

PRELIMINARY ECOLOGICAL APPRAISAL

Dwyer Road, Reading

Principal Author:

Amelia McCormack

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Address:

RSK ADAS Ltd,
11D Park House,
Milton Park,
Abingdon,
OX14 4RS.

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Commissioned For:

Gleeds Cost Management Ltd,
Vanbrugh House,
Hedge End,
Southampton,
Hampshire,
SO30 2AF.

Quality Assurance

Author	Checked	Approved
Amelia McCormack BSc (Hons) MSc	Joseph Dyson BSc (Hons) MCIEEM	Sarah Thornton-Mills BSc (Hons) MSc MCIEEM
		
Amelia McCormack BSc (Hons) MSc	Sarah Thornton-Mills BSc (Hons) MSc MCIEEM	Rob Nicholson BSc (Hons) MCIEEM
		

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Ltd.

Revision History

ADAS Ref (Revision number)	Date	Amendment
Revision 1	28/10/2022	INITIAL REPORT
Revision 2	23/01/2023	UPDATED REPORT

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Summary

RSK ADAS Ltd were instructed to undertake a Preliminary Ecological Appraisal of the site at Dwyer Road, Reading, in September 2022 to assess any ecological constraints present for the construction of residential dwellings at the site. An updated survey was then requested in December 2022 to provide updated results and recommendations in relation to the habitat changes that had occurred as a result of significant vegetation clearance at the site.

The desk study returned records of numerous bat species, Otter, Water Vole and Badger, as well as common reptile and amphibians within 2 km of the site. There were also eight statutory designated sites within 5 km of the site and 14 non-statutory designated sites within 2 km.

ADAS Assistant Ecological Consultant Amelia McCormack undertook an updated extended Phase 1 Habitat Survey of the site on 10 January 2023, which identified grassland, scrub and trees/woodland habitat suitable for a variety of protected species. These included bats, nesting birds, common reptile, amphibian and mammal species, including Badger: the Badger sett previously identified within the north of the site during the original survey was again recorded here. Cotoneaster plants (some species of which are classed as invasive) were also again recorded, but limited to the north, east and west boundaries of the site.

Further Badger, bat and reptile surveys would be required to determine the presence or likely absence and/or activity of protected species at the site, from which further avoidance, mitigation or compensation measures can be informed, where necessary.

Various ecological enhancements have also been recommended to increase biodiversity throughout the site with the development, in line with the Reading Borough Local Plan and the Environment Act 2021.

Summary of Further Survey or Actions

The table below provides information on further surveys, mitigation measures and enhancement measures to be undertaken on site, in relation to ecology.

Survey/Action	Rationale	When
Badger monitoring surveys	A Badger sett was identified on site. It is an offence to damage or disturb a Badger in its sett, so further Badger survey will be required to determine whether the sett is in current use by Badgers. This will inform further surveys/actions, as required, to avoid causing an offence.	Pre-development phase
Ground-level tree assessments	Trees on site provided suitable habitat for roosting bats. It is an offence to damage or disturb bats or their roosts, so further surveys are required if any of these trees would be impacted. These will inform further surveys/actions, as required, to avoid causing an offence.	Pre-development phase

Survey/Action	Rationale	When
Reptile survey	Grassland, shrub and log piles provided suitable habitat for common reptile species, for which it is an offence to injure or kill. These will inform further surveys/actions, as required, to avoid causing an offence.	Pre-development phase (April-June and/or September)
Nesting birds	Trees and shrub on site provide suitable habitat for nesting birds. It is an offence to disturb or kill nesting birds so works to suitable habitat should avoid the nesting bird season (March to August, inclusive), or a competent person should undertake a pre-works nesting bird check.	Pre-development and construction phase
Biodiversity net gain calculations and strategy	To comply with the Local Plan and the Environment Act 2021, a net gain of at least 10% in biodiversity at the site or within the local area should be achieved by the development to enhance local ecology.	Design, construction and post-development phase
Sensitive lighting strategy for bats	Grassland trees, and lines of trees on site provided suitable habitat for roosting, commuting and foraging bats. Changes in lighting at the site, including night lighting, could cause disturbance to bats, which is an offence.	Design and pre-development phase (April-October)
Tree retention and enhancement	In line with the Reading Borough Local Plan, 'New development shall make provision for tree retention and planting within the application site, particularly on the street frontage'.	Design, construction and post-development phase
Tree root protection	If heavy vehicles work near the base of trees, the root protection zone must be accounted for under British Standard 5837 to avoid tree damage.	Construction phase

1 Introduction

1.1 Background and Survey Objectives

ADAS was commissioned by Gleeds Cost Management Ltd in December 2022, on behalf of the client, Reading Borough Council, to undertake an updated Preliminary Ecological Appraisal of the brownfield site on Dwyer Road, Reading, Berkshire RG30 3PN (central OS grid reference: SU 68232 71885), herein after referred to as 'the site'. This is to inform planning for the development of 2-3 bedroom residential houses at the site, which is currently at RIBA stage 1-2, so the Preliminary Ecological Appraisal report will be used to inform further development plans, with reference to ecology at the site.

The original Preliminary Ecological Appraisal carried out by ADAS at the site in October 2022 identified grassland, woodland, scrub and perennial habitats as well as scattered trees and introduced shrub suitable for a range of protected species, including Badger, bat, nesting birds, and common reptile and amphibian species, as well as other urban mammal species noted to likely be utilising the site.

However, due to significant vegetation clearance at the site undertaken since the original Preliminary Ecological Appraisal, an updated survey and report were required to assess habitats and species now likely/present at the site provide any subsequent updates to results and recommendations, as required.

The aim of the Preliminary Ecological Appraisal is to identify ecological constraints to the proposed works and make recommendations for mitigation or opportunities for enhancement that can be incorporated into the design. The Preliminary Ecological Appraisal also makes recommendations for further surveys, as required.

The report has been prepared in accordance with guidance produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017) and the British Standard 42020:2013.

The objectives of this report are:

- *To identify designated nature conservation sites within the vicinity of the site;*
- *To identify any records and/or populations of protected, notable or scarce species in the vicinity of the site;*
- *To record habitats or features of ecological interest within or in immediate proximity to the site;*
- *To record the presence of, or potential for, protected or notable species;*
- *To make an ecological assessment and highlight potential ecological constraints;*
- *To outline any further survey work and potential protected species requirements if relevant; and*
- *To make suggestions for avoidance, mitigation compensation and enhancements in line with planning policies where appropriate.*

1.2 Site Description

The site was ca. 0.5 ha brownfield site located on the corner of Dwyer Road and Burghfield Road, in the residential area of Southcote in west Reading, Berkshire (Figure 1). The site was the location of a former care home known as Alice Burrows House, which was demolished 14 years ago, and has since been left unmanaged. The site was overgrown with vegetation, especially successional shrubs and trees, at the time of the original survey but had since been cleared prior to the updated survey and large amounts of brash and chipping piles were present throughout the site. Excessive amounts of fly tipping and anthropogenic waste were still recorded in most areas of the site.

The wider landscape consisted of the mixed urban and residential areas in western Reading, with public greenspaces such as Prospect Park (Local Wildlife Site) approximately 500 m northwest, and the railway line running approximately 500 m south of the site. Beyond this to the south were a mix of agricultural fields as well as important terrestrial and freshwater habitats, including Holy Brook, the River Kennet and a number of lakes created from disused quarries.



Figure 1. Site location and wider landscape (site indicated by red line boundary).

Image and red line boundary provided by client: RBC Site Options Amythist _ Dwyer _compressed (005) - Copy_Part17.

1.3 Description of the Proposed Development

At the time of writing, the development was still in design and proposal stage (RIBA stage 1-2) and awaiting results of the Preliminary Ecological Appraisal to inform further project design.

The proposed development includes the construction of two to three bedroom residential houses with three semi-detached three-storey buildings along the southern side of the site; a row of terraced housing with two three-storey and nine two-storey buildings running east to west through the centre of the site, and two additional buildings in the north of the site; with associated landscaping, parking and access from Appleford Road.

Construction is anticipated to commence August 2023.

2 Methods

2.1 Desk Study

A desk study was carried out in October 2022 to identify statutory designated sites within a 5 km radius (in addition to Special Areas of Conservation for bat species within 10 km) and non-statutory designated sites of nature conservation importance, together with known records of protected and other notable species, within a 2 km radius of the proposed development.

Multi-Agency Geographic Information for the Countryside (MAGIC) was used to derive information relating to the location of statutory designated sites and priority habitats.

Thames Valley Environmental Records Centre (TVERC) provided details of non-statutory designated sites of nature conservation importance and records of protected and other notable species.

It is important to note that most species are greatly under-recorded and therefore a lack of records for a location should not be taken as an absence of the species concerned. Furthermore, a record for a particular habitat or species does not necessarily confirm its current presence.

2.2 Field Survey

2.2.1 Extended Phase 1 Habitat Survey

An updated Phase 1 Habitat Survey was conducted on 10 January 2023 by Assistant Ecological Consultant Amelia McCormack BSc (Hons) MSc (Qualifying Member of CIEEM) based on the techniques and methodologies described in the Handbook for Phase 1 Habitat Survey (JNCC, 2010) and using standard nomenclature (Stace, 2019). The habitats present were recorded on to a field map with written target notes providing supplementary information on, for example, species composition structure and management where relevant.

This was extended to include notes on fauna and habitats which could potentially support protected species, an approach commonly referred to as an Extended Phase 1 Habitat Survey. The presence of, or potential for, protected species was noted on the field map during the survey, as well as incidental recording of notable species.

2.3 Assessment and Evaluation

The importance of the features on site were assessed and defined in a geographical context (see Appendix 1). The frame of reference for the habitat features in terms of their geographical importance is in line with guidance set out in CIEEM (2018).

Species were assessed, where appropriate, against best practice guidelines.

As part of the evaluation, further surveys may be recommended based on the suitability of habitats to support protected species, the habitats themselves and potential impacts posed by the proposed development and the legal protection afforded to both habitats and species.

2.4 Zone of Influence

The assessment conducted for this report has considered the area in which ecological features could be subject to significant effects from the proposed development. The area of the potential effects is often wider than the actual perimeter of the development site and is known as the Zone of Influence.

The Zone of Influence varies for different ecological features and each designated site, habitat and species has been considered in relation to their sensitivity to the proposed development.

Impacts to Badger (*Meles meles*) setts were evaluated for anything within a 30 m Zone of Influence any sett entrances.

The Zone of Influence considered for most bat species here includes any designated sites (such as Special Areas of Conservation) within 10 km of the site, in addition to the 2 km search radius from the site for individual bat recordings.

A Zone of Influence of 500 m was used regarding ponds within proximity to the site as this is the range that Great Crested Newts (*Triturus cristatus*) can travel within terrestrial habitat.

Trees on the other side of the boundary were also noted, as their root protection zone is up to 15 m.

2.5 Mitigation Hierarchy

The main aim of the PEA is to inform the client of the potential impacts on ecological features and what next steps are needed to manage these. In order to achieve this aim, the mitigation hierarchy should be adopted so that the following applies:

- **Avoidance** - Ecological features of importance should be avoided in the first instance through the design process by either designing around them, alternative design or even an alternative location.
- **Mitigation** – Adverse impacts that cannot be avoided should be adequately mitigated for to minimise negative impacts on the ecological features. Mitigation measures can either be implemented during the design process or construction phase.
- **Compensation** – This should only be used in exceptional circumstances or as a last resort, after all options for avoidance and mitigation have been fully considered. Compensation therefore can be applied to any residual impacts that cannot be avoided or mitigated.
- **Enhancements** - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2.6 Limitations

Access was available to all areas of the site during survey and following standard methodologies, but the survey was conducted during the suboptimal time of year for Phase 1 Habitat Surveys and recent significant vegetation clearance had occurred, so some habitat and vegetation identification/assessment may have been limited and/or missed. This is not deemed to have significantly impacted the overall recommendations, but it may be appropriate to undertake an additional habitat walkover during the optimal survey season (May to October, inclusive).

There was no access available to the pond identified within 500 m of the site for Habitat Suitability Index assessment for Great Crested Newts during the survey. However, due to the distance of the pond from the site, the lack of any other ponds at the site or within 500 m, and that the terrestrial habitat between the pond and the site was deemed unsuitable for commuting Great Crested Newts (densely populated urban residential streets), it is unlikely any breeding Great Crested Newts will be present on the site and this has not significantly impacted the overall recommendations.

3 Baseline Ecological Conditions

3.1 Desk Study

There were eight statutory designated sites for nature conservation within 5 km, including five Local Nature Reserves (LNR), two Areas of Outstanding Natural Beauty (AONB), and one Site of Special Scientific Interest (SSSI). There were no Special Areas of Conservation for bats within 10 km of the site.

The site also lies within 2 km of 14 non-statutory designated sites, which were all Local Wildlife Sites (LWS), except for one Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) Reserve.

See Table 1 below for further details.

Table 1: Statutory and non-statutory designated sites within 5 km and 2 km of the survey site

Site Name	Description	Designations	Distance and direction from site
Statutory Designated Sites			
Louisehill Copse	13 ha area of semi-ancient woodland, dominated by mature oak (<i>Quercus</i> sp.) and Hazel (<i>Corylus avellana</i>) trees, with abundance of Bluebells (<i>Hyacinthoides non-scripta</i>), some coppice and an open meadow.	LNR	1.1 km north
Blundells Copse	5.6 ha area of ancient woodland, consisting of Alder (<i>Alnus glutinosa</i>), cherry (<i>Prunus</i> sp.), willow (<i>Salix</i> sp.), Hazel, oak and Ash (<i>Fraxinus excelsior</i>) trees, with bat species present, as well as other common small mammal and amphibian species.	LNR	1.7 km northwest
Round Copse	Small area of dense woodland connected to the southwest of McIlroy Park that contains a variety of bird species, including all three native species of woodpecker.	LNR	2.0 km north
McIlroy Park	12 ha natural park consisting mostly of grassland with Heather and Broom, with semi-ancient woodland around the edges of the site.	LNR	2.2 km north
North Wessex Downs	One of the largest areas of chalk downland in southern England with surviving downland habitat and ancient woodland.	AONB	3.1 km west
Chilterns	Chalk downlands containing the most extensive area of Beech (<i>Fagus sylvatica</i>) woodland in England, with Bluebell woodlands and chalk grassland habitats.	AONB	3.7 km north

Site Name	Description	Designations	Distance and direction from site
Hosehill Lake	23.6 ha site primarily consisting of a freshwater lake, with other pond, reedbed, meadow and woodland habitats at the site, providing important habitat for over 150 bird species including Little Ring Plover (<i>Charadrius dubius</i>), Lapwing (<i>Vanellus vanellus</i>), Sand Martin (<i>Riparia riparia</i>) and various other waterfowl.	LNR	3.7 km southwest
Sulham and Tidmarsh Woods and Meadows	Valley of the River Pang and Sulham Brook, creating a diversity of wetland habitats including damp copses, seasonally flooded meadows, wet Adler-dominated woodlands with a mix of other woodland flora and scrub, including uncommon Dwarf Gorse (<i>Ulex minor</i>). The habitats are important for numerous species of invertebrate, including over 300 species of moth.	SSSI	4.2 km northwest
Non-statutory Designated Sites			
Fobney & Kennet Valley Meadows Complex	154 ha site consisting of meadows within the Fobney and Kennet valley floodplain and a mixture of wetland habitat types, including mesic grasslands, swamps, wet drainage ditches, wet woodlands, lowland fens, and is important for a variety of protected plant and animal species including many species of bird.	LWS	0.5 km south
Holy Brook	A 4.5 km section of the Holy Brook watercourse, originally designated as a series of separate sites, now combined. The stream is fed from the chalk river of the River Kennet, and includes a variety of plant and animal species recorded along the watercourse, including invertebrates and historically Water Vole (<i>Arvicola amphibius</i>).	LWS	0.5 km south
Prospect Park	24 ha site of historic parkland currently dominated by recreational amenity grassland. The site also consists of The Rookery, which is a small area of oak-dominated lowland mixed deciduous woodland with rare ancient woodland indicators including Wood Millet (<i>Milium effusum</i>).	LWS	0.5 km northeast
River Kennet/Kennet & Avon Canal	A 9.5 ha stretch of the River Kennet and Kennet and Avon Canal, containing some sections of high-quality chalk river. Marginal vegetation is especially diverse near the Fobney Island nature reserve, and provides an important wildlife corridor into Reading, including supporting Water Vole (<i>Arvicola amphibius</i>), European Eel (<i>Anguilla anguilla</i>) and rich bird and invertebrate assemblages, including rare and notable Hymenoptera species.	LWS	1.0 km southeast

Site Name	Description	Designations	Distance and direction from site
Burghfield Gravel Pits	An extensive area of gravel pits with well-developed wooded areas, islands and marginal vegetation. This area attracts a good variety of wildfowl and other birds including Wildlife and Countryside Act Schedule 1 species as well as uncommon passage migrants.	LWS	1.1 km southeast
Louisehill Copse	Nearly 15 ha of lowland mixed deciduous woodland, with a small area of semi-improved neutral grassland and scrub to the east. The woodland areas form the Local Nature Reserve and dominated by mature oak and Hazel trees, with abundance of Bluebells. The first UK record of the ichneumon wasp <i>Spilichneumon johansoni</i> was here in 2021.	LWS	1.1 km north
Meadway Fringe	Small area of broadleaved woodland interspersed with Scot's Pine (<i>Pinus sylvestris</i>) and larch, with ancient woodland indicators including Bluebell; with a patch of unimproved, species-rich neutral grassland.	LWS	1.1 km north
Burghfield Mill Island	Burghfield Mill Island is a small nature reserve found just south of Reading and located in the middle of the Kennet and Avon Canal. The site is left as non-intervention wet woodland.	BBOWT Reserve	1.3 km southwest
Small Copse at Burghfield Mill	A small area comprising of damp, semi-natural broadleaved woodland, dominated by Ash, Hawthorn (<i>Crataegus monogyna</i>) and Elder (<i>Sambucus nigra</i>), with a stream. A variety of bird and invertebrate species have been recorded here, including Blackcap (<i>Sylvia atricapilla</i>) and Song Thrush (<i>Turdus philomelos</i>).	LWS	1.4 km southwest
Theale Gravel Pits (Moatlands)	An extensive area of disused gravel pits with large areas of open water, islands, marginal wetland vegetation and wooded areas. The area attracts a wide range of bird species including good numbers of overwintering wildfowl and uncommon passage migrants. It also supports a good population of Nightingales (<i>Luscinia megarhynchos</i>).	LWS	1.5 km southwest
Blundell's Copse & The Moor	An area of lowland mixed deciduous woodland dominated by oak, and wet woodland dominated by Alder, Ash and willow, within a highly urban environment. Some of the plants found here include long-established woodland indicators such as Bluebell.	LWS	1.7 km northwest
Curtis Wood	Nearly 8 ha site within Calcot Golf Course, dominated by Ash woodland with oak, Hazel coppice, Hawthorn, and some Hornbeam (<i>Carpinus betulus</i>) and birch. Most of the site is included within the Ancient Woodland Inventory, with species such as Bluebell and Wood Anemone (<i>Anemone nemorosa</i>) also recorded.	LWS	1.7 km northwest

Site Name	Description	Designations	Distance and direction from site
Fobney Island	An 11 ha island located between the Kennet and Avon Canal and the Kennet overflow comprising of a mosaic of wetland habitats, including standing open water, neutral grassland, and broadleaved woodlands. The site is of high value for bird species, including Schedule 1 species, and has plants listed on the Berkshire Rare Plants Register.	LWS	1.8 km southeast
McIlroy Park	Natural hilltop park encompassing McIlroy Park and Round Copse LNRs. The site consists of semi-improved grassland with Heather (<i>Calluna vulgaris</i>) and broom, surrounded by NERC s.41 Habitat of Principal Importance: lowland mixed deciduous woodland; and contains species such as Bluebell, a variety of bird species and Badger.	LWS	2.0 km north

Table 2 presents the results of the biological records search.

Table 2: Records of selected protected or notable species within 2 km of the site

Species	Designation	Date	Distance from site	Approx. location
Merlin (<i>Falco columbarius</i>)	EPS; WCA1; BoCC Red	2016	1.7 km east	Fobney Meadow
Dartford Warbler (<i>Curruca undata</i>)	EPS; WCA1; BoCC Amber	2015	1.8 km east	Fobney Island
Kingfisher (<i>Alcedo atthis</i>)	EPS; WCA1	2020	1.5 km south	Searle's Farm Lane
Peregrine Falcon (<i>Falco peregrinus</i>)	EPS; WCA1	2019	1.7 km east	Fobney Meadow
Red Kite (<i>Milvus milvus</i>)	EPS; WCA1	2021	1.5 km north	Louisehill Copse
Short-eared Owl (<i>Asio flammeus</i>)	EPS; BoCC Amber	2015	1.8 km east	Fobney Island
Little Egret (<i>Egretta garzetta</i>)	EPS	2020	1.5 km south	Searle's Farm Lane
Fieldfare (<i>Turdus pilaris</i>)	WCA1; BoCC Red	2018	1.1 km north	Churchend, Reading
Redwing (<i>Turdus iliacus</i>)	WCA1; BoCC Amber	2020	1.5 km south	Searle's Farm Lane
Barn Owl (<i>Tyto alba</i>)	WCA1	2017	1.0 km south	Burghfield Bridge, Kennet and Avon Canal

Species	Designation	Date	Distance from site	Approx. location
Brambling (<i>Fringilla montifringilla</i>)	WCA1	2017	2.0 km southwest	Reading Services
Cetti's Warbler (<i>Cettia cetti</i>)	WCA1	2020	1.5 km south	Searle's Farm Lane
Firecrest (<i>Regulus ignicapilla</i>)	WCA1	2015	0.7 km northeast	Prospect Park
Hobby (<i>Falco subbuteo</i>)	WCA1	2017	1.7 km east	Fobney Meadow
Cuckoo (<i>Cuculus canorus</i>)	NERC s.41; BoCC Red	2017	1.7 km east	Fobney Meadow
Grasshopper Warbler (<i>Locustella naevia</i>)	NERC s.41; BoCC Red	2017	1.7 km east	Fobney Meadow
Herring Gull (<i>Larus argentatus</i>)	NERC s.41; BoCC Red	2020	2.0 km southwest	Reading Services
House Sparrow (<i>Passer domesticus</i>)	NERC s.41; BoCC Red	2021	1.5 km north	Louisehill Copse
Lapwing (<i>Vanellus vanellus</i>)	NERC s.41; BoCC Red	2019	1.5 km south	Searle's Farm Lane
Lesser-spotted Woodpecker (<i>Dryobates minor</i>)	NERC s.41; BoCC Red	2017	1.7 km east	Fobney Meadow
Linnet (<i>Linaria cannabina</i>)	NERC s.41; BoCC Red	2017	2.0 km southwest	Reading Services
Skylark (<i>Alauda arvensis</i>)	NERC s.41; BoCC Red	2015	2.0 km southwest	Reading Services
Spotted Flycatcher (<i>Muscicapa striata</i>)	NERC s.41; BoCC Red	2017	700 m northeast	Prospect Park
Starling (<i>Sturnus vulgaris</i>)	NERC s.41; BoCC Red	2020	1.5 km southwest	Moatlands
Yellow Wagtail (<i>Motacilla flava</i>)	NERC s.41; BoCC Red	2017	1.7 km east	Fobney Meadow
Yellowhammer (<i>Emberiza citronella</i>)	NERC s.41; BoCC Red	2013	1.8 km east	Fobney Island
Bullfinch (<i>Pyrrhula pyrrhula</i>)	NERC s.41; BoCC Amber	2020	1.5 km southwest	Moatlands

Species	Designation	Date	Distance from site	Approx. location
Dunnock (<i>Prunella modularis</i>)	NERC s.41; BoCC Amber	2020	1.5 km south	Searle's Farm Lane
Song Thrush (<i>Turdus philomelos</i>)	NERC s.41; BoCC Amber	2021	1.9 km south	Pingewood, Burghfield
Lesser Redpoll (<i>Acanthis cabaret</i>)	NERC s.41	2017	1.7 km east	Fobney Meadow
Greenfinch (<i>Chloris chloris</i>)	BoCC Red	2021	1.9 km south	Pingewood, Burghfield
House Martin (<i>Delichon urbicum</i>)	BoCC Red	2019	1.4 km northeast	Dellwood Hospital, Tilehurst
Mistle Thrush (<i>Turdus viscivorus</i>)	BoCC Red	2020	1.5 km southwest	Moatlands
Nightingale (<i>Luscinia megarhynchos</i>)	BoCC Red	2021	1.9 km south	Pingewood, Burghfield
Swift (<i>Apus apus</i>)	BoCC Red	2020	1.5 km southwest	Moatlands
Whinchat (<i>Saxicola rubetra</i>)	BoCC Red	2017	1.7 km east	Fobney Meadow
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	BoCC Amber	2020	1.5 km south	Searle's Farm Lane
Common Gull (<i>Larus canus</i>)	BoCC Amber	2018	1.7 km east	Fobney Meadow
Great Black-backed Gull (<i>Larus marinus</i>)	BoCC Amber	2016	800 m northwest	Mandeville Close, Tilehurst
Grey Wagtail (<i>Motacilla cinerea</i>)	BoCC Amber	2018	1.5 km south	Searle's Farm Lane
Kestrel (<i>Falco tinnunculus</i>)	BoCC Amber	2020	1.5 km south	Searle's Farm Lane
Lesser Black-backed Gull (<i>Larus fuscus</i>)	BoCC Amber	2020	1.5 km southwest	Moatlands
Meadow Pipit (<i>Anthus pratensis</i>)	BoCC Amber	2017	1.7 km east	Fobney Meadow
Pied Flycatcher (<i>Ficedula hypoleuca</i>)	BoCC Amber	2016	2.0 km southwest	Reading Services

Species	Designation	Date	Distance from site	Approx. location
Redstart (<i>Phoenicurus phoenicurus</i>)	BoCC Amber	2017	1.8 km east	Fobney Island
Rook (<i>Corvus frugilegus</i>)	BoCC Amber	2019	2.0 km southwest	Reading Services
Sparrowhawk (<i>Accipiter nisus</i>)	BoCC Amber	2020	1.5 km north	Louisehill Copse
Stock Dove (<i>Columba oenas</i>)	BoCC Amber	2020	1.8 km northwest	Bundell's Copse
Tawny Owl (<i>Strix aluco</i>)	BoCC Amber	2018	1.7 km southeast	Cottage Lane, Burghfield
Wheatear (<i>Oenanthe Oenanthe</i>)	BoCC Amber	2017	1.8 km east	Fobney Island
Whitethroat (<i>Curruca communis</i>)	BoCC Amber	2018	1.8 km east	Fobney Island
Willow Warbler (<i>Phylloscopus trochilus</i>)	BoCC Amber	2018	1.8 km east	Fobney Island
Woodpigeon (<i>Columba palumbus</i>)	BoCC Amber	2021	1.5 km north	Louisehill Copse
Wren (<i>Troglodytes troglodytes</i>)	BoCC Amber	2021	1.9 km south	Pingewood, Burghfield
Brown Long-eared Bat (<i>Plecotus auritus</i>)	EPS; WCA5; NERC s.41	2020	1.4 km northeast	Dellwood Hospital, Tilehurst
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	EPS; WCA5; NERC s.41	2020	1.4 km northeast	Dellwood Hospital, Tilehurst
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	EPS; WCA5	2020	1.4 km northeast	Dellwood Hospital, Tilehurst
Daubenton's Bat (<i>Myotis daubentonii</i>)	EPS; WCA5	2018	1.5 km north	Louisehill Copse
Leisler's Bat/Lesser Noctule (<i>Nyctalus leisleri</i>)	EPS; WCA5	2020	1.4 km northeast	Dellwood Hospital, Tilehurst
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	EPS; WCA5	2015	1.2 km west	Thompson Walk, Calcot
Serotine (<i>Eptesicus serotinus</i>)	EPS; WCA5	2018	1.5 km north	Louisehill Copse

Species	Designation	Date	Distance from site	Approx. location
Eurasian Otter (<i>Lutra lutra</i>)	EPS; WCA5; NERC s.41	2016	1.8 km southwest	Scarces Ditch, Mapledurham
European Water Vole (<i>Arvicola amphibius</i>)	WCA5; NERC s.41	2014	1.7 km west	Linear Park
Eurasian Badger (<i>Meles meles</i>)	PBA	2021	1.5 km north	Louisehill Copse
West European Hedgehog (<i>Erinaceus europaeus</i>)	NERC s.41	2021	300 m northwest	Alan Place, Reading
Grass Snake (<i>Natrix helvetica</i>)	WCA5; NERC s.41	2021	1.5 km north	Louisehill Copse
Slow-worm (<i>Anguis fragilis</i>)	WCA5; NERC s.41	2021	1.9 km south	Pingewood, Burghfield
Common Frog (<i>Rana temporaria</i>)	EPS; WCA5	2015	1.5 km northeast	Water Road
Common Toad (<i>Bufo bufo</i>)	WCA5; NERC s.41	2018	1.0 km south	Burghfield Bridge, Kennet and Avon Canal
Smooth Newt (<i>Lissotriton vulgaris</i>)	WCA5	2021	1.5 km north	Louisehill Copse
Palmate Newt (<i>Lissotriton helveticus</i>)	WCA5	2019	1.5 km north	Louisehill Copse
Stag Beetle (<i>Lucanus cervus</i>)	EPS; WCA5; NERC s.41	2021	1.7 km west	Pollards Way
White-letter Hairstreak (<i>Satyrrium w-album</i>)	WCA5; NERC s.41	2019	0.5 km northwest	Horncastle, Tilehurst
Small Heath (<i>Coenonympha pamphilus</i>)	NERC s.41	2019	2.0 km southwest	Reading Services
Cinnabar moth (<i>Tyria jacobaeae</i>)	NERC s.41	2019	1.5 km north	Louisehill Copse
Blood-vein moth (<i>Timandra comae</i>)	NERC s.41	2015	1.8 km east	Fobney Island
White Ermine moth (<i>Spilosoma lubricipeda</i>)	NERC s.41	2013	1.8 km east	Fobney Island

Species	Designation	Date	Distance from site	Approx. location
Himalayan Balsam (<i>Impatiens glandulifera</i>)	WCA9	2020	1.0 km southeast	River Kennet/Kennet & Avon Canal

EPS = European Protected Species (Habitats Directive/Birds Directive)

WCA1 = Wildlife and Countryside Act 1981 Schedule 1

WCA5 = Wildlife and Countryside Act 1981 Schedule 5

NERC s.41 = Natural Environment and Rural Communities Act Section 41 species

PBA = Protection of Badger Act 1992

BoCC Red/Amber = Birds of Conservation Concern Red/Amber

3.2 Field Survey

The habitats identified within the Extended Phase 1 Habitat Survey are listed and described below. All habitats are marked on the Phase 1 Habitat map in Appendix 2, with photographs of habitat types in Appendix 3 and Target Notes in Appendix 4.

On site:

- *Broadleaved semi-natural woodland*
- *Scattered scrub*
- *Scattered trees*
- *Poor semi-improved grassland*
- *Short perennial*
- *Introduced shrub*
- *Bare ground*
- *Hardstanding surfaces*

3.2.1 Habitats

3.2.1.1 *Broadleaved semi-natural woodland*

An area of broadleaved semi-natural woodland, approximately 280 m² size, was located in the southeast of the site. These trees were a mix of immature and semi-mature predominantly cherry (*Prunus* sp.) trees with occasional oak (*Quercus* sp.) that showed signs of succession from lack of management.

The ground was mainly bare earth with some rubbish and fly-tipping evident, and occasional Common Ivy (*Hedera helix*) and bramble (*Rubus fruticosus* agg.).

3.2.1.2 *Scattered scrub*

There was 140 m² scattered scrub consisting of successional Elder (*Sambucus nigra*), maple (*Acer* sp.), and other broadleaved saplings growing beneath the mature Sycamore (*Acer pseudoplatanus*) tree in the southwest corner of the site.

3.2.1.3 Scattered trees

Around 70 scattered broadleaved trees were recorded across the site: at least 40 of these were semi-mature successional lines of Beech trees over 5 m high that had overgrown from ornamental hedgerows along the east and south borders of the site, with a couple also located along the northeast and southwest boundaries.

There were thirteen immature to semi-mature successional scattered broadleaved trees recorded in the north of the site, with half of these being Silver Birch (*Betula pendula*), also with individual Elm (*Ulmus procera*), willow (*Salix* sp.), Turkey Oak (*Quercus cerris*), cherry, and other ornamental trees recorded. One immature Silver Birch was also noted in the west of the site and a semi-mature Rowan (*Sorbus aucuparia*) tree along the east of the site.

In addition, there were also the following trees found in groups with conjoined canopies across the site: a group of mature trees within the northwest corner, which included two large cypress (Cupressaceae) trees and a Silver Birch (protected by Tree Preservation Order (TPO) 12/08). The ground cover under these trees primarily consisted of hardstanding paved surface and short perennial vegetation, with high volumes of fly-tipping. There were also two semi-mature Silver Birch in the north (protected by Tree Preservation Order (TPO) 12/08); four semi-mature Beech and Horse Chestnut (*Aesculus hippocastanum*) trees in the northeast corner of the site, with canopy overlapping with the semi-mature Sycamore (*Acer pseudoplatanus*) directly north of the site boundary; and a group in the southwest corner, which primarily consisted of the canopy of a mature Norway Maple (*Acer platanoides*; protected by Tree Preservation Order (TPO) 12/08), with semi-mature Beech trees along the site boundary and successional deciduous saplings growing beneath over hardstanding paved surface. The majority of these trees had some degree of thick Ivy cover.

3.2.1.4 Poor semi-improved grassland

The ground flora cover across most of the site (ca. 3170 m²) consisted of neutral poor semi-improved grassland that had grown unmanaged within the brownfield site. The average sward height across the site varied, but during the time of this survey, the entire average sward height was under 300 mm, due to seasonal limitations and recent de-vegetation.

The site comprised various assemblages of the following common grassland species across the site that indicate high levels of disturbance. Cock's-foot (*Dactylis glomerata*), Perennial Rye-grass (*Lolium perenne*), Creeping Cinquefoil (*Potentilla reptans*), Common Vetch (*Vicia sativa*), Ribwort Plantain (*Plantago lanceolata*), Common Cat's-ear (*Hypochaeris radicata*), Yarrow (*Achillea millefolium*), Dove's-foot Crane's-bill (*Geranium molle*), and clover (*Trifolium* sp.) were all frequently recorded throughout the grassland, with some species being more abundant than others in different area. Creeping Thistle (*Cirsium arvense*) was also noted occasionally at the site.

Mosses were also abundant throughout the ground flora of the grassland.

3.2.1.5 *Short perennial*

There was ca. 85 m² short perennial ground vegetation averaging under 200 mm height that consisted of Greater Periwinkle (*Vinca major*) covering the earth bank at the north end of the site. There were high amounts of fly-tipping in this area/habitat adjacent to the fence at SU 68213 71907.

3.2.1.6 *Introduced shrub*

Approximately 150 m² Cotoneaster (*Cotoneaster* sp.)- dominated scrub was noted along the north, east and western boundaries of the site, which had been cut back significantly in the north of the site. There was also bramble and Ivy occasionally present within these areas of scrub, and the ground flora was often bare or of the same composition as the poor semi-improved grassland.

3.2.1.7 *Bare ground*

There were patches of bare ground frequent throughout the site, especially where vegetation had been cut back/removed and ground disturbed during clearance works, in addition to bare ground (also previously noted) associated with the understorey of tree canopies along the site boundaries.

3.2.1.8 *Hardstanding*

There was ca. 215 m² hardstanding tarmacked rectangle leading from the tarmacked entrance to the site, which was mostly bordered immediately by mosses and Mouse-ear Hawkweed (*Pilosella officinarum*) before connecting with the poor semi-improved grassland.

There was also ca. 140 m² hardstanding paved slabs behind a section of chain-link fencing in the southwest corner of the site, under the mature Sycamore tree, and with a broken drain cover. Additionally, there was ca. 45 m² area of hardstanding paving slabs was noted in the northwest of the site behind the fence and under the canopies of the mature trees.

3.2.2 *Species*

3.2.2.1 *Badgers*

Grasslands and fruiting vegetation, including trees and shrub, provided suitable habitat for foraging Badger at the site and there was evidence of recent Badger activity at the site, including a sett identified in the northwest of the site with at least seven sett entrances and spoil heaps outside (three of which were relatively large; Target Note 1). There were also various mammal runs and medium-sized mammal push-throughs (Target Note 2) across the site, and a dung pit was previously recorded at SU 68260 71860.

The sett entrances all showed high levels of disturbance, including excessive amounts of fly-tipping covering the spoil heap and across the entrances at SU 68216 71908, and vegetation cover over the entrances/spoil heaps from recent vegetation clearance and machine tracking.

3.2.2.2 Bats

There are records of seven species of bat present within 2 km of the site, including records from highly urbanised areas. The lines of trees and grasslands at the site provided potentially suitable habitat for commuting and foraging bats across the site, and trees, especially the mature trees along the west side of the site and the mature Horse Chestnuts in the northeast corner with thick Ivy cover at SU 68247 71925, could provide suitable roosting opportunities for bats.

3.2.2.3 Birds

The desk study returned numerous records of bird species within 2 km of the site, including the Schedule 1 listed Red Kite, Fieldfare and Redwing, which can all be found in suitable habitats in urban areas.

Trees and shrub provided suitable habitat for nesting birds at the site, and fruiting vegetation and grasslands also provided foraging opportunities that could also be suitable for the aforementioned Schedule 1 birds. Red Kites (*Milvus milvus*) were also noted consistently active over the site during the survey.

3.2.2.4 Hazel Dormice

The desk study returned no records for Hazel Dormouse (*Muscardinus avellanarius*) within 2 km of the site. Whilst the small patches of fruiting broadleaved trees and shrub at the site comprised suitable foraging and sheltering habitat for the species, the site was isolated from a suitably sized woodland area or other suitable habitat within the wider landscape that could support a population, so it is unlikely dormice would be present at the site.

3.2.2.5 Beavers, Otters and Water Voles

There were records of Water Vole (*Arvicola amphibius*) and Otter (*Lutra lutra*) within 2 km of the site associated primarily with the watercourses and wetland habitat to the south. However, there were no such habitats on site, and there was no connectivity to suitable habitats in the surrounding landscape from the site.

Additionally, there were no records of Beaver (*Castor fiber*) within 2 km of the site, and no suitable habitat exists on site for this species.

It is therefore highly unlikely that any of these species would be present at the site.

3.2.2.6 Other mammal species

There was evidence of common urban mammal species present at and utilising the site, including Grey Squirrel (*Sciurus carolinensis*), Muntjac (*Muntiacus reevesi*) tracks, Rabbit (*Oryctolagus cuniculus*) droppings (Target Note 3), evidence of mammal digging (Target Note 4), and mammal runs and medium-sized push-throughs in the boundary vegetation (Target Note 2).

Grasslands, shrub, trees and fruiting vegetation at the site provided sheltering and foraging opportunities for other widespread urban mammal species.

Leaf litter, shrub and grasslands also provided suitable habitat for commuting, foraging and sheltering Hedgehog (*Erinaceus europaeus*).

3.2.2.7 Reptiles

There were records of two common reptile species within 2 km of the site: Slow-worm (*Anguis fragilis*) and Grass Snake (*Natrix helvetica*). Grasslands, shrub and log piles (Target Note 5) at the site provided suitable commuting, foraging and sheltering opportunities for these species, with connection to other suitable grassland habitats (i.e. public greenspaces and residential gardens) within the surrounding urban area.

3.2.2.8 Amphibians

The desk study returned records of common and/or widespread amphibian species, including Common Frog (*Rana temporaria*), Common Toad (*Bufo bufo*), Smooth Newt (*Lissotriton vulgaris*), and Palmate Newt (*Lissotriton helveticus*) within 2 km of the site. Grasslands, shrub, log piles (Target Note 5) and leaf litter at the site could provide foraging and sheltering opportunities for occasional individual amphibians at the site, but no waterbodies were present to support the entire lifecycle of these species at the site.

The closest pond to the site was approximately 300 m southwest of the site at SU 67936 71721, with no suitable connecting habitat between this pond and the site, so it is unlikely any amphibians utilising this pond would be present at the site.

It is also unlikely Great Crested Newt would be present at the site due to the lack of connectivity to or presence of suitable breeding waterbodies at the site, and there are no records of this species within 2 km of the site.

3.2.2.9 Invertebrates

There were records of Stag Beetle within 2 km of the site, but there was no significant deadwood habitat at the site that could be suitable to support the eggs and larvae of this species.

The grassland, shrub and hedgerows provide habitat capable of supporting common assemblages of invertebrates, including grasshoppers, which were observed during the survey.

3.2.2.10 White-clawed Crayfish

There were no records of White-clawed Crayfish (*Austropotamobius pallipes*) within 2 km of the site, and no waterbodies or suitable habitat within or connected to the site, therefore is highly unlikely this species is present at the site.

3.2.2.11 *Non-native species*

Himalayan Balsam (*Impatiens glandulifera*) was identified approximately 1 km from the site during the desk study, and is listed as invasive on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), but this species was not recorded at the site during the survey, and is usually associated with wet habitats so unlikely to be present at the site.

However, cotoneaster (Target Note 6) was abundant across the site, some species of which are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), along with Grey Squirrel and Muntjac.

4 Planning Policy and Legislation

4.1 Local Planning Policy

Table 3 details the policies within the Reading Borough Local Plan (adopted in 2019) which are relevant to the ecological features on site.

Table 3: Summary of relevant local planning policy – Reading Borough Local Plan

Policy	Description
EN12: Biodiversity and the Green Network	b) On all sites, development should not result in a net loss of biodiversity and geodiversity, and should provide a net gain for biodiversity wherever possible. Development should: - Protect and wherever possible enhance features of biodiversity interest on and adjacent to the application site, incorporating and integrating them into development proposals wherever practicable; and - Provide new tree planting, wildlife friendly landscaping and ecological enhancements (such as wildlife ponds, bird and bat boxes) wherever practicable. In exceptional circumstances where the need for development clearly outweighs the need to protect the value of the site, and it is demonstrated that the impacts cannot be: 1) avoided; 2) mitigated or; 3) compensated for on-site; then new development will provide off-site compensation to ensure that there is “no net loss” of biodiversity. Provision of off-site compensation shall be calculated in accordance with nationally or locally recognised guidance and metrics. It should not replace existing alternative habitats, and should be provided prior to development.
EN14: Trees, Hedges and Woodlands	Individual trees, groups of trees, hedges and woodlands will be protected from damage or removal where they are of importance, and Reading’s vegetation cover will be extended. The quality of waterside vegetation will be maintained or enhanced. New development shall make provision for tree retention and planting within the application site, particularly on the street frontage, or off-site in appropriate situations, to improve the level of tree coverage within the Borough, to maintain and enhance the character and appearance of the area in which a site is located, to provide for biodiversity and to contribute to measures to reduce carbon and adapt to climate change. Measures must be in place to ensure that these trees are adequately maintained.
EN16: Pollution and Water Resources	Development will only be permitted where it would not be damaging to the environment and sensitive receptors through land, noise or light pollution; where it would result in no deterioration in, or ideally enhance, ground and surface water quality; and where adequate water resources, sewerage and wastewater treatment infrastructure will be in place to support the proposed development prior to occupation. Proposals for development that are sensitive to the effects of noise or light pollution will only be permitted in areas where they will not be subject to high levels of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution. Development will only be permitted on land affected by contamination where it is demonstrated that the contamination and land gas can be satisfactorily managed or remediated so that it is suitable for the proposed end use and will not impact on the groundwater environment, human health, buildings and the wider environment, during demolition and construction phases as well as during the future use of the site.

Policy	Description
WR3p: Other Sites for Development in West Reading and Tilehurst	In regards to ecology, the following is stated in the principles for development at Alice Burrows House, Dwyer Road: 'Avoid adverse effects on important trees including those protected by TPO'.

4.2 National Planning Policy Framework

The National Planning Policy Framework July 2021, is an update to the previous version issued in February 2019, and is a policy framework document which provide a range of important principles. Paragraph 174 of the NPPF states that decisions should contribute to and enhance the natural local environment by:

'Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.'

Paragraph 175 goes on to state:

'... 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.'

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles (paragraph 180):

'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.'

4.3 Relevant Legislation

4.3.1 National Legislation

4.3.1.1 The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 (as amended) consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the conservation of wild birds (Birds Directive) in Great Britain.

4.3.1.2 Natural Environment & Rural Communities Act 2006

Section 40 of the NERC Act 2006 places a duty upon all local authorities in England to promote and enhance biodiversity in all of their functions. Section 41 lists habitats and species of principal importance to the conservation of biodiversity. Fifty-six habitats and 943 species of Principal Importance for Conservation are included on the Section 41 list and draws upon the UK BAP List of Priority Species and Habitats.

4.3.1.3 *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*

The Conservation of Habitats and Species Regulations 2019 transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law and transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations provide for the designation and protection of a national site network including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), the protection of 'European protected species', and the adaptation of planning and other controls for the protection of other sites, such as Ramsars.

4.3.1.4 *The Environment Act 2021*

Para 2 (3) of Schedule 14 of The Environment Act 2021 makes it mandatory for all new developments (with some limited exceptions) to achieve a biodiversity net gain (BNG) of at least 10% by the time the development is completed compared to the pre-development biodiversity value of the onsite habitat. This percentage may be amended in the future by the Secretary of State. Please note that some Local Policies stipulate a higher target than this.

The Bill allows three methods for securing biodiversity net gains:

1. enhancement of the biodiversity of land to which the planning permission relates;
2. the allocation of registered offsite biodiversity gain to any development for which the planning permission is granted; and
3. the purchase of biodiversity credits for any such development.

A biodiversity gain statement must set out whether, and if so how, the biodiversity gain objective applies in relation to development where the onsite habitat is irreplaceable, how the development will minimise any adverse effects to the onsite habitat, and what the evidence must be produced to show how the biodiversity net gain has been met upon completion of the development.

Biodiversity gains will need to be maintained for at least 30 years after the development is completed.

4.3.1.5 *Wild Mammals (Protection) Act 1996*

The Wild Mammals (Protection) Act 1996 gives provision for the protection of wild mammals, that are not already classed as 'protected' species under other legislation, from certain cruel acts with the intent to inflict unnecessary suffering. This can include inhumanely crushing wild mammals in their place of shelter.

4.3.2 *Species Specific Legislation*

4.3.2.1 *Badgers*

The Protection of Badgers Act (1992) (as amended) affords protection to Badgers and their setts. This legislation, as well as outlawing the persecution of Badgers, also makes it an offence, amongst others, to disturb Badgers whilst they are using a sett or to damage or block a sett.

4.3.2.2 Bats

Bats are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Under the Wildlife and Countryside Act 1981 it is illegal to:

- *Kill or injure bats;*
- *Cause disturbance at their resting places; or*
- *To block access to, damage or destroy their roost sites.*

Under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 it is an offence to:

- *Deliberately capture or kill a bat;*
- *To damage or destroy a breeding site or resting place of any bat. (This is an absolute offence and intent or recklessness does not have to be proved); and*
- *Deliberately disturb a bat (this applies anywhere, not just at its roost).*

4.3.2.3 Birds

Breeding wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Under the Wildlife and Countryside Act, a wild bird is defined as any bird of a species that is resident in or is a visitor to the European Territory of any member state in a wild state. Game birds however are not included in this definition (except for limited parts of the Act). They are covered by the Game Acts, which fully protect them during the close season.

All birds, their nests and eggs are protected and it is thus an offence, with certain exceptions to:

- *intentionally kill, injure or take any wild bird;*
- *intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built;*
- *intentionally take or destroy the egg of any wild bird;*
- *have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954;*
- *have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954;*
- *use traps or similar items to kill, injure or take wild birds; and*
- *have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations.*

Additionally for some species listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young.

4.3.2.4 Reptiles

Adder, Slow-worm, Grass Snake and Common Lizard are protected under the Wildlife and Countryside Act 1981 (as amended). It is illegal to kill or injure them.

Smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) also receive legal protection under the Conservation of Habitats and Species Regulations 2017. The following is prohibited:

- *deliberate capturing, injuring or killing*
- *deliberate disturbance; Disturbance of animals includes in particular any disturbance which is likely- (i) to impair their ability to survive, to breed or reproduce or to rear or nurture their young; or (ii) to impair the ability of hibernating or migratory species, to hibernate or migrate; or (iii) to affect significantly the local distribution or abundance of the species to which they belong;*
- *deliberate taking or destroying the eggs of such an animal; or*
- *damaging or destroying a breeding site or resting place of such an animal and/or (ii) intentionally or recklessly - (a) disturbing any such animal while it is occupying a structure or place which it uses for shelter or protection; or (b) obstructing access to any structure or place which any such animal uses for shelter or protection.*

4.3.2.5 Amphibians

Common Frog, Common Toad, Smooth Newt and Palmate Newt are all protected against sale under Section 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes the following actions, which make it an offence to:

- sell, offers or exposes for sale, or possesses or transports for the purpose of sale, any live or dead wild animal, or any part of, or anything derived from, such an animal.

4.3.2.6 Invasive non-native species

Non-native species that are classed as invasive are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to facilitate the growth or release of these species in the wild.

Muntjac are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), prohibiting the release of these species in the wild.

The following five species of cotoneaster are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended):

- *Cotoneaster horizontalis*,
- *Cotoneaster integrifolius*,
- *Cotoneaster simonsii*,
- *Cotoneaster bullatus*, and

- *Cotoneaster microphyllus*.

5 Evaluation of Ecological Features/Further Survey

Table 4 below provides an evaluation of the ecological features, identifying which are of sufficient importance to be taken forward. Any ecological feature that is identified as negligible importance will not be considered further, where there is insufficient evidence further surveys will be recommended to be able to assess the ecological importance of that feature in relation to the site and the proposed development. In some instances, a level of site importance has been identified for features which have a very localised scale.

Table 4: Evaluation of ecological feature

Ecological Feature	Justification	Level of Importance
Designated sites	Statutory and non-statutory sites within the search area included five LNRs, two AONBs, one SSSIs, 13 LWS and one BBOWT Reserve. Due to the nature and distance of the site from the designated sites, it is not anticipated any impacts upon these sites will occur.	Negligible
Broadleaved semi-natural woodland	A common and widespread habitat throughout the borough, and protection and retention of trees, especially those on street frontage (including the trees along the east and south sides of the site), is included within the Local Plan. This habitat does not qualify as the priority habitat 'deciduous woodland' however, it provides sheltering and foraging opportunities for a variety of protected species, including bats and birds.	Local importance
Scattered scrub	The scattered scrub comprised primarily immature broadleaved saplings growing naturally within the site and is less common throughout the wider area. The fruiting trees within this habitat provide sheltering and foraging opportunities for protected species such as birds.	Site importance
Scattered trees	Scattered immature to mature trees are present throughout site and are generally widespread throughout the area. Protection and retention of trees, especially those on street frontage such as the line of Beech trees along the east and south of the site, is included within the Local Plan; which also makes reference to important trees specifically for this site.	Local importance
Poor semi-improved grassland	Neutral semi-improved grasslands are widespread and common throughout the region, and no notable or uncommon plant species were recorded at the site. However, this habitat may be significant for commuting and foraging animals across the site and within the immediate local area.	Site importance
Short perennial	The small patch of short perennial vegetation comprised a non-native species and part of the habitat showed high levels of pollution and disturbance.	Negligible

Ecological Feature	Justification	Level of Importance
Introduced shrub	The introduced shrub provided sheltering and foraging opportunities for various common animal species within the site, but was comprised primarily of cotoneaster, which is a non-native plant (some species of which are invasive), widespread and common throughout the local area, so provides little ecological value.	Negligible
Bare ground	The areas of bare ground were of little ecological or biodiverse value, and are very common and widespread within the local area.	Negligible
Hardstanding	Hardstanding surfaces provide little to no ecological value, and very common and widespread throughout the wider area.	Negligible
Badger	At least seven sett entrances were recorded at the site, it is an offence to damage or destroy an active Badger sett. Grasslands and fruiting vegetation, including trees and shrub, provided suitable habitat for foraging Badger at the site.	Further surveys required
Bats	Trees on or adjacent to the site provided potential habitat for roosting bats, and it is an offence to damage or disturb bats or their roosts.	Further surveys required
Commuting and foraging bats	The lines of trees and grasslands at the site provided potentially suitable habitat for commuting and foraging bats across the site.	Site importance
Birds	Trees and shrub provided suitable habitat for nesting birds at the site, and fruiting vegetation and grasslands also provided foraging opportunities.	Site importance
Hazel Dormice	Although trees and shrub could provide suitable habitat for foraging and sheltering dormice, there was insufficient connectivity to other suitable habitat within the wider landscape and no records of Hazel Dormice exist within 2 km of the site.	Negligible
Beaver	There was no suitable habitat on site for commuting, foraging or sheltering Beaver, and no records of Beaver for any watercourses within 2 km of the site.	Negligible
Otter	There was no suitable habitat on site for commuting, foraging or sheltering Otter, or connectivity to suitable waterbodies with records of Otter from the site.	Negligible
Water Vole	There was no suitable habitat on site for commuting, foraging or sheltering Water Vole, or connectivity to suitable waterbodies with records of Water Vole from the site.	Negligible
Other mammals	Various mammal runs and burrows were noted across the site, and grasslands, shrub, trees and fruiting vegetation at the site provided sheltering and foraging opportunities for other small mammal species, including Hedgehog.	Site importance

Ecological Feature	Justification	Level of Importance
Reptiles	Grasslands, shrub and log piles at the site provided suitable commuting, foraging and sheltering opportunities for common reptile species, for which it is an offence to injure or kill individuals of these species.	Further survey required
Great Crested Newt	Grasslands, shrub, log piles and leaf litter at the site could provide foraging and sheltering opportunities for occasional individual Great Crested Newts, but there were no waterbodies on site or connectivity to other suitable ponds for breeding newts within 500 m of the site, and no records of Great Crested Newt exist within 2 km.	Negligible
Other amphibians	Grasslands, shrub, log piles and leaf litter at the site could provide foraging and sheltering opportunities for occasional individual amphibians at the site, but no waterbodies are present to support the entire lifecycle of these species at the site.	Site importance
Terrestrial invertebrates	The grassland, shrub and hedgerows provide habitat capable of supporting common assemblages of invertebrates. There were records of Stag Beetle within 2 km of the site, but there was no significant deadwood habitat at the site that could be suitable to support the eggs and larvae of this species.	Site importance
White-clawed Crayfish	There were no records of White-clawed Crayfish within 2 km of the site, and no waterbodies or suitable habitat within or connected to the site.	Negligible
Non-native Invasive Species	Cotoneaster was abundant across the site, and some species of which are invasive, in addition to Muntjac and Grey Squirrel, so provide little ecological value.	N.A.

6 Ecological Constraints, Opportunities and Recommendations

6.1 Habitats

6.1.1 Broadleaved semi-natural woodland

There is potential for the proposed development to impact the area of broadleaved semi-natural woodland at the site should any tree removal be required, and impacts to trees can also occur with works and potential excavations near the root protection zones of these trees.

The root protection zone of trees must be considered under The British Standard 5837. All trees on site should be retained and protected where possible in accordance with EN14 in the Local Plan, especially those on the street frontage of Dwyer Road and Burghfield Road.

6.1.2 Scrub

Planned works could require the clearance or disturbance of the immature deciduous saplings in the patch of scattered scrub.

This should be retained on site, where possible, and managed to promote increased biodiversity (such as protection of growing saplings from herbivores and increasing variety of woody plants). Otherwise, compensation should involve planting a variety of native trees and shrubs, including fruiting vegetation such as cherry, rose, Hawthorn, and Blackthorn.

6.1.3 Scattered trees

There is potential to impact scattered trees at the site should any tree removal be required, and impacts to trees can also occur with works and potential excavations near the root protection zones of these trees.

The root protection zone of trees must be considered under The British Standard 5837. All trees on site should be retained, where possible, in accordance with EN14 in the Local Plan, especially those on the street frontage of Dwyer Road and Appleford Road.

All Tree Protection Order (TPO) protected trees are to remain intact and must not be removed unless the local district council has been informed and written consent has been obtained.

6.1.4 Poor semi-improved grassland

It is likely that a significant proportion of the existing grassland at the site will be removed and replaced with hardstanding/buildings or managed intensely as amenity grassland, with little ecological value.

Therefore, any loss of grassland should be compensated with areas of species-rich grassland retained/created within the site by wildflower planting and selective management scheme of new or existing areas of grassland.

6.2 Species and Species Groups

6.2.1 Badger

Badgers could be impacted by the development both pre and post construction through disturbance via works within the ground across the site, which would likely cause removal/destruction of habitat suitable for commuting and foraging Badger and potential damage to the Badger sett.

To ensure no offences are committed under the Protection of Badgers Act 1992, it is recommended further Badger activity surveys are undertaken to determine the activity status of the sett and search for evidence of use of habitats on site by this species.

6.2.2 Bats

On site trees provided potential habitat for roosting bats so any damage to trees, including trimming, cutting or removing, has the potential to disturb bats and their roosts. Therefore, to avoid an offence under the Conservation of Habitats and species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended), further bat roosting surveys are required prior to any works that may impact trees. In the first instance, Ground-level Tree Assessments are recommended to assess the suitability of these habitats for roosting bats, and follow-on work may include emergence/re-entry surveys in the optimum survey window of May to August.

Changes to lighting within the site pre and post construction could also cause disturbance to roosting and commuting bats, by directly illuminating roost entrances and causing bats to not leave or re-enter the roost, and by adding light sources within the site that may impact current commuting and/or foraging habitat in or over the site. Therefore Ground-level Tree Assessments are also recommended for any trees that are likely to be impacted by new light sources, and a detailed lighting plan should be produced that considers potential impacts to roosting, commuting and foraging bats at or adjacent to the site.

As per the policies made in the Reading Borough Local Plan, removal or adverse effects on trees and of light pollution should be avoided in the first instance, where possible, or the aforementioned mitigation strategies would be required.

6.2.3 Birds

There is the potential to impact or disturb nesting birds at the site if trees and shrub are damaged or removed to facilitate works at the site. Where possible, impacts to habitat suitable for nesting birds should be avoided within the nesting bird season (March to August, inclusive).

If this is not possible, a nesting bird check by a competent person should be undertaken of the area proposed for disturbance at a maximum of 48 hours prior to the development works. To comply with the Wildlife and Countryside Act 1981 (as amended), active bird nests will need to be safeguarded with a buffer of at least 5 m in place around any active nests discovered until the young have fledged.

6.2.4 Other mammals

Various other signs of mammal activity at the site were recorded, including Grey Squirrel, Muntjac, Rabbit and other urban mammals, and so there is potential to cause an offence under the Wild Mammals (Protection) Act 1996 pre and post development if they are killed inhumanely (i.e. crushing animals in active burrows during works). Therefore, any animals currently using the burrows on site (including Badger setts in potential use by other species) should be evicted humanely and burrows closed prior to works.

6.2.5 Reptiles

Grasslands and shrub at the site provided suitable commuting, foraging and sheltering opportunities for common reptile species, such as Slow Worm and Grass Snake, therefore there is the potential to cause an offence under the Wildlife and Countryside Act 1981 (as amended) during any site clearance works that may be required during the reptile active season (April to October, inclusive).

If impacts to these habitats suitable for reptiles cannot be first avoided, further reptile surveys at the site may be required to assess the presence, population sizes and inform mitigation strategies for reptiles to avoid causing an offence, as required.

6.2.6 Other amphibians

Grasslands, shrub and leaf litter at the site provided foraging and sheltering opportunities for common amphibian species, so in order to preserve biodiversity at the site, in line with policies set out in the Reading Borough Local Plan impacts to these habitats should be minimised. If this is not possible, compensatory measures, such as creating hibernacula around the site should be undertaken to provide alternative suitable terrestrial habitat.

6.2.7 Other terrestrial invertebrates

The grassland and shrub provide habitat capable of supporting common assemblages of invertebrates, such as grasshoppers and Hymenoptera, so in order to preserve biodiversity at the site, in line with policies set out in the Reading Borough Local Plan impacts to these habitats should be minimised pre and post construction. However, if impacts to these habitats cannot be avoided, compensatory measures should be implemented at the site, which could include planting of native wildflowers and shrubs, such as flowering and/or fruiting plants from the families Asteraceae, Fabaceae and Rosaceae and other pollen/nectar-rich plants such as honeysuckle (*Lonicera* sp.) and foxglove (*Digitalis* sp.).

6.3 Other Enhancement Opportunities

In line with the Environment Act 2021, NERC Act 2006 and aforementioned policies in the Reading Borough Local Plan, we recommend that Biodiversity Impact Calculations be carried out for the site using a suitable metric (such as The Biodiversity Metric 3.1 issued by Natural England) and submitted alongside

the planning application. This will assess the impacts of the development and ensure that there is no net loss in biodiversity, and ideally achieve a net gain in biodiversity.

The following additional measures would contribute to further biodiversity net gain at the site:

- Where possible it is recommended that important habitat features onsite such as the woodland and trees are retained, enhanced and incorporated into the landscape design, especially trees within the site and on the street frontages. These features could be enhanced by creation of species-rich native hedgerows or planting native trees along border features (such as the west and northeast sides of the site). Full details of the landscaping scheme should be developed in conjunction with the landscape architect, focusing on the use of native species, during detailed design;
- Fly-tipping and anthropogenic waste should be removed from the site to protect habitats and species from further damage, and measures implemented to ensure the site remains waste-free and safe for animals utilising the area;
- To enhance the potential for biodiversity gain across the site, it is recommended that native trees and shrubs are planted where possible within the development site to enhance habitat for bats, birds, invertebrates, and other wildlife. The planting strategy should create or strengthen wildlife corridors both within the site and the local environment, and use native species of local provenance including oak, Beech, Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), bramble and Dog Rose (*Rosa canina*);
- Some areas of the semi-improved grassland could be enhanced within the design of the development by seeding with an appropriate species-rich wildflower and meadow grassland mix and managing appropriately (management regimes in these areas should be designed to benefit wildlife);
- The creation of log piles following any vegetation clearance resulting from possible development, to be installed within suitable retained habitat. Such log piles can act as valuable refugia for reptiles, small mammals, amphibians and invertebrates;
- Bird and bat boxes could also be installed within existing mature trees onsite, and incorporated into the development of buildings on site (including features such as swift bricks) to increase habitat suitability and capacity for these species at the site. Numbers and types of boxes to be confirmed once design is finalised.
- Native hedgerows and/or installation of Hedgehog highways at site boundaries and across the site would increase the amount of safe connected corridors for commuting urban Hedgehogs within the local area.

- Further enhancement for common amphibian species at the site could involve creation of additional hibernacula and a suitable pond to encourage amphibians at all life stages to be present at the site.
- Further enhancement for terrestrial invertebrates could involve the creation of 'insect hotels' around the site, which are constructed using planks of wood interspaced with bricks (with holes) and terracotta pots, and natural materials including bark, moss and soil. In addition, wildflower planting post construction would encourage greater assemblages of invertebrates, such as bees and butterflies.

These measures would contribute to potential net gain in biodiversity on site, in line with the Local Plan and Environment Act 2021. However, further detailed biodiversity net gain calculations and strategy included within the design of the proposed development is recommended to ensure there is a significant and measurable net gain of at least 10% at the site.

7 Conclusions

An updated Preliminary Ecological Appraisal was undertaken by ADAS to inform ecological constraints and opportunities for the development of residential housing at the brownfield site on Dwyer Road, Reading.

The development has the potential to impact or destroy grassland, trees and woodland habitat suitable for a variety of protected species, including nesting birds, bats, Badger, common reptiles, as well as common amphibian, mammal and invertebrate species. A Badger sett was identified within the north of the site during the survey, as well.

Further surveys for Badger, bats and reptiles are recommended to assess the presence/likely absence and/or activity of these species at the site and inform further actions, as required to avoid causing an offence under wildlife legislation. If impacts that would result in a contravention of the appropriate wildlife legislation cannot be avoided, a mitigation licence(s) from Natural England may be required.

Necessary avoidance and mitigation measure are also recommended for nesting birds and trees during development to avoid causing an offence under relevant legislation and in line with the Reding Borough Local Plan to protect and retain biodiversity at the site. Additional enhancements have been included to further contribute to a potential net gain in biodiversity, to comply with policies in the Local Plan and the Environment Act 2021, but detailed biodiversity net gain calculations and strategies are also recommended.

Pending the results of the further surveys, and subject to the recommendations for avoidance, mitigation, compensation and enhancement being adopted, it is considered that the development would comply with relevant legislation.

8 References

Chartered Institute of Ecology and Environmental Management (2017). *Guidelines for Ecological Preliminary Ecological Appraisal*. Technical Guidance Series. www.cieem.net

Chartered Institute of Ecology and Environmental Management (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Technical Guidance Series www.cieem.net

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.

Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey. A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.

Stace, C. (2019). *New British Flora of the British Isles*. 4th Edition. Cambridge University Press.

Appendix 1: Frame of Reference for Geographical Context

Geographical context	Examples
International and European	Ramsar Sites, Special Protection Areas, Biosphere Reserves, Special Areas of Conservation. Sites supporting populations of internationally important species. Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP. A regularly occurring, nationally significant population/number of any internationally important species.
National	SSSIs or non-designated Sites meeting SSSI selection criteria, NNRs, Marine Nature Reserves, NCR Grade 1 Sites. Sites containing viable areas of key habitats identified in the UK Biodiversity Action Plan. Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP). A regularly occurring, regionally or county significant population/number of any nationally important species.
Regional	Sites containing viable areas of threatened habitats listed in a Regional BAP (or some Natural Areas), comfortably exceeding SINC criteria, but not exceeding SSSI criteria. Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species.
County / Metropolitan	Sites meeting the criteria for county or metropolitan designation (SINC, CWS, etc.). Ancient semi-natural woodland, LNRs or viable areas of key habitat types listed in county BAPs/Natural Areas. Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan “red data book” or BAP on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species.
Local	Undesignated Sites or features considered to appreciably enrich the habitat resource in the District or Borough or within a zone of influence. A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a District / Borough important species during a critical phase of its life cycle.

Appendix 2: Phase 1 Habitat Survey Map

See following page.

Gleeds Cost Management Ltd

Vanbrugh House, Hedge End
Southampton, Hampshire
SO30 2AF

Dwyer Road Phase 1 Habitat Map

-  Red line boundary
-  Target Notes
-  Broadleaved semi-natural woodland
-  Scattered scrub
-  Scattered broadleaved trees
-  Scattered coniferous trees
-  Poor semi-improved grassland
-  Short perennial
-  Introduced shrub
-  Bare ground
-  Hardstanding
-  Chain-link fences

Drawn by Amelia McCormack 12.01.2023



0 7.5 15 m

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ADAS, 11D Park House
Milton Park, Oxfordshire
OX14 4RS



Appendix 3: Habitat Types with Photographs

Photographs



Photograph 1. Broadleaved semi-natural woodland.



Photograph 2. Scattered scrub of broadleaved saplings.



Photograph 3. Scattered immature trees in north of site.



Photograph 4. Line of scattered Beech trees on south border.

Photographs



Photograph 5. Scattered mature mixed trees in northwest of site.



Photograph 6. Poor semi-improved grassland, with high levels of disturbance.



Photograph 7. Area of short perennial vegetation, dominated by Greater Periwinkle, with significant amounts of fly-tipping.



Photograph 8. Introduced cotoneaster shrub on boundaries.

Photographs



Photograph 9. Bare/disturbed ground within site.



Photograph 10. Hardstanding tarmacked area within south/centre of site.

Appendix 4: Target Notes with Photographs

Target Notes



Target Note 1. Badger sett entrances in northwest of site.



Target Note 2. Medium-sized mammal push-throughs in shrub on east border of site.



Target Note 3. Rabbit droppings in east of site.



Target Note 4. Evidence of mammal digging in site.

Target Notes



Target Note 5. Log pile created from cut tree in west of site, with evidence of nesting birds within.



Target Note 6. Cotoneaster (introduced shrub), some species of which are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).