



# Ford Oaks Solar and Green Infrastructure Facility Ecological Appraisal

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Client: Taiyo Power & Storage Ltd.

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## Devon Wildlife Checklist for front of Wildlife Report

**A.1 Protected and priority species** (relates to question 13a in the planning application form).

*Species with no suitable habitat present have been omitted from this table.*

<b>Location:</b>	Ford Oaks, East Devon	<b>Grid reference for centre of site:</b>	SY035934	<b>Planning Application number:</b>	Surveys undertaken pre-application
<b>Name of surveyor:</b>	Li-Li Williams	<b>Year that surveys carried out:</b>	2021	<b>Sent to DBRC:</b>	Data will be sent 6 months following submission of report

Species Terrestrial, intertidal, marine	Walkover shows that suitable habitat present and reasonably likely species will be found?	Detailed survey needed to clarify impacts and mitigation ?	Detailed survey carried out and included?	Species Present or Assumed to be present on site <u>Indicated with P or A</u>	Impact on species?	Detailed Conservation Action Statement included?	EPS offence committed? Three tests met?	Grid reference for specific location of species (if required)
Bats (roost)	✓	×						
Bats (flight line/foraging habitat)	✓	✓	✓	P	✓	✓	×	×
Dormice	✓	×						
Otters	✓	✓	✓	×				
Great crested newts	✓	✓	✓	×				
Cirl buntings	×							
Barn owls	✓	×	×	P	×	✓	×	×
Other Schedule 1 birds	×							
Breeding birds	✓	×	×	A	✓	✓	×	×
Reptiles	×							
Native crayfish	×							

Species Terrestrial, intertidal, marine	Walkover shows that suitable habitat present and reasonably likely species will be found?	Detailed survey needed to clarify impacts and mitigation ?	Detailed survey carried out and included?	Species Present or Assumed to be present on site <u>Indicated with P or A</u>	Impact on species?	Detailed Conservation Action Statement included?	EPS offence committed? Three tests met?	Grid reference for specific location of species (if required)
Water voles	×							
Badgers	✓	✓	✓	P	×	×	×	×
Other protected species	×							
Species of principal importance	×							
Devon BAP key species	×							
Invasive species	✓			P: Himalayan Balsam			×	×

## A.2 Designations / important habitats / sites of geological importance (relates to questions 13b&c in the planning application form)

Designation Terrestrial, intertidal, marine	Within site or potential impact. <u>Tick or cross</u>	Name of site / habitat	Conservation Action Statement included in report?	Habitat balance sheet included (showing area of habitats lost, gained and overall net gain)	Relevant organisation consulted & response included in the application?
<b>Statutory designations</b>					
European designations - Special Area of Conservation (SAC), Special Protection Area (SPA) and RAMSAR site or within Greater Horseshoe consultation zone	×		Sufficient information included in order for the LPA to undertake an HRA?		
Site of Special Scientific Interest (SSSIs)	×				
Marine Conservation Zone (MCZ)	×				
Local Nature Reserve (LNR)	×				
<b>Non statutory wildlife designations</b>					

<b>Designation</b> <b>Terrestrial, intertidal, marine</b>	<b>Within site or potential impact.</b> <u>Tick or cross</u>	<b>Name of site / habitat</b>	<b>Conservation Action Statement included in report?</b>	<b>Habitat balance sheet included (showing area of habitats lost, gained and overall net gain)</b>	<b>Relevant organisation consulted &amp; response included in the application?</b>
County Wildlife Site (CWS)	✓	Withybed Copse	✓	✓	N/A
Ancient Woodland	×				
Ancient Trees	×				
Special Verge	×				
UKBAP Priority Habitat	×				
Local Biodiversity Network (mapped by Devon Wildlife Trust / through Green Infrastructure work)	×				
<b>Non statutory geological designations</b>					
County Geological Site (CGS or RIGS)	×				

## Executive Summary

Devon Wildlife Consultants (DWC) was commissioned by Taiyo Power & Storage Ltd. to undertake an Ecological Appraisal of a site located to the south and west of Marsh Green, Devon. Survey methodology during the initial site walkover followed the Phase 1 Survey Handbook (JNCC, 2010) with additional emphasis on searching for protected species and their field signs or identifying habitat which may support protected species. The survey report also considers ecological records obtained from Devon Biodiversity Records Centre (DBRC) and Devon Bat Group (DBG) relating to the site and its surrounding area.

The site comprises improved and species-poor semi-improved cattle pasture and arable fields bound by hedgerows and woodland habitats. A watercourse bisects the site and field drains, ditches and ponds are present across the site. A County Wildlife Site is located adjacent to the survey area. It is proposed to install a solar facility across 29ha and enhance the green infrastructure of the valley across 45ha.

Further ecological surveys have been undertaken including badger; further botanical assessment; great crested newt; potential bat roosting assessment; bat activity and wintering bird surveys. It should be noted that these surveys are valid for two years, after which an updated survey may be required. The site is utilised by commuting/foraging and roosting bats, breeding birds and commuting/foraging badgers. Overall, the botanical diversity of the grassland is limited, with small areas of higher botanical diversity identified across the site.

The proposed solar facility construction works will result primarily in minor loss of low-quality grassland habitats within the footprint of the array feet and access roads. These grassland habitats are considered to be of limited value to badgers, bats, and birds, and overall the scheme will increase their value to species-rich seed mixes, Devon traditional meadows, mosaic of wetland habitats, and beetle and butterfly banks. Habitats which are of higher ecological value will be retained and protected; a net gain of 121% in habitats is predicted. Hedgerow creation and restoration will total 350m. Mitigation and enhancement recommendations have fed into scheme design iteratively from an early project stage, and are designed in line with Building With Nature standards and the guiding principles of the Devon Green Infrastructure Strategy. This includes retention, enhancement and buffering of existing woodland, field trees, hedgerows and riparian habitat.

Construction access roads have been designed to utilise existing gateways and avoid features of ecological value, and construction compliance measures have been provided to mitigate potential effects on protected and notable species during construction. These measures include precautionary supervision and timings. Vegetation clearance will be carried out in September/October under supervision of a licensed ecologist, and all site works will be limited to daylight hours during the bat activity season of April to October (inclusive).

Scheme design includes 45ha of both dedicated ecological mitigation and enhancement areas located across the site and linked by habitat corridor retention and enhancement. Wildflower meadow (8.1ha) will be created in these mitigation areas, and species-rich sheep-grazed pasture will be created around the solar panels. An ecological mitigation area (2.4ha) including woodland planting, rewilding and wet grassland will be created adjacent to a County Wildlife

Site. Mitigation also includes widening of the watercourse corridor through riparian habitat enhancement, wetland grassland creation and installation of leaky dams.

Measures to enhance the site post development are provided to take into account the national biodiversity strategy detailed in the National Planning Policy Framework (NPPF) and Devon Green Infrastructure Strategy to protect and restore priority habitats and species. Schedule 14 of the Environment Act 2021 requires a minimum 10% Biodiversity Net Gain (BNG) to be a condition of planning permission in England. It is anticipated that a net gain of 121% can be achieved through onsite mitigation.



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## **1 Introduction**

### **1.1 Introduction**

Devon Wildlife Consultants (DWC) was commissioned by Taiyo Power & Storage Ltd. to undertake an Ecological Appraisal of land located to the south and west of Marsh Green, Devon centred at National Grid Reference SY 035 934. A location plan of the site is provided in Appendix 1.

The site was surveyed for signs of legally protected habitats or species and to evaluate the wildlife value/potential of the site.

The purpose of the appraisal is to use available background data and results of field surveys to describe and evaluate the ecological resources present within the site. Consideration is also given to any potential impacts of the proposed works to protected sites within a 10km radius of the site.

The appraisal includes an assessment of the potential ecological constraints and opportunities which are likely to result from the development. Mitigation and enhancement proposals across approximately 45ha of land are included together with construction compliance recommendations to ensure the development conforms with relevant policy and legislation. The appraisal follows the steps set out by the mitigation hierarchy: avoid, minimise, restore and compensate.

### **1.2 Background and Consultation**

The site was subject to a preliminary walkover survey on 14<sup>th</sup> April 2021, which was followed by detailed botanical surveys of areas of habitat identified with higher potential value. Further protected species surveys were then undertaken at the site pertaining to badgers, bat activity, roosting bats, wading birds, great crested newt and otter. It should be noted that these surveys are valid for two years, after which an updated survey may be required. The wider survey area totalled approximately 108ha including the periphery of adjoining land.

Consultation with Simon Bates, Green Infrastructure Project Manager, East Devon District Council was undertaken on 2nd February and 28th March 2022 regarding wildlife, proposed mitigation and enhancement and net gain

### **1.3 Development Proposals**

It is understood that it is proposed to install a 30MWp solar and green infrastructure facility within the site, serviced by access tracks to substations and transformer units. It should be noted that the potential array layout forms a smaller proportion (29ha) of the total area of the wider survey area which extends across 74 hectares. The main site excludes woodland, hedgerows, watercourses and other high value habitats.

A single field located approximately 4km west of the main site, adjacent to Exeter Airport, is a peripheral site, to be used as the Reception Compound for construction traffic.

The proposals seek to develop the existing grassland fields into a solar development integrated with enhanced wildlife grassland, riparian and woodland habitats. The hedgerows throughout the site would variably be managed at 3m and 4m heights, as well as being allowed to grow up unmanaged. The grassland beneath the solar arrays panels would be retained as grassland enhanced with local provenance seed mixes and extensively grazed by sheep as part of the ongoing management regime. Areas outside of the fenced paddocks but within the site boundary will be managed variably for ecological enhancement, including meadow creation and rewilding areas.

This report has been prepared as part of the full planning application to be submitted to East Devon District Council. This report and accompanying appendices must be read together with the Design and Access Statement, which details how the facility has been designed following the Guiding Principles of the Devon Green Infrastructure Strategy plus the Landscape and Heritage reports.

## 2 Survey Methodology

### 2.1 Extended Phase 1 Habitat Survey

The Extended Phase 1 Habitat Survey consisted of a walkover assessment of the site using Phase 1 Habitat Survey methodology (JNCC, 2010). This is a standard technique for classifying and mapping British habitats. All areas within the site were surveyed and assessed for indicators of ecological value, including the presence or signs of any protected or rare species. A desk based assessment to identify protected species and habitats present within a 1km radius of the site was also undertaken.

#### 2.1.1 Desk Survey

Searches undertaken for the desk study are summarised in Table 2.1:

Source	Information sought
Devon Biodiversity Records Centre (DBRC)	A standard search area consisting of a 1km radius of the site from a central grid reference was requested from DBRC. Details of statutory and non-statutory sites designated for nature conservation or interest, together with records pertaining to protected species and/or species of conservation concern were obtained.
Devon Bat Group (DBG)	Information pertaining to bat species was requested from DBG for an extended search area radius of 2km from the site. This extended area is to account for the mobile nature of bat species, with particular emphasis on the identification of known roosts for greater horseshoe bats <i>Rhinolophus ferrumequinum</i> .
Magic ( <a href="http://www.magic.gov.uk">www.magic.gov.uk</a> )	Information regarding the presence of statutory designated sites within a 2km radius of the site. The search was extended to 10km for Natura 2000 sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)).
Open source 1:25,000 Ordnance Survey mapping	Any mapped water bodies within a 500m of the site.

**Table 2.1 Summary of Desk Study Search Methodology**

### 2.2 Further Surveys

Further to the PEA, the following further surveys were undertaken, totalling 45 survey visits between April and October, excluding numerous additional visits to deploy and collect remote bat detectors:

Survey	Area	Timing
Badger	Whole site	April 2021
Bat Activity - general	Whole site – moderate/high value habitat	Monthly visits April to October 2021

Survey	Area	Timing
Bat Activity - general	Whole site – low value habitat	Seasonal surveys April, July & September 2021
Bat - Tree roost assessment	Trees	April and August 2021
Botanical	Areas of potential botanical interest	May 2021
Protected Species Survey (bats and barn owls)	Buildings	April 2021
Great Crested Newt eDNA presence/absence	Two ponds	April 2021
Hedgerow assessment	Hedgerows	April 2021
Otter	Watercourses and surrounding habitat	April 2021
Wading bird survey	Whole site	October 2021

**Table 2.2 Further Surveys Undertaken**

It should be noted that these surveys are valid for two years, after which an updated survey may be required.

### 2.2.1 Badger Survey

The survey area and its immediately surrounding habitat was assessed for any indication or signs of badger *Meles meles* presence and/or activity through the identification of badger setts, footprints, hair, tracks and latrines. The site was surveyed for the presence of badger setts. Any setts identified were classified into the following sett types:

Main sett - large number of holes, with signs of recent activity including fresh spoil and well-worn tracks to and from the sett.

Annexe sett - several holes which are close to a main sett and are connected by well-worn paths.

Subsidiary sett - small number of holes not connected to another sett by paths.

Outlier sett - one or two holes with signs of sporadic use.

### 2.2.2 Bat Activity Survey

Habitat suitability for bats determines the number of bat activity surveys recommended to achieve a reasonable survey effort. This site is considered to have a mixture of areas with low, moderate and high suitability for foraging and commuting bats. Four monthly transect routes and an additional three seasonal transect routes were drawn up at the start of the survey season, culminating in 37 transect surveys of the site. The transect routes were identified during daylight hours in order to locate any potential risks associated with the route and to identify points within the site which may be utilised by foraging/commuting bats. The transect routes, with listening points, was continuously walked throughout the survey visits.

Transects were conducted for a period of 2 hours from sunset. Stops were made at identified listening points. These listening points were held for approximately 3 minutes, all bat calls heard by the surveyor were recorded to a Transect point or section of the route and an average number of bats passes per minute were calculated for each point or section of the route. Weather conditions were recorded at the start and end of each survey with any unexpected weather that could have an impact on bat activity also recorded. All bat activity was recorded using a Peersonic RPA bat detectors. To aid species identification all recordings were analysed Kaleidoscope computer software.

In addition, nine remote detectors were deployed each month. These were deployed for a minimum of 5 consecutive nights. Once the remote detectors had been retrieved following the survey, data was downloaded and converted into the appropriate file format (i.e. from .wac to .wav). All files were then analysed using automated species identification software (Kaleidoscope-Pro) and verified manually. In order to standardize the data, a bat activity index was calculated using the number of bat passes per night, where a 'bat pass' is defined as a sequence of two or more bat calls. An average of passes per night for each species was calculated from this data.

### **2.2.3 Bat Roost Survey**

#### *Building Assessment*

A Protected Species Survey was undertaken on the interior and exterior of four barns that lie within the wider survey area. Two of these barns lie within or adjacent to the current redline boundary, in fields D2 and D17. The exteriors of the buildings were searched visually for field evidence of bats with particular attention being paid to sheltered areas such as window ledges and pipes where bat droppings might lie undisturbed from the weather. The interiors were inspected where possible for droppings, insect prey remains, urine staining and/or actual bats.

The buildings were also inspected for the presence of barn owls and nesting birds or their field signs such as whitewash, droppings, pellets and/or nest debris.

#### *Tree Roost Assessment*

All trees present within the site were subject to a preliminary ground level roost assessment to confirm suitability for roosting bats based on the Bat Survey Guidelines (BCT, 2016). Trees were searched for potential roost features such as rot holes, splits and cavities. Each tree is categorised into negligible, low, moderate and high suitability for bat roosting potential.

### **2.2.4 Wading Bird Survey**

The Wading Bird Survey comprised a single visit undertaken on the morning of 26<sup>th</sup> October 2022. Two surveyors walked a transect route for a period of four hours each and passed within close proximity of all suitable riparian and grassland present within the site. All bird species heard/observed within the site and their associated behavior was recorded, with a particular focus on wading birds and waterfowl.

### 2.2.5 Great Crested Newt eDNA

An eDNA assessment was carried out by an experienced ecologist acting as an accredited agent under a Natural England GCN survey licence. Water samples were collected from two ponds on 19<sup>th</sup> April 2021 and were analysed by Surescreen Scientifics using eDNA testing to determine presence/absence.

A positive result indicates GCN are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days). A negative result indicates that DNA from GCN has not been detected in the sample.

### 2.3 Limitations

It is possible that some species may have been overlooked in the field or were not recorded because they were not evident at the time of survey. No account can be taken for the presence or absence of a species on any particular day. However, the habitats present have been used to assess the potential for associated flora and fauna, and numerous site visits have been undertaken across the survey season.

It is not possible to distinguish between the calls of different bat species of the genera *Plecotus*, and is often difficult to determine different species of *Myotis* either in the field or during analysis. As such these species were identified to genus level and not species, unless key visual identification features were noted within the field therefore confirming a specific identification.

The detection rate of bats varies between species due to differences in the intensity, frequency and amplitude of their echolocation calls. Therefore, it is not possible to compare activity levels between species.

The additional Devon County Council land in the north and west of the site was added at a later stage and therefore has not been subject to a full Bat Activity Survey across the 2021 season. However, given the low habitat value of the fields and the retention of hedgerows and trees, it is considered that potential impacts are limited.

On several occasions cattle damaged recording equipment in the field. This resulted in some of the remote detectors recording for fewer than 5 consecutive nights. Redeployments occurred if a remote detector recorded for fewer than 3 nights.

The presence of cattle also limited access to fields for transect surveys, resulting in modification of transect routes. However, liaison with the landowner over cattle rotation patterns allowed the modified transect routes to be planned in order to provide a more even survey effort across the site. .

### 2.4 Personnel

The site was surveyed on 14<sup>th</sup> April 2021 by Li-Li Williams MEnvSci (Hons) MCIEEM, Alexander Parr MRes., and Kitty Straghan BSc. (Hons) MCIEEM. Further surveys were undertaken by Li-Li Williams MEnvSci (Hons) MCIEEM, Alexander Parr MRes., Kitty Straghan BSc. (Hons) MCIEEM, Carly Ireland MSc MCIEEM, Daniel Hooper BSc (Hons)



and James Woodin BSc (Hons). Building and bat roost surveys were undertaken by licensed ecologists or accredited agents under Natural England Class Bat Licence Registration Number 2017-27979-CLS-CLS and Barn Owl Licence Registration Number CL29/00350. DWC staff are professional ecologists and follow the code of conduct of the Chartered Institute of Ecology and Environmental Management (CIEEM). This survey work has been undertaken following the CIEEM Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013).

### 3 Survey Results

Desk study data provided by DBRC pertaining to designated sites is presented in Appendix 1. Full desk study data from DBRC and DBG can be provided on request. All relevant legislation is provided in Appendix 2. Raw survey data is included in Appendix 3.

#### 3.1 Designated Sites

There are three non-statutory sites located adjacent to the survey area. The proposed development has the potential to impact on Withybed Copse CWS and will therefore need to be considered further.

Site	Description	Distance from the survey area
Withybed Copse County Wildlife Site (CWS)	1ha of semi-natural woodland	Adjacent to site
Scarlet Copse Unconfirmed Wildlife Site (UWS)	Secondary woodland	690m
Rockbeare House Unconfirmed Wildlife Site (UWS)	Parkland	390m

**Table 3.1 Designated sites**

Although the site falls within both the Exe Estuary Special Protection Area (SPA) and East Devon Pebblebed Heath SPA contribution zones, no habitat management contribution will be required as the proposed development is not residential and therefore considered not to result in an increase in recreational footfall.

#### 3.2 Habitats

A full list of species recorded during the site survey is presented in Appendix 3.

The site is set within an agricultural landscape comprising pasture and crop fields bound by hedgebanks and hedgerows including numerous mature trees. The main solar and green infrastructure development site forms part of Marsh Green Farm, New Ford Farm (County Farm) and two fields of a third farm which are all located just to the south and west of Marsh Green Village.

The survey area mostly comprises species-poor semi-improved grassland, with two pasture and arable rotation fields also present. The pasture comprises grassland dominated by Yorkshire fog *Holcus lanatus*, common bent *Agrostis capillaris*, perennial rye grass *Lolium perenne*, yarrow *Achillea millefolium*, white clover *Trifolium repens* and meadow foxtail *Alopecurus pratensis*. Dandelion *Taraxacum* spp., broad-leaved dock *Rumex obtusifolius* and lesser celandine *Ficaria*

*verna* were also abundant within the sward. Occasionally, species such as nettle *Urtica dioica*, common sorrel *Rumex acetosa*, soft rush *Juncus effusus* and spear thistle *Cirsium vulgare* were recorded. Rarely cuckoo flower *Cardamine pratensis*, primrose *Primula vulgaris*, dogs mercury *Mercurialis perennis* and garlic mustard *Alliaria petiolata* were recorded.

The botanical diversity of the fields increased towards the field boundaries, particularly in the southern extent of field D2. The grass was at a height between 5 and 10cm throughout all fields and grazed on rotation during the summer. Several of the fields support veteran ash *Fraxinus excelsior* and oak *Quercus robur* trees.

Several of the fields support small farm ponds. There are eight such ponds within the survey area. These all possess poor botanical and structural diversity, being heavily shaded with poached margins and poor water quality.

Two pasture/arable rotation fields are also present, one of which has been ploughed and sown with maize crops. The other has been ploughed and sown as a perennial rye grass and white clover ley. There are no arable field margins present.

Hedgebanks form the majority of the site boundaries. These species-rich hedges are approximately 1.5 metres high and are of the Devon redlands elm hedge type. These hedges are dominated by hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, oak *Quercus robur*, ash *Fraxinus excelsior*, holly *Ilex aquifolium*, English elm *Ulmus procera*, hazel *Corylus avellana*, and elder *Sambucus nigra*.

An unnamed tributary of the River Clyst flows from east to west across the site, given the name “Ford Stream” throughout the application. For the entirety of its course through the site the stream is less than 3m in width and less than 50cm deep. Ford Stream is in poor condition along the majority of its length with poor water quality and heavily poached by livestock species poor banks with sporadic growth of hemlock water dropwort *Oenanthe crocata*, water pepper *Persicaria hydropiper*, Fools watercress *Apium nodiflorum*. Stream quality improves towards the east of the site with increased marginal vegetation including greater pond sedge *Carex riparia*, brooklime *Veronica beccabunga*.

Hedgerows, ponds and rivers are Habitats of Principal Importance under the NERC Act (2006).

### 3.2.1 Hedgerows

The hedgerows/banks present are mature and support a diversity of species and are therefore considered likely to be classified as important under the wildlife and landscape criteria of the Hedgerow Regulations (1997).

### 3.2.2 Invasive Plant Species

Himalayan balsam *Impatiens glandulifera* was identified along the river banks within the survey area. Montbretia *Crocasmia x crocosmiiflora* was identified in residential gardens adjacent to the survey area.

### 3.3 Species

#### 3.3.1 Badgers

A range of badger *Meles meles* activity was identified within the survey area, comprising a large, active main sett. This sett now lies outside of the redline boundary of the proposed site. No further setts were identified, with the exception of a defunct single-holed outlier sett on the boundary of a copse to the south. Due to the rural landscape of the site it is likely that the badger population commutes and forages within the wider survey area; a number of mammal tracks were recorded across the site, and badgers were incidentally observed commuting to the watercourse. DBRC have identified records of badgers from within a 1km radius of the survey area.

#### 3.3.2 Bats

##### 3.3.2.1 Roosting Bats

A number of mature and standing dead trees were located within the site which may provide roosting opportunities for bat species. These trees were identified with low/moderate roosting potential. Further details relating to their potential roosting features are provided in Appendix 3.

##### 3.3.2.2 Bat Activity

Total bat activity on site was observed to be of moderate levels. Nine species of bat were identified during the surveys as using the site as well as individuals from the genera *Myotis* and *Plecotus* which could not be identified to species level. However, over 90% of the data pertains to only three species.

The majority of bat species followed a standard distribution across the survey season with peaks in activity occurring in July and August. High autumn activity was associated with noctule *Nyctalus noctula* and serotine *Eptesicus serotinus*, indicating that survey area supports autumn swarming activity for these species.

Common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* made up the majority of the bat data collected. Common pipistrelle was the species making up 52% of calls identified on site during transect surveys and 57% of the bats identified during the remote detector survey, while soprano pipistrelle made up 25% of the transect survey bat activity and 19% of the bats recorded on remote detectors.

Myotids comprised 4.6% of the calls from the bat activity and 15% of the remote detector calls. Serotine made up 17% of bat calls recorded from the transect survey and 2.9% of the remote detector calls. The difference between these two surveys is associated with one activity survey in August where 186 serotine passes were observed, mostly relating to one area. Noctule made up 2.2% of the bat activity calls and 1.4% of the remote detector activity.

Low levels of Leisler's bat *Nyctalus leisleri*, long-eared bat *Plecotus* sp, and Nathusius' pipistrelle *Pipistrellus nathusii* were identified during the surveys. These all made up less than 1% of the data in both the surveys. Maps showing the distribution of species, including and excluding pipistrelle species, recorded at each remote detector deployment for each season are presented in Appendix 4 (DWC Drawing Number 21/3754.01-04 – 21/3754.01-09) as well as tables and graphs displaying average activity for each species per month from both the remote detector deployments and activity surveys.

Common pipistrelles used the entirety of the site. This was usually at a low level, the activity survey averaged 0.29 passes per minute while the remote detector survey averaged 116 passes per night. A localised peak of this species was observed along the western edge of G4 during both the activity surveys and the remote detector survey. 1.89 passes per minute along this boundary for the activity survey and an average of 639 passes per night recorded on the remote detector. Another localised peak of common pipistrelle activity was identified during the remote detector deployment between fields D14 and D15 in August from which an average of 1037 passes per night was recorded. A heat map displaying common pipistrelle activity across the site is presented in Appendix 4 (DWC Drawing Number 21/3754.01-10).

During activity surveys, soprano pipistrelles averaged 0.12 passes per minute while Myotis averaged 0.02 passes per minute. Both these species were localised in their distribution. The soprano pipistrelles were most frequently observed foraging along or nearby drovers' tracks as well as around some of the ponds. Myotis were more frequently observed in association with wetter habitats such as ditches and the more species-rich grassland areas. A heat map displaying soprano pipistrelle and Myotis activity across the site is presented in Appendix 4 (DWC Drawing Number 21/3754.01-11– 21/3754.01-12).

Serotine activity averaged 0.07 passes per minute across the transect surveys. An August peak was observed with the average of 0.35 passes per minute being recorded during this month. September activity recorded from remote detectors was also higher than in other months. During the August activity survey for the most easterly transect, large numbers of serotine were observed in the area bordering Withybed Copse CWS. This peak of activity at this time of year suggests that this is associated with the dispersal of a nearby serotine maternity roost. A heat map displaying serotine activity across the site is presented in Appendix 4 (DWC Drawing Number 21/3754.01-13).

Noctule activity was recorded at low levels across the site, with a peak of recording occurring 15 minutes after sunset. Noctules made up 2.2% of the calls and most of the activity is associated with commuting behaviour. A peak of noctule activity was observed in October remote detector data. This was likely to be associated with a swarming event at the edge of Withybed Copse CWS. A heat map displaying noctule activity across the site is presented in Appendix 4 (DWC Drawing Number 21/3754.01-14).

#### *Annex II Bat species*

Low levels of lesser horseshoe bat *Rhinolophus hipposideros*, greater horseshoe bat *Rhinolophus ferrumequinum* and barbastelle *Barbastella barbastellus* were recorded during the survey period.

Lesser horseshoe bat activity peaked in May, where three individuals were identified during the transect surveys, and the remote detectors detected 3.30 bat passes per night. Overall lesser horseshoe bat activity was low with an average of 0.74 bat passes per night. Lesser horseshoe bats were observed throughout the site with a peak of activity associated with the parish boundary lane in the south.

Greater horseshoe bats and barbastelles were recorded in low levels throughout the season. Greater horseshoe bat activity was most frequently associated with the centre of the site. Barbastelle activity was mostly confined to the edges of the site particularly the southeast of the site bordering the Withybed Copse CWS and the northwest woodland copse.

#### *Summary*

The surveys identified a moderate level of bat activity from a range of species. The site appears to have a moderate value to local common pipistrelle, soprano pipistrelle and Myotis populations.

The site is of higher importance to local serotine and noctule populations due to the observance of maternity roost dispersal and swarming events for these two species.

The three Annex II species were observed in low numbers during the survey period. It is thought that these species occasionally use the site to commute through the wider landscape.

### **3.3.3 Birds**

The extensive areas of hedgerows, woodland and dense scrub within the survey area are considered likely to support a diverse assemblage of nesting bird species. However, these habitats will be retained and buffered.

#### **3.3.3.1 Ground-nesting Birds**

The dense sward of the grassland is considered to have potential to support ground-nesting birds, with skylark recorded in a number of fields during the survey visits. However, nesting distribution was observed to be affected by cattle rotation.

#### **3.3.3.2 Barn Owls**

The dilapidated barn in the south of the site (Field D2) is suitable for roosting barn owls, with a low number of pellets and associated droppings recorded, indicating the barn is in use as an occasional feeding perch/night roost. No evidence of nesting was recorded. The barn has been removed from the redline boundary, although lies adjacent.

#### **3.3.3.3 Wintering Birds**

No birds associated with the Exe Estuary have been recorded within the survey area. A single common sandpiper *Actitis hypoleucos* and a single green sandpiper *Tringa ochropus* were observed foraging along the riverbank during late September. It is considered that the poached edges of the stream provide a foraging area for these species while on passage.

#### **3.3.4 Dormice**

DBRC hold records of dormice *Muscardinus avellanarius* within a 1km radius of the site. The hedgerows on site represent a habitat with high potential to support dormice, particularly as they are dense and species-rich, and would therefore provide shelter, nesting habitat and a supply of food items throughout the year. Furthermore, the hedgerows are well connected to additional woodland habitat in the surrounding landscape which is suitable for dormice.

#### **3.3.5 Great Crested Newts**

The site is located within a Devon Great Crested Newt Consultation Zone; this is a 5km buffer around historical records of great crested newt *Triturus cristatus*. If a site is located within this zone, the potential presence of great crested newts must be considered.

Great crested newts typically travel up to 500m from a breeding pond and spend the majority of their lifecycle in terrestrial habitats; therefore, if a site has suitable terrestrial habitat even if it does not support ponds or ditches it may be used by great crested newts.

There are eight ponds located within the survey area. The site is considered to have potential to be used by great crested newts as it supports grassland, scrub, hedgerows, and woodland.

eDNA sampling undertaken for an adjacent application site in 2020 returned a negative result for five ponds. Of the remaining three ponds, one pond was found to be dry at the time of the 2021 survey. Water samples were collected from the remaining two ponds in 2021 and also returned a negative result. Therefore, great crested newts will not be considered further in this report.

#### **3.3.6 Otters**

Otters use a variety of riparian habitats to commute through the landscape and it is likely that they will on occasion utilise the watercourse present within the site, however no potential otter holts or resting locations were identified during the survey.

#### **3.3.7 Reptiles**

The hedgebanks may provide shelter and dispersal corridors for reptiles, with rabbit burrows and tree roots providing suitable hibernation sites. However, the improved grassland and arable habitats are considered unlikely to support reptiles, other than basking in open areas on occasion.

#### **3.3.8 Other Species**

The improved grassland and arable habitats are considered to be of limited value for invertebrate assemblages. Habitats of value such as the watercourse, hedgebanks and woodland are to be retained and enhanced.

#### **3.3.9 Additional Species**

DBRC have identified records of hedgehogs within a 1km radius of the site. The hedgebanks and grassland habitat present within the site provide suitable habitat for this species.



## 4 Recommendations and Mitigation

The following recommendations are based on current UK wildlife legislation and national and local planning policy. The recommendations must be followed to ensure this legislation is not contravened by the proposed development or any site investigation or vegetation clearance works.

### 4.1 Further Survey

No further ecological surveys are required prior to the submission of the planning application.

### 4.2 Further Planning Requirements

The following aspects will require further action during or following the planning process:

Receptor	Area	Timing	Requirement
Withybed Copse County Wildlife Site	Semi-natural woodland	Design and construction	Habitat compensation to be agreed with Local Planning Authority and incorporated into site design.
Badger	Whole site	Two months prior to construction	Pre-construction survey to assess the level of usage of the site and any licensing requirements

**Table 4.2 Further Planning Requirements**

### 4.3 Construction Compliance Measures

In the absence of mitigation, potential construction impacts include:

Risk of pollution or runoff affecting sensitive habitat receptors. There is potential for the stream to act as a pathway for any pollutants or sedimentation.

Risk of direct impacts to protected species such as nesting birds, roosting bats and dormice.

Temporary loss of hedgerow habitat to widen existing gateways for construction access purposes.

Loss and disturbance of species-poor semi-improved grassland during construction of the arrays and associated fencing and access roads.

It should be noted that in the first instance these potential impacts have been avoided or minimised through site layout and construction access design, for example designing access routes to avoid hedgerow removal and work within tree root protection areas.

The table below therefore details design and construction compliance requirements, based on current UK wildlife legislation and national and local planning policy. These recommendations must be followed to ensure the legislation is not contravened by the proposed development,

including any site investigation or vegetation clearance works. Recommendations are presented in Table 4.1.

Feature	Recommendations
Habitat receptors including watercourse and CWS	Work to be undertaken in line with current best practice guidance on pollution and runoff control to avoid the risk of impacts, in particular for any work within 10m of the watercourse.
Badger	<p>Undertake a walkover survey of the finalised route prior to commencement of excavations to assess current badger activity associated with the route. Construction zone is outside the 30m buffer zone.</p> <p>A sloping plank should be left in any excavations deeper than 1m which are to remain open overnight, to avoid trapping any badgers that may access the excavation. Alternatively excavations should be covered or fenced overnight.</p>
Trees with bat roost potential	Precautionary supervision of any crown-lifting works to trees with low bat roost potential.
Nesting birds	The removal of any vegetation suitable for nesting birds should be undertaken outside of the main bird nesting season of March to August (inclusive). This would minimise the risk of potential delays to site clearance works. It should be noted that nesting may extend outside this period; this is often dependent on weather conditions and species.
Barn owl	Protection of retained barn through fixed fencing and signage.
Dormouse	Minimal clearance works of hedge will be undertaken utilising a precautionary methodology that protects dormice. Vegetation clearance will be carried out in September/October under supervision of a licensed ecologist.
Otter	A sloping plank should be left in any excavations deeper than 1m which are to remain open overnight, to avoid trapping any otters that may access the excavation. Alternatively excavations should be covered or fenced overnight.
Reptiles	Grassland to remain under its current management to ensure it stays unsuitable for reptiles. Careful strimming of grass margins in suitable weather conditions between April and September, utilising a methodology which protects any reptiles which may be present.

**Table 4.1 Summary of Construction Compliance**

#### 4.3.1 Woodland, Hedgerows & Riparian habitats

All woodland, hedgerows and riparian habitat will be retained, buffered and enhanced as part of the proposed works. This will ensure that there are no direct impacts from the scheme to populations of dormice, otters and roosting/commuting/foraging bats which may have been confirmed to utilise these features.

No lighting will be required within the site following completion of the proposed solar array. During the construction phase of the development all site works will be limited to daylight hours, at least 15 minutes after sunrise and no later than 15 minutes before sunset, thus ensuring that there will be no requirement for artificial lighting. This will eliminate any potential for light spillage into woodland, hedgerow and riparian habitats which have the potential to be utilised by a range of protected species. These restrictions are to be applied during the bat activity season which is from April to October (inclusive).

#### 4.3.2 Badger

A minimum 30m buffer zone has been created between the identified main sett and the perimeter fencing of the solar array. The proposed piling of solar array legs is therefore considered unlikely to cause disturbance or damage through direct impacts or ground vibrations. A construction method statement will be produced, detailing working methodology in proximity to the sett, including minimising the duration of works in that area.

As a precautionary measure, a sloping plank or ramp will be left in any excavations deeper than 1m which are to remain open overnight, to avoid trapping any badgers that may access the excavation. Alternatively, excavations will be covered or fenced overnight.

#### 4.3.3 Bats

Lighting of the site during the construction phase of the development has the potential to affect commuting/foraging bats should additional illumination affect the existing semi-natural features which have been identified as being utilised by this species.

In order to ensure that there are no adverse impacts associated with the construction phase of the development, where possible all site works will be limited to daylight hours between the months of April and October, at least 15 minutes after sunrise and no later than 15 minutes before sunset. Approximate times are provided in Table 4.2. If any specific lighting is required e.g. for the site compound, this should be minimised and directed away from the boundary features by use of location and shielding.

Month	Sunrise	Sunset
April	06:00	20:00
May	05:00	20:45
June	04:30	21:30
July	05:00	21:15

August	05:45	20:30
September	06:30	19:00
October	07:20	18:00

**Table 4.2 Approximate sunrise and sunset times for each month of the year (values are based on mid-monthly sunrise and sunset times)**

#### 4.3.4 Birds

The removal of any vegetation suitable for nesting birds, including ground-nesting birds, should be undertaken outside of the main bird nesting season of March to August (inclusive). It should be noted that nesting may extend outside this period; this is often dependent on weather conditions and species. When programming the works, it may be advisory to undertake vegetation clearance in advance of any other works, in order to avoid the nesting bird season. This would minimise the risk of potential delays to the works programme.

If such works cannot be undertaken outside of the nesting season, a nesting bird check should be undertaken by an ecologist immediately prior to the vegetation removal works. The construction schedule should allow for potential delays in this case as any active nests must remain undisturbed until all the young have fledged naturally, which may take several months.

#### 4.3.5 Dormouse

As a precautionary measure it is recommended that the limited gateway widening works are undertaken outside of the sensitive dormouse breeding and hibernation periods (and nesting bird season). Vegetation will therefore be removed in September/October. Alternatively, vegetation can be cut to 300mm in height over winter (November to March) and the stumps and roots can be removed in May. Removal will be undertaken following a hand search by a licensed ecologist, with vegetation removal undertaken incrementally and using hand tools (chainsaw/brushcutters).

#### 4.3.6 Otter

As a precautionary measure, a sloping plank should be left in any excavations deeper than 1m, which are to remain open overnight, to avoid trapping any otters that may potentially access the excavation. Construction works within 100m of the watercourse must not take place at night as this is likely to unduly disturb any foraging/dispersing otters.

#### 4.3.7 Reptiles

It is considered that reptiles may utilise the boundary features of the site to disperse through the landscape. These boundaries will be retained and protected during construction. However, margins of fields have the potential to support low number of reptiles which are likely to be utilised infrequently.

In order to protect the low number of reptiles which may be present, prior to construction vegetation around the field margins will be carefully and directionally strimmed to ground level to enable any reptiles present to relocate into an area of safety. These works will be undertaken

during periods of warm, sunny weather from April to September (inclusive) under supervision of an ecologist.

#### **4.3.8 Invasive Plant Species**

The client must ensure that the invasive plant species Himalayan balsam is not caused to spread either within or beyond the site for example during panel installation or vehicle movements. It would be preferable to eradicate this species from the site.

### **4.4 Habitat Mitigation and Enhancement**

Habitat creation and enhancement measures are outlined below, with full proposed habitat creation and management plan prescriptions for the 45ha of the site outside of the solar arrays are presented in Appendix 7. All new and retained habitats will be managed in perpetuity for the benefit of biodiversity and incorporated into a Landscape and Ecological Management Plan for the scheme, including replacement of any planting which fails within the first 12 months after completion, in addition to provisions for monitoring and reporting of the landscaping creation and associated habitat condition assessments.

It should be noted that the scheme will be designed in line with the Building with Nature Standards, through integrated green infrastructure design. In order to gain a full award, a post-construction assessment will be undertaken by Building with Nature auditors to ensure that the scheme has been constructed in line with the design proposals for green infrastructure.

#### **4.4.1 Retention of Existing Habitats**

The identified habitats of interest, including hedgebanks, mature trees, woodland and watercourse will be excluded from the scheme layout and subject to buffering and enhancement. Areas of botanical interest have been excluded from the scheme layout and included in the mitigation and enhancement zones following the results of the botanical surveys.

#### **4.4.2 Creation & Enhancement**

Habitat retention, creation and enhancement measures are designed to increase the extent and quality of habitat on key corridors within and through the site. These measures will strengthen habitat connectivity through the site, including creation of buffer zones. This will include native wildflower seeding/green hay from a donor site and alteration of grassland management to extend and enhance priority habitat. Planting of native hedge and scrub species will aim to extend the habitat mosaic and enhance habitat value for a range of species including bats and bird species.

The watercourse corridor is considered to be a key component of the mitigation approach; a continuous wide corridor of habitat creation and enhancement will be created along the river corridor, extending and linking valuable habitats as an ecological network. Open riparian habitats will be retained as part of the mosaic, but with a wider buffer zone than at present.

#### 4.4.2.1 Assessment of Soil Fertility

It is understood that the main fields have no agricultural inputs, but are subject to fertilisation from cattle dung. The soil was not a coarse sand texture and hence has the potential to be fertile. The botanical survey findings indicate that fields have only been partially modified through artificial fertilisation. This indicates that soil fertility levels can be reduced through annual cutting to establish the required habitat outcomes.

#### 4.4.3 Woodland

No woodland will be affected by the works. A new area of woodland will be created within the ecological mitigation area D13b, this is a narrow field bordering the Withybed Copse CWS. The area will be planted with a low density of tree species associated with open conditions to mimic an early successional woodland. The species list includes but is not restricted to, silver birch *Betula pendula*, alder *Alnus glutinosa*, hawthorn *Crataegus monogyna*, oak *Quercus robur*, and hazel *Corylus avellana*. Management will encourage natural succession of ground, scrub and field layer from the adjacent hedgerows and CWS. This will result in the creation of 0.2Ha of woodland.

In the biodiversity Defra Metric 3.0 this habitat will be considered as ‘other lowland mixed deciduous woodland’ due to the human influence in its creation. It is considered that this woodland will be in moderate condition.

#### 4.4.4 Grassland

The majority of grassland will be retained on site, with a small area of grassland lost due to woodland creation and within the footprint of the solar array footings and access infrastructure. Modification of grassland structure is likely due to the shading impact of the arrays. Grasslands retained on site will be enhanced to improve species diversity and structure. Localised areas of the fields will be sown with native wildflower seed and tussocky grass seeds. The grassland will be managed through low density sheep grazing on rotation. This will result in a varied sward height which will provide a greater number of niches for specialist plant species and invertebrates.

Fields margin corners and areas of grassland outside of the setting out areas will be cut on a three-year rotational system. Such a system will ensure tussocky hibernation areas for invertebrates are retained over winter. All grass cuttings will be removed and used to create habitat piles. The creation of these field margins is likely to enhance the quality of the grasslands they surround considerably by providing hibernation sites and connectivity throughout the site.

Within Biodiversity Metric 3.0 these fields are considered to be other neutral grassland. The management aim will be to achieve *Lolium-Cynosurus* neutral grassland beneath the solar, and to achieve an *Arrhenatherum* neutral grassland along the field margins. Due to variety of the sward heights created from light sheep grazing and rotational cutting and the increased species diversity from oversowing it is considered likely that these grasslands will be considered in good condition.



Three fields adjacent to the watercourse will be sown and managed as wildflower meadows. Management will consist of allowing the grassland to remain uncut from April until late August thereby allowing floral species to flower and set seed. All grass cuttings will be removed from the site after any cut. If it is necessary to remove the existing grassland to facilitate site works, new seeding will be undertaken without incorporating topsoil into the site as this will encourage competitive grassland species and reduce the diversity of flowers within the site.

Within Biodiversity Metric 3.0 these fields will be considered to be Lowland meadow, with the aim being to achieve a near natural sward composition. With the management of the grassland it is expected that these grasslands will be in good condition..

#### **4.4.5 Hedgebanks**

A total of 43m of hedgerow will be impacted by widening of existing gateways to facilitate construction access. One defunct hedgebank will be restored to mitigate for minimal loss of habitat connectivity associated with the site entrances and to ensure there is no net loss of this Habitat of Principal Importance. The remaining mature hedgebanks around the boundaries of the site will be retained and managed in order to retain connectivity for a range of species, including hedgerow creation in D14 and DC02 for screening reasons. Hedgerow creation and restoration will total 350m.

New planting of hedgebanks will be undertaken as soon as is practicable. This will not be left until after development works are complete as it is imperative that there is no net loss to habitat within the site and that any dormouse population does not become isolated from the surrounding landscape.

Management of native hedgebanks will be restricted to cutting no more than one third per year, timed during late winter, enabling birds and mammals to forage berries and nuts throughout the winter months, and avoiding the bird nesting season. The hedgerows throughout the site would variably be managed at 3m and 4m heights, as well as being allowed to grow up unmanaged.

#### **4.4.6 Trees**

Existing mature trees will be retained, buffered and managed to promote longevity. Individual trees will be allowed to grow tall in the new and existing hedgerows, providing additional future habitat for foraging and nesting birds and roosting bats.

#### **4.4.7 Ponds**

Selected shrub removal and crown lifting will be undertaken on scrub adjacent to existing ponds on site. In combination with the reduction in grazing pressure, this will increase the water quality and botanical diversity of these small waterbodies.

#### **4.4.8 Watercourse**

The watercourse will not be directly impacted by the works. Leaky dams will be installed along the length of Ford Stream and an in-field drainage ditch in Field D11. These will hold water within the channel for a longer period of the year which will encourage marginal vegetation to establish on the stream banks.



In addition, a 5m buffer of tussocky grassland will be established along the northern boundaries of the watercourse, reducing water runoff and pollution entering the watercourse. Small scrapes will be dug in areas nearby the stream in Fields D9, G4 and DC03 to hold excess flood water, and management of habitat in G4 will allow marginal vegetation to expand and be buffered by meadow grassland.

#### 4.4.9 Habitat Piles

Any brush, log or grass arisings resulting from vegetation management will be utilised to create habitat piles, providing potential habitat and over-wintering sites for invertebrates, amphibians, reptiles and small mammals. Seven habitat piles of approximately 1m<sup>3</sup> in size will be located within relatively undisturbed locations at the edge of the wildflower meadow.

#### 4.5 Biodiversity Net Gain (BNG)

Schedule 14 of Environment Act will require a 10% Biodiversity Net Gain (BNG) as a condition of planning permission in England. Onsite baseline habitats and their condition were assessed as part of the Preliminary Ecological Appraisal, for the purposes of BNG assessment.

Preliminary calculations have been made using the Defra metric 3.0 to ascertain whether the proposed development is likely to result in a net gain for biodiversity. The headline indicative BNG results are summarised in Table 4.5.

Habitat Units	Baseline units (prior to development)	Post development units	Post development gain/loss%	Off-site area required to achieve net gain (Yes/No)
Habitat	294.08	651.51	+121.54%	No
Hedgerow	190.8	195.52	+2.48%	No

**Table 4.3 Summary table for Biodiversity Net Gain Assessment**

The full metric calculations will be provided in a supporting document alongside the current report.

The development proposals are currently likely to result in a net gain in biodiversity on the site, with a significant gain in habitat units. No off-site compensation will be required to achieve a net gain in biodiversity post-development.

#### **4.6 Building with Nature**

The Building with Nature benchmark has been developed to support delivery of high-quality green infrastructure and draws together policy and practice guidance related to health and wellbeing, sustainable water management, and biodiversity. The benchmark is designed to support green infrastructure in projects of all sizes and types; Ford Oaks would be the first solar scheme to gain accreditation, and is in a strong position due to the design and integration of community features, public footpaths, landscaping and strong biodiversity connections along the watercourse, field boundaries and lanes. A BwN Award would provide the scheme with formal recognition of meeting the BwN Standards, an external verification of quality in the design and delivery of high-quality green infrastructure.

## 5 Assessment of Impact

### 5.1 Statutory Designated Sites

Due to the sensitivity of the Exe Estuary SPA to increased recreational activity within the area, particularly in association with new housing developments, a number of statutory bodies and Local Planning Authorities (LPA), including East Devon District Council and Natural England, have deemed it necessary for any development within a 10km radius of the SPA to mitigate for this impact. However, no mitigation payment is required for the proposed scheme, as is not a residential or recreational development and will therefore have no associated recreational impact. No other potential pathways or impacts upon these sites has been identified.

The works are considered likely to have a **Neutral impact**.

### 5.2 County Wildlife Site

The site lies adjacent to Withybed Copse County Wildlife Site. A dedicated 2.4ha area of habitat mosaic will be created in this area to buffer, protect and enhance the CWS. The works are therefore considered likely to have a **Neutral impact**.

### 5.3 Exeter Airport Bird Hazard

Habitat retention, creation and management as detailed in Section 4.4 has been designed to minimise risk of attracting higher risk bird species such as large waterfowl (swans, geese, ducks) and/or flocking species such as woodpigeon or corvids. Although enhancement of existing ponds is proposed, the limited size of these ponds is unlikely to attract any more than individual birds. Scrapes are proposed as attenuation features to encourage wet grassland and riparian habitat, including invertebrate interest.

The proposed grassland management will result in longer sward heights, therefore reducing the risk of attracting large grazing waterfowl. There will also be a reduction in pasture/arable rotation fields which may currently attract gull species at time of ploughing, in addition to foraging pigeons.

Tree planting or outgrowing is limited to areas required for landscape screening purposes. Limited hedgerow creation is planned; this is limited to restoration and enhancement of existing hedgerows including hedgerow creation in D14 and DC02 for screening reasons.

### 5.4 Badger

Habitat retention/creation/management as detailed in Section 4.4 maintains habitat available for commuting badgers within the central and northern extents of the site, and evidence of badger use in the wider site is limited. No works will be undertaken within at least 30m of the sett. The perimeter fencing will be raised to allow badgers and other small mammals to commute through the landscape unimpeded and existing and potential foraging habitats will be enhanced. The works are considered likely to have a **Neutral impact at a Site level**.

## 5.5 Roosting Bats

Numerous mature trees present on the site boundaries have been identified as having the potential to support roosting bats. Design of the site layout has retained these boundary trees and will enhance connectivity to the landscape.

The installation of bat boxes on retained trees as detailed in Section 4.3.1 will provide additional roosting provision for bats across the site. The works are therefore considered likely to have a **Minor Positive impact at a Site level.**

## 5.6 Bat Activity

The survey results have indicated that the hedgerow boundaries are utilised by commuting and foraging bats, including greater and lesser horseshoe bats which are a particularly light sensitive species. In particular, the northern hedgebank and woodland had the highest activity levels, likely due to their proximity to hedgebank and pasture habitats in the wider landscape to the north.

Habitat retention and management as detailed in Section 4.4 aims to protect and buffer the retained site boundaries and habitat features, and create extensive new foraging habitat.

The works are considered likely to have a **Minor Positive impact at a District level.**

## 5.7 Birds

The hedgebank and scrub habitat present within the site supports a wide range of nesting birds. There will be a minor temporary loss of hedgebank habitat during construction.

There will be a localised loss of grassland habitat of limited value to ground-nesting birds; although it should be noted that the current grassland is subject to disturbance by grazing rotations. Skylark have anecdotally been recorded as utilising solar farm habitat for nesting, even on solar farms not enhanced or managed for biodiversity, due to the management and preferred operational sward heights (RSPB, 2020), therefore post-construction monitoring will be undertaken to provide further information on this study.

Habitat retention and management as detailed in Section 4.4 maintains and enhances habitat available for nesting/foraging birds within the site boundaries. This includes the wildflower and rewilding habitat which will provide additional invertebrate foraging resources.

The works are considered likely to have a **Neutral impact at a Site level.**

## 5.8 Reptiles

The site has habitats of limited value to reptile species, with the exception of the site boundaries which will be retained and buffered. Construction works will be undertaken under a precautionary method statement. Habitat retention/creation/management as detailed in Section 4.4 maintains and enhances habitat available for commuting/foraging reptiles within the site. The provision of additional grassland habitat provides additional habitat suitable for species of reptile, while the creation of habitat piles provides potential breeding/hibernation sites for a diversity of reptiles.

The works are considered likely to have a **Minor Positive impact at a Site level.**

## 5.9 Dormice

Approximately 43m of hedgerow habitat will be removed in order to accommodate access for the development. Each access point has been designed and chosen to ensure that both overall total hedgerow removal and total length of hedge removed for each access point is minimised. Habitat connectivity is unlikely to be significantly affected as a result of this work. Precautionary measures for removal of hedgerow are outlined in Section 4.2.3.

Habitat retention, creation and management as detailed in Section 4.4 maintains and enhances habitat available for commuting/foraging dormice within the site. The provision of additional woodland and habitat mosaic suitable for this species will help mitigate against the loss of the small areas of hedgerow.

The restoration and enhancement of hedgerows and woodland habitat provides additional habitat suitable for this species. The works will therefore result in a **Minor Positive impact at a Local level.**

## 5.10 Further Considerations

Habitat retention, creation and management as detailed in Section 4.4 maintains and enhances habitat available for a diversity of invertebrate/pollinator species across the site.

The site as a whole is likely to be utilised by commuting/foraging hedgehogs and therefore proposals will result in the loss of potential hedgehog habitat. Mitigation and habitat retention/creation/management measures outlined in Section 4.4 maintains and enhances habitat available for hedgehogs within the site. The works will therefore result in a **Minor Positive impact at a Local level.**

The majority of the hedgebank boundaries, which comprises host plants for brown hairstreak, will be retained. Planting schemes should include additional blackthorn or other *Prunus* species. The works will therefore result in a **Minor Positive impact at a Local level.**

### **5.11 Decommission**

An ecological survey of the site will be undertaken prior to decommission, assessing habitat types and conditions, and current use of the site and wider landholdings by protected and notable species. This survey would inform a longer term management plan for retained habitat creation and enhancement across the site, particularly the area adjacent to the County Wildlife Site.

### **5.12 Conclusions**

The proposed solar facility construction works will result primarily in minor loss of low-quality grassland habitats within the footprint of the array feet and access roads. These grassland habitats are considered to be of limited value to badgers, bats, and birds, and overall the scheme will increase their value to species-rich seed mixes, Devon traditional meadows, mosaic of wetland habitats, and beetle and butterfly banks. Existing high quality habitats will be protected and enhanced across 45ha of the site; a net gain of 121% in habitats is predicted. Hedgerow creation and restoration will total 350m.

It should be noted that the surveys are valid for two years, after which an updated survey may be required. Habitat retention and management associated with the scheme will enhance retained commuting/foraging habitat for badgers, bats, birds, dormice and reptiles, and enhancement measures will provide new roosting/nesting opportunities for bats and birds. Precautionary timing and suitable control measures will be adhered to in order to minimise potential impacts during vegetation removal and construction. These measures include precautionary supervision and timings. Vegetation clearance will be carried out in September/October under supervision of a licensed ecologist, and all site works will be limited to daylight hours during the bat activity season of April to October (inclusive).

A significant net gain in biodiversity is predicted from current proposals, comprising a gain of 121% in area habitats and 2.48% in linear habitats. It is therefore considered that there are unlikely to be any significant adverse ecological impacts from the proposed works, and that across the 74ha site, the balance of 45ha of ecological enhancements in addition to the grassland enhancements within the 29ha of solar arrays leads to notable beneficial impacts.

The proposals meet the requirements for enhancement set by the NPPF and BNG included within the forthcoming Environment Bill and Devon County Council relevant guidance.

## **6 Conservation Action Statement**

### **6.1 Introduction**

This Conservation Action Statement is required in line with Devon County Council guidance (2021) to detail: How ecological impacts will be avoided, mitigated and compensated; how enhancement measures will be implemented; overall net gain or loss for wildlife; and how the scheme complies with wildlife legislation and planning policy.

Table 5.1 includes a summary of the ecological value of the site before and following development, therefore highlighting how a net gain in biodiversity will be achieved at the site in accordance with Devon County Council guidance. Details of how the proposals comply with current legislation and policies are provided in section 4.

Enhancement recommendations are required under the National Planning Policy Framework (NPPF) which sets out the UK Government's national policies on enhancement of biodiversity and promotion of ecosystem services through the planning system.



Ecological Receptor	Geographical scale of impact	Potential impacts	Mitigation	
			Avoidance measures	Compensation & Enhancement measures
Species poor semi-improved grassland	Site/Local /County/ Regional/ National	Minor loss of species-poor grassland during construction	N/A	Creation of wildflower meadow and species-rich grazing pasture across site
Broadleaved woodland and trees	Local	Damage and disturbance during construction	Protective fencing during construction	Creation of mitigation area including tree planting and natural regeneration
Hedgebank	Site	Loss of sections of hedgebank totally 43m	Detailed design of construction road layout to minimise and avoid hedgebank removal or damage	Planting and management of hedgebanks to enhance structure and diversity totalling 350m
Badger	Site	Disturbance of outlier sett Loss of foraging/commuting habitat	Detailed design of layout and construction methodology to minimise and avoid impact on site Raised fencing to allow commuting badgers	Creation of wildflower meadow
Roosting Bats	Local	Disturbance of potential roosts	Detailed design to retain all identified mature trees and buildings with bat potential	Installation of bat roosting provision
Bats	Local	Loss of hedgebank foraging/commuting habitat	Retention and enhancement of hedgebank and woodland habitat	Creation of wildflower meadow Creation of mitigation area including tree planting and natural regeneration
Nesting birds	Site	Damage or destruction of active nests Loss of hedgebank nesting habitat	Undertake works outside of bird nesting season Translocation of 14m hedgebank	Management of hedgebanks to enhance structure and diversity Creation of mitigation area including tree planting and natural regeneration
Dormouse	Local	Injury or killing during vegetation clearance Fragmentation of limited sections of hedgebank	Retention and enhancement of hedgebank and woodland habitat Vegetation will need to be removed under precautionary measures and timings	Management of hedgebanks to enhance structure and diversity
Reptiles	Site	Loss of grassland habitat	Grassland vegetation will be cut utilising a methodology which protects the low number of reptiles present	Creation of wildflower meadow Creation of mitigation area including tree planting and natural regeneration

**Table 5.1 Conservation Action Statement Balance Sheet**

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**Natural England (2009c).** *Interpretation of ‘Disturbance’ in relation to Badgers Occupying a Sett.* Natural England, Peterborough.

**Natural Environment and Rural Communities Act (2006).** HMSO

**Protection of Badgers Act (1992).** HMSO

**Wildlife & Countryside Act (1981), as amended.** HMSO

## Appendices

Appendix 1: Desk Study Data

Appendix 2: Legislation

Appendix 3: Raw Survey Data

Appendix 4: Bat Activity Survey Results

Appendix 5: Site Photographs

Appendix 6: Mitigation Plan

Appendix 7: Ecological Management Plan Prescriptions

## Appendix 1 – Desk Study Search Data

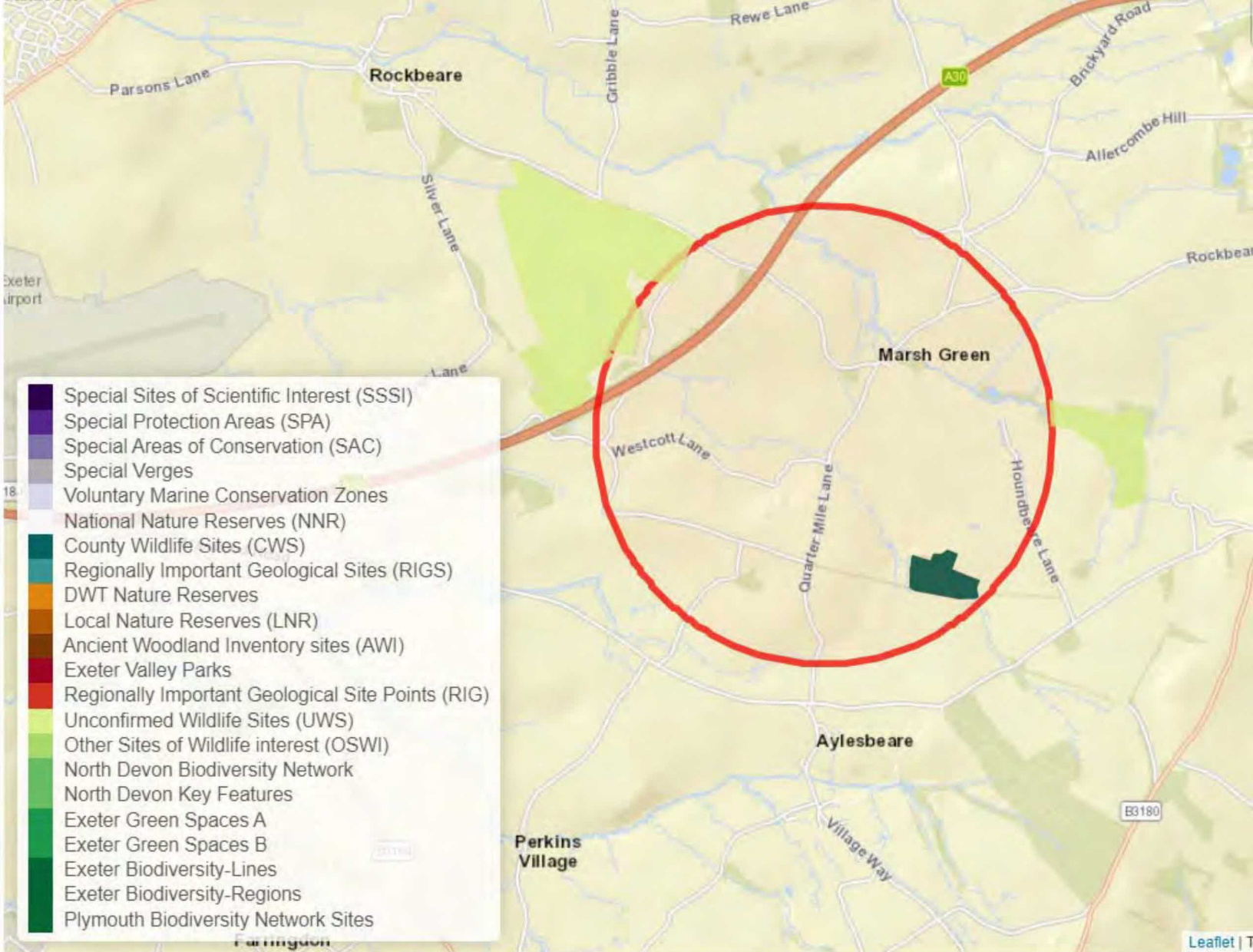


Table of statutory and non-statutory sites within 1 kilometres of SY03959335 (07/10/2021) Enq no.10-1090

# DEVON WILDLIFE TRUST SITE SURVEY CARD

on record 12/5/00

SITE NAME WITHYBED COPSE		FILE CODE S4093W09	GRID REF S4044928
SURVEY TITLE E-DEVON		SURVEY DATE 2 SEPTEMBER '93	DATABASE CODE S409/008
DISTRICT E-DEVON		PARISH AYLESBEARE	RECORDER/S R White
OWNER	ADDRESS		
ACCESS PERM. FROM			
SITE STATUS NNR SSSI pSSSI DWT Res Other Res NCA CMS RIGS LNR NP Com Priv AONB ESA Other			
MANAGEMENT BODY NCC DWT RSPB NT LA FC WT SWW Other Pub.Body Priv.Owner Other			
OTHER DETAILS			

SITE AREA/ha 4.1	ALTITUDE/m	MAJOR ASPECT —	MAJOR SLOPE LEVEL
GEOLOGY [solid/drift]			
SOILS Neut Calc Acid Clay Loam Sand Peat Alluv Scree Rock Spoil Other Water-logged Poorly drained Freely drained			
SPECIAL INTEREST Ancient woodland			
PRESENT USE None			
IS THE SITE UNDER THREAT? No.			

HABITATS	AREA/ha	AREA/ha	MANAGEMENT
WOODLAND: ANC. SEM-NAT		STANDING WATER	NO MANAGEMENT
WOODLAND: REC. SEM-NAT		RUNNING WATER	
WOODLAND: B/L PLANTN.		COASTAL: CLIFF GRASLND	GRAZING: LIGHT
WOODLAND: ANC. REPLANT		COASTAL: CLIFF HEATH	GRAZING: MODERATE
WOODLAND: CONIF. PLANT		COASTAL: SALT MARSH	GRAZING: HEAVY
SCRUB: DENSE/CONTIN.		COASTAL: MUD BANK	GRAZING: CATTLE
SCRUB: SCATTERED		COASTAL: SHINGLE	GRAZING: SHEEP
PARKLAND TREES		COASTAL: DUNE	GRAZING: HORSES
GRASSLAND: LOWLAND		INLAND ROCK EXPOSURE	GRAZING: DEER
GRASSLAND: UPLAND		HEDGEROW	GRAZING: RABBITS
GRASSLAND: UNIMP. ACID		ARABLE	GRAZING: OTHER
GRASSLAND: UNIMP. NEUT		DISTURBED GROUND	MOWING/HAY CUT
GRASSLAND: UNIMP. BASI		BARE GROUND	SILAGE
GRASSLAND: MARSHY		OTHER	TOPPING/SWIPING
GRASSLAND: S/I ACID			BURNING
GRASSLAND: S/I NEUT		ADJ. LAND USE	SCRUB CONTROL
GRASSLAND: S/I BASIC		B/L WOODLAND	SLURRY
GRASSLAND: IMP./RSD		CONIF. WOODLAND	ARTIF. FERT.
HEATH: WET LOWLAND		SCRUB	CHEM. HERBIC.
HEATH: DRY LOWLAND		HEATH	
HEATH: UPLAND		BOG	WOODLAND: WORKED COPP
BOG/FLUSH: BLANKET BOG		SWAMP	WOODLAND: ABAND. COPP
BOG/FLUSH: RAISED BOG		WATER	WOODLAND: COPP-W-STD
BOG/FLUSH: VALLEY BOG		UNIMP. GRASSLAND	WOODLAND: POLLARDS
BOG/FLUSH: BASIN MIRE		S/I GRASSLAND	WOODLAND: HIGH FOREST
BOG/FLUSH: ACID FLUSH		IMP. GRASSLAND	WOODLAND: CLEARFELL
BOG/FLUSH: BASI. FLUSH			WOODLAND: THINNED
TALL HERB: BRACKEN		ARABLE	WOODLAND: REPLANTED
TALL HERB: OTHER		URBAN	WOODLAND: NON-INTERV
SWAMP OR FEN		OTHER	WOODLAND: OTHER





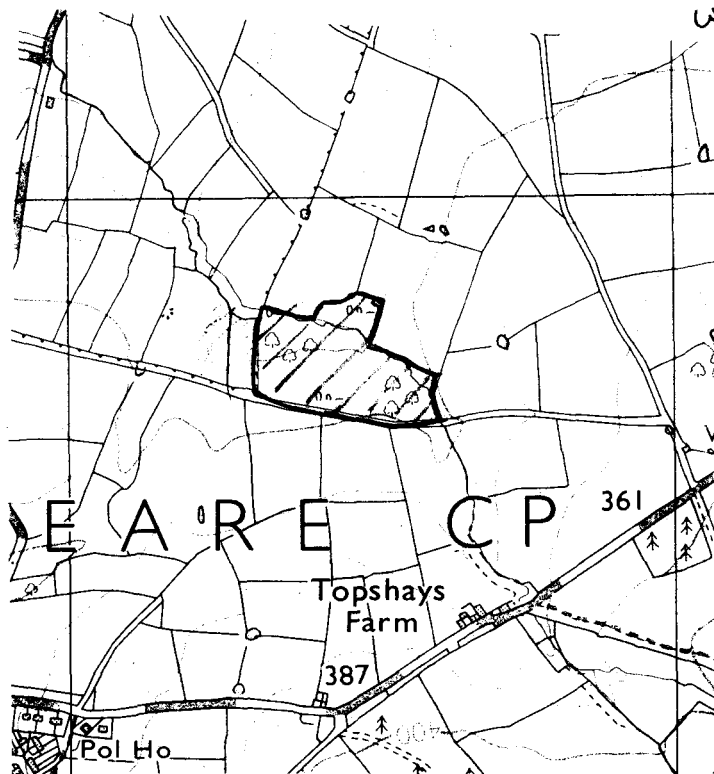
SITE NAME WITHYBED COPSE

FILE CODES409SW09 GRID REFS4044928.


SITE MAP

(INCLUDE SCALE, NORTH POINT, COMMUNITY BOUNDARIES, QUADRAT LOCATIONS IF ANY)

Small stream through  
N of site, slight  
wet influence.



More fagus to SE  
corner.

 Ancient woodland.

SITE EVALUATION

(CONSERVATION VALUE, COMPARISON WITH OTHER SITES IN SURVEY/DISTRICT, RECOMMENDATIONS FOR PROTECTION/MANAGEMENT)

A good ancient woodland site, with a more or  
less native broadleaved canopy, good structure and  
a good range of Aw indicators.

CWS.

## SPECIES LIST (WHOLE SITE)

SITE NAME: WITHYBED COPSE

FILE CODE SY09ASW09

GRID REF SY044928

ARE OTHER CARDS INCLUDED FOR QUADRATS?

Asplen adian	Agrostis can	otrubae	Bellis peren	helio	Listera ovat	pal	Spargen erec
ruta	cap	ovalis	Beta vulgar	peplus	Lotus cornic	reptans	Stachys arve
tricho	cur	panicea	Brassica nig	Euphrasi egg	ulig	ster	off
Athyrium fil	sto	panicula	Calamint syl	Filipend ulm	Lychnis flos	Primula veri	pal
Blechnum spi	Aira caryoph	pend	Callitri agg	Foenicul vol	Lycopus euro	vulg	sylv
Dryopt affin	pra	pil	Calluna vulg	Fragaria ves	Lysimach nem	Prunella vul	Stellari als
dilitata	Alopec genic	remota	Caltha palus	Fumaria mura	Lythrum port	Pulicaria dyse	gram
filix	prat	sylv	Calysteg sep	off	sali	Ranuncul acr	hol
Equiset arve	Anthox odora	Eleochar mul	Capsella bur	Galanth niva	Malva moscha	bulbo	media
fluv	Arrhenat ela	pal	Cardamin fle	Galeops tetr	sylv	ficaria	Succisa prat
pal	Brachy sylv	Eriophor ang	hir	Galium apar	Matricar mat	flam	Symphyt offi
Phyllit scol	Briza media	vag	prat	cruc	recut	hed	x upl
Polypod vulg	Bromus horde	Isolepis set	Carduus nuta	mollugo	Medicago ara	oio	Tamus commun
Polyst setif	ram	Juncus acuti	Carlina vulg	odorat	lup	repens	Taraxac agg
Pterid aquil	ster	artic	Centaure nig	pal	Melampy prat	Reseda luteo	Teucrium sco
Acer campest	Cynosur	bufon	scab	sax	Mentha aquat	Rhinanth min	Thlaspi arve
pseu	Dactylis glo	bulb	Centaure ery	verum	arv	Ribes nigrum	Thymus praec
Aesculus hip	Danthon decu	conglom	Centrant rub	Genista angl	Menyanth tri	sylv	Torilis japo
Alnus glutin	Descham ces	effusus	Cerast fonta	Geranium col	Mercuria per	uva	Tragopog pra
Betula pendu	flex	inflexus	glom	dis	Moerhing tri	Rubia perigr	Trifoli camp
pub	Desmazer rig	squar	Chaeroph tem	lucid	Montia fonta	Rubus idaeus	dubium
Castanea sat	Elymus canin	Luzula campe	Chamerio ang	molle	sib	Rumex acella	hyb
Clematis vit	rep	forst	Chenopod alb	robert	Myosotis arv	acetosa	medium
Cornus sangui	Festuca arun	multi	Chrysosp opp	Geum urbanum	dis	cong	prat
Corylus avel	gig	pilosa	Circaea lute	Glechoma hed	laxa	crispus	repens
Crataeg mono	ovina	sylv	Cirsium arve	Gnaphal ulig	scorp	obt	Triplosp ino
Cytisus scop	prat	Trichoph ces	diss	Hedera helix	sec	sang	Tussilag far
Euonymus eur	rubra	Achillea mil	pal	Hieraci sphon	Narciss pseu	Ruscus acule	Typha latifo
Fagus sylvat	fluit	ptar	vulg	Hieraci agg	Narthece ossi	Sagina procu	Ulex galii
Frangula aln	Hordeum muri	Adoxa moscha	Clinopul	pilos	Nasturt offi	Salix repens	Umbilic rup
Fraxinus exc	Holcus lanat	Aegopod poda	Cochlear dan	Humulus lupu	Odontit vern	Sanguiso min	Urtica dioic
Ilex aquifol	molliis	Aethusia cyn	off	Hyacinth non	Oenanthe cro	Sanicula eur	Vaccin myrti
Ligust vulga	Lolium multi	Agrimom eupae	Conium macul	Hydrocot vul	pimp	Scrophul aur	Valerian off
Lonicera per	per	Ajuga reptan	Conopod maju	Hyperic andr	Orchis mascu	nodosa	Valerian car
Malus sylves	Melica unifl	Allisma plant	Convolv arve	hum	Origanum vul	Scutella min	locusta
Pinus sylves	Milium effus	Alliaria pet	Coronop didy	perf	Oxalis aceto	Sedum acre	Verbasc thap
Populus trem	Molinia caer	Allium triqu	Corydal clav	pulch	Papaver dubi	album	Verbena offi
Prunus avium	Nardus stric	ursinum	Crepis capit	tet	rheas	ang	Veronica arv
spino	Phalaris aru	vineale	Cymbalar mur	Hypochaer rad	Pedicula pal	ref	becca
Quercus petr	Phleum prate	Anagalli arv	Dactylor fuc	Impatien gla	sylv	Senecio aqua	chamae
robur	Phragmit aus	tenella	maculata	Inula conyza	Pentaglo sem	eru	fil
Rhododen pon	Poa annua	Anemone nemo	praet	Iris foetidi	Petasite fra	jac	hed
Rosa arvensi	hemor	Angelica syl	Daucus carot	pseuda	hyb	squa	mont
canina	prat	Anthrisc syl	Digital purp	Jasione mont	Picris echio	sylv	off
Rubus fruti	triv	Anthyll vuln	Dipsacus ful	Knautia arve	Pimpinell sax	vulg	serp
Salix alba	Trisetum fla	Aphanes arve	Drosera rotu	Lamiast gale	Plantago cor	Serratul tin	Vicia cracca
aurita	Vulpia bromi	Apium nodifl	Epilob cilia	Lamium album	lanc	Sherardi arv	hirsuta
caprea	Carex binerv	Aquileg vulg	hir	Lapsana comm	major	Silene alba	sativa
ciner	caryoph	Arabis thala	montanum	Lathyrus mon	mar	dioica	sepium
frag	denissa	Arctium lapp	obs	prat	Polygala ser	vul ssp mer	tet
Sambucus nig	divulsa	minus	pal	Lemna minor	vulg	vul ssp vul	Vinca major
Sorbus aucup	echinata	Arenaria ser	per	Leontod autu	Polygonum avi	Sinapis arv	minor
Taxus baccat	flaccata	Armeria mari	Epipact hell	his	hyd	Sison amomum	Viola arvens
Tilia x vulg	hirta	Artemes vulg	Erica cinere	tarax	lap	Smyrniolum olu	canina
Ulex europae	host	Arum maculat	tetralix	Leucanth vul	pers	Solanum dulc	odorata
Ulmus glabra	laev	Atriplex pet	Erodium cicu	Linaria purp	Potomog poly	nig	pal
proc	muricata	prostr	Erophil vern	vulg	Potentil ang	Solidago vir	rei
Viburnum lan	nigra	Ballota nigr	Eupator cann	Linum bienne	ans	Sonchus arve	riviniana
Viburnum opu		Barbarea vul	Euphorb amyg	cath	erecta	asper	tri
						oler	Wahlenbe hed

## ADDITIONAL SPECIES

ANCIENT WOODLAND RECORD CARD

SITE WITHVED CORSE

RFP NO SY09SW09

GRID REF SY044928

SIZE

RECORDER White

DATE 2 SEPTEMBER '93

ANCIENT WOODLAND VASCULAR PLANTS - 90 species which in Devon are most strongly associated with ancient woodland and are typically components of botanically rich ancient woodland communities.

<u>Acer campestre</u>	o	<u>Helleborus viridis</u> - RC		<u>Poa nemoralis</u>	
<u>Aconitum napellus</u> - R		<u>Holcus mollis</u>		<u>Polypodium vulgare</u>	
<u>Adoxa moschatellina</u>		<u>Hyacinthoides non-scripta</u>	f	<u>Polystichum aculeatum</u>	
<u>Allium ursinum</u>		<u>Hymenophyllum tunbridgense</u> - RA		<u>Polystichum setiferum</u>	o
<u>Anemone nemorosa</u>		<u>Hypericum androsaemum</u>		<u>Populus tremula</u>	
<u>Aquilegia vulgaris</u>		<u>Hypericum pulchrum</u>		<u>Potentilla sterilis</u>	o
<u>Blechnum spicant</u>		<u>Ilex aquifolium</u>	t	<u>Primula vulgaris</u>	o
<u>Bromus ramosus</u>	o	<u>Iris foetidissima</u> - C	o	<u>Prunus avium</u>	o
<u>Calamagrostis epigejos</u> - R		<u>Lamium galeobdolon</u>		<u>Quercus petraea</u>	
<u>Carex laevigata</u>		<u>Lathraea squamaria</u> - R		<u>Ranunculus auricomus</u> - R	
<u>Carex pallescens</u> - R		<u>Lathyrus montanus</u>		<u>Ribes nigrum</u>	
<u>Carex pendula</u>		<u>Lathyrus sylvestris</u> - CO		<u>Ribes sylvestre</u>	
<u>Carex remota</u>	o	<u>Luzula forsteri</u>		<u>Rosa arvensis</u>	
<u>Carex sylvatica</u>	o	<u>Luzula pilosa</u>		<u>Ruscus aculeatus</u>	
<u>Chrysosplenium oppositifolium</u>	o	<u>Luzula sylvatica</u>		<u>Sanicula europaea</u>	o
<u>Conopodium majus</u>		<u>Lysimachia nemorum</u>	o	<u>Sibthorpia europaea</u> - RAW	
<u>Corydalis claviculata</u> - A		<u>Malus sylvestris</u>	o	<u>Sirpus sylvaticus</u>	
<u>Daphne laureola</u>		<u>Melampyrum pratense</u> - A		<u>Solidago virgaurea</u>	
<u>Dryopteris aemula</u>		<u>Melica uniflora</u>		<u>Sorbus (microspecies)</u> - R	
<u>Dryopteris affinis</u>	o	<u>Melittis melissophyllum</u>		<u>Sorbus torminalis</u> - R	
<u>Dryopteris carthusiana</u>		<u>Milium effusum</u>		<u>Stachys officinalis</u>	
<u>Elymus caninum</u>		<u>Moehringia trinerva</u>	o	<u>Tamus communis</u>	
<u>Epipactis helleborine</u> - R		<u>Narcissus pseudonarcissus</u>		<u>Tilia cordata</u> - C	
<u>Equisetum sylvaticum</u>		<u>Neottia nidus-avis</u> - R		<u>Ulmus glabra</u>	
<u>Euphorbia amygdaloides</u>	o	<u>Orchis mascula</u>		<u>Vaccinium myrtillus</u>	
<u>Festuca gigantea</u>	o	<u>Oreopteris limbosperma</u> - A		<u>Viburnum opulus</u>	
<u>Frangula alnus</u> - AW		<u>Oxalis acetosella</u>	f	<u>Vicia sylvatica</u> - RCO	
<u>Galium odoratum</u> - C		<u>Phegopteris connectilis</u> - RA		<u>Viola palustris</u> - AW	
<u>Geum rivale</u> - RW		<u>Phyllitis scolopendrium</u>	o	<u>Viola reichenbachiana</u>	
<u>Helleborus foetidus</u> - RC		<u>Platanthera chlorantha</u>		<u>Wahlenbergia hederacea</u>	

R - Rare

C - Calcareous

A - Acidic

CO - Coastal

W - Wet

## Appendix 2 – Legislation

### Special Areas of Conservation (SACs)

As statutory designated sites, SACs are protected by the Conservation of Habitats and Species Regulations 2017 which maintains protection of European sites through the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019. SACs are designated as areas of high conservation importance, which make a significant contribution to conserving habitats and species threatened in Europe as a whole.

Such statutory designated sites are legally protected and the local planning authority and Natural England may strictly control any proposed development works which have the potential to impact upon such sites. It is important to note that development does not need to be actually located within such a designated area to potentially present an adverse impact.

If it cannot be demonstrated that a development will not have a significant effect on a statutory designated site, a further “Appropriate Assessment” may be requested to further consider any perceived impacts in combined consideration with any other proposals.

The Local Planning Authority and Natural England can only agree to the plan or project if:

- It will not *‘adversely affect the integrity of the site concerned’* (Article 6 (3)). ‘Integrity’ is defined as the *‘coherence of ecological structure and function, across a site’s whole area, that enables it to sustain the complex of habitats and/or the levels of populations of a species for which it was classified’*;
- There is no alternative solution and there are *‘imperative reasons of overriding public interest, including those of social or economic nature’* (Article 6 (3)). In such cases, compensatory measures must be taken to ensure the overall coherence of the Natura 2000 network.

### Special Protection Areas (SPAs)

As statutory designated sites, SPAs are protected by the Conservation of Habitats and Species Regulations 2017 which maintains protection of European sites through the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019. SPAs are designated as areas of high conservation importance, which make a significant contribution to conserving habitats and species threatened in Europe as a whole.

Such statutory designated sites are legally protected, and the local planning authority and Natural England may strictly control any proposed development works which have the potential to impact upon such sites. It is important to note that development does not need to be actually located within such a designated area to potentially present an adverse impact, for example birds associated with an estuary SPA may rely on habitats located away from the estuary for roosting or feeding.

If it cannot be demonstrated that a development will not have a significant effect on a statutory designated site, an “Appropriate Assessment” may be required to further consider any perceived impacts in combined consideration with any other proposals.

The Local Planning Authority and Natural England can only agree to the plan or project if:

- It will not 'adversely affect the integrity of the site concerned (Article 6 (3)). 'Integrity' is defined as the 'coherence of ecological structure and function, across a site's whole area, that enables it to sustain the complex of habitats and/or the levels of populations of a species for which it was classified';
- There is no alternative solution and there are 'imperative reasons of overriding public interest, including those of social or economic nature' (Article 6 (3)). In such cases, compensatory measures must be taken to ensure the overall coherence of the Natura 2000 network.

### **County Wildlife Sites**

CWSs are sites of county importance for wildlife, designated on the basis of the habitat or the known presence of a particular species. CWSs are of material consideration during the planning process.

### **Unconfirmed Wildlife Sites**

These are sites that have been identified as having possible wildlife interest but have not been fully surveyed. Some of these sites will be areas of significant wildlife interest.

### **Habitats of Principal Importance**

In order to comply with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, it is necessary to demonstrate that Habitats of Principal Importance have been adequately considered through the planning process.

### **Hedgerows**

'Important' hedgerows which meet specific wildlife and landscape criteria of the Hedgerow Regulations 1997 (as amended) are protected under this legislation. A Hedgerow Removal Notice must be submitted to the Local Planning Authority in order to obtain permission to damage or remove important hedgerows. It should be noted that planning approval also qualifies as permission.

### **Plants**

The Wildlife & Countryside Act 1981 (as amended) makes it an offence to plant or cause Himalayan balsam to grow in the wild, which due to the proliferate seed and long viability of the seeds of this species, can be caused by relatively low levels of disturbance.

### **Badgers**

Badgers are protected by the Protection of Badgers Act 1992 and the Wildlife and Countryside Act 1981 (as amended), Schedule 6. Under the Wildlife and Countryside Act it is illegal to intentionally kill, capture, injure or ill-treat any badger. Under the Protection of Badgers Act it is an offence to obstruct, destroy or damage a badger sett or disturb badgers within a sett, with any works which will contravene this legislation requiring prior licensing from Natural England.

### **Bat Roosts**

All British bats and their roosts are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended), as well as the Conservation of Habitats and Species Regulations 2017.



In combination, these pieces of legislation give substantial protection to bats and their roost sites, and make it an offence for any person to carry out the following acts:

- Intentionally or recklessly kill, injure or take a bat.
- Damage, destroy or obstruct access to any place that a bat uses for shelter or protection. This is taken to mean all bat roosts whether bats are present or not.
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.

Proposed developments which affect bats or their roosts are likely to require a European Protected Species Licence (EPSL) from Natural England.

### **Bat Flight Lines & Foraging Habitat**

As a signatory to the Bonn Convention (Agreement on the Conservation of Bats in Europe) the UK is committed to protecting bat habitats, which necessitates the identification and protection from damage or disturbance of important feeding areas and commuting routes. In order to comply with the Natural Environment and Rural Communities Act 2006, it is necessary to demonstrate that foraging bat species have been adequately considered through the planning process.

The lesser/greater horseshoe bat is listed under several international directives including Appendix II of The Bonn Convention, Appendix II of the Bern Convention. Protection of lesser/greater horseshoe bats is also covered under the Conservation of Habitats and Species Regulations 2017 which maintains protection of European sites through the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019

Under the EC Habitats Directive 1992, core areas of habitat for Annex II species must be protected and the sites managed in accordance with the ecological requirements of the species.

### **Birds**

All birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). Nesting is determined as being from when birds first initiate nest building up until the point when fledglings stop returning to the nest. It is an offence to:

- Intentionally kill, injure or take any wild bird.
- Intentionally take, damage or destroy the nest of any wild bird.
- Intentionally take or destroy the egg of any wild bird.

### **Dormice**

Dormice are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. This makes it illegal to intentionally kill, injure, take, possess, sell or disturb dormice. The legislation also makes it illegal to intentionally or recklessly damage, destroy or obstruct their place of shelter or protection. Proposed developments which affect dormice or their place of shelter are likely to require a European Protected Species Licence (EPSL) from Natural England.



### **Reptiles**

Reptiles are protected against intentional killing and injury, sale and transport for sale under the Wildlife and Countryside Act 1981 (as amended). Natural England states that activities such as site investigations, site clearance and movements of machinery may breach this legislation by causing death or injury to reptiles (English Nature, 2004).

### **Great Crested Newts**

Great crested newts are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. This makes it illegal to intentionally kill, injure, take, possess, sell or disturb great crested newts. The legislation also makes it illegal to intentionally or recklessly damage, destroy or obstruct their place of shelter or protection. Proposed developments which affect great crested newts or their place of shelter are likely to require a European Protected Species Licence (EPSL) from Natural England.

### **Otters**

Otters are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. This makes it illegal to intentionally kill, injure, take, possess, sell or disturb otters. The legislation also makes it illegal to intentionally or recklessly damage, destroy or obstruct their place of shelter or protection. Proposed developments which affect otters or their place of shelter are likely to require a European Protected Species Licence (EPSL) from Natural England.

## Appendix 3 – Raw Survey Data

Parameter	Condition
Temperature (°C)	14
Cloud cover (%)	20
Wind	F0
Precipitation	None

**Table A3.1 Weather Conditions Recorded During the Survey**

English name	Scientific name
Alder	<i>Alnus glutinosa</i>
Ash	<i>Fraxinus excelsior</i>
Blackthorn	<i>Prunus spinosa</i>
Broad leaved dock	<i>Rumex obtusifolius</i>
Common bent	<i>Agrostis capillaris</i>
Common sorrel	<i>Rumex acetosa</i>
Creeping thistle	<i>Cirsium arvense</i>
Crested dog's tail	<i>Cynosurus cristatus</i>
Cuckoo flower	<i>Cardamine pratensis</i>
Dandelion	<i>Taraxacum</i> spp.
Dogs mercury	<i>Mercurialis perennis</i>
Elder	<i>Sambucus nigra</i>
English elm	<i>Ulmus procera</i>
Fools watercress	<i>Apium nodiflorum</i>
Garlic mustard	<i>Alliaria petiolata</i>
Hawthorn	<i>Crataegus monogyna</i> ,
Hazel	<i>Corylus avellana</i>
Hemlock water dropwort	<i>Oenanthe crocata</i>
Holly	<i>Ilex aquifolium</i>
Lesser celandine	<i>Ficaria verna</i>
Meadow foxtail	<i>Alopecurus pratensis</i>
Nettle	<i>Urtica dioica</i>
Pedunculate oak	<i>Quercus robur</i>
Perennial ryegrass	<i>Lolium perenne</i>
Primrose	<i>Primula vulgaris</i>
Soft rush	<i>Juncus effusus</i>
Spear thistle	<i>Cirsium vulgare</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Water pepper	<i>Persicaria hydropiper</i>
White Clover	<i>Trifolium repens</i>

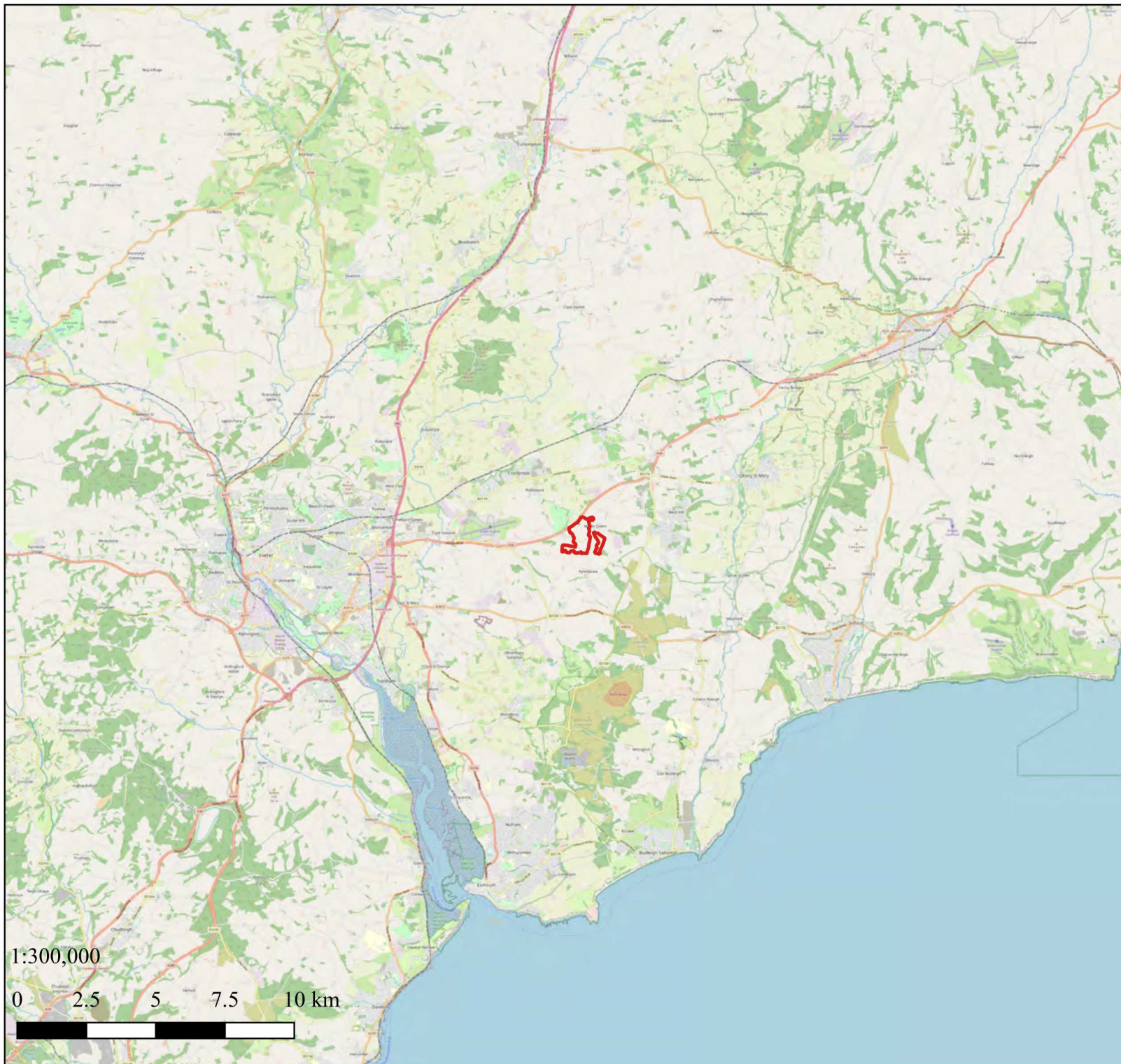
English name	Scientific name
Yarrow	<i>Achillea millefolium</i>
Yorkshire fog	<i>Holcus lannatus</i>

**Table A3.2 Botanical Species Recorded During the  
Extended Phase 1 Habitat Survey**

English name	Scientific name
Badger	<i>Meles meles</i>
Barn owl	<i>Tyto alba</i>
Blackbird	<i>Turdus merula</i>
Carrion Crow	<i>Corvus corone</i>
Common sandpiper	<i>Actitis hypoleucos</i>
Dunnoek	<i>Prunella modularis</i>
Green sandpiper	<i>Tringa ochropus</i>
Herring gull	<i>Larus argentatus</i>
Redwing	<i>Turdus iliacus</i>
Robin	<i>Erithacus rubecula</i>
Roe deer	<i>Capreolus capreolus</i>
Stickleback	<i>Gasterosteus aculeatus</i>
Stonechat	<i>Saxicola rubicola</i>
Wren	<i>Troglodytes troglodytes</i>

**Table A3.3 Fauna Recorded During the  
Extended Phase 1 Habitat Survey**





## Legend

 Site boundary

1:300,000

0 2.5 5 7.5 10 km

Title: Site Location Plan

Client: Low Carbon Alliance

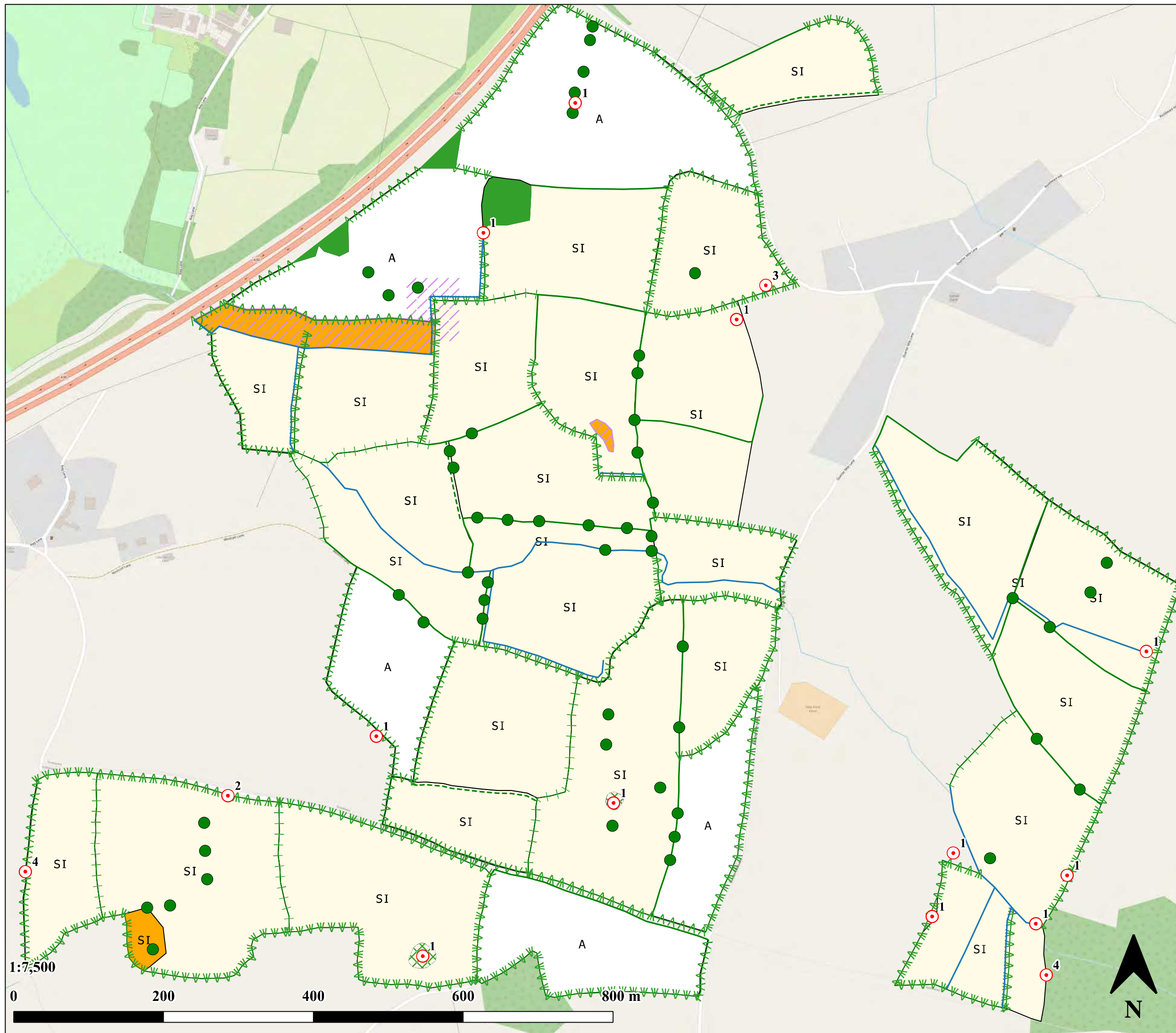
Site: Ford Oaks  
Drawing No.: 21/3754.02-01  
Date: Novemeber 2021

Drawn By: AP

Checked by: LW

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## Legend

- Target note
- Broadleaved tree
- Stream
- Hedgerow
- Species-poor hedgerow
- Defunct hedgerow
- Hedgerow with trees
- Species poor hedgrow with trees
- SI Semi improved grassland
- Marshy grassland
- SI Species poor semi-improved grassland
- Broadleaved woodland
- Dense scrub
- A Arable

## Target Notes

- 1.Location of ponds
- 2.Location of barns
- 3.Location of barn with barn owl roosting evidence
- 4.Boundaries with CWS'

Title: Extended Phase 1 Map

Client: Low Carbon Alliance  
Site: Ford Oaks  
Drawing No.: 21/3754.02-02  
Date: Novemeber 2021

Drawn By: AP

Checked by: LW

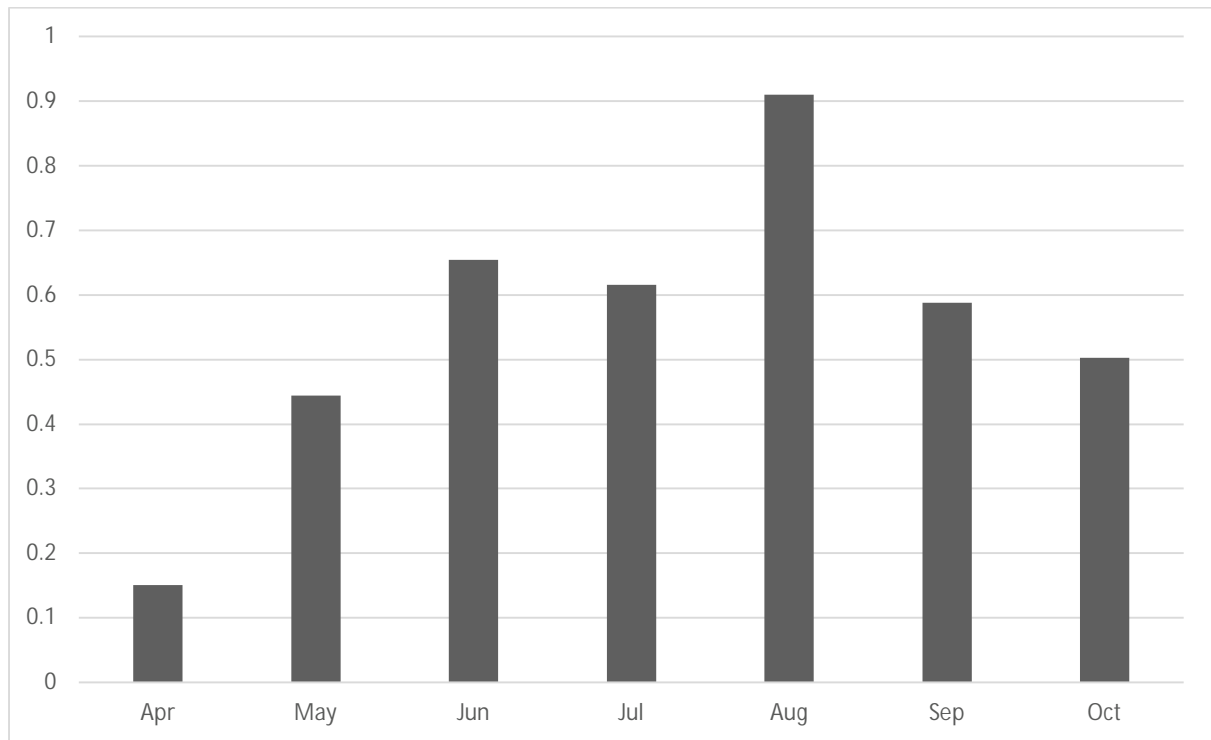
## Appendix 4 – Bat Activity Survey Results

	April	May	June	July	August	September	October	Total
Common pipistrelle	34	271	237	272	146	97	186	1243
Soprano pipistrelle	14	75	36	150	78	130	109	592
Serotine	2	6	4	65	186	34	34	331
Noctule	5	3	5	6	11	7	15	52
Leislars' bat	0	0	0	0	0	6	3	9
Myotis species	2	11	3	39	19	15	20	109
Long eared bat	3	8	3	0	6	3	2	25
Lesser horseshoe	0	3	1	0	1	0	0	5
Greater horseshoe	0	0	0	1	1	0	0	2

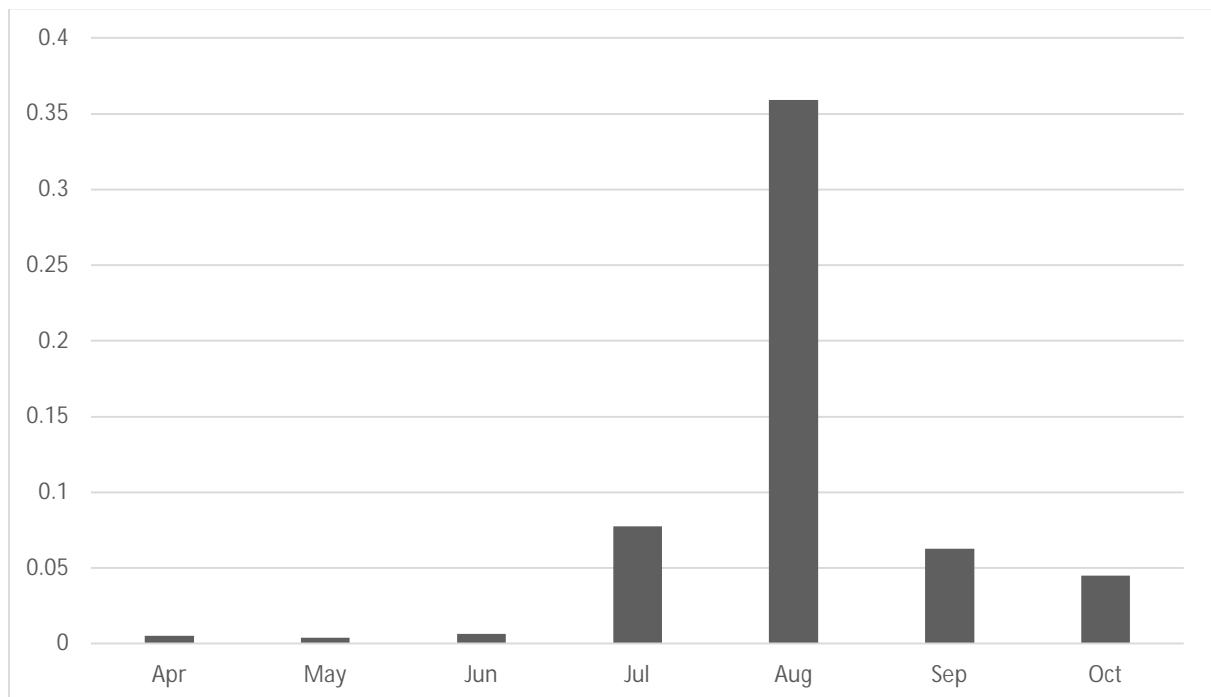
**Table A4.1 Total Number of Bats Recorded Each Month on the Transect Survey**

	April	May	June	July	August	September	October	Average
Common pipistrelle	0.09	0.31	0.48	0.33	0.33	0.20	0.26	0.29
Soprano pipistrelle	0.04	0.09	0.07	0.18	0.17	0.27	0.15	0.14
Serotine	0.01	0.01	0.01	0.01	0.42	0.07	0.05	0.08
Noctule	0.01	0.00	0.01	0.01	0.02	0.01	0.02	0.01
Leislars' bat	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Myotis species	0.01	0.01	0.01	0.04	0.03	0.03	0.02	0.03
Long eared bat	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01
Lesser horseshoe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Greater horseshoe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Table A4.2 Average Number of Bats Recorded for Each Minute of Survey Time Each Month on the Transect Survey**

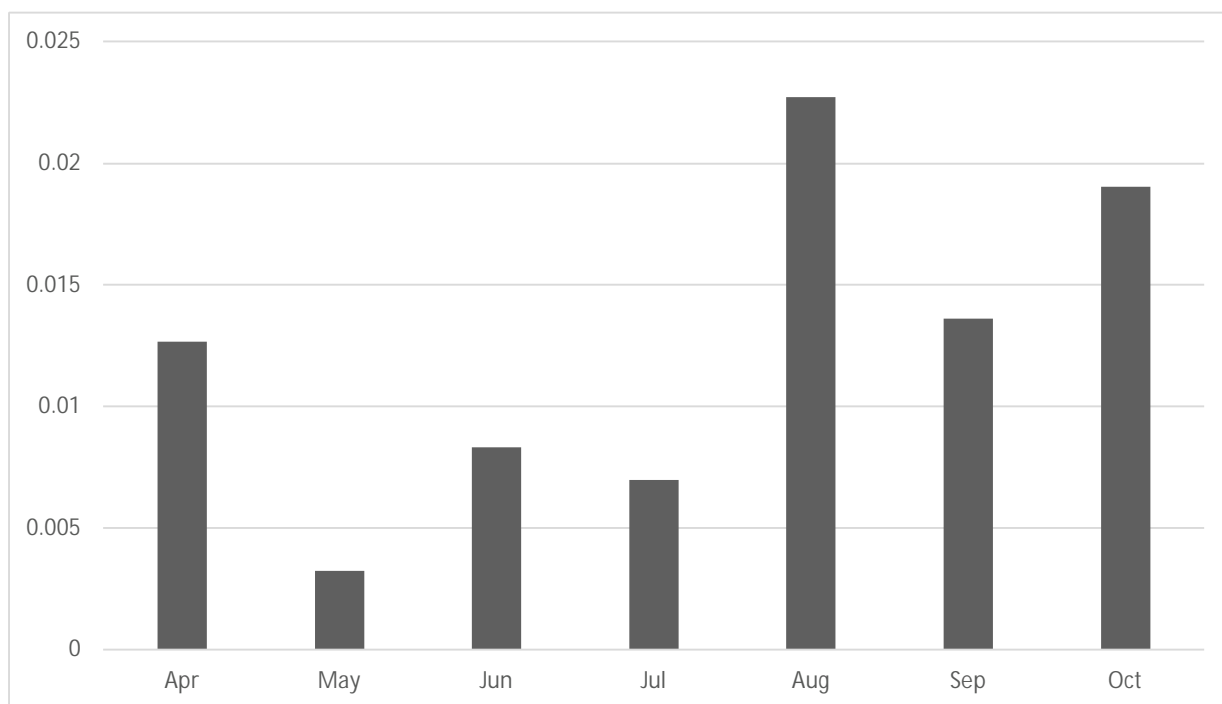


**Graph A4.1 Average Number of Total Bats Recorded for Each Minute of Survey Time Each Month on the Transect Survey**



**Graph A4.2 Average Number of Serotine Recorded for Each Minute of Survey Time Each Month on the Transect Survey**

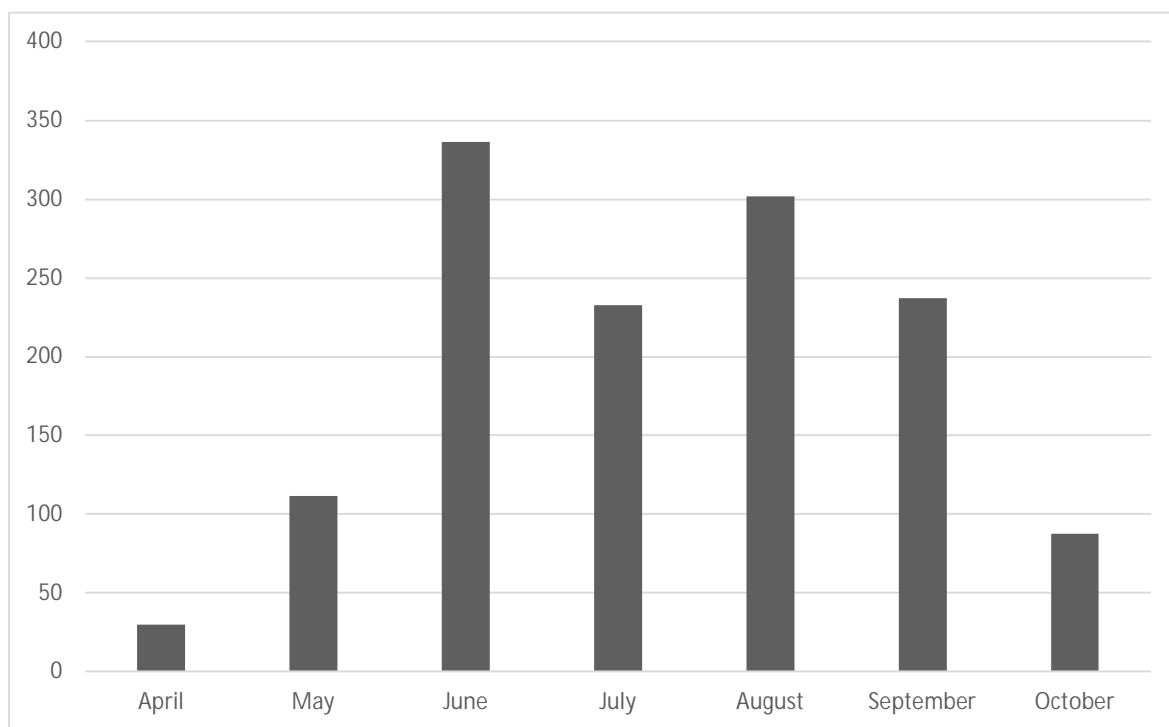




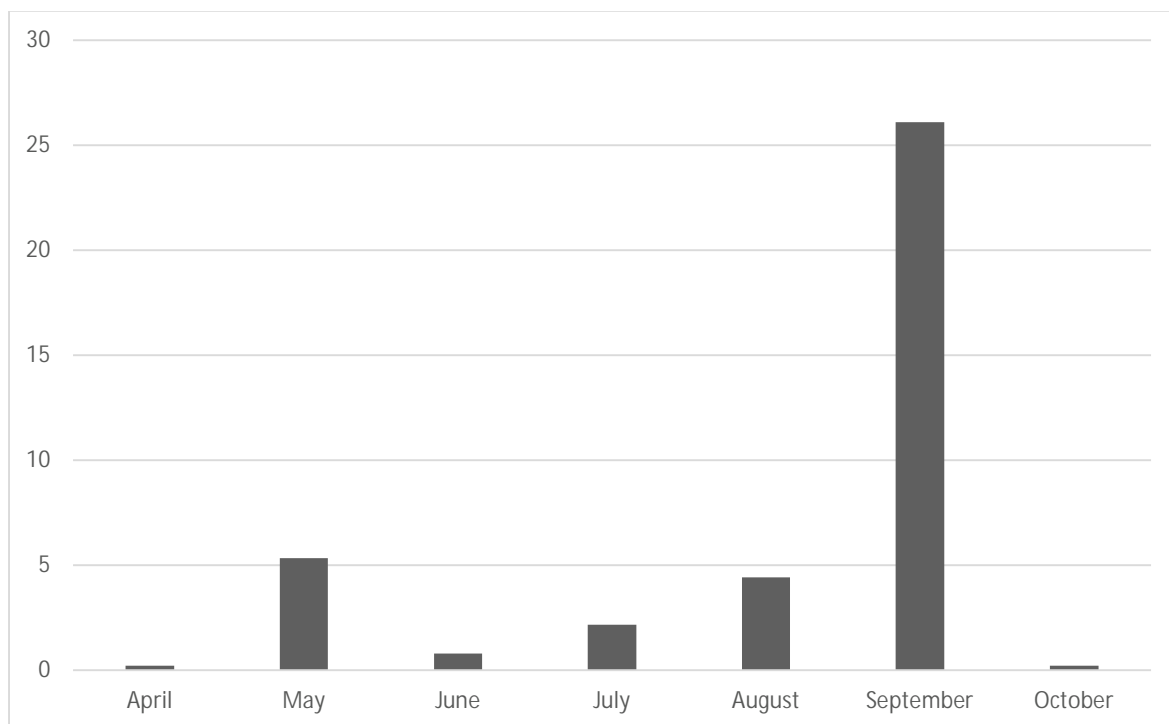
**Graph A4.3 Average Number of Noctule Recorded for Each Minute of Survey Time  
Each Month on the Transect Survey**

	April	May	June	July	August	September	October	Average
Common Pipistrelle	21.38	51.43	173.59	131.57	216.02	120.58	52.11	116.95
Soprano pipistrelle	3.25	42.07	96.40	47.77	29.84	29.85	22.60	39.47
Myotis species	3.31	7.68	63.15	52.66	24.55	46.52	9.61	30.41
Serotine	0.21	5.34	0.80	2.18	5.05	29.85	0.75	5.94
Noctule	1.46	0.65	1.68	5.19	2.65	14.82	1.25	3.53
Leisler's	0.09	0.83	0.00	2.58	1.36	2.17	0.50	0.76
Babastelle	0.29	0.00	0.10	0.29	0.18	0.48	0.60	0.15
Nathusius' pipistrelle	0.00	0.00	0.00	160.00	0.25	0.26	0.00	0.03
Long eared bat	0.00	0.05	0.00	0.63	0.67	4.27	0.27	0.39
Greater horseshoe	0.00	0.08	0.06	0.67	0.43	0.24	0.00	0.09
Lesser horseshoe	0.03	3.30	0.52	0.73	0.23	0.50	1.69	0.74

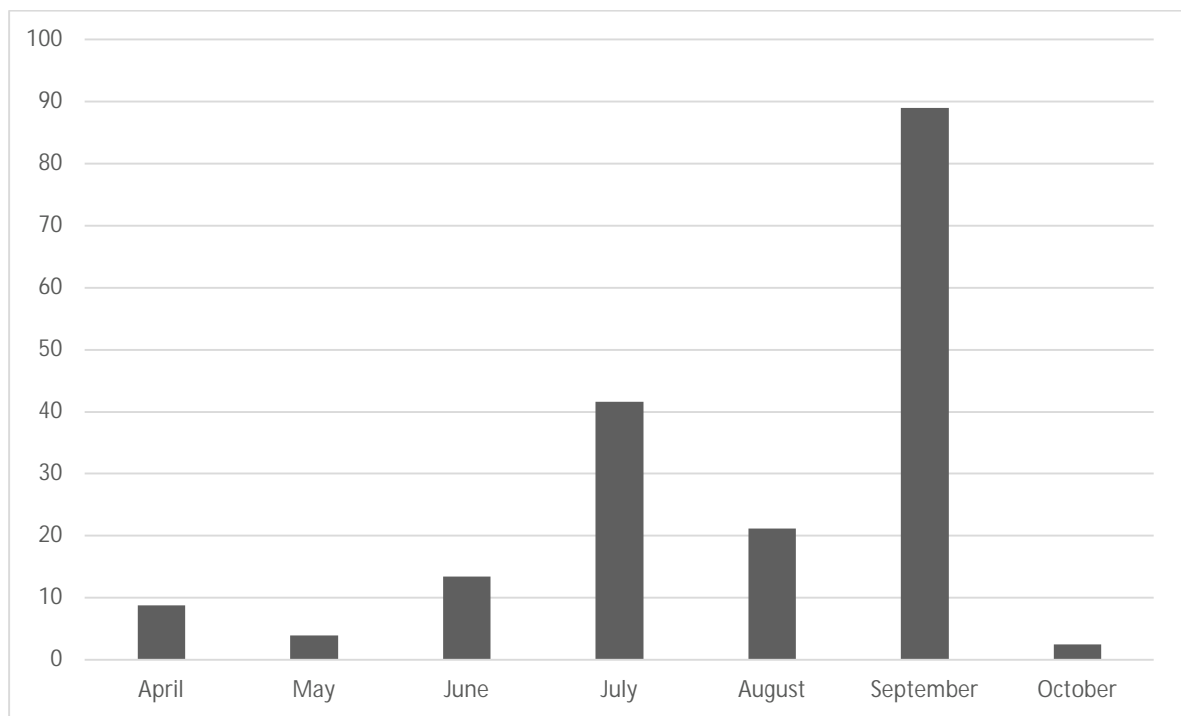
**Table A4.3 Average Number of Bats Recorded for Each Night During the Remote  
Detector Survey**



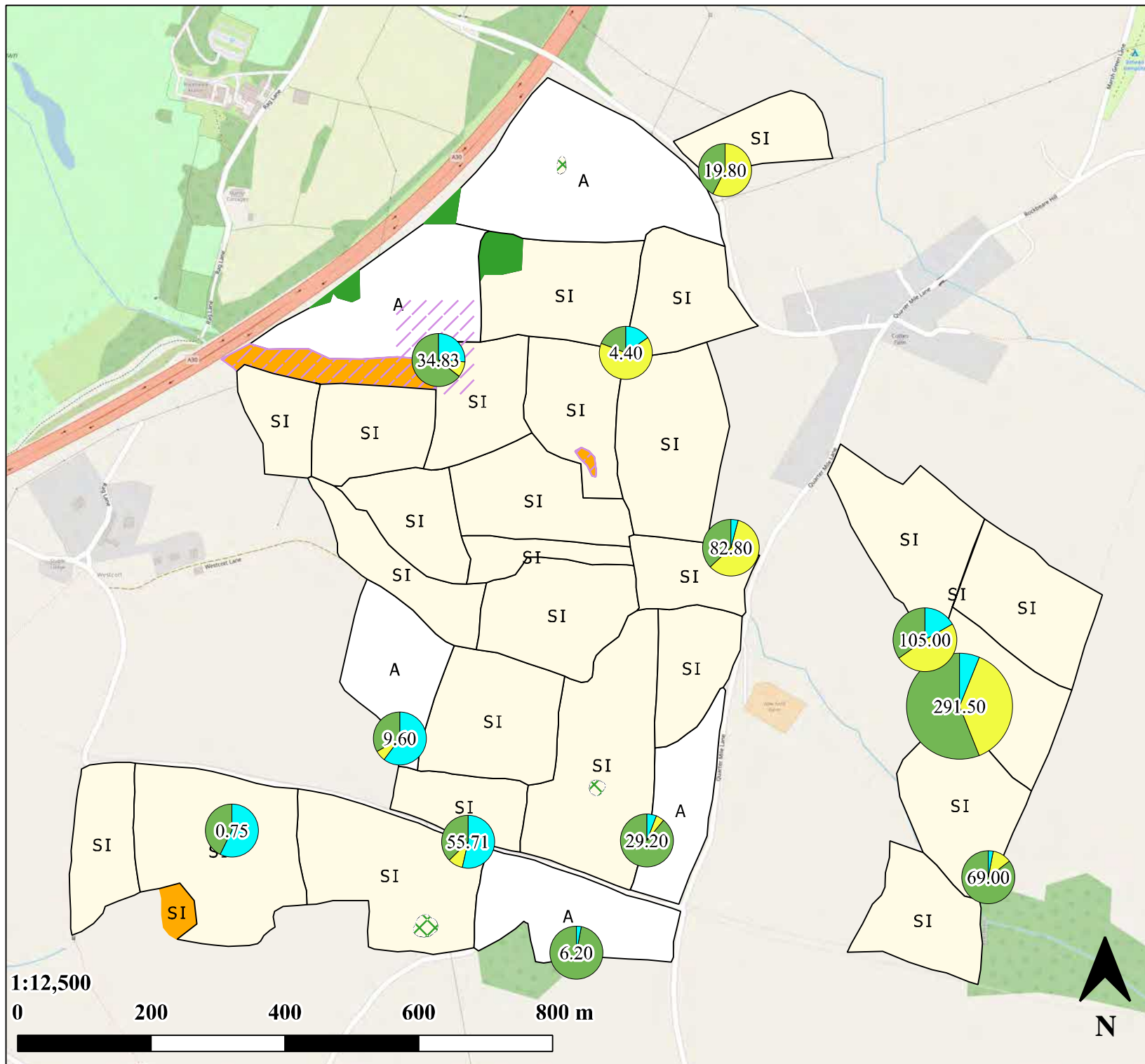
**Graph A4.4 Average Number of Total Bats Recorded for Each Night During Monthly Remote Detector Surveys**



**Graph A4.4 Average Number of Serotine Recorded for Each Night During Monthly Remote Detector Surveys**



**Graph A4.5 Average Number of Noctule Recorded for Each Night During Monthly Remote Detector Surveys**



## Legend

- Common pipistrelle
- Soprano pipistrelle
- Other bat species\*

The label indicates the average number of batpasses per night at the remote detector location.

\* Proportions of other bat species are presented in DWC Drawing Number 21/3754.02-05

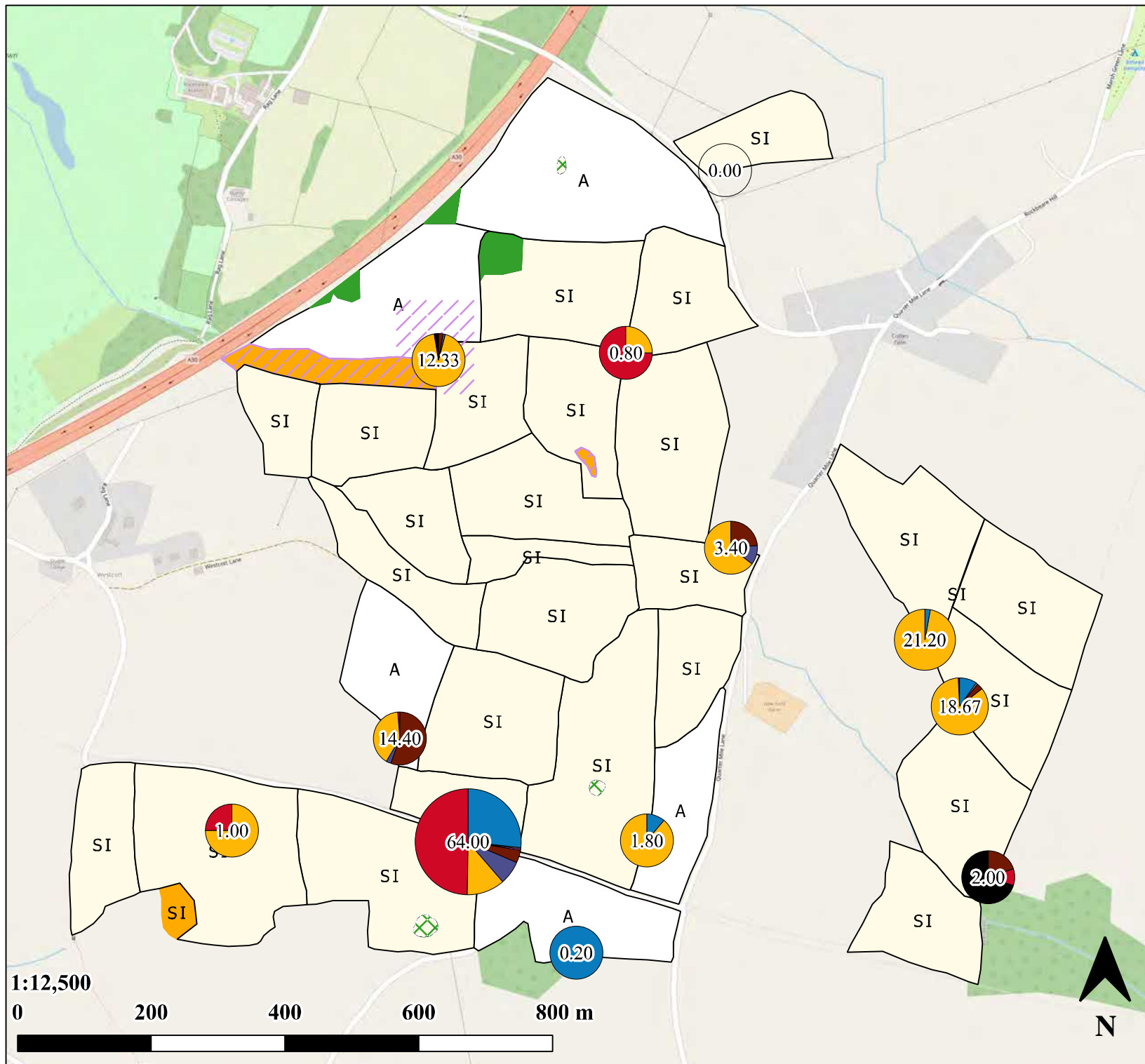
Title: Spring Remote Detector Survey Results 1

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-04  
 Date: November 2021

Drawn By: AP

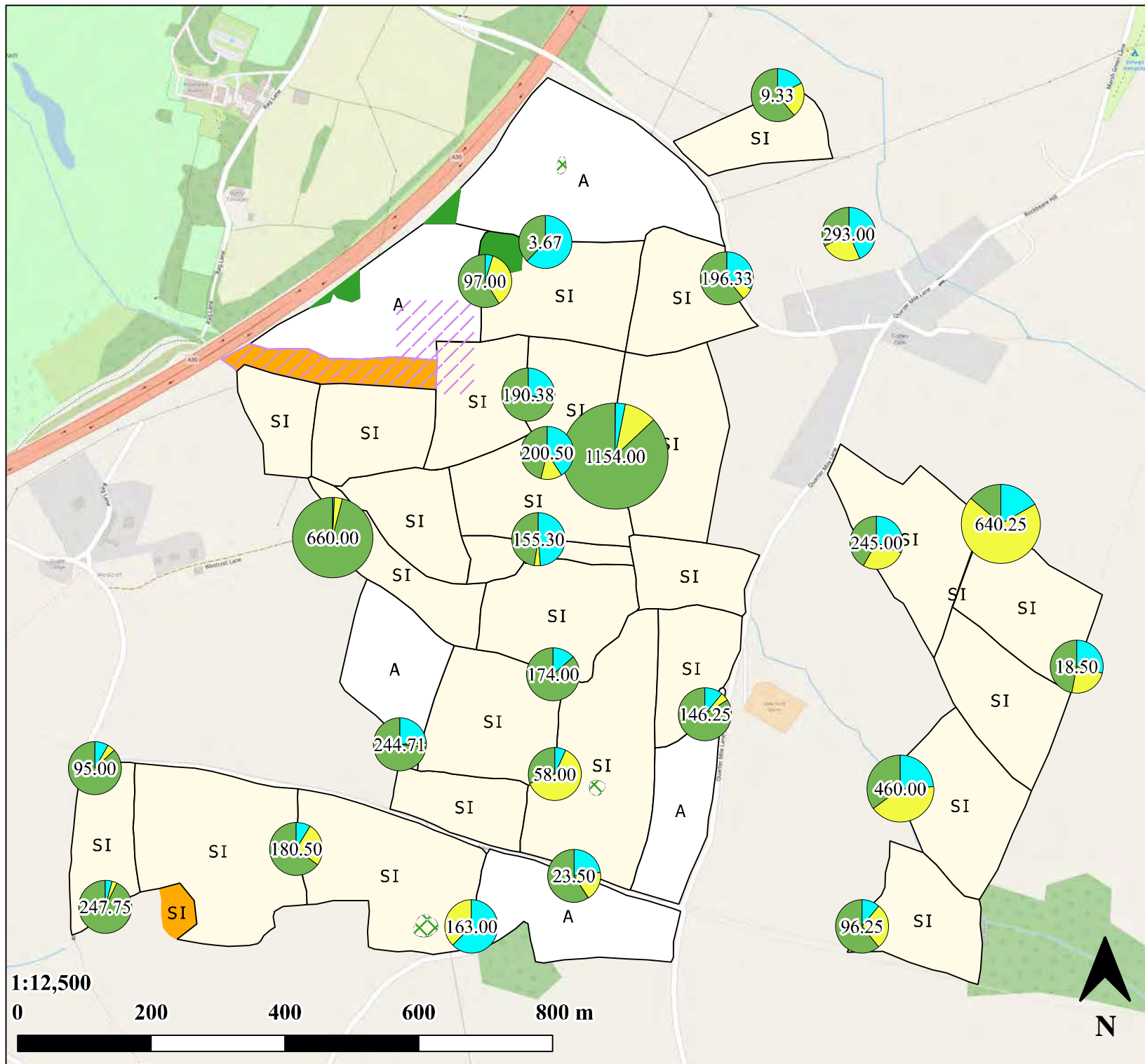
Checked by: LW

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1:12,500





## Legend

- Common pipistrelle
- Soprano pipistrelle
- Other bat species\*

The label indicates the average number of batpasses per night at the remote detector location.

\* Proportions of other bat species are presented in DWC Drawing Number 21/3754.02-07

Title: Summer Remote Detector Survey Results 1

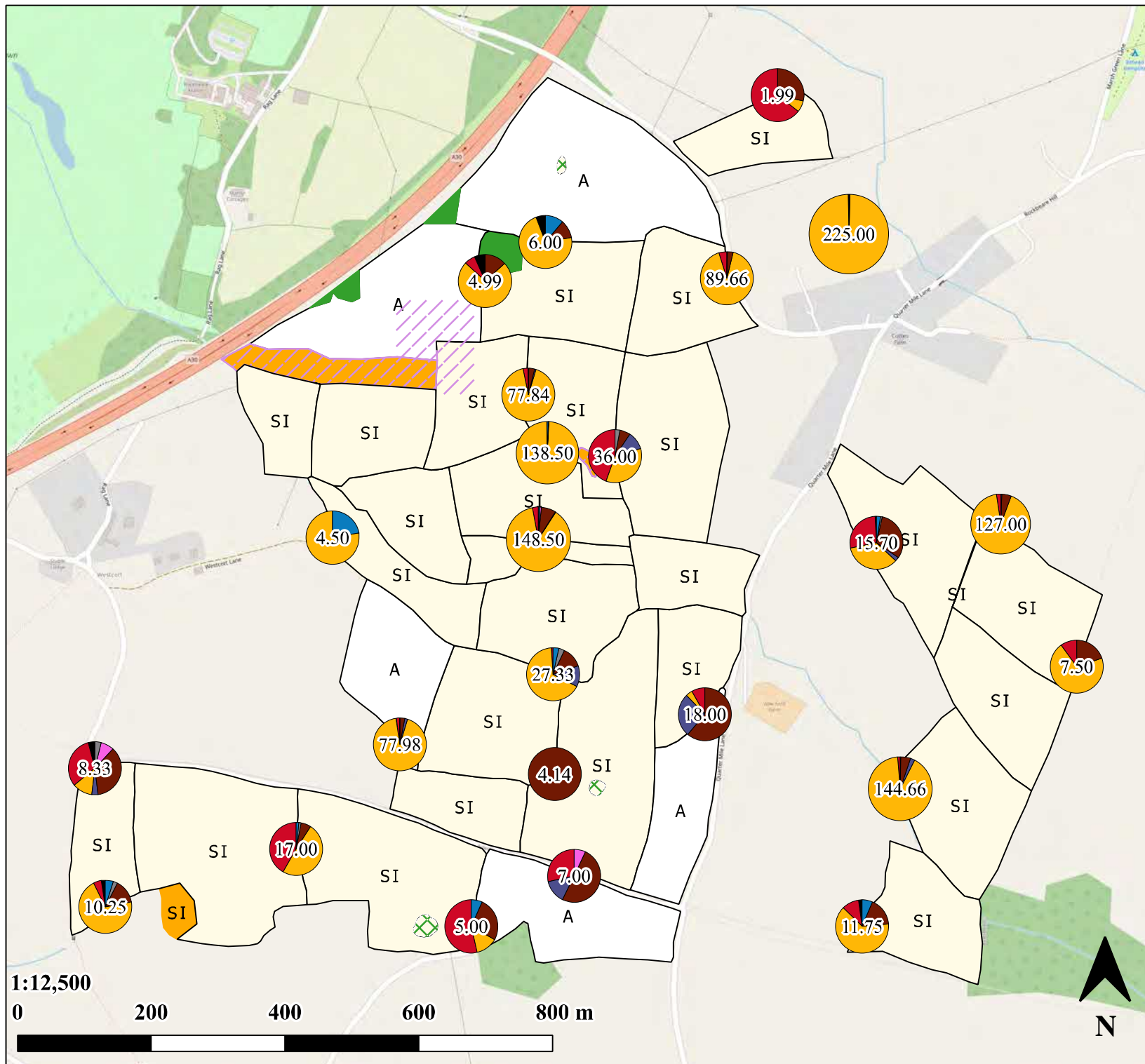
Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-06  
 Date: November 2021

Drawn By: AP

Checked by: LW

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## Legend

- Barbastelle
- Serotine
- Myotis species
- Leisler's bat
- Noctule
- Long eared bat
- Greater horseshoe
- Lesser horseshoe

The label indicates the average number of batpasses per night at the remote detector location.

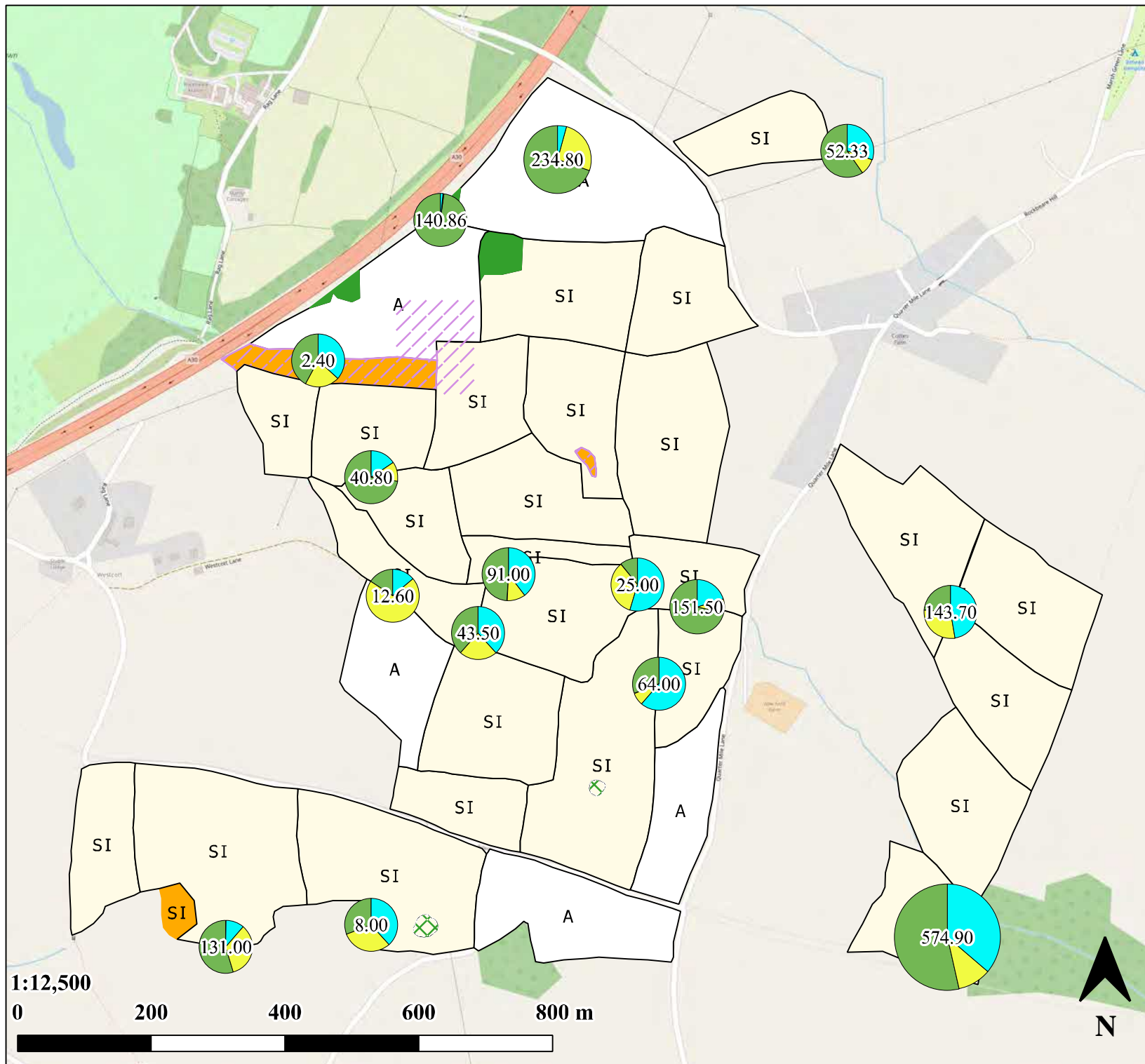
Title: Summer Remote Detector Survey Results 2

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-07  
 Date: November 2021

Drawn By: AP

Checked by: LW





## Legend

- Common pipistrelle
- Soprano pipistrelle
- Other bat species\*

The label indicates the average number of batpasses per night at the remote detector location.

\* Proportions of other bat species are presented in DWC Drawing Number 21/3754.02-09

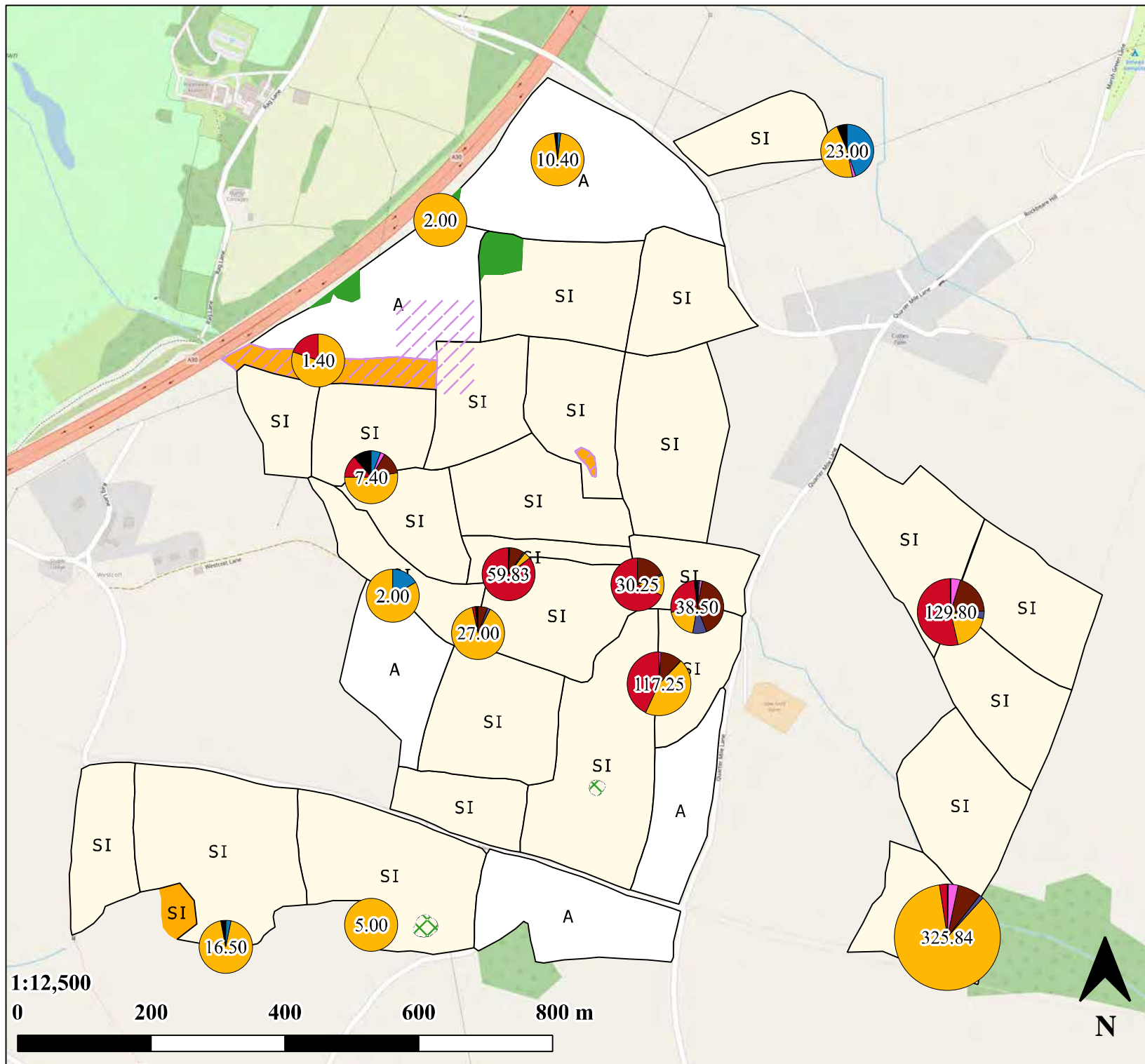
Title: Autumn Remote Detector Survey Results 1

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-08  
 Date: November 2021

Drawn By: AP

Checked by: LW

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## Legend

- Barbastelle
- Serotine
- Myotis species
- Leisler's bat
- Noctule
- Long eared bat
- Greater horseshoe
- Lesser horseshoe

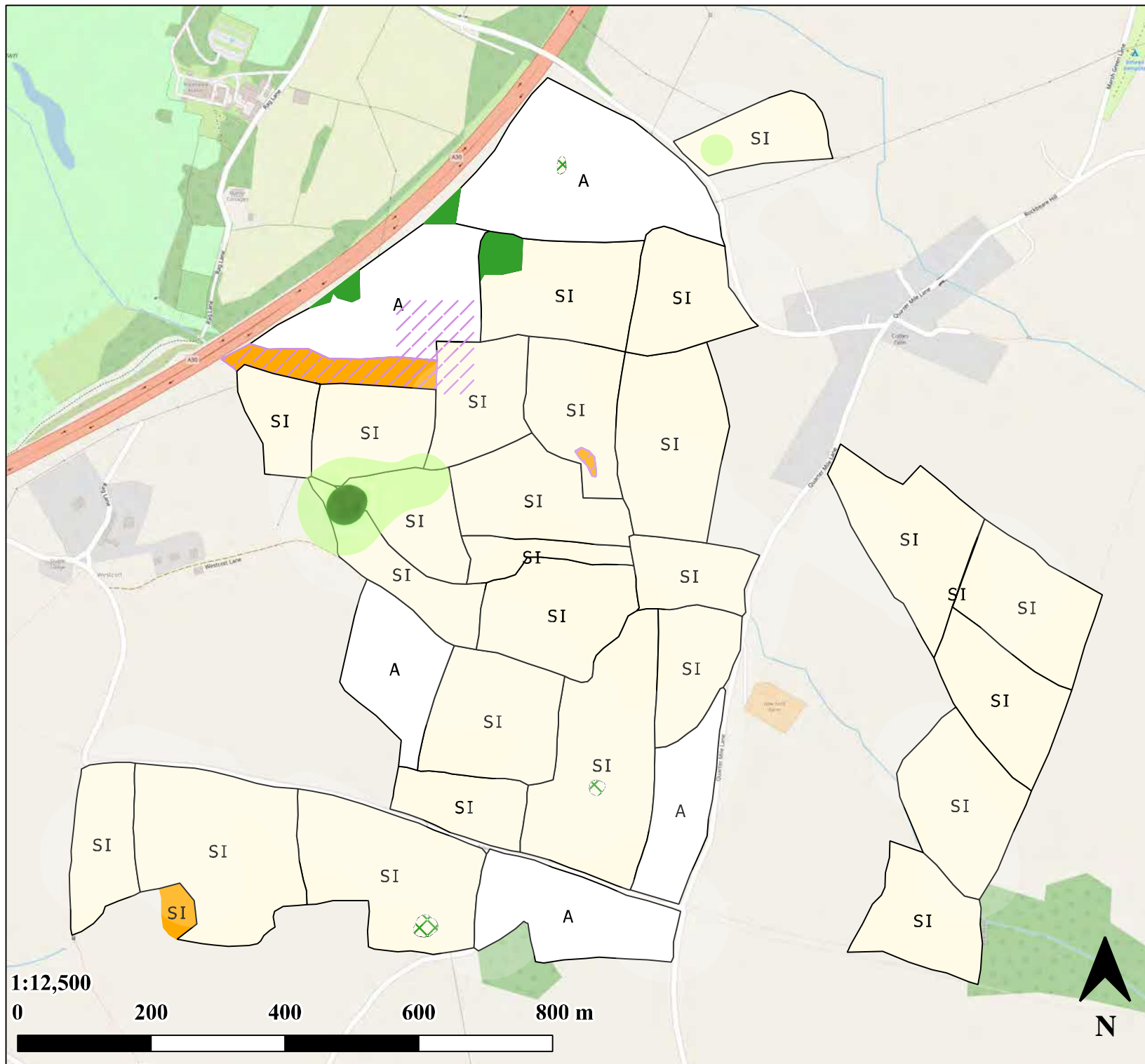
The label indicates the average number of batpasses per night at the remote detector location.

Title: Autumn Remote Detector Survey Results 2

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-09  
 Date: November 2021

Drawn By: AP

Checked by: LW



## Legend

- High activity
- Moderate activity
- Low activity

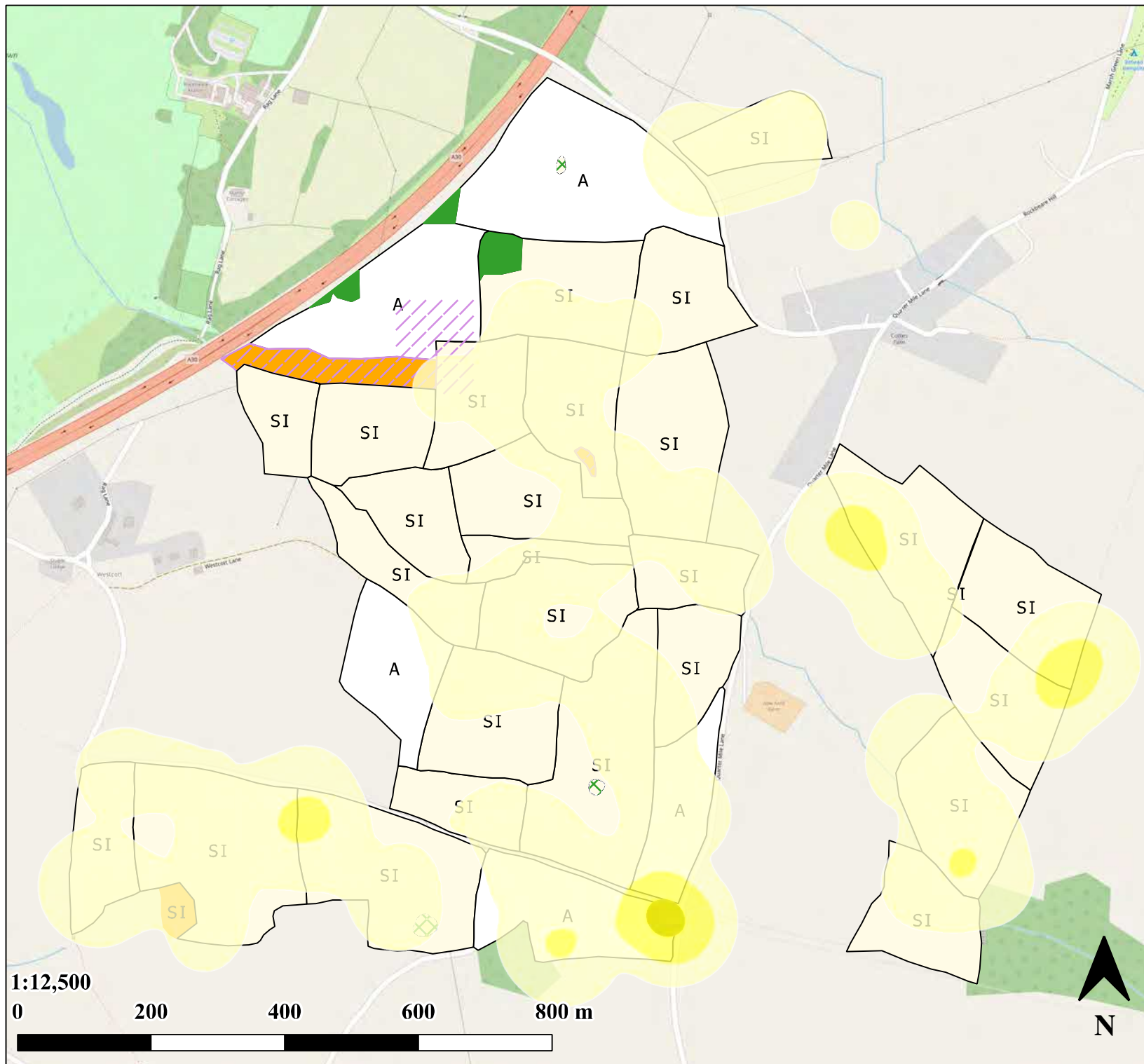
Title: Common Pipistrelle Activity Heat Map

Client: Low Carbon Alliance  
Site: Ford Oaks  
Drawing No.: 21/3754.02-10  
Date: November 2021

Drawn By: AP

Checked by: LW

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CONSULTANTS



## Legend

- High activity
- Moderate activity
- Low activity

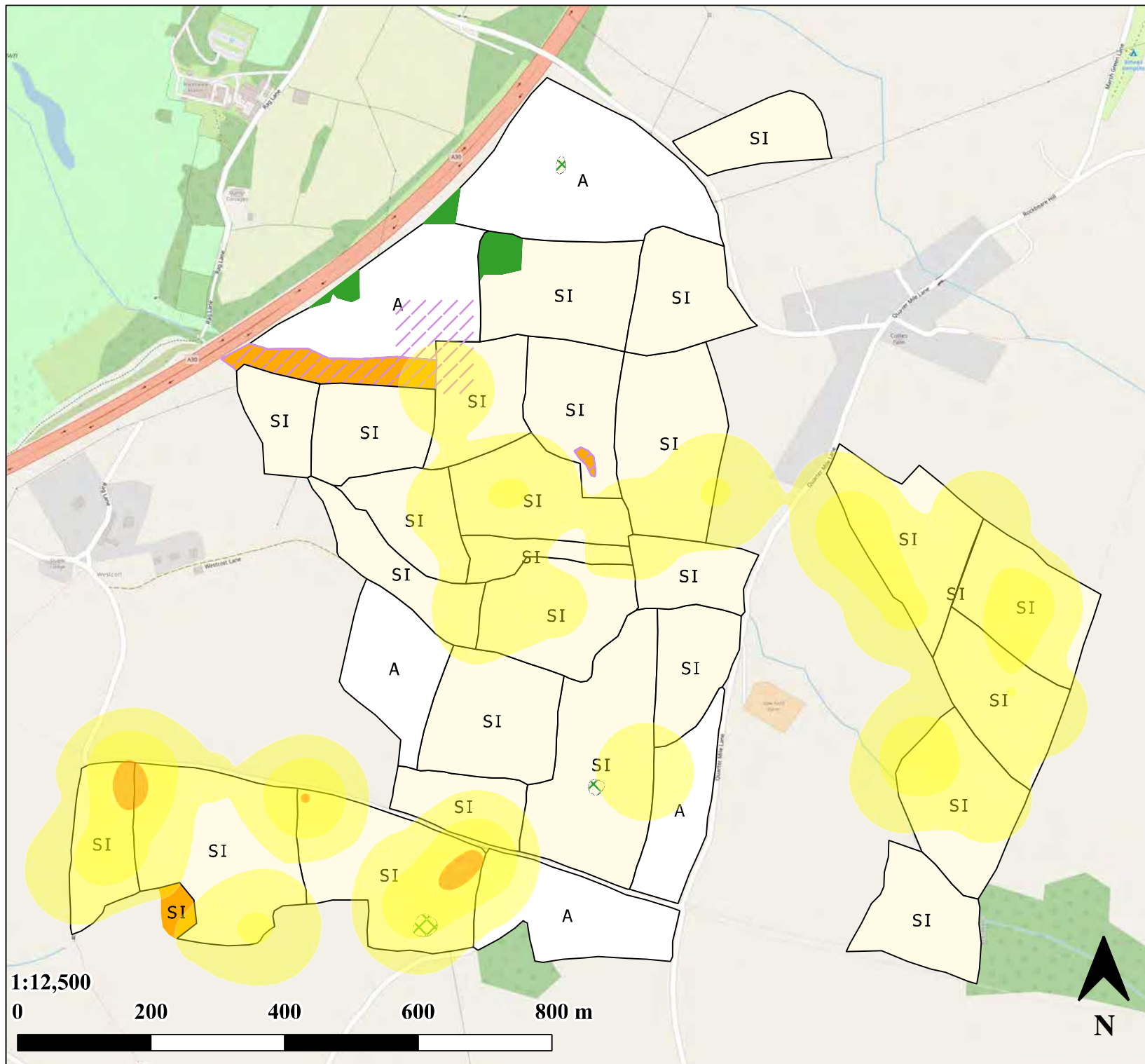
Title: Soprano Pipistrelle Activity Heat Map

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-11  
 Date: November 2021

Drawn By: AP

Checked by: LW





## Legend

- High activity
- Moderate activity
- Low activity

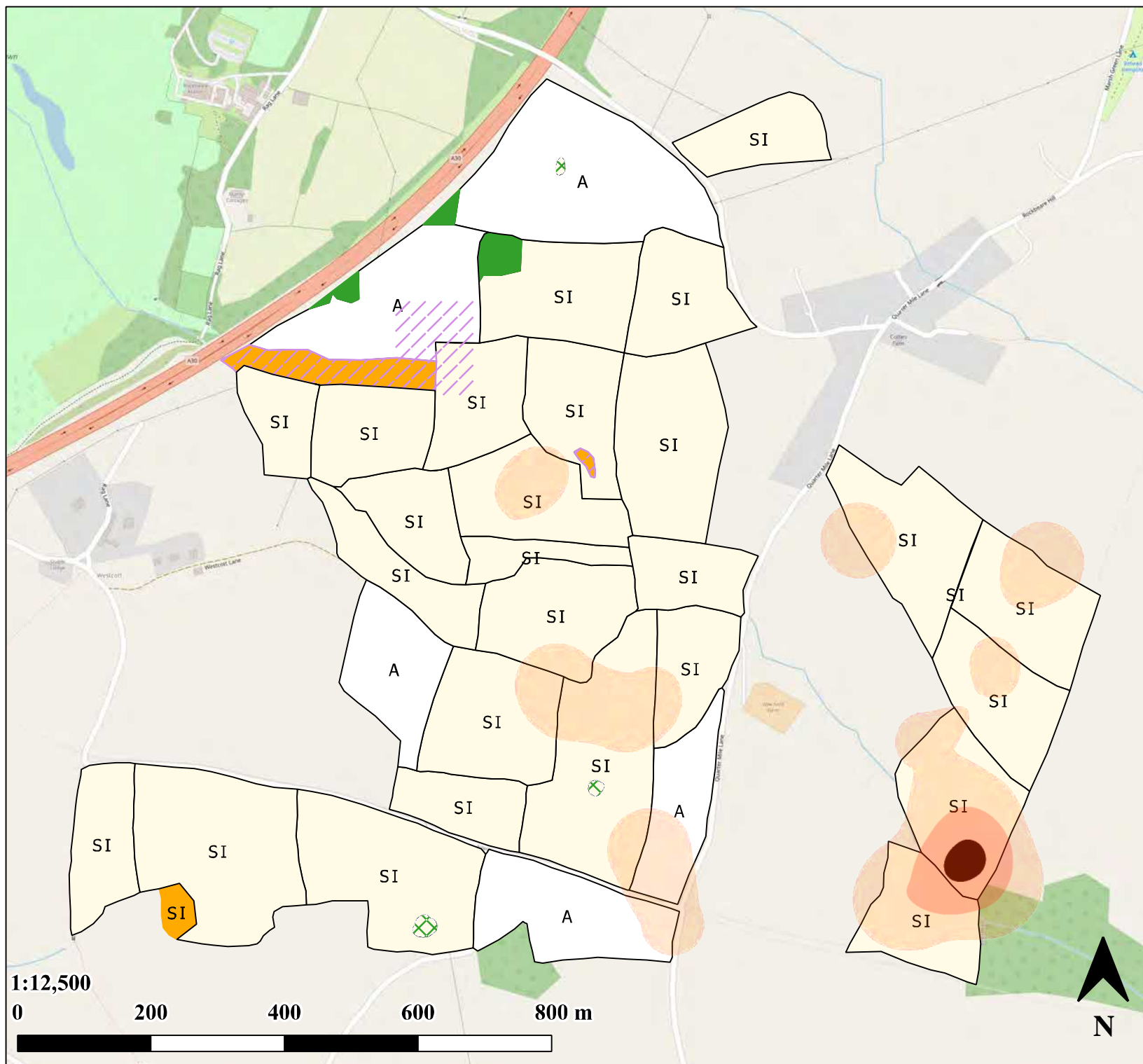
Title: Myotis Species Activity Map

Client: Low Carbon Alliance  
 Site: Ford Oaks  
 Drawing No.: 21/3754.02-12  
 Date: November 2021




Drawn By: AP

Checked by: LW





### Legend

-  High activity  
 Moderate activity  
 Low activity

Title: Noctule Activity Heat Map

Client: Low Carbon Alliance  
Site: Ford Oaks  
Drawing No.: 21/3754.02-14  
Date: Novemeber 2021

Drawn By: AP

Checked by: LW



## Appendix 5 – Site Photographs

	<p><b>Plate 1</b></p> <p>Area of botanical interest (D2)</p>
	<p><b>Plate 2</b></p> <p>Westcott Lane</p>





**Plate 3**  
Watercourse  
with limited  
riparian  
margins



**Plate 4**  
Proposed  
mitigation  
area

	<p><b>Plate 5</b></p> <p>Reception Compound for construction traffic (adjacent to Exeter Airport)</p>
--	---

**Table A5.1 Site Photographs**

## Appendix 6 – Mitigation Plan



## Appendix 7 – Ecological Management Plan Prescriptions

### 1.1 New Woodland Creation

A new area of woodland will be created within the ecological mitigation area D13b, this is a narrow field bordering the Withybed Copse CWS. Management will aim to encourage natural succession of woodland with plant species colonising from the CWS into this field. While also providing an important edge habitat between the woodland and surrounding open grassland. This area is currently a modified grassland. This will result in the creation of 0.2Ha of woodland.

#### *Habitat Aim:*

To create a naturalistic native broadleaved woodland which complements and enhances the neighbouring CWS. While being botanically and structurally diverse.

#### *Establishment:*

Trees will be planted on average at 3x3m spacings 5m from existing hedgerows and 10m from the CWS boundary. Trees will be planted in clusters and drifts to instil natural flow through the landscape. Tree whips of approximately 60cm will be planted with each receiving a biodegradable mulching mat and biodegradable tree guard. Losses within the first three years will be replaced. Tree species have been selected to provide a naturalistic woodland regime. The majority of tree species selected will be pioneer species of open ground. The species list includes but is not restricted to, silver birch *Betula pendula*, alder *Alnus glutinosa*, hawthorn *Crataegus monogyna*, oak *Quercus robur*, and hazel *Corylus avellana*. Scrub, field, and ground layer will be left to succeed naturally from the surrounding hedgebanks and woodland.

#### *Management:*

A ride of 5m will be established between the newly planted woodland and Withybed Copse CWS. This will improve habitat structure and protect the veteran trees on the edge of CWS from competition pressure from the younger trees. The ride will be maintained through yearly cutting carried out in September. A 5m deep scalloped bay will be cut every 10 m along the ride. The remainder of the area will be left unmanaged to facilitate natural scrub encroachment and plant colonisation of the new woodland area.

#### *Monitoring:*

For the first five years a check on the establishment and health of planted trees should be undertaken annually. Every five years from planting, a botanical assessment of the site should be undertaken to monitor the ground flora.

#### *Estimated Cost:*

This is estimated to cost between £3750 and £8500 depending on quality of materials used.

### 1.2 Hedgerow Enhancement

Current hedgerows onsite will be allowed to outgrow improving their structure for nesting birds, invertebrates and bats.

*Aim:* The enhance the structural and botanical diversity of hedgerows onsite. While also providing screening and limiting light spill across the wider landscape

*Management:*

Management of the hedgerows on site will change to a cutting rotation of three years on the sides and five-years on the top. Cutting should be undertaken outside of the bird nesting season of March to August (inclusive). The optimum period is during late winter (January to February) to allow any fruits and berries to be foraged by over-wintering birds and small mammals. Some individual tree species within the hedgerow should be allowed to grow into mature trees. A suitable candidate for this is oak and it is recommended that there is a minimum of 15m between each mature tree. This will eliminate the need for trees to compete with each other for nutrients and sunlight.

### 1.3 Hedgerow Creation

Four new hedgebanks will be established on site, this will increase the connectivity of site for animal species as well as provide new nesting opportunities for birds. The combined length of these new hedgerows will be 350m long.

*Aim:*

Create a hedgebank which blends into the local landscape and provide botanical and structural diversity.

*Establishment:*

Hedgerow planting should consist of planting a double row of whips staggered along the top of a 1m high earth bank. Species should include English elm *Ulmus procera*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, ash *Fraxinus excelsior*, oak *Quercus robur*, elder *Sambucus nigra* and holly *Ilex aquifolium*. Hedgerow planting should be undertaken in November, when the weather and soil conditions are most suitable for root establishment. Trees should be planted in a double staggered row with plants at a density of 5 plants per linear metre. Ideally, hedge plants should be two-year-old transplants, 45 - 60cm high. The roots of the plants will need to be kept moist prior to planting and protected from wind or frost damage. The bank should be mulched each Autumn with previously composted wood chippings or well-rotted farm manure and should be placed at a depth of 20cm. Any trees that have failed to establish should be replaced at the appropriate time of year.

*Estimated Cost:*

The estimated cost to plant the new hedgerows will be £7500

### 1.4 Stream enhancement

A small stream forming a tributary of the River Clyst runs from east to west across the Ford Oaks site. It is currently heavily poached with low botanical diversity along its length. The project will increase the amount of water held within the stream during wet periods, as well as improving water quality and riparian habitat on site.

*Aim:* To establish a watercourse with a range of hydrological habitats which has 70% of its banks covered in aquatic marginal vegetation.

*Establishment:*

Leaky dams will be installed along three focused stretches of the stream (D13, D9 and G4). Leaky dam construction will follow Environment Agency advice on creating leaky dams on



water bodies less than 3m in width. Each dam will consist of 5 logs, 4 of which will be dug 50cm into either side of the stream bank in a double row of two. The 5<sup>th</sup> log will be placed on top of these four and extend either side of the stream bank. This log will be staked in place and secured with wire. All logs will be bound together with wire. The lowest log will be placed 10cm above the flow level during the annual low flow in early September, allowing low and moderate flows as well as fish populations to pass through the dams.

The area 1m either side of the watercourse will be sown with pond edge seed mix in Fields D9 and G4. These seeds will be sown in spring once water levels start to recede.

In D9 and D13 the watercourse will be ungrazed which will reduce livestock poaching of the bank. A stock fence will be placed to limit grazing pressure from the northern bank of the stream in G4.

*Management:*

Replacement of damaged dams throughout scheme's lifetime. Cutting of marginal vegetation on a three-year cycle with no more than one third being cut within a single year

*Monitoring:*

An annual check of the condition of the water course to check the structural validity of leaky dams. A botanical assessment undertaken every five years from project start.

*Estimated Cost:*

The cost to install the leaky dams and sow the area with seed will be roughly £7700

## **1.5 Scrapes**

Small scrapes will be dug in areas nearby the stream in Fields D9, G4 and DC03 to hold excess flood water. An additional bund will be installed in the mitigation D13a, to create a scrape from the water draining down the hill. These scrapes will drain naturally through evaporation over the course of spring and early summer. These scrapes will improve invertebrate biomass and diversity on site as well as provide breeding opportunities for amphibians.

*Habitat aim:*

Creation of unvegetated fluctuating attenuation features to slow excess flood water from the stream.

*Establishment:*

In fields D9, G4 and DC03, an excavator will dig a 30-50cm deep depression in marked areas close to the stream. These areas will have gentle sloped sides, tapering from the centre. The edges of the scraped area will be scalloped. All material from the scrape digging will be removed from the immediate area and used elsewhere on site.

In the mitigation area a bund will be constructed in the north-west of the field using earth from the field. The bund will not exceed 50cm in height and it will be 1m thick. The bund will be impervious to water and will block the two drains currently present within the field. A sluice will be installed to ensure water does not over-flow the bund.

*Management:*

All the scrapes will be located in areas with light livestock grazing, the combination of this grazing and the fluctuations in water level will maintain areas of bare earth on the scrapes banks.

*Monitoring:*

Monitoring should be undertaken at the beginning of spring to ensure that the scrapes hold water. This will be part of the larger water course monitoring.

*Cost estimates:*

It is estimated that scrape creation will cost £2500 for plant hire and labour.

## **1.5 Meadow**

The mitigation fields; D13a, DC03, G4 and D9 will be sown with Habitataid's Devon Meadow mix. This mix is sourced roughly 20km from the site ensuring the resulting plant community will be resilient to site conditions, provide maximum benefits to biodiversity, and enhance the local landscape. The mix includes Devon specialities such as corky fruited water dropwort *Oenanthe pimpinelloides*. 10m from the stream edge in field DC03 will be sown with Habitat Aid Wet Wildflower Meadow Seed Mix. To introduce species which can better cope with winter waterlogging. Traditional meadow management will be undertaken of these fields of yearly cutting and seasonal grazing. This will establish a near natural grassland within these fields.

*Habitat Aim:*

Establish roughly 3.75Ha of species rich pastures. Botanical monitoring will be assessed with the aim to establishing the NVC community MG5 Crested dogs tail common knapweed grassland community. The habitat will aim to be in good condition.

*Establishment:*

Seed sowing will be undertaken in September. Prior to sowing the areas will be cut and scarified. The seed mix will be sown at a density of 4g per meter squared over the entire area. During the establishment period the grassland will be lightly grazed at no more than 1 livestock unit (LU) per Ha, in line with light grazing across the rest of the site. This establishment period will be for 18 months after sowing has taken place.

*Management:*

The newly created meadows will be managed through annual cuts. An annual cut will be undertaken at the end of August or beginning of September depending on weather conditions, with all cut vegetation being removed after laying in situ for two weeks. From October to March the area will be lightly grazed at no more than 1 LU per Ha, in line with light grazing across the rest of the site.

*Estimated Cost:*

It is estimated that this will cost £3000, for seed cost and labour.

## 1.6 Solar array grasslands

### *Habitat aim:*

To establish 52ha of species-rich pasture lightly grazed by sheep beneath the solar panels. Two fields within the layout are currently arable fields. With the remained being existing pasture. The habitat will be assessed with the aim of establishing the NVC MG6 Perennial rye grass crested dogs tail grassland community. Habitat condition will be in good condition.

### *Establishment:*

The two pasture/arable rotation fields DC01 and DC02 will be sown with Habitataid's Grazing Meadow Seed Mix.

Within the remaining fields, 30% will be sown with Habitataids's Premium wildflower Only Mix.

Sowing will be undertaken in September. Prior to sowing the areas outlined on the map will be cut and scarified. Sowing will take place at a density of 4g per meter squared. Within the existing pasture sowing will be undertaken in clusters across the site.

### *Management:*

The solar array grassland areas will be lightly grazed by sheep during the entire year at a stocking density of no greater than 1 LU per Ha. Occasional grass cuts and management will be carried out as required.

### *Estimated Cost:*

It is estimated that the seeds and labour to sow this area will cost £9000.

## 1.7 Tussock Grassland

Field corners and edges as well as a buffer area around the stream will be managed as tussocky grassland. This will create a variety of micro habitats providing increased opportunity for invertebrates, reptiles, and small mammals. Cuttings from this habitat's ongoing management will be used to create habitat piles across the site. Such vegetation piles can provide habitat for a range of species, providing egg laying sites for grass snakes *Natrix helvetica*, and creating habitat and over wintering locations for an even wider range of invertebrate, reptile and small mammal species.

### *Habitat Aim:*

Establish a network of roughly 14.5ha of rough tussocky grassland across the site. the habitat will be assessed with the aim of establishing the NVC MG1 *Arrhenatherum elatius* grassland community.

### *Establishment:*

Species from this habitat are likely to colonise quickly on their own no prior establishment will be required.

### *Management:*

Open areas outside of the mitigation fields and the total setting out area be cut on a three-year rotation with one third of these areas' grasslands being cut in any one year to ensure that the

site maintains consistent areas of this habitat over winter with cuts occurring in late summer. After laying in situ for two weeks, all cut vegetation will be placed in piles approximately 2m<sup>2</sup> in sunlit locations throughout the site to decompose. These habitat piles will not be placed within 10m of a watercourse.

*Grassland Monitoring:*

All grassland types will be monitored by an NVC survey carried out every 5 years from the start of the project. Success of habitat establishment will be assessed based on the similarity of the grassland habitats to listed NVC communities.

## **1.8 Field Trees**

The site currently possesses numerous veteran oaks growing in open habitats. As part of the scheme these trees will be enhanced by providing specialist plant seeding and habitat pile creation around the bases of these current trees.

*Habitat Aims:*

Enhance current ground around current field trees by creating deadwood habitats and woodland influenced flora.

*Establishment:*

The areas 3m from the base of field trees will be sown with Habitat aids Hedgerow and Light Shade Seed mix. Cuttings from the clearance of woody vegetation onsite will be stacked in habitat piles approximately 2m<sup>2</sup> in size beneath these field trees creating important deadwood habitat.

*Management:*

Any fallen limbs from the trees in the future should be left in situ beneath the trees.

*Estimated Cost:*

It is estimated that this will cost £400 for seed costs and labour

## **1.10 Ponds**

Several small ponds are currently present on site, the majority of these are heavily shaded. The project will undertake thinning of vegetation around the ponds to increase light levels and increase perennial diversity around the ponds via seed sowing.

*Habitat aim:*

Establish cover of aquatic marginal vegetation over two thirds of the pond banks.

*Establishment:*

Crown lifting of mature trees around the ponds to 3m, and selective removal of shrub and trees will be undertaken around each pond.

An area 1m from the pond edge will be sown with a pond edge species mix.

*Management:*

Marginal vegetation around the ponds will be cut on a three-year rotation with no more than one third of the vegetation being cut annually.

*Estimated Cost:*

It is estimated that this will cost £900

### **1.11 Beetle Banks**

Beetle banks will be installed in the southern extent of field DC01, this will provide hibernation habitat for invertebrates.

*Aim:*

A bank consisting of loose soil and tussocky grasses to provide a hibernation site for invertebrates.

*Establishment:*

In the spring prior to sowing the field as mentioned above, the strip beneath the powerlines should be ploughed in opposite directions to create a raised bank of 40cm 3-5m high. This bank should be sown in line with the remainder of the field.

*Management:*

The bank should be cut on a three-year rotation with one third of these areas' grasslands being cut in any one year to ensure that the site maintains consistent areas of this habitat over winter with cuts occurring in late summer. After laying in situ for two weeks, all cut vegetation will be placed in piles approximately 2m<sup>2</sup> in sunlit locations throughout the site to decompose.

*Estimated cost:*

It is estimated the beetle bank will cost £400 for labour costs.

### **1.12 Butterfly bank**

A butterfly bank will be installed in field D2 the butterfly bank creates a variety of aspects with a mosaic of bare ground and herbaceous plants. This will provide important breeding habitat for butterflies but also solitary bees and wasps and a host of other pollinators.

*Aim:*

To increase areas of sunny bare ground and support a range of early successional herbs.

*Establishment:*

A C shaped trench will be dug 50cm deep and 2m wide and the soil from the excavation stored to one side. The topsoil from the centre of the C will be stripped and will be used to fill in this trench and the spoil from the trench digging will be placed on top of this soil. Building rubble will then be placed onto the top of this and stone chippings will be used to cover the area previously topsoil stripped. The bank will be sown with the Habitat aid premium wildflower mix sown over the other parts of the field the bank.

*Management:*

The bank will be cut on a three-year rotation with no more than a third of the bank being cut in any one year.

*Estimated Cost:*

It is estimated the butterfly bank will cost £800 for labour costs and plant hire.

### **1.13 Bat Boxes**

Veteran trees and old farm buildings provide opportunities for bats to roost within the landscape. Bat roosting potential on site will be increased through installation of bat boxes on mature trees with no/low roosting potential on hedgebanks across the site.

*Aim:*

Increase the number of roosting opportunities for bats within the landscape.

*Establishment:*

25 bat boxes will be installed on mature hedgebank trees across the site. 15 of these will be of the Kent bat box design and 10 of these will be Schwegler 2FN boxes. Boxes should be located at a minimum height of 3m from the ground on a southern or western aspect.

*Estimated Cost:*

It is estimated that it will cost £1200 to purchase and install the bat boxes.

### **1.14 Bird Boxes**

There are limited opportunities for cavity nesting bird species to nest on site. Through installation of bird boxes bird nesting potential on site will be increased.

*Aim:*

Increase the number of bird nesting opportunities for birds to nest on site.

*Establishment:*

This will be enhanced by the installation of 50 Woodstone boxes across the site. Bird boxes will be installed on mature trees at a height of at least 3m. these will be placed on northern and eastern aspects, unless there is suitable shade on a southern or western aspect.

*Estimated cost:*

It is estimated that the bird boxes will cost £750 to buy and install.