grow in the wild' and as such would constitute an offence...Additionally, negligent or reckless behaviour such as inappropriate disposal of garden waste, where this results in Schedule 9 species becoming established in the wild would also constitute an offence."

6.1.9 As such, it is recommended that appropriate safeguards be put in place to prevent the spread of the Schedule 9 species during the proposed development works. Such measures would likely involve herbicide application and/or excavation and removal of any material within the site itself (which should then be disposed of appropriately to prevent colonisation of off-site areas).

Bats

- 6.1.10 **MM6 – Update Survey.** Should any considerable time (e.g. >2 years) elapse between the survey work detailed above and any development works, a further survey of the buildings with potential to support roosting bats should be undertaken prior to the commencement of works to confirm the continued absence of bats.

6.1.11 **MM7 – Felling of Trees Supporting Bat Roosting Potential.**

Low Potential

- 6.1.12 No trees supporting low bat roosting potential have been identified for removal under the current layout. However should any need for such trees be identified at a later stage (e.g. for health and safety purposes), felling of such trees will be undertaken under an ecological watching brief, and will be carried out using the 'soft-felling' technique, whereby sections of the tree will be cut and lowered to the ground, followed by leaving the felled sections on the ground for a period of at least 24 hours to allow any bats, should these be present, to escape.
- 6.1.13 If any evidence for the presence of roosting bats is recorded, works on that tree will be suspended and consideration will be given to the need to undertake works under a European Protected Species (EPS) development licence, and a licence application will be made to Natural England as required.

Moderate to High Potential

- 6.1.14 No trees supporting moderate or high bat roosting potential have been identified for removal under the current layout, although should a need for works to these trees be identified at a later stage (e.g. for health and safety purposes) it is recommended a suitably qualified ecologist is consulted to advise on any further survey requirements and mitigation measures. Such measures may include climbing inspections to investigate potential roosting features and soft felling of trees under an ecological watching brief.
- 6.1.15 **MM8 – Sensitive Lighting.** Light-spill onto retained and newly created habitat, in particular the retained woodlands, hedgerows, trees / tree lines and tree / scrub mosaic, will be minimised in accordance with good practice guidance⁴⁷ to reduce potential impacts on light-sensitive bats (and other nocturnal fauna). This may be achieved through the implementation of a sensitively designed lighting strategy, with consideration given to the following key factors:
- **Light exclusion zones** – ideally no lighting should be used in areas likely to be used by bats. Light exclusion zones or 'dark buffers' may be used to provide interconnected areas free of artificial illumination to allow bats to move around the site;
 - **Appropriate luminaire specifications** – consideration should be given to the type of luminaires used, in particular luminaries should lack UV elements and metal halide and fluorescent sources should be avoided in preference for LED luminaries. A warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;

⁴⁷ Bat Conservation Trust and Institute of Lighting Professionals (2018) 'Guidance Note 08/18: Bats and artificial lighting in the UK'; Stone, E.L. (2013) 'Bats and lighting: Overview of current evidence and mitigation guidance.'; ILP (2011) 'Guidance notes for the reduction of obtrusive light' Institution of Lighting Professionals, GN01:2011.

- **Light barriers / screening** – new planting (e.g. hedgerows and trees) or fences, walls and buildings can be strategically positioned to reduce light spill;
- **Spacing and height of lighting units** – increasing spacing between lighting units will minimise the area illuminated and allow bats to fly in the dark refuges between lights. Reducing the height of lighting will also help decrease the volume of illuminated space and give bats a chance to fly over lighting units (providing the light does not spill above the vertical plane). Low level lighting options should be considered for any parking areas and pedestrian / cycle routes, e.g. bollard lighting, handrail lighting or LED footpath lighting;
- **Light intensity** – light intensity (i.e. lux levels) should be kept as low as possible to reduce the overall amount and spread of illumination;
- **Directionality** – to avoid light spill lighting should be directed only to where it is needed. Particular attention should be paid to avoid the upward spread of light so as to minimise trespass and sky glow;
- **Dimming and part-night lighting** – lighting control management systems can be used, which involves switching off/dimming lights for periods during the night, for example when human activity is generally low (e.g. 12.30 – 5.30am). The use of such control systems may be particularly beneficial during the active bat season (April to October). Motion sensors can also be used to limit the time lighting is operational.

Badger

6.1.16 **MM9 – Badger Construction Safeguards.** In order to safeguard Badger should they enter the site during construction works, the following measures will be implemented:

- Any trenches or excavations within the site that are to be left open overnight will be provided with a means of escape should a Badger enter. This could simply be in the form of a gently graded ramp or roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water;
- Any temporarily exposed open pipes (>150mm outside diameter) should be blanked off at the end of each working day so as to prevent Badgers gaining access as may happen when contractors are off-site;
- Any trenches/pits will be inspected each morning to ensure no Badgers have become trapped overnight. Should a Badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped Badger be encountered a suitably qualified ecologist will be contacted immediately for further advice;
- The storage of topsoil or other 'soft' building materials in the site will be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude Badgers;
- The storage of any chemicals at the site will be contained in such a way that they cannot be accessed or knocked over by any roaming Badgers;
- Fires will only be lit in secure compounds away from areas of Badger activity and not allowed to remain lit during the night; and
- Unsecured food and litter will not be left within the working area overnight.

- 6.1.17 **MM9a – Badger Update Survey.** Badgers are dynamic animals and levels of Badger activity can rapidly change at a site, with new setts being created at any time. Given the known presence of Badger setts in the wider survey area it is recommended that an update survey is carried out prior to commencement of site works in order to confirm the current status of Badgers at the site.

Hedgehogs

- 6.1.18 **MM10 – Hedgehog Safeguards.** In order to safeguard Hedgehogs and other small mammals should they enter the site during construction works, the following measures will be implemented:

- A watching brief should be maintained for Hedgehog and other small mammals throughout any clearance works;
- Any piles of material already present on site, particularly vegetation/leaves, etc. and any areas of dense scrub or hedgerows, shall be dismantled/removed by hand and checked for Hedgehog prior to the use of any machinery/disposal;
- Any material to be disposed of by burning, particularly waste from vegetation clearance and tree works, should not be left piled on site for more than 24 hours in order to minimise the risk of Hedgehogs occupying the pile. If this cannot be avoided, material should be stored within a container such as a skip to prevent animals from gaining access. Any material which has been stored on the ground overnight should be moved prior to burning to allow a thorough check for any animals which may have been occupying the pile;
- In the event that an injured Hedgehog is found, the animal should be wrapped carefully in a towel, the British Hedgehog Preservation Society (BHPS) phoned (01584 890 801) and the Hedgehog taken to a local vet immediately;
- To maintain connectivity throughout the site for Hedgehog and to allow access to suitable foraging habitat contained within residential gardens, small holes (13cmx13cm) should be created within garden fences or under gates.

Reptiles

- 6.1.19 **MM11 – Destructive Search.** As a precautionary measure to minimise the risk of harm to reptiles, a destructive search is proposed. The destructive search will involve cutting the grassland within the development footprint to a short height (~15cm) so as to encourage reptiles to disperse to suitable areas of retained/nearby habitat, whilst also allowing for a fingertip search of the area. This exercise should be carried out under the supervision of a competent ecologist during the active reptile season where practicable (generally March/April to September/October, depending on prevailing weather). Any potential refuge features, e.g. piles of rubble, heavy logs, brash piles, will be fingertip-searched by an ecologist prior to being carefully disassembled. Any reptiles encountered during the destructive search will be carefully rescued by the supervising ecologist and relocated to suitable nearby habitat.

Nesting Birds

- 6.1.20 **MM12 – Timing of Works.** To avoid a potential offence under the relevant legislation, no clearance of suitable vegetation should be undertaken during the bird-nesting season (1st March to 31st August inclusive). If this is not practicable, any potential nesting habitat to be removed should first be checked by a competent ecologist in order to determine the location of any active nests. Any active nests identified would then need to be cordoned off

(minimum 5m buffer) and protected until the end of the nesting season or until the birds have fledged. These checking surveys would need to be carried out no more than three days in advance of vegetation clearance.

6.2 Biodiversity Net Gains

6.2.1 The National Planning Policy Framework (NPPF) encourages new developments to maximise the opportunities for biodiversity through incorporation of enhancement measures. The proposals present the opportunity to deliver ecological enhancements at the site for the benefit of local biodiversity, thereby making a positive contribution towards the broad objectives of national conservation priorities and the local Biodiversity Action Plan (BAP). The recommendations and enhancements summarised below are considered appropriate given the context of the site and the scale and nature of the proposals. Through implementation of the following ecological enhancements (EE1 – EE13), the opportunity exists for the proposals to deliver a number of biodiversity net gains at the site.

6.2.2 The below thirteen measures will present new opportunities for wildlife and create benefits to existing habitats - whilst also delivering new high quality habitat - all of which is to be welcomed. A formal measure of the 'biodiversity gain' that these measures will achieve will be completed using the Defra 3.0 metric, and this will be provided during the determination period.

Habitat Creation

6.2.3 **EE1 – New Hedgerow and Tree Planting.** Where practicable, it is recommended that new hedgerow and tree planting is provided at the site, in particular at the site and field boundaries, and in combination with the existing hedgerows and tree / scrub cover. Such new planting will combine with existing habitats and provide increased opportunities for a range of wildlife (please also see EE2-4 below).

6.2.4 **EE2 – New Planting.** It is recommended that where practicable, new planting within the site be comprised of native species of local provenance, including trees and shrubs appropriate to the local area. Suitable species for inclusion within the planting could include native trees such as Oak, Ash, Birch and Field Maple, whilst native shrub species of particular benefit would likely include fruit and nut bearing species which would provide additional food for wildlife, such as Blackthorn, Hawthorn, Crab Apple, Hazel and Elder. Where non-native species are proposed, these should include species of value to wildlife, such as varieties listed on the RHS' 'Perfect for Pollinators' database, providing a nectar source for bees and other pollinating insects.

6.2.5 **EE3 - Woodland Management and Enhancement.** Appropriate management of the retained woodland has the potential to enhance this habitat, for example through improving the structural diversity of the substantial understorey, including the clearance of non-native Cherry Laurel. In addition, the woodland could also be enhanced through the provision semi-natural habitat along the periphery of the woodland, such as wildflower grassland and scattered scrub, which will create a more natural edge to the woodland and provide a suitable eco-tone to the areas of woodland. It is recommended that this ecotone form a gradual transition from the canopy of the woodland, through to dense scrub, and wildflower grassland. Such measures would confer a higher ecological value to the habitat.

6.2.6 **EE4 - Hedgerow and Tree Line Enhancement.** It is considered that there is scope for the enhancement of the existing hedgerows and tree lines within / adjacent to the site under the proposals, which will not only represent an enhancement in its own right but will offer notable opportunities for a variety of faunal groups. It is recommended that, in order to

maximise the value of the hedgerows and tree lines with the site, these features should ideally be in-filled with an appropriate mix of species that occur in the local area where gaps are present.

6.2.7 EE5 – Wildflower Grassland. New compensatory wildflower grassland provision is proposed under mitigation measure MM3, which will represent a considerable enhancement over the existing value of the grassland habitats at the site (please see mitigation measure MM3 and wildflower grassland creation details under orchard enhancement measure EE6). Indeed, under the much of the site will be converted to wildflower grassland, representing significant gain for invertebrates in particular.

6.2.8 EE6 - Enhancement of the Existing Orchard. As set out above, given the classification of the onsite orchard as 'Traditional Orchard' priority habitat, it is recommended that the opportunity to enhance this habitat is taken. Accordingly, a number of recommendations are given below so as to enhance this habitat, to (over time) bring it closer to the description of a Prime 'Traditional Orchard'⁴⁸ and to maximise its ecological value:

- **Wildflower Grassland:** It is proposed that the grassland beneath and between the fruit trees be over-sown with a wildflower grassland mix which will contribute towards the enhancement of the orchard habitat (with the inclusion of such ground flora being one of the contributing factors that defines a Prime 'Traditional Orchard' habitat). The inclusion of such wildflower grassland would be of benefit to a number of faunal groups, including invertebrates, reptiles, amphibians and small mammals.
- The creation of a wildflower grassland sward within the orchard habitat can be readily achieved through a combination of harrowing the existing grassland (to create areas of open space and bare ground) and an autumn over-sowing of a species-rich wildflower seed mix (such as the seeds collected from the grassland within the site or Emorsgate EM4F, which is suitable for the clay soils on which the site is located). In particular, in order to increase the diversity of species within the grassland sward, it is recommended that Yellow Rattle *Rhinanthus minor* (a semi-parasitic grassland annual that assists in suppressing grass dominance thereby contributing to a more biodiverse grassland sward) is sown within the grassland sward during the first autumn sowing so as to increase the likelihood of success for this species growth. Yellow Rattle should be sown at a high density (up to 1g per square metre where possible) in order to enable this species to establish.
- Thereafter, the wildflower grassland should be maintained at a long sward length, with cuts only undertaken from late September through to the end of the year, with the grassland left uncut (save for any informal footpaths) throughout the remainder of the year;
- **New Hedgerow Creation:** Currently the orchard is surrounded by an existing footpath. It is recommended that the opportunity is taken to create new hedgerows along the orchard boundaries. These hedgerows should comprise a variety of native woody species, and be at least a triple staggered so as to create wide features of high ecological value. Such new hedgerow creation will also contribute to the orchard habitats classification as Prime 'Traditional Orchard'

⁴⁸ Under the definitions provided by the UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

habitat, as new hedgerows would represent the creation of high value associated features associated.

- **Planting /grafting of new tree varieties:** It is recommended that the potential of including new fruit trees, or (once existing trees are of sufficient age) grafting of new varieties is explored. Berkshire has a long heritage of traditional orchards and the option of sourcing old and traditional fruit varieties should be explored, and incorporating these into the existing orchard.
- **Management:** It is recommended that a commitment to management of the orchard is made in perpetuity. Management need only be relatively light touch, with minimal pruning of fruit trees and only late autumn cuts of grassland and hedgerows on rotation.

Bats

- 6.2.9 **EE7 - Bat Boxes.** A number of bat boxes will be incorporated within the proposed development. The provision of bat boxes will provide new roosting opportunities for bats in the area, such as Soprano Pipistrelle, a national Priority Species. So as to maximise their potential use, the bat boxes should ideally be situated on suitable retained trees, erected as high up as possible and sited in sheltered wind-free areas that are exposed to the sun for part of the day, facing a south-east, south or south-westerly direction. In addition, where architectural design allows, a number of integrated bat boxes / roost features should be incorporated into a proportion of the new build. The precise number and locations of boxes / roost features should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Hedgehog

- 6.2.10 **EE8 - Hedgehog Domes.** It is recommended that a number of Hedgehog Domes be incorporated into the proposals, ideally within sheltered areas, such as in dense scrub / woodland. These will provide suitable nesting places for this UK Priority Species throughout the year, delivering gains for biodiversity. The precise number and locations of Hedgehog Domes should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Birds

- 6.2.11 **EE9 - Bird Boxes.** A number of bird nesting boxes are to be incorporated within the proposed development, thereby increasing nesting opportunities for birds at the site. Ideally, the bird boxes will have greater potential for use if sited on suitable, retained trees, situated as high up as possible. The precise number and locations of boxes should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Invertebrates

- 6.2.12 **EE10 – Deadwood Retention.** Stag Beetles are known to be present in close proximity to the site, whilst the site confers likely opportunities for this species in the form of deadwood. Any deadwood at the site is therefore recommended to be retained in situ as far as practicable, either as standing wood or at ground level, which will provide suitable habitat for the larval stage of this Priority Species.
- 6.2.13 **EE11 – Habitat Piles.** A proportion of any deadwood arising from vegetation clearance works should be retained within the site in a number of wood piles located within areas of retained woodland, tree /scrub cover, new planting or wildflower grassland in order to

provide potential habitat opportunities for invertebrate species, which in turn could provide a prey source for a range of other wildlife. In addition, the provision and management of new native landscape planting will likely provide additional opportunities for invertebrates at the site in the long term.

6.2.14 EE12 – Nectar Source. The wildflower mix will include species which will provide a larval food source and adult nectar source for a variety of invertebrates.

6.2.15 EE13 – Bee Bricks. It is recommended that a number of bee bricks be incorporated within the proposed development thereby increasing nesting opportunities for declining populations of non-swarming solitary bee populations. Ideally, bee bricks should be located within suitable south-facing walls (where architectural design allows), located at least 1m off the ground. The bricks should be unobstructed by vegetation, though within close vicinity of nectar and pollen sources.

6.2.16

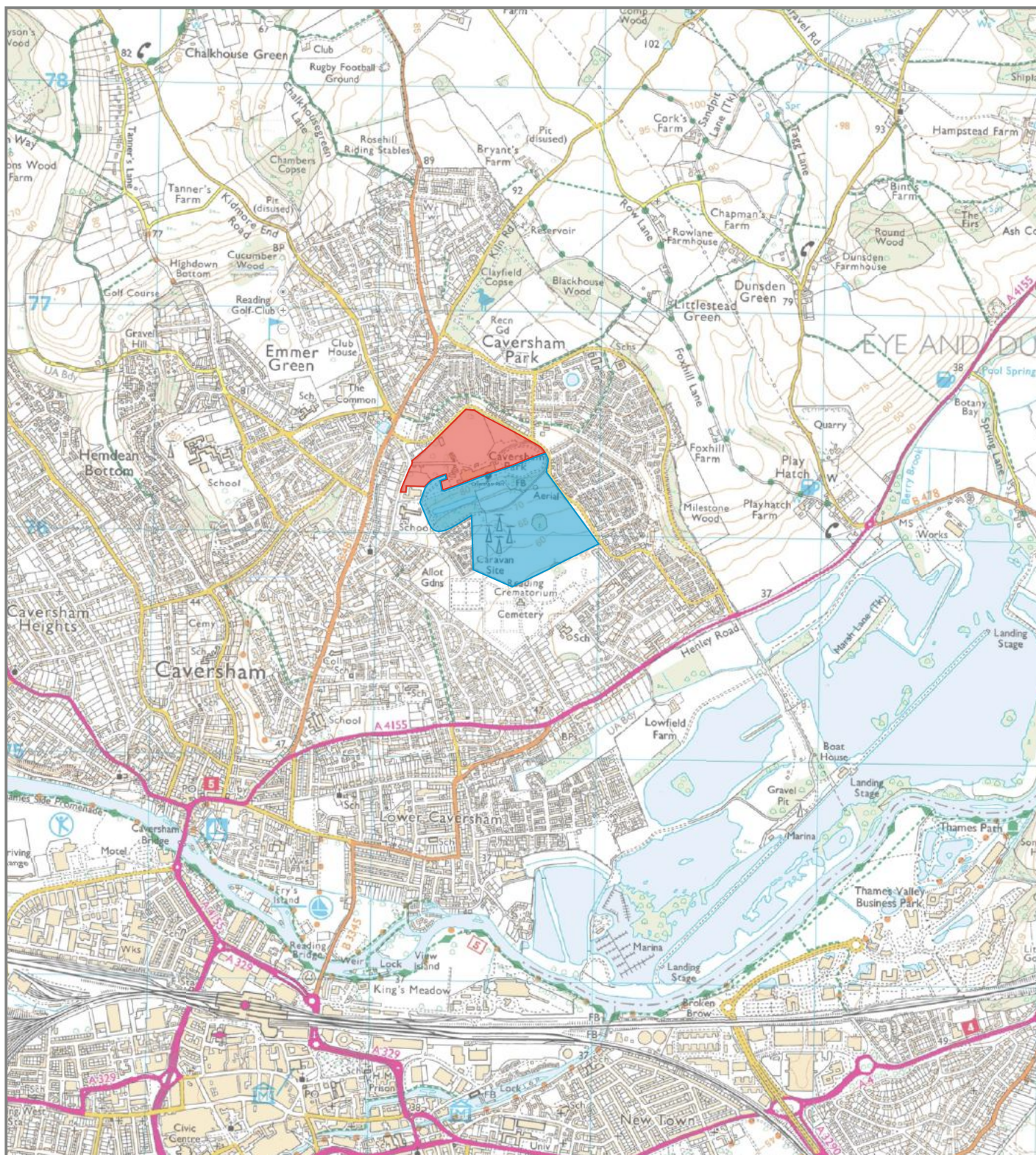
7 Conclusions

- 7.1 Aspect Ecology has carried out an Ecological Appraisal of the proposed development, based on the results of a desktop study, Phase 1 habitat survey and a number of detailed protected species surveys.**
- 7.2 The available information confirms that no statutory or non-statutory nature conservation designations are present within or adjacent to the site, and none of the designations within the surrounding area are likely to be adversely affected by the proposals.**
- 7.3 The Phase 1 habitat survey has confirmed that the woodland, veteran trees, orchard, tree /scrub / grassland mosaic and hedgerows are considered to be features of ecological importance. Such habitats are primarily retained under the proposals, and provide a number of opportunities for their enhancement. Other habitat types present on site are unlikely to pose a significant constraint to development.**
- 7.4 The site provides potential habitat for a range of faunal species, including roosting, foraging and commuting bats, small mammals, reptiles, amphibians and birds. However, aside from the potential for bats to utilise onsite trees for roosting, detailed survey work has recorded protected species to be largely absent from the site, such that faunal species are unlikely to present an overriding constraint to the proposals. In any case, a number of mitigation measures have been proposed to minimise the risk of harm to protected species, with compensatory measures proposed, where appropriate, in order to maintain the conservation status of local populations.**
- 7.5 In conclusion, the proposals have sought to minimise impacts and subject to the implementation of appropriate avoidance, mitigation and compensation measures, it is considered unlikely that the proposals will result in significant harm to biodiversity. On the contrary, the opportunity exists to provide a number of biodiversity net gains as part of the proposals.**

Plans

Plan 5022/ECO1:

Site Location



Key:



Site Location



Wider Survey Area

aspect ecology

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Noral Way - Banbury - Oxfordshire - OX16 2AF
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BBC Caversham PROJECT

Site Location TITLE

5022/ECO1 DRAWING NO.

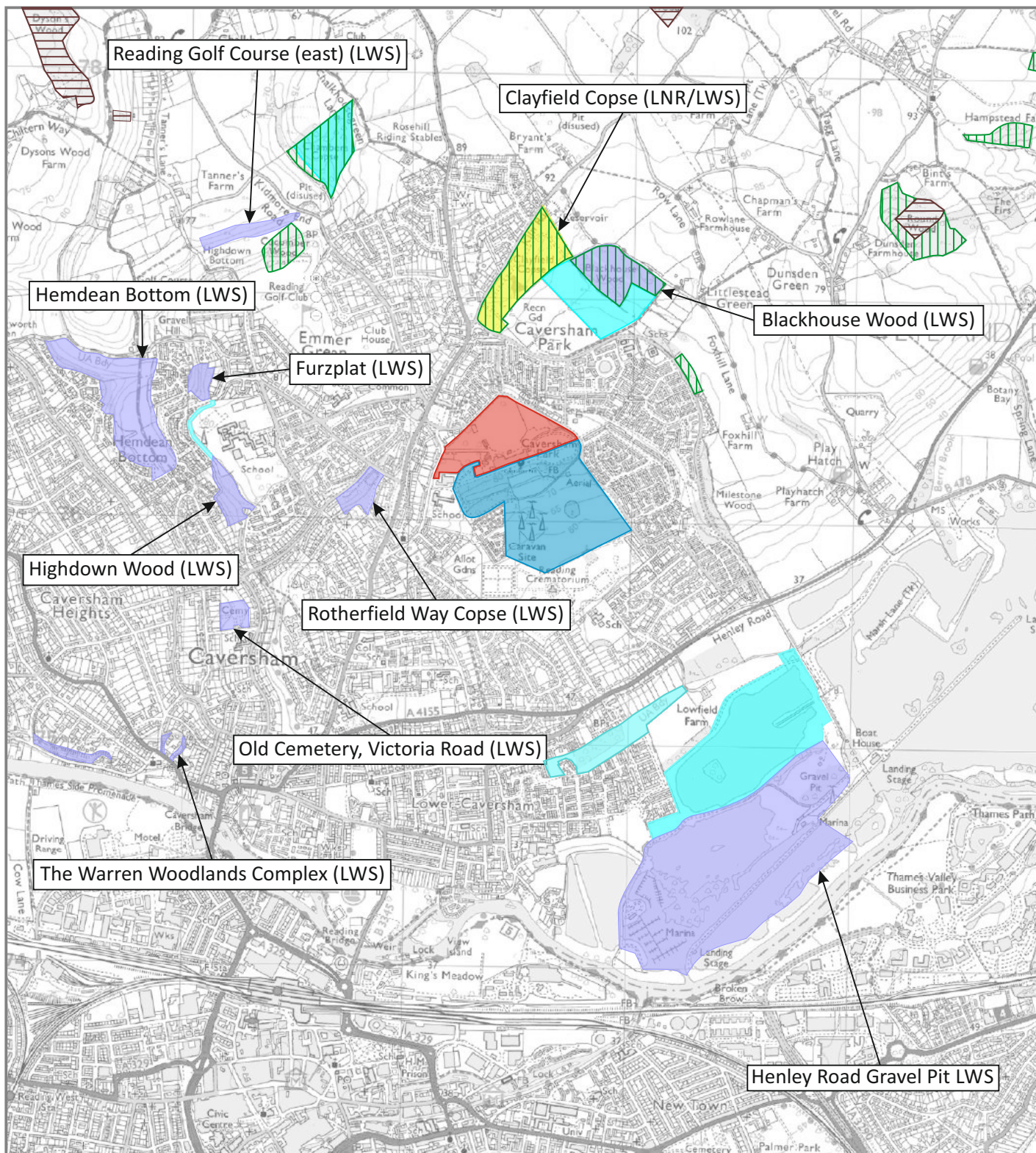
- REV.

November 2021 DATE



Plan 5022/ECO2:

Ecological Designations



Key:

- Site Location
- Wider Survey Area
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- Proposed Local Wildlife Site (pLWS)
- Ancient & Semi-Natural Woodland (ASW)
- Ancient Replanted Woodland (ARW)

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Ecological Designations TITLE

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Plan 5022/ECO3:

Habitats & Ecological Features



- Key:
- Site boundary
 - High Bat Potential Tree
 - Moderate Bat Potential Tree
 - Low Bat Potential Tree
 - Tree
 - Tree Line
 - Hedge
 - Scrub
 - Dense Scrub
 - Laurel
 - Amenity Planting
 - Tall Ruderal Vegetation
 - Cotoneaster (Invasive Species)
 - Shortward Grassland
 - Longward Grassland
 - Matrix of young trees, scrub, grassland
 - Woodland
 - Orchard
 - Hardstanding
 - Buildings
 - Other Structures

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Habitats and Ecological Features

5022/ECO3

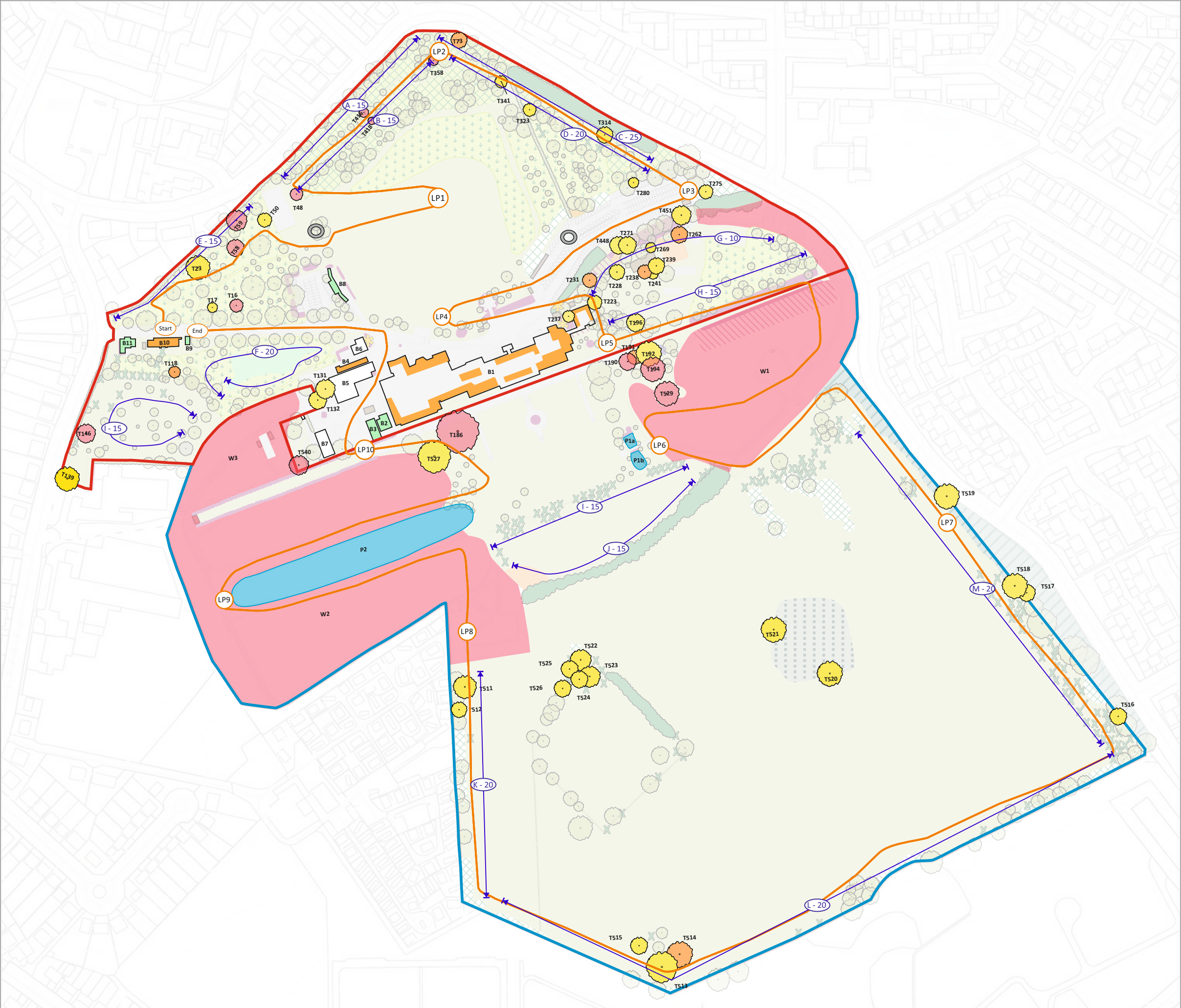


November 2021

PROJECT
TITLE
DRAWING NO.
REV
DATE

Plan 5022/ECO4:

Location of Faunal Features and Survey Locations



- Key:
- Site Boundary
 - Wider Survey Area
 - Route of Bat Transect (2018 only)
 - Listening Point on Bat Transect
 - Static Detector Location
 - Building of Negligible Bat Potential
 - Building of Low Bat Potential
 - Building / Portion of Building of Moderate Bat Potential
 - Tree / Woodland with High Roosting Bat Potential
 - Tree with Moderate Roosting Bat Potential
 - Tree with Low Roosting Bat Potential
 - Location and Number of Reptile Tins (Transect 'I' 2021 only, wider survey area in 2018 only)
 - Pond Location



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Location of Faunal Features and Survey Locations TITLE

5022/ECO4 DRAWING NO.

- REV.

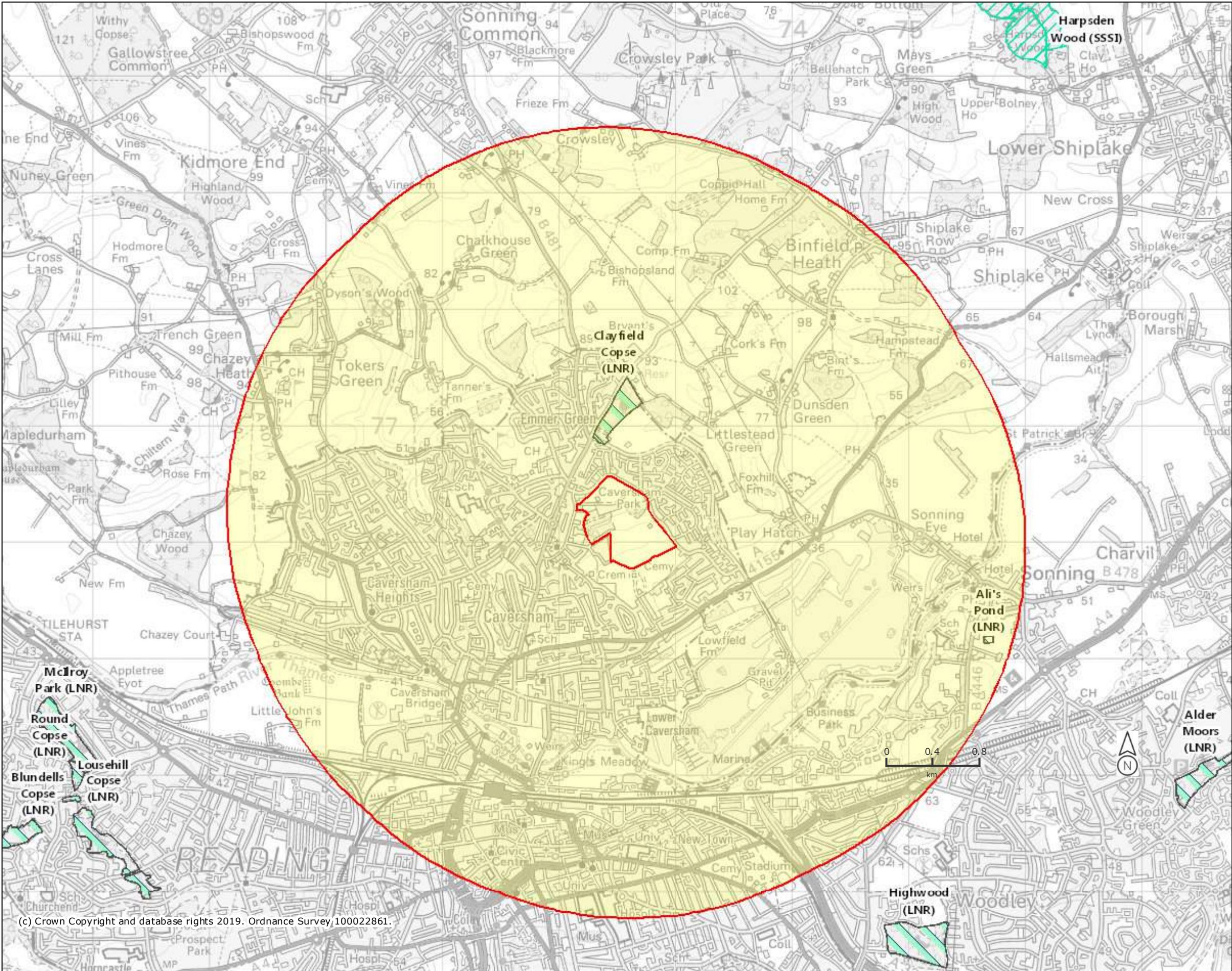
December 2021 DATE



Appendices

Appendix 5022/1:

Desktop Study Data

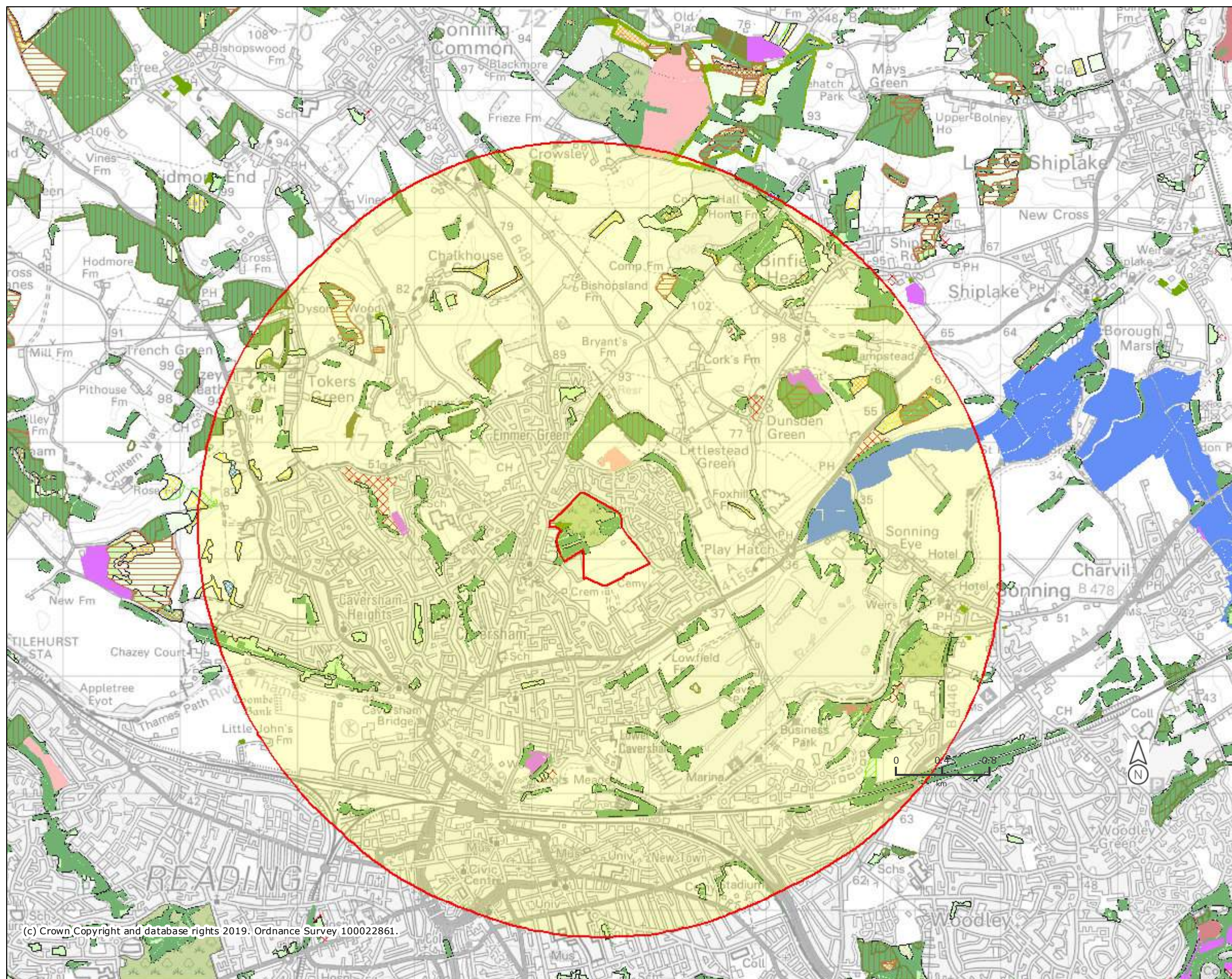


Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Projection = OSGB36
xmin = 467000
ymin = 172600
xmax = 478000
ymax = 180300

Map produced by MAGIC on 10 January, 2019.
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Legend

- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Lowland Calcareous Grassland (England)
- Priority Habitat Inventory - Lowland Dry Acid Grassland (England)
- Priority Habitat Inventory - Lowland Fens (England)
- Ancient Woodland (England)**
 - Ancient and Semi-Natural Woodland
 - Ancient Replanted Woodland
 - Priority Habitat Inventory - Deciduous Woodland (England)
 - Forestry Commission Legal Boundary (England)
- National Forest Inventory (GB)**
 - Assumed woodland
 - Broadleaved
 - Cloud \ shadow
 - Conifer
 - Coppice
 - Coppice with standards
 - Failed
 - Felled
 - Ground prep
 - Low density
 - Mixed mainly broadleaved
 - Mixed mainly conifer
 - Shrub
 - Uncertain
 - Windthrow
 - Young trees
 - Priority Habitat Inventory - Traditional Orchards (England)
 - Woodpasture and Parkland BAP Priority Habitat (England)
 - Priority Habitat Inventory - No main habitat but additional habitat exists (England)

Projection = OSGB36

xmin = 467300

ymin = 172700

xmax = 478300

ymax = 180400

Map produced by MAGIC on 10 January, 2019.

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Appendix 5022/2:

Assessment Methodology

Evaluation Methodology

1. The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (2018)¹.

Importance of Ecological Features

2. Ecological features within the site/study area have been evaluated in terms of whether they qualify as 'important ecological features'. In this regard, CIEEM guidance states that *"it is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable"*.
3. Various characteristics contribute to the importance of ecological features, including:
 - Naturalness;
 - Animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;
 - Ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
 - Endemic species or locally distinct sub-populations of a species;
 - Habitat diversity;
 - Habitat connectivity and/or synergistic associations;
 - Habitats and species in decline;
 - Rich assemblages of plants and animals;
 - Large populations of species or concentrations of species considered uncommon or threatened in a wider context;
 - Plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types, including examples of naturally species-poor communities; and
 - Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.
4. As an objective starting point for identifying important ecological features, European, national and local governments have identified sites, habitats and species which form a key focus for biodiversity conservation in the UK, supported by policy and legislation. These are summarised by CIEEM guidance as follows:

Designated Sites

- Statutory sites designated or classified under international conventions or European legislation, for example World Heritage Sites, Biosphere Reserves, Wetlands of International Importance (Ramsar sites), Special Areas of Conservation (SAC), Special Protection Areas (SPA);

¹ 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

- Statutory sites designated under national legislation, for example Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR);
- Locally designated wildlife sites, e.g. Local Wildlife Sites (LWS).

Biodiversity Lists

- Habitats and species of principal importance for the conservation of biodiversity in England and Wales (largely drawn from UK BAP priority habitats and priority species), often referred to simply as Priority Habitats / Species;
- Local BAP priority species and habitats.

Red Listed, Rare, Legally Protected Species

- Species of conservation concern, Red Data Book (RDB) species;
- Birds of Conservation Concern;
- Nationally rare and nationally scarce species;
- Legally protected species.

5. In addition to this list, other features may be considered to be of importance on the basis of local rarity, where they enable effective conservation of other important features, or play a key functional role in the landscape.

Assigning Level of Importance

6. The importance of an ecological feature should then be considered within a defined geographical context. Based on CIEEM guidance, the following frame of reference is used:
 - International (European);
 - National;
 - Regional;
 - County;
 - District;
 - Local (e.g. Parish or Neighbourhood);
 - Site (not of importance beyond the immediate context of the site).
7. Features of 'local' importance are those considered to be below a district level of importance, but are considered to appreciably enrich the nature conservation resource or are of elevated importance beyond the context of the site.
8. Where features are identified as 'important' based on the list of key sites, habitats and species set out above, but are very limited in extent or quality (in terms of habitat resource or species population) and do not appreciably contribute to the biodiversity interest beyond the context of the site, they are considered to be of 'site' importance.
9. In terms of assigning the level of importance, the following considerations are relevant:

Designated Sites

10. For designated sites, importance should reflect the geographical context of the designation (e.g. SAC/SPA/Ramsar sites are designated at the international level whereas SSSIs are designated at the national level). Consideration should be given to multiple designations as appropriate (where an area is subject to differing levels of nature conservation designations).

Habitats

11. In certain cases, the value of a habitat can be measured against known selection criteria, e.g. SAC selection criteria, 'Guidelines for the selection of biological SSSIs' and the Hedgerows Regulations 1997. However, for the majority of commonly encountered sites, the most relevant habitat evaluation will be at a more localised level and based on relevant factors such as antiquity, size, species-diversity, potential, naturalness, rarity, fragility and typicalness (Ratcliffe, 1977). The ability to restore or re-create the habitat is also an important consideration, for example in the case of ancient woodland.
12. Whether habitats are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Habitats of Principal Importance' or 'Priority Habitats', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular habitat under a BAP does not in itself imply any specific level of importance.
13. Habitat inventories (such as habitat mapping on the MAGIC database) or information relating to the status of particular habitats within a district, county or region can also assist in determining the appropriate scale at which a habitat is of importance.

Species

14. Deciding the importance of species populations should make use of existing criteria where available. For example, there are established criteria for defining nationally and internationally important populations of waterfowl. The scale within which importance is determined could also relate to a particular population, e.g. the breeding population of common toads within a suite of ponds or an otter population within a catchment.
15. When determining the importance of a species population, contextual information about distribution and abundance is fundamental, including trends based on historical records. For example, a species could be considered particularly important if it is rare and its population is in decline. With respect to rarity, this can apply across the geographic frame of reference and particular regard is given to populations where the UK holds a large or significant proportion of the international population of a species.
16. Whether species are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Species of Principal Importance' or 'Priority Species', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular species under a BAP does not in itself imply any specific level of importance.
17. Species populations should also be considered in terms of the potential zone of influence of the proposals, i.e. if the entire species population within the site and surrounding area were to be affected by the proposed development, would this be of significance at a local, district, county or wider scale? This should also consider the foraging and territory ranges of individual species (e.g. bats roosting some distance from site may forage within site whereas other species such as invertebrates may be more sedentary).

Appendix 5022/3:

Legislation

LEGISLATION SUMMARY

1. In England and Wales primary legislation is made by the UK Parliament, and in Scotland by the Scottish Parliament, in the form of Acts. The main piece of legislation relating to nature conservation in the UK is the Wildlife and Countryside Act 1981 (as amended).
2. Acts of Parliament confer powers on Ministers to make more detailed orders, rules or regulations by means of secondary legislation in the form of statutory instruments. Statutory instruments are used to provide the necessary detail that would be too complex to include in an Act itself¹. The provisions of an Act of Parliament can also be enforced, amended or updated by secondary legislation.
3. In summary, the key pieces of legislation relating to nature conservation in the UK are:
 - Wildlife and Countryside Act 1981 (as amended)
 - Protection of Badgers Act 1992
 - Hedgerows Regulations 1997
 - Countryside and Rights of Way (CROW) Act for England and Wales 2000
 - Natural Environment and Rural Communities Act 2006
 - Conservation of Habitats and Species Regulations 2017
4. A brief summary of the relevant legislation is provided below. The original Acts and instruments should be referred to for the full and most up to date text of the legislation.
5. **Wildlife and Countryside Act 1981 (as amended)**. The WCA Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) identified for their flora, fauna, geological or physiographical features. The Act contains strict measures for the protection and management of SSSIs.
6. The Act also refers to the treatment of UK wildlife including protected species listed under Schedules 1 (birds), 5 (mammals, herpetofauna, fish, invertebrates) and 8 (plants).
7. Under Section 1(1) of the Act, all wild birds are protected such that it is an offence to intentionally:
 - Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird whilst in use* or being built;
 - Take or destroy an egg of any wild bird.

* The nests of birds that re-use their nests as listed under Schedule ZA1, e.g. Golden Eagle, are protected against taking, damage or destruction irrespective of whether they are in use or not.
8. Offences in respect of Schedule 1 birds are subject to special, i.e. higher, penalties. Schedule 1 birds also receive greater protection such that it is an offence to intentionally or recklessly:
 - Disturb any wild bird included in Schedule 1 while it is building a nest or while it is in, on or near a nest containing eggs or young;
 - Disturb dependent young of such a bird.

¹ <http://www.parliament.uk/business/bills-and-legislation/secondary-legislation/statutory-instruments/>

9. Under Section 9(1) of the Act, it is an offence to:
 - Intentionally kill, injure or take any wild animal included in Schedule 5.
10. In addition, under Section 9(4) it is an offence to intentionally or recklessly:
 - Obstruct access to, any structure or place which any wild animal included in Schedule 5 uses for shelter or protection; or
 - Disturb any wild animal included in Schedule 5 while occupying a structure or place which it uses for that purpose.
11. Under Section 13(1) it is an offence:
 - To intentionally pick, uproot or destroy any wild plant listed in Schedule 8; or
 - Unless the authorised person, to intentionally uproot any wild plant not included in Schedule 8.
12. The Act also contains measures (S.14) for preventing the establishment of non-native species that may be detrimental to native wildlife, prohibiting the introduction into the wild of animals (releases or allows to escape) and plants (plants or causes to grow) listed under Schedule 9.
13. **Protection of Badgers Act 1992.** The Act aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It should be noted that the legislation is not intended to prevent properly authorised development. Under the Act it is an offence to:
 - Wilfully kill, injure, take, possess or cruelly ill-treat* a Badger, or attempt to do so;
 - To intentionally or recklessly interfere with a sett# (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

* the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence

A sett is defined as “any structure or place which displays signs indicating current use by a Badger”. Natural England advice (June 2009) is that a sett is protected so long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger. Interference with a sett includes blocking tunnels or damaging the sett in any way
14. Licences can be obtained from the Statutory Nature Conservation Organisation (SNCO) for development activities that would otherwise be unlawful under the legislation, provided there is suitable justification. The SNCO for England is Natural England.
15. **Hedgerows Regulations 1997.** ‘Important’ hedgerows (as defined by the Regulations) are protected from removal (up-rooting or otherwise destroying). Various criteria specified in the Regulations are employed to identify ‘important’ hedgerows for wildlife, landscape or historical reasons.
16. **Countryside and Rights of Way (CROW) Act for England and Wales 2000.** The CROW Act provides increased measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation. Schedule 12 of the Act amends the species provisions of the WCA 1981, strengthening the legal protection for threatened species. The Act also introduced a duty on Government to have regard to the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

17. **Natural Environment and Rural Communities Act 2006.** Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as local planning authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when exercising their normal functions. 56 habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP).
18. **Conservation of Habitats and Species Regulations 2017 (as amended).** The Regulations enact the European Union's Habitats Directive (92/43/EEC) in the UK. The Habitats Directive was designed to contribute to the maintenance of biodiversity within member states through the conservation of sites, known in the UK as Special Areas of Conservation (SACs), containing habitats and species selected as being of EC importance (as listed in Annexes I and II of the Habitats Directive respectively). Member states are required to take measures to maintain or restore these natural and semi-natural habitats and wild species at a favourable conservation status.
19. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs)² classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites constitute the Natura 2000 network. The Regulations impose restrictions on planning decisions likely to significantly affect SPAs or SACs.
20. The Regulations also provide protection to European Protected Species of animals that largely overlaps with the WCA 1981, albeit the provisions are generally stricter. Under Regulation 43 it is an offence, *inter alia*, to:
 - Deliberately capture, injure or kill any wild animal of a European Protected Species;
 - Deliberately disturb any wild animals of any such species, including in particular any disturbance likely to impair their ability to survive, to breed or reproduce, to rear or nurture their young, to hibernate or migrate, or which is likely to affect significantly their local distribution or abundance;
 - Deliberately take or destroy the eggs of such an animal;
 - Damage or destroy a breeding site or resting place of such an animal.
21. Similar protection is afforded to European Protected Species of plants, as detailed under Regulation 47.
22. The Regulations do provide a licensing system that permits otherwise illegal activities in relation to European Protected Species, subject to certain tests being fulfilled.

² Special Protection Areas (SPAs) are protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC) (aka the Birds Directive), which came into force in April 1979. SPAs are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

Appendix 5022/4:

Buildings Tables

Building Number: B1

Photographic Record



External Descriptions

Description	
Number of storeys:	1-3
Building construction type (brick etc.):	Stone
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Multi-pitched, some flat roofed sections and both pitched and hipped roofs. Slate tiles. Ridge tiles present on pitched roof (hipped have local flashing).
Other notes on roof (chimneys present, skylights present etc.):	Parapets at edge of roof. Small structure with hipped roof of lead flashing. Wooden slats on four sides, with mesh behind, likely big enough for bats. Some vents in walls large enough for bats, but cobwebs present. Flat roofed sections support lead sheeting (or similar).
General state of repair:	Good.
Approximate age of building:	-
Use of building:	In use as BBC offices.

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
Unlikely	Good, 2 missing bricks at end of second void	Some (likely coated asbestos), well fitted	Small number of lifted tiles. Gap in mortar in a tile on south face.	N/A	In good condition generally but some minor lifting.	Soffit boxes on some of building – wood, small vents (big enough for bats), 1 small panel missing on third void	N/A	Small gap where rafter enters void 3

Internal Descriptions

Number of loft voids present within building: 4

Loft Void Features (where relevant)	Description (where relevant)	
Level	1	2
Dimensions	10m x30m	10m x 30m
Height at apex	2.5m	2.5m
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden rafters	Wooden rafters
Construction type (King post, Queen post etc.)	Diagonal rafters	
Ridge beam and condition	Wooden board	Wooden board
Lining (felt, sarking etc.) and condition	Bitumen felt, some small tears	Bitumen felt, some small tears
Insulation and condition	Fibreglass	Fibreglass, occasional sections missing
Exposed brick work and condition	Around chimney breast and at eaves, relatively good condition.	Around chimney breast and perimeter of loft void, relatively good condition.
Humidity (and confirm presence or absence of water tank)	Ambient, no tank	Ambient, no tank
Temperature	Slightly above ambient	Slightly above ambient
Any draughts?	From access to false ceiling void below	No
Light levels	Dark, with light fittings, and some light enters where cable trays run into void	Dark, with light fittings, small amount where cables enter
Cobwebs?	Limited / scattered	Limited along rafters, heavy at west end
In active use?	No, but building occupied	No, but building occupied
Other features of note		Large old wasp nest

Loft Void Features (where relevant)	Description (where relevant)	
Level	3	4 (additional small sub void also present, separated by fibreglass wall)
Dimensions	25m x 6m	30m x 6m
Height at apex	3.5m	1.5m
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden rafters	Wooden rafters (good condition)
Construction type (King post, Queen post etc.)		Diagonal rafters
Ridge beam and condition		Wood, good condition
Lining (felt, sarking etc.) and condition		Bitumen felt, good condition with some small tears
Insulation and condition	Fibreglass, boarded in south half	Fibreglass, okay condition with some gaps
Exposed brick work and condition	Brick wall between two sections of loft void. Gap between wall and rafters at top. No evidence of bats.	Low parting wall, good condition
Humidity (and confirm presence or absence of water tank)	Ambient, no tank	Ambient, no tank
Temperature	Ambient	Slightly above ambient
Any draughts?	No, except from vents by entry door	No
Light levels	Low (light fittings), except from gap above rafters near entry door	Very dark. Sub void with significant light from large gap at eaves
Cobwebs?	Limited	Infrequent
In active use?	No, building occupied	No
Other features of note	Flat half south side. Split in two lengthways. Bird droppings noted	Large wasp nest, various small wasp nests and dead Hornet. Large bird nest in sub-void, apparently from bird of prey, with droppings and urine stains surrounding it

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Overall Bat potential: Moderate

Building Number: B2

Photographic Record



External Descriptions

Description	
Number of storeys:	1-2
Building construction type (brick etc.):	Rendered (Brick built base).
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Single storey flat roof. Second storey section pitched with small flat section (North pitch – slate tiles, South pitch – lead/metal sheeting).
Other notes on roof (chimneys present, skylights present etc.):	Parapets at gable ends.
General state of repair:	Good
Approximate age of building:	-
Use of building:	Not in use.

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
N/A	Good	N/A	Slipped tiles on north pitch and many raised	Good	Present along parapets and ridge – lifted and gaps present	Small soffits in relatively good condition	N/A	N/A

Internal Descriptions

Number of loft voids present within building: One, small inaccessible void behind false ceiling void

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	N/A
Height at apex	N/A
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	
Construction type (King post, Queen post etc.)	Steel girders
Ridge beam and condition	
Lining (felt, sarking etc.) and condition	Wooden boards
Insulation and condition	
Exposed brick work and condition	Painted bricks
Humidity (and confirm presence or absence of water tank)	Ambient
Temperature	Ambient
Any draughts?	
Light levels	Low, 2 x windows
Cobwebs?	Limited
In active use?	No, previously a squash court
Other features of note	Significant damp/wood rot, asbestos evident, old wasp nest

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Low (due to tiles).

Building Number: B3 (No internal access)

Photographic Record



External Descriptions

Description	
Number of storeys:	1
Building construction type (brick etc.):	Rendered corrugated metal with concrete posts
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Pitched, corrugated asbestos
Other notes on roof (chimneys present, skylights present etc.):	N/A
General state of repair:	Good
Approximate age of building:	-
Use of building:	

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
No	Good	N/A	N/A	N/A	East gable ends, some small bits raised but not significant	Barge board sits away from wall. No shelter for roosting. Gaps into small void between roof and false ceiling below, but sub-optimal for bats.	N/A	N/A

Internal Descriptions

Number of loft voids present within building:

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	N/A
Height at apex	N/A
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	N/A
Construction type (King post, Queen post etc.)	N/A
Ridge beam and condition	N/A
Lining (felt, sarking etc.) and condition	N/A
Insulation and condition	N/A
Exposed brick work and condition	N/A
Humidity (and confirm presence or absence of water tank)	N/A
Temperature	N/A
Any draughts?	N/A
Light levels	N/A
Cobwebs?	N/A
In active use?	N/A
Other features of note	N/A

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Overall Bat potential: Moderate

Building Number: B4

Photographic Record



External Descriptions

Description	
Number of storeys:	1
Building construction type (brick etc.):	Brick with wooden cladding.
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Flat (very slight slope). Felt on south side – brick exposed half way down, above is cladding on 20° angle. Gaps where board is lifted, appears to lead to cavity.
Other notes on roof (chimneys present, skylights present etc.):	Skylight (plastic)
General state of repair:	Good, but cladding warped on south face.
Approximate age of building:	-
Use of building:	Storage of gardening gear.

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
	Good					None, drains fixed to cladding	Cladding on south face, some minor potential on north and east face.	-

Internal Descriptions

Number of loft voids present within building: None

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	
Height at apex	
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden boards directly under roof and on walls. Creates cavity between wall and external sloped cladding.
Construction type (King post, Queen post etc.)	
Ridge beam and condition	
Lining (felt, sarking etc.) and condition	Wooden boards
Insulation and condition	
Exposed brick work and condition	
Humidity (and confirm presence or absence of water tank)	Ambient
Temperature	Ambient
Any draughts?	Doors open, otherwise no
Light levels	Strip lights and skylight
Cobwebs?	Limited
In active use?	Yes
Other features of note	

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Moderate

Building Number: B5

Photographic Record



External Descriptions

Description	
Number of storeys:	1
Building construction type (brick etc.):	Rendered
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Flat
Other notes on roof (chimneys present, skylights present etc.):	Parapets + handrails
General state of repair:	Good
Approximate age of building:	Built 1986
Use of building:	BBC (Caversham) Club. Old function rooms/social club

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
Unclear	Render in good condition						External vents but support grills so no gap	-

Internal Descriptions

Number of loft voids present within building: None

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	
Height at apex	
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	
Construction type (King post, Queen post etc.)	
Ridge beam and condition	
Lining (felt, sarking etc.) and condition	False ceiling through part, others – steel girders/corrugated metal
Insulation and condition	
Exposed brick work and condition	
Humidity (and confirm presence or absence of water tank)	
Temperature	
Any draughts?	
Light levels	
Cobwebs?	
In active use?	
Other features of note	

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Negligible

Building Number: B6

Photographic Record



External Descriptions

Description	
Number of storeys:	1
Building construction type (brick etc.):	Rendered
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Flat
Other notes on roof (chimneys present, skylights present etc.):	
General state of repair:	Good
Approximate age of building:	-
Use of building:	

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
Unclear	Render in good condition						External vents on south face support grills too small for bats, but gaps present where grills meet in the middle. No evidence of bats.	-

Internal Descriptions

Number of loft voids present within building: No

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	
Height at apex	
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	
Construction type (King post, Queen post etc.)	
Ridge beam and condition	
Lining (felt, sarking etc.) and condition	Concrete beams and painted bricks.
Insulation and condition	
Exposed brick work and condition	
Humidity (and confirm presence or absence of water tank)	
Temperature	
Any draughts?	
Light levels	
Cobwebs?	
In active use?	
Other features of note	

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Negligible

Building Number: B7

Photographic Record



External Descriptions

Description	
Number of storeys:	1
Building construction type (brick etc.):	Rendered
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Pitched, slate tiles & clay ridge tiles. Small parapets at gable ends hipped with clay tiles.
Other notes on roof (chimneys present, skylights present etc.):	Ridge tiles present.
General state of repair:	Good
Approximate age of building:	-
Use of building:	Used to be a nursery, now art storage.

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
			Good condition	Good condition	Around gable ends + chimney vents – well fitted.	Soffit box, wood with plastic grill beneath (too small for bats).	Gap at south east corner of parapet beneath tile, but choked with cobwebs.	-

Internal Descriptions

Number of loft voids present within building: One

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	30m x 12m (no access to south gable end)
Height at apex	2m
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden rafters
Construction type (King post, Queen post etc.)	Diagonal rafters
Ridge beam and condition	None
Lining (felt, sarking etc.) and condition	Bitumen felt, good condition
Insulation and condition	Fibreglass, very good
Exposed brick work and condition	Plaster board
Humidity (and confirm presence or absence of water tank)	Ambient – 6 mostly empty water tanks present, no bats
Temperature	Ambient - warm
Any draughts?	No
Light levels	Mostly dark but has light fittings and some light at eaves
Cobwebs?	Limited
In active use?	No
Other features of note	Partially divided by fibreglass wall. Old wasp nest

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Negligible

Building Number: B8

Photographic Record



External Descriptions

Description	
Number of storeys:	One
Building construction type (brick etc.):	Brick built with wooden cladding
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Multi pitch roof – bitumen felt covering (good condition)
Other notes on roof (chimneys present, skylights present etc.):	
General state of repair:	Good
Approximate age of building:	-
Use of building:	Cricket Pavillion

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
Cavity between cladding and brick – filled with insulation	Good where visible					Soffits in good condition	Some gaps in cladding, west side	-

Internal Descriptions

Number of loft voids present within building: None, open vaulted with wooden boards lining roof and a small false ceiling void.

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	
Height at apex	
Construction material (wooden rafters, steel rafters etc.) <i>and condition (splits, gaps in joins etc.)</i>	
Construction type (King post, Queen post etc.)	
Ridge beam <i>and condition</i>	
Lining (felt, sarking etc.) <i>and condition</i>	
Insulation <i>and condition</i>	
Exposed brick work <i>and condition</i>	
Humidity (and confirm presence or absence of water tank)	
Temperature	
Any draughts?	
Light levels	
Cobwebs?	
In active use?	
Other features of note	

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Overall Bat potential: Low - limited to small gaps in cladding leading to thin cavity between cladding + wooden boards in canopy area.

Building Number: B9

Photographic Record



External Descriptions

Description	
Number of storeys:	One
Building construction type (brick etc.):	Breeze blocks with cement render.
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Pitched roof of slate tiles with lead flashing on ridges.
Other notes on roof (chimneys present, skylights present etc.):	
General state of repair:	Good
Approximate age of building:	-
Use of building:	Security

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
	Good	N/A	1-2 slipped tiles		Present and in good condition	Present and in good condition	N/A	N/A

Internal Descriptions

Number of loft voids present within building: Sealed, no access, though false ceiling void visible.

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	
Height at apex	
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	
Construction type (King post, Queen post etc.)	
Ridge beam and condition	
Lining (felt, sarking etc.) and condition	
Insulation and condition	
Exposed brick work and condition	
Humidity (and confirm presence or absence of water tank)	
Temperature	
Any draughts?	
Light levels	
Cobwebs?	
In active use?	
Other features of note	

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Overall Bat potential: Low

Building Number: B10

Photographic Record



External Descriptions

Description	
Number of storeys:	1-2 storeys (small singly storey extensions)
Building construction type (brick etc.):	Rendered over brick construction – western single storey extension is breeze block with render.
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Hipped with slate roof tiles and concrete ridge tiles.
Other notes on roof (chimneys present, skylights present etc.):	Lead flashing at base of chimney stacks (x2).
General state of repair:	Good, some repairs to cladding.
Approximate age of building:	-
Use of building:	Residential

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
			Some raised	Missing mortar beneath ridge tiles	Present but good condition – also present at top of ground floor windows/doors.	Present but good condition	Gaps in render where exposed brick work meets window flashing	-

Internal Descriptions

Number of loft voids present within building: One (split in two by brick wall) and an extension

Loft Void Features (where relevant)	Description (where relevant)		
Void	East section	West section	Extension
Dimensions	15m x 8m	4m x 8m	3.5 x 5
Height at apex	2m	2m	1.5m
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden rafters	Wooden rafters	Wooden rafters – good condition
Construction type (King post, Queen post etc.)			
Ridge beam and condition	Wooden ridge board	Wooden ridge board	Wooden ridge board, good condition
Lining (felt, sarking etc.) and condition	None, cement between tiles, much crumbling	None, cement between tiles, much crumbling	Bitumen felt beneath tiles – good condition
Insulation and condition	Fibreglass insulation, either side of central boarded walk way, piled up	Fibreglass insulation, either side of central boarded walk way, piled up	Fibreglass, good except for occasional small gaps
Exposed brick work and condition	At chimney breasts and at join with adjacent loft void	At chimney breasts and at join with adjacent loft void	Concrete dividing wall
Humidity (and confirm presence or absence of water tank)	Ambient	Ambient, water tank present	Ambient
Temperature	Warm	Warm	Ambient to warm
Any draughts?	No	No	No
Light levels	Light at crumbling between tiles	Light at crumbling between tiles	Some light at eaves
Cobwebs?	Heavily cobwebbed, dirty	Heavily cobwebbed, dirty	Heavy
In active use?	No	No	No
Other features of note			

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution	N/A	Old wasps nest
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Overall Bat potential: Moderate

Building Number: B11 (The Lodge)

Photographic Record



External Descriptions

Description	
Number of storeys:	One
Building construction type (brick etc.):	Rendered
Roof Structure (flat/pitched/multi-pitched/hipped etc.), material (clay tiles etc.), and presence of ridge tiles:	Hipped roof with well fitted slate tiles.
Other notes on roof (chimneys present, skylights present etc.):	3 chimney stacks present. Ridge tiles absent – well fitted lead flashing along ridges.
General state of repair:	Good with some repairs to rendering.
Approximate age of building:	Built 1904
Use of building:	Residential

External Features of bat potential

Building condition			Roof condition					
Cavity Walls?	Condition of brick work?	Condition of any hanging tiles?	Roof tiles (any missing/slipped/raised?)	Ridge tiles (any missing/slipped/raised?)	Lead Flashing	Barge Boards/Soffit Boxes	Other potential access points	Other
			Some lifted and slipped tiles.		Present along ridges, well fitted	Present and in good condition	Gap between tiles and lead flashes at junction of two pitches	-

Internal Descriptions

Number of loft voids present within building:

Loft Void Features (where relevant)	Description (where relevant)
Dimensions	20m x 15m (at widest point, 20m x 8m at narrow end)
Height at apex	2m
Construction material (wooden rafters, steel rafters etc.) and condition (splits, gaps in joins etc.)	Wooden rafters
Construction type (King post, Queen post etc.)	
Ridge beam and condition	Wooden ridge beam, good condition.
Lining (felt, sarking etc.) and condition	Bitumen felt, frequent tears
Insulation and condition	Fibreglass, mostly good except for the occasional large gap.
Exposed brick work and condition	Along chimney stacks, okay condition.
Humidity (and confirm presence or absence of water tank)	Ambient, water tank present and in use.
Temperature	Ambient – warm
Any draughts?	No
Light levels	Dark except some light at top of chimney stack
Cobwebs?	Heavy, lots of dirty cobwebs
In active use?	No
Other features of note	Old wasp nest

Evidence of bats

Bats			Droppings				Feeding remains		Staining / scratch marks	Other
Species	Number	Location	Number	Species	Distribution	Age	Number	Distribution		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Bat potential: Low

Appendix 5022/5:

Results of Daytime Assessment of Trees Potential to Support
Roosting Bats

Tree inspection results (site only).

Tree No.	Species	Age	Potential Roost Features	Suitability
W1	Various	Young to Veteran	Various	Moderate - High
Orchard	Various	Young to Veteran	Various, primarily rot holes	Moderate - High
T16	Lime	Mature	Number of woodpecker holes and extensive rot holes / deadwood present	High
T17	Silver Birch	Semi-mature	Large rot hole in main stem, though exposed in nature	Low
T23	Red Oak	Mature	Lifted bark present	Low
T48	Lime	Mature	Single rot hole leading to a large cavity	High
T50	Sweet Chestnut	Mature	Size and age suggests likely features of potential out of view, dense Ivy cover	Low
T58	Lime	Veteran	A number of rot holes in main stem and branches. Size and age suggests likely features of potential out of view.	High
T59	Lime	Veteran	A number of rot holes in main stem. Size and age suggests likely features of potential out of view.	High
T73	Oak	Mature	Two rot holes in main stem. Size and age suggests likely features of potential out of view.	Moderate
T118	Lime	Mature	Several rot holes and deadwood	Moderate
T131	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T132	Yew	Mature	Size and age suggests likely features of potential out of view.	Low
T139	Turkey Oak	Mature	Size and age suggests likely features of potential out of view	Low
T146	Sycamore	Mature	A large of rot hole in main stem. Size and age suggests likely features of potential out of view.	High
T196	Horse-chestnut	Mature	Size and age suggests likely features of potential out of view	Low
T223	Yew	Mature	Size and age suggests likely features of potential out of view	Low
T228	Yew	Mature	Size and age suggests likely features of potential out of view	Low
T231	Yew	Mature	Number of woodpecker holes present	Moderate
T237	Yew	Mature	Rot holes present	Low
T238	Lime	Mature	Number of rot holes present. Size and age suggests likely features of potential out of view.	Moderate
T239	Lime	Mature	Size and age suggests likely features of potential out of view	Low
T241	Elm	Semi-mature	Dense covering of Ivy, cut back in 2021	Low

Tree No.	Species	Age	Potential Roost Features	Suitability
T262	Sycamore	Mature	Size and age suggests likely features of potential out of view. Number of woodpecker holes present.	Moderate
T269	Hybrid Cockspur Thorn	Dead	Dense covering of Ivy, cut back in 2021	Low
T271	Cherry	Semi-mature	Limited deadwood, ivy cover	Low
T275	Hybrid Black Poplar	Dead	Dense covering of Ivy	Low
T280	Cherry	Dead	Dense covering of Ivy	Low
T314	Wild Cherry	Mature	Small cavity, dense ivy cover	Low
T323	Cherry	Semi-mature	Dense covering of Ivy	Low
T341	Hybrid Black Poplar	Dead	Dense covering of Ivy	Low
T358	Hybrid Cockspur Thorn	Semi-mature	Dense covering of Ivy	Low
T416	Hybrid Black Poplar	Dead	Dense covering of Ivy	Low
T418	Cherry	Mature	Dense Ivy cover	Low
T448	Oak	Semi-mature	Size and age suggests likely features of potential out of view.	Low
T451	Oak	Mature	Size and age suggests likely features of potential out of view, dense Ivy cover (cut back by 2021)	Low
T540	Horse Chestnut	Mature	Large cavity in trunk	High

Tree inspection results (wider survey area).

Tree No.	Species	Age	Potential Roost Features	Suitability
W2	Various	Young to Veteran	Various	Moderate - High
W3	Various	Young to Early-mature	Various	Low – Moderate (in addition to high potential Yew)
Developing Woodland	Various	Young to Mature	A number of trees with dense Ivy cover	Low
T186	Atlas Cedar	Mature	Large cavity in limb wound on north side of trunk	High
T187	Grand Fir	Mature	A number of large rot holes in main stem	High
T188	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T190	Lime	Mature	Size and age suggests likely features of potential out of view	Low
T191	Lime	Mature	Number of rot holes present. Size and age suggests likely features of potential out of view.	Moderate

Tree No.	Species	Age	Potential Roost Features	Suitability
T192	Lime	Mature	Size and age suggests likely features of potential out of view	Low
T511	Cherry	Dead	Dense covering of Ivy	Low
T512	Hawthorn	Semi-mature	A number of cracks within limbs, dense Ivy cover	Low
T513	Oak	Mature	Split limbs and cracks present	Low
T514	Lime	Mature	Size and age suggests likely features of potential out of view, split limbs, lifted bark on split trunk	Moderate
T515	Oak	Semi-mature to Mature	Split limbs and cracks present	Low
T516	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T517	Oak	Semi-mature to Mature	Number of cracks present	Low
T518	Oak	Semi-mature to Mature	Number of cracks present	Low
T519	Ash	Mature	Number of cracks present	Low
T520	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T521	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T522	Oak	Mature	Size and age suggests likely features of potential out of view	Low
T523	Oak	Mature	Size and age suggests likely features of potential out of view, dense Ivy cover	Low
T524	Oak	Semi-mature	Size and age suggests likely features of potential out of view, dense Ivy cover	Low
T525	Oak	Mature	Size and age suggests likely features of potential out of view, dense Ivy cover	Low
T526	Hawthorn	Semi-mature	Dense Ivy cover	Low
T527	Incense Cedar	Veteran	Size and age suggests likely features of potential out of view	Low
T529	Cedar	Veteran	Size and age suggests likely features of potential out of view. Number of woodpecker holes present.	High

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