LC Ecological Services

ECOLOGICAL IMPACT ASSESSMENT
LAND AT WOODCROFT FARM
WATERLOOVILLE

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ON BEHALF OF GRAINGER LTD

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1.0 EXECUTIVE SUMMARY

1.1 This Ecological Impact Assessment (EcIA), prepared by LC Ecological Services Limited (LCES), was undertaken to assess the potential ecological effects of the proposed residential development at Land at Woodcroft Farm (approximate central OS grid reference: SU 68273 12239). The proposals involve a residential development including the creation of up to 190 units.

1.2 The scoping information provided by the botanical assessments, protected species potential survey and desktop study, is used to summarise the ecological baseline methods and results; evaluate the Important Ecological Features (IEFs); and indicate the potential impacts and propose mitigation for the construction and operation of the proposed development.

1.3 The zone of influence of the project was determined by the sensitivity of the ecological features to environmental change, within the site and the surrounding area in accordance with the Guidelines for Ecological Impact Assessment (CIEEM, 2022).

1.4 Twenty-three IEFs were identified during the EcIA, including nine designated sites of international importance, two designated sites of regional importance, and seven habitats and four faunae of local importance. No significant negative impacts to the IEFs were identified during the assessment after suitable mitigation was applied. The proposed enhancement measures will result in a minor positive impact overall.

1.5 Phase 2 surveys were undertaken to obtain further information on which protected species were likely to be impacted by the proposed works. Phase 2 surveys undertaken include; bat activity transects, hazel dormouse survey, and reptile survey.

1.6 Further surveys are required for badger to accurately characterise the identified badger sett.

2.0 INTRODUCTION

2.1 This Ecological Impact Assessment (EcIA), prepared by LC Ecological Services Limited (LCES), was undertaken to assess the potential ecological effects of the proposed residential development at Land at Woodcroft Farm (approximate central Ordnance Survey (OS) grid reference: SU 68273 12239).

2.2 Grainger Ltd. proposals include a residential development including creation of up to 190 units. The proposed development will be within the confines of two existing fields measuring approximately 7.1 hectares in size.

2.3 This report summarises the ecological baseline methods and results; evaluates ecological features; and indicates the potential impacts and proposes mitigation for the construction and operational stages of the proposed development.

2.4 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 to address any potentially significant ecological effects.
- To provide an assessment of the significance of any residual effects.
- To identify appropriate enhancement measures.
- To set out the requirements for post-construction 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:** SSSIs are protected under section 28 of the *Wildlife and Countryside Act (WCA) 1981* (*as amended)*.
- **Badgers:** *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.*
- **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 2023) '*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 180:** 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. 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

iv. 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 181:** 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 185:** 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 186:** 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 187:** 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.

Local Planning Policy

3.3 Relevant planning policies within the East Hampshire District Council Draft Local Plan 2021-2040 include:

- Policy NBE2: Biodiversity, Geodiversity and Nature Conservation
- Policy NBE3: Biodiversity Net Gain

Biodiversity Action Plans

3.4 Relevant Biodiversity Action plans (BAPs) are as follows:

- UK Biodiversity Action Plans (UK BAP)
- Slow worm (UK BAP)
- Soprano pipistrelle bat (*Pipistrellus pygmaeus*) (UK BAP)
- Brown long-eared bat (*Plecotus auritus*) (UK BAP)
- Hedgerow (UK BAP)
- Brown hare (*Lepus europaeus*) (UK BAP)

4.0 ASSESSMENT METHODOLOGY

Study Area

4.1 The site is located at central Ordnance Survey (OS) grid reference SU 68273 12239 and the study area comprises the site plus an additional:

- 5 kilometres for statutory designated sites
- 2 kilometres for non-statutory designated sites
- 2 kilometres for all bat species and
- 30 metres for badgers (*Meles meles*)

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 for Land at Woodcroft Farm.

Survey type	Year(s)	Comment
Environmental record searches	2021, 2022	Records obtained from Hampshire Biological Records Centre (HBIC).
Desk study - Statutory sites designated for nature conservation	2021, 2022	Records obtained from Natural England's web-based Multi-Agency Geographic Information for the Countryside (MAGIC).
Ecological appraisal and phase 1 habitat survey	2021	LC Ecological Services July 2021.
Update ecological appraisal and UKHab assessment	2023	LC Ecological Services November 2023.
Badger walkover survey	2021	Completed during the ecological appraisal. Sett is considered to be active.
Update badger survey	2023	LC Ecological Services November 2023.
Bats – assessment of site suitability for foraging and commuting	2021-2022	Seasonal activity surveys combined static monitoring was undertaken in 2021 to 2022.
Breeding birds	2022	An assessment of the sites suitability to support nesting birds.
Great crested newt	2022	eDNA survey was undertaken in 2022 on temporary ponds that appeared in woodland to the north of the site. No GCN

Survey type	Year(s)	Comment
		DNA was recorded. This species has not been considered further in the absence of breeding sites within dispersion range though records of GCN have been identified in the wider area.
Hazel dormouse	2021	Completed during the ecological appraisal. No evidence was recorded. This species has not been considered further.
Reptiles	2021	Presence/absence survey was undertaken.

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 Important Ecological Features (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 is determined based on a geographic frame of reference that includes the following levels:

Table 2: Level of Value Assigned to IEFs (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.

Level of Value	Example of Definitions
	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 Local Wildlife Site (LWS) or habitats that meet the designation criteria for LWS's in East and West Sussex and Brighton and Hove. 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. 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

Category	Definition
	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 IEFs e.g. the loss of an important prey species for a predator.

Limitations

4.10 A high level of vandalism occurred during the dormouse survey which included the incineration of some of the tubes along the central hedgerows. To avoid the risk of injury to wildlife these tubes were not redeployed in this area. This was not considered to be a significant impact to the survey as the minimum number of 50 tubes were deployed on site and the tubes in the other survey areas could be monitored without issue.

4.11 During the static monitoring there were some issues with equipment damage. In these cases the monitoring periods were maintained by replacing equipment when errors were noted.

4.12 During the update badger survey areas of dense bramble scrub prevented access to thoroughly survey the site, and therefore it has been recommended that a repeat visit with hand tools is undertaken to determine the current badger activity and reclassify the badger sett.

5.0 BASELINE

5.1 The site has been subject to a preliminary ecological appraisal and extended phase 1 habitat survey in August 2021. The methods and the key findings are summarised in this section to inform the nature conservation evaluation for each of the ecological features identified. Site photographs, the relevant desk study information, detailed phase 1 habitat survey and a phase 1 habitat map of the site are included as appendices III, IV, V and VI respectively.

Statutory sites and non-statutory designated sites

5.2 Seven statutory designated sites were identified within five kilometres of the site boundary. This includes five Local Nature Reserves (LNR) and two Sites of Special Scientific Interest (SSSI). The nearest LNR is Yeoll's Copse which lies 0.8 kilometres to the north and the nearest SSSI is Catherington Down which lies 1.8 kilometres to the north of the development site. Full details of these sites are provided in appendix IV, table A1.

5.3 A total of twelve non-statutory designated sites within two kilometres were returned from the HBIC data request. These sites are all Sites of Importance for Nature Conservation (SINC). The nearest non-statutory designated site is James' Copse & Outlier SINC which is situated 0.1 kilometres to the north of the development site. Full details of these sites are provided in appendix IV, table A1.

5.4 Statutory designated sites situated one kilometre or greater and non-statutory designated sites situated 0.5 kilometres or greater from the site are considered to be sufficiently far away and therefore, no impacts are anticipated as a result of this proposed development. ***Designated sites fitting these criteria have therefore been excluded from this assessment.***

5.5 The prosed development is located at a sufficient distance from the majority of the statutory sites that direct adverse impacts from construction are unlikely to occur. In direct impacts may occur during the operation of the site. According to the local authorities position statement on Nutrient Neutrality (East Hampshire District Council, 2022), the proposed development would connect a waste water treatment works that will cause additional nitrate discharge into the Solent International sites. The development will be required to demonstrate nutrient neutrality during its operation.

Habitats

5.6 The 2021 survey was carried out in accordance with guidelines provided in the JNCC (2016) Handbook for Phase 1 habitat survey and CIEEM (2017) Guidelines for Preliminary Ecological Appraisal on the 25th and 26th August 2021.

5.7 An update UK Habitat Classification assessment (following guidelines by UKHab Ltd, 2023) was carried out on site on 13th November 2023. Both surveys were carried out by experienced ecologist Stuart Woodley. Plant species were recorded using nomenclature according to Stace (2019).

5.8 There were no significant differences in the habitats between the two surveys, with the only difference being that some of the broadleaved woodland in the original 2021 survey has now been classified as 'Mixed scrub' in the 2023 survey.

5.9 The following habitats were recorded on the site and are shown below in Table 4, and described later. A full species list is presented in appendix V.

Table 4. Definitions of on-site habitat following UKHab classification (2023 survey) compared with previous Phase 1 habitat (2021 survey)

UKHab classification	Previous Phase 1 habitat (2021)
Other neutral grassland g3c	Semi-improved grassland
Sparsely vegetated land - Tall forbs	Tall ruderal
Individual tree	Scattered trees
Lowland mixed deciduous woodland w1f and Other woodland; broadleaved w1g	Broadleaved woodland
Developed land sealed surface	Hardstanding
Ecologically valuable line of trees / Native hedgerow / Species-rich native hedgerow with trees	Native hedgerows
Mixed scrub	N/A

Other neutral grassland g3c (Semi -improved grassland) (Target notes 3 and 4)

5.10 This habitat comprises the majority of the habitat present within the development area. It can be roughly divided into two sections that are bisected by the central footpath through the site. The eastern section of grassland is not as managed as the west section and has formed into a tussocky growth form of grass species. The western section is maintained by infrequent horse grazing and has a lower more uniform sward height. The grazed area held an increased diversity of dicotyledons such as red bartsia (*Odontites vernus*), selfheal (*Prunella vulgaris*) and common ragwort (*Senecio jacobaea*). Both areas of grassland held a good diversity of grass species which includes Timothy (*Phleum pratense*), rough meadow-grass (*Poa trivialis*), meadow

foxtail (*Alopecurus pratensis*) and meadow fescue (*Schedonorus pratensis*). A full list of species present within the grassland is provided in appendix V, table A2 and A3.

Sparsely vegetated land - Tall forbs (Tall ruderal) (Target note 5)

5.11 There is a section of tall ruderal habitat located in the western field, comprising an old manure pile which has been colonised by common nettle (*Urtica dioica*). Tall ruderal habitat was also originally recorded previously on site (in 2021) on the marginal fringe of the Other woodland; broadleaved habitat, however, in 2023 this was reclassified as Mixed scrub habitat.

Scattered trees (Target note 7)

5.12 Within the eastern field there three large mature pedunculate oak trees (*Quercus robur*) located in the north of the field. Two other mature trees, a pedunculate oak and an ash (*Fraxinus excelsior*), are located near the southern border, centrally near to hedgerow H5. These trees are not considered veteran not ancient.

Lowland mixed deciduous woodland w1f and Other woodland; broadleaved w1g (Broadleaved woodland) (Target notes 1 and 2)

5.13 The survey area includes two areas of broadleaved woodland. It includes the large area of 'Lowland mixed deciduous woodland' along the northern boundary of the site, and also includes a small area of 'Other woodland; broadleaved' located centrally, near the footpath, that is within and near to the disused pit or sink hole.

5.14 The lowland mixed deciduous woodland habitat included a dominant coverage of pedunculate oak, with occasional beech (*Fagus sylvatica*), and rare occurrence of ash (*Fraxinus excelsior*). It has an understorey of holly (*Ilex aquifolium*), yew (*Taxus baccata*), hazel (*Corylus avellana*), goat willow (*Salix caprea*), dog rose (*Rosa canina*), field maple (*Acer campestre*), and locally rare gorse (*Ulex europaeus*). Ground flora includes tufted hair grass (*Deschampsia cespitosa*), wood melick (*Melica uniflora*), creeping bent (*Agrostis stolonifera*), rough meadow grass, Yorkshire fog (*Holcus lanatus*), wood-sedge (*Carex sylvatica*), soft rush (*Juncus effusus*), bracken (*Pteridium aquilinum*), ivy (*Hedera helix*), common nettle, and bramble.

5.15 An assessment of old mapping suggests that the area of woodland south of James Copse has developed as two field boundaries bordering a track (the BOAT (Byways Open to All Traffic)– ref 119/46/1) which have increasing grown in over time. Assessment of mapping indicates this process began around 1870.

5.16 The woodland strip is not undisturbed woodland and there is a track running east-west through it, (which is now a BOAT) and is therefore open for people to access not only on foot and on horseback but there is also a right of access for vehicles. According to the Hampshire County Council website there is no Traffic Regulation Order in place for this BOAT although there is a temporary closure in force currently which runs until April 2024.

5.17 The 'Other woodland; broadleaved' habitat contains a canopy of pedunculate oak and ash, an understorey of frequent distribution of mature hawthorn (*Crataegus monogyna*), and elder (*Sambucus nigra*) specimens, goat willow, dog rose, honeysuckle (*Lonicera periclymenum*), and old man's beard (*Clematis vitalba*), with a ground flora of bramble, common nettle, herb Robert (*Geranium robertianum*), ivy, and hedge bindweed (*Calystegia sepium*).

Ecologically valuable line of trees / Native hedgerow / Species-rich native hedgerow with trees (Native hedgerow) (H1 – 5)

5.18 Five hedgerows are located on site. H1 is located on the eastern boundary and holds a number of mature oak trees with an understory of holly. H2 is located along the southern boundary of the site and contains mature pedunculate oak trees. Hedgerows H1 and H2 have been categorised as "line of trees". H3 is located to the west of the central footpath with H4 on the east. Both hedgerows hold a composition which includes dominant hawthorn. H5 is located along the south west boundary and includes elder, hazel, ash, beech, and goat willow. All the hedgerows were considered to meet the criteria to be considered priority habitats under the NERC Act 2006. A full list of species present within the hedgerow is provided in appendix V, table A4.

Mixed scrub (Target note 6)

5.19 A number of parcels of mixed scrub were recorded on site (previously recorded with broadleaved woodland in 2021). Species present within this habitat includes hawthorn, blackthorn (*Prunus spinosa*), holly, goat willow, dog rose, bramble, and common nettle.

Bramble scrub

5.20 A small area of bramble scrub was recorded adjacent to hedgerow (H1) habitat.

Notable species

5.21 HBIC provided records of the notable plant species butcher's-broom (*Ruscus aculeatus*) and lesser spearwort (*Ranunculus flammula*). Although butcher's-broom was not detected during the site visit, it would either be present within the hedgerows or woodland to the north of the site and would be unaffected by the development. Lesser spearwort is recorded in wetland habitat such as edges of waterbodies, wet meadows, marshes and bogs. These habitats were not recorded on site and therefore is considered absent from site. The Flora of Hampshire records butcher's broom as locally common and lesser spearwort as locally very common. Any populations of these species are unlikely to be significant at anything other than a local level.

Assessment of habitats

5.22 The level of value of these habitats is summarised in table 5 below.

Table 5: Level of value of habitats recorded within the site

IEF	Evaluation rationale	Value of IEF
Other neutral grassland	This is a common habitat at local, county, and national levels which can support a range of fauna and flora.	Local
Sparsely vegetated land - Tall forbs	This is a common habitat at local, county, and national levels which can support a range of fauna and flora.	Local
Scattered trees	This is a common habitat at local, county, and national levels which can support a range of fauna and flora. No veteran or ancient trees recorded.	Local
Lowland mixed deciduous woodland	This habitat is classified as UK BAP and can support a wide range of fauna and flora. No veteran or ancient trees recorded.	Regional
Other woodland; broadleaved	This is a common habitat at local, county, and national levels which can support a range of fauna and flora. No veteran or ancient trees recorded.	Local
Native hedgerows	This is a common habitat at local, county, and national levels which can support a range of fauna and flora. No veteran or ancient trees recorded.	Local
Mixed scrub	This is a common habitat at local, county, and national levels which can support a range of fauna and flora	Local
Bramble scrub	This is a common habitat at local, county, and national levels which can support a range of fauna and flora	Local

Protected and Notable Species

Protected species records

5.23 Based on the habitat suitability on the site and records returned by HBIC, protected species surveys were subsequently completed in order to inform the EcIA and include:

- Badger activity survey
- Update badger activity survey in 2023
- Bat activity and foraging habitat suitability assessment
- Breeding bird survey
- Great crested newt eDNA
- Hazel dormouse habitat suitability assessment and targeted surveys
- Reptile habitat suitability assessment and targeted surveys

5.24 The results of the protected/notable species data search and surveys together with an evaluation of each species, are referred to by their common and scientific names.

Badger

5.25 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 Stuart Woodley. Any setts recorded were classified according to published criteria (Harris, Cresswell and Jefferies, 1989).

5.26 A total of three badger records were returned by HBIC in the last ten years. During the August 2021 survey no signs of badger activity such as latrines, hair or footprints were noted. An active sett was recorded within the central woodland on the site adjacent to the footpath. This sett had four active entrance and showed indications of recent excavation but the entrances were well-established which would indicate that they are in active use.

5.27 An update survey for badgers was conducted in November 2023 by experienced ecologist Stuart Woodley. A total of five active entrances with evidence of recent excavation were identified. The sett entrances identified during the 2023 update survey comprise the original four as recorded in 2021 and one additional active entrance hole located approximately 27 metres to the south. The full results are provided in appendix IX.

Bats: Foraging and Commuting

5.28 The habitats on site, and the habitats they connect to, in accordance with the Bat Conservation Trust are considered to be of high quality for foraging and commuting bats due to the presence of the fragmented woodland in the area. The site has high potential to support the rare Annex II listed species Bechstein's bat as part of its core range around Havant Thickets. As such, twice monthly bat activity transects surveys were undertaken. The transect was walked by a pair of surveyors using an Echo Meter touch bat detectors who recorded bat activity along the route on the site between April and October, including one combined dusk and dawn survey. In line with the guidelines published by the BCT (2016), static monitoring was conducted for five nights using two recording devices per transect. The surveys were conducted in the active season in 2021 and 2022 as surveys were not started until late June 2021. The full results are provided in appendix VI, along with a map illustrating the route walked in appendix VIII.

5.29 The activity transects recorded regular activity by common pipistrelle (*Pipistrellus pipistrellus*), noctule (*Nyctalus noctula*) and serotine (*Eptesicus serotinus*) bats. A much lower level of activity was recorded by long-eared species (*Plecotus sp.*), *Myotis* species and soprano pipistrelle (*Pipistrellus pygmaeus*). The key foraging areas were along the woodland fringe to the north of the development area and along Hedgerow 4 in the south west.

5.30 Static detectors were also deployed with two statics left on site between July and October 2021 and April to June 2022. The data was later analysed using Anabat Insight. The data was run through a decision tree created by LC Ecological Services. Where a bat passed each filter they were tagged accordingly. Every third call was then reviewed manually checking the calls had been tagged correctly and any mislabelled calls identified were relabelled. Any calls which were not labelled were checked individually.

5.31 During the static monitoring a total of eight species were recorded on the site. Species include common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle (*Pipistrellus*

nathusii), noctule, long-eared and *Myotis* species. Two annex two species were also recorded and these included greater horseshoe (*Rhinolophus ferrumequinum*) and barbastelle (*Barbastella barbastellus*). A total of four horseshoe calls were recorded during the survey in April and May. This is a notable record for the area, as although this species is very wide ranging, there are no known roosts within the locality, making it a scarce species in this part of Hamphire. The level of activity is consistent with an individual commuting through the area on the way to other sites. The level of barbastelle activity was generally low and recorded in four months. The lack of regular passes would indicate the site is not part of a core substance zone around an important roost for this species. The highest peaks of activity were from common pipistrelle and by *Myotis* species.

5.32 General activity was found to be low at both detector locations during period monitored and bats were only recorded in five months of the survey. In the other months recordings were returned from the detectors but no bat species were recorded. It is possible that this was due to changes in weather or vegetation height impacting normal foraging behaviour, but the highest activity period was in May and April with the other months where bats were recorded having very low levels of activity.

5.33 The pivot tables outlined below demonstrates the number of passes recorded by each species on each month and at each monitoring point.

Table 6: The bat activity recorded for each species throughout the survey period.

	Sum of Number of passes					
Species	**April**	**May**	**July**	**August**	**October**	**Grand Total**
Barbastella barbastellus	11	27	17	7	-	62
Myotis species	273	1742	147	164	357	2683
Nyctalus noctula	19	7	11	1	1	39
Pipistrellus nathusii	12	17	2	10	-	41
Pipistrellus pipistrellus	422	2789	47	163	72	3493
Pipistrellus pygmaeus	9	12	2	2	-	25
Plecotus species	7	16	8	7	21	59
Rhinolophus ferrumequinum	1	3	-	-	-	4
Grand Total	**754**	**4613**	**234**	**354**	**451**	**6406**

Table 7: The bat activity recorded for each monitoring point throughout the survey period

	Sum of Number of passes		
Species	**Static 1**	**Static 2**	**Grand Total**
Barbastella barbastellus	26	36	62
Myotis species	747	1936	2683

Nyctalus noctula	17	22	39
Pipistrellus nathusii	24	17	41
Pipistrellus pipistrellus	470	3023	3493
Pipistrellus pygmaeus	14	11	25
Plecotus species	13	46	59
Rhinolophus ferrumequinum	4	-	4
Grand Total	**1315**	**5091**	**6406**

5.34 As outlined in the above tables, a higher volume of activity was recorded in May with the majority of the passes being recorded at static 2. This is liable to coincide with pre-breeding dispersal but the limited numbers of calls in the remaining months would indicate that the level of activity recorded is not sustained through the breeding and post-breeding periods. The very high number of calls recorded in this month most likely relates to foraging activity peaking along the woodland fringe.

5.35 The seconded largest number of passes recorded was from *Myotis* species. It is commonly accepted that barbastelle calls and Natterer's bat (*Myotis nattereri*) are relatively similar and can be confused in analysis. This is as Natterer's bat has a call which is unusual for *Myotis* species in that it goes as low as 30khz which is within the peak range for barbastelle echolocation. Though it is not possible to specific *Myotis* species from echolocation the majority of the *Myotis* calls recorded were well above this range of echolocation. This would indicate that there was no significant possibility of barbastelle passes being inaccurately recorded within the *Myotis* species data set.

5.36 The majority of the species recorded on site are common and widespread species, and the habitat recorded on site suitable for foraging bats is limited to the boundary features. Greater horseshoe was the rarest species recorded and is considered a scarce species in this part of Hampshire. Barbastelle is also rare, and is considered to be an uncommon species. The limited level of greater horseshoe activity is unlikely to represent a population using the local area regularly, whereas barbastelle activity was consistently recorded at a low level in multiple months. As the rarest species recorded, this species was used to determine the value for foraging and commuting species.

5.37 According to Wray, White, Long and Mitchell-Jones (2010) *Valuing Bats in Ecological Impact Assessment* the site is considered to be of **Regional** value for foraging and commuting bats.

Bats: Preliminary Roost Assessment of trees on site

5.38 An assessment of Potential Roosting Features (PRF) within trees was made during the ecological appraisal by Stuart Woodley in accordance with the BCT Good Practice Guidelines (Collins, 2016). No suitable roosting features were identified within the development. No impacts to PRFs are anticipated as part of the design proposals.

Birds – Nesting birds

5.39 The site was assessed for its potential to support nesting birds by suitably experienced ecologist Stuart Woodley.

5.40 HBIC returned records of a wide variety of bird species, some of which are associated with woodland and open fields. No nests for these species were detected during the site walk over. There is some habitat for nesting birds within the hedgerows and woodland. Foraging potential exists within the grassland and hedgerow habitat.

Breeding bird survey

5.41 Breeding bird surveys were undertaken by experienced ornithologist Phil Budd. Phil Budd is an experienced ornithologist who is experienced in the identification (visual and aural) of all species regularly nesting in lowland England.

5.42 The standard Common Bird Census (CBC) methodology as developed by Marchant (1983) for the British Trust for Ornithology (BTO) was adapted for this survey. A set route was followed on three occasions during March and April 2022 with visits beginning early in the morning when birds are most active. The transect was walked twice over the course of each survey.

5.43 The area affected by the proposals was walked for at least 2 hours during the morning surveys. Any birds encountered were identified either visually or from their vocalisations. A note of species and their behaviour was made on each visit and mapped on a plan that allows approximate breeding territory locations to be determined. The criteria used to determine breeding territories is set out in table 8.

Table 8: Criteria for determine territories.

Breeding status	Registration description
Confirmed breeding territory	Two registrations of a particular species displaying breeding behaviour within a territory range over the total survey period
	A single record of a nest containing eggs or young
	Two registrations of a difficult species (e.g. nocturnal species such as owls or woodcocks) within a territory range over the total survey period
Probable breeding territory	Present in suitable habitat in the same location (within normal territory range) on two occasions
	Displaying breeding behaviour[1] on one occasion only
Possible breeding territory	Present in suitable habitat on one occasion only
Non-breeding	Present in habitat not suitable for breeding
	Immature birds (e.g. herring gull first breeds at 4 years of age)

[1] Breeding behaviour includes displaying, singing, territorial activity, agitated or defensive behaviour, pair of adults together

5.44 During the breeding bird surveys a total of 22 species were recorded. A number of the species recorded were non-breeding birds (gulls). Localised movements by species across the site were noted during all visits, these include gulls and corvids.

5.45 Of the 22 species recorded on the site during all surveys, notable species classed as red list Birds of Conservation Concern (BoCC), amber list BoCC species or species are listed as Section 41 are presented in table 9 below.

Table 9: Bird species recorded during the breeding bird survey

Species	Taxonomy	Priority species	Amber BoCC	Red BoCC	Territories identified
Robin	*Erithacus rubecula*				4
Blue Tit	*Cyanistes caeruleus*				1
Chiffchaff	*Phylloscopus collybita*				2
Coal Tit	*Periparus ater*				
Dunnock	*Prunella modularis*		x		1
Great Tit	*Parus major*				4
Great Spotted Woodpecker	*Dendrocopos major*				1
Greenfinch	*Chloris chloris*			x	
Song Thrush	*Turdus philomelos*	x	x		2
Wood Pigeon	*Columba palumbus*		x		3
Wren	*Troglodytes troglodytes*		x		5
Magpie	*Pica pica*				
Blackcap	*Sylvia atricapilla*				
Blackbird	*Turdus merula*				
Black Headed Gull	*Chroicocephalus ridibundus*				
Nightingale	*Luscinia megarhynchos*			x	
Starling	*Sturnus vulgaris*			x	
Herring Gull	*Larus argentatus*	x		x	
Goldfinch	*Carduelis carduelis*				
Stock Dove	*Columba oenas*		x		1
Pheasant	*Phasianus colchicus*				
Nuthatch	*Sitta europaea*				

5.46 A total of 10 species were identified to be breeding within, or close to, the survey area. Of these, four are amber listed. Probable breeders include the amber listed stock dove (*Columba oenas*).

5.47 The breeding bird survey recorded few species actually breeding within the development area, with the majority of territories recorded from the woodland and hedgerow habitats that border the site. The eastern grassland comprises a field of grass left uncut during the survey. No foraging activity was recorded from within this field although birds were recorded holding territory in the habitats that surrounds this field. The grassland is likely to provide suitable foraging habitat for a range of common passerines such as blackbird (*Turdus merula*), robin (*Erithacus rubecula*), and song

thrush (*Turdus philomelos*) but is heavily limited in use by the frequent dog walkers that use this side of the site.

5.48 A notable record of nightingale (*Luscinia megarhynchos*), a red listed Bird of Conservation Concern, and currently undergoing a severe long-term breeding population decline, was made during the 23rd April 2022 survey visit. It was heard for a short period (enough to establish identity) and briefly seen on site on a lone mature oak tree in the eastern field. The site is outside the remaining core areas for the species within Hampshire, therefore, it was considered that this bird was a passage migrant.

5.49 The western field comprises a horse paddock. These paddocks were attractive to feeding common starling, gulls, and magpie. No breeding bird activity was recorded from within the paddock with all territorial activity centred on the habitats that surrounds the paddock.

5.50 Appendix X illustrated the locations of all bird species with territories within or close to the survey area.

Evaluation of breeding assemblage

5.51 The breeding bird assemblage on site is outlined in table 10 below.

Table 10: Breeding bird assemblage within, or close to, the Land at Woodcroft farm

	Confirmed breeding	Probable breeding	Possible breeding
Number of species	6	2	2

5.52 The breeding bird assemblage on the site was assessed using the criteria set out by Fuller (1980). The original scale used by Fuller has been adapted to reflect the widespread decline in arable and woodland species since Fullers guidelines were originally published. The threshold of sites to be considered of local importance has been lowered and sites holding between 25 and 49 breeding species are classed as being of district importance. Thresholds for sites of county importance or above remain unchanged.

- Up to 24 breeding species = Local Importance
- 25 – 49 breeding species = District Importance
- 50 – 69 breeding species = County Importance
- 70 – 84 breeding species = Regional Importance
- 85+ breeding species = National Importance

5.53 The site supports a breeding bird assemblage of **local importance** with a total of 8 confirmed or probable breeding species. The survey area qualifies as being of local importance in terms of the total number of breeding species recorded.

Great crested newts

5.54 An assessment of the sites suitability to support great crested newts was undertaken by Stuart Woodley during the ecological appraisal of the site. The assessment was undertaken in accordance with the criteria provided by Oldham *et al*. (2000, 2008). Suitable terrestrial habitat for great crested newt was recorded however, there were no water bodies identified on site, or within the 500 metre dispersion radius which would allow the colonisation of the site from suitable offsite aquatic habitat.

5.55 No records of great crested newt were returned from HBIC. However, records on MAGIC recorded a known population within the local area. The initial assessment recorded no suitable aquatic habitat within the dispersion distance from the site. During the site survey in 2022 it was recorded that seasonal ponds had formed within the woodland adjacent to the development area. Smooth newt (*Lissotriton vulgaris*) were observed in these ponds which would indicate that they had the potential to support great crested newt. Though no breeding would be possible within the ponds due to the lack of vegetation and temporary nature it was considered that a terrestrial population could be supported by ephemeral water bodies.

5.56 eDNA survey was undertaken on the two ponds in the woodland in 2022. Both ponds recorded no presence of great crested newt DNA so it is concluded that this species is absent from the survey area. The location of the ponds and the results of the eDNA survey is presented in appendix XI. Great crested newts have therefore been screened out of this assessment.

Hazel dormouse

5.57 The site was assessed for its potential to support hazel dormouse by licenced ecologist William Davis (Natural England licence number: 2016-26785-CLS-CLS) during June 2022.

5.58 BHIC returned one records of hazel dormouse within two kilometres of the site. The nearest mitigation licence for this species was identified as being located 3.1 kilometres from the site on MAGIC with no intervening connecting habitat. No evidence of hazel dormouse was recorded during the site visit.

5.59 The habitat present on site holds potential to support hazel dormouse due to the presence of established hedgerows and its close connection to woodland, including ancient woodland fragments. The species diversity of the woody habitats would be suitable to support foraging and commuting by this species. Dedicated hazel dormouse surveys to confirm the presence or absence of this species was undertaken in 2021.

5.60 A nest tube survey of the suitable habitats in accordance with methodology given by English Nature's *Dormouse Conservation Handbook* (Bright, Morris and Mitchell-Jones, 2006) was undertaken. Nest tube surveys must be undertaken between April and November and must be completed over a number of months (usually five months of the active season) to ensure that sufficient survey effort has been achieved. The location of the nest tubes deployed on the site is presented in appendix XII.

5.61 A total of 76 tubes were installed within suitable habitat on site and the nest tubes were inspected on a monthly basis between June and November in 2021, in order to attain a minimum survey effort of 20 points. The point system is achieved by undertaking a nest tube survey each month between April to November. The number of months required is dependent on the months surveyed as each month is assigned a different index of probability score because the likelihood of finding dormouse varies throughout the survey season, with September being the optimum month.

5.62 Each month is assigned an indices which related to the level of hazel dormouse activity within those months, a total score of 20 is required to ensure that presence or likely absence can be determined by the survey effort. The indices for each month are shown below in table 11.

Table 11: Indices for each month of survey for dormice

Month	Score	Months checked
April	1	
May	4	
June	2	2021
July	2	2021
August	5	2021
September	7	2021
October	2	2021
November	2	2021
Total score	**N/a**	**20**

5.63 The surveys were subject to a high level of vandalism, including arson, in the east of the site which affected a number of survey points. During the survey no nests or activity indicative of dormouse utilisation was recorded. A low number of nests originating from wood mouse (*Apodemus sylvaticus*) and some food caches for this species were recorded but no mammals were recorded within the tubes during the survey visits. It was concluded that hazel dormouse was likely to be absent from the survey area and they have been scoped out of the assessment.

Reptiles

5.64 HBIC returned a low number of records of slow worm and common lizards. The low number of records does not preclude the presence of these species in the local area as recording requires specialist survey to record populations.

5.65 Habitats within the 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 improved grassland and tall ruderal habitat are considered suitable to support reptiles with foraging potential being recorded within the hedgerows and woodland on site. High quality reptile habitat is defined as a mixed height sward with areas for basking, foraging and refuge. The eastern field holds a higher diversity of sward height due to the tussocky growth form of the unmanaged grassland and as such holds a higher suitability for reptiles than the western section which has been grazed to a more consistent sward height.

5.66 Targeted surveys were undertaken, where refugia was set out in August by suitably experienced surveyor Pete Duffy. Seven survey visits during suitable weather conditions and at different times of the day were conducted in September by experienced ecologist Mark Wardle.

5.67 During the surveys a low population of slow worm and grass snake was recorded on site. A juvenile grass snake was recorded on site which would indicate a breeding population within the local area. A peak count of one grass snake and 15 slow worm was recorded with the majority of the records being located in the east of the site. The results have been provided in appendix XIII and XIV. The site is considered to be of **local** importance for reptiles.

Assessment of species

5.68 The level of value of these species is summarised in table 12 below.

Table 12: Level of value of protected species supported on the site

IEF	Evaluation rationale	Value of EIF
Badger	Badger sett recorded on site	Local
Bats	Commuting and foraging habitat	Local
Birds – breeding	Common and widespread species of birds will use the site for nesting and foraging within.	Local
Reptiles	Foraging and basking.	Local

6.0 ASSESSMENT OF POTENTIAL IMPACTS

6.1 The impacts have been assessed against the development proposals including the inherent mitigation measures described below.

6.2 Impacts during the construction and operational phases 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:

- Solent statutory sites (nine sites) (International)
- James' Copse & Outlier SINC (Regional)
- James' Copse Paddock SINC (Regional)
- Other neutral grassland (Local)
- Sparsely vegetated land – Tall forbs (Local)
- Scattered trees (Local)
- Lowland mixed deciduous woodland (Regional)
- Other woodland; broadleaved (Local)
- Native hedgerows (Local)
- Mixed scrub (Local)
- Bramble scrub (Local)
- Badgers (Local)
- Bats - Foraging and commuting (Regional)
- Breeding birds (Local)
- Reptiles (Local)

<u>Construction Phase Impacts</u>

Statutory Sites

James' Copse & Outlier SINC

Habitat degradation

6.3 James' Copse & Outlier SINC is located 0.1 kilometres to the north of the development site. This site could potentially be indirectly impacted by dust pollution, and potential pollution that could infiltrate through to groundwater during any proposed construction. Dust from building works and construction plant/vehicle movements can potentially degrade habitats and affect plant growth. As the IEF is of **regional** value, the magnitude of the effect is considered to be **low**, and is therefore of **minor** significance.

Habitats

Scattered trees

6.4 The proposed development will aim to retain the five large trees on site. There is however potential for the development to cause incidental damage to the trees during the construction process. This habitat is widespread and common, with the trees assessed as good condition. As the IEF is of **local** importance, the magnitude of effect is considered to be **low**, and therefore **not significant**.

Native hedgerows

6.5 The design proposals will result in the total loss of approximately 30 metres of the existing hedgerow habitat on site. This loss will occur to create access across the site. The retained hedgerows also have the potential for incidental damage during construction operations. As the IEF is of **local** importance, the magnitude of effect is considered to be **low**, and therefore **not significant.**

Other broadleaved woodland

6.6 This area of woodland was recorded centrally and was classified (under UKHab methodology) as 'Other broadleaved woodland'. This woodland has the potential to be adversely impacted in the absence of mitigation by both pollution and mechanical damage to root systems. No woodland is proposed to be removed. As the IEF is of **local** importance, the magnitude of effect is considered to be **low**, and therefore **not significant**.

Lowland mixed deciduous woodland

6.7 The area of 'Lowland mixed deciduous woodland' is located along the northern boundary of the site. The woodland has the potential to be adversely impacted in the absence of mitigation by both pollution and mechanical damage to root systems. No woodland is proposed to be removed. As the IEF is of **regional** importance, the magnitude of effect is considered to be **low**, and therefore of **minor** significance.

Grassland

6.8 The proposed development will result in the loss of approximately four hectares of 'Other neutral grassland'. Some areas of this habitat will be retained outside the works area within the central greenspace and will not be impacted by construction activities, however is subject to indirect impacts such as dust pollution. As the IEF is of **local** importance, the magnitude of effect is considered to be **medium**, and therefore **not significant**.

Mixed scrub and Bramble scrub

6.9 The proposed development will result in the minor loss of scrub, to allow for access. As the IEF is of **local** importance, the magnitude of effect is considered to be **low**, and therefore **not significant**.

Protected and Notable Species

Badgers

6.10 The badger sett on site is located close to the works area and the mitigation hierarchy should be followed, and the sett should be retained with a suitable distance to prevent adverse impacts during the construction phase. However, in the absence of mitigation it is possible the sett could be impacted by the movement of vehicles or the storage of materials. In addition to this, badgers are wide ranging species and there exists the potential that the sett could increase in size or more setts be created in areas of the site that could be impacted by the development. As the IEF is of **local** importance, the magnitude of effect is considered to be **medium**, and therefore **not significant**.

Bats

6.11 There will be a loss of limited foraging and commuting habitat as a result of the construction activities which require the removal of hedgerow and woodland. The site is considered to hold low suitability for foraging and commuting bats with suitable habitat limited to the boundary features that are being retained. As the IEF is of **regional value**, the magnitude of effect is **negligible**, which is of **not significant**.

Birds – breeding

6.12 There will be a minor loss of suitable bird nesting habitat from the site as the scrub habitats will be removed to facilitate the development. As the IEF is of **local value**

and the magnitude of effect is considered to be **medium** the impact is therefore **not significant**.

6.13 All birds are protected by law from disturbance when on the nest. Nesting birds in nearby vegetation are likely to experience a small amount of disturbance if construction works take place during the nesting season. As the IEF is of **local** importance and the magnitude of effect is considered to be **medium** the impact is therefore **not significant**.

Reptiles

6.14 There will a loss of suitable foraging and basking habitat during the construction period which will displace low populations of slow worm and grass snake into the surrounding habitats. This will result in a slight loss of habitat but will not impact natural range as commuting routes though the landscape will be maintained for the duration of the works. As the IEF is of **local value**, the magnitude of effect is **low**, the impact is therefore **not significant**.

<u>Operational Phase Impacts</u>

Statutory Sites

Solent statutory sites

6.15 *The Integrated Water Management Systems* (Amec Foster Wheeler, 2018) report for Partnership for Urban South Hampshire (PUSH) was completed in March 2018 and identified that there is currently uncertainty as to whether new housing growth can be accommodated without having a detrimental effect upon the water environment. Following completion of the IWMS in March 2018, Natural England has been advising that developments should calculate a nutrient budget and achieve nutrient neutrality (Natural England, 2022).

6.16 The Total Nitrogen (TN) measure of the development accounts for in organic forms and organically bonded nitrogen. TN is measured by Wastewater Treatment works (WwTW) where there is a permit with TN limit consent.

6.17 The southern parishes in East Hampshire District Council are served by Budds Farm Wastewater Treatment Works. According to the *Position Statement and Mitigation Plan for Nutrient Neutral Development* (East Hampshire District Council, 2022) development draining to Budds Farm Wastewater Treatment would be likely to lead to a significant effect on the following European Sites:

- Chichester & Langstone Harbours Special Protection Area (SPA)
- Chichester & Langstone Harbours Ramsar site
- Solent Maritime Special Area of Conservation (SAC)
- Solent and Dorset Coast Special Protection Area (SPA)
- Solent and Southampton Water SPA
- Solent and Southampton Water Ramsar
- Portsmouth Harbour SPA
- Portsmouth Harbour Ramsar
- Solent and Isle of Wight Lagoons SAC

6.18 Any residential development proposing a net increase in overnight accommodation would lead to an increase in nitrogen and thus would be likely to cause a significant effect. The development will need to demonstrate that this can achieve nutrient neutrality. Natural England advises that a nitrogen budget is calculated for new developments. This will show that development either avoids harm to protected sites or provides the level of mitigation required to ensure that there is no adverse effect.

6.19 The nitrogen budget for the development will need to be determined using the calculator (Natural England, 2022) in accordance with the position statement. It is highly likely a positive budget will be produced due to the creation of up to 190 residential units. As the IEF is of **international** importance, the magnitude of beneficial effect is considered to be **high**, and therefore of **major importance.**

James' Copse & Outlier SINC

Traffic

6.20 Once the new development is created it is anticipated that this will result in an increase in traffic within 100 metres of the SINC which comprises ancient woodland. The SINC is considered to have a low ecological sensitivity due to the resilience of the established habitats to deposition. Impacts to ancient woodland habitats can be screened out providing that Process Contribution (PC) will be less than 1%. NOx can have a directly toxic effect upon vegetation. In addition, greater NOx or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. According to the Department for Transport's *Transport Analysis Guidelines*, beyond 200 metres, the contribution of vehicle emissions from the roadside to local pollution levels is not significant (DfT, 2013). Directly within the site and on the local road network within the immediate proximity of the site, significant increases in traffic flows could result in increased levels of NOx being generated compared to the baseline situation. This would include the habitats within the SINC. NOx generated by road traffic will be mostly concentrated closest to source and the concentration of NOx will reduce as distance from the source increases and the majority of the deposition will occur within 20 metres around the road. The development proposals

include a buffer between the development and the copse which will receive the highest concentrations of NOx within 20 metres of the road. This will provide a large amount of screening vegetation to prevent any deposition of large particles. As the IEF is of **regional value**, the magnitude of effect will be **low** and therefore of **minor significance.**

Recreational Disturbance: Visitor Numbers

6.21 During the occupation of the site it is highly likely that James' Copse will be used for recreational use by the occupants on a daily basis and this is likely to result in the degradation of the woodland habitats over the duration of the developments occupation. As the IEF is of **regional value**, the magnitude of this effect is **medium** and are therefore of **major significance.**

Other statutory and non-statutory sites

Recreational Disturbance: Visitor Numbers

6.22 The government's assessment of walking trends in the UK in 2017 (National Travel Survey, 2018) showed that 46% of people walk for more than 20 minutes, or more than 1 mile, three times a week. The average long walk distance is 2.4 kilometres, or 1.5 miles (National Travel Survey, 2016). The majority of the protected sites are located with 2.4 kilometres and the closest is Yeoll's Copse LNR and SINC which is located 800 metres away and is directly connected by the nearest existing footpaths. There is no established parking locations so any increase in recreational degradation would most likely occur from walkers. Using the above information as the basis for assessment it is considered unlikely that the nearby protected sites would be used on a regular basis for long walks and that the highest negative impacts would be limited to the closest points around the existing footpaths near the development. As the LNR is of **regional value**, and the magnitude of effect is considered to be **low** the impact is therefore of **minor significance.** The SINC is of **local value**, and the magnitude of effect is considered to be **low** the impact is therefore of **negligible significance.**

Habitats

Hedgerows

6.23 The change in land use will result in less intensive management of the hedgerows therefore leading to an increase in the quality of this habitat. As the IEF is of **local** importance, the magnitude of beneficial effect is considered to be **medium**, and therefore **not significant**.

Woodland

6.24 The adverse impacts discussed within sections 6.17 and 6.18 that relates to James' Copse & Outlier SINC will also impact the adjacent areas of priority habitat. Though this habitat is not ancient woodland it is still susceptible to both air pollution and recreational degradation to a similar degree. As the IEF is of **local** importance, the magnitude of beneficial effect is considered to be **medium**, and therefore **not significant.**

Protected and Notable Species

Bats (Foraging and Commuting)

6.25 A increase in lighting as an operational impact is possible and is anticipated to affect foraging bats in a limited capacity. As the IEF is of **regional value**, the magnitude of effect is **low** and therefore **not significant**.

Birds – breeding

6.26 Potential impacts on breeding birds post construction are likely to be caused by inappropriate management of suitable habitats. Cutting the hedgerows, grassland, and scrub at the wrong times of year would likely result in the killing or injuring of birds, destructions of nests and potentially a loss of foraging habitat. As the IEF is of **local value**, the magnitude of effect is **low** and therefore **not significant**.

6.27 People living within the development may own cats, which are known to predate on wildlife, and increase predator numbers on the local bird population on site. As the important ecological feature is of **local value**, the magnitude of effect is **medium** and therefore **not significant.**

Reptiles (Basking and foraging habitat)

6.28 There is potential that if habitat management is undertaken at an inappropriate time of year foraging and basking reptiles could be disturbed, harmed, damaged or destroyed. As the IEF is of **local value**, the magnitude of effect is **low** and therefore **not significant**.

7.0 MITIGATION

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

Construction phase

Designated sites and habitats

7.2 A Construction Environmental Management Plan (CEMP) will be implemented to avoid pollution incidents during construction. This will include the following:

- The production and implementation of a CEMP shall be implemented prior to beginning of the construction phase. This will set out detailed methods of construction to avoid impacts to the adjacent protected site and will include:
- Details of how materials / chemicals will be stored and controlled on-site to avoid pollution and siltation (for example, all plant will be fitted with drip trays in order to avoid potential pollution incidents and re-fuelling will be limited to a refuelling area with anti-contamination measures such as spill kits and drip trays).
- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of work and working hours.
- In order to protect the adjacent woodland and hedgerow habitats during construction a tree protection fence will be installed to prevent the risk of adverse impacts from direct mechanical damage. The root protection zone for the woodland fringe and hedgerows will be mapped by arboricultural assessment and the root protection zone will not be permitted within the construction area. To ensure that no adverse impacts to the priority habitats as a result of the development occur, and to ensure contractors do not track machinery over the roots of the trees a specification and plan showing the extent and positioning of protective measures including suitable barriers, ground protection and construction methods in the tree protection zones in accordance with BS5837:2012 will be created. Under this tree protection zone a fence line will be installed to prevent the movement of materials or vehicles over sensitive areas. The tree protection fence to this standard will also be used to protect the woodland to the north of the site which is a priority habitat outside of the development area.
- A buffer zone of at least 15 metres from James Copse SINC is provided with the lowland deciduous woodland providing part of that buffer zone. A tree protection zone of 5 metres is being provided between the woodland and development. During the pre-application, there were no comments from the tree officer which suggested the 5 metre buffer would not be adequate to

safeguard the health of the trees. The pre-application response stated the following "*The Tree Officer raises no arboricultural objection in principle subject to adherence to the arboricultural principles detailed in the documents with this pre-app submission, and the provision of a detailed Arboricultural Impact Assessment and Arboricultural Method Statement, including Tree Protection Details*".

- Measures are to be taken to avoid dust entering the surrounding habitats. This will include installing geo-textile fabric on the Heras fencing that marks out the exclusion zones along adjacent woodland. Any piles of sand, soil or other small particle materials will be kept damp on days of strong winds and/or covered with geo-textile fabric to prevent the amount of dust and debris leaving the site as outlined above. If necessary, loose piles of debris will be wetted using a misting device to prevent dust generation in periods of dry weather.
- No chemicals or fuel will be stored within 20 metres of the woodland fringe to ensure that there is no risk of ground contamination from a leak.

Protected habitats

Hedgerows

7.3 As part of the development proposals the removal of approximately 33 metres of hedgerow across the site to create new access will be required. There will be a minor loss of hedgerows falling under 'Medium' and 'Low' distinctiveness (see Biodiversity Net Gain report, LCES, (2024)). In order to gain a minimum 10% Biodiversity Net Gain, from the loss of the small parts of hedgerows on site, the species-poor native hedgerow (H3) will be enhanced from 'Native hedgerow' ('Low' distinctiveness), of 'Moderate' condition, to 'Species-rich native hedgerow with trees' ('High' distinctiveness) and of 'Good' condition' (following *The Statutory Biodiversity Metric Condition Assessment* (Defra, 2023)). This enhancement would be required along 161 metres of its length. To achieve this, the following will need to be implemented:

7.4 The hedgerow will need to increase species richness (to correspond with UKHabs classification (UKHab 2023)), to include five or more UK native woody species in any 30-metre survey section. Hedgerow (H3) currently has one to three woody species (hawthorn, ash, and dog rose). To achieve this the hedgerow will have to be enhanced by planting a minimum number of new species - between three and four species depending on the 30-metre survey section (for 161 metres).

7.5 The following native shrubs and trees is advised to enhance the hedgerow (shown in table 12):

Table 12: Advised species for enhancing hedgerow H3

Species	Scientific name
Spindle	*Euonymus europaeus*
Blackthorn	*Prunus spinosa*
Field maple	*Acer campestre*
Field elm	*Ulmus minor*
Hazel	*Corylus avellana*
Elder	*Sambucus nigra*
Crab apple	*Malus sylvestris*
Guelder-rose	*Viburnum opulus*

7.6 In order to achieve 'High' distinctiveness, the hedgerow will also require tree planting every 5 metres. There should be 32 trees planted. Tree species planted should include the following, in roughly equal measure: pedunculate oak, field elm (*Ulmus minor*), bird cherry (*Prunus padus*), field maple (Acer campestre), holly (*Ilex aquifolium*), and hornbeam (*Carpinus betulus*).

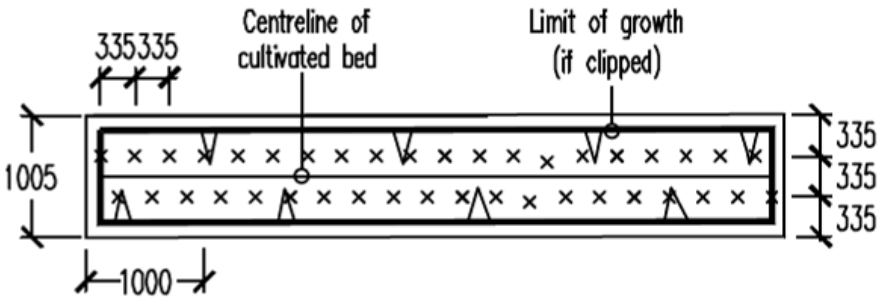
7.7 In order to gain 'Good' condition, the hedgerow will need to pass one of the following criteria:

- Hedgerow width to be over 1.5 metres along the length.
- Requires over 1 metre width of undisturbed ground with perennial herbaceous vegetation for over 90% of the length.

- Hedgerow species can be planted as whips. All species should be sourced from British-grown stock. Bare root specimens should be kept moist either by using a damp cloth or placing the roots in a bucket of water during planting.

- In order to achieve 1.5 metre width, it is possible that whips will be slot planted and will be placed in single, or double staggered rows at a density of six plants per linear feature, with approximately 335mm between plants in the same row, and 335mm between rows (see Diagram 1 below).

<u>Diagram 1: Planting Pattern</u>



- The hedgerows should be enhanced with planting occurring between November and March.

- All plants need to be well heeled in after planting and watered in during dry weather. The planted hedgerow will be protected from rodent damage with the use of spiral tree guards. Spiral tree guards should be removed after 4 years.

- A detailed specification will need to be drawn up for the hedgerow, together with an initial management regime for the first few years. However, in the long-term, it is recommended that the new hedgerows are trimmed on a 2-to-3-year rotation in an "A" shape or a "topped A" shape: the aim is to create a tall bushy hedge which has maximum wildlife potential.

- It is important that the trees within the hedgerow will be left to grow unmanaged.

- Once this hedgerow is mature, the new species-rich hedgerow will provide Biodiversity Action Plan habitat for a range of insects, mammals and birds enhancing the ecological value of the site.

James Copse woodland and Lowland deciduous woodland

7.8 In line with standing advice issued by Natural England, the ancient woodland area of James Copse will be buffered by at least 15 metres from the development (over 20 metres at the closest point to development). The woodland south of the ancient woodland will help to provide this buffer.

Protected and Notable Species

Badgers

Foraging and commuting

7.8 The construction impacts on badgers commuting within the work area are possible; the proposed mitigation will be implemented to comply with protected species legislation and good practice. The following measures will therefore be undertaken:

- Any trenches during the construction will be backfilled nightly, boarded over or will have a ramp installed in order to prevent any wildlife becoming trapped overnight. Exit ramps will involve either earth being slopped at one end, or a plank fitted.
- Prior to works commencing the working area will be fenced with heras fencing to dissuade badgers from entering the site during the construction period.
- Any liquids, such as fuel or industrial chemicals will be in sealed containers to prevent animals ingesting them.
- Prior to works commencing the working area will be fenced with heras fencing to dissuade badgers from entering the site during the construction period.

- A walkover will be undertaken prior to works commencing looking for any new badger excavations.

Adverse and unlawful impacts to a sett

7.9 The survey conducted in November 2023 identified one badger sett, with five active entrance holes (see appendix IX for locations). The sett was also recorded as being active in 2021.

7.10 The findings of the badger survey in 2023 were used to inform the Masterplan design and aided in altering the location of the proposed road going into the development by moving it further south.

7.11 The current badger sett will be retained as far as possible.

7.12 The sett will be temporarily closed during the development, following the steps outlined below in section 7.13 and reopened after works have been completed.

7.13 In the event that the sett or any new setts that are found to be at risk of adverse impact during construction it will require implementation of an exclusion methodology to close the sett under licence from Natural England includes the following:

- Exclusion will be conducted under licence using one-way gates between October and November.
- Once the gates have been installed, they will be visited once every 3 days, by a suitably qualified ecologist, for a period of 21 days to ensure badgers have not dug their way back in.
- The gates will be left in situ for the duration of the development, and removed once works are completed.
- During the construction works measures will be taken to prevent badgers from being harmed. This will include the measures to prevent impacts to commuting and foraging badgers.

7.14 It is anticipated that no permanent closure of the badger sett will be required. If it is required, or if a new sett is recorded within close proximity of the proposed development and is required to be closed, then the methodology in the above paragraph 7.13, will be followed. It would include a requirement for digging out the sett, and including the provision of a replacement sett may need to be provided to compensate for any permanent sett closures.

7.15 A more detailed mitigation strategy will be provided prior to works commencing on site, alongside the reserved matters application.

7.16 The use of setts will frequently alter over time; therefore, further update surveys are recommended. These should be undertaken prior to the submission of future reserved matters applications in line with best practice and the information gathered will be used to refine the mitigation strategy.

Bats-Foraging and commuting habitat

7.17 During the construction phase, to ensure bats are not impacted, there will be restrictions on working hours and the use of external lighting systems. Lighting will not be permitted to face the offsite woodland and will be only focused on the immediate areas of works when required. No flood lighting will be used during construction and works will be limited to daylight hours.

Birds – Nesting birds

7.18 In order to minimise the impact of the works on breeding birds the suitable nesting habitat to be removed during the development will be cut outside the nesting bird season. This is considered to extend from the 1st March to the 31st August. Where this is not possible a suitably qualified ecologist should check potential nesting habitat immediately prior to works commencing. Where nesting birds are encountered, a 5-metre buffer zone will be provided around the nest and works must be postponed in this area until the nestlings have fledged.

Reptiles (Basking and foraging habitat)

7.19 Although the adverse impact on reptiles during construction is not predicted to be significant, mitigation will be implemented to negate the potential for any individuals being harmed or injured. This will involve controlled habitat manipulation to encourage reptiles to naturally move away from the construction site and into the retained green space that will be created centrally in the site. A methodology of the strim and push exercise is detailed below:

- The tall ruderal habitat that requires clearance will be maintained at a short sward height prior to works commencing on site. This will encourage reptiles in these areas to move away from the works area naturally. This will involve strimming under the careful supervision of a suitably experienced reptile handler during temperatures above 10°C when reptiles are more mobile. The strimming will be carried out in a two strim cycle with the first cut to 15 centimetres and the second to ground level. This cut will take place in one direction towards the suitable retained habitat (future green corridor in the centre of the site), in order to give any reptiles a chance to leave the area and disperse to the wider landscape.

- Slow worms will sometimes freeze instead of moving off and these animals should be carefully moved to the suitable habitat being retained adjacent to the works area.

- All arisings from the strimming and clearance will be immediately removed from the works area to prevent any reptiles sheltering within it.

- The habitat within the works area / construction zone will then be maintained at a short sward height or bare ground to discourage reptiles from entering the works area.

- Materials and any arisings will be kept off the ground through the use of skips or pallets if stored on the grassland. This will negate any risk of reptiles sheltering within stockpiled materials or arisings from site clearance.

- A destructive search will be conducted of the log piles and scrub root balls and other habitat favoured by reptiles.

- A reptile fence or barrier will not be needed to prevent colonisation of reptiles as the works site will be maintained unsuitable for reptiles.

Operational phase

Statutory sites

Solent statutory sites

7.20 The development will fall within the catchment of the Solent statutory sites and will be liable to increase in nutrient loading of these sites from waste and ground water generation. The local authority is aware of this issue and has produced a position statement and mitigation plan for nutrient neutral development (see East Hampshire District Council, 2022). This mitigation plan requires the development to determine its nutrient budget in accordance with the guidance published from Natural England and its own 'occupancy calculator'.

7.21 A nutrient budget has been prepared by Artemis Ecological Consulting for the outline application that shows an additional 176.92kg 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.

7.22 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.

7.18 Grainger may use land under their control located to the north of the application site as part of the requirement to deliver 10% biodiversity net gain. This land could also be secured to deliver part of the nutrient mitigation required for the completed scheme. Full details of any mitigation land provided by Grainger will be supplied as part of a future reserved matters application.

Protected habitats-woodland and trees

Recreational degradation and pollution

7.19 The development poses a risk of increased recreational degradation to the adjacent woodland. A formal access path already exists into this area but it will be necessary to include additional barriers to the creation of informal pathways into the woodland to prevent intrusion and refuse dumping. A five-metre vegetative barrier will be installed between the properties and the woodland fringe to the north to discourage intrusion, poor management of trees and the dumping of refuse. A post and rail fence will be installed between these areas and the property boundary. The vegetative barrier will be formed form dense scrub comprising thorny species such as hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), butcher's broom (*Ruscus aculeatus*), dog rose (*Rosa canina*) and alder buckthorn (*Frangula alnus*). The creation of this barrier will also aid in limit in the passage of large particulate matter and nitrogen deposition that will occur from increased traffic near the woodland fringe.

Protected and Notable Species

Badger-Foraging

7.20 Measures will also be implemented to ensure that badgers do not unnecessarily become isolated from suitable foraging grounds or are subject to a high level of disruption from occupants. Green space habitat immediately north of the sett will not be impacted by development and this can be enhanced for badger foraging. Native thorny species can be planted to discourage the creation of new footpaths in the areas. Planting of the orchard, north west of the existing retained sett, will maintain foraging potential for badgers, suitable species to be planted include; crab apple (*Malus sylvestris*), wild cherry (*Prunus avium*) and plum (*Prunus domestica*). These trees will be planted with contained root stock to prevent long term root damage to the sett.

Badgers - Commuting

7.21 During the operation of the development there will be an increased risk of impacts to commuting badgers due to the increased risk of car collision. Though this impact is considered to be not significant best practice measures will be undertaken to reduce the risk of collision. The development will include a wide buffer strip of connective habitat within the central area where the sett is currently located but a new emergency

access road will be created between the sett and woodland to the north. This will primarily function as cycle and pedestrian route and would not be open to everyday traffic. As the sett is not considered to be a main (breeding) sett, it is likely that there are more setts in the offsite area that badgers will commute to. The creation of greenspace routes will allow connectivity and high quality foraging away from the development area. To reduce the risk of badgers being hit by vehicles using the main access road to the south of the sett a review of the use of badger proof fencing will be carried out once the final road design is known. It may be required along the road which borders the retained and enhanced habitats around the development to prevent access into gardens and driveways.

7.22 The access roads into the site cross the vegetative buffer surrounding the site in two locations The sett will be retained within an area of greenspace that links directly to land to the north. If a mitigation sett is required it would be located with the central green corridor to ensure that there will not be a requirement to pass over roads to commute or forage within the landscape which will further reduce the likelihood of potential collision. The IEF is of **local value**, the magnitude of effect will be reduced to **negligible** and therefore **not significant**

Bats-Foraging and commuting habitat

7.23 Mitigation will focus on maintaining a foraging and communing corridor between the site and the adjacent woodland and creating new linear commuting features and foraging habitat. This will be done to maintain and reinforce existing bat use of the site within its landscape context. The proposed development will seek to maintain connectivity and foraging within the landscape by maintaining a 10 metre dark corridor along northern boundary and the central green space area. Within these bat corridors the lighting will not exceed 1 lux or their existing light levels.

7.24 To ensure any additional lighting as a result of the development does not impact upon foraging and commuting bats a lighting scheme will be designed based on guidance in accordance with Bats and Artificial Lighting in the UK (BCT & ILP, 2023). Light pollution is detrimental to bats, as well as other wildlife and therefore, is to be avoided where feasible. Where lighting is required there are mitigation options for both external and internal luminaires to reduce luminance (brightness) and illuminance (light spill), as follows:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. LED luminaires should be used where possible.

- 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.

- Keep the height of lighting columns as short as possible, ideally 3 metres or less.
- Use of motion sensor activated or Central Management System (CMS) controlled security lighting triggered only when necessary.
- Light sources should emit minimal ultra-violet light, peak higher than 550nm and be of a warm/neutral colour <2,700 kelvin.
- 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.
- Bollard or low-level downward-directional luminaires should not be used within the developmental design.
- Internal lighting of new structures should be recessed where possible to prevent external light spill. Where Supporting Habitat is present, glazing treatments such as tinted, frosted or low transmission glazing treatments are not considered suitable ways of fully mitigating light spill.
- Lighting of a resting place or roost is considered an obstruction under the legislation protecting bats. No additional light levels above the predevelopment baseline can be directed at bat roosting locations or potential roosting features in trees

Birds – breeding and wintering

7.25 Habitat management on site will be timed to avoid harming or destroying active birds' nests.

7.26 Where possible the hedgerows created on site will be cut outside the nesting bird season this is considered to extend from the 1st March to the 31st August. A pre works check should be undertaken checking for any active nests prior to cutting the hedge. Where active nests are recorded management should be postponed until the chicks have fledged.

8.0 SITE ENHANCEMENT

8.1 The following are recommended for ecological enhancement as part of the proposed development.

- The creation of the woodland buffer zone within the bat corridor will create an area of high-quality native scrub for on site. This habitat will increase the foraging potential for bat, bird, and invertebrate species.

- The creation of the central corridor of green space habitat around the badger sett will include a diverse mix of native fruiting species and will create an area of increased sward diversity over the existing habitats present. This area will also create a green space corridor connected to the hedgerow and peripheral habitats around the site to prevent fragmentation of habitat.

- The development includes the creation of a species rich native hedgerow, and retention of the existing hedgerows. This habitat will include a number of native fruiting trees such as hazel, hawthorn and guelder rose (*Viburnum opulus*) which will provide foraging resources for birds at different times of the year.

- Where any close boarded fencing is to be installed, gaps measuring 13 by 13 centimetres will be provided to allow for hedgehog movement across the site. There will also be an increase in hibernation suitability for this species as the proposed planting scheme includes tree species with suitable leaves for nest construction such as field maple.

- The proposals will incorporate integral features for nesting birds within 50% of the new dwellings across the site which will support nesting and boost fecundity. These integral boxes will include nesting provision for swifts (*Apus apus*), house sparrow (*Passer domesticus*), house martin (*Delichon urbicum*) and swallow (*Hirundo rustica*). The swift nest bricks will be installed within the new development in clusters of two to three bricks with the other boxes being installed at eaves height.

9.0 RESIDUAL EFFECTS

9.1 No significant negative impacts from the proposed works were identified during the assessment. The proposed mitigation and enhancement measures outlined above will result in a **minor positive impact** overall.

10.0 IN-COMBINATION EFFECTS

10.1 The development would be situated next to the exiting development proposed at Woodcroft farm. This development is included in the current and draft future local development plan (which replaces Policy CS18(5) of the Core Strategy.) This development is already underway and would deliver a total of 288 residential units. Due to the close proximity of the sites it is likely that there will be a combined impact with recreational degradation within the local area due to the increase in local population. The wide Woodcroft farm also includes greenspace areas for public use and is located opposite recreational grounds that will alleviate recreational pressures though providing more attractant draw. Other routes of impact are unlikely to have synergistic effect on the identified IEF as the impact to these features are site specific to the development area.

11.0 CONCLUSION

11.1 Extended phase 1 habitat and protected species surveys have been undertaken across the proposed development site. Assessments of desk studies including the proximity to designated sites and protected notable species were made. The impact assessment concluded that without mitigation there would be a significant impact on the statutory sites within the assessment area.

11.2 Mitigation measures have been provided including seasonal timing restrictions or supervising works in relation to nesting birds and reptile habitat degradation. Implementing these mitigation measures will ensure that there are not any residual effects.

11.3 The proposed enhancement measures outlined in section 8 will result in a **minor positive impact** overall.

11.4 These surveys are valid for 18 months and should the works be delayed past this time then an updated survey will be required.

12.0 REFERENCES

Amec Foster Wheeler Environment & Infrastructure UK Limited (2018). *Integrated Water Management Study.* Report for Partnership for Urban South Hampshire (PUSH).

Bat Conservation Trust & Institute of Lighting Professionals (2023). *Bats and Artificial Lighting at Night.* Guidance Note 08/23

Brewis, A., et al, (1996). *The Flora of Hampshire.* Brill

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

CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, Second Edition. Technical Guidance Series*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2022). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Version 1.2 (Updated April 2022). 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.*

Department for Environment, Food & Rural Affairs (Defra) (2023). *The Statutory Biodiversity Metric Condition Assessment.*

Department for Levelling Up, Housing, and Communities (2023). *National Planning Policy Framework*.

Department for Transport (2013). *Transport Analysis Guidance (TAG). Environmental Impact Appraisal.*

East Hampshire District Council (2022). *Position Statement and Mitigation Plan for Nutrient Neutral Development.*

East Hampshire District Council (2024). *Our Local Plan 2021 – 2040*.

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*. Mammal Society.

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

LC Ecological Services (LCES) (2024). *Biodiversity Net Gain report*. February 2024.

Natural England (2022). *Natural England nutrient calculator and guidance.*

Natural England (2022). *Ancient woodland, ancient trees and veteran trees standing advice.* https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

Multi-Agency Geographical Information for the Countryside (MAGIC) Website at https://magic.defra.gov.uk/,

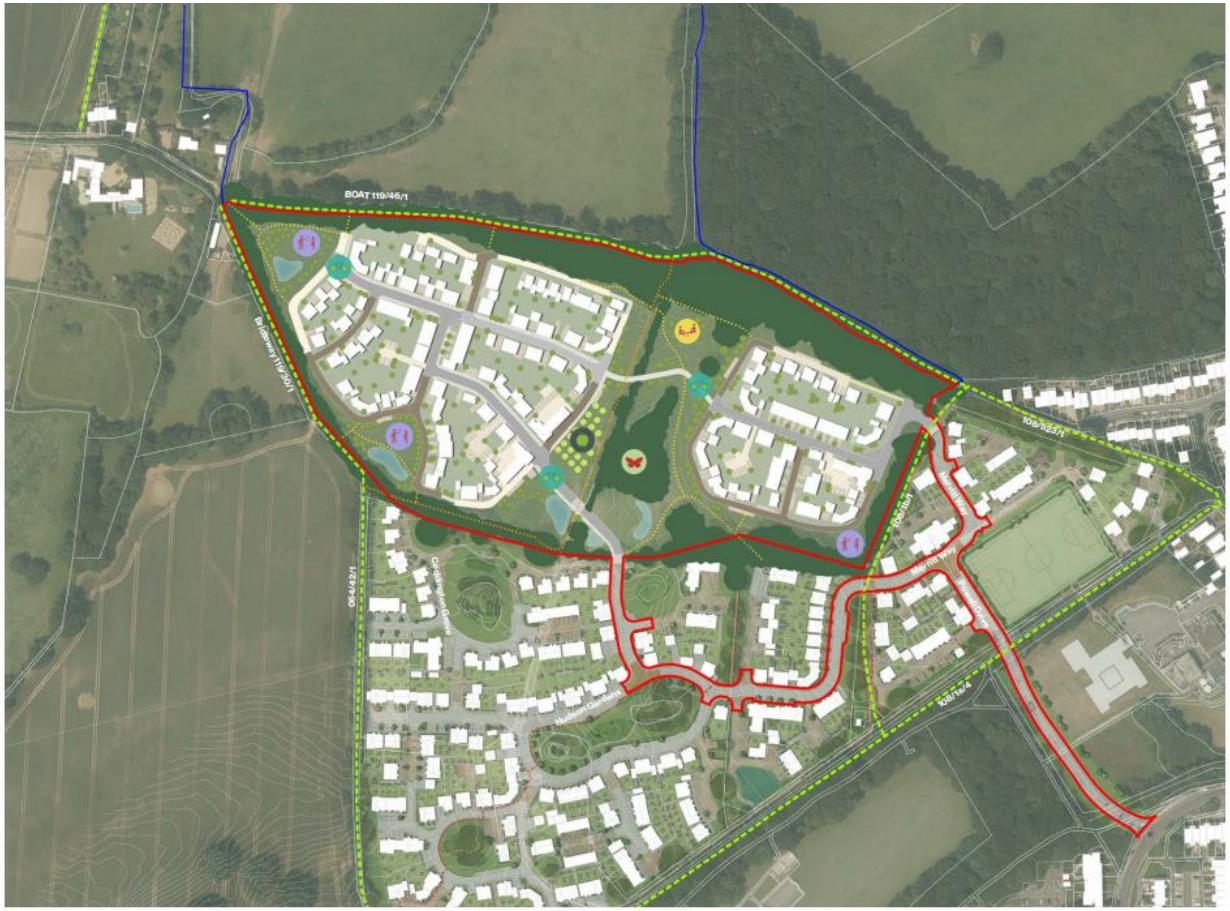
Stace, C. (2019). *New Flora of the British Isles (fourth edition).* Cambridge University Press, Cambridge.

UKHab Ltd (2023). *UK Habitat Classification* Version 2.0 (at https://www.ukhab.org)

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

APPENDIX I: SITE BOUNDARY

APPENDIX II: SITE PROPOSALS



Land at Woodcroft Farm
on behalf of Grainger plc

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date	08.11.2023	job no.	445315

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APPENDIX III: SITE PHOTOGRAPHS

Photo 1: Other neutral grassland – looking west (Target note 3) August 2021.

Photo 2: Other neutral grassland – looking west (Target note 3), same view November 2023.

Photo 3: Other neutral grassland (Horse paddock) (Target note 4) August 2021.

Photo 4: Lowland mixed deciduous woodland edge (north of the site) looking west. (Target note 1) August 2021.

Photo 5: Other woodland; broadleaved habitat looking north (Target note 2) August 2021

Photo 6: Other woodland; broadleaved habitat looking west (Target note 2) November 2023

Photo 7: Treelines/hedgerows H1 (left) and H2 (straight on) looking south November 2023

Photo 8: Hedgerows H3 and H4 view looking north November 2023

APPENDIX IV: DESIGNATED SITES AND PROTECTED AND NOTABLE SPECIES RESULTS

Table A1: Statutory designated sites within a five-kilometre radius of Land at Woodcroft Farm and non-statutory sites within a two-kilometre radius

Site name	Conservation status	Distance from site (km)	Level of Value	Habitat description or species meeting selection criteria
Catherington Down	SSSI[1]	1.8 north	National	Chalk grasslands that contain a rich variety of plant species, which in turn support numerous insect species, like butterflies, which help to pollinate flowers. The terraces that occur on Catherington Down are an ancient farming system dating back to the medieval times.
	LNR[2]		Regional	
Lye Heath Marsh	SSSI	4.7 south	National	Lye Heath Marsh supports the flowing 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.
Yeoll's Copse	LNR	0.8 north	Regional	A precious fragment of Ancient Woodland with a small wetland area on the north side and now surrounded on three sides by housing development.
	SINC[3]		Local	
Dell Piece West	LNR	1.5 east	Regional	An area of woodland bordering unimproved grassland, damp marshy ground and a large shallow pond.
Hazleton Common	LNR	1.9 east	Regional	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 has spread in some areas, a

[1] SSSI: Sites of Special Scientific Interest
[2] LNR: Local Nature Reserve
[3] SINC: Site of Interest to Nature Conservation

Site name	Conservation status	Distance from site (km)	Level of Value	Habitat description or species meeting selection criteria
				few patches of heather survive, mostly mixed with extensive areas of gorse where there is a good breeding population of stonechats (*Saxicola torquata*).
Catherington Lith	LNR	2.5 north east	Regional	A wooded scarp with ancient semi natural woodland and a small area of chalk grassland on the lower slopes (Stubbins Down) providing a mix of habitats including coppice, high forest, butterfly meadows and pasture. The Lith has remnants of chalk grassland supports whitethroats (*Sylvia communis*), yellowhammers (*Emberiza citrinella*), linnets (*Carduelis cannabina*) long-tailed tits (*Aeguithalos caudatus*) and spotted flycatchers (*Muscicapa striata*)
James' Copse & Outlier	SINC	0.1 north	Local	A priority woodland habitat with remnants of ancient woodland.
James' Copse Paddock	SINC	0.4 north	Local	An agriculturally unimproved grassland.
Wecock Wood	SINC	1.0 south west	Local	A priority woodland habitat with remnants of ancient woodland.
Anmore Dell Meadow	SINC	1.4 south	Local	An agriculturally unimproved grassland.
Wecock Common	SINC	1.5 south west	Local	A combination of pasture woodland and wooded commons that hold biological and historical interest.
Longwood (Idlewood)	SINC	1.6 south wast	Local	A priority woodland habitat with remnants of ancient woodland.
Rabbit Copse, Horndean	SINC	1.7 north	Local	A priority woodland habitat with remnants of ancient woodland.

Site name	Conservation status	Distance from site (km)	Level of Value	Habitat description or species meeting selection criteria
Crabdens Row	SINC	1.8 north	Local	A priority woodland habitat with remnants of ancient woodland.
Crabdens Copse	SINC	1.8 north west	Local	A priority woodland habitat with remnants of ancient woodland.
Kings Pond Meadow	SINC	1.8 south west	Local	Semi-improved grassland which retains a significant element of unimproved grassland.
Soake Farm Meadows	SINC	1.9 south west	Local	An agriculturally unimproved grassland with a recorded population of the notable species *Anacamptis morio* (Green-Winged Orchid)

Records were provided by HBIC (Reference: 10868) from the last 10 years for most species. A full copy of the data search can be provided on request however a summary is provided below:

Amphibians and reptiles

Five records of slow worm (*Anguis fragilis*) were provided from between 2012 and 2014. There was one record of common lizard (*Zootoca vivipara*) from 2020.

Birds

In total 28 protected or notable bird species were returned within the biological records. This included five species listed under Schedule 1 of The Birds Directive, red kite (*Milvus milvus*), peregrine (*Falco peregrinus*), Mediterranean gull (*Ichthyaetus melanocephalus*), little egret (*Egretta garzetta*) and kingfisher (*Alcedo atthis*) as well as other schedule one species such as redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*) and crossbill (*Loxia curvirostra*).

Higher plants

16 records for the red data listed species green-winged orchid (*Anacamptis morio*) were returned dated between 2013 and 2020.

Invertebrates

Four records were returned for the schedule one species stag beetle (*Lucanus cervus*) dated between 2016 and 2018. Records of three other red books species species, common darter (*Sympetrum striolatum*), brown hairstreak (*Thecla betulae*) and white admiral (*Limenitis camilla*) were also returned with between one and three records.

Mammals

Bat records returned records from seven species which included: serotine (*Eptesicus serotinus*), Alcathoe (*Myotis alcathoe*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), *Myotis* species and brown long-eared bat (*Plecotus auritus*). There is also a known population of western barbastelle (*Barbastella barbastellus*) in the local area which has been recorded within the woodland copse in the wider landscape.

Records of hedgehogs (*Erinaceus europaeus*), one record of brown hare (*Lepus europaeus*), three records of badger (*Meles meles*) and one record of hazel dormouse (*Muscardinus avellanarius*) were also provided from between 2017 and 2020.

These records of protected and notable species in the vicinity of the site increase the likelihood of them being present where suitable habitat is identified in the field survey.

APPENDIX V: HABITAT SURVEY

A detailed walkover of the site and phase 1 habitat survey was undertaken on 25th and 26th August 2021 by ecologist Stuart Woodley. An update ecological appraisal and habitat survey was carried out on site on 13th November 2023 by ecologist Stuart Woodley using the UK Habitat Classification assessment (following guidelines by UKHab Ltd, 2023). The survey involved a direct search for legally protected and invasive species of flora and fauna and categorising any habitats of ecological value that were encountered. A general description of the vegetation on site was also recorded, listing species encountered and scoring their abundance using the DAFOR scale shown below:

D Dominant
A Abundant
F Frequent
O Occasional
R Rare
L Local (used as a prefix to any of the above).

Semi -improved grassland

Table A2: Species recorded in unmanaged Other neutral grassland (Target note 3)

Common name	Latin name	Abundance	Status
Creeping bent	*Agrostis stolonifera*	D	Common in grasslands of all kinds except on most acidic soils
Creeping thistle	*Cirsium arvense*	LF	Common & widespread
Cock's foot	*Dactylus glomerata*	O	Common & widespread
Canadian fleabane	*Erigeron canadensis*	F	Common on wasteland, roadsides & dunes
Cleavers	*Galium aparine*	R	Common & widespread
Red fescue	*Festuca rubra*	F	Common & widespread
Yorkshire-fog	*Holcus lanatus*	R	Common & widespread
Timothy	*Phleum pratense*	LD	Common on waysides & grasslands, often sown for fodder
Ribwort plantain	*Plantago lanceolata*	F	Common & widespread
Greater plantain	*Plantago major*	O	Common & widespread
Rough meadow-grass	*Poa trivialis*	O	Abundant in meadows, woods, marshes & waste ground
Red bartsia	*Odontites vernus*	LF	Common on arable, wasteland, trampled grassland & roadsides
Selfheal	*Prunella vulgaris*	O	Common & widespread
Creeping buttercup	*Ranunculus repens*	O	Common & widespread

Common name	Latin name	Abundance	Status
Bramble	*Rubus fruticosus* agg.	R	Common & widespread
Broad-leaved dock	*Rumex obtusifolius*	R	Common & widespread
Red clover	*Trifolium pratense*	F	Common & widespread
White clover	*Trifolium repens*	O	Common & widespread
Common nettle	*Urtica dioica*	LO	Common & widespread

Table A3: Species recorded in grazed Other neutral grassland (Target note 4)

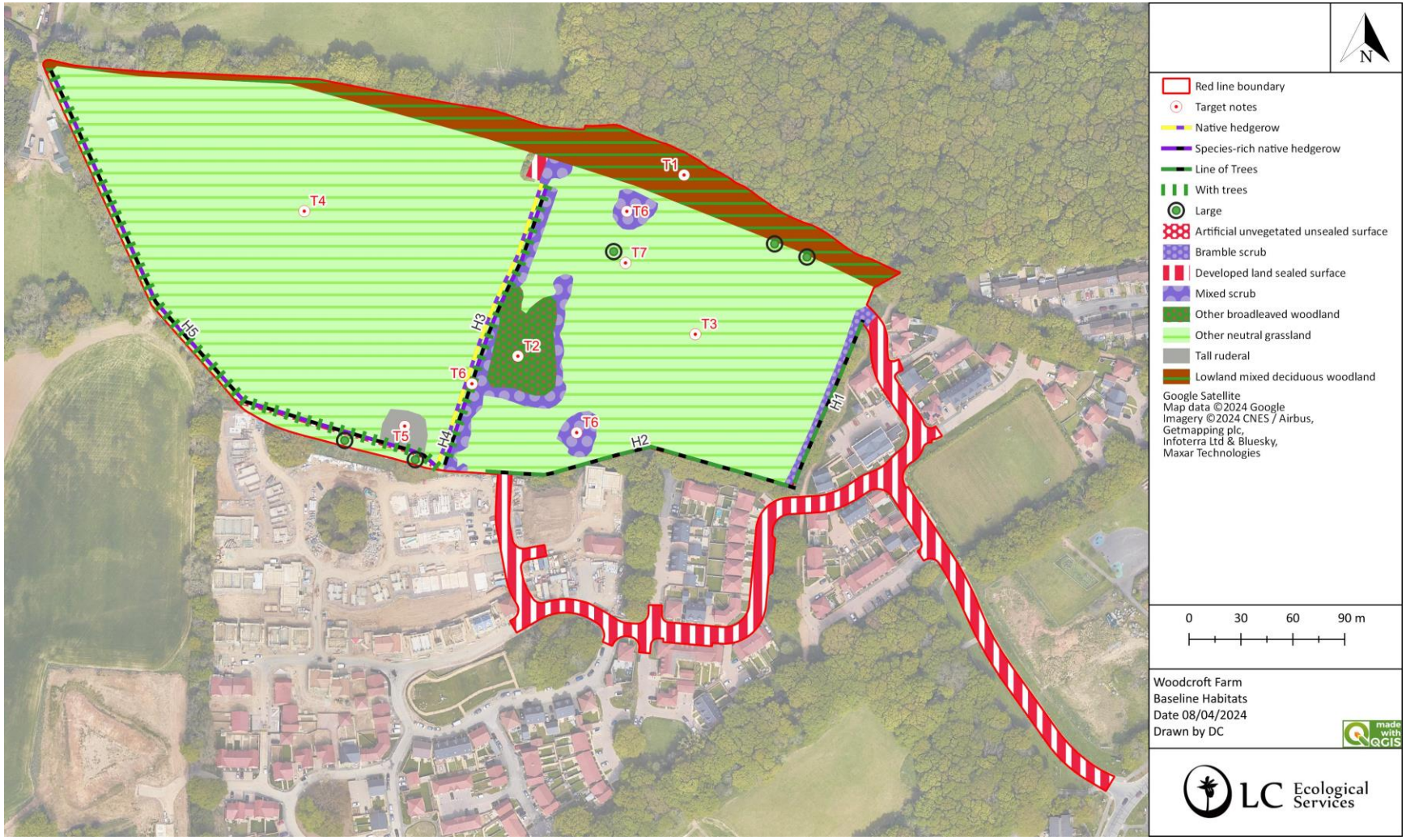
Common name	Latin name	Abundance	Status
Creeping bent	*Agrostis stolonifera*	O	Common in grasslands of all kinds except on most acidic soils
Meadow foxtail	*Alopecurus pratensis*	R	Common in meadows on neutral to alkaline soils
Sweet vernal-grass	*Anthoxanthum odoratum*	O	Common & widespread
Creeping thistle	*Cirsium arvense*	LF	Common & widespread
Smooth hawk's-beard	*Crepis capillaris*	F	Common & widespread
Cock’s foot	*Dactylus glomerata*	O	Common & widespread
Canadian fleabane	*Erigeron canadensis*	LF	Common on wasteland, roadsides & dunes
Cleavers	*Galium aparine*	R	Common & widespread
Cut-leaved crane's-bill	*Geranium dissectum*	O	Common & widespread
Red fescue	Festuca rubra	F	Common & widespread
Yorkshire-fog	*Holcus lanatus*	A	Common & widespread
Timothy	*Phleum pratense*	LD/O	Common on waysides & grasslands, often sown for fodder
Ribwort plantain	*Plantago lanceolata*	F	Common & widespread
Greater plantain	*Plantago major*	O	Common & widespread
Smooth meadow-grass	*Poa pratensis*	R	Common in dry grasslands, roadsides & waste places
Rough meadow-grass	*Poa trivialis*	LD	Abundant in meadows, woods, marshes & waste ground
Red bartsia	*Odontites vernus*	LF	Common on arable, wasteland, trampled grassland & roadsides
Selfheal	*Prunella vulgaris*	O	Common & widespread
Creeping buttercup	*Ranunculus repens*	O	Common & widespread
Bramble	*Rubus fruticosus agg.*	R	Common & widespread
Curled dock	*Rumex crispus*	O	Common & widespread
Meadow fescue	*Schedonorus pratensis*	R	Locally common in meadows
Common ragwort	*Senecio jacobaea*	O	Common & widespread

Dandelion	*Taraxacum officinale* agg.	O	Common & widespread
White clover	*Trifolium repens*	O	Common & widespread
Scentless mayweed	*Tripleurospermum inodorum*	O	Common in arable & wasteland habitats
Common nettle	*Urtica dioica*	LO	Common & widespread

Table A4: Species recorded in the native hedgerows

Ref	Woody species	Ground flora	General description	UK BAP?
Hedgerow 1	Hawthorn (*Crataegus monogyna*) Elder (*Sambucus nigra*) Blackthorn (*Prunus spinosa*) Dog rose (*Rosa canina*) English oak (*Quercus robur*) Hazel (*Corylus avellana*)	Holly (*Ilex aquifolium*) Common nettle (*Urtica dioica*) Ivy (*Hedera helix*) Bramble (*Rubus fruticosus*)	Large hedge formed form matures trees over 10 metres with a dense understory. Five to three metres wide.	Yes
Hedgerow 2	English oak Blackthorn Holly	Ivy Bramble Common nettle	Large hedge formed form matures trees over 10 metres. Five to three metres wide.	Yes
Hedgerow 3	Grey willow (*Salix cinerea*) Hawthorn Ash	Yarrow (*Achillea millefolium*) Common ragwort (*Senecio jacobaea*)	Approximate canopy height of 4 metres. Two metres wide with connections to woodland.	Yes
Hedgerow 4	English oak Hawthorn Blackthorn Dog rose Elder Buddleia (*Buddleia davidii*) Spindle (*Euonymus europaeus*)	Old man's beard (*Clematis vitalba*) Bramble Hedge bindweed Hedge woundwort (*Stachys sylvatica*)	Approximate canopy height of 5 metres. Two metres wide with connections to woodland.	Yes
Hedgerow 5	Ash Elder Dog rose Hazel Beech (*Fagus sylvatica*) Goat willow (*Salix caprea*)	Hogweed (*Heracleum sphondylium*) Lord and ladies (*Arum maculatum*) Ivy Cow parsley (*Anthriscus sylvestris*) Perforated St. John's-wort (*Hypericum perforatum*) Bramble	Approximate canopy height of 7 metres. Contains mature trees.	Yes

APPENDIX VI: UKHAB SURVEY MAP



APPENDIX VII: BAT SURVEY RESULTS

Bat transect results

June Transect Visit 1 - 30.06.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Land at Woodcroft farm	**SURVEYORS:**	AH, JH	**DATE:**	30.06.21
TEMP AT START:	18ºC	**SUNSET:**	21:22	**START TIME:**	21:22
TEMP AT END:	16ºC	**CLOUD COVER (oktas):**	7/8	**END TIME:**	23.25
WIND (bft):	1-2/12	**RAINFALL:**	Nil	**WEATHER:**	Warm
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:22-27	A				
21:29-34	B	Common pipistrelle	1	Foraging over hedgerow traveling north.	
21:40-45	C	Common pipistrelle	1	Foraging along woodland edge.	
21:45	C	Common pipistrelle	1	Commuting north along central hedgerow.	
21:49-51	C-D	Common pipistrelle	1	Foraging along woodland edge.	
21:53	C-D	Common pipistrelle	1	Foraging along woodland edge.	
21:56	C-D	Common pipistrelle	1	Foraging along woodland edge.	
21:58-22:04	D	Common pipistrelle	1	Foraging along the western hedge.	
22:05	D	Common pipistrelle	1	Repeated passes along field margin. Foraging.	
22:10-22:16	E	Common pipistrelle	1	Repeated passes along field margin. Foraging.	
22:20-20:25	F				
22:34-22:39	G				
22:48-22:54	A	Common pipistrelle	1	Heard not seen. Intermittent foraging and commuting.	
22:57-23:02	B	Common pipistrelle	1	Heard not seen, commuting.	
23:07-23:12	C				
23:16	D	Common pipistrelle	1	Heard not seen, commuting.	

July Transect Visit 1 - 21.07.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Land at Woodcroft farm	**SURVEYORS:**	AH, MS	**DATE:**	21/07/21
TEMP AT START:	27ºC	**SUNSET:**	21:05	**START TIME:**	21:05
TEMP AT END:	21ºC	**CLOUD COVER (oktas):**	1/8	**END TIME:**	23:06
WIND (bft):	0/12	**RAINFALL:**	Nil	**WEATHER:**	Warm and humid

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:05-21:20	A			
21:15-21:20	B			
21:25-21:28	C			
21:35	C	Common pipistrelle	1	Foraging, heard not seen.
21:48	D	Common pipistrelle	1	Foraging, heard not seen.
21:50	E	Common pipistrelle	1	Foraging, over central grassland.
21:50-21:55	F			
22:07-22:12	D			
22:07	D	Common pipistrelle	1	Heard not seen.
22:10-22:15	D	Serotine	1	Heard not seen.
22:20-22:25	E			
22:30-22:35	F			
22:33	F	Noctule	1	Heard not seen.
22:34	F	Common pipistrelle	1	Heard not seen. Faint call.
22:43	F-G	Common pipistrelle	1	Heard not seen.
22:50-22:55	G			
22:51	G	Common pipistrelle	1	Heard not seen.
22:52	G	Common pipistrelle	1	Heard not seen.
22:55	G	Common pipistrelle	1	Heard not seen.

July Transect Visit 2 - 29.07.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Land at Woodcroft farm	**SURVEYORS:**	AH, JM	**DATE:**	29/07/21
TEMP AT START:	17ºC	**SUNSET:**	20:54	**START TIME:**	20:54
TEMP AT END:	17ºC	**CLOUD COVER (oktas):**	7/8	**END TIME:**	22:54
WIND (bft):	2/12	**RAINFALL:**	Nil	**WEATHER:**	Overcast and mild.

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
20:54	A			
21:02	B			
21:03	B	Common pipistrelle	1	Commuting east to west over hedgerow.
21:05	B	Common pipistrelle	1	Heard not seen.
21:10	C			
21:13-15	C	Common pipistrelle	1	Commuting east to west over hedgerow.
21:19	C-D	Common pipistrelle	1	Commuting north to south.
21:20	C-D	Common pipistrelle	1	Heard not seen.
21:21	C-D	Common pipistrelle	1	Foraging along hedgerow.
21:26	D			
21:26	D	Common pipistrelle	1	Foraging around point D.
21:30	D	Serotine	1	Foraging over central grassland area.
21:32	D-E	Common pipistrelle	1	Foraging north to south over hedgerow.
21:36	D-E	Common pipistrelle	1	Foraging north to south over hedgerow.
21:37	E			
21:37	E	Serotine	1	Heard not seen. Foraging.
21:40	E	Common pipistrelle	1	Foraging around point E.
21:41	E	Common pipistrelle	1	Foraging along northern hedgerow.
21:43	E-F	Common pipistrelle	1	Heard not seen.

21:46	F			
21:48	F	Common pipistrelle	1	Foraging over survey area.
21:54	F-G	Common pipistrelle	1	Foraging along hedgerow.
21:57	F-G	Common pipistrelle	2	Repeated foraging passes.
21:59	G			
22:03	G	Soprano pipistrelle	1	Heard not seen.
22:06	G			
22:08	G	Common pipistrelle	1	Heard not seen.
22:17	G-A	Common pipistrelle	1	Heard not seen.
22:18	G-A	Serotine	1	Heard not seen.
22:22	A			
22:23	A	Common pipistrelle	1	Heard not seen.
22:24	B			
22:24	B	Common pipistrelle	1	Heard not seen. Continuous foraging passes.

August Transect Visit 1 -10.08.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Land at Woodcroft farm	**SURVEYORS:**	SW, JM	**DATE:**	10.08.21
TEMP AT START:	17ºC	**SUNSET:**	18:00	**START TIME:**	20:35
TEMP AT END:	15ºC	**CLOUD COVER (oktas):**	2/8	**END TIME:**	20:00
WIND (bft):	1/12	**RAINFALL:**	Nil	**WEATHER:**	Warm
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:35	B				
20:42	C				
20:51	C-D	Common pipistrelle	1	Foraging along tree line traveling east to west	
20:52-54	D	Common pipistrelle	1	Foraging around trees	
20:57	D-E	Common pipistrelle	1	Foraging along hedgerow traveling north to south.	

20:58	D-E	Serotine	1	Heard not seen, foraging.
20:58	D-E	Common pipistrelle	1	Heard not seen, foraging.
20:58-59	E	Common pipistrelle	1	Heard not seen, foraging.
21:02	E	Common pipistrelle	1	Heard not seen, foraging.
21:04	E-F	Common pipistrelle	1	Heard not seen, foraging.
21:07	F	Common pipistrelle	1	Foraging along hedgerow heading south
21:09	F	Common pipistrelle	1	Heard not seen, foraging.
21:12	F-C	Common pipistrelle	1	Heard not seen.
21:14	F-C	Serotine	1	Heard not seen.
21:16	C			
21:22	C-G	Common pipistrelle	1	Heard not seen, foraging.
21:29	G			
21:34-35	G	Common pipistrelle	1	Heard not seen, foraging.
21:37	G	Common pipistrelle	1	Heard not seen.
21:38	G-A	Common pipistrelle	1	Heard not seen.
21:47	A			
21:49	A	Common pipistrelle	1	Heard not seen, foraging.
22:10	B			
22:12-13	B	Common pipistrelle	1	Foraging along treeline traveling east to west
22:15	B	Common pipistrelle	1	Foraging along treeline traveling east to west
22:20	B-C	Common pipistrelle	1	Foraging along treeline traveling east to west
22:25	C			
22:30	C	Common pipistrelle	1	Heard not seen, foraging.

August Transect Visit 2 - 23.08.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Woodcroft	**SURVEYORS:**	PD, PB	**DATE:**	23.08.2021
TEMP AT START:	18.0◦C	**SUNSET:**	20:10	**START TIME:**	20:10

TEMP AT END:	15.5◦C	**CLOUD COVER (oktas):**	0/8	**END TIME:**	22:10
WIND (bft):	1/12	**RAINFALL:**	Nil	**WEATHER:**	Warm/Dry

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
20:10-20:15	A			
20:17-20:22	B			
20:26-20:32	C			
20:28-32	C	Common pipistrelle	1	Foraging from south to north and back again over stop station
20:33/34	C-D	Common pipistrelle	1	Heard not seen Foraging
20:36/37	C-D	Common pipistrelle	1	Heard not seen Foraging
20:38-20:43	D			
20:41	D	Serotine	1	Foraging from north to south and back again over field near stop station
20:41/42	D	Common pipistrelle	1	Brief call heard not seen
20:42	D	Serotine	1	Heard not seen Foraging
20:43	D	Common pipistrelle	1	Heard not seen Foraging
20:44	D-E	Common pipistrelle	1	Heard not seen Foraging
20:45/46	D-E	Common pipistrelle	2	Heard not seen Foraging
20:47-20:52	E			
20:47	E	Common pipistrelle	1	Foraging above stop station
20:48	E	Serotine	1	Heard not seen commuting
20:49	E	Common pipistrelle	1	Brief call heard not seen
20:50	E	Common pipistrelle	1	Heard not seen Foraging
20:51	E	Serotine	1	Commuting from east to west passed stop station
20:51/52	E	Common pipistrelle	1	Heard not seen Foraging
20:54	E-F	Noctule	1	Brief call heard not seen
20:55	E-F	*Myotis sp*	1	Brief call heard not seen
20:56-21:01	F			
20:59	F	*Myotis sp*	1	Brief call heard not seen
21:00	F	Common pipistrelle	1	Heard not seen commuting

21:01	F	Common pipistrelle	1	Brief call heard not seen
21:06-21:10	G			
21:16	G-A	Common pipistrelle	1	Brief call heard not seen
21:18-21:21	A			
21:19	A	Common pipistrelle	1	Brief call heard not seen
21:20	A	Serotine	1	Brief call heard not seen
21:21	A	*Myotis sp*	1	Brief call heard not seen
21:23-21:26	B			
21:23	B	Common pipistrelle	1	Brief call heard not seen
21:24/25	B	Serotine and common pipistrelle	2	Continuous foraging, heard not seen
21:25	B	Noctule and Common pipistrelle	2	Brief calls heard not seen
21:28/29	B-C	Serotine and common pipistrelle	2	Foraging. Heard not seen.
21:30-21:33	C			
21:32	C	Serotine	1	Brief call heard not seen
21:32	C	Common pipistrelle	1	Brief call heard not seen
21:37	C-D	Common pipistrelle	1	Brief call heard not seen
21:39-21:42	D			
21:40	D	Common pipistrelle	1	Brief call heard not seen
21:41	D	Common pipistrelle	1	Brief call heard not seen
21:43/44	D-E	Common pipistrelle	1	Heard not seen Foraging
21:46-21:49	E			
21:46/7	E	Common pipistrelle	1	Heard not seen Foraging
21:48	E	Common pipistrelle and *Myotis sp*	2	Brief calls heard not seen
21:51	E-F	Common pipistrelle	1	Heard not seen Foraging
21:52-21:56	F			
21:52	F	*Myotis sp*	1	Brief call heard not seen
21:55	F	Common pipistrelle	1	Heard not seen Foraging

21:59-22:02	G			
22:09-22:12	A			

September Transect Visit 1 - 09.09.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Woodcroft	**SURVEYORS:**	WD, CS	**DATE:**	09.09.22
TEMP AT START:	17.0◦C	**SUNSET:**	19:34	**START TIME:**	19:34
TEMP AT END:	14◦C	**CLOUD COVER (oktas):**	4/8	**END TIME:**	22:00
WIND (bft):	1/12	**RAINFALL:**	Nil	**WEATHER:**	Overcast and cool
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:34-19:39	A				
19:44 -19:59	B				
20:06-20:11	C				
20:15	C-D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.	
20:17	C-D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.	
20:20-20:25	D				
20:22	D	Noctule	1	Heard not seen Foraging	
20:24	D	Common pipistrelle	1	Brief call heard not seen	
20:28	D-E	Common pipistrelle	1	Heard not seen Foraging	
20:28	D-E	Noctule		Heard not seen Foraging	
20:29-20:34	E				
20:31	E	Common pipistrelle	1	Brief call, heard not seen	
20:33	E	Common pipistrelle	1	Brief call, heard not seen	
20:34	E	Serotine	1	Commuting, heard not seen.	
20:42	E-F	Noctule	1	Brief call heard not seen	
20:43-20:48	F				
20:48	F	Common pipistrelle	1	Heard not seen commuting. Repeated passed with some foraging.	
21:05-21:10	G				
21:14	G-A	Common pipistrelle	1	Brief call heard not seen	
21:18-21:23	A				

21:21	A	Common pipistrelle	1	Brief call heard not seen
21:20	A	Serotine	1	Brief call heard not seen
21:25-21:30	B			
21:27	B	Common pipistrelle	2	Brief call heard not seen. Social calling.
21:32	B-C	Common pipistrelle	1	Heard not seen Foraging
21:35-21:40	C			
21:38	C	Common pipistrelle	1	Heard not seen Foraging
21:40	C	Serotine	1	Heard not seen Foraging
21:41	C-D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.
21:43	C-D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.
21:39-21:42	D			
21:40		Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.
21:44-21:49	F			
21:55	F-G	Common pipistrelle	1	Heard not seen Foraging

September Transect Visit 2 - 23.09.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Woodcroft	**SURVEYORS:**	WD, CS	**DATE:**	21/09/21
TEMP AT START:	17.0◦C	**SUNSET:**	19:04	**START TIME:**	19:04
TEMP AT END:	14◦C	**CLOUD COVER (oktas):**	4/8	**END TIME:**	21:35
WIND (bft):	1/12	**RAINFALL:**	Nil	**WEATHER:**	Overcast and cool
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:04-19:09	A				
19:12-19:17	B				
19:20-19:25	C				
19:31	C-D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.	
19:33	C-D	Common pipistrelle	1	Foraging in woodland canopy. Some social calling.	

19:36-19:41	D			
19:41	D	Common pipistrelle	1	Foraging along treeline to the north of the site. Repeated passes.
19:47	D-E	Common pipistrelle	1	Heard not seen Foraging
19:48-19:53	E			
19:48	E	Common pipistrelle	1	Brief call, heard not seen
19:50	E	Common pipistrelle	1	Heard not seen, commuting.
20:42	E-F	Noctule	1	Brief call heard not seen
20:43-20:48	F			
20:48	F	Common pipistrelle	1	Commuting, heard not seen
20:53-20:58	G			
20:59	G-A	Common pipistrelle	1	Brief call heard not seen
21:01	G-A	Serotine	1	Brief call heard not seen. Two passes.
21:06-21:11	A			
21:08	A	Common pipistrelle	1	Brief call heard not seen
21:14-21:19	B			
21:15	B	Common pipistrelle	1	Heard not seen Foraging
21:17	B	Common pipistrelle	1	Heard not seen Foraging
21:23-21:28	C			
21:24	C	Serotine	1	Heard not seen Foraging
21:25	C	Common pipistrelle	1	Heard not seen, commuting.
21:26	C	Noctule	1	Heard not seen Foraging

October Transect Visit 1 - 07.10.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Woodcroft	**SURVEYORS:**	PD, AC	**DATE:**	07/10/2021
TEMP AT START:	16.0°	**SUNSET:**	18:30	**START TIME:**	18:30
TEMP AT END:	15.0°	**CLOUD COVER (oktas):**	7/8	**END TIME:**	20:30
WIND (bft):	2/12	**RAINFALL:**	Nil	**WEATHER:**	Overcast mild

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
18:30-18:35	A			
18:38-18:43	B			
18:46-18:51	C			
18:55	C-D	Common pipistrelle	1	Brief calls (social) heard not seen
18:56	C-D	Common pipistrelle	1	Brief calls (social) heard not seen
18:58	C-D	Serotine	1	Commuting heard not seen
19:00-19:01/02	C-D	Serotine		Heard not seen foraging
19:03-19:09	D			
19:03	D	Serotine	1	Heard not seen foraging
19:04	D	Serotine	1	Brief call heard not seen
19:05/6	D	Common pipistrelle and serotine	2	Pipistrelle heard not seen foraging, brief serotine call
19:07	D	Serotine	1	Heard not seen foraging
19:08/09	D	Serotine	1	Foraging in corner of field near stopping station
19:09/10	D-E	Serotine	1	Heard not seen foraging
19:10	D-E	*Myotis sp.*	1	Heard not seen foraging
19:13-19:20	E			
19:16	E	Common pipistrelle	1	Heard not seen commuting
19:20	E	Common pipistrelle	1	Brief call heard not seen
19:22-19:29	F			
19:22-19:24	F	Common pipistrelle	1	Brief calls heard not seen (social)
19:25-19:29	F	Common pipistrelle	1	Constant foraging/ social calls
19:33	F-G	Common pipistrelle	1	Commuting heard not seen
19:35-19:40	G			
19:37/8-19:42	G	Common pipistrelle	1	Constant foraging above stop station
19:40	G	Myotis	1	Brief call heard not seen
19:47/8	G-A	Common pipistrelle	1	Foraging heard not seen
19:50-19:56	A			
19:51	A	Common pipistrelle	1	Commuting heard not seen (social calls)
19:56	A	Common pipistrelle	1	Commuting, heard not seen

19:59-20:04	B			
19:59	B	Common pipistrelle	1	Commuting heard not seen
20:04	B	Common pipistrelle	1	Social calls
20:08-20:13	C			
20:20-20:26	D			
20:22	D	Common pipistrelle	1	Social calls
20:24/25	D	Common pipistrelle	1	Brief call heard not seen (social)
20:26	D	*Myotis sp*.	1	Brief call heard not seen
20:27/28	D-E	Common pipistrelle	1	Commuting heard not seen

October Transect Visit 2 - 21.10.21

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Land at Woodcroft farm	**SURVEYORS:**	SW, AC	**DATE:**	21.10.21
TEMP AT START:	11ºC	**SUNSET:**	18:00	**START TIME:**	18:00
TEMP AT END:	7ºC	**CLOUD COVER (oktas):**	0/8	**END TIME:**	20:00
WIND (bft):	0/12	**RAINFALL:**	Nil	**WEATHER:**	Cool and clear

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
18:00	A			
18:08	B			
18:17	C			
18:36	D	Common pipistrelle	1	Foraging, heard not seen
18:42	D	Common pipistrelle	1	Foraging, heard not seen
18:53	E	Common pipistrelle	1	Foraging, heard not seen
19:07	F			
19:18	F-G	Common pipistrelle	1	Foraging, heard not seen
19:31	G			
19:32	A			
19:44	B			

April Transect Visit 1 - 11.04.22

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	WOODCROFT	**SURVEYORS:**	AS, RM	**DATE:**	11/04/2022
TEMP AT START:	15°C	**SUNSET:**	19:50	**START TIME:**	19:50
TEMP AT END:	13°C	**CLOUD COVER (oktas):**	8/8	**END TIME:**	21:50
WIND (bft):	0/12	**RAINFALL:**	Nil	**WEATHER:**	-
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:00	A	Common pipistrelle	1	Foraging over head	
20:05	B	Common pipistrelle	1	Foraging along northern tree line	
20:12	C	Common pipistrelle	2	Foraging along northern tree line, four Common pipistrelles	
20:18	C	Common pipistrelle	4	Foraging along northern tree line. Two more Common pipistrelles joined	
20:22	C – D	Common pipistrelle	1	Heard not seen	
20:31	D	Common pipistrelle	1	Heard not seen	
20:34	D	Noctule	1	Heard not seen (22Khz)	
20:37	D	Common pipistrelle	1	Heard not seen	
20:46	D – E	Common pipistrelle	1	Heard not seen, commuting	
20:48	E	Common pipistrelle	1	Foraging	
20:58	F	Common pipistrelle	1	Heard not seen	
21:07	F – G	Common pipistrelle	1	Heard not seen, foraging	
21:09	F – G	Common pipistrelle	1	Heard not seen, foraging	
21:26	A	Serotine	1	Heard not seen	
21:32	A – B	Common pipistrelle	1	Heard not seen, commuting	
21:37	B	Common pipistrelle	1	Heard not seen, foraging	
21:42	B – C	Common pipistrelle	1	Heard not seen, foraging	

21:43	C	Common pipistrelle	1	Continuous foraging
21:49	C	Common pipistrelle	1	Foraging

April Transect Visit 2 - 26.04.22

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	WOODCROFT	**SURVEYORS:**	RM, EP	**DATE:**	26/04/2022
TEMP AT START:	11°C	**SUNSET:**	20:17	**START TIME:**	20:02
TEMP AT END:	11°C	**CLOUD COVER (oktas):**	8/8 (95%)	**END TIME:**	21:55
WIND (bft):	0/12	**RAINFALL:**	Nil	**WEATHER:**	Cloudy
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:34 – 20:40	B	Common pipistrelle	1	Foraging along hedge line	
20:42	C	Common pipistrelle		Foraging along hedge line	
20:49	C	Common pipistrelle	1	Foraging from trees	
20:52	C – D	Common pipistrelle		Heard not seen	
21:00	D	Common pipistrelle		Heard not seen	
21:05	Offsite	Common pipistrelle	1	Foraging, five circles over stables	
21:13	E	Common pipistrelle		Heard not seen	
21:26	F	Common pipistrelle		Heard not seen	
21:39	G – A	Common pipistrelle		Heard not seen	
21:44	A	Long-eared species		Heard not seen	

May Transect Visit 1 - 10.05.22

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	WOODCROFT	**SURVEYORS:**	EP, RM	**DATE:**	09/05/2022
TEMP AT START:	16°C	**SUNSET:**	20:38	**START TIME:**	20:38

TEMP AT END:	14°C	**CLOUD COVER (oktas):**	8/8	**END TIME:**	22:38
WIND (bft):	0/12	**RAINFALL:**	Nil	**WEATHER:**	Mild, muggy

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
20:46	A	Common pipistrelle	1	Foraging
20:51	A	Common pipistrelle	2	Foraging
20:59	B	Common pipistrelle	1	Heard not seen
21:02	B	Common pipistrelle	1	Commuting between points B and A
21:03	B	Common pipistrelle	1	Foraging
21:04	B	Common pipistrelle	1	Commuting
21:07	B	Common pipistrelle	1	Heard not seen
21:09	B	Common pipistrelle	1	Heard not seen
21:16	C	Common pipistrelle	1	Foraging
21:19	C	Common pipistrelle	2	Commuting
21:24	C – D	*Myotis*	1	Heard not seen
21:25	C – D	Serotine	1	Heard not seen
21:43	E	Common pipistrelle	1	Commuting
21:46	E – F	Common pipistrelle	1	Heard not seen
21:50	F	Common pipistrelle	1	Heard not seen
21:53	F	Common pipistrelle	1	Heard not seen
21:55	F – G	Common pipistrelle	1	Heard not seen
21:59	G	Common pipistrelle	1	Heard not seen
22:08	A	Common pipistrelle	1	Heard not seen
22:10	A	Common pipistrelle	1	Commuting
22:14	B	Common pipistrelle	1	Commuting

22:17	B	Common pipistrelle	1	Heard not seen

May Transect Visit 2 - 24.05.22

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	WOODCROFT	**SURVEYORS:**	EP, CS	**DATE:**	24/05/2022
TEMP AT START:	12°C	**SUNSET:**	20:59	**START TIME:**	20:59
TEMP AT END:	10°C	**CLOUD COVER (oktas):**	1/8	**END TIME:**	22:29
WIND (bft):	2/12	**RAINFALL:**	Nil	**WEATHER:**	Dry, cool

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:18	C	Common pipistrelle	1	Heard not seen
21:21 – 21:26	D	Common pipistrelle	1	Continuous foraging over track
21:28 – 21:21	D	Common pipistrelle	1	Heard not seen
21:37	D – E	Common pipistrelle	1	Flying along hedge line, south – north
21:39	D – E	Common pipistrelle		Heard not seen
21:42	E	Common pipistrelle	1	Flying south – north between trees and over development site
21:50	F	Common pipistrelle		Heard not seen
21:50 – 21:53	F	Common pipistrelle	2	Seen circling continuously, east – west corner of inner hedge
21:52 – 21:53	F	Common pipistrelle	1	South – north over track, circling over track
21:58	F - G	Common pipistrelle	1	Heard not seen
22:02	G	Common pipistrelle	1	Heard not seen
22:10 – 22:12	A	Common pipistrelle	1	Heard not seen

June Transect Visit 1- 08.06.22

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	WOODCROFT	**SURVEYORS:**	EP, EH	**DATE:**	08/06/2022
TEMP AT START:	12°C	**SUNSET:**	21:15	**START TIME:**	21:00
TEMP AT END:	12°C	**CLOUD COVER (oktas):**	6/8 (80%)	**END TIME:**	23:15
WIND (bft):	1/12	**RAINFALL:**	Slight rain near end of survey	**WEATHER:**	Overcast but mostly dry

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:24	G – F	Common pipistrelle	1	Heard not seen.
21:48	E – D	Serotine	1	Heard not seen
21:50	D	Serotine	1	Commuting from hedge to tree
21:53	D	Common pipistrelle	1	Flew along hedge
22:06	D – C	Common pipistrelle	1	Heard not seen
22:10 – 22:12	D – C	Common pipistrelle	1	Heard not seen
22:11	D – C	*Myotis*	1	Heard not seen
22:17	C	Common pipistrelle	1	Heard not seen
22:19	C	Common pipistrelle	1	Heard not seen
22:20	C	Common pipistrelle	2	Flew along hedgerow
22:25 – 22:30	B	Common pipistrelle	1	Heard not seen, continuous
22:27	B	Common pipistrelle	1	Flew along wood towards hedge and stopping point A
22:28	B	Long-eared species	1	Heard not seen
22:32	A	Common pipistrelle	1	Heard not seen

22:52 – 22:57	E	Common pipistrelle	1	Heard not seen, continuous
23:05	F	Common pipistrelle	1	Heard not seen

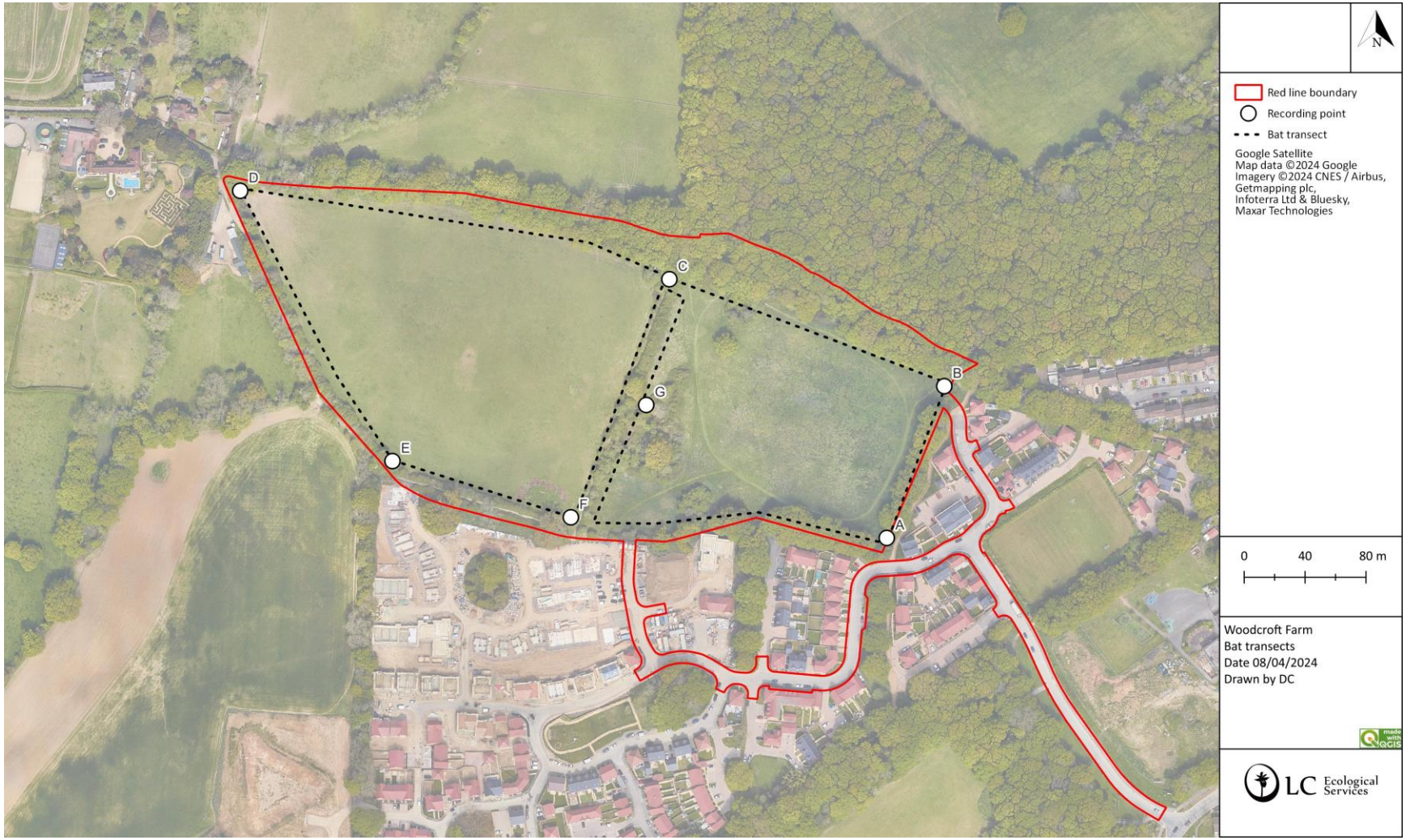
Table A5: Scores for foraging areas (bold indicates the relevant criteria)

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	**Individual bats (5)**	None (1)	Industrial or other site without established vegetation (1)
Uncommon(3)	-	**Small number (3)**	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4**)**	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	**Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)**
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)
20	**5**	**3**	**4**
Total score			**32**

Table A6: Scores for commuting routes (bold indicates the relevant criteria)

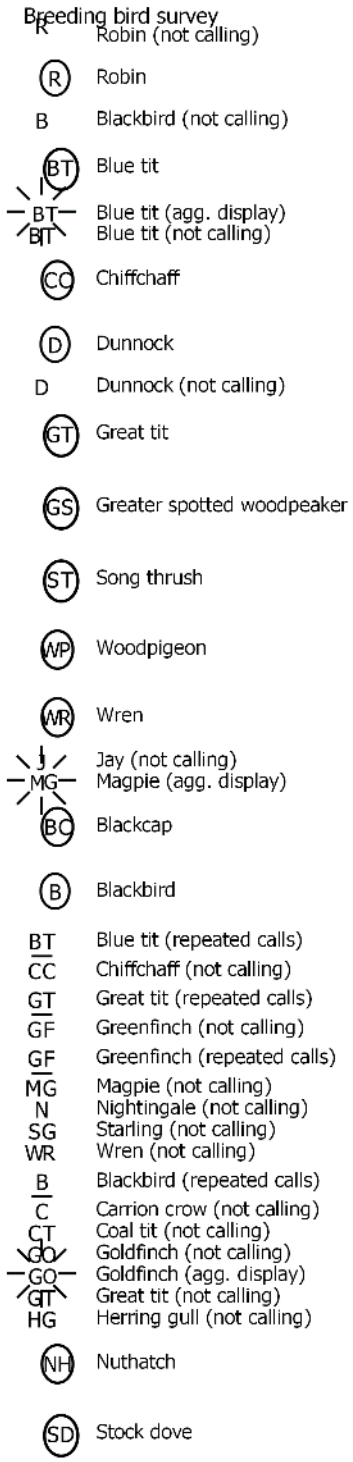
Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	**Individual bats (5)**	None (1)	Absence of (other) linear features (1)
Uncommon(3)	-	**Small number (3)**	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well-grown hedgerows, and moderate field sizes (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	**Well-grown and well-connected hedgerows, small field sizes (4)**
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and river/streams (5)
20	**5**	**3**	**4**
Total score			**32**

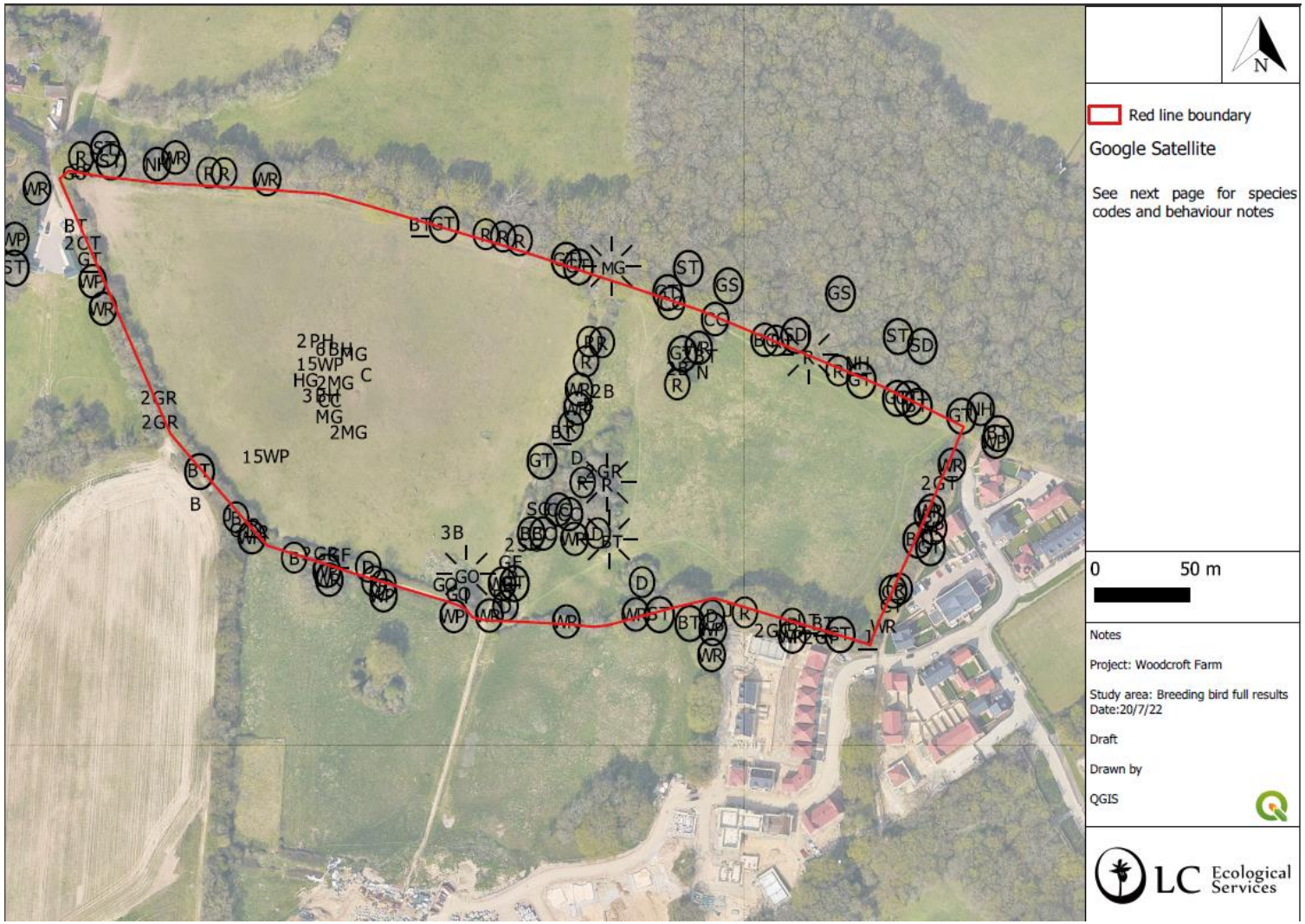
APPENDIX VIII: BAT SURVEY TRANSECT ROUTE MAP



APPENDIX IX: BADGER SURVEY RESULTS MAP 2023

APPENDIX X: BREEDING BIRD BEHAVIOUR SYMBOL KEY AND SURVEY RESULTS MAPS

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Google Satellite
See next page for species codes and behaviour notes
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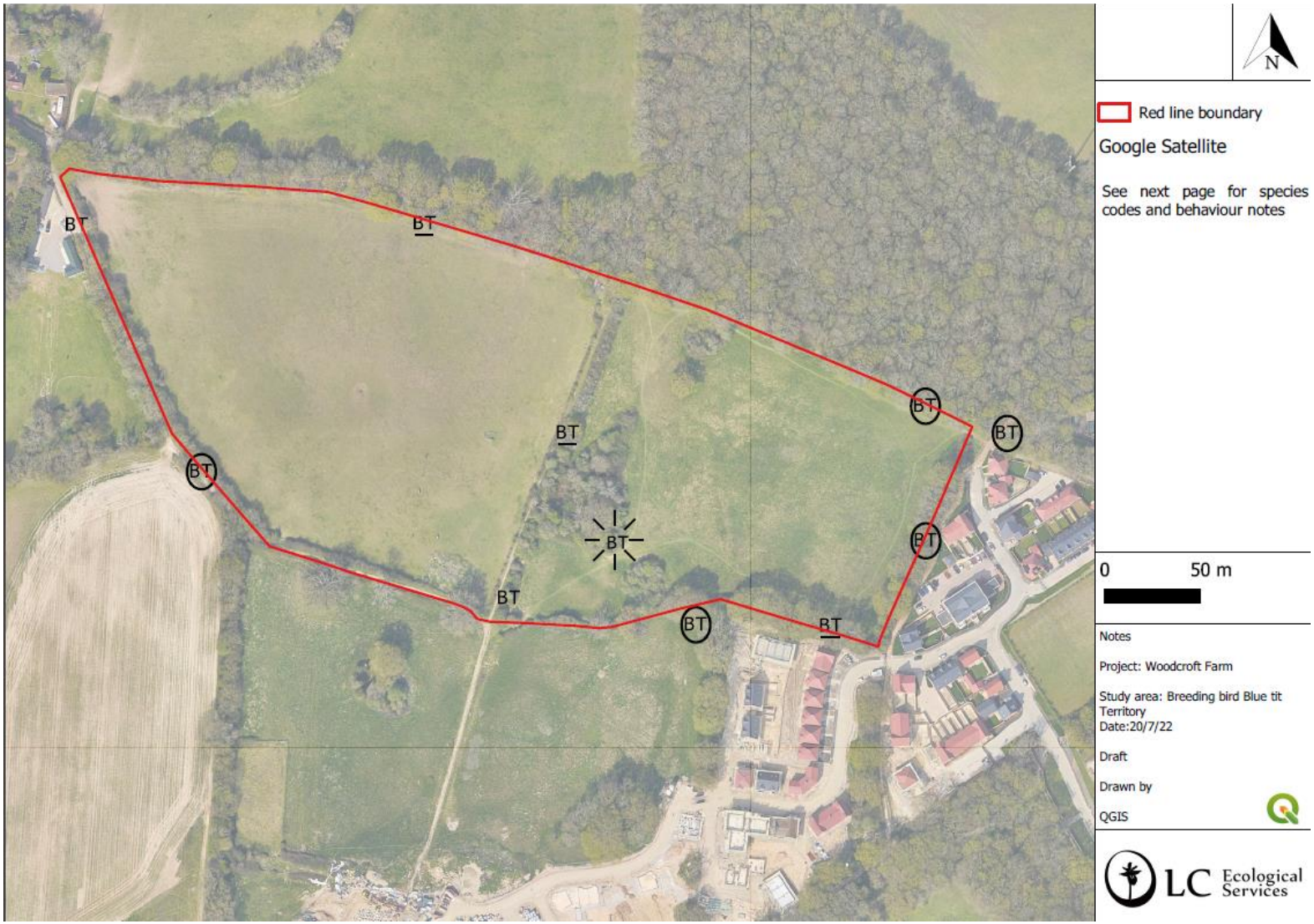
Notes
Project: Woodcroft Farm
Study area: Breeding bird full results
Date:20/7/22
Draft
Drawn by
QGIS
LC Ecological Services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Google Satellite
See next page for species codes and behaviour notes
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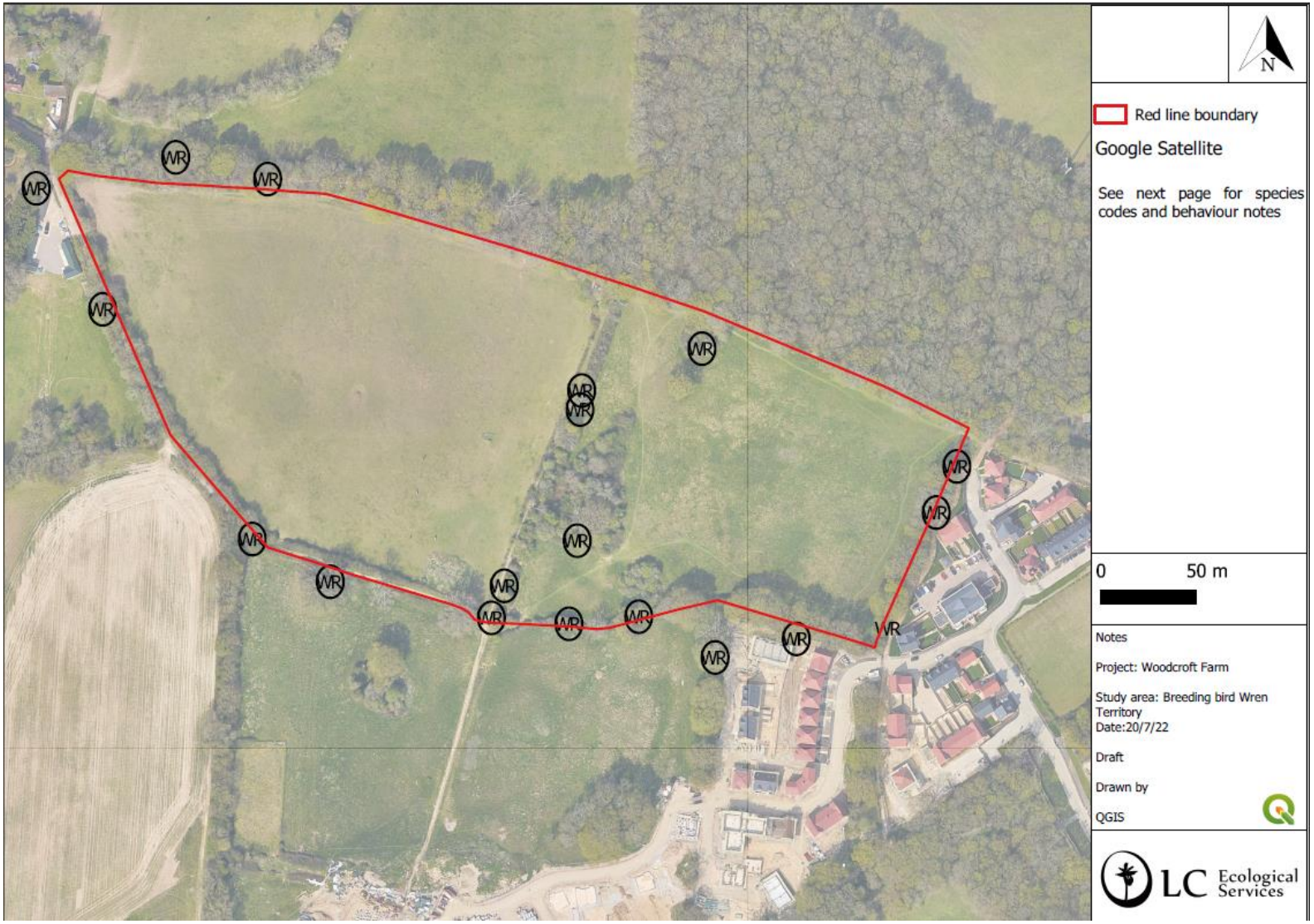
Notes
Project: Woodcroft Farm
Study area: Breeding bird Blue tit Territory
Date:20/7/22
Draft
Drawn by
QGIS
LC Ecological Services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See next page for species codes and behaviour notes
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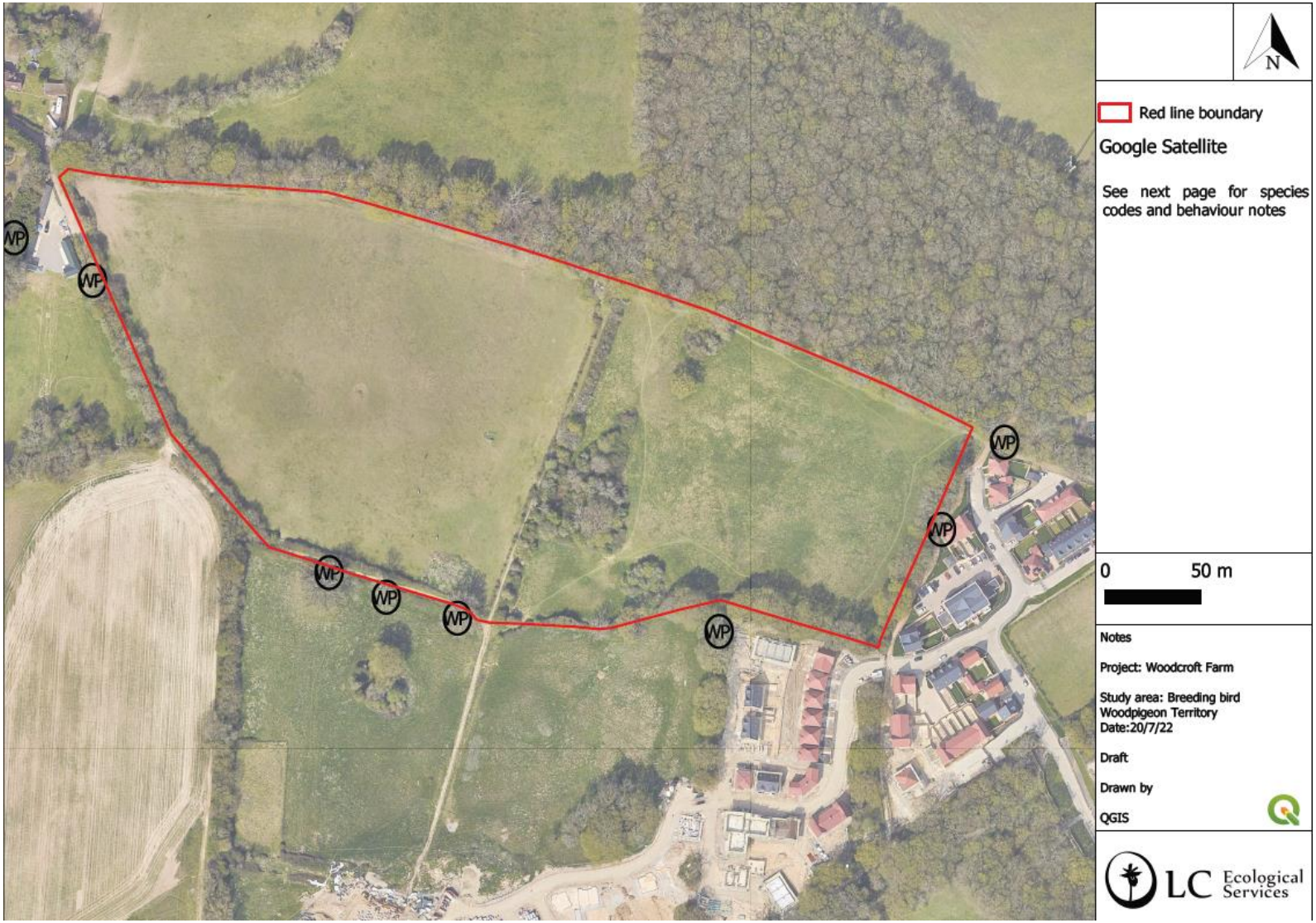
Study area: Breeding bird Wren Territory
Date:20/7/22
Draft
Drawn by
QGIS
LC Ecological Services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See next page for species codes and behaviour notes
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Study area: Breeding bird Woodpigeon Territory
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Draft
Drawn by
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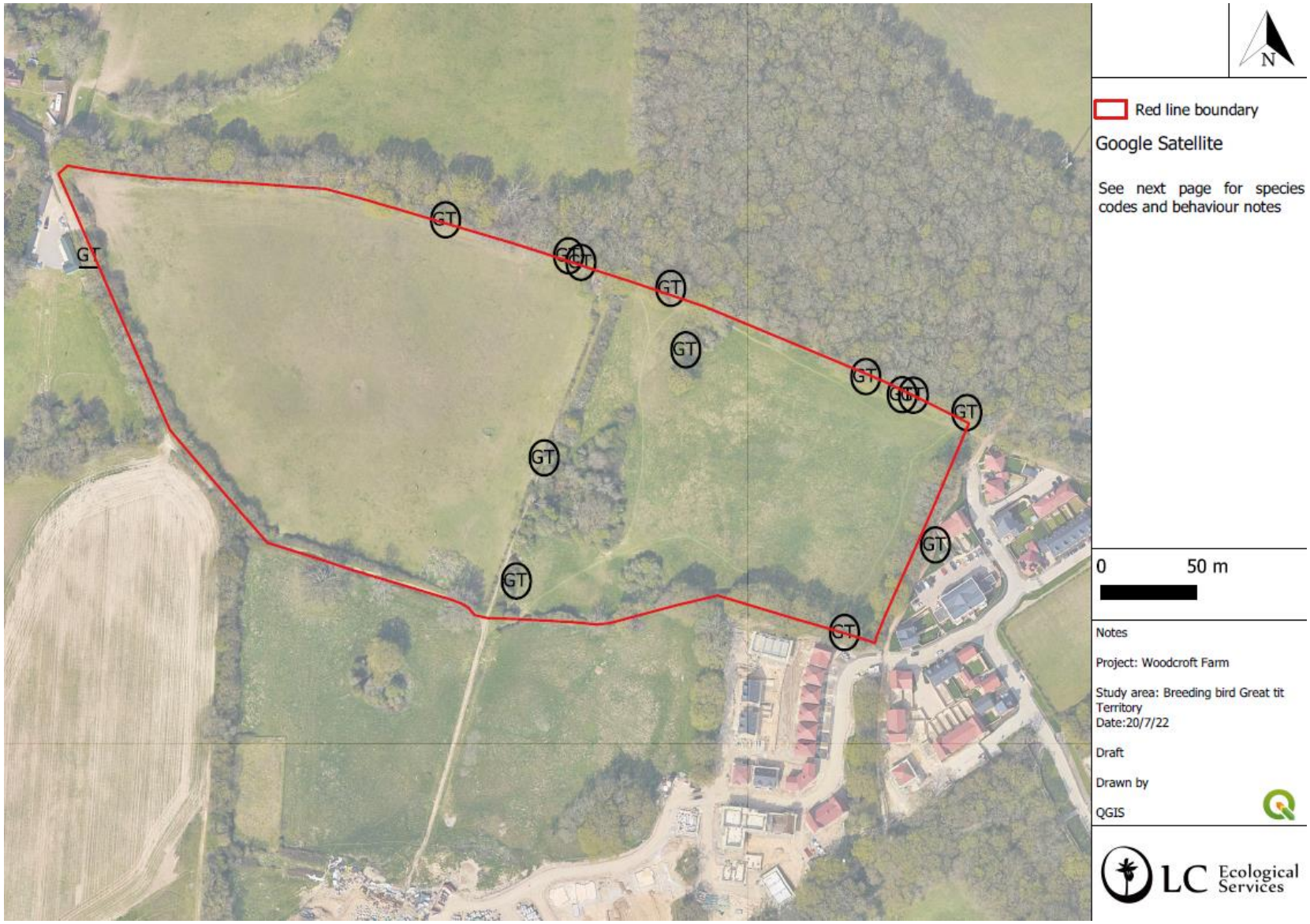
LC Ecological Services
WP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See next page for species codes and behaviour notes
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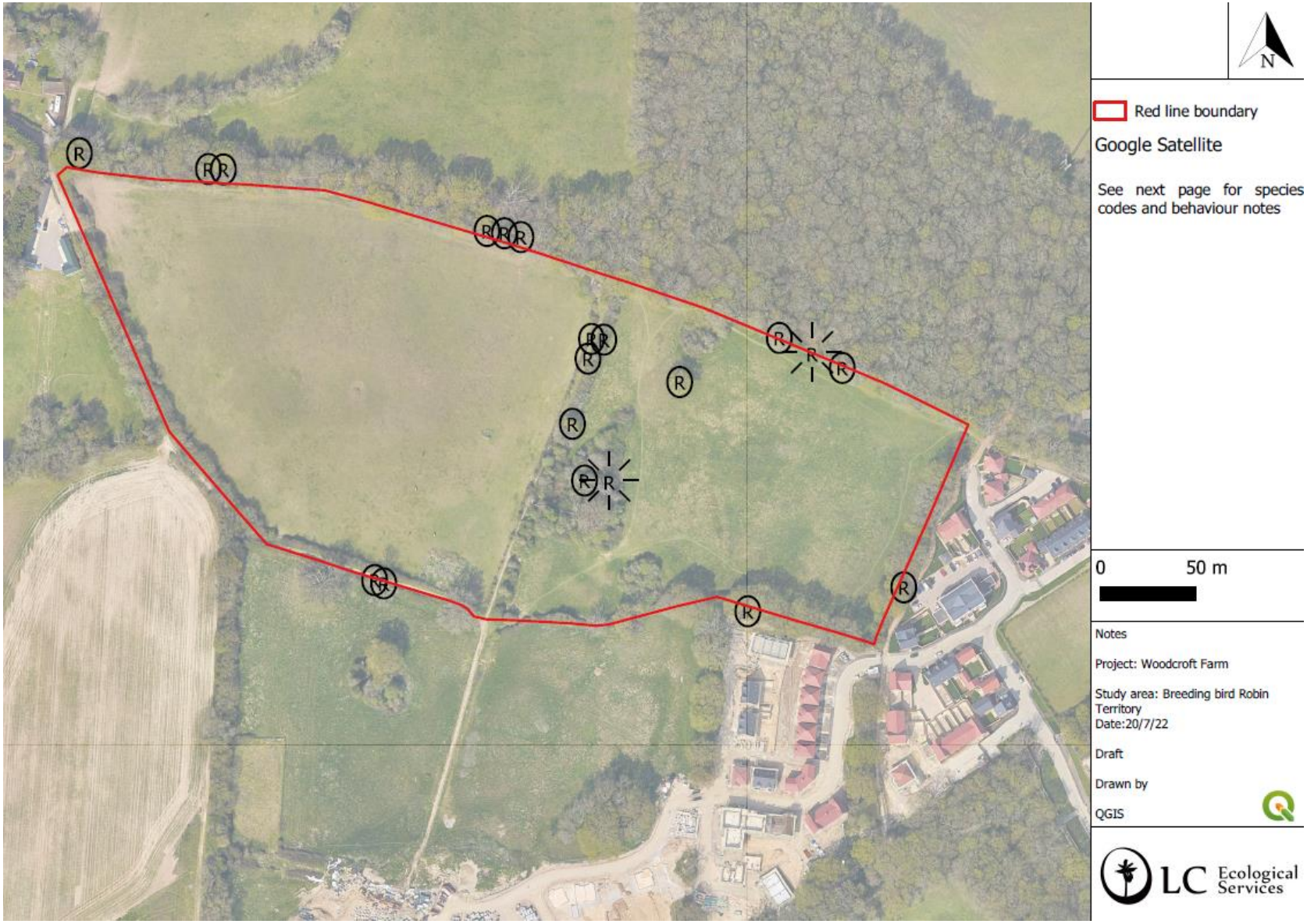
Study area: Breeding bird Great tit Territory
Date:20/7/22
Draft
Drawn by
QGIS
LC Ecological Services
GT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See next page for species codes and behaviour notes
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Study area: Breeding bird Robin Territory
Date:20/7/22
Draft
Drawn by
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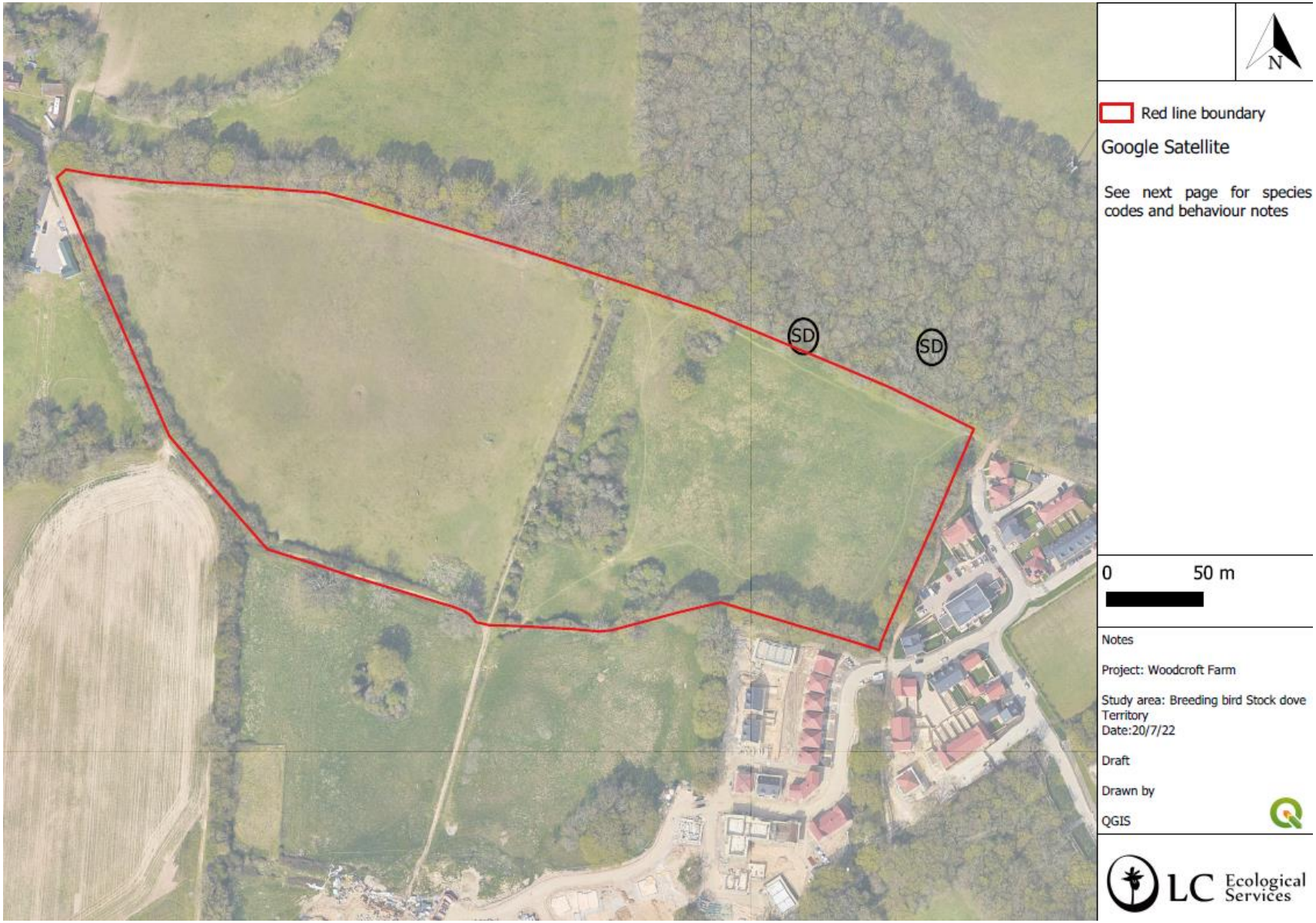
LC Ecological Services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See next page for species codes and behaviour notes
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Study area: Breeding bird Stock dove Territory
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Draft
Drawn by
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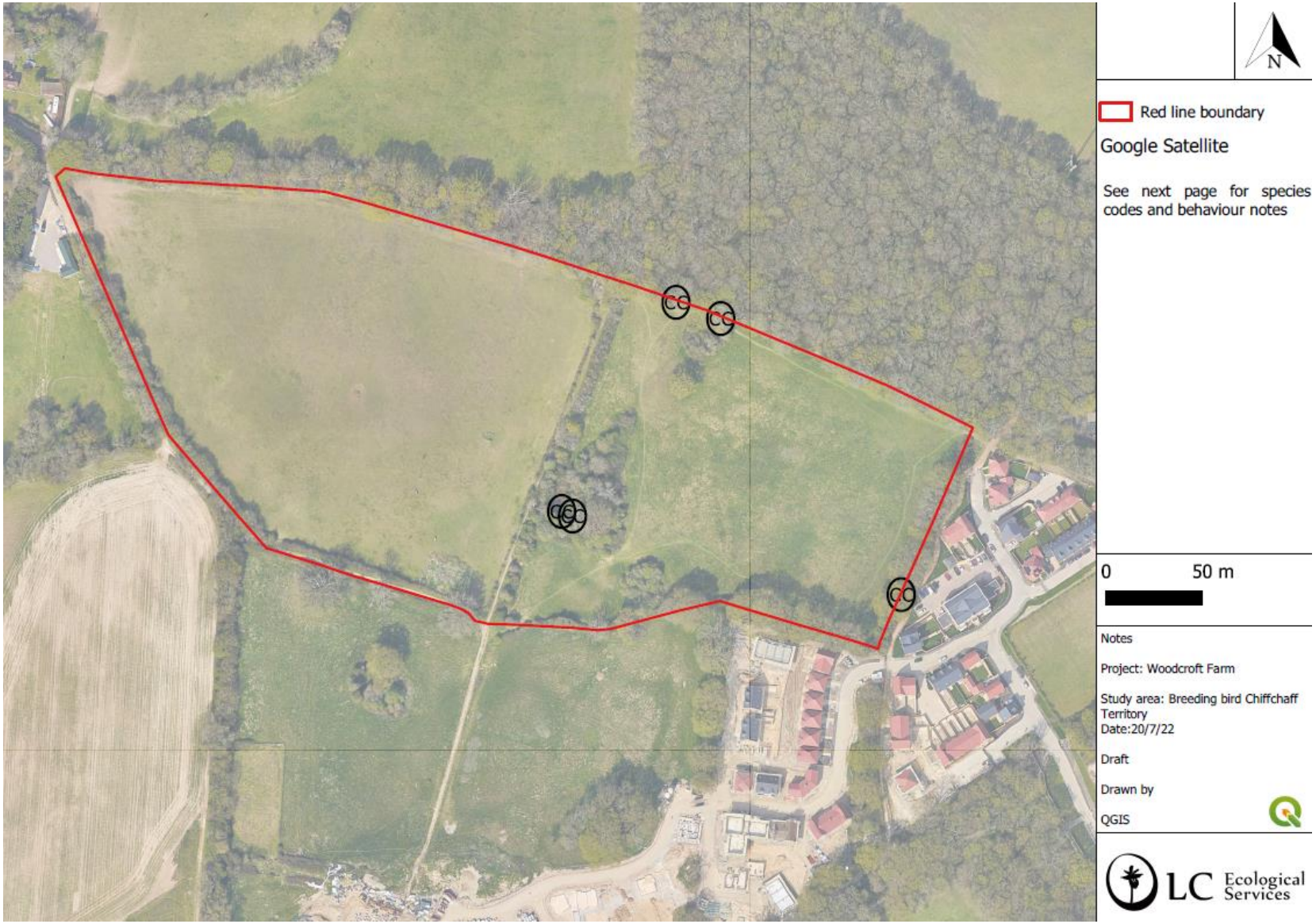
LC Ecological Services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Google Satellite
See next page for species codes and behaviour notes
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Study area: Breeding bird Chiffchaff Territory
Date:20/7/22
Draft
Drawn by
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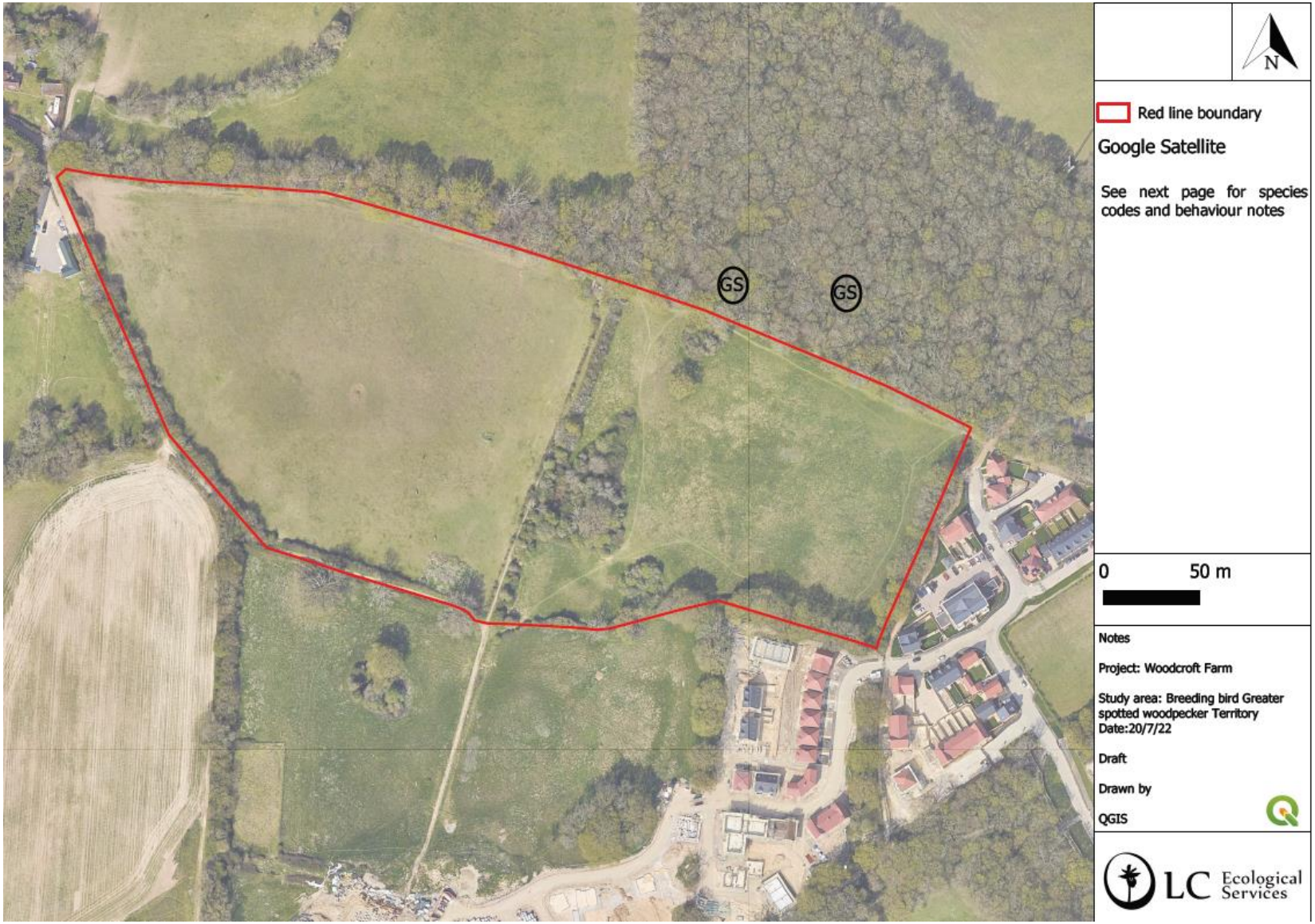
LC Ecological Services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Study area: Breeding bird Greater spotted woodpecker Territory
Date:20/7/22
Draft
Drawn by
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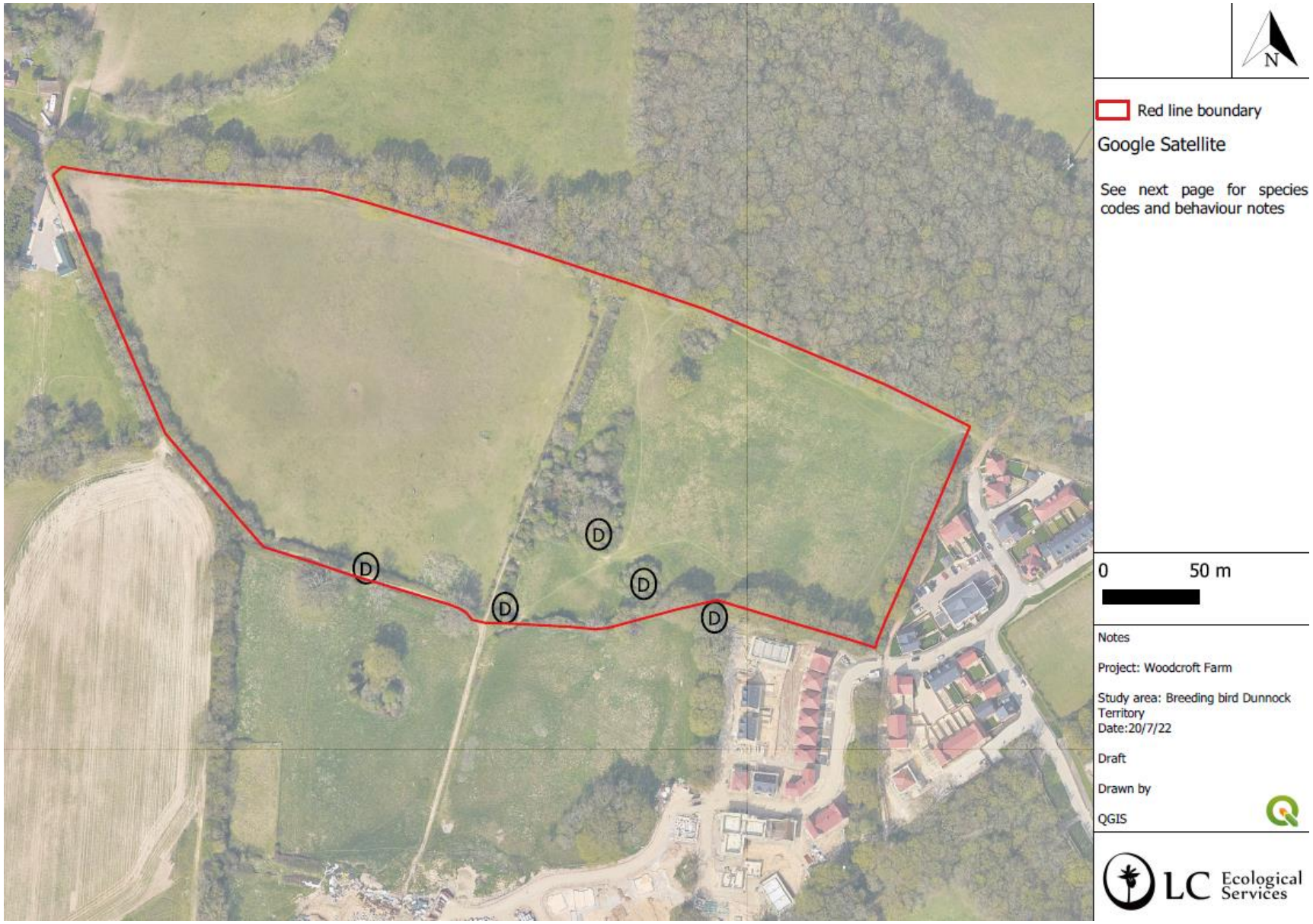
LC Ecological Services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See next page for species codes and behaviour notes
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Project: Woodcroft Farm
Study area: Breeding bird Dunnock Territory
Date:20/7/22
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Google Satellite
See next page for species codes and behaviour notes
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Notes
Project: Woodcroft Farm
Study area: Breeding bird Song Thrush Territory
Date:20/7/22
Draft
Drawn by
QGIS
LC Ecological Services
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APPENDIX XI: GREAT CRESTED NEWT POND LOCATION MAP AND EDNA RESULTS

SureScreen Scientifics

Folio No: E13603
Report No: 1
Purchase Order: PO2022WC
Client: LINDSAY CARRINGTON ECOLOGICAL SERVICES
Contact: Jenny Sutch

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 16/05/2022
Date Reported: 24/05/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
0965	WOODCROFT 2	SU 68075 12378	Pass	Pass	Pass	Negative	0
0976	WOODCROFT 1	SU 68162 12361	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Esther Strafford **Approved by:** Jennifer Higginbottom

Forensic Scientists and Consultant Engineers
SureScreen Scientifics Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE
UK Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 08950940

APPENDIX XII: DORMOUSE SURVEY RESULTS MAP

APPENDIX XIII: REPTILE SURVEY RESULTS

Visit	Date	Time	Weather	Species recorded	Area recorded
1	16/9/21	15:50 15:55 16:00 16:05	Clear skies, BF1, dry	1 slow worm 1 slow worm 15 slow worms 2 slow worms	South east North east North east North east
2	19/9/21	13:10	Clear skies, BF1, dry	1 slow worm	North east
3	20/09/21	17:06 17:08 17:09 17:11	Clear skies, BF2, dry	1 slow worm 1 slow worm 1 slow worm 1 slow worm	North east North east North east North east
4	23/9/21	14:17 14:20 14:23 14:24 14:42	Overcast, cloud cover 7/8, BF2, dry but humid.	1 slow worm 2 slow worms 3 slow worms 1 slow worm 1 grass snake	South east North east North east North east Mid north west
5	24/9/21	12:33	Clear skies, BF2, dry	1 slow worm	South east
6	27/9/21	12:35	Clear skies, BF1, dry	None recorded	N/a
7	29/9/21	11:45	Overcast, BF 3, cool 15ºC.	None recorded	N/a

APPENDIX XIV: REPTILE SURVEY RESULTS MAP