



ECOLOGICAL IMPACT ASSESSMENT
BLUE STAR LAND
BEREWOOD
WATERLOOVILLE
HAMPSHIRE
PO7 7PS

MARCH 2023
UPDATED MAY 2023
UPDATED OCTOBER 2023
UPDATED MARCH 2024
UPDATED JULY 2024
UPDATED MARCH 2025

ON BEHALF OF GRAINGER PLC



The Old Squash Court,
Rempstone Hall,
Rempstone,
Corfe Castle,
Wareham,
Dorset,
BH20 5JQ
www.ecological-services.co.uk

Telephone: 01929 477115
E-mail: enquiries@ecological-services.co.uk

Authorisation

	Name	Date
Report prepared by:	JS	09.03.2023
Report checked and authorised by:	SH	13.03.2023
Report updated by:	JS	23.05.2023
Report updated by:	EP	04.10.2023
Report checked and authorised by:	JS	11.10.2023
Report updated by:	JP	18.03.2024
Report updated and authorised by:	JS	18.03.2024
Report updated by:	JS	22.07.2024 26.03.2025

The contents of this report were correct at the time of the last survey visit. The report is provided for the sole use of the named client and is confidential.

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this. It may not be sold, lent, hired out or divulged to any third party not directly involved in this situation without our written consent.

It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client.

CONTENTS

1.0	EXECUTIVE SUMMARY	1
2.0	INTRODUCTION	2
3.0	LEGISLATION AND POLICY CONTEXT.....	3
4.0	ASSESSMENT METHODOLOGY	6
5.0	BASELINE	9
6.0	ASSESSMENT OF POTENTIAL IMPACT.....	17
7.0	MITIGATION.....	22
8.0	RESIDUAL EFFECTS	30
9.0	IN-COMBINATION EFFECTS	30
10.0	CONCLUSION.....	31
11.0	REFERENCES	32
APPENDIX I:	Site location plan	34
APPENDIX II:	Site proposals	35
APPENDIX III:	Designated sites and protected and notable species results	37
APPENDIX IV:	UK Habitats Classification map.....	50
APPENDIX V:	Habitat survey and condition assessment.....	51
APPENDIX VI:	Badger activity map	67
APPENDIX VII:	Location of trees holding low potential to support roosting bats.....	69
APPENDIX VIII:	Bat activity results from 2018 and 2023	70
APPENDIX IX:	Reptile results from 2018.....	78
APPENDIX X:	Reptile results from 2023.....	80
APPENDIX XI:	Dormouse results from 2023.....	82
APPENDIX XII:	Reptile receptor site and long-term available habitat	83

1.0 EXECUTIVE SUMMARY

- 1.1 LC Ecological Services Limited were commissioned by Grainger Plc to conduct an Ecological Impact Assessment (EcIA) on land at Berewood, Waterlooville, Hampshire (Grid ref: SU 6780 0937) known as Blue Star Land. This survey was required to inform and support a planning application for a residential housing development comprising 69 residential units with associated access, infrastructure, soft landscaping, green space, and a sustainable urban drainage system (SUDs) feature.
- 1.2 The ecological impact assessment is based on the ecological appraisal and extended phase 1 habitat survey conducted by LC Ecological Services Ltd on the 9th February and 3rd March 2023, and targeted surveys conducted in 2023, as well as previous ecological survey work undertaken by LC Ecological Services Ltd on this land in 2018. The scoping information provided by the ecological appraisal and survey work summarises the ecological baseline methods and results, evaluates the important ecological features, and indicates the potential impacts and proposes mitigation for the construction and operational phases of the proposed development.
- 1.3 The zone of influence of the project was determined by the sensitivity of the identified ecological features to environmental change within the site and the surrounding area in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) guidelines for ecological impact assessment (CIEEM, 2022).
- 1.4 A total of seventeen important ecological features were identified during the ecological impact assessment, including four designated sites of international importance, two designated sites of regional importance, one on-site habitats of national importance, six on-site habitats of local importance, and four fauna of local importance.
- 1.5 The proposed development will result in a small-scale loss of habitat, including modified grassland, bramble (*Rubus fruticosus*) and mixed scrub, scattered trees, hardstanding and scattered debris, as a consequence of the land-take required; however, this will be appropriately compensated for via a suite of both on-site and wider off-site biodiversity enhancement measures. The proposed development and associated ecological mitigation and enhancement measures is expected to result in an overall **long-term positive effect (not significant) on biodiversity and the ecological features identified during this assessment.**

2.0 INTRODUCTION

- 2.1 LC Ecological Services Limited were commissioned by Grainger Plc to conduct an Ecological Impact Assessment on land at Berewood, Waterlooville, Hampshire (Grid ref: SU 6780 0937) known as Blue Star Land. This survey was required to inform and support a planning application for a residential housing development comprising 69 residential units with associated access, infrastructure, soft landscaping, green space, and a sustainable urban drainage system (SUDs) feature. A site location plan has been provided in appendix I, and proposal plan has been provided in appendix II.
- 2.2 The proposed development does not fall within the criteria for Environmental Impact Assessment (EIA) as set out in the Town and Country Planning (environmental impact assessment) Regulations 2017.
- 2.3 The purpose of this report is to outline the following:
- To identify and describe all potentially significant ecological impacts and effects associated with the proposed development.
 - To set out the mitigation measures required to ensure compliance with nature conservation legislation and relevant policy, and to address any potentially significant ecological effects.
 - To identify appropriate ecological enhancement measures for the site. To provide an assessment of the significance of any residual effects. To set out the requirements for any post-development monitoring.

3.0 LEGISLATION AND POLICY CONTEXT

Legislation

3.1 Full details of statutory obligations with respect to biodiversity and the planning system can be found in DEFRA Circular 06/2005. Relevant legislation to this application site includes the following:

- **Internationally Designated Sites:** Special Protection Areas (SPA) and Special Areas of Conservation (SAC) are protected under the *Conservation of Habitats and Species (Amendment) Regulations 2017* and Ramsar sites are protected under the *Ramsar Convention (1971)*.
- **Nationally Designated Sites:** Sites of Special Scientific Interest (SSSI) are protected under section 28 of the *Wildlife and Countryside Act (WCA) 1981 (as amended)*.
- **Badgers (*Meles meles*):** *Protection of Badgers Act 1992*.
- **Bats:** all species of British bats and their roosts are fully protected under the *Wildlife and Countryside Act (WCA) 1981 (as amended)* and the *Conservation of Habitats and Species (Amendment) Regulations 2017*.
- **Birds:** all birds, their nests, eggs and young are protected by the *WCA 1981 (as amended)*.
- **Mammals:** *Wild Mammals (Protection) Act 1996*. The hazel dormouse (*Muscardinus avellanarius*) and their habitats are fully protected under the *Wildlife and Countryside Act (WCA) 1981 (as amended)* and the *Conservation of Habitats and Species (Amendment) Regulations 2017*.
- **Reptiles:** the adder (*Viper berus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*) receive protection under the *WCA 1981 (as amended)*.

National Planning Policy

3.2 Chapter 15 of the National Planning Policy Framework (NPPF 2024) ‘*Conserving and enhancing the natural environment*’ sets out the Government’s policies on biodiversity, landscape and geological conservation. Relevant paragraphs within this chapter include:

- **Paragraph 187:** Planning policies and decisions should contribute to and enhance the natural and local environment by:
 - i. protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils.
 - ii. recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.

- iii. maintaining the character of the undeveloped coast, whilst improving public access to it where appropriate.
 - iv. minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs.
 - v. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.
- **Paragraph 188:** Plans should: distinguish between the hierarchy of international, national, and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.
 - **Paragraph 192:** To protect and enhance biodiversity and geodiversity, plans should:
 - a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national, and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration, or creation; and
 - b) promote the conservation, restoration, and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
 - **Paragraph 193:** 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 reasons⁶⁷ and a suitable compensation strategy exists; and

- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
- **Paragraph 194:** The following should be given the same protection as habitats sites:
 - a) potential Special Protection Areas and possible Special Areas of Conservation.
 - b) listed or proposed Ramsar sites; and
 - c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.
- **Paragraph 195:** The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Local Planning Policy

- 3.3 Relevant planning policies within the Havant Local Plan (Core Strategy) (Adopted March 2011) include:
- Policy DM8: Conservation, Protection and Enhancement of Existing Natural Features
 - Policy CS11: Protecting and Enhancing the Special Environment and Heritage of Havant Borough
 - Policy CS13: Green Infrastructure
- 3.3 Relevant planning policies within the Havant Borough Local Plan (Allocations) (Adopted July 2014) include:
- Policy DM24: Recreational Disturbance to Special Protected Areas (SPAs) from Residential Development

Biodiversity Action Plans

- 3.4 Relevant Biodiversity Action plans (BAPs) are as follows:
- Hazel dormouse (UKBAP)
 - Great crested newt (*Triturus cristatus*) (UK BAP)
 - House sparrow (*Passer domesticus*) (UKBAP)
 - Starling (*Sturnus vulgaris*) (UKBAP)
 - Reptiles (UK BAP).

4.0 ASSESSMENT METHODOLOGY

Study Area

- 4.1 The site is located at central Ordnance Survey (OS) SU 6780 0937 and the study area comprises the site plus:
- 5 kilometres for any international statutory designated sites for nature conservation.
 - 2 kilometres for any national statutory designated sites for nature conservation.
 - 2 kilometres for any non-statutory designated sites for nature conservation.
 - 2 kilometres for all records of protected, notable, and invasive species.
 - 30 metres for badgers.

Sources of Information

- 4.2 The following sources of information were used to inform the impact assessment.

Table 1: Summary of survey work and sources of information

Survey type	Year(s)	Comment
Desk study – International sites and international sites designated for Annex II bat species within 5.6 kilometres of the site.	2023	Records obtained from Natural England’s web-based Multi-Agency Geographic Information for the Countryside (MAGIC).
Data search of protected and notable species within 2 kilometres of the site	2023	Hampshire Biodiversity Information Centre (HBIC) and MAGIC.
UKHabs survey	2023	LC Ecological Services (LCES) in February and March 2023.
Ecological appraisal and badger survey	2018 and 2023	LCES in April 2018 and March 2023.
Badger sett monitoring	2023	LCES April and May 2023.
Bat surveys	2018 and 2023	LCES trees in June 2018 and March 2023, bat activity surveys between April and September 2018, and static monitoring in April and June 2023.
Hazel dormouse surveys	2023	LCES footprint tunnel and nest tubes surveys between May and September 2023.
Reptile surveys	2018 and 2023	LCES between April and June 2018, and between April and May 2023.

Assessment Process

- 4.3 The EcIA is in accordance with the CIEEM *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2022).
- 4.4 The starting point was to determine which features should be subject to detailed assessment, that is, those IEFs:
- a) Of sufficient value that impacts upon them may be significant (in terms of legislation or policy); and
 - b) Potentially vulnerable to significant impacts arising from the development.
- 4.5 This approach is consistent with the EIA Regulations, which only require investigation of likely significant effects.
- 4.6 The CIEEM guidelines recommend that the value of IEFs or features is determined based on a geographic frame of reference that includes the following levels:

Table 2: Level of Value Assigned to each IEF (adapted from CIEEM, 2022)

Level of Value	Example of Definitions
International	An internationally important site e.g. SPA, SAC, Ramsar (or a site considered worthy of such a designation). A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitats which are essential to maintain the viability of a larger whole. A regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive).
UK / National	A nationally designated site e.g. SSSI or a site considered worthy of such designation. A viable area of a priority habitat identified within the UK BAP, or of smaller areas of such habitat which are essential to maintain the larger whole. Any recurring population of a nationally important species e.g. listed on Schedules 5 and 8 of the Wildlife and Countryside Act 1981 (as amended). A feature identified as of critical importance in the UK BAP.
Regional (Hampshire)	A site designated as a Site of Importance for Nature Conservation (SINC), or habitats that meet the designation criteria for SINCs in Hampshire. Areas of internationally or nationally important habitats which are degraded but are considered readily restored. A regularly occurring, locally significant population of a species listed as being nationally scarce.

Level of Value	Example of Definitions
	A regularly occurring, locally significant number of a regionally important species.
Local (the zone of influence including the site and its immediate vicinity, including habitats within or linked to those on site)	Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A good example of a common or widespread habitat in the region.

Assessment Criteria

Predicting and Characterising Ecological Impacts

- 4.7 The assessment of magnitude of effect assesses whether an impact will be positive or negative; its extent; duration; reversibility and timing and frequency as well as the cumulative effect. A combination of quantitative information and qualitative assessment based on professional judgment was used whilst considering all of these factors to assign effects on the IEFs to one of four categories as detailed in table 3 below.

Table 3: Assessment of Magnitude of Effects

Category	Definition
High	A permanent or long-term effect on the extent/size or integrity of a site, habitat, species assemblage or community, population or group. If adverse this is likely to threaten its sustainability. If beneficial this is likely to enhance its conservation status.
Medium	A permanent or long-term effect on extent/size or integrity of a site, habitat, species assemblage or community, population or group. If adverse this is unlikely to threaten its sustainability. If beneficial this is likely to be sustainable but is unlikely to enhance its conservation status.
Low	A short-term but reversible effect on the extent/size or integrity of a site, habitat or species assemblage or community, population or group that is within the range of variation normally experienced between years.
Negligible	A short-term but reversible effect on the extent/size or integrity of a site, habitat or species assemblage or community, population or group that is within the normal range or annual variation.

- 4.8 For each IEF, the significance of the effects of the proposed development during construction and operation are assessed and the type of impacts are characterised according to their importance and magnitude. Where there is uncertainty over the appropriate level of significance to assign, this will be stated but as a precautionary measure the higher level of significance will be applied. Where impacts will arise, mitigation and enhancement measures are provided.

Direct and Indirect Ecological Impacts

- 4.9 Both direct and indirect impacts are considered within this assessment. A direct impact is a defined action such as the physical loss of a habitat or the immediate mortality of an individual of a particular species. Indirect impacts are attributable to an action, but

which affect ecological resources through effects on an intermediary ecosystem, process or IEF e.g. the loss of an important prey species for a predator.

Limitations

- 4.10 It is acknowledged that the site walkover survey was undertaken outside of the optimal botanical survey season, however this is not considered to be a significant constraint as the findings are in line with what has been recorded during previous site walkover surveys conducted during the optimal botanical season.
- 4.11 During the walkover survey every effort is made to ensure invasive species are identified including Japanese knotweed (*Fallopia japonica*), recommendations for further invasive species surveys will be made when considered necessary.
- 4.12 Static bat detectors were deployed for 10 nights in April, May and June 2023. No bats were detected during the month of May, although noise files were recorded on the statics. Weather conditions were poor in May due to wet weather which may contribute to the lack of bats detected during the survey period.

5.0 BASELINE

- 5.1 The site was subject to a desk-based and habitat survey conducted by LC Ecological Services, updating previous survey data from 2018. The methods and the key findings are summarised in this section to inform the nature conservation evaluation for each of the IEFs identified.

Statutory Sites

- 5.2 There are no statutory sites within the boundary of the planning application, although the site is located within an area of high-quality habitats. The Chichester and Langstone Harbours SPA and Ramsar, the Solent and Southampton Waters SPA and the Solent Maritime SAC, all lie approximately 4.3 kilometres to the south-east of the site. Portsmouth Harbour SAC was located 5.3 kilometres from the site and the site is considered within the 'zone of influence'. The Conservation of Habitats and Species Regulations 2017 (the Regulations) imparts a duty on Local Planning Authorities (competent authorities) to carefully consider whether any proposals may have a significant effect on a National Site Network, either alone or in combination with other plans or projects. A full list of statutory designated sites is provided in appendix III.
- 5.3 Five SSSIs are located within 5 kilometres, with the nearest site Hook Heath Meadow SSSI located approximately 2.4 kilometres. A full list of designated sites is provided in appendix III.
- 5.4 Non-statutory designated sites include twenty-four Sites of Importance for Nature Conservation (SINC) located within two kilometres. The nearest non-statutory designated site includes Newlands Row and Plant Row Site SINC which lies 0.7 kilometres and Newlands Farm Meadow which lies 1 kilometre to the south west of the site. Full details are provided in appendix III.

- 5.5 The proposed development could potentially result in indirect adverse effects on these local designated sites. Due to the significant intervening distances and the nature of the site proposals, **it is therefore considered highly unlikely that there will be any significant adverse effects on any of the other non-statutory designated sites identified within the study area and these have therefore been scoped out of this assessment.**

Habitats

- 5.6 The habitat types within the site were noted during the survey on the 9th February and 3rd March 2023. A UK Habitat Classification survey was undertaken by experienced ecologist Jenny Sutch and Nikkii Hesketh-Roberts. Dominant plant species were recorded for each habitat present, and a condition assessment made. A UKHabs survey map has been provided in appendix IV, whilst the full habitat descriptions and condition assessment sheets for each habitat are provided as appendix V.
- 5.7 The site comprises modified grassland, bramble (*Rubus fruticosus*) and mixed scrub, scattered trees, ditches, and hardstanding. Descriptions of the habitats encountered during the survey are provided below.

Modified grassland (g4, 16, 17, 161)

- 5.8 There are four distinct areas of modified grassland recorded within the red line boundary. One area which borders the tarmac pedestrian footpaths is located in the centre of the site, and surrounds the south western area of the site. There are also tracks and pathways of modified grassland between the stands of scrub within the northern section of the site. The modified grassland on site comprises a regularly mown, grass-dominated sward, approximately seven centimetres in height. Species recorded within the sward include perennial rye-grass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), common bent (*Agrostis capillaris*), annual meadow-grass (*Poa annua*), smooth meadow-grass (*Poa pratensis*), red fescue (*Festuca rubra*), daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*) and common mouse-ear (*Cerastium fontanum*).
- 5.9 There are sections of rough and overgrown modified grassland which adjoin the stands of scrub within the northern area of the site. The sward is rank/overgrown, with an average height of approximately 20 centimetres, and comprises coarse grasses such as cock's-foot (*Dactylis glomerata*) and false oat-grass (*Arrhenatherum elatius*) and common ruderals such as common nettle (*Urtica dioica*) and great willowherb (*Epilobium hirsutum*) (secondary codes 17 and 161). It was also noted that bramble and hawthorn (*Crataegus monogyna*) scrub is encroaching into these areas.
- 5.10 There is an area of regenerating modified grassland within the south-eastern section of the site. This grassland comprises a short and moderately diverse sward, between 4 and 10 centimetres in average height, which has colonised areas of bare ground and hardstanding. The site historically was used for parking when the site was used for allotments. Abundant and frequent species recorded within the sward include annual meadow-grass, red fescue, sticky mouse-ear (*Cerastium glomeratum*), yarrow (*Achillea millefolium*) and dove's-foot crane's-bill (*Geranium molle*).

- 5.11 Areas of tall herb (secondary code 16) and ruderal vegetation (secondary code 17) were recorded amongst the modified grassland within the south-eastern section of the site. Species recorded include ivy (*Hedera helix*), common nettle, cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*), dock (*Rumex sp*), pendulous sedge (*Carex pendula*) and creeping buttercup.

Bramble scrub (h3d 73, 77)

- 5.12 The majority of the site was occupied by dense/continuous stands of bramble scrub. Bare ground (secondary code 73) was noted below the dense bramble stands, and there had been a lack of management of this habitat (secondary code 77). During the winter of 2023/2024 a significant proportion of the bramble scrub was cleared using a tracked flail allowing for a controlled cut.

Mixed scrub (h3h, 17, 57, 73)

- 5.13 Areas of mixed scrub was recorded across the site. Species recorded include bramble, blackthorn (*Prunus spinosa*), grey willow (*Salix cinerea*), alder (*Alnus glutinosa*), silver birch (*Betula pendula*), guelder rose (*Viburnum opulus*), butterfly-bush (*Buddleja davidii*), apple (*Malus sp*), field maple (*Acer campestre*), ash saplings (*Fraxinus excelsior*), Wilson's honeysuckle (*Lonicera nitida*) and rose (*Rosa sp*). Ruderal vegetation (secondary code 17) was noted amongst the scrub. Areas of young trees self-set (secondary code 57) were recorded. There was a notable lack of management of this scrub habitat.

Line of trees (w1g6, 11)

- 5.14 A line of trees are located towards the south of site, whilst a number of scattered trees (secondary code 11) are present throughout the scrub and grassland within the site which include mature specimens of pedunculate oak (*Quercus robur*), alder, beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), cherry (*Prunus sp*), willow species (*Salix sp*), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), silver birch (*Betula pendula*), sessile oak (*Quercus petraea*) and Leyland cypress (*Cupressus × leylandii*).

Native hedgerows (h2a)

- 5.15 There are three established, species-rich native hedgerows on site which range from 2.5 to 8 metres in height and comprise a good variety of woody species. The field layers of the hedgerows were generally species poor. The hedgerows are summarised in appendix V.

Ditches (Secondary code 191)

- 5.16 There are a total of four drainage ditches on site, which range from 0.5 to 1 metres in width and 0.25 to 0.5 metres in depth. The ditch banks and channels largely comprise bare earth. The ditches are mostly situated within dense stands of scrub, including bramble, blackthorn and hawthorn, which have colonised the banks and completely covered over some ditch sections. No water was recorded within the ditches during the survey.

Hardstanding (u1b6)

5.17 Areas of hardstanding on site consist of tarmac footpaths.

Assessment of habitats

5.18 The level of value of these habitats is summarised in table 4 below.

Table 4: Level of value of habitats recorded within the site

IEF	Evaluation rationale	Value of IEF
Modified grassland	This is a common habitat at local, county, and national levels which can support a range of fauna and flora. The grassland on site is considered to be of low botanical value and low to moderate value as an ecological resource for wild fauna.	Local
Bramble scrub	This is a common habitat at local, county, and national levels which can support a range of fauna and flora, but can outcompete adjacent habitats.	Local
Mixed scrub	This is a common habitat at local, county, and national levels which can support a range of fauna and flora.	Local
Line of trees	The treeline on site supports common and widespread species, however these trees hold some ecological value, as landscape features and provides connectivity.	Local
Scattered trees	The scattered trees identified on site are common and widespread, however these trees hold some ecological value, as landscape features and in terms of providing ecosystem services.	Local
Hedgerow	This is a common habitat which can support a range of fauna and flora. The hedgerows on site were primarily assessed as being a UK BAP habitat.	National
Ditch	This is a common habitat at local, county, and national levels which can support a range of fauna and flora, however there is a lack of any vegetation and water within the ditches on site.	Local

Protected and Notable Species

5.19 An evaluation of the site's potential to support protected and notable species of fauna is provided below. This is based on the suitability of the habitats present both on site and in the surrounding area, the desk study information provided by HBIC, and the completion of targeted surveys undertaken in 2018 and 2023.

Badger

5.20 The site, its boundaries, and a 30-metre buffer zone around the site (where access was possible), were surveyed for badger evidence such as setts, latrines, pathways, footprints, snuffle holes and badger fur (English Nature, 2002). The survey was undertaken by experienced ecologist Jenny Sutch and Nikkii Hesketh-Roberts. Any setts recorded were classified according to published criteria (Harris, Cresswell and Jefferies, 1989).

- 5.21 HBIC returned six records of badgers within two kilometres of the site. Badgers are known to be active within the wider Berewood area; however, a large badger sett containing sixteen holes, of which most were only partially used and some disused with approximately three active holes, was identified on site. All holes were leading into the bank on the southern boundary, towards the existing housing estate at Forest End. A latrine was recorded with some recent droppings along with a single badger dropping along the northern boundary. A number of mammal paths were recorded throughout the site, along with numerous snuffle holes and several prints. Two foxes were also recorded on site. A map in appendix VI shows the approximate location of the holes.
- 5.22 Motion sensor cameras were deployed across the site in April and May 2023 to monitor the sett to determine its use. The footage confirmed the sett is a main breeding sett with the presence of a sow and two cubs recorded on multiple occasions, along with an additional three badgers recorded using the sett.

Bats

- 5.23 HBIC returned records of nine confirmed species of bat including, serotine (*Eptesicus serotinus*), Myotis species (*Myotis sp.*), Daubenton's bat (*Myotis daubentonii*), whiskered bat (*Myotis mystacinus*), Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and brown long-eared bat (*Plecotus auritus*).
- 5.24 Four European Protected Species (EPS) licences are located within a two-kilometre radius of the site, with the closest located 0.7 kilometres east of site (EPSM2013-5591) for the destruction of common pipistrelle and brown long eared resting place between 2013 and 2016. The other EPS licences were located north-west of the site and were for the destruction of common and soprano pipistrelle resting places in 2010, between 2012 and 2014, and the damage and destruction of brown long-eared bats resting place between 2015 and 2020.
- 5.25 The habitats on site, and the habitats they connect to were assessed for their suitability to support foraging and commuting bats in accordance with the Bat Conservation Trust guidelines (BCT 2016). The site was considered to hold moderate suitability to support foraging and commuting bats.
- 5.26 No direct evidence of bats was recorded during the survey. However, fifteen trees were assessed as holding low potential to support roosting bats. Full details are presented in appendix VII; however, the majority of these are located within trees that will be retained within the site boundary.
- 5.27 The hedgerows, scattered trees, scrub, and grassland on the wider site has been assessed as moderate value foraging/commuting habitat for bats. Collectively, these habitats are likely to support a diverse assemblage of invertebrate prey and they are also well connected with further suitable habitat in the surrounding area including hedgerows, woodland, and lowland farmland. Within the wider surrounding area there are native hedgerows, woodland, arable and pasture fields, water courses, residential housing with associated gardens, and allotment gardens, all of which could provide suitable foraging and commuting habitat for bats.

- 5.28 A series of monthly bat transect surveys were conducted between April and September 2018 alongside static monitoring devices. Two static monitoring devices were deployed on site between April and June 2023 for a period of 10 nights per month. A summary of the results is presented in appendix VIII along with transect routes walked.
- 5.29 Low numbers of common pipistrelle bats were recorded during the activity surveys. The bats were recorded mainly commuting along the hedgerows to the west, north-east and south-west of the survey area. A *Myotis* species call was also briefly recorded.
- 5.30 A total of four species and genus of bat were recorded during the static monitoring survey in 2018 including common pipistrelle, soprano pipistrelle, noctule and a single serotine. A total of four species were recorded during the static monitoring survey in 2023 including regular common pipistrelle, a pipistrelle species, a *Myotis* species on four occasions in June and a *Nyctalus/Eptesicus* species on six occasions in June.
- 5.31 No species listed under Annex II of the Conservation of Habitats and Species Regulations 2017 (as amended) were recorded throughout the survey period.
- 5.32 The foraging and commuting routes across the site are considered to be locally important for bats. This is reflected in the survey data by the low number of species diversity recorded on the majority of the survey nights.

Birds

- 5.33 The scrub, hedgerows, and trees, on site provide potential nesting habitat for a range of common and widespread bird species.
- 5.34 Evidence of historic nests were recorded amongst the dense scrub on site, indicating the suitability of the site to support nesting birds.

Great crested newt

- 5.35 Multiple records of great crested newt were provided by HBIC within 2 kilometres of the site, and a series of ten SuDs feature are located within 500 metres of the site's boundaries, with the River Wallington located approximately 450 metres north west. A pond is also located at Phase 7 of the adjacent Berewood development located approximately 300 metres southwest.
- 5.36 The scrub habitat on site provides potential foraging habitat for great crested newts and potential hibernation habitat.
- 5.37 Great crested newts are present within the adjacent Berewood development with known breeding ponds to the south-west of the site. The ponds were subject to monitoring surveys with a medium population present on site. The main breeding pond is located over 1 kilometre south-west from the site, and over 700 metres from the great crested newt mitigation fencing and other ponds where great crested newts have been recorded. No waterbodies were recorded within 500 metres of the site as supporting great crested newts. Great crested newts are therefore not considered present within this section of the development, **and therefore have been scoped out of this assessment.**

Hazel dormouse

- 5.38 Multiple records of the hazel dormouse was returned by HBIC for the vicinity of the site dated between 2006 and 2016. Hazel dormouse surveys have been conducted across the site and in the adjacent surrounding land by Biodiversity by Design Ltd between 2007 and 2009 (Biodiversity by Design Ltd, 2010a). LCES has also been conducting surveys and monitoring of dormice across the adjacent Berewood development site.
- 5.39 The scrub and hedgerows within the survey boundary provide suitable habitat for hazel dormouse, with good structure and availability of suitable food plants. The wider site provides further suitable habitat in the immediate surrounding area, including native hedgerows, scrub and semi-natural broad-leaved woodland, although this particular phase of development provides limited connectivity and appears fragmented from adjacent suitable habitat.
- 5.40 Targeted nest tube and footprint tunnel surveys were undertaken from May to September 2023 by licensed ecologist Aimee Cokayne (2019-042601-CLS-CLS) to determine the likely presence/ absence of the hazel dormouse on site. No evidence of nests or hazel nuts were identified on site during the initial walkover survey, and only wood mice (*Apodemus sylvaticus*) have been identified through the footprint tunnels. No evidence of the hazel dormouse has been recorded on site. No evidence to establish presence of the hazel dormouse on site has been recorded, and **therefore the hazel dormouse has been scoped out of this assessment.**

Reptiles

- 5.41 HBIC returned records of slow worm within a two kilometres radius of the site.
- 5.42 Habitats on site were assessed for their suitability to support reptile species in accordance with *Reptile surveys. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. (Froglife, 1999). The grassland, scrub and hedgerows are considered to hold potential to support common reptile species such as slow worm.
- 5.43 The site is relatively isolated from any other areas of reptile; however, a targeted survey was conducted in May and June 2018 which confirmed a good population of slow worm on site, with a maximum count of six adults during any one survey. The results are presented in appendix IX.
- 5.44 Update surveys were conducted across the site in April and May 2023, which confirmed the site still supports a good population of slow worm, with a maximum count of 14 adult slow worms during any one survey. The results are presented in appendix IX.

Assessment of species

- 5.45 The level of value of these species is summarised in table 5 below.

Table 5: Level of value of protected species supported on the site.

Receptor	Evaluation rationale	Value of receptor
Badger	Presence of a sett located along the southern boundary comprising 16 entrance holes, with three active holes.	Local
Bat roosting	Sixteen trees were assessed as holding low potential to support roosting bats.	Local
Bats: foraging and commuting	Moderate suitability foraging and commuting habitat for bats is available on site. Surveys indicate the site supports low numbers of common bat species for foraging and commuting.	Local
Birds	The site supports habitat for a wide number of common and widespread nesting birds	Local
Reptiles	Presence of a good population of slow worms known within the site.	Local

6.0 ASSESSMENT OF POTENTIAL IMPACT

- 6.1 The impacts have been assessed against the development proposals including the inherent mitigation measures described below.
- 6.2 Impacts of the proposed development are discussed for the IEFs that are of at least local value or subject to legal consideration. The IEFs included from this point on are therefore limited to:
- Designated sites including (but not exclusive to) Chichester and Langstone Harbours SPA and Ramsar, Solent and Southampton Waters SPA, Solent Maritime SAC (international value), Newlands Row and Plant Row SINC (regional value)
 - Modified grassland (local value)
 - Bramble and mixed scrub (local value)
 - Line of trees and scattered trees (local value)
 - Hedgerow (national value)
 - Ditch (local value)
 - Badger (local value)
 - Bats (local value)
 - Nesting birds (local value)
 - Reptiles (local value).

Construction Phase Impacts

Designated sites

Chichester and Langstone Harbours SPA and Ramsar, Portsmouth Harbour SPA, Solent and Southampton Waters SPA and Solent Maritime SAC

- 6.2 Taking into account the significant intervening distances between the application site and identified international statutory designated sites, all being located approximately 4.3 kilometres to the south-east of the application site, or further, and the relatively small-scale nature of the proposed development, **it is therefore considered highly unlikely that there will be any significant adverse effects on the identified international designated sites during the construction phase.**

Newlands Row and Plant Row SINC, and Newlands Farm Meadow SINC

- 6.3 Due to the relatively close proximity of the identified non-statutory designated sites, the closest being Newlands Row and Plant Row SINC located approximately 0.7 kilometres to the west, it is considered that there is a minor risk of adverse indirect pollution impacts occurring to these sites during the construction phase. This in turn could have an adverse effect on the condition of the habitats and vegetation communities within the non-statutory designated sites, for example as a consequence of dust deposition, siltation, and/or contamination with man-made chemicals, fuels or other pollutants. **The magnitude of any such adverse effects is considered to be low and not significant.**

Habitats

Modified grassland, bramble and mixed scrub, scattered and line of trees

- 6.4 The construction works will result in the loss of the existing modified grassland, bramble and mixed scrub, scattered and line of trees on site. Given the low botanical value of these existing habitats on site, **it is therefore concluded that the magnitude of the adverse effect is low and not significant.**

Hedgerows

- 6.5 There could be up to 8 metres of hedgerow loss associated with access points into the proposed development. Access points have been located where existing gaps in the hedgerow exist to ensure hedgerow loss and fragmentation is minimised. The maximum predicted loss would equate to approximately 2.5% of the total hedgerow length on site. There is also the potential for indirect impacts such as pollution and damage to shrubs and trees. **It is therefore concluded that the magnitude of the adverse effect is low and not significant.**

Ditch

- 6.6 There will be no habitat loss through the proposed development of the boundary ditches; however, there is the potential for indirect impacts such as pollution. The ditch which runs across the site will be impacted by the proposals but will largely be retained. **It is therefore concluded that the magnitude of the adverse effect is low and not significant.**

Protected and notable species

Badger

- 6.7 The proposed construction works will result in the disturbance to the badger sett and habitat which is known to support foraging and commuting badger. The construction works also pose a minor risk of causing harm to badgers and potentially interfering with a badger sett. Due to the scale of the proposed development and the site's setting adjacent to the Berewood active development zone, **the magnitude of the adverse effects is expected to be medium and therefore significant.**

Bats: trees

- 6.8 The proposed construction works will result in the loss of potential roosting habitat for bats on site, comprising of scattered trees. The construction works could also have some level of disturbance impacts on any retained trees which may support a bat roost throughout the duration of the construction phase. Due to the scale of the proposed development and the site's setting adjacent to the Berewood active development zone, **the magnitude of the adverse effects is expected to be low and not significant.**

Bats: foraging and commuting

- 6.9 The proposed construction works will result in the loss of suitable foraging and commuting habitat for bats on site, comprising scrub, modified grassland, and scattered trees. The construction works could also have some level of disturbance impacts on foraging and commuting bats throughout the duration of the construction phase, particularly where any lighting systems are being used for night-time works. Due to the scale of the proposed development and the site's setting adjacent to the Berewood active development zone, **the magnitude of the adverse effects is expected to be low and not significant.**

Birds

- 6.10 The proposed construction works will result in the loss of suitable nesting and foraging habitat for birds on site, comprising scrub, modified grassland, and scattered trees and shrubs. The site preparation and construction work could also result in the disturbance of actively nesting birds, accidental destruction of bird nests, and/or accidental injury or mortality of individual birds. Due to the scale of the proposed development and the site's setting adjacent to the Berewood active development zone, **the magnitude of these adverse effects is expected to be low and not significant.**

Reptiles

- 6.11 The proposed construction works will result in the loss of an area of suitable habitat for common species of reptiles on site, comprising modified grassland, scattered trees and scrub and hedgerows. The site preparation and construction work could also potentially result in injury and/or killing of individual reptiles. Due to the scale of the proposed development and the site's setting adjacent to the Berewood active development zone, **the magnitude of these adverse effects is expected to be low and not significant.**

Operational Phase Impacts

Designated sites

Chichester and Langstone Harbours SPA and Ramsar, Solent and Southampton Waters SPA, Solent Maritime SAC, Portsmouth Harbour SPA, Newlands Row and Plant Row SINC, and Newlands Farm Meadow SINC,

- 6.12 There is potential that the proposed development could result in increased recreational impacts on the identified statutory and non-statutory designated sites, including trampling of sensitive habitats and flora, poaching of the ground from increased footfall, dog fouling, littering, and disturbance of birds and other wild fauna. This could potentially lead to long-term adverse effects such as degradation of vegetation communities and flora, and reduced breeding success and survival rates in populations of wild fauna which use these sites (including citation species). Due to the scale of the proposed development and the site's setting adjacent to the Berewood development zone, as well as the intervening distances between the application site and the majority of the identified designated sites, **it is therefore considered that the magnitude of these adverse effects would be moderate, and could be significant.**

- 6.13 There is potential that the increase in residential dwellings on site, will lead to an increase in nitrates generated from waste water which can have a detrimental impact to the Solent citation habitats and birds. **It is therefore considered that the magnitude of these adverse effects could be high, and would be significant.**

Protected and Notable Fauna

Badger

- 6.14 When operational, the proposed development could potentially have a long-term adverse impact on badgers as a result of habitat loss and the local expansion of residential development and urban infrastructure. The identified badger sett and commuting and foraging activity on site would be displaced to other areas of suitable habitat in the locality and this may cause disruption to the typical foraging and dispersal behaviours of the local badger populations. An increase in local vehicle traffic associated with the development may also pose an increased risk of direct harm occurring to individual badgers in the area (road traffic collisions with badgers). These impacts could in-turn have adverse effects on the local badger populations, including reduced breeding success and survival rates. Taking into account the scale of the proposed development, and the nature of the existing habitats available on site for badger, **the magnitude of any such adverse effects is expected to be medium and therefore significant.**

Bats: foraging and commuting

- 6.15 When operational, the proposed development could potentially have a long-term adverse impact on bats as a result of habitat loss and the local expansion of residential development and urban infrastructure, as well as increased nocturnal disturbance caused by installed lighting systems. The existing bat foraging and commuting activity on site would be displaced to other areas of suitable habitat in the locality and this may cause disruption to the typical foraging and commuting behaviours of the local bat populations to some extent. These impacts could in-turn potentially have adverse effects on local bat populations, including reduced breeding success and survival rates. Taking into account the scale of the proposed development, and the suitability of the existing habitats available on site for foraging and commuting bats, **the magnitude of any such adverse effects is expected to be low and not significant.**

Birds

- 6.16 When operational, the proposed development could potentially have a long-term adverse impact on nesting and foraging birds as a result of habitat loss and the local expansion of residential development and urban infrastructure, as well as increased levels of anthropogenic disturbance and dog walking and an increase in cats causing predation issues on eggs and young birds. Any existing bird nesting and/or foraging activity both on the site itself and the directly adjacent land would likely be displaced to other areas of suitable habitat in the locality. These impacts could in-turn potentially have adverse effects on populations of both resident and migrant bird species, including reduced breeding success and survival rates. Taking into account the scale of the proposed development, and the nature of the existing habitats available on site for

nesting and foraging birds, **the magnitude of any such adverse effects is expected to be medium and not significant.**

Reptiles

- 6.17 When operational, the proposed development could potentially have a long-term adverse impact on common species of reptile as a result of habitat loss and the local expansion of residential development and urban infrastructure, as well as increased levels of anthropogenic disturbance and dog walking. Any existing reptile activity on the site and adjacent land would likely be displaced to other areas of suitable habitat in the locality and this may cause disruption to the typical foraging and dispersal behaviours of the local reptile populations to some extent. Taking into account the scale of the proposed development, and the nature of the existing habitats available on site for reptiles, **the magnitude of any such adverse effects is expected to be low and not significant.**

On-site enhancement

Bats (Roosting)

- 6.18 The site will be enhanced for roosting bats with the installation of an integrated roosting feature on 25% of the new dwellings. The integrated bat roost features will consist of a combination of ‘Ibstock Enclosed Bat Box ‘B’ and ‘1FR Schwegler Bat Tube’, or other similar designs if these models are unavailable (NHBS, 2023).

Nesting birds

- 6.19 The site will be enhanced for nesting birds with the installation of integrated bird nesting features on 25% of the new dwellings. This will consist of a variety of boxes including ‘Vivara Pro WoodStone Swallow Bowl’ (or similar design), ‘Vivara Pro WoodStone House Martin Nest’ (or similar design), ‘PRO UK Rendered Build-In Swift Box’ (or similar design), and ‘Vivara Pro WoodStone House Sparrow Nest Box’ (or similar design) (NHBS, 2023).

Other enhancements

- 6.20 All of the new residential units will incorporate a minimum of two bee bricks, and hedgehog (*Erinaceus europaeus*) friendly gravel boards with holes of 10 x 10 centimetres will be installed within any close-boarded fencing used on site to enable the free movement of small mammals and reptiles around the site and between gardens.
- 6.21 A total of four log and brushwood piles will be provided within the area of created habitat in the north of the site, this will provide a plentiful supply of refugia and hibernacula opportunities for invertebrates, reptiles, and small mammals such as hedgehog surrounding the proposed SuDs feature.
- 6.22 The retained hedgerow and boundary habitat will be enhanced for wildlife through the use of wildflower seed mixes and the use of shrub planting to infill gaps.

Off-site enhancement

- 6.23 To ensure the proposed development delivers a net gain in biodiversity an off-site project involving the restoration of an overgrown pond located within Johnston's Coppice Site of Importance for Nature Conservation has been identified. The scope of works has been discussed and agreed with the Havant Borough Council ecologist and Hampshire County Council Countryside Services. The works will involve the felling and removal of trees that have fallen into the pond or are shading the pond and the removal of naturally regenerated willow and other debris from within the pond.
- 6.24 The applicant will make a financial contribution to enable Hampshire Countryside Services to undertake the on-site works. The financial contribution required to deliver this project was costed at c£20,000 in 2023. It is expected that this financial contribution will be secured through a Section 106 agreement should planning permission be granted.

7.0 MITIGATION

- 7.1 While the impacts identified in section 6 are not all significant, legislation must be adhered to and therefore the following mitigation outlined in this section is required.

Construction Phase

Designated sites

Newlands Row and Plant Row SINC, and Newlands Farm Meadow SINC

- 7.2 A Construction and Environmental Management Plan (CEMP) will be produced and implemented prior to the construction phase of the project in order to mitigate against potential indirect impacts to the nearby non-statutory designated sites, as well as the surrounding land / local environment. The CEMP will detail specific construction methods and precautionary measures to avoid indirect impacts, this will likely include the following:
- Details of how any building materials, fuels and chemicals will be stored and controlled on site to avoid the risk of pollution and siltation, for example all building materials will be stored appropriately in specific designated areas within the construction site compound to avoid potential pollution incidents and creation of dust.
 - Any working plant will be fitted with drip trays in order to avoid potential pollution incidents and refuelling of plant/vehicles will either take place off site or within the construction site compound which will be situated at a safe distance from the locally-designated sites.
 - Installation of construction hoarding or Heras fencing along the perimeter of the construction zone to segregate the working area from the surrounding land.

- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of works, use of lighting and working hours.
- Dust control and suppression methodology.
- Implementation of specific measures to prevent and limit siltation, such as installation of silt fencing, silt wattles and silt mats at key working areas where surface water runoff could be an issue.
- In addition the SINC's will be managed in accordance with paragraphs 6.23 and 6.24.

Habitats

Modified grassland, bramble and mixed scrub, and scattered trees and line of trees

- 7.3 The loss of the existing modified grassland, bramble and mixed scrub, and scattered trees and line of trees on site in order to facilitate the construction phase will be compensated for via a combination of both on-site and off-site contributions. The proposed development layout will include a substantial area of open greenspace in the north of the site, and a buffer zone around the edge of the development, which will comprise a combination of meadow creation, scrub and tree planting, and installation of a SUDs feature (in the north) that will be planted up with a suitable native wetland plant mix. A new native hedgerow will be established on site within the ecological buffer zone. This area of proposed greenspace will also directly link with the adjacent open greenspace to the north of the site. To address the loss of habitat on site and ensure the application delivers a net gain in biodiversity, contributions will be made to the management of off-site SINCs. This will be secured through an agreement with the council.

Hedgerows and ditch

- 7.4 The mitigation measures to be included within a CEMP, as outlined in section 7.1 above, will ensure that the hedgerows and ditches are protected from any adverse pollution impacts during the construction phase as far as reasonably possible.
- 7.5 The ditch which crosses the site will be impacted by the development, however it will largely be retained and there will be points where it is bridged. The CEMP will provide details on how the ditch will be protected during the bridge works.

Protected and Notable Fauna

Badger

- 7.6 The following measures will be implemented on site to safeguard badger from harm throughout the duration of the construction phase:

- Prior to works commencing the working area will be delineated with construction hoarding or Heras fencing which should largely prevent and discourage badger from entering the construction site. A buffer zone of 20 metres around all sett entrances will be applied.
- A check for any badger activity on site will also be undertaken prior to works commencing.
- Where possible, excavations will not be left open overnight. However, if excavations are left open at night, then an earth or wooden ramp will be installed to enable any animals that fall in to escape.
- The work areas will be checked daily to ensure that no animals are trapped.
- Any piping will be capped over-night to prevent animals becoming trapped.
- Dusk and night-time working with the use of flood lights will be strictly forbidden on site during, which may impact these nocturnal species and this will be specified within the CEMP. If there are exceptional circumstances where night working is absolutely essential then an ecologist will be contacted, and a suitable method of works devised so that there is no light spill onto the retained badger sett.
- In the event additional sett entrances are recorded and are within 20 metres of the construction zone, a licence from Natural England will be required to temporarily close the sett(s). A closure of a sett can only be applied for once planning permission has been granted and can only commence between 1st July and 30th November. The intention is for the sett to remain in-situ and to not close the sett.

Bats: trees

- 7.7 Prior to the removal of trees with low bat potential an update survey will be undertaken to ensure conditions have not changed. Where the tree is still assessed as holding low potential these trees can be soft felled. In the event the tree is reassessed as holding more potential to support roosting bats, further surveys may be required. If a bat roost is encountered the tree cannot be removed until a licence has been granted by Natural England. The licence can only be applied for following a suite of activity surveys and once planning consent has been granted. Replacement roosts will be provided on site including the provision of a bark bat box or similar, positioned on retained trees close to the original roost. Felling of the tree would need to commence under an Ecological Clerk of Works (ECoW).

Bats: foraging and commuting

- 7.8 The following measures will be implemented on site to limit any disturbance impacts on foraging and commuting bats during the construction phase:
- Dusk and night-time working with the use of flood lights should cease 30 minutes before sunset during the bat activity season (April to October inclusive)

and this will be specified within the CEMP. If there are exceptional circumstances where night working is absolutely essential then an ecologist will be contacted, and a suitable method of works devised so that there is no light spill onto any adjacent off-site habitats of value to foraging and commuting bats.

Birds

- 7.9 To avoid the risk of disturbing, injuring, or killing nesting birds, all vegetation clearance required as part of the site preparation works should ideally be undertaken outside of the bird nesting season which is considered to run from March to August (inclusive). Where any vegetation clearance must be undertaken within the nesting bird season, the working areas must first be checked by an ecologist for the presence of any nesting birds (including both arboreal and ground nesters) immediately prior to clearance. Should any active nests be encountered, the clearance in those particular areas must be postponed and a suitable protection zone established until either the nestlings have fledged or the nest is abandoned.

Reptiles

- 7.10 The following targeted measures will be implemented to safeguard reptiles from harm during the proposed habitat clearance and site preparation works:
- A reptile translocation exercise will be employed. This will involve using reptile refugia (as used during the presence/ absence survey). The translocation will require a minimum of 30 trapping days until there are 5 clear days where reptiles are no longer being caught. The reptiles will be caught and located within the buffer area surrounding the badger sett in the south (appendix XII). The green space around the SuDS will also provide suitable habitat for common reptiles once constructed. In the event that the buffer zone around the badger sett is considered to reach its carrying capacity for common reptiles, reptiles will be relocated to the habitat created along the eastern end of the River Wallington. This habitat would be used as it is closest to the site and contains mature SuDS features, scrub and wild flower planting.
 - Following the successful translocation, vegetation clearance works will only be conducted during suitable, dry weather conditions, with temperatures above 10°C, between March and October (inclusive) when reptile are active and not in hibernation.
 - The required clearance of modified grassland and scrub will all be undertaken by hand using handheld trimmers, brush-cutters and/or chainsaws, or hand operated machinery, which can be controlled with a set cutting height. The vegetation will be cut in two phases. Firstly, there will be an initial cut down to a minimum height of 10 centimetres above ground to encourage reptiles towards the retained habitat. This will then be followed by a second cut of the remaining vegetation down to ground level, which can be undertaken no sooner than one hour after the initial cut. All vegetation clearance will be undertaken in a northwards direction in order to encourage reptiles to move. A destructive search will then be undertaken under an Ecological Clerk of Works where turfs and topsoil are searched for any residual reptiles and relocated.

- Any remaining stumps/roots will be cleared using either an excavator or stump grinding machinery. Any scattered debris and earth/spoil mounds on site will be carefully dismantled either by hand or with the use of an excavator and the materials will then be removed from the site. All such works will be supervised by a suitably qualified ecologist, and will be conducted during suitable, dry weather conditions, with temperatures above 10°C, between March and October, to ensure that any hibernating reptiles are not harmed.
- Where possible, bramble scrub can be cleared during the winter when reptiles are hibernating, in accordance with the Reptile Habitat Management Handbook (Edgar, et al, 2010). This should be done using hand held tool, or hand operated machines which can be controlled with a set cutting height.

Operational Phase

Designated sites

Chichester and Langstone Harbours SPA and Ramsar, Portsmouth Harbour SPA, Solent Maritime SAC, Newlands Row and Plant Row SINC and Newlands Farm Meadow SINC

- 7.11 The development is located within the 5.6 kilometres impact from recreation zone, and as such must comply with the Solent Recreation Mitigation Strategy (Bird Aware Solent, December 2017). The site does not have the capacity to provide a Suitable Alternative Natural Greenspace (SANG) and this does not always mitigate for the impacts to the coast which are visited because for the habitats and wildlife present. Therefore, development contributions will be made in accordance with the mitigation strategy. This funding will be used to provide rangers/ wardens, raising awareness and assist in encouraging behavioural change of coastal visitors, assist with managing visitors and provide secure habitats for citation birds in particular, providing and promoting alternative sites which are less sensitive, and monitoring. The developer's contribution will be secured through a legal agreement paid to the local planning authority, and is based on an average £564 per dwelling (based on a scale in accordance with number of bedrooms and Retail Price Index).
- 7.12 The adjacent Berewood development incorporates a high level of quality green infrastructure, including extensive new nature reserve areas (River Wallington and Newlands Farm), recreational spaces and facilities, sports pitches, children's play areas, and an extensive network of quality footpaths. These elements of the adjacent scheme will divert recreational pressures, especially dog walking, away from both the identified statutory European protected sites (Chichester and Langstone Harbours SPA and Ramsar, Portsmouth Harbour SPA and Solent Maritime SAC) and the non-statutory local designated sites (Newlands Row and Plant Row SINC, and Newlands Farm Meadow SINC). There will also be information leaflets provided to all new homeowners on the site to inform them about the local recreational areas, facilities and walking routes that are available across within Berewood. It is considered that these measures will effectively mitigate the risks of any long-term adverse indirect impacts on identified designated sites during the operation phase of the development to an acceptable level.

- 7.13 The development once operational needs to demonstrate that it is nutrient neutral. This can be achieved by the developer buying ‘nitrate credits’ from nearby landowners who have changed their land managing practices which will reduce the level of nutrients reaching the Solent.
- 7.14 A nutrient budget has been prepared for the outline application that shows a total of 49.12kg of nitrogen will be generated by the scheme once all units are occupied compared to the baseline conditions. At the present time it is anticipated that the required mitigation will be delivered through the purchase of nutrient credits from an off-site provider located within the East Hampshire Rivers catchment.
- 7.15 Further reserved matters applications will be required to enable the residential elements to be delivered and, in accordance with Habitat Regulations, an updated nutrient calculator and full details of the mitigation proposed will be supplied to the competent authority at that time. A more detailed reserved matters application may allow the SUDS scheme within the application to deliver some on-site mitigation through nutrient stripping of post-development surface water run-off; at this stage the full details of the final SUDS system is not known so no allowance for on-site treatment has been included in the submitted calculations.

Habitats

Hedgerows

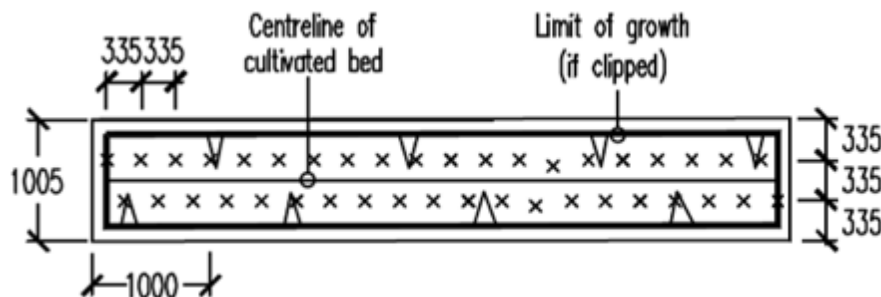
- 7.16 The hedgerows forming the boundary of the sites will be retained and should be subject to the following maintenance:
- The hedgerows on site should be maintained via light flailing or manual cutting using pole-mounted hedge trimmers on a biannual rotation with the hedgerows sculpted into a rounded A-shape during flailing. Flailing of the hedgerows on site should not be too deep and severe. Any new hedgerow planting should not be flailed until it has sufficiently developed over a period of five years.
 - Mitigate any hedgerow loss using native tree planting that is equivalent to the length of habitat lost. This would provide suitable mitigation for the hedgerow loss as well as an additional habitat feature suitable for a range of fauna including birds, invertebrates, reptiles, and amphibians.
 - An example of the species that could be used within new hedgerow planting on site are outlined in table 6 below and following the planting pattern illustrated in diagram 1.

Table 6: Species to be included in hedgerow/shrub planting.

Species	Proportion within hedgerow
Spindle (<i>Euonymous europaea</i>)	10%
Hawthorn (<i>Crataegus monogyna</i>)	15%
Blackthorn (<i>Prunus spinosa</i>)	15%
Field maple (<i>Acer campestre</i>)	15%

Species	Proportion within hedgerow
Dog rose (<i>Rosa canina</i>)	5%
Hazel (<i>Corylus avellana</i>)	20%
Elder (<i>Sambucus nigra</i>)	10%
Crab apple (<i>Malus sylvestris</i>)	5%
Guelder-rose (<i>Viburnum opulus</i>)	5%
Pedunculate oak (<i>Quercus robur</i>) will be used for standard tree planting within the hedgerow.	

Diagram 1: Planting Pattern



Badger

- 7.17 The proposed on-site habitat creation and the off-site habitat across the adjacent Berewood development area will ensure that there is a suitable level of good quality habitat available for badgers within the locality during the operational phase. It is considered that the on-site habitat creation and enhancement measures will suitably offset the loss of the existing badger habitat present on site resulting from the development in the long-term, and will ensure that connectivity of optimal habitats for badger within the local landscape is maintained and strengthened.
- 7.18 The enhancement measures to the boundary will provide suitable foraging habitat for badger and ensure that access to the retained sett can be used with connectivity across the site to off-site habitats in the north and south.
- A 20 metre buffer will be provided around all plotted sett entrances (used or disused).
 - A 10 metre buffer from the sett entrance will be fenced and planted with a native hedgerow to protect the sett from disturbance once the site is developed. The area within the 10 metre buffer will either be left as is, or cleared of bramble and planted with native trees and shrubs with a high proportion of prickly shrubs including holly, blackthorn, dog rose, bramble and hawthorn (*Crataegus monogyna*). Fruit trees would also be planted.
 - The 10 to 20 metre buffer would be accessible to residents as informal open space. It would be a mix of semi-natural grassland, flowering lawn and native trees and shrubs including fruit trees, to provide a seasonal food source for badgers.

Bats: foraging and commuting

- 7.19 The proposed on-site habitat creation and the habitats within the adjacent Berewood development, will ensure that there is a suitable level of good quality habitat available for foraging and commuting bats within the locality during the operational phase. It is considered that the on-site habitat creation and enhancement measures will suitably offset the loss of the existing bat foraging and commuting habitat present on site in the long-term, and will ensure that connectivity of valuable habitats for foraging and commuting bats within the local landscape is maintained and strengthened. There will also be a number of integrated bat roosting features installed on a proportion of the new housing on site to provide bat roosting opportunities, and the proposed residential gardens may also offer new potential habitat resources for foraging and commuting bats.
- 7.20 The impact of additional lighting as a result of the proposed development will be minimised via the following measures:
- Minimising light spill on the adjacent boundary features, which are already subject to lighting (from the A3 on the east, and development to the south and west), by incorporating only a minimal amount of external lighting systems within the development layout where it is essential for pedestrian and vehicle access.
 - Direct lighting to be used only where it is needed and away from linear features by using accessories such as cowls or hoods on the luminaries. Luminaries should be placed at a suitable distance from the retained habitats (or dark corridors around them) to ensure that additional light spill dissipates. Retained habitats used by commuting and foraging bats (e.g., hedgerows and woodland fringe) should not be subject to additional lighting above the predevelopment baseline.
 - Considered selection and design of any lighting systems across the development layout with the aim of minimising light pollution and light-spill.
 - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. LED luminaires should be used where possible.
 - Only luminaires with a negligible or zero Upward Light Ratio (ULR), and with good optical control, should be considered. Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
 - Preferentially using security lighting that is set on a timer and only triggered at waist height.
 - Use of low intensity LED luminaires which lack UV elements, are of a warm white spectrum (ideally <2700Kelvin), and with peak wavelengths higher than 550nm.

Birds

- 7.21 The proposed on-site habitat creation and the habitats within the adjacent Berewood development will ensure that there is a suitable level of good quality habitat available for nesting and foraging birds within the locality during the operational phase. It is considered that the habitat creation and enhancement measures will off-set the loss of the existing bird nesting and foraging habitat present on site in the long-term, and will ensure that connectivity of valuable habitats for nesting and foraging birds within the local landscape is maintained and strengthened. There will also be a number of integrated bird nesting features installed on a proportion of the new housing on site to provide more bird nesting opportunities, and the proposed residential gardens may also offer new potential habitat resources for birds.

Reptiles

- 7.22 The proposed on-site habitat creation and the off-site habitat enhancement measures across the adjacent Berewood development will ensure that there is a suitable level of good quality habitat available for reptiles within the locality during the operational phase. It is considered that the combination of on-site habitat enhancement measures alongside the new habitats provided under the adjacent approved Berewood scheme will suitably off-set the loss of the existing reptile habitat present on site in the long-term, and will ensure that connectivity of valuable habitats for reptiles within the local landscape is maintained and strengthened. There will also be a number of log / brushwood piles provided within the habitat creation area in the north of the site around the SuDs feature, on site to offer opportunities for refuge and hibernation, and the proposed residential gardens may also offer new potential habitat resources for reptiles.

8.0 RESIDUAL EFFECTS

- 8.1 The proposed development would result in a minor residual loss of scrub habitat, however this is suitably offset via the combination of on-site and off-site habitat creation and enhancement measures. No other residual effects are anticipated.

9.0 IN-COMBINATION EFFECTS

- 9.1 The proposed development could potentially have adverse in-combination effects on all of the IEFs covered in this assessment due to the location of the application site adjacent to the large scale housing and urban infrastructure project of Berewood. However, it is considered that the combination of the proposed on-site habitat creation and enhancement measures, and the Berewood site-wide biodiversity enhancement strategies and green infrastructure provision (much of which has already been implemented), and the contributions to management of habitats, will collectively ensure that a suitable level of mitigation for in-combination effects is provided.

10.0 CONCLUSION

- 10.1 Habitat and faunal surveys were undertaken across the proposed development site. Assessments of desk studies including the proximity to designated sites and protected and notable species were made.
- 10.2 Mitigation measures have been provided including protecting retained trees and hedgerows, off-site contributions towards biodiversity net gain and a mitigation strategy for badgers, bats, hazel dormouse and reptiles. Implementing these mitigation measures will ensure that there are not any residual effects. **The proposed development and associated ecological mitigation and enhancement measures is expected to result in an overall long-term positive effect (not significant) on biodiversity and the ecological features identified during this assessment.**
- 10.3 These surveys are valid for 18 months and should the works be delayed past this time then an updated survey will be required.

11.0 REFERENCES

Awbridge Arborists (2020) *Arboricultural impact assessment and BS5837 survey of Western phases, Berewood, Waterloo*

Bat Conservation Trust & Institute of Lighting Professionals (2023). *Bats and Artificial Lighting in the UK*. Available at <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

Biodiversity by Design Ltd (2010a) *Newlands Environmental Statement, Chapter 9: Biodiversity*.

Biodiversity by Design Ltd (2010b) *Evidence to inform a Habitats Regulations Assessment Screening for the Proposed Newlands Development, Waterloo*.

Bird Solent Aware (2017) *Solent Recreation Mitigation Strategy*

Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The Dormouse Conservation Handbook, 2nd Ed*. English Nature.

British Standards Institute (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations BS5837:2012*.

CIEEM (2022) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.2*. Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J., Charleston, P., Davidson-Watts, I., Markham, S. and Kerslake, L. (2016). *Bat Surveys for Professional Ecologists Good Practice Guidelines. (3rd Edition)*, Bat Conservation Trust, London.

Department for Communities and Local Government (2005). Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook* Amphibian and reptile Conservation, Bournemouth

English Nature (2002) *Badgers and Development*, English Nature, Peterborough.

Froglife (1999). *Reptile surveys. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. (Advice Sheet 10).

Harris, S., Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. An occasional publication of The Mammal Society - No 9, London.

Hampshire Biological Information Centre (2023) *Data search for Blue Star Land, Berewood*

Havant Borough Council (2011). *Havant Borough Core Strategy Local Development Framework March 2022*

Havant Borough Council (2014). Havant Borough Local Plan (Allocations) Adopted Version (July 2014)

Joint Nature Conservation Committee (2016). Handbook for Phase I Habitat Survey. JNCC.

LC Ecological Services Ltd (2022b) *Hazel Dormouse Monitoring Report - Berewood Development, Waterloo*.

LC Ecological Services Ltd (2022c) *Ecological Appraisal - Newlands Farm Community Nature Reserve, Newlands Lane, Waterloo*.

Lindsay Carrington Ecological Services Ltd (2018) *Ecological appraisal and phase 2 surveys – Blue Star Land, Berewood*

Ministry of Housing, Countryside & Local Government (2024), National Planning Policy Framework, London

Multi-Agency Geographical Information for the Countryside (MAGIC) Website at <http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>, accessed 14.04.2023

Office of the Deputy Prime Minister (2005). Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System

Wray. S., White. D., Long. E. And Mitchell-Jones.T. (2010) *Valuing Bats in Ecological Impact Assessment*. In Practice, December 2010

APPENDIX I: Site location plan



APPENDIX II: Site proposals



Grainger Plc Ecological Impact Assessment – Blue Star Land, Berewood



Donnerley Portishead Camberley
01794 367763 T: 01275 407000 T: 01276 749050
01794 367276 F: 01794 367276

www.thrivearchitects.co.uk

No drawing is the copyright of Thrive Architects Ltd. All rights reserved. Ordnance Survey Data is Crown copyright. All rights reserved. Licence No. 10000789. DO NOT scale from this drawing. Contractors, sub-contractors and suppliers are to check all relevant dimensions and levels of the site and building after commencing any site work or building work. Any discrepancies should be reported to the client. Where applicable this drawing is to be read in conjunction with the Consultant's drawings.

Rev	Description	Date	As	Ch
P1	Preliminary Issue	11.03.23	GR/CI	HT
P2	Revised in accordance with 50% R1 P2	08.03.23	GR/CI	HT
P3	SuDS position updated based on latest engineering drawing	08.04.23	GR/CI	HT
P4	Red line updated	08.04.23	GR/CI	HT
P5	Revised Layout	23.05.23	GR/CI	HT
P6	Revised Layout	04.06.23	GR/CI	HT
P7	Revised Layout	05.06.23	GR/CI	HT
P8	Revised PROW	23.07.24	GR/CI	GR
P9	Updated Attenuation Feature	26.07.24	GR/CI	GR
P10	Revised Layout	06.08.24	GR/CI	GR
P11	Revised Layout	07.02.25	GR/CI	GR

Project Blue Star Land, Berewood
Drawing Illustrative Masterplan - 01

Client	GRAINGER PLC	Date	17.03.23
Job no.	GRA20212	Rev	P01
Dwg no.	IMP-01	Checked	HT
Author	GR/CI	Scale	1:500@A1
Status	PRELIMINARY	Office	Romy
Client ref.			



APPENDIX III: Designated sites and protected and notable species results

Table 1: Statutory sites within 5 kilometres and non-statutory designated sites located within 2 kilometres of Land at Berewood.

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
Solent Maritime	SAC ¹	4.3 south	165300	The Solent encompasses a major estuarine system on the south coast of England. Designated for its estuary, salt meadow, coastal lagoons, mudflats. Qualifying species includes Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>)
Chichester and Langstone Harbours	SPA ²	4.3 south-east	5,810	The SPA qualifies under Article 4.1 for breeding little tern (<i>Sterna albifrons</i>) and sandwich tern (<i>Sterna sandvicensis</i>), little egret (<i>Egretta garzetta</i>) and overwintering bar-tailed godwit (<i>Limosa lapponica</i>). This site also qualifies under Article 4.2 for passage ringed plover (<i>Charadrius hiaticula</i>), overwintering black-tailed godwit (<i>Limosa limosa islandica</i>), dark-bellied brent goose (<i>Branta bernicla bernicla</i>), dunlin (<i>Calidris alpina alpina</i>), grey plover (<i>Pluvialis squatarola</i>), redshank (<i>Tringa totanus</i>) and an

¹ SAC: Special Area of Conservation

² SPA: Special Protection Area

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
				assemblage of international importance.
	Ramsar ³	4.3 south-east	5,810	Chichester Harbour comprises extensive mud and sandflats that are exposed at low tide. The site is designated as a wetland of international importance and is of particular significance for wintering wildfowl and waders as well as breeding birds both within the Harbour and in the surrounding permanent pasture fields and woodlands.
Solent and Southampton Waters	SPA	4.3 south-east	5,400	The site comprises a series of estuaries and harbours with extensive mudflats and saltmarshes together with adjacent coastal habitats including saline lagoons, shingle beaches, reedbeds, damp woodland and grazing marsh. The mudflats support beds of <i>Enteromorpha</i> spp. and <i>Zostera</i> spp. and have a rich invertebrate fauna that forms the food resource for the estuarine birds. In summer, the site is of importance for breeding seabirds, including gulls and four species of terns. In winter, the SPA holds a large and diverse assemblage of waterbirds.

³ Ramsar: Internationally important wetland site

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
Portsmouth Harbour	SPA	5.3 south west	1249.6	Qualified under Article 4.2 of the Birds Directive by supporting internationally or nationally important wintering populations of migratory waterfowl, dark-bellied geese, red-breasted merganser (<i>Mergus serrator</i>), black-tailed godwit and dunlin.
Hook Heath Meadows	SSSI ⁴	2.4 south-west	5.9	Hook Heath Meadows comprise an intimate mixture of woodland and agriculturally unimproved acid pasture lying within a shallow river valley over London Clays. Many of the habitats present are now rare in lowland Britain through agricultural intensification. Their close juxtaposition here is of particular value as an invertebrate habitat.
Lye Heath Marsh	SSSI	2.9 south-west	4.4	Lye Heath Marsh supports the following habitats including a mixture of basic flushes, unimproved grassland, alder woodland and dense hedgerows, which combine to form a now rare association of individually restricted habitats.
Portsmouth	SSSI	3.4 south-west	69.15	Portsmouth is notified for its geological importance.
Langstone Harbour	SSSI	4.1 south	2,069	A tidal basin with extensive mudflats,

⁴ SSSI: Site of Special Scientific Interest

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
				marshland and reedbeds supporting internationally important numbers of overwintering waders.
Catherington Down	SSSI LNR ⁵	4.7 north east	12.83	Catherington Down is an area of chalk grassland and narrow fringing woodland. The grasslands support numerous insect species that help to pollinate flowers. Chalk grasslands that contain a rich variety of plant species, which in turn support numerous insect species, like butterflies, that help to pollinate flowers. The terraces that occur on Catherington Down are actually an ancient farming system dating back to the medieval times.
Hazelton Common	LNR	2.9 north-east	17.45	A large area of heathland, mixed scrub and wooded dells with ponds and wetland area, supporting many species of reptile, dragonfly and other invertebrates. Bracken (<i>Pteridium aquilinum</i>) has spread in some areas, a few patches of heather (<i>Calluna vulgaris</i>) survive, mostly mixed with extensive areas of gorse (<i>Ulex</i> sp.) where there is a good breeding population of stonechats (<i>Saxicola torquata</i>).

⁵ LNR: Local Nature Reserve

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
Yeoll's Copse	LNR	3.4 north-east	5.48	A precious fragment of ancient woodland with a small wetland area on the north side and now surrounded on three sides by housing development. Unusual plants include common cow wheat (<i>Melampyrum pratense</i>) and butcher's broom (<i>Ruscus aculeatus</i>).
Dell Piece West	LNR	3.7 north-east	4.06	Well-wooded borders, unimproved grassland, damp marshy ground and a large shallow pond provides habitat for a rich variety of wildlife that includes various butterflies, dragonflies and reptiles.
Farlington Marshes	LNR	4.2 south-east	119.68	Farlington marshes comprise grazed wildflower rich-marshes. The site is internationally important for bird populations, and is a popular location for observing butterflies.
Newlands Row and Plant Row	SINC ⁶	0.7 west	5.35	Ancient semi-natural woodlands. A site that supports hazel dormouse (<i>Muscardinus avellanarius</i>) populations.
Newlands Farm Meadow	SINC	1.0 south west	3.75	Semi improved grassland which retain a significant element of unimproved grassland.
Outhurst/Inhurst/ Beech Woods	SINC	1.19 east	/	Ancient semi-natural woodlands.
Stakes Coppice Remnant 6	SINC	1.2 east	0.28	Surviving semi-natural ancient woodland. This site has a significant

⁶ SINC: Site of Importance for Nature Conservation

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
				element of ancient semi-natural woodland surviving.
Stakes Coppice Remnant 5	SINC	1.2 east	0.53	Surviving semi-natural ancient woodland. This site has a significant element of ancient semi-natural woodland surviving.
Stakes Coppice Remnant 4	SINC	1.2 east	0.63	Surviving semi-natural ancient woodland. This site has a significant element of ancient semi-natural woodland surviving.
Stakes Coppice Remnant 2	SINC	1.2 east	0.67	Surviving semi-natural ancient woodland. This site has a significant element of ancient semi-natural woodland surviving.
Stakes Coppice Remnant 7	SINC	1.2 east	/	Ancient semi-natural woodlands.
Alsfordmoor Coppice	SINC	1.3 south west	5.66	Woodland where there is a significant element of ancient semi-natural woodland surviving. They comprise important community types of restricted distribution in the County, such as yew (<i>Taxus baccata</i>) woods and alder (<i>Alnus glutinosa</i>) swamp woods. A site that supports hazel dormouse populations.
Pound Coppice Remnant	SINC	1.4 west	1.23	Woodland where there is a significant element of ancient semi-natural woodland surviving. A site that supports hazel dormouse populations.
Purbrook Heath	SINC	1.5 south west	3.4	Agriculturally unimproved grasslands. A

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
				site that supports hazel dormouse populations.
Sheepwash/Tattle/Dunsland Coppices	SINC	1.5 west	20.06	Ancient semi-natural woodlands. A site that supports hazel dormouse populations.
Park Wood, Havant	SINC	1.6 north east	2.60	Ancient semi-natural woodlands.
Piper's Hill Wood	SINC	1.6 north west	1.96	Ancient semi-natural woodlands.
Frank's Coppice	SINC	1.6 south east	1.78	Woodland where there is a significant element of ancient semi-natural woodland surviving.
Beech Wood East	SINC	1.6 east	/	Ancient semi-natural woodlands and surviving semi-natural ancient woodland.
The Queen's Inclosure	SINC	1.7 north east	40.27	Ancient semi-natural woodlands.
Drivetts Complex	SINC	1.7 south west	63.70	Ancient semi-natural woodlands.
Newlease Copse, Havant	SINC	1.7 south east	1.74	Ancient semi-natural woodlands.
Sandy Dell	SINC	1.72 south	1.29	Designated green space comprising of grassy areas, woodland and streams.
Gundymoor Wood (Main)	SINC	1.76 south east	/	Ancient semi-natural woodlands.
Gundymoor Wood (West)	SINC	1.79 south east	/	Ancient semi-natural woodlands and they comprise important community types of restricted distribution in the County, such as yew woods and alder swamp woods.
Johnston's Coppice	SINC	1.86 south east	8.07	Small urban woodland confirmed to support hazel dormouse. This site

Site name	Conservation status	Distance and direction from site (km)	Size (Ha)	Habitat description
				also supports a pond and reed areas.
London Road Fen	SINC	1.9 south	1.91	They comprise important community types of restricted distribution in the County, such as yew woods and alder swamp woods. Fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged (seasonal or permanent) conditions.
Meadows Adjacent to Johnston's Copse	SINC	1.9 south east	/	Ancient semi-natural woodlands. Semi improved grassland which retain a significant element of unimproved grassland. Fens, flushes, seepages, springs and inundation grassland of floodplain that support a flora and fauna of less improved wet conditions.
Neville's Park West Wood	SINC	1.9 south east	/	Surviving semi-natural ancient woodland.

Table 2: Protected and notable species within 2 kilometres of Blue Star Land at Berewood provided by HBIC.

Common Name	Scientific name	Status	Dates
Amphibians and Reptiles			
Slow-worm	<i>Anguis fragilis</i>	Schedule 5 WCA ⁷ , UKBAP ⁸	7 records dated between 2010 and 2018.
Common toad	<i>Bufo bufo</i>	UKBAP	2 records dated 2012
Grass snake	<i>Natrix helvetica</i>	Schedule 5 WCA, UKBAP	2 records dated 2012
Great crested newt	<i>Triturus cristatus</i>	Habs Regs ⁹ Annex II, Schedule 5 WCA, UK BAP	8 records dated between 2008 and 2015.
Common lizard	<i>Zootoca vivipara</i>	Schedule 5 WCA, UKBAP	1 record dated 2012
Birds			
Lesser redpoll	<i>Acanthis cabaret</i>	Red List BoCC ¹⁰ , UK BAP	5 records dated between 2010 and 2020.
Goshawk	<i>Accipiter gentilis</i>	Schedule 1 WCA	1 record dated 2020
Skylark	<i>Alauda arvensis</i>	Red List BoCC, UK BAP	4 records dated between 2008 and 2020.
Kingfisher	<i>Alcedo atthis</i>	Schedule 1 WCA, Annex 1 ¹¹ , Amber List BoCC	7 records between 2008 and 2020.
Swift	<i>Apus apus</i>	Red listed BoCC	2 records dated between 2012 and 2016
Brent goose	<i>Branta bernicla</i>	Amber List BoCC, UK BAP	3 records dated between 2008 and 2014.
Ringed plover	<i>Charadrius hiaticula</i>	Red listed BoCC	1 record dated 2020
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Amber listed BoCC	8 records dated between 2008 and 2020
Hawfinch	<i>Coccothraustes coccothraustes</i>	Red listed BoCC	1 record dated 2017
Lesser spotted woodpecker	<i>Dryobates minor</i>	Red listed BoCC	1 record dated 2020
Little egret	<i>Egretta garzetta</i>	Annex 1	26 records dated between 2008 and 2020.
Yellowhammer	<i>Emberiza citrinella</i>	Red List BoCC	7 records dated between 2011 and 2020
Reed bunting	<i>Emberiza schoeniclus</i>	Amber List BoCC, UK BAP	1 record dated 2015.

⁷ WCA: The Wildlife and Countryside Act 1981 (as amended)

⁸ UKBAP: UK Biodiversity Action Plan

⁹ Habs Regs: Conservation of Habitats and Species Regulations 2010

¹⁰ BoCC: Birds of Conservation Concern

¹¹ Annex 1 of the Birds Directive

Grainger Plc
Ecological Impact Assessment – Blue Star Land, Berewood

Common Name	Scientific name	Status	Dates
Peregrine	<i>Falco peregrinus</i>	Schedule 1 WCA, Annex 1, Red List BoCC	11 records dated between 2008 and 2020.
Hobby	<i>Falco subbuteo</i>	Schedule 1 WCA	10 records dated between 2008 and 2020.
Brambling	<i>Fringilla montifringilla</i>	Schedule 1 WCA	1 record dated 2008.
Snipe	<i>Gallinago gallinago</i>	Amber listed BoCC	1 record dated 2010
Oystercatcher	<i>Haematopus ostralegus</i>	Amber List BoCC	2 records dated between 2008 and 2020
Mediterranean gull	<i>Ichthyaetus melanocephalus</i>	Amber List BoCC	92 records between 2008 and 2020
Herring gull	<i>Larus argentatus</i>	Red List BoCC, UK BAP	8 records dated between 2010 and 2020.
Lesser black-backed gull	<i>Larus fuscus</i>	Amber List BoCC	5 records dated between 2012 and 2020.
Great black-backed gull	<i>Larus marinus</i>	Amber List BoCC	6 records dated between 2009 and 2020.
Linnet	<i>Linaria cannabina</i>	Red List BoCC, UK BAP	8 records dated between 2009 and 2020.
Common crossbill	<i>Loxia curvirostra</i>	Schedule 1 WCA	5 records dated between 2008 and 2013.
Woodlark	<i>Lullula arborea</i>	Schedule 1 WCA, Annex 1, UK BAP	1 record dated 2020
Nightingale	<i>Luscinia megarhynchos</i>	Red List BoCC	2 records dated between 2011 and 2015
Red kite	<i>Milvus milvus</i>	Schedule 1 WCA, Annex 1	35 records dated between 2008 and 2020.
Grey wagtail	<i>Motacilla cinerea</i>	Red List BoCC	21 records dated between 2008 and 2020
Yellow wagtail	<i>Motacilla flava</i>	Red List BoCC, UK BAP	4 records dated between 2010 and 2020
Spotted flycatcher	<i>Muscicapa striata</i>	Red List BoCC, UK BAP	1 record dated 2014
Curlew	<i>Numenius arquata</i>	Red List BoCC, UK BAP	1 record dated 2020
Whimbrel	<i>Numenius phaeopus</i>	Schedule 1 WCA, Red List BoCC	1 record dated 2010
Wheatear	<i>Oenanthe oenanthe</i>	Amber List BoCC	2 records dated between 2010 and 2011
Osprey	<i>Pandion haliaetus</i>	Schedule 1 WCA, Annex 1, Amber List BoCC	3 records dated between 2013 and 2020.
House sparrow	<i>Passer domesticus</i>	Red List BoCC, UK BAP	12 records dated between 2011 and 2020.
Redstart	<i>Phoenicurus phoenicurus</i>	Amber List BoCC	2 records dated between 2011 and 2018
Marsh tit	<i>Poecile palustris</i>	Red List BoCC, UK BAP	11 records dated between 2013 and 2020.

Grainger Plc
Ecological Impact Assessment – Blue Star Land, Berewood

Common Name	Scientific name	Status	Dates
Firecrest	<i>Regulus ignicapillus</i>	Schedule 1 WCA,	7 records dated between 2013 and 2020
Woodcock	<i>Scolopax rusticola</i>	Red List BoCC	2 records dated 2012
Common tern	<i>Sterna hirundo</i>	Amber listed BoCC	1 record dated 2020
Starling	<i>Sturnus vulgaris</i>	Red List BoCC, UK BAP	19 records dated between 2011 and 2020.
Greenshank	<i>Tringa nebularia</i>	Schedule 1 WCA, Amber List BoCC	1 record dated 2020.
Green sandpiper	<i>Tringa ochropus</i>	Schedule 1 WCA, Amber List BoCC	2 records dated between 2019 and 2020.
Redwing	<i>Turdus iliacus</i>	Schedule 1 WCA, Red List BoCC	10 records dated between 2008 and 2020.
Song thrush	<i>Turdus philomelos</i>	Red List BoCC, UK BAP	11 records dated between 2011 and 2020.
Fieldfare	<i>Turdus pilaris</i>	Schedule 1 WCA, Red List BoCC	6 records dated between 2011 and 2019
Ring ouzel	<i>Turdus torquatus</i>	Red List BoCC	1 record dated 2019
Mistle thrush	<i>Turdus viscivorus</i>	Red List BoCC	2 records dated between 2013 and 2020
Barn owl	<i>Tyto alba</i>	Schedule 1 WCA	3 records dated 2013.
Lapwing	<i>Vanellus vanellus</i>	Red List BoCC, UK BAP	2 records dated 2020
Invertebrates - Blattaria			
Dusky cockroach	<i>Ectobius lapponicus</i>	Red listed GB post 2001	1 record dated 2012
Invertebrates - Coleoptera			
Stag beetle	<i>Lucanus cervus</i>	Annex II (non-priority)	13 records dated between 2006 and 2019.
Invertebrates - Lepidoptera			
Silver-washed fritillary	<i>Argynnis paphia</i>	HBAP ¹²	9 records dated between 2010 and 2019.
Small heath	<i>Coenonympha pamphilus</i>	Section 41 species of principal importance under NERC Act. Butterfly Conservation high, UK BAP Species	1 record dated 2018
White admiral	<i>Limenitis camilla</i>	IUCN GB 2001 VU ¹³	3 records dated between 2009 and 2018.
Invertebrates – Mollusca			
Large Black Slug	<i>Arion (Arion) ater</i>	IUCN GB 2001 VU ¹⁴	2 records dated 2012
Invertebrates – Odonata			
Common Darter	<i>Sympetrum striolatum</i>	IUCN GB 2001 VU ¹⁵	7 records dated between 2008 and 2019
Mammals – bats			

¹² Hampshire Biodiversity Action Plan species

¹³ Vulnerable

¹⁴ Vulnerable

¹⁵ Vulnerable

Common Name	Scientific name	Status	Dates
Serotine	<i>Eptesicus serotinus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	9 records dated between 1982 and 2021.
Myotis species	<i>Myotis sp.</i>	Schedule 2 Habs Regs, Schedule 5 WCA	19 records dated between 2011 and 2020
Alcathoe bat	<i>Myotis alcathoe</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2018
Bechstein's	<i>Myotis bechsteinii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2015
Brandt's	<i>Myotis brandtii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	3 records dated between 2018 and 2020
Whiskered bat	<i>Myotis mystacinus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	4 records dated between 2005 and 2021
Whiskered/Brandt's bat	<i>Myotis mystacinus/brandtii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2005.
Natterer's	<i>Myotis nattereri</i>	Schedule 2 Habs Regs, Schedule 5 WCA	9 records dated between 2011 and 2019
Noctule	<i>Nyctalus noctula</i>	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	14 records dated from 1982 to 2019.
Pipistrelle species	<i>Pipistrellus sp.</i>	Schedule 2 Habs Regs, Schedule 5 WCA	24 records dated between 1985 and 2013.
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	151 records dated between 1982 and 2021.
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	32 records dated between 2009 and 2021.
Long-eared species	<i>Plecotus sp.</i>	Schedule 2 Habs Regs, Schedule 5 WCA	2 records dated between 2013 and 2017
Brown long-eared	<i>Plecotus auritus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	20 records dated between 1982 and 2020.
Parti-coloured	<i>Vespertilio murinus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2014
Mammals – Terrestrial (non-bats)			
West European hedgehog	<i>Erinaceus europaeus</i>	UK BAP	32 records dated between 2007 and 2020
Eurasian badger	<i>Meles meles</i>	PBA ¹⁶	3 records dated between 2008 and 2017.
Hazel dormouse	<i>Muscardinus avellanarius</i>	UK BAP, Schedule 5 WCA	22 records dated between 2008 and 2019.
Invasive plants			
Montbretia	<i>Crocsmia x crocsmifolia</i>	Schedule 9 WCA	6 records dated between 2014-2019
Nuttall's waterweed	<i>Elodea nuttallii</i>	Schedule 9 WCA	2 records dated 2004 and 2014.
Japanese knotweed	<i>Fallopia japonica</i>	Schedule 9 WCA	9 records dated between 2007 and 2014.

¹⁶ Protection of Badgers Act

Grainger Plc
Ecological Impact Assessment – Blue Star Land, Berewood

Common Name	Scientific name	Status	Dates
Indian balsam (Himalayan balsam)	<i>Impatiens glandulifera</i>	Schedule 9 WCA	4 records dated between 2007 and 2011.
Yellow variegated archangel	<i>Lamium galeobdolon argenteum</i>	Schedule 9 WCA	2 records dated 1998 and 2010.
Virginia-creeper	<i>Parthenocissus quinquefolia</i>	Schedule 9 WCA	1 record dated 2013.
Rhododendron	<i>Rhododendron ponticum</i>	Schedule 9 WCA	3 records dated between 1991 and 2001.
Three cornered garlic	<i>Allium triquetrum</i>	Schedule 9 WCA	7 records dated between 2003-2021
Mexican fleabane	<i>Erigeron karvinskianus</i>	Schedule 9 WCA	1 record in 2019
Curly waterweed	<i>Lagarosiphon major</i>	Schedule 9 WCA	1 record in 2021

APPENDIX IV: UK Habitats Classification map



APPENDIX V: Habitat survey and condition assessment

Modified grassland (g4, 16, 17, 161)

There are four distinct areas of modified grassland recorded within the red line boundary. One area which borders the tarmac pedestrian footpaths is located in the centre of the site, and surrounds the south western area of the site. There are also tracks and pathways of modified grassland between the stands of scrub within the northern section of the site. The modified grassland on site comprises a regularly mown, grass-dominated sward, approximately 7 centimetres in average height. Species recorded within the sward include perennial rye-grass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), common bent (*Agrostis capillaris*), annual meadow-grass (*Poa annua*), smooth meadow-grass (*Poa pratensis*), red fescue (*Festuca rubra*), daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*), common mouse-ear (*Cerastium fontanum*), common nettle (*Urtica dioica*), crane's-bill sp (*Geranium* sp), dandelion (*Taraxacum* agg), broad-leaved dock (*Rumex obtusifolius*), wood avens (*Geum urbanum*), cleavers (*Galium aparine*) and lords-and-ladies (*Arum maculatum*).

There are sections of rough and overgrown modified grassland which adjoin the stands of scrub within the northern area of the site. The sward is rank/overgrown, with an average height of approximately 20 centimetres, and comprises coarse grasses such as cock's-foot (*Dactylis glomerata*) and false oat-grass (*Arrhenatherum elatius*) and common ruderals such as common nettle (*Urtica dioica*) and great willowherb (*Epilobium hirsutum*) (secondary codes 17 and 161). It was also noted that bramble (*Rubus fruticosus* agg.) and hawthorn (*Crataegus monogyna*) scrub is encroaching into these areas.

There is an area of regenerating modified grassland within the south-eastern section of the site. This grassland comprises a short and moderately diverse sward, between 4 and 10 centimetres in average height, which has colonised areas of bare ground and hardstanding. Abundant and frequent species recorded within the sward include annual meadow-grass, red fescue, sticky mouse-ear (*Cerastium glomeratum*), yarrow (*Achillea millefolium*), creeping buttercup, sedge sp (*Carex* sp), and dove's-foot crane's-bill (*Geranium molle*). Additional species included meadow-grass sp (*Poa* sp), hairy bittercress (*Cardamine hirsuta*), common mouse-ear, cut-leaved crane's-bill (*Geranium dissectum*), ribwort plantain (*Plantago lanceolata*), groundsel (*Senecio vulgaris*), dandelion, and speedwell (*Veronica* sp).

A condition assessment was completed for grassland habitat type of low distinctiveness and presented in table A below.

Table A: Condition sheet for grassland and habitat type (low distinctiveness)

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	There must be 6-8 species per m2. If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type. NB - this criterion is essential for achieving moderate condition.	Yes	Approximately 6 species per m2.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Yes	Areas of tussocky grassland, and areas of short grassland.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	No	Continuous cover of scrub (see separate condition sheet)
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	No	More than 5% physical damage, includes area of fire damage.
5	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Yes	Bare ground in locations where tracks are present.
6	Cover of bracken less than 20%.	Yes	No bracken present
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Yes	No schedule 9 species were encountered.
Essential criterion 1 achieved (Y/N)			Yes
Number of criteria passed			5

Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Passes 6 or 7 of 7 criteria including passing essential criterion 1	Good (3)		
Passes 4 or 5 of 7 criteria; OR Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate (2)	Yes	
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1	Poor (1)		
Suggested enhancement interventions to improve condition score			

Areas of tall herb (secondary code 16) and ruderal vegetation (secondary code 17) were recorded amongst the modified grassland within the south-eastern section of the site. Species recorded include ivy (*Hedera helix*), common nettle, cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*), dock (*Rumex sp*), pendulous sedge (*Carex pendula*) and creeping buttercup. There is no separate condition assessment for secondary code 16 and 17 and this falls under the grassland habitat.

Bramble scrub (h3d 73, 77)

The majority of the site is occupied by dense/continuous stands of bramble scrub. Additional species recorded include common nettle, lords-and-ladies, ivy-leaved speedwell (*Veronica hederifolia*), stinking iris (*Iris foetidissima*), cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*) and creeping buttercup. Bare ground (secondary code 73) was noted below the dense bramble stands, and there has been a lack of management of this habitat (secondary code 77). There is no condition assessment for bramble scrub which is automatically given a ‘not applicable’ condition.

Mixed scrub (h3h, 17, 57, 73)

Areas of mixed scrub was recorded across the site. Species recorded include bramble, blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), grey willow (*Salix cinerea*), alder (*Alnus glutinosa*), silver birch (*Betula pendula*), guelder rose (*Viburnum opulus*), butterfly-bush (*Buddleja davidii*), apple (*Malus sp.*), field maple (*Acer campestre*), ash saplings (*Fraxinus excelsior*), Wilson's honeysuckle (*Lonicera nitida*) and rose (*Rosa sp.*). Ruderal vegetation (secondary code 17) was noted amongst the scrub including common nettle, cow parsley, and hogweed. Areas of young trees self-set (secondary code 57) was recorded. There was a notable lack of management of this scrub habitat.

A condition assessment was completed for scrub habitat type and presented in table B below.

Table B: Condition assessment for scrub habitat

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	No	Predominantly bramble scrub, with frequent blackthorn and hawthorn scrub.
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	No	All scrub appears to be similar age, with some self-seeded species present.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Yes	No Schedule 9 WCA species recorded.
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	No	Grassland habitat being encroached by scrub habitat
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Yes	Clearings present.
Number of criteria passed			2
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 of 5 criteria	Good (3)		

Passes 3 or 4 of 5 criteria	Moderate (2)		
Passes 0, 1 or 2 of 5 criteria	Poor (1)	Yes	
Suggested enhancement interventions to improve condition score			
Notes			
Footnote 1 - Species indicative of sub-optimal condition for this habitat type include: tree-of-heaven <i>Alianthus altissima</i> , holm oak <i>Quercus ilex</i> , turkey oak <i>Quercus cerris</i> , creeping thistle <i>Cirsium arvense</i> , common nettle <i>Urtica dioica</i> , cherry laurel <i>Prunus laurocerasus</i> , snowberry <i>Symphoricarpos</i> spp., buddleia <i>Buddleja</i> spp., cotoneaster <i>Cotoneaster</i> spp., Spanish bluebell <i>Hyacinthoides hispanica</i> (or hybrids).			

Line of trees (w1g6, 11)

A line of trees are located towards the south of site, whilst a number of scattered trees (secondary code 11) are present throughout the scrub and grassland within the site which include mature specimens of pedunculate oak (*Quercus robur*), alder, beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), cherry (*Prunus* sp), willow sp (*Salix* sp), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), silver birch (*Betula pendula*), sessile oak (*Quercus petraea*) and Leyland cypress (*Cupressus × leylandii*).

A condition assessment was completed for line of trees habitat type and presented in table C below.

Table C: Condition assessment for line of trees

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	More than 70% of trees are native species.	Yes	
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Yes	
3	Includes one or more mature ¹ or veteran ² tree.	Yes	Mature trees present
4	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.	No	Public footpaths present on the west side and evidence of fly tipping nearby

5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Yes	Unless confirmed otherwise via tree assessment.
Number of criteria passed			
Condition Assessment Result		Condition Assessment Score	Score Achieved x/✓
Passes 5 of 5 criteria		Good (3)	
Passes 3 or 4 of 5 criteria		Moderate (2)	Yes
Passes 0, 1 or 2 of 5 criteria		Poor (1)	

A condition assessment was completed for Urban trees habitat type (scattered trees) and presented in table D below.

Table D: Condition assessment for Urban trees

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	The tree is a native species (or more than 70% within the block are native species).	Yes	Individual non-native species recorded
2	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes	N/A
3	The tree is mature ² or veteran ³ (or more than 50% within the block are mature ² or veteran ³).	Yes	Mature trees present
4	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Yes	Unless confirmed differently from tree assessment.
5	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark	Yes	15 trees identified as holding low bat potential.

6	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes	Scattered trees recorded amongst bramble scrub
Number of criteria passed			
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 or 6 of 6 criteria	Good (3)	Yes	
Passes 3 or 4 of 6 criteria	Moderate (2)		
Passes 0, 1 or 2 of 6 criteria	Poor (1)		

Native hedgerows (h2a)

There are three established, species-rich native hedgerows on site which range from 2.5 to 8 metres in height and comprise a good variety of woody species. The field layers of the hedgerows were generally species-poor. Details of the hedgerow are provided in table E and F below.

Ditches (Secondary code 191)

There are a total of four drainage ditches on site, which range from 0.5 to 1 metres in width and 0.25 to 0.5 metres in depth. The ditch banks and channels largely comprise bare earth. The ditches are mostly situated within dense stands of scrub, including bramble, blackthorn and hawthorn, which have colonised the banks and completely covered over some ditch sections. No water was recorded within the ditches during the survey. A condition assessment was completed for ditch habitat type and presented in table G below.

Hardstanding (u1b6)

Areas of hardstanding on site consist of tarmac footpaths.

Table E: Hedgerows recorded on site

Key (see Phase 1 map)	Woody species	Ground flora	BAP status (80% native woody species)	General description
H1	Field maple (<i>Acer campestre</i>) Dogwood (<i>Cornus sanguinea</i>) Hazel (<i>Corylus avellana</i>) Hawthorn (<i>Crataegus monogyna</i>) Ash (<i>Fraxinus excelsior</i>) Wilson's honeysuckle (<i>Lonicera nitida</i>) Cherry (<i>Prunus</i> sp) Blackthorn (<i>Prunus spinosa</i>) Pedunculate oak (<i>Quercus robur</i>) Rose (<i>Rosa</i> sp) Rowan (<i>Sorbus aucuparia</i>) Goat willow (<i>Salix caprea</i>)	Cow parsley (<i>Anthriscus sylvestris</i>) Lord's-and-ladies (<i>Arum maculatum</i>) Lesser celandine (<i>Ficaria verna</i>) Cleavers (<i>Galium aparine</i>) Wood avens (<i>Geum urbanum</i>) Ivy (<i>Hedera helix</i>) Honeysuckle (<i>Lonicera periclymenum</i>) Bramble (<i>Rubus fruticosus</i> agg.) Wood dock (<i>Rumex sanguineus</i>)	Yes	Intact, species-rich hedgerow.
H2	Field maple Alder (<i>Alnus glutinosa</i>) Hazel Hawthorn Ash Holly (<i>Ilex aquifolium</i>) Wilson's honeysuckle Blackthorn Rose Elder (<i>Sambucus nigra</i>)	Lord's-and-ladies Hedge bindweed (<i>Calystegia sepium</i>) Lesser celandine Cleavers Wood avens Ivy Bluebell (<i>Hyacinthoides non-scripta</i>) Bramble Wood dock Hedge woundwort (<i>Stachys sylvatica</i>) Common nettle	Yes	Intact, species-rich hedgerow with mature standard ash trees.
H3	Field maple (<i>Acer campestre</i>) Hazel (<i>Corylus avellana</i>) Hawthorn (<i>Crataegus monogyna</i>) Ash (<i>Fraxinus excelsior</i>) Blackthorn (<i>Prunus spinosa</i>)	Cow parsley (<i>Anthriscus sylvestris</i>) Lord's-and-ladies (<i>Arum maculatum</i>) Lesser celandine (<i>Ficaria verna</i>) Cleavers (<i>Galium aparine</i>) Wood avens (<i>Geum urbanum</i>)	Yes	Intact, species rich hedgerow

Key (see Phase 1 map)	Woody species	Ground flora	BAP status (80% native woody species)	General description
	Rose (<i>Rosa sp</i>) Willow (<i>Salix sp</i>)	Ivy (<i>Hedera helix</i>) Honeysuckle (<i>Lonicera periclymenum</i>) Bramble (<i>Rubus fruticosus</i> agg.)		

A condition assessment was completed for hedgerow habitat type and presented in table F below.

Table F: Condition assessment for hedgerows

Condition Assessment Criteria				
A series of ten attributes, representing key physical characteristics, are used for this assessment. The attributes, and the minimum criteria for achieving a favourable condition in each, are defined. The attributes use similar favourable condition criteria to the Hedgerow Survey Handbook and the handbook is the recommended source of reference for assessing individual hedgerow attributes.				
Hedgerow favourable condition attributes				
Attributes and functional groupings (A, B, C, D & E)	Criteria (the minimum requirements for 'favourable condition'	Description	Condition Achieved (Y/N)	Notes/Justification
Core groups - applicable to all hedgerow types				

A1. Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).	H1,H2, H3	All hedgerows reach this criteria
A2. Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice⁴).	H1 and H2	H3 does not reach this criteria
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	H2 and H3	H1 does not meet this criteria

B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	H1, H2, H3	All hedgerows reach this criteria
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	No	All hedgerows fail to meet this criteria
C2.	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (<i>Urtica</i> spp.), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex</i> spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.	H1 ad H3	H2 does not meet this criteria
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	H1, H2, H3	All hedgerows reach this criteria

D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).	No	All hedgerows fail to meet this criteria
Additional group - applicable to hedgerows with trees only				
E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.	H2- yes	
E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	H2- yes	

Each attribute is assigned to one of five functional groups (A – E), as indicated in Table TS1-2 and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the ‘favourable condition’ criteria according to the approach set out in Table TS1-3.

The hedgerow condition assessment generates a weighting (score) ranging from 1-3, which is used within the biodiversity metric 3.1. The scores for each are set out in tables TS1-3 and TS1-4 below.

TABLE TS1-3: Hedgerow condition assessment and weighting

Condition categories for hedgerows without trees			H1 and H3
Category	Maximum number of attributes that can fail to meet 'favourable condition' criteria in Table TS1-2	Weighting (score)	
Good	No more than 2 failures in total; AND No more than 1 in any functional group.	3	
Moderate	No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	2	

Poor	Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1	H2
Score achieved:			
Condition categories for hedgerows with trees			
Category	Maximum number of attributes that can fail to meet ‘favourable condition’ criteria in Table TS1-2	Weighting (score)	
Good	No more than 2 failures in total; AND No more than 1 failure in any functional group.	3	
Moderate	No more than 5 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).	2	

Poor	Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1	
Score achieved:			

Table G: Condition assessment for ditch habitat type

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	No	Majority dry with one leading out of the northern boundary with very limited water present.
2	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20 m ditch length.	No	No emergent, submerged and floating leaved plants present.
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	No	N/A
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	No	Majority of banks are bare earth with scrub encroachment.

5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	Yes	Worn paths by both human and mammals and evidence of fly tipping/ waste
6	Sufficient water levels are maintained; as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	No	No water present
7	Less than 10% of the ditch is heavily shaded.	No	Almost 100% in most cases.
8	There is an absence of non-native plant and animal species ¹ .	Yes	No non-native species present.
Number of criteria passed			2
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Passes 8 of 8 criteria	Good (3)		
Passes 6 or 7 of 8 criteria	Moderate (2)		
Passes 0, 1, 2, 3, 4 or 5 of 8 criteria	Poor (1)	Yes	

APPENDIX VI: Badger activity map





APPENDIX VII: Location of trees holding low potential to support roosting bats



APPENDIX VIII: Bat activity results from 2018 and 2023



April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Berewood – Black route	SURVEYORS:	Joe Marcroft and Andy Joyce	DATE:	25.04.2018
TEMP AT START:	10°C	SUNSET:	20:15	START TIME:	20:15
TEMP AT END:	9°C	CLOUD COVER (oktas):	4/8	END TIME:	22:15
WIND (bft):	1/12	RAINFALL:	Occasional	WEATHER:	Calm/showers
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:11	C	Common pipistrelle	1	Heard but not seen.	
21:14	C	Common pipistrelle	1	Heard but not seen.	
21:25	E	Common pipistrelle	1	Heard but not seen.	
21:26	E	Common pipistrelle	1	Heard but not seen, foraging.	
21:31	E-F	Common pipistrelle	1	Heard but not seen. Foraging continuously south along the hedgerow.	
21:33	F	Common pipistrelle	1	Heard but not seen.	
21:41	G	Common pipistrelle	1	Heard but not seen.	
21:46	G	Common pipistrelle	1	Heard but not seen.	
21:53	B	Common pipistrelle	1	Heard but not seen.	
21:56	B	Common pipistrelle	1	Heard but not seen.	
22:01	B-C	Common pipistrelle	1	Heard but not seen, foraging.	
22:03	C	Common pipistrelle	1	Heard but not seen, foraging.	
22:05	C	Common pipistrelle	1	Heard but not seen, foraging.	
22:08	C-D	Common pipistrelle	1	Heard but not seen, foraging.	

May 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Berewood Black route	SURVEYORS:	Joe Marcroft, Sam Williams	DATE:	21.05.2018
TEMP AT START:	17°C	SUNSET:	20:55	START TIME:	20:55
TEMP AT END:	15°C	CLOUD COVER (oktas):	6/8	END TIME:	22:55
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Overcast

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:07	C	Common pipistrelle	1	Heard but not seen.
21:21	E	Common pipistrelle	2	Foraging, east to west to east, between trees over scrubby clearing.
21:23-21:25	E	Common pipistrelle	1	Heard but not seen.
21:30	F	Common pipistrelle	1	Foraging.
21:36	F-G	Common pipistrelle	1	Heard but not seen, foraging.
21:37-21:38	G	Common pipistrelle	1	Heard but not seen, foraging.
21:42	A	Common pipistrelle	1	Heard but not seen, foraging.
21:43-21:50	A	Common pipistrelle	2	Foraging north to south along hedgerow bordering the field, and east to west along path.
21:53-22:02	B	Common pipistrelle	1	Heard but not seen, foraging.
22:03	B-C	Common pipistrelle	1	Heard but not seen, foraging.
22:26	E	Common pipistrelle	1	Heard but not seen, foraging.
22:31	E	Common pipistrelle	1	Heard but not seen, foraging.
22:38	F	Common pipistrelle	1	Heard but not seen, foraging continuously.
22:39-22:48	F	Common pipistrelle	1	Heard but not seen, foraging.
22:51	G	Common pipistrelle	1	Heard but not seen, foraging.

June 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Berewood (Black transect)	SURVEYORS:	Joe Marcroft Sam Fletcher	DATE:	11.06.18
TEMP AT START:	18 C	SUNSET:	21:17	START TIME:	21:17
TEMP AT END:	16 C	CLOUD COVER (oktas):	1/8	END TIME:	23:17
WIND (bft):	1/12	RAINFALL:	none	WEATHER:	cool

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:48	C	Common pipistrelle	2	Continuous commuting and foraging in a west to east direction.
21:54	C-D	Common pipistrelle	1	Heard but not seen.
21:55	D	Common pipistrelle	1	Foraging.
21:59	D	Common pipistrelle	1	Foraging.
22:10	E	Common pipistrelle	1	Heard but not seen.
22:12	E	Common pipistrelle	2	Foraging overhead.
22:23	E-F	Common pipistrelle	2	Heard but not seen.
22:26	F	Common pipistrelle	1	Heard but not seen.
22:36	G	Common pipistrelle	1	Heard but not seen – Foraging overhead.
22:40	G	Common pipistrelle	2	Feeding buzzes heard.
22:50	A	Common pipistrelle	1	Heard but not seen.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	BEREWOOD Black Transect	SURVEYORS :	Joe & Alex S	DATE:	23.07.2018
TEMP AT START:	21 C	SUNSET:	21:03	START TIME:	21:29
TEMP AT END:	19 C	CLOUD COVER (oktas):	1/8	END TIME:	23:03
WIND (bft):	1/12	RAINFALL:	none	WEATHER:	
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:42	B-C	Common pipistrelle	1	Heard not seen	
21:44	C	Common pipistrelle	1	Heard not seen	
21:47	C	Common pipistrelle	1	Heard not seen	

21:49	C-D	Common pipistrelle	1	Heard not seen
21:58	E	Common pipistrelle	1	Foraging overhead - Continuous
22:07	F	Common pipistrelle	1	Heard not seen - Continuous
22:12	F-G	Common pipistrelle	1	Heard not seen
22:17	G	Common pipistrelle	1	Heard not seen
22:22	A	Common pipistrelle	1	Heard not seen
22:26	B	Common pipistrelle	1	Heard not seen – Continuous
22:30	B-C	Common pipistrelle	1	Heard not seen
22:35-22:37	C	Common pipistrelle	1	Heard not seen – Continuous
22:43	D	Common pipistrelle	1	Heard not seen – Continuous
22:43	D	Myotis sp.		
22:45	E	Common pipistrelle	1	Heard not seen
22:46	E	Myotis sp.	1	Heard not seen - Continuous

August 2018 - dusk

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	BERWOO – Black transect	SURVEYORS:	George Hunt, Sam Williams	DATE:	07.08.2018
TEMP AT START:	23°C	SUNSET:	20:40	START TIME:	20:40
TEMP AT END:	20°C	CLOUD COVER (oktas):	3/8	END TIME:	22:40
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:03	C->B	Common pipistrelle	1	Heard not seen, faint call	
21:	E	Common pipistrelle	1	Foraging continuously over stopping point E	
21:	F	Common pipistrelle	1	Commuting southwest to northeast over stopping point F	
21:	G	Common pipistrelle	1	Heard not seen	

21:45	S2	Common pipistrelle	2	Foraging north to south to north along hedgerow that borders playing field to west
21:	A	Common pipistrelle	1	Heard not seen
22:	C	Common pipistrelle	1	Heard not seen
22:	C	Common pipistrelle	1	Commuting north to south along path into housing area
22:09	C->B	Common pipistrelle	1	Heard not seen
22:	D	Common pipistrelle	1	Heard not seen
22:	E	Common pipistrelle	1	Heard not seen, intermittent foraging
22:26	E-F	Common pipistrelle	1	Heard not seen
22:	F	Common pipistrelle	1	Heard not seen
22:	F	Common pipistrelle	1	Constant foraging. Feeding buzzes
22:	G	Common pipistrelle	1	Commuting west to east down path into park area
22:	G	Common pipistrelle	1	Sporadic foraging over stopping point G

August 2018 dawn

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	BEREWOO – Black transect	SURVEYORS:	George Hunt, Sam Williams	DATE:	07.08.2018
TEMP AT START:	17°C	SUNRISE:	05:40	START TIME:	03:40
TEMP AT END:	15°C	CLOUD COVER (oktas):	0/8	END TIME:	05:40
WIND (bft):	0/12	RAINFALL:	Nil	WEATHER:	Cool, calm
Data Analysed Y/N:	Y	Additional information:	EM3-03		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
04:54	E	Common pipistrelle	2	Foraging northwest of stopping point E, around trees	
05:01	E-F	Common pipistrelle	1	Foraging around trees south of stopping point F	

--	--	--	--	--

September 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	BEREWOO Black Route	SURVEYORS:	Aimee Cokayne & Joe Marcroft	DATE:	13.09.2018
TEMP AT START:	17°C	SUNSET:	19:24	START TIME:	19:24
TEMP AT END:	14°C	CLOUD COVER (oktas):	4/8	END TIME:	21:24
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Calm & dry.
Data Analysed Y/N:		Additional information:	iPad 4 & EMT 1		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:49-19:50	F	Common pipistrelle	1	Commutated south to north.	
19:50-19:53	F	Common pipistrelle	1	Continuous foraging around the stopping point.	
19:58	G	Common pipistrelle	1	Heard but not seen.	
20:02	G	Common pipistrelle	1	Heard but not seen.	
20:08-20:09	A	Common pipistrelle	1	Heard but not seen, brief call.	
20:11	A	Common pipistrelle	1	Heard but not seen.	
20:21	C	Common pipistrelle	1	Heard but not seen.	
20:26	D	Common pipistrelle	1	Heard but not seen.	
20:45-20:50	F	Common pipistrelle	1	Heard but not seen, continuous calls.	
20:53	G	Common pipistrelle	1	Heard but not seen.	
20:56	G	Common pipistrelle	1	Heard but not seen.	
20:58	G	Common pipistrelle	1	Heard but not seen.	
20:59	A	Common pipistrelle	1	Heard but not seen.	

21:00-21:05	A	Common pipistrelle	1	Heard but not seen, continuous calls.
21:07	B	Common pipistrelle	1	Heard but not seen.

2023 Static monitoring results

Two static detectors were located around the site for 10 nights each month between April and June in similar locations to the 2018 surveys. Four species were recorded using the site. Consistent activity was recorded for common pipistrelle throughout the monitoring period. A pipistrelle species was also recorded on several occasions which may have been from a common pipistrelle flying in an open environment or from another species of pipistrelle such as the Nathusius pipistrelle (*Pipistrellus nathusii*). In June there were also four records of a *Myotis* species recorded and six records of a *Nyctalus/Eptesicus* species. No bats were detected during the month of May.

Static Number	Months	Number of nights recorded
S1	April	10
S2	April	10
S1	May	10
S2	May	10
S1	June	11
S2	June	11

APPENDIX IX: Reptile results from 2018



Date	Time	Weather	Temp (°c)	Species found
03/05/18	09:00	Wind 2/12, cloud 2/8	13	6 adult slow worms 2 juvenile slow worms
11/05/18	09:10	Wind 2/12, cloud 2/8	13	6 adult slow worms 3 juvenile slow worms
17/05/18	10:15	Wind 2/12, cloud 0/8	13	3 juvenile slow worms 2 female slow worms
24/05/18	9:45	Wind 2/12, cloud 7/8	15	3 female slow worms 5 juvenile slow worms
07/06/18	12:00	Wind 1/12, cloud 8/8	18	4 male slow worms 2 female slow worms 8 juvenile slow worms
14/06/18	10:00	Wind 2/12, cloud 8/8	14	4 male slow worms 2 female slow worms 4 juvenile slow worms
27/06/18	07:00	Wind 2/12, cloud 0/8	14	1 juvenile slow worm

APPENDIX X: Reptile results from 2023



Survey visit number/ date	Surveyor	Time	Slow worm											Area recorded
			Weather conditions		Common lizard			Grass snake						
			Temperature °C	wind / cloud / description	M	F	J	M	F	J	M	F	J	
1 - 06/04/2023	Colin Sutch	11:15	14	2 (wind), 2 (cloud), warm, sunny	0	4	0	0	0	0	0	0	0	Along grass verge of footpath running east to west
2 - 13/04/2023	Colin Sutch	9:30	10	1 (wind), 1 (cloud), dry	0	0	0	0	0	0	0	0	0	
3 - 17/04/2023	Colin Sutch	12:00	14	1 (wind), 6 (cloud), warm ,dry	1	3	1	0	0	0	0	0	0	Along grass verge of footpath running east to west
4 - 20/04/2023	Colin Sutch	10:00	12	2 (wind), 0 (cloud) warm, dry	1	3	0	0	0	0	0	0	0	Along grass verge of footpath running east to west
5 - 27/04/2023	Aimee Cokayne		17	1 (wind), 7 (cloud), changeable, cloudy	1	0	0	0	0	0	0	0	0	South east of site in clearing
6 - 04/05/2023	Aimee Cokayne		16	1 (wind), 8 (cloud), warm, overcast	5	9	5	0	0	0	0	0	0	Located throughout site
7 - 09/05/2023	Colin Sutch	10:10	15	1 (wind), 6 (cloud), warm ,dry	7	4	4	0	0	0	0	0	0	Primarily located along east to west path

APPENDIX XI: Dormouse results from 2023

Survey visit number/ date	Surveyor	Survey	Weather conditions		Dormouse	Other	Area recorded
			Temp °C	wind / cloud			
1 - 11/05/2023	Aimee Cokayne	Footprint tunnels	15-16	Wind-1/12 cloud 2/8 mild and still	0	Woodmice	Clusters 1 and 2
2 - 24/05/2023	Aimee Cokayne	Footprint tunnels Nest tube	20	Wind 1/12 cloud 1/8 hot and sunny	0 0	Woodmice	Cluster 1, 2,3,5 and 6
3 - 08/06/2023	Aimee Cokayne	Footprint tunnels	22-23	Wind:0/12 cloud: 0/8 very hot and sunny	0	Woodmice	Cluster 1, 2,3,4,5 and 8
4-21/06/2023	Aimee Cokayne	Footprint tunnels Nest tube	21	Wind:0/12, cloud 2/8 hot, humid and sunny	0 0	Woodmmice	Cluster 2,3,4 and 5
5- 06.07.23	Aimee Cokayne	Footprint tunnels	20-22	Wind:1/12, cloud 2/8 hot, humid and sunny, building up to rain	0	Woodmice Bird	Cluster 3,4,5 Cluster 1,2,3 and 4
6 - 20.07.23	Aimee Cokayne	Footprint tunnels Nest tube	20	Wind:0/12, cloud 4/8 warm and sunny with some cloud cover	0 0	Woodmice Birds	Cluster 2, 3 and 4 Cluster 2,4 and 7
7-01.08.23	Aimee Cokayne	Footprint tunnels	18-19	Wind:0/12, cloud 5-3/8 warm and sunny with partial cloud cover	0	Wood mice Bird	Cluster 3 and 2 Cluster 1, 5 and 7
8 - 24.08.2023	Aimee Cokayne	Nest tube	22	Wind 1/12, cloud 6/8 humid with sunny spells and occasional rain shower	0	0	
9- 12.09.2023	Aimee Cokayne	Nest tube	21	Wind 0/12, cloud 1/8 humid and sunny spells	0	0	

APPENDIX XII: Reptile receptor site and long-term available habitat

