

Shinfield Southern Allotments

Ecological Impact Assessment

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Shinfield Southern Allotments

Ecological Impact Assessment

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Client: University of Reading

Main Author(s): Liam Mayle BSc (Hons) MSc

Contributors/Surveyors: Katie Cammack BSc (Hons) MSc MCIEEM
Hannah Corrigan BSc (Hons) PGCert
Phillip Brown BSc (Hons), MSc (R), MCIEEM
Siobhan Pryke BSc (Hons)
Craig Sellwood LLB (Hons), LPC, ACIEEM
Katharine Luckhurst BSc (Hons) MSc
Matthew Robinson BSc (Hons) MSc
Mike Wall BSc (Hons) MSc ACIEEM

Report Prepared for Issue by: 
Liam Mayle BSc (Hons) MSc

Report Approved for Issue by: 
Alison Hogan BSc (Hons) MSc MCIEEM



Ecological Planning & Research Ltd

The Barn, Micheldever Station, Winchester, Hampshire SO21 3AR

t. 01962 794720 e. info@epr.uk.com w. www.epr.uk.com

Company registration number: 8592380

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Ecological Impact Assessment

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Shinfield Southern Allotments

Ecological Impact Assessment

1. INTRODUCTION

Brief

- 1.1 Ecological Planning & Research Limited (EPR) was commissioned by University of Reading to carry out an Ecological Impact Assessment of proposals for allotments, hereafter referred to as “the Proposals”, in Shinfield, to the west of High Copse, hereafter referred to as “the Site”.

Site Location and Context

- 1.2 The Site consists of 0.53ha of abandoned arable land on the outskirts of Reading (SU729670), south of the village of Shinfield and east of Spencers Wood. The B3349 lies approximately 120m east of the Site boundary. Early plans also included 0.51ha of grassland and scrub immediately east of the current Site boundary, and the ecological surveys covered both the Site and this area, although this area is now not included in the planning application boundary
- 1.3 The Site lies to the west and south of the remaining sections of High Copse, a Provisional Ancient Woodland site. Historic maps show that these sections were once connected, encompassing the entirety of the Site, but the land within the site and immediately north was cleared in the late 19th-early 20th century to use as arable land.
- 1.4 The Site falls within the Thames Basin Heaths Natural England National Character Area (NCA). This area is characterised by numerous watercourses which form part of the Thames River system, plateaus and flood plains that support a wide range of habitats, and woodlands that account for approximately one quarter of the NCA. It is predominately urban with densely settled areas.
- 1.5 The Site falls just outside of the River Loddon floodplain. The underlying geology is London Clay formation with superficial deposits of sand and gravel.

Outline of the Proposed Development

- 1.6 The Site forms part of an area which received outline planning permission on 8th November 2012 (reference O/2010/1432) for the development of up to 1200 residential dwellings and 150 units of specialist housing, as well as a local centre, and a new primary school and landscaping located at Shinfield West, within the ‘South of the M4’ Strategic Development Location. The current Proposals are for the creation of allotments associated with this development, and include the following:
- Fifteen 4 pole plots;
 - Two onsite car parking spaces and drop off point; and
 - A compost area

1.7 The following plans produced by other technical consultants, submitted for approval with the Application, were used to inform this Impact Assessment;

- 333101011-RG-LD-94A Shinfield Allotment Redesign GA December 2024 (**Annex 1**)

Relevant Legislation, Policy and Guidance

1.8 The following articles of nature conservation legislation and planning policy are of relevance to the Proposals, and have been considered as part of this PEA:

- The Environment Act 2021;
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way (CROW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Protection of Badgers Act 1992;
- The National Planning Policy Framework (NPPF) (2023);
- Wokingham Borough Core Strategy (adopted June 2010); and
- Wokingham Borough Council, Managing Development Delivery Local Plan (adopted 21 February 2014).

1.9 In addition to the above, biodiversity objectives detailed in the following documents have been considered:

- The Government's Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services (DEFRA 2011);
- 25 Year Environment Plan (DEFRA 2018);
- Environmental Improvement Plan (DEFRA 2023);
- Wokingham Borough Council Biodiversity Action Plan 2012-2014; and
- Royal Borough of Windsor and Maidenhead (2025) Berkshire Local Nature Recovery Strategy (Draft).

1.10 Further information on the above is provided in **Annex 2**.

2. ASSESSMENT METHODOLOGY

Introduction

- 2.1 The approach to Ecological Impact Assessment (EclA) taken in this report accords with guidance presented in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3 (CIEEM, 2018, updated September 2024).
- 2.2 In summary, EPR takes the following step-wise approach to EclA:
- Prediction of the activities associated with a proposed scheme that are likely to generate biophysical changes which may lead to significant effects (either positive or negative) upon Important Ecological Features (IEFs);
 - Identification of the likely Zone of Influence (Zol) of those activities;
 - Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted Zols and be affected by the activities;
 - Evaluation of IEFs likely to be affected – both negatively and positively;
 - Identification of likely impacts (positive and negative) on IEFs, together with an assessment of the geographic level at which effects are likely to be significant;
 - Application of the mitigation hierarchy - refinement of the proposed scheme to incorporate impact avoidance and/or mitigation measures for negative effects on IEFs, and enhancements in order to deliver net gains;
 - Assessment of the significance of residual effects and identification of any policy drivers for additional mitigation or compensation in the event of residual significant negative effects; and
 - Advice on conformance with policy and legislation.
- 2.3 Further information regarding the methods for ecological evaluation and impact assessment are provided in **Annex 3**.

Likely Biophysical Changes and Zone of Influence

- 2.4 The activities associated with the Proposed Development which are likely to lead to biophysical changes, and could accordingly give rise to ecological impacts, are set out in **Table 2.1** below, which is drawn from Box 9 of the EclA Guidelines (CIEEM, 2018).
- 2.5 The Zone of Influence (Zol) of a proposed development is defined by the EclA Guidelines as “... the area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities”.
- 2.6 In this case, the Zol of the Proposed Development will encompass different areas, and thus potentially impact upon different ecological receptors, depending upon the spatial extent of the relevant biophysical change (e.g. light, noise, habitat loss, recreational disturbance). The Zol(s) relevant to this assessment are summarised in **Table 2.1** below.

Table 2.1: Activities and Biophysical Changes associated with the Proposed Development which may give rise to ecological impacts, and associated Zone(s) of Influence.

Activity	Potential Impact	Zone of Influence
<i>Site Clearance and Construction Phase</i>		
Access and travel on / off site, including temporary access routes for construction vehicles and vessels	Noise / visual / lighting disturbance of vulnerable species	Site and immediate Surrounds
Assembly and storage areas for machines and materials; construction compounds and components of construction	Loss and fragmentation of habitats Noise / visual / lighting disturbance to vulnerable species	Site and immediate surrounds
Vegetation clearance, ground works	Loss and fragmentation of habitats Damage to vulnerable habitats Direct harm to vulnerable species Noise / visual /vibration/ lighting disturbance to vulnerable species Change to surface and ground water flows Dust generation	Site and immediate surrounds
increased lighting levels during works	Disturbance to vulnerable species	Site and immediate surroundings
movement of materials to/from or within a site	Loss and fragmentation of habitats Damage to vulnerable habitats Direct harm to vulnerable species Potential spread Invasive Non-Native Species (INNS) Noise / visual /vibration/ lighting disturbance to vulnerable species	Site and immediate surrounds, donor/receptor site and routes between them.
environmental incidents and accidents e.g. spillages, noise and emissions	Contamination of soils/waterbodies Direct harm to habitats and species	Loddon catchment
<i>Operational Phase</i>		
Access and travel on / off site	Noise / visual / lighting disturbance to vulnerable species Air pollution from vehicle emissions	Site and immediate surrounds
Physical presence of structures e.g. a new road	Habitat fragmentation Noise / visual / lighting	Site and immediate surrounds

Activity	Potential Impact	Zone of Influence
	disturbance to vulnerable species	
Runoff containing contaminants or sediments	Changes to water quality of drainage ditches and other waterbodies	Loddon catchment
Ongoing habitat management	Loss, creation and enhancement of habitats	Site and immediate surrounds
Dumping of allotment waste	Degradation and pollution of vulnerable habitats through urban effects (such as fly tipping, introduction of non-native species, arson);	Immediate surroundings
Escape of non-native plants		

3. ECOLOGICAL BASELINE

Overview

- 3.1 The ecological baseline has been compiled following the programme of surveys set out in **Table 3.1** below. Further information regarding the survey work carried out, including methodologies, metadata and results is provided in **Annexes 4, 5 and 6**.

Table 3.1: Overview of ecological survey programme.

Survey Type	Month	Year
Data search from the local Biological Records Centre	March	2024
Ecological appraisal	April	2024
Ground Level Tree Assessment for bats	April	2024
Potential Roost Feature (PRF) inspection survey	April	2024
UKHab classification survey	April	2024
Habitat condition assessment (to inform Biodiversity Net Gain (BNC) metric calculation)	April	2024
eDNA survey for Great Crested Newt <i>Triturus cristatus</i> (GCN)	May	2024
Reptile surveys	May - June	2024
Bat activity transect surveys	May, July, September	2024
Automated bat detector surveys	April - October	2024

Ecological Appraisal

- 3.2 The Preliminary Ecological Appraisal (PEA) was the starting point for determining the ecological features potentially needing to be considered within an EclA. This PEA drew upon information collected through both an extensive desktop study, and a field visit carried out by Liam Mayle and Katie Cammack of EPR on 15/03/24. Full methodology is described in **Annex 4**.
- 3.3 The Site consists of a single grassland field, with areas of scattered Bramble *Rubus fruticosus* scrub and escaped non-native ornamental plants. A degraded hedgerow with mature trees runs along the southern boundary. A log pile in the west of the Site provides habitat for a range of species groups.
- 3.4 A cluster of mature trees lie immediately west of the Site boundary, while High Copse, an area of ancient woodland, lies approximately 70m to the east. Both are considered to be within the Zone of Influence.
- 3.5 The ecological appraisal work enabled several species groups to be scoped out of the EclA.

Birds

- 3.6 The desktop study returned records of a number of bird species of conservation concern which potentially could be using the Site. The vegetation on Site provides suitable nesting and foraging opportunities, particularly associated with the trees and hedgerows. Given the size of the site and the habitats available the proposals are unlikely to have a significant effect on the

conservation status of these species, therefore birds are not considered further in this Impact Assessment.

Badger

- 3.7 The data search returned records of Eurasian Badger *Meles meles* within 1km of the site. No setts or other definitive field signs for Badger were identified during the site visit, though there are numerous mammal paths crossing the site. It is not possible to ascertain the species of origin for these paths; however, given their overall size they are likely to have been made by Fox *Vulpes vulpes*, and were deemed too thin to have been made by Badger.
- 3.8 Badger are common and widespread with a conservation status of favourable and stable, and as such are not a species of conservation concern. Badger, if using the Site, are therefore considered to be of Zone of Influence importance only and are not considered further in this Impact Assessment

Dormouse

- 3.9 The data search returned a single record of Hazel Dormouse *Muscardinus avellanarius* within 2km of the site to the west of the village of Spencers Wood. The village constitutes a significant barrier to movement for dormouse, and so, although the site does contain and connect to suitable habitat, it is unlikely that Dormouse are using the site. Dormouse are therefore not considered further in this Impact Assessment

Otter/Water Vole

- 3.10 The data search returned a single record of Otter *Lutra lutra* roadkill within 2km of the site from 2014, on the A33. No records of Water Vole *Arvicola amphibius* were returned in the vicinity of the site. The site itself does not contain suitable habitat to support either species, and so they are not considered further in this Impact Assessment

Designated Sites

- 3.11 **Maps 1a and 1b in Annex 4** show the location of sites designated for nature conservation up to 5km from the Site. These are described briefly below.

Internationally Designated Sites

- 3.12 Thames Basin Heaths Special Protection Area (SPA) lies to 4.23km to the south of the Site. The Thames Basin Heaths is a network of lowland heathland sites, designated as an SPA in March 2005 for its Internationally important populations of three heathland bird: Dartford Warbler *Sylvia undata*, Woodlark *Lullula arborea* and Nightjar *Caprimulgus europaeus*.
- 3.13 The SPA designation was originally created by the Birds Directive and later drawn into the "Natura 2000" network of protected areas by European Directive 92/43/EEC (the 'Habitats Directive'). The Habitats Directive was originally transposed into UK law by the Conservation of Habitats and Species Regulations 2017 (as amended); also referred to as the 'Habitats Regulations'. Minor amendments were introduced to the Habitats Regulations through the Conservation of Habitats and Species Amendments (EU Exit) Regulations 2019, which came into force on 31st December 2020.

- 3.14 Designated under European legislation, the Thames Basin Heaths SPA is of International Importance.

Nationally Designated Sites

- 3.1 The northern tip of Stanford End Mill and River Loddon Site of Special Scientific Interest (SSSI) lies within 2km of the Site to the south. The SSSI comprises a stretch of the River Loddon and adjacent hay meadows between the villages of Standford End and Swallowfield.
- 3.2 Pearman's Copse LNR lies 2.24km to the north of the Site. It is approximately 2ha of deciduous ancient woodland managed by Countryside Service.
- 3.3 Swallowfield Meadow Local Nature Reserve (LNR) lies 2.32km to the south of the Site. As well as the meadows themselves, there is a small copse, four seasonal ponds and a series of ditches and native hedgerows. It is managed by Swallowfield Parish Council volunteers.
- 3.4 The Marshes LNR lies 3.58km South of the Site. It is a mix of woodland and marshland and is managed by Swallowfield Parish council and volunteers.
- 3.5 Bramshill SSSI lies to 4.23km to the south of the Site and forms part of the Thames Basin Heaths Special Protection Area (SPA) for the conservation of wild birds.
- 3.6 Maiden Eriegh Park LNR lies 4.40km north of the Site.

Local Wildlife Sites

- 3.7 Clare's Green Road Grasslands LWS lies within 1km of the Site to the west. Formerly used for grazing, it consists of 2 fields of open grassland bordered by species rich hedgerows and trees. It is managed by Countryside Service.
- 3.8 Hall Farm Woodland Triangle LWS lies 1.67km to the northeast of the Site. It is a small area of deciduous woodland surrounded by arable land and hedgerows.
- 3.9 Arborfield Bridge Meadow LWS lies 1.67km from the Site to the northeast. It is a small woodland pasture adjacent to the River Loddon.
- 3.10 Woods between Whitehouse and Highlands Local Wildlife Site (LWS) lies 1.92km to the west of the Site. It consists of deciduous woodland bordered by arable land.
- 3.11 Shinfield Park Nore's Hill LWS and the Grove LWS lie approximately 2km from the Site to the north. They are connected areas of ancient woodland with a small meadow. They are both located next to the Shinfield Park development.
- 3.12 None of the statutory or non-statutory sites fall will be impacted by the Proposals due to their distance from and lack of connectivity to the site, and are not considered further in this Impact Assessment.

Provisional Ancient Woodland

- 3.13 Moor Copse LWS lies within 1km of the site to the east.

- 3.14 Great Wood LWS lies approximately 1km to the southeast of the Site.
- 3.15 Rounds Copse LWS lies 1.16km to the east of the site and is owned and managed by Reading Borough Council.
- 3.16 Farley Woods, Great Copse and New Plantation LWS lie approximately 2km to the southeast of the Site.
- 3.17 **Map 1b in Annex 4** shows additional unnamed pockets of provisional ancient woodland. None of these pockets nor those mentioned above, with the exception of High Copse (see below), fall within the Zol for the Site due to their distance and lack of connectivity to the site and are not considered further in this Impact Assessment.
- 3.18 High Copse consists of two sections of ancient woodland to the north and immediately east of the Site. The eastern portion, 70m from the Site boundary, falls within the Zol. It is of Local Importance and its conservation status is favourable and stable.

Habitats and Vegetation

- 3.19 Habitats and Vegetation, as well as Target Notes detailing points of interest, are detailed in **Map 2 in Annex 4**.

Neutral Grassland

- 3.20 The majority of the Site is comprised of a mosaic of grassland and scattered Bramble scrub on clay soils. Species identified include Red Fescue Grass *Festuca rubra*, Cleavers *Galium aparine*, Nettle *Urtica dioica*, Common Hogweed *Heracleum sphondylium*, Cow Parsley *Anthriscus sylvestris* and Spear Thistle *Cirsium vulgare*. The species assemblage is indicative of high nutrient levels and soil disturbance, particularly the high abundance of nettle.
- 3.21 A log pile in the northwest corner of the Site provides cover, foraging and basking opportunities for a range of species including amphibians, reptiles and invertebrates. The presence of cultivated Daffodil *Narcissus sp.*, Primrose *Primula vulgaris*, Comfrey *Symphytum officinale* and Buddleia *Buddleja davidii* indicate historic fly tipping or dumping of garden waste
- 3.22 The Neutral Grassland is of Zone of Influence importance with a conservation status of unfavourable and stable.

Hedgerow

- 3.23 A Blackthorn *Prunus spinosa* hedge runs the length of the southern Site boundary. contained within this hedge are a single Ash *Fraxinus excelsior* and Oak *Quercus robur*. The Oak tree has a large tear-out on its northern side that may be suitable for roosting bats. The hedgerow itself is a linear feature that may be used for navigation by commuting and foraging bats. This hedgerow will be retained in the current site plan. The hedgerow is of Zone of Influence Importance, and its conservation status is unfavourable and stable.

Dense scrub

- 3.24 Around the southeastern corner of the site lies an area of Bramble scrub. Protruding outward from the hedge at the southern border is an area of mixed scrub dominated by Blackthorn, with Hawthorn *Crataegus monogyna* and Bramble interspersed throughout.
- 3.25 These areas of scrub provide cover for a range of species as well as nesting opportunities for birds. The scrub is of Zone of Influence Importance, and its conservation status is unfavourable and stable.

Fauna

Bats

- 3.26 A review of past survey data for land adjacent to the Site, and the data search from the local records centre revealed that the area within 2km of the site is used by at least seven species of bat.
- 3.27 The Zol contains suitable habitat for foraging and commuting bats in the form of on-site grassland, trees and hedgerows, the latter of which are connected to High Copse. Three Preliminary Roost Features (PRFs) were also identified in trees within the Zol, and a Brown Long-Eared bat maternity roost structure built as compensation for the Shinfield West development lies approximately 70m north of the Site.
- 3.28 The onsite PRFs were both assessed as PRF-I, meaning they are suitable only for individuals or small numbers of bats. Bats were not found to be roosting in either of the PRFs, and the data indicates limited use of the offsite compensation structure at the current time. However, at least nine species were found to be using the Site for foraging and commuting. Of those species recorded, at least four (Barbastelle *Barbastellus barbastella*, Brown Long-Eared *Plecotus auritus*, Noctule *Nyctalus noctula* and Soprano Pipistrelle *Pipistrellus pygmaeus*) are considered Priority Species and Species of Principal Importance in the UK (although the legal protection relevant to all bat species above should also be borne in mind). Full survey methodology and results are discussed in **Annex 5**.
- 3.29 Common Pipistrelle *Pipistrellus pipistrellus* are by far the most common bat onsite. Pipistrelle species are generalist foragers and can adapt to a range of habitats and conditions. They are therefore unlikely to be significantly impacted by the proposals.
- 3.30 The data indicates that a small number of Barbastelle individuals are using the site. Barbastelles forage over a large area, with a core sustenance zone (CSZ) of 6km (BCT 2020). The Proposals, therefore, are unlikely to have a significant impact on foraging Barbastelles, making up a very small proportion of their range. Barbastelles are listed as Vulnerable by the IUCN Red List (IUCN 2024), however, so their presence onsite is notable.
- 3.31 The bat assemblage supported by the Site is therefore deemed to be of Local Importance with a conservation status of favourable and stable. Guidance set out in Wray (2010) was used to come to this conclusion, however, in this case Barbastelle is given a lower importance given the limited number of passes and the small size of the site in comparison to the species' overall range.

Reptiles

- 3.32 The data search returned low numbers of records of Slow Worm *Anguis fragilis* and Common Lizard *Zootoca vivipara*, all north of the M4, which would act as a barrier to movement into the site. However, Grass Snake *Natrix Helvetica* are recorded closer to the Site to the west and north-east. The habitats onsite offer ample opportunity for reptiles to bask and forage, particularly the log pile and scrub edges.
- 3.33 No evidence of reptiles was found during the presence/likely absence survey, though plant from the adjacent development to the west of the Site was seen crossing the Site to access the swale to the north through May and June. This did not damage the refugia but did damage the grassland habitat and is likely to have disturbed any animals that were present in the northern part of the site.
- 3.34 Given the barriers to movement between the nearest Slow Worm and Common Lizard records, it is unlikely that they are able to access the Site. Grass Snake are a wide-ranging species and may pass through and use the Site sporadically. As such, it is advised that any site clearance be conducted under a non-licensed method statement, but reptiles are not considered further in this Impact Assessment.
- 3.35 Full survey methodology and results are detailed in **Annex 6**.

Great Crested Newt

- 3.36 The data search returned several records of Great Crested Newt *Triturus cristatus* (GCN), one of which is within 500m of the site.
- 3.37 The Site itself does not contain any water bodies that could be used by GCN for breeding or foraging, but immediately north there is a man-made drainage swale that could be potentially used by newts. The Swale was assessed as of poor quality via the GCN Habitat Suitability Index (HSI) and therefore is considered unlikely to support GCN. An additional swale forms part of the post-development plans and will be managed sympathetically for GCN.
- 3.38 The Neutral Grassland onsite provides suitable terrestrial habitat for commuting or foraging GCN. It is unlikely, however, that GCN would use this habitat as there are no suitable waterbodies within the 250m commuting distance.
- 3.39 The eDNA survey returned a negative result, indicating that GCN had not been using the Swale at the time of the survey. GCN are therefore not considered further in this Impact Assessment.
- 3.1 Full survey methodology and results are detailed in **Annex 6**.

Summary of Important Ecological Features

- 3.2 With reference to the assessment criteria set out in **Annex 3**, IEFs that are considered to be of Local importance or greater to be taken forward for impact assessment in **Section 4** are summarised in **Table 3.2** below.

Table 3.2: Important Ecological Features to be considered further in this EcIA.

Feature	Importance
High Copse	Local

Feature	Importance
Bat assemblage	Local

4. IMPACT ASSESSMENT

Introduction

- 4.1 This section examines the potential for significant ecological impacts and effects on IEFs as a result of the biophysical changes arising from the Proposals, both during the site clearance and construction phase and operational phase. Where impacts are identified, opportunities for impact avoidance and mitigation are explored. If the potential for significant residual effects remains after mitigation, then opportunities for compensation are also set out.

Impact Avoidance by Design

- 4.2 In accordance with the principle of the mitigation hierarchy, the scheme has been designed to avoid ecological impacts as far as possible in the first instance, thus reducing the need for extensive mitigation measures.
- 4.3 Impact avoidance measures incorporated into the Proposed Development include the following.

Buffer Zones

- 4.4 All retained habitats identified as IEFs will be appropriately buffered. This will include the implementation of buffers during the construction phase to prevent damage, whilst the Proposed Development has been designed to incorporate semi-natural buffers during the operational phase. IEF habitats include Provisional Ancient Woodlands, habitats listed under Section 41 of the NERC Act 2006 (as amended) and watercourses.
- 4.5 Provisional Ancient Woodlands and IEF woodlands will be subject to a buffer zone of no less than 15m to protect root systems and canopies. Other habitats may be subject to lower buffer distances. These will be based upon the advice of a suitably qualified and experienced ecologist and will be determined by the sensitivity of the habitat and likely impacts arising from nearby construction works.

Tree Root Protection Zones

- 4.6 Rootzone compaction and accidental damage to retained trees and hedgerows will be avoided through the implementation of a Tree Protection Plan during the construction phase. The Tree Protection Plan will include prescriptions for the installation and maintenance of fencing to exclude construction from activity within root protection areas.

Lighting Strategy

- 4.7 During the construction phase of the Proposed Development, the impacts of artificial lighting will be controlled through measures to be implemented as part of the Construction Environmental Management Plan (CEMP), as outlined below.
- 4.8 The lighting strategy will take into consideration ecologically sensitive features to be identified through existing and update ecological surveys, with a particular focus on nocturnal and crepuscular species, including bats. Measures to avoid impacts on these species include the provision of dark corridors into the project design.

Construction Environmental Management Plan (CEMP)

- 4.9 A CEMP will be implemented during the construction phase, to be secured via a planning condition. The implementation of the CEMP will address impacts commonly arising as a result of works that may otherwise have negative impacts on IEFs.
- 4.10 The CEMP will prescribe measures to prevent and mitigate dust, noise, lighting and other forms of pollution. It will ensure compliance with regulatory requirements and good practice protocols relating to storage, transportation and disposal of chemicals, materials and waste.
- 4.11 Non-standard measures to address specific impacts on IEFs are outlined in the Additional Mitigation section below.

Impact Assessment

High Copse

Assessment of Impacts and Mitigation - Site Clearance and Construction Phase

Loss, damage and fragmentation of habitats

- 4.12 High Copse lies 70m east of the Site, a distance far greater than the minimum buffer zone required to protect the ancient woodland, With the implementation of inherent mitigation measure outlined above, no impact are predicted as a result of loss, fragmentation or direct harm to High Copse during the construction phase.

Contamination of soils/waterbodies

- 4.13 Measures to avoid contamination of soils and waterbodies by environmental incident, such as the spillage of fuels or other chemicals, will be outlined in the CEMP as described above, and are deemed sufficient to avoid impacts to the deciduous woodlands onsite.

Assessment of Impacts and Mitigation - Operational Phase

Degradation and pollution of vulnerable habitats through urban effects

- 4.14 The deciduous woodland parcel may be vulnerable to pollution and degradation from urban effects due to its proximity to the Site, primarily through the dumping of garden waste and escape of non-native plant species.
- 4.15 The 70m distance from the Site, combined with the planting of new hedgerow at the Site boundary nearest High Copse, are expected to be sufficient to avoid impacts discouraging Site users from approaching the woodland.

Summary of Residual Effects and Compensation

- 4.16 No residual effects are expected; therefore no compensation is required.

Bat assemblage

Assessment of Impacts and Mitigation - Site Clearance and Construction Phase

Noise and Lighting disturbance

- 4.17 Bats are vulnerable to noise and lighting disturbance from site activities which may cause them to abandon roosts at unfavourable times, making them more vulnerable to predation. Light

disturbance also reduces the likelihood of bats to utilise foraging habitats onsite, which may affect survival.

- 4.18 Measures to restrict timing and direction of lighting during the construction phase will be outlined in the CEMP and are deemed sufficient to avoid significant impacts to bats.
- 4.19 No permanent lighting will be installed and so this impact will not persist into the operational phase.

Assessment of Impacts and Mitigation - Operational Phase

Implementation of habitat creation and management plans.

- 4.20 An additional 110m of native hedgerow will be created at the eastern and northern Site boundaries, while nine additional trees will be planted throughout the site. Retained and created habitats will be incorporated into conservation-led management regimes. This is expected to result in an increase in invertebrate prey and increase connectivity through the landscape, resulting in a significant long-term positive impact on the bat assemblage at the Local level.

Summary of Residual Effects and Compensation

- 4.21 The Proposals are expected to improve the foraging and commuting habitats onsite for bats.

Summary of Impact Assessment

- 4.22 **Table 4.1** below provides a summary of the potential impacts of the Proposed Development on IEFs, opportunities for impact avoidance and mitigation, or compensation where significant residual effects have the potential to remain.

Table 4.1: Summary of Impact Assessment.

Feature	Importance	Unmitigated Impacts	Mitigation	Significance of Residual Effects	Compensation
<i>Site Clearance and Construction Phase</i>					
High Copse	Local	Loss and fragmentation of habitats Damage to vulnerable habitats	15m buffer around the woodland where no development activities will take place	Mitigation is expected to avoid impacts. Not significant	Not required
		Contamination of soils/waterbodies	Spill kits to be easily accessible; Refuelling of machinery to be carried out in designated areas Measures identified in the CEMP	Mitigation is expected to avoid impacts. Not significant	Not required
Bats	Local	Noise / lighting disturbance; Bats may abandon roosts at unfavourable times making them more vulnerable to predation, Bats are less likely to use disturbed foraging habitats, which may affect survival.	Limits on timing of works to daytime hours only, and instruction for lights to not be shone directly on bat roosts and habitat features to be detailed in CEMP.	Mitigation is expected to avoid impacts, not significant	Not required

Feature	Importance	Unmitigated Impacts	Mitigation	Significance of Residual Effects	Compensation
<i>Operational Phase</i>					
High Copse	Local	Degradation and pollution of vulnerable habitats through urban effects (such as fly tipping, introduction of non-native species, arson);	Buffer Zone and additional hedgerow planting to create a physical barrier.	Mitigation is expected to avoid impacts. Not significant.	Not required
Bats	Local	Implementation of habitat creation and management plans.	Retained and created habitats will be managed to enhance their quality	Increased abundance of invertebrate prey, greater connectivity through the landscape, significant, positive.	Not required

5. BIODIVERSITY NET GAIN

Introduction

- 5.1 This section describes the way in which the Proposals can achieve biodiversity net gain alongside development, in accordance with the relevant National and Local biodiversity policies and strategies summarised at **Annex 7**.
- 5.1 Eight native trees will be planted, and the southern border hedgerow will be enhanced to Good condition. An additional 110m of native hedgerow will be planted around the eastern and northern Site boundaries. Areas of grassland will be seeded with appropriate native seed mixes, though it is unlikely that this will raise the condition from Moderate to Good due to the difficulty of management required to do so.
- 5.2 An additional 1.99 area habitat units, consisting of habitat of Medium distinctiveness or higher (such as neutral grassland), will be required to be delivered offsite in order to satisfy the trading rules and achieve 10% net gain.
- 5.3 This could be achieved, for example, by enhancing 0.71ha of Other Neutral Grassland from Poor to Moderate condition.
- 5.4 Alternatively, the Applicant may elect to purchase habitat credits of medium distinctiveness or higher from a recognised habitat bank.

6. CONSEQUENCES FOR DECISION MAKING

Summary of Mechanisms to Secure Impact Avoidance, Mitigation and Compensation Measures

- 6.1 The following strategies, which will be secured by planning conditions and/or obligations, will be required to ensure the successful implementation of the impact avoidance, mitigation and compensation measures set out in **Section 4**:

- Buffer Zones:
- Tree Root Protection Zones:
- Lighting Strategy:
- Construction Environmental Management Plan (CEMP); and
- Habitat Management and Monitoring Plan (HMMP).

Biodiversity Net Gain

- 6.2 In accordance with national and local policy, the Proposed Development will deliver biodiversity enhancements which go above and beyond the measures required to avoid, mitigate and/or compensate for the potential impacts described in **Section 4**, as described in **Section 5**, thereby delivering biodiversity net gain. The onsite enhancement measures are intended to benefit known features of ecological importance present within the Zol, as well as biodiversity in general, and to contribute towards targets set out within the Wokingham Borough Core Strategy (adopted June 2010) and Wokingham Borough Council, Managing Development Delivery Local Plan (adopted 21 February 2014).
- 6.3 Key deliverables include retention and enhancement of native hedgerows with trees and planting of 110m of native hedgerow and eight additional native trees throughout the Site.
- 6.1 A Habitat Management and Monitoring Plan (HMMP) will set out the proposed details of measures to achieve the minimum 10% BNG. Off-Site methods for delivering BNG are yet to be confirmed. The Applicant owns land that can be used for offsite habitat creation and/or enhancement to achieve 10% net gain. Alternatively, the Applicant may elect to purchase habitat credits of medium distinctiveness or higher from a recognised habitat bank. When confirmed, the HMMP will set out the proposed details of how the Off-Site gains will be achieved.
- 6.2 Should planning consent be granted, the HMMP will be submitted to Wokingham Borough Council alongside a Biodiversity Gain Plan to discharge the biodiversity gain planning condition. The mechanism for securing the delivery of significant on- and off-site enhancements is to be agreed with Wokingham Borough Council, but could take the form of a planning condition, planning obligation or conservation covenant.

Conclusion

- 6.3 This EclA has predicted that, subject to the implementation of the impact avoidance, mitigation and compensation measures set out in **Section 4**, the Proposals will not have any significant negative residual effects on IEFs, and will conform to all applicable nature conservation related legislation and policy, as set out at **Annex 2**.

7. LEGAL CONSIDERATIONS

7.1 Should planning permission be granted for the Proposed Development, the following legal considerations will apply, in accordance with the following items of legislation:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended); and
- The Protection of Badgers Act 1992.

Badger

- 7.2 Badgers are afforded legal protection by the Protection of Badgers Act 1992 (as amended).
- 7.3 Currently there are no Badger setts on the Site, however Badgers are highly mobile and can quickly establish new setts. Before any work commences on the Site, update walkover surveys should be carried out to update the baseline and identify whether any new holes or setts have been established.
- 7.4 In the event a Badger sett is found within the footprint of the Proposals, or within the immediate vicinity, a sett closure licence would be required from Natural England in order for the sett to be closed lawfully. Depending on the status of the sett, a compensatory artificial sett may be required and advice on this would be provided at the time.
- 7.5 Protective measures during construction such as fencing, covering open trenches overnight, or include mammal ladders to prevent accidental entrapment will be included in the CEMP.

Breeding Birds

- 7.6 Nesting birds, their nests, eggs, and chicks are afforded protection by the Wildlife and Countryside Act 1981 (as amended). Therefore, vegetation clearance (including the areas of arable crops) should be conducted during the period mid-September to February (inclusive), which is outside of the bird nesting season (but see caveat below).
- 7.7 If this is not possible and vegetation clearance is required within the bird nesting season (March to mid-September, inclusive), a nesting bird check will need to be undertaken by a suitably experienced ecologist not more than 24 hours prior to the commencement of vegetation clearance. If any active nests are discovered, these will need to be retained and protected in situ until they are no longer in use by nesting birds.

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Annex 1

333101011-RG-LD-94A Shinfield Allotment Redesign GA

December 2024

PLANTING NOTES
GENERAL

- Plant material to conform to the National Plant Specification. All plant stock to originate from within the UK. Plant handling and planting operations to be in accordance with HTA 'Handling and Establishing Landscape Plants', Parts I-III.
- Topsoil for planting and amenity grass areas to be fertile with maximum 35% clay content and 5% minimum organic content, pH 5.8 - 7.5 and to be free of perennial weeds, weed seeds and contamination. Maximum stone content 20% (20mm+ particle size), maximum size of stones 50mm in any direction. Existing topsoil to be ameliorated and/or screened if necessary to achieve this specification. Imported topsoil to be to BS 3882: Multi Purpose Grade, from an approved source, and to accord with the above specification.
- Excess topsoil excavated from haul road/paths to be distributed on plots (subject to accordance with above specification).
- Existing vegetation within allotment site to be felled and roots mechanically removed as required. Herbicide application required.

TREE PLANTING

- Extra Heavy Standards- Planted in pits approximately 1200x1200x900mm, backfilled with excavated subsoil/topsoil to replicate adjacent soil profile mixed with 120g 'Sierrablen Flora' slow release fertiliser. Supported by double stake and adjustable tree tie and base of trunk protected with spiral rabbit guards.
- All standard trees are to be fitted with 'Greenleaf' 'Root-rain Urban' irrigation pipe and inlet, or similar approved, size as appropriate.
- No trees are to be planted within 3m of sewers or services (or other easement recommended by the relevant statutory undertaker) without the use of tree root barriers, eg. 'Greenleaf' Reroot 600 /100 placed between the tree and services. Contractor to ascertain the location of all sewers and services prior to tree planting.

WOODLAND PLANTING
PREPARATION:

- Planting to be undertaken into existing in-situ topsoil.
- Existing crops to be removed. Topsoil/subsoil to be cultivated/ripped to a depth of 500mm to relieve compaction.

PLANTING:

- All plant material to be of UK origin.
- The roots of bare-root plants must be kept covered at all times, to prevent them drying out. Keep small bare-root plants completely within a polythene sack until the moment of planting.
- Refer to matrices and schedules from planting arrangements and mixes (dwg L04).
- Transplants- Notch planted or pit planted depending on soil conditions and size of roots with 30g 'Sierrablen Flora' slow release fertiliser. Ensure notch is large enough to accommodate roots without bending or breaking. Plant at the same depth transplant was growing at previously. All plants to be fitted with tree/shrub shelters, securely staked and with full ground contact.
- Planting to be carried out late October to late March, on a mild, damp day. Avoid days with frost or strong, drying winds.
- Water immediately after planting.
- Undertaken chemical weeding of an area of 1m diameter around each plant immediately after planting. Ensure herbicide application is carried out by a suitably trained person, only in periods of low winds, and with careful directional application to ensure no spray drift. Observe all precautions recommended by the manufacturer and remove containers from site immediately they have been emptied or are no longer required
- Area to be protected by rabbit/deer proof fencing (with pedestrian access gates for maintenance).

HEDGE PLANTING

- Hedge beds to have a minimum depth of 450mm topsoil over 150mm broken up ground with all stones over 50mm removed.
- Apply a suitable peat free organic compost, 50mm depth even coverage and incorporate into topsoil during cultivation operations, to a minimum depth of 150mm. Compost source and sample to be approved.
- Transplants- Notch planted or pit planted depending on soil conditions and size of roots with 30g 'Sierrablen Flora' slow release fertiliser. Ensure notch is large enough to accommodate roots without bending or breaking. Plant at the same depth transplant was growing at previously. All plants to be fitted with tree/shrub shelters, securely staked and with full ground contact.
- All hedge beds to be mulched with matured coniferous bark, with an even particle size between 15 - 65mm, to a minimum depth of 75mm over weed free soil after completion of all planting and watering operations. Mulch to be free of pests, diseases, fungus and weeds, and with no fines or dust. Mulch source and sample to be approved.

GRASS AREAS

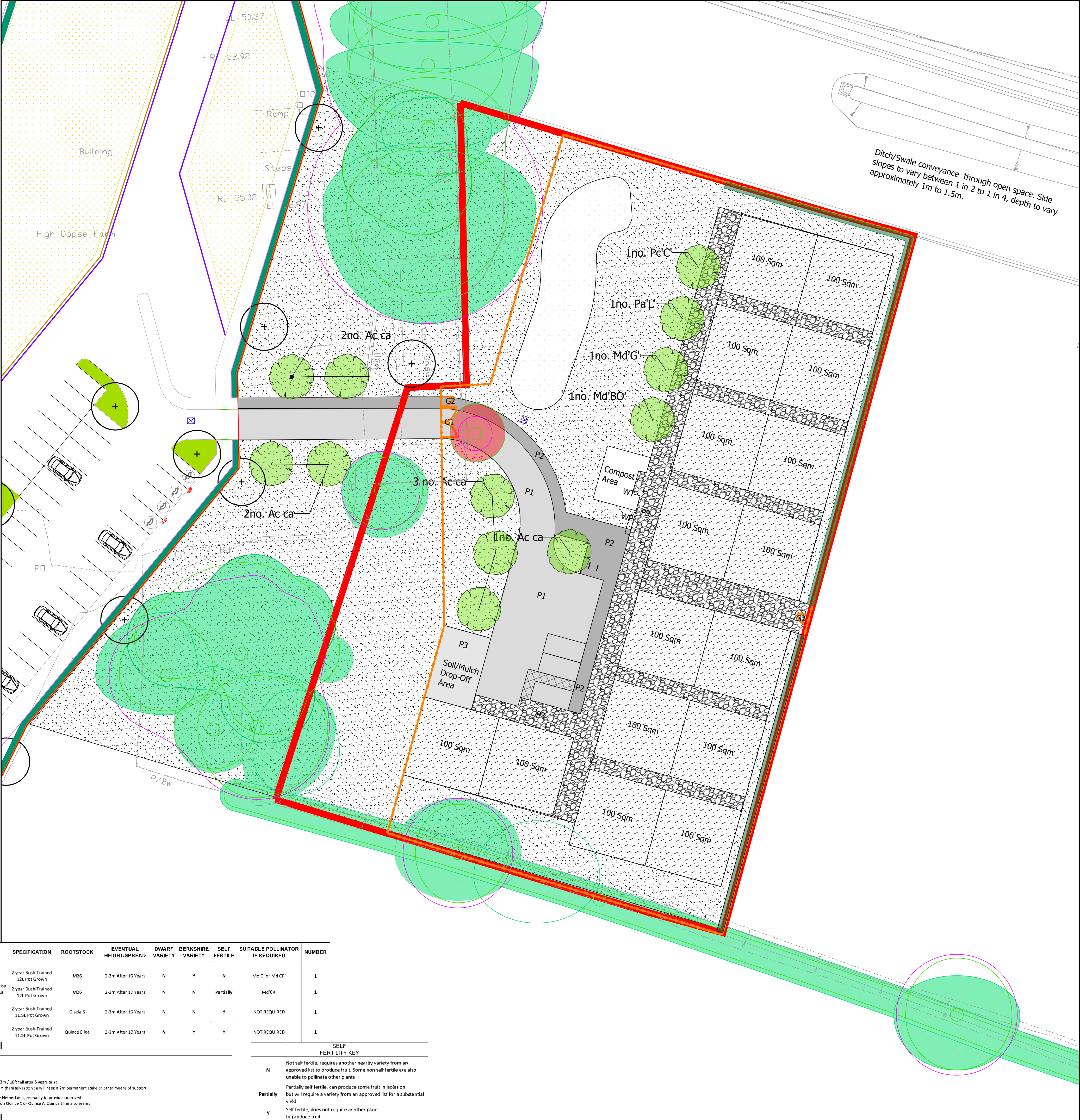
- Grass areas are to have a minimum depth of 150mm topsoil brought to a fine tilth all stones over 40mm, in any direction removed. Areas should be uniformly firmed. Seeding to be low maintenance species rich grass mix e.g. DLG SRG (Species Rich Grass) mix sown at 25kg/ha.

WILDFLOWER MEADOW WETLAND

- Ground Preparation.** Endeavour to select ground that is not highly fertile and does not have a problem with perennial weeds. Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.
- To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.
- Sourcing and preparation.** Wildflower mix shall be Emorsgate EM8. Sowings on ground prone to winter flooding are safest either in the early autumn or in spring once the land has drained. Most plants need time to grow mature enough to withstand flooding.
- The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.
- First year management.** Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost the cuttings. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks. Amenity grass: April to October

TIMES OF YEAR FOR PLANTING

- Deciduous trees and shrubs: Late October to early March (subject to ground conditions and temperature)
- Container grown plants: At any time if ground and weather conditions are favourable
- Amenity grass: April to October



The scaling of this drawing cannot be assured
RevisionDateDmCkd

LEGEND

- Application Boundary 6300 Sqm (0.63 Ha)
- Landscape Scope of Works Boundary
- Woodland Buffer

SOFT LANDSCAPE

- Proposed trees
- Existing tree to be retained with root protection zone
- Emorsgate EH1 hedgerow mixture
- Emorsgate EM8 Meadow mixture for wetlands
- Community allotments
- Proposed native hedge

HARD LANDSCAPE

- P1 - Roads
Black bituminous material
- P2 - Pedestrian Routes
Black bituminous material
- P3 - Compacted MOT base with grass seeded surface (allotments haulage road)
- Post and Rail Fence 1.2m high

STREET FURNITURE

- Double leaf metal gate to match Bulmershe Pavilion
- Single gate to match post and rail fence
- Cycle hoop, 1100x770mmx Dia 48mm, Mild steel hot dipped galvanised, root fixed below ground to engineers specification
- Water Point
- Water Trough: Galvanised Steel Allotment Dip Tank 1.8m x 0.6m
Supplier: City Irrigation or similar approved.

TREES				
Qty	Abbv	Trees	Size /girth	Notes
8	Ac ca	(EHS)Acer campestre	14-16 cm	RB/ clear stem 2m

CODE	SPECIES	COMMON NAME	DESCRIPTION	SPECIFICATION	ROOTSTOCK	EVENTUAL HEIGHT/SPREAD	DWARF VARIETY	BERKSHIRE VARIETY	SELF FERTILE	SUITABLE POLLINATOR IF REQUIRED	NUMBER
Md'RO'	Malus domestica 'Blenheim Orange'	Blenheim Orange Dual Purpose Apple	Blenheim Orange is a classic English dual purpose apple useful for dessert and culinary purposes	2 year Bush-Trained 12L Pot Grown	M26	2-3m After 10 Years	N	Y	N	Md'G' or Md'CR'	1
Md'G'	Malus domestica 'Greensleeves'	Greensleeves Apple	Greensleeves is the result of an interesting experiment, crossing the crisp sweet Flavours of Golden Delicious with the juicy acidity of the famous 'Scottish apple variety, James Grieve	2 year Bush-Trained 12L Pot Grown	M26	2-3m After 10 Years	N	N	Partially	Md'CR'	1
Pa'L'	Pyrus ioium 'Lapins'	Lapins Cherry	Lapins is a large dark red juicy cherry with a mild sweet/sharp flavour, and will appeal to those who like cherries but prefer a milder flavour	2 year Bush-Trained 11.5L Pot Grown	Gisela 5	2-3m After 10 Years	N	N	Y	NOT REQUIRED	1
Pc'C'	Pyrus communis 'Conference'	Conference Pear	Conference is a popular and reliable English pear well suited to the UK climate	2 year Bush-Trained 11.5L Pot Grown	Quince Eline	2-3m After 10 Years	N	Y	Y	NOT REQUIRED	1

ROOTSTOCK KEY	
Nons	Plant not grafted onto rootstock
M26	M26 is a good general-purpose rootstock, which can be used for a wide variety of purposes, from medium-sized bush trees, to cordons and espaliers. Used where you want a smaller tree, although vigour increases in warmer climates. Tree may require permanent stake.
Gisela 5	Gisela 5 has quickly established itself as the rootstock of choice for gardeners who want a cherry tree with manageable proportions. It produces a tree about 3m / 10ft tall after 5 years or so roughly equivalent to the apple M26 rootstock, and about 50% the size of a 'standard'. Cherry trees on Gisela 5 cannot support their own weight so you will need a 2m permanent stake or other means of support.
Quince Eline	Eline is a new quince rootstock which can be used for pears and quinces, with similar vigour and structurality to Quince C. It was developed in the 1950s in the Netherlands, primarily to provide increased cold-hardiness over the widely-planted Quince C rootstock. Trees grafted on Quince Eline have a somewhat more erect habit than the same varieties grafted on Quince C or Quince A. Quince Eline also seems to reduce the extent of russetting on Conference, which is important for commercial growers

SELF FERTILITY KEY	
N	Not self fertile, requires another nearby variety from an approved list to produce fruit. Some non self fertile are also unable to pollinate other plants
Partially	Partially self fertile, can produce some fruit in isolation but will require a variety from an approved list for a substantial yield
Y	Self fertile, does not require another plant to produce fruit

FOR INFORMATION

Project
University of Reading

Drawing Title
Southern Allotment Redesign GA

Date	Scale	Drawn by	Check by
13.08.24	1:250	BA	DS
Project No	Drawing No	Revision	
333101011	RG-LD-94	A	

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Stantec UK Limited
10th Floor
Bank House
8 Cherry Street
Birmingham
B2 5AL
T: 0121 633 2900
stantec.com\uk

Annex 2

Relevant Legislation & Planning Policy

LEGISLATION

The Environment Act 2021

The Environment Act 2021 places a requirement on the Secretary of State to make regulations setting out long-term targets for air quality, water, biodiversity, resource efficiency and waste reduction. It also requires the Government to produce an Environmental Improvement Plan, to report on progress towards its goals annually, to meet the targets that are set in relation to the improvement of the natural environment and to produce remedial plans should this not be achieved.

In relation to water quality, the Act places new duties on the Government, Environment Agency and sewerage undertakers to reduce the frequency and harm of discharges from storm overflows on the environment, and for monitoring the quality of watercourses affected by those overflows.

It also includes a requirement for an independent Office for Environmental Protection (OEP) to be established, with responsibilities for monitoring and reporting on progress against environmental improvement plans and targets. The OEP will also have investigation and enforcement powers against public authorities failing to comply with environmental law when exercising their functions.

The Act makes provisions for 10% biodiversity gain to become a condition of planning permission in England, through amendments to the Town and Country Planning Act 1990. This will be measured through a biodiversity metric to be published by the Secretary of State. The Act also establishes Biodiversity Net Gain as a requirement for Nationally Significant Infrastructure Projects (NSIPs).

The Act also strengthens the biodiversity duty placed on public authorities through amendments to the Natural Environment and Rural Communities Act 2006 Section 40, requiring such authorities to not only conserve but also enhance biodiversity when exercising their functions. Public authorities will also be required to publish summary reports of actions taken under Section 40 at least every five years.

The Act provides the legal basis for the creation of Local Nature Recovery Strategies (LNRs) for England (including specifying their content), and the preparation and publication of species conservation strategies and protected sites strategies.

It also creates a new legal vehicle known as a 'Conservation Covenant' which is a voluntary, legally binding private agreement between landowners and responsible bodies (the latter designated by the Secretary of State) which conserve the natural or heritage features of the land, enabling long-term conservation. Conservation Covenants are designed to 'run with the land' when it is sold or passed on and are intended to eventually become a primary mechanism for the delivery of Biodiversity Net Gain (BNG).

The Act provides new powers for the Government to amend in future Regulation 9 and Part 6 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') – but “only if satisfied that the regulations do not reduce the level of environmental protection provided by the Habitats Regulations”.

Several aspects of protected species licencing have also been adjusted by the Act. These include the removal of several inconsistencies between the Habitats Regulations and the Wildlife & Countryside Act 1981 (as amended), ensuring that licences issued under the former piece of legislation also apply under the latter, and making it now possible for licences to be issued under Section 16(3) of the Wildlife &

Countryside Act 1981 (as amended) for purposes of overriding public interest. The maximum term of a licence that can be issued by Natural England has also been extended from 2 to 5 years.

All biodiversity-related commitments and requirements (as set out in Part 6 of the Act) will come into force upon the adoption of secondary legislation and regulations, following a period of consultation. Timescales are to be confirmed, but this is currently expected to be around late 2023.

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (known as the “Habitats Regulations”) were originally drawn up to transpose the European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the “Habitats Directive”) into UK legislation. Following the UK’s exit from the European Union, the Habitats Regulations – as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – remain in force until such a time as they are superseded by new or updated domestic legislation.

The Habitats Regulations provide for the designation of both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the UK, which previously formed part of the Natura 2000 network of protected areas across Europe and are now part of the UK’s “National Sites Network”. New National Sites may be designated under the Regulations.

The Regulations also prohibit certain actions relating to European Protected Species (EPS), which include *inter alia* Hazel Dormouse *Muscardinus avellanarius*, Great Crested Newt *Triturus cristatus*, European Otter *Lutra lutra* and all native species of bat.

Further information on SPAs, SACs and European Protected Species is provided in the relevant sub-sections of this Appendix.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the principal mechanism for the legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. Certain species of bird, animal and plant (including all of the European Protected Species listed above) are afforded protection under Schedules 1, 5 and 8 of the Act. Reference is made to the various Schedules and Parts of this Act (**Table A1.1**) in the section of this Appendix dealing with Legally Protected Species. The Act also contains measures for the protection of the countryside, National Parks, Sites of Special Scientific Interest (SSSIs) and public rights of way as well as preventing the establishment of invasive non-native species that may be detrimental to native wildlife.

Table A1.1: Relevant Schedules of the Wildlife & Countryside Act 1981 (as amended)

Schedule	Protected Species
Schedule 1 Part 1	Protects listed birds through special penalties at all times
Schedule 1 Part 2	Protects listed birds through special penalties during the close season
Schedule 5 Section 9.1 (killing/injuring)	Protects listed animals from intentional killing or injuring
Schedule 5 Section 9.1 (taking)	Protects listed animals from taking
Schedule 5 Section 9.2	Protects listed animals from being possessed or controlled (live or dead)

Schedule 5 Section 9.4a	Protects listed animals from intentional damage or destruction to any structure or place used for shelter or protection
Schedule 5 Section 9.4b	Protects listed animals from intentional disturbance while occupying a structure or place used for shelter or protection
Schedule 5 Section 9.5a	Protects listed animals from being sold, offered for sale or being held or transported for sale either live or dead, whole or part
Schedule 5 Section 9.5b	Protects listed animals from being published or advertised as being for sale
Schedule 8	Protects listed plants from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
Schedule 9	Prohibits the release of species listed in the Schedule into the wild.
Schedule 9a	Allows environmental authorities to issue species control orders to landowners, obliging them to control/eradicate invasive and/or non-native species.

Further information on legally protected species, designated wildlife sites and invasive non-native species is provided in the relevant sub-sections of this Appendix.

Countryside & Rights of Way Act 2000

Many of the provisions of the Countryside and Rights of Way (CRoW) Act 2000 have been incorporated as amendments into the Wildlife and Countryside Act (1981) and some provisions have now been superseded by later legislation such as The Natural Environment and Rural Communities Act (2006).

The most relevant changes provided by the CRoW Act include the added protection given to SSSIs and other important sites for nature conservation. Importantly, under the Act it became a criminal offence to "recklessly disturb" Schedule 1 nesting birds and species protected under Schedule 5 of the Wildlife and Countryside Act. It also enabled heavier penalties on conviction of wildlife offences.

The Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 was intended to raise the profile of biodiversity amongst all public authorities (including local authorities, and statutory undertakers) and to make biodiversity an integral part of policy and decision-making processes. The NERC Act also improved wildlife protection by amending the Wildlife and Countryside Act 1981.

Section 40 (S40) of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration to the restoration and enhancement of species and habitats.

Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation of biodiversity in England. This was published in 2007 and is commonly referred to as the "S41 list". Public authorities have a responsibility to give specific consideration to the S41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes. Further information on Species and Habitats of Principal Importance is provided in the relevant sub-sections of this Appendix.

The Water Environment Regulations 2017

Currently, the overriding legislation relating to freshwater is the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Regulations set out objectives to deliver a better water environment based upon achieving a 'good status' for freshwater bodies. The concept of 'good status' is a more rigorous measure of environmental quality than previous measures, which now takes into account not just the chemical status but also the ecological health and the extent of artificial physical modification to rivers.

The Regulations are based upon the concept of protecting water through the management of river basin districts (RBDs) and require the implementation of River Basin Management Plans (RBMPs). Regulation 33 requires public bodies to 'have regard' to the RBMP when making planning decisions, for example through the granting of planning permission with appropriate planning conditions and/or obligations. These could require measures to be implemented (e.g. Sustainable Urban Drainage Systems (SUDS), grey water recycling etc.) or funds to be provided for habitat enhancement schemes.

The Regulations also affect planning policy through the implementation of Programmes of Measures for each river basin district. This involves bringing together funding from various sources and co-ordination of the activities of organisations with an interest in the use of land and water, including developers.

SITES DESIGNATED FOR THE CONSERVATION OF NATURE

There is a hierarchy of nature conservation sites which is based on the level of statutory (legal) protection and the administrative level of importance. Other features of nature conservation interest outside designated sites may also be a material consideration in the determination of planning applications.

Statutory Sites: International

Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Conservation of Habitats and Species Regulations 2017 (as amended) provide the primary legal basis for the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK.

SACs are sites which support internationally important habitats and/or species listed as being of Community Importance in the Annexes of the European Habitats Directive 92/43/EEC. SPAs are sites which support internationally important numbers of bird species listed as being of Community Importance in the Annexes of the European Birds Directive 2009/147/EC. Following the UK's exit from the EU, these now form part of the "National Sites" network rather than the EU Natura 2000 network.

Ramsar sites are wetlands of international importance and although not covered under the Habitats Regulations they are, as a matter of national planning policy, subject to the same strict protection as SACs and SPAs. The majority of terrestrial Ramsar sites in England are also notified as SPAs and/or Sites of Special Scientific Interest (SSSIs).

To avoid confusion with the nationally designated sites described below, EPR refers to SACs and SPAs as 'International sites', given the reasons for their designation.

Any plan or project considered likely to affect an international site (SAC, SPA or Ramsar) must be subject to a Habitats Regulations Assessment (HRA), as set out under Regulation 63 (and Regulation 105 in respect of Land Use Plans) of the Habitats Regulations 2017 (as amended) and the National Planning Policy Framework (NPPF) 2021.

The local authority (or other 'competent authority') carries out the HRA, but the onus is on the developer to provide the necessary information to inform this process, usually in the form of a report.

Under the Habitats Regulations 2017 (as amended), the competent authority must determine in the first instance whether a proposed development is likely to have a significant effect on the SAC/SPA, either alone or in combination with other plans and projects. This stage of the HRA process is known as 'screening'.

If a likely significant effect cannot be precluded (screened out) on the basis of objective information, the competent authority must undertake an 'Appropriate Assessment' to fully assess these implications against the site's conservation objectives. A precautionary approach must be taken with respect to determining whether or not there would be a significant effect, and the appropriate nature conservation body (in most cases Natural England) should be consulted. Except in certain exceptional circumstances prescribed by the Regulations where there are imperative reasons of overriding public interest for allowing a development to proceed, the competent authority may not undertake or authorise the plan or project until they have established (based on the conclusions of the Appropriate Assessment) that the activity will not adversely affect the integrity of the SAC/SPA. This should be the case where no reasonable scientific doubt remains as to the absence of such effects.

Regulation 16A of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 sets out the management objectives of the National Site Network, which can be summarised as follows:

- to maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive within the UK's territory to a favourable conservation status (FCS); and
- contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The appropriate authorities must also have regard to:

- the importance of protected sites in meeting the above objectives, including breeding, moulting, staging and wintering areas for in the case of migratory bird species;
- their importance for the coherence of the national sites network; and
- the threats of degradation or destruction (including deterioration and disturbance of protected features) on SPAs and SACs.

Government guidance¹ also states that competent authorities have a duty to help protect, conserve and restore the designated features of SACs and SPAs when carrying out their statutory work, including taking decisions that might affect a site. They also have a duty to consider how they can help to prevent the deterioration of the site's habitats from human activity or natural changes, including habitats that support designated species, and prevent significant disturbance of the site's designated species from human activity or natural changes.

Competent authorities include (but are not limited to) local planning authorities, councillors, planning committee members and statutory agencies such as Natural England.

Statutory Sites: National

Nationally important sites include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). A development proposal that is likely to affect a nationally important site will be subject to special scrutiny by the local planning authority and Natural England. Certain operations may be permitted. Any potentially damaging operations that could have an adverse effect directly or indirectly

on the special interest of the site will not be permitted unless the reasons for the development clearly outweigh the nature conservation and/or geological value of the site itself and the national policy to safeguard such sites, as set out in Section 15 of the National Planning Policy Framework (NPPF).

Sites of Special Scientific Interest

The Wildlife and Countryside Act 1981 (as amended) and the CROW Act 2000 provide the primary legal basis for the protection of Sites of Special Scientific Interest (SSSIs). These sites have been designated to capture the best examples of England's flora, fauna, geological or physiographical diversity.

Public bodies have a duty to take reasonable steps to conserve and enhance the special features of sites of special scientific interest (SSSIs) when carrying out their statutory duties and giving others permission for works, such as reviewing planning applications.

¹ <https://www.gov.uk/guidance/duty-to-protect-protect-protect-and-restore-european-sites>

National Nature Reserves

National Nature Reserves (NNRs) are declared under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs represent the very best parts of England's SSSIs. The majority of NNRs also have European nature conservation designations.

Statutory Sites: Regional/Local

Local Nature Reserves

Local Nature Reserves (LNRs) are declared by local authorities under the National Parks and Access to the Countryside Act 1949 as living green spaces in towns, cities, villages and countryside. They provide opportunities for research and education, or for simply enjoying and having contact with nature. LNRs are usually protected from development through local planning documents which may be supplemented by local by-laws.

Non-Statutory Sites

Local Wildlife Sites

Local planning authorities may designate non-statutory sites for their nature conservation value based on important, distinctive and threatened habitats and species within a national, regional and local context. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as 'County Wildlife Sites', 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNCIs) in local and structure plans. Non-statutory sites are a material consideration when planning applications are being determined. The precise amount of weight to be attached, however, will take into account the position of the site in the hierarchy of sites as set out above. Further information is typically provided in local level planning policy.

Nature Conservation in Areas Outside Designated Sites

Various other features exist outside designated sites that are important for the conservation of nature and which are a material consideration in the planning system.

Habitats of Principal Importance in England

Fifty-six habitat types have been identified as Habitats of Principal Importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Although these habitats are not legally protected, the NPPF, Government Circular 06/05, good practice guidance and the NERC Act place a clear responsibility on planning authorities to further the conservation of these habitats. They can be a material consideration in planning decisions, and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent their net loss and to enhance them where possible. Additional guidance to developers is typically provided in local level planning policy.

The S41 list also includes species as explained below under 'Species of Principal Importance in England'.

Networks of Natural Habitats

Networks of natural habitats link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Examples include rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Local planning authorities are encouraged through the NPPF to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through planning, policies and development control.

Hedgerows

Hedgerows can act as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. Hedgerows that qualify as a Habitat of Principal Importance under S41 of the NERC Act 2006 are a material consideration in the planning system.

Under the Hedgerow Regulations 1997, it is an offence to remove a hedgerow classed as 'important' under the criteria set out by the Regulations without submitting a notice to the Local Planning Authority and waiting for their decision. The Regulations are aimed at countryside hedges and do not apply to hedges around private dwellings or where planning permission has been granted for a project that includes hedge removal. Hedgerows that satisfy wildlife, archaeological, historical or landscape criteria qualify as 'important' under the Regulations. If a hedgerow is not important, the Local Planning Authority may not prevent its removal; however, Local Planning Authorities are required under the Regulations to protect and retain important hedgerows unless satisfied that the circumstances justify their removal.

Tree Preservation Orders

Tree Preservation Orders (TPOs) may be declared under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999 to protect individual trees and woodlands from development and cutting. TPOs are primarily put in place to preserve amenity or for landscape conservation reasons. The importance of trees as wildlife habitat may be taken into account, but alone is not sufficient to warrant a TPO. For this reason, TPOs do not fit comfortably under the remit of nature conservation and are generally dealt with by an arboricultural consultant rather than an ecologist. Further guidance on TPOs in relation to development is available from the Department for Communities and Local Government.

Ancient Woodland & Veteran Trees

Ancient woodlands are defined as areas continuously wooded since at least 1600 AD. Even an ancient wood which has been replanted may still have remnants of ancient woodland wildlife and historical features and has potential to be restored. Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are advised under the NPPF and National Planning Practice Guidance (NPPG) not to grant planning permission for any development that would result in

the loss or deterioration of ancient woodland, ancient trees or veteran trees unless there are 'wholly exceptional reasons' and 'a suitable compensation strategy in place'. Local Planning Authorities must take into account Natural England and the Forestry Commission's *Standing Advice for Ancient Woodland and Veteran Trees*, available on the www.gov.uk website.

Surface & Ground Waters

Surface waters (including flowing and standing water) and ground water can directly and indirectly impact upon the conservation of nature.

Guidance on pollution prevention is hosted on the Government's website and focuses on regulatory requirements. This covers topics including the prevention of pollution if you are a business, managing business and commercial waste, oil storage, working on or near water, and managing water on land. Careful planning and the application of these guidelines can help reduce the risk of construction and maintenance work causing pollution to surface and ground waters. Some activities with the potential to impact watercourses or groundwater may require consent under the Water Resources Act 1991.

Water Resources Act (WRA) 1991

Under the WRA there is strict regulation of discharges (including sediment, chemicals, nutrients) to rivers, lakes, estuaries and groundwaters. It also aims to ensure that polluters cover the costs associated with pollution incidents.

SPECIES PROTECTION

Legally Protected Species

The species listed in the following subsections are protected by law in England. When preparing a planning application, it is essential to determine the presence or likely absence of legally protected species and the extent to which they may be affected by a proposed development. This can best be achieved by undertaking surveys early in the planning process. Avoidance and/or mitigation measures may be required to address any predicted impacts upon protected species and may necessitate a licence. The Government website offers standing advice from Natural England and DEFRA which can be applied to planning applications that affect protected species.

Bats

There are 18 species of bat in the UK, seven of which are Species of Principal Importance in England. All bats and bat roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also a European Protected Species protected under the Habitats Regulations 2017 (as amended). It is an offence to:

- Intentionally or deliberately kill, injure or capture bats;
- Intentionally, deliberately or recklessly disturb bats in such a way as to be likely to significantly affect the ability of any significant group of bats to survive, breed, or rear or nurture their young or the local distribution of or abundance of a species of bat;
- Intentionally, or recklessly damage, destroy or obstruct any place used for shelter or protection (i.e. bat roosts) or intentionally or recklessly disturb a bat whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a bat; and
- Possess, sell or transport a bat, or anything derived from it.

Development proposals affecting bats or their roosts require a European Protected Species mitigation licence from Natural England.

Great Crested Newt

The Great Crested Newt *Triturus cristatus* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Great Crested Newts;
- Intentionally, deliberately or recklessly disturb Great Crested Newts in such a way as to be likely to significantly affect the ability of any significant group of Newts to survive, breed, or rear or nurture their young or the local distribution of or abundance the species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Great Crested Newts for shelter or protection, or intentionally or recklessly disturb a Great Crested Newt whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Great Crested Newt; and
- Possess, sell or transport a Great Crested Newt, or anything derived from it.

Development proposals affecting the Great Crested Newt require a European Protected Species mitigation licence from Natural England.

Intentional or reckless behaviour leading to an offence being committed as detailed above may result in maximum penalties of:

- Up to £5,000 fine per offence committed;
- A custodial sentence of up to six months instead of, or in addition to, a fine; and/or
- Items of equipment involved in committing the offence may be seized and detained.

In addition to the above penalties, it is likely that any EPS mitigation licence obtained for a site will be revoked whilst any wildlife offence is investigated. This will lead to immediate temporary and, depending on investigation outcomes, possible permanent restrictions on site works, as well as associated cost.

Hazel Dormouse

The Hazel Dormouse *Muscardinus avellanarius* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Dormice;
- Intentionally, deliberately or recklessly disturb Dormice in such a way as to be likely to significantly affect the ability of any significant group of Dormice to survive, breed, or rear or nurture their young or the local distribution of or abundance of the species;
- Intentionally or recklessly damage, destroy or obstruct access to places used by Dormice for shelter or protection (whether occupied or not) or intentionally or recklessly disturb a Dormouse whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Dormouse;

- Possess or transport a Dormouse (or any part thereof) unless under licence; and
- Sell or exchange Dormice.

Development proposals affecting the Dormouse require a European Protected Species mitigation licence from Natural England.

European Otter

The European Otter *Lutra* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Otters;
- Intentionally, deliberately or recklessly disturb Otters in such a way as to be likely to significantly affect the ability of any significant group of Otters to survive, breed, or rear or nurture their young or the local distribution of or abundance of Otters;
- Intentionally or recklessly damage, destroy or obstruct access to places used by Otters for shelter or protection (whether they occupied or not) or intentionally or recklessly disturb an Otter whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of an Otter;
- Possess or transport an Otter (or any part thereof) unless under licence; and
- Sell or exchange otters.

Development proposals affecting the Otter require a European Protected Species licence from Natural England.

Reptiles

All four of the widespread British species of reptile, namely the Common Lizard *Zootoca vivipara*, Slow-Worm *Anguis fragilis*, Grass Snake *Natrix helvetica* (previously *Natrix natrix*) and Adder *Vipera berus*, are Species of Principal Importance in England. They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional killing, injury and trade. The habitat of the four widespread reptiles is not legally protected; however the replacement of habitat lost through development may be required through the planning system. Mitigation for these species is not subject to licensing by Natural England but should nonetheless be planned to minimise disturbance and potential project delays.

The Smooth Snake *Coronella austriaca* and the Sand Lizard *Lacerta agilis* are the rarest reptile species in Britain. In addition to the protection that is afforded to the widespread species of reptile listed above, these species are protected further under Schedule 5 (Sections 9.4b and 9.4c) of the Wildlife and Countryside Act 1981 (as amended). They are also European Protected Species protected under the Habitats Regulations 2017 (as amended). This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Sand Lizards or Smooth Snakes;
- Intentionally, deliberately or recklessly disturb Sand Lizards or Smooth Snakes in such a way as to be likely to significantly affect the ability of any significant group of Sand Lizards or Smooth Snakes to survive, breed, or rear or nurture their young or the local distribution or abundance of either species;

- Intentionally or recklessly damage, destroy or obstruct any place used by Sand Lizards or Smooth Snakes for shelter or protection, or intentionally or recklessly disturb a Sand Lizard or Smooth Snake whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Sand Lizard or Smooth Snake;
- Keep, sell, or exchange Sand Lizards or Smooth Snakes or their eggs; and
- Deliberately take or destroy their eggs.

Development proposals affecting Smooth Snake or Sand Lizard require a European Protected Species mitigation licence from Natural England.

Water Vole

The Water Vole *Arvicola terrestris* is a Species of Principal Importance in England. The legal protection for Water Voles was increased in 2008 to fully cover the species under Section 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation makes it an offence to:

- Intentionally or deliberately (but not recklessly) kill, injure or take Water Voles;
- Intentionally, deliberately or recklessly damage, destroy or obstruct access to any structure or place used by Water Voles for shelter or protection;
- Intentionally, deliberately or recklessly disturb Water Voles whilst they occupy a structure or place used for that purpose;
- Sell Water Voles or offer or expose for sale or transport for sale; and
- Possess or control live or dead Water Voles or derivatives.

Developers who wish to maintain, build on or alter areas used by Water Voles must ensure that unnecessary damage is avoided and all reasonable steps are taken to minimise impacts on Water Voles and their burrows. The Wildlife and Countryside Act provides a defence against the offences listed above, provided the action is the incidental result of an otherwise lawful operation and could not reasonably have been avoided.

A licence to displace Water Voles must be obtained from Natural England before conducting any activities involving displacement operations (this is different to a conservation licence, which is required for survey methods that involve disturbing Water Voles or their burrows, or capturing them). To obtain a displacement licence, it is necessary to demonstrate that the activity/activities will result in a conservation benefit for Water Voles.

Birds

49 species of bird are listed as Species of Principal Importance in England. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence, with certain exceptions (e.g. game birds), to intentionally kill, injure or take any wild bird and to take, damage or destroy their nests or eggs.

Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) affords extra protection for certain species and applies harsher penalties for offences. Any intentional or reckless disturbance of a Schedule 1 bird, whilst it is nesting or rearing dependent young, constitutes an offence.

Regulation 10 of the Conservation of Habitats and Species Regulations 2017 (as amended) requires appropriate authorities and conservation bodies, in the exercise of their functions, to take such steps that they consider appropriate in order to secure “*the preservation, maintenance and re-establishment*”

of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat (...)".

European Badger

The Protection of Badgers Act 1992 offers considerable protection to both Badgers and Badger setts. This legislation was enacted to protect the European Badger *Meles* against baiting and not as a means of species recovery as it is common in England. It is an offence to cruelly treat, kill or take Badgers, but it is also illegal to intentionally or recklessly damage or disturb a Badger sett while it indicates signs of current use by a Badger.

The Government website contains information to help developers and their proponents avoid sett disturbance and to identify setts that are in current use. It is important to maintain adequate foraging territory in development proposals affecting Badgers as the destruction or severance of large areas of foraging territory could also be taken to include habitat loss. Licences to disturb Badgers and their setts in respect of development may be issued by Natural England provided provisions are made to minimise disturbance.

Wild Mammals

All wild mammals are protected against cruelty under the Wild Mammals (Protection) Act 1996, which makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

White-Clawed Crayfish

The White-Clawed Crayfish *Austropotamobius pallipes* is a Species of Principal Importance in England. Outside designated sites (e.g. SACs), the White-Clawed Crayfish receives limited protection under Schedule 5 (Sections 9.1, 9.5a and 9.5b) of the Wildlife and Countryside Act 1981 (as amended), the Habitats Regulations 2017 (as amended) and the Salmon and Freshwater Fisheries Act 1975. This legislation does not provide strict protection of individual crayfish or their habitats but it does prevent prohibit the capture of this species without a licence. A conservation licence must therefore be obtained from Natural England before conducting any mitigation involving the capture and handling of this species.

European Eel

The Eels Regulations 2009 (as amended in 2011) aim to combat the population decline of the European eel *Anguilla anguilla* through protection of migration routes and controls on the numbers of eels allowed to be taken. In order to protect migration routes, any structures which may prevent upstream or downstream migration of eels must be reported to the Environment Agency. Eel passages must be constructed where needed and maintained in a good condition.

Freshwater Fish

The Salmon and Freshwater Fisheries Act 1975 protects freshwater fish, particularly salmon and trout. It prevents the destruction of spawning grounds and the obstruction of migratory passages through the building of weirs, dams etc.

Licences for Development

Licences are required to permit activities prohibited under wildlife legislation, namely the disturbance or capture of protected species or damage to their habitats. Natural England is the licensing authority in England. Licences are only issued for certain purposes, which are set out in the legislation, and only

where there is a valid justification. The licences most relevant to development scenarios are discussed below.

European Protected Species Mitigation Licences

A European Protected Species mitigation licence (EPSL) is required from Natural England to undertake any development that is reasonably likely to result in an offence in respect of a European Protected Species protected under Schedule 2 of the Habitats Regulations 2017 (as amended); including *inter alia* all species of bats, Hazel Dormouse, Great Crested Newt and European Otter. Natural England must be satisfied that the following three tests are satisfied before it will issue a licence covering a European Protected Species:

1. The proposal is necessary to preserve public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
2. There is no satisfactory alternative; and
3. The proposal will have no detrimental effect to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Conservation Licences

In the context of development, conservation licences are normally only relevant to mitigation involving the capture of Water Voles or White-Clawed Crayfish. Conservation licences are granted to permit the trapping and translocation of these species on the condition that the development activity is properly planned and executed and thereby contributes to the conservation of the population of the species.

Badger Licences

Licences to disturb Badgers and their setts in respect of development may be issued by Natural England, provided provisions are made to minimise disturbance.

Species of Principal Importance in England

943 species have been identified as being of Principal Importance for the conservation of biodiversity in England under Section 41 (S41) of the NERC Act 2006. The S41 list includes species found in England which have been identified as requiring action under the now superseded UK Biodiversity Action Plan 2007 (plus the Hen Harrier). While many of these species may not be legally protected (some are protected under the legislation described above), there is a clear responsibility on local planning authorities to further their conservation. These species can be a material consideration in development

control decisions and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent the net loss of these species, and to enhance their habitats where possible. Additional guidance to developers is typically provided in local level planning policies.

Invasive Non-Native Species

There are a number of species not ordinarily resident in the UK, such as Japanese Knotweed. Those which pose a significant threat, if uncontrolled, to our ecology and economy are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). For an offence to be committed, a species must be released or allowed to escape into the wild. For example, if a plant listed on Schedule 9 is not adequately controlled by a landowner, once they are aware that it is present, and the species is allowed to spread into adjoining areas, then this could constitute an offence.

Japanese Knotweed is also classed as 'controlled waste' under the Environment Protection Act 1990 (as amended) and if taken off site it must be disposed of safely at a licensed landfill site. Soil containing rhizome material should also be regarded as contaminated and treated accordingly.

Species Control Orders

A new schedule 9A was inserted into the Wildlife and Countryside Act 1981 (as amended) by Sections 23 to 25 of the Infrastructure Act 2015. This gives environmental authorities (in England the Secretary of State, Environment Agency, Natural England and the Forestry Commission) the power to offer 'species control agreements' to landowners in respect of invasive and/or non-native species, such as Japanese Knotweed. If the landowner does not comply with a species control agreement, or refuses to enter into one, the environmental authority may issue a 'species control order', requiring the owner to eradicate or control the species, or to allow the environmental authority access to carry out these operations themselves.

If the owner does not comply with the species control order, the maximum penalty if convicted is a fine of up to £40,000 and/or imprisonment for up to 51 weeks. The environmental authority can also recover costs for carrying out the necessary work themselves.

PLANNING POLICY & GUIDANCE

This section set out the main planning policy and government guidance that relates to the conservation of nature at all levels of government.

National Level

National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) 2021 sets out the Government's planning policies for England and how these should be applied in local-level policy and decision making. The NPPF has a clear "presumption in favour of sustainable development" (paragraph 11), with economic, social and environmental objectives. This presumption does not apply where a plan or project has failed the 'appropriate assessment' test under the Habitats Regulations (paragraph 182).

Section 15 of the NPPF provides guidance on conserving and enhancing the natural environment through the planning system, as summarised below.

Firstly, planning policies and decisions should contribute to and enhance the natural and local environment by applying the following key principles:

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

Section 15 also requires planning policies and decisions to limit the impact of artificial light pollution on nature conservation.

Secondly, when determining planning applications, local planning authorities should apply the following key principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated or (as a last resort) compensated for, then planning permission should be refused;
- proposed development that is likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should normally be refused;
- planning permission should normally be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, 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 encouraged, especially where this can secure measurable net gains for biodiversity.

In the case of SSSIs and irreplaceable habitats, exceptions may be made if it can be clearly demonstrated that the benefits of the development, in that location, clearly outweigh the costs in terms of loss or adverse impacts.

Section 15 specifies that listed or proposed Ramsar sites, potential European sites, and sites identified or required as compensatory measures for adverse effects on designated/listed or potential/proposed European and Ramsar sites should be given the same protection as designated European sites.

Section 15 includes the following text on air quality:

- Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas;
- Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications; and
- Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

The NPPF also sets out principles for plan-making, including the allocation of land with the least environmental or amenity value, and taking a strategic approach to maintaining and enhancing networks of habitats and green infrastructure by identifying, mapping and safeguarding components of local wildlife-rich habitats, wider ecological networks, wildlife corridors and stepping stones, and those areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

Government Circular 06/05: Biodiversity and Geological Conservation

The Government produced Circular 06/05 to provide guidance on the application of the law to the conservation of nature. Although the document is in the process of being updated, Paragraphs 98 and 99 remain relevant as they set out the following principles and obligations:

- The presence of protected species is a material consideration when determining a development proposal;
- Local authorities should consult with Natural England before granting permission, and consider imposing planning conditions or obligations to secure the long-term protection of the species;
- The presence of protected species, and the extent to which they may be affected by the proposed development, must be established before permission is granted;
- Given the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.

MHCLG Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government (now the Ministry of Housing, Communities and Local Government, MHCLG) as a web-based tool in March 2014 to accompany the NPPF. The webpages are set out in a Q&A format. The PPG consolidates and supersedes existing guidance on a range of planning-related topics, clarifies some of the statements made in the NPPF, and provides links to relevant legislation and other sources of advice.

The Guidance outlines a number of important principles in relation to nature conservation and biodiversity, including the need to integrate biodiversity into all stages of the planning process and to

consider opportunities to enhance biodiversity and contribute to the Government's commitments and targets set out in *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*.

The guidance also requires that "an ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate", and recommends that "local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development."

Other guidance

In addition to the Planning Practice Guidance, various other forms of guidance and standards are available in relation to biodiversity and the development process. Of particular note is *British Standard BS42020:2013 Biodiversity – Code of practice for planning and development*, published in August 2013, which replaces *Planning to Halt the Loss of Biodiversity (PAS 2010): Biodiversity conservation standards for planning in the United Kingdom*.

This document is designed to complement the NPPF and is aimed at organisations concerned with ecological issues throughout the planning process, including local authorities, developers, planners and ecological consultants. It sets out step-by-step recommendations on how to incorporate biodiversity considerations at all stages of the planning process, with a focus on the provision of consistent, high quality and appropriate ecological information, effective decision making, and high standards of professional conduct and competence.

Regional Level

Regional plans (such as the South East Plan Regional Spatial Strategy) have been revoked, but some specific policies have been saved. The only policy saved from the South East Plan is Policy NRM6, which relates to the Thames Basin Heaths Special Protection Area (TBH SPA).

Local Level

Wokingham Borough Council, Managing Development Delivery Local Plan, adopted 21 February 2014

The following policies are considered to be of most relevance:

- CC01: Presumption in favour of sustainable development. Planning applications that accord with the policies of Wokingham Borough Council Development Plan will be approved without delay unless material considerations indicate otherwise.
- CC03: Green infrastructure, trees and landscaping. Green routes and Green Route Enhancement Areas are defined on the Policies Map (available on the WBC website, see footnote). Development proposals should demonstrate how they have considered and achieved the following criteria within scheme proposals:
 - o Provide new or protect and enhance the Borough Green Infrastructure networks, including the need to mitigate potential impacts of new development;
 - o Promote accessibility, linkages and permeability between and within existing green corridors;
 - o Promote the integration of the scheme with any adjoining public open space or countryside;
 - o Protect and retain existing trees, hedgerows and other landscape features;
 - o Incorporate high quality, ideally, native planting and landscaping as an integral part of the scheme.
 - o Development proposals that result in the loss, fragmentation or isolation of areas of green infrastructure will not be acceptable.
- TB23: Biodiversity and Development. Planning permission for development will only be granted where it meets Policy CP7 of the Core Strategy and also demonstrates how the following can be provided:
 - o opportunities to incorporate new biodiversity features or enhance existing features;
 - o provide appropriate buffer zones between development proposals and designated sites as well as habitats and species of principal importance for nature conservation;
 - o ensure all existing and new development are ecologically permeable through the protection of existing and provision of new continuous wildlife corridors, which shall be integrated and linked to the wider green infrastructure network.

Supplementary Planning Document: South of M4 Strategic Development Location, adopted October 2011

Four strategic development locations have been identified within the Core Strategy of Wokingham Borough Council, South of the M4 is one of these. This SPD sets out WBCs expectations on masterplanning, design quality and infrastructure requirements for this SDL and will be a material consideration in determining planning applications.

The following policies are considered to be of most relevance:

- CP1 - Sustainable development. Planning applications that accord with the policies of Wokingham Borough Core Strategy will be granted and this policy will be delivered through the Managing Development Delivery DPD and Sustainable Development SPD.
- CP7 - Biodiversity. Sites designated as of importance for nature conservation at an international or national level will be conserved and enhanced and inappropriate development will be resisted. The degree of protection given will be appropriate to the status of the site in terms of its international or national importance.

Development:

- A) Which may harm county designated sites (Local Wildlife Sites in Berkshire), whether directly or indirectly, or
- B) Which may harm habitats or, species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or
- C) That compromises the implementation of the national, regional, county and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and:
 - i) Mitigation measures can be put in place to prevent damaging impacts; or
 - ii) Appropriate compensation

BIODIVERSITY PLANS AND STRATEGIES

The NERC Act 2006 places a duty on local authorities to have due regard to biodiversity when exercising their normal functions, and the NPPF requires planning policies to “promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species, and identify and pursue opportunities for securing measurable net gains for biodiversity” (paragraph 174). These targets are set out in a range of biodiversity plans and strategies from the international through to the district level.

An overview of the key biodiversity plans and strategies in the UK, and their implications for development, are set out below.

National level

The *UK Biodiversity Action Plan 2007* (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framework* and individual national biodiversity strategies. The UK Framework sets out the overarching vision, strategic goals and priority activities for the UK’s work towards international biodiversity targets (known as the ‘Aichi Targets’), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010.

In England, *Biodiversity 2020: A strategy for England’s wildlife and ecosystem services* is the national biodiversity strategy, which has the stated mission “(...) to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.” In order to focus activity and assess performance in

achieving this mission, Biodiversity 2020 sets out objectives relating to terrestrial and marine habitats and ecosystems, species and people.

Local level

While BAPs at the national level have now been superseded by *the UK Post-2010 Biodiversity Framework* and *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, many county and district level BAPs still exist.

Wokingham Borough Council Biodiversity Action Plan 2012-2024 (Draft), February 2014

This BAP retains the structure of the former plan (*Wokingham District's Biodiversity Action Plan 2003-2012*) and contains the same five Habitat Action plans:

- • Communities, Towns and Villages HAP;
- • Woodland HAP;
- • Grassland and Hedgerow HAP;
- • Wetland HAP;
- • Heathland HAP.

Biodiversity Net Gain

The Environment Act 2021 makes provisions for 10% biodiversity gain, as measured by a metric (currently published by Defra), to become a condition of planning permission in England. This will come into force upon the adoption of secondary legislation and regulations. Timescales are to be confirmed, but this is currently expected to be around late 2023. A publicly accessible register of Biodiversity Gain Sites will be set up during this time, and the Secretary of State will publish and consult on the biodiversity metric to be used, as well as on the wording of the secondary legislation itself.

The Act specifies that biodiversity gain can be delivered on and/or offsite, and establishes the basis for purchasing off-site credits to meet the 10% obligation if required. Land used to deliver biodiversity gain must be maintained for at least 30 years, and planning conditions will require a biodiversity gain plan to be submitted to and approved by the planning authority prior to commencement of development.

It also clarifies that the baseline biodiversity value of a site should be taken from the date on which planning consent is granted, unless otherwise agreed with the LPA (but not before the secondary legislation comes into force). This excludes any activities undertaken without planning permission (or other relevant permissions) after 30 January 2020 which have had the effect of reducing the biodiversity value of the land. In such cases, "the pre-development biodiversity value is to be taken to be its biodiversity value immediately before the carrying on of the activities."

Biodiversity net gain (BNG) is already enshrined in the key principles of the NPPF, and some local planning policies already include a requirement to deliver a minimum net gain figure (typically 10% or 20%).

Enhancement measures may not just benefit biodiversity. There are many functional benefits to be won from strategically planned green infrastructure projects such as semi-natural urban green spaces, sustainable drainage schemes (SUDS) and green roofs.

Annex 3

EclA Assessment Methodology

Overview

The approach to Ecological Impact Assessment (EclA) taken in this report takes account of guidance in the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3 updated September 2024.' (CIEEM, 2018). The Preface of the CIEEM EclA Guidelines states:

"Biodiversity: Code of practice for planning and development published by the British Standards Institute (BS 42020:2013) cites the CIEEM EclA Guidelines as the acknowledged reference on ecological impact assessment. The Guidelines are consistent with the British Standard on Biodiversity, which provides recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring."

In accordance with the above guidance, EPR takes the following step-wise approach to EclA:

- 1. PREDICTION OF THE ACTIVITIES ASSOCIATED WITH A PROPOSED SCHEME THAT ARE LIKELY TO GENERATE BIOPHYSICAL CHANGES WHICH MAY LEAD TO SIGNIFICANT EFFECTS (EITHER POSITIVE OR NEGATIVE) UPON IMPORTANT ECOLOGICAL FEATURES (IEFS);**
 2. Identification of the likely Zone of Influence (Zol) of those activities;
 3. Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted Zols and be affected by the activities;
 4. Evaluation of IEFs likely to be affected – both negatively and positively;
 5. Identification of likely impacts (positive and negative) on IEFs, together with an assessment of the geographic level at which effects are likely to be significant;
 6. Application of the mitigation hierarchy - refinement of the proposed scheme to incorporate impact avoidance and/or mitigation measures for negative effects on IEFs, and enhancements in order to deliver net gains;
 7. Assessment of the significance of residual effects and identification of any policy drivers for additional mitigation or compensation in the event of residual significant negative effects; and
 8. Advice on conformance with policy and legislation.

Ecological Evaluation Method

The evaluation method used in this EclA uses the following geographic scale of importance for ecological features:

9. International/European;
10. National;

11. Regional;
12. County (or Metropolitan or Local Authority-wide area);
13. Local; and
14. Within the Zone of Influence.

With this in mind, features taken forward for detailed impact assessment are those which:

15. Are evaluated as being of at least 'Local' ecological importance or have the potential to be so; and
16. Are likely to be affected, positively or negatively, by the proposals.

Ecological features deemed to be of less than 'Local' importance are considered throughout the EclA process in the context of the national planning policy requirement for 'Biodiversity Net Gain'. The implications for those features that are protected by legislation are also discussed separately at the end of the EclA report.

Ecological Importance is judged with reference to the following factors:

17. Statutory requirements and policy objectives (e.g. site designations or the country lists of habitats and species of principal importance for the conservation of biodiversity); and
18. Biodiversity value (e.g. diversity, rarity, scarcity, function within ecosystem, population trends).

Impact Assessment Method

The ecological features selected to be included in the assessment are those which both meet the importance threshold and are likely to be affected by the proposed scheme.

The first stage of the assessment is to determine the potential impacts upon each important ecological feature, with reference to the likely biophysical changes arising from the proposals. Impacts can be characterised according to their extent, magnitude, duration, timing, frequency, reversibility, and whether they are positive or negative.

The likelihood of cumulative impacts with other planned or consented projects is also taken into account at this stage

An assessment is then made of whether the effect(s) of an impact upon an important ecological feature is likely to be considered 'significant' in EclA terms.

Significant Effects

The EclA Guidelines state that:

"Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EclA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general.....in broad terms, significant effects encompass impacts on structure and function of defined

sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)." [our emphasis]

Put simply, an effect is considered significant if it is likely to change the structure and function of defined sites and ecosystems or the conservation status of habitats and species.

Professional judgement about significance is informed by conservation objectives for the affected feature, where available (for example conservation objectives set by Natural England for European designated sites, or in habitat and species action plans). The 'conservation status' (habitats and species) or the degree to which a feature is exhibiting 'integrity' in terms of structure, function and condition (defined sites or ecosystems) is also considered. The predicted effect of natural and man-made trends in the absence of development is also taken into account in determining the conservation status or integrity of a feature and in considering whether otherwise insignificant effects may contribute to a significant cumulative effect.

The CIEEM Guidelines state:

"The evaluation of significant effects should always be based on the best available scientific evidence. If sufficient information is not available further survey or additional research may be required. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect should be assumed. Where uncertainty exists, it must be acknowledged in the EclA."

Opportunities for Biodiversity Net Gain

EPR will advise the applicant's team about how a scheme may be refined, in accordance with the mitigation hierarchy, to achieve net gains in biodiversity. Once the biodiversity measures are agreed, EPR will assess any residual effects and advise on the degree of compliance with national and local policy and nature conservation legislation. This process may evolve with the design of the development. In some instances, it may not be possible to avoid all the significant adverse effects or to deliver biodiversity net gain within the development site. In that case, EPR will advise of any opportunities to contribute to wider (offsite) biodiversity strategies which would deliver the appropriate mitigation, compensation and/or enhancement.

The final agreed measures will be set out clearly, so that the LPA can readily understand what planning conditions or legal agreements are required to achieve the necessary level of policy and legal compliance.

Annex 4

Shinfield Southern Allotments: Preliminary Ecological Appraisal

Shinfield Southern Allotments

Preliminary Ecological Appraisal

Prepared on behalf of

University of Reading

Draft Report

03 April 2024

30/29-1A

Shinfield Southern Allotments

Preliminary Ecological Appraisal

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Main Author(s):	Liam Mayle, BSc (Hons) MSc
Contributors/Surveyors:	Katie Cammack BSc (Hons) MSc MCIEEM
Report Prepared for Issue by:	 Liam Mayle, BSc (Hons) MSc
Report Approved for Issue by:	 Alison Hogan BSc (Hons) MSc MCIEEM



Ecological Planning & Research Ltd

The Barn, Micheldever Station, Winchester, Hampshire SO21 3AR

t. 01962 794720 e. info@epr.uk.com w. www.epr.uk.com

Company registration number: 8592380

Shinfield Southern Allotments

Preliminary Ecological Appraisal

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Shinfield Southern Allotments

Preliminary Ecological Appraisal

1. INTRODUCTION

Brief

- 1.1 Ecological Planning & Research Limited (EPR) was commissioned by University of Reading to carry out a Preliminary Ecological Appraisal (PEA) of proposals for allotments, hereafter referred to as “the Proposals”, in Shinfield, to the west of High Copse (SU729670), hereafter referred to as “the Site”.

Background

- 1.2 The Site forms part of an area which received outline planning permission on 8th November 2012 (reference O/2010/1432) for the development of up to 1200 residential dwellings and 150 units of specialist housing, as well as a local centre, and a new primary school and landscaping located at Shinfield West, within the ‘South of the M4’ Strategic Development Location. The current application is for the construction of allotments.

The Study Area

- 1.3 The Site consists of 1.04ha of abandoned arable land on the outskirts of Reading, south of the village of Shinfield and east of Spencers Wood. The B3349 lies approximately 120m east of the Site boundary.
- 1.4 The Site lies to the west and south of the remaining sections of High Copse, an Ancient Woodland site. Historic maps show that these sections were once connected, encompassing the entirety of the Site, but the land within the site and immediately north was cleared in the late 19th-early 20th century for arable land.
- 1.5 The Site falls within the Thames Basin Heaths Natural England National Character Area.
- 1.6 The Site falls just outside of the River Loddon floodplain. The underlying geology is London Clay formation with superficial deposits of sand and gravel.

Scope

- 1.7 The purpose of this PEA is to obtain and present information on potential ecological constraints and opportunities that may be presented to the Proposals described above. Advice on further actions to address constraints and maximise opportunities in order to enable the proposals to proceed in accordance with nature conservation legislation and policy is also provided.
- 1.8 Please note that the results of a PEA are not equivalent to a full Ecological Impact Assessment (EcIA) and so potentially significant ecological effects arising from a Proposal may not be fully understood at the time of reporting.

- 1.9 A PEA comprises two main elements: 1) A desktop review of the ecological and policy context; and 2) a field survey of the development site and, where possible, any other areas likely to be affected.
- 1.10 The following articles of nature conservation legislation and planning policy are of relevance to the Proposals, and have been considered as part of this PEA:
- The Environment Act 2021;
 - The Conservation of Habitats and Species Regulations 2017 (as amended);
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Countryside and Rights of Way (CROW) Act 2000;
 - The Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act 1992;
 - The National Planning Policy Framework (NPPF) (2023);
 - Wokingham Borough Core Strategy (adopted June 2010); and
 - Wokingham Borough Council, Managing Development Delivery Local Plan (adopted 21 February 2014)
- 1.11 In addition to the above, biodiversity objectives detailed in the following documents have been considered:
- The Government's Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services (2011), 25 Year Environment Plan (2018) and Environmental Improvement Plan (2023); and
 - Wokingham Borough Council Biodiversity Action Plan 2012-2014.
- 1.12 Further information on the above is provided in **Appendix 1**.

Methods and Constraints

- 1.13 This PEA has drawn on information collected through both an extensive desktop study, and a field visit carried out by Liam Mayle and Katie Cammack of EPR on 15/03/24. The methodology used is described in more detail in **Appendix 2**.
- 1.14 EPR's approach takes account of the Chartered Institute of Ecology and Environmental Management's (CIEEM) advice in Guidelines for Ecological Impact Assessment in the UK and Ireland (2018, updated April 2022) and Guidelines for Preliminary Ecological Appraisal (2017).
- 1.15 The site visit took place outside of the optimum period for surveying grasslands, making it difficult to identify all species accurately.

2. NATURE AND EXTENT OF PREDICTED BIOPHYSICAL CHANGES

Predicted Biophysical Changes and the Zone of Influence

- 2.1 In order to understand the potential ecological constraints and opportunities which may be presented to the Proposals, it is necessary to predict both the likely biophysical changes which could occur, and the area over which ecological features could be affected (the 'Zone of Influence' (Zol)). These are summarised in **Table 2.1** below.

Table 2.1: Provisional summary of predicted changes and Zone of Influence

Predicted Change	Likely Zone of Influence (Zol)
Vegetation clearance	Site
increased lighting levels during works	Site and immediate surroundings
Noise disturbance during works	Site and immediate surroundings
increased recreational pressure	Site and immediate surroundings
Dumping of allotment waste	Immediate surroundings
Escape of non-native plants	Immediate surroundings

- 2.2 The Proposals are currently in the early design stages and so the exact nature and extent of biophysical changes and associated Zols will become clearer as the scheme design takes shape; therefore **Table 2.1** is provisional at this stage.

3. RESULTS OF PRELIMINARY ECOLOGICAL APPRAISAL

Introduction

3.1 The findings of the PEA are set out below, including:

- The potential for Important Ecological Features (IEFs) to be present within the Zol that could be affected by the Proposals and potentially influence scheme design;
- A broad overview, where possible, of the potential impacts (both positive and negative) that could occur as a result of the predicted biophysical changes described in **Section 2**, in the absence of impact avoidance and mitigation measures;
- A broad overview, where possible, of the measures that are likely to be required to avoid, mitigate and as a last resort compensate for significant negative effects on IEFs;
- Opportunities to deliver Biodiversity Net Gain; and
- Recommendations for further research and/or survey work necessary to inform assessment and design of the above, compliance with policy, legislation and/or ongoing management of the Site.

Designated Sites

3.2 **Maps 1a and 1b** show the location of sites designated for nature conservation up to 5km from the Site. These are described briefly below.

Statutory Designated Sites

International

3.3 Thames Basin Heaths Special Protection Area (SPA) lies to 4.23km to the south of the Site. It is predominantly a conifer plantation with areas of mire and meadow. the SPA hosts internationally important populations of Woodlark *Lullula arborea*, Nightjar *Caprimulgus europaeus* and Dartford Warbler *Sylvia undata* and the nationally rare plant, Small Fleabane *Pulicaria vulgaris*. The SPA is managed by the Forestry Commission.

National

3.4 The northern tip of Stanford End Mill and River Loddon Site of Special Scientific Interest (SSSI) lies within 2km of the Site to the south. The SSSI comprises a stretch of the River Loddon and adjacent hay meadows between the villages of Standford End and Swallowfield.

3.5 Swallowfield Meadow Local Nature Reserve (LNR) lies 2.32km to the south of the Site. As well as the meadows themselves, there is a small copse, four seasonal ponds and a series of ditches and native hedgerows. It is managed by Swallowfield Parish Council volunteers.

3.6 The Marshes LNR lies 3.58km South of the Site. It is a mix of woodland and marshland and is managed by Swallowfield Parish council and volunteers.

3.7 Pearman's Copse LNR lies 2.24km to the north of the Site. It is approximately 2ha of deciduous ancient woodland managed by Countryside Service.

3.8 Maiden Eriegh Park LNR lies 4.40km north of the Site.

- 3.9 Bramshill SSSI lies to 4.23km to the south of the Site and forms part of the Thames Basin Heaths Special Protection Area (SPA) for the conservation of wild birds.

Non-Statutory Designated Sites

Local Wildlife Sites

- 3.10 Woods between Whitehouse and Highlands Local Wildlife Site (LWS) lies 1.92km to the west of the Site. It consists of deciduous woodland bordered by arable land.
- 3.11 Clare's Green Road Grasslands LWS lies within 1km of the Site to the west. Formerly used for grazing, it consists of 2 fields of open grassland bordered by species rich hedgerows and trees. It is managed by Countryside Service.
- 3.12 Shinfield Park Nore's Hill LWS and the Grove LWS lie approximately 2km from the Site to the north. They are connected areas of ancient woodland with a small meadow. They are both located next to the Shinfield Park development.
- 3.13 Hall Farm Woodland Triangle LWS lies 1.67km to the northeast of the Site. It is a small area of deciduous woodland surrounded by arable land and hedgerows.
- 3.14 Arborfield Bridge Meadow LWS lies 1.67km from the Site to the northeast. It is a small woodland pasture adjacent to the River Loddon.
- 3.15 None of the statutory or non-statutory sites fall within the Zol due to their distance and lack of connectivity to the site.

Provisional Ancient Woodland

- 3.16 Rounds Copse LWS lies 1.16km to the east of the site and is owned and managed by Reading Borough Council.
- 3.17 Moor Copse LWS lies within 1km of the site to the east.
- 3.18 Great Wood LWS lies approximately 1km to the southeast of the Site.
- 3.19 Farley Woods, Great Copse and New Plantation LWS lie approximately 2km to the southeast of the Site.
- 3.20 **Map 1b** shows additional unnamed pockets of provisional ancient woodland. None of these pockets nor those mentioned above, with the exception of high copse (see below), fall within the Zol for the Site due to their distance and lack of connectivity to the site and are not considered further.
- 3.21 High Copse consists of 2 sections of ancient woodland to the north and immediately east of the Site. The eastern portion, being adjacent to the Site, falls within the Zol.

Habitats

- 3.22 The distribution of broad habitat types and features noted during the field visit are presented on **Map 3** and are described further below.

Modified or Neutral Grassland

- 3.23 The majority of the Site is comprised of a mosaic of grassland and scattered bramble *Rubus fruticosus* scrub on clay soils. Species identified include Red Fescue Grass *Festuca rubra*, Cleavers *Galium aparine*, Nettle *Urtica dioica*, Common Hogweed *Heracleum sphondylium*, Cow Parsley *Anthriscus sylvestris* and Spear Thistle *Cirsium vulgare*. This species assemblage is indicative of high nutrient levels and soil disturbance, particularly the high abundance of nettle.
- 3.24 Given the time of year, it was not possible to definitively classify the grassland. therefore a visit by an suitably experienced botanist will be required to do so. The tussocky nature of the grassland indicates a possibility that the grassland could be a more valuable habitat such as neutral grassland.
- 3.25 A log pile in the northwest corner of the Site (**Target note 1**) provides cover, foraging and basking opportunities for a range of species including amphibians, reptiles and invertebrates. The presence of cultivated Daffodil *Narcissus sp.*, Primrose *Primula vulgaris*, Comfrey *Symphytum officinale* and *Buddleia Buddleja davidii* indicate historic fly tipping or dumping of garden waste (**Target note 2**).

Broadleaved and mixed woodland

- 3.26 A small Birch *Betula sp.* plantation spans the central part of the eastern site boundary. these trees are relatively young and connect to the adjacent High Copse. The plantation provides opportunities for birds to nest and foraging opportunities for bats.
- 3.27 This plantation falls with the ancient woodland buffer zone (see site plan, **Appendix 3**) and so is likely to be retained.

Hedgerow

- 3.28 A Blackthorn *Prunus spinosa* hedge runs the length of the southern Site boundary. contained within this hedge are a single Ash *Fraxinus excelsior* (**Target Note 3**) and Oak *Quercus robur* (**Target Note 4**). The Oak tree has a large tear-out on its northern side that may be suitable for roosting bats. The hedgerow itself is a linear feature that may be used for navigation by commuting and foraging bats. This hedgerow will be retained in the current site plan (**Appendix 3**).
- 3.29 Several newly planted shrubs line the northern border of the Site; however, they are too sparsely planted to be considered a functional hedgerow, and have not yet established enough to provide cover, nesting or foraging opportunities. As such, they are not represented in **Map 3**. These shrubs are not indicated to be retained in the proposals, though some new planting has been allocated in this area, so it is possible that they may be retained.

Dense scrub

- 3.30 Around the southern and northeastern corners of the site are large areas of Bramble scrub. Protruding outward from the hedge at the southern border is an area of mixed scrub dominated by Blackthorn, with Hawthorn *Crataegus monogyna* and Bramble interspersed throughout.
- 3.31 These areas of scrub provide cover for a range of species as well as nesting opportunities for birds.

Fauna

Bats

- 3.32 Bat transect and static detector surveys of the Site and adjacent land to the south were conducted by EPR in 2022. During these surveys Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula* and Brown Long-Eared Bats *Plecotus aureus* were observed using the Site and surrounding area, while the static detectors recorded these species as well as very low numbers of Myotis species, Serotine *Eptesicus serotinus*, Leisler's *Nyctalus leisleri* and Barbastelle *Barbastella barbastellus*.
- 3.33 The data search returned records for all of the above species from within 2km of the Site. The exact species for the majority of Myotis species records is not specified, though a single record of Daubenton's bat *Myotis daubentonii* to the south was found.
- 3.34 The Zol contains suitable habitat for foraging and commuting bats in the form of on-site grassland, trees and hedgerows, the latter of which are connected to High Copse. The Proposals could therefore affect bats through impacts such as direct harm, loss and fragmentation of habitat and disturbance, for example by increased lighting.
- 3.35 The Oak tree to the south of the site (**Target Note 4**) has a large tear-out that may be suitable to support roosting bats.
- 3.36 Approximately 70m north of the site, there is a Brown Long-Eared bat maternity roost structure built as compensation for the Shinfield West development. In the absence of mitigation, additional noise or lighting from the proposals may discourage bats from using this structure.
- 3.37 As all species of bat and their roosts are protected from harm and disturbance under wildlife legislation (**Appendix 1**), further surveys are recommended in order to characterise the bat assemblage supported by the Zol and inform scheme design and mitigation if required (see Section 4).
- 3.38 Opportunities can also be taken to enhance habitat provision for bats, for example by providing integral bat boxes into structures and additional linear features through tree planting that bats can use for foraging and navigation through the landscape.

Birds

- 3.39 The desktop study returned records of a number of bird species of conservation concern which potentially could be using the Site. The vegetation on Site provides suitable nesting and foraging opportunities, particularly associated with the trees and hedgerows. Given the size of the site and the habitats available the proposals are unlikely to have a significant effect on the conservation status of these species, therefore no further survey effort is required.
- 3.40 The additional tree planting outlined in the proposals is likely to result in an increase in nesting and foraging opportunities for birds.

Reptiles

- 3.41 The data search returned low numbers of records of Slow Worm *Anguis fragilis* and Common Lizard *Zootoca vivipara*, all north of the M4, which would act as a barrier to movement into the

site. However, records of Grass Snake *Natrix Helvetica* closer to the Site to the west and north-east.

- 3.42 The habitats onsite offer ample opportunity for reptiles to bask and forage, particularly the log pile and scrub edges. It would therefore be advisable to conduct reptile surveys of the Site to establish presence or likely absence.

Great Crested Newt

- 3.43 The data search returned several records of Great Crested Newt *Triturus cristatus* (GCN), one of which is within 500m of the site.
- 3.44 The Site itself does not contain any water bodies that could be used by GCN for breeding or foraging, but immediately north there is a man-made drainage swale that could be potentially used by newts. The Swale was assessed as of poor quality via the GCN Habitat Suitability Index (HSI), and therefore is considered unlikely to support GCN.
- 3.45 Given the proximity of the GCN record to the site, it is recommended to conduct a precautionary eDNA survey of the swale for GCN. Should this return positive results, additional surveys would be required.
- 3.46 The Proposals show provision for a pond at the northern border of the Site which could be designed to provide foraging and breeding opportunities for GCN and other amphibians.

Badger

- 3.47 The data search returned records of Eurasian Badger *Meles meles* within 1km of the site. No setts or other definitive field signs for Badger were identified during the site visit, though there are numerous mammal paths crossing the site. It is not possible to ascertain the species of origin for these paths; however, given their overall size they are likely to have been made by Fox *Vulpes vulpes*, and were deemed too thin to have been made by Badger.

Dormouse

- 3.48 The data search returned a single record of Hazel Dormouse *Muscardinus avellanarius* within 2km of the site to the west of the village of Spencers Wood. The village constitutes a significant barrier to movement for dormouse, and so, although the site does contain and connect to suitable habitat, it is unlikely that Dormouse are using the site.

Otter/Water Vole

- 3.49 The data search returned a single record of Otter *Lutra lutra* roadkill within 2km of the site from 2014, on the A33. The site itself does not contain suitable habitat to support Otter and so no further consideration is required in relation to Otter.
- 3.50 The data search returned no records of Water Vole *Arvicola amphibius* in the vicinity of the site and there are no suitable habitats Onsite. Therefore, no further consideration is required in relation to Water Vole.

4. SUMMARY AND CONCLUSIONS

Summary of Potential Constraints

- 4.1 The site provides moderate foraging habitat for bats and there is evidence that it is used by a number of species. Therefore activity surveys are recommended. Current Bat Conservation Trust guidelines (BCT 2023) recommend 3 activity surveys; one each for spring summer and autumn. These should also be supported by monthly static detector surveys between April and October, inclusive. For each month, 2 static detectors should be deployed for 5 consecutive nights to gather data on the volume and patterns of bat activity for the site.
- 4.2 It is also recommended that the Oak tree with the potential roost feature (PRF) is inspected by a licenced bat surveyor. This can be done at any time of year and given the location of the feature on the tree and the lack of any significant health and safety hazards in the vicinity, this can be conducted by a single surveyor from ground level.
- 4.3 Given the suitability of the habitats onsite to support reptiles, it is recommended that reptile surveys are carried out to establish presence or likely absence. Reptile surveys involve an initial “set-up” visit to deploy artificial cover objects (ACOs) onsite, which are attractive to reptiles for their thermal properties. After a 2 week “settling in” period, 7 monitoring visits are required to check the ACOs for evidence of reptiles as well as conduct visual searches of the site. These visits must take place between April and September (inclusive) with the optimal period being April- May.
- 4.4 Given the proximity of GCN records to the Site and the presence of a water body (the swale) immediately to the north, it is advisable to conduct a precautionary eDNA survey of the swale to rule out the presence of GCN. This will involve a licenced surveyor taking a water sample from the swale and sending it to be analysed in a laboratory. This can be done between 15th April and 30th June. If the result is negative, no further work needs to be done in relation to GCN; however should the result be positive, further surveys will be required in order to establish population size.

Summary of Potential Opportunities

- 4.5 Additional tree planting presents opportunities to increase foraging, roosting and nesting opportunities for bats and birds. As the trees age they will naturally form features that can be utilised by these species for roosting and nesting and in the shorter term, bat and bird boxes can be placed on trees. Insects will be naturally attracted to trees and provide food for bats and birds.
- 4.6 The retained hedgerow to the south of the site can be enhanced and managed to increase its value for biodiversity and improve its function as a linear feature through the landscape.
- 4.7 Provision of a pond to the north of the site can, with careful design and management, provide suitable habitat for GCN, other amphibians and invertebrates, as well as acting as a water source for other species groups.

Summary of Recommendations

- 4.8 Based on the results of the PEA outlined in **Section 3**, **Table 4.1** sets out a summary of the following additional survey and/or assessment work that is recommended to inform scheme design the preparation of any mitigation strategies that may be required to allow the Proposals to proceed in accordance with legislation and planning policy.

Table 4.1: Recommended further work

Further Work	Seasonal Timing Constraints / Considerations	Recommended Stage of the Project	Reason for Recommendation
Bat transect survey	Three visits (spring, summer and autumn) Single walked transect of the site by 2 surveyors.	Pre-application, to inform scheme design and mitigation	Potential implications for site layout and lighting plan
Bat static surveys	Monthly (Apr – Oct inclusive) monitoring of the site with static bat detectors	Pre-application, to inform scheme design and mitigation	Potential implications for site layout and lighting plan
Reptile surveys	1 set up visit and 7 monitoring visits, Apr – Sept inclusive, optimal period April- May	Pre-application, to inform scheme design and mitigation	Potential implications for mitigation
GCN eDNA survey	Single visit, 15 th April – 30 th June	Pre-application, to inform scheme design and mitigation	Potential implications for mitigation

Conclusions

- 4.9 The appraisal identified that the Site has the potential to support Important Ecological Features, which was limited to bats, reptiles and GCN.
- 4.10 Further surveys have been recommended to establish the presence or likely absence or herptiles and the extent of bat activity Onsite.
- 4.11 The Proposals offer ample opportunities to increase and enhance the Site for biodiversity through additional planting, hedgerow management, provision of wildlife boxes and the building of a pond.

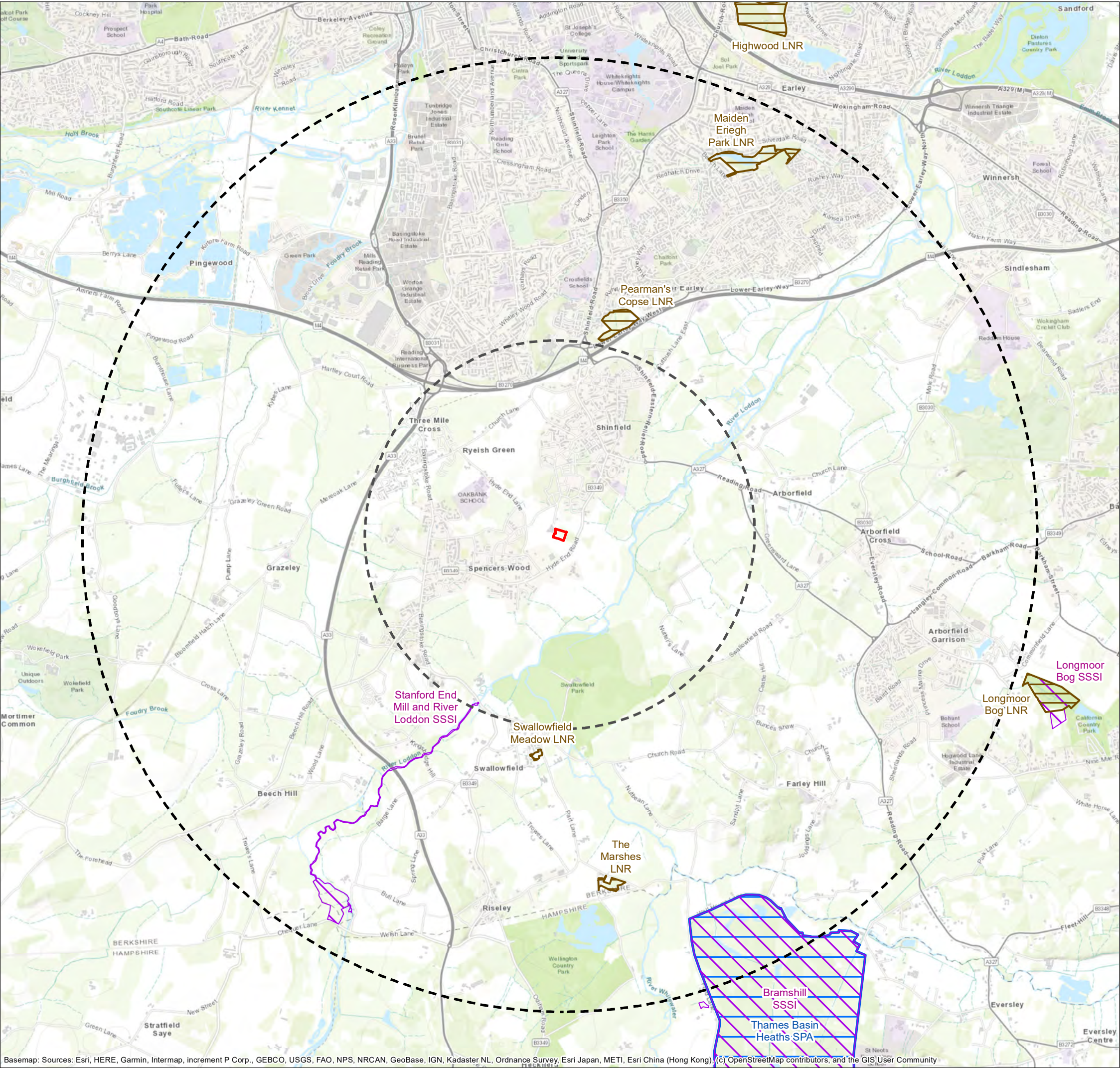
5. REFERENCES

Bat Conservation Trust (2023) Bat Surveys for Professional Ecologists - Good Practice Guidelines. 4th Edition. Bat Conservation Trust, London.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2*. Chartered Institute of Ecology and Environmental Management, Ampfield.

Maps

Map 1a	Site Location and Statutory Designated Sites
Map 1b	Site Location and Sites Protected by Planning Policy
Map 2	Habitats and Features



MAP 1a Site Location & Statutory Designated Sites

KEY

- Site boundary
- 2km linear distance from site boundary
- 5km linear distance from site boundary
- Special Protection Areas (SPA)
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserves (LNR)

SCALE: 1:40,000 at A3

0 500 1,000 1,500 2,000 Metres

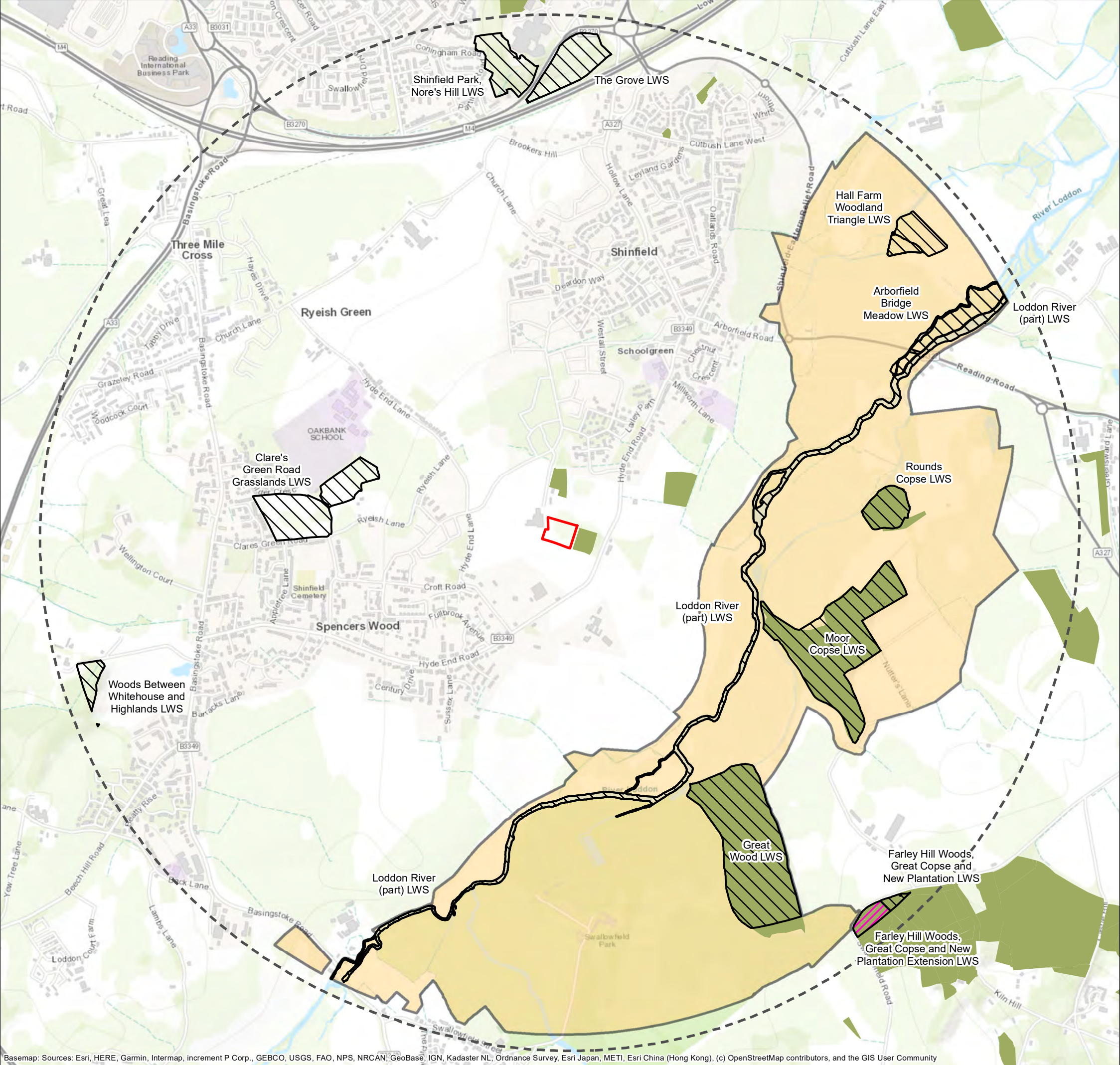
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CLIENT: University of Reading

PROJECT: Southern Allotments

DATE: 19 March 2024



MAP 1b Site Location & Sites Protected by Planning Policy

- KEY
- Site boundary
 - 2km linear distance from site boundary
 - Local Wildlife Sites
 - Proposed Local Wildlife Site Extension
 - Loddon Valley South Biodiversity Opportunity Area
 - Provisional Ancient Woodland

SCALE: 1:15,000 at A3

0 200 400 600 800 1,000 Metres



CLIENT: University of Reading

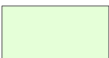
PROJECT: Southern Allotments

DATE: 19 March 2024

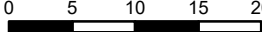


MAP 2 Habitats and Features

KEY

-  Site boundary
-  Target notes
-  h2 - Hedgerows
-  g4 - Modified grassland
-  h3 - Dense scrub
-  w1 - Broadleaved and mixed woodland

Target Notes:
1. Log pile
2. Evidence of historic fly tipping/ garden waste
3. Single Ash tree
4. Single Oak tree with tear out

SCALE: 1:600 at A3




CLIENT: University of Reading
PROJECT: Southern Allotments
DATE: 21 March 2024

Appendix 1

Relevant Legislation & Planning Policy

LEGISLATION

The Environment Act 2021

The Environment Act 2021 places a requirement on the Secretary of State to make regulations setting out long-term targets for air quality, water, biodiversity, resource efficiency and waste reduction. It also requires the Government to produce an Environmental Improvement Plan, to report on progress towards its goals annually, to meet the targets that are set in relation to the improvement of the natural environment and to produce remedial plans should this not be achieved.

In relation to water quality, the Act places new duties on the Government, Environment Agency and sewerage undertakers to reduce the frequency and harm of discharges from storm overflows on the environment, and for monitoring the quality of watercourses affected by those overflows.

It also includes a requirement for an independent Office for Environmental Protection (OEP) to be established, with responsibilities for monitoring and reporting on progress against environmental improvement plans and targets. The OEP will also have investigation and enforcement powers against public authorities failing to comply with environmental law when exercising their functions.

The Act makes provisions for 10% biodiversity gain to become a condition of planning permission in England, through amendments to the Town and Country Planning Act 1990. This will be measured through a biodiversity metric to be published by the Secretary of State. The Act also establishes Biodiversity Net Gain as a requirement for Nationally Significant Infrastructure Projects (NSIPs).

The Act also strengthens the biodiversity duty placed on public authorities through amendments to the Natural Environment and Rural Communities Act 2006 Section 40, requiring such authorities to not only conserve but also enhance biodiversity when exercising their functions. Public authorities will also be required to publish summary reports of actions taken under Section 40 at least every five years.

The Act provides the legal basis for the creation of Local Nature Recovery Strategies (LNRSs) for England (including specifying their content), and the preparation and publication of species conservation strategies and protected sites strategies.

It also creates a new legal vehicle known as a 'Conservation Covenant' which is a voluntary, legally binding private agreement between landowners and responsible bodies (the latter designated by the Secretary of State) which conserve the natural or heritage features of the land, enabling long-term conservation. Conservation Covenants are designed to 'run with the land' when it is sold or passed on and are intended to eventually become a primary mechanism for the delivery of Biodiversity Net Gain (BNG).

The Act provides new powers for the Government to amend in future Regulation 9 and Part 6 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') – but “only if satisfied that the regulations do not reduce the level of environmental protection provided by the Habitats Regulations”.

Several aspects of protected species licencing have also been adjusted by the Act. These include the removal of several inconsistencies between the Habitats Regulations and the Wildlife & Countryside Act 1981 (as amended), ensuring that licences issued under the former piece of legislation also apply under the latter, and making it now possible for licences to be issued under Section 16(3) of the Wildlife &

Countryside Act 1981 (as amended) for purposes of overriding public interest. The maximum term of a licence that can be issued by Natural England has also been extended from 2 to 5 years.

All biodiversity-related commitments and requirements (as set out in Part 6 of the Act) will come into force upon the adoption of secondary legislation and regulations, following a period of consultation. Timescales are to be confirmed, but this is currently expected to be around late 2023.

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (known as the “Habitats Regulations”) were originally drawn up to transpose the European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the “Habitats Directive”) into UK legislation. Following the UK’s exit from the European Union, the Habitats Regulations – as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – remain in force until such a time as they are superseded by new or updated domestic legislation.

The Habitats Regulations provide for the designation of both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the UK, which previously formed part of the Natura 2000 network of protected areas across Europe and are now part of the UK’s “National Sites Network”. New National Sites may be designated under the Regulations.

The Regulations also prohibit certain actions relating to European Protected Species (EPS), which include *inter alia* Hazel Dormouse *Muscardinus avellanarius*, Great Crested Newt *Triturus cristatus*, European Otter *Lutra lutra* and all native species of bat.

Further information on SPAs, SACs and European Protected Species is provided in the relevant sub-sections of this Appendix.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the principal mechanism for the legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. Certain species of bird, animal and plant (including all of the European Protected Species listed above) are afforded protection under Schedules 1, 5 and 8 of the Act. Reference is made to the various Schedules and Parts of this Act (**Table A1.1**) in the section of this Appendix dealing with Legally Protected Species. The Act also contains measures for the protection of the countryside, National Parks, Sites of Special Scientific Interest (SSSIs) and public rights of way as well as preventing the establishment of invasive non-native species that may be detrimental to native wildlife.

Table A1.1: Relevant Schedules of the Wildlife & Countryside Act 1981 (as amended)

Schedule	Protected Species
Schedule 1 Part 1	Protects listed birds through special penalties at all times
Schedule 1 Part 2	Protects listed birds through special penalties during the close season
Schedule 5 Section 9.1 (killing/injuring)	Protects listed animals from intentional killing or injuring
Schedule 5 Section 9.1 (taking)	Protects listed animals from taking
Schedule 5 Section 9.2	Protects listed animals from being possessed or controlled (live or dead)

Schedule 5 Section 9.4a	Protects listed animals from intentional damage or destruction to any structure or place used for shelter or protection
Schedule 5 Section 9.4b	Protects listed animals from intentional disturbance while occupying a structure or place used for shelter or protection
Schedule 5 Section 9.5a	Protects listed animals from being sold, offered for sale or being held or transported for sale either live or dead, whole or part
Schedule 5 Section 9.5b	Protects listed animals from being published or advertised as being for sale
Schedule 8	Protects listed plants from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
Schedule 9	Prohibits the release of species listed in the Schedule into the wild.
Schedule 9a	Allows environmental authorities to issue species control orders to landowners, obliging them to control/eradicate invasive and/or non-native species.

Further information on legally protected species, designated wildlife sites and invasive non-native species is provided in the relevant sub-sections of this Appendix.

Countryside & Rights of Way Act 2000

Many of the provisions of the Countryside and Rights of Way (CROW) Act 2000 have been incorporated as amendments into the Wildlife and Countryside Act (1981) and some provisions have now been superseded by later legislation such as The Natural Environment and Rural Communities Act (2006).

The most relevant changes provided by the CROW Act include the added protection given to SSSIs and other important sites for nature conservation. Importantly, under the Act it became a criminal offence to "recklessly disturb" Schedule 1 nesting birds and species protected under Schedule 5 of the Wildlife and Countryside Act. It also enabled heavier penalties on conviction of wildlife offences.

The Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 was intended to raise the profile of biodiversity amongst all public authorities (including local authorities, and statutory undertakers) and to make biodiversity an integral part of policy and decision-making processes. The NERC Act also improved wildlife protection by amending the Wildlife and Countryside Act 1981.

Section 40 (S40) of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration to the restoration and enhancement of species and habitats.

Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation of biodiversity in England. This was published in 2007 and is commonly referred to as the "S41 list". Public authorities have a responsibility to give specific consideration to the S41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes. Further information on Species and Habitats of Principal Importance is provided in the relevant sub-sections of this Appendix.

The Water Environment Regulations 2017

Currently, the overriding legislation relating to freshwater is the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Regulations set out objectives to deliver a better water environment based upon achieving a 'good status' for freshwater bodies. The concept of 'good status' is a more rigorous measure of environmental quality than previous measures, which now takes into account not just the chemical status but also the ecological health and the extent of artificial physical modification to rivers.

The Regulations are based upon the concept of protecting water through the management of river basin districts (RBDs) and require the implementation of River Basin Management Plans (RBMPs). Regulation 33 requires public bodies to 'have regard' to the RBMP when making planning decisions, for example through the granting of planning permission with appropriate planning conditions and/or obligations. These could require measures to be implemented (e.g. Sustainable Urban Drainage Systems (SUDS), grey water recycling etc.) or funds to be provided for habitat enhancement schemes.

The Regulations also affect planning policy through the implementation of Programmes of Measures for each river basin district. This involves bringing together funding from various sources and co-ordination of the activities of organisations with an interest in the use of land and water, including developers.

SITES DESIGNATED FOR THE CONSERVATION OF NATURE

There is a hierarchy of nature conservation sites which is based on the level of statutory (legal) protection and the administrative level of importance. Other features of nature conservation interest outside designated sites may also be a material consideration in the determination of planning applications.

Statutory Sites: International

Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Conservation of Habitats and Species Regulations 2017 (as amended) provide the primary legal basis for the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK.

SACs are sites which support internationally important habitats and/or species listed as being of Community Importance in the Annexes of the European Habitats Directive 92/43/EEC. SPAs are sites which support internationally important numbers of bird species listed as being of Community Importance in the Annexes of the European Birds Directive 2009/147/EC. Following the UK's exit from the EU, these now form part of the "National Sites" network rather than the EU Natura 2000 network.

Ramsar sites are wetlands of international importance and although not covered under the Habitats Regulations they are, as a matter of national planning policy, subject to the same strict protection as SACs and SPAs. The majority of terrestrial Ramsar sites in England are also notified as SPAs and/or Sites of Special Scientific Interest (SSSIs).

To avoid confusion with the nationally designated sites described below, EPR refers to SACs and SPAs as 'International sites', given the reasons for their designation.

Any plan or project considered likely to affect an international site (SAC, SPA or Ramsar) must be subject to a Habitats Regulations Assessment (HRA), as set out under Regulation 63 (and Regulation 105 in respect of Land Use Plans) of the Habitats Regulations 2017 (as amended) and the National Planning Policy Framework (NPPF) 2021.

The local authority (or other 'competent authority') carries out the HRA, but the onus is on the developer to provide the necessary information to inform this process, usually in the form of a report.

Under the Habitats Regulations 2017 (as amended), the competent authority must determine in the first instance whether a proposed development is likely to have a significant effect on the SAC/SPA, either alone or in combination with other plans and projects. This stage of the HRA process is known as 'screening'.

If a likely significant effect cannot be precluded (screened out) on the basis of objective information, the competent authority must undertake an 'Appropriate Assessment' to fully assess these implications against the site's conservation objectives. A precautionary approach must be taken with respect to determining whether or not there would be a significant effect, and the appropriate nature conservation body (in most cases Natural England) should be consulted. Except in certain exceptional circumstances prescribed by the Regulations where there are imperative reasons of overriding public interest for allowing a development to proceed, the competent authority may not undertake or authorise the plan or project until they have established (based on the conclusions of the Appropriate Assessment) that the activity will not adversely affect the integrity of the SAC/SPA. This should be the case where no reasonable scientific doubt remains as to the absence of such effects.

Regulation 16A of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 sets out the management objectives of the National Site Network, which can be summarised as follows:

- to maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive within the UK's territory to a favourable conservation status (FCS); and
- contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The appropriate authorities must also have regard to:

- the importance of protected sites in meeting the above objectives, including breeding, moulting, staging and wintering areas for in the case of migratory bird species;
- their importance for the coherence of the national sites network; and
- the threats of degradation or destruction (including deterioration and disturbance of protected features) on SPAs and SACs.

Government guidance¹ also states that competent authorities have a duty to help protect, conserve and restore the designated features of SACs and SPAs when carrying out their statutory work, including taking decisions that might affect a site. They also have a duty to consider how they can help to prevent the deterioration of the site's habitats from human activity or natural changes, including habitats that support designated species, and prevent significant disturbance of the site's designated species from human activity or natural changes.

Competent authorities include (but are not limited to) local planning authorities, councillors, planning committee members and statutory agencies such as Natural England.

Statutory Sites: National

Nationally important sites include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). A development proposal that is likely to affect a nationally important site will be subject to special scrutiny by the local planning authority and Natural England. Certain operations may be permitted. Any potentially damaging operations that could have an adverse effect directly or indirectly

on the special interest of the site will not be permitted unless the reasons for the development clearly outweigh the nature conservation and/or geological value of the site itself and the national policy to safeguard such sites, as set out in Section 15 of the National Planning Policy Framework (NPPF).

Sites of Special Scientific Interest

The Wildlife and Countryside Act 1981 (as amended) and the CROW Act 2000 provide the primary legal basis for the protection of Sites of Special Scientific Interest (SSSIs). These sites have been designated to capture the best examples of England's flora, fauna, geological or physiographical diversity.

Public bodies have a duty to take reasonable steps to conserve and enhance the special features of sites of special scientific interest (SSSIs) when carrying out their statutory duties and giving others permission for works, such as reviewing planning applications.

¹ <https://www.gov.uk/guidance/duty-to-protect-protect-protect-and-restore-european-sites>

National Nature Reserves

National Nature Reserves (NNRs) are declared under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs represent the very best parts of England's SSSIs. The majority of NNRs also have European nature conservation designations.

Statutory Sites: Regional/Local

Local Nature Reserves

Local Nature Reserves (LNRs) are declared by local authorities under the National Parks and Access to the Countryside Act 1949 as living green spaces in towns, cities, villages and countryside. They provide opportunities for research and education, or for simply enjoying and having contact with nature. LNRs are usually protected from development through local planning documents which may be supplemented by local by-laws.

Non-Statutory Sites

Local Wildlife Sites

Local planning authorities may designate non-statutory sites for their nature conservation value based on important, distinctive and threatened habitats and species within a national, regional and local context. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as 'County Wildlife Sites', 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNCIs) in local and structure plans. Non-statutory sites are a material consideration when planning applications are being determined. The precise amount of weight to be attached, however, will take into account the position of the site in the hierarchy of sites as set out above. Further information is typically provided in local level planning policy.

Nature Conservation in Areas Outside Designated Sites

Various other features exist outside designated sites that are important for the conservation of nature and which are a material consideration in the planning system.

Habitats of Principal Importance in England

Fifty-six habitat types have been identified as Habitats of Principal Importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Although these habitats are not legally protected, the NPPF, Government Circular 06/05, good practice guidance and the NERC Act place a clear responsibility on planning authorities to further the conservation of these habitats. They can be a material consideration in planning decisions, and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent their net loss and to enhance them where possible. Additional guidance to developers is typically provided in local level planning policy.

The S41 list also includes species as explained below under 'Species of Principal Importance in England'.

Networks of Natural Habitats

Networks of natural habitats link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Examples include rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Local planning authorities are encouraged through the NPPF to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through planning, policies and development control.

Hedgerows

Hedgerows can act as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. Hedgerows that qualify as a Habitat of Principal Importance under S41 of the NERC Act 2006 are a material consideration in the planning system.

Under the Hedgerow Regulations 1997, it is an offence to remove a hedgerow classed as 'important' under the criteria set out by the Regulations without submitting a notice to the Local Planning Authority and waiting for their decision. The Regulations are aimed at countryside hedges and do not apply to hedges around private dwellings or where planning permission has been granted for a project that includes hedge removal. Hedgerows that satisfy wildlife, archaeological, historical or landscape criteria qualify as 'important' under the Regulations. If a hedgerow is not important, the Local Planning Authority may not prevent its removal; however, Local Planning Authorities are required under the Regulations to protect and retain important hedgerows unless satisfied that the circumstances justify their removal.

Tree Preservation Orders

Tree Preservation Orders (TPOs) may be declared under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999 to protect individual trees and woodlands from development and cutting. TPOs are primarily put in place to preserve amenity or for landscape conservation reasons. The importance of trees as wildlife habitat may be taken into account, but alone is not sufficient to warrant a TPO. For this reason, TPOs do not fit comfortably under the remit of nature conservation and are generally dealt with by an arboricultural consultant rather than an ecologist. Further guidance on TPOs in relation to development is available from the Department for Communities and Local Government.

Ancient Woodland & Veteran Trees

Ancient woodlands are defined as areas continuously wooded since at least 1600 AD. Even an ancient wood which has been replanted may still have remnants of ancient woodland wildlife and historical features and has potential to be restored. Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are advised under the NPPF and National Planning Practice Guidance (NPPG) not to grant planning permission for any development that would result in

the loss or deterioration of ancient woodland, ancient trees or veteran trees unless there are 'wholly exceptional reasons' and 'a suitable compensation strategy in place'. Local Planning Authorities must take into account Natural England and the Forestry Commission's *Standing Advice for Ancient Woodland and Veteran Trees*, available on the www.gov.uk website.

Surface & Ground Waters

Surface waters (including flowing and standing water) and ground water can directly and indirectly impact upon the conservation of nature.

Guidance on pollution prevention is hosted on the Government's website and focuses on regulatory requirements. This covers topics including the prevention of pollution if you are a business, managing business and commercial waste, oil storage, working on or near water, and managing water on land. Careful planning and the application of these guidelines can help reduce the risk of construction and maintenance work causing pollution to surface and ground waters. Some activities with the potential to impact watercourses or groundwater may require consent under the Water Resources Act 1991.

Water Resources Act (WRA) 1991

Under the WRA there is strict regulation of discharges (including sediment, chemicals, nutrients) to rivers, lakes, estuaries and groundwaters. It also aims to ensure that polluters cover the costs associated with pollution incidents.

SPECIES PROTECTION

Legally Protected Species

The species listed in the following subsections are protected by law in England. When preparing a planning application, it is essential to determine the presence or likely absence of legally protected species and the extent to which they may be affected by a proposed development. This can best be achieved by undertaking surveys early in the planning process. Avoidance and/or mitigation measures may be required to address any predicted impacts upon protected species and may necessitate a licence. The Government website offers standing advice from Natural England and DEFRA which can be applied to planning applications that affect protected species.

Bats

There are 18 species of bat in the UK, seven of which are Species of Principal Importance in England. All bats and bat roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also a European Protected Species protected under the Habitats Regulations 2017 (as amended). It is an offence to:

- Intentionally or deliberately kill, injure or capture bats;
- Intentionally, deliberately or recklessly disturb bats in such a way as to be likely to significantly affect the ability of any significant group of bats to survive, breed, or rear or nurture their young or the local distribution of or abundance of a species of bat;
- Intentionally, or recklessly damage, destroy or obstruct any place used for shelter or protection (i.e. bat roosts) or intentionally or recklessly disturb a bat whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a bat; and
- Possess, sell or transport a bat, or anything derived from it.

Development proposals affecting bats or their roosts require a European Protected Species mitigation licence from Natural England.

Great Crested Newt

The Great Crested Newt *Triturus cristatus* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Great Crested Newts;
- Intentionally, deliberately or recklessly disturb Great Crested Newts in such a way as to be likely to significantly affect the ability of any significant group of Newts to survive, breed, or rear or nurture their young or the local distribution of or abundance the species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Great Crested Newts for shelter or protection, or intentionally or recklessly disturb a Great Crested Newt whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Great Crested Newt; and
- Possess, sell or transport a Great Crested Newt, or anything derived from it.

Development proposals affecting the Great Crested Newt require a European Protected Species mitigation licence from Natural England.

Intentional or reckless behaviour leading to an offence being committed as detailed above may result in maximum penalties of:

- Up to £5,000 fine per offence committed;
- A custodial sentence of up to six months instead of, or in addition to, a fine; and/or
- Items of equipment involved in committing the offence may be seized and detained.

In addition to the above penalties, it is likely that any EPS mitigation licence obtained for a site will be revoked whilst any wildlife offence is investigated. This will lead to immediate temporary and, depending on investigation outcomes, possible permanent restrictions on site works, as well as associated cost.

Hazel Dormouse

The Hazel Dormouse *Muscardinus avellanarius* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Dormice;
- Intentionally, deliberately or recklessly disturb Dormice in such a way as to be likely to significantly affect the ability of any significant group of Dormice to survive, breed, or rear or nurture their young or the local distribution of or abundance of the species;
- Intentionally or recklessly damage, destroy or obstruct access to places used by Dormice for shelter or protection (whether occupied or not) or intentionally or recklessly disturb a Dormouse whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Dormouse;

- Possess or transport a Dormouse (or any part thereof) unless under licence; and
- Sell or exchange Dormice.

Development proposals affecting the Dormouse require a European Protected Species mitigation licence from Natural England.

European Otter

The European Otter *Lutra* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Otters;
- Intentionally, deliberately or recklessly disturb Otters in such a way as to be likely to significantly affect the ability of any significant group of Otters to survive, breed, or rear or nurture their young or the local distribution of or abundance of Otters;
- Intentionally or recklessly damage, destroy or obstruct access to places used by Otters for shelter or protection (whether they occupied or not) or intentionally or recklessly disturb an Otter whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of an Otter;
- Possess or transport an Otter (or any part thereof) unless under licence; and
- Sell or exchange otters.

Development proposals affecting the Otter require a European Protected Species licence from Natural England.

Reptiles

All four of the widespread British species of reptile, namely the Common Lizard *Zootoca vivipara*, Slow-Worm *Anguis fragilis*, Grass Snake *Natrix helvetica* (previously *Natrix natrix*) and Adder *Vipera berus*, are Species of Principal Importance in England. They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional killing, injury and trade. The habitat of the four widespread reptiles is not legally protected; however the replacement of habitat lost through development may be required through the planning system. Mitigation for these species is not subject to licensing by Natural England but should nonetheless be planned to minimise disturbance and potential project delays.

The Smooth Snake *Coronella austriaca* and the Sand Lizard *Lacerta agilis* are the rarest reptile species in Britain. In addition to the protection that is afforded to the widespread species of reptile listed above, these species are protected further under Schedule 5 (Sections 9.4b and 9.4c) of the Wildlife and Countryside Act 1981 (as amended). They are also European Protected Species protected under the Habitats Regulations 2017 (as amended). This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Sand Lizards or Smooth Snakes;
- Intentionally, deliberately or recklessly disturb Sand Lizards or Smooth Snakes in such a way as to be likely to significantly affect the ability of any significant group of Sand Lizards or Smooth Snakes to survive, breed, or rear or nurture their young or the local distribution or abundance of either species;

- Intentionally or recklessly damage, destroy or obstruct any place used by Sand Lizards or Smooth Snakes for shelter or protection, or intentionally or recklessly disturb a Sand Lizard or Smooth Snake whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Sand Lizard or Smooth Snake;
- Keep, sell, or exchange Sand Lizards or Smooth Snakes or their eggs; and
- Deliberately take or destroy their eggs.

Development proposals affecting Smooth Snake or Sand Lizard require a European Protected Species mitigation licence from Natural England.

Water Vole

The Water Vole *Arvicola terrestris* is a Species of Principal Importance in England. The legal protection for Water Voles was increased in 2008 to fully cover the species under Section 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation makes it an offence to:

- Intentionally or deliberately (but not recklessly) kill, injure or take Water Voles;
- Intentionally, deliberately or recklessly damage, destroy or obstruct access to any structure or place used by Water Voles for shelter or protection;
- Intentionally, deliberately or recklessly disturb Water Voles whilst they occupy a structure or place used for that purpose;
- Sell Water Voles or offer or expose for sale or transport for sale; and
- Possess or control live or dead Water Voles or derivatives.

Developers who wish to maintain, build on or alter areas used by Water Voles must ensure that unnecessary damage is avoided and all reasonable steps are taken to minimise impacts on Water Voles and their burrows. The Wildlife and Countryside Act provides a defence against the offences listed above, provided the action is the incidental result of an otherwise lawful operation and could not reasonably have been avoided.

A licence to displace Water Voles must be obtained from Natural England before conducting any activities involving displacement operations (this is different to a conservation licence, which is required for survey methods that involve disturbing Water Voles or their burrows, or capturing them). To obtain a displacement licence, it is necessary to demonstrate that the activity/activities will result in a conservation benefit for Water Voles.

Birds

49 species of bird are listed as Species of Principal Importance in England. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence, with certain exceptions (e.g. game birds), to intentionally kill, injure or take any wild bird and to take, damage or destroy their nests or eggs.

Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) affords extra protection for certain species and applies harsher penalties for offences. Any intentional or reckless disturbance of a Schedule 1 bird, whilst it is nesting or rearing dependent young, constitutes an offence.

Regulation 10 of the Conservation of Habitats and Species Regulations 2017 (as amended) requires appropriate authorities and conservation bodies, in the exercise of their functions, to take such steps that they consider appropriate in order to secure “*the preservation, maintenance and re-establishment*”

of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat (...)".

European Badger

The Protection of Badgers Act 1992 offers considerable protection to both Badgers and Badger setts. This legislation was enacted to protect the European Badger *Meles* against baiting and not as a means of species recovery as it is common in England. It is an offence to cruelly treat, kill or take Badgers, but it is also illegal to intentionally or recklessly damage or disturb a Badger sett while it indicates signs of current use by a Badger.

The Government website contains information to help developers and their proponents avoid sett disturbance and to identify setts that are in current use. It is important to maintain adequate foraging territory in development proposals affecting Badgers as the destruction or severance of large areas of foraging territory could also be taken to include habitat loss. Licences to disturb Badgers and their setts in respect of development may be issued by Natural England provided provisions are made to minimise disturbance.

Wild Mammals

All wild mammals are protected against cruelty under the Wild Mammals (Protection) Act 1996, which makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

White-Clawed Crayfish

The White-Clawed Crayfish *Austropotamobius pallipes* is a Species of Principal Importance in England. Outside designated sites (e.g. SACs), the White-Clawed Crayfish receives limited protection under Schedule 5 (Sections 9.1, 9.5a and 9.5b) of the Wildlife and Countryside Act 1981 (as amended), the Habitats Regulations 2017 (as amended) and the Salmon and Freshwater Fisheries Act 1975. This legislation does not provide strict protection of individual crayfish or their habitats but it does prevent prohibit the capture of this species without a licence. A conservation licence must therefore be obtained from Natural England before conducting any mitigation involving the capture and handling of this species.

European Eel

The Eels Regulations 2009 (as amended in 2011) aim to combat the population decline of the European eel *Anguilla anguilla* through protection of migration routes and controls on the numbers of eels allowed to be taken. In order to protect migration routes, any structures which may prevent upstream or downstream migration of eels must be reported to the Environment Agency. Eel passages must be constructed where needed and maintained in a good condition.

Freshwater Fish

The Salmon and Freshwater Fisheries Act 1975 protects freshwater fish, particularly salmon and trout. It prevents the destruction of spawning grounds and the obstruction of migratory passages through the building of weirs, dams etc.

Licences for Development

Licences are required to permit activities prohibited under wildlife legislation, namely the disturbance or capture of protected species or damage to their habitats. Natural England is the licensing authority in England. Licences are only issued for certain purposes, which are set out in the legislation, and only

where there is a valid justification. The licences most relevant to development scenarios are discussed below.

European Protected Species Mitigation Licences

A European Protected Species mitigation licence (EPSL) is required from Natural England to undertake any development that is reasonably likely to result in an offence in respect of a European Protected Species protected under Schedule 2 of the Habitats Regulations 2017 (as amended); including *inter alia* all species of bats, Hazel Dormouse, Great Crested Newt and European Otter. Natural England must be satisfied that the following three tests are satisfied before it will issue a licence covering a European Protected Species:

1. The proposal is necessary to preserve public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
2. There is no satisfactory alternative; and
3. The proposal will have no detrimental effect to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Conservation Licences

In the context of development, conservation licences are normally only relevant to mitigation involving the capture of Water Voles or White-Clawed Crayfish. Conservation licences are granted to permit the trapping and translocation of these species on the condition that the development activity is properly planned and executed and thereby contributes to the conservation of the population of the species.

Badger Licences

Licences to disturb Badgers and their setts in respect of development may be issued by Natural England, provided provisions are made to minimise disturbance.

Species of Principal Importance in England

943 species have been identified as being of Principal Importance for the conservation of biodiversity in England under Section 41 (S41) of the NERC Act 2006. The S41 list includes species found in England which have been identified as requiring action under the now superseded UK Biodiversity Action Plan 2007 (plus the Hen Harrier). While many of these species may not be legally protected (some are protected under the legislation described above), there is a clear responsibility on local planning authorities to further their conservation. These species can be a material consideration in development

control decisions and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent the net loss of these species, and to enhance their habitats where possible. Additional guidance to developers is typically provided in local level planning policies.

Invasive Non-Native Species

There are a number of species not ordinarily resident in the UK, such as Japanese Knotweed. Those which pose a significant threat, if uncontrolled, to our ecology and economy are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). For an offence to be committed, a species must be released or allowed to escape into the wild. For example, if a plant listed on Schedule 9 is not adequately controlled by a landowner, once they are aware that it is present, and the species is allowed to spread into adjoining areas, then this could constitute an offence.

Japanese Knotweed is also classed as 'controlled waste' under the Environment Protection Act 1990 (as amended) and if taken off site it must be disposed of safely at a licensed landfill site. Soil containing rhizome material should also be regarded as contaminated and treated accordingly.

Species Control Orders

A new schedule 9A was inserted into the Wildlife and Countryside Act 1981 (as amended) by Sections 23 to 25 of the Infrastructure Act 2015. This gives environmental authorities (in England the Secretary of State, Environment Agency, Natural England and the Forestry Commission) the power to offer 'species control agreements' to landowners in respect of invasive and/or non-native species, such as Japanese Knotweed. If the landowner does not comply with a species control agreement, or refuses to enter into one, the environmental authority may issue a 'species control order', requiring the owner to eradicate or control the species, or to allow the environmental authority access to carry out these operations themselves.

If the owner does not comply with the species control order, the maximum penalty if convicted is a fine of up to £40,000 and/or imprisonment for up to 51 weeks. The environmental authority can also recover costs for carrying out the necessary work themselves.

PLANNING POLICY & GUIDANCE

This section set out the main planning policy and government guidance that relates to the conservation of nature at all levels of government.

National Level

National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) 2021 sets out the Government's planning policies for England and how these should be applied in local-level policy and decision making. The NPPF has a clear "presumption in favour of sustainable development" (paragraph 11), with economic, social and environmental objectives. This presumption does not apply where a plan or project has failed the 'appropriate assessment' test under the Habitats Regulations (paragraph 182).

Section 15 of the NPPF provides guidance on conserving and enhancing the natural environment through the planning system, as summarised below.

Firstly, planning policies and decisions should contribute to and enhance the natural and local environment by applying the following key principles:

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

Section 15 also requires planning policies and decisions to limit the impact of artificial light pollution on nature conservation.

Secondly, when determining planning applications, local planning authorities should apply the following key principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated or (as a last resort) compensated for, then planning permission should be refused;
- proposed development that is likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should normally be refused;
- planning permission should normally be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, 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 encouraged, especially where this can secure measurable net gains for biodiversity.

In the case of SSSIs and irreplaceable habitats, exceptions may be made if it can be clearly demonstrated that the benefits of the development, in that location, clearly outweigh the costs in terms of loss or adverse impacts.

Section 15 specifies that listed or proposed Ramsar sites, potential European sites, and sites identified or required as compensatory measures for adverse effects on designated/listed or potential/proposed European and Ramsar sites should be given the same protection as designated European sites.

Section 15 includes the following text on air quality:

- Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas;
- Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications; and
- Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

The NPPF also sets out principles for plan-making, including the allocation of land with the least environmental or amenity value, and taking a strategic approach to maintaining and enhancing networks of habitats and green infrastructure by identifying, mapping and safeguarding components of local wildlife-rich habitats, wider ecological networks, wildlife corridors and stepping stones, and those areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

Government Circular 06/05: Biodiversity and Geological Conservation

The Government produced Circular 06/05 to provide guidance on the application of the law to the conservation of nature. Although the document is in the process of being updated, Paragraphs 98 and 99 remain relevant as they set out the following principles and obligations:

- The presence of protected species is a material consideration when determining a development proposal;
- Local authorities should consult with Natural England before granting permission, and consider imposing planning conditions or obligations to secure the long-term protection of the species;
- The presence of protected species, and the extent to which they may be affected by the proposed development, must be established before permission is granted;
- Given the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.

MHCLG Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government (now the Ministry of Housing, Communities and Local Government, MHCLG) as a web-based tool in March 2014 to accompany the NPPF. The webpages are set out in a Q&A format. The PPG consolidates and supersedes existing guidance on a range of planning-related topics, clarifies some of the statements made in the NPPF, and provides links to relevant legislation and other sources of advice.

The Guidance outlines a number of important principles in relation to nature conservation and biodiversity, including the need to integrate biodiversity into all stages of the planning process and to

consider opportunities to enhance biodiversity and contribute to the Government's commitments and targets set out in *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*.

The guidance also requires that "an ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate", and recommends that "local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development."

Other guidance

In addition to the Planning Practice Guidance, various other forms of guidance and standards are available in relation to biodiversity and the development process. Of particular note is *British Standard BS42020:2013 Biodiversity – Code of practice for planning and development*, published in August 2013, which replaces *Planning to Halt the Loss of Biodiversity (PAS 2010): Biodiversity conservation standards for planning in the United Kingdom*.

This document is designed to complement the NPPF and is aimed at organisations concerned with ecological issues throughout the planning process, including local authorities, developers, planners and ecological consultants. It sets out step-by-step recommendations on how to incorporate biodiversity considerations at all stages of the planning process, with a focus on the provision of consistent, high quality and appropriate ecological information, effective decision making, and high standards of professional conduct and competence.

Regional Level

Regional plans (such as the South East Plan Regional Spatial Strategy) have been revoked, but some specific policies have been saved. The only policy saved from the South East Plan is Policy NRM6, which relates to the Thames Basin Heaths Special Protection Area (TBH SPA).

Local Level

Wokingham Borough Council, Managing Development Delivery Local Plan, adopted 21 February 2014

The following policies are considered to be of most relevance:

- CC01: Presumption in favour of sustainable development. Planning applications that accord with the policies of Wokingham Borough Council Development Plan will be approved without delay unless material considerations indicate otherwise.
- CC03: Green infrastructure, trees and landscaping. Green routes and Green Route Enhancement Areas are defined on the Policies Map (available on the WBC website, see footnote). Development proposals should demonstrate how they have considered and achieved the following criteria within scheme proposals:
 - o Provide new or protect and enhance the Borough Green Infrastructure networks, including the need to mitigate potential impacts of new development;
 - o Promote accessibility, linkages and permeability between and within existing green corridors;
 - o Promote the integration of the scheme with any adjoining public open space or countryside;
 - o Protect and retain existing trees, hedgerows and other landscape features;
 - o Incorporate high quality, ideally, native planting and landscaping as an integral part of the scheme.
 - o Development proposals that result in the loss, fragmentation or isolation of areas of green infrastructure will not be acceptable.
- TB23: Biodiversity and Development. Planning permission for development will only be granted where it meets Policy CP7 of the Core Strategy and also demonstrates how the following can be provided:
 - o opportunities to incorporate new biodiversity features or enhance existing features;
 - o provide appropriate buffer zones between development proposals and designated sites as well as habitats and species of principal importance for nature conservation;
 - o ensure all existing and new development are ecologically permeable through the protection of existing and provision of new continuous wildlife corridors, which shall be integrated and linked to the wider green infrastructure network.

Supplementary Planning Document: South of M4 Strategic Development Location, adopted October 2011

Four strategic development locations have been identified within the Core Strategy of Wokingham Borough Council, South of the M4 is one of these. This SPD sets out WBCs expectations on masterplanning, design quality and infrastructure requirements for this SDL and will be a material consideration in determining planning applications.

The following policies are considered to be of most relevance:

- CP1 - Sustainable development. Planning applications that accord with the policies of Wokingham Borough Core Strategy will be granted and this policy will be delivered through the Managing Development Delivery DPD and Sustainable Development SPD.
- CP7 - Biodiversity. Sites designated as of importance for nature conservation at an international or national level will be conserved and enhanced and inappropriate development will be resisted. The degree of protection given will be appropriate to the status of the site in terms of its international or national importance.

Development:

- A) Which may harm county designated sites (Local Wildlife Sites in Berkshire), whether directly or indirectly, or
- B) Which may harm habitats or, species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or
- C) That compromises the implementation of the national, regional, county and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and:
 - i) Mitigation measures can be put in place to prevent damaging impacts; or
 - ii) Appropriate compensation

BIODIVERSITY PLANS AND STRATEGIES

The NERC Act 2006 places a duty on local authorities to have due regard to biodiversity when exercising their normal functions, and the NPPF requires planning policies to “promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species, and identify and pursue opportunities for securing measurable net gains for biodiversity” (paragraph 174). These targets are set out in a range of biodiversity plans and strategies from the international through to the district level.

An overview of the key biodiversity plans and strategies in the UK, and their implications for development, are set out below.

National level

The *UK Biodiversity Action Plan 2007* (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framework* and individual national biodiversity strategies. The UK Framework sets out the overarching vision, strategic goals and priority activities for the UK’s work towards international biodiversity targets (known as the ‘Aichi Targets’), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010.

In England, *Biodiversity 2020: A strategy for England’s wildlife and ecosystem services* is the national biodiversity strategy, which has the stated mission “(...) to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.” In order to focus activity and assess performance in

achieving this mission, Biodiversity 2020 sets out objectives relating to terrestrial and marine habitats and ecosystems, species and people.

Local level

While BAPs at the national level have now been superseded by *the UK Post-2010 Biodiversity Framework* and *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, many county and district level BAPs still exist.

Wokingham Borough Council Biodiversity Action Plan 2012-2024 (Draft), February 2014

This BAP retains the structure of the former plan (*Wokingham District's Biodiversity Action Plan 2003-2012*) and contains the same five Habitat Action plans:

- • Communities, Towns and Villages HAP;
- • Woodland HAP;
- • Grassland and Hedgerow HAP;
- • Wetland HAP;
- • Heathland HAP.

Biodiversity Net Gain

The Environment Act 2021 makes provisions for 10% biodiversity gain, as measured by a metric (currently published by Defra), to become a condition of planning permission in England. This will come into force upon the adoption of secondary legislation and regulations. Timescales are to be confirmed, but this is currently expected to be around late 2023. A publicly accessible register of Biodiversity Gain Sites will be set up during this time, and the Secretary of State will publish and consult on the biodiversity metric to be used, as well as on the wording of the secondary legislation itself.

The Act specifies that biodiversity gain can be delivered on and/or offsite, and establishes the basis for purchasing off-site credits to meet the 10% obligation if required. Land used to deliver biodiversity gain must be maintained for at least 30 years, and planning conditions will require a biodiversity gain plan to be submitted to and approved by the planning authority prior to commencement of development.

It also clarifies that the baseline biodiversity value of a site should be taken from the date on which planning consent is granted, unless otherwise agreed with the LPA (but not before the secondary legislation comes into force). This excludes any activities undertaken without planning permission (or other relevant permissions) after 30 January 2020 which have had the effect of reducing the biodiversity value of the land. In such cases, "the pre-development biodiversity value is to be taken to be its biodiversity value immediately before the carrying on of the activities."

Biodiversity net gain (BNG) is already enshrined in the key principles of the NPPF, and some local planning policies already include a requirement to deliver a minimum net gain figure (typically 10% or 20%).

Enhancement measures may not just benefit biodiversity. There are many functional benefits to be won from strategically planned green infrastructure projects such as semi-natural urban green spaces, sustainable drainage schemes (SUDS) and green roofs.

Appendix 2

Ecological Appraisal Methodology

The ecological appraisal was completed in order to inform the masterplanning process and establish the appropriate scope of an Ecological Impact Assessment (EclA) in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for the Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. (2018). CIEEM's 2017 Guidelines for Preliminary Ecological Appraisal were also taken into account.

DESK STUDY METHODOLOGY

A desk study was carried out in order to gather and refer to existing biodiversity and contextual information with respect to the zone of influence and the wider area. This involved interrogation of internet resources, including the Multi-agency Geographic Information for the Countryside (MAGIC) and National Biodiversity Network (NBN), aerial photos, current Ordnance Survey maps and historical maps. Reference was also made to local planning policies, strategies and initiatives relating to biodiversity.

A request was made to Thanet Valley Environmental Records Centre for any existing biological records in their database. The local records search and other desktop research was over a 2km radius for nationally and locally important features and a 5km radius for European Protected Species and sites of European significance.

FIELDWORK METHODOLOGY

The field survey was completed by Liam Mayle and Katie Cammack of EPR on 15/03/24. The entirety of the Site and immediately surrounding land was walked recording habitats and features of potential value to wildlife and any evidence of, or potential for, protected or notable species or habitats, in accordance with the methods described below.

U

Land Use, Habitat Types, Vegetation Communities and Flora

Within the study area the land use, habitat types and landscape features (such as hedgerows and veteran trees) were described and mapped. For each main habitat type the dominant vegetation communities were recorded, along with any notable or indicator plant species, (including invasive species such as Japanese Knotweed where present). A preliminary evaluation of the structure, quality and likely management of each habitat or feature was also carried out.

The survey method used to record this information was based on the UK Habitat Classification System (UK Hab, 2020). Botanical nomenclature in this report follows Stace (2019).

Fauna

The potential for habitats and features to support protected or notable species, or species of principal importance for the purpose of conserving biodiversity, were recorded, as were any signs encountered. The following is a summary of the approach taken for this Ecological Appraisal.

Badgers

Consideration was given to the presence of habitat potentially suitable for supporting Badgers, including woodland and grassland. Potential evidence of the presence of Badgers was looked out for and noted, including earthworks that might be Badger setts, and signs such as dung pits, mammal pathways through ground vegetation and under fences, and hairs on fences.

Bats

Bats use buildings and trees for roosting and breeding and, where present, a preliminary assessment of the potential for these features to support bats was undertaken during the survey. Potential may include gaps beneath roof or hanging tiles, in soffits, or beneath the end of ridge tiles, but also under the edge of felt on flat roofs. In trees potential roosting features include woodpecker holes, splits in branches and peeling bark.

Preliminary evidence was obtained through noting any staining around potential roost entrances, and looking for bat droppings, for example on windowsills. A preliminary evaluation was also undertaken of potential bat foraging habitat in the area, including woodland, pasture, hedges and watercourses.

Dormouse

The type and quality of habitat with the potential to be suitable for supporting Dormice, such as woodland and hedgerows, was considered during the survey. In particular the presence of Oak, Hazel and berry-bearing shrubs was noted, and the connectivity of habitat recorded.

Water Voles

The presence and quality of watercourses with the potential to support Water Voles was recorded during the survey. Potential evidence of Water Voles, including burrows in the tops and vertical face of riverbanks, and feeding evidence was recorded where appropriate.

European Otter

Where watercourses are present, a preliminary evaluation of the quality of the riparian habitat for potentially supporting Otters was made. A preliminary search was made for signs of Otters, including spraints which are often left in prominent places on river banks, such as logs and bare patches of ground.

Birds

Any birds seen whilst carrying out the survey were recorded, and the type and quality of habitats available for birds was considered, including vegetation suitable for nesting, and habitat with the potential to support valued species, including breeding and wintering birds.

Amphibians

Consideration was given to the presence of habitat potentially suitable for supporting amphibians, including water bodies (ponds, ditches), woodland, scrub and rough grassland, and features such as log piles that might provide hibernation areas. Where appropriate, effort to gather direct evidence of amphibians was undertaken by making a preliminary search for eggs by examining

vegetation within reach of the margins of water bodies, and for resting animals on land by looking under potential refuges, such as stones, wood and rubbish near to water bodies.

Reptiles

The presence and quality of habitat considered potentially suitable for supporting reptiles was recorded. This included areas providing basking and foraging areas, hibernation and breeding sites, such as rough grassland and scrub, banks, burrows, rubble piles, compost heaps, hedgebanks and water bodies.

Invertebrates

Readily identifiable invertebrates seen during the survey were recorded, and habitats and features likely to support noteworthy groups and species were noted, for example herb-rich grasslands, areas of bare ground and deadwood habitats, including woodland and veteran trees.

Appendix 3

Site Plan

– Allotments area as required by planning approval (0.4ha)

Drain

Woodland

Hi

FOR DISCUSSION

Project
University of Reading
South of M4

Drawing Title

Community Growing Space

Date	Scale	Drawn by	Check by
21.03.24	1:250 @A1 1:1000 @A3	BA	DS
Project No	Drawing No	Revision	
24262	RG-LD-L-560	B	

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NOTE: Tree/group numbers marked with an * have approximate locations.

Annex 5

Shinfield Southern Allotments: Technical Note: Bats

Shinfield Southern Allotments

Technical Note: Bats

1. INTRODUCTION

Brief

- 1.1 Ecological Planning & Research Limited (EPR) was commissioned by the University of Reading to carry out bat surveys on land to the west of High Copse, Shinfield (SU729670), hereafter referred to as “the Site”.

Background

- 1.2 The Site forms part of an area which received outline planning permission on 8th November 2012 (reference O/2010/1432) for the development of up to 1200 residential dwellings and 150 units of specialist housing, as well as a local centre, and a new primary school and landscaping located at Shinfield West, within the ‘South of the M4’ Strategic Development Location. The current application is for the construction of allotments.
- 1.3 The Preliminary Ecological Appraisal for the Site (EPR 2024) recommended further surveys for bats to determine if bats were using the Site and to characterise this activity. This note sets out the methodology and results of these surveys.

The Study Area

- 1.4 The Site consists of 1.04ha of abandoned arable land on the outskirts of Reading, south of the village of Shinfield and east of Spencers Wood. The B3349 lies approximately 120m east of the Site boundary.
- 1.5 The Site lies to the west and south of the remaining sections of High Copse, an Ancient Woodland site. Historic maps show that these sections were once connected, encompassing the entirety of the Site, but the land within the site and immediately north was cleared in the late 19th-early 20th century for arable land.
- 1.6 The Site contains suitable habitat for foraging and commuting bats in the form of on-site grassland, trees and hedgerows, the latter of which are connected to High Copse. The Proposals could therefore affect bats through impacts such as direct harm, loss and fragmentation of habitat and disturbance, for example by increased lighting.
- 1.7 The PEA identified an Oak tree to the south of the Site, designated TN4 (**Map 1**), that has a large tear-out that may be suitable to support roosting bats, therefore a Potential Roost Feature (PRF) inspection survey was advised.
- 1.8 A bat licence has been granted for the destruction day roosts and maternity roosts for both Common Pipistrelle and Brown Long-eared bats on land immediately adjacent to the Site to the

northwest (Natural England reference: 2018-36705-EPS-MIT-2). Appropriate mitigation and compensation has been provided in line with the licence within an area of woodland immediately north of the site. The proposals should therefore avoid or limit light spill outside of the site boundary, particularly in the direction of the surrounding woodlands, considering the likely presence of Brown Long-Eared bats based on the previously granted bat licence.

Previous surveys

- 1.9 Bat transect and automated detector surveys of the Site and adjacent land to the south were conducted by EPR in 2022. During these surveys Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula* and Brown Long-Eared Bats were observed using the Site and surrounding area, while the automated detectors recorded these species as well as very low numbers of Myotis species, Serotine *Eptesicus serotinus*, Leisler's *Nyctalus leisleri* and Barbastelle *Barbastella barbastellus*.

Relevant Nature Conservation Legislation & Policy

Legislation

- 1.10 There are 18 species of bat in the UK, seven of which are Species of Principal Importance in England. All bats and bat roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also a European Protected Species protected under the Habitats Regulations 2017 (as amended). It is an offence to:
- Intentionally or deliberately kill, injure or capture bats;
 - Intentionally, deliberately or recklessly disturb bats in such a way as to be likely to significantly affect the ability of any significant group of bats to survive, breed, or rear or nurture their young or the local distribution of or abundance of a species of bat;
 - Intentionally, or recklessly damage, destroy or obstruct any place used for shelter or protection (i.e. bat roosts) or intentionally or recklessly disturb a bat whilst it is occupying such a place;
 - Damage or destroy a breeding site or resting place of a bat; and
 - Possess, sell or transport a bat, or anything derived from it.
- 1.11 Development proposals affecting bats or their roosts in any of the above ways require a European Protected Species mitigation licence from Natural England.
- 1.12 Certain bat species are listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and are Species of Principal Importance for the conservation of biodiversity in England. Public authorities have a responsibility to give specific consideration to the Section 41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes.

Policy

- 1.13 The Wokingham Borough Council Adopted Core Strategy: Development Plan Document (January 2010) sets out the framework for the development of the borough, through a series of policies and strategies.

1.14 Of particular relevance to GCN is Policy CP7 – Biodiversity, which states:

“... Development:

A) Which may harm country designated sites (Local Wildlife Sites), whether directly or indirectly, or

B) Which may harm habitats or species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or

C) That compromises the implementation of the national, regional, country and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and;

i) Mitigation measures can be put in place to prevent damaging impacts; or

ii) Appropriate compensation measures to offset the scale and kind of losses are provided.”

2. METHODOLOGY

Survey Scope and Aims.

- 2.1 The surveys aimed to establish the presence or likely absence of bats within the Site and immediate surrounds and characterise the activity of bats within the Zone of Influence of the proposed development. With this information, a clear understanding can be attained regarding the impact of the proposed development on bats in the Zone of Influence in the absence of mitigation and recommendations made to mitigate potential impacts.

Zone of Influence

- 2.2 Due to the wide-ranging nature of bats, the Zone of Influence is likely to extend beyond the Site and into adjacent areas potentially up to 6km, the to encompass any populations of bats that use affected habitats on the Site, although biophysical effects caused by the proposals themselves (e.g. noise and lighting disturbance, loss of foraging and commuting habitat through land clearance etc.) will be more spatially limited.

Desktop Study

- 2.3 A records search was commissioned from Thames Valley Environmental Record Centre (TVERC) in order to obtain existing records of bats within a 5km radius of the Site, thereby incorporating the potential Zone of Influence and providing context with local bat populations.

Field Survey

PRF inspection survey

- 2.4 Bat licenced ecologist, Philip Brown (Level 2, CL18, 2015-18270-CLS-CLS) completed a PRF Inspection Survey on 25/04/24 to closely inspect features and search for bats or evidence of bats using a high-powered torch and endoscope.
- 2.5 Conditions at the time of survey were overcast, with a rain shower not long before the survey, a temperature of 9 degrees, cloud cover of 100%, and wind at 1 to 2 on the beaufort scale.

Transect surveys

- 2.6 The walked transect surveys were designed to determine the use of the Site and adjacent habitat by bats, their distribution across the area, and identify any potential key locations for bat activity.
- 2.7 The transect route was devised to encompass most features within and adjacent to the Site that have the potential to support bats in terms of foraging, commuting and roosting habitat.
- 2.8 The transect route was walked by a pair of surveyors equipped with full spectrum bat detectors with recording capabilities.
- 2.9 Prior to walking the transect route, the surveyors recorded bat activity from a fixed point for a minimum of 30 minutes. The transect route was then walked until at least 2 hours after sunset. The transect route and fixed-point positions are shown in **Map 2**.
- 2.10 Three transect surveys were conducted, in line with the Bat Conservation Trust guidelines (Collins 2023), in May, July and September 2024.

2.11 **Table 2.1** shows the meta data for the transect surveys.

Table 2.1: transect survey meta data

Date	Time			Temperature °C		Wind Beaufort Scale		Cloud Cover %	
	Sunset	Start	End	Start	End	Start	End	Start	End
20/05/24	20:57	20:57	22:57	16	14	1	2	30	10
23/07/24	21:04	20:14	23:04	22	18	0	0	100	80
17/09/24	19:12	19:12	21:12	16	11	1	0	50	0

2.12 No rain was recorded for any of the surveys.

2.13 In response to bat calls being recorded significantly early on the automatic detectors, the fixed-point portion of the July survey began 50 minutes before sunset to try to characterise this activity.

2.14 During this survey, a night vision camera was also set up to record activity around a PRF, in a tree in the northwestern corner of the Site, that was identified in the previous transect survey. A photograph of this PRF, hereafter referred to as PRF3 is shown in **Fig.A2.6** in **Appendix 2**. The tree and those around it are due to be retained.

2.15 Due to the portion of the tree where PRF3 is located being dead, it was deemed unsafe to carry out a full PRF inspection survey. PRF3 was covered during the fixed-point portion of each survey. The night vision camera recorded activity around PRF3 for the entirety of the July survey and this footage was reviewed in its entirety.

Automated detector surveys

2.16 Automated static detectors were attached to fence posts to the northwest and southeast of the Site. The deployment locations are shown at **Map 2**.

2.17 Automated static detectors were deployed once a month within the Site for five consecutive nights between April to October (inclusive).

2.18 The metadata for the automated detector surveys can be seen in **Appendix 1/**

Analysis of Field Data

2.19 Data from the automatic detectors was analysed by Liam Mayle of EPR, using Kaleidoscope bat call analysis software.

2.20 Footage from the night vision camera was reviewed by Craig Sellwood of EPR.

2.21 Surveys, including the use of automated detectors, were conducted between April-October in line with good practice guidelines issued by the BCT (Collins 2023). Therefore, the results are likely to be an accurate representation of how bats are using the Site.

3. SURVEY RESULTS

Desktop Study

- 3.1 The data search returned records for Barbastelle, Brown Long-Eared, Common and Soprano Pipistrelle, Leisler's, Noctule, Myotis and Serotine Bats from within 2km of the Site. The exact species for the majority of Myotis species records is not specified, though a single record of Daubenton's bat *Myotis daubentonii* was found to the south of the Site.

Field Survey

PRF inspection survey

- 3.2 Across the whole tree, two PRF's were identified. These are described below as PRF 1 and PRF 2 and photos shown in **Appendix 2**.

PRF 1 within tree at TN4

- Type – Lifted heartwood leading to crevice.
- Height – 1.5m.
- Aspect – East.
- Location – On main trunk within exposed heartwood which has healed following a presumed historic tearout, just below PRF 1.
- Description – Crevice feature, entirety of feature visible, dry inside.
- Dimensions – Approx 50cm tall, 20cm wide, 5cm deep at entrance and tapers to a point.
- Suitability – PRF-I, this PRF is only suitable for individual bats or very small numbers of bats.

PRF 2 within tree at TN4

- Type – Lifted heartwood leading to crevice.
- Height – 1m.
- Aspect – East.
- Location – On main trunk within exposed heartwood which has healed following a presumed historic tearout, just above PRF 2.
- Description – Crevice feature, entirety of feature visible, dry inside.
- Dimensions – Approx 10cm tall, 10cm wide, 5cm deep at entrance and tapers to a point.
- Suitability – PRF-I, this PRF is only suitable for individual bats or very small numbers of bats.

Transect surveys

- 3.3 Four species, Common and Soprano Pipistrelle, Noctule and Serotine, were recorded as present either on or immediately adjacent to the Site. Results are shown in **Maps 3a-c**.
- 3.4 No emergences from PRF3 were recorded by the night vision camera or by surveyors during the transect surveys.

Automated detector surveys

- 3.5 At least nine species of bat (Barbastelle, Brown Long-Eared, Common, Soprano and Nathusius' *Pipistrellus nathusii* Pipistrelle, Leisler's, Myotis species, Noctule and Serotine) were recorded by the automated detectors. Full results are shown in **Appendix 1**.
- 3.6 As Myotis species present with very similar call patterns, it is generally not possible to reliably identify them from audio recordings alone. However the data indicates that they do not make significant use of the Site and its immediate surrounds, therefore further surveys were not deemed necessary.
- 3.7 The Bechstein's bat *Myotis bechsteinii*, part of the Myotis species group, is also a Priority Species and Species of Principal Importance. As a specialist of dense woodland, it is unlikely to be using the site, though they may utilise High Copse for foraging and roosting. Bechstein's records are not
- 3.8 The northwestern detector recorded the most activity, with the majority of recordings being of Common Pipistrelle. **Table 3.1** shows the percentage of total activity for each species or species group by month. Figures for recordings that were indistinguishable between similar species or groups are omitted from Table 3.1, with full data shown in **Appendix 2**.

Table 3.1: Percentage of total recorded activity per species per month across both detectors.

Month	Percentage of total activity (%)								
	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-Eared	Myotis species	Serotine	Noctule	Leisler's	Barbastelle
April	95.74	1.34	0.22	0.53	0.30		1.57		
May	85.75	1.73		0.30	0.23		10.95		0.90
June	83.93	1.02			0.59		14.04		0.08
July	83.95	1.27		2.79	0.14		9.00	0.65	1.97
August	93.87	1.25		0.77	0.29	0.05	1.15		2.64
September	90.93	3.48	0.07	1.00	0.50	0.03	2.12		1.86
October	74.19	4.03		12.5	2.42		0.40		6.05

Evaluation

- 3.9 The results show that the Site offers foraging opportunities to a variety of bat species, Of those species recorded, at least four (Barbastelle, Brown Long-Eared, Noctule and Soprano Pipistrelle) are considered Priority Species and Species of Principal Importance in the UK (although the legal protection relevant to all bat species above should also be borne in mind).

- 3.10 Common Pipistrelles are the most common bat onsite, accounting for between 74.19% and 95.74% of the activity recorded by the automated detectors. Pipistrelle species are generalist foragers and can adapt to a range of habitats and conditions. They are therefore unlikely to be significantly impacted by the proposals.
- 3.11 The data indicates that a small number of Barbastelle individuals are using the site. Barbastelles forage over a large area, with a core sustenance zone (CSZ) of 6km (BCT 2020). The Proposals, therefore, are unlikely to have a significant impact on foraging Barbastelles, making up a very small proportion of their range.
- 3.12 Barbastelles are the rarest species recorded onsite, however, being listed as Vulnerable by the IUCN Red List (IUCN 2024). Their presence onsite is therefore notable.
- 3.13 The bat assemblage supported by the Site is therefore deemed to be of **Local Importance**. Guidance set out in Wray (2010) was used to come to this conclusion, however, barbastelle is given a lower importance given the limited number of passes and the small size of the site.

4. MITIGATION AND ENHANCEMENT

- 4.1 PRF1 and PRF 2 are considered to be in the category PRF-I. In line with current guidance (Bat Surveys for Professional Ecologists, Good Practice Guidelines, 4th Edition, 2023), the Roost Resource Approach as described in Table 6.3 is appropriate here. No further survey work is required, it is recommended that the tree be retained, but should this not be possible, appropriate compensation for the loss of the PRF's should be provided, and works should be completed under a Precautionary Working Method Statement (PWMS).
- 4.2 Considering that both PRF's are the same type of feature and are located next to each other, appropriate compensation for the loss of both PRF1 and PRF 2 within the tree identified at TN4 would be the provision of 1x 1FF Schwegler bat box (or similar). The 1FF Schwegler bat box provides similar narrow crevice features similar to PRF 1 and PRF 2 and should be installed on a nearby tree, at least 3m above ground, orientated to the south, south-east or south-west.
- 4.3 The PWMS for the tree at TN4 should include for a pre works check of features by arborists, avoidance of cross cutting through, and in the areas immediately surrounding the PRF's, and will include information on what to do in the unlikely event bats are identified. Considering the type of PRF's present, an ecologist is not required on site to supervise the works, but details for an ecologist should be included within the PWMS, should the arborist need to seek advice.
- 4.4 The tree bearing PRF3 is due to be retained, but should it be designated for removal at any point, further surveys will be required to assess if the feature is being used as an active roost, in line with BTC guidelines (Colins 2023). If it is found to be inactive, the approach outlined above should be adopted for PRF3. If it is found to be an active roost, a bat mitigation licence would be required from Natural England.
- 4.5 Lighting for the Proposals is expected to be minimal, confined only to the northwestern corner of the site where the car park is to be situated. This lighting should be directional so that light does not cause disturbance to PRF3. Given to proximity to the Brown Long-Eared compensation structure, a sensitive lighting strategy with input from a suitably experienced ecologist should be implemented.
- 4.6 The Proposals are likely to offer additional foraging and roosting opportunities for bats via the planting of additional trees and the building of a pond at the northern border.
- 4.7 Opportunities can also be taken to enhance habitat provision for bats, for example by providing integral bat boxes into structures and enhancement of linear features that bats can use for foraging and navigation through the landscape.

5. REFERENCES

BCT (2020) Core Sustenance Zones and habitats of importance for designing Biodiversity Net Gain for bats. Bat Conservation Trust, London.

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5.1 Wray et al (2010), Valuing Bats in Ecological Impact Assessment. CIEEM, December 2010

Document Prepared By: Liam Maye BSc (Hons) MSc

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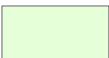
Maps

Map 1	Habitats and Features
Map 2	Automated detector and fixed-point locations
Map 3a	Bat Survey Results 20/05/24
Map 3b	Bat Survey Results 23/07/24
Map 3c	Bat Survey Results 17/09/24



MAP 1 UK Habs Level 3

KEY

-  Site boundary
-  Target notes
-  h2 - Hedgerows
-  g4 - Modified grassland
-  h3 - Dense scrub
-  w1 - Broadleaved and mixed woodland

- Target Notes:
- 1. Log pile
 - 2. Evidence of historic fly tipping/ garden waste
 - 3. Single Ash tree
 - 4. Single Oak tree with tear out

SCALE: 1:600 at A3

0 5 10 15 20 Metres



CLIENT: University of Reading

PROJECT: Southern Allotments

DATE: 21 March 2024



MAP 2 Locations of Automated Bat Detectors, Fixed Points & Transect Route

KEY

-  Site boundary
-  Fixed points
-  Automated bat detector locations
-  Transect route

SCALE: 1:600 at A3

0 10 20 30 40 Metres

N



CLIENT: University of Reading

PROJECT: Southern Allotments

DATE: 22 November 2024



MAP 3a Bat Survey Results 20/05/24

- KEY
- Site boundary
 - Transect route
 - Common Pipistrelle (heard not seen)
 - Noctule (heard not seen)
 - Serotine (heard not seen)
 - Common Pipistrelle observed flight
 - Noctule observed flight
 - (c) Commuting
 - (f) Foraging
 - (p) Pass
 - x3 Number of bats

SCALE: 1:600 at A3

0 5 10 15 20 25 Metres



CLIENT: University of Reading

PROJECT: Shinfield Southern Allotments

DATE: 22 November 2024



MAP 3b Bat Survey Results 23/07/24

- KEY
- Site boundary
 - Transect route
 - Common Pipistrelle (heard not seen)
 - Soprano Pipistrelle (heard not seen)
 - Noctule (heard not seen)
 - Common Pipistrelle observed flight
 - Noctule observed flight
 - (f) Foraging
 - (p) Pass
 - x3 Number of bats

SCALE: 1:600 at A3

0 5 10 15 20 25 Metres



CLIENT: University of Reading

PROJECT: Shinfield Southern Allotments

DATE: 22 November 2024



MAP 3c Bat Survey Results 17/09/24

- KEY
- Site boundary
 - Transect route
 - Common Pipistrelle (heard not seen)
 - Soprano Pipistrelle (heard not seen)
 - Noctule (heard not seen)
 - Serotine (heard not seen)
 - Common Pipistrelle observed flight
 - Noctule observed flight
 - (c) Commuting
 - (f) Foraging
 - (p) Pass
 - x3 Number of bats

SCALE: 1:600 at A3

0 5 10 15 20 25 Metres



CLIENT: University of Reading

PROJECT: Shinfield Southern Allotments

DATE: 22 November 2024

Appendix 1

Potential Roost Feature (PRF) photographs



Fig.A1.1



Fig.A1.2



Fig.A1.3



Fig.A1.4



**Fig.A1.5 (Left)
Fig.A1.6 (Right)**



Appendix 2

Summary Automated Detector Data

Table A2.1: meta data

Date	Sunset	Sunrise	Survey hours (incl 0.5hrs prior to sunset and after sunrise)
24/04/2024	20:15	05:47	10:32
25/04/2024	20:16	05:45	10:29
26/04/2024	20:18	05:43	10:25
27/04/2024	20:20	05:42	10:22
28/04/2024	20:21	05:40	10:19
			52:07
21/05/2024	20:58	05:03	09:05
22/05/2024	20:59	05:02	09:03
23/05/2024	21:01	05:01	09:00
24/05/2024	21:02	05:00	08:58
25/05/2024	21:03	04:58	08:55
26/05/2024	21:04	04:57	08:53
			53:54
24/06/2024	21:24	04:47	08:23
25/06/2024	21:24	04:47	08:23
26/06/2024	21:24	04:48	08:24
27/06/2024	21:23	04:48	08:25
28/06/2024	21:23	04:49	08:26
			42:01
23/07/2024	21:03	05:15	09:12
24/07/2024	21:02	05:16	09:14
25/07/2024	21:00	05:17	09:17
26/07/2024	20:59	05:19	09:20
27/07/2024	20:58	05:20	09:22
28/07/2024	20:56	05:22	
20/08/2024	20:14	05:57	10:43
21/08/2024	20:12	05:59	10:47
22/08/2024	20:10	06:00	10:50
23/08/2024	20:08	06:02	10:54
24/08/2024	20:05	06:04	10:59
			54:13
17/09/2024	19:12	06:42	12:30
18/09/2024	19:09	06:43	12:34
19/09/2024	19:07	06:45	12:38
20/09/2024	19:05	06:46	12:41
21/09/2024	19:02	06:48	12:46
			63:09

Date	Sunset	Sunrise	Survey hours (incl 0.5hrs prior to sunset and after sunrise)
17/10/2024	18:05	07:31	14:26
18/10/2024	18:02	07:32	14:30
19/10/2024	18:00	07:34	14:34
20/10/2024	17:58	07:36	14:38
21/10/2024	17:56	07:38	14:42
22/10/2024	17:54	07:39	
			72:50

Table A2.2: April results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Common/ Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long- eared	Myotis species	Myotis/ Plecotus	Serotine	Noctule	Leisler's	Barbastelle	Greater Horseshoe	Lesser Horseshoe
24/04/2024	North	8								1				
25/04/2024	North	44	1							5				
26/04/2024	North	29		1						3				
27/04/2024	North	2												
28/04/2024	North	664	3	1				1						
Sub-total		747	4	2	0	0	0	1	0	9	0	0	0	0
24/04/2024	South	26	1											
25/04/2024	South	1												
26/04/2024	South	239	5		3	6		1		8				
27/04/2024	South	3								4				
28/04/2024	South	266	8			1	4							
Sub-total		535	14	0	3	7	4	1	0	12	0	0	0	0
Month total		1282	18	2	3	7	4	2	0	21	0	0	0	0
Species %		95.74	1.34	0.15	0.22	0.53	0.30	0.15		1.57				

Table A2.3: May results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Common/ Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Serotine	Noctule	Leisler's	Big Bat	Barbastelle	Greater Horseshoe	Lesser Horseshoe
21/05/2024	North	308	1			1	1		37			6		
22/05/2024	North	425	6			1			19		1	3		
23/05/2024	North	176	1						14			3		
24/05/2024	North	94				2	1		28		1			
25/05/2024	North	42	2				1		41					
26/05/2024														
Sub-total		1045	10	0	0	4	3	0	139	0	2	12	0	0
21/05/2024	South	24	13						1					
22/05/2024	South	7							1					
23/05/2024	South	21							1					
24/05/2024	South	20							3					
25/05/2024	South	26							1					
26/05/2024														
Sub-total		98	13	0	0	0	0	0	7	0	0	0	0	0
Month total		1143	23	0	0	4	3	0	146	0	2	12	0	0
Species %		85.75	1.73			0.30	0.23		10.95		0.15	0.90		

Table A2.4: June results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Common/ Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Serotine	Noctule	Leisler's	Big Bat	Barbastelle	Greater Horseshoe	Lesser Horseshoe
24/06/2024	North	82	1			1			13					
25/06/2024	North	37	3						8					
26/06/2024	North	231				1			11					
27/06/2024	North	218				1			2					
28/06/2024	North	243	2						3					
Sub-total		811	6	0	0	3	0	0	37	0	0	0	0	0
24/06/2024	South	25				2			39		4			
25/06/2024	South	47	2			2			41					
26/06/2024	South	30	2						30			1		
27/06/2024	South	64	2						13					
28/06/2024	South	15							6					
Sub-total		181	6	0	0	4	0	0	129	0	4	1	0	0
Month total		992	12	0	0	7	0	0	166	0	4	1	0	0
Species %		83.93	1.02			0.59			14.04		0.34	0.08		

Table A2.5: July results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Myotis/ Plecotus	Serotine	Noctule	Leisler's	Noctule/ Leisler's	Big Bat	Barbastelle	Greater Horseshoe	Lesser Horseshoe
23/07/2024	North	752	20		24				46	22	2		17		
24/07/2024															
25/07/2024	North	979	3		14				54				2		
26/07/2024	North	30	9		18	3			37				26		
27/07/2024	North	81	3		13	1			132				9		
Sub-total		1842	35	0	69	4	0	0	269	22	2	0	54	0	0
23/07/2024	South	47	2		4				16				4		
24/07/2024	South	680	4		1	1			13			2	3		
25/07/2024	South	235	3						9		2		2		
26/07/2024	South	139	1		9		1		5				3		
27/07/2024	South	33			16		1		7	1			4		
Sub-total		1134	10	0	30	1	2	0	50	1	2	2	16	0	0
Month total		2976	45	0	99	5	2	0	319	23	4	2	70	0	0
Species %		83.95	1.27		2.79	0.14	0.06		9.00	0.65	0.11	0.06	1.97		

Table A2.6: August results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Myotis/Plecotus	Serotine	Noctule	Leisler's	Big Bat	Barbastelle	Greater Horseshoe	Lesser Horseshoe
20/08/2024	North	396	1		1				6			12		
21/08/2024	North	326	8		1			1	4			1		
22/08/2024	North	307	4		3				1			1		
23/08/2024	North	80	1		2				3			6		
24/08/2024	North	498	1		2							9		
Sub-total		1607	15	0	9	0	0	1	14	0	0	29	0	0
20/08/2024	South	2	2											
21/08/2024	South	189	2		1	4			3			11		
22/08/2024	South	132			2	1			2			5		
23/08/2024	South	23	6		2	1			5			9		
24/08/2024	South	6	1		2							1		
Sub-total		352	11	0	7	6	0	0	10	0	0	26	0	0
Month total		1959	26	0	16	6	0	1	24	0	0	55	0	0
Species %		93.87	1.25		0.77	0.29		0.05	1.15			2.64		

Table A2.7: September results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Myotis/ Plecotus	Serotine	Noctule	Leisler's	Big Bat	Barbastelle	Greater Horseshoe	Lesser Horseshoe
17/09/2024	North	1617	28		5	6			2					
18/09/2024	North	963	19	1	1	3		1	3			2		
19/09/2024	North	446	11		9	2		1	5			20		
20/09/2024	North	719	17	2	9	1			7			65		
21/09/2024	North	722	103	1	1				2			2		
Sub-total		4467	178	4	25	12	0	2	19	0	0	89	0	0
17/09/2024	South	199	6		12	3			7			2		
18/09/2024	South	49	2		8	1			6			6		
19/09/2024	South	24	4		1	3			2			5		
20/09/2024	South	70	6		8	4			31			5		
21/09/2024	South	462	6		4	6			58			1		
Sub-total		804	24	0	33	17	0	0	104	0	0	19	0	0
Month total		5271	202	4	58	29	0	2	123	0	0	108	0	0
Species %		90.93	3.48	0.07	1.00	0.50		0.03	2.12			1.86		

Table A2.8: October results

Dates	Static Location	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Brown Long-eared	Myotis species	Myotis/Plecotus	Serotine	Noctule	Leisler's	Noctule/Leisler's	Barbastelle	Greater Horseshoe	Lesser Horseshoe
17/10/2024	North	71	5		1	1						1		
18/10/2024	North	8			3	1								
19/10/2024	North	66	1		4							2		
20/10/2024	North	4	2		1	1						2		
21/10/2024	North	5			1							5		
Sub-total		154	8	0	10	3	0	0	0	0	0	10	0	0
17/10/2024	South	11			6	2			1		1	2		
18/10/2024	South				4							2		
19/10/2024	South	10	2		9									
20/10/2024	South	4			1	1								
21/10/2024	South	5			1							1		
Sub-total		30	2	0	21	3	0	0	1	0	1	5	0	0
Month total		184	10	0	31	6	0	0	1	0	1	15	0	0
Species %		74.19	4.03		12.5	2.42			0.40		0.40	6.05		

Annex 6

Shinfield Southern Allotments: Technical Note: Herptiles



Shinfield Southern Allotments

Technical Note: Herptiles

1. INTRODUCTION

Brief

- 1.1 Ecological Planning & Research Limited (EPR) was commissioned by the University of Reading to carry out reptile and amphibian surveys on land to the west of High Copse, Shinfield (SU729670), hereafter referred to as “the Site”.

Background

- 1.2 The Site forms part of an area which received outline planning permission on 8th November 2012 (reference O/2010/1432) for the development of up to 1200 residential dwellings and 150 units of specialist housing, as well as a local centre, and a new primary school and landscaping located at Shinfield West, within the ‘South of the M4’ Strategic Development Location. The current application is for the construction of allotments.
- 1.3 The Preliminary Ecological Appraisal for the Site (EPR 2024) recommended further surveys for Great Crested Newt *Triturus cristatus* (GCN) and reptiles to determine their presence or likely absence within the Zone of Influence, This note sets out the methodology and results of these surveys.

The Study Area

- 1.4 The Site consists of 1.04ha of abandoned arable land on the outskirts of Reading, south of the village of Shinfield and east of Spencers Wood. The B3349 lies approximately 120m east of the Site boundary.
- 1.5 The Site lies to the west and south of the remaining sections of High Copse, an Ancient Woodland site. Historic maps show that these sections were once connected, encompassing the entirety of the Site, but the land within the site and immediately north was cleared in the late 19th-early 20th century for arable land.

Relevant Nature Conservation Legislation & Policy

Legislation

Great Crested Newt

- 1.6 GCN are legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which protect them from intentional killing, injuring or taking, as well as possession and trade. They are also a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended), which means that places used for shelter and protection are also safeguarded against intentional or reckless damage, destruction and obstruction of access and disturbance to animals occupying those places. Collectively, this legislation makes it an offence to:

Ecological Planning & Research Ltd, The Barn, Micheldever Station, Winchester, Hampshire, SO21 3AR

t. 01962 794720 **e.** info@epr.uk.com **w.** www.epr.uk.com

Company registration number: 8592380

- Intentionally or deliberately kill, injure or capture Great Crested Newts;
- Intentionally, deliberately or recklessly disturb Great Crested Newts in such a way as to be likely to significantly affect the ability of any significant group of Newts to survive, breed, or rear or nurture their young or the local distribution of or abundance the species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Great Crested Newts for shelter or protection, or intentionally or recklessly disturb a Great Crested Newt whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Great Crested Newt;
- Possess, sell or transport a Great Crested Newt, or anything derived from it.

- 1.7 GCN are also listed as a Species of Principal Importance in England under S41 of the Natural Environment and Rural Communities (NERC) Act 2006, affording protection to this species under Section 11 of the NPPF.

Reptiles

- 1.8 All four of the widespread British species of reptile, Common Lizard *Zootoca vivipara*, Slow-Worm *Anguis fragilis*, Grass Snake *Natrix helvetica* and Adder *Vipera berus*, are Species of Principal Importance in England. They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional killing, injury and trade.
- 1.9 The habitat of the four widespread reptiles is not legally protected; however, the replacement of habitat lost through development may be required through the planning system. Mitigation for these species is not subject to licensing by Natural England but should nonetheless be planned to minimise disturbance and potential project delays.

Policy

- 1.10 The Wokingham Borough Council Adopted Core Strategy: Development Plan Document (January 2010) sets out the framework for the development of the borough, through a series of policies and strategies.
- 1.11 Of particular relevance to GCN is Policy CP7 – Biodiversity, which states:

“... Development:

A) Which may harm country designated sites (Local Wildlife Sites), whether directly or indirectly, or

B) Which may harm habitats or species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or

C) That compromises the implementation of the national, regional, country and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and;

i) Mitigation measures can be put in place to prevent damaging impacts; or

ii) Appropriate compensation measures to offset the scale and kind of losses are provided.”

2. METHODOLOGY

Survey Scope and Aims.

- 2.1 The surveys aimed to establish the presence or likely absence of GCN and reptiles within the Zone of Influence of the proposed development and, where present, an assessment of the population class was to be made. With this information, a clear understanding can be attained regarding the impact of the proposed development on GCN and reptiles in the Zone of Influence in the absence of mitigation.

Zone of Influence

Great Crested Newt

- 2.2 GCN will use terrestrial habitats within a 250m radius of a pond, and potentially up to 500m where the habitats are optimal (English Nature, (now Natural England), 2001). Therefore, GCN in any pond within 500m of the Site, and not isolated by barriers to movement could be impacted by development in the absence of mitigation. However, surveys at a distance of greater than 250m from a pond are only considered necessary when all of the following conditions are met:
- Maps, aerial photos, walk over surveys or other data indicate that the pond(s) has potential to support a large population of GCN;
 - The footprint has particularly favourable habitat for GCN;
 - The development would have a substantial negative effect on that habitat; and
 - There is an absence of dispersal barriers.
- 2.3 In the local landscape the M4 motorway and the River Loddon can both be considered to be significant barriers to movement. Although there are pockets of suitable habitats, the majority of the wider landscape comprises of sub-optimal agricultural land. In light of this, the potential Zone of Influence of the Proposed Development for GCN is considered at this stage to extend to all suitable terrestrial habitats and ponds within 250m of the boundary of the Site (where not constrained by significant barriers to movement).

Reptiles

- 2.4 The grassland and scrub onsite provide suitable habitat for reptiles to bask and forage.
- 2.5 The area over which the activities associated with the proposed scheme are considered to potentially affect reptile populations, the Zone of Influence (ZOI), has been predicted by considering the likely activities and resultant biophysical changes arising during the construction and operational phases. Given the scale and nature of the development, this is limited to the Site itself and its immediate surrounds.
- 2.6 The survey to establish the presence or likely absence of reptiles was therefore undertaken solely within the Site.

Desktop Study

- 2.7 A records search was commissioned from Thames Valley Environmental Record Centre (TVERC) in order to obtain existing records of herptiles within a 5km radius of the Site, thereby incorporating the potential Zone of Influence and providing context with local populations of reptiles and amphibians.

Field Survey

Great Crested Newt

- 2.8 Habitat Suitability Index (HSI) evaluation is a means by which to assess the quantity and quality of freshwater habitat to support GCN. Scores are allocated to describe the quality of 10 habitat features of the waterbody. These figures are then entered into a calculation, producing an overall index between 0 and 1. HSI values close to 0 indicate unsuitable and those nearer to 1 optimal habitat conditions for GCN. Categories ranging from poor (HSI <0.5) to excellent (HSI >0.8) have been defined to assign approximate pond suitability from an overall HSI score (see **Appendix 1** for more detail).
- 2.9 The Site itself does not contain any water bodies that could be used by GCN for breeding or foraging, but immediately north there is a man-made drainage swale that could be potentially used by newts. A HSI assessment of the swale was undertaken on 3rd March 2024, which deemed it to be of poor quality, and therefore it is considered unlikely to support GCN
- 2.10 Given the proximity of GCN records to the Site, an eDNA survey was undertaken as a precaution. eDNA sampling involves taking water samples from the waterbody, which are then processed by a laboratory to detect the presence of Great Crested Newt DNA. The eDNA samples were taken by Siobhan Pryke of EPR on 2nd May 2024, within Natural England's approved sample window (15th April - 30th June).

Reptiles

- 2.11 The reptile survey method followed standard practice for reptile surveying (Froglife, 1999; Gent & Gibson, 2003).
- 2.12 Artificial refugia (a mixture of roofing felt, tin and onduline) were placed in suitable locations, which were identified as having potential to support reptiles. A total of 11 refugia were distributed on 3rd May 2024 (see **Map 1**). After 13 days 'settling in' period, seven survey visits were conducted during appropriate temporal and weather conditions across May and June. Each refuge was lifted and examined for the presence of reptiles beneath. On each occasion, a survey route was chosen based on local micro-climatic conditions and walked slowly and quietly, with the terrain 3-4 m ahead carefully examined for openly basking reptiles. The dates and conditions are summarised in **Table 2.1**.

Table 2.1: Survey Dates and Weather Condition

Visit no.	Date	Start Time	Temp. (°C)		Cloud cover %	Wind (BF)	Rain
			Start	End			
1	16/05/2024	08:30	14	15	100	3	Nil
2	23/05/2024	07:30	16	17	10	1	Nil
3	30/05/2024	08:30	14	17	80	1	Nil
4	06/06/2024	08:30	14	15	60	1	Nil
5	13/06/2024	08:30	15	15	80	2	Nil
6	21/06/2024	07:30	16	17	10	1	Nil
7	27/06/2024	09:30	18	19	20	1	Nil

Survey Constraints

- 2.13 During the presence/absence reptile survey, plant from the adjacent development to the west of the Site was seen crossing the Site to access the swale to the north. This did not damage the refugia but did damage the grassland habitat and is likely to have caused disturbed any animals that were present. The eDNA samples were taken prior to this activity.

Analysis of Field Data

- 2.14 Once collected, eDNA samples were analysed by SureScreen Scientifics Ltd.

Evaluation Methodology

Great Crested Newt

- 2.15 The suitability of GCN habitat was assessed following Oldham et al. (2000) and populations can be evaluated following the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

Reptiles

- 2.16 To estimate the population size of a reptile species, the numbers of adults seen in a single visit is required. Froglife recommends at least 20 survey visits using 10 refugia per hectare to estimate population size. Although 20 visits were not completed for this Site an estimate can be accomplished using a higher density of refugia and professional judgement.
- 2.17 This data is then used with the Froglife's basic evaluation table (Froglife's Advice Sheet 10: Reptile Surveys 1999), to produce a population estimate (see Table 2.2).

Table 2.2: Population Size Class Interpretation (Froglife, 1999)

Species	Latin Name	Low Population	Good Population	Exceptional Population
Slow Worm	<i>Anguis Fragilis</i>	<5	5 – 20	> 20
Common Lizard	<i>Zootoca vivipara</i>	<5	5 – 20	> 20
Grass Snake	<i>Natrix helvetica</i>	<5	5 – 10	> 10

Key Reptile Sites

- 2.18 Sites which support a diversity or high density of reptiles may be 'Key Reptile Sites'. According to Froglife's advice sheet a site may be considered a 'Key Reptile Site' if any of the following criteria apply:
- Supports three or more reptile species;
 - Supports two snake species;
 - Supports an exceptional population of one species (see above table);
 - Supports an assemblage of reptiles that scores 4 or more (see above table); and
 - Does not meet criteria 1-4, but is of particular importance due to local rarity.

3. SURVEY RESULTS

Desktop Study

- 3.1 The data search returned several records of GCN, one of which is within 500m of the site.
- 3.2 The data search returned low numbers of records of Slow Worm *Anguis fragilis* and Common Lizard *Zootoca vivipara*, all north of the M4, which would act as a barrier to movement into the site. However, records of Grass Snake *Natrix helvetica* closer to the Site to the west and north-east.

Field Survey

- 3.3 The eDNA survey returned a negative result, indicating that GCN had not been using the Swale at the time of the survey. For full details, see **Appendix 2**.
- 3.4 No evidence of reptiles was found during the presence/likely absence survey.

Evaluation

- 3.5 GCN and reptiles are likely to be absent from the Site.

4. RECOMMENDATIONS

Mitigation

- 4.1 Both GCN and reptiles are likely to be absent from the Site and its immediate surrounds, therefore no mitigation is required by the development.

Enhancements

- 4.2 The Proposals show provision for a pond at the northern border of the Site which could, with careful design and management, provide suitable habitat for GCN and other amphibians, as well as acting as a water source for other species groups.

Document Prepared By: Liam Maye BSc (Hons) MSc

Document Dated: 21 November 2024

5. REFERENCES

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Maps

Map 1

Refugia Locations



MAP 1 Reptile Refugia

KEY

-  Site boundary
-  Felt
-  Onduline
-  Tin

SCALE: 1:600 at A3



CLIENT: University of Reading

PROJECT: Shinfield Southern Allotments

DATE: 03 July 2024

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Appendix 1

Habitat Suitability Index Methodology

Habitat Suitability Index

The Habitat Suitability Index is a scoring system that produces a value against 10 suitability indices (Oldham et al, 2000). The ten criteria include:

- Geographic Location (map area A/B/C);
- Pond area (m²);
- Desiccation rate (never/rarely/sometimes/frequently);
- Water quality (good/moderate/poor/bad);
- Shade (% of margin shaded 1m from bank);
- Waterfowl (absent/minor/major);
- Fish (absent/possible/minor/major);
- Pond density (no. within 1km);
- Terrestrial habitat (good/moderate/poor/isolated); and
- Macrophyte cover (% , excluding duckweed).

The total score of the 10 index values indicates whether a pond would be subjected to a pond survey. Generally, an HSI score of greater than 0.50 suggests that the pond should be surveyed (see Table A1.1). However, this is not a definitive guide and professional opinion can override the decision.

Table A1.1 Categorisation of HSI Scores

HSI Score	Pond Suitability
< 0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Appendix 2

eDNA Technical Report

Annex 7

Shinfield Southern Allotments: Biodiversity Net Gain Report

Shinfield Southern Allotments

Biodiversity Net Gain Report

Prepared on behalf of

University of Reading

Final Report

23 May 2025

30/29-2B

Shinfield Southern Allotments

Biodiversity Net Gain Report

Report Release Sheet

Draft/Final: Final Report

Issue Number: 30/29-2B

Date: 23 May 2025

Client: University of Reading

Main Author(s): Liam Mayle BSc (Hons) MSc

Contributors/Surveyors: Katie Cammack BSc (Hons) MSc MCIEEM
Hannah Corrigan BSc (Hons) PGCert

Report Prepared for Issue by:



Liam Mayle BSc (Hons) MSc



Report Approved for Issue by:

.....
Alison Hogan BSc (Hons) MSc MCIEEM



Shinfield Southern Allotments

Biodiversity Net Gain Report

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MAPS

Map 1	On-site Baseline Habitats
Map 2	On-site Post-Development Habitats

APPENDICES

Appendix 1	Southern Allotment Redesign GA
Appendix 2	Biodiversity Net Gain Metric

Shinfield Southern Allotments

Biodiversity Net Gain Report

BIODIVERSITY GAIN VALIDATION STATEMENT

This Statement provides the minimum information required for Wokingham Borough Council to validate the planning application for the Proposals, as set out in Article 7 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended by The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024).

EPR hereby confirms that the Applicant believes that planning permission, if granted, would be subject to the biodiversity gain condition.

The on-site and off-site pre-development biodiversity value is taken to be the date that the Application is submitted. No activities resulting in a loss of on-site biodiversity value (degradation) have taken place between 30 January 2020 and this date.

A completed Statutory Biodiversity Metric Calculation Tool (published on 12th February 2024) has been submitted with the Application as part of the Information for Biodiversity Net Gain Pack. This shows the calculations of the pre-development biodiversity value of the onsite habitat on the date of application. The baseline on-site biodiversity value is calculated as follows:

- Area Habitats: 4.04 units
- Hedgerows: 0.29 units
- Watercourses: 0 units

Plans, drawn to an identified scale and showing the direction of North, are included within this document (**Map 1**) showing the on-site habitat existing on the date of application, including any irreplaceable habitat if present.

Shinfield Southern Allotments

Biodiversity Net Gain Report

1. INTRODUCTION

Scope

- 1.1 This report sets out the details of the Biodiversity Net Gain calculations completed for the Proposals, including:
- Assessment Methodology;
 - Summary of evidence underpinning Metric decisions;
 - Assumptions and Limitations;
 - Headline Results;
 - Summary of proposed significant on-site habitat enhancements;
 - Summary of proposed off-site habitat creation/enhancements; and
 - Overview of proposed arrangements for BNG delivery and monitoring.
- 1.2 It is equivalent to the 'BNG Design Stage Report' recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM) in their Biodiversity Net Gain Report & Audit Templates guidance document (CIEEM, 2021a).

Description of Site

- 1.3 The Site consists of 0.53ha of abandoned arable land on the outskirts of Reading, south of the village of Shinfield and east of Spencers Wood. The B3349 lies approximately 120m east of the Site boundary.
- 1.4 The Site lies to the west and south of the remaining sections of High Copse, an Ancient Woodland site. Historic maps show that these sections were once connected, encompassing the entirety of the Site, but the land within the site and immediately north was cleared in the late 19th-early 20th century for arable land.
- 1.5 The Site falls within the Thames Basin Heaths Natural England National Character Area, and just outside of the River Loddon floodplain.
- 1.6 The Site now consists predominantly of neutral grassland, interspersed with patches of bramble *Rubus fruticosus* scrub. An undermanaged, species poor hedgerow with mature trees spans the length of the Southern boundary (**Map 1**).

Description of Development

- 1.7 The Proposals include the following:

- Fifteen 4 pole plots.
- Two onsite car parking spaces and drop off point.
- Compost area.

Legislation and Policy Context

- 1.8 A minimum 10% net gain in biodiversity, as measured by the Statutory Biodiversity Metric (DEFRA, 2024a,) is now a condition of most types of planning permission in England under the Environment Act 2021 and associated secondary legislation.
- 1.9 Guidance has clarified that where present on-site, the 10% gain requirement applies individually to three categories of habitat: 'Area Habitats', 'Hedgerows', and 'Watercourses'. This is measured in 'units' which can be delivered on-site, off-site, or a combination of both, and must be secured for a minimum of 30 years.
- 1.10 The National Planning Policy Framework (NPPF) (DLUHC, 2023) requires local plans to "identify and pursue opportunities for securing measurable net gains in biodiversity" and enhance the natural and local environment by "minimising impacts on and providing net gains for biodiversity".
- 1.11 Local Planning policy CP7 (WBC Core Strategy 2026) states that:

"Development:

A) Which may harm county designated sites (Local Wildlife Sites in Berkshire), whether directly or indirectly, or

B) Which may harm habitats or, species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or

C) That compromises the implementation of the national, regional, county and local biodiversity action plans

will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and:

i) Mitigation measures can be put in place to prevent damaging impacts; or

ii) Appropriate compensation measures to offset the scale and kind of losses are provided."

Guidance

- 1.12 The following guidance documents have informed the BNG assessment and overall approach:
- DEFRA's Biodiversity Gain Guidance, available at:
<https://www.gov.uk/government/collections/biodiversity-net-gain>;

- The Statutory Biodiversity Metric User Guide (DEFRA, 2024);
- The UK Habitat Classification Version 2.0 (UKHab Ltd, 2023);
- Biodiversity Net Gain. Good Practice Principles for Development – A Practical Guide (Baker et al., 2019);
- Biodiversity Net Gain Report and Audit Templates (CIEEM, 2021a);
- Good Practice Requirements for Delivering Biodiversity Net Gain (On- and Off-Site) (CIEEM, 2021b); and
- BS8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification (BSI, 2021).

2. ASSESSMENT METHODOLOGY

Metric Version and Assessors

- 2.1 The Statutory Biodiversity Metric and Condition Assessments published 12th February 2024 were used for this BNG assessment.
- 2.2 The calculations were carried out by Liam Mayle and reviewed by Katie Cammack, both experienced ecologists and BNG practitioners.

Baseline Surveys

On-Site

- 2.3 Baseline habitat and condition assessment surveys were carried out by EPR botanist Hannah Corrigan BSc (Hons) PGCert, as well as Liam Mayle BSc (Hons) MSc and Katie Cammack BSc (Hons) MSc MCIEEM. The survey dates are as follows:

Table 2.1: Baseline habitat survey dates

Date	Survey Type	Surveyor(s)
15/03/24	PEA walkover and hedgerow condition assessment	Liam Mayle, Katie Cammack
19/04/24	Grassland habitat survey and condition assessment	Hannah Corrigan

- 2.4 Habitat mapping was undertaken according to the UK Habitat Classification v.2.0 methodology (UKHab Ltd, 2023) and translated into BNG habitat categories where necessary.
- 2.5 Following the surveys, each area or length of habitat was assigned an individual 'Habitat ID', and mapped in ESRI ArcGIS software (**Map 1**).

Post-Development Plans

On-Site

- 2.6 The following plans produced by other technical consultants, submitted for approval with the Application, were used as the basis for the post-development calculations. These plans were imported into ArcGIS software and each line or polygon was assigned a BNG habitat type and target condition (**Maps 2**):

- Southern Allotment Redesign GA (**Appendix 1**)

Metric Inputs

- 2.7 As set out in the Statutory Metric User Guide (DEFRA, 2024), one of the key principles of the Biodiversity Metric is that “this biodiversity metric is not a complex or comprehensive ecological model and is not a substitute for expert ecological advice”.
- 2.8 When completing a Metric, the assessor must therefore make a number of decisions based on available evidence (such as ecological survey data), professional judgement, and ecological expertise. The User Guide (DEFRA, 2024) also states that “Evidence for metric decisions should be provided and signposted within the ‘User Comments’ column of the biodiversity metric tool”.
- 2.9 To ensure that the Metric Calculation Tool remains as user-friendly as possible, the following paragraphs expand upon the User Comments to provide more detail on the decisions behind the data entered into the Metric, where this is considered necessary and proportionate.

On-Site Habitat Type and Condition

Target Conditions

- 2.10 Target habitat conditions have been predicted with reference to the relevant Condition Assessment sheet (DEFRA, 2024b), with full details and justifications set out in the separate spreadsheet submitted with the Application.
- 2.11 The Target Conditions are considered to be realistic and achievable, and will be delivered and maintained through the implementation of the Habitat Management and Monitoring Plan to be submitted alongside the Biodiversity Gain Plan to discharge the general biodiversity gain planning condition, should consent be granted.

Proxy habitat types

- 2.12 The plans include areas of “Compacted MOT base with grass seeded surface”, which does not neatly fit into a habitat type within the Metric. This consists of a matrix of artificial material with gaps to allow grasses to grow through. This area was therefore entered as “50% other neutral grassland” and 50% “developed land, sealed surface”.

Strategic Significance

- 2.13 The Wokingham Borough Council Core Strategy 2026 (adopted January 2010) and The Managing Development Delivery (MDD) local plan (adopted February 2014), alongside a records search from Thames Valley Ecological Records Centre (TVERC), were used to identify

strategic significance. These documents refer to the need to retain and enhance hedgerow habitats.

Spatial Risk

- 2.14 All Off-Site habitats are in the immediate vicinity of the site and therefore fall within the same LPA boundary as the Site.

Assumptions and Limitations

- 2.15 The baseline condition assessment of the neutral grassland was completed in April, outside of the optimal flowering period for grasslands, so it is assumed that some criteria were passed on a precautionary basis.
- 2.16 The current Proposal Options are outline schemes, so post-development plans lack detail regarding exact species composition of seed mixes and tree/shrub/hedge planting. It has therefore been assumed that additional hedgerow and tree planting will consist of native species in line with those already present onsite.

General Limitations of Metrics

- 2.17 As acknowledged in the User Guide (DEFRA, 2024), the Statutory Biodiversity Metric includes several inherent limitations. Extracts are provided below:

The use of this biodiversity metric does not override existing biodiversity protections, statutory obligations, policy requirements, ecological mitigation hierarchy or any other requirements. This includes consenting or licensing processes, for example woodlands.” (Principle 2).

“This biodiversity metric is not a complex or comprehensive ecological model and is not a substitute for expert ecological advice.” (Principle 4)

This biodiversity metric is designed to inform decisions in conjunction with locally relevant evidence, expert input, or guidance.” (Principle 6)

- 2.18 In relation to Principle 2, protected and valued species are considered in detail as part of the EIA/EcIA. This also includes avoiding and mitigating impacts and promoting enhancements such as the provision of wildlife boxes, the latter of which should also be taken into account when assessing the overall BNG that can be delivered by the Proposals.

3. SUMMARY OF RESULTS

Introduction

- 3.1 The following should be read with reference to **Maps 1 and 2** and the completed Metric Calculation Tool (particularly the Assessor Comments column) and Condition Assessment spreadsheets submitted separately with the Application.

Description of Baseline

- 3.2 The total number of on-site baseline units is calculated as follows:
- Area Habitats: 4.04 units
 - Hedgerows: 0.29 units
 - Watercourses: 0 units
- 3.3 The Site is predominantly covered by neutral grassland in moderate condition, with small patches of Bramble scrub interspersed throughout. There is an undermanaged hedgerow, made up predominantly of Blackthorn *Prunus spinosa*, that spans the southern border of the field and falls partially within the site boundary. Bramble and Blackthorn scrub is beginning to take over much of the length of this hedge.

The BNG Hierarchy

- 3.4 The Proposals were designed with ecological input from an early stage and due consideration has been given to the BNG Hierarchy throughout the masterplanning process.
- 3.5 The BNG Hierarchy, as set out in Article 37A of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended) requires developers to take the following steps in relation to BNG:
- Avoidance of adverse effects to on-site habitats of 'Medium' distinctiveness and above;
 - Insofar as they cannot be avoided, mitigating those effects; and
 - Insofar as they cannot be mitigated; compensating for those effects by prioritising in order, where possible:
 - 1) Enhancement of existing on-site habitats;
 - 2) Creation of new on-site habitats;
 - 3) Allocation of registered off-site gains; and finally
 - 4) Purchase of national off-site biodiversity credits.
- 3.6 **Table 3.1** sets out a summary of how the BNG Hierarchy has been applied by the Proposals.
- 3.7 The retained neutral grassland is currently in Moderate condition.

Table 3.2: Application of the BNG Hierarchy

Action	Evidence of application
Impact Avoidance:	Retained over 47.62% of grassland and 100% of hedgerow habitats
Mitigation:	N/A
Compensation:	
Habitat enhancements (on-site)	Enhancement of retained hedgerow with trees from Poor to Good condition
Habitat creation (on-site)	Native hedgerow and tree planting
Off-site gains allocated to Application	N/A
Purchase of Biodiversity Credits	N/A

Headline Results

- 3.8 As set out in the Metric Calculation Tool submitted with the Application, the Proposals are predicted to deliver the following net unit change:
- -1.58 area habitat units, or -39.11%
 - 0.89 hedgerow units, or 313.6%
- 3.9 Additional gains will need to be delivered off-site in order to achieve the target of 10% net gain and satisfy the metric's trading rules. The exact nature and location of these offsite gains is yet to be confirmed.

On-Site Proposals to Deliver Net Gain

- 3.10 Nine native trees will be planted and the southern border hedgerow will be enhanced to Good condition. An additional 110m of native hedgerow will be planted around the eastern and northern Site boundaries. Areas of grassland will be seeded with appropriate native seed mixes, though it is unlikely that this will achieve Good condition due to the difficulty of management required to do so.

Off-Site Proposals to Deliver Net Gain

- 3.11 An additional 1.99 area habitat units, consisting of habitat of Medium distinctiveness or higher (such as neutral grassland), will be required to be delivered offsite in order to satisfy the trading rules and achieve 10% net gain.
- 3.12 This could be achieved, for example, by enhancing 0.71ha of Other Neutral Grassland from Poor to Moderate condition.

- 3.13 Alternatively, the Applicant may elect to purchase habitat credits of medium distinctiveness or higher from a recognised habitat bank.

4. PROPOSALS FOR DELIVERY AND MONITORING

Delivery

On-Site

- 4.1 A Habitat Management and Monitoring Plan (HMMP) will set out the proposed details of how the target habitat types and conditions required to achieve the BNG results reported in **Section 3** will be achieved. This will be through a combination of habitat retention, creation and enhancement measures, followed by ongoing management for a minimum period of 30 years for the 'significant' on-site enhancements described in **Section 3**.
- 4.2 Should planning consent be granted, the HMMP will be submitted to Wokingham Borough Council alongside a Biodiversity Gain Plan to discharge the biodiversity gain planning condition. The mechanism for securing the delivery of significant on-site enhancements is to be agreed with Wokingham Borough Council, but could take the form of a planning condition, planning obligation or conservation covenant.

Off-Site

- 4.3 Off-Site methods for delivering BNG are yet to be confirmed. The Applicant owns land that can be used for offsite habitat creation and/or enhancement to achieve 10% net gain. Alternatively, the Applicant may elect to purchase habitat credits of medium distinctiveness or higher from a recognised habitat bank. When confirmed, the HMMP will set out the proposed details of how the Off-Site gains will be achieved.
- 4.4 Should planning consent be granted, the HMMP will be submitted to Wokingham Borough Council alongside a Biodiversity Gain Plan to discharge the biodiversity gain planning condition. The mechanism for securing the delivery of significant off-site gains is to be agreed with Wokingham Borough Council, but could take the form of a planning condition, planning obligation or conservation covenant.

Monitoring

On-Site

- 4.5 The successful establishment of newly created habitats, and progress of all habitats towards their post-development Target Conditions, will need to be regularly monitored to ensure that the predicted BNG will be realised on the ground. The HMMP will set out details of the proposed monitoring actions and frequency.

Off-Site

- 4.6 Off-Site gains are expected to be delivered on land owned by the Applicant or through purchase of credits from a recognised habitat bank. Therefore, as above, The HMMP will set out details of the proposed monitoring actions and frequency.

Conclusion

- 4.7 This Technical Report has set out the methodology and results of the Statutory Biodiversity Metric calculations completed for the Proposals, which predict a net change of **-1.58 habitat units (-39.11%)** and **+0.89 hedgerow units (+313.6%)**.
- 4.8 Net gains will be delivered through a combination of on-site and either off-site habitat creation and enhancement or purchase of BNG credits.
- 4.9 Should planning consent be granted, full details of the arrangements for the delivery of minimum 10% BNG will be set out in a Biodiversity Gain Plan and Habitat Management and Monitoring Plan and submitted to Wokingham Borough Council for approval.
- 4.10 It is therefore concluded that the Proposals as envisaged, combined with off-site gains to be agreed with Wokingham Borough Council, would comply with the statutory minimum requirements for 10% biodiversity net gain as a condition of planning permission in England under the Environment Act 2021 and Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended), as well as with the NPPF and local planning policy.

5. REFERENCES

- The British Standards Institution (BSI) (2021). *BS 8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification*. British Standards Limited, 2021.
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2021). *Biodiversity Net Gain Report & Audit Templates. Version 1 July 2021*. CIEEM, Winchester.
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- DEFRA (2024a). *The Statutory Biodiversity Metric Calculation Tool. February 2024*.
- DEFRA (2024b). *The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology. February 2024*.
- Department for Levelling Up, Housing and Communities (DLUHC) (2023). *National Planning Policy Framework*. 2023.
- DLUHC (2024). *Planning Practice Guidance: Biodiversity Net Gain*. Published 12th February 2024.
- His Majesty's Stationery Office (HMSO) (2015). *The Town and Country Planning (Development Management Procedure) (England) Order 2015*. HMSO, London.
- HMSO (2021). *Environment Act 2021*. HMSO, London.
- HMSO (2024a). *The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024*. HMSO, London.
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- UKHab Ltd (2023). *UK Habitat Classification Version 2.0*. Available at <http://ukhab.org>
- Wokingham Borough Council Core Strategy 2026 (adopted January 2010)
- Wokingham Borough Council Managing Development Delivery (adopted February 2014)

Maps

MAPS

- | | |
|--------------|------------------------------|
| Map 1 | On-site BNG Baseline |
| Map 2 | On-site BNG Post-Development |



MAP 1 On-site Habitat Baseline

- KEY
-  Site boundary
 -  Native hedgerow with trees (60m)
 -  Blackthorn scrub (0.01ha)
 -  Bramble scrub (0.04ha)
 -  Other neutral grassland (0.48ha)

1: 0.48ha
5: 0.01ha
6: 0.02ha
7: 0.02ha

SCALE: 1:400 at A3

0 5 10 15 20 Metres



CLIENT: University of Reading

PROJECT: Southern Allotments

DATE: 20 May 2025



MAP 2 On-site Post Development

KEY

Site boundary

Retained

Native hedgerow with trees (60m)

Other neutral grassland (0.25ha)

Created

Trees

Native hedgerow (114m)

Allotments (0.15ha)

Compacted MOT base with grass P3 seeded surface (50% developed land; sealed surface, 50% modified grassland) (0.06ha)

Bioswale (0.02ha)

Developed land; sealed surface (0.05ha)

SCALE: 1:400 at A3

0 5 10 15 20 Metres

CLIENT: University of Reading

PROJECT: Southern Allotments

DATE: 20 May 2025

Y:\UoR Southern Allotments 3029\GIS\BNG\Map3_Post_development\Habitats_P3029_3766_200525.aprx P30/29

Aerial Image: World Imagery: Maxar, Microsoft

Appendix 1

Southern Allotment Redesign GA

PLANTING NOTES

GENERAL

- Plant material to conform to the National Plant Specification. All plant stock to originate from within the UK. Plant handling and planting operations to be in accordance with HTA 'Handling and Establishing Landscape Plants', Parts I-III.
- Topsoil for planting and amenity grass areas to be fertile with maximum 35% clay content and 5% minimum organic content, pH 5.8 - 7.5 and to be free of perennial weeds, weed seeds and contamination. Maximum stone content 20% (20mm+ particle size), maximum size of stones 50mm in any direction. Existing topsoil to be ameliorated and/or screened if necessary to achieve this specification. Imported topsoil to be to BS 3882: Multi Purpose Grade, from an approved source, and to accord with the above specification.
- Excess topsoil excavated from haul road/paths to be distributed on plots (subject to accordance with above specification).
- Existing vegetation within allotment site to be felled and roots mechanically removed as required. Herbicide application required.

TREE PLANTING

- Extra Heavy Standards- Planted in pits approximately 1200x1200x900mm, backfilled with excavated subsoil/topsoil to replicate adjacent soil profile mixed with 120g 'Sierrablen Flora' slow release fertiliser. Supported by double stake and adjustable tree tie and base of trunk protected with spiral rabbit guards.
- All standard trees are to be fitted with 'Greenleaf' 'Root-rain Urban' irrigation pipe and inlet, or similar approved, size as appropriate.
- No trees are to be planted within 3m of sewers or services (or other easement recommended by the relevant statutory undertaker) without the use of tree root barriers, eg. 'Greenleaf' Reroot 600 /100 placed between the tree and services. Contractor to ascertain the location of all sewers and services prior to tree planting.

WOODLAND PLANTING

PREPARATION:

- Planting to be undertaken into existing in-situ topsoil.
- Existing crops to be removed. Topsoil/subsoil to be cultivated/ripped to a depth of 500mm to relieve compaction.

PLANTING:

- All plant material to be of UK origin.
- The roots of bare-root plants must be kept covered at all times, to prevent them drying out. Keep small bare-root plants completely within a polythene sack until the moment of planting.
- Refer to matrices and schedules from planting arrangements and mixes (dwg L04).
- Transplants- Notch planted or pit planted depending on soil conditions and size of roots with 30g 'Sierrablen Flora' slow release fertiliser. Ensure notch is large enough to accommodate roots without bending or breaking. Plant at the same depth transplant was growing at previously. All plants to be fitted with tree/shrub shelters, securely staked and with full ground contact.
- Planting to be carried out late October to late March, on a mild, damp day. Avoid days with frost or strong, drying winds.
- Water immediately after planting.
- Undertaken chemical weeding of an area of 1m diameter around each plant immediately after planting. Ensure herbicide application is carried out by a suitably trained person, only in periods of low winds, and with careful directional application to ensure no spray drift. Observe all precautions recommended by the manufacturer and remove containers from site immediately they have been emptied or are no longer required
- Area to be protected by rabbit/deer proof fencing (with pedestrian access gates for maintenance).

HEDGE PLANTING

- Hedge beds to have a minimum depth of 450mm topsoil over 150mm broken up ground with all stones over 50mm removed.
- Apply a suitable peat free organic compost, 50mm depth even coverage and incorporate into topsoil during cultivation operations, to a minimum depth of 150mm. Compost source and sample to be approved.
- Transplants- Notch planted or pit planted depending on soil conditions and size of roots with 30g 'Sierrablen Flora' slow release fertiliser. Ensure notch is large enough to accommodate roots without bending or breaking. Plant at the same depth transplant was growing at previously. All plants to be fitted with tree/shrub shelters, securely staked and with full ground contact.
- All hedge beds to be mulched with matured coniferous bark, with an even particle size between 15 - 65mm, to a minimum depth of 75mm over weed free soil after completion of all planting and watering operations. Mulch to be free of pests, diseases, fungus and weeds, and with no fines or dust. Mulch source and sample to be approved.

GRASS AREAS

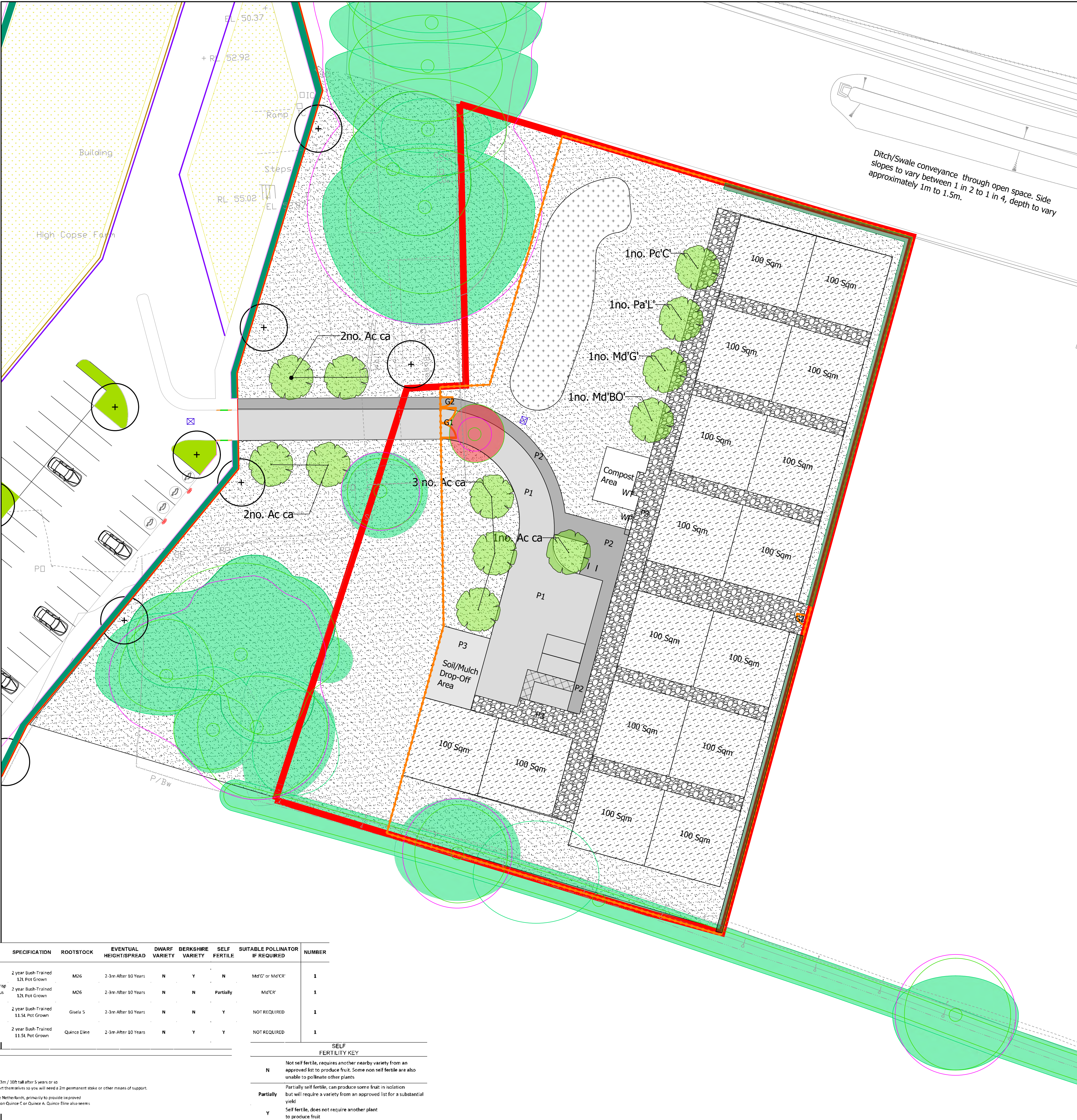
- Grass areas are to have a minimum depth of 150mm topsoil brought to a fine tilth all stones over 40mm, in any direction removed. Areas should be uniformly firmed. Seeding to be low maintenance species rich grass mix e.g. DLG SRG (Species Rich Grass) mix sown at 25kg/ha.

WILDFLOWER MEADOW WETLAND

- Ground Preparation.** Endeavour to select ground that is not highly fertile and does not have a problem with perennial weeds. Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.
- To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.
- Sourcing and preparation.** Wildflower mix shall be Emorsgate EM8. Sowings on ground prone to winter flooding are safest either in the early autumn or in spring once the land has drained. Most plants need time to grow mature enough to withstand flooding.
- The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.
- First year management.** Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost the cuttings. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks. Amenity grass: April to October

TIMES OF YEAR FOR PLANTING

- Deciduous trees and shrubs: Late October to early March (subject to ground conditions and temperature)
- Container grown plants: At any time if ground and weather conditions are favourable
- Amenity grass: April to October



The scaling of this drawing cannot be assured

RevisionDateDmCkd

LEGEND

Application Boundary 6300 Sqm (0.63 Ha)

Landscape Scope of Works Boundary

Woodland Buffer

SOFT LANDSCAPE

Proposed trees

Existing tree to be retained with root protection zone

Emorsgate EH1 hedgerow mixture

Emorsgate EM8 Meadow mixture for wetlands

Community allotments

Proposed native hedge

HARD LANDSCAPE

P1 - Roads

Black bituminous material

P2 - Pedestrian Routes

Black bituminous material

P3 - Compacted MOT base with grass seeded surface (allotments haulage road)

Post and Rail Fence 1.2m high

STREET FURNITURE

Double leaf metal gate to match Bulmershe Pavilion

Single gate to match post and rail fence

Cycle hoop, 1100x770mmx Dia 48mm, Mild steel hot dipped galvanised, root fixed below ground to engineers specification

Water Point

Water Trough: Galvanised Steel Allotment Dip Tank 1.8m x 0.6m

Supplier: City Irrigation or similar approved.

TREES				
Qty	Abbv	Trees	Size /girth	Notes
8	Ac ca	(EHS)Acer campestre	14-16 cm	RB/ clear stem 2m

CODE	SPECIES	COMMON NAME	DESCRIPTION	SPECIFICATION	ROOTSTOCK	EVENTUAL HEIGHT/SPREAD	DWARF VARIETY	BERKSHIRE VARIETY	SELF FERTILE	SUITABLE POLLINATOR IF REQUIRED	NUMBER
Md'RO'	Malus domestica 'Blenheim Orange'	Blenheim Orange Dual Purpose Apple	Blenheim Orange is a classic English dual purpose apple useful for dessert and culinary purposes	2 year Bush-Trained 12L Pot Grown	M26	2-3m After 10 Years	N	Y	N	Md'G' or Md'CR'	1
Md'G'	Malus domestica 'Greensleeves'	Greensleeves Apple	Greensleeves is the result of an interesting experiment, crossing the crisp sweet flavours of Golden Delicious with the juicy acidity of the famous Scottish apple variety, James Grieve	2 year Bush-Trained 12L Pot Grown	M26	2-3m After 10 Years	N	N	Partially	Md'CR'	1
Pa'L'	Pyrus ioium 'Lapins'	Lapins Cherry	Lapins is a large dark red juicy cherry with a mild sweet/sharp flavour, and will appeal to those who like cherries but prefer a milder flavour	2 year Bush-Trained 11.5L Pot Grown	Gisela 5	2-3m After 10 Years	N	N	Y	NOT REQUIRED	1
Pc'C'	Pyrus communis 'Conference'	Conference Pear	Conference is a popular and reliable English pear well suited to the UK climate	2 year Bush-Trained 11.5L Pot Grown	Quince Elaine	2-3m After 10 Years	N	Y	Y	NOT REQUIRED	1
ROOTSTOCK KEY											
None	Plant not grafted onto rootstock										
M26	M26 is a good general purpose rootstock, which can be used for a wide variety of purposes, from medium sized bush trees, to cordons and espaliers. Used where you want a smaller tree, although vigour increases in warmer climates. Tree may require permanent stake.										
Gisela 5	Gisela 5 has quickly established itself as the rootstock of choice for gardeners who want a cherry tree with manageable proportions. It produces a tree about 3m / 10ft tall after 5 years or so roughly equivalent to the apple M26 rootstock, and about 50% the size of a "standard" cherry on seedling rootstock. Cherry trees on Gisela 5 cannot support themselves so you will need a 2m permanent stake or other means of support.										
Quince Elaine	Elaine is a new quince rootstock which can be used for pears and quinces, with similar vigour and productivity to Quince C. It was developed in the 1950s in the Netherlands, primarily to provide increased cold-hardiness over the widely-planted Quince C rootstock. Trees grafted on Quince Elaine have a somewhat more erect habit than the same varieties grafted on Quince C or Quince A. Quince Elaine also seems to reduce the extent of russetting on Conference, which is important for commercial growers										
SELF FERTILITY KEY											
N	Not self fertile, requires approved list to produce fruit. Some non self fertile are also unable to pollinate										
Partially	Partially self fertile, but will require a variety from an approved list for a substantial yield										
Y	Self fertile, does not need to produce fruit										

FOR INFORMATION

Project
University of Reading

Drawing Title
Southern Allotment Redesign GA

Date	Scale	Drawn by	Check by
13.08.24	1:250	BA	DS
Project No	Drawing No	Revision	
333101011	RG-LD-94	A	

0 4 8 12m



Stantec UK Limited
10th Floor
Bank House
8 Cherry Street
Birmingham
B2 5AL
T: 0121 633 2900
stantec.com\uk

Appendix 2

Biodiversity Net Gain Metric

Project Name: Map Reference:

A-1 On-Site Habitat Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Area habitat summary	
Total Net Unit Change	-1.58
Total Net % Change	-39.17%
Trading Rules Satisfied	No - check trading summaries ▲

Existing area habitats					Distinctiveness		Condition		Strategic significance			Required Action to Meet Trading Rules	Ecological baseline
Ref	Broad Habitat	Habitat Type	Irreplaceable habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier		Total habitat units
1	Grassland	Other neutral grassland	No	0.48	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	3.84
2	Heathland and shrub	Bramble scrub	No	0.04	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.16
3	Heathland and shrub	Blackthorn scrub	No	0.01	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.04
4													
5													
				Total habitat area									4.04
				Site Area (Excluding area of individual trees, green walls, intertidal hard structures)									

M² to hectares conversion tool:

Select a unit

Hectares

M²

Project Name: Map Reference:

A-2 On-Site Habitat Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Area habitat summary	
Total Net Unit Change	-1.58
Total Net % Change	-39.17%
Trading Rules Satisfied	No - check trading summaries ▲
Area Check	Area Acceptable ✓

Ref	Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic significance			Post intervention habitats			Temporal multiplier		
				Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Standard time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier
1	Urban	Allotments	0.16	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1			Standard time to target condition applied	1	0.965
2																
3	Urban	Bioswale	0.022	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3			Standard time to target condition applied	3	0.899
4	Urban	Developed land; sealed surface	0.052	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0			Standard time to target condition applied	0	1.000
5	Urban	Artificial unvegetated, unsealed surface	0.03	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0			Standard time to target condition applied	0	1.000
6	Grassland	Modified grassland	0.03	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1			Standard time to target condition applied	1	0.965
7	Individual trees	Urban tree	0.0326	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10			Standard time to target condition applied	10	0.700
8																
Total habitat area			0.33													

Site Area (Excluding area of individual trees, green walls, intertidal hard structures)	0.29
---	------

M² to hectares conversion tool:	Select a unit	Hectares	M²
---------------------------------	---------------	----------	----

Difficulty multipliers				Comments			
Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	User comments	Planning authority comments	Habitat reference number
Low	Standard difficulty applied	Low	1	0.31	allotments - cannot guarantee condition above poor		1
Medium	Standard difficulty applied	Medium	0.67	0.08			3
Low	Standard difficulty applied	Low	1	0.00			4
Low	Standard difficulty applied	Low	1	0.00	Compacted MOT base with grass P3 seeded surface (50%)		5
Low	Standard difficulty applied	Low	1	0.06	Compacted MOT base with grass P3 seeded surface (50%) - unlikely to achieve beyond poor cond		6
Low	Standard difficulty applied	Low	1	0.09			7
			Total Units	0.54			

						Comments		
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	User comments	Planning authority comments	Habitat reference number
	0.062	0.00	0.29	0.00	0.00			1
0.00	0.06	0.00	0.29	0.00	0.00			

Project Name:	Map Reference:
B-2 On-Site Hedge Creation	

Hedgerow summary	
Total Net Unit Change	0.89
Total Net % Change	313.60%
Trading Rules Satisfied	Yes ✓

Condense / Show Columns

Condense / Show Rows

Main Menu

		Proposed habitats		Distinctiveness		Condition		Strategic significance		
Ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier
1	H2	Native hedgerow	0.11	Low	2	Good	3	Formally identified in local strategy	High strategic significance	1.15
2										
3										
4										
5										
			0.11							

Temporal multiplier						Difficulty risk multipliers				Hedge units delivered
Standard Time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	
12			Standard time to target condition applied	12	0.652	Low	Standard difficulty applied	Low	1	0.49
										0.49

Comments		
User comments	Planning authority comments	Habitat reference number

Hedgerow summary	
Total Net Unit Change	0.89
Total Net % Change	313.60%
Trading Rules Satisfied	Yes ✓

Post intervention habitats										
Proposed habitat	Change in distinctiveness and condition		Length (km)	Distinctiveness		Condition		Strategic significance		
	Distinctiveness movement	Condition movement		Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier
Native hedgerow with trees	Medium - Medium	Poor - Good	0.062	Medium	4	Good	3	Formally identified in local strategy	High strategic significance	1.15
			0.06							

Temporal multiplier						Difficulty risk multipliers				Hedge units delivered	Comments		
Standard Time to target condition (years)	Habitat enhanced in advance (years)	Delay in starting habitat enhancement (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final Time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied		User comments	Planning authority comments	Habitat reference number
10			Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	0.68			
										0.68			