

Land South of Barnham Station

Ecological Appraisal

November 2020

Quality Management	
Client:	Gleeson Strategic Land Ltd
Project:	Land at Tars Farm, Barnham
Report Title:	Ecological Appraisal
Project Number:	ECO-5907
File Reference:	5907 EcoAp vf2 /FM/MRD
Date:	19/11/2020

Copyright
The copyright of this document remains with Aspect Ecology. All rights reserved. The contents of this document therefore must not be copied or reproduced in whole or in part for any purpose without the written consent of Aspect Ecology.

Confidentiality
This report may contain sensitive information relating to protected species. All records of Badger setts must remain confidential. Where this report is circulated publicly or uploaded to online planning portals, reference to Badger setts must be redacted and any maps pertaining to the locations of Badger setts removed from the document.

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

Liability
This report has been prepared for the exclusive use of the commissioning client and unless otherwise agreed in writing by Aspect Ecology no other party may use, or rely on the contents of the report. No liability is accepted by Aspect Ecology for any use of this report, other than for the purposes for which it was originally prepared and provided. No warranty, express or implied, is made as to the advice in this report. The content of this report is partly based on information provided by third parties; Aspect accepts no liability for any reliance placed on such information. This report is subject to the restrictions and limitations referenced in Aspect Ecology's standard Terms of Business.

Contact Details
Aspect Ecology Ltd Hardwick Business Park : Noral Way : Banbury : Oxfordshire OX16 2AF 

Contents

Text:

Executive Summary	4
1 Introduction	5
2 Methodology.....	6
3 Ecological Designations	15
4 Habitats and Ecological Features	17
5 Faunal Use of the Site.....	23
6 Mitigation Measures and Biodiversity Net Gains	38
7 Conclusions	45

Plans:

Plan 5907/ECO1	Site Location
Plan 5907/ECO2	Ecological Designations
Plan 5907/ECO3	Habitats and Ecological Features
Plan 5907/ECO4	Hazel Dormouse Survey Results
Plan 5907/ECO5	Bat Activity Survey Results (Walked Transects)
Plan 5907/ECO6	Bat Activity Survey Results (Automated Detectors)
Plan 5907/ECO7	Water Vole Survey Results

Appendices:

Appendix 5907/1	Evaluation Methodology
Appendix 5907/2	Legislation Summary
Appendix 5907/3	Desktop Study Data
Appendix 5907/4	Bat Building Descriptions
Appendix 5907/5	Ecological Enhancement Plan
Confidential Appendix	Badger Survey Results and Assessment (available on request)

Executive Summary

- i) **Introduction.** Aspect Ecology was commissioned by Gleeson Strategic Land Ltd in April 2020 to undertake an Ecological Appraisal in respect of proposed redevelopment of land at South of Barnham Station, Barnham, Sussex.
- ii) **Proposals.** The proposals are for redevelopment of the site to provide 200 residential dwellings.
- iii) **Survey.** The site was surveyed in May 2020 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 and Badger, Dormouse and Water Vole.
- iv) **Ecological Designations.** The site itself is not subject to any statutory or non-statutory ecological designations. The nearest statutory designation is The Brooks Local Nature Reserve located approximately 3.3km south-west of the site. The nearest non-statutory designation is Barnham Road at Eastergate Designated Road Verge located approximately 1.9km north-west of the site. All of the ecological designations in the surrounding area are physically well separated from the site and are therefore unlikely to be adversely affected by the proposals.
- v) **Habitats.** The site predominantly comprises two large semi-improved grassland fields which are bound to the south-east and south-west by mature hedgerows and to the north by the railway line. Centered within the grassland fields are a collection of barns and wooden stables with the other remaining building located in the eastern corner of the site. There are two watercourses present on site, one of which is a dry ditch transecting the site, whilst the other is a narrow watercourse located on the south-east edge of the site. The hedgerows include a number of trees scattered which are predominantly mature in nature. The only trees present outside of the hedgerows are the line of four Apple trees, the remainder are located offsite to the south-east of the watercourse. The majority of the habitats on site do not constitute as features of ecological importance however the hedgerows and watercourse are of importance on a local level. The loss of a proportion of these features is considered to be of minor ecological significance.
- vi) **Protected Species.** The site generally offers limited opportunities for protected species. However, some parts of the site are used by foraging and commuting bats, and the watercourse to the south of the site has a population of Water Vole, which will need to be considered. A number of trees have been identified as having low potential for roosting bats, although these will be retained under the proposals. Therefore, proportionate mitigation measures and precautionary safeguards have been proposed to avoid or minimise adverse effects on any protected species that might be present on site at the time of works.
- vii) **Enhancements.** The proposals present the opportunity to secure biodiversity enhancements, including additional wildflower meadow areas and native tree planting, wet woodland planting, new roosting opportunities for bats 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.

1 Introduction

1.1 Background and Proposals

1.1.1 Aspect Ecology was commissioned by Gleeson Strategic Land Ltd in April 2020 to undertake an Ecological Appraisal in respect of proposed development of the Land South of Barnham Station, Barnham, West Sussex, centred at grid reference SU 956 040 (see Plan 5907/ECO1), hereafter referred to as 'the site'.

1.1.2 The proposals are for redevelopment of the site to provide 200 residential dwellings.

1.2 Site Overview

1.2.1 The site is located to the south-west of Barnham village, on the edge of the village. The site is bound to the north by a railway line and to the north east by Barnham Railway Station and to the south-east by a watercourse with residential gardens beyond. The south-west side is bound by a thick hedgerow, beyond which are further agricultural fields, residential gardens and the railway line, beyond which lies agricultural fields.

1.2.2 The site itself is an equestrian small holding, comprising a number of fenced pasture fields and paddocks, centred around a cluster of agricultural barns and stables with parking, an access track, and horse menage. The northern part of the site comprises close-grazed horse pasture, whilst the southern part is cut for hay. The eastern boundary is formed by a small watercourse, whilst a further dry ditch transects the central part of the site. The site is largely devoid of vegetated boundary features although there are thick hedges with some trees on the south-west and south-east boundaries. In the north-east part of the site, an existing garden is surrounded by trees and hedges.

1.3 Purpose of the Report

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

2 Methodology

2.1 Desktop Study

- 2.1.1 In order to compile background information on the site and its immediate surroundings the Sussex Biodiversity Records Centre (SxBRC) were contacted, with data requested on the basis of a search radius of 2km.
- 2.1.2 Where information has been received from the above organisation(s) this is reproduced at Appendix 5907/3 and on Plan 5907/ECO2, where appropriate.
- 2.1.3 Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England, with an extended search radius (25km). In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site. Relevant summary information is reproduced at Appendix 5907/3 and on Plan 5907/ECO2, where appropriate.
- 2.1.4 In addition, the Woodland Trust database was searched for any records of ancient, veteran or notable trees within or adjacent to the site.

2.2 Habitat Survey

- 2.2.1 The site was surveyed in May 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 methodology¹, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal² to record details on the actual or potential presence of any notable or protected species or habitats.
- 2.2.3 Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. The nomenclature used for plant species is based on the Botanical Society for the British Isles (BSBI) Checklist.

2.3 Faunal Surveys

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

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

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

Bats³

Visual Inspection Surveys

- 2.3.2 **Buildings.** Buildings within the site were subject to specific internal and external inspection surveys using ladders, torches and binoculars where necessary in May 2020.
- 2.3.3 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.
- 2.3.4 During the internal inspections, evidence for the presence of bats was searched for with particular attention paid to any loft voids and relevant potential roost features and locations, such as ridge boards, rafters, purlins, gable walls, and mortise joints. Specific searches were made for bat droppings that can indicate present or past use and extent of use, whilst other signs that can indicate the possible presence of bats were also searched for, e.g. presence of stained areas, feeding remains, corpses, etc. Any droppings collected during the course of the surveys were visually assessed and attributed to a species where possible on the basis of size/shape/texture⁴. Where appropriate, samples of similar droppings were collected with gloved hands and put into labelled eppendorfs and forwarded to Swift Ecology for DNA analysis.
- 2.3.5 **Trees.** Trees were assessed for their suitability to support roosting bats based on the presence of features such as holes, cracks, splits or loose bark. Suitability for roosting bats was rated based on relevant guidance⁵ as:
- Negligible;
 - Low;
 - Moderate; or
 - High.
- 2.3.6 Any potential roost features identified were also inspected for any signs indicating possible use by bats, e.g. staining, scratch marks, bat droppings, etc.

Dusk Emergence/ Dawn Re-entry Survey

- 2.3.7 Dusk emergence surveys were carried out on 20th July and 5th August 2020 to identify any bats roosting in the buildings (**B1** and **B2**) highlighted to have potential to support roosting bats.
- 2.3.8 Surveyors employed Anabat Scout handheld bat detectors alongside BatBox Duet detectors to aid identification of any bats observed. At dusk, surveyors were in position 15-30 minutes prior to sunset, remaining in place for approximately 2 hours. This survey method aims to identify any roosting bats emerging from or returning to potential roost sites.

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

⁴ Stebbings, RE, Yalden DW and Herman, JS (2007). 'Which bat is it? A guide to bat identification in Great Britain and Ireland.' The Mammal Society

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

- 2.3.9 During a further survey on 16th September, Infrared (IR) camera set-ups, comprising Sony FDR-AX53 camera and two Uniquefire T75 IR lights and a 1080p IR sensitive camera and two Evolva T38 IR lights, were deployed at two sides of building **B1** as shown on plan 5907/ECO4.
- 2.3.10 This survey work was carried out during suitable weather conditions, as set out in Tables 2.1 below.

Table 2.1. B1 and B2 dusk emergence survey details.

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
20/07/2020	Start time: 20:51 End time: 22:36 Sunset: 21:06	B1	Bat Box Duet and Anabat Scout	Dry, 15% cloud, BF1, 19°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder CLS00307.				
05/08/2020	Start time: 20:26 End time: 22:11 Sunset: 20:41	B2	Bat Box Duet and Anabat Scout	Occasional light rain, 60% cloud, BF2, 20°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder CLS00307.				
16/09/2020	Start time: 19:24 End time: 21:20 Sunrise: 19:16	B1	IR Camera Sony FDR-AX53 camera and two Uniquefire T75 IR lights and 1080p IR sensitive camera and two Evolva T38 IR lights	Dry, 10% cloud, BF1, 22°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder CLS00307.				

BF0 = calm, BF12 = hurricane force.

Activity Surveys

- 2.3.11 Walked transect surveys were undertaken in August, September and October 2020 to ascertain the level of usage of the site by foraging or commuting bats. This survey method involves walking planned transect routes with key listening points, specifically covering habitats/features with particular potential for commuting or foraging bats. Anabat Scout handheld bat detectors were employed alongside BatBox Duet detectors to aid identification of any bats observed. Each transect was walked from approximately 15 minutes prior to sunset, for 2-3 hours, with a minimum 3 minute stop at each listening point. This methodology was repeated from 2 hours prior to sunrise to complete the dawn survey.
- 2.3.12 This survey work was carried out during suitable weather conditions, as set out in Tables 2.2 and 2.3 below.

Table 2.2. Dusk walked transect survey details.

Date	Start & end times & time of sunset	Transect / location	Equipment used	Weather
28/07/2020	Start time: 20:54 End time: 22:54 Sunset: 20:54	Transect A (LP1-12)	Bat Box Duet and Anabat Scout.	Dry, 5% cloud, BF2, 19°C
26/08/2020	Start time: 20:00 End time: 22:00 Sunset: 20:00	Transect A (LP12-1)	Bat Box Duet and Anabat Scout.	Dry, 20% cloud, BF2, 16°C
16/09/2020	Start time: 19:24 End time: 21:20 Sunrise: 19:16	Transect A (LP1-12)	Bat Box Duet and Anabat Scout.	Dry, 10% cloud, BF1, 22°C
16/10/2020	Start time: 19:24 End time: 21:20 Sunrise: 19:16	Transect A (LP1-12)	Bat Box Duet and Anabat Scout.	Dry, 70% cloud, BF2, 14°C

BF0 = calm, BF12 = hurricane force

Table 2.3. Dawn walked transect survey details.

Date	Start & end times & time of sunrise	Transect / location	Equipment used	Weather
27/08/2019	Start time: 03:09 End time: 06:09 Sunrise: 06:09	Transect A (LP1-12)	Bat Box Duet and Anabat Scout.	Dry, 30% cloud, BF2, 12°C

BF0 = calm, BF12 = hurricane force

- 2.3.13 Automated static detector surveys were also carried out during which Song Meter 4 (SM4) detectors were positioned at two locations within the site from the 29th July to 5th August 2020 to record any bat activity. The two SM4 detectors were deployed in the same locations between the 26th August and 1st September 2020 and deployed again on the 16th to 22nd September 2020. Detector 1 was situated in the centre of the site surrounded by the cluster of agricultural buildings, attached to the doorframe of building **B2**. Detector 2 was located in the north-east corner of the site within hedgerow **H5** (see Plan 5907/ECO3 and Plan 5907/ECO6). The detectors were set to switch on approximately 30 minutes before sunset and switch off approximately 30 minutes after sunrise. The weather conditions during the static detector surveys are provided in Table 2.4 below.

Table 2.4. Automated detector survey details.

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°)	Cloud Cover (%)	Precipitation
29/07/2020	2	20	60	Dry
30/07/2020	1	25	50	Dry
31/07/2020	2	28	40	Dry
01/08/2020	2	24	60	Dry
02/08/2020	3	22	60	Dry
03/08/2020	1	23	60	Dry
04/08/2020	4	20	50	Dry
26/08/2020	4	21	10	Dry
27/08/2020	4	18	90	Light Rain
28/08/2020	3	19	100	Heavy Rain
29/08/2020	2	18	50	Dry
30/08/2020	3	17	50	Dry
31/08/2020	2	18	70	Dry
01/09/2020	1	20	50	Dry
16/09/2020	2	24	50	Dry
17/09/2020	3	22	50	Dry
18/09/2020	4	22	40	Dry
19/09/2020	4	23	50	Dry
20/09/2020	3	21	30	Dry
21/09/2020	2	21	60	Dry
22/09/2020	2	19	80	Dry
16/10/2020	1	13	60	Dry
17/10/2020	2	12	50	Dry
18/10/2020	1	11	90	Dry
19/10/2020	3	14	60	Dry
20/10/2020	3	17	50	Dry
21/10/2020	2	15	90	Light Rain

BF0 = calm, BF12 = hurricane force

Analysis of Bat Survey Recordings

- 2.3.14 All bat calls were analysed using Analook W v4.4a to verify the species recorded during the survey work. Where recordings could not be reliably attributed to species (such as for *Myotis* species) or where overlaps between otherwise distinguishable species occur (such as in Pipistrelle bat calls around 40kHz or 50kHz) calls were identified to genus level; in the case of calls which could not be distinguished between *Nyctalus* sp. and Serotine, these have been labelled as 'unidentified big bat' species.

Badger (*Meles meles*)⁶

- 2.3.15 A detailed Badger survey was carried out in May 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:

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

- 2.3.16 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 (*Muscardinus avellanarius*)⁷

- 2.3.17 Surveys were undertaken to establish the presence/absence of Dormouse within the site between July and September 2020, with further survey work planned to continue until November 2020. Survey work followed the methodology set out within best practice guidance⁷, whereby nesting tubes are attached to branches of trees and shrubs and checked on a regular basis for signs of use by Dormouse.

- 2.3.18 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 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, with an adjustment made of the number of tubes installed.

- 2.3.19 Accordingly, a total of 58 Dormouse nest tubes were deployed within the site, all of which were positioned within hedgerows (**H1-H3**, **H5** and **H6**) bordering the site (see Plan 5907/ECO4). Nest tubes were checked monthly between August and October 2020, giving a total survey effort score of 18.7 points across the entire survey area. Whilst this is slightly

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)

below the recommended survey effort level, the amounts of habitat are small and peripheral to the main development area. Furthermore, the density of tubes exceeded the recommended spacing of 20m between tubes, with tubes being spaced at approximately 10m intervals, ensuring that the coverage was comprehensive.

Otter (*Lutra lutra*)⁸

- 2.3.20 The watercourses within the site were thoroughly searched for signs of Otter in May 2020. Such signs include holts (underground chambers used for lying up), spraints, prints, paths and slides. The banks of the watercourse were examined thoroughly from both sides (where accessible) and from the watercourse itself where scrub and water depth allowed.

Water Vole (*Arvicola amphibious*)⁹

- 2.3.21 The watercourses within the site were thoroughly searched for signs of Water Vole as part of the Extended Phase 1 Habitat survey in May 2020, and on two further occasions in July and September 2020 respectively. Such signs include latrines, tunnels, lawns (small areas of vegetation grazed by Water Vole) and footprints. The banks of the watercourse were examined thoroughly from both sides (where accessible) and from the watercourse itself.

Breeding Birds

- 2.3.22 Due to the presence of a number of buildings potentially suitable for Barn Owl *Tyto Alba*, as part of the Extended Phase 1 Habitat Survey all buildings were checked for any evidence of Barn Owl, following the current guidelines¹⁰. The survey aimed to identify any potential nest sites, roost sites and habitats for foraging and movement. Incidental records of Barn Owl and other owl species were also taken during other surveys carried out at the site (such as dusk/dawn bat surveys).
- 2.3.23 Apart from the potential for Barn Owl, the site is assessed as having low potential for breeding birds. Nevertheless, incidental records were made during the Extended Phase 1 Habitat survey and during other surveys which took place at the site.

Amphibians and Reptiles

- 2.3.24 There are no ponds located at the site, or within a 250m radius surrounding it. As a result, it is considered that amphibians are unlikely to be a constraint to the project and no further survey work has been carried out in relation to this species group. Similarly, there are no habitats within the site which are considered to be particularly suitable for reptiles, with the majority of grassland habitats present comprising either short-grazed horse pasture or regularly managed hay meadow with a continuous sward of a type that is unlikely to provide suitable habitat for this species group.

Other Faunal Groups

- 2.3.1 Observations regarding the habitat suitability for other faunal groups were made during the Extended Phase 1 survey, and combined with the results of desk study were used to assess the need potential for other faunal observations were made regarding the potential suitability of habitats to support other faunal species.

⁸ Surveys based on: Life in UK Rivers (2003) 'Monitoring the Otter - Conserving Natura 2000 Rivers'. Monitoring Series No. 10

⁹ Surveys based on: Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) 'Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

¹⁰ Shawyer, C.R.(2011). Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

2.3.2 Wintering and breeding bird surveys are not required for this site. This is due to the lack of suitable nesting opportunities and potential for the site to provide high quality feeding grounds. Nevertheless, incidental observations of birds using the site and the surrounding habitats were made during the Phase 1 Habitat Survey.

2.3.3 The site does not contain suitable features for invertebrates such as; variable topography, exposed soils and species-rich semi-natural vegetation. Therefore, this site does not require detailed invertebrate surveys.

2.4 Survey Constraints and Limitations

2.4.1 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The Phase 1 habitat survey was undertaken within the optimal season therefore allowing a robust assessment of habitats and botanical interest across the site.

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 Ecological Evaluation Methodology

2.5.1 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)¹¹, 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 5907/1.

2.6 National Policy Approach to Biodiversity in the Planning System

2.6.1 The National Planning Policy Framework (NPPF)¹² 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 06/2005¹³.

2.6.2 NPPF takes forward the Government's strategic objective to halt overall biodiversity loss¹⁴, as set out at Paragraph 170, which states that planning policies and decisions should contribute to and enhance the natural and local environment by:

¹¹ CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine', ver. 1.1, Chartered Institute of Ecology and Environmental Management, Winchester

¹² Ministry of Housing, Communities & Local Government (2019) 'National Planning Policy Framework'

¹³ ODPM (2006) 'Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice'

¹⁴ DEFRA (2011) 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services'

'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 175:

'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 incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

2.6.4 The above approach encapsulates the 'mitigation hierarchy' described in British Standard BS 42020:2019¹⁵, 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).

¹⁵ British Standards Institution (2013) 'Biodiversity – Code of practice for planning and development', BS 42020:2019

2.7 Local Policy

2.7.1 Arun District Council's current planning policies are set out within the Adoption Arun Local Plan 2011-2031.

2.7.2 Policy ENV SP1 Natural Environment

This policy states that 'Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites. Where possible it shall also promote the creation of new areas for habitats and species. In relation to designated sites, development will be permitted where it protects sites listed in Tables 17.1-17.7 that are recognised for the species and habitats contained within them'.

2.7.3 Policies set out in the local plan also include key details regarding designated sites of biodiversity focusing on Pagham Harbour Ramsar and SPA within Policies ENV DM1 and DM2.

2.7.4 There are two policies specifically relating to biodiversity, namely Policy ENV DM3 Biodiversity Opportunity Areas and ENV DM5 Development and biodiversity and.

Policy ENV DM3 sets out that the development should:

a. Retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones

b. Be designed in order to minimise disturbance to habitats.

Policy ENV DM5 sets out that "Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site".

3 Ecological Designations

3.1 Statutory Designations

Description

- 3.1.1 The statutory designations of ecological importance that occur within the local area are shown on Plan 5907/ECO2. The nearest statutory designation is The Brooks Local Nature Reserve (LNR) located approximately 3.3km south-west of the site. The Brooks LNR is designated on the basis of the wetland habitat, large meadows and newly planted floodplain woodland (see Appendix 5907/3 for citation). The next nearest statutory designation is Felpham Site of Special Scientific Interest (SSSI) located approximately 4.8km to the south of the site.
- 3.1.2 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 Fairmile Bottom SSSI, however the IRZ does not apply to residential development.
- 3.1.3 Other European designations worthy of note are the Solent and Dorset Coast SPA which is located approximately 4.2km to the south of the proposed scheme, and is designated for populations of three species of terns, and the Pagham Harbour SPA/Ramsar, which is located approximately 9.3km to the south-west, and is designated on the basis of its populations of Brent Goose *Branta bernicla*, Ruff *Philamachus pugnax*, Little Tern *Sterna albifrons* and Common Tern *Sterna hirundo*. Features within the designation are highly sensitive to recreational pressure, and provision for strategic mitigation is co-ordinated under the Recreational Disturbance at Pagham Harbour – Revised Joint Scheme of Mitigation with Arun District Council (2017)¹⁶. A 5km zone of influence is described around the designation which applies to residential development within the Arun District. The proposed scheme is not caught within this zone.
- 3.1.4 The site is located approximately 13km from Singleton and Cocking Tunnels SAC, which is outside the 12km buffer zone that is set out in the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol (agreed by the South Downs National Park Authority in conjunction with Natural England) which protects the qualifying features – Barbastelle *Barbastella barbastellus* and Bechsteins bats *Myotis bechsteinii*. Proposals for the development of sites within this zone must evaluate whether there will be a loss of suitable foraging habitat and / or the severance of commuting flight lines.

Evaluation

- 3.1.5 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are well separated from the site by existing development and given the nature and scale of the proposals, these designations are unlikely to be affected.
- 3.1.6 An assessment of activity of foraging and commuting bats (including Barbastelle and Bechsteins bats) is presented in Section 4 below.

¹⁶ Recreational Disturbance at Pagham Harbour – Revised Joint Scheme of Mitigation with Arun District Council (May 2017). Chichester District Council

3.2 Non-statutory Designations

Description

- 3.2.1 The non-statutory designations of nature conservation interest that occur within the local area are shown on Plan 5907/ECO2. The nearest non-statutory designation is Barnham Road at Eastergate Designated Road Verge (DRV) located approximately 1.9km north-west of the site. The Eastergate DRV is designated on the basis of the special wildlife interest on site with particular focus on wildflowers.

Evaluation

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

3.3 Priority Habitats, Ancient Woodland and Notable Trees

Description

- 3.3.1 There are no records of any notable or veteran trees within or adjacent to the site. The nearest veteran tree, identified using the Ancient Tree Inventory, is a Copper Beech approximately 200m north of the site.

The site does not contain any Ancient Woodland however, there is a small area identified in MAGIC as Priority Habitat 'Deciduous Woodland' to the east approximately 430m east of the site. This is discussed further within the relevant habitat section in Chapter 4 below.

Evaluation

- 3.3.2 Subject to the implementation of appropriate mitigation measures (as discussed below in Chapter 4) it is unlikely that any Priority Habitats or any notable or veteran trees will be significantly affected by the proposals.

3.4 Summary

- 3.4.1 In summary, the site itself is not subject to any statutory or non-statutory ecological designations and, subject to the implementation of appropriate mitigation measures (as described above), it is unlikely that any such designations in the surrounding area will be significantly affected by the proposals.

4 Habitats and Ecological Features

4.1 Background Records

- 4.1.1 No specific records of any protected, rare or notable plant species from within or immediately adjacent to the site are included within the information returned from the Records Centre. A number of records of Priority Species were returned from Sussex Biodiversity Records Centre (SBRC) including Frog Orchid *Coeloglossum viride*, Pennyroyal *Mentha pulegium*, Tubal Water-dropwort *Oenanthe fistulosa*, Cornflower *Centaurea cyanus* and Bluebell *Hyacinthoides non-scripta* dating between 1986 and 2017, none of which were recorded within or adjacent to the site. No evidence for the presence of any of these species within the site was recorded during the survey work undertaken.

4.2 Overview

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

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

- Semi-improved Grassland;
- Hedgerows;
- Trees
- Ditch/Stream;
- Buildings and Hardstanding.

- 4.2.3 The locations of these habitat types and features are illustrated on Plan 5907/ECO3 and described in detail below.

4.3 Priority Habitats

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

- 4.3.2 Of the habitats within the site, none are considered to qualify as Priority Habitats and therefore constitute important ecological features. This is discussed further in the relevant habitat sections below.

4.4 Semi-improved Grassland

Description

- 4.4.1 A single pastoral field is present within the site (see Photograph 1), labelled **F1** on Plan 5907/ECO3, as described below.
- 4.4.2 Field **SI1** is a large field to the south of the site, which appears to be cut on a regular basis for hay. The field is bound to the south-east and south-west by mature hedgerows and to the north by the railway line. At the time of the survey the sward was long. The species present include Yorkshire Fog, *Holcus lanatus*, Meadow Foxtail *Alopecurus pratense*, Sweet Vernal Grass *Anthoxanthum odoratum*, Perennial Ryegrass *Lolium perenne*, Soft Brome *Bromus hordeaceus*, Common Bent *Agrostis capillaris* and Red Fescue *Festuca rubra*. Herbaceous species are sparsely distributed, and include Common Chickweed, Upright Chickweed *Stellaria media*, Sorrell *Rumex acetosa*, Creeping Thistle *Cirsium arvense*, Red Dead-nettle *Lamium purpureum*, Broad-leaved Dock *Rumex obtusifolius*, Yarrow *Achillea millefolium*, Creeping Cinquefoil *L. Potentilla reptans*, Meadow Buttercup *Ranunculus acris*, Bulbous Buttercup *Ranunculus bulbosus* and Lesser Stitchwort *Stellaria graminea*. Areas of Stinging Nettle *Urtica dioica* occur locally in the southern and western corners of the field.
- 4.4.3 Field **SI2** is actually a collection of small to medium-sized horse paddocks, divided by fences, occupying the majority of the north part of the site. The sward is tight-cropped in most places. Species composition would appear to be broadly similar to **SI1** above, although there are greater proportion of finer grasses such as Red Fescue, Common Bent and Creeping Bent. Herb species within the paddocks are generally confined to species of disturbed ground, such as Soft Sow-thistle *Sonchus oleraceus*, White Deadnettle *Lamium album* and Field Forget-me-not *Myosotis arvensis*. In places outside the fenced paddocks there are some limited areas with rank grass content, including False Oatgrass *Arrhenatherum elatius* and Cock's-foot *L. Dactylis glomerata*, together with occasional Hogweed *Heracleum sphondylium*, Cow Parsley *Anthriscus sylvestris* and Hedge Woundwort *Stachys sylvatica*.

Evaluation

- 4.4.4 Overall, the grassland supports a low diversity of common and widespread species and based on the type and abundance of species present it can be classified as semi-improved grassland¹⁷. A number of indicator species of higher quality grassland are present; however these are not sufficiently abundant for the grassland to qualify as a Priority Habitat. As such, the grassland does not constitute an important ecological feature. The loss of grassland to the proposals is therefore of minor ecological significance. The potential importance of the grassland as habitat for faunal species is discussed in the respective sections below.

4.5 Hedgerows

Description

- 4.5.1 One hedgerow is located within the site itself, which surrounds the horse menage near the centre of the site (**H7**). A further six hedgerows are present around the boundaries of the site, located to the west of the site, and around the garden area in the east.
- 4.5.2 The hedgerows are described in more detail in Table 4.1 below.

¹⁷ Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition
November 2020

Table 4.1. Hedgerow descriptions.

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify [#]
H1	4-5m	3-4m	<u>Blackthorn (D)</u> , <u>Hawthorn</u> , <u>Ash (m)</u> , <u>Field Maple (m)</u> , <u>Dog Rose</u>	<4	Nettle, Cleavers, Hop	<10% gaps, ditch, connects with hedges	Dense outgrown hedge associated with ditch. Small gap for public footpath.	N
H2	4-5m	4-5m	<u>Blackthorn (D)</u> , <u>Hawthorn</u> , <u>Grey Willow</u> , <u>Alder (sm)</u> , Bramble	<4	Honeysuckle, Nettle, Broad-leaved Dock, Cleavers	<10% gaps, connects with other hedges	Dense outgrown hedge with large sections to north comprising Bramble, or being made up of Alder trees.	N
H3	3-4m	2m	<u>Blackthorn (D)</u>	<4	Nettle, Red Dead-nettle, Cleavers	<10% gaps	Short section of outgrown gappy hedge adjacent to railway line.	N
H4	2.5m	1m	<u>Beech (D)</u> , Plum	<4	None	<10% gaps, connects with hedges	Short section of managed hedge on garden curtilage	N
H5	4m	1-2m	<u>Beech</u> , <u>Ash (m)</u> , <u>Snowberry</u> , <u>Horse Chestnut (m)</u> , <u>Elder</u> , <u>Bay Laurel</u> , <u>Privet</u>	<4	Cleavers, Nettle	<10% gaps, connects with hedges, adj. watercourse.	Sparse boundary hedge between garden and watercourse, including several mature trees.	N
H6	4-5m	3m	<u>Lime (m)</u> , <u>Bay Laurel</u> , <u>Hawthorn</u> , <u>Elder</u> , <u>Privet</u> , <u>Field Maple</u>	5	Pendulous Sedge, Cow Parsley, Cleavers	<10% gaps, connects with hedges	Garden boundary with frequent	N
H7	1.5m	1m	<u>Beech</u>	1	None	-	Young thin managed hedge planted around horse menage. Frequent gaps from failures.	N

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

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

Evaluation

4.5.3 Hedgerows recorded on the boundaries in the western part of the site are relatively substantial and outgrown in nature, being generally dominated by Blackthorn *Prunus spinosa*, with standard trees limited to a line of Alder *Alnus glutinosa* at the northern end of hedgerow H2.

4.5.4 A further group of hedgerows exist around the garden in the east of the site, associated with frequent mature trees and garden shrub species.

4.5.5 From a preliminary appraisal, none of the hedges surrounding the site are considered to be species-rich¹⁸ or are likely to qualify as ecologically ‘important’ under the Hedgerows Regulations 1997, based on the number of woody species and associated features.

¹⁸ i.e. five or more native woody species within a 30m length (or four or more in Northern England) – FEP Manual

- 4.5.6 All of the hedgerows within the site are however likely to qualify as a Priority Habitat, based on the standard definition¹⁹, which includes all hedgerows (>20m long and <5m wide) consisting predominantly (≥80%) of at least one native woody species. It has been estimated that approximately 84% of countryside hedgerows in GB qualify as a Priority Habitat under this definition.¹⁹
- 4.5.7 On this basis, the hedgerows within the site constitute important ecological features, although given the relatively limited network present, are only of importance at the local level.
- 4.5.8 The proposals incorporate the retention of the vast majority of hedgerows which surround the site, with the only losses occurring, being where small sections of **H5** and **H6** will be removed for construction of an access road. Retained hedgerows will be protected during the construction phase of the proposals as per the recommendations included at Chapter 6 below. Furthermore, the proposals incorporate new planting which will link with and strengthen the existing / retained hedgerows (a number of which were noted to be somewhat gappy in nature) which will aim to enhance the value of these features for biodiversity.

4.6 Trees

Description

- 4.6.1 A number of trees were recorded within the site, largely associated with hedgerows around the garden area to the east of the site (hedgerows **H5** and **H6** as set out at Table 4.1 above). Standard trees within the hedgerows were noted to be generally mature in age, and comprising Horse Chestnut *Aesculus hippocastanum*, Common Lime *Tilia x europaea*, and Ash *Fraxinus Excelsior*).
- 4.6.2 There is also a line of Alder, located at the northern end of hedgerow **H2**, on the west boundary of the site, which are early-mature in age.
- 4.6.3 Outside the hedgerows, there are virtually no trees present, with the exception of a line of four Apple *Malus sp.* trees. Several more mature trees are located outside the site boundary, to the south-east of the watercourse forming the boundary of the site, including several large mature Pedunculate Oak *Quercus robur* and Pine *Pinus sp.*

Evaluation

- 4.6.4 A number of the trees within hedgerows are mature in nature. Accordingly, the more mature trees recorded within the hedgerows in the east of the site are of ecological interest in their own right, albeit at present do not constitute important ecological features. Trees to the south-east of the site (and outside the boundary) will not be affected by the proposals.
- 4.6.5 It is understood that the trees within the site and adjacent to its boundaries are fully retained under the proposals and as such, subject to recommended safeguards set out at Chapter 6 below, the trees within the site will be retained and protected under the proposals, whilst new planting will combine with the existing trees to provide new opportunities for wildlife.

¹⁹ Based on: Biodiversity Reporting and Information Group (2011) 'UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions', ed. Ant Maddock

4.7 Watercourses

Description

4.7.1 A narrow watercourse (**WC1**) forms the south-east boundary of the site taking a slightly meandering course. The channel is V-shaped with earth banks of approximately 1.5m height. At the time of survey the water depth varied between 20 and 40cm, and was relatively slow flowing. The width of the wetted part of the stream is approximately 1m. Submerged/floating vegetation was limited to occasional Common Starwort *Callitriche sp.*, whilst marginal and emergent vegetation comprised infrequent stands of Hemlock Water-dropwort *Oenanthe crocata*, Bulrush *Typha latifolia*, Branched Bur-Reed *Sparganium erectum*, and Reed Canary Grass *Phalaris arundinacea*. The bankside vegetation is generally made up of rank grasses dominated by False Oatgrass, together with Common Nettle, Hogweed, Garlic Mustard *Alliaria petiolata* and Broad-leaved Dock, and with frequent patches of Hawthorn *Crataegus monogyna* scrub and bramble (mainly on the east side). Evidence of sewage pollution (rags and other debris) was observed in places.

4.7.2 **WC2** is a shallow drainage ditch, which transects the site, connecting the stable yard with watercourse **WC1**. It held no water at the time of the survey, and is only likely to be wetted following intense rainfall. Florally, it comprises a similar suite of grasses and herbaceous species as the other field edges within the site, with False Oatgrass, Meadow Foxtail *Alopecurus pratensis*, Nettle, Common Hogweed and occasional Bulbous Buttercup being represented.

Evaluation

4.7.4 The watercourse is not considered to constitute Section 41 Priority Habitat under the of the NERC Act, since it does not constitute any of the river types described in the UK Biodiversity Action Plan Description for Rivers (Headwaters, Rivers with *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation, Chalk Rivers or Active Shingle Rivers). It also does not appear on Natural England's Priority River Habitat Inventory – Rivers (England).

4.7.5 However, the watercourse provides a linear semi-natural corridor which is suitable for a range of faunal species and is therefore considered to be of ecological importance at the Local scale.

4.8 Buildings and Hardstanding

Description

4.8.1 A number of buildings are present within the site, identified as buildings **B1-B6** on Plan 5907/ECO3. Buildings **B1-B5** form a collection of barns and wooden stables surrounding a small yard in the central part of the site, and there are also a number of brick and flint walls, forming the remains of buildings whose roofs have been lost. There is a small hardstanding area, together with some areas of disturbed weedy ground and Bramble scrub. A range of common grass and ruderal species occur in the corners of the yard, including Barren Brome, Cock's-foot, Soft Sow-thistle, Common Vetch *Vicia sativa* and Cleavers *Galium aparine L.* A horse menage is located just to the south of the barns and stables.

4.8.2 **B6** is a wooden stable block towards on the eastern edge of the site, surrounded by hardstanding and gravel parking areas.

- 4.8.3 A detailed internal and external inspection of all the buildings within the site has been carried out for their potential to support roosting bats and Barn Owl, and the results of this are reported separately in Section 5, and in Appendix 5907/4.

Evaluation

- 4.8.4 The buildings and surrounding gravel and hardstanding areas 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 and their removal under the proposals is of negligible ecological significance. Potential for the buildings to support faunal species such as roosting bats and Barn Owl is discussed below in Chapter 5.

4.9 Habitat Evaluation Summary

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

Table 4.2. Evaluation summary of habitats forming important ecological features.

Habitat	Level of Importance
Hedgerows (and Associated Trees)	Local
Watercourse WC1	Local

- 4.9.2 Other habitats present within the site include semi-improved grassland, and buildings and hardstanding. However, these habitats do not 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 specific attention paid to the potential presence of protected or notable species. Specific survey work was undertaken in respect of bats, Badgers, Dormouse, Water Vole, Otter reptiles and Great Crested Newt, with the results described below.

5.2 Priority Species

- 5.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of principal importance for conservation in England. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority species under the subsequent country-level biodiversity strategies.
- 5.2.2 During the survey work undertaken, the Priority Species Soprano Pipistrelle *Pipistrellus pygmaeus*, Water Vole, House Sparrow *Passer Domesticus*, Cuckoo *Cuculus canorus* and Yellowhammer *Emberiza citrinella* were recorded within the site. This is discussed further below.

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 5907/2 for detailed provisions). If proposed development work is likely to result in an offence a licence may need to be obtained from Natural England which would be subject to appropriate measures to safeguard bats. Given all bats are protected species, they are considered to represent important ecological features. A number of bat species are also considered S41 Priority Species.
- 5.3.2 **Background Records.** The desktop study identified two specific records returned from the LRC of bats from within or adjacent to the site. Information received from the LRC returned records of Noctule Bat *Nyctalus noctula* and Common Pipistrelle *Pipistrellus pipistrellus* at the grid reference of SU956042. The bats were detected passing through the site in 2013 and 2019. The other bat records returned from the LRC include Nathusius Pipistrelle *Pipistrellus nathusii*, Brown Long-eared Bat *Plecotus auritus* and Serotine Bat *Eptesicus serotinus* within 1km of the site.

5.3.3 Survey Results

Visual Inspection Surveys

Buildings

- 5.3.4 A detailed visual inspection was undertaken of all the buildings within the site, the results of which are detailed at Appendix 5907/4, and summarised below.

- 5.3.5 In summary, buildings **B1-B4** are located within the central stable yard area and comprise a collection of stables and barns. Most are of modern construction with very few opportunities for roosting bats, and were as assessed as having 'negligible potential'. An old flint and brick barn (**B1**) has a dilapidated roof, allowing some potential for bats to enter, and number of minor features were noted on one of the stable blocks (**B2**). No evidence of bat occupation, e.g. droppings, staining, feeding remains, etc., were recorded during the inspection surveys.

Table 5.1. Building inspection results.

Tree No.	Species	Potential Roost Features	Suitability
B1	Old Flint and Brick Barn	Two large holes in roof, and open doorway to W elevation	Low
B2	Modern stable block	Small number of gaps at end of tiling ridge/nearest gutter	Low
B3	Modern stable block	No significant features	Negligible
B4	Barn	No significant features	Negligible
B5	Collection of flint/brick walls	No significant features	Negligible
B6	Modern stable block	No significant features	Negligible

Trees

- 5.3.6 A number of mature trees are present on site. The results of the tree assessment work undertaken at the site are illustrated on Plan 5907/ECO3 and summarised in Table 5.2 below:

Table 5.2. Tree inspection results.

Tree No.	Species	Age	Potential Roost Features	Suitability
T1	Horse Chestnut	Mature	Large ivy covering	Low
T2	Horse Chestnut	Mature	Basal cavity	Low
T4	Ash	Mature	Significant dieback. Deadwood, including torn branches, and several rot holes and tears	High
T5	Lime	Mature	Some ivy cover, and minor branch tears, contusions to bark	Low
T6	Lime	Mature	Some ivy covering and minor branch tears, contusions to bark	Low

Dusk and Dawn Surveys

Emergence / re-entry surveys (buildings)

- 5.3.7 Buildings **B1** and **B2** exhibit low suitability for roosting bats and were therefore subject to further survey work in the form of dusk emergence surveys. The results of the dusk emergence surveys are summarised in Table 5.3 below.

Table 5.3. Emergence survey results.

Building	Date	Sunset/ sunrise	Emergence/ re-entry	Summary of other activity
B1 and B2	20 July 2020 (dusk)	Sunset: 21:06	None	Occasional to frequent passes by Common Pipistrelle and Soprano Pipistrelle, concentrated at the southwestern end of building B1.
B1 and B2	5 August 2020 (dusk)	Sunset: 20:41	None	Occasional to frequent passes by Common Pipistrelle, Soprano Pipistrelle and Big Bat species. A single <i>Myotis</i> species entered building B1 at 21:22 and departed the building at 21:23. At 21:36 a Common Pipistrelle flew into and out of building B1. Due to the time of these emergences and the nature in which they flew into and out of the building it is considered that building B1 is in use for foraging but not as an active roost.
B1	16 September 2020 (dusk)	Sunset: 19:16	None	Occasional passes of an unidentified bat species around the building including one flying within the building from 19:40pm until 19:55pm.

Activity surveys (foraging /commuting)

5.3.8 The scattered trees, hedgerows and scrub within the site, in addition to the watercourse along the east of the site, offer potential opportunities for foraging bats as they are likely to support a reasonable biomass of invertebrate prey. In addition, the hedgerows and watercourse form linear corridors that could act as navigational aids for commuting bats and provide connectivity to similar off-site habitats in the surrounding area. As such, bat activity surveys were undertaken at the site in July, August, September and October 2020.

5.3.9 **Manual walked transect surveys.** The detailed activity survey results are illustrated on Plan 5557/ECO5, with summary tables provided below.

Table 5.4. Results of the dusk walked transect on 28th July 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	13	52
Soprano Pipistrelle	2	8
Big Bat Species	10	40
Total	25	100

Table 5.5. Results of the dusk walked transect on 26th August 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	29	64
Soprano Pipistrelle	5	11
Big Bat Species	8	18
<i>Myotis</i> Species	3	7
Total	45	100

Table 5.6. Results of the dawn walked transect on 27th August 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	2	50
Big Bat Species	2	50
Total	4	100

Table 5.7. Results of the dusk walked transect on 16th September 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	5	62.5
Soprano Pipistrelle	3	37.5
Total	8	100

Table 5.8. Results of the dusk walked transect on 16th October 2020.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	22	73.3
Big Bat Species	4	13.3
<i>Myotis</i> Species	4	13.3
Total	30	100

5.3.10 As shown by the above results, during the July 2020 dusk survey the most commonly recorded species was Common Pipistrelle, accounting for 52% of registrations, with Big Bat species accounting for 40% of registrations. Soprano Pipistrelle were also recorded by only small numbers, with a total of two passes. During the dusk and dawn surveys in August 2020, Common Pipistrelle was the most commonly recorded species, accounting for 63% of all registrations. Soprano Pipistrelle, Big Bat species and *Myotis* species were recorded to a lesser extent, accounting for 10%, 20% and 6% respectively. In the September 2020 survey, again the most commonly recorded species was Common Pipistrelle, accounting for 62.5% of registrations, whilst Soprano Pipistrelle accounted for the remaining 37.5% of registrations. Similarly, during the October dusk survey the most commonly recorded species was Common Pipistrelle, accounting for 73% of registrations, with Big Bat species and *Myotis* species only being recorded in small numbers.

5.3.11 During the walked transects, the highest levels of bat activity were recorded at listening point 1, in the north-eastern corner of the site (see Plan 5907/ECO5), adjacent to hedgerow H6, and comparatively lower levels of bat activity were recorded along the north-western edges. Limited activity was recorded within the centre of the horse paddocks, with the majority of activity being limited to commuting passes, suggesting that the foraging potential of the site is limited.

5.3.12 **Remote Detector Surveys.** The results of the automated static bat surveys are summarised in Tables 5.9 to 5.10 below.

Table 5.9. Automated static bat survey summary for Location 1 (building B1).

Survey Date	Detector Location 1: B1					
	Number of registrations by species ^a					
	Myotis	'Big Bat'	Pip 45	Pip 55	Pip	PipNath
28th July 2020	0	1	3	1	0	0
29th July 2020	0	0	19	9	2	0
30th July 2020	0	3	31	33	8	0
31st July 2020	0	19	5	8	5	0
1st August 2020	0	9	2	4	0	0

2nd August 2020	0	7	15	1	1	0
3rd August 2020	0	2	9	3	0	0
4th August 2020	0	1	14	14	1	0
26th August 2020	0	0	59	0	21	0
27th August 2020	0	0	26	4	8	0
28th August 2020	0	0	12	4	4	0
29th August 2020	0	0	0	0	0	0
30th August 2020	0	0	31	2	3	0
31st August 2020	0	0	3	5	0	0
16th September 2020	0	1	3	1	0	0
17th September 2020	1	1	19	1	0	0
18th September 2020	0	2	8	1	0	0
19th September 2020	0	1	7	0	0	0
20th September 2020	0	1	72	1	1	0
21st September 2020	4	1	33	2	0	2
16th October 2020	0	0	1	1	0	0
17th October 2020	0	0	0	2	0	1
18th October 2020	0	0	4	0	1	0
19th October 2020	0	0	0	0	0	0
20th October 2020	0	0	0	0	5	0
21st October 2020	0	0	1	0	5	0
Total registrations	5	49	377	97	65	3
Approximate % of total registrations	0.8	8.2	63.3	16.3	10.9	0.5
Key: Myotis- <i>Myotis</i> sp. Pip 45- Common Pipistrelle Pip 55- Soprano Pipistrelle Pip- Common Pipistrelle or Soprano Pipistrelle PipNath- Nathusius's Pipistrelle 'Big Bat' - Noctule, Leislars or Serotine # - Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 28th July will be registrations recorded from ~20.23 on the 28/07 till 05.56 on the morning of the 29/07.						

Table 5.10. Automated static bat survey summary for Location 2 (tree in north east corner of site).

Survey Date	Detector Location 2: north east corner					
	Number of registrations by species [#]					
	Myotis	'Big Bat'	Pip 45	Pip 55	Pip	PipNath
28th July 2020	0	130	91	12	1	0
29th July 2020	1	68	54	2	0	0
30th July 2020	0	271	17	1	1	0
31st July 2020	0	310	363	8	3	0
1st August 2020	1	77	313	1	0	0
2nd August 2020	1	82	183	3	0	0
3rd August 2020	0	53	20	1	0	0
4th August 2020	1	49	48	4	1	0
26th August 2020	0	9	115	8	13	0
27th August 2020	1	4	139	1	6	0
28th August 2020	13	21	79	7	2	0
29th August 2020	0	20	120	1	0	0
30th August 2020	0	16	67	2	2	2
31st August 2020	1	11	91	4	0	0

16th September 2020	16	4	281	23	15	0
17th September 2020	3	1	144	13	1	3
18th September 2020	23	6	86	53	0	0
16th October 2020	2	15	196	4	10	0
17th October 2020	4	1	184	2	23	0
18th October 2020	8	8	124	27	11	2
19th October 2020	0	0	7	2	0	0
20th October 2020	0	1	5	4	5	0
21st October 2020	0	1	81	20	0	0
Total registrations	75	1158	2808	203	94	7
Approximate % of total registrations	1.7	26.7	64.6	4.7	2.2	0.2
Key: Myotis- <i>Myotis</i> sp. Pip 45- Common Pipistrelle Pip 55- Soprano Pipistrelle Pip- Common Pipistrelle or Soprano Pipistrelle PipNath- Nathusius's Pipistrelle 'Big Bat' - Noctule, Leislars or Serotine # - Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 28th July will be registrations recorded from ~20.23 on the 28/07 till 05.56 on the morning of the 29/07.						

- 5.3.13 **Summary.** During the first survey, carried out between July and August 2020, 43% of all registrations at building B1 (Location 1) were attributed to Common Pipistrelle, 32% to Soprano Pipistrelle and 18% to 'Big Bats', with the remainder attributed to *Myotis* species and unidentified Pipistrelle species. At Location 2, the north eastern corner, 50% of registrations were attributed to Common Pipistrelle and 48% to 'Big Bats', with the remainder to Soprano Pipistrelle, *Myotis* species and unidentified Pipistrelle species.
- 5.3.14 During the second survey, carried out in late August 2020, 72% of all registrations at building B1 (Location 1) were attributed to Common Pipistrelle, 20% to 'Big Bats' and 8% to Soprano Pipistrelle. At Location 2, the north eastern corner, 81% of registrations were attributed to Common Pipistrelle and 11% to 'Big Bats', with the remainder to Soprano Pipistrelle, *Myotis* species, Nathusius's Pipistrelle and unidentified Pipistrelle species.
- 5.3.1 During the third survey period in September 2020, 87% of registrations at building B1 were attributed to Common Pipistrelle, with only 4% to 'Big Bats', 4% to Soprano Pipistrelle, 3% to *Myotis* species, and the remainder attributed to Nathusius's Pipistrelle and unidentified Pipistrelle species. At Location 2, 76% of registrations were identified as Common Pipistrelle, 13% as Soprano Pipistrelle, and the remainder attributed to 'Big Bats', Nathusius's Pipistrelle, unidentified Pipistrelle species and *Myotis* species.
- 5.3.2 During the fourth survey period in mid October 2020, bat activity at building B1 (Location 1) was low with only 21 registrations across the six nights. These 21 registrations were attributed to Common Pipistrelle, Soprano Pipistrelle and unidentified Pipistrelle species. At Location 2, the north eastern corner, 80% of registrations were attributed to Common Pipistrelle and 8% to Soprano Pipistrelle, with the remainder to 'Big Bats', *Myotis* species, Nathusius's Pipistrelle and unidentified Pipistrelle species.

5.3.3 Evaluation and Assessment of Likely Effects

Roosting

Buildings

5.3.4 During the Extended Phase 1 Habitat Survey buildings **B1** and **B2** were recorded as providing 'low' suitability for roosting bats, and each building was subject to a single emergence survey in accordance with current guidance.

5.3.5 **Survey Results:** No confirmed evidence of roosting bats was recorded during the survey work undertaken. During the emergence survey for building **B1** (completed on the 5th August 2020), two Common Pipistrelle bats were observed entering and flying within the inside of the building, before then leaving – the building has an open structure with large holes in the southern and western elevations in addition to a wide open door aperture. The activity occurred between 21:19 and 21:36.

5.3.6 A further survey was carried out on 16th September 2020 of building **B1** to examine bat activity and possible emergence, using two Infrared (IR) camera set-ups. Footage from these cameras found no evidence of roosting bats although a bat (of an unidentified species) was again observed flying inside the building at approximately 19:40 pm until 19:55pm.

5.3.7 During the survey of building **B2**, no bats were observed emerging from the building.

5.3.8 **Evaluation:** Activity recorded within building **B1** during the dusk emergence survey on 5th August 2020 are not considered to be representative of an active roost within the building. Common Pipistrelle are an early emerging species and the first bat registration occurred at least 40 minutes after sunset. The activity is attributed to foraging activity with bats passing through the gaps in the building. Similarly, during the deployment of Infrared cameras on the 16th September, bats were observed to be flying within the building, but considering the timing of the activity, bats were unlikely to have been emerging from a roost within the building.

5.3.9 As such it is considered that no specific mitigation or licensing for bats is required. Nonetheless, bats are dynamic animals and as such it remains possible that individuals could colonise the site in the future. Natural England guidance in respect of European Protected Species²⁰ such as bats advises that, even where proposals are reasonably unlikely to result in any offence, such that licensing is not required, reasonable precautions should be taken to minimise the risk to protected species in the unlikely event that they should be found during the course of the activity. Accordingly, recommended precautionary mitigation measures are set out at Chapter 6 below and subject to their implementation it is considered that bats will be fully safeguarded under the proposals.

Trees

5.3.10 A number of trees on the boundaries of the site were observed to have features which may provide potential for roosting bats. However, it is understood that all of these trees will be retained under the proposals, such that in the event that bats are present within the trees they will remain unaffected. As such, subject to the implementation of the recommendation outlined at Chapter 6 below in relation lighting, it is considered that bats will be fully safeguarded under the proposals.

²⁰ Natural England (2013) 'European Protected Species: Mitigation Licensing - How to get a licence (WML-G12)'

Foraging / Commuting

- 5.3.11 As noted above, the hedgerows, trees, scrub and watercourse within the site offer foraging/commuting habitat for bats and indeed foraging and commuting bats were recorded during the activity surveys, including frequent passes of the common species Common Pipistrelle, along with frequent to occasional passes by Soprano Pipistrelle, Big Bat species, Pipistrelle Species, Nathusius Pipistrelle and *Myotis* species. This combination of habitat types occurs relatively frequently in the surrounding area. Taking this into account, together with the levels of activity and species recorded during the survey work, the site is considered to be of local level value to bats at most.
- 5.3.12 No evidence of rarer bats was record. Most notably there was an absence of the two species forming the qualifying features of the Sussex Bat SAC (Barbastelle *Barbastella barbastellus* and Bechsteins Bat *Myotis bechsteinii*) which is located approximately 13km to the north-west of the site.
- 5.3.13 The majority of the mature trees and hedgerows within the site will be retained under the proposals. New tree, hedgerow and shrub planting will improve connectivity around the site and increase its foraging potential, whilst it is recommended that new roosting opportunities are incorporated into the development.
- 5.3.14 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.** Badgers receive legislative protection under the Protection of Badgers Act 1992 (see Appendix 5907/2 for detailed provisions), and as such should be assessed as an important ecological feature. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It is the duty of planning authorities to consider the conservation and welfare impacts of development upon Badger and issue permissions accordingly.
- 5.4.2 Licences can be obtained from Natural England for development activities that would otherwise be unlawful under the legislation. Guidance on the types of activity that should be licensed is laid out in the relevant best practice guidance.^{21, 22}
- 5.4.3 **Background Records.** Badger records are not included within data returned by SBRC, as local badger groups have requested that Badger records remain confidential.
- 5.4.4 **Survey Results and Evaluation.** No badger setts were found during the surveys nor any other evidence such as snagged hair, footprints, latrines or foraging signs, therefore badgers are considered as likely to be absent from the site.

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

²¹ English Nature (2002) 'Badgers and Development'

²² Natural England (2011) 'Badgers and Development: A Guide to Best Practice and Licensing', Interim Guidance Document

of the species and their breeding sites and places of rest (see Appendix 5907/2 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 or immediately adjacent to the study area. Data returned from SBRC did not include any records of Dormouse.

5.5.3 **Survey Results:** The study area provides some limited opportunities for Dormouse, particularly in the form of dense hedgerows to the south and south-east of the site, and around the garden in the north-east corner of the site. The majority of the study area however is dominated by open grassland fields which are unsuitable for Dormouse.

5.5.4 Given the presence of potential Dormouse habitat within the study area (and known presence from earlier surveys), specific Dormouse survey work was undertaken at the site. A plan showing the extent of the survey area is shown at Plan 5907/ECO4.

5.5.5 To date, surveys completed to date during 2020 (July to October) have not recorded any evidence of Dormouse within the study area, although the surveys will continue until November 2020. A number of Woodmouse *Apodemus sylvaticus* nests were recorded.

5.5.6 **Evaluation:** Sussex is located within the core distribution area for Dormouse, and the species is relatively widespread across the county²³. There is however, only a limited network of hedgerows within the site, with those being potentially suitable for Dormouse limited to off-site hedges to the south-east of the site, which form part of a wider network. Hedgerow around the garden in the north-east part of the site are close to existing residential development and are less likely to have Dormouse since they can suffer from the effects of cat predation and light intrusion.

5.5.7 There are no relevant records within the nearby area, and no evidence has been identified during the surveys carried out to date. Therefore, the species is likely to be absent from the site. Survey will need to be concluded before this can be confirmed.

5.5.8 Most hedgerows will also be retained under the scheme, with the exception of small sections of two hedges required to create the proposed access in the north-east corner of the site.

5.6 Water Vole

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 represent an important ecological feature. The legislation affords protection to individuals of the species and their breeding sites and places of shelter (see Appendix 5907/2 for detailed provisions). There is no provision under the Act for licensing that 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. A Class Licence

²³ Mammal Watch South East (2015) *South East Mammal Atlas: covering Hampshire, Surrey, Sussex, Kent and the Isle of Wight*

is also available to carry out displacement operations, followed by a destructive search (where water voles are encouraged to leave the occupied area through vegetation management). A condition of such licences is that provision as part of the wider scheme for positive enhancements to Water Vole conservation in the study area.

- 5.6.3 **Background Records.** No specific records of Water Vole within or adjacent to the site were returned from the desktop study. A number of records of Water Vole were returned from the surrounding search area, with the closest specific record of this species being located approximately 320m south of the site, noted in 2003.
- 5.6.4 A previous survey carried out in 2018 identified a good population of Water Vole within a stretch of Watercourse **WC1**, located to the west of stable block (building **B6**), as evidenced by various field signs, including burrows, droppings and feeding remains. The area concerned is shown on Plan 5907/ECO7.
- 5.6.5 **Survey Results.** The habitats within the site itself are generally unsuitable for Water Vole, mostly comprising grassland. However, watercourse **WC1** offers potential opportunities for this species and as such specific survey work was undertaken to determine the presence or likely absence of this species.
- 5.6.6 During the second and third survey visits, occasional but widespread evidence was found of Water Vole interspersed throughout the majority of the watercourse including burrows, droppings and feeding remains. The results of the survey are shown on Plan 5907/ECO7. The furthest north that field signs were found was at the bridge adjacent to building **B2**.
- 5.6.7 **Evaluation.**
- 5.6.8 The evidence on site would suggest that there is a small population of Water Voles at the site, which may have diminished since previous surveys were carried out in 2018. Water Vole populations are often subject to fluctuations caused by various factors, including periodic flooding, changes in predator populations, and changes in the management of bankside and in-channel vegetation²⁴. It is understood that the site has flooded during at least one of the recent winters, which may account for the decline. Nevertheless, the population is considered to be an important ecological receptor at the local level.
- 5.6.9 Currently there is no evidence of water vole using the short section of watercourse which will be affected by the creation of the proposed access road and associated bridge (which is expected to be approximately 10m in length). Habitat on the east bank at this location is heavily overshadowed by Bramble scrub, although there is some habitat on the west bank which may provide suitable conditions for burrowing and feeding. It is possible that there would be direct effects to a short section of the watercourse if Water Voles became re-established.
- 5.6.10 It is recommended that the population of Water Voles is monitored throughout the period between Planning Permission being granted and commencement of construction activities at the site, during the active season, to detect any changes in the population.
- 5.6.11 Should it be necessary, it is proposed that a Natural England Class Licence would be sought, to allow water voles to be displaced from the sections of bank affected, and if necessary proofed using suitable materials to prevent animals from re-colonising. Further details of

²⁴ Strachan, R., Moorhouse, T., Gelling, M. (2011). Water Vole Conservation Handbook (Third Edition). WildCru, University of Oxford.

the proposed mitigation measures are given in Section 6 below. As part of the wider scheme it is proposed to deliver habitat enhancements

- 5.6.12 In addition, there is the possibility that the proposed uses of the land (particularly from an increase in recreation pressure, such as dog walking) might result in disturbance to Water Voles along the length of watercourse fronting the site. Water Voles are relatively resilient to disturbance from human pressures, but nevertheless it is proposed to mitigate any potential effects by creating an 8m buffer zone along the watercourse which will be fenced to prevent disturbance from people and dogs. Within this zone it will also be possible to deliver further enhancements through appropriate management of the riparian corridor, including a sympathetic cutting regime, and the clearance of scrub in some areas which might otherwise create sections unsuitable for Water Vole. Two proposed lakes will also be designed to incorporate Water Vole habitat features, and it is expected that they will be colonised in time.

5.7 Otter

- 5.7.1 **Legislation.** 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 5907/2 for detailed provisions). Otter is also a S41 Priority Species. On this basis, Otter is considered to represent an important ecological feature.
- 5.7.2 **Background Records.** Otter records are not included within data returned by SBRC as they are considered likely absent within the Sussex area. The LRC states that there has been no breeding Otter records returned within the past 20 years.
- 5.7.3 **Survey Results and Evaluation.** The majority of the site is unsuitable for Otter, comprising managed grassland. However, the watercourse adjacent to the site is considered to provide potential habitat for this species, forming a corridor for commuting and foraging, together with areas of dense marginal vegetation which provide potential opportunities for shelter or lying up during the day.
- 5.7.4 However, no evidence of Otter was found during the specific survey work undertaken and this species is unlikely to be affected by the proposals. As such, the site is not considered to be of importance for this species, albeit potential remains for Otter to make occasional use of the river adjacent to the site.

5.8 Other Mammals

- 5.8.1 **Legislation.** A number of other UK mammal species do not receive direct legislative protection relevant to development activities but may receive protection against acts of cruelty (e.g. under the Wild Mammals (Protection) Act 1996). In addition, a number of these mammal species are S41 Priority Species and should be assessed as important ecological features.
- 5.8.2 **Background Records.** No specific records of other mammals from within or adjacent to the site were returned from the desktop study. A number of records of Brown Hare *Lepus europaeus* and Hedgehog *Erinaceus europaeus* (Priority Species) was returned from the LRC. The nearest record returned was a Hedgehog, 60m south-east of the site, logged in 2017.
- 5.8.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Other mammal species likely to utilise the

site, such as Fox *Vulpes vulpes*, remain common in both a local and national context, and as mentioned above do not receive specific legislative protection in a development context. As such, these species are not a material planning consideration and the loss of potential opportunities for these species to the proposals is of negligible significance.

- 5.8.4 The desktop study returned background records of Hedgehog within the surrounding area. Hedgehog is a Priority Species, albeit this species remains common and widespread in England. The site offers potential opportunities for this species, particularly in the form of areas of dense scrub and Bramble in the north-east and western boundary of the site, although habitats are unlikely to be of importance in a local context, and Hedgehog is considered to be of importance at a site level only. In any event, abundant similar opportunities are present within the local area and there is no evidence to suggest the proposals will significantly affect local populations of this species. However, it is recommended that precautionary safeguards are put in place to minimise the risk of harm to Hedgehog in the event this species is present, as detailed in Chapter 6 below.

5.9 Birds

- 5.9.1 **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 5907/2 for detailed provisions).

- 5.9.2 **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 status²⁵. 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.

- 5.9.3 **Background Records.** Information from the data search included records for several bird species in the vicinity of the site, including the Red Listed species White-fronted Goose *Anser albifrons*, Grey Partridge, Merlin *Falco columbarius*, Ringed Plover, Lapwing *Vanellus vanellus*, Barn Owl, Curlew *Numenius arquata*, Woodcock *Scolopax rusticola*, Ruff, Black-tailed Godwit, Red-necked Phalarope *Phalaropus lobatus*, Herring Gull *Larus argentatus*, Turtle Dove *Streptopelia turtur*, Cuckoo and Yellowhammer which are also all Priority Species. None of the records originate from within the site itself.

- 5.9.4 **Survey Results.** Several species of bird were observed within the site during the Phase 1 survey including: Rook *Corvus frugilegus*, Carrion Crow *Corvus Corone*, Magpie *Pica Pica*, House Sparrow, Common Cuckoo, Yellowhammer, Blackbird *Turdus merula*, Robin *Erithacus rubecula*, Wren *Troglodytes troglodytes*, Long-tailed tit *Aegithalos Caudatus*, Green Woodpecker *Picus viridis* and Chiffchaff *Phylloscopus collybita*.

A Barn Owl was recorded once during a bat survey on the 28th July 2020 flying across the fields, whilst Tawny Owl *Strix aluco* was also recorded perching on building B1 during a bat survey on the 16th September 2020.

²⁵ 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

During the daytime surveys in October a Little Owl was noted roosting in **B1**. A Barn Swallow *Hirundo rustica* nest, was also recorded in building **B1** on the 16th October 2020 and 22nd October 2020, which appears to have been used during the 2020 breeding season.

5.9.5 **Evaluation.** Most of the birds recorded at the site are not listed as having any special conservation status, although House Sparrow, Common Cuckoo and Yellowhammer are included on the Red list as a result of declines in UK breeding populations and is also a Priority Species. In respect to House Sparrow, 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 this species, which in any case, is common in Great Britain²⁶. Common Cuckoo was heard at some distance away from the site, and there is limited habitat available for the species within the site. Yellowhammer are likely to be confined to surrounding hedgerows, away from built-up areas (particularly those in the south-west corner) and these will be retained under the proposals.

5.9.6 The building **B1** was previously noted as a roost for Barn Owl in 2013, during a previous survey. However, during the internal inspection of the building there was no evidence of Barn Owl present in the form of droppings, pellets, feeding remains or feathers. The building was re-checked each time a bat survey was completed, and the species remained absent. The lack of evidence suggests that this building is no longer used as a roost and therefore does not require further surveys. Barn Owl, Tawny Owl and Little Owl were recorded incidentally during the bat surveys, suggesting that they may utilize some areas for hunting, and building B1 appears to be used at times for roosting. However, the limiting factor for both species tends to be the availability of nest sites, as opposed to hunting territory. In the long term the site will/ continue to offer open areas of grassland which are likely to provide opportunities for hunting.

5.9.7 In addition, a Barn Swallow nest was recorded in October within building **B1** during the daytime surveys. The species is not listed on the BTO Amber or Red list and does not have any special conservation status. However, due to the loss of building **B1** under the proposal, this could potentially affect any nesting Barn Swallow's that may be present at the time of works. Accordingly, a number of safeguards in respect of nesting birds are proposed, as detailed in Chapter 6 below.

5.9.8 Similarly, although Little Owl was observed roosting in building **B1**, this species is a non-native introduction to the UK fauna, and is not listed on either of the BTO Amber or Red lists is not considered to be a sensitive receptor.

5.9.9 The proposals will result in the loss of several short sections of hedgerow and some trees to facilitate site access and this could also potentially affect any nesting birds that may be present at the time of works. Accordingly, a number of safeguards in respect of nesting birds are proposed, as detailed in Chapter 6 below. In the long-term, new nesting opportunities will be available for birds as described in Chapter 6 below.

5.9.10 It is proposed to provide enhancements in the form of Barn Owl and Little Owl boxes, further details of which are set out in Section 6 below.

5.10 Invertebrates

5.10.1 **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*

²⁶ Population estimates of birds in Great Britain and the United Kingdom. Musgrove *et al.*, British Birds, 2013

vorticulus receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 5907/2 for detailed provisions. A number of invertebrates are also S41 Priority Species. Where such species are present, they should be assessed as important ecological features.

5.10.2 **Background Records.** No specific records of invertebrates were returned from within or adjacent to the site. A number of records of Stag Beetle *Lucanus cervus*, Pearl-bordered Fritillary *Boloria Euphrosyne*, Grizzled Skipper *Pyrgus malvae* and Small Heath *Coenonympha pamphilus* (Priority Species) were returned within information received from the LRC with the closest located approximately 240m east of the site.

5.10.3 **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 large semi-improved grassland fields, hedgerows, buildings and areas of hardstanding, which are likely to support only a limited diversity of invertebrates. The site has small areas of ruderal vegetation, spoil heaps and occasional patches of scrub but otherwise contains relatively few micro-habitats that would typically indicate elevated potential for invertebrates²⁷, 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. Accordingly, given the habitat composition of the site and lack of adjacent sites designated for significant invertebrate interest, it is considered unlikely that the proposals will result in significant harm to any protected, rare or notable invertebrate populations, and the site is not considered to support an important invertebrate assemblage.

5.11 Summary

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

Table 5.11. Evaluation summary of fauna forming important ecological features.

Species / Group	Supported by or associated with the site	Level of Importance
Bats – Roosting	Potential habitat in the form of trees	Local
Bats – Foraging / Commuting	Confirmed presence on site	Local to District
Badger	No confirmed presence	Likely Absent
Dormouse	Confirmed presence on site	Likely Absent
Water Vole	Small population present on Watercourse WC1	Local
Otter	No confirmed presence	Likely Absent
Great Crested Newt	No ponds within site or nearby	Likely Absent
Reptiles	Lack of suitable habitat within site	Likely Absent
Birds	Confirmed presence on site	Local
Barn Owls	No confirmed nesting site/roosting. Some suitable habitat for foraging/hunting	Local

²⁷ Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

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

6 Mitigation Measures and Biodiversity Net Gains

6.1 Mitigation

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

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.

Watercourses

- 6.1.3 **MM2 – Pollution Prevention.** In order to safeguard the stream adjacent the eastern site boundary 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 Post-development, the drainage system for the development will ensure the watercourse is not subject to adverse changes in surface water run-off or quality. On the contrary, the removal of agricultural run-off from the land will likely be beneficial in terms of water quality.

Bats

- 6.1.5 **MM3 – 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.
- 6.1.6 **MM4 – Felling of Trees Supporting Bat Roosting Potential [TBC Subject to Review of Arb. Report]**

- 6.1.7 Tree (T5/T6), which will be lost to the proposals, has been identified as providing low potential for roosting bats. Felling of this tree will therefore be undertaken under an ecological watching brief, and will be carried out using the 'soft-felling' technique, whereby sections of the tree will be cut and lowered to the ground, followed by leaving the felled sections on the ground for a period of at least 24 hours to allow any bats, should these be present, to escape.
- 6.1.8 If any evidence for the presence of roosting bats is recorded, works on that tree will be suspended and consideration will be given to the need to undertake works under a European Protected Species (EPS) development licence, and a licence application will be made to Natural England as required.
- 6.1.9 **MM5 – Sensitive Lighting.** Light-spill onto retained and newly created habitat, in particular the retained buffer zone on the southern south- western watercourse/boundary, will be minimised in accordance with good practice guidance²⁸ to reduce potential impacts on light-sensitive bats (and other nocturnal fauna). This may be achieved through the implementation of a sensitively designed lighting strategy, with consideration given to the following key factors:
- **Light exclusion zones** – ideally no lighting should be used in areas likely to be used by bats. Light exclusion zones or 'dark buffers' may be used to provide interconnected areas free of artificial illumination to allow bats to move around the site;
 - **Appropriate luminaire specifications** – consideration should be given to the type of luminaires used, in particular luminaries should lack UV elements and metal halide and fluorescent sources should be avoided in preference for LED luminaries. A warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;
 - **Light barriers / screening** – new planting (e.g. hedgerows and trees) or fences, walls and buildings can be strategically positioned to reduce light spill;
 - **Spacing and height of lighting units** – increasing spacing between lighting units will minimise the area illuminated and allow bats to fly in the dark refuges between lights. Reducing the height of lighting will also help decrease the volume of illuminated space and give bats a chance to fly over lighting units (providing the light does not spill above the vertical plane). Low level lighting options should be considered for any parking areas and pedestrian / cycle routes, e.g. bollard lighting, handrail lighting or LED footpath lighting;
 - **Light intensity** – light intensity (i.e. lux levels) should be kept as low as possible to reduce the overall amount and spread of illumination;
 - **Directionality** – to avoid light spill lighting should be directed only to where it is needed. Particular attention should be paid to avoid the upward spread of light so as to minimise trespass and sky glow;
 - **Dimming and part-night lighting** – lighting control management systems can be used, which involves switching off/dimming lights for periods during the night, for example when human activity is generally low (e.g. 12.30 – 5.30am). The use of

²⁸ 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.

such control systems may be particularly beneficial during the active bat season (April to October). Motion sensors can also be used to limit the time lighting is operational.

Badger

6.1.10 **MM6 – Badger Construction Safeguards.** In order to safeguard Badger should they enter the site during construction works, the following measures will be implemented:

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

6.1.11 **MM6a – Badger Update Survey.** Given that no evidence of Badgers has been recorded within or adjacent to the site it is considered that Badgers do not currently pose a constraint to development. Nonetheless, Badgers are dynamic animals and levels of Badger activity can rapidly change at a site, with new setts being created at any time. It is therefore 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.

Water Vole

6.1.12 **MM7 - Water Vole Monitoring.** A population of Water Vole is known to be present on the watercourse to the south of the site, although there is currently no activity on the section which is directly affected by the proposed works (the proposed bridge crossing). It is therefore recommended that the population of Water Voles is monitored throughout the period between Planning Permission being granted and commencement of construction activities at the site, during the active season, to detect any changes in the population.

6.1.13 **MM8 – Water Vole Displacement.** If, despite all reasonable efforts, properly authorised development will adversely affect Water Vole a Class Licence will be utilised to available to carry out displacement operations, followed by a destructive search (where water voles are

encouraged to leave the occupied area through vegetation management). This work must be carried out between mid-February and mid-April to comply with the conditions of the Class Licence.

- 6.1.14 **MM9 – Water Vole Buffer Zone.** It is proposed to mitigate for the potential effects of disturbance on the watercourse by creating an 8m buffer zone along the feature which will be fenced to prevent disturbance from people and dogs. The fencing will be provided with a mesh of sufficient gauge to prevent dogs from being able to pass through it.

Hedgehogs

- 6.1.15 **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;

Reptiles

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

Nesting Birds

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

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

- 6.1.18 It is also recommended that during the non-breeding season that the opportunity is taken to prevent further access of nesting birds to building **B1** (particularly Barn Swallow which was observed as having made a nest during the summer of 2020). This will prevent a potential offence under the relevant legislation.

6.2 Biodiversity Net Gains

- 6.2.1 The National Planning Policy Framework (NPPF) encourages new developments to maximise the opportunities for biodiversity through incorporation of enhancement measures. The proposals present the opportunity to deliver ecological enhancements at the site for the benefit of local biodiversity, thereby making a positive contribution towards the broad objectives of national conservation priorities and the local Biodiversity Action Plan (BAP). A range of enhancements are included in the scheme proposals, which are summarised below, and 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 – EE9**), a number of biodiversity net gains will be delivered at the site. These are illustrated on the Landscape Strategy and Ecological Enhancements Plan (7249/ASP3) which is included at Appendix 5907/5.

Habitat Creation

- 6.2.2 **EE1 – New Planting.** New planting has been proposed within the site to comprise areas of native species of local provenance, including trees and shrubs appropriate to the local area. This includes new boundary planting on the northern boundary, wet woodland areas in the south of the site, and a range of tree groups and individual trees. Suitable species for inclusion within the planting could include native trees such as Oak, Birch *Betula pendula* 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 *Malus sylvestris*, Hazel *Corylus avellana* 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.
- 6.2.3 **EE2 – Wildflower Grassland.** Areas of wildflower grassland have been proposed within the landscaping strategy for the site, such that, in combination with new native landscape planting, opportunities for biodiversity will be maximised under the proposals. This would make a positive contribution towards the local BAP, which lists 'lowland meadows' as a priority. Consideration should be given to the laying of wildflower turfs, comprising locally appropriate native species, to establish wildflower grassland. This would ensure rapid establishment of these habitats, and reduce the timeframe for delivering the range of ecological benefits that are proposed.
- 6.2.4 **EE3 – Wetland Features.** It is proposed to create two new lakes that will provide wetland habitats that will provide a range of opportunities for wildlife, including Water Vole, and species of amphibian and Reptiles. It is also recommended that other wetland habitats are incorporated into the other drainage features, such as the Sustainable Drainage Systems (SuDS), which are included in the scheme design. Creation of such habitats would provide opportunities for a range of wildlife while also helping to attenuate surface water run-off.

Bats

- 6.2.5 **EE4 - Bat Boxes.** Where architectural design allows, 12 bat bricks will be incorporated into a proportion of the new build. The location of the 12 bat bricks will be determined by a competent ecologist, post-planning once the relevant final development design details have been approved. An indication is provided at Plan 7249/ASP3, which is included at Appendix 5907/5. So as to maximise their potential use, the bat bricks will be 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.

6.2.6 Water Voles

- 6.2.7 **EE5 – Water Vole Habitat Enhancements.** Within the 8m buffer zone described in **MM9** above, it will also be possible to deliver further enhancements through appropriate management of the riparian corridor, including a sympathetic cutting regime, and the clearance of scrub in some areas which might otherwise create sections unsuitable for Water Vole. Two proposed lakes will also be designed to incorporate Water Vole habitat features, and it is expected that they will be colonised in time.

Birds

- 6.2.8 **EE6 - Bird Boxes.** A total number of eight bird nesting boxes are to be incorporated within the proposed development, thereby increasing nesting opportunities for birds at the site. Ideally, the bird boxes will have greater potential for use if sited on suitable, retained trees, situated as high up as possible. Swallow nest boxes are not ideally suited to external walls of buildings. However, it will be possible to incorporate a number of artificial Schwegler House Martin nests on the external walls of buildings within the proposed development to provide increased nesting opportunities. 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. An indication is provided in Plan 7249/ASP3, which is included at Appendix 5907/5.

- 6.2.9 **EE7 – Owl Boxes.** To provide further opportunities for nesting owls, it is proposed to install two owl boxes, one Barn Owl box mounted on a suitable poles and situated in the southern corner of the site, and a Little Owl nest box mounted to a tree in the south-western corner, where they will have access to open grassland areas. One nest box will be of a suitable specification for Barn Owl, whilst another will be designed to accommodate Little Owl. The following links explain the specification of the two designs for both types of nest boxes; <https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-pole-nest-box/> and <https://www.barnowltrust.org.uk/barn-owl-nestbox/little-owl-nest-box/>.

Invertebrates

- 6.2.10 **EE8 – Habitat Piles.** A proportion of any deadwood arising from vegetation clearance works should be retained within the site in a number of log 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.
- 6.2.11 **EE9 – Nectar Source.** The wildflower mix will include various Bents *Agrostis* spp. and Hawkweeds (*Hieracium/Hypochoeris*), which will provide a larval food source and adult nectar source, respectively, for Wall butterfly (Priority Species).

Hedgehog

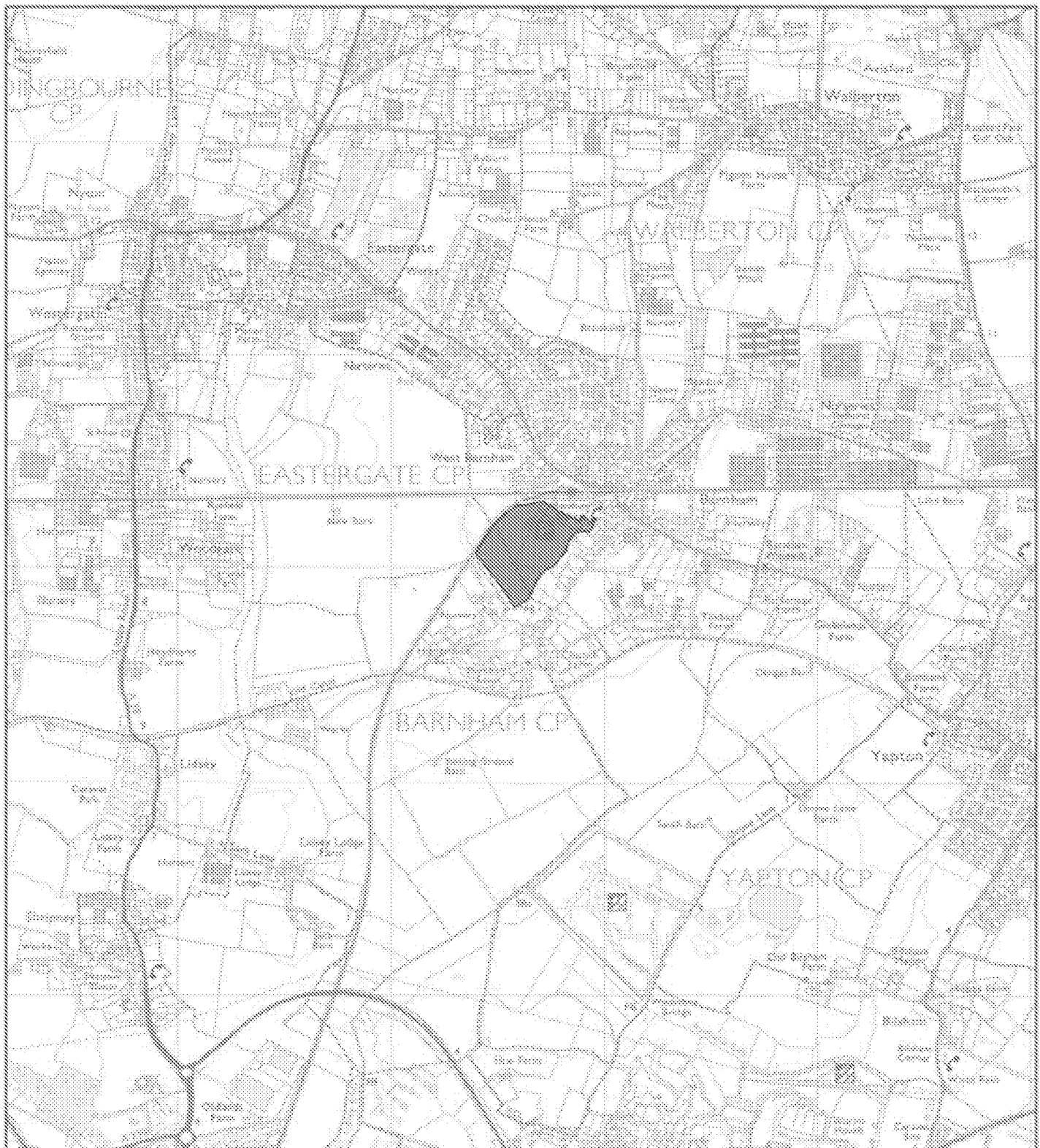
- 6.2.12 **EE10 – Hedgehog Nest Domes.** It is recommended that two Hedgehog nest domes be installed within sheltered areas, such as the existing or newly created hedgerows to provide suitable nesting and hibernation sites for this species. The Hedgehog nest domes should be positioned out of direct sunlight, in areas of dense vegetation.

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 number of biodiversity net gains as part of the proposals.

Plan 5907/ECO1:

Site Location



Key:



Site Location

aspect ecology

Aspect Ecology Limited, West Court, Handwick Business Park,
Noral Way, Buntingford, Cambridgeshire CB9 7JX
01228 279721 info@aspectecology.com www.aspectecology.com

Tars Farm, Barnham

PROJ020

Site Location

TYPE

S907/EC01

UNAPPROVED



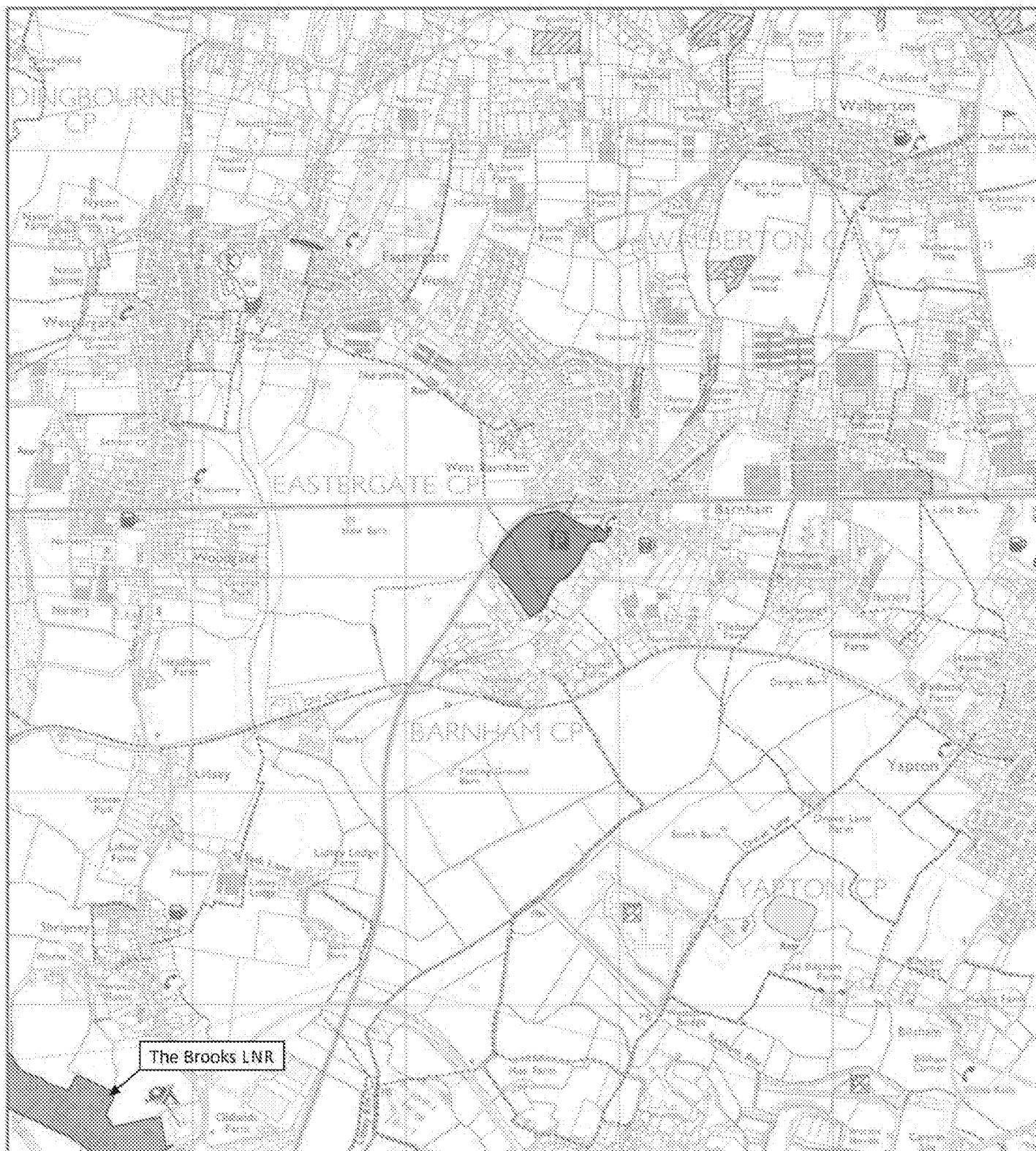
November 2020

REV

REV C

Plan 5907/ECO2:

Ecological Designations



Key:

ECO2



Site Location

Local Nature Reserve (LNR)

Designated Road Verge (DRV)

Ancient & Semi-Natural Woodland (ASW)

aspect ecology

Aspect Ecology Limited, West Court, Handwick Business Park,
Noral Way, Buntingford, Cambridgeshire CB22 2AR
01228 279721 info@aspectecology.com www.aspectecology.com

Tars Farm, Barnham

PROJ0207

Ecological Designations

TYPE

5907/ECO2

UNDESIGNATED



November 2020

REV

REV C

Plan 5907/ECO3:

Habitats and Ecological Features



Key:

-  5907 Site Boundary
-  Semi-Improved Species-poor Grassland (Horse Paddocks)
-  Semi-Improved Poor Grassland (Hay Meadow)
-  Bare Ground
-  Tall Ruderal Vegetation
-  Spoil Heap & Manure
-  Scattered Scrub
-  Orchard Trees
-  Tree With High Bat Roosting Potential
-  Tree With High Bat Roosting Potential
-  Access Track
-  Hedgerow
-  Watercourse
-  Dry Ditch
-  Fencing
-  Hardstanding
-  Buildings

aspect ecology

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

Tars Farm, Barnham

Habitats and Ecological Features

5907/ECO3



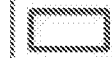
November 2020

Plan 5907/ECO4:

Hazel Dormouse Survey Results



Key:



Site Boundary

Hazel Dormouse Transect

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
Natal Way, Bicester, Oxfordshire - OX18 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Tars Farm, Barnham

Hazel Dormouse Transect Plan

5907/ECO4



November 2020

Plan 5907/ECO5:

Bat Activity Survey Results (Walked Transects)



Key:

Site Boundary

Manual Bat Activity Survey*

Transect Route A

Bat Activity Index**

At Listening Stops

- None (0 registrations per min)
- Lowest (0.01-0.5 registrations per min)
- Moderate (0.51-1.0 registrations per min)
- Highest (1.1+ registrations per min)

Between Listening Stops

- None (0 registrations per min)
- Lowest (0.01-0.5 registrations per min)
- Moderate (0.51-1.0 registrations per min)
- Highest (1.1+ registrations per min)

Proportion of total registrations

- Common Pipistrelle
- Soprano Pipistrelle
- Big Bat Species
- Myotis Species

aspect ecology

Aspect Ecology Limited - West Court - Harlowick Business Park
Norral Way - Banbury - Oxfordshire - OX16 3AF
01295 275723 - info@aspect-ecology.com - www.aspect-ecology.com

Tars Farm, Barnham PROJECT

Bat Activity Survey Results TITLE

5907/EC05 DRAWING NO.

REV.

November 2020 DATE



Plan 5907/ECO6:

Bat Activity Survey Results (Automated Detectors)



Key:

Site Boundary

Automated Bat Activity Survey

Location of Static Detector

Common Pipistrelle

Soprano Pipistrelle

Pipistrelle Species

Nathusius's Pipistrelle

Big Bat Species

Myotis Species

aspect ecology

Aspect Ecology Limited - West Court - Harlowick Business Park
Norral Way - Banbury - Oxfordshire - OX16 3AF
01295 275723 - info@aspect-ecology.com - www.aspect-ecology.com

Tars Farm, Barnham

Bat Static Survey Results and Locations

5907/EC06

REV.

November 2020



Plan 5907/ECO7:

Water Vole Survey Results



Key:

- Site Boundary
- Survey Extent of Aspect Ecology's Water Vole Survey
- Watercourse

Water Vole Field Signs:

- Burrow
- Feeding Remains
- Footprints
- Droppings
- Latrine

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
Natal Way, Bicester, Oxfordshire - OX18 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Tars Farm, Barnham

Water Vole Survey results

5907/ECO7



November 2020

Appendix 5907/1:

Evaluation Methodology

Evaluation Methodology

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

Importance of Ecological Features

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

Designated Sites

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

¹ CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine', Chartered Institute of Ecology and Environmental Management, Winchester

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

Biodiversity Lists

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

Red Listed, Rare, Legally Protected Species

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

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

Assigning Level of Importance

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

Designated Sites

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

Habitats

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

Species

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

Appendix 5907/2:

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

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

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

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

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

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

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

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

Appendix 5907/3:

Desktop Data Study

Ecological Data Search SxBRC/20/075 - Summary Report

An ecological data search was carried out for land at Barnham on behalf of Karley Khan (Aspect Ecology Ltd) on 14/05/2020.

The following datasets were consulted for this report:

	Requested	Radius/buffer size
Designated sites, habitats & ownership maps	Yes	2km
Protected, designated and invasive species	Yes	2km

Summary of results

Sites and habitats

Statutory sites	None present
Non-statutory sites	1 Designated Road Verge
Section 41 habitats	4 habitats
Ancient and/or ghyll woodland	Present

Protected and designated species

International designations	41 species	530 records
National designations	105 species	2,793 records
Other designations	198 species	4,047 records
Total	215 species	4,465 records
Invasive non-native	30 species	114 records

The report is compiled using data held by Sussex Biodiversity Record Centre (SxBRC) at the time of the request. SxBRC does not hold comprehensive species data for all areas. Even where data are held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there – the area may simply not have been surveyed.

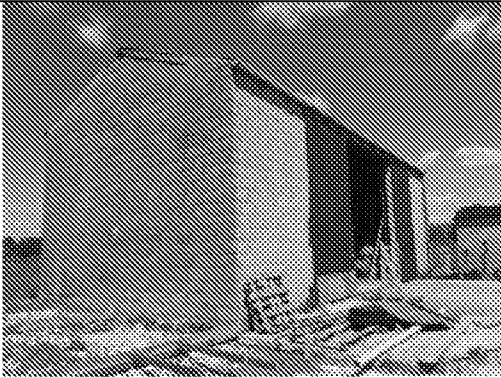
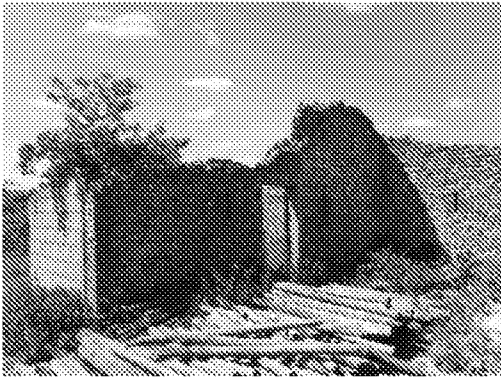
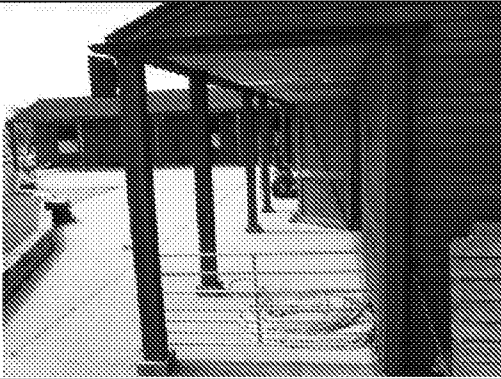
**This summary page may be published.
The full report and maps may not be published or otherwise shared.**

The data search report is valid until 14/05/2021 for the site named above.

Appendix 5907/4:

Bat Building Descriptions

Building	Photographs	Description	Features providing bat roosting potential	Evidence of bats/Conclusion on Bat Potential
B1		Single storey old flint and brick barn. Single skin walls. Hipped roof with wooden trusses and purlins, with asbestos tiles. Simple wooden soffits showing some signs of disrepair. No backing to tiles internally – batons visible. 2 large holes in roof at eastern end and on southern side, each approx. 1m x 0.5m wide, and allowing rain to penetrate. Wide door frame with no door/s and windows infilled with blockwork. Used for storing palettes, bricks, fencing wire and other farm materials. Partly rendered inside. Manure or soil covering part of floor.	There were few features noted with potential for roosting bats. There is a narrow shelf at top of the roof plate internally, but the roof structure presents very few opportunities, and there are no internal cavities. The structure is very exposed to the elements, and likely to be subject to large fluctuations in temperature. NB. This building was recorded as having a Barn Owl roost in 2013, and although there are suitable features, there was no evidence of recent activity (such as droppings, pellets, feeding remains, feathers etc.).	No evidence of roosting bats recorded. Overall, the building is considered to have low potential for roosting bats.
B2		Modern single story stable block. Breize block wall construction. Single pitch, modern pre-fabricated pan-tile roof in good condition. Inside the roof has approx.12 wooden roof trusses forming an open internal roof space with no roof void. Felt backing to roof inside building. Large double sliding doors to front (W) side of building. Inside the building are several stable units, together with a workbench and other materials.	There are a number of small gaps the bottom end of tile run (adj. to the guttering), which may offer limited scope for bats to enter the space between tiles and felt backing, but generally the building is in good condition with few features with potential Mouse droppings were found.	No evidence of roosting bats recorded. Overall, the building is considered to have low potential for roosting bats.
B3		A wooden single-storey stable block of recent construction. Wooden tongue-and-groove walls and shallow single pitch felt roof over plywood backing. Front (N) elevation of the structure overhangs by approx. 1m.	There are no apparent opportunities for roosting bats, and no visible entry/egress points which would allow access to the interior of the building.	No evidence of bats recorded. The building is considered to be of negligible suitability for roosting bats.

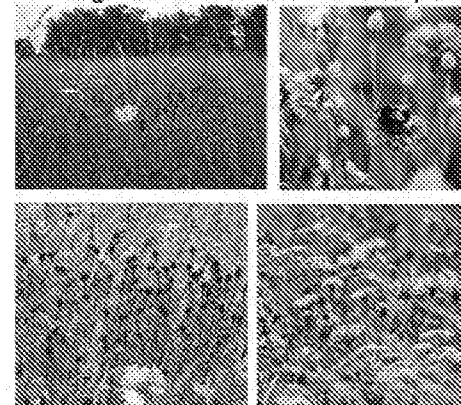
Building	Photographs	Description	Features providing bat roosting potential	Evidence of bats/Conclusion on Bat Potential
B4		High (two storey height) modern barn of breeze block construction with internal steel frame (I-beams and angled metal sections). Single pitch corrugated asbestos roof with steel supports. Used for storage of hay and farm machinery. Concrete floor.	There are no apparent opportunities for roosting bats, and no visible entry/egress points which would allow access to the interior of the building. The building is likely to be subject to fluctuations in temperature.	No evidence of bats recorded. The building is considered to be of negligible suitability for roosting bats.
B5		Collection of flint and brick walls, forming part of shell of former building. No roof present.	The structures do not contain any potential roost features.	No evidence of bats recorded. The building is considered to be of negligible suitability for roosting bats.
B6		Wooden L-shaped single-storey stable block of recent construction. Wooden tongue-and-groove clad walls. Shallow single-pitch corrugated roof backed internally with plywood, and supported by wooden timbers. Overhangs to the front elevation, forming a porch area to front of stables.	There are no apparent opportunities for roosting bats, and no visible entry/egress points which would allow access to the interior of the stables. The building is likely to be subject to fluctuations in temperature.	No evidence of bats recorded. The building is considered to be of negligible suitability for roosting bats.

Appendix 5907/5:

Ecological Enhancement Plan

Species Grassland Mixes

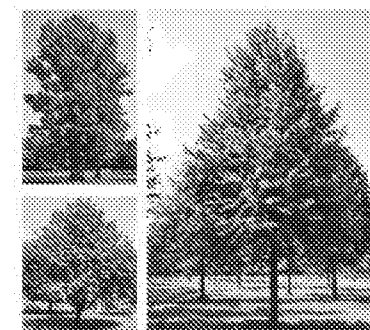
Emorsgate EM2
General Purpose Meadow Mix, EH1
Emorsgate EL1 Flowering lawn mix
Emorsgate EM8 meadow mixture for wetlands
Emorsgate EM1F Wild Flower for pond



Boundary planting to help screen the views and impact from the adjacent railway line and create new ecological corridor.

Open Space Trees

Quercus robur
Aesculus hippocastanum
Tilia x europaea
Fagus sylvatica
Sorbus aria
Prunus avium



Key:

- Application Site Boundary
- Proposed Trees
- Proposed Shrub Planting
- Wildflower Grass Mix
- Proposed Watercourse Fence
- Existing Public Right of Way Retained
- Proposed Community Orchard & Allotments
- Proposed Wet Woodland Planting
- Proposed Area of Informal Play
- Bat bricks integrated into southsouth west facing cable ends positioned 3-5m above ground
- Proposed bird boxes located on existing and proposed trees
- Proposed log pile
- Proposed Hedgehog nest boxes/domes
- Barn Owl Pole Mounted Nest Box
- Little Owl Tree Mounted Nest Box

Existing vegetation structure retained and strengthened to north where there are current gaps

Woodland offset from watercourse to provide a 8m water vole buffer zone

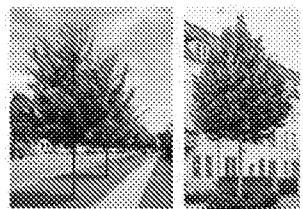
Enhanced boundary with wet woodland planted along the south eastern site boundary.

Substantial new native tree and shrub planting providing ecological benefit and habitat corridors for wildlife

Wildflower grassland across the open space to enhance biodiversity and visual amenity from the public open space and existing footpath

Primary Street Trees

Tilia Rancho
Ulmus new horizon
Acer campestre 'Streetwise'
Prunus spire
Tilia tomentosa Brabant

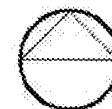


Attenuation features and wildflower meadow:



NOTES:
Based on the 2019 aerial map with permission of The Controller of Her Majesty's Stationery Office.
Aspect Landscape Planning Ltd. 2020. All Rights Reserved.
Aspect Landscape Planning Ltd. 2020. All Rights Reserved.
Copyright reserved

0m 20m 40m 80m



aspect landscape planning

TITLE
Land to the South of Barnham Station
Landscape Strategy and Ecological Enhancements
Plan

CLIENT
Gleeson Strategic Land

SCALE 1:2000 @ A3	DATE SEPT 2020 SB	DRAWN MF	CHECKED F
DRAWING NUMBER 7249 / ASP3		REVISION	

ecology • landscape planning • arboriculture

aspect

Aspect Ecology Ltd
West Court
Hardwick Business Park
Noral Way
Banbury
Oxfordshire OX16 2AF