



**Land at Sonning Golf Club, Duffield Road,
Sonning-on-Thames, Reading, Berkshire RG4 6GJ**

**Preliminary Ecological Appraisal
& Biodiversity Net Gain Assessment**

April 2026

on behalf of Darcliffe Homes

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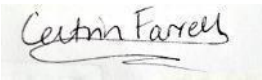
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Report Contents

1	Introduction.....	1
1.1	Site Description & Context	1
1.2	Proposals	1
1.3	Aims of Study.....	1
1.4	Biodiversity Statement	1
1.4.1	Exemption	1
1.4.2	Pre-development Biodiversity Value of On-site Habitats.....	2
1.4.3	Date the On-site Pre-development Biodiversity Value was Calculated ..	2
1.4.4	Version of the Biodiversity Metric	2
1.4.5	Version of the Biodiversity Metric Publication Date.....	2
1.4.6	Supporting Documentation	2
1.4.7	Loss of On-site Habitats	3
1.4.8	Phased Development.....	3
1.4.9	Irreplaceable Habitats	3
2	Methodology	3
2.1	Desk Study.....	3
2.2	Field Survey	3
2.2.1	Personnel.....	3
2.2.2	Weather Conditions.....	3
2.2.3	UKHab Habitat Survey	4
2.2.4	Ground Level Tree Assessment (GLTA).....	5
2.3	Habitat Condition Assessment	6
2.4	Limitations on Survey Data	6
2.5	Biodiversity Net Gain Assessment	6
2.6	Evaluation Methodology	6
3	Results & Evaluation	7
3.1	Desk Study.....	7
3.1.1	Sites of Nature Conservation Importance	7
3.1.2	Species Records	9
3.2	Habitats.....	11
3.2.1	Overview	11
3.2.2	On-site Habitats	11
3.3	Species	13
3.3.1	Amphibians	13
3.3.2	Reptiles	14
3.3.3	Bats.....	14
3.3.4	Badgers.....	14
3.3.5	Hedgehogs.....	14
3.3.6	Other Mammals.....	14
3.3.7	Birds.....	14
3.3.8	Invertebrates	14
3.3.9	Plants.....	15
3.3.10	Other Species	15
4	Discussion.....	15
4.1	Relevant Legislation & Policy Guidance.....	15
4.1.1	Nesting Birds.....	15

4.1.2	The Natural Environment & Rural Communities Act 2006	15
4.1.3	National Planning Policy Framework (NPPF)	15
4.1.4	Environment Act 2021	17
5	Biodiversity Net Gain Assessment	17
5.1	Overview	17
5.2	Habitat Status Before Development	17
5.2.1	Habitat Strategic Significance	18
5.2.2	Habitat Condition Assessment	18
5.3	Habitat Status After Development	18
5.3.1	Target Habitat Condition Assessment	19
5.4	Biodiversity Metric Calculation Summary	20
5.5	Potential Impacts	20
5.5.1	Sites of Nature Conservation Importance	20
5.5.2	Habitats	20
5.5.3	Species	21
6	Recommendations	22
6.1	Further Surveys	22
6.1.1	Bats in Trees	22
6.2	Habitats	22
6.2.1	Grassland Enhancement	22
6.2.2	Pond Creation	22
6.2.3	New Landscaping	24
6.3	Species	25
6.3.1	Amphibians	25
6.3.2	Birds	25
6.3.3	Bats	26
6.3.4	Hedgehogs	26
6.3.5	Other Species	27
7	References	27
8	Appendix 1. Site Location Plans	29
9	Appendix 2. Photographs	30
10	Appendix 3. Proposal Plan	33
11	Appendix 4. UKHab Baseline Habitat Plans	35
12	Appendix 5. UKHab Post-Development Plans	36
13	Appendix 6. Habitat Change Plans	37
14	Appendix 7. Statutory Biodiversity Metric	38
15	Appendix 8. Condition Assessment Sheets	39
16	Appendix 9. Species for 'Wildlife' Landscape/Garden Planting	40

1 Introduction

1.1 Site Description & Context

The land at Sonning Golf Club, referred to as the 'site' for the purpose of this report, is located to the north of Duffield Road, to the east of the village of Sonning-on-Thames in Berkshire RG4 6GJ. The approximate Ordnance Survey grid reference for the site is SU 7649 7482 (see Appendix 1 for location plans and Appendix 2 for the photographs of the site).

The site comprises modified grassland, other woodland; broadleaved, gorse scrub, developed land; sealed surface, artificial unvegetated, unsealed surface, bare ground, hedgerows and individual trees.

The site is located to the east of the village of Sonning-on-Thames. To the north of the site are residential dwellings and Rams Rugby Club. To the east and south is Sonning Golf Club. To the west of the site is a field with approved planning for a 13-unit development. The wider landscape surrounding the village is residential with arable farmland to the north and Caversham Lakes to the west.

1.2 Proposals

The proposals are to erect 26 new dwellings and 3 new blocks of flats comprising 24 flats in total.

A proposal plan can be found in Appendix 3.

1.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species, establishing the baseline ecological conditions. The report discusses the potential impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species (Ecological Impact Assessment). The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species.

A further aim of this study is to assess and quantify the biodiversity value of the site and to assess and calculate the impacts of the proposed redevelopment on the site's biodiversity value, given as a net loss, no net change or gain in biodiversity units, in line with the National Planning Policy Framework (NPPF) and the Environment Act 2021.

This report aims to:

- Establish the total number of baseline biodiversity units for the site prior to the development taking place;
- Establish the total number of biodiversity units which will be created, retained and/or enhanced under landscape proposals for the site of; and
- Determine whether the proposed development scheme will result in a net loss, no net loss or a net gain for biodiversity (Biodiversity Net Gain Assessment).

1.4 Biodiversity Statement

1.4.1 Exemption

The proposed development is not exempt from the Statutory Biodiversity Net Gain condition. The planning application for these proposals is therefore subject to Statutory Biodiversity Net Gain, as defined under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021).

The proposals must deliver a Biodiversity Net Gain of at least +10%.

1.4.2 Pre-development Biodiversity Value of On-site Habitats

The pre-development biodiversity value of the on-site habitats is as follows:

- Habitat Units: 12.65
- Hedgerow Units: 0.29
- Watercourse Units: N/A

1.4.3 Date the On-site Pre-development Biodiversity Value was Calculated

Date of application.

4th March 2026 was the date of the field survey.

1.4.4 Version of the Biodiversity Metric

Statutory Biodiversity Metric 1.0.4

1.4.5 Version of the Biodiversity Metric Publication Date

3rd July 2025.

1.4.6 Supporting Documentation

- I. Statutory Biodiversity Metric (Appendix 7 of this report)

The result of the calculation predicts a net gain in biodiversity.

Total net unit change in habitats: +2.31 Habitat Units

Total net % change in habitats: +18.27% Habitat Units

Total net unit change in hedgerows: +0.26 Hedgerow Units

Total net % change in hedgerows: +91.64% Hedgerow Units

The Trading Rules are **satisfied**.

- II. Onsite irreplaceable habitats – not applicable

- III. Onsite habitats existing on the date of the application for planning permission are:

Table 1. UKHab on-site and off-site habitats existing on the date of the application for planning permission.

Primary Code	Secondary Code	Description
u1b5	-	Urban – Developed land; sealed surface – buildings
u1b6	-	Urban – Developed land; sealed surface – other developed land
u1c	-	Urban – Artificial unvegetated, unsealed surface
g4	108	Grassland – Modified grassland (frequently mown)
h3e	-	Heathland and shrub – Gorse scrub
w1g	-	Woodland and forest – Other woodland; broadleaved
g4	510	Grassland – bare ground
h2a	-	Hedgerows – Native hedgerow

Primary Code	Secondary Code	Description
h2b	-	Hedgerows – Non-native and ornamental hedgerow
g4	200	Individual trees – Rural tree

1.4.7 Loss of On-site Habitats

There has been no loss of on-site habitats prior to the submission of the planning application.

Does the pre-development biodiversity value and date used above factor in the loss of any onsite habitat because of activities carried out before the submission of this application? – not applicable.

1.4.8 Phased Development

The development is not phased.

1.4.9 Irreplaceable Habitats

There are no irreplaceable habitats within the site.

2 Methodology

2.1 Desk Study

Information on statutory and non-statutory sites, as well as protected and notable species records, within a 1km radius of site were requested from the Thames Valley Environmental Records Centre (TVERC) in March 2026. The following websites were also used to obtain information on habitats and designated sites within the local area:

- The Multi-Agency Geographic Information for the Countryside - www.magic.gov.uk
- Google maps - www.google.co.uk/maps
- Where's the path - <https://wtp2.appspot.com/wheresthepath.htm>

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 was also consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation was used to place the study site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

2.2 Field Survey

2.2.1 Personnel

The field surveys were undertaken by Catrin Farrell *BSc (Hons)* on 4th March 2026.

Catrin Farrell *BSc (Hons)* is an Ecologist of Windrush Ecology Ltd. Miss Farrell has an undergraduate degree in Environmental Conservation from Bangor University and has been working as a professional ecological consultant since 2022.

Miss Farrell holds a licence from Natural England to survey for bats within all counties of England (Level 1 2025-12685-CL17-BAT) and has over 3 years of experience in undertaking bat surveys.

2.2.2 Weather Conditions

The weather on the 4th March 2026 was warm and dry (11°C), overcast (100% cloud cover) with a moderate breeze (Beaufort scale 2).

2.2.3 UKHab Habitat Survey

A field survey, using the UK Habitat Classification (UKHab) system, was undertaken. The field survey technique used is detailed in the UK Habitat Classification User Manual (Butcher, Carey, Edmonds, Norton, & Treweek, UK Habitat Classification Manual Version 1.1, 2020).

The MAGIC website and Google Earth Pro satellite imagery were also used to determine whether there are known or possible locations for rare and/or habitats of high nature conservation importance.

Field survey maps were prepared in QGIS and printed off for use in the field. Survey sheets were printed at a scale relevant to the scope and extent of the survey. They are between 1:10,000 and 1:200 scale.

The UKHab system comprises a five-level Primary Habitat Hierarchy and a list of Secondary Codes, the latter is divided into Essential codes and Additional Codes. It is mandatory that each recorded habitat parcel (which can be a point, line or polygon using geospatial vector data terminology) is allocated a single Primary Habitat Code and to record the presence of all Essential Secondary Code features associated with that habitat parcel. Additional Secondary Codes can also be associated with habitat parcels, where it is relevant to the whole parcel. The UKHab system recommends that up to six Secondary Codes can be allocated to a single habitat parcel.

The UKHab system includes all habitat types identified in the UK, irrespective of scale and geographic range, including all habitats listed under Section 41 of the NERC Act 2006 and all Habitats Directive Annex 1 habitats recorded in the UK. Where possible, synonyms for UKHAB habitats in other major habitat classifications are provided in the definitions.

The UK Habitat Classification Version 2.0 has been used (UKHab Ltd, 2023), with the use of Level 3 to 5 Primary Habitats and Secondary Codes. Primary Habitats and Secondary Codes follow the UKHab definitions listed in the aforementioned document. The Secondary Codes selected are appropriate to the site and habitats recorded.

Target notes were also prepared on features of particular ecological interest, and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006) as well as invasive species (listed on Schedule 9 of the Wildlife & Countryside Act 1981).

2.2.3.1 Summarised UKHab Metadata

In line with the UKHab User Manual Table 2 details the Survey Metadata associated with the UKHab survey.

Table 2. Survey Metadata associated with the UKHab survey.

Metadata Heading	Site Information
Scope and purpose of the survey	Baseline habitat survey to inform PEA and BNG Assessment
Area surveyed	3.35ha
Edition of UKHab used	Version 2.0
The Level of UKHab Primary Hierarchy used	Levels 3 to 5
Additional attributes recorded	Habitat condition and habitat management information where relevant
Map projection and units	Ordnance Survey National Grid reference system (OSGB)

Metadata Heading	Site Information
Year of survey	2026
Organisation and individual undertaking the survey	Windrush Ecology Ltd, Catrin Farrell <i>BSc (Hons)</i>
References for any existing datasets that have been used	Thames Valley Ecological Records Centre data search and the MAGIC website

2.2.4 Ground Level Tree Assessment (GLTA)

Trees within the site were assessed for their potential to shelter roosting bats following Good Practice Guidelines (Collins, 2023). The survey was undertaken from ground level, with trees inspected for potential roost features, using binoculars as necessary.

Table 3. Potential roost features (PRFs) that may be used by bats (Collins, 2023)

PRFs Formed by Disease and Decay	PRFs Formed by Damage	PRFs Formed by Association
• Woodpecker holes • Squirrel holes • Knot holes • Pruning cuts • Tear outs • Wounds • Cankers • Compression forks • Butt rots	• Lightning strikes • Hazard beams • Subsidence cracks • Shearing cracks • Transverse snaps • Welds • Lifting bark • Desiccation • Fissures • Frost cracks	• Fluting • Ivy

The following criteria are used as guidelines for assessing the potential suitability of trees for bats (Collins, 2023):

Table 4. Criteria for the assessment of trees for roosting bats (Collins, 2023).

Suitability	Description of Roosting Habitats
NONE	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present. The definition of PRF types is below: PRF-I: PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. PRF-M: PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Where the possibility that bats are present cannot be eliminated or evidence of bats is found during the PRA survey, then further surveys (such as PRF aerial inspection, winter hibernation, presence/absence and/or roost characterisation) are likely to be necessary if impacts on the roosting habitat (or the bats using it) are predicted.

In addition to the bat survey, the trees were checked for evidence of nesting birds including old birds' nests, bird droppings, feathers and eggs.

2.3 Habitat Condition Assessment

A Habitat Condition Assessment was undertaken on 4th March 2026. A 1m-by-1m quadrat was used to measure the average number of vascular plant species per square metre. The locations of the quadrats were selected at random.

2.4 Limitations on Survey Data

There are considered to be no limitations on the survey data and all areas of the site could be accessed thoroughly and safely.

As with any survey undertaken on a certain date, the data presented within this report provide information at a particular point in time and presents a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time.

Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

2.5 Biodiversity Net Gain Assessment

A Biodiversity Net Gain assessment was conducted using the Statutory Biodiversity Metric, published by Department for Environment, Food & Rural Affairs (July, 2025), to calculate the impact of the proposed development on the ecological value of the site. The calculation ascertains whether the proposals are likely to achieve a net gain in biodiversity, calculated as biodiversity (habitat) units and percentage biodiversity (habitat) units.

To effectively assess the impact of the proposals the habitats within the site were classified according to the habitat types given in the UKHab classification system (UKHab Ltd, 2023). Habitats were assessed for their condition and strategic significance according to the criteria given within the Statutory Biodiversity Metric User Guide and The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology (Version 1.0.2) (Department for Environment, Food & Rural Affairs, 2024) through onsite visits and the interrogation of internet resources including MAGIC (www.magic.gov.uk) and Google Earth (www.earth.google.co.uk).

The areas of given habitats in both their current state and the proposed development were mapped using on site data, satellite imagery and QGIS software, with the resulting areas inputted into the Statutory Biodiversity Metric alongside strategic significance classifiers.

The principles of biodiversity net gain as set out in the Biodiversity Net Gain Good Practice Guidelines (CIEEM, IEMA & CIRIA, 2019) have been considered throughout this process as listed below.

- **Principle 1.** Apply the Mitigation Hierarchy
- **Principle 2.** Avoid losing biodiversity that cannot be offset by gains elsewhere
- **Principle 3.** Be inclusive and equitable
- **Principle 4.** Address risks
- **Principle 5.** Make a measurable Net Gain contribution
- **Principle 6.** Achieve the best outcomes for biodiversity
- **Principle 7.** Be additional
- **Principle 8.** Create a Net Gain legacy
- **Principle 9.** Optimise sustainability
- **Principle 10.** Be transparent

2.6 Evaluation Methodology

The evaluation of habitats follows the geographic frame of reference presented within the *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1 (CIEEM, 2018).

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines recognise that ecological evaluation is a 'complex and subjective process' but provides key considerations to apply when 'applying professional judgement to assign values to ecological features and resources. These include consideration of geographic frame of reference; site designations and features; biodiversity value; large populations or important assemblages of species; potential or supporting value; social value and economic value.

Focusing on assessments of biodiversity value, there are various characteristics that can be used to identify ecological resources or features that are likely to be important in terms of biodiversity. These include:

- Rare or uncommon species in the local, national or international context;
- Endemic or locally distinct sub-populations of a species;
- Species on the edge of their distribution;
- Notably large populations of animals or concentration of animals considered uncommon or threatened in a wider context;
- Species, rich assemblages of plants or animals;
- Ecosystems and their component parts, which provide the habitats required by the above species, populations and/or assemblages;
- Plant communities (and associated animals) considered typical of valued natural/semi-natural vegetation types; and
- Habitat diversity, connectivity and/or synergistic associations.

In this report, habitats are assigned to a value relating to their geographic frame of reference, using the following scale:

- International
- UK
- National (England)
- Regional (South-East)
- County (Berkshire)
- District (Wokingham)
- Local or parish (Sonning-on-Thames)
- Immediate zone of influence of the site (Site)
- Negligible

Regarding protected and notable species, an assessment of habitat suitability and potential presence of species has been undertaken given the results of the desk study and field surveys.

3 Results & Evaluation

3.1 Desk Study

3.1.1 Sites of Nature Conservation Importance

3.1.1.1 Statutory Sites

There are no statutory sites of nature conservation importance within a 1km search radius of the site and there are no statutory sites of international nature conservation importance within a 5km search radius. The site is within an Impact Risk Zone for Sites of Special Scientific Interest (SSSI) with the following descriptions:

- **Infrastructure:** Airports, helipads and other aviation proposals.
- **Minerals, Oil and Gas:** Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

- **Air Pollution:** Livestock & poultry units with a floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500 tonnes.
- **Discharge:** Any discharge of water or liquid waste of more than 20m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

Due to the nature of the proposals Natural England will **not** need to be contacted.

3.1.1.2 Non-Statutory Sites

There are four non-statutory sites of nature conservation importance within a 1km radius of the site. Ali's Pond Local Nature Reserve (LNR), Norris Copse Bird Sanctuary Berkshire Local Wildlife Site (BLWS), Sandpit Copse BLWS and Loddon Valley Gravel Pits Biodiversity Opportunity Area (BOA). Descriptions of the non-statutory sites are in Table 5 below.

Table 5. Descriptions of non-statutory sites.

Site Name	Designation	Distance from Site	Description
Loddon Valley Gravel Pits	BOA	775m north-east	This area encompasses all the gravel pits at the north end of Loddon Valley between Winnersh and Twyford and includes various areas of adjacent land with woodland and grassland habitats. The area extends northwards to include riverside land that floods regularly including land within Oxfordshire. Biodiversity noted within this BOA include standing water, wet woodland, lowland mixed deciduous woodland and fen and reedbeds.
Norris Copse Bird Sanctuary	BLWS	795m east	Norris Copse is owned by a local scout group. The northern end of Norris Copse is within the ancient woodland inventory. The open canopy is dominated by Pedunculate Oak with an understorey and ground flora mainly restricted to fenced areas away from the car park. This includes hazel and bramble along with bracken, honeysuckle and foxglove. To the south there is a distinct change in the vegetation ascribed to the more alkaline soil. This contains ash, oak plus wild privet, hawthorn and elm. The ground flora is richer with garlic mustard, common dog-violet, dog's mercury and heath speedwell amongst the species. This flora continues outside of the wood next to the lake itself. It is more scrubby on the far eastern bank. The few areas of wet woodland are mainly islands within the lake itself, dominated by crack-willow and alder. Other emergent plant species found include yellow iris and yellow loosestrife. The former gravel pit known as the Bird Sanctuary is leased out to a local fishing syndicate who specialise in carp. The opaque waters of the lake contain abundant rigid hornwort, spiked water-milfoil and Nuttall's water weed. The lake supports a variety of breeding and overwintering wildfowl including black-headed gull, great crested grebe, mute swan and little egret. In the 2023 survey, there were 19 indicator species of woodland, and 3 typical species of lowland fen recorded.
Sandpit Copse	BLWS	805m east	This site is a small area of ash and hazel woodland with alder dominating the wetter areas around the stream that flows through the site. There is a bank on the southern edge where oak and birch dominate. Although no ancient woodland the site has a number of species associated with long established woodland including an abundance of wood sorrel in the north, some bluebells, yellow pimpernel and wild service tree.

Site Name	Designation	Distance from Site	Description
Ali's Pond	LNR	830m north-west	Located in an area surrounded by large private gardens and deserts of recreation fields, this wildlife oasis and 18 species of dragonfly and over 40 species of aquatic/wetland plants have been recorded at the site since its establishment in 1997. Local BAP species which have colonised the site include great-crested newt, harvest mouse, stag beetle, song thrush, pipistrelle bat and ragged robin.

3.1.2 Species Records

The following sections provide a summary of the species data search results from the Thames Valley Environmental Records Centre (TVERC) and refers to the most pertinent species, given the nature of the habitats present within the site and the immediate locality. This summary only includes records from 2000 onwards.

3.1.2.1 Amphibians

There are three records of common frog *Rana temporaria* within the 1km search radius of the site, the most recent record is dated 2021.

TVERC holds one record of common toad *Bufo bufo* within the search radius, the most recent record is dated 2021.

The Records Centre holds 28 records of great crested newt *Triturus cristatus* within the search radius of the site, the records are dated between 2000 and 2022.

There are nine records of smooth newt *Lissotriton vulgaris* within the 1km search radius, the most recent record is dated 2008.

3.1.2.2 Reptiles

TVERC holds ten records of slow-worm *Anguis fragilis* within the search radius of the site, these records are dated between 2004 and 2022.

3.1.2.3 Bats

There are a number of bat species recorded within 1km radius of the site. The species include:

- Barbastelle *Barbastella barbastellus*
- Bat species *Chiroptera*
- Brown long-eared bat *Plecotus auritus*
- Common pipistrelle *Pipistrellus pipistrellus*
- Daubenton's bat *Myotis daubentonii*
- Leisler's bat *Nyctalus leisleri*
- Long-eared bat species *Plecotus*
- Myotis bat species *Myotis*
- Nathusius's pipistrelle *Pipistrellus nathusii*
- Natterer's bat *Myotis nattereri*
- Noctule *Nyctalus noctula*
- Pipistrelle bat species *Pipistrellus*
- Serotine *Eptesicus serotinus*
- Soprano pipistrelle *Pipistrellus pygmaeus*

These records are dated between 2002 and 2024.

3.1.2.4 Other Mammals

There are 15 records of Eurasian badger *Meles meles* within the search radius. The most recent record is dated 2024.

TVERC holds 1 record of Brown hare *Lepus europaeus* within the search radius of the site. This record is dated 2019.

The Records Centre holds six record of west European hedgehog *Erinaceus europaeus* within the 1km radius, the most recent record is dated 2023.

3.1.2.5 Birds

TVERC holds a number of records for bird species. Species relevant to the site include bullfinch *Pyrrhula pyrrhula*, dunnoek *Prunella modularis*, fieldfare *Turdus pilaris*, Fieldcrest *Regulus ignicapilla*, house martin *Delichon urbicum*, house sparrow *Passer domesticus*, lesser redpoll *Acanthis cabaret*, lesser spotted woodpecker *Dryobates minor*, marsh tit *Poecile palustris*, meadow pipit *Anthus pratensis*, mistle thrush *Turdus viscivorus*, red kite *Milvus milvus*, redwing *Turdus iliacus*, song thrush *Turdus philomelos*, whinchat *Saxicola rubetra*, yellow wagtail *Motacilla flava flavissima* and yellowhammer *Emberiza citrinella*.

The bird species records are dated between 2000 and 2023.

3.1.2.6 Invertebrates

The Records Centre holds a number of invertebrates records within the search radius of the site including beetles, butterflies, moths, dragonflies and damselflies.

3.1.2.6.1 Beetles

TVERC holds 117 records of stag beetle *Lucanus cervus* within the search radius, these records are dated between 2006 and 2023.

There is one record of tanner beetle *Prionus coriarius* within the 1km search radius of the site, this record is dated 2022.

3.1.2.6.2 Butterflies

The Records Centre holds two records of small heath *Coenonympha pamphilus* within the search radius of the site, these records are dated 2017.

3.1.2.6.3 Dragonflies & Damselflies

TVERC holds two records of common club-tail *Gomphus vulgatissimus* within the 1km search radius, these records are dated 2019.

3.1.2.6.4 Moths

The Records Centre holds a number of moth species records. Species relevant to woodland and grassland habitats include buff ermine *Spilosoma lutea*, cinnabar *Tyria jacobaeae* and green-brindled crescent *Allophyas oxyacanthae*. The moth records are dated between 2017 and 2019.

3.1.2.7 Plants

The Records Centre holds a number of plant species records from the search radius. Species include bluebell *Hyacinthoides non-scripta*, stinking hellebore *Helleborus foetidus*, wild strawberry *Fragaria vesca* and wood-sorrel *Oxalis acetosella* only. These records are dated between 2005 and 2012.

3.2 Habitats

3.2.1 Overview

The habitats within the site are modified grassland, other woodland; broadleaved, gorse scrub, developed land; sealed surface (buildings and other developed land), artificial unvegetated, unsealed surface, bare ground, hedgerows and individual trees.

Please refer to Appendix 4 for a UKHab Baseline Habitat Plan.

Table 3. UKHab habitats within the site.

Primary Code	Secondary Code	Description
u1b5	-	Urban – Developed land; sealed surface – buildings
u1b6	-	Urban – Developed land; sealed surface – other developed land
u1c	-	Urban – Artificial unvegetated, unsealed surface
g4	108	Grassland – Modified grassland (frequently mown)
h3e	-	Heathland and shrub – Gorse scrub
w1g	-	Woodland and forest – Other woodland; broadleaved
g4	510	Grassland – bare ground
h2a	-	Hedgerows – Native hedgerow
h2b	-	Hedgerows – Non-native and ornamental hedgerow
g4	200	Individual trees – Rural tree

3.2.2 On-site Habitats

3.2.2.1 Developed Land; Sealed Surface (Building)

There is a small single-storey open-sided building along the entrance to the site. This building is of wooden shiplap construction that is single layered with no loft space. To the north-eastern elevation is open as well as the western elevation. The roof is sloped and of roofing felt construction.

The external walls are solid and intact, and in a very good state of repair. The roof is tight-fitting and intact, with the roofing felt lying flush. The building is very open allowing it to be exposed to the elements and no obvious potential roost features on the exterior or interior of the building.

Given the above discussion, the building is assessed as having ‘**negligible**’ potential (Collins, 2023) to offer shelter to roosting bats within an undetected location. The building is considered to be of negligible inherent ecological value.

3.2.2.2 Developed Land; Sealed Surface (Other Developed Land)

To the south of the site is a car park of hard-standing.

Other developed land is considered to be of negligible ecological value.

3.2.2.3 Artificial Unvegetated, Unsealed Surface

To the western corner of the site is a bunker from the golf course.

Artificial unvegetated, unsealed surface is considered to be of negligible ecological value.

3.2.2.4 Modified Grassland

The majority of the site is modified grassland. The modified grassland is maintained to a very short sward as it is being used as a driving range for Sonning Golf Club. There are areas of bare ground within the grassland.

Species within the grassland include false oat grass *Arrhenatherum*, spurge spp. *Euphorbia*, dandelion *Taraxacum*, daisy *Bellis perennis*, yarrow *Achillea millefolium*, clover *Trifolium*, dead nettle *Lamium*, and cleavers *Galium aparine*.

Modified grassland is considered to be of low ecological value.

3.2.2.5 Gorse Scrub

Boarding the woodland and to the north of the site are areas of gorse scrub. These areas are dense scrub with European Gorse *Ulex europaeus* dominant. Other species noted are bramble *Rubus fruticosus* and stinging nettle *Urtica dioica*.

Gorse scrub is considered to be of low ecological value.

3.2.2.6 Other Woodland: Broadleaved

To the north-western and south-eastern boundaries are areas of other woodland; broadleaved. Tree species noted within the woodland include oak *Quercus robur*, grey poplar *Populus x canescens*, sycamore *Acer pseudoplatanus*, yew *Taxus baccata*, ash *Fraxinus excelsior*, atlas cedar *Cedrus atlantica*, cherry *Prunus avium*, Scots pine *Pinus sylvestris*, beech *Fagus sylvatica* and hazel *Corylus avellana*. The ground flora species includes bramble *Rubus fruticosus*, lords and ladies *Arum maculatum*, stinging nettle *Urtica dioica*, green alkanet *Pentaglottis sempervirens*, dead nettle, gorse, spurge, cleavers and dandelion.

The other woodland; broadleaved is considered to be of moderate ecological value.

3.2.2.7 Bare Ground

There are areas of bare ground noted within the modified grassland with notable areas to the north of the site where the gorse scrub surrounds a path of bare ground.

Bare ground is considered to be of negligible ecological value.

3.2.2.8 Native Hedgerow

Along the southern boundary of the site is a hawthorn hedgerow. Given that the hedgerow is over 20m long, less than 5m wide and comprise 80% of a woody UK native species, it is considered to meet the criteria of hedgerows of 'principal importance' as listed within Section 41 of the NERC Act 2006.

The hedgerow is considered to be of low ecological value.

3.2.2.9 Non-native and Ornamental Hedgerow

There are two non-native and ornamental hedges to the south of the site. One of these hedges is along the boundary of the car park, this non-native and ornamental hedge is a leylandii species. The other hedge is to the south-western corner of the site and is a cypress species. These hedges are not considered to meet the criteria for hedgerows of 'principal importance' as listed within Section 41 of the NERC Act 2006.

The non-native and ornamental hedgerows are considered to be of negligible ecological value.

3.2.2.10 Individual Trees

There are a number of individual trees within the site. Species include oak, Corsican pine, deodar cedar, cherry and silver birch. These trees are a variety of ages with majority being young or semi-

mature and one mature. These trees are noted to be outside of the boundaries of the other woodland; broadleaved sections.

One of the trees within the other woodland; broadleaved has a PRF that could be used by bats. This PRF needs further assessment from an aerial inspection. At this time the tree is assessed as having 'FAR' bat roost potential (Collins, 2023). Photographs of the PRF can be seen in Figures 1 and 2 below.



Figure 1. Close up photo of PRF.



Figure 2. Photo of PRF.

The trees are considered to be of ecological value at the site level and not beyond.

3.3 Species

3.3.1 Amphibians

There are no ponds or waterbodies within the site. According to MAGIC (magic.defra.gov.uk) and Ordnance Survey maps, there are no ponds or waterbodies within 500m of the site boundary.

Research (Cresswell & Whitworth 2004) indicates that whilst great crested newts can disperse over 250m from a breeding pond, the vast majority remain within 100m of a pond where there is suitable habitat, and very few individuals were found dispersing greater than 250m.

The habitats on-site consist of modified grassland, other woodland; broadleaved, gorse scrub, developed land; sealed surface, artificial unvegetated, unsealed surface, bare ground, hedgerows and individual trees. The modified grassland is maintained to a short sward and this area is highly trafficked with people and machinery. These habitats do not provide significant cover for great crested newts whilst on land and it is considered unlikely that great crested newts, or other amphibians, are dispersing specifically to the site at the site provides no suitable habitat.

Great crested newts are considered to be absent from the site.

3.3.2 Reptiles

The site is considered to be unsuitable for reptile species for the same reasons as discussed above with regard to amphibians.

The site comprises vegetated garden which does not create cover, shelter or habitat for reptile species including grass snake. There are no specific habitat features within the site, such as log piles, stone piles or garden rubbish heaps, which could offer shelter to reptiles.

Reptiles are considered to be absent from the site.

3.3.3 Bats

The building on-site is considered to be of 'negligible' potential suitability for roosting bats (Collins, 2023). One tree within the other woodland; broadleaved area is considered to be of 'FAR' potential suitability for roosting bats (Collins, 2023).

The habitats on-site, in the form of modified grassland, other woodland; broadleaved, gorse scrub, developed land; sealed surface, artificial unvegetated, unsealed surface, bare ground, hedgerows and individual trees, are not considered to be of high value to bats, as they are unlikely to support abundant or diverse invertebrate prey. It is considered unlikely that the site provides a key foraging resource for the local assemblage of bats.

3.3.4 Badgers

No badger setts were noted and no evidence of badger activity, such as foraging scrapes, dung, trackways and latrines, was observed during the survey.

3.3.5 Hedgehogs

The site is considered to offer some foraging habitat for hedgehogs, which can use modified grassland, hedgerows and other woodland; broadleaved to find invertebrate prey. There are no specific habitat features, such as log piles or brash piles, that hedgehogs may use for nesting.

3.3.6 Other Mammals

The site does not offer suitable habitat to polecat or otter. There are no streams, rivers or other waterbodies within the site to offer shelter for otter.

3.3.7 Birds

The site is considered unsuitable for ground-nesting species of bird such as lapwing. The modified grassland within the golf course is maintained to a very short sward, which has resulted in poor structure to the grass and regular disturbance.

The buildings are also not considered to be suitable for house sparrows due to the very simple nature of the structure which is unlikely to provide shelter to this species.

The individual trees, gorse scrub and other woodland; broadleaved offer potential nesting opportunities to breeding birds.

3.3.8 Invertebrates

The site does not offer any suitable habitat to small heath butterflies, small blue, wall or other grassland butterfly species. There are no suitable foodplants for hairstreak butterflies including green, brown and black hairstreaks.

The modified grassland is considered to be poor for moth species and is unlikely to support a particularly rich or diverse assemblage of moth species. The individual trees may provide some habitats for moths.

The invertebrate assemblage is likely to comprise common and widespread species that are typical of modified grassland habitats.

3.3.9 Plants

There are no rare or uncommon plant species within the site.

No non-native, invasive plant species were noted.

3.3.10 Other Species

No evidence of other protected or notable species was found during the field survey.

4 Discussion

4.1 Relevant Legislation & Policy Guidance

4.1.1 Nesting Birds

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

4.1.2 The Natural Environment & Rural Communities Act 2006

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity. It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

Within the on-site area, the following habitats or species listed within Section 41 of the NERC Act 2006 are considered to be potentially relevant:

- Hedgehog
- Hedgerow

4.1.3 National Planning Policy Framework (NPPF)

The National Planning Policy Framework was revised in response to the proposed reforms to the NPPF and other changes to the planning system consultation on 12 December 2024 and sets out the government's planning policies for England and how these are expected to be applied. This revised framework replaces the previous National Planning Policy Framework published in March 2012, revised in July 2018, updated in February 2012, revised in July 2021, updated in September 2023, and revised in December 2023.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- 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);
- 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;
- maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution

or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

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.

To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- 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.

When determining planning applications, local planning authorities should apply the following principles:

- 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;
- 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;
- 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 reasons, and a suitable compensation strategy exists; and
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements 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.

The following should be given the same protection as habitats sites:

- ❖ Potential Special Protection Areas and possible Special Areas of Conservation;
- ❖ Listed or proposed Ramsar sites; and
- ❖ Sites identified, or required, as compensatory measures for adverse effects 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.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitat's 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.

4.1.4 Environment Act 2021

On 15th October 2019, the government introduced a new Bill to Parliament, The Environment Bill. This Bill was given Royal Assent on 9 November 2021 thereby passing the Environment Act 2021. This legislation will help ensure that England maintains and improves its environmental protection.

The Act details a legal requirement for all developments to ensure that a minimum of +10% net gain in biodiversity is delivered, with certain exemptions.

5 Biodiversity Net Gain Assessment

5.1 Overview

A biodiversity net gain assessment has been undertaken using Statutory Biodiversity Metric. The full Statutory Biodiversity Metric calculation can be found in Appendix 7 (appended Excel Spreadsheet with Metric).

The calculation is based on the habitats present on site before development (please see Appendix 4 for a Baseline Habitat Plan) and the habitats after development has taken place (please see the Appendix 5 for a UKHab Proposed Habitat Plan showing the habitats after development). Appendix 6 presents the Habitat Change Plan.

5.2 Habitat Status Before Development

The site comprises modified grassland, other woodland; broadleaved, gorse scrub, developed land; sealed surface (buildings and other developed land), artificial unvegetated, unsealed surface, bare ground, hedgerows and individual trees (see Table 4).

The total on-site area is approximately 3.35 hectares.

Each of the habitats discussed within the Preliminary Ecological Appraisal (PEA) above were inputted into the Statutory Biodiversity Metric (Appendix 7). The habitat areas are given in Table 4.

Table 4. Habitats before development.

Habitat UKHab	Area (ha)
Developed land; sealed surface (buildings and other developed land) – u1b5, u1b6	0.1145
Artificial unvegetated, unsealed surface – u1c	0.0102
Modified grassland – g4 (108)	2.2951
Bare ground – g4 (510)	0.0467
Gorse scrub – h3e	0.2669
Other woodland; broadleaved – w1g	0.6177
Individual trees (rural tree) – g4 (200)	0.2443
Hedgerow UKHab	Length (km)
Native hedgerow – h2a	0.079
Non-native and ornamental hedgerow – h2b	0.131

5.2.1 Habitat Strategic Significance

The site not located within a Conservation Target Area of similar area of habitat strategic significance. The site is not located within any of the habitat or biodiversity layers on the Berkshire Local Nature Recovery Strategy Map.

All habitat types have been entered into the Metric as being of 'not in local strategy/ no local strategy'.

5.2.2 Habitat Condition Assessment

Habitats had their condition assessed according to the criteria given within the Statutory Biodiversity Metric User Guide. The on-site habitats have had their habitat condition assessments undertaken and entered into the correct section of the Statutory Biodiversity Metric spreadsheet.

The condition assessments for on-site habitats can be seen in Table 5.

Please see Appendix 8 for further justification of the condition assessments within the completed Habitat Condition Assessment Sheets.

Table 5. Baseline UKHab habitats condition assessment before development.

Habitat	Condition	Rationale
Developed land; sealed surface	N/A – Other	The condition assessment for developed land; sealed surface is fixed at ' N/A – Other '.
Artificial unvegetated, unsealed surface	N/A - Other	The condition assessment for artificial unvegetated, unsealed surface is fixed at ' N/A – Other '.
Modified grassland	Poor	The modified grassland has passed 3 assessment criteria, not including essential criterion A, resulting in a ' poor ' condition assessment.
Bare ground	Poor	The bare ground has passed 1 assessment criteria, including essential criterion C, resulting in a ' poor ' condition assessment.
Gorse scrub	Poor	The gorse scrub has passed 1 assessment criteria, resulting in a ' poor ' condition assessment.
Other woodland; broadleaved	Moderate	The other woodland; broadleaved scored 28 out of a possible 39, resulting in a ' moderate ' condition assessment.
Native hedgerow	Poor	The native hedgerow passed 3 assessment criteria, and failed 1 functional group, resulting in a ' poor ' condition assessment.
Non-native and ornamental hedgerow	Poor	No assessment required – condition fixed at ' poor '.
Rural trees	Moderate	All individual trees have passed 3 or 4 assessment criteria (small trees passed 3 criteria and medium/large trees passed 4 criteria), resulting in a ' moderate ' condition assessment.

5.3 Habitat Status After Development

The proposals are to erect 26 new dwellings and 3 new blocks of flats comprising 24 flats in total with areas of public open space and a pond.

The proposed habitat areas are presented in Table 6. Please refer to Appendix 5 which contains a UKHab habitat plan of the proposed habitats.

Table 6. UKHab habitats after development.

Habitat	Retained Area (ha)	Enhanced Area (ha)	New Area (ha)	Total Area (ha)
Modified grassland	0.3817	-	0.0478	0.429
Gorse scrub	0.2656	-	-	0.2656
Developed land; sealed surface	0.0696	-	0.8079	0.8775
Vegetated garden	-	-	0.4204	0.4204
Other woodland; broadleaved	0.6175	-	-	0.6175
Other neutral grassland	-	0.6728 (enhanced from MG)	0.0467	0.7195
Ponds (priority habitat)	-	-	0.0211	0.0211
Rural tree	0.1588	-	0.4316	0.5904
Hedgerows	Retained Length (km)	Enhanced Length (km)	New Length (km)	Total Area (km)
Native hedgerow	0.079	-	0.083	0.162
Non-native and ornamental hedgerow	0.118	-	-	0.118

5.3.1 Target Habitat Condition Assessment

Habitat condition was assessed according to the criteria given within the Statutory Biodiversity Metric User Guide and Habitat Condition Assessment Sheets (Appendix 8). The target, post-development condition assessments for habitats are set out in Table 7.

Table 7. On-site habitat target condition assessment after development.

Habitat	Target Condition	Rationale
Developed land; sealed surface	N/A – Other	The condition assessment for developed land; sealed surface is fixed at ' N/A – Other '.
Artificial unvegetated, unsealed surface	N/A – Other	The condition assessment for artificial unvegetated, unsealed surface is fixed at ' N/A – Other '.
Vegetated garden	Condition Assessment N/A	The condition assessment for vegetated garden is fixed at ' Condition Assessment N/A '.
Pond (priority habitat)	Good	The pond is targeted to pass all 9 condition assessment criteria, resulting in a ' good ' condition assessment.
Other woodland; broadleaved	Moderate	The other woodland; broadleaved will be retained, therefore retaining the ' moderate ' condition assessment.
Other neutral grassland	Moderate	The other neutral grassland is targeted to pass 4 condition assessment criteria, including essential criterion A. Resulting in a ' moderate ' condition assessment.

Habitat	Target Condition	Rationale
Modified grassland	Poor	The modified grassland will be retained, therefore retaining the ' poor ' condition assessment.
Rural trees (existing)	Moderate	The retained trees will retain their ' moderate ' condition assessment.
Rural trees (proposed)	Moderate	The proposed trees are targeted to pass 4 condition assessment criteria, resulting in a ' moderate ' condition assessment.
Native hedgerow	Poor	The retained native hedgerow will remain at a ' poor ' condition assessment. The proposed native hedgerow will be expected to pass 5 condition assessment criteria resulting in a ' moderate ' condition assessment.
Non-native and ornamental hedgerow	Poor	No assessment required – condition fixed at ' poor '.

5.4 Biodiversity Metric Calculation Summary

The result of the calculation is:

Total net unit change in habitats: +2.31 Habitat Units

Total net % change in habitats: +18.27% Habitat Units

Total net unit change in hedgerows: +0.26 Hedgerow Units

Total net % change in hedgerows: +91.64% Hedgerow Units

The Trading Rules are **satisfied**.

Please refer to Appendix 7 (separate Excel Spreadsheet) for full details of the Metric calculation.

5.5 Potential Impacts

5.5.1 Sites of Nature Conservation Importance

There are no foreseeable direct impacts on statutory or non-statutory sites of nature conservation importance. This is due to the distance of such sites from the application site, and the nature of the proposals which are unlikely to have any foreseeable impacts beyond the site boundary.

5.5.2 Habitats

The proposed development will result in the permanent and complete loss of areas of modified grassland, gorse scrub, artificial unvegetated, unsealed surface, bare ground and individual trees on-site. These habitats are assessed as being of ecological importance at the site level and therefore, habitat loss will not result in any significant ecological impacts beyond the site level. The Statutory Biodiversity Metric tool indicates a gain in biodiversity of +20.98% Habitat Units and +101.25% Hedgerow Units.

There are no foreseeable impacts on habitats of 'principal importance'.

There are no foreseeable impacts on irreplaceable habitats.

5.5.3 Species

5.5.3.1 Amphibians

There are no foreseeable direct or indirect impacts on aquatic habitats that could be used by breeding amphibians. The modified grassland habitat does not offer any shelter or protection to great crested newts or other amphibians. Therefore, the proposals are not considered to result in the loss of terrestrial habitats for great crested newts.

With an appropriate strategy in place, it is considered that inadvertent impacts on great crested newts, such as killing or injury during the construction phase, can be avoided.

Given the above, no significant impacts on great crested newts are predicted under The Conservation of Habitats and Species Regulations 2017 (as amended), and a European Protected Species (newt) licence will not be required for the proposed works to proceed. Since there are no predicted impacts on great crested newts or their habitats, it is not necessary to consider the 'three tests' of The Conservation of Habitats and Species Regulations 2017 (as amended) in this instance.

No further surveys for amphibians are recommended.

5.5.3.2 Reptiles

There are no foreseeable impacts on reptiles or habitats that may support reptiles.

5.5.3.3 Bats

There are no foreseeable impacts on roosting bats or places that bats may use for shelter and protection. The building on-site is considered to be of 'negligible' potential for roosting bats and the loss of these buildings will have no foreseeable impact on bats. The one tree with PRF is considered to be of 'FAR' potential for roosting bats. This tree will not be affected by the works.

The loss of an area of modified grassland is unlikely to have a significant impact on valued foraging or dispersal habitats.

External lighting can have an impact on bats by affecting their activity and behaviour. Certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive. Insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey 1993).

Lighting has been shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009). External lighting within the proposed development could therefore have an effect on foraging or commuting bats within the local area.

5.5.3.4 Badgers

There are no foreseeable impacts on badgers or badger setts.

5.5.3.5 Hedgehogs

The removal or clearance of vegetated habitats such as grassland and scrub pose a risk of killing and injury to individual hedgehogs, should they be sheltering within these areas at the time of works. It is recommended that clearance of these habitats is carried out in a sensitive manner to avoid any potential of inadvertent killing or injury.

Proposals are not predicted to result in a significant loss of foraging or sheltering habitat for this species, given the habitats are present within the wider local area.

5.5.3.6 Birds

There are no foreseeable impacts nesting bird species, including ground nesting species.

5.5.3.7 Other Species

The proposed development is unlikely to result in any significant impacts on other protected species, including invertebrates and rare or scarce plants.

6 Recommendations

6.1 Further Surveys

No further surveys are considered necessary.

6.1.1 Bats in Trees

One tree has a PRF and has been assessed as having 'FAR' potential for roosting bats. As this tree is not being affected by the proposed works an aerial inspection survey is **not** considered necessary at this time.

6.2 Habitats

6.2.1 Grassland Enhancement

As previously discussed, an area of modified grassland will be enhanced to 'other neutral grassland'. Over-sowing the existing grassland with an appropriate seed mix is recommended to achieve this. The existing grassland should be grazed or cut to a very short sward and then scarified. The species-rich seed mix can then be over-sown into this grassland.

In order to achieve the target of other neutral grassland, the sward will have >8 vascular plant species present per m², including at least 2 forb species, and >20% of broadleaved herb cover. In addition, and in order to ensure '**moderate**' condition, the grassland will also meet 4 of the following criteria:

- Varied sward height
- Less than 20% scrub
- Absence of non-native invasive species
- Less than 20% cover of bracken
- Less than 5% physical damage

A recommended seed mix is EM2 Standard General-Purpose Meadow Mixture, or similar. This mix contains 13 herb species, as well as 5 grass species.

6.2.2 Pond Creation

A new pond will be created to the north of the site within the public open space. The pond will provide potential habitat for aquatic invertebrates, wetland plants and amphibians. The pond will have an approximate area of 210m² and will be surrounded by other neutral grassland. The pond should remain wet at all times of the year, and the design of the pond to achieve this has been taken into account.

The pond should have shallow, convoluted edges to encourage invertebrates and aquatic plants. Please see Figure 3 below, taken from the Great Crested Newt Conservation Handbook (Langton *et al.*, 2001), showing a cross-section of a pond with convoluted edges and showing suitable aquatic and marginal plant species.

Figure 4 shows a full cross-section of a pond, upon which the new pond should be based. The deepest areas of the pond should measure at 1m (to stop the deepest areas from freezing in winter) with small bays or shallows at the pond's edges (0.3m-1m). The shallow areas will provide other small newt species and frogs within breeding sites. The shallow areas and edges should be lined with upturned turfs to provide a substrate into which the marginal plants can be planted and help to integrate the pond.

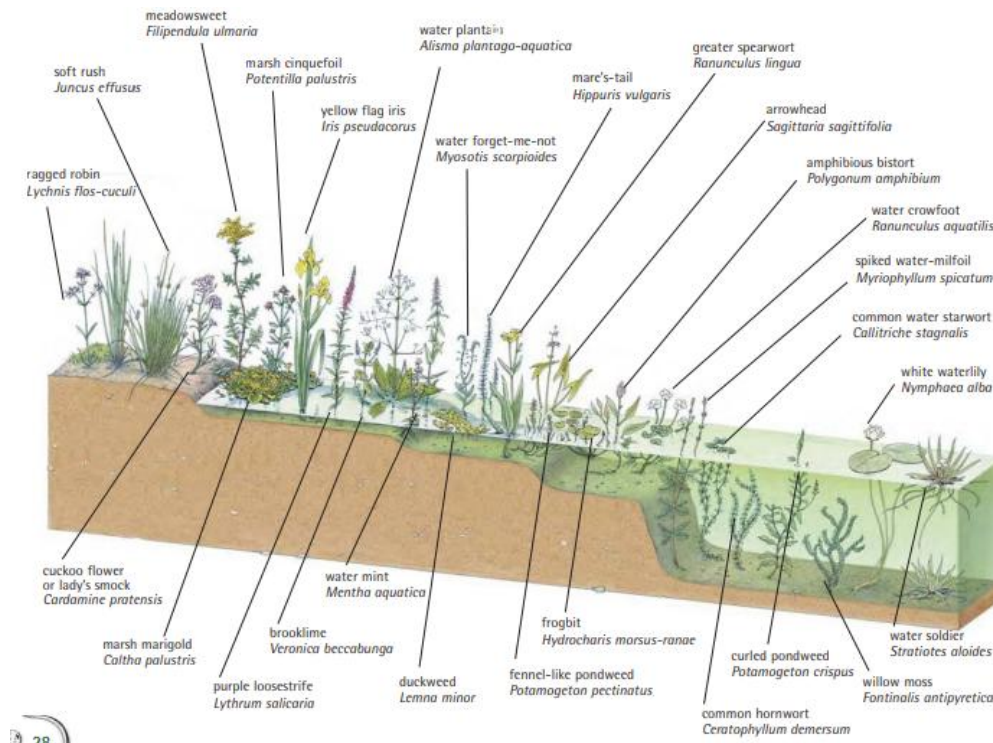


Figure 3. Diagram showing a cross-section of a pond with convoluted edges with native marginal and aquatic planting. Source: (Langton et al., 2001).

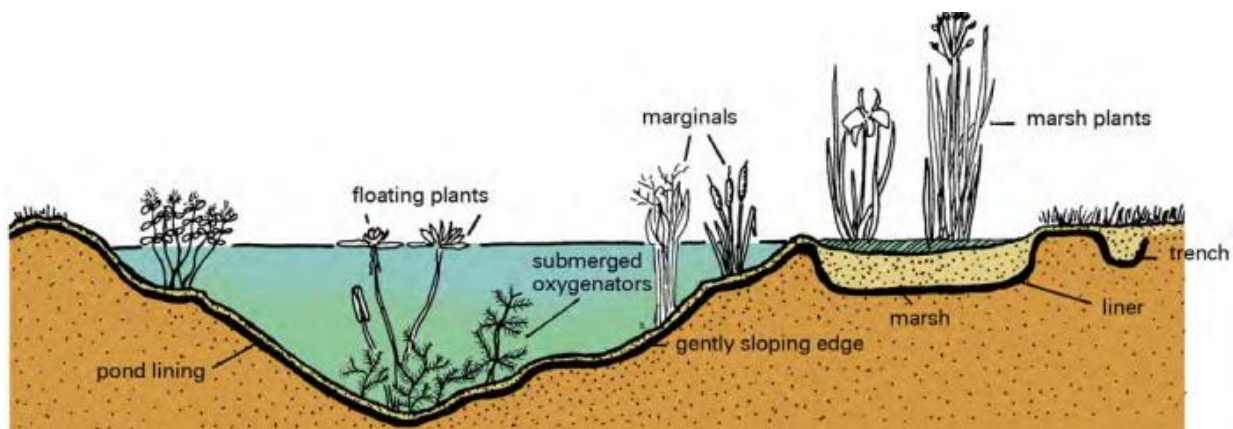


Figure 4. Diagram of a pond cross-section that is highly suitable as a wildlife pond. Source: Avon Wildlife Trust.

The upper reaches of the shallows will create a seasonal 'drawdown zone' – an area of mud and vegetation which is likely to become flooded in winter and spring and will progressively dry as water levels fall in summer.

The ever-changing drawdown zone is one of the most important areas of a pond. It is an exceptionally rich habitat for plants and invertebrates and is often used by birds and small mammals as a feeding area. The graded water levels of the pond will create varying habitats for plants as well as insects and amphibians, with the deeper areas having a greater buffer from cold air cooling and freezing the upper layers of the pond; aiding survival for those species which over winter in ponds, including some newts.

A number of suitable aquatic plant species suitable for the pond(s) are recommended in Table 8. This list includes species which are adapted to the margins and boggy edges of ponds, as well as submerged species of deeper water and emergent plants of the shallows. By adding plant

biodiversity, the pond will also become suitable habitat for a diversity of invertebrates and the emergent planting will offer nesting sites and cover for amphibians.

Table 8. Native species for pond planting.

Common Name	Botanical Name
Ragged robin	<i>Lychnis flos-cuculi</i>
Watercress	<i>Nasturtium officinale</i>
Brooklime	<i>Veronica beccabunga</i>
Yellow iris	<i>Iris pseudacorus</i>
Branched bur-reed	<i>Sparganium erectum</i>
Flowering rush	<i>Butomus umbellatus</i>
Water plantain	<i>Alisma plantago-aquatica</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Yellow loosestrife	<i>Lysimachia punctata</i>
Water mint	<i>Mentha aquatica</i>
Frogbit	<i>Hydrocharis morsus-ranae</i>
Amphibious bistort	<i>Persicaria amphibia</i>
Water forget-me-not	<i>Myosotis scorpiodes</i>
Water starwort	<i>Callitriche stagnalis</i>
Curled pondweed	<i>Potamogeton crispus</i>
Water crowfoot	<i>Ranunculus aquatilis</i>
Marsh marigold	<i>Caltha palustris</i>
Cuckoo flower	<i>Cardamine pratensis</i>
Marsh woundwort	<i>Stachys palustris</i>
Hemp agrimony	<i>Eupatorium cannabinum</i>
Gipsywort	<i>Lycopus europaeus</i>

Certain non-native aquatic plants should be strictly avoided, and they can cause serious damage to ponds and natural watercourses as they spread very quickly and easily, forming dense mats of vegetation. A reputable supplier of aquatic plants should be used, and the plants should be checked thoroughly prior to planting for any evidence of the following invasive, non-native species.

- Australian Swamp stonecrop / New Zealand pygmyweed *Crassula helmsii* / *Tillaea recurva*
- Fairy fern *Azolla filiculoides*
- Parrots feather *Myriophyllum aquaticum*
- Floating pennywort *Hydrocotyle ranunculoides*
- Himalayan balsam *Impatiens glandulifera*
- Canadian pondweed / Nuttall's pondweed *Elodea canadensis* / *Elodea nuttalli*
- Curly waterweed *Lagarosiphon major*

The pond should be lined with a butyl rubber liner. Before the liner is laid all stones will be removed from the excavation site to ensure that the liner is not punctured and a layer of pond liner underlay (geotextile material) will be used to line the excavation. Once the liner has been laid a layer of the underlay (same geotextile material) will be laid atop the liner to help to protect it from being damaged.

6.2.3 New Landscaping

It is recommended that any new landscaping on-site includes native plant species or species of known value to wildlife. A list of suitable species is presented in Appendix 9.

6.3 Species

6.3.1 Amphibians

A precautionary approach is recommended to avoid potential impacts of inadvertent killing and injury during the site preparation and construction phase. Reasonable avoidance measures should include:

- The site should continue to be maintained to a short sward until such time as the construction is ready to proceed. This will maintain the site's unsuitability for newts whilst on land. The sward should not be allowed to grow tall.
- The site will be cleared in a careful and sensitive manner with vigilance maintained for any great crested newts.
- Building materials such as bricks, stone etc. should be stored on pallets to discourage amphibians from using them as shelter.
- Any deep trenches or excavations (>50cm deep) left overnight should be covered to prevent amphibians and other species such as small mammals from becoming trapped, or ramps placed in to allow any animals to escape.
- Excavations and working areas must be managed so as not to create temporary waterbodies which may attract newts onto site.

6.3.1.1 Discovery of a Great Crested Newt

If a great crested newt is discovered on site, works will stop immediately, and a suitably qualified ecologist will be contacted for advice. If disturbance to small numbers of newts were to occur, it is unlikely to impair their ability to survive, breed, and reproduce or to rear or nurture their young or to significantly affect the local distribution or abundance of the species.

Therefore, works may be able to continue once advice has been given and the issue has been resolved. However, individual situations will have to be evaluated on a case-by-case basis and a European Protected Species Licence may be required to allow works to proceed if the impacts are considered to be significant under The Conservation of Habitats and Species Regulations 2017 (as amended).

6.3.2 Birds

If required, woody vegetation should be removed outside of the bird breeding period, avoiding March to August inclusive. This will protect active birds' nests from damage and destruction.

If vegetation clearance is required between March and August, an ecologist should be appointed to assess if there are any risks to breeding birds to ensure compliance with the legal protection afforded to nesting birds under the Wildlife and Countryside Act 1981. This may require a survey for nesting birds by the ecologist immediately prior to the vegetation clearance (usually recommended within 24 hours).

The erection of bird nesting boxes is also recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the holes found in old trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows. The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation.

On buildings, the integration of bird boxes is particularly recommended as species such as house sparrow will readily adopt such features as nest sites. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds. Potential designs include:

- Schwegler Sparrow Terrace 1SP
- Schwegler Avianex 1MR Bird Box (for common species)

- No. 16 Schwegler Swift Next Box

6.3.3 Bats

6.3.3.1 External Lighting

It is recommended that external lighting is designed to minimise lighting and to limit light spillage beyond where lighting is needed for safety and access.

In particular, light spillage around any new bat roosting features and onto the trees should be avoided, so that a dark corridor is created around the peripheries of the site in order to facilitate the movement of bats, as well as other nocturnal wildlife.

If lighting is required, it is recommended that best practice guidelines are followed with regard to design; Institution of Lighting Professionals (ILP) Guidance Note GN08/23.

6.3.3.2 Bat Boxes

It is recommended that bat boxes are erected, or integrated, into the buildings of the proposed development, to provide an enhancement for bat species. South-facing facades should be favoured, and possible designs include:

- Schwegler 1FR Bat Tube
- Vivara Pro Build-in Woodstone Bat Tube
- Unitura Modular Bat Tubes

6.3.4 Hedgehogs

If a hedgehog is discovered during works, it should be either allowed to move to a safe area under its own power or be moved by hand to a relatively nearby, safe location, such as an adjacent garden. Hedgehogs should be moved no further than 200m from where they are found as they may have dependant young that rely on their return for survival.

When handling hedgehogs, gloves should be worn to protect the handler from their spines, infection and parasites.

In the unlikely event that an occupied hedgehog nest is disturbed, or a baby hedgehog is encountered (eyes shut) all works should stop in the vicinity and advice be sought from an appropriate wildlife hospital (such as Tiggywinkles) or animal charity (such as the RSPCA). If the nest has been exposed or destroyed then the entire nest should be covered over, for example with a bucket. Baby hedgehogs should not be handled with bare hands as this can result in abandonment by their mother.

As a precautionary measure, all excavations over 50cm deep will be covered at night, to prevent pitfall hazards to hedgehogs. All excavations under 50cm in depth will be provided with a wooden ramp, to allow hedgehogs to exit.

It is recommended that any garden fences (that could act as a barrier to hedgehog movement) are made permeable for hedgehogs. This can be achieved by cutting or leaving a 13cm-by13cm hole within the fence or wall; this is sufficient for any hedgehog to pass through and is too small for nearly all pets (see Figure 1). In order to allow free access to the new garden, at least one suitable hole should be provided within each row of fence panelling.



Figure 1. An example of a hole cut within a fence, creating a 'hedgehog highway'. Source: <https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden>

6.3.5 Other Species

Enhancement measures for other species could include bee bricks, integrated into external walls, and log piles to provide habitat for fungi and invertebrates.

7 References

Altringham, J., 2003. *British Bats*. Harper Collins.

Bat Conservation Trust, 2018. *Guidance Note 08/18. Bats and artificial lighting in the UK. Bats and the Built Environment series*. Bat Conservation Trust.

Battersby, J. (Ed) & Tracking Mammals Partnership, 2005. *UK Mammals: Species Status and Population Trends. First Report by the Tracking Mammals Partnership*. JNCC/Tracking Mammals Partnership, Peterborough.

CIEEM. 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM, IEMA & CIRIA, 2019. *Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide*.

Collins, J. 2023. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

Cresswell, W. & Whitworth, R., 2004. *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus**. English Nature.

Emery, M. 2008. *The effect of street lighting on bats*. Urbis Lighting Ltd.

English Nature 2001. *Great Crested Newt Mitigation Guidelines*. English Nature.

Gent, T. & Gibson S., 2003. *Herpetofauna Workers Manual*. JNCC

JNCC, 20010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 1993; reprinted in 2003 with limited revisions & additions; reprinted in 2004; reprinted in 2007 with minor additions; reprinted in 2010.

Mitchell-Jones, A., 2004. *Bat Mitigation Guidelines*. English Nature.

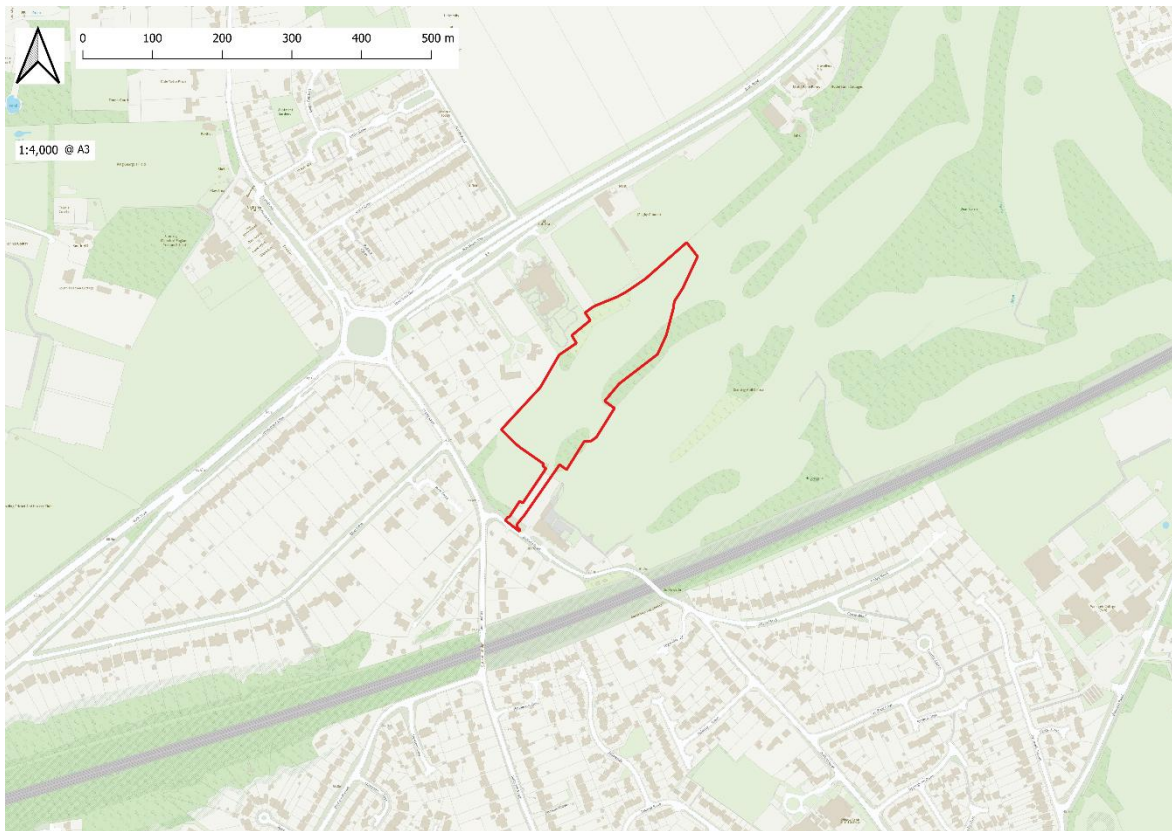
Rydell J. & Racey, P. A. 1995. *Streetlamps and the feeding ecology of insectivorous bats*. Recent Advances in Bat Biology Zool. Soc. Lond. Symposium abstracts

UKHab Ltd., 2030. *UK Habitat Classification User Manual Version 2.0* at <http://www.ukhab.org/>

8 Appendix 1. Site Location Plans



Aerial photograph showing the approximate extent of the site, outlined in red. Source: Google Satellite.



Ordnance Survey map showing the location of the site within the local area, outlined in red. Source: Outdoor_27700.

9 Appendix 2. Photographs



Photograph 1. Overview of the site looking north-east.



Photograph 2. Native hedgerow along south-western boundary.



Photograph 3. Non-native and ornamental hedgerow to the north-western boundary.



Photograph 4. Artificial unvegetated, unsealed surface.



Photograph 5. Area of other woodland; broadleaved.



Photograph 6. Area of gorse scrub.



Photograph 7. Other woodland; broadleaved.



Photograph 8. Other woodland; broadleaved.



Photograph 9. Gorse scrub.



Photograph 10. Bare ground.



Photograph 11. Other woodland; broadleaved.



Photograph 12. Bare ground track.



Photograph 13. Other woodland; broadleaved.



Photograph 14. Modified grassland.



Photograph 15. Car park and non-native and ornamental hedge.



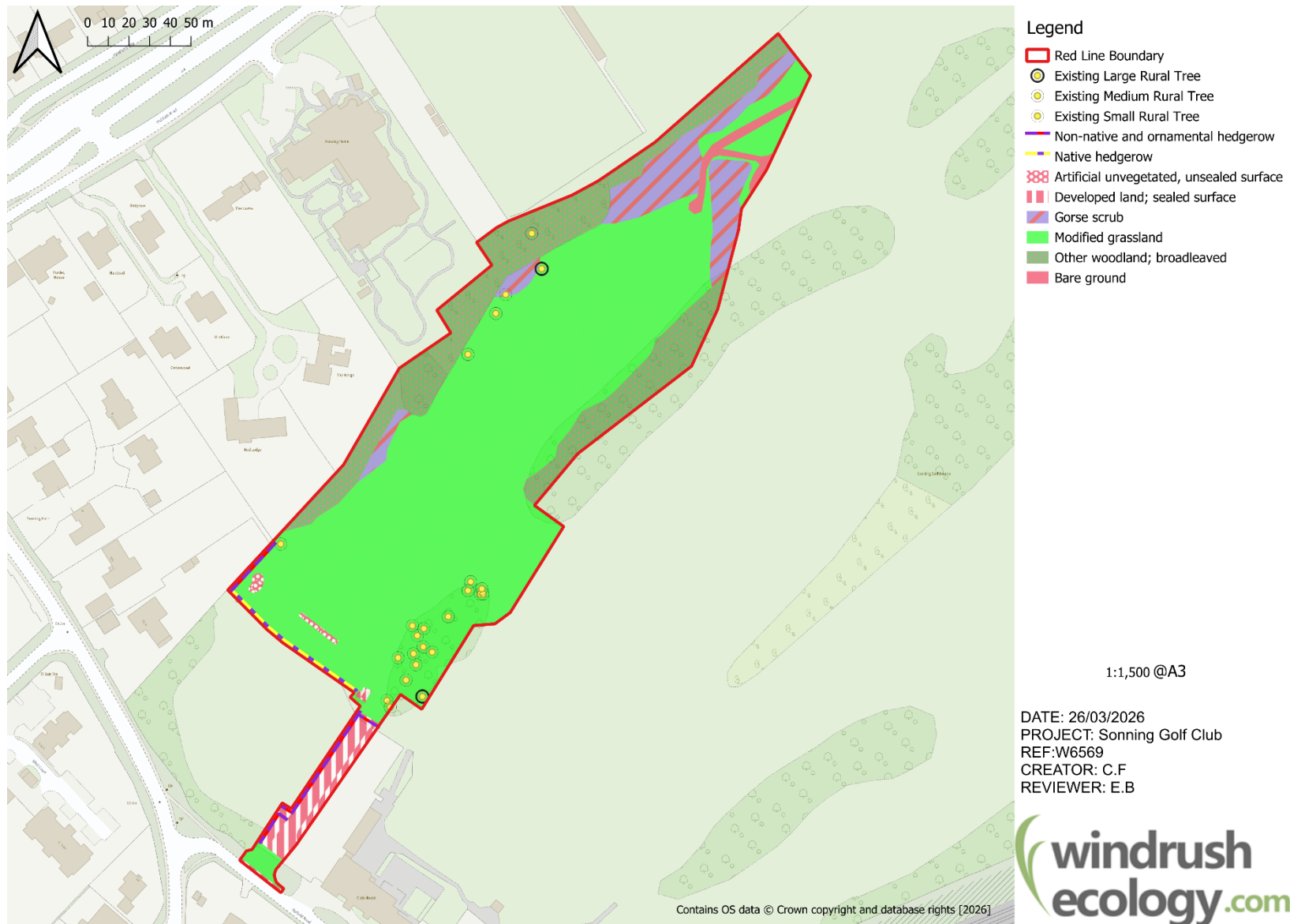
Photograph 16. Car park and non-native and ornamental hedge.

10 Appendix 3. Proposal Plan

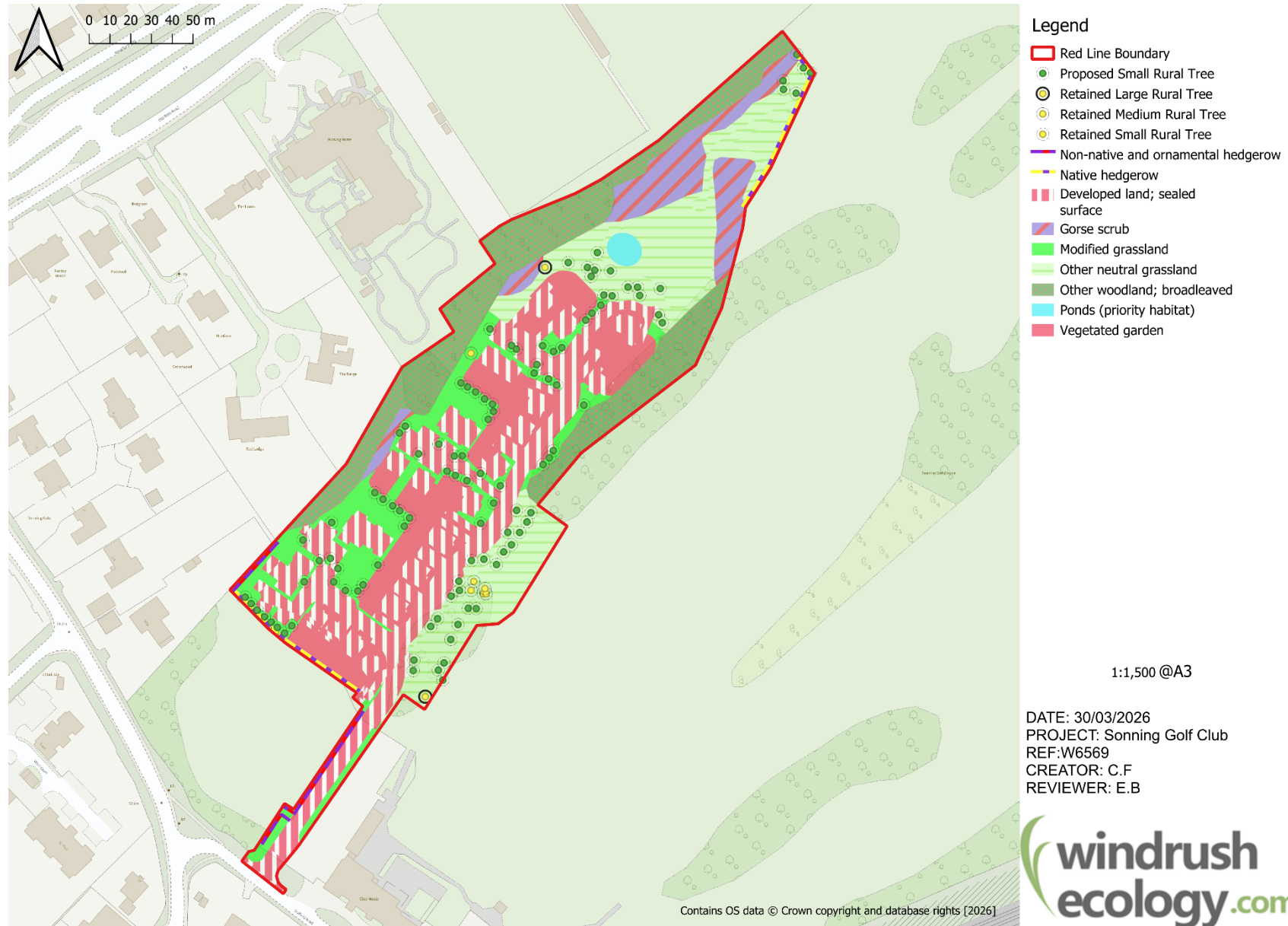




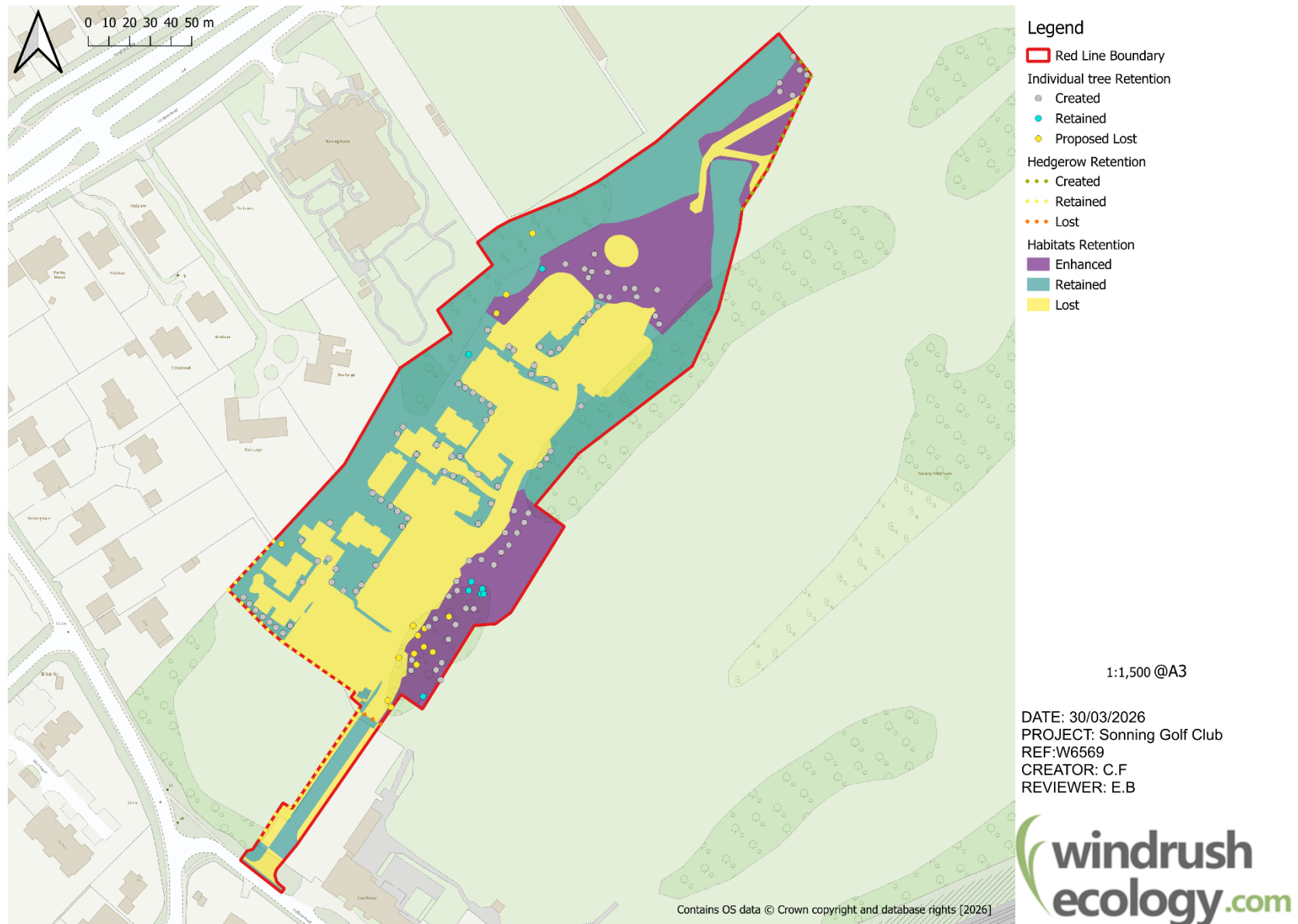
11 Appendix 4. UKHab Baseline Habitat Plans



12 Appendix 5. UKHab Post-Development Plans



13 Appendix 6. Habitat Change Plans



14 Appendix 7. Statutory Biodiversity Metric

Please refer to separate Excel spreadsheet.

15 Appendix 8. Condition Assessment Sheets

Please refer to separate Excel spreadsheet.

16 Appendix 9. Species for 'Wildlife' Landscape/Garden Planting

Common Name	Botanical Name
Trees	
Field maple*	<i>Acer campestre</i>
Beech*	<i>Fagus sylvatica</i>
Hornbeam*	<i>Carpinus betulus</i>
Willow*	<i>Salix sp.</i>
Silver birch*	<i>Betula pendula</i>
Downy birch*	<i>Betula alba</i>
Rowan*	<i>Sorbus aucuparia</i>
Whitebeam*	<i>Sorbus aria</i>
Wild cherry*	<i>Prunus avium</i>
Flowering cherry	<i>Prunus sp.</i>
Flowering pear	<i>Pyrus calleryana</i>
Crab apple*	<i>Malus sylvestris</i>
Fruiting apple	<i>Malus sp.</i>
English oak*	<i>Quercus robur</i>
Sessile oak*	<i>Quercus petraea</i>
Aspen*	<i>Populus tremula</i>
Maple	<i>Acer sp.</i>
Poplars*	<i>Populus sp.</i>
Elm*	<i>Ulmus sp.</i>
Shrubs	
Holly*	<i>Ilex aquifolium</i>
Hazel*	<i>Corylus avellana</i>
Wayfaring tree*	<i>Viburnum lantana</i>
Wild service tree*	<i>Sorbus torminalis</i>
Guelder rose*	<i>Viburnum opulus</i>
Hawthorn*	<i>Crataegus monogyna</i>
Hebe	<i>Hebe sp.</i>
Rosemary	<i>Rosmarinus</i>
Ceanothus	<i>Ceanothus sp.</i>
Weigela	<i>Weigela sp.</i>
Dogwood*	<i>Cornus sanguinea/alba</i>
Rose (single flowered varieties)	<i>Rosa sp.</i>
Lilac	<i>Syringa vulgaris</i>
Escallonia	<i>Escallonia sp.</i>
Lavender	<i>Lavandula sp.</i>
Flowering currant	<i>Ribes sp.</i>
Honeysuckle*	<i>Lonicera periclymenum</i>
Mexican orange blossom	<i>Choisya sp.</i>
Spiraea	<i>Spiraea sp.</i>
Amelanchier	<i>Amelanchier lamarckii</i>
Cotoneaster	<i>Cotoneaster sp.</i>
Yew*	<i>Taxus baccata</i>
Broom	<i>Cytisus sp.</i>
Rose of Sharon	<i>Hypericum calycinum</i>
Butterfly bush	<i>Buddleia davidii</i>
Perennials	

Common Name	Botanical Name
Primrose*	<i>Primula veris</i>
Elephant's ears	<i>Bergenia cordifolia</i>
Sage	<i>Salvia sp.</i>
Lamb's ears	<i>Stachys byzantia</i>
Periwinkle*	<i>Vinca major & Vinca minor</i>
Ivy*	<i>Hedera helix</i>
Bugle*	<i>Ajuga reptans</i>
Lady's mantle	<i>Alchemilla mollis</i>
Geraniums	<i>Geranium sp.</i>
Globe thistle	<i>Echinops ritro</i>
Monk's hood	<i>Aconitum sp.</i>
Yarrow*	<i>Achillea millefolium</i>
Teasel*	<i>Dipsacus fullonum</i>
Oriental poppy	<i>Papaver orientalis</i>
Michaelmas daisy	<i>Aster sp.</i>
Bear's breeches	<i>Acanthus spinosus</i>
Montbretia	<i>Crocasmia sp.</i>
Purple coneflower	<i>Echinacea purpurea</i>
Catmint	<i>Nepeta sp.</i>
Verbena	<i>Verbena sp., Verbena bonariensis, Verbena rigida</i>
Marjoram	<i>Origanum majorana</i>
Thyme	<i>Thymus sp.</i>
Betony*	<i>Stachys officinalis</i>
Yellow archangel*	<i>Galeobdolon inteum</i>
Scabious*	<i>Knautia sp.</i>
Greater knapweed*	<i>Centaurea scabiosa</i>
Red campion*	<i>Silene dioica</i>
White campion*	<i>Silene alba</i>
Purple loosestrife*	<i>Lythrum salicaria</i>
Yellow loosestrife*	<i>Lysimachia punctata</i>
Cowslip*	<i>Primula vulgaris</i>
Teasel*	<i>Dipsacus fullonum</i>
Heliotrope	<i>Heliotropium arborescens</i>
Honesty	<i>Lunaria annua</i>
Iceplant	<i>Sedum spectabile</i>
White jasmine	<i>Jasminum officinale</i>
Soapwort*	<i>Saponaria officinalis</i>
Sweet rocket	<i>Hesperis matronalis</i>
Nottingham catchfly*	<i>Silene nutans</i>
Night-scented stock	<i>Matthiola bicornis</i>
Bulbs	
Daffodil	<i>Narcissus sp.</i>
Crocus	<i>Crocus sp.</i>
Winter aconite	<i>Eranthis sp.</i>
Snowdrop	<i>Galanthus sp.</i>
Tulip	<i>Tulipa sp.</i>
Ornamental onion	<i>Allium sp.</i>
*indicates native species	