aspect ecology

Watermill Bridge, Newbury

Ecological Appraisal

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Executive Summary

i) **Introduction.** Aspect Ecology has been commissioned by Bewley Homes PLC to undertake an Ecological Appraisal in respect of proposed development of land at Wash Water, Newbury.

ii) **Proposals.** The proposals are for new residential development of up to 350 dwellings together with commercial and community facilities, open space, drainage, landscaping and associated infrastructure.

iii) **Survey.** The site was surveyed in April 2020 and July 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, Dormouse, Water Vole, Otter and Great Crested Newt.

iv) **Ecological Designations.** The site itself is not subject to any statutory or non-statutory nature conservation designations. The nearest statutory designation is Avery's Pightle Site of Special Scientific Interest (SSSI) located approximately 1.8km to the north-west of the site. Accordingly statutory designations are well removed from the site and are unlikely to be affected under the proposals. Wash Water Field Site of Importance for Nature Conservation (SINC) is located approximately 20m to the east of the site boundary, beyond the A343, although following appropriate safeguards in relation to water quality, this and other more distant non-statutory designations are unlikely to be subject to adverse effects.

v) **Habitats.** The site is largely dominated by grassland pasture, with hedgerows, treelines and wooded strips forming the field boundaries. A narrow watercourse flows north through the site, forming a tributary to the River Enborne, which bounds the site to the north, whilst a number of buildings and associated hardstanding occurs in the central part of the site. Habitats of importance will largely be retained and protected under the proposals, with new green corridor provision to compensate for hedgerow losses.

vi) **Protected Species.** Site surveys have recorded evidence of a number of protected and notable faunal species including foraging, commuting and roosting bats, Badger, Otter and a moderate assemblage of birds. Accordingly, safeguarding measures are proposed, whilst suitable habitats will be maintained under the proposals.

vii) **Enhancements.** The proposals present the opportunity to secure a number of biodiversity benefits, including enhancements to the river to the north and associated tributary running north-south through the site, additional native tree planting, wildflower grassland and new wetland features, new roosting opportunities for bats, habitat piles and more diverse nesting habitats for birds.

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. Furthermore, there are substantial opportunities for ecological enhancements within the site, contributing to the objectives of local and national policy. Based on the implementation of such measures, it is considered that a 27.19% biodiversity net gain could be achieved under the proposals.

1 Introduction

1.1 Background

1.1.1 Aspect Ecology has been commissioned by Bewley Homes PLC to carry out an ecological appraisal of land at Wash Water, Newbury, centred at grid reference SU448632 (see Plan 5882/ECO1).

1.1.2 The proposals are for new residential development of up to 350 dwellings together with commercial and community facilities, open space, drainage, landscaping and associated infrastructure (see Appendix 5882/1).

1.2 Site Overview

1.2.1 The site is located to the south-west of Wash Water, at the south-western edge of Newbury. The site is bound to the north by River Enborne beyond which is existing residential development associated with Wash Water Road, to the east and south-east by roadside planting associated with the A343 (Andover Road), and to the west and south-west by roadside planting associated with the A34.

1.2.2 The site is largely dominated by grassland pasture, with hedgerows, treelines and wooded strips forming the field boundaries. A narrow watercourse flows north through the site, forming a tributary to the River Enborne. A number of buildings and areas of hardstanding and bare ground are present in the centre of the site, forming farm buildings and workshops. An area of drainage basins and woodland also lies immediately to the south of the site, supporting several ponds, whilst the southern site boundary is formed by roadside woodland planting.

1.2.3 An additional area of land immediately to the north of the site is also included within the survey area, and is proposed for ecological enhancement as part of the scheme. This is referred to as the 'additional land' and is shown on Plan 5882/ECO3.

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, a number of recording organisations and online data sources were consulted.

2.1.2 To gather information on nearby ecological designations and known sites for protected and notable species, both Thames Valley Environmental records Centre (TVERC) and Hampshire Biological Records Centre (HBIC) were contacted, due to the site lying on the county boundary. The information received from these organisations is discussed in the text and reproduced where appropriate on Plan 5882/ECO2.

2.1.3 Further information on nearby ecological designations and habitat inventories 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 (25km). The information obtained is reproduced at Appendix 5882/2 and, where appropriate, on Plan 5882/ECO2.

2.1.4 In addition, the Woodland Trust database was searched for any records of veteran trees within or adjacent to the site.

2.2 Habitat Survey

2.2.1 The site and adjacent land to the south was initially surveyed in April 2020, 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 methodology[1], whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal[2] to record details on the actual or potential presence of any notable or protected species or habitats. The presence of any invasive species was also noted.

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.

2.2.4 Subsequently, habitat survey of the additional land was undertaken in July 2021, together with an update habitat survey across the site. Particular attention was given to grassland habitats during this survey, to enable a condition assessment under the Defra Biodiversity Metric 3.0. This included quadrat sampling across the grassland areas to provide a detailed species list and average species count per m^2. A condition

[1] Joint Nature Conservation Committee (2010) *'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.'*

assessment of habitats has been undertaken based on guidance within the Technical Supplement[3] and associated condition assessment sheets.

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. Particular attention was also paid to the potential presence of any protected, rare or notable species, with specific survey work undertaken in respect of bats, Badger *Meles meles*, Water Vole *Arvicola amphibius,* Otter *Lutra lutra,* Dormouse *Muscardinus avellenarius* and Great Crested Newt *Triturus cristatus*.

Bats[4,5]

Roosting

2.3.2 **Buildings.** Buildings and built structures within the site were subject to specific external inspection surveys during the habitat survey in April 2020. 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.

2.3.3 An internal inspection of building B3 was also undertaken in September 2020. Evidence for the presence of bats was searched for within the main loft void with particular attention paid to 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. Droppings encountered during the course of the survey were collected with gloved hands and put into labelled Eppendorf tubes and forwarded to Swift Ecology for quantitative polymerase chain reaction (qPCR) DNA Analysis. This method of DNA analysis enables the identification of multiple species within a sample, if present.

2.3.4 In addition to the above work, dusk emergence surveys of building B3 were carried out on 25th June 2020 and 28th July 2020 to provide an assessment of roosting activity.

2.3.5 Surveyors employed Anabat Scout or Echo Meter Touch Pro handheld bat detectors to aid identification of any bats observed. Surveyors were in position prior to sunset, remaining in place for approximately 2 hours. This survey method aims to identify any roosting bats emerging from potential roost sites.

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

3 Natural England (July 2021) *Natural England Joint Publication JP039. The Biodiversity Metric 3.0: auditing and accounting for biodiversity. Technical Supplement.*

4 Based on: English Nature (2004) '*Bat Mitigation Guidelines'*

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

Table 2.1. Dusk survey details.

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
25/06/2020	Start time: 21.25 End time: 23.26 Sunset: 21.26	B3	Bat Box Duet, Echo Meter EM3 and Echo Meter EM Touch.	Dry, 10% cloud, BF1, 25°C
Comments: The survey was undertaken by 2 surveyors.				
18/07/2020	Start time: 20.44 End time: 22.59 Sunset: 20.59	B3	Bat Box Duet, Echo Meter EM Touch.	Dry, 5% cloud, BF0, 18°C
Comments: The survey was undertaken by 3 surveyors.				

BF0 = calm, BF12 = hurricane force.

2.3.7 **Trees.** An examination of the trees within the site was undertaken as part of the habitat survey in April 2020 to identify any features which could be of potential value to roosting bats such as splits, cracks, rot holes, coverings of Ivy *Hedera helix*, peeling bark or similar. The potential for the trees to support roosting bats has been assessed in accordance with relevant guidance as:

- Negligible – no features present likely to be used by roosting bats;
- Low – a tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential;
- Moderate – a tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status; or
- High – a tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

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.

Foraging/Commuting Activity

2.3.9 **Manual activity transects.** A series of dusk and dawn activity surveys were undertaken at the site between June and September 2020 to gather information on the use of the site by foraging and commuting bats. This involved surveyors walking a predetermined route around the site and recording the presence of bats using a combination of Anabat Scout, Echometer EM3 and BatBox Duet detectors, both while walking and at predetermined 'listening stops', noting down time, activity and species. The transect route followed is shown at Plan 5882/ECO4. The survey aimed to identify the species, location, distribution, abundance and activity of any bats within the site and so build up a pattern of bat activity across the area.

2.3.10 The dusk activity surveys commenced at sunset and lasted until approximately 2 hours after sunset. The dawn activity surveys commenced approximately 2 hours before

sunrise and terminated at sunrise. All survey work was undertaken during suitable weather conditions, as set out within Table 2.2 below.

Table 2.2: Walked transect survey details

Date	Start & end times & time of sunset	Transect direction	Equipment used	Weather
25/06/2020 (dusk)	Start time: 21.20 End time: 23.38 Sunset: 21.26	Forwards	Echo Meter EM3 and Duet.	Dry, 45% cloud, BF0, 25°C
04/08/2020 (dusk)	Start time: 20.39 End time: 23.12 Sunrise: 20.39	Forwards	Anabat Scout.	Dry, 80% cloud, BF3, 16°C
17/09/2020 (dusk)	Start time: 18.59 End time: 21.14 Sunset: 19.14	Reverse	Anabat Scout.	Dry, 40% cloud, BF3, 18°C
18/09/2020 (dawn)	Start time: 04.46 End time: 07.01 Sunrise: 06.46	Reverse	Anabat Scout.	Dry, 0% cloud, BF0, 9°C

BF0 = calm, BF12 = hurricane force.

2.3.11 **Automated static bat detectors.** Automated static detector surveys were also carried out during which Song Meter 2 (SM2) or Song Meter 4 (SM4) detectors were positioned at two locations within the site on three occasions during June to September 2020 with data analysed for a total of 5 consecutive nights on each occasion. Static detector 1 (SD1) was situated towards the centre of the site, located at the edge of woodland W6 facing a grazed field during the June and September deployments (SD1A) and along the hedgerow to the west during the July/August deployment (SD1B), whilst static detector 2 (SD2) was situated towards the eastern edge of the site, in a dense hedgerow bordering another grazed field (see Plan 5882/ECO4). The detectors were set to begin recording approximately 30 minutes before sunset and stop approximately 30 minutes after sunrise. The weather conditions during the static detector surveys are provided in Table 2.3 below.

Table 2.3: Automated detector survey details.

Deployment	Date	Weather
1st deployment (late June)	25/06/2020	Dry, BF2, 24°C
	26/06/2020	Dry, BF3, 22°C
	27/06/2020	Dry, BF4, 16°C
	28/06/2020	Dry, BF4, 15°C
	29/06/2020	Dry, BF4, 15°C
	30/06/2020	Dry, BF3, 15°C
2nd deployment (late July/ early August)	28/07/2020	Dry, BF3, 16°C
	29/07/2020	Dry, BF2, 16°C
	30/07/2020	Dry, BF2, 19°C
	31/07/2020	Dry, BF3, 24°C
	01/08/2020	Dry, BF3, 19°C
	02/08/2020	Dry, BF3, 17°C
	03/08/2020	Dry, BF3, 17°C
	04/08/2020	Dry, BF3, 15°C
	05/08/2020	Dry, BF4, 19°C
3rd deployment (mid-late September)	17/09/2020	Dry, BF4, 16°C
	18/09/2020	Dry, BF3, 15°C
	19/09/2020	Dry, BF3, 17°C

Deployment	Date	Weather
	20/09/2020	Dry, BF3, 18°C
	21/09/2020	Dry, BF2, 16°C
	22/09/2020	Dry, BF3, 16°C
	23/09/2020	Dry, BF3, 15°C

BF0 = calm, BF12 = hurricane force.

Analysis of Bat Survey Recordings

2.3.12 All bat calls were analysed using Anabat Insight© 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 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 *Eptesicus serotinus*, these have been labelled as 'Nyctalus / Eptesicus spp.' species.

Badger[6]

2.3.13 A detailed Badger survey of the site was carried out in April 2020. 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:

- The number and location of well-used or very 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;
- The 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;
- The 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.

2.3.1 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.

Dormouse[7]

2.3.2 Surveys were undertaken to establish the presence/absence of Dormouse within the site between June and November 2020. Survey work followed the methodology set out within best practice guidance[7], whereby nesting tubes are attached to branches of trees and shrubs and checked on a regular basis for signs of use by Dormouse.

2.3.3 The guidance employs an indexation system to define survey effort, based on the number of tubes deployed and months over which these are in place and are checked for signs of use. Months in which use of nest tubes by Dormouse is more likely afford

[6] Based on: Mammal Society (1989) "*Occasional Publication No. 9 – Surveying Badgers*"

[7] Based on: English Nature (2003) '*Surveying dormice using nest tubes: Results and experiences from the South West Dormouse Project',* English Nature (2006) '*The Dormouse Conservation Handbook*', 2nd Edition;, English Nature Research Report No. 524; and Natural England (2011) '*Interim Natural England Advice Note – Dormouse surveys for mitigation licensing – best practice and common misconceptions*', WML-537 (12/11)

a higher number of points than months when there is a lower likelihood of use. The guidance recommends that determination of absence of Dormouse from a site should be based on a survey effort score of at least 20 points.

2.3.4 Accordingly, a total of 75 Dormouse nest tubes were deployed within the site in June 2020 (see Plan 5882/ECO5). Nest tubes were checked in August, September and November 2020, giving a total survey effort score of 27 points.

Water Vole[8] and Otter[9]

2.3.5 The River Enborne at the northern site boundary and its tributary within the site have been identified as providing potential habitat for riparian species including Water Vole and Otter. As such, specific survey work for these species was undertaken in September 2020 and May 2021.

2.3.6 The survey followed standard methodology as outlined in the 'Water Vole Conservation Handbook' (Strachan and Moorhouse, 2011) and 'Ecology of the European Otter' (Chanin, 2003) and involved searching the length of the watercourse where suitable habitat was present, both from within the channel and along the banktop, to record evidence of these species. Any signs of Water Vole (such as feeding stations, latrines, faeces, prints and burrows) or other species such as Otter (such as sprainting locations or more general signs of activity such as footprints, discarded prey, haul out points and holts) were recorded and mapped, together with any sightings of the animals themselves, with the aim of identifying the location, distribution and level of activity of these species. Any evidence of other riparian mammals (e.g. Mink *Neovison vison*) was also noted.

Great Crested Newt

2.3.7 A review of OS mapping was undertaken to identify ponds within 500m of the site. Those considered to provide potential habitat for Great Crested Newt and were not subject to substantial barriers to movement of newts (such as main roads or rivers) were then subject to environment DNA (eDNA) survey to determine the presence/absence of Great Crested Newt. Water samples were collected on the 25 and 26 June 2020 following the procedure outlined in the methods manual prepared for DEFRA by Biggs *et al*. (2014)[10]. The survey fell within the acceptable seasonal window set out by Natural England (15th April to 30th June)[11]. Samples were collected by suitably licensed Aspect Ecology staff. The water samples were sent for laboratory analysis which was conducted by 'Fera' and also followed the procedure set out by Biggs *et al.* (2014)[14].

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8 Surveys based on: University of Oxford Wildlife Conservation Unit (2011) Strachan & Moorhouse - *"Water Vole Conservation Handbook".*

9 Surveys based on: Chanin P (2003) *Ecology of the European Otter.* Conserving Natura 2000 Rivers. Ecology Series 10. English Nature

10 Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014). '*Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA*'. Freshwater Habitats Trust, Oxford.

11 Natural England (2015) '*Great crested newts: surveys and mitigation for development projects. Standing advice for local planning authorities who need to assess the impacts of development on great crested newts*'. Last updated at www.gov.uk on 24/12/2015.

2.4 Survey Constraints/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 Phase 1 habitat survey was undertaken within the optimal seasonal period for botanical work allowing an 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.

2.5 Principles of Ecological Evaluation

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)[12], 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 5882/3.

2.6 National Policy Approach to Biodiversity in the Planning System

2.6.1 The National Planning Policy Framework (NPPF)[13] 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 06/2005[14].

2.6.2 NPPF takes forward the Government's strategic objective to halt overall biodiversity loss[15], 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:

[12] 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
[13] Ministry of Housing, Communities & Local Government (2021) '*National Planning Policy Framework*'
[14] ODPM (2006) '*Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice*'
[15] DEFRA (2011) '*Biodiversity 2020: A strategy for England's wildlife and ecosystem services*'

'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

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 42020:2019[16], 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 Basingstoke and Deane Borough Council adopted the Local Plan 2011 – 2029 in May 2016, which, along with the Neighbourhood Plans for each Parish, outline the Council's vision and strategy for the Borough until 2029. The Local Plan contains the following policies which are relevant to biodiversity and ecology and the site:

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

2.7.2 **Policy EM4** relates to Biodiversity, Geodiversity and Nature Conservation, and sets out that '*Development proposals will only be permitted if significant harm to biodiversity and / or geodiversity resulting from a development can be avoided or, if that is not possible, adequately mitigated…'.* This policy also requires '*a net gain in biodiversity, through creation, restoration, enhancement and management of habitats and features including measures that help to link key habitats'.*

2.7.3 **Policy EM5** relates to Green Infrastructure and sets out that development proposals will only be permitted where they do not impact on the green infrastructure network, whilst the Council will support proposals which seek to improve the network.

2.7.4 **Policy EM6** relates to water quality and sets out that '*Development proposals adjacent to a watercourse will incorporate measures to protect the watercourse*'.

2.7.5 The Council has also produced a number of additional planning strategies and documents relevant to ecology including:

- **Green Infrastructure Strategy for Basingstoke and Deane (2018 to 2029).** This sets out a framework for the management of the green infrastructure network and proposals for how green infrastructure can be improved, together with the aim of achieving measurable net gain for biodiversity within all new major development schemes. The strategy sets out standards for green space provision and highlights the River Loddon Biodiversity Priority Area (BPA), this forming the northern boundary of the site.
- **Landscape, Biodiversity and Trees Supplementary Planning Document (December 2018).** This document expands on the natural environment policies in the Local Plan and addresses how landscape, biodiversity and tree considerations should inform new development. The document requires that development contributes to the Green Infrastructure Strategy, sets out biodiversity information requirements and includes guidance on protection of designated sites and habitats, mitigation, compensation and enhancement requirements, and long-term management and monitoring.
- **Achieving Biodiversity Net Gain – Basingstoke and Deane Borough Council: Interim Guidance for Development (February 2021).** This document sets out the expectation that all planning applications over 0.1h would achieve a measurable net gain for biodiversity of 10% or above, and details the Council's requirements in relation to biodiversity net gain.

2.8 Local Biodiversity Strategies

2.8.1 Within Hampshire, a Hampshire Biodiversity Action Plan was previously produced by the Hampshire Biodiversity Partnership. This partnership has now been superseded by the Hampshire and Isle of Wight Local Nature Partnership which is working towards delivering a nature recovery network and green infrastructure across the county.

2.8.2 A number of Biodiversity Opportunity Areas (BOAs) have also been identified across the county, representing a targeted landscape-scale approach to conserving biodiversity. A statement has been produced for each BOA, providing guidance on the conservation priorities for that area.

2.8.3 The site lies within the East Woodhay to Headley BOA, which is characterised as containing a complex series of ancient commons supporting heathland, acid grassland

and woods. Target habitats for the BOA include lowland heath, dry acid grassland, meadow, mixed deciduous woodland, wet woodland and purple moor grass and rush pastures.

3 Ecological Designations

3.1 Statutory Designations

Description

3.1.1 No statutory nature conservation designations are located within or adjacent to the site, as shown on Plan 5882/ECO2. The nearest statutory designation is Avery's Pightle Site of Special Scientific Interest (SSSI), located approximately 1.8km to the north-west of the site at its nearest point, designated on the basis of supporting species-rich unimproved meadow, which is now rare and rapidly declining in Britain.

3.1.2 The next nearest statutory designation is Highclere Park SSSI located approximately 2km to the south of the site, and designated on the basis of its extensive open parkland of unimproved grassland with mature trees, pasture and lakes.

3.1.3 Natural England has developed Impact Risk Zones (IRZs) as an initial tool to help assess the risk of developments adversely affecting SSSIs, taking into account the type and scale of developments. The site sits within an IRZ in relation to the above SSSIs, however the IRZ does not apply to residential development.

3.1.4 A small number of European designations are located within 25km of the site. These include Kennet Valley Alderwoods Special Area of Conservation (SAC) located approximately 3.3km to the north of the site, Kennet & Lambourn Floodplain SAC located approximately 3.9km to the north of the site and the River Lambourn SAC located approximately 5.1km to the north of the site.

Evaluation

3.1.5 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are separated from the site by existing development and given the nature and scale of the proposals, these designations are unlikely to be affected. Notably, given the River Enborne joins the River Kennet downstream of the SAC to the east, there is no hydrological connectivity between the site and the SACs associated with the River Kennet and River Lambourn.

3.1.6 This is confirmed by a review of the SSSI Impact Risk Zones tool on MAGIC, which does not show any risks associated with residential development at the site location.

3.2 Non-statutory Designations

Description

3.2.1 The non-statutory nature conservation designation Wash Water Field Site of Importance for Nature Conservation (SINC) is located approximately 20m to the east of the site boundary, beyond the A343. This area is designated under criteria for agriculturally unimproved grassland and wetlands (including fens, flushes, seepages, springs or inundation grassland).

3.2.2 The next nearest non-statutory designation is Bypass Meadow SINC, located 280m to the south of the site, designated under criteria for relic unimproved grassland, wetland and the notable species Yellow Glandweed *Parentucellia viscosa*.

Evaluation

3.2.3 Neither of the nearby SINCs are publicly accessible, and both are separated from the site by existing infrastructure including the A343 and A34. Subject to appropriate measures to maintain water quality as set out at Section 6, and given the nature and scale of the proposals, these and other more distant designations are unlikely to be affected.

3.3 Priority Habitats, Ancient Woodland and Notable Trees

Description

3.3.1 There are several parcels of ancient semi-natural and ancient replanted woodland within the surrounds of the site, with the nearest area being an Ancient Replanted Woodland (ARW) located 180 metres to the south of the site (see Plan 5882/ECO2).

3.3.2 A search of the Woodland Trust 'Ancient Tree Hunt' database found no records of ancient, veteran or notable trees within or adjacent to the site, with the closest records relating to The Chase estate to the south of the A34.

3.3.3 The MAGIC database identifies the western and eastern grassland fields within the site as falling under the Priority Habitat Inventory for coastal and floodplain grazing marsh. However, the detail relating to this record indicates that this has been assigned on the basis of aerial photographs and OS mapping only, with the confidence in the main habitat classification recorded as 'low'. The determination comment states *"grassland or rush pasture largely within EA Flood Zone 3 and containing network of river channels, ditches or drainage channels according to OS Master."* Accordingly, it is clear that this habitat type has not been ground truthed, and does not correspond with the findings of the habitat surveys undertaken. This is discussed in further detail in relation to grassland at Section 4. A further area of coastal and floodplain grazing marsh and deciduous woodland is identified to the south of the site.

Evaluation

3.3.4 Given the nature and scale of the proposals and the separation of the site from Ancient Woodland and notable trees, it is unlikely that any of these will be significantly affected by the proposals.

3.3.5 Aside from the deciduous woodland, the identified priority habitats do not correspond with the habitats recorded at the site. This is discussed further at Section 4 below.

4 Habitats and Ecological Features

4.1 Background Records

4.1.1 Information returned from TVERC included records of both protected and nationally rare or scarce species from within approximately 2km of the site including the priority species Tubular Water-dropwort *Oenanthe fistulosa,* Marsh Stitchwort *Stellaria palustris,* Grape Hyacinth *Muscari neglectum* and Rampion Bellflower *Campanula rapunculus.* However, none of these species were recorded within or adjacent to the site boundary. No evidence for the presence of any protected or notable species 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. The value of habitats for the fauna they may support is considered separately in Section 5 below.

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

- Grassland;
- Tall Ruderal Vegetation and Scrub;
- Recolonising Vegetation;
- Woodland;
- Watercourses;
- Ponds;
- Hedgerows and Trees;
- Buildings, Hardstanding and Bare Ground; and
- Invasive Species

4.2.3 The locations of these habitat types and features are illustrated on Plan 5882/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, Sections 41 and 42 of the NERC Act require the Secretary of State to publish a list of habitats which are of principal importance for conservation in England and Wales, respectively. 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, established woodlands, watercourses and hedgerows are considered to qualify as a priority habitat. This is discussed further in the relevant habitat sections below.

4.4 Grassland

Description

4.4.1 The site is dominated by grassland, forming a number of fields subdivided by hedgerows and treelines, identified as grasslands G1-G9 on Plan 5882/ECO3. Additional grassland fields are present within the additional land to the north (G10-G12).

4.4.2 A large improved grassland field is present within the western part of the site (G1A). This appears to have been reseeded within the last few years and supports a relatively open, very species-poor sward dominated by Perennial Rye-grass with some White Clover and occasional Broad-leaved Dock. The field appears to be maintained by regular mowing, with a low sward height of approximately 10cm at the time of surveys.

4.4.3 A small area of longer sward grassland is retained in the north-eastern part of this field (G1B), with a sward height of approximately 30cm supporting some damp grassland species including Toad Rush, Sharp-flowered Rush, Sweet-grass and Lesser Spearwort, together with Perennial Rye-grass, Yorkshire Fog, Timothy, White Clover, Creeping Buttercup, Greater Bird's-foot Trefoil, Redshank, Docks *Rumex* sp. and Forget-me-not spp.

4.4.4 Grassland G2 comprises a series of smaller fields grazed on rotation by cattle. Two of the fields supported recolonising vegetation following heavy poaching (see below), with the remainder supporting a varied grassland sward with Perennial Rye-grass, Common Bent, White Clover, Yarrow, Creeping Buttercup and Dandelion forming the main dominant species.

4.4.5 Grassland G3 is located between the two central wooded strips and supports a short grassland sward grazed by donkeys.

4.4.6 Grasslands G4-G9 form the eastern fields and are grazed on rotation by cattle. With the exception of grassland G9 which appears slightly wetter with occasional rushes present, these grasslands are very similar in character, supporting a moderate length sward with relatively frequent common herb species. Typical grasses include Perennial Rye-grass, Common Bent, Creeping Bent and Yorkshire Fog *Holcus lanatus* with herbs including Cat's-ear, Common Mouse-ear, Ribwort Plantain, Creeping Buttercup, White Clover, Yarrow *Achillea millefolium* and Dandelion.

4.4.7 Quadrat survey information for grasslands G2 and G4-G9 is provided at Appendix 5882/4.

4.4.8 The grasslands to the north of the river within the additional land (G10-G12) are also cattle grazed and similar in character, although with more frequent fine leaved grasses including Crested Dog's-tail, Sweet Vernal Grass and Red Fescue and additional species including Ox-eye Daisy, Common Sorrel and Black Knapweed.

4.4.9 A small area of amenity grassland is also present within the site associated with the main residential property (building B3). This is maintained by regular mowing at a low sward height.

Evaluation

4.4.10 Grassland G1A forms recently seeded grassland supporting a very low diversity of species and is clearly characteristic of improved grassland. Together with the amenity grassland, this is a habitat of low distinctiveness and its loss to the proposals is of negligible significance.

4.4.11 The remaining grasslands within the site and additional land were recorded to support a moderate diversity of common grass and herb species, with an average of 6.95 grass and herb species per m^2 (or 6.05 species per m^2 excluding undesirable species) recorded across grasslands G2 and G4-G9. Based on the type and abundance of species present it can be classified as species-poor semi-improved grassland[17], a habitat type that is common in the local area (corresponding to modified grassland under the biodiversity metric). These areas provide some floral resource for invertebrates, although the relatively species-poor nature, grazing pressure and lack of a varied sward height limit the value for wildlife.

4.4.12 Grasslands G1, G2, G5, G6 and G8 in full and G3, G7 and G9 in part are identified under the Priority Habitat Inventory for coastal and floodplain grazing marsh on MAGIC. However, as detailed at Section 3, this is on the basis of aerial photographs and OS mapping only. The habitat description for coastal and floodplain grazing marsh under the UK BAP is as follows:

"Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities."

4.4.13 Shallow depressions or channels are present associated with hedgerows H5, H10, H11 and H12 (described under hedgerows below), although these were recorded to be dry during all surveys and do not form clearly defined ditches, with only limited vegetation including Hemlock Water-dropwort and rushes. With the exception of frequent rushes within grassland G9 and the small area of grassland G1B, the fields do not support any characteristic wet grassland vegetation, and no evidence was recorded of regular inundation. As such, the grassland is not considered to be characteristic of this priority habitat type, and the MAGIC classification based on desktop resources only appears to be erroneous.

4.4.14 Accordingly, species-poor semi-improved grassland is not considered to form an important ecological feature and the loss of this habitat to the proposals is of low significance.

[17] Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

4.5 Tall Ruderal Vegetation and Scrub

Description

4.5.1 Small areas of tall ruderal vegetation are present at the site in the form of bankside vegetation along the River Enborne to the north and at the margins of fields and the central bare ground area. Some more extensive areas are also present within the area to the south, adjacent to ponds P2 and P3. These areas were recorded to be dominated by Common Nettle *Urtica dioica*, with other species including Docks, Wild Teasel, Hemlock *Conium maculatum*, Creeping Thistle *Cirsium arvense*, White Dead-nettle and Bramble.

4.5.2 Extensive areas of scrub are largely absent from the site itself, although some dense scrub was noted within the additional land to the north, dominated by Bramble and Blackthorn.

Evaluation

4.5.3 The areas of tall ruderal and scrub vegetation support a low diversity of common and widespread species, and form habitat types that are common in the local area. As such, this habitat is not considered to form an important ecological feature, and does not form a constraint to the proposals.

4.6 Recolonising Vegetation

Description

4.6.1 Two of the fields immediately west of the central treelines, adjacent to grasslands G2, were recorded to support recolonising vegetation. These areas appeared to have been subject to heavy poaching and ground disturbance over winter, likely associated with vehicle traffic for movement of manure and sileage, with a large manure heap recorded in the southern field during the survey work. Vegetation was dominated by Knotgrass, Scented Mayweed, Redshank, Greater Plantain and Shepherd's Purse, with some Common Nettle and Marsh Cudweed. Some more established grassland vegetation was noted to be re-establishing in parts, with Perennial Rye-grass, White Clover and Yarrow.

Evaluation

4.6.2 The areas of recolonising vegetation support common annual species typical of disturbed ground, and will likely re-establish as grassland without ongoing disturbance. This habitat is not considered to form an important ecological feature, and does not form a constraint to the proposals.

4.7 Woodland

Description

4.7.1 Six wooded areas were recorded to be present within the site and its immediate surrounds, identified as W1-W6 on Plan 5882/ECO3.

4.7.2 Woodlands W1 and W3, located offsite, comprise recent highways planting situated on raised bunds at the southern site boundary, around 20 years in age based on a

review of historical aerial photography. This is a mixture of native tree and shrub species including Hazel, Field Maple, English Oak, Willow, Silver Birch, Dogwood and Blackthorn, forming a low canopy approximately 6m in height. The ground flora is largely bare or with sparse grasses, with some Lords-and-Ladies noted.

4.7.3 Woodland W2, also located offsite to the south, comprises wet woodland, formed by outgrown Alder coppice adjacent to watercourse WC2, with a canopy height of around 10-12m. Some Holly, Hawthorn and Silver Birch is present forming a loose understorey, and ground flora is characterised by Hemlock Water-dropwort, Pendulous Sedge, Ramsons, Ground Ivy and Lords-and-Ladies.

4.7.4 Woodlands W4, W5 and W6 are located within the centre of the site, forming two main wooded strips either side of the area of farm buildings. The western strip is formed by a narrow strip of trees in the northern part (W6), characterised by semi-mature Oak and Ash with tall ruderals and Bramble scrub at the base. This widens towards the south forming woodland W4, dominated by Oak with some occasional Sycamore and Hazel, and a ground flora of Common Nettle, Bramble, Lords-and-Ladies and Daffodils. W5 forms a narrow wooded strip along the length of watercourse WC2, with species including Alder, Oak, Hazel, Elder, Holly and Hawthorn, and a ground flora of Common Nettle, Garlic Mustard, Dog's Mercury, Pendulous Sedge, Lesser Celandine, Lords-and-Ladies and Ramsons.

Evaluation

4.7.5 Woodlands W1 and W3 form recent highways planting and are of relatively low value, not being characteristic of the priority habitat type lowland mixed deciduous woodland. Woodland W2 is characteristic of the priority habitat type wet woodland, although forms a relatively small and low quality example. Woodlands W4, W5 and W6 form more established broadleaved woodland and support elevated habitat value, corresponding with the broad habitat definition for lowland mixed deciduous woodland, although are limited in extent. On this basis, woodlands W2, W4, W5 and W6 are considered to form important ecological features, although are of value at the local level only.

4.7.6 These woodlands are largely retained under the proposals, whilst access routes across woodlands W5 and W6 will utilise existing openings to minimise any loss of established trees. Small sections of W1 adjacent to hedgerows H7 and H13 may also require removal for the main access to the site, albeit the main wooded area is retained in full. Accordingly, impacts on these features are considered to be limited, whilst there are opportunities for enhancement through introduction of ecologically sensitive management and supplementary planting.

4.8 Watercourses

Description

4.8.1 The site is bounded along its northern side by the River Enborne (identified as WC1 on Plan 5882/ECO3), whilst a tributary flows south to north through the centre of the site (WC2).

4.8.2 The River Enborne (WC1) flows in an easterly direction along a gently meandering channel, bounded by trees along most of its length. The river channel was recorded to be typically 4-5m in width with a slow flow over a gravelly base. Along most of its

length, the river is relatively shallow, between 20-30cm in depth, although with some deeper sections. It supports a largely natural channel profile, with river cliffs, slip off slopes and mid-channel bars, although some sections of the northern bank adjacent to residential properties in the west are reinforced with wooden boarding and revetments. A fenced off margin approximately 2-5m in width is present along the length of the river within the site, supporting frequent trees, Bramble scrub and tall ruderals including Common Nettle, Great Willowherb and Creeping Thistle. Some Himalayan Balsam was also noted. Marginal and aquatic vegetation is limited along the river, likely due to shading along the majority of its length.

4.8.3 Watercourse WC2 is typically 3-4m in width with a depth of 30-50cm. The channel appears to be more modified and is generally silted along its base, particularly towards the south. It is bounded by trees along its length and is shaded as a result with negligible marginal or aquatic vegetation.

Evaluation

4.8.4 The River Enborne (WC1) forms a moderate-good quality river, particularly in the east where the banks are unmodified and it supports a natural channel profile, with features such as slip off slopes, river cliffs and mid-channel bars providing additional diversity of habitats for wildlife. Rivers are a priority habitat type, and the watercourse qualifies on the basis of supporting priority species (see section 5 below). On this basis, the river forms an important ecological feature, and is considered to be of at least district importance due to its value as a substantial wildlife corridor through the landscape.

4.8.5 Watercourse WC2 is also considered to form an important ecological feature, forming a tributary to the River Enborne, although is considered to be of local value only with a more modified and less diverse channel structure.

4.8.6 Both watercourses are retained under the proposals, with the River Enborne to be located within a wide corridor of open space to the north of the main development. Accordingly, subject to the safeguarding measures detailed at Section 6 of this report in relation to water quality, it is considered that adverse effects on the watercourses will be avoided. Furthermore, a number of enhancement measures to the watercourse are proposed at Section 6, which would deliver substantial biodiversity gains and contribute to national and local policy objectives.

4.9 Ponds

Description

4.9.1 A single pond is identified within the site on base mapping (identified as pond P4 on Plan 5882/ECO3). However, this was recorded to comprise only a slight hollow with a shallow depth of water at the time of the April 2020 survey, measuring approximately 2-3m in diameter, with encroaching vegetation, heavy shade and dense leaf litter.

4.9.2 A number of other waterbodies were also recorded immediately to the south of the site. These included two large basins (P1A and P3A), likely created as part of the drainage system for the adjacent highway, dominated by Common Reed and Reedmace, bordered by tall ruderal vegetation. Water Mint was also noted within P3A, with Willow, young Alder and sedges around the edges of the pond. The basins supported up to 10cm depth of water, although lacked any open water due to the

dense emergent vegetation. Associated with both basins were concrete lined channels, supporting deeper open water (P1B and P3B). Parrot's Feather was noted within P1B.

4.9.3 A further woodland pond was noted in this area, identified as pond P2. This comprises a moderate sized pond measuring approximately 8m by 15m, with good water quality. The pond is bounded by trees creating relatively heavy shade, with aquatic vegetation limited to a partial covering of Duckweed.

Evaluation

4.9.4 Ponds form a priority habitat type, but the ponds within and adjacent to the site are not considered to qualify under the associated habitat description. Pond P4 within the site is considered to be of low ecological value, forming only a small ephemeral hollow, and does not form an important ecological feature. Ponds P1, P2 and P3 are of higher value, and are considered to form important ecological features of value at the site level.

4.9.5 The ponds are retained under the proposals, and subject to appropriate safeguards in relation to water quality, would not be impacted under the scheme.

4.10 Hedgerows and Trees

Description

4.10.1 Numerous hedgerows are present forming the boundaries between fields, together with treelines adjacent to the River Enborne to the north. Typically these hedgerows feature Hawthorn, Alder, Goat and Grey Willow, Oak, Blackthorn, Rose, Elder, Gorse and Hazel. Hedgerows are shown on Plan 5882/ECO3 and detailed descriptions are provided at Appendix 5882/5.

4.10.2 The hedgerows within the site typically support a moderate number of woody species, although the majority lack sufficient woody species per 30m stretch or associated features to qualify as 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997. The only hedgerows likely or possibly considered to qualify as important are treelines H1, H2 and H4 adjacent to the River Enborne and northern stretch of the associated tributary.

4.10.3 A number of trees are also present within the site, mostly occurring as standard trees within the hedgerows. These include semi-mature to mature Oak and Ash trees throughout the site.

Evaluation

4.10.4 All hedgerows within the site are likely to qualify as a Priority Habitat based on the standard definition[18], 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 Great Britain qualify as a Priority Habitat under this definition.[18] Ancient and / or Species-rich Hedgerows are also listed as a Priority Habitat.

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

4.10.5 The hedgerows within the site form part of a habitat network, providing connectivity for movement of wildlife across the site, with features such as mature trees providing additional habitat interest. On this basis, the hedgerows and trees within the site are considered to form an important ecological feature of value at the local level.

4.10.6 A number of the internal hedgerows are to be lost to accommodate the proposed development parcels, notably hedgerows H3, H10 and H14, whilst other small sections will be removed to accommodate road accesses. In total, this will comprise approximately 650m length of hedgerow, representing around 25% of the total network of hedgerows and treelines within the site. However, none of the hedgerows to be lost are identified as likely to qualify as important under the Hedgerows Regulations, whilst H14 in particular (270m in length) was recorded to be species-poor and relatively newly planted.

4.10.7 To compensate for hedgerow losses, approximately 750m of new linear planting will be provided along proposed green corridors between the new development parcels. This will comprise native shrub planting in combination with drainage features, and will provide a similar function to the existing hedgerows at the site in terms of providing a wildlife corridor and sheltering and foraging habitat for wildlife species. There are also opportunities for further hedgerow planting as part of the detailed layout.

4.11 Buildings, Hardstanding and Bare Ground

Description

4.11.1 Numerous buildings are present within the central part of the site, including a traditional brick-built farmhouse (building B3 on Plan 5882/ECO3) and numerous open sided barns, garages or stables (B1 and B4-B12), largely of wooden and corrugated sheeting construction, together with a static caravan (B2).

4.11.2 The buildings are surrounded by a large area of bare ground forming a yard and providing access to the buildings. This comprises largely bare earth or gravelled areas with some sparse recolonising vegetation, with some areas in use for storage of agricultural machinery and materials.

4.11.3 Further gravelled and tarmacked areas occur within the surrounds of the farmhouse and adjacent buildings B3, B4 and B12, with a trackway extending through the site to the east.

Evaluation

4.11.4 The buildings, hardstanding and bare ground support a limited range of common and widespread floral species and are inherently of negligible ecological value. As such, they do not form important ecological features. Potential for the buildings to support faunal species such as roosting bats and birds is discussed in Section 5 below.

4.12 Invasive Species

Description

4.12.1 During the course of the survey work undertaken, Virginia Creeper *Parthenocissus quinquefolia* was recorded in the eastern part of the centre of the site, while

Himalayan Balsam *Impatiens glandulifera* was recorded along most parts of the River Enborne running along the northern site boundary. Giant Rhubarb *Gunnera tinctoria* was also recorded associated with the River Enborne in the north and centre of the site. Parrot's Feather *Myriophyllum aqauticum* was also recorded off-site to the south within the inlet to pond P1B (see Plan 5882/ECO3).

Evaluation

4.12.2 Virginia Creeper, Himalayan Balsam, Giant Rhubarb and Parrot's Feather are listed under Schedule 9 Part II of the Wildlife and Countryside Act 1981 (as amended), making it an offence to cause these species to grow in the wild, which can be interpreted to include inadvertent spread through development activities. Recommendations to avoid spread of these species during the construction phase are set out at Section 6.

4.13 Habitat Evaluation Summary

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

Table 4.1: Summary of habitat evaluation.

Habitat	Level of Importance
Wet woodland W2 (offsite)	Local
Broadleaved woodlands W4-W6	Local
River Enborne WC1	District
Watercourse WC2	Local
Ponds P1-P3 (offsite)	Site
Hedgerows and Trees	Local

4.13.2 Other habitats present within the site include species-poor grassland, tall ruderal vegetation, scrub, recolonising vegetation, young woodland planting, an ephemeral pond, buildings, hardstanding and bare ground. However, these habitats are not considered to form 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 particular attention paid to the potential presence of protected or notable species. Specific survey work was undertaken in respect of bats, Badger, Dormouse, Water Vole, Otter and Great Crested Newt, with the results set out 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, Sections 41 and 42 of the NERC Act require the Secretary of State to publish a list of species which are of principal importance for conservation in England and Wales, respectively. 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.

5.2.2 During the survey work undertaken at the site, the priority species Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula*, Barbastelle *Barbastella barbastellus*, Brown Long-eared Bat *Plecotus auritus* and Otter *Lutra lutra* were recorded.

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 5882/6 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.** TVERC and HBIC returned records of Daubenton's Bat *Myotis daubentonii*, Brown Long-eared Bat, Long-eared *Plecotus* sp., Noctule *Nyctalus noctula*, Serotine *Eptesicus serotinus*, Natterer's Bat *Myotis nattereri*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle, Nathusius' Pipistrelle *Pipistrellus nathusii,* Barbastelle, unidentified *Myotis* sp., unidentified Pipistrelle sp., unidentified Long-eared sp. and other unidentified bat species. Of these records, Brown Long-eared Bat, Noctule Bat, Common Pipistrelle and Natterers Bat were all recorded on-site, all of which were dated 2013. The next nearest record of bats to the site was a Brown Long-eared bat within 100 metres of the site to the south-east in 1998. Also of note are records of rarer species near to the site, including Barbastelle 230 metres to the south of the site in 2019, and Nathusius' Pipistrelle 720 metres to the north-west of the site in 2017.

5.3.3 Survey Results and Evaluation – Roosting

Buildings

Visual Inspection Survey

5.3.4 A detailed visual inspection was undertaken of all of the buildings within the site, the results of which are detailed below.

5.3.5 Building B3 forming the main farmhouse is of traditional construction. The main house (identified as B3b on Plan 5882/ECO3) comprises a two storey brick built structure with a tiled, pitched roof and wooden soffits and barge boards. The soffits, barge boards and occasional lifted tiles offer external potential roosting features, whilst there is likely to be access to the main roof void, forming a large internal space. An associated single storey outbuilding is located immediately north of the main house (B3a on Plan 5882/ECO3), which is also brick built with a pitched, tiled roof. A further single storey extension is present to the west and south of the main house (B3c on Plan 5882/ECO3). This extension is more modern in construction, with a metal or plastic sheeting roof, lacking any enclosed roof spaces and appears to be well sealed.

5.3.6 On this basis, building B3 was assessed as providing moderate bat roosting potential and was subject to specific internal inspections and emergence/re-entry surveys as detailed below.

5.3.7 The remaining buildings within the site comprise agricultural barns, workshops and stable buildings, as set out below:

- Building B1 comprises a stable of wooden frame and supporting a corrugated metal roof;
- Building B2 comprises a static caravan;
- Building B4 comprises a single storey storage garage;
- Building B5 comprises a garage type structure of concrete breeze-block construction;
- Buildings B6 and B7 comprise large open-sided barns of metal construction with wooden panelling and a corrugated plastic roof;
- Building B8 comprises a further stable of wooden construction with a corrugated roof; and
- Buildings B9 and B10 comprise large open fronted barns of metal construction with asbestos and corrugated plastic roofing respectively.

5.3.8 These were all recorded to be in active use for storage of materials, vehicles or livestock, and due to the nature of their construction, being generally open and exposed to the elements and lacking enclosed voids, are considered to be of negligible bat roosting potential.

Internal Inspection Survey

5.3.9 An internal inspection survey was conducted in September 2020 of Building B3. This survey focussed on a single internal loft void forming the main part of building B3. The loft was recorded to measure approximately 4m by 7m, with a height of approximately 2m to the apex. The loft was noted to be open and uncluttered, supporting wooden rafters, exposed fibreglass insulation and breathable roof membrane. Approximately 200 bat droppings were recorded in this loft void, scattered under the central ridge beam. A sample of these

bat droppings were analysed and confirmed to have originated from Brown Long-eared bat. Feeding remains of insect wings were also noted in the loft void.

Emergence Surveys

5.3.10 Building B3 was subject to further survey work in the form of dusk emergence surveys. The results of these surveys are summarised in Table 5.1 below.

Table 5.1. Emergence survey results.

Building	Date	Sunset/ sunrise	Emergence/ re-entry	Summary of other activity
B3	25th June 2020 (dusk)	Sunset: 21:16	None	Very consistently high numbers of passes by Common Pipistrelle, especially on the western and southern sides of B3, with Common Pipistrelles noted to be foraging and commuting along the treeline/river to the west of B3. A few passes by Soprano Pipistrelle and *Nyctalus/Eptesicus* noted around all sides of B3. One registration of Barbastelle at northern end of B3.
	28th July 2020 (dusk)	Sunset: 20:29	**Single Soprano Pipistrelle emergence at 21:09 from soffit corner on SE edge of B3.** **Single Common Pipistrelle emergence from under guttering in centre of west side of B3 at 21:20.** **Two Common Pipistrelle emergences from around chimney area, one at 21:15 and the other at 21:20** **4 bat emergences in total.**	Frequent passes by reasonable numbers of Common Pipistrelle recorded on all sides of building B3. Occasional passes by Soprano Pipistrelle and *Nyctalus/Eptesicus sp.*. from all around B3 One recording of a Long-eared sp. individual in the south-western area of B3.

Trees

5.3.11 Trees within and bounding the site were inspected for presence of features offering potential for roosting bats, such as rot holes, cracks, splits, loose bark or dense Ivy cover and were assessed as being of negligible, low, moderate or high bat roosting potential, following the methodology outlined in the Bat Conservation Trust survey guidelines.

5.3.12 Numerous trees within the site were identified to support potential for roosting bats, including low, moderate and high potential trees, as shown on Plan 5882/ECO3. Trees assessed as providing moderate and high potential are summarised in Table 5.2 below.

Table 5.2. Tree assessment survey results.

Tree No.	Species	Size / Maturity	Detail and Bat Roosting Potential Features	Bat Roosting Potential Assessment
T1	Oak	Mature	Dense ivy cover, small branches dying off and featuring deadwood, loose bark	Low
T2	Oak	Semi-mature	One dead limb/branch, peeling bark, bat roosting feature on underside of branch	Moderate
T3	Ash	Semi-mature	Dense ivy cover over potential bat roosting features	Moderate

Tree No.	Species	Size / Maturity	Detail and Bat Roosting Potential Features	Bat Roosting Potential Assessment
T4	Ash	Mature	Two trunks, western trunk features a side branch with lateral split at around 10 metres in height	Moderate
T5	Ash	Young	Numerous rot holes, crevices and cankerous growth	Moderate
T6	Ash	Young to Semi-mature	Decay and dead growth in central stem, two to three main rot holes along with broken side branch featuring a split in the wood	Moderate
T7	Oak	Mature	Three to four splits where main branches have broken off with exposed inner wood along with potential deadwood features, cracks and splits providing features	Moderate
T8	Oak	Mature	3 to 4 splits where main branches have broken off, exposed inner wood, rot hole, other split areas and cracks	Moderate
T9	Goat/ Grey Willow	Semi-mature	Large cavity in main stem, several rot holes, potential large central cavity via lateral split on a side branch	Moderate
T10	Oak	Mature	Potential bat roosting features associated with tree collar	Low
T11	Oak	Mature	Deadwood features, flaking loose bark providing cracks and splits, one higher branch with crack/split on southern elevation, further up two fusing branches creating a split and forming a cavity	Moderate
T12	Oak	Semi-mature	Two small branches with deadwood, cracks in bark	Low
T13	Oak	Mature	Occasional small branches dying off, no major cracks or splits	Low
T14	Oak	Mature	Occasional small branches dying off, no major cracks or splits	Low
T15	Oak	Mature	Recently split off branch, quite a few branches have damage, various cracks and splits	Moderate
T16	Ash	Mature	Lateral split on branch, cavity extending into split	Low to Moderate
T17	Oak	Semi-mature	Several branches with splits on undersides	Low to Moderate
T18	Oak	Mature	Large central split with cavities, older branch with cavity underneath	Moderate
T19	Oak	Mature	Covered in ivy	Low
T20	Oak	Semi-mature	Splits, cracks and knot holes, downward facing split in upper part of tree.	Moderate
T21	Oak	Semi-mature	Central stem dead, cracks and split associated with this, split runs length of tree with potential splits either side under bark	High
T22	Oak	Dead	Monolith, mostly dead with fair amounts of peeling bark and splits within the main trunk	Moderate
T23	Oak	Mature	4 younger branches dying off with various splits within the bark where they join the main stem	Moderate
T24	Alder	Semi-mature	Large split around 4 to 5 metre height, knot holes on south facing side	Moderate

5.3.13 Survey Results and Evaluation – Foraging and Commuting

5.3.14 The species-poor grassland that dominates the site supports limited floral diversity, and as such much of the site is considered to be of limited value to foraging bats, as it is likely to support a restricted assemblage of invertebrate prey species. However, the site does contain numerous wooded areas and treelines containing a variety of young, semi-mature and mature trees, including a number of mature oak trees. Boundary features, notably the watercourses, also offer particular opportunities for foraging bats as they are likely to support a reasonable biomass of invertebrate prey. In addition, the watercourses and wooded area form linear corridors that could act as navigational aids for commuting bats and provide connectivity to similar off-habitats in the surrounding area. As such, further survey work in the form of manual and automated bat activity surveys were undertaken at the site between June and September 2020. The results of the survey work undertaken are summarised below and at Plan 5882/ECO4, with full results set out at Appendix 5882/7.

Manual Activity Surveys

5.3.15 The detailed activity survey results are included at Appendix 5882/7 and illustrated on Plan 5882/ECO4, with summary tables provided below. The transect covered the site boundaries as well as covering the key internal areas of the site.

Table 5.3: Results of the dusk walked transect on 25th June 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	78	87.64
Soprano Pipistrelle	9	10.11
Nyctalus / Eptesicus spp.	1	1.12
Myotis sp.	1	1.12
Total	**89**	**100**

Table 5.4: Results of the dusk walked transect on 4th August 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	132	80.98
Soprano Pipistrelle	21	12.88
Nyctalus / Eptesicus spp.	2	4.91
Myotis sp.	2	1.23
Total	**157**	**100**

Table 5.5: Results of the dusk walked transect on 17th September 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	144	77.01
Soprano Pipistrelle	15	8.02
Nyctalus / Eptesicus spp.	17	9.09
Myotis sp.	5	2.67
Barbastelle	6	3.21
Total	**187**	**100**

Table 5.6: Results of the dawn walked transect on 18th September 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	7	43.75
Soprano Pipistrelle	3	18.75
Nyctalus / Eptesicus spp.	6	37.50
Total	**16**	**100**

5.3.16 A total of five bat species (or species groups[19]) were recorded during the walked activity surveys including Common Pipistrelle, Soprano Pipistrelle, *Nyctalus / Eptesicus* spp., *Myotis* sp. and Barbastelle bats, across 449 registrations. Based on registrations made during the manual activity surveys, Common and Soprano Pipistrelle heavily dominated activity, accounting for 79% and 11% of all recorded bat passes, respectively. All other bat species, including *Nyctalus / Eptesicus* spp., including Noctule, *Myotis* sp. and Barbastelle accounted for the remaining 10% of calls.

5.3.17 Generally low levels of activity were recorded during the walked transects, with moderate levels of activity recorded on the 4th August and 17th September dusk surveys. The highest levels of activity, found most notably towards the eastern and southern parts of the site, appear to be associated with mature trees and hedgerows, along with the River Enborne which borders the northern side of the site (see Plan 5882/ECO4).

Static Detector Surveys

5.3.18 The results of the automated static bat surveys are summarised at Table 5.7 below. A total of seven bat species (or species groups[20]) were recorded over the course of all the static detector surveys, namely Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipstrelle, *Myotis* sp., *Nyctalus / Eptesicus* spp., Long-eared bat sp. and Barbastelle bat.

Table 5.7: Total number of bat registrations per species and % species composition recorded during static detector surveys in June, July and September.

Species	Number of Registrations Recorded	Approximate % of Total Registrations Recorded
Barbastelle	50	0.28
Myotis sp.	119	0.67
Nyctalus / Eptesicus spp.	385	2.16
Long-eared sp.	8	0.04
Nathusius' Pipistrelle	2	0.01
Common Pipistrelle	16,910	94.69
Soprano Pipistrelle	384	2.15

5.3.19 As set out in Table 5.7 above, activity was dominated by Common Pipistrelle, which accounted for 94.69% of all registrations over the course of the automated survey work, followed by *Nyctalus / Eptesicus* spp. which accounted for 2.16% of registrations, followed by Soprano Pipistrelle at 2.15% of registrations. Other species were present in lower numbers, however with some rarer species present in reasonable numbers. This is somewhat different to the species proportions recorded during the manual activity surveys, which recorded a higher proportion of Soprano Pipistrelle and *Nyctalus / Eptesicus* spp.. This may be due to the static detector locations, generally associated with wooded margin habitats away from the watercourses, whereas the manual surveys were able to cover bankside habitats also.

5.3.20 A discussion of activity levels for each static detector location is set out below and summarised on Plan 5882/ECO4.

[19] *Myotis* sp. and *Nyctalus/Eptesicus* sp. (referred to as Nyctalus / Eptesicus spp.) bats are difficult to separate based on analysis of calls alone, and have therefore been identified to species group level only. It is likely several different species within each group are present at the site.

[20] *Myotis* sp. bats are difficult to separate based on analysis of calls alone, and have therefore been identified to species group level only. It is likely several different species within each group are present at the site. Similarly, some Pipistrelle and *Nyctalus/Eptesicus* (or 'Nyctalus / Eptesicus spp.') sp. calls were not possible to identify to species level and are assigned to a species group.

Static detector location SD1 (located approximately west of centre of site)

Table 5.8: Total number of bat registrations per species and % species composition recorded during static detector surveys in June, July and September at static detector location SD1.

Species	Number of Registrations Recorded	Approximate % of Total Registrations Recorded
Barbastelle	1	0.03
Myotis sp.	115	2.93
Nyctalus / Eptesicus spp.	340	8.66
Long-eared sp.	2	0.05
Nathusius' Pipistrelle	2	0.05
Common Pipistrelle	3,359	85.60
Soprano Pipistrelle	105	2.68

5.3.21 In general, moderate levels of activity were recorded at this static location, with a total of 3,924 registrations recorded throughout the course of the surveys. Of these, Common Pipistrelle accounted for 85.60% of all registrations, with other species recorded in low numbers. Activity peaked during September, with 63.53% of all registrations. Activity was lower during July and particularly June, accounting for 25.99% and 10.47% respectively.

Static detector location SD2 (located towards the east of the site, in corner of field within wooded hedgerow)

Table 5.9: Total number of bat registrations per species and % species composition recorded during static detector surveys in June, July and September at static detector location SD2.

Species	Number of Registrations Recorded	Approximate % of Total Registrations Recorded
Barbastelle	49	0.35
Myotis sp.	4	0.03
Nyctalus / Eptesicus spp.	45	0.32
Long-eared sp.	6	0.04
Nathusius' Pipistrelle	0	0.00
Common Pipistrelle	13,551	97.25
Soprano Pipistrelle	279	2.00

5.3.22 High levels of activity were recorded at this static location over the course of the surveys, with a total of 13,934 registrations recorded. Common Pipistrelle again dominated activity, accounting for 97.25% of all registrations. Soprano Pipistrelle, Barbastelle and *Nyctalus / Eptesicus* spp., while much lower in terms of percentage of total call registrations, were nonetheless relatively frequently recorded and accounted for 2.00%, 0.35% and 0.32% of registrations, respectively. Other species were recorded in comparatively low numbers. Activity peaked during September, with 56.01% of all registrations, whilst July and June recorded 8.00% and 35.98% of registrations, respectively.

5.3.23 In regard to Barbastelle, this was recorded during the September survey only, with occasional bouts of activity recorded over the full deployment period. This mostly comprised only brief passes, likely representing commuting through the site, although more sustained activity was recorded around 01:00 on 18 September 2020 (8 registrations over a 1 hour period) and again at around 01:00 on 20 September (16 registrations over a 2 hour period). This is likely to represent a single individual foraging within the site.

5.3.24 **Evaluation and Assessment of Likely Effects**

<u>Roosting</u>

Buildings

5.3.25 The majority of the buildings within the site are considered to offer negligible opportunities for roosting bats, save for building B3 which was assessed as providing moderate bat roosting potential during external inspection surveys. Further internal inspection survey and emergence surveys confirmed the presence of several bat roosts within this building, namely a Brown Long-eared bat roost within the roof void (identified through DNA analysis), and a Common Pipistrelle roost and two Soprano Pipistrelle roosts associated with external features such as soffits, guttering, external nest box and leading around the chimney area.

5.3.26 The survey data suggests that the loft void and external roosting features associated with building B3 are being used by a low number of bats, and are likely to represent summer day roosts, with no evidence to suggest the building supports any maternity or hibernation roosts.

5.3.27 Brown Long-eared Bat, Common Pipistrelle and Soprano Pipistrelle are common and widespread species throughout Britain[21] and as such, given the relatively small number of bats recorded, and in accordance with guidance set out within Natural England's 'Bat Mitigation Guidelines' (2004), these roosts are considered to be of no more than low conservation significance.

5.3.28 The proposals for the site include the demolition of building B3. Hence, to enable works to proceed, a licence will be required from Natural England to enable the proposed development to derogate from legislation protecting bat roosts, whilst also ensuring that demolition works are undertaken in such a way as to safeguard any bats present at the time of demolition works. In addition, in order to maintain the favourable conservation status of the population of bats at the site, a suite of mitigation measures, in the form of alternative roost sites, will be required within such a licence. Given the low conservation status of these roosts, it is considered that a licence will be readily attainable. A suitable mitigation scheme is outlined in Section 6, and subject its implementation, it is considered that bats will be fully safeguarded under the proposals.

Trees

5.3.29 A total of 24 trees at the site have been identified as supporting bat roosting potential. Given the size of the site, this is considered to be a moderate roosting resource for bats, and as such the site is considered to be of local level importance as a potential roosting assemblage. The majority of the trees are located within the wooded strips and along the watercourses and can therefore be accommodated within the masterplan. Trees which are indicated as potentially being impacted under the proposals are limited to T10 and T12 supporting low bat roosting potential, and T11 supporting moderate bat roosting potential. These trees will be retained where possible as part of the detailed layout, although where trees need to be removed to accommodate development, recommendations are set out at Chapter 6 to ensure roosting bats are safeguarded in the event individuals are present within the identified trees. Subject to the implementation of such measures, adverse effects on roosting bats within trees as a result of the proposed development are likely to be minor.

<u>Foraging / Commuting</u>

5.3.30 Generally, moderate levels of activity were recorded in terms of foraging and commuting bats, with at least seven species (or species groups[22]) recorded during the surveys. Common Pipistrelle was most frequently recorded, with relatively frequent Soprano Pipistrelle and

[21] Jon Russ (2012) British Bat Calls, A guide to Species Identification.

[22] *Myotis* sp. and *Nyctalus/Eptesicus* sp. (referred to as Nyctalus / Eptesicus spp.) bats are difficult to separate based on analysis of calls alone, and have therefore been identified to species group level only where more specific identification was not possible. It is likely several different species within each group are present at the site.

Nyctalus / Eptesicus spp. also recorded. Records of *Myotis* spp. and Barbastelle were also recorded (as well as Long-eared sp. and Nathusius' Pipistrelle during the automated surveys only), although the low number of registrations recorded indicate that the site is unlikely to be of high importance for these species.

5.3.31 In terms of habitats, areas of potential value to foraging and commuting bats are mostly associated with the corridor habitats such as the boundary watercourse and wooded strips. The grassland habitat which dominates the site itself appears to be of little value. As such, it is considered that the population of bats in the area rely on parts of the site which are to be retained rather than the majority land use of the site itself.

5.3.32 Guidance on evaluation of the overall assemblage of bats at a site (Wray et al., 2010[23]) sets out a scoring system based on the rarity of species recorded, number of individuals, proximity to roosts and habitat character. The results of this scoring exercise for the bat species recorded within the site are set out within Table 5.10 below.

Table 5.10: Evaluation of bat species recorded at the site

Species	Rarity	Number of bats	Roosts/potential roosts nearby	Foraging/commuting habitat characteristics	Total score
Common Pipistrelle	Common (2)	Small number of bats (10)	Small number (3)	Well connected hedgerows; connected woodland blocks, mixed agriculture and small villages (4)	19
Soprano Pipistrelle	Common (2)	Small number of bats (10)	Small number (3)		19
Brown Long-eared	Common (2)	Individual bats (5)	Small number (3)		14
Myotis sp.	Rarer (5)	Individual bats (5)	Not known (4)		18
Nyctalus/Eptesicus spp.	Rarer (5)	Individual bats (5)	Not known (4)		18
Barbastelle	Rarest (20)	Individual bats (5)	Not known (4)		33
Nathusius' Pipistrelle	Rarer (5)	Individual bats (5)	Not known (4)		18

5.3.33 Based on this scoring system (save for Barbastelle), the site scores between 14 and 19 points, which equates to a district, local or parish level of value. A higher score is returned for Barbastelle, reflecting its increased rarity, although given activity was largely restricted to September only, and likely represented only one or two individuals occasionally foraging within the site, the site is not considered to be of elevated importance for this species above a district level.

5.3.34 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 5882/6). 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

[23] S. Wray, D. Wells, E. Long & T. Mitchell-Jones. (December 2010). *Valuing Bats in EcIA.* In Practice, IEEM

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. [24, 25]

5.4.3 **Background records.** Data from TVERC returned one record of Badger which could potentially be on-site, as the record sits within an OS grid square that also occupies part of the site; however more precise information was not available. A number of other records from within the search area were returned, the closest of which was situated approximately 140 metres to the north-east of the site, dated 2008.

5.4.4 **Survey Results and Evaluation.** No evidence for the presence of Badger was recorded within the site during the course of the survey work. Two Badger setts were identified offsite to the south of the site (the exact locations of which are set out in a Confidential Appendix separate to this report), however these are located greater than 20m from the site boundary and will therefore not be directly affected as a result of any development works. Badger associated with these setts likely make some use of the site for foraging and commuting, therefore a number of mitigation measures are set out at Section 6 in order to safeguard this species during construction. In the long-term, habitat creation measures will maintain suitable foraging and commuting habitat, such that the local Badger population will be fully safeguarded under the scheme.

5.5 Dormouse

5.5.1 **Legislation.** Dormouse is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places of rest (see Appendix 5882/6 for detailed provisions). Dormouse is also a S41 Priority Species. On this basis, Dormouse is considered to form an important ecological feature.

5.5.2 **Background Records.** No specific records of Dormouse were returned from the desktop study from within the site. Data returned does however include two records of Dormouse, both of which were located 470 metres to the north-east of the study area and dated from 2018.

5.5.3 **Survey Results and Evaluation.** The study area provides good opportunities for Dormouse, particularly in the form of areas of woodland, hedgerows and, to a lesser extent, scrub throughout the site. The majority of the site however is dominated by open grassland fields which are unsuitable for Dormouse.

5.5.4 Given the presence of potential Dormouse habitat within the site, specific Dormouse survey work was undertaken at the site. The results of this survey are shown at Plan 5882/ECO5 and set out at Table 5.11 below.

Table 5.11: Results of Dormouse nest tube survey

Date of Nest Tube Check	Evidence of Dormouse Recorded
4th August 2020	No evidence of Dormouse
23rd September 2020	No evidence of Dormouse
25th November 2020	No evidence of Dormouse

[24] English Nature (2002) '*Badgers and Development*'
[25] Natural England (2011) '*Badgers and Development: A Guide to Best Practice and Licensing*', Interim Guidance Document

5.5.5 No evidence of Dormouse has been recorded within the site during the course of the survey work. As such, the site is not considered to be of importance for this species and therefore Dormouse will not form a constraint to development of the site.

5.6 Water Vole and Otter

5.6.1 **Legislation.** Water Vole is fully protected under the Wildlife and Countryside Act 1981 (as amended). Water Vole is also a S41 Priority Species. As such, this species is considered to form an important ecological feature. The legislation affords protection to individuals of the species and their breeding sites and places of shelter (see Appendix 5882/6 for detailed provisions). There is no provision under the Act for licensing what would otherwise be offences for the purpose of development. Such activities must be covered by the defence in the Act that permits otherwise illegal actions if they are the incidental result of a lawful operation and could not reasonably be avoided.

5.6.2 If, despite all reasonable efforts, properly authorised development will adversely affect Water Vole and there are no alternative habitats nearby, Natural England may issue a licence to trap and translocate Water Vole for the purpose of conservation. To issue such a licence, Natural England would need to be assured there is no reasonable alternative to the development and that there are no other practical solutions that would allow Water Vole to be retained at the same location. NE would also require assurance that the actions would make a positive contribution to Water Vole conservation.

5.6.3 Otter is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places of rest (see Appendix 5882/6 for detailed provisions). Otter is also a S41 Priority Species.

5.6.4 **Background Records.** A number of records of Water Vole were returned, the closest four of which are located approximately 50 metres north of the site, three of which were from 1996 and one record from 1999. No records of Otter on-site were returned, however two records were return of Otter 700 metres to the west of the site from 2018.

5.6.5 **Survey Results and Evaluation.** The River Enborne that runs along the northern boundary of the site is considered to support potential habitat for Water Vole and Otter, forming a substantial watercourse with associated emergent and marginal vegetation. The smaller watercourse within the site is also considered to provide some opportunities for these species. Accordingly, the watercourses were subject to a detailed survey for evidence of these species in September 2020 and May 2021.

Water Vole

5.6.6 A number of burrows were recorded along the River Enborne during the course of the survey work, however no direct evidence of Water Vole was found in the form of droppings, whilst no evidence of likely Water Vole feeding remains were noted. As such it is considered unlikely that the burrows are attributable to Water Vole and therefore Water Vole will not form a constraint to development of the site.

Otter

5.6.7 Evidence of Otter was recorded both along the River Enborne and along the watercourse within the site in the form of fresh and old spraint, and feeding remains, as well as potential

holts or lying up sites, as shown on Plan 5882/ECO5. As such, it is considered that Otter make occasional use of the river, as part of a wider territory, and therefore the site is considered to be of local importance to Otter.

5.6.8 The watercourses and associated habitat will be largely unaffected under the proposals, such that opportunities for Otter will remain at the site both during constriction and in the long-term. However, works to the watercourses, such as bridge construction and drainage outfalls, as well as works within habitat along the watercourses as part of landscaping, may result in adverse effects on any holts that may be present in the area. As such, a number of mitigation measures are set out at Section 6, subject to the implementation of such measures, Otter will be fully safeguarded under the scheme.

5.7 Other Mammals

5.7.1 **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 Priority Species.

5.7.2 **Background Records.** Information returned from the records centres included records for Hedgehog *Erinaceus europaeus* and Brown Hare *Lepus europaeus*. One record of Brown Hare could potentially be on-site as the record lies within in OS grid square shared with the site, however more precise information is not available. The next nearest record relates to European Hedgehog, located approximately 600 metres to the west of the site, and dated 2013.

5.7.3 **Survey Results and Evaluation.** No evidence of any other protected mammal species was recorded within the site. The site provided some potential opportunities for Hedgehog, Harvest Mouse and Brown Hare, which are listed as species of principal importance in England under Section 41 of the Natural Environment and Rural Communities NERC Act 2006. Given previous background records of these species from the surrounding area, it is possible that these species make some use of the area, particularly where more extensive grassland areas are present within the wider area, although no direct evidence for their presence was recorded during the course of the survey work undertaken at the site. These species remain relatively common and widespread in England, whilst following the proposals, the site would likely continue to provide similar potential opportunities for Hedgehog, which is known to be a frequent colonist of urban residential areas, whilst abundant similar habitats of suitability for these species are located in the surrounds of the site. On this basis, other priority mammal species are considered to be of potential local importance. In any event, the proposed habitat creation measures detailed at Section 6 relating to the site will benefit this species in the long term.

5.7.4 Other common mammals such as Fox *Vulpes vulpes* are considered likely to be present at the site, and evidence for the presence of Rabbit and Wood Mouse *Apodemus sylvaticus* was recorded. These species receive no protection outside of the Wild Mammals (Protection) Act, mentioned above. As such, other mammal species are not considered to form an important ecological feature, however wherever possible habitats used by these species should be retained and safeguarded.

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 5882/6 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 status[26]. 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.** A number of records of Schedule 1 species were returned for the desk study area, including Dartford Warbler *Sylvia undata*, Fieldfare *Turdus pilaris*, Hobby *Falco subbuteo*, Kingfisher *Alcedo atthis*, Red-backed Shrike *Lanius collurio*, Red Kite *Milvus milvus*, Redwing *Turdus iliacus*, Woodlark *Lullula arborea*, Brambling *Fringilla montifringilla* and Firecrest *Regulus ignicapilla*. Of these, only Hobby was recorded as being potentially on-site.

5.8.4 **Survey Results.** Several species of bird were observed within the site during the course of the survey work at the site, including Chaffinch *Fringilla coelebs*, Wren *Troglodytes troglodytes,* Blue Tit *Cyanistes caeruleus*, Blackbird *Turdus merula*, Robin *Erithacus rubecula*, Wood Pigeon *Columba palumbus*, Jackdaw *Corvus monedula*, Dunnock *Prunella modularis*, Magpie *Pica pica*, Great Tit *Parus major*, Pheasant *Phasianus colchicus*, Mallard *Anas platyrhynchos*, Nuthatch Sitta europaea, Pied *Wagtail Motacilla alba* and Grey Wagtail *Motacilla cinerea*, whilst Red Kite were observed flying overhead.

5.8.5 Although no direct evidence for the presence of Kingfisher was recorded at the site, the River Enborne is considered to provide suitable breeding opportunities in the form of exposed river cliffs. Similarly, no evidence for the presence of birds typically associated with farmland buildings were recorded, although the agricultural buildings are considered to provide nesting opportunities for species such as Swallow *Hirundo rustica*. Due to the presence of grazing cows, the fields are considered to be suboptimal for ground nesting birds such as Skylark, and no evidence of this species was recorded during survey work at the site.

5.8.6 **Evaluation.** Most of the birds recorded at the site are not listed as having any special conservation status, and remain common and widespread. However, Dunnock and Grey Wagtail are included on the Red list as a result of declines in UK breeding populations, whilst Dunnock is also a Priority Species. However, the habitats present are common in the surrounding area and there is no evidence to suggest the site is of elevated value at a local level for these species, which in any case, remain common in Great Britain[27].

5.8.7 Development of the site will result in a loss of hedgerows and trees, along with the farm buildings, all of which have the potential to support birds, particularly during the breeding season. As such, a number of safeguards in respect of nesting birds are proposed, as detailed in Section 6 below. However, the majority of wooded habitat, along with the watercourses, will be retained and protected under the proposals. Further, new nesting opportunities and habitat creation are considered to represent a significant ecological

[26] 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.

[27] Population estimates of birds in Great Britain and the United Kingdom. Musgrove *et al*., British Birds, 2013

enhancement at the site, and as such birds are considered to benefit from the proposals in the long term.

5.9 Amphibians

5.9.1 **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). Great Crested Newt *Triturus cristatus* is fully 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 5882/6 for detailed provisions). Great Crested Newt is also a Priority Species, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*.

5.9.2 **Background Records.** Data from TVERC returned records for Common Toad *Bufo bufo*, Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris* from within the search area, the closest of which is a record of Smooth Newt, dated 2015 located approximately 150 metres to the north of the site.

5.9.3 **Survey Results.** A number of ponds are present within the site and its surrounds. The majority of these are considered unsuitable to support amphibians, such as Great Crested Newt, as set out below at Table 5.12 below.

Table 5.12. Pond suitability assessment for Great Crested Newt (for ponds located within 250m of site boundary)

Pond Reference	Location	Description/Suitability Assessment	Surveyed for Great Crested Newt
P1A	50m S of site	Unsuitable due to low water levels and lack of open water (more marsh habitat than actual waterbody)	No
P1B	40m S of site	Concrete lined channels supporting deep open water	Yes
P2	35m S of site	Moderate sized woodland pond	Yes
P3A	15m S of site	Unsuitable due to low water levels and lack of open water (more marsh habitat than actual waterbody)	No
P3B	<10m S of site	Concrete lined channels supporting deep open water	Yes
P4	Within the site	Unsuitable due to small size and holding only a very limited depth of water in April 2020	No
P5	145m N of site	Located beyond River Enborne, which is considered to form a substantial barrier to Great Crested Newt movement	No

5.9.4 As set out above, ponds P1B, P2 and P3B are considered to provide potential habitat to support Great Crested Newt and were therefore subject to further survey work in the form of Great Crested Newt eDNA analysis. Water samples were collected from these waterbodies on 26th June 2020 and sent off for analysis for Great Crested Newt DNA. The results of this work confirmed the absence of Great Crested Newt. On this basis, Great Crested Newt are not considered to form an ecological constraint to development of the site.

5.10 Reptiles

5.10.1 **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 5882/6 for detailed provisions. All six reptile species are also Priority Species.

5.10.2 **Background Records.** Data returned from the records centres contained records of Slow-worm, the closest of which is located approximately 50m to north of site and dated 2016.

5.10.3 **Survey Results and Evaluation.** The vast majority of the site is considered unsuitable for reptiles species. Notably, all areas of grassland are subject to regular grazing/mowing, and are therefore maintained at a low sward height up to field boundaries. Very minor opportunities are present associated with scrub and tall ruderal vegetation in the surrounds of the farm buildings, however these areas are isolated form other more extensive habitat and are generally overgrown with little habitat structure. Accordingly, the site is considered to be of low value to reptiles and therefore reptiles are not considered to be form an ecological constraint to the proposals.

5.11 Invertebrates

5.11.1 **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 5882/6 for detailed provisions. A number of invertebrates are also S41 Priority Species.

5.11.2 **Background Records.** No specific records of protected invertebrates were returned from within or adjacent to the site. Two records of Ground Beetles (*Amara equestris* and *Pterostichus oblongopunctatus*) have been recorded as being within 30 metres of the site to the south, dated from 2011.

5.11.3 **Survey Results and Evaluation.** No evidence for the presence of any protected, rare or notable invertebrate species was recorded within the site. The site is dominated by species-poor grassland, which is likely to support only a limited diversity of invertebrates. The site supports an ephemeral pond, ruderal vegetation, and occasional patches of scrub but otherwise contains relatively few micro-habitats that would typically indicate elevated potential for invertebrates[28], such as a variable topography with areas of vertical exposed soil, areas of species-rich semi-natural vegetation; variable vegetation structure with frequent patches of tussocks combined with short turf; free-draining light soils; walls with friable mortar or fibrous dung.

5.11.4 Despite the presence of trees and wooded strips within and bounding the site, the recently planted nature of these habitats mean that there is not a significant amount of deadwood (either standing or fallen), or tree stumps present. As such, it is considered that the site is not of elevated suitability for Stag Beetle.

5.11.5 A number of waterbodies/watercourses are present within the site and its immediate surrounds which are likely to be of interest for aquatic invertebrate species, whilst the more

[28] Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

diverse grassland pasture within the wider area may be of interest for a range of invertebrate species.

5.11.6 Accordingly, given the habitat composition of the site itself, it is considered unlikely that the site supports a population of invertebrates of elevated ecological significance and therefore invertebrates are unlikely to form a constraint to the proposals.

5.11.7 The habitat creation measures detailed at Section 6 are considered to represent a significant ecological enhancement at the site, and as such invertebrates are considered to benefit from the proposals in the long term.

5.12 Summary

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

Table 5.X. Evaluation summary of fauna forming important ecological features.

Species / Group	Supported by or associated with the site	Level of Importance
Bats – Roosting	Confirmed day roosts within building B3 and potential habitat in the form of trees	Local
Bats – Foraging / Commuting	Confirmed presence on site	District
Badger	Likely absent (although confirmed presence in site surrounds)	Site
Dormouse	Likely absent	Negligible
Water Vole	Likely absent	Negligible
Otter	Confirmed presence in watercourses	Local
Birds	Confirmed presence on site	Site
Great Crested Newt	Confirmed absence from ponds	Negligible
Reptiles	Likely absent	Negligible

5.12.2 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 – MM12**) 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 42020:2013).

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 trees / hedgerows. This could be secured by planning condition.

Watercourses

6.1.3 **MM2 – Pollution Prevention.** In order to safeguard the watercourses within and adjacent to the site 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).

6.1.4 It is proposed that such measures are detailed as part of a Construction Management Plan, to be secured by planning condition.

6.1.5 Post-development, the drainage system for the development will ensure the watercourses are not subject to adverse changes in surface water run-off or quality. On the contrary, the removal of agricultural run-off from the land will likely be beneficial in terms of water quality.

Lighting Impacts on Bats, Otter and Other Nocturnal Fauna

6.1.6 **MM3 – Sensitive Lighting.** Impacts on bats, invertebrates and other nocturnal fauna will be minimised through the implementation of a sensitively designed lighting strategy in

accordance with best practice guidance[29]. Specific consideration will be given to the following key factors:

- **Light exclusion zones –** ideally no lighting should be used in retained habitat areas and at the margins of the site forming suitable habitat for bats and other nocturnal fauna. Such light exclusion zones or 'dark buffers' will be used to provide interconnected areas free of artificial illumination to allow wildlife 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 longer wavelength, warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;
- **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, with fittings to have a cut-off at 70 degrees to the vertical plane;
- **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;
- **Light reflection –** the impact of reflection from windows can be reduced by using non-reflective window glass with an invisible thermal coating. Furthermore, window openings can be recessed. The impact of reflection from solar panels can be mitigated by the use of modern designs with anti-reflective coatings or surface texturing. The impact of reflection from road surfaces and car parks can be mitigated by using alternative materials e.g. gravel in parking areas, or use of light scattering granules incorporated into the surface layer of asphalt.

[29] 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.

Roosting Bats

6.1.7 **MM4 – Demolition of building B3.** Based on the survey work undertaken, building B3 is considered to support a Brown Long-eared bat roost within the roof void (identified through DNA analysis), and a Common Pipistrelle roost and two Soprano Pipistrelle roosts associated with external features such as soffits, guttering and around the chimney area. The survey data suggests that the loft void and external roosting features associated with building B3 are being used by a low number of bats, and are likely to represent summer day roosts, with no evidence to suggest the building supports any maternity or hibernation roosts.

6.1.8 Given the low status of these roosts, their loss is considered unlikely to result in a significant effect on local bat populations, although it will be necessary to give consideration to licensing and implement appropriate safeguarding measures during building demolition, together with provision of replacement roosting opportunities. Further detail is set out below.

6.1.9 *Licensing.* To avoid an offence under the relevant legislation, it will be necessary for demolition of building B3 (resulting in loss of bat roosts) to be carried out under a European Protected Species (EPS) development licence, obtained from Natural England. When determining whether to grant a licence, Natural England will need to give consideration to the three derogation tests under Article 16 of the Habitats Directive (1992), namely whether the development is for imperative reasons of overriding public interest, no satisfactory alternative, and maintenance of favourable conservation status.

6.1.10 The need for the development is set out by the planning statement accompanying the application. In summary, the proposed development is intended to serve an identified deficit in housing supply within the district, whilst it will deliver a number of additional economic and social benefits. Retention of the existing building is not considered to be appropriate as it would impact on the proposed layout and character of the development and would not allow the development make best use of the land available.

6.1.11 In terms of maintenance of favourable conservation status, this would be achieved through implementation of safeguarding measures and provision of new roosting opportunities within the proposed development as set out below.

6.1.12 On this basis, it is therefore considered that, subject to full planning permission being granted and confirmation of the detailed mitigation measures in line with those set out below, there is no reason to suggest that any associated licence would be unlikely to be granted by Natural England.

6.1.13 *Timetable of Demolition and Construction.* A timetable of demolition and construction works will be drafted to ensure potential impacts upon bats are minimised. Measures will include:

- All contractors will be briefed on the presence of bats and a site-wide watching brief maintained at the site to enhance awareness of bats;
- A check survey of building B3 will be undertaken immediately prior to its demolition to ensure no bats are present. All survey work will be undertaken by a suitably qualified professional ecologist;
- The roof of building B3 will be stripped by hand, under the direct supervision of a suitably qualified (and 'named') ecologist. Should bats be recorded as present within building B3 during the pre-demolition survey, then removal of the roofs will

be undertaken in two sections, with 24 hours left in between the removal of each section to enable bats to disperse naturally. Where bats do not move of their own accord, a suitably licenced ecologist will relocate the bat(s) to a newly erected roost box;

- Given the likely use of building B3 as an occasional summer day roost, it is recommended that these works be undertaken outside this summer period. Natural England recommend that work on buildings supporting non-breeding summer roosts is ideally undertaken between 1st September and 1st May[30] to minimise the potential of disturbing bats. However, it is recommended that this period be shortened to between 1st October and 1st May, as Brown Long-eared bats are known to utilise summer resting places for long periods than other bat species. However, overall, given the small roosts present within these buildings, in line with Natural England guidance[31], should demolition at other points in the year be necessary it is considered that this can be undertaken without detriment to the bats present;

- In the unlikely event that bats do not disperse naturally then these will be safely removed by a suitably qualified ecologist or bat worker and released within a newly erected bat box or that evening at the site;

- Demolition of building B3 will only be undertaken during favourable weather conditions and not during heavy rain, high winds or low temperature.

6.1.14 The above mitigation is indicative of what will be set out in full as part of the European Protected Species licence application. The indicative mitigation scheme set out in this report is for the benefit of the Local Planning Authority to demonstrate that Natural England is likely to grant a licence for the demolition of building B3.

6.1.15 *Replacement roosting provision.* To compensate for losses of roosting habitat under the proposals, and provide an increased roosting resource following development, bat boxes and roosting units should be provided on new buildings and retained trees under the scheme. This will include bat boxes suitable for Brown-long eared bats and Pipistrelle species that can be readily installed on retained trees immediately to the south of building B3 installed prior to demolition works commencing. Further detail on recommended bat box specifications is provided under section EE5 below.

6.1.16 **MM5 – 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.

6.1.17 **MM6 – Tree Safeguards.** In addition to the above considerations in respect of buildings, it is recommended that safeguards are also employed in respect of any trees scheduled for removal which offer potential for roosting bats. It is recommended that any trees identified as supporting features of moderate or high bat roosting potential be subject to checks by a suitably qualified ecologist prior to felling, in order to confirm the absence of any bats. It is considered that climbed inspections of such features by a suitably qualified ecologist would be sufficient. Should bats be recorded as present at the time of these checks, any works on

[30] English Nature (2004) *"Bat Mitigation Guidelines"*
[31] Ibid Footnote 24

the tree would be halted, so that suitable mitigation (and licencing) can be agreed prior to works re-commencing.

6.1.18 Safeguarding measures should also be implemented during the felling of trees of low potential for roosting bats in order to minimise the risk to bats, should they be present. As such, felling works should be undertaken using reasonable avoidance measures in line with best practice (as set out within the BCT 'Good Practice Guidelines, 3rd edition' 2016). This should involve measures such as felling of trees during the spring or autumn to avoid the main bat breeding and hibernation periods, and 'soft-felling' of sections of the trees identified as providing bat roosting opportunities (e.g. limbs with splits or holes), by lowering and cushioning these sections to reduce any potential effects caused by hard impact with 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. Alternatively, following detailed inspections of trees to be felled (i.e. a climbing inspection by a suitably qualified ecologist), a specific felling strategy may be developed on a tree by tree basis. If a bat is encountered during the tree felling, all felling works should stop and a suitably qualified ecologist should be contacted for further advice.

Badger

6.1.19 **MM7 – 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 deep pits 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 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.

6.1.20 It is proposed that such measures are detailed as part of a Construction Management Plan, to be secured by planning condition.

6.1.21 **MM8 – 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 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.

Otter

6.1.22 **MM9 – Otter Safeguards.** Prior to works commencing, an "Otter Protection Zone" of undisturbed habitat will be established around any holts, which will be marked out using barrier fencing or hazard tape to create a works exclusion area. No works will be allowed within the Otter Protection Zone without prior ecological authorisation and if appropriate, suitable ecological supervision and licensing. This zone will be maintained for the duration of works at the site.

Hedgehogs

6.1.23 **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;

Nesting Birds

6.1.24 **MM11** – **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.

Invasive Species

6.1.25 **MM12 – Invasive Species Safeguards.** Virginia Creeper, Himalayan Balsam, Giant Rhubarb and Parrot's Feather which are listed on Schedule 9 Part II of the Wildlife and Countryside Act 1981, were recorded within and adjacent to the site. 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."

6.1.26 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). These measures could be detailed as part of the Construction Management Plan, to be secured by planning condition.

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.

6.2.2 The proposals present the opportunity to deliver substantial 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 strategies identified above. 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** – **EE8**), the opportunity exists for the proposals to deliver a number of biodiversity net gains at the site.

<u>Habitat Creation/Management</u>

6.2.3 **EE1 – Wildflower Grassland.** Various areas of wildflower grassland are proposed within the site, including the wide corridor of open space along the river. It is proposed that these are managed as species-rich meadow forming a rich nectar and pollen source for invertebrates, such that, in combination with new native landscape planting, opportunities for biodiversity will be maximised under the proposals. The additional land to the north will also be subject to enhancement to diversify the currently species-poor sward, with overseeding or plug planting of additional plant species, and introduction of a hay cutting regime. Within newly created grassland areas, consideration can be given to the laying of wildflower turfs, comprising locally appropriate native species, to establish wildflower grassland. This would ensure rapid establishment of these habitats, and reduce the timeframe for delivering the range of ecological benefits that are proposed.

6.2.4 **EE2 – New Tree and Shrub Planting.** Substantial tree and shrub planting is proposed as part of the scheme, primarily within a network of new green corridors to be provided between development areas (as shown at Appendix 5882/1). 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' 'Plants for Pollinators' database, providing a nectar source for bees and other pollinating insects.

6.2.5 **EE3 – Wetland Features.** The opportunity exists under the proposals to create new wetland habitats that will provide a range of opportunities for wildlife as part of the drainage strategy. Large areas are proposed for attenuation in the north of the site, which could incorporate permanently wet areas together with other wetland habitats such as wet grassland and ephemeral hollows and swales. Additional wetland features will also be provided within the green corridors, forming a network of swales across the site. Creation of such habitats would provide opportunities for a range of wildlife while also helping to attenuate surface water run-off.

6.2.6 **EE4 – Watercourse Management.** The watercourse within the site and River Enborne along the northern boundary could be subject to management in order to control tree/scrub growth to prevent overshading.

Bats

6.2.7 **EE5 - 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.

Birds

6.2.8 **EE6 - 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. Boxes should include designs to benefit urban species such as House Sparrow and Starling, together with Swift given the site's connectivity to extensive wetland and grassland areas to the south. Ideally, the bird boxes will have greater potential for use if sited on suitable, retained trees or new buildings, 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

6.2.9 **EE7 – 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 new planting, new wetland habitats or areas of 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.

6.2.10 **EE8 – 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.

Assessment of Biodiversity Net Gain

6.2.11 Based on the above proposed enhancements, to quantify the level of biodiversity net gain that can be delivered under the proposed development, the change in biodiversity value resulting from the scheme has been calculated using the Defra Biodiversity Metric 3.0 calculation tool and associated user guide[32]. This takes account of the size, distinctiveness and ecological condition of existing and proposed habitat areas to provide a proxy measure of the present and forecast biodiversity value of a site, and therefore determine the overall change in biodiversity value.

6.2.12 To establish the habitat baseline, broad habitat areas have been identified based on the survey work undertaken at the site, with habitat condition and connectivity scores assigned based on the guidance set out in the Technical Supplement[33] and associated condition assessment sheets. Details of the condition assessment are provided at Appendix 5882/8. The post-development habitat creation and enhancement is based on the proposed site layout plan (see Appendix 5882/1).

6.2.13 A summary of the habitat units under the baseline and post-development scenarios is set out below, together with the overall change in habitat units, whilst the full metric results are provided at Appendix 5882/9.

On-site baseline habitat units	**70.32**
On-site post-development habitat units	**82.67**
Retained habitats	*6.96*
Habitat creation	*75.71*
Habitat enhancement	*0.00*
On-site net unit change	**+12.35**
On-site net % change	**+17.57%**
Off-site baseline habitat units	**9.62**
Off-site post-development habitat units	**16.38**
Retained habitats	*1.28*
Habitat creation	*0.00*
Habitat enhancement	*15.10*
Total net unit change	**+19.12**
Total net % change	**+27.19%**

6.2.14 As this sets out, it is considered that a 17.57% on-site biodiversity net gain could be achieved under the proposals, increasing to 27.19% taking into account enhancements to the

[32] Natural England (July 2021) *Natural England Joint Publication JP039. Biodiversity Metric 3.0: auditing and accounting for biodiversity – User Guide.*
[33] Natural England (July 2021) *Natural England Joint Publication JP039. The Biodiversity Metric 3.0: auditing and accounting for biodiversity – Technical Supplement.*

additional land area. This is substantially above the 10% level indicated by emerging policy and legislation.

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.

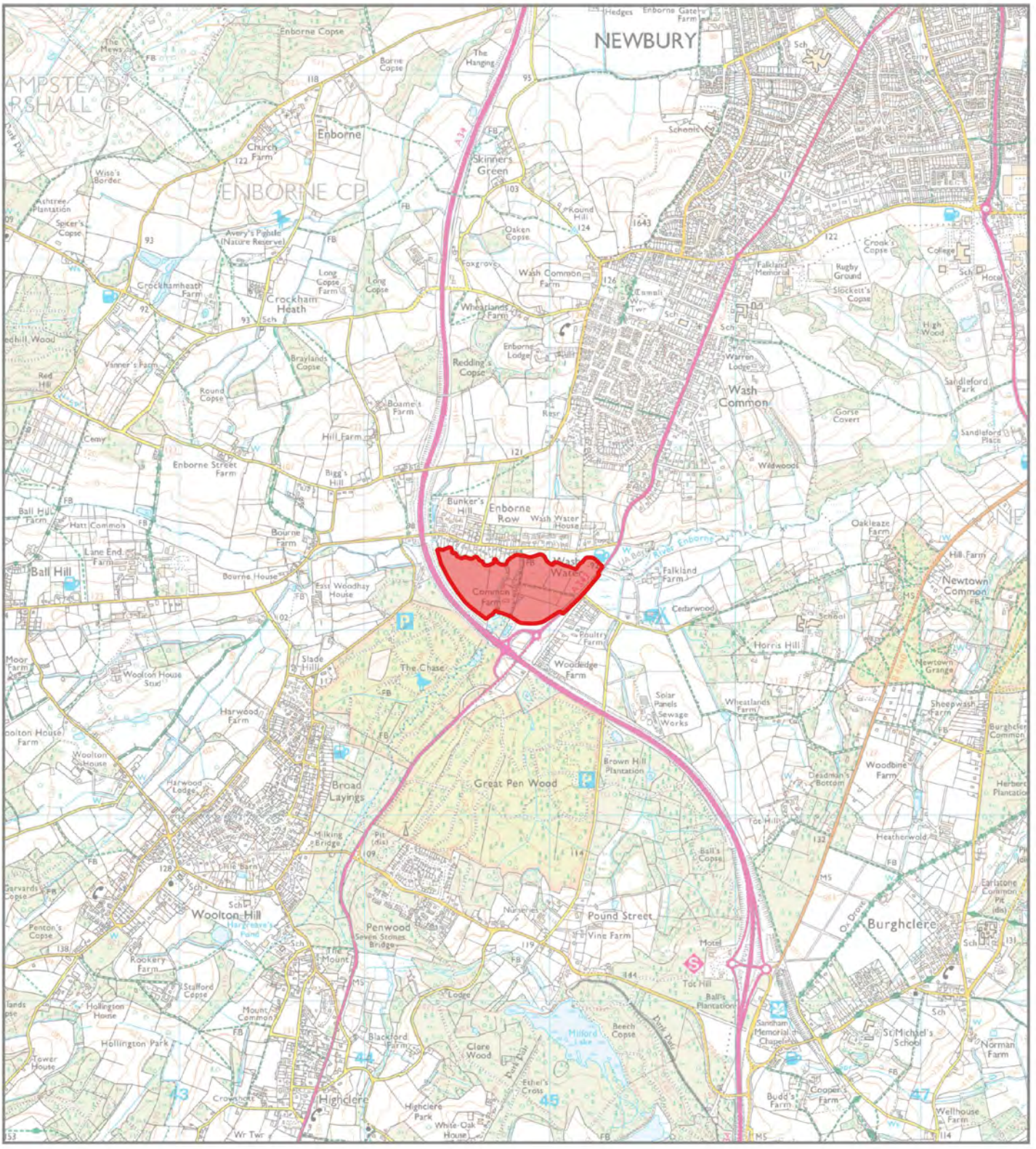
7.3 The Phase 1 habitat survey has established that the site is dominated by habitats not considered to be of ecological importance, whilst the proposals have sought to retain those features identified to be of value. Where it has not been practicable to avoid loss of habitats, new habitat creation has been proposed to offset losses, in conjunction with the landscape proposals.

7.4 The habitats within the site support several protected species, including species protected under both national and European legislation. Accordingly, 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 substantial biodiversity net gain as part of the proposals.

Plan 5882/ECO1:

Site Location



Key:

Site Location

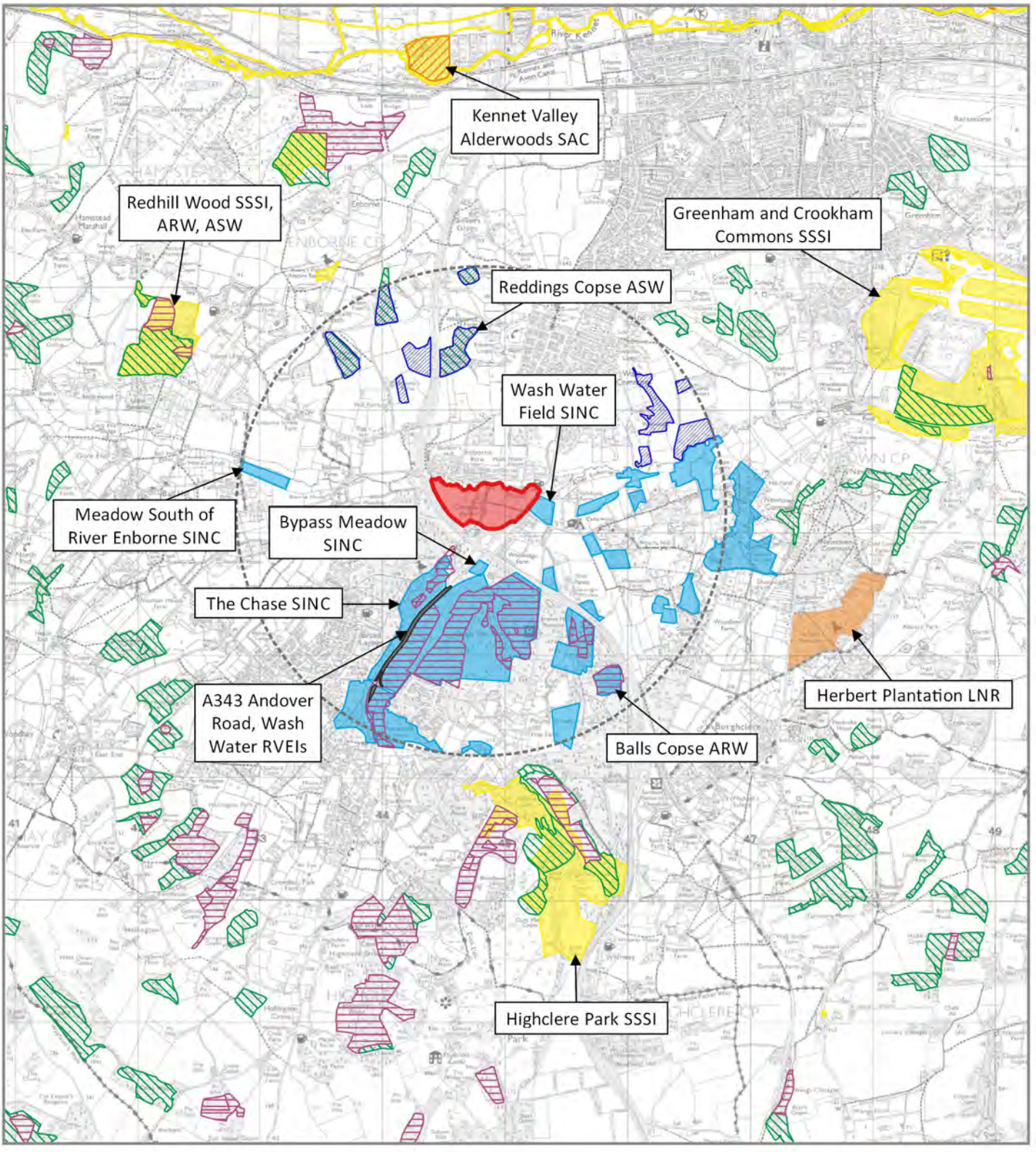
aspect ecology

Aspect Ecology Limited West Court Hardwick Business Park
Noral Way Banbury Oxfordshire OX16 2AF
01295 279721 info@aspect ecology.com www.aspect ecology.com

Watermill Bridge, Newbury	PROJECT
Site Location	TITLE
5882/ECO1	DRAWING NO.
-	REV
October 2021	DATE

Plan 5882/ECO2:

Ecological Designations



Key:

- Site Location
- Special Area Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Sites of Importance for Nature Conservation (SINCs) Within 2km of Site
- Road Verges of Ecological Importa (RVEIs) Within 2km of Site
- Ancient & Semi-Natural Woodland (ASW)
- Ancient Replanted Woodland (ARW)
- Local Wildlife Site (LWS)
- Local Records Centre 2km Search Area

Note that only non-statutory designations occuring within 2km of the site centre are shown.

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Watermill Bridge, Newbury	PROJECT
Ecological Designations	TITLE
5882/ECO2	DRAWING NO.
-	REV.
October 2021	DATE

Plan 5882/ECO3:

Habitats and Ecological Features

Invasive Species

GR - Possible Giant Rhubarb

VC - Virginia Creeper

PF - Parrot's-Feather

Note Himalayan Balsam frequent along the River Embourne (WC1)

Key:

- Site Boundary
- Additional Land
- Woodland
- Wet Woodland
- Semi Improved Grassland
- Improved Grassland
- Amenity Grassland
- Tall Ruderal
- Recolonising Vegetation
- Dense Scrub
- Watercourse
- Pond
- Dry/Ephemeral Pond
- Building
- Hardstanding
- Bare Ground
- Tree Line
- Hedgerow
- Fence
- Manure Heap
- Tree
- Tree with High Bat Roosting Potential
- Tree with Moderate Bat Roosting Potential
- Tree with Low-Moderate Bat Roosting Potential
- Tree with Low Bat Roosting Potential

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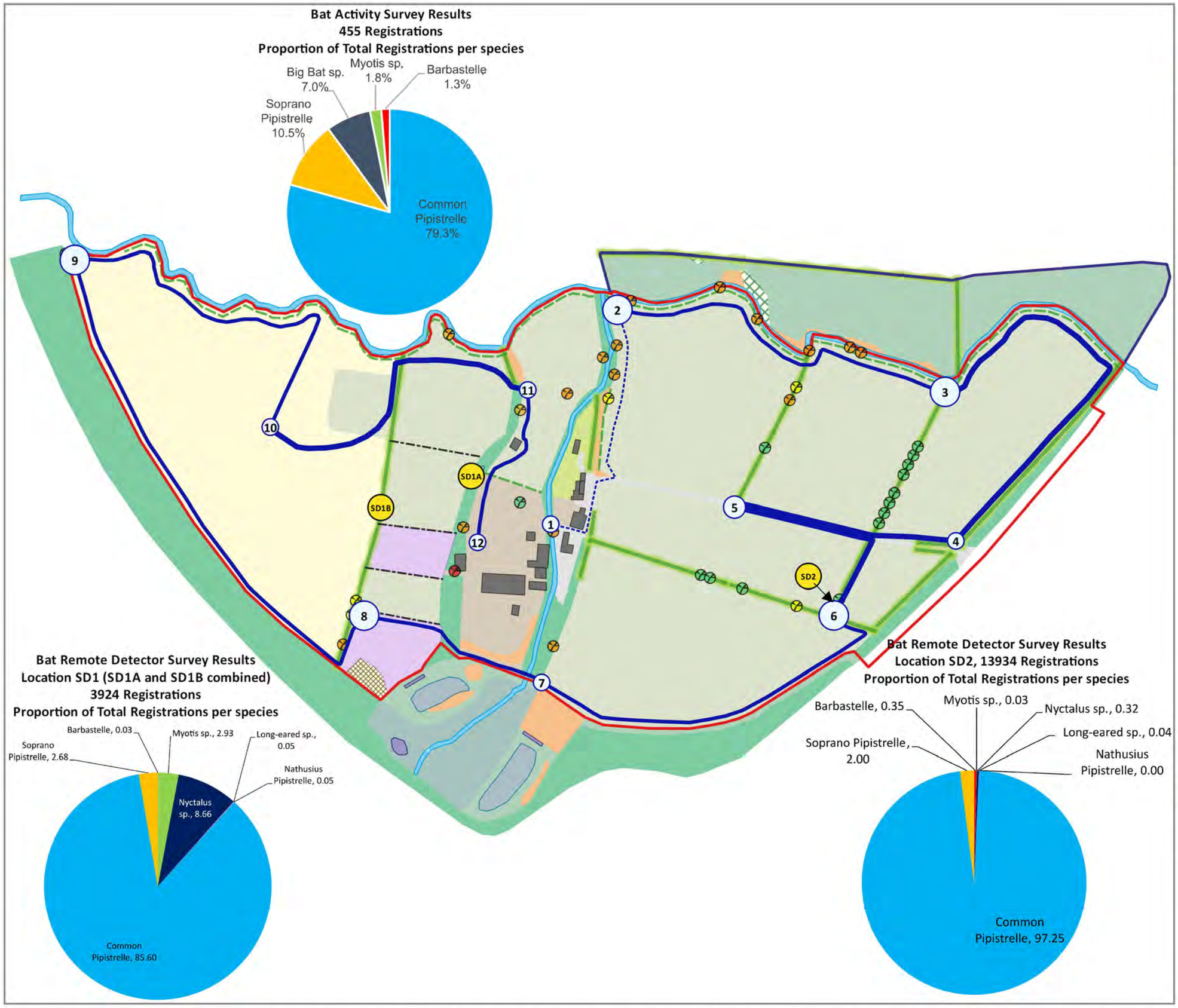
Watermill Bridge, Newbury	PROJECT
Habitats and Ecological Features	TITLE
5882/ECO3	DRAWING NO.
-	REV
October 2021	DATE

Plan 5882/ECO4:

Bat Activity Survey Results



Key:

- Site Boundary
- Bat Remote Detector Locations

Bat Activity Survey Transect Activity Levels

- High
- Moderate
- Low
- Negligible

Bat Activity Survey Transect Listening Points Activity Levels

- High
- Moderate
- Low
- Negligible

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Watermill Bridge, Newbury	PROJECT
Bat Survey Results	TITLE
5882/ECO4	DRAWING NO.
-	REV
October 2021	DATE

Plan 5882/ECO5:

Other Faunal Survey Results

Key:

Site Boundary

Dormouse Nest-tube Transects

Otter Survey Results

Possible Otter holt/potential lying up site

Otter Feeding Remains

Otter Spraint recorded September 2020

Otter Spraint recorded May 2021

***NO DORMOUSE PRESENCE RECORDED DURING SURVEYS**

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Watermill Bridge, Newbury	PROJECT
Other Faunal Survey Results	TITLE
5882/ECO5	DRAWING NO.
-	REV
October 2021	DATE

Appendix 5882/1:

Proposed Site Layout

J:\JOB FILES\D2913 LAND AT WATERBRIDGE MILL, NEWBURY\DRAWINGS\07 FABRIK\02 PHOTOSHOP

LEGEND

- SITE BOUNDARY
- DEVELOPMENT BLOCK 30 DWELLINGS PER HECTARE
- DEVELOPMENT BLOCK 50 DWELLINGS PER HECTARE
- HOMES FOR OLDER PEOPLE 50 DWELLINGS PER HECTARE
- RETAIL/CAFE
- COMMUNITY FACILITIES
- WETLAND FEATURE
- PROPOSED OPEN SPACE
- PRIVATE GARDEN
- COMMUNITY GARDEN
- GREEN CORRIDOR
- EXISTING TREE
- WOODLAND PLAY AREA
- SPINE STREET
- SECONDARY STREET
- TERTIARY STREET
- PRIVATE DRIVE
- RAISED TABLE
- PROPOSED FOOTPATH
- WATERCOURSE
- PUBLIC RIGHT OF WAY
- PROPOSED TREE
- MOBILITY HUB
- BUS TURNING AREA

ELEMENT	AMOUNT	UNIT
TOTAL SITE AREA	22.31	HA
ACCESS/SPINE STREET	0.99	HA
WOODLAND/TREE BELT	2.52	HA
SUDS/POND	0.99	HA
FARM SHOP/CAFE	0.41	HA
COMMUNITY BUILDING	0.16	HA
HEALTH AND WELLBEING CENTRE	0.33	HA
RESIDENTIAL AREA	**8.95**	**HA**
AVERAGE DENSITY	39 DPH	DPH
DWELLINGS	350	NO
POPULATION	805	NO
OPEN SPACE MINIMUM REQUIREMENT	1.92	HA
OPEN SPACE QUALITY STANDARD	2.58	HA
OPEN SPACE PROVISION (EXCLUDES PONDS)	7.96	HA

REV.	DESCRIPTION	APP.	DATE
A	CLIENT COMMENTS	SD	14/7/20
B	MINOR AMENDMENTS	LW	19/7/21
C	CLIENT COMMENTS	NT	4/10/21

fabrik

PROJECT TITLE

LAND AT WATERMILL BRIDGE, NEWBURY

DRAWING TITLE

CONCEPT PLAN

DRAFT

ISSUED BY	London	T: 020 7620 1453	
DATE	OCT 2021	**DRAWN**	SD
SCALE@A2	1:2000	**CHECKED**	NT
STATUS	DRAFT	**APPROVED**	BS
DWG. NO.	D2913_209_REVC		

Notes:
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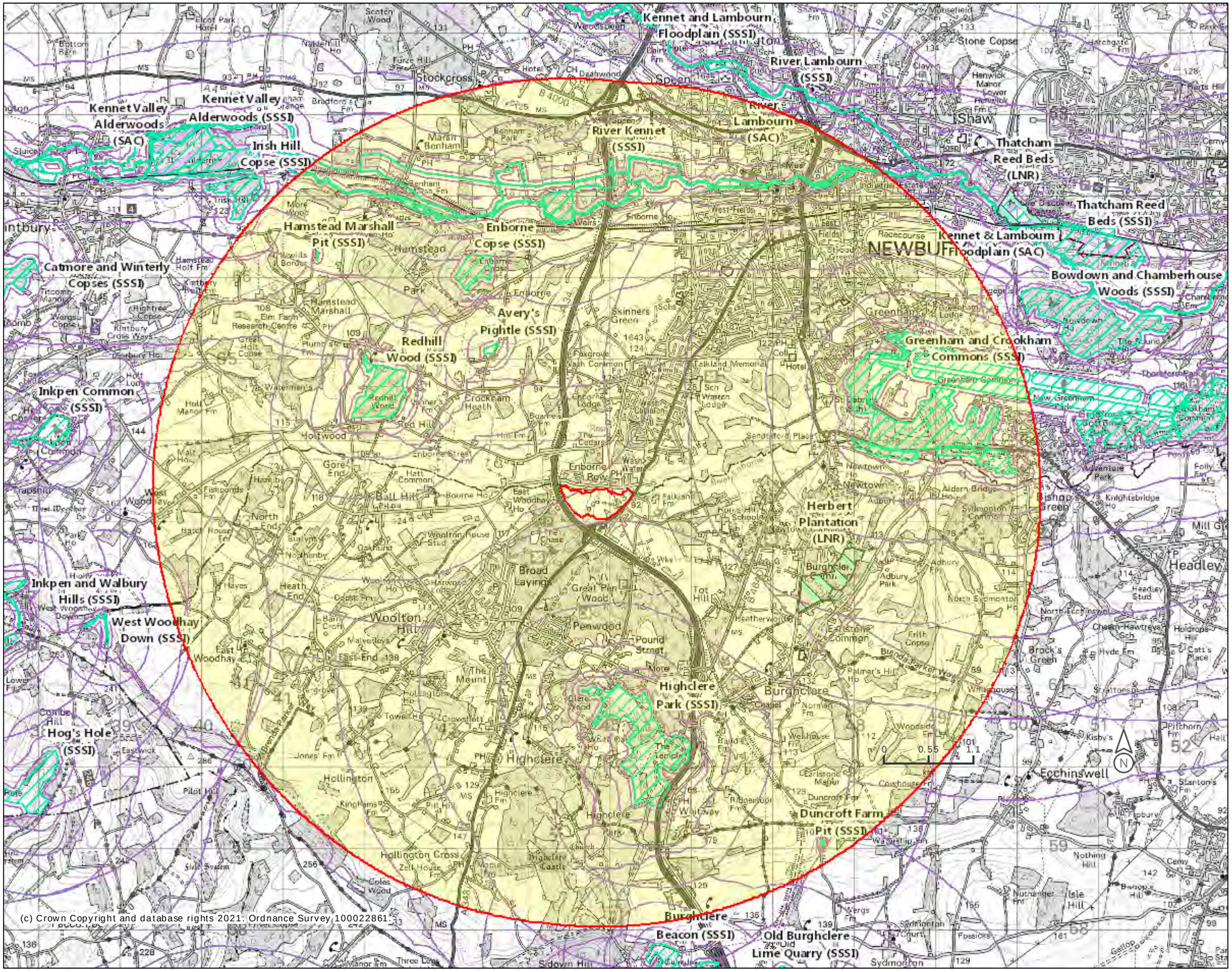
2. Only figured dimensions are to be taken from this drawing. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on this drawing.

Appendix 5882/3:

Information obtained from Multi-Agency Geographic Information for the Countryside (MAGIC) online database

MAGiC

5882 Wash Water Designations 5km



Legend

- Local Nature Reserves (England)
- Moorland Line (England)
- National Nature Reserves (England)
- National Parks (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)
- Biosphere Reserves (England)

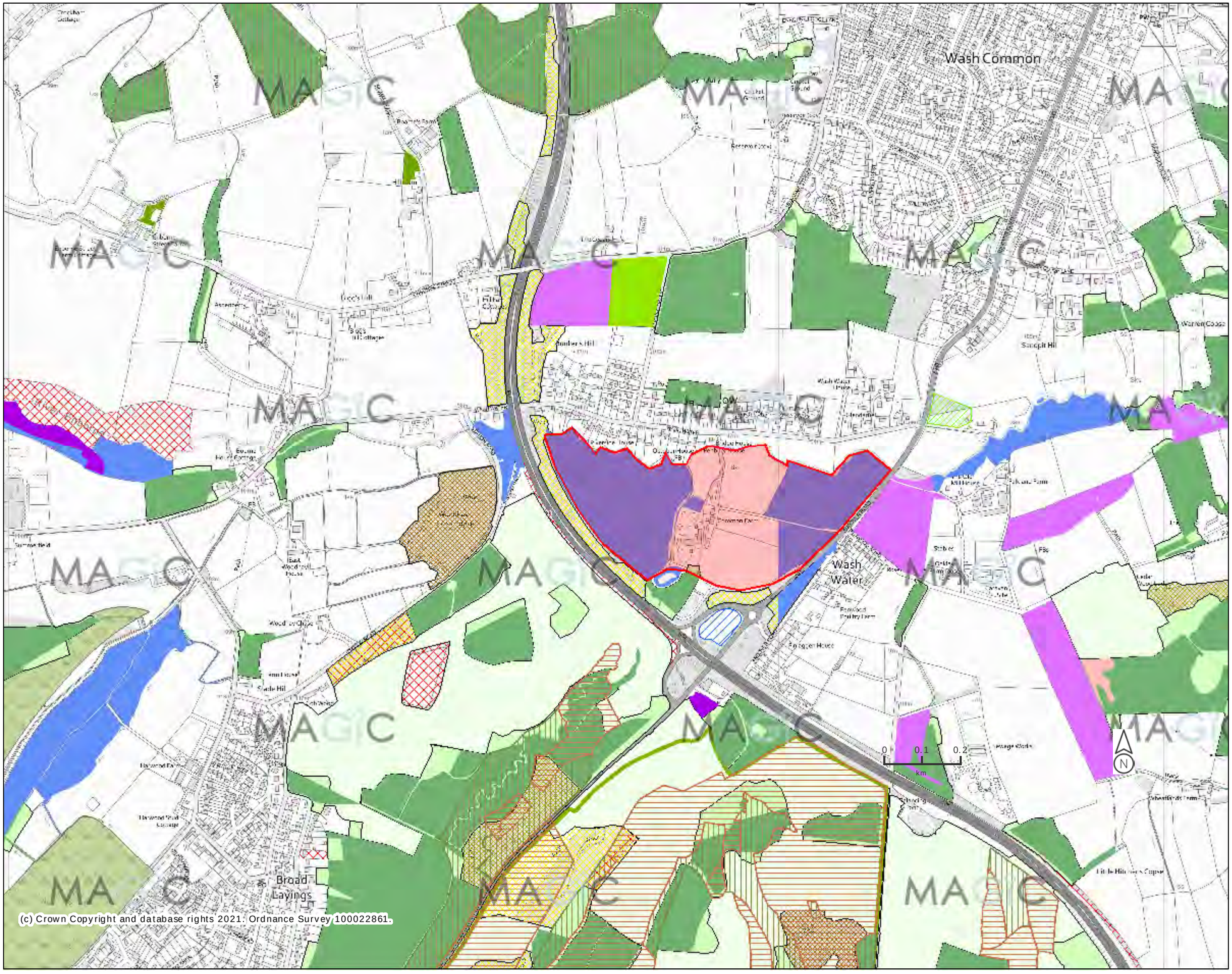
Projection = OSGB36
xmin = 433100
ymin = 157400
xmax = 457100
ymax = 169500

0 0.9 1.8
km

Map produced by MAGIC on 20 January, 2021.

MAGIC

5882 Wash Water Habitats



Legend

- Priority Habitat Inventory - Coastal Saltmarsh (England)
- Priority Habitat Inventory - Coastal Sand Dunes (England)
- Priority Habitat Inventory - Coastal Vegetated Shingle (England)
- Priority Habitat Inventory - Maritime Cliffs and Slopes (England)
- Priority Habitat Inventory - Mudflats (England)
- Priority Habitat Inventory - Saline Lagoons (England)
- Saline Lagoons (Wales)
- Saltmarsh (Wales)
- Sand Dunes (Wales)
- Priority Habitat Inventory - Calaminarian Grassland (England)
- 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 Meadows (England)
- Priority Habitat Inventory - Purple Moor Grass and Rush Pasture (England)
- Priority Habitat Inventory - Upland Calcareous Grassland (England)
- Priority Habitat Inventory - Upland Hay Meadows (England)
- Priority Habitat Inventory - Lowland Heathland (England)
- Priority Habitat Inventory - Mountain Heaths and Willow Scrub (England)
- Priority Habitat Inventory - Upland Heathland (England)

Moorland Change Map 2019-20 (England)

- Cloud
- No recent Burn or Cut in vegetation
- Recent Burn or Cut in vegetation

Projection = OSGB36
xmin = 442900
ymin = 162100
xmax = 446200
ymax = 164500

0 0.15 0.3
km

Map produced by MAGIC on 8 October, 2021.

Appendix 5882/3:

Principles of Ecological Evaluation

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.

<u>Assigning Level of Importance</u>

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 5882/4:

Grassland Quadrat Survey Results

Species		Quadrat/Grassland Area																					
		G4			G5			G6				G7		G8	G9			G2c		G2b	G11a		
Common Name	Latin Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Cock's-foot	*Dactylus glomerata*	✓								✓													
Common Bent	*Agrostis capillaris*		✓	✓	✓				✓	✓	✓		✓					✓	✓	✓	✓	✓	
Common Cat's-ear	*Hypochaeris radicata*	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓									✓	✓
Common Dandelion	*Taraxacum officinale*	✓	✓			✓	✓	✓	✓		✓	✓	✓					✓	✓	✓	✓	✓	
Common Mouse-ear	*Cerastium fontanum*	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓				✓						
Creeping Bent	*Agrostis stolonifera*	✓						✓				✓			✓	✓	✓						
Creeping Buttercup	*Ranunculus repens*	✓	✓			✓	✓	✓				✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Creeping Thistle*	*Cirsium arvense*			✓			✓							✓			✓						
Crested Dog's-tail	*Cynosurus cristasus*																					✓	✓
Curled Dock*	*Rumex crispus*														✓								
Dove's-foot Crane's-bill	*Geranium molle*											✓											
Field Bindweed	*Convolvulus arvensis*				✓				✓		✓												
Greater Plantain*	*Plantago major*																			✓	✓	✓	
Lesser Trefoil	*Trifolium dubium*			✓	✓	✓		✓							✓	✓							
Meadow Buttercup	*Ranunculus acris*		✓											✓									
Perennial Ryegrass	*Lolium perenne*				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red Clover	*Triflium pratense*							✓															
Red Fescue	*Fescus rubra*							✓						✓									
Ribwort Plantain	*Plantago lanceolata*	✓	✓		✓	✓				✓			✓	✓				✓					✓
Soft Brome	*Bromus hordeaceus*																		✓				
Soft Rush	*Juncus effusus*														✓								
Sweet Vernal Grass	*Anoxanthum odoratum*	✓			✓								✓									✓	✓
Thyme-leaved Speedwell	*Veronica serpyllifolia*													✓									
White Clover*	*Trifolium repens*	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	
Yarrow	*Achillea millefolium*			✓	✓		✓			✓			✓					✓	✓		✓	✓	
Yorkshire-fog	*Holcus lanatus*		✓	✓	✓	✓	✓					✓		✓	✓	✓	✓	✓				✓	✓
Total species per quadrat		**9**	**9**	**8**	**10**	**7**	**7**	**9**	**6**	**8**	**7**	**9**	**9**	**7**	**8**	**6**	**6**	**8**	**7**	**6**	**7**	**11**	**7**
Excluding undesirable species		***8***	***8***	***6***	***10***	***7***	***6***	***8***	***6***	***7***	***6***	***8***	***8***	***6***	***6***	***5***	***5***	***7***	***6***	***4***	***5***	***9***	***6***

** Indicates undesirable species under condition assessment criteria*

Appendix 5882/5:

Hedgerow/Treeline Descriptions

Hedgerow/Treeline Descriptions

No.	H (metres)	W (metres)	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H1	15	5	Oak (sm-m), Ash (sm), Goat Willow, Blackthorn, Rose, Hazel, Sycamore, Currant sp.	6	Ground Ivy, Sheeps Sorrel, Lords and Ladies, Lesser Stitchwort, Lesser Celandine, Cleavers	Adjacent to watercourse, standard trees	Essentially treeline with frequent Oak trees	Likely
H2	15	5	Ash, Oak, Alder, Willow sp., Rose	5	Ground Ivy, Ramsons, Moschatel, Lesser Celandine, Common Nettle, Dog's Mercury, Bramble	Adjacent to watercourse, standard trees	Loose treeline adjacent to river	Possible
H3	3-4	2	Oak (y-m), Blackthorn, Hawthorn, Rose	3	Common Nettle, Cleavers, Ground Ivy, Garlic Mustard, Red Dead-nettle,	Standard trees	Trimmed along edges	Unlikely
H4	15	5	Oak, Ash, Alder, Willow sp., Hawthorn, Hazel	5-6	Ramsons, Common Nettle, Hemlock Water-dropwort, Cow Parsley	Adjacent to watercourse, standard trees	Loose treeline adjacent to river	Possible
H5	3-4	2	Blackthorn, Willow (Goat or Grey), Hawthorn, Gorse, single Oak (sm)	4	Bramble, Lords and Ladies, Common Nettle, Cleavers, Lesser Stitchwort, Ground Ivy, Hemlock Water-dropwort, Honeysuckle	Dry ditch, standard trees	Trimmed along sides, some young trees up to 8m height	Unlikely
H6	12	3	Alder trees (y-sm), Hawthorn, Blackthorn, Elder	4	Ramsons, Garlic Mustard, Dog's Mercury, Cow Parsley, Wood False Brome	Adjacent to watercourse, standard trees	Alder treeline adjacent to river	Unlikely
H7	3-4	5	Hawthorn, Blackthorn, Rose, Gorse, Hazel (coppiced)	4-5	Lords & Ladies, Garlic Mustard, Common Nettle, Cow Parsley		Box cut, developing into almost double row of hedgerow planting	Unlikely
H8	1.5	1	Hawthorn	1	Grassland and ruderal species		Short length of box cut hedgerow	Unlikely
H9	1.5	1	Hawthorn	1	Grassland and ruderal species		Short length of box cut hedgerow	Unlikely
H10	3-4	2	Blackthorn, Hawthorn, Rose, Elder, Oak (sm), Goat or Grey Willow (sm), Silver Birch (sm), Gorse, Holly	4	Brambles, Nettles, Cleavers, Ground Ivy, Hedge Woundwort, Foxglove, Wood False Brome	Slight dry ditch, standard trees	Trimmed, mammal pass-throughs. Section H10a is Blackthorn dominated, H10b comprises mostly Willow and Silver Birch	Unlikely
H11	3-5	2	Hawthorn, Blackthorn, Oak (sm), Willow, Gorse	4	Honeysuckle, Hedge Woundwort, Foxglove	Single standard tree	Similar to H5. Somewhat outgrown and leggy.	Unlikely

No.	H (metres)	W (metres)	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H12	3-4	2	Silver Birch, Oak, Blackthorn	3	Bramble	Slight dry ditch	Very gappy	Unlikely
H13	4	8	Hawthorn, Hazel (coppiced), Blackthorn, Oak, Ash	4	Lords & Ladies, Pendulous Sedge		Similar to H5. Forming almost linear strip of planting.	Unlikely
H14	1.5	1	Oak (m), Hawthorn, Rose	2	Grassland species	Standard trees to south	Low hedgerow, appears newly planted	Unlikely
H15	2	1	Hawthorn, Elder, Rose	2	Adjacent tall ruderal vegetation		Low box cut hedgerow, appears newly planted	Unlikely
H16	3-4	2	Blackthorn, Hawthorn, Rose	2	Grassland species		Short length of hedgerow, similar to H10.	Unlikely
H17	1.5	1	Blackthorn, Holly, Beech	2			Box cut hedgerow	Unlikely
H18	3-4	2	Blackthorn, Hawthorn, Rose	2	Grassland species		Short length of hedgerow, similar to H10.	Unlikely
H19	12-15	4	Cypress, Willow, Elder, Hawthorn, Hazel, Alder, Holly	4-5	Bramble, ground flora dominated by ruderals	Shallow wet ditch	Outgrown treeline	Unlikely
H20	15	5	Alder (sm), Ash (sm-m), Oak, Blackthorn, conifers, Holly, Hawthorn, Rose	4	Common Nettle, Ramsons, Daffodil, Bramble	Adjacent to watercourse, standard trees	Loose treeline adjacent to river	Unlikely
H21a	10-15	4	Ash (y-sm), Oak (y-sm), Hawthorn	3	Bramble	Standard trees	Outgrown treeline with loose understorey vegetation	Unlikely
H21b	3	3	Hawthorn, Rose, Oak, Willow, Ash, Blackthorn, Spindle	5	Bramble, Honeysuckle, Bracken		Dense, box cut hedgerow	Unlikely
H22	5-6	3	Hawthorn, Holly, Blackthorn	4	Bramble	Slight damp ditch on eastern side with Water Figwort, Great Willowherb, Brooklime, Common Nettle and Water Forget-me-not	Dense, outgrown hedgerow	Unlikely

Woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) and 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, (D) = dominant species

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

Appendix 5882/6:

Legislation Summary

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 itself[1]. 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 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 5882/7:

Manual Bat Activity Survey Results

Date: 25.06.2020
Survey type: Dusk
Sunset/sunrise time: 21:26

Weather
Temp (°C): 25
Cloud cover: 45%
Beaufort scale: 0
Rain: Dry

Transect route/direction: Forwards

Listening point	From	To	Length (mins)
Start			0
Start to LP1			0
LP1	21:20	21:57	37
LP1 to LP2	21:57	22:02	5
LP2	22:02	22:07	5
LP2 to LP3	22:07	22:11	4
LP3	22:11	22:16	5
LP3 to LP4	22:16	22:23	7
LP4	22:23	22:28	5
LP4 to LP5	22:28	22:31	3
LP5	22:31	22:37	6
LP5 to LP6	22:37	22:41	4
LP6	22:41	22:46	5
LP6 to LP7	22:46	22:52	6
LP7	22:52	22:57	5
LP7 to LP8	22:57	23:00	3
LP8	23:00	23:05	5
LP8 to LP9	23:05	23:09	4
LP9	23:09	23:14	5
LP9 to LP10	23:14	23:17	3
LP10	23:17	23:22	5
LP10 to LP11	23:22	23:25	3
LP11	23:25	23:30	5
LP11 to LP12	23:30	23:33	3
LP12	23:33	23:38	5

Date	Time	Species	*No. of registrations	Location (LP)
25/06/2020	22:24	Ppip	1	LP4
25/06/2020	22:26	Ppip	3	LP4
25/06/2020	22:29	Ppip	5	LP4 to LP5
25/06/2020	22:30	Ppip	7	LP4 to LP5
25/06/2020	22:30	Ppyg	1	LP4 to LP5
25/06/2020	22:31	Ppip	6	LP5
25/06/2020	22:31	Ppyg	2	LP5
25/06/2020	22:32	Ppip	7	LP5
25/06/2020	22:33	Ppip	1	LP5
25/06/2020	22:34	Ppip	1	LP5
25/06/2020	22:35	Ppip	1	LP5
25/06/2020	22:36	Ppip	2	LP5
25/06/2020	22:37	Ppip	3	LP5 to LP6
25/06/2020	22:37	Ppyg	1	LP5 to LP6
25/06/2020	22:38	Ppip	6	LP5 to LP6
25/06/2020	22:39	Ppip	3	LP5 to LP6
25/06/2020	22:40	Ppip	3	LP5 to LP6
25/06/2020	22:41	Ppip	1	LP6
25/06/2020	22:42	Ppip	4	LP6
25/06/2020	22:43	Ppip	2	LP6
25/06/2020	22:44	Ppip	2	LP6
25/06/2020	22:46	Ppip	1	LP6 to LP7
25/06/2020	22:47	Ppip	2	LP6 to LP7
25/06/2020	22:47	Ppyg	1	LP6 to LP7
25/06/2020	22:48	Ppyg	1	LP6 to LP7
25/06/2020	22:49	Ppyg	1	LP6 to LP7
25/06/2020	22:50	Ppyg	2	LP6 to LP7

25/06/2020	23:00	Ppip	1	LP8
25/06/2020	23:01	Ppip	1	LP8
25/06/2020	23:02	Ppip	2	LP8
25/06/2020	23:04	Ppip	1	LP8
25/06/2020	23:05	Ppip	1	LP8 to LP9
25/06/2020	23:06	Ppip	1	LP8 to LP9
25/06/2020	23:09	Ppip	2	LP9
26/06/2020	23:22	Ppip	2	LP10 to LP11
27/06/2020	23:23	Ppip	1	LP10 to LP11
28/06/2020	23:12	Ppip	2	LP9
29/06/2020	23:13	Ppip	1	LP9
30/06/2020	23:16	Myotis	1	LP9 to LP10
01/07/2020	23:19	Ppip	1	LP10
02/07/2020	23:48	NSL	1	LP12
03/07/2020	23:56	Ppip	1	LP12

**Number of registrations based on number of sound files produced by Anabat SD2 or Echometer EM3, or manual counts where surveys have been undertaken using detectors without triggered recording capability (e.g. Batbox Duet).*

Date: 04.08.2020
Survey type: Dusk
Sunset/sunrise time: 20:39

Weather
Temp (°C): 16
Cloud cover: 80%
Beaufort scale: 3
Rain: Dry

Transect route/direction: Forwards

Listening point	From	To	Length (mins)
Start			0
Start to LP1			0
LP1	20:39	21:17	38
LP1 to LP2	21:17	21:24	7
LP2	21:24	21:29	5
LP2 to LP3	21:29	21:37	8
LP3	21:37	21:42	5
LP3 to LP4	21:42	21:48	6
LP4	21:48	21:53	5
LP4 to LP5	21:53	21:56	3
LP5	21:56	22:01	5
LP5 to LP6	22:01	22:06	5
LP6	22:06	22:11	5
LP6 to LP7	22:11	22:18	7
LP7	22:18	22:23	5
LP7 to LP8	22:23	22:29	6
LP8	22:29	22:34	5
LP8 to LP9	22:34	22:36	2
LP9	22:36	22:45	9
LP9 to LP10	22:45	22:48	3
LP10	22:48	22:53	5
LP10 to LP11	22:53	22:59	6
LP11	22:59	23:04	5
LP11 to LP12	23:04	23:07	3
LP12	23:07	23:12	5

Date	Time	Species	*No. of registrations	Location (LP)
04/08/2020	21:07	Ppip	1	LP1
04/08/2020	21:08	Ppyg	1	LP1
04/08/2020	21:08	Ppip	1	LP1
04/08/2020	21:12	Ppip	1	LP1
04/08/2020	21:14	Ppyg	1	LP1
04/08/2020	21:14	Ppip	1	LP1
04/08/2020	21:15	Ppip	1	LP1
04/08/2020	21:15	Ppip	1	LP1
04/08/2020	21:15	Ppip	1	LP1
04/08/2020	21:15	Ppip	1	LP1
04/08/2020	21:16	Ppip	1	LP1
04/08/2020	21:16	Ppip	1	LP1
04/08/2020	21:16	Ppip	1	LP1
04/08/2020	21:16	Ppip	1	LP1
04/08/2020	21:19	Ppip	1	LP1 to LP2
04/08/2020	21:21	Ppip	1	LP1 to LP2
04/08/2020	21:21	Ppip	1	LP1 to LP2
04/08/2020	21:21	Ppip	1	LP1 to LP2
04/08/2020	21:21	Ppip	1	LP1 to LP2
04/08/2020	21:21	Ppip	1	LP1 to LP2
04/08/2020	21:22	Ppip	1	LP1 to LP2
04/08/2020	21:22	Ppip	1	LP1 to LP2
04/08/2020	21:22	Ppip	1	LP1 to LP2
04/08/2020	21:22	NSL	1	LP1 to LP2
04/08/2020	21:22	Ppip	1	LP1 to LP2
04/08/2020	21:22	Ppip	1	LP1 to LP2
04/08/2020	21:23	Ppip	1	LP1 to LP2
04/08/2020	21:23	Ppip	1	LP1 to LP2

04/08/2020	21:23	Ppip	1	LP1 to LP2
04/08/2020	21:23	Ppip	1	LP1 to LP2
04/08/2020	21:23	Ppip	1	LP1 to LP2
04/08/2020	21:23	Ppip	1	LP1 to LP2
04/08/2020	21:24	Ppip	1	LP2
04/08/2020	21:24	Ppip	1	LP2
04/08/2020	21:24	Ppip	1	LP2
04/08/2020	21:24	Ppip	1	LP2
04/08/2020	21:24	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:25	Ppip	1	LP2
04/08/2020	21:26	Ppip	1	LP2
04/08/2020	21:26	Ppip	1	LP2
04/08/2020	21:26	Ppip	1	LP2
04/08/2020	21:26	Ppip	1	LP2
04/08/2020	21:27	Ppip	1	LP2
04/08/2020	21:27	Ppip	1	LP2
04/08/2020	21:27	Ppip	1	LP2
04/08/2020	21:27	Ppip	1	LP2
04/08/2020	21:27	Ppip	1	LP2
04/08/2020	21:28	Ppip	1	LP2
04/08/2020	21:28	Ppip	1	LP2
04/08/2020	21:28	Ppip	1	LP2
04/08/2020	21:28	Ppip	1	LP2
04/08/2020	21:28	Ppip	1	LP2
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:29	Ppip	1	LP2 to LP3
04/08/2020	21:30	Ppip	1	LP2 to LP3
04/08/2020	21:30	Ppip	1	LP2 to LP3
04/08/2020	21:30	Ppip	1	LP2 to LP3
04/08/2020	21:30	Ppip	1	LP2 to LP3
04/08/2020	21:31	Ppip	1	LP2 to LP3
04/08/2020	21:31	Ppip	1	LP2 to LP3
04/08/2020	21:31	Ppyg	1	LP2 to LP3
04/08/2020	21:31	Ppip	1	LP2 to LP3
04/08/2020	21:32	Ppip	1	LP2 to LP3
04/08/2020	21:32	Ppip	1	LP2 to LP3
04/08/2020	21:32	Ppip	1	LP2 to LP3
04/08/2020	21:32	Ppip	1	LP2 to LP3
04/08/2020	21:33	Ppyg	1	LP2 to LP3
04/08/2020	21:33	Ppyg	1	LP2 to LP3
04/08/2020	21:33	Ppyg	1	LP2 to LP3
04/08/2020	21:33	Ppip	1	LP2 to LP3
04/08/2020	21:33	Ppip	1	LP2 to LP3
04/08/2020	21:34	Ppip	1	LP2 to LP3
04/08/2020	21:34	Ppip	1	LP2 to LP3
04/08/2020	21:34	Ppip	1	LP2 to LP3
04/08/2020	21:34	Ppip	1	LP2 to LP3
04/08/2020	21:35	Ppip	1	LP2 to LP3
04/08/2020	21:35	Myotis	1	LP2 to LP3
04/08/2020	21:35	Myotis	1	LP2 to LP3
04/08/2020	21:36	Ppip	1	LP2 to LP3
04/08/2020	21:36	Ppyg	1	LP2 to LP3
04/08/2020	21:36	Ppyg	1	LP2 to LP3
04/08/2020	21:37	Ppyg	1	LP3
04/08/2020	21:38	Ppip	1	LP3
04/08/2020	21:38	Ppyg	1	LP3
04/08/2020	21:38	Ppip	1	LP3
04/08/2020	21:40	Ppyg	1	LP3
04/08/2020	21:40	Ppip	1	LP3
04/08/2020	21:41	Ppip	1	LP3

04/08/2020	21:42	Ppip	1	LP3 to LP4
04/08/2020	21:42	Ppip	1	LP3 to LP4
04/08/2020	21:42	Ppip	1	LP3 to LP4
04/08/2020	21:42	Ppip	1	LP3 to LP4
04/08/2020	21:43	Ppip	1	LP3 to LP4
04/08/2020	21:43	Ppyg	1	LP3 to LP4
04/08/2020	21:43	Ppip	1	LP3 to LP4
04/08/2020	21:43	Ppyg	1	LP3 to LP4
04/08/2020	21:43	Ppip	1	LP3 to LP4
04/08/2020	21:43	Ppyg	1	LP3 to LP4
04/08/2020	21:43	Ppip	1	LP3 to LP4
04/08/2020	21:44	Ppyg	1	LP3 to LP4
04/08/2020	21:44	Ppip	1	LP3 to LP4
04/08/2020	21:44	Ppip	1	LP3 to LP4
04/08/2020	21:44	Ppip	1	LP3 to LP4
04/08/2020	21:44	Ppyg	1	LP3 to LP4
04/08/2020	21:45	Ppip	1	LP3 to LP4
04/08/2020	21:45	Ppip	1	LP3 to LP4
04/08/2020	21:47	Ppyg	1	LP3 to LP4
04/08/2020	22:03	NSL	1	LP5 to LP6
04/08/2020	22:03	NSL	1	LP5 to LP6
04/08/2020	22:03	NSL	1	LP5 to LP6
04/08/2020	22:05	Ppip	1	LP5 to LP6
04/08/2020	22:05	Ppyg	1	LP5 to LP6
04/08/2020	22:05	Ppip	1	LP5 to LP6
04/08/2020	22:05	Ppip	1	LP5 to LP6
04/08/2020	22:05	Ppip	1	LP5 to LP6
04/08/2020	22:06	Ppip	1	LP6
04/08/2020	22:07	Ppip	1	LP6
04/08/2020	22:07	Ppip	1	LP6
04/08/2020	22:07	Ppip	1	LP6
04/08/2020	22:08	Ppip	1	LP6
04/08/2020	22:09	Ppip	1	LP6
04/08/2020	22:10	Ppip	1	LP6
04/08/2020	22:10	Ppip	1	LP6
04/08/2020	22:10	Ppip	1	LP6
04/08/2020	22:10	Ppip	1	LP6
04/08/2020	22:11	Ppip	1	LP6 to LP7
04/08/2020	22:11	Ppip	1	LP6 to LP7
04/08/2020	22:12	Ppyg	1	LP6 to LP7
04/08/2020	22:12	Ppyg	1	LP6 to LP7
04/08/2020	22:17	Ppip	1	LP6 to LP7
04/08/2020	22:17	Ppyg	1	LP6 to LP7
04/08/2020	22:19	Ppip	1	LP7
04/08/2020	22:22	Ppip	1	LP7
04/08/2020	22:23	Ppip	1	LP7 to LP8
04/08/2020	22:23	Ppip	1	LP7 to LP8
04/08/2020	22:23	Ppip	1	LP7 to LP8
04/08/2020	22:29	Ppip	1	LP8
04/08/2020	22:31	Ppip	1	LP8
04/08/2020	22:33	Ppip	1	LP8
04/08/2020	22:33	Ppip	1	LP8
04/08/2020	22:33	Ppip	1	LP8
04/08/2020	22:34	Ppip	1	LP8 to LP9
04/08/2020	22:34	Ppip	1	LP8 to LP9
04/08/2020	22:34	Ppip	1	LP8 to LP9
04/08/2020	22:35	Ppip	1	LP8 to LP9
04/08/2020	22:36	Ppip	1	LP9
04/08/2020	22:38	Ppip	1	LP9
04/08/2020	22:54	Ppip	1	LP10 to LP11
04/08/2020	22:54	NSL	1	LP10 to LP11
04/08/2020	23:04	NSL	1	LP11 to LP12
04/08/2020	23:06	Ppip	1	LP11 to LP12
04/08/2020	23:07	NSL	1	LP12
04/08/2020	23:08	Ppip	1	LP12
04/08/2020	23:14	NSL	1	LP12

**Number of registrations based on number of sound files produced by Anabat SD2 or Echometer EM3, or manual counts where surveys have been undertaken using detectors without triggered recording capability (e.g. Batbox Duet).*

Date: 17.09.2020
Survey type: Dusk
Sunset/sunrise time: 19:14

Weather
Temp (°C): 18
Cloud cover: 40%
Beaufort scale: 3
Rain: Dry

Transect route/direction: Reverse

Listening point	From	To	Length (mins)
Start			0
Start to LP1			0
LP12	18:59	19:44	45
LP11 to LP12	19:44	19:49	5
LP11	19:49	19:54	5
LP10 to LP11	19:54	20:02	8
LP10	20:02	20:07	5
LP9 to LP10	20:07	20:11	4
LP9	20:11	20:16	5
LP8 to LP9	20:16	20:21	5
LP8	20:21	20:26	5
LP7 to LP8	20:26	20:31	5
LP7	20:31	20:36	5
LP6 to LP7	20:36	20:43	7
LP6	20:43	20:48	5
LP5 to LP6	20:48	20:55	7
LP5	20:55	21:00	5
LP4 to LP5	21:00	21:04	4
LP4	21:04	21:09	5
LP3 to LP4	21:09	21:14	5
LP3	21:14	21:19	5
LP2 to LP3	21:19	21:24	5
LP2	21:24	21:29	5
LP1 to LP2	21:29	21:33	4
LP1	21:33	21:38	5

Date	Time	Species	*No. of registrations	Location (LP)
17/09/2020	19:29	Ppip	1	LP12
17/09/2020	19:32	Ppip	1	LP12
17/09/2020	19:35	NSL	1	LP12
17/09/2020	19:36	NSL	1	LP12
17/09/2020	19:37	NSL	1	LP12
17/09/2020	19:39	Ppip	1	LP12
17/09/2020	19:39	NSL	1	LP12
17/09/2020	19:45	Ppip	1	LP11 to LP12
17/09/2020	19:45	Ppip	1	LP11 to LP12
17/09/2020	19:45	Ppip	1	LP11 to LP12
17/09/2020	19:45	Ppip	1	LP11 to LP12
17/09/2020	19:46	Ppip	1	LP11 to LP12
17/09/2020	19:46	Ppip	1	LP11 to LP12
17/09/2020	19:46	Ppip	1	LP11 to LP12
17/09/2020	19:46	NSL	1	LP11 to LP12
17/09/2020	19:46	Ppip	1	LP11 to LP12
17/09/2020	19:47	Ppyg	1	LP11 to LP12
17/09/2020	19:47	Ppip	1	LP11 to LP12
17/09/2020	19:47	NSL	1	LP11 to LP12
17/09/2020	19:48	Ppip	1	LP11 to LP12
17/09/2020	19:48	NSL	1	LP11 to LP12
17/09/2020	19:49	Ppip	1	LP11
17/09/2020	19:49	Ppip	1	LP11
17/09/2020	19:50	Ppip	1	LP11
17/09/2020	19:50	Ppip	1	LP11
17/09/2020	19:51	Ppip	1	LP11
17/09/2020	19:51	Ppyg	1	LP11
17/09/2020	19:54	NSL	1	LP10 to LP11

17/09/2020	19:55	Ppip	1	LP10 to LP11
17/09/2020	19:55	Ppip	1	LP10 to LP11
17/09/2020	19:56	Ppip	1	LP10 to LP11
17/09/2020	19:56	Ppip	1	LP10 to LP11
17/09/2020	19:57	Ppip	1	LP10 to LP11
17/09/2020	19:57	Ppip	1	LP10 to LP11
17/09/2020	19:57	Ppip	1	LP10 to LP11
17/09/2020	19:57	Ppip	1	LP10 to LP11
17/09/2020	19:57	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:58	Ppip	1	LP10 to LP11
17/09/2020	19:59	Ppip	1	LP10 to LP11
17/09/2020	19:59	Ppip	1	LP10 to LP11
17/09/2020	19:59	Ppip	1	LP10 to LP11
17/09/2020	19:59	Ppip	1	LP10 to LP11
17/09/2020	19:59	Ppyg	1	LP10 to LP11
17/09/2020	19:59	Ppip	1	LP10 to LP11
17/09/2020	20:00	Ppip	1	LP10 to LP11
17/09/2020	20:00	Ppip	1	LP10 to LP11
17/09/2020	20:00	Ppyg	1	LP10 to LP11
17/09/2020	20:00	Ppip	1	LP10 to LP11
17/09/2020	20:00	Ppyg	1	LP10 to LP11
17/09/2020	20:00	Ppip	1	LP10 to LP11
17/09/2020	20:00	Ppyg	1	LP10 to LP11
17/09/2020	20:01	Ppyg	1	LP10 to LP11
17/09/2020	20:01	Ppip	1	LP10 to LP11
17/09/2020	20:01	NSL	1	LP10 to LP11
17/09/2020	20:01	NSL	1	LP10 to LP11
17/09/2020	20:02	NSL	1	LP10
17/09/2020	20:04	NSL	1	LP10
17/09/2020	20:06	NSL	1	LP10
17/09/2020	20:08	Ppip	1	LP9 to LP10
17/09/2020	20:08	Ppip	1	LP9 to LP10
17/09/2020	20:09	Bbar	1	LP9 to LP10
17/09/2020	20:10	Bbar	1	LP9 to LP10
17/09/2020	20:10	Bbar	1	LP9 to LP10
17/09/2020	20:10	Ppip	1	LP9 to LP10
17/09/2020	20:10	Bbar	1	LP9 to LP10
17/09/2020	20:10	Ppip	1	LP9 to LP10
17/09/2020	20:10	Ppip	1	LP9 to LP10
17/09/2020	20:11	Ppip	1	LP9
17/09/2020	20:11	Myotis	1	LP9
17/09/2020	20:11	NSL	1	LP9
17/09/2020	20:11	NSL	1	LP9
17/09/2020	20:11	Ppip	1	LP9
17/09/2020	20:12	Ppip	1	LP9
17/09/2020	20:12	Ppip	1	LP9
17/09/2020	20:12	Ppip	1	LP9
17/09/2020	20:12	Myotis	1	LP9
17/09/2020	20:12	Myotis	1	LP9
17/09/2020	20:12	Ppip	1	LP9
17/09/2020	20:13	Ppip	1	LP9
17/09/2020	20:13	Ppip	1	LP9
17/09/2020	20:13	Ppip	1	LP9
17/09/2020	20:13	Ppip	1	LP9
17/09/2020	20:18	NSL	1	LP8 to LP9
17/09/2020	20:19	Ppip	1	LP8 to LP9
17/09/2020	20:21	Ppip	1	LP8
17/09/2020	20:21	Ppip	1	LP8
17/09/2020	20:21	Ppip	1	LP8
17/09/2020	20:21	Ppip	1	LP8
17/09/2020	20:21	Ppip	1	LP8
17/09/2020	20:22	Ppip	1	LP8
17/09/2020	20:22	Ppip	1	LP8
17/09/2020	20:22	Ppip	1	LP8

17/09/2020	20:22	Ppip	1	LP8
17/09/2020	20:22	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:23	Ppip	1	LP8
17/09/2020	20:24	Ppip	1	LP8
17/09/2020	20:24	Ppip	1	LP8
17/09/2020	20:24	Ppip	1	LP8
17/09/2020	20:24	Ppip	1	LP8
17/09/2020	20:24	Ppip	1	LP8
17/09/2020	20:25	Ppip	1	LP8
17/09/2020	20:25	Ppip	1	LP8
17/09/2020	20:25	Myotis	1	LP8
17/09/2020	20:25	Ppip	1	LP8
17/09/2020	20:25	Ppip	1	LP8
17/09/2020	20:25	Ppip	1	LP8
17/09/2020	20:26	Ppip	1	LP7 to LP8
17/09/2020	20:26	Ppip	1	LP7 to LP8
17/09/2020	20:26	Ppip	1	LP7 to LP8
17/09/2020	20:28	Ppip	1	LP7 to LP8
17/09/2020	20:29	Ppyg	1	LP7 to LP8
17/09/2020	20:30	Ppip	1	LP7 to LP8
17/09/2020	20:30	Ppip	1	LP7 to LP8
17/09/2020	20:30	Ppip	1	LP7 to LP8
17/09/2020	20:35	Ppip	1	LP7
17/09/2020	20:40	Ppip	1	LP6 to LP7
17/09/2020	20:41	Bbar	1	LP6 to LP7
17/09/2020	20:42	Ppip	1	LP6 to LP7
17/09/2020	20:43	Ppip	1	LP6
17/09/2020	20:43	Ppip	1	LP6
17/09/2020	20:44	NSL	1	LP6
17/09/2020	20:47	Ppip	1	LP6
17/09/2020	20:50	Ppip	1	LP5 to LP6
17/09/2020	20:50	Ppip	1	LP5 to LP6
17/09/2020	20:51	Ppip	1	LP5 to LP6
17/09/2020	20:51	Ppip	1	LP5 to LP6
17/09/2020	20:51	Ppip	1	LP5 to LP6
17/09/2020	20:51	Ppip	1	LP5 to LP6
17/09/2020	20:51	Ppip	1	LP5 to LP6
17/09/2020	20:52	Ppip	1	LP5 to LP6
17/09/2020	20:52	Ppip	1	LP5 to LP6
17/09/2020	21:01	Ppip	1	LP4 to LP5
17/09/2020	21:01	Ppip	1	LP4 to LP5
17/09/2020	21:01	Ppip	1	LP4 to LP5
17/09/2020	21:01	Ppip	1	LP4 to LP5
17/09/2020	21:01	Ppip	1	LP4 to LP5
17/09/2020	21:02	Ppip	1	LP4 to LP5
17/09/2020	21:02	Ppip	1	LP4 to LP5
17/09/2020	21:02	Ppip	1	LP4 to LP5
17/09/2020	21:11	Ppip	1	LP3 to LP4
17/09/2020	21:12	Ppip	1	LP3 to LP4
17/09/2020	21:13	Myotis	1	LP3 to LP4
17/09/2020	21:14	Ppip	1	LP3
17/09/2020	21:14	Ppip	1	LP3
17/09/2020	21:14	Ppip	1	LP3
17/09/2020	21:15	Ppip	1	LP3
17/09/2020	21:15	Ppip	1	LP3
17/09/2020	21:15	Ppip	1	LP3
17/09/2020	21:16	Ppip	1	LP3
17/09/2020	21:16	Ppip	1	LP3
17/09/2020	21:17	Ppip	1	LP3
17/09/2020	21:17	Bbar	1	LP3
17/09/2020	21:17	Ppyg	1	LP3
17/09/2020	21:17	Ppyg	1	LP3
17/09/2020	21:18	Ppip	1	LP3
17/09/2020	21:18	Ppyg	1	LP3

17/09/2020	21:18	Ppyg	1	LP3
17/09/2020	21:20	Ppip	1	LP2 to LP3
17/09/2020	21:20	Ppip	1	LP2 to LP3
17/09/2020	21:21	Ppip	1	LP2 to LP3
17/09/2020	21:21	Ppip	1	LP2 to LP3
17/09/2020	21:21	Ppip	1	LP2 to LP3
17/09/2020	21:21	Ppip	1	LP2 to LP3
17/09/2020	21:21	Ppip	1	LP2 to LP3
17/09/2020	21:22	Ppip	1	LP2 to LP3
17/09/2020	21:22	Ppip	1	LP2 to LP3
17/09/2020	21:22	Ppip	1	LP2 to LP3
17/09/2020	21:23	Ppip	1	LP2 to LP3
17/09/2020	21:23	Ppip	1	LP2 to LP3
17/09/2020	21:23	Ppip	1	LP2 to LP3
17/09/2020	21:23	Ppip	1	LP2 to LP3
17/09/2020	21:25	Ppip	1	LP2
17/09/2020	21:28	Ppip	1	LP2
17/09/2020	21:28	Ppip	1	LP2
17/09/2020	21:31	Ppyg	1	LP1 to LP2
17/09/2020	21:34	Ppyg	1	LP1
17/09/2020	21:34	Ppyg	1	LP1

**Number of registrations based on number of sound files produced by Anabat SD2 or Echometer EM3, or manual counts where surveys have been undertaken using detectors without triggered recording capability (e.g. Batbox Duet).*

Date: 18.09.2020
Survey type: Dawn
Sunset/sunrise time: 06:46

Weather
Temp (°C): 9
Cloud cover: 0%
Beaufort scale: 0
Rain: Dry

Transect route/direction: Reverse

Listening point	From	To	Length (mins)
Start			0
Start to LP1			0
LP12	04:46	04:51	5
LP11 to LP12	04:51	04:53	2
LP11	04:53	04:58	5
LP10 to LP11	04:58	05:03	5
LP10	05:03	05:08	5
LP9 to LP10	05:08	05:11	3
LP9	05:11	05:16	5
LP8 to LP9	05:16	05:22	6
LP8	05:22	05:27	5
LP7 to LP8	05:27	05:32	5
LP7	05:32	05:37	5
LP6 to LP7	05:37	05:43	6
LP6	05:43	05:48	5
LP5 to LP6	05:48	05:51	3
LP5	05:51	05:56	5
LP4 to LP5	05:56	06:00	4
LP4	06:00	06:05	5
LP3 to LP4	06:05	06:12	7
LP3	06:12	06:17	5
LP2 to LP3	06:17	06:22	5
LP2	06:22	06:27	5
LP1 to LP2	06:27	06:32	5
LP1	06:32	07:01	29

Date	Time	Species	*No. of registrations	Location (LP)
09/05/2017	04:58	NSL	1	LP10 to LP11
09/05/2017	04:58	NSL	1	LP10 to LP11
09/05/2017	04:58	NSL	1	LP10 to LP11
09/05/2017	05:10	NSL	1	LP9 to LP10
09/05/2017	05:14	NSL	1	LP9
09/05/2017	05:47	Ppip	1	LP6
09/05/2017	05:57	Ppip	1	LP4 to LP5
09/05/2017	05:57	Ppip	1	LP4 to LP5
09/05/2017	06:07	Ppip	1	LP3 to LP4
09/05/2017	06:12	Ppip	1	LP3
09/05/2017	06:13	Ppip	1	LP3
09/05/2017	06:15	Ppip	1	LP3
09/05/2017	06:19	Ppyg	1	LP2 to LP3
09/05/2017	06:19	Ppyg	1	LP2 to LP3
09/05/2017	06:23	Ppyg	1	LP2
09/05/2017	06:30	NSL	1	LP1 to LP2

**Number of registrations based on number of sound files produced by Anabat SD2 or Echometer EM3, or manual counts where surveys have been undertaken using detectors without triggered recording capability (e.g. Batbox Duet).*

Appendix 5882/8:

Habitat Condition Assessment Matrix

HABITAT CONDITION ASSESSMENT MATRIX

PROJECT NAME: Land at Wash Water, Newbury
PROJECT NUMBER: 1005882

	Habitat type/criteria	Feature Reference										
	Grassland (low distinctiveness)	**G10**	**G11**	**G12**	**G4-G7**	**G8**	**G9**	**G2**	**G1B**	**G1A**	**G3**	**Amenity**
1	6-8 species per m2	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass
2	Varied sward height (>20% less than 7cm, >20% more than 7cm)	Pass	Pass	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail
3	Less than 20% scrub	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
4	Less than 5% subject to physical damage (excessive poaching, machinery use/storage etc)	Fail	Pass	Pass	Pass	Fail	Fail	Fail	Pass	Pass	Pass	Pass
5	Cover of bare ground between 1 and 5%	Pass	Fail	Fail	Fail	Fail	Pass	Fail	Fail	Fail	Fail	Fail
6	Less than 20% bracken	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
7	Absence of Sch9 invasive species and less than 5% undesirable species (C Thistle, Sp Thistle, Docks, Nettle, G Plantain, W Clover, Cow Parsley)	Fail	Fail	Pass	Pass	Fail	Pass	Fail	Fail	Fail	Pass	Pass
	Condition	**Poor**	**Moderate**	**Moderate**	**Moderate**	**Poor**	**Moderate**	**Poor**	**Moderate**	**Poor**	**Moderate**	**Moderate**
	Scrub	**Scrub**										
1	Habitat is representative of UKHab description. At least 3 woody species, with no one species more than 75% cover (except Juniper, Sea Buckthorn and Box)	Fail										
2	Good age range with seedlings, young shrubs and mature shrubs present	Fail										
3	Absence of Sch9 invasive species and less than 5% undesirable species (C Thistle, Nettle, Cherry Laurel, Snowberry, Buddleia, Cotoneaster, Spanish Bluebell)	Pass										
4	Scrub has well developed edge with scattered scrub and tall grassland/herbs present between scrub and adjacent habitats	Fail										
5	Clearings, glades or rides present providing sheltered edges	Fail										
	Condition	**Poor**										
	Woodland (assign scores of 3/2/1 accordingly)	**W4-W6**										
1	Three/two/one age classes present	2										
2	No significant browsing/browsing across no more than 40% of woodland/browsing across more than 40% of woodland	3										
3	No invasive species/Rhododendron or Laurel absent, other species less than 10% cover/Rhododendron or Laurel present, other species more than 10% cover	3										
4	5+ native tree or species/3-4 native tree or shrub species/up to 2 native tree or shrub species (per 10m radius, across woodland parcel)	2										
5	More than 80% canopy trees and understorey shrubs are native/50-80% are native/less than 50% are native	3										
6	Less than 20% temporary open space, or 10-20% temporary open space if woodland over 10ha/21-40% temporary open space/more than 40% temporary open space	3										
7	Three/two/one classes of regeneration present - trees 4-7cm dbh; saplings/seedlings; advanced coppice regrowth	1										
8	Tree mortality less than 10%, no pests, diseases or crown dieback/11-25% mortality, low risk pests, diseases or crown dieback/more than 25% mortality, high risk pests or diseases	2										
9	Ground flora - AWI present/recognisable NVC plant community present/no recognisable NVC community	2										
10	Woodland vertical structure (across all survey plots) - three or more storeys/two storeys/one or less storey	1										
11	2+ veteran trees per ha/1 veteran tree per ha/no veteran trees	1										
12	50% of survey plots have standing deadwood, large dead branches, stems and stumps/25-50% deadwood/less than 25% deadwood	1										
13	No nutrient enrichment or damaged ground/less than 1ha nutrient enrichment or 20% damaged ground/more than 1ha nutrient enrichment or 20% damaged ground	2										
	Condition	**Moderate**										
	Urban / Sparsely vegetated land - ruderal/ephemeral	**Tall ruderal onising vegetation**										
1	Varied vegetation structure providing opportunities for insects, birds and bats to live and breed. No more than 80% of area comprises a single habitat type (i.e. early successional vegetation, grassland, herb dominated, heathland, woodland and scrub, wetland, water features).	Fail	Fail									
2	Diverse range of flowering plant species providing nectar sources for insects.	Fail	Fail									
	- Above criteria satisfied by native species only.	Fail	Fail									
3	Sch9 invasive species cover less than 5% of total vegetated area.	Pass	Pass									
	- Complete absence of Sch9 invasive species.	Pass	Pass									
4a	**Open mosaic habitat on previously developed land only:** Forms a mosaic of at least four early successional communities (annuals; mosses/liverworts; lichens; ruderals; inundation species; open grassland; flower-rich grassland; heathland) PLUS bare substrate PLUS pools.	N/A	N/A									
4b	**Bioswale and SUDS only:** Water table is at or near the surface throughout the year - forming open water or saturation of the soil at the surface.	N/A	N/A									
	Condition	**Poor**	**Poor**									

Appendix 5882/9:

Defra 3.0 Biodiversity Metric Results

Headline Results

Return to results menu

On-site baseline	*Habitat units*	**70.32**
	Hedgerow units	**0.00**
	River units	**0.00**
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	**82.67**
	Hedgerow units	**0.00**
	River units	**0.00**
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	**17.57%**
	Hedgerow units	**0.00%**
	River units	**0.00%**
Off-site baseline	*Habitat units*	**9.62**
	Hedgerow units	**0.00**
	River units	**0.00**
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	**16.38**
	Hedgerow units	**0.00**
	River units	**0.00**
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	**19.12**
	Hedgerow units	**0.00**
	River units	**0.00**
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	**27.19%**
	Hedgerow units	**0.00%**
	River units	**0.00%**
Trading rules Satisfied?	**Yes**	

A-1 Site Habitat Baseline

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	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comm
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments
1	Grassland	Modified grassland	1.99	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	3.98			0.00	0.00	1.99	3.98		G2 and G8
2	Grassland	Modified grassland	11.52	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	46.08			0.00	0.00	11.52	46.08		G1B, G3-7, G9
3	Grassland	Modified grassland	0.14	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.56			0.00	0.00	0.14	0.56		Amenity grassland
4	Grassland	Modified grassland	5.16	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	10.32			0.00	0.00	5.16	10.32		Improved grassland G1A
5	Sparsely vegetated land	Ruderal/Ephemeral	0.14	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.28			0.00	0.00	0.14	0.28		Tall ruderal
6	Sparsely vegetated land	Ruderal/Ephemeral	0.63	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	1.26			0.00	0.00	0.63	1.26		Ephemeral vegetation
7	Woodland and forest	Other woodland; broadleaved	0.87	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	6.96	0.87		6.96	0.00	0.00	0.00		Woodland and river corridors
8	Urban	Artificial unvegetated, unsealed surface	0.93	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00			0.00	0.00	0.93	0.00		Manure heaps and bare ground areas
9	Urban	Developed land; sealed surface	0.45	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00			0.00	0.00	0.45	0.00		Hardstanding and buildings
10	Heathland and shrub	Mixed scrub	0.22	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.88			0.00	0.00	0.22	0.88		Highways planting at road frontage
11	Urban	Developed land; sealed surface	0.26	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00			0.00	0.00	0.26	0.00		Additional highway land
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A-2 Site Habitat Creation

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Post development/ post intervention habitats										
			Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty		Co
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	Habitat units delivered	Assessor comments
Urban	Developed land; sealed surface	7.26	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	0	Medium	0.00	60% of residential area plus commercial area and roads
Urban	Allotments	0.34	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	1	Low	1.31	Allotments
Urban	Vegetated garden	3.58	Low	Poor	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	1	Low	6.91	40% of residential area
Grassland	Modified grassland	1.5	Low	Poor	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	1	Low	2.90	Parks
Lakes	Ponds (Non- Priority Habitat)	0.6	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	3	Low	4.31	Waterbodies/drainage areas adjacent to river
Urban	Sustainable urban drainage feature	0.51	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	3	Medium	1.23	50% of green corridors
Heathland and shrub	Mixed scrub	0.51	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	5	Low	3.41	50% of green corridors
Grassland	Other neutral grassland	7.14	Medium	Fairly Good	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	7	Low	55.64	Other open space
	Total area	21.44							75.71	

D-1 Off Site Habitat Baseline

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	Habitats and areas			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comm
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments
1	Grassland	Modified grassland	0.33	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.66		0.33	0.00	0.66	0.00	0.00		G10
2	Grassland	Modified grassland	1.92	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	7.68		1.92	0.00	7.68	0.00	0.00		G11 and G12
3	Heathland and shrub	Mixed scrub	0.05	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.20	0.05		0.20	0.00	0.00	0.00		
4	Sparsely vegetated land	Ruderal/Ephemeral	0.06	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.12	0.06		0.12	0.00	0.00	0.00		
5	Woodland and forest	Other woodland; broadleaved	0.12	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.96	0.12		0.96	0.00	0.00	0.00		
			2.48				Total Site baseline	9.62	0.23	2.25	1.28	8.34	0.00	0.00		

D-3 Off Site Habitat Enhancment

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	Baseline habitats	Proposed Habitat (Pre-Populated but can be overridden)		Change in distinctiveness and condition		Post development/ post intervention habitats			Strategic significance	Temporal multiplier		Difficulty multipliers	Spatial risk multiplier	
Baseline ref	Baseline habitat	Proposed Broad Habitat	Proposed Habitat	Distinctiveness change	Condition change	Area ha	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Difficulty	Spatial risk category	Habitat units delivered
1	Grassland - Modified grassland	**Grassland**	**Other neutral grassland**	Low - Medium	Lower Distinctiveness Habitat - Moderate	0.33	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	2.05
2	Grassland - Modified grassland	**Grassland**	**Other neutral grassland**	Low - Medium	Lower Distinctiveness Habitat - Moderate	1.92	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	13.06
						2.25								**15.10**

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