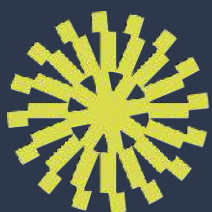


Ecological Impact Assessment



Tyler
Grange

P6, Spring Park Data
Centre
10th June 2024

TG Report No. 15116_R08a_AM_JA

Report No:	Date	Revision	Author	Checked	Approved
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Summary

- S.1. This report has been prepared by Tyler Grange Group Ltd (TG) on behalf of Ark Estates 4 Limited. It sets out the findings of an Ecological Impact Assessment on land to the south of Spring Park Data Centre, Corsham, hereafter referred to as 'the site'. The proposals are for the development of a new data centre building with associated infrastructure.
- S.2. The site comprises an area of tall ruderal vegetation with hardstanding and scrub and broadleaved woodland around the edges.
- S.3. The site falls into the consultation zone for Bath and Bradford-on-Avon Bat sites SAC, and therefore it will be necessary to conduct a Habitat Regulations Assessment (HRA) prior to determination to assess whether the development proposals in isolation, or in combination, are likely to cause a significant adverse effect on the features for which the SAC is designated. Bat activity surveys have shown that greater and lesser horseshoe bats, for which the SAC is designated, use the woodland edges of the site for commuting.
- S.4. The site is within an SSSI Impact Risk Zone (IRZ); therefore, the Local Planning Authority (LPA) should consult Natural England on likely risks from 'All planning applications'. However, it is considered that production and implementation of a CEMP will avoid the potential for pollution impacts to surrounding SSSIs. Therefore, no significant adverse effect to the integrity of SSSIs is anticipated.
- S.5. The habitats that will be lost to facilitate the development are of negligible importance and will be compensated for by the provision of a comprehensive landscaping scheme, informed by a Biodiversity Net Gain (BNG) Assessment, which includes new woodland planting, grassland creation, SuDs creation, standard tree planting and shrub planting at the northern extent of the site.
- S.6. Moreover, there will be further tree planting, scrub creation, hedgerow planting and creation of a pond at the southern extent of the site. This will a gain in hedgerow units of + 53.37 %. Due to the volume of ruderal habitat lost to sealed surface developed land, the proposals results in a -12.76% loss in habitat units. Consequently, it is proposed that this deficit is compensated for through use of an off-site third party unit provider to secure a 10% uplift in habitat units, with further details available in **Appendix 3**.
- S.7. There is a low population of slow worms on site. There is a reasonable diversity of invertebrates within the site but most are common and widespread species. Five trees in the woodland within and surrounding the site were assessed as having moderate or high potential to support roosting bats, however further emergence and re-entry surveys did not record any bats roosting within them. The woodland within and surrounding the site was also assessed to have suitability for hazel dormouse and surveys for this species concluded their likely absence.
- S.1. Mitigation, compensation and enhancement measures regarding protected species have been detailed in **Section 4** of this report, which includes:
- A Construction Environmental Management Plan (CEMP) based on principles outlined in this report, which will set out measures to protect retained ecological features; and protected and priority fauna, including reptiles, bats, breeding birds, badgers, and hedgehogs;



- A Landscape and Ecological Management Plan (LEMP) to maximise the biodiversity potential of retained and newly created habitats, also included would be a programme of monitoring and a mechanism to modify management prescriptions, if required; and
 - Implementation of a sensitive lighting strategy for horseshoe bats and other bat species.
- S.2. Subject to the implementation of the recommended further works prior to determination, mitigation, compensation and enhancement measures which can be secured through appropriately worded planning conditions, it is considered that the proposed development could conform to relevant legislation and national and local planning policy (as listed in **Appendix 1**).



Section 1: Introduction

Introduction

- 1.1. Tyler Grange Group Ltd (TG) was instructed by Ark Estates 4 Ltd to undertake an Ecological Impact Assessment on a parcel of land in Corsham, SN 13 9ET, to the south of the existing Spring Park Data Centre, hereafter referred to as 'the site'.
- 1.2. This report is to support a planning application for proposals for the development of a new data centre building with associated infrastructure and landscaping. The site is referred to as "P6" in the Ark Spring Park naming conventions, covers approximately 6.7 ha, is centred at National Grid Reference ST 85270 68754 and its extent is shown in **Figure 1.1**, below.

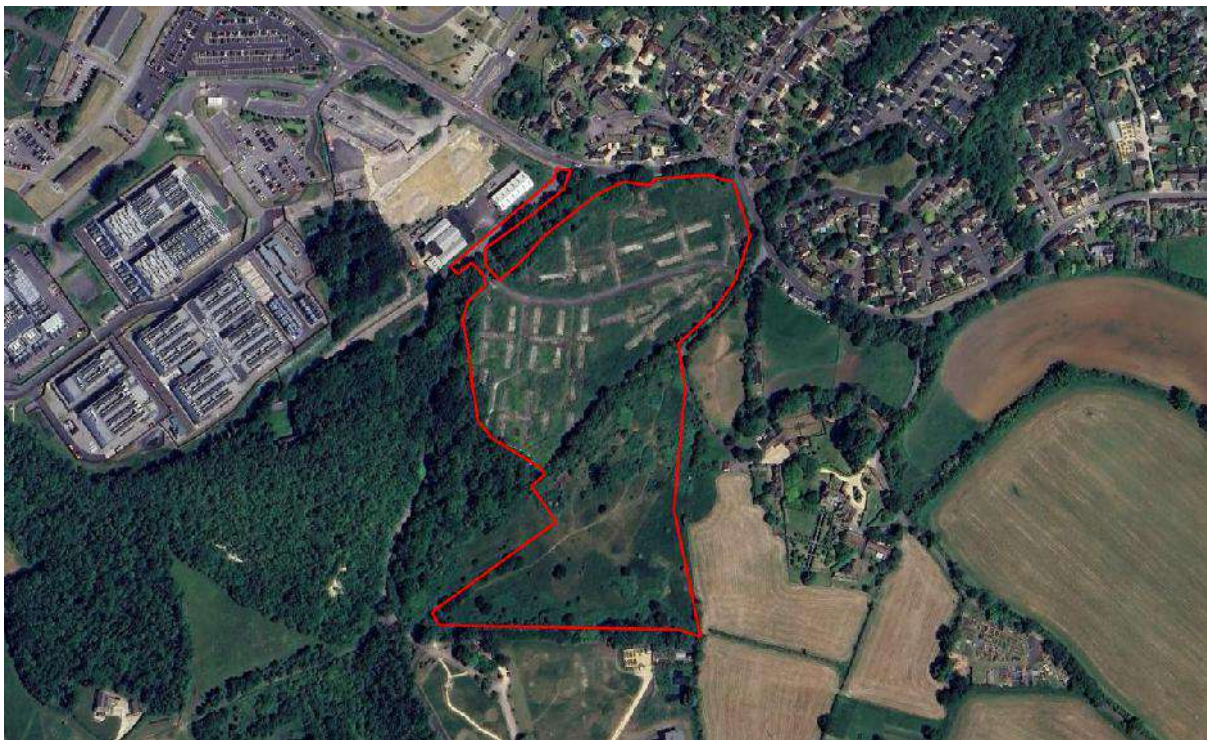


Figure 1.1: Indicative red line boundary (contains Google Earth Data © 2024)

This report will be subject to an update when further work is fully completed.

Site Context

- 1.3. The site is located between Corsham and Neston, Wiltshire, and is defined by the application boundary (see plan **15116/P01A Habitat Features Plan**).
- 1.4. The site northern extent of the site comprises an area of previously developed land which has largely been left unmanaged. The site is a former military site but has known not been used for such for close to a century (as stated by Wiltshire Council).
- 1.5. Concrete foundations of previously demolished buildings are still present within the site. The main habitat within the site is tall ruderal, with some scattered scrub. Broadleaved semi-natural woodland and scrub is present around the site perimeter, with a large woodland block to the west.



he southern extent of the site comprises mainly other neutral grassland and dense scrub. The site is currently vacant but there are Public Rights of Way (PRoW) through the site therefore it is accessed by the public including dog-walkers.

- 1.6. The site is surrounded by residential areas with associated gardens to the east, green public open space and a retirement village to the south west and agricultural fields to the south east. There is an area of broadleaved semi-natural woodland immediately to the west with agricultural fields beyond.

Purpose

- 1.7. The purpose of this report is to:
- Using available background data and results of a field survey, describe and evaluate the ecological features present within the 'likely zone of influence (Zoi)' of the proposed development;
 - Assess ecological issues and opportunities as a result of the development;
 - Where appropriate, describe mitigation and enhancement proposals, together with planning controls, to ensure conformity with policy and legislation listed in **Appendix 1**; and
 - Evaluate proposals in terms of whether they will achieve biodiversity net gain.
- 1.8. This assessment and the terminology used are consistent with the Guidelines for Ecological Impact Assessment in the UK and Ireland¹.

Relevant Legislation and Policy

- 1.9. This assessment has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in **Appendix 1**.
- The Conservation of Habitats and Species Regulations (CHSR) 2017 (as amended);
 - The Wildlife and Countryside Act (WCA) 1981 (as amended);
 - Countryside Rights of Way (CRoW) Act 2000;
 - The Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act 1992;
 - The Hedgerows Regulations 1997;
 - The Wild Mammals (Protection) Act 1996;

¹ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Winchester



- The UK Post-2010 Biodiversity Framework (2011-2020) (Joint Nature Conservation
- Committee (JNCC) and Department for Environment, Food and Rural Affairs (DEFRA), 2012);
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011);
- The Environment Act 2021;
- The National Planning Policy Framework (NPPF) 2019;
- Office of the Deputy Prime Minister (ODPM) Circular 06/2005: Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System; and
- Wiltshire Core Strategy (WCS), adopted 2015; and
- The Corsham Neighbourhood Plan 2016 – 2016.



Section 2: Methodology

Scope

- 2.1. The scope of work has informed the description and assessment of importance of ecological features – in line with Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines – the consideration of opportunities and constraints to development, and mitigation and enhancement requirements to ensure conformity with legislation and policy (see **Appendix 1**).
- 2.2. This Ecological Impact Assessment has been informed by the following:
- Detailed data search including purchase of biological records;
 - 'Extended' phase I habitat survey and UK Habitat Classification Survey;
 - A badger walkover survey;
 - Bat activity surveys;
 - Tree preliminary bat roost assessment (PBRA);
 - Nocturnal emergence and re-entry bat roost survey of trees;
 - Hazel dormouse surveys;
 - Invertebrate survey; and
 - Reptile surveys.
- 2.3. Consideration of the potential Zone of Influence (Zol) for different ecological features as a result of the proposed development informed the search areas for the data search and the scope of further surveys required to inform this assessment, where there was potential for significant ecological effects or those where measures could be required to ensure legal compliance.

Data Search

- 2.4. A desk-based study was conducted whereby records of designated sites and records of protected and priority sites were purchased and interrogated for the site and the surrounding landscape.
- 2.5. Search areas for which records were requested or checked were selected for each feature/group to ensure relevant features within the Zol of the proposed development have been considered. This extended to a 1 km radius for protected and priority species records and non-statutory designated sites, 2 km for nationally designated statutory sites and 10 km for European statutorily designated sites. The following resources were consulted/contacted:
- Multi-Agency Geographic Information for the countryside (MAGIC) website²;

² DEFRA (2022) Multi-Agency Geographic Information for the Countryside mapping [Online] Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed: 17/01/2023]



- Wiltshire and Swindon Biological Records Centre (WSBRC);
- Wiltshire Council Planning website;
- Wiltshire Core Strategy 2015;
- Corsham Neighbourhood Plan (2016-2026);
- Corsham Batscapes Strategy (2016 – 2026);
- Wiltshire Biodiversity Action Plan (2008);
- Joint Nature Conservation Committee (JNCC) website³;
- Natural England (NE) designated sites website⁴;
- The Local Biodiversity Action Plan known as the Wiltshire Biodiversity Action Plan (BAP) (Wiltshire Wildlife Trust, 2008)
- Ordnance Survey mapping;
- Google Maps, including aerial photography;
- Habitat and Protected Species Surveys of land off Westwells Road, Westwells, Corsham, Wiltshire (Cotswold Wildlife Surveys, 2018); and
- Donkey Field Preliminary Ecological Appraisal (PEA), Daniel Ahern Ecology (August 2022) (**Appendix 2**).

Limitations

- 2.6. The data provided by the online resources were not exhaustive. It is possible that species and habitats not found in the data search occur within the vicinity of the proposed development site.

Extended Phase I Habitat Survey and UK Habitat Classification Survey

- 2.7. An 'extended' Phase I habitat survey of the site was undertaken on the 9th August 2022. Full methodology for this survey is within this report in **Appendix 2**.
- 2.8. All habitats were assessed with reference to the UK Habitat Classification (UKHabs) during a site visit on 15th March 2023, in order to support the accurate completion of DEFRA's Biodiversity Net Gain (BNG) Metric (The Statutory Biodiversity Metric). (**Appendix 3**).
- 2.9. The UKHabs surveys were undertaken by Laura Hembrow MCIEEM and Vicky King-Cline, both competent experienced ecologists at TG. Weather conditions during the survey were dry with intermittent rain, moderate wind and overcast, with a temperature of 7°C

³ Joint Nature Conservation Committee (2022) UK Protected Areas [Online] Available at: <http://jncc.defra.gov.uk/ProtectedSites/> [Accessed 17/01/2023]

⁴ Natural England (2022) Designated Sites View [Online] Available at: <https://designatedsites.naturalengland.org.uk/> [Accessed 17/01/2023]



- 2.10. Note was taken of the more conspicuous fauna, and any evidence of, or potential for the presence of protected or priority flora and fauna. Consideration was also given to the presence of any invasive species.

Limitations

- 2.11. Clearance of vegetation had already begun in the northern part of the site during the 'extended' Phase 1 habitat survey.

Badgers

- 2.12. A badger walkover survey was completed in line with good practice guidelines⁵ by Daniel Bardey, an experienced ecologist on the 19th of October 2022 and then by Rachel Whyte, an experienced TG ecologist, on the 17th of January 2023. The survey effort and the data recorded for each potential sett followed the standard methodology used in the two most recent national surveys of badgers⁶⁷ as well as the recently published Scottish Badgers guidelines (2018)⁸.
- 2.13. The wider survey area was searched systematically, with particular attention paid to areas where the vegetation and/or the topography offered good suitability for sett creation. Areas with dense ground cover (hedges, scrub, woodland, etc) were examined closely; if the vegetation prevented entry, then the perimeter was examined, in order to detect paths suggesting a hidden sett within the area. All suitable habitat within a minimum of 30m of the site boundary was also surveyed, where accessible.
- 2.14. Signs of badger activity and the location of setts were recorded and marked with Global Positioning System (GPS). Signs which are indicative of badgers, include:
- setts;
 - latrines;
 - hairs;
 - feeding signs;
 - badger paths or 'runs';
 - 'push-unders' beneath fencing or through scrub where any badger hairs are identified; and
 - badger tracks.
- 2.15. Use of potential badger sett holes and current levels of badger activity were assessed by observation and three levels of activity were used for recording purposes as shown in **Table 2.1**.

Classification of Use	Description
Well-Used	Clear of debris and vegetation, obviously in regular use.

⁵ Cresswell et al 1989

⁶ Cresswell et al 1990

⁷ Wilson et al 1997



Classification of Use	Description
Partially-Used	Not in regular use, with leaves or twigs in entrance or moss and other plants growing around the entrance.
Disused	Partially or completely blocked entrances, unable to be used without a considerable amount of clearance.

Table 2.1: Indicators of use of badger setts

- 2.16. No further monitoring of badgers setts was required.

Limitations

- 2.17. It should be noted that badger survey information is accurate at the time of survey; badgers are mobile animals and may dig new setts, abandon old setts and change the status of existing setts (e.g. extend an annexe set to create a main sett) at any time. Furthermore, classification of setts is based on the best available evidence at the time of survey; however, there is a degree of overlap in these classifications, therefore clear distinctions are not always possible from a one-off inspection survey.

Bats

- 2.18. The bat surveys undertaken by Tyler Grange in 2022 followed standard methodologies set out in the Bat Mitigation Guidelines (Mitchell-Jones, A.J., 2004), the Bat Workers Manual (Mitchell-Jones, A.J. and McLeish, A.P., 2004) and Bat Surveys - Good Practice Guidelines (Collins, 2016) and comprised:
- Activity surveys:
 - Walked transect surveys;
 - Automated static detector deployment – to supplement activity transect surveys by leaving static bat detectors to record for two sets of five consecutive nights per month.;
 - Roosting surveys:
 - Tree PBRA – a ground level inspection of trees to assess potential of trees on site to support roosting bats; and
 - Nocturnal emergence and re-entry surveys of trees assessed to be of high or moderate potential to support roosting bats.

Activity Surveys

Walked transect surveys

- 2.19. Walked transect surveys were undertaken following a route along the edge of the site (see the Bat Data Heatmap Plan **15116/P03** for transect route) to understand the species assemblage and behaviour of bats using the site to assess its value for commuting and foraging. The transect route was planned to capture suitable habitat for bats to commute and forage, where bats could be seen both along the edge of the woodland and tree lines and in the middle of the site.
- 2.20. The walked transect surveys were undertaken by two experienced competent surveyors at a time to be able to view in all directions, using Batlogger M2 bat detectors to listen to and record echolocation calls of bats observed and link these to GPS. Observations of bats including numbers,



flight direction, flight height and behaviour was also recorded where possible. Due to dense vegetation at the time of the surveys, data collection was focussed at twelve spot counts (labelled A – L on Plan **15116/P03**) for three minutes. The transect route was completed at least twice on each survey.

- 2.21. Walked transect surveys were undertaken once a month between July and October inclusive. All survey visits comprised a dusk survey which started at sunset with a duration of three hours, where appropriate in relation to transect walking times, due to the recorded presence of horseshoe bat species in the area. Visits 1 and 6 were slightly under the three hour duration (2 hours 41 minutes and 2 hours 50 minutes respectively). Visit 3 in August comprised both a dusk and a pre-dawn survey in the same evening as the site was assessed to have moderate suitability for bats. The pre-dawn survey started two hours before sunrise and finished at sunrise. Dates, times and weather conditions of the surveys are recorded in **Table 2.2**.

Table 2.2: Dates, times and weather conditions of walked transect surveys

Visit No.	Date	Dusk / Pre-Dawn	Sunset/ Sunrise Time	Start Time	End Time	Temp (°C) Start / End	Cloud cover	Precipitation	Wind Start / End (MPH)
1	19/07/2022	Dusk	21:15	21:15	23:56	23.8 / 19	0	No	0.6 / 0.9
2	08/08/2022	Dusk	20:45	20:43	23:43	24.1 / 21.6	0	No	0.0 / 0.5
3	24/08/2022	Dusk	20:13	20:15	23:15	19 / 18	10	No	1 / 3
	25/08/2022	Pre-Dawn	06:10	04:10	06:13	19 / 18	100	No	5 / 1
4	12/09/2022	Dusk	19:31	19:31	22:31	20 / 17	100	No	0 / 0
5	27/09/2022	Dusk	18:54	18:54	21:34	14 / 10.6	90	No	5
6	11/10/2022	Dusk	18:23	18:23	21:13	11 / 8	40	No	0

Static Monitoring

- 2.22. Static monitoring within the site was undertaken to provide additional information to understand the species assemblage and assess the value of the site for commuting and foraging bats.
- 2.23. Data was obtained from the deployment of automated Anabat Swift full spectrum format detectors, which were placed in three locations (referenced as Location 1, 2 and 3) in the site once a month for eight consecutive nights once in July 2022, twice for five nights in August and once for five nights in October during favourable weather conditions. This equated to a total of 23 nights of surveying in the 'active' season (April to October, inclusive). The number and duration of automated detectors deployed on-site was taken from survey guidelines in relation to the quality of habitat on site for bats.
- 2.24. Locations of detectors were chosen at features suitable for foraging or commuting bats across the site. The locations are shown on the Static Location Plan **15116/P08A**. Location 1 was at ST 85153 68770, attached to a sycamore tree in the northwest of the site. Location 2 was at ST 85231 68651 on a fence post next to blackthorn in the southwest of the site, and Location 3 was at ST 85406



68776 on an oak tree branch on the eastern boundary of the site. Microphones were connected to the detectors via long cables to be able to wire them high up in the vegetation, facing slightly upwards on extruding branches. The static detectors were set to begin recording 30 minutes before sunset and continue to record for 30 minutes after sunrise.

- 2.25. The detectors were deployed in July, August, September and October 2022 for a minimum of five consecutive nights during favourable weather conditions as much as possible. Each monitoring period of five consecutive nights is referred to as a 'Visi' and there were four visits in total. The dates and weather conditions for the automated surveys are shown in below in **Table 2.3**.

Table 2.4: Dates and weather conditions for the automated bat surveys – sourced from www.wunderground.com

Visit No,	Month	Dusk Date	Time of Sunset	Time of Sunrise	Weather conditions (overnight)			
					Temp. Max (°C)	Temp. Min (°C)	Wind Speed Max (mph)	Precipitation (mm)
1	July	19/07/2022	21:13	05:17	23.3	18.3	2.3	Dry
		20/07/2022	21:12	05:18	20.0	13.8	2.8	Dry
		21/07/2022	21:11	05:19	21.1	17.2	0.0	Dry
		22/07/2022	21:09	05:20	17.5	12.7	0.9	Dry
		23/07/2022	21:08	05:22	18.3	16.6	2.6	Dry
2	August	24/08/2022	20:17	06:12	17.2	16.1	9	Dry
		25/08/2022	20:15	06:13	15.0	12.2	16	Dry
		26/08/2022	20:13	06:15	15.0	12.8	9	Dry
		27/08/2022	20:11	06:16	20.0	12.8	9	Dry
		28/08/2022	20:08	06:18	18.9	12.8	9	Dry
		29/08/2022	20:06	06:19	17.2	11.1	14	Dry
3	September	01/09/2022	19:54	06:24	18.3	15.0	0.4	Dry
		02/09/2022	19:51	06:25	19.4	14.4	0.0	Dry
		03/09/2022	19:49	06:27	17.7	16.6	0.1	Dry
		04/09/2022	19:47	06:28	18.8	13.3	0.0	Dry
		05/09/2022	19:45	06:30	19.4	13.3	0.0	Dry
4	October	27/10/2022	17:55	07:56	16.1	13.9	21	Dry
		28/10/2022	17:53	07:57	12.8	12.2	15	Dry
		29/10/2022	17:52	07:59	13.9	12.8	9	Dry
		30/10/2022	17:46	06:59	12.8	12.8	13	Dry
		31/10/2022	16:44	07:00	13.9	10.0	33	Rain



		01/11/2022	16:43	07:02	8.9	7.8	20	Dry
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- 2.26. Recordings were analysed using BatExplorer 2.1 sound analysis software to identify calls characteristic of individual bat species or groups of species by competent trained ecologists⁹. The outputs were subject to an internal quality assurance process.

Limitations

- 2.27. Walked transect surveys are limited by the surveyors only being in one location at one given time, therefore bat activity can be missed. However, this was overcome by being able to repeat the transect at least twice during each survey visit, alternating the direction of walking between survey visits and supplementing the surveys with the static monitoring. Therefore this is not considered to impact the results and conclusions of this report.
- 2.28. Dense tall ruderal vegetation made walking at night difficult for the walked transect surveys before the vegetation was strimmed later in the season. This limited the ability for surveyors to observe bat behaviour and hear bat calls while walking. However, this was overcome by incorporating stopping points for Spot Counts in the methodology to allow surveyors to observe and listen to bats safely with no noise from footfall and has therefore not impacted the results.
- 2.29. Visits 1 and 6 of the walked transect were slightly under the standard survey methodology of three hour duration (2 hours 41 minutes and 2 hours 50 minutes respectively). This was due to variation of the walking times of two of the transect routes by different surveyors. However, as horseshoe bat species were still recorded this is not considered to significantly impact the results or recommendations for mitigation.
- 2.30. Both the walked transect surveys and static monitoring surveys commenced in July 2022 and therefore did not cover the early spring period. However, this is not considered to significantly impact the results or recommendations for mitigation.
- 2.31. Brown long-eared bats *Plecotus auritus* and unidentified *Plecotus* species were recorded during the surveys. This species can be relatively difficult to detect due to the low amplitude (i.e. quiet) calls and thus the activity of this species may be underestimated. The conclusions and interpretation in this report takes this into consideration to arrive at robust recommendations.
- 2.32. Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc.). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor quality recordings (e.g. brief and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis/Plecotus* and *Nyctalus/Eptesicus*). This ensures the dataset is interpreted accurately and transparently.
- 2.33. Analysis of the static bat detectors can highlight the presence of more than one bat if they are recorded simultaneously on the same sound file. However, it is not possible to determine whether consecutive sound files have been recorded as the result of a single bat passing the detector as it

⁹ Analysis undertaken by ecologists who have passed the Certificate of Bat Acoustics Analysis, Bat Ability Courses and Tuition



commutes across the landscape or by one bat repeatedly triggering the detector as a single bat registration.

- 2.34. During Visit 1 in July the static bat detector at Location 3 failed to record after the first two nights due to technical issues. However, recordings were made at the other two locations for nine nights during this Visit.

Roost Surveys

Tree PBRA

- 2.35. A ground level PBRA was undertaken on all trees within the site boundary. The assessment was undertaken on 8th February 2023 by Laura Boggeln MCIEEM, an experienced Senior Ecologist at Tyler Grange and licensed bat surveyor (Licence reference number: 2018-35813-CLS-CLS), assisted by Vicky King-Cline. The conditions for the surveys were considered optimal. All trees were inspected from the ground using binoculars, high powered torch, digital camera and endoscope for accessible features. Potential Roosting Features (PRFs) of interest include: woodpecker holes, frost cracks, deadwood, knot holes and limb wounds.
- 2.36. The potential of trees to support roosting bats was assessed using the criteria shown in Table 2.2 below.

Table 2.2: Tree Assessment Criteria - adapted from Collins, 2016

Roost Suitability	Description of Roosting Habitat	Action Required in Respect of Bat Roost in Tree
Uncertain	PRFs may be present but which may be obscured to observation from the ground due to e.g. ivy cover, height, form or growth or tree or a constrained vantage point.	If PRFs may be obscured from the ground, undertake aerial inspection to determine roost suitability. If aerial inspection is not possible, further surveys may be required to determine presence / absence of a roost.
Negligible	No PRFs present.	No further action required.
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground, or features seen with only very limited roosting potential (as per BS 8596:2015).	Precautionary measures may be appropriate during felling or pruning activities.
Moderate	A tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions (i.e. temperature, light levels, humidity, height above ground or disturbance levels) and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, irrespective of species conservation status).	Two presence / absence surveys required. Subject to findings of presence / absence survey, roost characterisation surveys required.
High	A tree with one of more PRFs that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three presence/absence surveys required. Subject to findings of presence/absence survey, roost characterisation surveys required.
Confirmed	Evidence such as droppings, hair or bat found.	



Nocturnal Bat Roost Surveys on Trees

- 2.37. Tree climbing inspection surveys could not be conducted on any of the trees assessed to have potential for bats due to the poor condition of the trees featuring mostly deadwood branches with no safe anchor points. Therefore, further nocturnal surveys were undertaken on the trees which were assessed to be of high (one tree, three further surveys) or moderate (four trees, two further surveys) potential for roosting bats, in accordance with BCT Guidelines (Collins, 2016). Tree reference numbers are on the Tree Preliminary Roost Assessment Plan **15116/P02A**.
- 2.38. The first survey comprised a pre-dawn re-entry survey was undertaken on 25th May 2023 on all five of trees which required further survey. The second survey comprised a dusk emergence survey and was undertaken on three of the trees. The final survey also comprised a dusk emergence survey and was undertaken on 28th June 2023 on three of the trees.
- 2.39. The emergence/re-entry surveys aim to identify bats emerging from a roost. Surveyors were positioned to face the PRFs. The emergence surveys began 15 minutes before sunset and continued until 90 minutes after sunset and the re-entry survey began 90 minutes before sunrise and continued 15 minutes after sunrise, in accordance with the best practice guidance.
- 2.40. The surveyors used Batlogger M2 bat detectors to listen to and record echolocation calls of bats observed. Three infrared camera set-ups were also used as night-vision aids (NVA) on the trees which were in the darkest locations (T1, T6 and T12 on 25th May and T1, T2 and T3 on 7th June). The weather conditions of the bat surveys are presented in **Table 2.3** below.

Table 2.3: Dates and weather conditions of the bat surveys on trees

Visit No.	Trees surveyed	Date	Dusk/ Pre-Dawn Survey	Sunset/ sunrise time	Start Time	End Time	Temperature (°C) Start / End	Cloud Cover (%) Start / End	Wind Start / End	Rain Start / End
1	T1, T2, T3, T6, T12	25/05/2023	Pre-Dawn	05:05	03:30	05:20	13 / 10	0 / 0	1 / 1	Dry / Dry
2	T1, T2, T3	07/06/2023	Dusk	21:22	21:07	22:52	16 / 12	0 / 0	2 / 3	Dry / Dry
2	T6, T12									
3	T1	28/06/2023	Dusk	21:30	21:15	23:00	19 / 17	100 / 100	3 / 3	Very light drizzle / Dry

Limitations

- 2.41. Foliage was not present at the time of the survey in the winter, therefore it is unlikely that PRFs were obscured. However, PRFs could be present on parts of a tree that cannot be viewed from the ground. The potential for this was assessed in relation to the overall condition of each of the trees. However, it is still acknowledged that some PRFs may have been missed in crowded areas of the woodland. This has been taken into account in the recommendations in this report and will therefore not affect the conclusions of this report.
- 2.42. Due to equipment limitations, NVAs could only be used on two trees during each survey visit where multiple trees were surveyed. However, the trees that were surveyed without NVAs could be seen



clearly by the surveyors as they are located on the edge of the woodland and therefore were subject to higher ambient light levels. Therefore, this limitation will not affect the conclusions of this report.

- 2.43. The weather conditions weren't optimal for bats at the start of the survey of the emergence survey on trees T6, T12 and T1 due to rain but the rain subsided within 15 minutes and the remainder of the survey was dry. Many bats were recorded during the survey, therefore the weather conditions are not considered to have impacted the results significantly.

Hazel Dormouse

- 2.44. A hazel dormouse nest tube survey was setup on 15th March 2023, with 50 dormouse tubes located within the areas of suitable habitat across the site, in the woodland (Hazel Dormouse Nest Tube Plan **15116/P09A**) in order to confirm the presence or likely absence of hazel dormouse in the site. The surveys were undertaken in line with English Nature (now Natural England) guidance, 'The Dormouse Conservation Handbook' (Bright *et al.*, 2006).
- 2.45. Natural England guidance assigns a value to each month in terms of the probability of recording dormice or evidence of their presence in nest tubes, where at least 50 tubes are erected (see **Table 2.4** below). In order to confirm that sufficient survey effort has been employed and to be confident that no significant population is present, the score must be equal to or above 20 (Natural England, 2011) The score is calculated based on the number of tubes erected. The score is calculated by summing the value of each month that the nest tube is in place for, rather than the month it is checked, based on surveys every month or every other month.
- 2.46. The first tube check was undertaken on 16th May 2023 by Laura Hembrow, an experienced Senior Ecologist at TG and licensed dormouse surveyor (licence reference number 2017-28822-CLS-CLS). The weather conditions during this survey were dry with a moderate breeze and a temperature of 10°C. The second check was carried out by Laura Hembrow on the 11th July 2023 and the third undertaken on 6th September 2023. Therefore, the survey effort achieved an index of probability score of score of 20.

Table 2.4: Index of probability of finding dormice in nest tubes - adapted from Bright *et al.*, 2006

Month	Index of probability of recording dormice
April	1
May	4
June	2
July	2
August	5
September	7

Invertebrates

- 2.47. An invertebrate survey was undertaken across the tall ruderal habitat within the site on 5th June 2023 in optimal weather conditions by James McGill, a specialist experienced invertebrate



ecologist. A suite of survey methods was used including ground searching, suction sampling, beating, sweep-netting and spot-netting. The full details of methodology are in the Spring Park Invertebrate Survey report in **Appendix 4**.

Limitations

- 2.48. There were no limitations associated with the invertebrate survey but it must be noted that the results are a snapshot of invertebrate activity on one day only.

Reptiles

- 2.49. The reptile surveys were conducted across the entire site which had potential to support reptile species and were conducted in line with Froglife's Advice Sheet 10 and the Herpetofauna Workers' Manual. This involved laying refuges (squares of roofing felt 0.5 m x 0.5 m) where potential for reptiles was noted. A total of 83 artificial refugia were set out on the 5th of September 2022, at a density of approximately 23 refuges per hectare (above and beyond the recommended density in the guidance). The locations of the artificial refuges are denoted on the Reptile Refugia Survey and Results Plan **15116/P10A**.
- 2.50. Following a 'bedding in' period of 10 days, seven checks of the artificial refuges and natural refuges were conducted during suitable weather conditions by Daniel Bardey, an experienced and competent ecologist. The dates and weather conditions of the surveys are shown in **Table 2.5**. Natural basking areas were also observed for the presence of reptiles during the survey checks, along with note of incidental sightings

Table 2.5: Dates and weather conditions of the reptile surveys

Visit No.	Date	Start Time	End Time	Temperature (°C)		Cloud Cover (%)		Wind	Rain
				Start	End	Start	End		
1	21/09/2022	09.00	10.00	12	12	30	30	0	Dry
2	25/09/2022	17.00	18.00	18	18	30	30	0	Dry
3	29/09/2022	09.00	10.00	16	16	90	90	1	Dry
4	02/10/2022	09.30	10.30	9	9	95	90	1	Rain Overnight Dry during survey
5	06/10/2022	9.45	10.45	11	11	10	10	2	Dry
6	17/10/2022	10.00	11.00	14	14	20	20	0	Dry
7	29/09/2022	09.00	11.00	9	10	95	95	1	Rain in morning Dry during survey

Limitations

- 2.51. There were no limitations associated with the reptile surveys.



Evaluation

- 2.52. The evaluation of habitats and species is defined in accordance with the 'Guidelines for Ecological Impact Assessment in the UK and Ireland'¹⁰.
- 2.53. The scale of importance of each ecological feature is assigned within a defined geographical context, namely international and European, national, regional, county and local¹¹. Available information was used to determine this where possible, such as the Wiltshire Local Wildlife Site Selection Criteria (Wiltshire Wildlife Sites Project, 2016). However, it is not currently the policy to select sites on the basis of species in the absence of an important habitat.
- 2.54. Consideration will also be given to legally protected or controlled species which are 'important features' in the context of this assessment, for which mitigation measures are required to ensure legal compliance, regardless of their geographic scale of importance.

Impact Assessment

- 2.55. The assessment of impacts identifies and characterises impacts and their effects as a result of the proposed development on important ecological features. This includes consideration of impacts at all relevant stages of the development, including construction and occupation.
- 2.56. Characterisation of impacts has been undertaken based on CIEEM guidance (CIEEM, 2018) with reference to where they are considered to be positive or negative, their extent, magnitude, duration, reversibility, timing and frequency, as appropriate.
- 2.57. Assessment of the significance⁴ of any residual impacts has been made following consideration of avoidance and mitigation measures, where these have been incorporated into the proposed layout submitted with the planning application (22077_PL1100_08_Proposed Masterplan-1_1000, Hale Architecture, 2023) or can be guaranteed with the use of available planning controls.
- 2.58. The significance of effects on important ecological features have been qualified with reference to an appropriate geographic scale of reference, as described in paragraph 2.46. Although, it is worth noting that the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important.

Application of the mitigation hierarchy

- 2.59. Application of the mitigation hierarchy is fundamental to the ecological impact assessment process. This requires consideration of the following measures, in order of priority, for all potential impacts, to determine the most appropriate mitigation, compensation and enhancement strategy for the project. This is taken into account within **Section 5** of this report.
- Avoidance – measures to avoid harm to ecological features;
 - Mitigation – measures to avoid or minimise potential impacts as part of the design or guaranteed by planning controls;

¹⁰ Chartered Institute of Ecology and Environmental Management (CIEEM). 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine. Version 1.1 – Updated September 2019

¹¹ In this assessment, local importance is considered within the context of Gloucestershire County.



- Compensation – measures required to offset significant residual negative effects, following avoidance and mitigation; and
- Enhancement – measures over and above requirements for avoidance, mitigation and compensation to provide biodiversity net gain.

Quality Assurance

All ecologists at Tyler Grange Group Ltd are members of CIEEM or working towards membership and abide by the Institute's Code of Professional Conduct. All analysis, reporting and assessment has undergone a stringent internal quality assurance process.



Section 3: Ecological Features and Evaluation

- 3.1. Ecological features within the site and wider study area are described below, together with an assessment of their importance using a geographical frame of reference advocated by CIEEM.

Designated Sites

Statutory Designated Sites

- 3.2. European (Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) and national (Sites of Special Scientific Interest; SSSI) statutory designated sites for nature conservation within 10 km and 2 km respectively, are listed in **Table 3.1**, along with a summary of their qualifying features/reason for designation, distance from the site and evaluation of their ecological importance.

Table 3.1 Statutory designated sites within the study area

Site name and designation	Distance from the site	Description and reason for designation	Ecological importance
Bath and Bradford-on-Avon Bats SAC	0.9 km northwest of the site	Designated for its hibernating populations of three species of bat: greater horseshoe <i>Rhinolophus ferrumequinum</i> and Bechstein's bat <i>Myotis bechsteinii</i> as primary reasons for selection and lesser horseshoe <i>Rhinolophus hipposideros</i> as a qualifying feature for site selection. The SAC sites are all abandoned limestone mines and some include areas of supporting habitat: broadleaved woodland and species rich calcareous grassland.	International
Box Mine SSSI	0.9 km northwest of the site	Part of the Bath and Bradford-on-Avon Bats SAC, the mines host important populations of bats, including approximately 10% of the UK population of greater horseshoe bats, as well as lesser horseshoes, Natterer's <i>Myotis nattererii</i> , Daubenton's <i>M. daubentonii</i> , whiskered bats <i>M. mystacinus</i> and Brandt's bats <i>M. brandtii</i> .	National

- 1.1. Corsham Railway Cutting SSSI is also within 2 km of the site but this is designated for geological reasons and has therefore been scoped out of this report.
- 1.2. The site falls within the Bat Consultation Zone of the Bath and Bradford-on-Avon Bat SAC (Wiltshire Council and Natural England, 2015).
- 1.3. The site falls within an SSSI Impact Risk Zone (IRZ) for "All planning applications" with respect to Brown's Folly and Honeybrook Farm SSSI, which is approximately 5.7km southwest of the site and designated for its nationally important wintering roost for bats and calcareous grassland community.
- Non-statutory Designated Sites
- 3.3. There is one non-statutory designated site, known as Local Wildlife Sites (LWS) in Wiltshire, within 1 km of the site. Kingsmoor Wood LWS, located 0.4 km southwest of the site boundary, is designated for its ancient semi-natural woodland with conifer planting. This site is considered to be of **county importance**.



Habitats and Flora

- 3.4. The habitats present within the site, and where possible on adjacent land, are shown on the Habitat Features Plan (15116/P01A) and are described below. Habitats are described in detail below, including, where appropriate, composition of main species present and their ecological importance
- 3.5. There is not currently a Wiltshire Local Nature Recovery Network and the Site's habitats are not in any other local strategies or within a National Habitat Network Enhancement Zone.

Broadleaved woodland

- 3.6. There is an area of semi-natural broadleaved woodland around the edge of the site, consisting of ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, pedunculate oak *Quercus robur*, poplar sp. *Populus* sp., with an understorey of elder *Sambucus nigra*, hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, willow sp. *Salix* sp., field maple *Acer campestre* and blackthorn *Prunus spinosa* (Photograph 3.1).
- 3.7. Many of the trees and parts of the ground feature ivy *Hedera helix*. Ground flora species include common nettle *Urtica dioica*, lords-and-ladies *Arum maculatum*, dog's mercury *Mercurialis perennis*, hart's-tongue fern *Asplenium scolopendrium*, dock sp. *Rumex* sp. and round-leaved crane's-bill *Geranium rotundifolium*.



Photograph 3.1: Broadleaved woodland around the site's perimeters

- 3.8. The woodland on the western, south western and northern edge of the site is listed as a Priority Habitat (deciduous woodland) on the Natural England Priority Habitat Inventory on Magic. Woodland is also listed in the Wiltshire Biodiversity Action Plan (2008).
- 3.9. This habitat is of inherent ecological value and provides habitat for flora and fauna. However it is common in the local landscape and as such is considered to be of **local ecological importance**.



Hardstanding

- 3.10. There are areas of hardstanding throughout the site which are foundations of previous existing buildings (**Photograph 3.2**), as well as a path running through the middle of the site and around part of the site. Some of the hardstanding features some encroaching bramble and ephemeral vegetation species such as common centaury *Centaureum erythraea*



Photograph 3.2: Areas of hardstanding

- 3.11. Areas of hardstanding throughout the site provide no inherent ecological value and therefore this habitat type is of **negligible ecological importance**.

Line of trees

- 3.12. There are lines of trees along the southern and north-eastern (**Photograph 3.3**) boundaries of the site comprising species including sycamore, field maple, ash, hawthorn and beech *Fagus sylvatica*. Most of these trees are mature or semi-mature.



Photograph 3.3: Line of trees along north-eastern boundary of the site



- 3.13. This tree lines provide habitat for flora and fauna. The habitat is common wider locality and as such is considered to be of **local ecological importance**.

Scrub

- 3.14. The site features small areas of scattered scrub dominated by bramble *Rubus fruticosus* with some nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius* and buddleia *Buddleja davidii* (Photograph 3.3).



Photograph 3.3: Scrub habitat on the eastern site boundary

- 3.15. The areas of scrub are of small size and are unlikely to provide habitat opportunities for flora and fauna and is therefore considered to be of **negligible ecological importance**.

Tall ruderal vegetation

- 3.16. The majority of the site comprises tall ruderal vegetation, in the form of various herbaceous and wood shrubs. Species include, but are not limited to, caper spurge *Euphorbia lathyris*, common broomrape *Orobancha minor*, bristly ox-tongue *Helminthotheca echoioides*, burdock *Arctium minus*, evening primrose *Oenothera biennis*, teasel *Dipsacus folonum*, dyer mignonette *Reseda luteola*, great mullein *Verbascum thapsus*, evening primrose *Oenothera biennis*, ragwort *Senecio jacobaea*, mugwort *Artemisia vulgaris* and common hogweed *Heracleum sphondylium* (Photograph 3.4). Buddleia *Buddleja davidii* is present in some of the habitat.
- 3.17. The tall ruderal vegetation is currently known to be strimmed down to slightly above ground-level on at least an annual basis.





Photograph 3.4: Tall ruderal vegetation

- 3.18. This habitat type is common in the wider landscape and as such is considered to be of **negligible ecological importance**.

Other habitat

- 3.19. There were several rubble, debris and log/brush piles scattered across the site, such as the one shown in **Photograph 3.5** below.



Photograph 3.5: Rubble pile

- 3.20. Although the PEA (Daniel Ahern, 2022) described the presence of an area of neutral unimproved grassland on site, this was not classified as such during the subsequent field surveys and appeared to be of the same tall ruderal habitat described above.



Flora

- 3.21. The desk study returned 11 records of plants of nine species within 1km of the site within the last ten years. No notable botanical species were recorded during any of the field surveys.

Invasive flora

- 3.22. Variegated yellow-archangel *Lamiastrum galeobdolon argentatum* is present in small areas throughout the woodland and some small areas on the outside of the tall ruderal habitat (Photograph 3.6).



Photograph 3.6: Variegated yellow-archangel present on site

- 3.23. A single stem of Japanese knotweed *Fallopia japonica* was recorded on site within the tall ruderal habitat during the invertebrate survey on 5th June 2023 at ST 85327 68821 (Photograph 3.7). This is currently being controlled by a specialist contractor.





Photograph 3.7: Japanese knotweed stem found on site.

Protected Species

Amphibians

- 3.24. No records of amphibians within 1 km of the site boundary were returned by the data search and there are no ponds within 500 m of the site, which is the maximum range of a great crested newt *Triturus cristatus* (GCN). However, there are recently created drainage lagoons present within the boundary of the existing data centre complex to the north, though these are highly unlikely to have been colonised by great crested newts as they are isolated from other suitable great crested newt habitats by hardstanding including roads. On some OS mapping there is a pond in the land immediately to the south of the site but a site visit to this area confirmed that this no longer exists and has been replaced by hardstanding.
- 3.25. The data search returned two records of European Protected Species (EPS) licences for great crested newt (GCN) within 2 km of the site boundary, which are detailed in **Table 3.2** below.

Table 3.2: EPS licences within 2 km of the site boundary

Licence number and date	Approximate distance from Site boundary	Description of licence
EPSM2011-2784, 22/03/2011 – 30/06/2020	0.5 km south of the site	Licence allows the destruction of both a breeding site and a resting place
2016-24043-EPS-AD2, 18/12/2017 – 30/06/2024	1.8 km northeast of the site	Licence allows the damage and destruction of a resting place



- 3.26. Although there is suitable terrestrial habitat for GCN within the site in the tall ruderal, parts of the woodland and piles of rubble, brash and debris, GCN are assumed to be absent from the site due to absence of established ponds nearby. Therefore this species is not considered further in this report.

Badgers

- 3.27. The data search did not return any records of Eurasian badger *Meles meles* within 1 km of the site.
- 3.28. No evidence of badger activity was found on site or within 30 m of the site during the badger walkover surveys. Several burrows were discovered during the surveys but these were deemed to be characteristic of rabbit, small in size and round within large piles of rubble in the site.
- 3.29. However, the site and wider survey area provide suitable habitat for badger with opportunities for foraging and commuting across the scrub, grassland and woodland habitats. A badger sett is present in the southern extent of the site (exact location of the sett is confidential). The sett comprises at least two entrance holes under dense scrub with large spoil heaps and evidence of bedding. This land is connected by suitable habitat to the site.
- 3.30. Badger is legally protected for welfare rather than conservation reasons, principally to protect them from persecution. They are a common and widespread species throughout the UK and are known to be widespread in Wiltshire. At sure, a population which may be using the site is of **negligible ecological importance**.

Bats

- 3.31. The desk study returned 1,546 records of the following bat species within 1 km of the site boundary in the last ten years: Alcaethoe bat *Myotis alcathoe*, Bechstein's bat *Myotis bechsteinii*, Brandt's bat *Myotis brandtii*, brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, Daubenton's bat *Myotis daubentii*, greater horseshoe bat, Leisler's bat *Nyctalus leisleri*, Nathusius' pipistrelle *Pipistrellus nathusii*, Natterer's bat *Myotis nattereri*, noctule bat *Nyctalus noctula*, serotine *Eptesicus serotinus*, soprano pipistrelle *Pipistrellus pygmaeus*, barbastelle bat *Barbastella barbastellus* and whiskered bat *Myotis mystacinus*.
- 3.32. The records include a large number of roosts of each of the 15 species recorded but the locations of these have not been disclosed by WSBRC due to their sensitivity. However, it was highlighted in the pre-application response comments (letter from Wiltshire Council for Pre-Application enquiry reference ENQ/2022/01951, dated 18 May 2023) that there are roosts likely to be of significance to the population of lesser horseshoe bats associated with the SAC less than 300m to the southern site boundary.
- 3.33. The desk study also returned four records of EPS licences for bat species within 2 km of the site boundary, which are summarised in **Table 3.3** below.

Table 3.3: EPS licences within 2 km of the site boundary

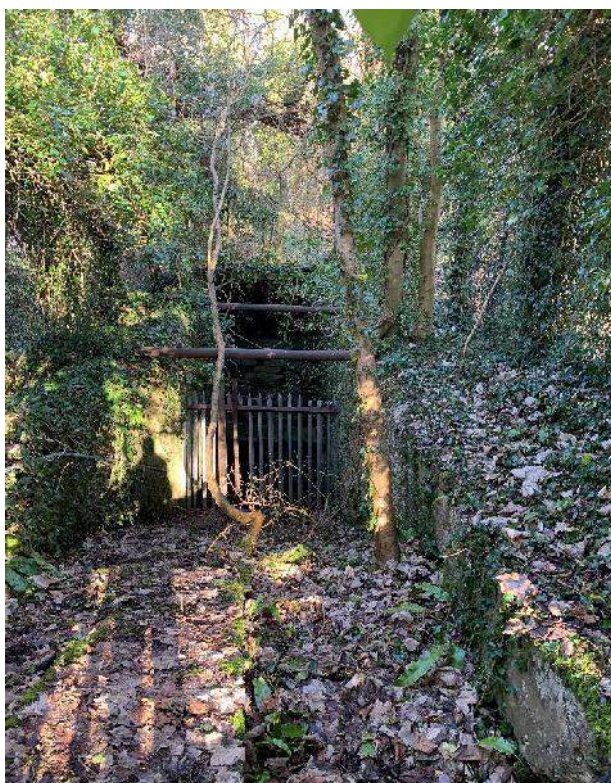
Species	Licence number and date	Approximate distance from Site boundary	Description of licence
Common pipistrelle, lesser horseshoe and greater horseshoe	EPSA2012-5222, 04/04/2013 – 01/03/2016	0.4 km east of the site	Licence allows the destruction of a resting place



Common pipistrelle, lesser horseshoe, brown long-eared and Natterer's bats	EPSM2011-2839 10/08/2011 – 31/12/2015	0.5 km south of the site	Licence allows the destruction of a breeding site and a resting place
Lesser horseshoe and Natterer's bats	EPSM2010-1942, 03/02/2011 – 31/12/2013	0.6 km north of the site	Licence allows the destruction of a breeding site and a resting place
Lesser horseshoe	2015-17598-EPS-MIT-2, 29/06/2016 – 30/06/2026	1.7 km north of the site	Licence allows the destruction of a resting place

- 3.34. The Corsham Batscape Strategy (Corsham Town Council, 2019) shows that there is a confirmed greater horseshoe bat flightline along the northern boundary of the site on Rowan Lane and a confirmed lesser horseshoe flightline along the southern boundary of the site (and additionally outside of the site in the west. It does not indicate that there are any Bechstein's bat roosts or flightlines within close proximity to the site.
- 3.35. The Corsham Batscape Strategy (Corsham Town Council, 2019) also shows that there is both a greater horseshoe and lesser horseshoe bat roost (characterised as "other roost") in the woodland immediately adjacent to the west of the site and a confirmed foraging area in the land to the west of the site. This is likely to be the "slope shaft" which was observed during outside of the site in the woodland during the tree PBRA survey (**Photograph 3.8, as shown on the Tree PBRA Plan 15116/P02A**) and referred to as such in an ecology report for a previous planning application at the site (Cotswold Wildlife Surveys, 2018). This is an entrance to an old stone mine lying under the adjacent operational MOD site.
- 3.36. During surveys in 2022 and 2023 the slope shaft was fenced off by two fences and could not be accessed or observed closely though. It was not subject to surveys as part of this EclA. Previous surveys in 2018 have found lesser horseshoe bats roosting inside the slope shaft all year round, with a peak count of 14 bats recorded in March (Cotswold Wildlife Surveys, 2018). They also found that a single greater horseshoe bat was roosting inside the slope shaft on an occasional and that *Myotis* bats were thought to use the slope shaft as a swarming site in low numbers. For the purposes of this report it is assumed that this feature is still a bat roost.





Photograph 3.8: Slope shaft in woodland to west of site.

- 3.37. The Site also appears to be covered by the Drews Pond Wood direct migration route, which the Corsham Batscape Strategy has assumed to be used for Bechstein's bat commuting on a precautionary basis. There is also a strategic flyway along the southern boundary, which the Corsham Batscape Strategy has assumed to be a direct link to a larger commuting route taking a precautionary approach.
- 3.38. The habitat on site is deemed to be of moderate suitability for bats as it consists of continuous habitat connected to the wider landscape that could be used by bats for commuting due to the broadleaved woodland around the perimeters. It has limited foraging opportunities for bats due to the poor quality of the ruderal vegetation comprising most of the site.

Activity surveys

Walked transect surveys

- 3.39. Species recorded during the walked transect activity surveys included brown long-eared bat, common pipistrelle, soprano pipistrelle, lesser horseshoe bat, greater horseshoe bat, noctule bat, lesser noctule, serotine, barbastelle bat and *Myotis* sp. Most detections were of common pipistrelle bats, which were observed foraging along woodland edges and along Westwells Road in the northeast around street lights as well as commuting. Serotine and soprano pipistrelle bats were also observed foraging on occasion, mostly in the southwest of the site. However, bats were mostly observed commuting along the tree lines, in all directions but mostly east to west. Detailed recording results are in **Appendix 5**.
- 3.40. The Bat Data Heatmap **Plan 15116/P03** shows that hotspots of bat activity of all species recorded during the walked transects are in the north/northeast and southwest corner of the site. This is where bats were observed to be foraging during the surveys.



- 3.41. Greater horseshoe bats were rarely recorded during the walked transect surveys. The Greater Horseshoe Heatmap **Plan 15116/P05** shows where these were recorded around the edges of the site using the tree lines for commuting, Lesser horseshoe bats were recorded more often during the walked transect surveys and mostly along the southern tree line boundary as show in the Lesser Horseshoe Heatmap **Plan 15116/P04**. These findings corroborate the Corsham Batscapes maps.
- 3.42. During the walked transect surveys it was noted that there was some light spill from the road street lights along Westwells Road in the north east of the site. This did not seem to affect activity of lesser horseshoe bats which were recorded in that area during the walked transects and seemed to increase pipistrelle activity in the area.

Static monitoring

- 3.43. At least eleven species of bat were recorded to be present at the site during the static monitoring surveys. The total number of calls recorded of each species of bat and the relative percentage of bat species are shown in **Table 3.4** below. Detailed results are in **Appendix 5**.

Table 3.6: Total number of calls of each bat species across all visits and all static locations (Locations 1-3, July to October 2023) to

Species	Total number of calls	Percentage out of total
Common pipistrelle	2977	55%
Soprano pipistrelle	50	1%
Nathusius' pipistrelle	1	0.02%
Noctule bat	110	2%
Leisler's bat	1	0.02%
<i>Nyctalus</i> sp.	64	1.2%
<i>Nyctalus/Eptesicus</i> sp.	45	0.8%
Serotine bat	250	4.62%
<i>Plecotus</i> sp.	151	2.8%
<i>Myotis</i> sp.	1431	26%
Lesser horseshoe bat	252	4%
Greater horseshoe bat	34	0.6%
Barbastelle bat	50	0.9%
Grand Total	5416	



- 3.44. Common pipistrelle bats made up over half of the bat activity in terms of individual bat calls in the summer. The second most frequently recorded call was of the *Myotis* species group.
- 3.45. The total number of bat calls per night and the species diversity though July to October inclusive at each of the static locations is summarised in **Table 3.5**. Static Detector Locations which this refers to are in the Static Bat Detector Plan **15116/P08A**. Details of recordings of rare bat species recorded by the statics are also summarised in this table.
- 3.46. Total recorded bat activity was highest at Location 2. Highest bat species diversity was recorded at Location 1 but species diversity does not greatly differ between locations. Location 3 showed the least bat activity though lesser horseshoe bats were recorded here every night. It is not possible to infer numbers of bats from these results, as activity recorded could represent individual bats recorded repeatedly.

Table 3.5 Total number of calls of each bat species across all visits and all static locations

Static Detector Location	Monitoring period (number of nights)	Mean total of bat calls per night	Mean number of total bat species per night (species diversity)	Number of total nights and percentage of nights that rare species recorded were recorded (no. / %)		
				Greater horseshoe bat	Lesser horseshoe bat	Barbastelle
1	20	105	5.6	4 / 20%	12 / 60%	4 / 20%
2	20	129	5.3	8 / 40 %	10 / 50%	7 / 35%
3	17	43	5.5	6 / 35%	17 / 100%	2 / 11%

- 3.47. All 15 species of bats present in Wiltshire are in the Wiltshire Biodiversity Action Plan (2008).
- 3.48. Greater horseshoe bat, lesser horseshoe bat and barbastelle bat are Annex II species in the Habitats Directive, with lesser horseshoe bat and barbastelle also Species of Principal Importance (SoPI) in England. Bechstein's bat is also Annex II and SoPI species but, if present, these would have been grouped with *Myotis* Species (as explained in the limitations section).
- 3.49. Low to moderate numbers of calls of lesser horseshoe bat (252 total calls), low numbers of barbastelle bat (50 total calls) and very low numbers of greater horseshoe bat (34 total calls) were recorded across the survey period.
- 3.50. The National Bat Monitoring Programme (NBMP) Annual Report (BCT, 2021) considers population trends for lesser horseshoe bat and greater horseshoe bat to have increased in Great Britain (compared to the baseline year of monitoring), with no population trend for barbastelle. These bats have a restricted range in Great Britain and the Bath and Bradford on Avon Bat SAC supports significant numbers of lesser horseshoe and greater horseshoe bat in its network of significant underground sites (Natural England and Wiltshire Council, 2015). Wiltshire may support notable populations of barbastelle bat (Harris & Linham, 2017). This assemblage of commuting and foraging bats is considered to be of international ecological importance.
- 3.51. Soprano pipistrelle, noctule and brown long-eared bat are SoPI. All of these species (or their species groups) were recorded at all three Locations during the first three static visits, with only a



couple of occurrences in the final static visit. The levels of activity of these soprano pipistrelle, noctule and brown long-eared were low relative to other species groups. One *Myotis* species, Bechstein's bat, is also a SoPI as well as an Annex II species. The *Myotis* species group was also recorded at all static Locations and at all static survey visit. The NBMP Annual Report (BCT, 202) considered population trends for soprano pipistrelle, noctule and brown long-eared bat to have been stable in Great Britain. Noctule and brown long-eared bat are widespread throughout Wiltshire, with distribution of the other species and local population trends less clear (Harris & Linham, 2017). This assemblage of commuting bats is considered to be of **up to county ecological importance**.

- 3.52. For other species recorded on the Site, the NBMP Annual Report (BCT, 2021) considers population trends to have increased for common pipistrelle and remained stable for serotine and Daubenton's bat. The NBMP Annual Report (BCT, 2020) reported an increase in Natterer's bat and a stable trend for whiskered/Brandt's bat, though data could not be updated for 2021. There is no population trend information available for the remaining *Myotis* species, Leisler's bat or Nathusius' pipistrelle. Serotine, Natterer's bat and whiskered bat are considered widespread in Wiltshire. Nathusius' pipistrelle (of which there was only one recording during the static surveys) is considered to have restricted distribution in Wiltshire with the distribution of other species and local population trends less clear (Harris & Linham, 2017). This assemblage of commuting bats is considered to be of **local ecological importance**.

Tree PBRA

- 3.53. Fifteen trees were identified within the site as having suitability to support roosting bats. Other trees surveyed were deemed to have negligible potential for roosting bats due to lack of features. The locations of trees considered suitable for bat roosts are shown on the Tree PBRA **Plan 15116/P02A** and details are provided in **Table 3.6**.



Table 3.6 Tree descriptions and suitability for bats

Reference number	Description	Photo	Bat Roost Potential
T1	Three-stemmed mature willow with three narrow holes on the southern elevation at approximately 6 m, a tear-out extending 30 cm upwards (clean and dry) on the western elevation, a round rot hole 3 m high and a branch tear on the northern elevation.		High
T2	Mature ash (with ash die-back) with a tear in the trunk on the western elevation, extending upwards (mostly dry and clean inside).		Moderate
T3	Multi-stemmed oak covered in ivy with thick ivy stems and a dead rotten branch with a small rot hole on the northern elevation, leading inwards, and a possible hole at the top leading downwards, some lifted bark.		Moderate



Reference number	Description	Photo	Bat Roost Potential
T4	Mature willow with ivy on trunk and a tear-out on the eastern elevation, approximately 4 m above the ground.		Low
T5	Mature oak with ivy mats.		Low
T6	Two small hazel trees with a rotten stem with rot holes and peeling bark on the southern elevation and rot holes extending into the stem of the western elevation.		Moderate



Reference number	Description	Photo	Bat Roost Potential
T7	Group of mature ash trees with ivy mats.		Low
T8	Mature oak with a small hole on the southern elevation, approximately 3 m above the ground, quite dirty.		Low
T9	Mature sycamore with thick ivy mats approximately 3 m above the ground.		Low



Reference number	Description	Photo	Bat Roost Potential
T10	Mature sycamore adjacent to, but outside of the site boundary with rot in the trunk (goes up 3 cm) on the northern elevation.		Low
T11	Small sycamore with a small rot hole on the southern elevation which could lead into a small cavity.		Low
T12	Dying mature sycamore with a round rot hole approximately 5 m above the ground on the southern elevation and several other rot holes on the eastern elevation.		Moderate



Reference number	Description	Photo	Bat Roost Potential
T13	Mature two-stemmed oak with ivy and a large hazard beam split in a branch, with crevices quite exposed, approximately 1 m above the ground.		Low
T14	Mature field maple with a long callous roll approximately 2 m above the ground.		Low
T15	Mature two-stemmed sycamore with small callous roll near base of trunk.		Low



Tree Roost Surveys

- 3.54. Five of the fifteen trees were subject to further nocturnal surveys. No bats were observed emerging or re-entering any of the PRFs on the trees during these surveys or during endoscope inspections. This indicates that bats were not roosting in the trees during the surveys..
- 3.55. The site itself is therefore considered to be of **negligible ecological importance** for roosting bats.

Birds

- 3.56. The data search returned 21 records of birds within 1 km of the site boundary, within the last ten years, which included nine species: golden plover *Pluvialis apricaria*, herring gull *Larus argentatus*, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, mistle thrush *Turdus viscivorus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, starling *Sturnus vulgaris* and yellowhammer *Emberiza citrinella*. The closest record was that of a house sparrow, recorded 0.7 km northeast of the site boundary. The site is not suitable for all of these species but could support house sparrow, song thrush and mistle thrush.
- 3.57. There are opportunities for breeding birds across the site and wider survey area within the ruderal vegetation, scrub and trees. There is also opportunities for birds to forage on insects and seeds. Bird nests of unknown species were observed in the trees across the site during the tree PBRA. Bird species recorded using the site during surveys included common blackbird *Turdus merula*, great tit *Parus major*, wood pigeon *Columba palumbus* and common pheasant *Phasianus colchicus*, all common and widespread species.
- 3.58. Given the availability of suitable habitats for birds in the wider area, bird populations would not be expected to be dependent on the site itself, though maybe moreso in the adjacent woodland areas. Any notable bird species that could be present on site would likely be just passing through. The assemblage of birds on site would therefore be considered to be of **negligible ecological importance**.

Hazel Dormouse

- 3.59. The data search did not return any records of hazel dormouse.
- 3.60. The site has suitable habitat for hazel dormouse within the woodland and line of trees which provide suitable nesting, foraging and hibernation opportunities.
- 3.61. No hazel dormice, nor any signs or evidence of hazel dormouse, was recorded during the survey visits. Dormice are therefore considered to **be likely absent from the site**.

Invertebrates

- 3.62. The only records of invertebrates returned by the data search, recorded within the last ten years, were seven species of moth all within a site called Spye Park approximately 400 – 600m to the south of the site.
- 3.63. The site was deemed to be suitable for a diverse assemblage of invertebrates due to the diversity of herbaceous ruderal vegetation species, low level of management of this vegetation, edge habitat of woodland providing sheltered air and complementary vegetation structures and the rubble and debris piles offering potential refugia.



- 3.64. The invertebrate survey recorded 250 invertebrate species, seven of which (2.8% of the sample) have published conservation status, though none which are protected under legislation. Mostly widespread species were recorded though there was good diversity.
- 3.65. The survey concluded that the site is of **local importance for invertebrates**, both overall and for the individual components of ruderal vegetation and broadleaved trees. The full results of the invertebrate survey are in the Spring Park Invertebrate Survey report in **Appendix 4**.

Reptiles

- 3.66. The data search did not return any records of reptiles within 1 km of the site boundary. However, the 'extended' phase I habitat survey however identified potential for reptiles in the areas of ruderal vegetation and scattered scrub within the site, particularly where there is a mix of bare ground with tall ruderals and scrub. This is limited due to the disturbance of the site by the public, including dog walkers.
- 3.67. Reptile survey results are shown in **Table 3.5** below. They surveys confirmed the presence of a low¹² population of slow worm *Anguis fragilis*, based on a peak count of three adult slow worms despite a high density of refugia mats used for the survey (approximately 23 per hectare).
- 3.68. Slow worm is a Species of Principal Importance¹³ (SoPI), however slow-worm is widespread and locally common, especially in the southwest. Therefore, due to the very low numbers recorded across the 3.6ha site, the population of slow-worm utilising the site is considered to be of **negligible ecological importance**. However, as reptiles are legally protected, there must be consideration to avoid harm of this species.

Table 3.5: Reptile survey results

Visit number	Date	Adult male	Adult female	Juvenile	Peak count
1	21/09/2022	0	0	0	0
2	25/09/2022	0	1	0	1
3	29/09/2022	0	1	0	1
4	02/10/2022	0	1	4	2
5	06/10/2022	2	1	0	3
6	17/10/2022	0	1	0	1
7	29/10/2022	0	1	2	2

¹² Population size assessed in accordance with Froglife Advice Sheet 10, Reptile Survey

¹³ UK priority species and habitats are those subject to conservation action and referred to as Species of Principal Importance (SoPIs) or Habitats of Principal Importance (HoPIs). They are listed at Section 41 [42 in Wales] of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of both SoPIs and HoPIs



Other notable species

- 3.69. The data search returned nine records of west European hedgehog *Erinaceus europaeus* within 1 km of the site boundary, recorded within the last ten years, the nearest of which was recorded 0.1 km north of the site boundary in 2018. Hedgehog is a SoPI which have undergone a long historic decline, with a stable population which might be recovering in urban areas and a low population with continued decline in rural areas.
- 3.70. There is suitable habitat for hedgehog in within the site, namely the woodland and scrub, which provide foraging and shelter opportunities. The piles of debris and brash also provide suitable opportunities for hedgehog to refuge and hibernate.
- 3.71. The site could support a small population of hedgehogs which would be considered of **negligible ecological importance**.



Section 4: Potential Impacts, Mitigation and Enhancement

Proposals

- 4.1. The planning application is for a new data centre building with associated infrastructure (Hale Architecture 2023, 22077_PL1100_08_Proposed Masterplan-1_1000).
- 4.2. In application of the mitigation hierarchy, the habitats of highest ecological importance, the woodland and line of trees, will be protected and retained, with the exception of a small section of woodland to make space for the access road. Tall ruderal, a common widespread habitat of negligible ecological importance, will be removed in the middle of the site for the development. Hardstanding will also be lost.
- 4.3. New woodland will be planting around the edges of the development to enhance ecological connectivity and provide landscape screening. Buffers have been implemented around the existing and new woodland and tree lines to optimise connectivity, particularly as dark corridors for bats. Neutral grassland and other tree planting will be created around the edges off the site along with the Sustainable Drainage System (SuDS) attenuation ponds and small areas of native shrub planting.

Potential Impacts, Mitigation and Enhancement

Site-wide Mitigation

- 4.4. Central to the mitigation and enhancement strategy for the proposed development is the:
 - Production and implementation of a Construction Environmental Management Plan (CEMP) in order to ensure the protection of retained habitat features including trees, including avoidance of lighting during construction to ensure continued opportunities for bats and an appropriate mitigation strategy to ensure protection of slow worm (which will also benefit invertebrates and amphibians and hedgehog if present) on site during construction;
 - Installation and maintenance of tree protection fencing prior to construction works commencing in order to protect retained trees and hedgerows on and immediately adjacent to the site in accordance with BS5837:2012.
 - Production and implementation of a Landscape and Ecological Management Plan (LEMP) in order to ensure appropriate management of habitats on site to allow successful establishment and ongoing management to maximise their biodiversity value and deliver expectations, as set out in the BNG assessment in **Appendix 3** as well as to continue to provide opportunities for important fauna, including foraging and commuting bats, nesting birds and slow worm; and
 - Implementation of the lighting strategy (JCA, May 2023) during operation.



Designated Sites

International Statutory Designated Sites

Bath and Bradford-on-Avon Bat Sites SAC

- 4.5. The Site is within the Bat Consultation Zone of the Bath and Bradford-on Avon Bat SAC according to the at SAC Planning Guidance for Wiltshire (Wiltshire Council and Natural England, 2015). Development proposals within the consultation zone areas shown within this guidance could trigger impacts on the SAC by affecting sensitive features including roosts, foraging areas and commuting corridors used by Bechstein's bat, greater horseshoe bat and lesser horseshoe bat. In order to maintain the integrity of the SAC, it is important to protect the network of sensitive features used by the designated bat populations. The Bat Consultation Zone is a Core Area which has been identified as a landscape surrounding a Core Roost used regularly for foraging and commuting. The Site is within a Core Area because it is within a greater horseshoe bat core roost 4km buffer, a lesser horseshoe core roost 2km buffer and a Bechstein's bat core roost 1.5km buffer.
- 4.6. There are no confirmed roosts of Bat SAC species within the site but there is known to be both a greater horseshoe bat roost and lesser horseshoe bat roost in the woodland immediately adjacent to the west of the site in the slope shaft (Corsham Town Council, 2019 and Cotswold Wildlife Surveys, 2018). Other roosts that are likely to be of significance to the population of the Bat SAC are less than 300m to the south. There will be no loss, damage or disturbance to any of these roosts or other roosts which may be in the vicinity of the site by the development proposals. Habitats which are used for commuting are likely to be associated with these roosts and this has been taken into consideration.
- 4.7. Although tall ruderal habitats on Site will be removed for the proposed development, these habitats are not optimal for foraging for the Bat SAC species. Habitats of primary importance for Bechstein's bat include broadleaved woodland, particularly semi-natural ancient woodland. The habitats of primary importance to greater horseshoe bats include broadleaved woodland and cattle grazed pasture. For lesser horseshoe bats these habitats are also of primary importance, as well as wooded riparian corridors, mature tree lines, and hedgerows. (BCT, 2020). Watercourses and wetland features are also used by these species (Wiltshire Council and Natural England, 2015). Although woodland and lines of trees are partially within the site, these will be protected and retained.
- 4.8. Proposed new woodland and tree planting within the site, with SuDS and grassland will provide opportunities for foraging bats. Moreover, habitat creation in the land at the south of the site to deliver BNG will also be beneficial for foraging bats. This includes tree planting which provide sheltered foraging areas, creation of a wildlife pond which will increase levels of invertebrate prey and hedgerow planting, which will also increase connectivity for commuting.
- 4.9. Contextually, the site is fairly well connected, and therefore functionally linked to, Box Mine SSSI, a component of the Bath and Bradford on Avon Bat SAC. However, habitat in the wider landscape which is even better connected and functionally linked in more rural areas around the SAC/SSSI may be more optimal for foraging and commuting than the site. This would explain the low to moderate levels of lesser horseshoe bats and relatively much lower levels of greater horseshoe bats irregularly recorded during the walked transect and static monitoring surveys using the woodland edges and lines of trees for commuting. However, it is acknowledged that the recorded bat activity levels may be underrepresented due to survey limitations and therefore proposals for



mitigation take into consideration the potential for much higher levels of activity of Bat SAC species.

- 4.10. The tree lines and woodland within the site are sensitive features (commuting route) of one of the core areas associated with the SAC as these species are accessing the Site, likely crossing roads from nearby woodland and hedgerows. This includes the known flightlines and strategic flyways identified by the Corsham Batscape Strategy (Corsham Town Council, 2019). Some of the commuting activity is likely to be associated with nearby roosts of the Bat SAC species including the slope shaft in the woodland immediately adjacent to the west of the site.
- 4.11. Although there were low numbers of recordings of greater horseshoe bats using the northern boundary of the site during the walked transects (**Plan 15116/P05**) and low incidences of greater horseshoe bat recordings at Static Location 1 on this boundary, it is known that this section of Rowan Lane is a confirmed flightline for this species (Corsham Town Council, 2019). There was more activity of lesser horseshoe bats recorded along the southern boundary of the site recorded on the walked transects (**Plan 15116/P04**) and at Static Locations 2 and 3 on this boundary and this is a confirmed flightline for this species (Corsham Town Council, 2019). Therefore, potential impact on the integrity of the Bath and Bradford on Avon SAC must be assessed through the Habitat Regulations Assessment (HRA) process.
- 4.12. The woodlands and tree lines are proposed to be retained as part of the proposed development. Although a few individual trees will be removed from the woodland on the northern boundary of the site, the large retained existing tree canopies will provide a hop-over to retain connectivity in that location for bats and the canopies will be managed to link as close as possible. The main potential impact to sensitive features associated with the Bat SAC and to all bat species, particularly other light sensitive species, from the proposed development could be artificial lighting. To avoid this impact, a sensitive lighting strategy has been produced by a lighting engineer (JCA, May 2023) for the ongoing operation of the Site in accordance with bats and artificial lighting guidance (ILP and BCT, 2018).
- 4.13. The lighting strategy ensures dark corridors of 0 lux of all of the tree lines and woodland within and beyond the Site, including the area of woodland where the slope shaft roost is located. No net increase in light levels has been achieved by avoiding street lights on the proposed access road in the north of the site, using external luminaire design which have no upward light spill (zero Upward Light Ratio, ULR), ensuring that external luminaires mounted on buildings are normally switched off and only rarely switched on for maintenance purposes, using dusk to dawn photocell sensors to control external lighting during hours of darkness. There will also be no artificial lighting or light spill into the land at the south of the site contributing to BNG via habitat creation that also has benefits for bats. Securing compliance with the lighting strategy is expected to be via a planning condition. The detailed lighting design will be taken into consideration in the Appropriate Assessment stage of the HRA.
- 4.14. Moreover, a lighting strategy should be embedded into the CEMP to ensure these dark corridors are retained during construction. The CEMP should also ensure that vehicle use and machinery on Site during construction should avoid night-time hours and provision of temporary site lighting during construction would be localised only (JCA, 2023). This would avoid potential temporary loss of commuting routes which will also be taken into consideration in the Appropriate Assessment stage of the HRA.



- 4.15. Although the Corsham Batscape Strategy has highlighted Drew Pond Wood migration route running through the site, it is considered that Bechstein's bats which may use this would also use the dark corridor provision. This migration route also passes through the nearby operational MOD base which is highly illuminated at night.
- 4.16. The potential for noise from the data centre to impact bats has also been assessed. This is because high frequency noise in a range audible to bats (8+kHz ¹⁴) can disturb bats.
- 4.17. An acoustic impact assessment (65204515-007-SWE-ZZ-XX-T-U-0001-P6-C01) was carried out to model the potential increase in noise levels. The assessment used 5 receptor locations across the site, and a "worst-case" scenario in terms of expected noise outputs, to assess if there was an increase in noise levels at the 8kHz frequency at these receptors.
- 4.18. The assessment concluded that at all but one sampling location, there will be no increase in noise at the assessed frequency at day or night time, and therefore there will be no noise impact on bats as a result of the operation of the site at these locations.
- 4.19. A single sampling location adjacent to an area of woodland (referred to as **BAT3 in 65204515-007-SWE-ZZ-XX-T-U-0001-P6-C01, visible below in Figure 4.1**) indicated a potential increase of high frequency noise levels during the quietest parts of day time only.
- 4.20. The minimum baseline dB value recorded at BAT3 measured 16 dB at 8kHz i.e. at the quietest part of the day, the dB value measures 16. In the site's operational phase there is a potential increase to the minimum dB value of +3 dB from 16 dB to 19 dB at 8kHz.
- 4.21. However, in this location the existing average baseline noise levels are 54dB, which is already in excess of the level at which there is potential deleterious effects on roosting bats (50 dB) ¹⁴. Additionally, the dB value recorded 90% of the time in this area measures 39 dB at 8kHz, which is in excess of the potential increase to the minimum dB value.

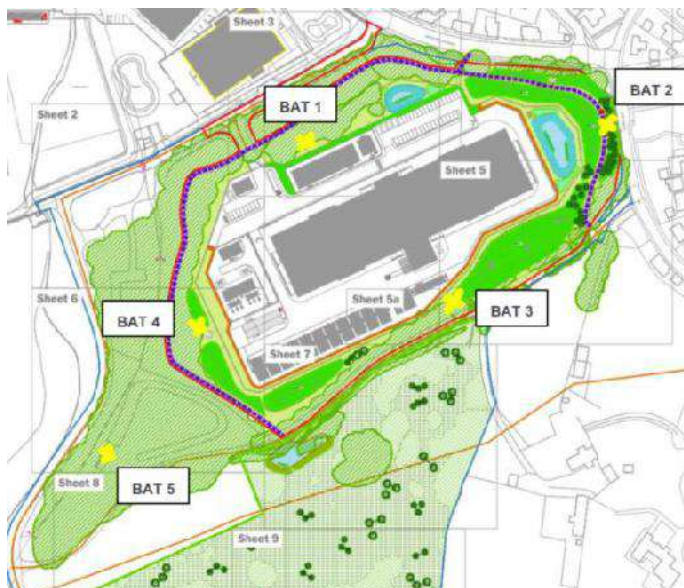


Figure 4.1: Receptor locations shown in yellow.

¹⁴ Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.



- 4.22. It is therefore considered that this area is suboptimal for roosting bats. The potential increase of +3 dB at the quietest point in the day is considered to be “marginal” when compared with existing baseline dB values.
- 4.23. Additionally, roosting bats were considered likely absent based on nocturnal surveys carried out on mature trees in 2023. It is considered that the baseline ambient high frequency noise could be a contributory factor to the lack of roosts in the woodland areas.
- 4.24. As there will be no increase to high frequency noise at this location at night, no impacts to commuting and foraging bats are likely either.
- 4.25. It is therefore considered that there will not be an adverse impact disturbance via noise on the features of the Bat SAC, and all other bat species from the operation of the site
- 4.26. To summarise the ecological impacts assessment in respect of the Bath and Bradford on Avon SAC, it is considered that the measures proposed including retention of sensitive features, noise mitigation measures and the lighting strategy would avoid likely significant effects to the integrity of the SAC. Moreover, there is considered to be benefits to the Bat SAC species from the proposed onsite habitat creation in line with national and local policies.

National Statutory Designated Sites

- 4.27. The proposed development is not likely to have a significant effect on the Box Mine SSSI (or the Corsham Railway Cutting SSSI) due to the distance from the site and as the nature of the development is not residential, it will not increase recreational pressure on these sites. No significant adverse impact to the integrity of these national designated sites is anticipated.
- 4.28. The Site is within the Brown’s Folly SSSI IRZ; therefore, the Local Planning Authority (LPA) should consult Natural England on likely risks from ‘All planning applications’. It is considered that production and implementation of a CEMP will avoid the potential for pollution impacts to SSSIs. Therefore, **no significant adverse effect** to the integrity of national designated sites is anticipated.

Non-statutory Designated Sites

- 4.29. Impacts to the Kingsmoor Wood LWS is unlikely due to the distance between it and the site, approximately 400m. Measures including pollution prevention and dust suppression should be detailed in the CEMP and implemented during construction to reduce the chance of impact to Kingsmoor Wood LWS. **No significant adverse effect** to the integrity of non-statutory designated sites is anticipated.

Habitats and Flora

- 4.30. Where habitats are of negligible ecological importance, they are considered further within the BNG assessment, within **Appendix 3**, but are not considered here as part of the impact assessment.
- 4.31. A few individual trees and a group of ash trees will be removed to allow space to increase the width of the existing access road and for arboricultural management and health and safety reasons (detailed in **edp7897_r008-B-Arboricultural Impact Assessment**). The removal of trees to facilitate access will not significantly reduce the total area of the existing woodland. The removal



of the ash group and individual tree on health and safety grounds would form a woodland clearing that will not be developed and will capable be of natural regeneration, which is a feature of woodland habitats.

- 4.32. A further five trees will be subject to works including cutting back from the proposed fence for security. These works will not affect the change the woodland and lines of trees as habitat features.
- 4.33. The majority of trees within the woodland and lines of trees will be retained. Fencing requirements and appropriate working methods (if required) should be informed by root protection areas in accordance with the Arboricultural Impact Assessment report (EDP, June 2023). Protection fencing, in accordance with BS5837:2012, should be in place prior to commencement and remain in place until the completion of the construction phase. This will be included in the CEMP expected to be conditioned. Therefore there is considered to be **no significant adverse effect** on the woodland or lines of trees within and adjacent to the site.
- 4.34. The habitats on the site that will be lost to facilitate the use of the land as a data centre are of negligible importance and therefore require no specific mitigation or compensation for their loss. Although, in line with the National Planning Policy Framework (NPPF) 2021 (Paragraph 174) and local planning policies (Core Policy 50 of the Wiltshire Core Strategy 2015 and E1 in the Corsham Neighbourhood Plan), enhancement measures to provide compensation for the loss these features, and net gains for biodiversity have been considered within the proposals. This is secured through the delivery of a comprehensive landscaping scheme. Full details and results of the BNG assessment are in **Appendix 3**. The habitats are appropriate to the location and will be maintained in accordance with a LEMP, expected to be conditioned.

Invasive flora

- 4.35. The variegated yellow archangel and Japanese knotweed must not be allowed to spread away from the site. The variegated yellow archangel is widespread across the site and the adjacent woodland areas and therefore control of the species is not considered to be a practical approach. All material of this plant must be left in situ on site where possible or transferred and disposed of appropriately and legally. Japanese knotweed is currently being controlled by a specialist contractor. The CEMP, expected to be conditioned, will provide full information regarding invasive flora.

Fauna

Badgers

- 4.36. Although not considered an important ecological feature on the site, potential impacts to badger have been considered to ensure legal compliance. The legislation protecting badgers, the Protection of Badgers Act, 1992, protects them against killing, injury and cruel ill-treatment as well as preventing damage, destruction or obstruction to an active badger sett, or from disturbing a badger when it is occupying such a sett.
- 4.37. No badgers setts or signs of badger were identified onsite. However, a badger sett is present in the land to the south of the site which is well-connected to the site via suitable habitat (hedgerows, tree lines and grassland). Therefore, given the presence of suitable habitat on site for badgers to forage, it is assumed that badgers would use the site.



- 4.38. The following precautionary methods of works should be undertaken:
- A pre-commencement check for badgers is undertaken at a maximum of three months prior to work commencing on site;
 - In the event recent signs of badger activity, primarily excavation of setts are recorded on site prior to construction activities, further advice from an ecologist should be sought;
 - To ensure badgers are protected from accidental harm during construction, exposed trenches will be covered or have an inclined plank in them overnight, to offer a means of escape, should badgers be commuting across the site;
 - Store any chemicals in a secure, inaccessible area overnight;
 - Cap any temporarily exposed pipes overnight to prevent badgers from accessing them; and
 - Ensure any mounds of freshly dug soil, woodchip or other vegetation are flatted prior to works finishing overnight.
- 4.39. These best practice measures will be incorporated into the CEMP, expected to be conditioned.
- 4.40. There will be no impact on the badger sett in the land adjacent to the south of the site. Tree planting, hedgerow planting and pond creation will all be over 20m away from the badger sett to avoid any disturbance. This will be a consideration within the LEMP, expected to be conditioned.
- 4.41. All of the above will ensure that there will be **no significant impact** on badgers.
- 4.42. Habitat creation and enhancement measures proposed will enhance the site's importance for badgers. The woodland planting and grassland creation will provide opportunities for foraging and landscape bunds will provide opportunities for nest building.

Bats

- 4.43. T1 and T2 are proposed to be removed to allow space for the proposed widened access road into the site. Other trees identified to have bat potential within the site redline and outside of the redline in the woodland in the west may be subject to tree works to make them safe, such as removing deadwood, particularly due to potential public access. However, no bats were found roosting in any of the PRFs of these trees during endoscope inspections or the nocturnal surveys.
- 4.44. Currently, trees T1 and G12 (*Acer* sp. and ash, respectively – visible in **edp7897_r008-B-Arbicultural Impact Assessment**) are set to be felled due to remedial health and safety measures concerning their poor condition. These trees fall outside any trees identified as having bat roosting potential, or subject to further bat emergence surveys.
- 4.45. Bats use trees in a transient nature and therefore it is still recommended that the trees works of the trees identified to have PRFs are undertaken sensitively with removal by section-felling under a method statement and supervision of a bat licensed ecologist, to be detailed in the CEMP for all trees with potential for bats. All PRFs that will be lost should be replaced by bat boxes on retained trees within the woodland to mitigate for loss of roosting opportunities with details confirmed within the LEMP, expected to be conditioned.
- 4.46. The data search demonstrated that a large number of bats have been recorded nearby. The Site mostly consists of tall ruderal vegetation with some woodland and lines of trees along the site



boundaries. Therefore, the habitat was deemed to have moderate suitability for foraging and commuting bats. The majority of bat activity was recorded in Static Locations 1 and 2 (**Plan 15116/P08A**) along the northern and southern site boundaries, mostly comprising common pipistrelle. Bats of up to county importance were recorded at all Static Locations across the site and levels of activity of rare species varied.

- 4.47. Artificial lighting may have an impact on bat activity at the Site. This has been addressed with respect to the Bat SAC but also applies to other bat species, particularly light adverse species recorded to be using the Site including brown long-eared bat and *Myotis* species. A lighting design has been produced to support the required HRA (JCA, 2023). A lighting strategy during construction should be embedded into the CEMP, expected to be conditioned. This mitigation will ensure there is **no significant adverse effect** on any of the bat assemblages.
- 4.48. Habitat creation at the northern extent of the site including woodland planting, shrub planting, grassland creation and attenuation pond creation, will increase species diversity and create additional opportunities for invertebrates (prey) and improve foraging opportunities and connectivity for bats. Habitat creation at the southern extent of the site including tree planting, species-rich hedgerow planting, scrub planting and pond creation will further enhance foraging opportunities and connectivity for bat species. The Corsham Neighbourhood Plan supports development proposals which employ measures to create new species-rich hedgerows and new areas of deciduous woodland (Corsham Town Council, 2019).
- 4.49. There will be provision of additional bat boxes on retained trees within the dark corridors along the boundaries to increase roosting opportunities for certain bat species above and beyond what will be lost. A range of bat box types will be installed facing between south-west and south-east, approximately 4m above the ground. Boxes will be located in least noisy areas of the development site and in the surrounding woodland. Locations and specifications for these boxes will be confirmed within the LEMP, expected to be conditioned.

Birds

- 4.50. The retention of existing scrub and trees will retain opportunities for breeding birds within the proposed development, the assemblage of which is considered to be of common and widespread species.
- 4.51. All wild birds, their nests and eggs are afforded protection under the WCA 1981 (as amended). As such, the removal of some trees, suitable for nesting, could potentially trigger this legislation. In order to avoid this, any tree removal should be undertaken outside of the recognised core breeding bird season i.e., between October and February inclusive. However, if tree work cannot be undertaken during this time, trees will have to be checked by an ecologist and will be delayed if any active nests are discovered until chicks have fledged. Details of this will be in the CEMP, expected to be conditioned.
- 4.52. There are potential acoustic impacts that might occur from the operational aspect of the proposal but this is not expected to affect nesting birds as there are ample nesting opportunities throughout the site and adjacent woodland for the bird assemblage. Therefore, **no significant adverse impact** to breeding birds is anticipated.
- 4.53. Habitat creation and enhancement measures proposed will enhance the site's importance for breeding birds, providing additional nesting and foraging opportunities. To further increase



nesting opportunities for birds, bird boxes will be installed within proposed buildings and on retained trees along the boundaries of the site. Boxes will be located in least noisy areas of the development site and in the surrounding woodland. Locations and specifications for these boxes will be confirmed within the LEMP, expected to be conditioned.

Slow worm

- 4.54. A low population of slow worm has been recorded within the site. Much of the suitable slow worm habitat within the site will be removed, although the majority of the boundary features, including the trees and scattered scrub will be retained. Retention and enhancement of the trees and scrub and creation of grassland and SuDS will retain opportunities for reptiles within the proposed development.
- 4.55. Therefore, during operation, it is considered that slow worm are retained in situ around the edges of the proposed development. A reptile mitigation strategy would be required as part of the CEMP, to be conditioned. This mitigation strategy would provide details of the appropriate methods and timings of work to avoid killing and injuring reptiles present on the site, and therefore allow the proposed development to proceed lawfully, with respect to common reptiles.
- 4.56. The mitigation would involve a precautionary method of working in combination with habitat manipulation, to displace slow worm from discrete areas to be affected during construction works into adjacent, suitable habitats; or a translocation, to move slow worm out of harm's way, to suitable habitat to be retained and enhanced, around the edges of site. Should amphibians be found during implementation of the reptile mitigation strategy, they would also carefully be moved out of harm's way, and translocated by an ecologist to the area of land immediately to the south of the site which is being used to deliver offsite BNG and is within Ark's ownership. This comprises tussocky grassland and scrub which is suitable for reptile populations. Full details of this would be provided in the CEMP, expected to be conditioned.
- 4.57. Implementation of the mitigation strategy to avoid the killing and injury of slow worm and retain opportunities for this species, as well as any amphibians, through appropriate management of suitable habitats, should be detailed within the LEMP, to be conditioned, will ensure there is **no significant adverse effect** to the slow worm population present.
- 4.58. The creation and enhancement of new and retained habitats, such as the creation of the SuDS and grassland areas may enhance the site's importance for reptiles. Inclusion of a reptile refugia in the form of habitat piles within suitable habitat will enhance opportunities for hibernating reptiles. The location and specifications will be confirmed within the LEMP, expected to be conditioned.

Invertebrates

- 4.59. The Spring Park Invertebrate Survey report in **Appendix 4** demonstrated that the best feature of the site for invertebrates is the high vascular plant diversity, with plants able to flower and set seed because of low management input and low-nutrient substrate with limited colonisation by trees. All of the tall ruderal habitat will be lost as part of the development, though the woodland will be retained and protected.
- 4.60. It is recommended that any created habitat should be of low nutrient. The grassland that will be created around the edge of the site will be of low nutrient to promote a diversity of vascular plants



for invertebrates to re-colonise post-development. Species composition should include plants already demonstrated to be of value to invertebrates.

- 4.61. The created grassland should be managed in accordance with the recommended in the report in **Appendix 4** which will be embedded in the LEMP, to be conditioned. Piles of brash should be created around the site as replacement refugia for invertebrates, also to be included in the LEMP. **No significant adverse effect** on invertebrate assemblages is anticipated.
- 4.62. As an enhancement it is recommended that losses bare substrate is left under the shrub planting for the development of solitary bee and wasp assemblage. Bug and bee boxes and “hotels” should be provided, also to be included in the LEMP.

West European Hedgehog

- 4.63. Hedgehogs are listed as an SoPI, Consequently, they are a material consideration within the planning process, as Section 40 of the NERC Act 2006 places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity. To demonstrate due care for this SoPI, basic mitigation measures will be adhered to during the construction and operational phases, namely:
- Any proposed fencing will have a 150 mm x 125 mm opening at its base level to maintain connectivity for hedgehogs which may be using the site;
 - Ensure any mounds of freshly dug soil, woodchip or other vegetation are flatted prior to works finishing overnight to prevent hedgehogs sheltering within these features;
 - Any hedgehogs encountered on site should be allowed to move off of their own accord. If this is not feasible, they should be moved via a heavy-duty gloved hand to a safe area on or off site, where no construction activity is occurring; and
 - In the event that any vegetation clearance is required within hedgehog hibernation season (generally considered to be October to April, inclusive) it is recommended that a pre-start check to be carried out to avoid killing or injuring hibernating hedgehogs during the construction phase.
- 4.64. The above measures are expected to be within the CEMP, expected to be conditioned. **No significant adverse effect** to hedgehogs is anticipated.

Monitoring

- 4.65. In order for the proposed development to provide and guarantee the proposed mitigation, compensation and enhancement measures, as described above, there is a requirement to monitor the effectiveness of the mitigation strategy. Monitoring requirements will set out the expected methods, objectives, timings and remedial measures, as required.
- 4.66. Details of monitoring requirements to ensure on site habitat establishment, as expected, would be provided within the LEMP.

Summary

- 4.67. A summary of the ecological impact assessment, proposed mitigation and compensation measures and mechanism to secure such measures is included in **Table 4.1**.



Table 4.1. Summary of ecological impact assessment and proposed mitigation strategy

Ecological Feature	Scale of Importance	Mitigation/compensation proposed	Residual effect	Proposed mechanism to secure
Bath and Bradford-on-Avon Bat SAC and associated bat assemblage	International	Avoidance of construction lighting, noise and vibration on retained habitat features, secured as part of the CEMP. Control of detailed lighting design. Additional woodland planting, grassland creation, SuDS creation and tree planting onsite. Additional tree planting, scrub planting, hedgerow planting and pond creation. To be secured as part of the LEMP.	To be determined within HRA	Planning condition
Designated sites (two SSSIs and one LWS)	Up to National	CEMP to ensure pollution control measures.	Not significant	Planning condition
Woodland and lines of trees	Local	Protection of retained habitats during construction activities, secured as part of the CEMP. Additional woodland planting on site. To be secured as part of the LEMP.	Not significant	Planning condition
Badger	Negligible	Best practice measures. As above for retained, created and enhanced habitats that will benefit badger.	Not significant	Planning condition
Bat assemblages (non-SAC species)	Up to county	As above for woodland and lines of trees. Avoidance of construction Lighting, noise and vibration on retained habitat features, secured as part of the CEMP. Control of detailed lighting design. Additional woodland planting, grassland creation, SuDS creation and tree planting onsite. Additional tree planting, scrub	Not significant	Planning condition



Ecological Feature	Scale of Importance	Mitigation/compensation proposed	Residual effect	Proposed mechanism to secure
Bath and Bradford-on-Avon Bat SAC and associated bat assemblage	International	Avoidance of construction lighting, noise and vibration on retained habitat features, secured as part of the CEMP. Control of detailed lighting design. Additional woodland planting, grassland creation, SuDS creation and tree planting onsite. Additional tree planting, scrub planting, hedgerow planting and pond creation. To be secured as part of the LEMP.	To be determined within HRA	Planning condition
Birds	Negligible	Timing of vegetation clearance or ecological supervision to protect wild birds' nests and eggs, secured as part of the CEMP.	Not significant	Planning condition
Slow worm	Negligible	Implementation of reptile mitigation strategy to adopt habitat manipulation and displacement or translocation depending on the extent of suitable habitat loss, in order to avoid killing or injuring reptiles, secured as part of the CEMP. Creation of grassland and SuDs and habitat piles with ongoing management of suitable reptile habitat, secured as part of the LEMP. Measures for slow worm will also be of benefit to amphibians.	Not significant	Planning condition
Hedgehog, if present	Local	Precautionary methods of working during vegetation clearance to move hedgehog from harm's way, secured as	Not significant	Planning condition



Ecological Feature	Scale of Importance	Mitigation/compensation proposed	Residual effect	Proposed mechanism to secure
Bath and Bradford-on-Avon Bat SAC and associated bat assemblage	International	Avoidance of construction lighting, noise and vibration on retained habitat features, secured as part of the CEMP. Control of detailed lighting design. Additional woodland planting, grassland creation, SuDS creation and tree planting onsite. Additional tree planting, scrub planting, hedgerow planting and pond creation. To be secured as part of the LEMP.	To be determined within HRA	Planning condition
		part of the CEMP. Ongoing management of suitable habitats for hedgehog, secured as part of the LEMP.		



Section 5: Conclusions

- 5.1. With the implementation of the avoidance, mitigation, compensation and enhancement measures (in accordance with the mitigation hierarchy) described in Section 4, it is considered the proposed development could conform with relevant planning policy and legislation (see **Appendix 1**), though further work is still required to confirm this..
- 5.2. Further work required prior to determination to support the planning application includes:
- A HRA to determine if development proposals in isolation, or in combination, are likely to cause a significant adverse effect on Bath and Bradford-on-Avon Bat sites SAC; and
- 5.3. The delivery of and adherence to the above mitigation measures can be controlled through appropriately wording planning conditions for the following:
- A Construction Environmental Management Plan (CEMP) based on principles outlined in this report, which will set out measures to protect retained ecological features; and protected and priority fauna, including, bats, breeding birds, badgers, and hedgehogs;
 - A Landscape and Ecological Management Plan (LEMP) to maximise the biodiversity potential of retained and newly created habitats, also included would be a programme of monitoring and a mechanism to modify management prescriptions, if required;
 - A Biodiversity Gain Plan illustrating how a 10% uplift in habitats will be achieved, and a Habitat Management and Monitoring Plan (HMMP) evidencing how created habitats will be managed and monitored over a 30 year period; and
 - Implementation of the sensitive lighting strategy for bats (JCA, 2023).



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Appendix 1: Legislation and Planning Policy

Legislation

- A1.1 Specific habitats and species receive legal protection in the UK under various pieces of legislation, including:
- The Environment Act 2021;
 - The Wildlife and Countryside Act (WCA) 1981 (as amended);
 - The Conservation of Habitats and Species Regulations 2017 (as amended);
 - The Countryside and Rights of Way (CROW) Act 2000;
 - The Natural Environment and Rural Communities Act (NERC) 2006;
 - The Hedgerows Regulations 1997; and
 - The Protection of Badgers Act 1992.
- A1.2 The European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, often referred to as the 'Habitats Directive', provides for the protection of key habitats and species considered of European importance. Annexes II and IV of the Directive list all species considered of community interest. The legal framework to protect the species covered by the Habitats Directive has been enacted under UK law through The Conservation of Habitats and Species Regulations 2018 (as amended).
- A1.3 In Britain, the WCA 1981 (as amended) is the primary legislation protecting habitats and species. SSSIs, representing the best examples of our natural heritage, are notified under the WCA 1981 (as amended) by reason of their flora, fauna, geology or other features. All breeding birds, their nests, eggs and young are protected under the Act, which makes it illegal to knowingly destroy or disturb the nest site during nesting season. Schedules 1, 5 and 8 afford protection to individual birds, other animals and plants.
- A1.4 The CROW Act 2000 strengthens the species enforcement provisions of the WCA 1981 (as amended) and makes it an offence to 'recklessly' disturb a protected animal whilst it is using a place of rest or shelter or breeding/nest site.

Environment Act 2021: Town and Country Planning Act

- A1.5 The Environment Act gained Royal Assent in November 2022. Whilst the premise of Biodiversity Net Gain (BNG) has been around prior to this, the Assent of the Act sets the Framework for future legislation to be changed. In England, BNG is mandatory from 12 February 2024 under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). Developers must deliver a BNG of 10%. This means a development will result in more or better quality natural habitat than there was before development.

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



- A1.6 ODPM Circular 06/05 was prepared to accompany PPS9, however continues to be valid, and material in the consideration of planning applications since PPS9's replacement by the NPPF.
- A1.7 ODPM Circular 06/05 provides guidance on applying legislation in relation to nature conservation and planning in England. Part I considers the legal protection and conservation of internationally designated sites (namely candidate Special Areas of Conservation (cSACs), SACs, potential Special Protection Areas (pSPAs), SPAs and Ramsar sites) and Part II considers the legal protection and conservation of nationally designated sites, namely Sites of Special Scientific Interest (SSSIs).
- A1.8 Part III considers the protection of habitats and species outside of designated areas (particularly UK Biodiversity Action Plan species and habitats, which it states are capable of being a material consideration in the preparation of local development documents and the making of planning decisions.
- A1.9 Part IV considers species protected by law and states that the presence of a protected species is a material consideration in the consideration of a development proposal that, if carried out, would be likely to result in harm to the species or its habitat and that it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted.

National Planning Policy

National Planning Policy Framework (NPPF), December 2023

- A1.10 The updated National Planning Policy Framework (NPPF) was published in December 2023 and sets out the Government's planning policies for England and how these should be applied. It replaces the first National Planning Policy Framework published in March 2012.
- A1.11 Paragraph 11 states that:
- "Plans and decisions should apply a presumption in favour of sustainable development."*
- Section 11 of the NPPF, paragraph 120, sub-section b states that planning policies and decisions should:
- b) *"encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains such as developments that would enable new habitat creation or improve public access to the countryside;*
 - c) *recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production"*
- A1.12 Section 15 of the NPPF (paragraphs 180 to 188) considers the conservation and enhancement of the natural environment.
- A1.13 Paragraph 180 states that planning and decisions should contribute to and enhance the natural and local environment by:
- a) *"protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);"*



- b) *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) *maintaining the character of the undeveloped coast, while improving public access to it where appropriate; and*
- d) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”*

A1.14 Paragraph 181 states that plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

A1.15 Paragraph 185 states that in order to protect and enhance biodiversity and geodiversity, plans should:

- a) *“Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity¹⁵; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation¹⁶; and*
- b) *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*

A1.16 When determining planning applications, Paragraph 186 states that local planning authorities should apply the following principles:

- a) *“if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons¹⁷ and a suitable compensation strategy exists; and*

¹⁵ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

¹⁶ Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

¹⁷ For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.



- d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”*

A1.17 As stated in paragraph 187 the following should be given the same protection as habitats sites¹⁸:

- a) *“potential Special Protection Areas and possible Special Areas of Conservation;*
b) *listed or proposed Ramsar sites¹⁹; and*
c) *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.”*

A1.18 Paragraph 182 states that the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Local Planning Policy

Wiltshire Core Strategy (adopted 2015)²⁰

A1.19 Core Policy 50 (CP50): Biodiversity and Geodiversity

“Protection

Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in paragraphs 6.75-6.77 above where

¹⁸ The policies referred to are those in this Framework (rather than those in development plans) relating to: habitats sites (and those sites listed in paragraph 181) and/or designated as Sites of Special Scientific Interest; land designated as Green Belt, Local Green Space, an Area of Outstanding Natural Beauty, a National Park (or within the Broads Authority) or defined as Heritage Coast; irreplaceable habitats; designated heritage assets (and other heritage assets of archaeological interest referred to in footnote 68); and areas at risk of flooding or coastal change.

¹⁹ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

²⁰ Wiltshire Core Strategy (adopted 2015) Wiltshire Council [Online] Available at:

<https://www.wiltshire.gov.uk/media/372/Wiltshire-Core-Strategy-adopted-2015/pdf/Wcs.pdf?m=637099399373530000>

[Accessed 31/01/2023]



possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy”

Biodiversity enhancement

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/ Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character.

Local sites

Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

- i) cannot reasonably be avoided;*
- ii) are reduced as far as possible;*
- iii) are outweighed by other planning considerations in the public interest; and*
- iv) where appropriate compensation measures can be secured through planning obligations or agreements. Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.”*

A1.20 Policy GC12: Protection Of River Character - Rivers Chess And Misbourne

A1.21 Policy NC1: Safeguarding Of Nature Conservation Interests Throughout The District

Corsham Neighbourhood Plan (2016 – 2026)²¹

A1.22 Policy CNP ED1

“Proposals for development should take into account the Corsham Design Guide and Corsham Batscape Strategy. Applicants must demonstrate how their proposals will: i) take account of the principles and guidance in the Corsham Batscape Strategy to help ensure that their development preserves and, where possible, enhances landscape permeability and connective habitats within the Corsham area (including details of measures to preserve and, where possible, enhance wildlife corridors, especially with regard to foraging areas, priority flight lines and maternity roosts); and ii) be of high-quality design, reflecting the distinctive character and features of the local area (design, scale, materials, colours and proportion respect the prevailing historic context) identified

²¹ Corsham Neighbourhood Plan 2016 – 2026 (adopted 2019) Corsham Town Council [Online] Available at: <https://www.wiltshire.gov.uk/media/548/Corsham-Neighbourhood-Plan/pdf/sppnp-corsham-neighbourhood-plan-made.pdf?m=637102850391800000> [Accessed 31/01/2023]



in the Corsham Design Guide and, where possible, result in improvements to existing features that are considered to be detractors."

A1.23 Policy CNP EP1

"Otherwise acceptable proposals for development which protect and, where possible, enrich the habitat of the protected bat species associated with the Bath and Bradford on Avon Bats Special Area of Conservation (SAC) will be supported. Applicants will need to demonstrate how their proposals would contribute to the delivery of the Corsham Batscape Strategy, including details of measures to preserve and, where possible, enhance wildlife corridors, (especially with regard to foraging areas), priority flight lines and maternity roosts. Proposals that enhance the biodiversity of Corsham will be supported."

A1.24 Policy CNP E2

"All new development should seek to contribute to the achievement of sustainable development. Proposals should:

- a) Safeguard and, where possible, enhance biodiversity and geodiversity;*
- b) Adopt best practice in sustainable urban drainage;*
- c) Reduce flood risk and ensure that the design and location of new development is resilient to the effects of flooding*

Proposals are encouraged to demonstrate:

- d) Innovative design which seeks to achieve low carbon sustainable design;*
- e) The promotion of the efficient use of natural resources, the re-use and recycling of resources, and the production and consumption of renewable energy;*
- f) Grey water re-use; and*
- g) The development of low and zero carbon energy through a range of technologies."*

Wiltshire Biodiversity Action Plan (2008)²²

A1.25 The Wiltshire Biodiversity Action Plan (BAP) outlines the conservation priorities for the county as a series of habitat and species action plans.

A1.26 The BAP sets out plans for the following habitats:

- Woodland;
- Wood-pasture, parkland and ancient trees;
- Ancient and species-rich hedgerows;

²² Wiltshire Biodiversity Action Plan (2008) Wiltshire Wildlife Trust [Online] Available at: <https://www.wiltshirewildlife.org/Handlers/Download.ashx?IDMF=7714a121-9452-459e-8d39-173af55cce01> [Accessed 31/01/2023]



- Orchards;
- Farmland habitats;
- Calcareous grassland;
- Unimproved neutral grassland;
- Rivers, streams and associated habitats;
- Standing open water; and
- Built environments.

A1.27 The BAP also has a species action plan covering the 15 bat species present in Wiltshire.



Appendix 2: Preliminary Ecological Appraisal (Donkey Field PEA, Daniel Ahern Ecology, August 2022)



Donkey Field, PEA

Client: ARK Spring Park Ltd



August 2022

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Document Control

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This report has been prepared for the sole use of the client. Any third party referring to this report or relying on the information contained herein, does so entirely at their own risk.

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on site at a later date.

The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to works.

Executive Summary

Purpose of the report

To provide a Preliminary Ecological Appraisal (PEA) of the proposed development site, involving,

- Evaluation of its conservation status based on a desktop review that summarises information collated on protected species and nature conservation designations in the area.
- Assessment of habitat composition on site, derived from a Phase 1 habitat survey.
- Assessment of the likelihood of protected, or otherwise notable, species occurring on site.

Context of the development

The proposed development is to clear and develop the Donkey field site.

Methods

The project requirement was to assess the existing ecological value of the site, identify potential ecological issues associated with the proposed development and make recommendations for general mitigation, compensation, enhancement and further surveys, as appropriate. A desk study and a Phase 1 habitat survey were carried out.

Key issues

The site has high reptile potential, and so a BMES should be followed when clearing vegetation from the site.

Bats may present an ecological constraint to the works planned if any of the perimeter woodland is altered. Spring Park houses a greater horseshoe roost onsite. This can be mitigated through limiting working time to day-time hours, no felling of trees without being individually assessed for bats through a treetop inspection by a qualified ecologist.

Further surveys required

Any trees which are to be felled will require an aerial bat inspection by a qualified arboriculturist.

A Biodiversity Mitigation and Enhancement Strategy (BMES) and bat surveys are recommended.

Conclusions

Due to the unmanaged nature of the recorded habitats, it is considered that the proposed development has the potential to cause significant negative impact to biodiversity at a site level.

Declaration

I confirm that the information provided in this document is truthful and accurate at the time of completion.

Lead ecologist & Project manager: Daniel Ahern CEnv MCIEEM FLS

Signature:

Date: 17/08/22

Assistant Ecologist & Principal Author: Peter Allen AMRSB MSc

Signature:

Date: 12/08/22

1. Introduction

1.1. Background

- 1.1.1. Proposed site disturbance and clearance the land to construct a new data centre. At the time of writing the PEA, the exact location was to be confirmed.

Figure 1. Site location with the red line boundary.



- 1.1.2. The purpose of this report is to identify key ecological constraints, in order to inform the project planning such that significant ecological impacts are avoided or minimised. It also aims to highlight any further ecological surveys that may be required to inform any future Ecological Impact Assessment (EclA), so that they can be appropriately designed. Finally, the report aims to provide the information required in order to develop appropriate mitigation or compensation measures.

1.2. Site description

- 1.2.1. The Donkey Field, hereafter referred to as 'The Site' is a large brown field site measuring approximately 3.8 hectares. Its located to the south east of the existing ARK Spring Park data centres (NGR ST 85237 68769) . The site was accessed via Rowan Lane to the north, where there was a single-track road

which travelled through the centre of the site. The site predominately consisted of areas of; tall ruderal plants, unimproved grassland, scrub, and bare ground, the concrete foundations of previously demolished buildings. The perimeter of the site consisted of areas of broadleaved semi-natural woodland and scrub.

- 1.2.2. The proposed developments and alterations to the site are as followed:
- Complete clearance of all vegetation.
 - Laying of associated groundworks for a new data centre.

2. Planning & Legislation

2.1. Legislation

The following legislation informed the survey approach and considerations.

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitat and Species Regulations 2010 (as amended).
- Environment Act 2021

2.2. Planning policies

- 2.2.1. This report is prepared with reference to the National Planning Policy Framework 2017.

3. Methods

3.1. Desk study

- 3.1.1. The following publicly accessible websites were searched for relevant ecological information:

- <http://planningguidance.planningportal.gov.uk/>
- <http://jncc.defra.gov.uk/page-1376> (summary of nature conservation legislation)
- www.ukbap.org.uk (archived 2012)
- www.google.com for aerial photography

- 3.1.2. The Wiltshire and Swindon Biological Records Centre (WSBRC) was contacted and all ecological records pertaining to statutory & non-statutory sites within 2km of the survey area were requested. In addition, all protected species records within 2km (including bats species were requested).

- 3.1.3. No previous reports relating to the site were available for review.

3.2. Field survey

- 3.2.1. An extended Phase 1 habitat survey of the site was undertaken with reference to the Institute of Environmental Assessment's Guidelines for Baseline Ecological Assessment (IEA, 1997) and the Institute of Ecology and Environmental Management's Guidelines for Preliminary Ecological Appraisal (IEEM, 2012).
- 3.2.2. The survey was conducted on the 9th August 2022 by Peter Allen and Paula Llewellyn.
- 3.2.3. The weather conditions were excellent and an average temperature of 28°C.
- 3.2.4. During the survey, dominant plant species were recorded, and habitats were classified according to their vegetation types, as identified in the Handbook for Phase 1 Habitat Survey – A technique for environmental audit (JNCC, 2010). Target notes (TN) were taken to denote species and habitats of conservation interest and to describe the vegetation in areas that were too small to map. Evidence or habitat suitable for any legally protected species was recorded, where appropriate.
- 3.2.5. The presence (if any) of invasive species such as Japanese knotweed *Reynoutria japonica* was also investigated during the field survey.
- 3.2.6. The results are presented in the standard format with habitat descriptions and a phase 1 habitat map (see Figure 3, Appendix 2).
- 3.2.7. The site was inspected for direct evidence and habitat suitability for protected and notable species. Particular attention was given to those species listed under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitat and Species Regulations 2010 (as amended). This included searching for signs of badger activity and habitats suitable for amphibians, dormice, bats and reptiles.
- 3.2.8. According to the Institute for Environmental Assessment (IEA, 1995), phase 1 surveys can be undertaken all year round in order to identify any habitats on site where protected species may potentially be present.
- 3.2.9. In the event that habitats suitable for protected species are identified, it may be necessary to undertake further seasonal surveys to confirm presence/absence. In the event that no suitable habitats or features are identified, a phase 1 habitat survey is sufficient to determine the potential impacts associated with a proposed development.

3.3. Limitations

- 3.3.1. The data provided by the online resources were not exhaustive. It is possible that species and habitats not found in the data search occur within the vicinity of the proposed development site.

- 3.3.2. The details within this report will remain valid for a period of 12 months; beyond that date it is advised that a review of ecological conditions is undertaken.
- 3.3.3. Clearance of vegetation had already begun on the northern part of the donkey field.

4. Baseline Ecological conditions

4.1. Desk study

- 4.1.1. Three statutory designated sites were identified within 2 km of the proposed development site, see Table 1 below.

Table 1. Statutory Wildlife Sites Within 2km of the site.

Site name	Habitat type
Box Mine	SSSI
Bath & Bradford on Avon Bats	SAC
Corsham Railway Cutting	SSSI

- 4.1.2. The requested ecological data request from the Wiltshire and Swindon Biological Records Centre (WSBRC) recorded seven local wildlife sites, within 2km of the site. See Figure 3 below, with details of each in Table 2.
- 4.1.3. A total of three EPSL relating to bats were recorded within 2km of the Site, the details of which are presented in Table 3 below.

Table 3: Bat EPSL Records within 1km of the Site

EPSL Reference	Species named	Distance & direction from the Site
EPSM2011-3457	lesser horseshoe, greater horseshoe, whiskered	694m west
EPSM2010-1942	lesser horseshoe, natterers	550m north
EPSM2011-2839	common pipistrelle, lesser horseshoe, brown long-eared, natterers.	526m south
EPSA2012-5222	lesser horseshoe, greater horseshoe, common pipistrelle.	440m east
2015-17598-EPS-MIT-2	lesser horseshoe	1696m north

Figure 3. A map showing the Statutory and Non-statutory Wildlife Sites Within 2km of the site.

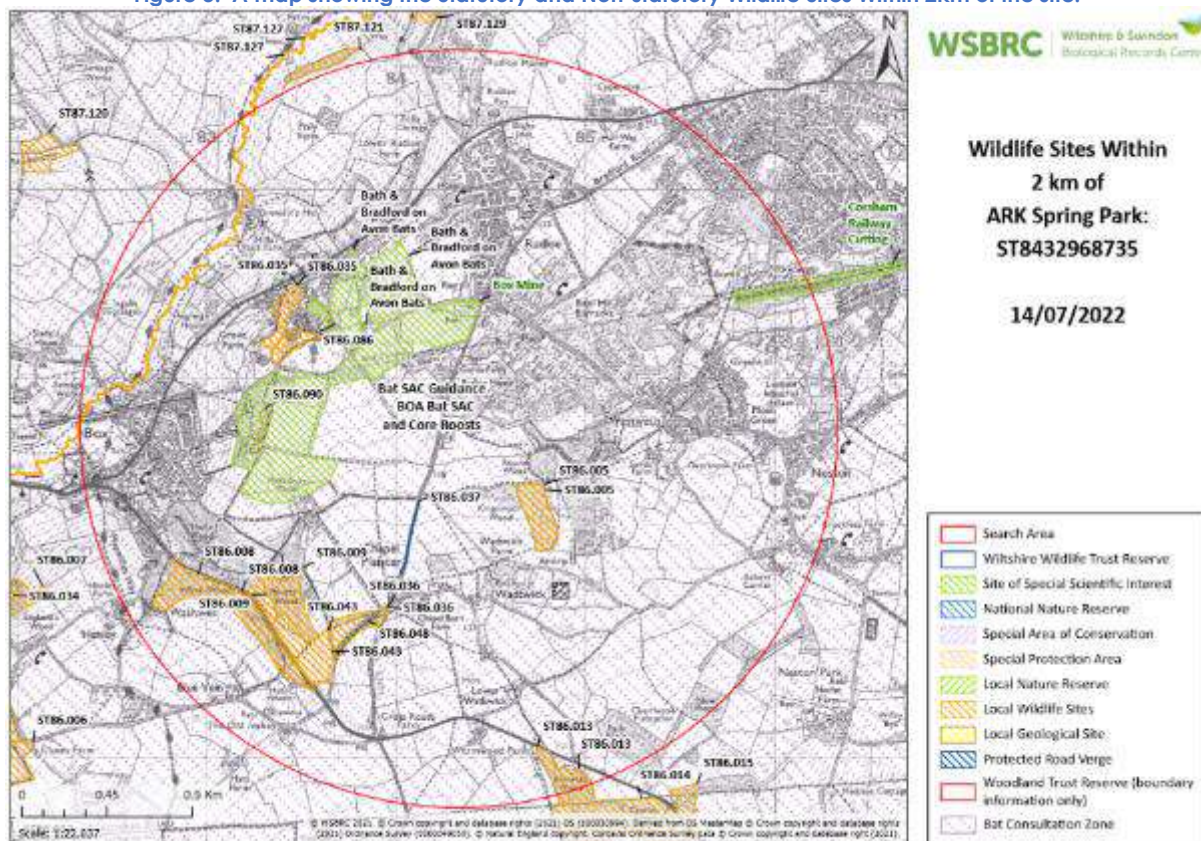


Table 2. Details of the Non-statutory Wildlife Sites Within 2km of the site.

Map number	Site name	Area m ²
1	Kingsmoor Wood	4.6
2	White Wood, Box	10.85
3	Privett's Wood	4.88
4	Botleaze Wood	4.1
5	Box Hill Common	4.48
6	Hazelbury Common	3.56
7	Hazelbury Fields	7.27
8	By Brook	31.61

4.1.4. Protected species records for the following taxa were recorded within 2 km of the site:

Amphibians:

Great Crested Newt *Triturus cristatus* *

Bats:

Alcathoe Bat	<i>Myotis alcathoe</i>
Bechstein's Bat	<i>Myotis bechsteinii</i>
Brandt's Bat	<i>Myotis brandtii</i>
Brown Long-eared Bat	<i>Plecotus auratus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Daubenton's Bat	<i>Myotis daubentonii</i>

Greater Horseshoe Bat	<i>Rhinolophus ferrumequinum</i>
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>
Lesser Noctule	<i>Nyctalus leisleri</i>
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>
Natterer's Bat	<i>Myotis nattereri</i>
Noctule Bat	<i>Nyctalus noctule</i>
Serotine	<i>Eptesicus serotinus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Western Barbastelle	<i>Barbastella barbastellus</i>
Whiskered	<i>Myotis mystacinus</i>

Birds:

Corn Bunting	<i>Emberiza calandra</i>
Golden Plover	<i>Pluvialis apricaria</i>
Herring Gull	<i>Larus argentatus</i>
House Sparrow	<i>Passer domesticus</i>
Linnet	<i>Linaria cannabina</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Skylark	<i>Alauda arvensis</i>
Song Thrush	<i>Turdus philomelos</i>
Starling	<i>Sturnus vulgaris</i>
Yellowhammer	<i>Emberiza citrinella</i>

Mammals:

Eurasian Badger	<i>Meles meles</i>
Polecat	<i>Mustela putorius</i>

Reptiles:

Common Lizard	<i>Zootoca vivipara</i>
---------------	-------------------------

***No access to site due to main road preventing access**

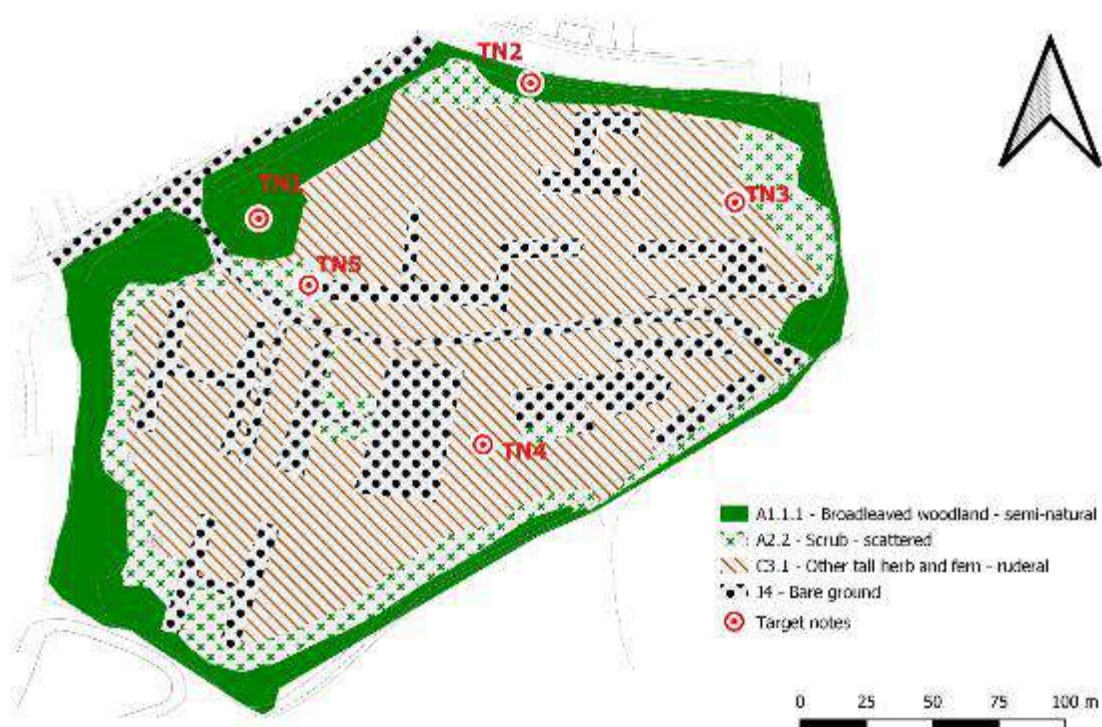
- 4.1.5. The MAGIC website confirmed there were no ponds or Great crested newt breeding sites recorded within 500m of the site. Recently created drainage lagoons are present within the boundary of the existing data centre complex to the north.

4.2. Site survey

- 4.2.1. A Phase 1 habitat map of the site is set out in Figure 2 below.
- 4.2.2. The majority of the site was comprised of C3.1 other tall herb and fern – tall ruderal, in the form of various herbaceous and woody shrubs, including but not limited to dyer mignonette *Reseda luteola*, great mullein *Verbascum thapsus*, evening primrose *Oenothera biennis*, ragwort *Senecio jacobaea*, mugwort *Artemisia vulgaris* and hogweed *Heracleum sphondylium*. The site was split by a single track road, which crossed the site roughly from north west to south east.

- 4.2.3. The site also had areas of B2.1 neutral unimproved grassland fragmented amongst the area of C3.1 other herb and fern – tall ruderal, this was very present in the northeast of the site, near target note 3.
- 4.2.4. In both sections of the site, north and south of the road, there was large areas of J4 - bare ground which is thought to be concrete foundations of previously demolished buildings. These were spread across the site and sometimes were covered in sparse vegetation, and occasionally had areas of A2.2 scrub - scattered growing in close proximity, this included species such as bramble *Rubus fruticosus*, nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius* and buddleia *Buddleja davidii*. These habitats are key for reptiles, and therefore increase the potential for this group onsite.
- 4.2.5. Around the perimeter of the site, especially to the north, was an area A1.1.1 Broad leaved woodland – semi natural. This consisted of ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, elder *Sambucus nigra* and blackthorn *Prunus spinosa*. This woodland provided a known commuting route for bat species and acted as a dark corridor. Individual trees within the woodland offer high bat roost and will need to be assessed for bat roosts.
- 4.2.6. Areas between the stands of C3.1 and A1.1.1 were fragmented areas of scattered scrub. This primarily consisted of bramble and nettle species which transitioned between woodland undergrowth and the tall ruderal plants. This habitat is excellent for reptile species.
- 4.2.7. There is potential for badgers onsite, however, no evidence was found during the phase 1 survey either on site or within 30m of the site.
- 4.2.8. There was no evidence of Japanese knotweed *Reynoutria japonica* or other Invasive Non-Native Species on site.
- 4.2.9. A full species list from the site survey is given in Appendix 1, and target notes relating to the numbers on the Phase 1 map are given in Appendix 2.

Figure 2 Phase 1 habitat map, including numbered target notes.



4.2.10. The survey recorded the following potential for protected species and groups to be present.

- Amphibians: NO breeding habitat recorded on or within 500m of site boundary. The terrestrial habitat had MODERATE amphibian potential. There were records of Great Crested Newt within 2km of the site, however, the site is surrounded by stretches of busy road, meaning it is unlikely for individuals to be found within the site.
- Badgers: NO EVIDENCE of badgers recorded on site or within 30m, records indicate they are within 2km.
- Bats: HIGH foraging and commuting potential within the site boundary.
- Dormice: MODERATE HABITAT potential, no records found within 2km away. Low habitat connectivity.
- Otter: SUB-OPTIMAL for this species due to the absence of suitable habitat on site.
- Reptiles: HIGH potential for this group, a number of potential hibernacula in the areas of scrub, and areas of bare ground for basking throughout the site.
- Water vole: SUB-OPTIMAL for this species due to the absence of suitable habitat.

5. Ecological constraints and opportunities

5.1. Designated nature conservation sites

- 5.1.1. The desk-based assessment recorded three Statutory Wildlife Sites and eight Non-statutory wildlife sites within 2km of the site.
- 5.1.2. Five EPSL for bats were recorded within 2km of the site.

5.2. Habitats

- 5.2.1. The proposed development of the site will result in the significant disturbance of part of the current heterogeneous mix of habitats recorded across the site.
- 5.2.2. A number of surrounding trees may be lost or thinned as a result of a proposed development, including dead wood.
- 5.2.3. A number of potential reptile hibernacula may be impacted by landscaping works. A Biodiversity Mitigation and Enhancement Strategy (BMES) is recommended.

5.3. Fauna

- 5.3.1. The site has HIGH reptile potential. The BMES should set out reptile mitigation and habitat enhancement measures. These will ensure no significant impact to the local reptile population takes place as a result of the proposed works.
- 5.3.2. As set out in 5.2.1, there may be significant disturbance of habitat on site which has the potential to cause a significant negative impact at a site level to a local reptile population, a Biodiversity Mitigation and Enhancement Strategy (BMES) is recommended.
- 5.3.3. Due to the habitat present and proximity to the Bath & Bradford on Avon Bats SAC, bats will provide an ecological constraint to the works planned. Spring Park. This is due to disturbance to trees which have the potential for bat roosts in. This can be mitigated through limiting working time to day-time hours, no felling of trees without being individually assessed for bats through a treetop inspection by a qualified ecologist.
- 5.3.4. It is recommended that static bat monitoring and bat transect surveys of the site are completed to confirm the value to the local bat population.

6. Conclusions

- 6.1.1. A Biodiversity Mitigation & Enhancement Strategy is recommended. This is due to the introduction of the 2021 Environment Act, whereby best practice is that any planning and construction must have a net gain for biodiversity.
- 6.1.2. Due to the habitat present and proximity to the Bath & Bradford on Avon Bats SAC, bats will provide an ecological constraint to the works planned. Spring Park. This is due to disturbance to trees which have the potential for bat roosts in. This can be mitigated through limiting working time to day-time hours, no felling of trees without being individually assessed for bats through a treetop inspection by a qualified ecologist. Static bat monitoring and transect surveys will confirm the value of the site to this group of species.

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- Rose, F. (1989) *Colour Identification Guide to the Grasses, Sedges, Rushes and Ferns of the British Isles and North Western Europe*; Viking

8. Appendices

Appendix 1

Common name	Latin name
annual meadow grass	<i>Poa annua</i>
ash	<i>Fraxinus excelsior</i>
blackthorn	<i>Prunus spinosa</i>
bramble	<i>Rubus fruticosus</i>
bristly ox tongue	<i>Helminthotheca echioides</i>
buddleia	<i>Buddleja davidii</i>
burdock	<i>Arctium minus</i>
caper spurge	<i>Euphorbia lathyris</i>
cocks foot	<i>Dactylis glomerata</i>
creeping buttercup	<i>Ranunculus repens</i>
cuckoo pint	<i>Arum maculatum</i>
doves foot cranesbill	<i>Geranium molle</i>
dyer's mignonette	<i>Reseda luteola</i>
elder	<i>Sambucus nigra</i>
evening primrose	<i>Oenothera biennis</i>
great mullien	<i>Verbascum thapsus</i>
hazel	<i>Corylus avellana</i>
hemp agrimony	<i>Eupatorium cannabinum</i>
hogweed	<i>Heracleum mantegazzianum</i>
mugwort	<i>Artemisia vulgaris</i>
musk mallow	<i>Malva moschata</i>
nettle	<i>Urtica dioica</i>
ploughman's spikenard	<i>Inula conyzae</i>
ragwort	<i>Jacobaea vulgaris</i>
Sheep's fescue	<i>Festuca ovina</i>
perforate St john's-wort	<i>Perforate st John's-wort</i>
sycamore	<i>Acer pseudoplatanus</i>
teasel	<i>Dipsacus follonum</i>
yarrow	<i>Achillea millefolium</i>
Yorkshire fog	<i>Holcus lanatus</i>

Appendix 2

Target note	Target note comments
1	Area of broadleaved woodland, with species consisting of Ash, Sycamore and Blackthorn. High Bat roosting, foraging and commuting potential.
2	Area of woodland and scrub, with species such as blackthorn, ash, elder, bramble and nettle. High reptile potential.
3	A matrix of unimproved grassland amongst the tall ruderal herbs.
4	Areas of buddleia amongst the tall ruderal herbs.
5	Area of scrub and hardstanding / concrete foundation. Species present include hazel, bramble and nettle. High reptile potential.

Appendix 3

Photo 1, The bare ground / old foundations surrounded by the ruderal vegetation



Photo 2 , the woodland which is located at the northern perimeter of the site.



Photo 3, the woodland and scrub area to the east of the site.



Photo 4, the vegetation which covers most of the site, and provides an excellent habitat for reptiles.



Appendix 3: Biodiversity Net Gain Assessment

Introduction

- A3.1 A Biodiversity Net Gain (BNG) assessment for the site was completed by Tyler Grange Group Ltd which was informed by the UKHabs survey.P09
- A3.2 The habitats recorded during this survey were assessed with reference to the UK Habitat Classification (Butcher et al., 2020) and the Biodiversity Metric technical supplement (Panks *et al.* 2021) to determine their condition and ecological importance.
- A3.3 The Habitat Features Plan **15116/P01A** shows the existing habitats present on site. Retained and created habitats are shown on the Post-development Habitats Map **15116/P11A**.

Mitigation Hierarchy and Good Practice Principles

- A3.4 The proposals for the site have been developed with reference to the ecological mitigation hierarchy which is central to the BNG process. This was applied by advising avoidance of damage to the most valuable habitats, then minimising the impact and using mitigation, and finally compensating for a loss of habitat. Advice was provided throughout the project to inform the development and landscape design to adhere to this and to achieve a minimum of + 10% BNG.
- A3.5 The CIEEM BNG good practice principles for development (which include the mitigation hierarchy) (Baker et al. 2019²³) were applied at all stages of the assessment.

Metric Calculation Methodology

- A3.6 The BNG assessment of the site has been completed using Natural England's Biodiversity Net Gain (BNG) Metric (The Statutory Biodiversity Metric) which should be looked at in conjunction with this note (**15116_SpringParkP6_StatutoryBiodiversityMetric_R2**).
- A3.7 The metric was firstly used to assign numerical values to allow biodiversity units to be calculated for each habitat type based on various attributes. Calculations of biodiversity units for area-based habitats and for linear habitats were carried out separately in separate tabs of the metric. The number of biodiversity units was then compared for pre- and post- development to give an indication of the change in ecological value.
- A3.8 Pre-development biodiversity units represent existing baseline conditions of habitats within the Site and were calculated by inputting the following information in the metric:
- Habitat type – taken from UKHab field surveys;
 - Habitat area/length – area (ha) and/or length (km) of each habitat was measured on QGIS digital mapping, the urban street tree calculator was used for any standard trees on site;

²³ Baker, J. Hoskin, R. & Butterworth (2019). Biodiversity net gain: Good practice principles for development. A practical guide. Ciria, CIEEM & IEMA



- Habitat distinctiveness – a score based on type of habitat present linked to habitat type and automated in the metric;
- Habitat condition – a score based on specific condition assessment criteria for each habitat type; and
- Strategic significance – whether the site is in an area of local strategy, an ecologically desirable location or not.

A3.9 The Detailed Soft Landscape Plan (**edp7897_d021-E, EDP 2023**) was used to determine attributes of post-development habitats. Post-development biodiversity units represent the completed development and landscaped habitats within the site, including habitats retained, enhanced and created. These were calculated using the same inputs as for pre-development biodiversity units as listed above with the addition of risk multipliers to take into account the likely scale of impact and potential for success of a post-development habitat to be established including:

- Difficulty risk – difficult of creating or enhancing a given habitat; and
- Temporal risk – time required for newly created or enhanced habitats to establish.

A3.10 Habitat metric calculations were undertaken by Aaron McFarland, an experienced field ecologist at Tyler Grange who is a suitably qualified person under the definition of the BS8683:2020.

Limitations

A3.11 The metric uses habitats as a proxy for biodiversity and does not account for other biodiversity enhancements such as species-targeted enhancements like bat and bird boxes. Detail on biodiversity mitigation and enhancement measures to be delivered outside of the BNG are detailed in the main body of this EcIA report and will be included in a Landscape and Ecological Management Plan (LEMP), expected to be conditioned.

A3.12 When mapping and recording habitats, types and conditions were assigned using professional judgement and with reference to the appropriate guidance.

Existing Baseline

A3.13 There is not currently a Wiltshire Local Nature Recovery Network and the Site's habitats are not in any other local strategies or within a National Habitat Network Enhancement Zone. Below, the site has been split to "Northern" and "Southern" sections due to the distinct difference in habitat composition in these areas.

Northern Extent

A3.14 The northern extent of the site primarily comprises sparsely vegetated land; ruderal/ephemeral (elsewhere described as tall ruderal habitat) with developed land; sealed surface (hardstanding), small areas of mixed scrub and broadleaved woodland along the edges.

Ruderal/ephemeral

A3.15 The ruderal/ephemeral habitat makes up 2.768 ha of the site. This is a low distinctiveness habitat. It has been assessed as being moderate as it passes the relevant habitat condition assessment



criteria 1 and 2 but it fails criteria 3 due to the presence of invasive species (Japanese knotweed and variegated yellow-archangel) within the habitat.

Developed land; sealed surface

- A3.16 This habitat comprises the hardstanding which has been left on the footprints of past buildings. It has very low distinctiveness and a condition assessment is not applicable to it.

Mixed scrub

- A3.17 There is only a very small area of mixed scrub within the northern section, which is a medium habitat distinctiveness and has been assessed as poor condition. It passed the relevant habitat condition assessment criteria 3 and 4 but failed 1, 2 and 5.

Broadleaved Woodland

- A3.18 The redline of the site overlaps with the edges of the broadleaved woodland so that 0.457ha of the habitat are within the site. This is a medium distinctiveness habitat. It has been assessed as moderate condition as it achieves 30 out of a possible 39 points in the relevant condition criteria assessment.

Lines of trees

- A3.19 There are two lines of trees within the site, 0.017km and 0.012km in length, along the northern extent, and centre of the site. This is a linear (hedge) habitat of low distinctiveness and are both assessed to be of good condition.

Southern Extent

- A3.20 The southern extent of the site is currently an area of public open space under Ark ownership and has an existing footpath running through it. It is predominately comprised of other neutral grassland, and mixed scrub, with urban trees, hedgerows and ruderal habitat also present.

Other neutral grassland

- A3.21 Other neutral grassland makes up the majority of the southern area of the site, measuring 1.841ha. This is a habitat of medium distinctiveness and it is assessed as being moderate condition as it passed the relevant condition assessment criteria 1-3 but failed 4 – 6.

Mixed scrub

- A3.22 There are large areas of mixed scrub in the southern area of the site, a habitat of medium distinctiveness. The majority of this (0.759ha total area) is assessed as being moderate condition. All of this passed the relevant habitat condition assessment criteria 4 and 5. A small area at the southern extent passed criterion 3 (absence of invasive non-native species) but failed criteria 1 and 2. However the area in the northeast passed criterion 2 (good age range) but also failed criteria 1 and 2.

- A3.23 A smaller area (0.021) of the mixed scrub was assessed as poor condition as it passed the relevant habitat assessment criteria 4 and 5 but failed 1-3.



Ruderal/ephemeral

- A3.24 There is a small (0.06ha) area of ruderal/ephemeral habitat in the southern extent of the site, a low distinctiveness habitat. This is assessed as being of poor condition.

Developed land; sealed surface

- A3.25 A very small area (0.026ha) of developed land; sealed surface is present where it appears on OS mapping that there was a historically a pond. This habitat is of very low distinctiveness and condition assessment does not apply.

Urban tree

- A3.26 There are 20 trees within the southern area, a habitat of medium distinctiveness which, as a whole, has been assessed to be of good condition. On the urban tree calculator in the Biodiversity Metric the trees have been calculated to represent a total area of 0.15ha.

Hedgerow

- A3.27 There is one species-rich native hedgerow present, a linear habitat feature which is 0.16km long, along the northern extent of this area. This is a medium distinctiveness habitat and is assessed as good condition.

Proposals

- A3.28 The proposals for the Site have been designed so as to reduce ecological impacts where possible, with the existing woodland, which are the habitats of highest ecological importance, to be retained and buffered from the development where possible around the boundaries.
- A3.29 Selective tree felling within the woodland will occur under granted permissions for remedial health and safety measures in response to ash dieback (detailed in **edp7897_r008-B-Arboricultural Impact Assessment**). This is not considered to constitute woodland habitat loss; it will form temporary clearing capable of natural regeneration.
- A3.30 The proposals will result in the loss of all of the ruderal/ephemeral vegetation and the hardstanding in the northern extent of the site, which are of negligible ecological importance.
- A3.31 Of the retained habitats, it was deemed that enhancing them to a better condition or higher habitat distinctiveness would not be practicably achievable.
- A3.32 Creation of additional woodland, tree planting, grassland and a SuDS in the northern extent will retain connectivity of the boundaries of the site and provide replacement and/or new opportunities for wildlife such as bats, birds, badgers, amphibians, invertebrates and small mammals. This is described in more detail below.

Habitat Creation

- A3.33 Habitat creation is focused to the edges of the northern extent of the site, a small area in the north east of the site, and the area of current public open space at the southern extent of the site. Post-development habitats have been measured and mapped from the Detailed Soft Landscape Plan (edp7897_d021E, EDP 2023) to be suitable for use in the Biodiversity Metric.



Northern Extent

Developed land; sealed surface and Artificial unvegetated; unsealed surface

- A3.34 The habitats that will be present at the site post-development will mostly comprise developed land; sealed surface (buildings and hardstanding), which will cover most of the northern extent of the Site (2.349 ha).
- A3.35 There will be a small area (0.075ha) of artificial unvegetated; unsealed surface comprising the Public Right of Way (PRoW) footpath running south to north in the east of the site, proposed to be constructed from gravel hogging.
- A3.36 These habitats are both of very low distinctiveness and condition assessment is not applicable to them.

Broadleaved woodland

- A3.37 There will be 0.5 ha of broadleaved woodland planting along a central area, and the western, and eastern boundaries of the development, a habitat of medium distinctiveness which is expected to achieve a moderate condition.

SuDS

- A3.38 A Sustainable Drainage System (SuDS) in the form of an attenuation pond, which is a habitat of low distinctiveness, will be created in the east of the site which is assumed to achieve a moderate condition as it will be fenced off and protected.

Grassland

- A3.39 There will be 0.44 ha of other neutral grassland created surrounding the SuDS which is assumed to achieve a poor condition as it will be accessed by the public via a Public Right of Way (PRoW) through that area.
- A3.40 There will also be a small area (0.051) of modified grassland to the north of the proposed development which is expected to be regularly managed for visibility and security and therefore is expected to achieve no more than moderate condition.

Urban Trees and Introduced Shrub

- A3.41 Four standalone trees, habitats of medium distinctiveness, of a small size are proposed to be planted in an area of proposed grassland. Using the urban tree calculator in the Biodiversity Metric they are expected to cover an area of 0.016ha.
- A3.42 There will also be a small area (0.014 ha) of introduced shrub planting near to the SuDS. Introduced shrub is low habitat distinctiveness and habitat condition assessment is not applicable to this habitat in the Biodiversity Metric.



Southern Extent

Pond (priority habitat)

- A3.43 A small pond (0.026ha) will be created to replace the small area of hardstanding in the southern area where there was a historical pond. This is a habitat of high distinctiveness and is proposed to achieve a moderate condition as it will be fenced off to prevent access.

Mixed scrub

- A3.44 In addition to fencing, there is proposed to be planting of mixed thorny scrub (0.015ha) around the proposed pond. This is a habitat of medium distinctiveness and is proposed to achieve moderate condition.

Trees

- A3.45 Planting of 82 small-sized trees across the whole of the southern area is proposed. The Biodiversity Metric urban tree calculator calculates this to represent an area of 0.3339ha. The trees will be spread out to avoid any significant shading on the existing retained grassland habitat. Trees are a medium distinctiveness habitat and they are proposed to be of moderate condition.

Hedgerow

- A3.46 A species-rich hedgerow is proposed to be planted along the northwestern boundary of the southern area and proposed to be of moderate condition.

Management

- A3.47 Habitats enhanced and created on the site will be maintained for at least 30 years post development as this is what is required to satisfy the conditions for BNG in the best practice guidelines (CIRIA 2019). This should be secured through an HMMP controlled by a planning condition. The management will be adapted based on monitoring results to ensure the best desired outcomes are achieved.

Metric Results

- A3.48 The Statutory Biodiversity Metric calculated that the proposed development will result in a total net biodiversity unit change of:
- - 4.47 habitat units equating to -12.76%; and
 - + 1.16 hedgerow units equating to + 53.37%.
- A3.49 The trading rules of the metric are not satisfied due to a deficit in low distinctiveness habitat units due to the loss of ruderal habitats to developed sealed surface land.
- A3.50 The headline results of the metric are shown in **Figure A.1** and the final results are shown in **Figure A.2**.



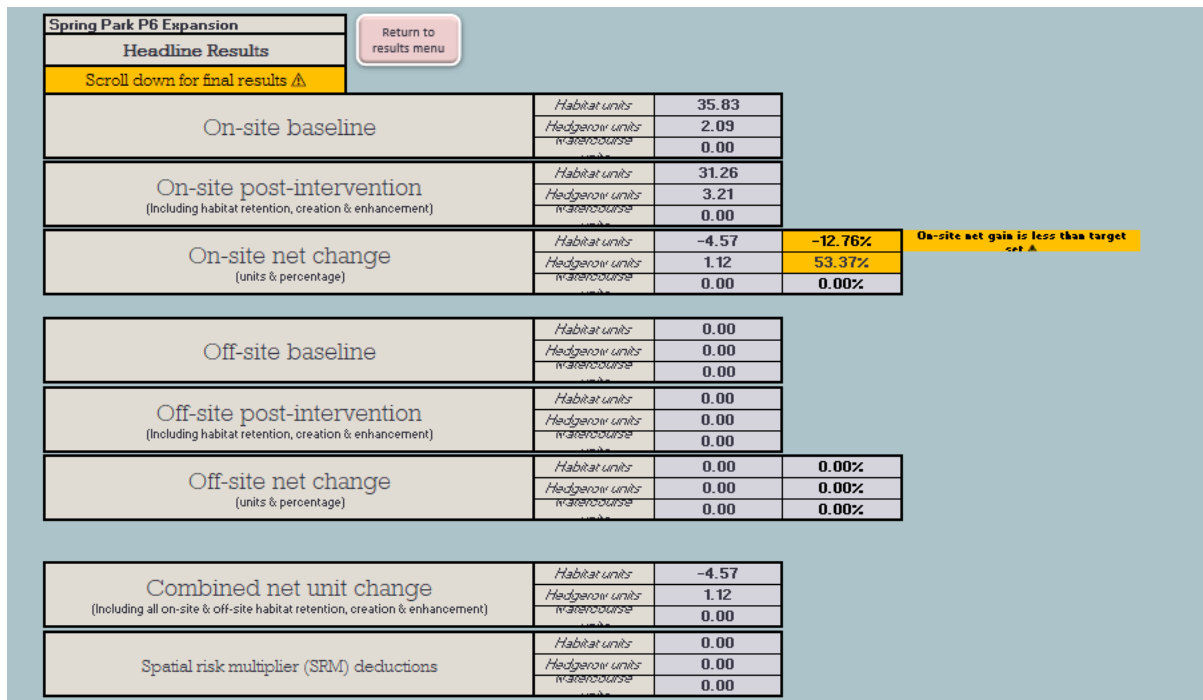


Figure A.1: Screenshot of the Biodiversity Metric Headline Results

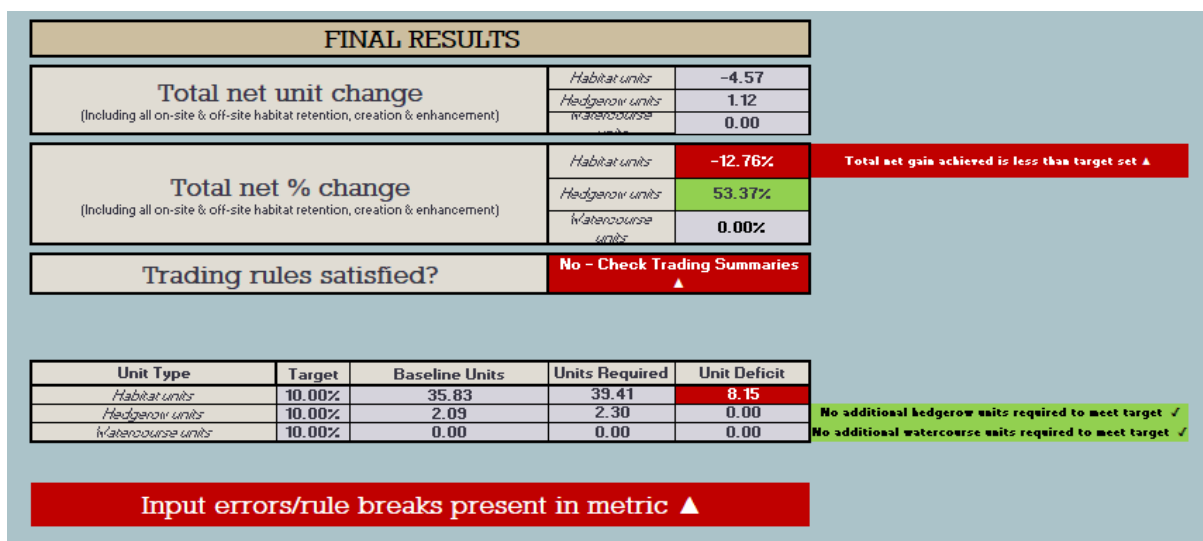


Figure A.2: Screenshot of the Biodiversity Metric Final Results

- A3.51 While habitats of high value have been retained, the area of ruderal habitat lost to facilitate the required scale of development and areas of hardstanding (to facilitate access, maintenance and security requirements) brings about a loss of -4.57 habitat units (12.76%).
- A3.52 This is due to developed sealed surface land (the primary habitat created under current proposals) being worth 0 habitat units.



Off-Site Compensation

- A3.53 It is not considered practicable or achievable to increase the quantum, distinctiveness, or the condition of habitats created, due to the operational requirements of the proposed development, and the realistic expectations for the successful establishment of selected habitats.
- A3.54 Consequently, it is considered that the most appropriate way to compensate for the loss of onsite habitat units is through financial contribution to a local (Inside LPA boundary or NCA of the site) habitat unit provider, with a biodiversity net gain plan conditioned to demonstrate the legal agreements between the applicant and the selected third-party provider, to illustrate how 10% biodiversity net gain is being achieved through off site contribution. 8.14 habitat units would be required through an off site provider for the scheme to achieve a 10% biodiversity net gain.

Conclusion

- A3.55 The proposed development has followed the biodiversity net gain hierarchy been sensitively designed overall to avoid ecological impacts by retaining habitats of ecological importance, and the selection of appropriate habitat creation, focussing where possible on habitats of local conservation priority.
- A3.56 The proposed development will deliver -12.76 % BNG for habitats and + 53.37 % BNG for hedgerows. The trading rules for low distinctiveness habitats are not satisfied due to the loss of ruderal habitats to developed sealed surface land.
- A3.57 The applicant will make a financial contribution to a third party provider to secure off-site habitat units, to compensate for the deficit in habitat units, and ensure a 10% uplift on baseline habitat values. 8.14 habitat units would be required through an off site provider for the scheme to achieve a 10% biodiversity net gain.
- A3.58 Evidence of this agreement, and how it will contribute to a 10% BNG can be conditioned through a Biodiversity Gains Plan, which illustrates how this agreement, in tandem with habitat creation proposals, delivers an uplift in baseline habitat units.
- A3.59 The BNG that will be delivered complies with national policy, and existing core policies in the current Wiltshire Council Local Plan.
- A3.60 To deliver the BNG as set out in this appendix, habitats will be maintained for at least 30-years post-development. This should is being secured through an HMMP as part of the planning application.
- A3.61 The proposals to achieve BNG from the development have been developed with consideration of wider wildlife benefits. The habitat enhancement and creation will increase connectivity across the site and will provide commuting, foraging and refuge opportunities for a variety of wildlife which could potentially use the site such as bats, birds and herptiles. However, further measures to improve biodiversity should be included in the LEMP, such as species-targeted enhancements including hibernacula creation for herptiles using material from trees proposed to be removed and provision of bat and bird boxes.



Appendix 4: Invertebrate Survey Report



Spring Park invertebrate survey 2023



J McGill

Report details

Acknowledgements

Thanks to Tyler Grange for commissioning this survey, and specifically to Aaron McFarland and Laura Hembrow for project management.

Cover photo

Tipped earth mound with rubble at Spring Park.

Citation

McGill, J. 2023. Spring Park invertebrate survey 2023. Report to Tyler Grange.

Summary

This report describes an invertebrate survey on land adjacent to Spring Park in Wiltshire. The aim of this survey was to provide a broad assessment of invertebrate assemblages on site, with recommendations regarding potential enhancements or notable species.

The site was surveyed on 5th June 2023 and 250 invertebrate species were recorded. Seven species have published conservation status, comprising:

- **Provisionally Vulnerable** – *Chyliza extenuata* (also Provisionally Nationally Scarce).
- **Red Data Book 3** – *Lygus pratensis*.
- **Nationally Rare** – *Oedemera virescens*.
- **Nationally Scarce** – *Nigma puella*.
- **Nationally Notable B** – *Orthoperus nigrescens* and *Zacladus exiguus*.
- **Nationally Notable** – *Zophomyia temula*.

None of the species are protected under European legislation, Schedule 8 of the *Wildlife and Countryside Act 1981*, or listed as species of principal importance under Section 41 of the *Natural Environment and Rural Communities Act 2006*.

Sampling was divided between ruderal vegetation growing amongst broken concrete and tarmac, and a fringe of broadleaved trees. The total of 212 invertebrate species recorded from the ruderal vegetation reflects the wide range of plant species within the survey area, and the low level of management allowing these to flower and set seed. Although this is good diversity, these were mostly widespread species. Solitary bees and wasps were poorly represented, which is probably because most of the bare ground on site was intact or broken tarmac and concrete.

The broadleaved trees produced a reasonable diversity of invertebrates with 52 species, but few of these were of conservation interest. It is likely that the fringe of trees does enhance the ruderal area overall, providing sheltered air and complementary vegetation structures. On this basis the survey area is considered to be of local value for invertebrates, both overall and for the individual components of ruderal vegetation and broadleaved trees.

The best feature of the site for invertebrates is high vascular plant diversity, with plants able to flower and set seed because of low management input. This is supported by the development of vegetation on a low-nutrient substrate, which has limited colonisation by trees and gives parts of the sward an open character. Any created habitat should be low nutrient as standard, defined as not using topsoil and finished with subsoil or bare substrate. There is potential for enhancement here as the lack of loose, bare substrate is limiting the development of the solitary bee and wasp assemblage.

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1 Introduction

1.1 Brief

The brief for this survey was to provide a broad assessment of invertebrate assemblages on site, with recommendations regarding potential enhancements or notable species.

2 Method

2.1 Fieldwork

2.1.1 Survey area

The survey area is shown in Figure 1.

2.1.2 Survey dates and weather conditions

One day of fieldwork was completed on 5th June 2023. The weather conditions during the survey are shown in Table 1.

Table 1. Weather conditions during the invertebrate survey at Spring Park

Date	Maximum temperature (°C)	Rainfall (mm)	Direction and wind speed (mph)
5 th June 2023	19	0	NE 12

2.1.3 Survey equipment

The survey equipment used is listed below:

- Cotton organdy aerial net (40 cm diameter).
- Canvas sweep net (50 cm diameter).
- Stihl SH 56-CE petrol vacuum.
- Garmin eTrex 32x GPS.



 Survey boundary

Figure 1. The survey area at Spring Park. Contains OS data © Crown copyright and database rights 2023.

2.1.4 Survey methods

The survey methods used are ground searching, suction sampling, beating, sweep netting, and spot-netting (Drake *et al.* 2007).

- **Ground searching** – Turning stones, wood, and mats of vegetation, particularly looking for night-active or larger invertebrates poorly sampled by other techniques.
- **Suction sampling** – A petrol-powered garden vacuum with a net bag inside the inlet, run for 2 minutes (or 1 minute in small habitat patches) pushed onto the ground and into tussocks and clumps of vegetation.
- **Sweep netting** – A canvas net bag, 50 cm in diameter, swept through vegetation for 1 minute.

- **Spot-sweeping** – Specimens collected in 30 minutes using a cotton organdy net bag, 40 cm in diameter, targeted to areas of bare ground, flowers, dead wood, and other likely resources. This is well-suited to recording invertebrates that may be patchily distributed across a wide area.
- **Beating** – Each sample consists of 1 or 2-minute searches. Invertebrates living on foliage and branches of trees, bushes, and tall herbage are collected by jarring the branches with a stick, so the animals fall into a canvas net bag held beneath.

Samples are preserved in 70% isopropyl alcohol, or as dry specimens.

2.1.5 Species recording

Sample locations were recorded using a Garmin eTrex 32x GPS, with an accuracy of +/- 3 metres.

2.1.6 Survey tracks

The survey route was recorded as a GPS track, and this is shown in Annex 1.

2.2 Site evaluation

2.2.1 Legislation

The legislation applicable to invertebrates is as follows:

- **S8** – Taxa listed on Schedule 8 of the *Wildlife & Countryside Act 1981*; **Eng** – Taxa listed under Section 41 of the *Natural Environment and Rural Communities Act 2006*.

2.2.2 Conservation evaluation

There are large numbers of invertebrate species which has made the publication of single conservation status classifications impossible. Reviews have been produced for different taxonomic groups since 1987, with the result that two systems are now in operation.

British Red Data Books

British Red Data books published before 2001 assessed conservation status primarily on distribution criteria, as follows:

- **Red Data Book Categories, Abbreviations:** **RDB1** – Species in danger of extinction and whose survival is unlikely if the causal factors continue operating, occurring as one population in one 10 km square, or with five or fewer 10 km squares and in rapid or continuous decline; **RDB2** – Species declining throughout their range, or in vulnerable habitats; **RDB3** – Species occurring in fifteen or fewer 10 km squares; **Na** – Species not classified in an RDB category but thought to occur in somewhere between 16 and 30 10 km squares; **Nb** – Species thought to occur in somewhere between 31 and 100 10 km squares; **N** – Species thought to occur in somewhere between 16 and 100 10 km squares, and no more specific classification has been attempted.

An important limitation of these older assessments is that for some species recording has now increased significantly, and there have also been changes in range and abundance in the decades since reviews were published.

IUCN Red-list assessments

Recent conservation evaluations are based on International Union for Conservation of Nature criteria (IUCN, 2013) summarised as follows:

- **IUCN Red List Threat Categories, Abbreviations:** **RE** – Regionally Extinct; **CR** – Critically Endangered (taxa that meet CR criteria and are at high risk of extinction in the wild); **EN** – Endangered (taxa that meet EN criteria and are at high risk of extinction in the wild); **VU** – Vulnerable (taxa that meet VU criteria and are at high risk of extinction in the wild); **NT** – Near Threatened (when taxa do not qualify for CR, EN or VU status, but are close to qualifying least or is likely to qualify in the future); **DD** – Data Deficient (in most cases, species have recently been found in GB and there is insufficient data available for evaluation); **LC** – Least Concern; and, **NE** – Not Evaluated (conservation status of the taxa has not yet been evaluated).

Some recent red lists have used additional criteria, as follows:

- **P** – provisional assessment, based on data which would be insufficient for a formal IUCN assessment, and not equivalent to this. **NR** – Species recorded from 15 or fewer 10 km squares; **NS** – Species recorded from between 15 and 100 10 km squares.

2.3 Constraints

No constraints were encountered during this survey, although the results are a snapshot of invertebrate activity on one day only.

3 Results

250 invertebrate species were recorded. The full dataset is provided in an Excel spreadsheet, available on request. Seven species have published conservation status, and these are summarised in Table 2.

Table 2. Invertebrate species with published conservation status in the survey at Spring Park in 2023.

Group	Family	Species	Legislative status	Threat status	Rarity status
Fly	Psilidae	<i>Chyliza extenuata</i>	–	pVU	pNS
Bug	Miridae	<i>Lygus pratensis</i>	–	–	RDB3
Beetle	Oedemeridae	<i>Oedemera virescens</i>	–	LC	NR
Spider	Dictynidae	<i>Nigma puella</i>	–	LC	NS
Beetle	Corylophidae	<i>Orthoperus nigrescens</i>	–	–	Nb
Beetle	Curculionidae	<i>Zacladus exiguus</i>	–	–	Nb
Fly	Tachinidae	<i>Zophomyia temula</i>	–	–	N

None of the species are protected under European legislation, Schedule 8 of the *Wildlife and Countryside Act 1981*, or listed as species of principal importance under Section 41 of the *Natural Environment and Rural Communities Act 2006*. One additional species – the Cinnabar moth *Tyria jacobaeae* – was included as part of a list of Section 41 moth species for research purposes only (Butterfly Conservation, n.d.). Species in the research group are not equivalent to rest of the Section 41 list, and so this is not considered further here.

4 Discussion

4.1 Species conservation status

The species with conservation status recorded in the current survey are discussed below.

***Chyliza extenuata* (pVU, pNS)**

A female was swept from flower-rich ruderal vegetation in the north-eastern part of the survey area. Larvae of this fly develop in the stem bases of broomrapes *Orobanch* spp. Common broomrape *Orobanch* *minor* was locally frequent at Spring Park and is presumably a host plant, although this association has not been documented (Sumner,

2021a). In Wiltshire the fly has previously been recorded at Martin Down (Falk and others, 2016). The provisional status as Vulnerable (Falk and others, 2016) has been supported in a more recent analysis (Sumner, 2021b).

***Lygus pratensis* (RDB3)**

Associated with open grasslands, this plant bug has become much more widespread in recent years (Nau, 2004). It is unlikely that it would have any conservation status classification in a future review.

***Oedemera virescens* (LC, NR)**

A female was swept from flower-rich ruderal vegetation in the north-eastern part of the survey area. The larvae feed internally in herbaceous plants and typical habitats include densely vegetated grasslands with plentiful flowers which the adults visit to feed on nectar and pollen. It is widely scattered in Britain although rarely recorded in England. The Scottish distribution has become much better known in recent years (Philp, 2021) and it would not be classified as Nationally Rare in a future status review.

***Nigma puella* (LC, NS)**

A male was swept from flower-rich ruderal vegetation near the trees on the northern boundary of the survey area. This spider usually occurs on the foliage of broadleaved trees and shrubs in hedgerows, gardens, scrub, and open woodland (Bee and others, 2017). It is now recorded from at least 150 hectads since 1992 (Spider and Harvestman Recording Scheme, 2023) and would not be classified as Nationally Scarce in a future status review.

***Orthoperus nigrescens* (Nb)**

A male and a female were beaten from a sycamore on the northern boundary of the survey area. This species is normally associated with broadleaved woodland and the larval biology is unknown. It is thought that all corylophids are fungivores both as larvae and adults, feeding and developing on hyphae and spores of a wide range of species in habitats rich in decaying organic matter.

***Zacladus exiguus* (Nb)**

One male was swept from flower-rich ruderal vegetation in the north-eastern part of the survey area. This weevil is associated with small-flowered crane's-bills *Geranium* spp. and the larvae may feed in the roots (Hyman and Parsons, 1992). The distribution is widespread but local in southern England and Wales.

***Zophomyia temula* (N)**

A fly with widely scattered records in England. It is a parasitic species although the larval host is unknown, with habitats including woodland, calcareous grassland, and dunes (Belshaw, 1993).

4.2 Site habitat assessment

There is no accepted method for assessing the conservation value of an overall invertebrate assemblage. It has become conventional to estimate the quality of an invertebrate fauna by using the proportional representation of species with formal conservation status. This is simplistic but sites where species with formal conservation status exceed 10% of the recorded total are rare. The proportion of the fauna of the site comprising species with formal conservation status is 2.8%. Overall, therefore, the fauna appears to be unexceptional. However, this total includes two different habitats, and a more meaningful analysis is to examine each habitat separately, as set out in Table 3.

Table 3. Comparison of invertebrate interest recorded in different habitats at Spring Park on 5th June 2023.

Recording habitat	Species	Species with status	% of species with status
Ruderal vegetation	212	6	2.8%
Broadleaved trees	52	1*	1.9%

* *Nigma puella* was recorded in the ruderal mosaic although this was a stray from the broadleaved trees

The total of 212 invertebrate species recorded from the ruderal vegetation reflects the wide range of plant species within the survey area, and the low level of management allowing these to flower and set seed. Although this is good diversity, these were mostly widespread species. Solitary bees and wasps were poorly represented, which is probably because most of the bare ground on site was intact or broken tarmac and concrete. Ground-nesting solitary bees and wasps are associated with bare soils, particularly in sandy areas. The survey area offered abundant foraging resources but limited potential ground-nesting habitat.

Plants receiving flower visits from invertebrates on the day of survey included cow parsley *Anthriscus sylvestris*, hawk's-beards *Crepis* spp., caper surge *Euphorbia lathyris*, hedgerow crane's-bill *Geranium pyrenaicum*, hogweed *Heracleum sphondylium*, weld *Reseda luteola*, common figwort *Scrophularia nodosa* and common comfrey *Symphytum officinale*. Other valuable foodplants noted supporting either invertebrate larvae or adults were greater burdock *Arctium lappa*, woolly thistle *Cirsium eriophorum*, common bird's-foot-trefoil *Lotus corniculatus*, perforate St John's wort *Hypericum perforatum*, common mallow *Malva sylvestris*, black medick *Medicago lupulina*, common broomrape *Orobancha minor*, white campion *Silene latifolia*, hedge woundwort *Stachys sylvatica*, dark mullein *Verbascum nigrum* and great mullein *Verbascum thapsus*. Earth mounds with partly embedded lumps of rubble also offered refugia for invertebrates.

The fringe of broadleaved trees around the site partly overlapped the survey area, including willow *Salix cinerea*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. This is a moderate range although with good structure as the trees have not been subject to management. Sampling produced a reasonable diversity of invertebrates but few species of conservation interest.

It is likely that the fringe of trees does enhance the ruderal area overall, providing sheltered air and complementary vegetation structures. On this basis the survey area is considered to be of local value for invertebrates, both overall and for the individual components of ruderal vegetation and broadleaved trees.

4.3 Recommendations

The best feature of the site for invertebrates is high vascular plant diversity, with plants able to flower and set seed because of low management input. This is supported by the development of vegetation on a low-nutrient substrate, which has limited colonisation by trees and gives parts of the sward an open character. Any created habitat should be low nutrient as standard, defined as not using topsoil and finished with subsoil or bare substrate. There is potential for enhancement here as the lack of loose, bare substrate is limiting the development of the solitary bee and wasp assemblage. Species composition should include plants already demonstrated to be of value to invertebrates at the site. Once a sward has established, resulting vegetation should be cut once a year in September to October, or twice a year in February to March, and September to October. Any arisings from the cuttings should be collected for disposal elsewhere on site. Removing cuttings is required to maintain low nutrient levels and promote future wildflower germination. Additionally, a proportion of the area should be left uncut on a rotational basis from year to year.

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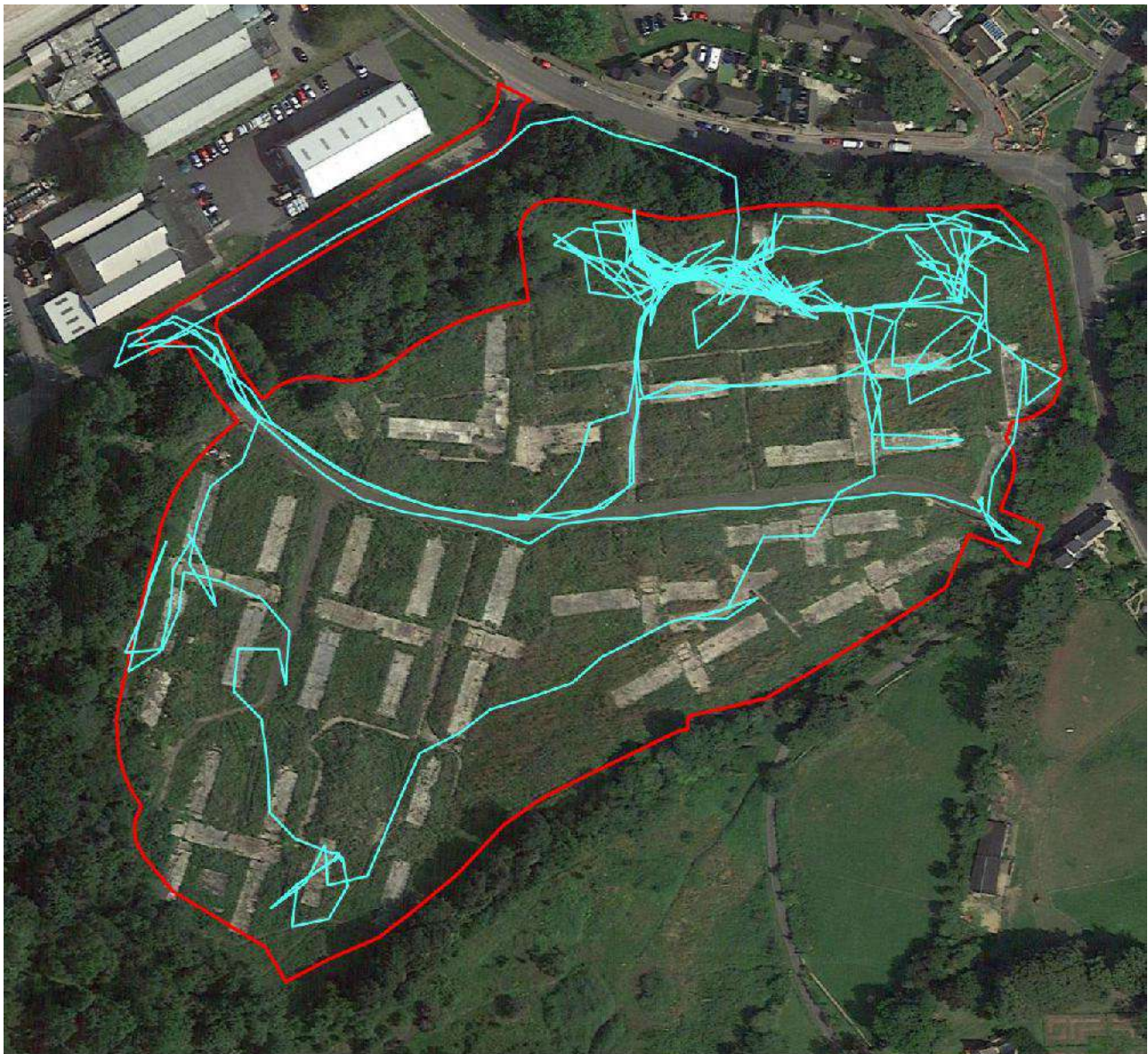
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Annex 1 Survey track



□ Survey boundary — Survey track - 5th June 2023

Figure A1.1. GPS track for invertebrate survey at Spring Park on 5th June 2023. Imagery © 2023 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

Appendix 5: Detailed Bat Activity Survey Results

Transects

Table A3.1. Walked Transect Bat Activity Survey Results

Visit Number	Date	Species											Grand total
		Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus	Myotis sp	Lesser horseshoe	Barbastell e	Greater Horseshoe	
1	19/07/2022	60	2	0	4	14	11	0	0	11	1	1	104
2	08/08/2022	132	7	5	2	6	4	0	2	7	0	0	180
3 (Dusk)	24/08/2022	8	4	12	2	7	14	2	21	6	1	0	77
3 (Dawn)	25/08/2022	10	3	0	0	1	5	1	5	2	0	2	29
4	12/09/2022	24	4	1	2	0	2	1	0	3	1	0	50
5	27/09/2022	3	1	0	1	0	2	0	1	2	0	0	13
6	11/10/2022	20	2	0	0	0	0	0	1	2	0	0	39

Statics

Visit 1 (July) Results

Table A3.2. Visit 1, Location 1 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus	Myotis sp	Lesser horseshoe	Barbastell e	Greater Horseshoe	
19/07/2022	49	0	3	5	0	10	8	1	0	0	0	76
20/07/2022	448	8	2	10	0	29	27	18	5	0	7	551
21/07/2022	575	10	1	2	0	12	8	16	4	1	5	634
22/07/2022	210	1	2	1	0	1	0	2	0	1	0	218
23/07/2022	188	2	3	0	0	1	1	8	2	0	4	209

Table A3.3. Visit 1, Location 2 Static Bat Activity Survey Results



Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus	Myotis sp	Lesser horsesho	Barbastell	Greater Horsesho	
19/07/2022	10	0	0	1	0	0	1	0	10	0	0	22
20/07/2022	66	0	0	0	1	1	0	5	0	0	6	79
21/07/2022	16	0	0	0	0	0	0	0	2	0	1	19
22/07/2022	75	1	0	0	0	0	0	3	0	0	1	80
23/07/2022	45	0	0	0	2	2	0	0	1	0	9	59

Table A3.4. Visit 1, Location 3 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus sp.	Myotis sp	Lesser horsesho	Barbastell	Greater Horsesho	
20/07/2022	4	0	0	0	0	0	0	0	1	0	0	5
21/07/2022	11	0	0	0	0	0	0	1	1	0	0	13

Visit 2 (August) Results

Table A3.5. Visit 2, Location 1 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus sp.	Myotis sp	Lesser horsesho	Barbastell	Greater horsesho	
24/08/2022	7	1	5	0	19	29	0	13	2	1	0	77
25/08/2022	18	0	0	0	6	28	1	48	1	1	0	103
26/08/2022	5	0	0	0	4	6	1	17	1	0	0	34
27/08/2022	7	1	3	2	3	1	5	26	2	0	0	50
28/08/2022	4	0	1	0	1	1	1	9	1	0	0	18



Table A3.6. Visit 2, Location 2 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus sp.	Myotis sp	Lesser horsesho	Barbastell e	Greater horsesho e	
24/08/2022	36	0	11	0	0	20	4	83	0	5	0	159
25/08/2022	52	0	2	0	1	8	45	241	0	9	0	358
26/08/2022	14	0	13	0	0	17	9	40	0	7	0	101
27/08/2022	324	5	12	0	2	10	13	140	6	3	0	515
28/08/2022	154	1	0	0	0	28	9	103	7	1	0	313

Table A3.7. Visit 2, Location 3 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Nyctalus/Eptesicus	Serotine	Plecotus sp.	Myotis sp	Lesser horsesho	Barbastell e	Greater Horsesho e	
24/08/2022	4	0	5	0	0	2	0	14	3	0	0	28
25/08/2022	9	0	1	0	0	1	4	27	2	0	0	45
26/08/2022	4	1	4	0	0	2	2	5	3	1	0	22
27/08/2022	27	7	1	1	0	2	2	15	1	0	0	57
28/08/2022	14	2	0	0	0	1	2	14	1	0	2	36

Visit 3 (September) Results

Table A3.8: Visit 3, Location 1 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	Nyctalus sp.	Leisler's bat	Serotine	Plecotus sp.	Myotis sp	Lesser horsesho	Barbastell e	Greater Horsesho e	
31/08/2022	6	0	3	5	0	0	0	10	0	0	1	25
01/09/2022	3	0	0	0	1	0	0	11	5	0	0	20



02/09/2022	8	1	4	5	2	1	0	15	5	0	0	41
03/09/2022	3	0	4	1	1	0	0	15	2	0	1	27
04/09/2022	1	0	1	0	1	1	0	7	0	0	0	11

Table A3.9: Visit 3, Location 2 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Nyctalus</i> sp.	Leisler's bat	Serotine	<i>Plecotus</i> sp.	<i>Myotis</i> sp	Lesser horseshoe	Barbastelle	Greater Horseshoe	
31/08/2022	12	0	2	1	0	0	2	19	0	0	0	36
01/09/2022	9	0	2	0	0	0	0	7	0	2	0	20
02/09/2022	24	3	7	1	1	0	2	19	0	1	0	68
03/09/2022	7	4	0	2	0	3	1	53	0	0	3	73
04/09/2022	1	0	0	0	0	0	0	18	0	0	0	19

Table A3.10: Visit 3, Location 3 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Nyctalus</i> sp.	<i>Nathusius</i> pipistrelle	Serotine	<i>Plecotus</i> sp.	<i>Myotis</i> sp	Lesser horseshoe	Barbastelle	Greater Horseshoe	
31/08/2022	8	0	1	7	0	1	0	5	1	0	0	23
01/09/2022	5	0	6	4	0	0	0	10	1	0	1	26
02/09/2022	7	1	6	13	1	0	0	12	2	0	1	43
03/09/2022	97	1	1	1	0	0	1	17	1	0	1	120
04/09/2022	67	0	3	0	0	0	1	46	1	0	0	118

Visit 4 (October) Results

Table A3.11. Visit 4, Location 2 Static Bat Activity Survey Results

Dusk date	Species	
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	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Nyctalus</i> / <i>Eptesicus</i>	<i>Nathusius</i> pipistrelle	Serotine	<i>Plecotus</i> sp.	<i>Myotis</i> sp	Lesser horsesho	Barbastell e	Greater Horsesho e	Grand total
27/10/2022	0	0	0	0	0	0	0	0	0	0	0	0
28/10/2022	0	0	0	0	0	0	0	3	0	0	0	3
29/10/2022	1	0	0	1	0	0	0	1	0	0	0	3
30/10/2022	0	0	0	0	0	0	0	2	1	0	0	3
31/10/2022	0	0	0	0	0	0	0	0	0	0	0	0

Table A3.12. Visit 4, Location 2 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Nyctalus</i> sp.	<i>Nathusius</i> pipistrelle	Serotine	<i>Plecotus</i> sp.	<i>Myotis</i> sp	Lesser horsesho	Barbastell e	Greater Horsesho e	
27/10/2022	22	0	0	0	0	6	1	29	7	0	2	67
28/10/2022	119	0	0	1	0	7	0	61	24	0	1	213
29/10/2022	21	0	1	0	0	7	0	68	37	0	3	140
30/10/2022	4	0	0	0	0	6	0	47	38	0	0	95
31/10/2022	94	0	0	0	0	0	0	53	13	0	0	160

Table A3.13 Visit 4, Location 3 Static Bat Activity Survey Results

Dusk date	Species											Grand total
	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Nyctalus</i> sp.	<i>Nathusius</i> pipistrelle	Serotine	<i>Plecotus</i> sp.	<i>Myotis</i> sp	Lesser horsesho	Barbastell e	Greater Horsesho e	
27/10/2022	15	0	0	1	0	1	0	4	4	0	0	25
28/10/2022	31	0	0	0	0	4	0	3	18	0	1	57
29/10/2022	9	0	0	0	0	1	0	17	20	0	0	47
30/10/2022	6	0	0	0	0	0	0	20	12	0	0	38



31/10/2022	21	0	0	0	0	0	0	10	4	1	1	37
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Plans:

Plan 1: Habitat Features Plan 15116/P01A

Plan 2: Tree PBRA Plan 15116/P02A

Plan 3: Bat Data Heatmap 15116/P03

Plan 4: Lesser Horseshoe Bat Heatmap 15116/P04

Plan 5: Greater Horseshoe Bat Heatmap 15116/P05

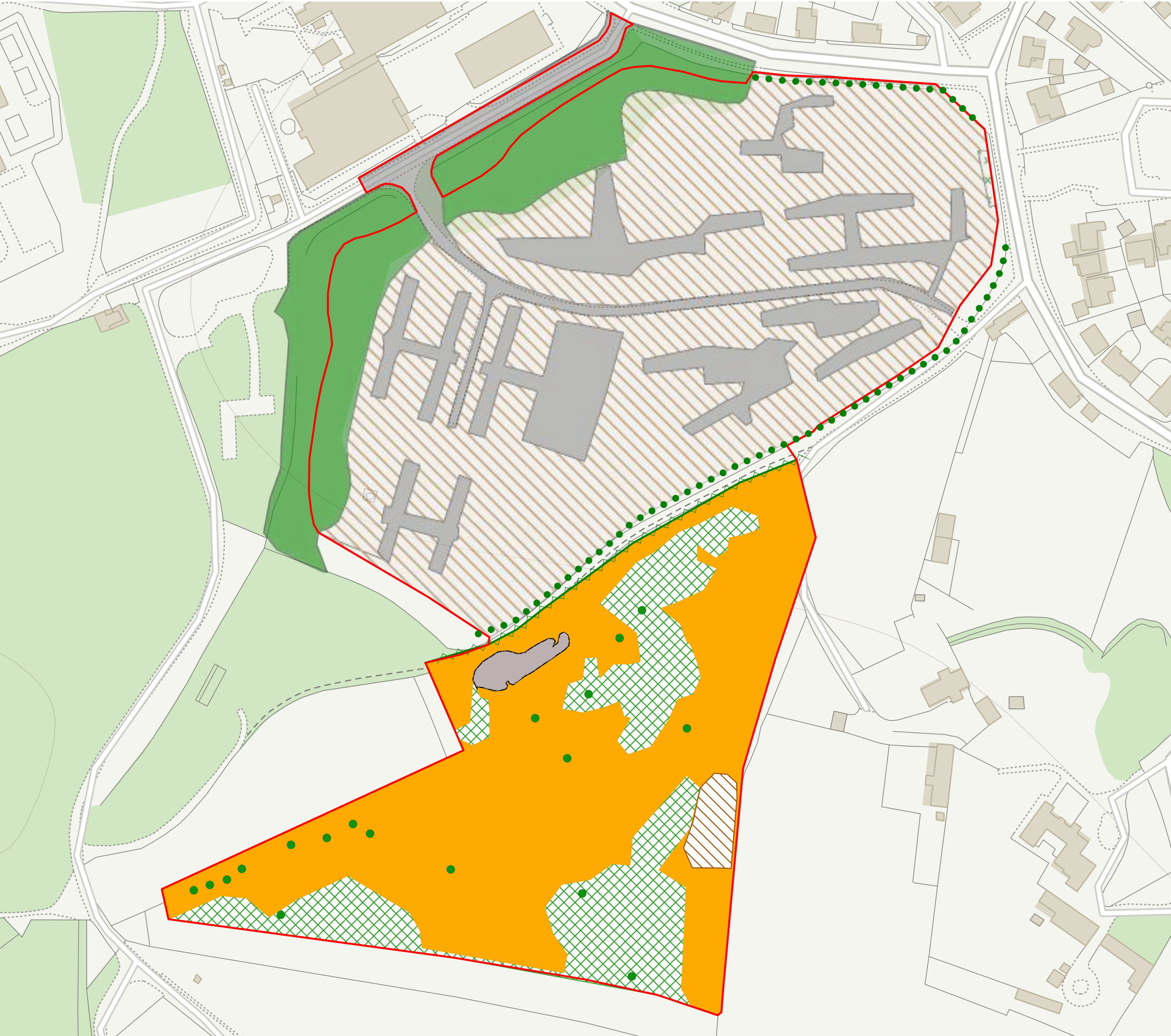
Plan 7: Static Detector Location Plan 15116/P08A

Plan 8: Hazel Dormouse Next Tube Plan 15116/P09A

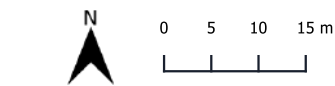
Plan 9: Reptile Refugia and Results Plan 15116/P10A

Plan 10: Post-Development Features Plan 15116/P11A



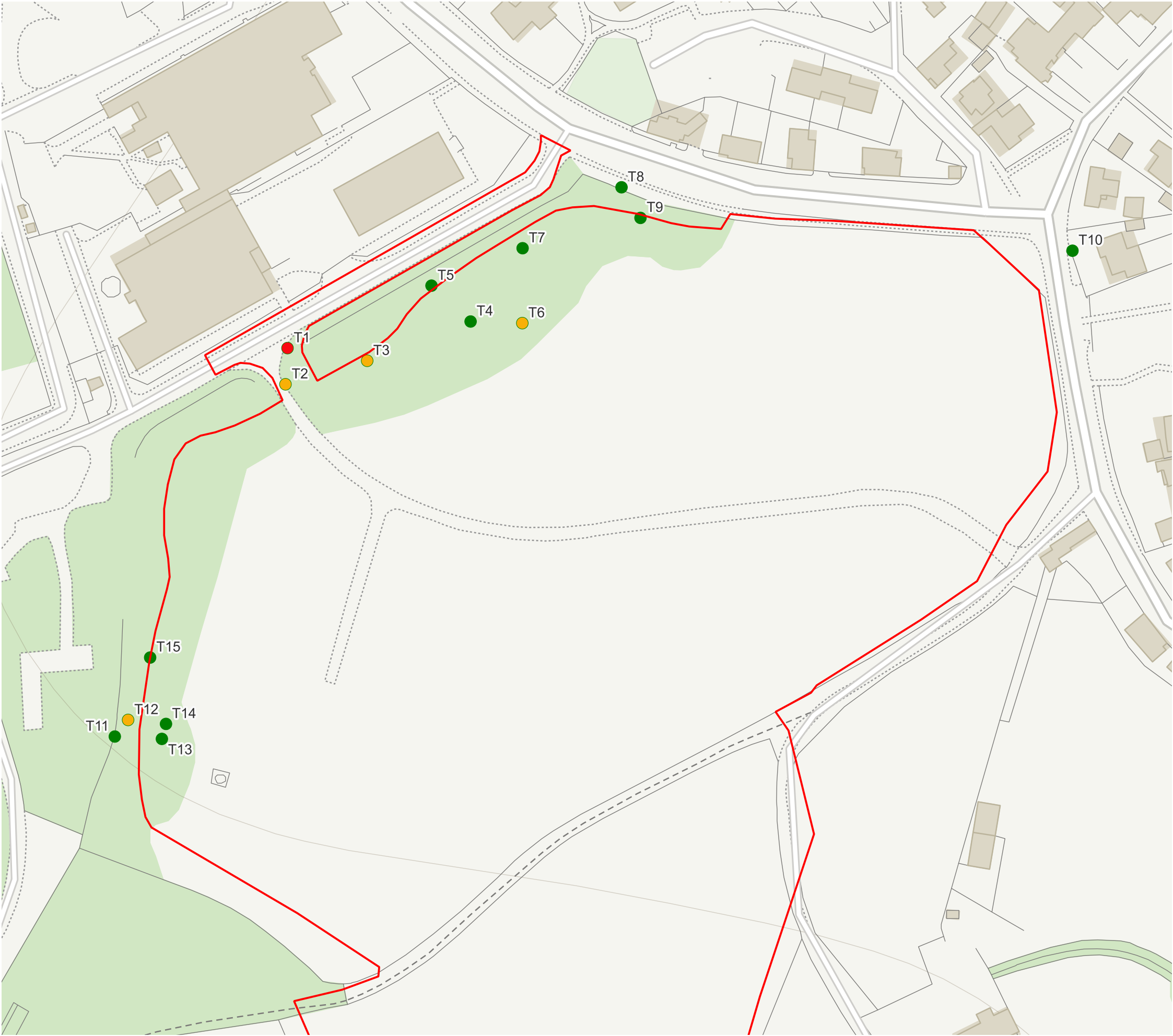


- Legend
- Indicative Redline Boundary
 - Hardstanding
 - Mixed Scrub
 - Other Neutral Grassland
 - Tall Ruderal Vegetation
 - Scattered Scrub
 - Semi-natural Broadleaved Woodland
 - Scattered Broadleaved Trees
 - Line of Trees
 - Native Hedgerow



Project	Spring Park Data Centre
Drawing Title	Habitats Features Plan - P6
Scale	As Shown (Approximate)
Drawing No.	15116/P01a
Date	May 2024
Checked	VKC/HDBJ





Legend

 Indicative Redline Boundary

Tree Bat Roost Potential

 High

 Moderate

 Low



0 5 10 15 m

Project	Spring Park Data Centre
Drawing Title	Tree PBRA Plan
Scale	As Shown (Approximate)
Drawing No.	15116/P02a
Date	May 2024
Checked	VKC/HDBJ



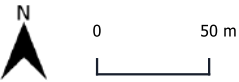
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Legend

- Stopping Point
- ▶ Transect Route



Project	Spring Park Data Centre
Drawing Title	Bat Data Heatmap
Scale	As Shown (Approximate)
Drawing No.	15116/P03
Date	16th March 2023
Checked	T.B/L.B

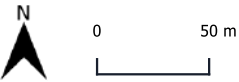


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Legend

- Stopping Point
- ▶ Transect Route



Project	Spring Park Data Centre
Drawing Title	Lesser Horseshoe Heatmap
Scale	As Shown (Approximate)
Drawing No.	15116/P04
Date	16th March 2023
Checked	T.B/L.B

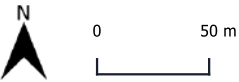


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Legend

- Stopping Point
- ▶ Transect Route



Project	Spring Park Data Centre
Drawing Title	Greater Horseshoe Heatmap
Scale	As Shown (Approximate)
Drawing No.	15116/P05
Date	16th March 2023
Checked	T.B/L.B



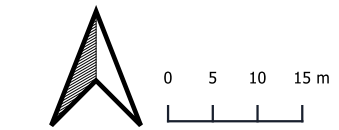
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Legend

Indicative Redline Boundary

Static Detector

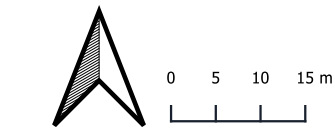


Project	Spring Park Data Centre
Drawing Title	Static Bat Detector Location Plan
Scale	As Shown (Approximate)
Drawing No.	15116/P08a
Date	May 2024
Checked	HM/LH





- Legend
- Indicative Redline Boundary
 - Dormouse tube locations - 50 total



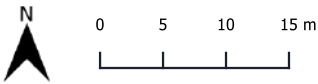
Project	Spring Park Data Centre
Drawing Title	Hazel Dormouse Nest Tube Plan
Scale	As Shown (Approximate)
Drawing No.	15116/P09a
Date	May 2024
Checked	HM/LH





Legend

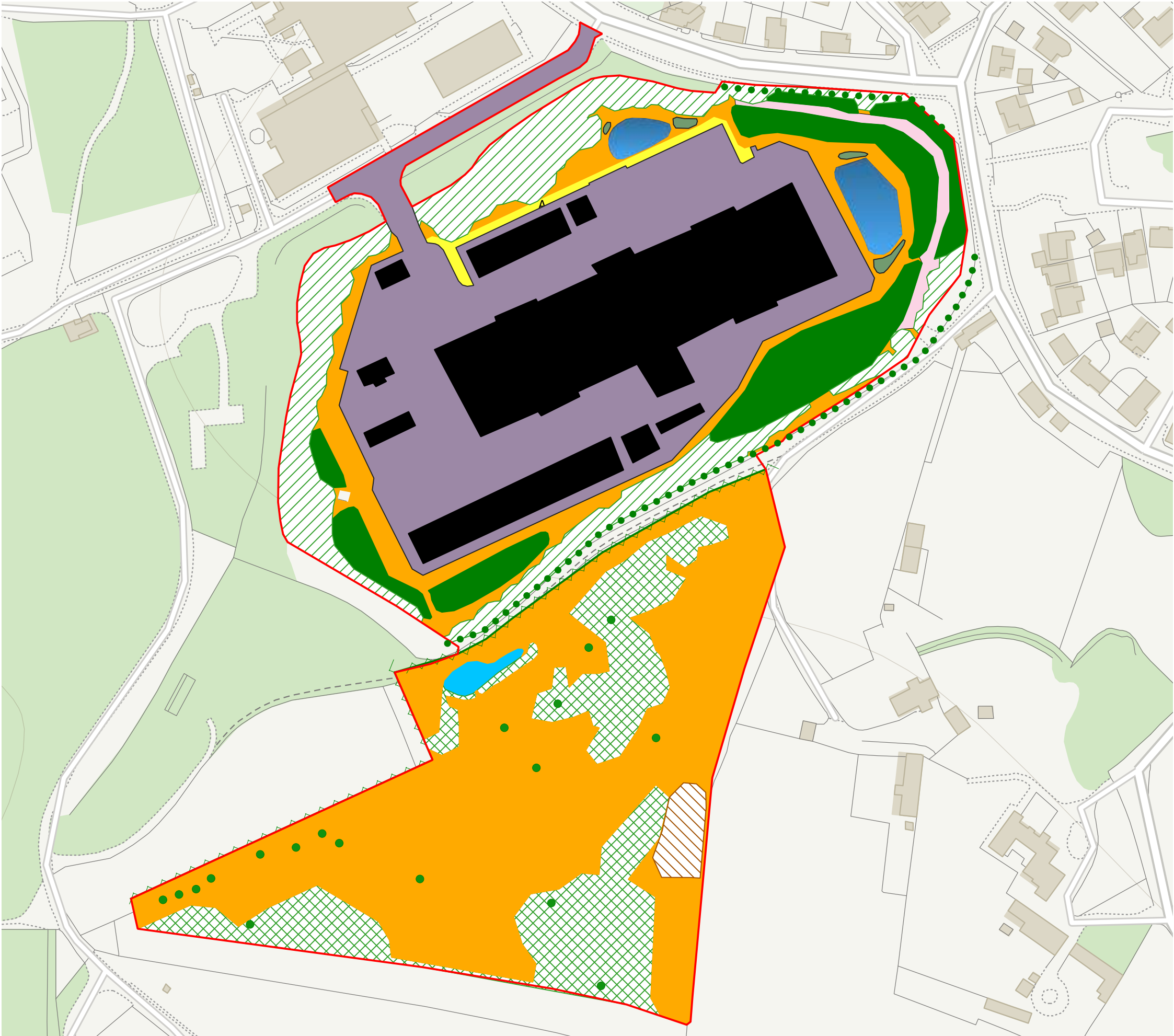
- Indicative Redline Boundary
- Reptile mats - 83 total
- Slow worm locations



Project	Spring Park Data Centre
Drawing Title	Reptile Refugia Survey and Results Plan
Scale	As Shown (Approximate)
Drawing No.	15116/P10a
Date	May 2024
Checked	VKC/HDBJ

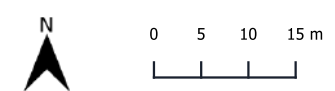


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Legend

- Indicative Redline Boundary
- A Amenity Grassland
- Buildings
- Hardstanding
- Hogging Footpath
- Mixed scrub
- Native Shrubs
- Other Neutral Grassland
- Pond
- SuDS
- Tall Ruderal (Retained)
- Woodland
- Woodland (Retained)
- Scattered Broadleaved Trees
- Proposed Broadleaved Trees
- Line of Trees
- Existing Native Hedgerow
- Proposed Species-rich Hedgerow



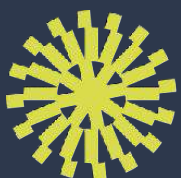
Project	Spring Park Data Centre
Drawing Title	Post-development Habitats Plan - P6
Scale	As Shown (Approximate)
Drawing No.	15116/P11a
Date	May 2024
Checked	VKC/HDBJ



An abstract collage on a dark blue background. A large, irregular yellow shape is the central focus. Surrounding it are various geometric elements: a light blue pentagon, a purple arrow pointing down, a black hand icon with radiating lines, a purple asterisk, a black leafy branch, a black and white striped fan-like shape, a blue triangle, and a black triangle. A small black and white polka-dot circle is also visible.

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