# ANNEX C

# SLAUGHAM GARDEN NURSERY SLAUGHAM WEST SUSSEX

# ECOLOGICAL IMPACT ASSESSMENT (EcIA)

ACD ENVIRONMENTAL

Ecology
Archaeology
Arboriculture
Landscape Architecture

LENMARK GROUNDWORKS

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| **Written By:** | LG |
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| **Date:** | 30.08.2023 |
| **Document File Ref:** | PRI23929_EcIA |
| **Revision:** | * |
| **Date of last revision:** | |
| **Revised by:** | |

# QUALITY ASSURANCE

This report has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing (2nd Edition, December 2017).

The facts stated in this report are true to the best of our knowledge and belief, and any opinions expressed are held genuinely and in accordance with the accepted standards of the profession. ACD Environmental Ltd is a CIEEM Registered Practice.

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| Client: | Lenmark Groundworks |
| Site/job: | Slaugham Garden Nursery, Staplefield Road, Slaugham, West Sussex RH17 6AG |
| Author: | Lily Gilbert |
| Technical review: | Nicholas Jones |

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# 1 EXECUTIVE SUMMARY

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| Purpose of report | To assess the ecological impacts of a proposed development at Slaugham Garden Nursery, Slaugham, clearly identifying any 'significant effects' on important ecological features (including designated sites or protected species) and detailing any mitigation and/or compensation measures required, and how these could be secured. The report also confirms how the proposed development will achieve Biodiversity Net Gain. |
| Description of proposed development | A planning application (Ref: DM/22/2015) for change of land use to a Transit Site for Gypsy/Traveller's comprising the formation of six Touring Caravan Pitches for nomadic use only, and the erection of six utility buildings, as well as the formation of a children's play area, was refused by Mid Sussex District Council on 13th October 2022. This decision is soon to be appealed. |
| Brief description of the Site | The proposed development site (hereafter referred to as the Application Site) is a 1.3ha area of land, part of the larger area of ownership comprising approximately 3ha.<br><br>The Application Site is composed of two metal storage buildings and hardstanding: sparsely vegetated land comprising areas of bare ground, spoil/rubble/log piles, ruderal vegetation, ephemeral vegetation, scrub/sapling encroachment and grassland. Scattered trees; tree lines and areas of lowland mixed deciduous woodland are also present on-site. |
| Designated nature conservation sites | The Application Site falls within the Impact Risk Zone (IRZ) for Cow's Wood and Harry's Wood SSSI and St Leonard's Forest SSSI. The closest non-statutory designated site is Mill Pond LWS, which is located 511m to the south east. Given the type of development proposed, the provision of open space within the Application Site and the spatial separation, no impacts on these sites are anticipated. |
| Key habitats | The most important habitat present within the Application Site are the areas of lowland mixed deciduous woodland. |
| Key species | • The Application Site is highly likely to support great crested newt during their terrestrial phase.<br>• A 'low' population of grass snake has been recorded on-site.<br>• A large assemblage of invertebrate species has been recorded on-site, including four notable species. |

| | |
|---|---|
| Key impacts & mitigation/ compensation measures | The proposed development will result in the loss of approximately 0.77ha of sparsely vegetated land and five small trees.<br><br>The Application Site will be registered under the great crested newt NatureSpace district licence, with sensitive clearance and ecologist supervision during high-risk activity.<br><br>Phased and directional habitat clearance will encourage grass snake into retained areas of suitable habitat.<br><br>Clearance of vegetation will be outside of the bird nesting season (March - August inclusive).<br><br>A sensitive lighting scheme will be implemented to minimise light spill, particularly on the retained woodland and tree lines.<br><br>The creation of areas of scrub, shrub, log piles and species rich grassland will compensate for the loss of suitable habitat for great crested newt, reptiles and invertebrates. Bat and bird boxes will be installed on retained trees.<br><br>The development will deliver a +0.11 (1.41%) net gain in habitat units, provided the planting recommendations in this report and the Biodiversity Metric are adhered to. |
| Conclusions | Provided the measures outlined within this report are followed, the proposed development will comply with Paragraphs 174 -182 of the NPPF, and local planning policy.<br><br>Registration of the Application Site under the great crested newt district level licence will be obtained to comply with the relevant legislation. |

# 2 INTRODUCTION

2.1. This report provides an assessment of the ecological effects of the proposed development of an area of land known as Slaugham Garden Nursery, Slaugham, West Sussex RH17 6AG (see **Image 1**).

**Background**

2.2. The Application Site is located approximately 2km to the west of the village of Staplefield. The Ordnance Survey Grid Reference for the centre of the Application Site is TQ 25477 28203.

2.3. The Application Site comprises approximately 1.2ha and is within the boundary of a wider area of ownership comprising approximately 3ha. The Application Site is within a rural area in Slaugham with agricultural land, woodland and fields surrounding. The Application Site was formerly a plant nursery, which has been inactive for a number of years.

2.4. A planning application (Ref: DM/22/2015) for change of land use to a Transit Site for Gypsy/Traveller's comprising the formation of six Touring Caravan Pitches for nomadic use only, and the erection of six utility buildings, as well as the formation of a children's play area, was refused by Mid Sussex District Council on 13th October 2022. This decision is soon to be appealed.

**Image 1:** Application Site location and approximate site boundary shown in red.

**Competence**

2.5. This report has been written by Lily Gilbert of ACD Environmental Ltd. Lily is a Principal Ecologist at ACD Environmental Ltd and has 10 years' experience working for commercial consultancy and specialises in European Protected Species (EPS) legislation and mitigation, holding class licences for bats, hazel dormouse *Muscardinus avellanarius*, great crested newt *Triturus cristatus* and barn owl *Tyto alba*. Lily has significant experience of EcIA and is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). This report has been written by Lily Gilbert.

2.6. A Technical Review of this report has been undertaken in line with ACD Environmental Ltd's Quality Assurance procedures. The Technical Review was undertaken by Nicholas Jones. Nicholas is an Associate Director at ACD Environmental Ltd. He has over 15 years' experience working for commercial consultancy and specialises in EPS legislation and mitigation, holding class licences for barn owl, bats (Level 2) and great crested newt and is one of a small number of ecologists who is a Registered Consultant under the 'low impact' Bat Mitigation Class Licence. He has significant experience of EcIA and has represented ecology at a Hearing. He is a Full Member of CIEEM.

**Purpose of the report**

2.7. The purpose of this Ecological Impact Assessment (EcIA) is as follows:

- To identify and describe all potentially significant ecological effects associated with the proposed development.
- To set out the mitigation measures required to ensure compliance with nature conservation legislation and relevant planning policy, and to address any potentially significant ecological effects.
- To identify how mitigation measures will/could be secured.
- To identify any significant residual ecological effects and set out any compensation measures proposed to address these.
- To set out the requirements for post-construction monitoring.

# 3 PLANNING POLICY AND LEGISLATION

## Legislation

3.1. The following pieces of legislation are of specific relevance to this assessment:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[1]. This piece of legislation is of relevance because the Application Site likely supports habitats used by terrestrial great crested newt, an EPS.

- Wildlife and Countryside Act 1981[2] (as amended, including by the Countryside and Rights of Way Act 2000). This piece of legislation is relevant because the Application Site is within the Impact Risk Zone (IRZ) of a Site of Special Scientific Interest (SSSI), which is protected in England under this Act.

- Natural Environment and Rural Communities (NERC) Act 2006[3]. Section 41 includes lists of habitats and species recognised as of 'principal importance' for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires all public bodies to have regard for biodiversity conservation when carrying out their function. This is commonly referred to as the 'biodiversity duty'. This piece of legislation is relevant because the Application Site supports lowland mixed deciduous woodland a habitat of principal importance and numerous species of principal importance including grass snake.

- Protection of Badgers Act 1992. This piece of legislation is relevant because a likely outlier badger sett is present in the far north of the Application Site.

- Hedgerows Regulations 1997. This piece of legislation is relevant because a line of trees runs through the Application Site and along part of the eastern boundary.

[1] Great Britain. *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019* No.579 [online]. Available from: https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents
[2] Great Britain. *Wildlife and Countryside Act 1981* [online]. Available from: http://www.legislation.gov.uk/ukpga/1981/69/contents
[3] Great Britain. *Natural Environment and Rural Communities Act 2006* [online]. Available from: http://www.legislation.gov.uk/ukpga/2006/16/contents

## Planning policy

National Planning Policy Framework 2021[4]

3.2. Paragraphs 174-182 of the NPPF relates to 'Conserving and enhancing the natural environment'. Paragraph 180 of the NPPF states that when determining planning applications, local planning authorities should apply the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

- Development on land within or outside a SSSI, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs.

- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

- 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 or enhance public access to nature where this is appropriate.

Mid Sussex District Plan 2014-2031[5]

3.3. Mid Sussex District Council adopted the Mid Sussex District Plan 2014-2031 on 28th March 2018. It replaces the 2004 Mid Sussex Local Plan[6]. Relevant planning policies are detailed below:

[4] Great Britain. *National Planning Policy Framework (2021)*. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2
[5] https://www.midsussex.gov.uk/media/3406/mid-sussex-district-plan.pdf
[6] https://www.midsussex.gov.uk/planning-building/local-plan-2004/

**DP17: Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC):**

*"Strategic Objectives:*

*3) To protect valued landscapes for their visual, historical and biodiversity qualities. Evidence Base: Ashdown Forest Visitor Survey Data Analysis, Habitats Regulations Assessment for the Mid Sussex District Plan, Visitor Access Patterns on Ashdown Forest. In order to prevent adverse effects on the Ashdown Forest SPA and SAC, new development likely to have a significant effect, either alone or in combination with other development, will be required to demonstrate that adequate measures are put in place to avoid or mitigate any potential adverse effects. Within a 400 metres buffer zone around Ashdown Forest, mitigation measures are unlikely to be capable of protecting the integrity of the SPA and, therefore, residential development will not be permitted. Within a 7km zone of influence around the Ashdown Forest SPA, residential development leading to a net increase in dwellings will be required to contribute to mitigation through:*

*1) The provision of Suitable Alternative Natural Greenspace (SANG) to the minimum level of 8Ha per 1,000 net increase in population; or a financial contribution to SANGs elsewhere; or the provision of bespoke mitigation; and*

*2) A financial contribution to the Ashdown Forest Strategic Access Management and Monitoring (SAMM) Strategy. Large schemes proposed adjacent or close to the boundary of the 7km zone of influence may require mitigation for the SPA. Such proposals for development will be dealt with on a case-by-case basis. Where bespoke mitigation is provided, these measures will need to be in place before occupation of development and must be managed and maintained in perpetuity. The effectiveness of such mitigation will need to be demonstrated prior to approval of the development. Bespoke mitigation will need to be discussed and agreed by the District Council as the competent authority following advice from Natural England."*

**DP37: Trees, Woodland and Hedgerows**

*"Strategic Objectives:*

*3) To protect valued landscapes for their visual, historical and biodiversity qualities;*

*4) To protect valued characteristics of the built environment for their historical and visual qualities; and*

*5) To create and maintain easily accessible green infrastructure, green corridors and spaces around and within the towns and villages to act as wildlife corridors, sustainable transport links and leisure and recreational routes.*

*Evidence Base: Green Infrastructure mapping; Mid Sussex Ancient Woodland Survey, Tree and Woodland Management Guidelines, Tree Preservation Order records.*

*The District Council will support the protection and enhancement of trees, woodland and hedgerows, and encourage new planting. In particular, ancient woodland and aged or veteran trees will be protected.*

*Development that will damage or lead to the loss of trees, woodland or hedgerows that contribute, either individually or as part of a group, to the visual amenity value or character of an area, and/ or that have landscape, historic or wildlife importance, will not normally be permitted.*

*Proposals for new trees, woodland and hedgerows should be of suitable species, usually native, and where required for visual, noise or light screening purposes, trees, woodland and hedgerows should be of a size and species that will achieve this purpose.*

*Trees, woodland and hedgerows will be protected and enhanced by ensuring development:*

- *incorporates existing important trees, woodland and hedgerows into the design of new development and its landscape scheme; and*
- *prevents damage to root systems and takes account of expected future growth; and*
- *where possible, incorporates retained trees, woodland and hedgerows within public open space rather than private space to safeguard their long-term management; and*
- *has appropriate protection measures throughout the development process; and*
- *takes opportunities to plant new trees, woodland and hedgerows within the new development to enhance on-site green infrastructure and increase resilience to the effects of climate change; and*
- *does not sever ecological corridors created by these assets.*

*Proposals for works to trees will be considered taking into account:*

- *the condition and health of the trees; and*
- *the contribution of the trees to the character and visual amenity of the local area; and*
- *the amenity and nature conservation value of the trees; and*
- *the extent and impact of the works; and*
- *any replanting proposals.*

*The felling of protected trees will only be permitted if there is no appropriate alternative. Where a protected tree or group of trees is felled, a replacement tree or group of trees, on a minimum of a 1:1 basis and of an appropriate size and type, will normally be required. The replanting should take place as close to the felled tree or trees as possible having regard to the proximity of adjacent properties.*

*Development should be positioned as far as possible from ancient woodland with a minimum buffer of 15 metres maintained between ancient woodland and the development boundary."*

**DP38: Biodiversity**

*"Strategic Objectives:*

*3) To protect valued landscapes for their visual, historical and biodiversity qualities; and*

*5) To create and maintain easily accessible green infrastructure, green corridors and spaces around*
*and within the towns and villages to act as wildlife corridors, sustainable transport links and leisure and recreational routes.*
*Evidence Base: Biodiversity 2020; Biodiversity Action Plan; Biodiversity Opportunity Areas; Green Infrastructure mapping; Habitats and Species Records; Mid Sussex Ancient Woodland Survey; Mid Sussex Infrastructure Delivery Plan; The Natural Choice: Securing the Value of Nature; West Sussex SNCI Register.*

*Biodiversity will be protected and enhanced by ensuring development:*

- *Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and*
- *Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and*
- *Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and*
- *Promotes the restoration, management and expansion of priority habitats in the District; and*
- *Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas.*

*Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to wider ecological networks.*

*Valued soils will be protected and enhanced, including the best and most versatile agricultural land, and development should not contribute to unacceptable levels of soil pollution.*

*Geodiversity will be protected by ensuring development prevents harm to geological conservation interests, and where possible, enhances such interests. Geological conservation interests include Regionally Important Geological and Geomorphological Sites."*

# 4 METHODOLOGY

### Scope of assessment

4.1. The EcIA focuses on 'important ecological features', i.e. those which are considered to be of relevance to the decision-making process and could be affected by the proposed development. Important ecological features include protected species, habitats/species of 'principal importance' for biodiversity conservation (i.e. Section 41 habitats/species[7]), birds of conservation concern[8], invasive non-native plant species[9], and habitats and species identified as priorities for conservation in the Mid Sussex District Plan.

### Zone of influence

4.2. The 'zone of influence' (ZOI) is the area over which important ecological features (on-site or off-site) may be affected as a result of the proposed development and associated activities. The ZOI can vary for different ecological features, depending on their sensitivity to environmental change.

4.3. The ZOI for statutory designated sites has been informed by Natural England's Sites of Special Scientific Interest Impact Risk Zones (SSSI IRZs)[10]. IRZs define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. This has been determined as part of the desk study, as discussed below. In this case, the Application Site is within the IRZ of Cow Wood and Harry's Wood (SSSI) and St Leonards Forest (SSSI), although no effects on these sites are expected.

4.4. The zone of influence for habitats extends to the local area because the woodland on-site is connected to other areas of woodland within the local area. The zone of influence for protected species covers the Application Site and approximately 500m around the development footprint to account for the typical terrestrial movements of great crested newt.

[7] Section 41 (41) of the Natural Environment and Rural Communities (NERC) Act, which came into force on 1st October 2006, requires the Secretary of State to publish a list of habitats and species which are of principle importance for the conservation of biodiversity in England.
[8] Red list species are those that are globally threatened, whose population or range has declined rapidly in recent years (i.e. by more than 50% in 25 years), or which have declined historically and not recovered. Amber list species are those whose population or range has declined moderately in recent years (by more than 25% but less than 50% in 25 years), those whose population has declined historically but recovered recently, rare species (<300 breeding pairs or <900 wintering individuals), those with internationally important populations in the UK, those with localised populations, and those with an unfavourable conservation status in Europe. Species that meet none of these criteria are Green-listed.
[9] Invasive non-native plants (Section 14) on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended).
[10] Natural England (June 2019). Natural England's Impact Risk Zones for Sites of Special Scientific Interest (For use by Local Planning Authorities to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites and determine when to consult Natural England).

**Desk Study**

4.5. The following information was requested from Sussex Biodiversity Record Centre Records Centre and was received on 3rd May 2023 for a search area of 2km around the central grid reference of the Application Site:

- Protected and Notable species.
- Non-statutory designated sites.
- Invasive species records.

4.6. The MAGIC website[11] was used to carry out a 5km data search for SSSIs, Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) with an IRZ that falls within the Application Site, in May 2023.

**Field surveys**

4.7. A summary of ecological field surveys is provided in **Table 1**. Descriptions of full survey methods are provided in **Appendix 4**.

**Table 1:** Field surveys.

| Survey | Surveyor/s | Survey date/s | Study Area | Relevant guidelines |
|---|---|---|---|---|
| Extended Phase 1 Habitat Survey | Katie Crawford | 29th July 2022 | Red line boundary | JNCC |
| Reptile presence/likely absence surveys | Victoria Mercier | 19th April 2023<br>10th May 2023<br>12th May 2023<br>21st May 2023<br>24th May 2023 | Red line boundary | Froglife (1999) |

[11] *Multi Agency Geographic Information for the Countryside* [online]. Available at: https://magic.defra.gov.uk/

| Survey | Surveyor/s | Survey date/s | Study Area | Relevant guidelines |
|---|---|---|---|---|
| | | 26th May 2023<br>31st May 2023<br>3rd June 2023 | | |
| Great crested newt eDNA surveys | Lily Gilbert | 30th June 2023 | Ponds 4, 5 and 6 | Natural England Guidance (2015)[12] |
| Invertebrate scoping survey | Scotty Dodd | 16th May 2023 | Red line boundary | English Nature (2005)[13] |

**Biodiversity Metric**

**Assessment Framework**

4.8. For the purposes of this assessment, the Biodiversity Metric 4.0 has been utilised.

4.9. The Biodiversity Metric 4.0 is accompanied by a 'Calculation Tool'. This was used to calculate the biodiversity units for the Application Site before (baseline) and after development. The User Guide[14] has been followed.

4.10. The Metric's Phase 1 Translation Tool has been used to convert habitat types from Phase 1 to UK Habs.

**Habitat Measurements**

4.11. Baseline habitat measurements were carried out in line with the results of the 2022 habitat survey. Measurements were made using QGIS.

[12] https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects
[13] English Nature (2005). *Organising Surveys to Determine Site Quality for Invertebrates: A Framework Guide for Ecologists*. English Nature, Peterborough.
[14] Available at: https://publications.naturalengland.org.uk/publication/6049804846366720

4.12. Proposed habitat measurements were taken from the Proposed Site Plan[15].

4.13. Measurements were entered to the nearest 0.01ha.

**Distinction Assessments**

4.14. Habitats are assigned to distinctiveness bands automatically within the Metric. These are based on an assessment of the distinguishing features of a habitat or linear feature, including the consideration of species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats.

4.15. The distinctiveness band of each habitat is preassigned in the Biodiversity Metric 4.0. The bands are based upon the UK habitat classification system. A combination of simple rules and professional judgement have been used to assign each habitat type to the appropriate distinctiveness band. The distinctiveness categories used are tailored to habitat type.

4.16. Distinctiveness Assessments are assigned according to **Table 2**.

**Table 2:** Distinctiveness Assessment.

| Category | Scores | Multiplier |
|---|---|---|
| Very High | 8 | Priority habitats as defined in Section 41 of the NERC Act that are highly threatened, internationally scarce and require conservation action e.g. blanket bog |
| High | 6 | Priority habitats as defined in Section 41 of the NERC Act requiring conservation action e.g. lowland fens |
| Medium | 4 | Semi-natural habitats not classed as a Priority Habitat |
| Low | 2 | Habitat of low biodiversity value. Temporary grass and clover ley; intensive orchard; rhododendron scrub. |
| Very Low | 0 | Little or no biodiversity value e.g. hard standing or sealed surface |

[15] WS Planning and Architecture (2022). *As Proposed Site Plan*. Ref: J004190-DD-03.

**Condition Assessments**

4.17. Condition assessments for existing habitats can be found in a separate Excel document.

**Strategic significance**

4.18. The spatial location of a habitat is treated as a component of the quality of a habitat parcel in the same way as distinctiveness or condition. Strategic significance is used to determine whether the habitat is of increased importance due to its location.

**Risk Factors**

4.19. As part of any proposed habitat creation and restoration, risk factors must be taken into account to correct for disparity, delay or risk. These values are preassigned within the Biodiversity Metric 4.0 and take into consideration the following factors:

- Temporal risk.
- Difficulty of creation and restoration.

4.20. Advance/delay in habitat creation takes into account any significant time difference in the creation of a habitat type. This time is measured in full years and is entered by the assessor.

4.21. Habitat creation in advance is rewarded by reducing the difficulty and temporal risk multipliers applied. This reflects the lower delivery risk - there is less risk of failure when a habitat is already making progress towards its target condition.

4.22. Any significant delay in the creation of a habitat type relative to loss of on-site habitats (e.g. due to phased developments and developments that temporarily require parts of the development site for construction purposes) is added to the pre-populated time to target condition and increases the effect of the risk multiplier accordingly.

**Limitations**

4.23. Although the Biodiversity Metric 4.0 is a valuable tool underpinned by ecological evidence, there are certain limitations that must be considered when applying the metric. The key principles and rules for the use of the Biodiversity Metric 4.0 have been followed at all times, in line with these limitations. Further detail is available within the Biodiversity Metric 4.0 User Guide.

4.24. The data search report is valid until 3rd May 2024, beyond this time the data search may been to be updated.

**Assessment methodology**

4.25. The habitats and species evaluations and likely effects are made with reference to CIEEMs Guidelines for Ecological Impact Assessment[16].

4.26. The importance of ecological features has been assessed by carrying out a suite of specialist surveys (**Table 2**) to determine whether protected species/habitats, and/or species/habitats of conservation concern are present in the Application Site or its ZOI, then comparing their status at the international/national/county/regional/local scale, through the use of available contextual information, to establish the importance of those features in a geographical context.

4.27. The overall effect of the proposed development on a given feature has been predicted, considering the baseline data collected through desk study and field survey, and the various impacts expected to occur. An assessment has then been made as to whether the effect on each important ecological feature is likely to be significant or not.

4.28. Significance is the weight that should be attached to effects when decisions are made. For the purpose of EcIA, a likely significant effect is an effect that either supports or undermines biodiversity conservation objectives for important ecological features (which could be species populations/groups of species, habitats, or a designated site), or for biodiversity in general. Effects have been considered significant at a wide range of scales, from national to local.

4.29. A sequential process has been adopted to avoid/mitigate, and if required, compensate for significant negative ecological effects. This is referred to as the 'Mitigation Hierarchy'. Avoidance includes measures to change the design of the proposed development to avoid an impact occurring. Mitigation includes measures to avoid or reduce the negative impacts of the proposed development. Compensation addresses significant negative residual effects (those likely to occur after avoidance and mitigation have been considered). It is this objective of compensation, and not its location, that distinguishes compensation from 'mitigation'.

4.30. In EcIA, it is only essential to assess and report significant residual effects that remain after mitigation measures have been taken into account. However, the potential significant effects without mitigation as well as the residual significant effects following mitigation have been presented where the mitigation proposed is experimental, unproven or controversial and/or to demonstrate the importance of securing the measures proposed through planning conditions or obligations.

[16] CIEEM (2019). *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal, Version 1.1. updated September 2019*. Chartered Institute of Ecology and Environmental Management, Winchester.

**Valuation**

4.31. The value of important ecological features (sites, habitats and species) is assigned according to their scale of importance using the following terms:

- International importance - ecological features of international importance such as SPAs and SACs, and/or sites that support internationally-important populations of species.

- National importance - ecological features of national importance such as SSSIs, features which meet the criteria for designation as a SSSI, and/or sites that support nationally-important populations of certain species.

- Regional importance - ecological features of regional importance, such as a species population that is of importance at a scale greater than the County, but does not meet the criteria for National Importance.

- County importance - ecological features of county-scale importance, including features that have been designated as local wildlife sites, or meet the criteria for designation as a local wildlife site, and/or county-important populations of species.

- Local importance - ecological features of local importance, including habitats or species populations listed as being of nature conservation importance (e.g. S41, local BAP, or listed in local planning policy), which are not considered to be of County importance by virtue of the quality, size/number, rarity, the extent to which they are threatened throughout their range, or to their rate of decline.

**Precautionary principle**

4.32. The evaluation of significant effects is based on the results of the ecological surveys carried out in the Application Site and other available evidence. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect is assumed. Where uncertainty exists, it has been duly acknowledged.

# 5 BASELINE ECOLOGICAL CONDITIONS

### Context

5.1. The Application Site is located in a rural setting, west of the village of Slaugham in West Sussex. The Application Site is bordered to the north, east and west by agricultural fields and pastures. Staplefield Road is located to the south of the Application Site. The wider landscape surrounding the Application Site consists of large arable fields interspersed by pockets of ancient woodland and scattered waterbodies. There is a large area of woodland to the north, which is connected to the Application Site via hedgerows bordering the fields.

### Designated Sites

5.2. SSSIs, SACs and SPAs with IRZs within the boundary of Application Site are shown in **Table 3**.

**Table 3:** Statutory designated sites with an IRZ within the Application Site.

| Name of Statutory Site | Approximate distance and direction from the Application Site | Nature Conservation Interest | Scale of importance |
|---|---|---|---|
| Cow Wood and Harry's Wood SSSI | 1.6km north-east | This ancient woodland has several steep sided stream valleys (ghylls), which contain plants with an 'Atlantic' distribution. Two woodland types dominate the wood: hazel *Corylus avellana* and pendunculate oak *Quercus robur* dominant woodland and pendunculate oak, hazel and ash *Fraxinus excelsior* dominant woodland. The woodland supports a rich community of breeding birds, with 47 species identified. Also includes uncommon invertebrates. | National |
| St. Leonard's Forest SSSI | 3.4km north-west | This site includes the remnants of a formerly more extensive deciduous forest on the Tunbridge Wells Sands | National |

| Name of Statutory Site | Approximate distance and direction from the Application Site | Nature Conservation Interest | Scale of importance |
|---|---|---|---|
| | | (Hastings Beds). Much of the deciduous woodland is dominated by pedunculate oak, with silver birch *Betula pendula*, common birch *Betula pubescens* and beech *Fagus sylvatica*. Examples of high forest remain and the ground vegetation is still varied and the streams which cross the site retain relict flora from the 'Atlantic' period of some 5000 years ago. The woodlands support populations of the rare purple emperor butterfly *Apatura iris* and a diversity of woodland breeding birds including all three British woodpeckers, nightjar *Caprimulgus europaeus*, redstart *Phoenicurus phoenicurus* and wood warbler *Phylloscopus sibilatrix*. | |

5.3. Non-statutory designated sites within 2km of the Application Site are summarised below in **Table 4**.

**Table 4:** Non-statutory designated sites within 2km of the Application Site.

| Non-statutory designated site | Approximate distance and direction from the Application Site | Nature Conservation Interest | Scale of importance |
|---|---|---|---|
| Mill Pond LWS | 511m southeast | Mill Pond consists of Slaugham Mill Pond, a large area of open water and reedbed, which is of particular importance for birds, and a small adjoining woodland to the north. Holes Wood, to the north, is overgrown hazel | Local |

| Non-statutory designated site | Approximate distance and direction from the Application Site | Nature Conservation Interest | Scale of importance |
|---|---|---|---|
| | | coppice with some alder *Alnus glutinosa* and birch growing under oak standards. Mill Pond feeds into the River Ouse and is currently used by the Haywards Heath and District Angling Society. The site is of particular importance for birds due to the presence of extensive open water, reedbed, scrub and woodland. Mandarin duck *Aix galericulata*, great crested grebe *Podiceps cristatus* and grey wagtail *Motacilla cinerea* have been recorded. | |
| Orange Gill and Homestead Wood LWS | 1.3km north | Ancient woodland site with areas of oak/birch dominant woodland and beech woodland. Oak and hazel occur on the lower slopes of the stream valleys and alder woodland is found on the valley bottoms. At least 40 bird species have been recorded breeding in this woodland, including all three woodpecker species, woodcock *Scolopax rusticola* and spotted flycatcher *Muscicapa striata*. | Local |
| Darkalley Ghyll and Canadian Valley Ghyll LWS | 2.14km | Comprises two streams located within two adjacent wooded ghyll valleys that both flow into a pond. Ghyll woodlands are an important habitat that is typical of the High Weald. The valley slopes support pedunculate oak, beech and sweet chestnut *Castanea sativa* dominated lowland mixed deciduous woodland with alder dominated wet | Local |

| Non-statutory designated site | Approximate distance and direction from the Application Site | Nature Conservation Interest | Scale of importance |
|---|---|---|---|
| | | woodland in the immediate vicinity of the ghyll streams. | |

5.4. Although the Application Site falls within the IRZ for two SSSI, the proposed development does not meet the criteria for developments likely to impact on the SSSI and therefore the LPA does not need to consult Natural England specifically on this matter.

5.5. The small scale of the development proposals limits the potential for the development to impact upon these designated sites, particularly given their spatial separation. No impacts are anticipated on these sites.

**Onsite Habitats**

5.6. Habitat descriptions are provided below. All the habitats described are shown on the Habitat Plan in **Appendix 1**.

*Developed land; sealed surface*

5.7. There are two metal buildings onsite with a large area of hardstanding providing access.

*Sparsely vegetated land*

5.8. Sparsely vegetated land comprising bare ground with areas of ruderal vegetation, ephemeral vegetation, scrub/sapling encroachment and grassland is present over the majority of the Application Site.

5.9. Species in this mosaic include fleabane *Pulicaria dysenterica,* scarlet pimpernel *Anagallis arvensis*, small-flowered willowherb *Epilobium parviflorum*, ragwort *Senecio jacobaea,* crane's-bill *Geranium phaeum sp*., with abundant stands of buddleja *Buddleja* sp., common nettle *Urtica dioica* and bramble *Rubus fruticosus* agg. There are frequent St John's wort *Hypericum perforatum* with occasional Cardamine sp., rough meadow grass *Poa trivialis*, broadleaved dock *Rumex obtusifolius,* soft rush *Juncus effusus*, dandelion *Taraxacum officinalis* agg., creeping cinquefoil *Potentilla reptans*, common ragwort *Senecio jacobaea*, common centaury *Centaurium erythraea,* creeping thistle *Cirsium arvense*, herb Bennett *Geum urbanum*, cleavers *Galium aparine*, sedge

*Carex* sp., daffodil *Narcissus* sp., wood spurge *Euphorbia amygdaloides*, common hogweed *Heracleum sphondylium* sp., iris sp., rough comfrey *Symphytum asperum,* bugloss *Anchusa arvensis,* field mouse-ear *Cerastium arvense* and centuary *Centaurium erythraea*.

5.10. This mosaic includes ephemeral vegetation and bare ground in the southern portion of the Application Site, with log piles and brash piles present. This develops into tall ruderal at the northern extent of the Application Site, with a portion at the very north being semi-improved grassland with bare ground and ruderal species scattered throughout. Buddleja is not invasive but can be considered invasive in the absence of management and any removal must be done carefully ensuring that it is not allowed to spread.

5.11. This habitat is considered to be of importance in its own right, although short of meeting the criteria for the Priority Habitat 'Open Mosaic on Previously Developed Land' due to the lack of species diversity/composition. This mosaic of habitats is considered to be of site importance only.

*Scattered trees and tree lines*

5.12. Scattered trees are present onsite, primarily close to the Application Site boundaries. Species include hawthorn *Crataegus monogyna,* goat willow *Salix caprea*, silver birch, hazel and alder.

5.13. Leyland cypress *Cupressus x leylandii* tree lines run across part of the Application Site from east to west and also form part of the eastern site boundary.

5.14. A line of mature trees are present just offsite along the western site boundary. These trees are primarily common oak, with some holly *Ilex aquifolium*, ash and goat willow. Although off-site, the canopies of these trees overhang into the Application Site.

5.15. The majority of the scattered trees present on-site are immature and are therefore considered to be of site importance only. The on-site tree lines comprise a single species and are considered to be of negligible importance in their own right.

*Mixed scrub*

5.16. There are small areas of dense, mixed scrub within the Application Site, primarily close to the Application Site perimeters. Species present include hawthorn and bramble with some willow saplings.

5.17. The areas of scrub are species poor and relatively small and are therefore considered to be of negligible importance in their own right.

*Lowland mixed deciduous woodland*

5.18. Woodland is present in the north and south east of the Application Site with connectivity to off-site ancient semi-natural broadleaved woodland to the north and east.

5.19. Species present within the woodland include oak, silver birch, hazel, dogwood *Cornus sanguinea*, ash *Fraxinus excelsior*, aspen *Populus tremula* and holly, with rare occurrences of London plane *Plantanus x hispanica*, cherry laurel *Prunus laurocerasus*, and yew *Taxus baccata*. The understorey layer consists of frequent hazel *Corylus avellana*, with hawthorn, ash saplings, spotted laurel *Aucuda japonica* and privet *Ligustrum sinense* 'Variegatum'. The ground flora is made up of abundant bramble and common nettle with frequent bluebell *Hyacinthoides non-scripta*, Lords-and-Ladies *Arum maculatum* and mosses such as *Polytrichastrum* sp.

5.20. Rhododendron *Rhododendron ponticum* and false Virginia creeper *Parthenocissus inserta*, both invasive species listed on Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) were found within the woodland on-site. Removal of these species is required in conjunction with experts and in accordance with best practice guidelines.[17]

5.21. The areas of woodland are considered to be of local importance.

**Species**

*Great crested newt*

5.22. The data search returned 53 records of great crested newt within a 2km radius of the Application Site. These records are dated between 2006 and 2019. The closest record is approximately 1.1km to the north east of the Application Site and was recorded in 2006. The most recent record of great crested newt is from May 2019, 1.9km north-west of the Application Site.

5.23. One European Protected Species (EPS) Licence has been granted for great crested newt within 2km of the Application Site. The licence (EPSM2011-3779) allowed for the destruction of a resting place in 2013, approximately 1.58km north east from the Application Site.

5.24. The majority of the Application Site is within the 'red zone' for great crested newts, according to the NatureSpace Impact Map.

5.25. There are no ponds on-site and therefore no breeding opportunities for great crested newts. There is suitable habitat on-site for great crested newt during their terrestrial phase in the form of log piles,

[17] https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants

brash piles, ephemeral vegetation, tall ruderal and grassland along with connectivity to nearby ponds.

5.26. There are seven ponds within 500m of the Application Site. In 2017, a pond was found to be present approximately 10m from the south west boundary of the Application Site. This pond was not present in 2022 or 2023 and appears to have been filled in.

5.27. The nearest pond (pond 1) is approximately 60m to the south east of the Application Site, within a private garden. Two further ponds (pond 2 and 3) are present approximately 180m and 200m to the north west of the Application Site within a private garden.

5.28. Four ponds are present within 250m and 500m of the Application Site, this includes three large lakes; Furnace Pond, Slaugham Mill Pond and Ashfold Pond. A fourth small pond is present 20m to the north of Slaugham Mill Pond, which is connected to Slaugham Mill Pond via a wet ditch.

5.29. The terrestrial habitat on-site is well connected to the ponds within 250m of the Application Site via woodland corridors, tree lines and hedgerows. Staplefield Road runs between the Application Site and pond 1, however this does not pose a significant constraint as it is narrow and used relatively infrequently.

5.30. Access was not able to be secured to any of the ponds within 250m of the Application Site to carry out Habitat Suitability Index Assessments or eDNA surveys. eDNA surveys of ponds 4, 5 and 6 returned negative results for great crested newts. This was not unexpected as ponds 5 and 6 are fishing lakes and therefore their suitability for great crested newt is limited.

5.31. Radio-tracking research (albeit in western France) on great crested newt (and marbled newt *Triturus marmoratus*) has found 64% of newts stayed within 20m of a breeding pond although migration up to 146m. Furthermore, numerous rabbit *Oryctolagus cuniculus* warrens were present on-site and this same radio-tracking research has found that burrows of small mammals were ‘among the favourite refuges’ on the first terrestrial night of dispersal from a breeding pond.

5.32. Given the information above and the absence of data from the closest ponds, it is considered that a breeding meta-population of great crested newt could be present in the local area. The location of the Application Site between ponds, increases the likelihood of great crested newt being present within the habitats on-site. Great crested newt is therefore considered likely to be present within the Application Site during terrestrial life stages.

5.33. Given the presence of great crested newt within 2km, the close proximity of the nearest pond and the potential for them to use habitats within the Application Site, the Application Site is considered

to be of at least local level importance for this species. The development, whilst small in scale, has the potential to adversely impact this species, returning a result of 'Offence Likely' on the Rapid Risk Assessment tool on the first page of the Great Crested Newt Mitigation Licence Method Statement, therefore further consideration is required and will be discussed in Section 6.

*Other amphibians*

5.34. Four other amphibian species have been recorded within a 2km radius of the Application Site; common toad *Bufo bufo*, common frog *Rana temporaria* palmate newt *Lissotriton helveticus* and smooth newt *Lissotriton vulgaris*.

5.35. The closest record of common toad is 1.2km from the Application Site, recorded in 2006. The closest record of palmate newt is approximately 1.2km north east of the Application Site in April 2010. The closest record of smooth newt is 1.1km north east from the Application Site in March 2006. The closest record of common frog is approximately 670m west of site, recorded in July 2010.

5.36. Given this, in addition to the significant number of ponds in the local vicinity, it is considered highly likely that widespread species of amphibian use the Application Site for commuting and foraging purposes and are therefore assumed present.

*Reptiles*

5.37. The data search returned four records of reptiles within 2km of the Application Site; slow worm *Anguis fragilis* recorded in August 2018,1.6km from the Application Site; and three records of grass snake *Natrix helvetica* recorded between 1995 and 2022, the closest recorded being 370m to the south east of the Application Site in 2019.

5.38. There is suitable reptile habitat present in the form of grassland, tall ruderal, bare ground, log piles, brash piles and ephemeral vegetation within the Application Site. There is also suitable reptile habitat within the local area comprising grassland fields interspersed with hedgerows, ponds and woodland.

5.39. The previous reptile presence/absence survey undertaken in 2017 found a low population of grass snake within the Application Site.

5.40. The 2023 update reptile surveys found a low population of grass snake. Both adults and sub-adults were found on-site with a peak count of three individuals. Grass snake were only found in the north east and east of the Application Site.

5.41. With reference to guidance from Froglife Advice Sheet 10: Reptile Survey[18], this represents a 'low population'. Grass snake are highly mobile and pond, lakes, rivers and associated bankside habitats are their preferred habitat. Therefore, the grass snake present on-site are likely to move between the Application Site and suitable aquatic habitats throughout the year. Grass snake hibernacula are typically either rabbit burrows, or root systems of trees.

5.42. Given the confirmed presence of a low population of grass snake within the Application Site, the Application Site is considered to be of local importance for reptiles.

*Badger*

5.43. The data search returned five records of badger *Meles meles* in the wider area, which included both setts and road casualty records. The locations of the setts are withheld due to their sensitivity, but it is assumed that badgers are present in the local area.

5.44. The Application Site itself was searched for badger setts and other field signs indicative of badger presence including well-worn paths, latrine sites, badger hairs and snuffle holes. A single badger hole was recorded at the far north of the Application Site in 2022. This is considered to be an outlier sett as no other holes were discovered on-site, however, a main sett could be present within the woodland north of the Application Site. The current proposals do not involve development within the north of the Application Site, however, if proposals change there may need to be further surveys conducted for badger.

5.45. General good practice measures will be implemented to ensure the protection of this species and any other mammals present during construction. This is discussed in Section 6.

*Bats*

5.46. The data search returned records of the following bat species within 2km of the Application Site: serotine *Eptesicus serotinus,* Alcathoe *Myotis alcathoe,* Daubenton's *Myotis daubentonii,* whiskered *Myotis mystacinus,* Brandt's *Myotis brandtii,* Natterer's *Myotis nattereri,* noctule *Nyctalus noctule*, common pipistrelle *Pipistrellus pipistrellus,* soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared *Plecotus auritus*.

5.47. Four EPS Licences have been granted within a 2km radius of the Application Site. All four granted licences relate to the destruction of a bat resting place. The closest EPS licence (2018-25192-EPS-MIT) was granted in 2018 for brown long-eared and common pipistrelle bats, located approximately

[18] Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth

701m south east from the Application Site.

5.48. A bat activity survey was undertaken in 2017, concluding that four species of bat were using the Application Site to forage and commute, these comprised common pipistrelle, soprano pipistrelle, serotine and a single bat of the Myotis genus. It is considered that due to the rural nature of the Application Site and presence of records nearby that it is likely that bats would still be utilising the Application Site to forage and commute. As the habitats on-site have not changed significantly since 2017, update bat activity surveys were not considered necessary to inform this impact assessment. Bat activity is considered likely to be concentrated around the perimeter areas of woodland and trees.

5.49. The buildings on site were assessed as having negligible suitability to support roosting bats due to their lack of suitable roosting features. Trees likely to be impacted by the proposals were also found to have negligible suitability for roosting bats.

5.50. The abundance of high-quality habitat for bats and the dominance of woodland within the local area decreases the value of the Application Site for bats. Based on the results, the Application Site is considered to be of value within the zone of influence for foraging and commuting bats.

*Birds*

5.51. The data search returned records of numerous bird species within a 2km radius of the Application Site. The following species are considered to be of relevance to the habitats present on-site and grouped by their UK conservation status according to the RSPB, where birds are split into conservation priority from red (most critical group), amber (next most critical group) to green (least critical group)[19] as follows:

- Red: turtle dove *Streptopelia turtur*, yellowhammer *Emberiza citronella*, greenfinch *Chloris chloris*, linnet *Linaria cannabina*, grasshopper warbler *Locustella naevia*, tree pipit *Anthus trivialis*, nightingale *Luscinia megarhynchos* and starling *Sturnus vulgaris*.
- Amber: sparrowhawk *Accipiter nisus,* nightjar *Caprimulgus europaeus*, stock dove *Columba oenas*, wood pigeon *Columba palumbus*, kestrel *Falco tinnunculus*, bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis,* whitethroat *Curruca communis*, wren *Troglodytes troglodytes*, lesser spotted woodpecker *Dryobates minor* and tawny owl *Strix aluco.*
- Green: green woodpecker *Picus viridis* and firecrest *Regulus ignicapilla*.

[19] Information on RSPB listings here: https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/uk-conservation-statusexplained/

5.52. Habitats within the Application Site are capable of supporting common species of nesting birds, both within the buildings, the tree line, woodland and trees. At the time of the survey in 2022, the mosaic of grassland and ruderal species had some potential to support ground nesting species (although none were observed).

5.53. Birds are considered likely present on-site. Nesting wood pigeon *Columba palumbus* have been recorded within the trees on-site. No potential for barn owl nesting or roosting was identified.

5.54. Given the small scale of the development proposals, further survey is not considered necessary, however due to the potential to impact a small assemblage of nesting birds, measures to protect these individuals must be implemented throughout construction. This is discussed in Section 6 of this report.

5.55. Given the context, the Application Site is unlikely to be of particular importance for nesting and foraging birds within the local area and is considered to be of value within the zone of influence, which in this instance is the Application Site.

*Hazel Dormouse*

5.56. The data search returned 94 records of hazel dormouse, dated from between 1990 and 2015 within 2km of the Application Site. The closest record is from 814m to the south east of the Application Site. The most recent record is from 2015, 915m north east from the Application Site.

5.57. Two EPS Licences have been granted within 2km to allow for the destruction of a dormouse resting site. The closest licence (EPSM2010-1906) was granted in 2013 and is located 1.7km north east of the Application Site.

5.58. A hazel dormouse survey was previously undertaken on-site to establish presence/likely absence of hazel dormouse in 2017. This concluded that hazel dormouse were likely absent from the Application Site.

5.59. It is possible that hazel dormouse could have colonised the habitats on-site in the intervening period, however, the current proposals do not seek to remove or disturb any suitable hazel dormouse habitat in the form of tree lines and woodland, therefore update surveys were not considered necessary.

*Invertebrates*

5.60. The data search returned records of numerous invertebrate species. The following species of

relevance to the habitats on-site have been recorded within 2km of the Application Site:

- Small heath *Coenonympha pamphilus*. Most recently recorded in June 2020, 1.3km south-west of the Application Site.
- Small blue *Cupido minimus*. One record of this species, recorded in July 2011, located 1.8km east of the Application Site.
- Dingy skipper *Erynnis tages*. One record in 1997, 1.8km north of the Application Site.
- White admiral *Limenitis Camilla*. Most recently recorded in 2019, 1.2km east of Application Site.
- Grizzled Skipper *Pyrgus malvae*. One record within 2km of the Application Site.
- Brown hairstreak *Thecla betulae*. One record of an egg in January 2011, 1.5km east of the Application Site.
- Small phoenix *Ecliptopera silaceata*. The most recent record is from August 2019, located 1.5km northeast of the Application Site.
- White ermine *Spilosoma lubricipeda*. One record from February 2003, 982m northeast of the Application Site.
- Feathered gothic *Tholera decimalis*. One record from August 2019, 1.5km northeast of the Application Site.
- Cinnabar *Tyria jacobaeae.* Nine records, all located 1.9km north of the Application Site. The most recent record is from June 2009.

5.61. There are a large number of flowering species present within the mosaic of habitats on-site. During the extended Phase 1 Habitat Survey, a number of invertebrates were noted including the meadow brown butterfly *Maniola jurtina* and insects of the family hoverfly *Syrphidae* spp. and wasp *Vespidae* spp. The abundance of ragwort could support many species of insect, 30 species are known to be exclusive to this plant.

5.62. A total of 134 invertebrate species were recorded during the invertebrate scoping survey. This is considered to be a reasonably high number of species for a single visit in early summer when many spiders, grasshoppers and bush-crickets, leafhoppers and true bugs etc. are still in their juvenile phases and not always readily identifiable to species level.

5.63. No EPS, Wildlife & Countryside Act, UKBAP or Species of Principal Importance (NERC S41) species were recorded on-site.

5.64. Four notable species were recorded:

- *Araneae Salticidae - Ballus chalybeius* - a jumping spider

- *Araneae Linyphiidae - Trematocephalus cristatus* - a spider
- *Hymenoptera Apidae - Ceratina cyanea* - blue carpenter bee [RDB 3] Potential Notable Species
- *Hymenoptera Formicidae - Lasius brunneus* - brown tree ant [Na] Note: pLocal

**Pantheon analysis:**

5.65. The species list has been analysed using Pantheon. This is a database tool developed by Natural England and the Centre for Ecology and Hydrology and is used to analyse invertebrate sample data and assess assemblage data for favourable versus unfavourable habitats by SSSI standards. The Invertebrate Species-habitat Information System (ISIS application) within the Pantheon database looks at all of the recorded species and then matches them to their various habitat requirements forming lists of characteristic species that are generally found together in nature.

5.66. Two levels are recognised in the classification;

- Broad assemblage types (BATs) are a comprehensive series of assemblage types that are characterised by more widespread species.
- Specific assembled types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value.

5.67. No Specific Assemblage Types were found to be in Favourable condition by SSSI standards.

**Table 5:** Pantheon analysis showing Specific Assemblage Types (SATs) detected, number of species (No.Sp.) recorded that are assigned to the SAT and percentage representation of all species assigned to the SAT (% Rep.).

Species list overview

| Sample size: | Number analysed: | Not analysed: | % return: |
|---|---|---|---|
| 134 | 120 | 14 | 90 |

Taxonomic output

| Species group | Number analysed | % of total analysed | % of whole sample |
|---|---|---|---|
| insect - beetle (Coleoptera) | 37 | 30% | 27% |
| spider (Araneae) | 24 | 20% | 17% |
| insect - true bug (Hemiptera) | 17 | 14% | 12% |
| insect - hymenopteran | 11 | 9% | 8% |
| insect - true fly (Diptera) | 10 | 8% | 7% |
| insect - butterfly | 7 | 5% | 5% |
| mollusc | 4 | 3% | 2% |
| insect - orthopteran | 3 | 2% | 2% |
| crustacean | 3 | 2% | 2% |
| insect - stonefly (Plecoptera) | 1 | 0% | 0% |
| insect - scorpion fly (Mecoptera) | 1 | 0% | 0% |
| insect - moth | 1 | 0% | 0% |
| insect - earwig (Dermaptera) | 1 | 0% | 0% |

5.68. Although a number of species recorded on-site are believed to be locally and or nationally rare, it is likely that this is largely due to the lack of data collection and surveying.

5.69. As the habitats present on-site are not common within the local area, the Application Site is considered to be of local importance for invertebrates.

*Other mammals*

5.70. Numerous rabbit warrens were present onsite and hedgehog *Erinaceus europaeus* are considered likely present.

5.71. The species mentioned above rely on habitats that are relatively common within the local area, therefore, the importance of the Application Site is limited.

# 6 ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

6.1. In accordance with CIEEM guidelines, the following important ecological features have been identified with the potential to be affected by the proposed development and carried forward for further assessment:

**Table 6:** Important ecological features brought forward for impact assessment.

| | |
|---|---|
| Statutory sites | N/A |
| Local Wildlife sites | N/A |
| Habitats | Lowland mixed deciduous woodland |
| Species and species groups | • Great crested newt and other amphibians<br>• Invertebrates<br>• Reptiles |

6.2. The following ecological features have been scoped out of the ecological impact assessment, owning to the conclusion that no significant effects are predicted:

**Table 7**: Ecological features scoped out of the impact assessment.

| | |
|---|---|
| Statutory sites | • Cow Wood and Harry's Wood SSSI<br>• St Leonard's Forest SSSI |
| Non-statutory sites | • Mill Pond LWS<br>• Orange Gill and Homestead Wood LWS<br>• Darkalley Ghyll and Canadian Valley Ghyll LWS |
| Habitats | • Developed land: sealed surface<br>• Lines of trees and scattered trees<br>• Sparsely vegetated land<br>• Mixed scrub |
| Species and species groups | • Badger - general measures sufficient to protect this species<br>• Nesting birds - general measures sufficient to protect this species group<br>• Foraging and commuting bats - general measures sufficient to protect this species group<br>• Hazel dormouse - no impacts from development proposals |

Habitats

6.3. Construction would result in the removal of the following habitats:

- 0.77 ha sparsely vegetated land.
- 0.09 ha developed land.
- Five small trees.

Lowland mixed deciduous woodland

6.4. All existing woodland on-site will be retained and protected as part of the proposals. Root Protection Areas (RPAs) have been established around the woodland in line with BS5837:2012 and would be clearly marked out through the use of Heras fencing or similar. Ground protection measures and no-dig methodologies will be followed for all works that fall within RPAs.

6.5. Potential impacts on the woodland during construction will be further minimised by the use of suitable solid hoarding around the construction area and dust control measures, such as water suppression and extraction.

6.6. New scrub planting alongside the woodland will provide additional shelter for wildlife whilst also acting as a deterrent to people, dogs and cats.

6.7. The condition of the woodland will be improved through the removal of invasive and non-native species. This work will be undertaken by a specialist contractor and at a suitable time of year to minimise impacts on protected species. An Ecological Clerk of Works will likely be required during these works to protect protected species.

6.8. Provided these measures are followed, the residual impact on the woodland is considered to be positive.

Great Crested Newt

6.9. The Application Site is considered likely to support great crested newt and widespread species of amphibians during their terrestrial life stages. Given the likely presence of great crested newt, which are EPS, works which affect them or their habitats must be undertaken under licence. In the case of the proposed development this will include the clearance of 0.80ha of sparsely vegetated land, which comprises areas of grassland, short ephemeral vegetation, tall ruderal, scrub and the brash piles.

6.10. Half of the Application Site is within the red zone of the NatureSpace great crested newt District Level Licencing (DLL) Scheme, and the remainder is within the amber zone. Therefore, the Application Site will be registered under this scheme to allow works to proceed lawfully. Mitigation measures will be secured by the licence conditions, however as a minimum will include the following measures.

- Prior to the start of enabling works on-site, a great crested newt licenced ecologist will provide a ‘Toolbox Talk’ to contractors onsite, informing them of the presence of great crested newt, their legal protections, how to identify them and what to do if any are observed.

- Clearance of brash piles will be undertaken by hand with a great crested newt licenced ecologist present. Any amphibians found will be relocated to the north of the Application Site within retained areas of suitable vegetation.

- Suitable habitat will be cleared in temperatures above 10°c. This will be done in two stages (if necessary), the first cut will be to a height no less than 15cm. The arisings will be removed

immediately and the vegetation left overnight to allow any individuals to disperse of their own accord. The ecologist will search the area to be cleared, moving any individuals to a safe area, then the grass will be cut for a second time to ground level. The second cut will be carried out no less than 24 hours after the first. The vegetation will be maintained at a short height thereafter to deter amphibians entering the development site.

- If an amphibian is observed at any time during the works it will be gently moved to the boundary hedgerow out of harms way.

- Excavations will be managed to prevent the formation of temporary waterbodies. Similarly, building materials must be stored on pallets to avoid inadvertently creating resting areas newts might try to exploit during the construction phase.

6.11. Upon completion of the construction phase, sheltering opportunities will be reinstated within the Application Site. This will be in the form of a loosely piled brash and log pile (2m x 1m x 0.7m), which will be partially covered in topsoil and then seeded, or otherwise roughly turved, ensuring sufficient gaps are present to allow access to small amphibians.

6.12. With the measure above implemented in full, the impact of the development on great crested newt and widespread amphibians will be negligible.

Reptiles

6.13. As a low population of grass snake has been confirmed to be present within the Application Site, appropriate mitigation will be required to protect any reptiles from harm during the development. As only a low number of grass snake have been found on-site, and grass snake are highly mobile, habitat manipulation will be used to encourage any grass snake into areas of suitable retained habitat on-site or into suitable offsite habitats, to protect them from construction activities.

6.14. The phased clearance of vegetation detailed in the great crested newt section above will also protect any grass snake present.

6.15. Any log piles or areas of dead wood that need to be moved out of the development area will be dismantled by hand under the supervision of an ecologist to ensure any reptiles present are moved to safety.

6.16. Suitable habitats will be retained and protected on-site, including areas of grassland, ruderal species and scrub. New areas of grassland will be created on-site and will be under a low-intensity management regime, and will therefore be suitable for reptiles. Proposed areas of native scrub planting will provide additional shelter for reptiles.

6.17. Provided these mitigation measures are implemented, the residual effect is likely to be non-significant.

Bats - Foraging and Commuting

6.18. The Application Site provides opportunities for commuting and foraging bats. The development proposals themselves do not impact the habitats of most value for bats with the areas of woodland and tree lines being retained. Given this, the impact of the development is negligible, however it is possible that external lighting will be installed, which if not sensitively done could adversely deter bats from carrying out these natural behaviours at the site boundaries.

6.19. If required, external lighting will be motion-sensor activated, so it is only activated when necessary to avoid unnecessary illumination. The light will be LED to ensure it is directional with a prompt cut off to minimise light spill on more sensitive habitats and will be a warm white colour temperature to minimize disturbance to bats (<2500k with a peak wavelength of at least 550nm and no UV component). The light will be angled downwards with 0% upward tilt and must not illuminate the woodland or boundary trees.

6.20. With implementation of these lighting recommendations, the impact on foraging and commuting bats will be negligible.

Nesting birds

6.21. Site clearance and construction activities would result in increased noise, which could change the noise environment within and near bird territories, creating the potential for impacts on the audibility of territorial song and an increase in general stress levels, and hence negative effects on the ability of birds to hold territories and breed successfully over the short term. Long-term opportunities for nesting birds will be retained within the retained woodland, trees and tree lines and new areas of scrub and tree planting will provide additional opportunities.

6.22. There will be a short-term reduction in the amount of habitat suitable for feeding birds as a result of clearance of the sparsely vegetated land. However, this reduction will be compensated in the medium term through the planting of native scrub, shrubs, trees and species rich grassland.

6.23. Enabling works onsite comprising the clearance of sparsely vegetated land (which includes small areas of scrub), trees and the removal of the existing buildings will have the potential to disturb nesting birds. To account for this, wherever possible, enabling works will be undertaken outside of the nesting season (widely accepted to be March - August inclusive, however climate change is causing some species to nest as early as February. If in doubt an ecologist must be contacted). Where this is not possible, a nesting bird check must be undertaken by a suitably experienced ecologist no more than 24 hours prior to the clearance taking place. If a nest is identified the ecologist will establish a suitably sized buffer around the nest (usually 5m however this may vary depending on species). No work may be carried out in the buffer until the ecologist confirms that the nest is no longer in use.

6.24. With the mitigation outlined here implemented in full, the overall effect of the development will be neutral.

Invertebrates

6.25. The development would result in a net loss of sparsely vegetated land, which is an important resource for many species of invertebrate. Retention of small areas of ruderal and ephemeral vegetation will help to reduce the significance of this loss. These retained areas will be protected with Heras fencing during construction activities. Areas of grassland in the northern compartment of the Application Site will be retained and left to grow and flower throughout the season and then cut only once a year in September/October time. In this area, encroaching ruderal species and scrub will be cleared and seeded with a species rich meadow mix to increase the amount of this habitat type present on-site.

6.26. The following measures will be taken to compensate for the loss of suitable habitats and enhance the Application Site for invertebrates.

- Avoiding the use of agrochemicals and maintaining habitat variability within the Application Site e.g. piles of dead wood and rocks.

- All dead wood will be retained on-site within areas of retained habitat. The movement of dead wood will be undertaken carefully under the supervision of an ecologist. Invertebrates found during this process will be moved with the dead wood habitat.

- The soft landscaping proposals should include all-year round food sources for pollinators, as warmer winters are disturbing hibernating patterns of insects. The Royal Horticultural Society provide an extensive list of 'Plants for Pollinators' that flower by season[20]. Recommended species that are of particular benefit to pollinators include red barberry *Berberis thunbergii*, dogwood *Cornus sanguinea*, Hebe sp., English Lavender *Lavandula angustifolia*, Mahonia x media, daisy bush *Olearia x haastii*, shrubby cinquefoil *Potentilla fruticosa*, sweet box *Sarcococca confusa* and skimmia 'Rubella'.

- The creation of woodland edge habitat through new scrub planting around the site perimeter will enhance the Application Site for butterflies who favour sheltered, sunny conditions.

6.27. There will likely be a negative affect on the assemblage of invertebrates present on-site in the short-term due to the clearance of some areas of suitable habitat. However, once the proposed tree, scrub and shrub planting has become established along with the creation of areas of species diverse grassland, the total amount of habitat suitable for invertebrates and the diversity of species present will be similar. Therefore, the overall residual effect on invertebrates is considered likely to be neutral.

Badger

6.28. The likely badger sett in the far north of the Application Site will be retained with a wide (over 20m) buffer and will not be directly impacted by the proposed development.

6.29. In the absence of mitigation, the excavations associated with the proposed development have the potential to cause harm/injury to any badgers which pass through the construction site. The effect without mitigation is unlikely to be significant at any geographical scale but would be negative.

6.30. Therefore, to mitigate, the following measures will be implemented:

- Excavations will be covered at the end of each working day and any temporary exposed pipes will be capped to prevent badgers gaining access during the night.

- Any excavations within the construction site that have to be left open overnight will be provided with a means of escape should a badger enter. This may be in the form of a roughened plank of wood placed in the trench as a ramp to the surface.

[20] Royal Horticultural Society (RHS). *Plants for Pollinators*. Available at: https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators.

- Any excavations will be inspected each morning to ensure no badgers have become trapped overnight. Should a badger become trapped in an excavation it is likely to attempt to dig itself into the side of the trench and form a temporary sett. Should a trapped badger be encountered, the advice of an ecologist would be sought.

- The storage of topsoil or other 'soft' building materials within the construction site would be given careful consideration. Badgers will readily adopt such mounds as setts. To avoid the adoption of any mounds by badgers, mounds would be kept to a minimum and any essential mounds subject to daily inspections.

- The storage of sharp objects/machinery safely to minimise potential harms to any roaming badgers.

- Food and litter are not to be left within the working area overnight to minimise the potential for any roaming badgers to be attracted to the construction site.

- The storage of any chemicals within the construction site would be contained in such a way that they cannot be accessed or knocked over by any roaming badgers.

6.31. Connectivity for badgers will be maintained around and through the proposed development and the creation of larger areas of grassland and tree planting, which will include apple *Malus sp.* and pear *Pyrus sp.* trees, will benefit foraging badger.

Biodiversity Net Gain

6.32. The following habitats will be created within and around the proposed development:

- 0.08ha mixed scrub planting.

- 0.41ha other neutral grassland.

- 0.009ha introduced shrub.

- 20 small trees (including 5 fruit trees) and five medium sized trees.

6.33. The proposed development will lead to a +0.11 (1.41%) net gain in habitat units and no net change in hedgerow units. The planting recommendations within this report and the Biodiversity Metric will need to be followed to achieve this net gain. This could be secured through an appropriately worded planning condition and production of a Landscape and Ecology Management Plan.

6.34. In addition to the proposed habitats, the following faunal enhancements will be provided on-site:

- Installation of 2 x Vivara Pro Seville 32mm woodstone next boxes on mature trees within the Application Site.
- Installation of 2 x Vivara Pro Seville 28mm woodstone nest boxes on mature trees within the Application Site.
- Installation of four bat ‘bark boxes’ installed on mature trees around the site perimeter.

# 7 CONCLUSIONS

7.1. The Application Site is dominated by sparsely vegetated land with two metal buildings, hardstanding, two areas of woodland and two lines of Leylandii.

7.2. The proposed development will lead to the clearance of a large area of sparsely vegetated land and the removal of five immature trees. This has the potential to impact upon great crested newt, which are considered likely to utilise the habitats on-site during their terrestrial phase. Therefore, the Application Site will be registered under the NatureSpace DLL scheme and precautionary clearance methods as outlined in Section 6 of this report will be followed. These measures will also protect the low population of grass snake present on-site.

7.3. Nesting birds are also likely to be present in the main nesting bird season (March - August inclusive), which if feasible, will be avoided during construction. Where this is not feasible nesting bird checks will be undertaken by a suitably experienced ecologist.

7.4. New native scrub, shrub and tree planting is proposed on-site along with the creation of areas of species rich grassland. Completion of the Biodiversity Metric 4.0 indicates that the proposals will lead to a +0.11 (1.41%) net gain in habitat units. Additional faunal enhancements will include the provision of log piles/hibernacula, bird boxes and bat boxes.

7.5. The proposed mitigation includes measures to ensure compliance with the legislation relating to protected species and habitats. A route for licensing the works relating to great crested newts has been identified.

7.6. Assuming implementation of the recommendations, mitigation and enhancement measures set out in this report are followed, it is anticipated that there will be no significant impacts on important ecological features and that the development will conform to relevant local and national planning policy.

## APPENDIX 1: HABITAT PLAN

Key

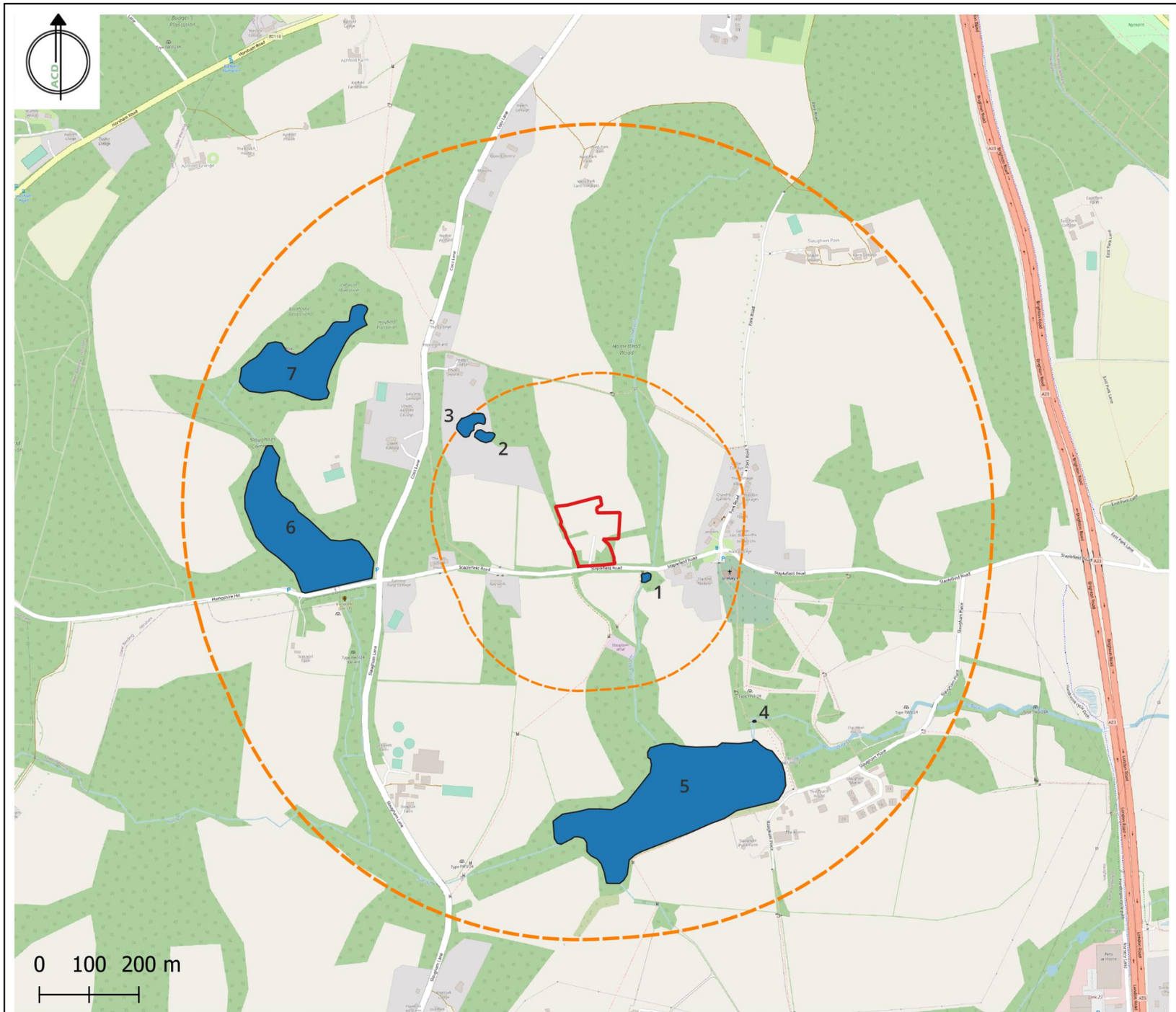
- Red line boundary
- Line of trees
- Trees
- Lowland mixed deciduous woodland
- Mixed scrub
- Developed land. sealed surface
- Buildings
- Sparsely vegetated land

ACD ENVIRONMENTAL

LENMARK GROUNDWORKS

scheme: Slaugham Garden Nursery
client: Lenmark Construction
drawing: Habitat Plan
date: 15.08.2023
scale: NTS @ A4
drawing no.: PRI23929_60
drawn: LG
checked: DW

## APPENDIX 2: POND LOCATION PLAN




**Key**

- 500m buffer
- 250m buffer
- Ponds
- Red line boundary

ACD ENVIRONMENTAL

LENMARK GROUNDWORKS

scheme: Slaugham Garden Nursery
client: Lenmark Construction
drawing: Pond Location Plan
date: 27.07.23
scale: NTS @ A4
drawing no.: PRI23929_63
drawn: LG
checked: DW

## APPENDIX 3: PROPOSED HABITAT PLAN

# APPENDIX 4: FIELD SURVEY METHODOLOGY

Extended Phase 1 Habitat Survey

The Extended Phase 1 Habitat Map is shown in **Appendix 1**.

The extended Phase 1 Habitat Survey[21] was undertaken on 29th July 2022. The Phase 1 Habitat Survey was used to classify the Application Site into habitat types, as listed in the Phase 1 Manual. Where appropriate, dominant species codes within habitat types were recorded. Descriptive target notes were used for particular areas of interest.

Incidental records of fauna were made during the Phase 1 Habitat Survey and the habitats identified were evaluated for their potential to support legally protected species and species of Principal Importance.

*Limitations*

The survey was undertaken at the optimum time of year for botanical survey and there were no further limitations associated with the survey.

Badger field signs survey

A badger field signs survey was carried out during the Extended Phase 1 Habitat Survey. Badger field signs surveys comprised walking the perimeter and interior boundaries of the Site, searching for evidence of badgers, in accordance with Harris et al[22] (1989) and Scottish Natural Heritage[23] (2018).

Where badger setts were found, they were described using the following criteria:

- Number of well-used holes - one or more of the features: well-worn entrance; freshly excavated soil; bedding material.
- Number of partially-used holes - leaves or twigs in entrance and/or mosses and other plants growing in or around entrance).
- Number of disused holes - partially or completely blocked, with considerable amount of excavation required for reoccupation.

Where feasible, badger setts were classified into the following:

[21] JNCC, (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit.* JNCC, Peterborough.
[22] Harris, S., Cresswell, P., and Jefferies, D. (1989). *Surveying Badgers*. Mammal Society.
[23] Scottish Badgers (2018). *Surveying for Badgers: Good Practice Guidelines*. Version 1.

- Main sett - continuously used, breeding and over-wintering sett for a social group of badgers. Only one main sett will exist in each social groups territory, and will be relatively centrally located within the group's range.

- Annexe sett - annexe of the main sett, linked by well-used paths to the main sett (but not connected underground). Not continuously used.

- Subsidiary sett - distant from the main sett. Several entrances, but with no well-used paths connecting to the main sett, and only used seasonally.

- Outlier sett - distant from the main sett. Small, with only one of two entrances only. Used for short periods sporadically, with no obvious, well-used paths connecting to other setts.

Preliminary Bat Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out during the Phase 1 in July 2022[24]. This is an external and internal inspection survey, the purpose of which is to search for bats/evidence of bats and assess the likelihood of bats being present and the need for further survey and/or mitigation.

A systematic search was made of the buildings and the ground, especially below potential access points where present. Such features include windows sills, windowpanes, walls, tiles, weather boarding, lead flashing, eaves, behind surfacing materials and under tiles, and other cracks and crevices that provide protection from the elements. Such features are known to be used by roosting bats.

The internal inspection included searching for the following evidence of roosting bats:

- Roosting bats within crevices or free-hanging.

- Bat corpses e.g. on the floor, in uncovered water (header) tanks or other containers in roof voids.

- Bat droppings beneath roosting features.

- Feeding remains e.g. moth/butterfly wings and beetle wing casings

- Scratch marks and characteristic staining from urine and/or fur oil beneath roosting

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

features e.g. on roofing timbers and walls within roof voids.

- ‘Clean’ gaps associated with bat roosts.
- Bat-fly *Nycteribiid* spp. pupal cases.
- Droppings, corpses, feeding remains and/or bat-fly pupal cases beneath roof insulation, which indicates use by bats before the insulation was installed.
- Clean swept floors, which may indicate evidence has been removed.

The internal inspection included searching for the following features:

- Gaps within the structure of the roof e.g. mortise joints and junctions between roof timbers and between timbers and walls, and between the roof lining and roof covering.
- Gaps within the structure of walls and potential access points to cavity or rubble-filled walls.
- Gaps around the structure chimneys or within disused chimneys.
- Suitable locations for free-hanging bats and/or night/feeding perches e.g. timber beams.
- Gaps between lintels above windows or doors.
- Light gaps in the roof indicating access points to the outside.
- Cool areas suitable for torpor or hibernation e.g. cellars.

The following equipment was used for the bat survey:

- Binoculars.
- Powerful torch to illuminate dark corners from the ground.
- Ladder.
- Collection pots and labels for droppings.
- Camera to record evidence and potential roosting sites.
- Personal protective equipment (e.g. boots, gloves, helmet, mobile telephone).

In addition to the buildings, the trees were also searched for bats/evidence of bats and assessed for their potential to support roosting bats. The evidence of roosting bats searched for is detailed above with regard to buildings (e.g. bat droppings and feeding remains). The features of bats were searched for on the trees with reference to the three broad categories of Potential Roost Features (PRFs) and sub-categories of PRFs from the Bat Tree Habitat Key[25]. These are as follows:

- Disease and decay PRFs:
    - Woodpecker and squirrel holes.
    - Knot holes.
    - Pruning-cuts.
    - Tear outs.
    - Compression forks.
    - Wounds.
    - Cankers.
    - Butt rots.
- Association PRFs:
    - Fluting.
    - Ivy.
- Damage PRFs:
    - Hazard beams.
    - Frost cracks.
    - Subsidence/shearing and helical splits.
    - Lightning strikes.
    - Desiccation fissures.

[25] Bat Tree Habitat Key 2018. *Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-care and Ecology professionals*. Exeter: Pelagic Publishing.

- Transverse snaps.
- Welds.
- Lifting bark.

*Limitations*

There were no limitations to the PRA.

Bird nesting

Evidence of nesting birds recorded during the PRA and any incidental bird observations/birds heard were noted.

The assessment included searching for the following with regard to barn owl:

- Birds present - roosting or nesting within buildings/trees.
- Birds present - corpses.
- Pellets - undigested feeding remains.
- Nests - formed on layers of degraded pellets.
- Droppings or ‘liming’ - often present on/below roosts such as roof timbers.
- Eggs - intact/broken or within nest/below nest.
- Feathers - adult or natal down.

The internal inspection of the buildings included searching for the following features with regard to barn owl:

- Suitable access points (e.g. open doorways).
- Suitable ledges for nesting.
- Suitable timbers for roosting.

Reptile Surveys

Reptile habitat suitability and refugia locations was assessed with reference to NARRS (2007)[26].

The reptile mats were deployed on 19th April 2023. The refugia were left for one week before checking to allow the refugia to 'bed-in' and become more attractive to reptiles before the first survey commenced. All of the surveys were carried within the optimal month of May. The surveys were carried out in suitable weather conditions.

Survey methodology was carried out with reference to the Herpetofauna Workers' Manual[27] and more specific advice in Froglife Advice Sheet 10: Reptile Survey[28]. In terms of the number of survey visits, Froglife refer to seven checks; however, recent research by Sewell *et al* (2012) [29] found that three to four checks provides 95% confidence in determining presence/absence of reptiles. A total of seven checks were carried out, which was therefore at the recommended maximum within this survey guidance.

In accordance with Gent and Gibson, refugia should be deployed at a density of at least 10 refugia/hectare of suitable habitat. A total of 40 mats were deployed across the Application Site, which is therefore a high density of refugia (exceeds 10 refugia/hectare of suitable habitat).

The mats are made from bitumen roofing felt and are cut to *c.*50cm x 50cm and provide suitable opportunities for sheltering and basking reptiles.

During each survey, the surveyor walked a transect between refugia, paying particular attention to potential basking spots, and checking for reptiles on top and underneath refugia. Evidence of reptiles (e.g. sloughs) was also searched for. When reptiles were found, they were logged on a recording sheet. Number, species and sex were recorded, in addition to weather conditions.

eDNA Surveys

The field sampling[30] was carried by a great crested newt Natural England Class licence holder on 30th June 2023. Laboratory analysis was carried out by ADAS.

[26] National Amphibian and Reptile Recording Scheme (2007). *Reptile Habitat Guide*.
[27] Gent, A. H., and Gibson, S. D., eds. 1998. *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.
[28] Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth
[29] Sewell, D., Guillera-Arroita, G., Griffiths, R.A. and Beebee, T.J.C. (2012). *When is a species declining? Optimizing survey effort to detect population changes in reptiles*. PLoS ONE 7(8): e43387.doi:10.1371/journal.pone.0043387.
[30] Biggs J. et al (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.

A total of 20 samples of pond water were collected from each waterbody and during the laboratory analysis, the pond samples are combined to produce one eDNA extract. A total of 12 separate analyses are carried out from this one extract. This results in a score for the number of positive replicates (score out of 12) and if one or more are positive then presence is confirmed. Results are interpreted as follows:

- Positive - the results indicate that great crested newt is present within the pond. Full survey methods are required to estimate the population size;
- Negative - the result indicates that great crested newt is not within the pond. No further survey work is required; or
- Inconclusive - indicates degradation or inhibition of the sample, therefore the lack of detection of great crested newt DNA is not conclusive evidence for determining the absence of the species. Further eDNA sampling or full surveys will be required.

*Limitations*

Although there were some sections of the shore to the waterbodies that were not accessible due to dense vegetation, the samples were spread out sufficiently as to be confident in the results.

Invertebrate Scoping Assessment

The field assessment initially involved looking at features of value to invertebrates and followed by field survey involving the sampling of terrestrial invertebrates.

There is no formal guidance at present on which to base invertebrate surveys. Drake *et al*, 2007[31] has produced a useful guidance on techniques but not a specific guidance on scoping and habitats. Experienced invertebrate specialists can have a good eye for a sites quality without undertaking detailed surveys. English Nature has produced a useful booklet on Organising Surveys to determine site quality for invertebrates[32]. It states that sites with varied habitat structure usually contain greater invertebrate interest. This includes:

- Areas of flower-rich grassland that are not regularly mown, cut or grazed and are allowed to flower. Composites, umbellifers, birds-foot trefoil *Lotus corniculatus,* thistles and vetches in adequate numbers can provide a valuable source of nectar and pollen or as food plants. Spring and autumn nectar sources are very valuable to some invert species.

[31] Drake C.M., Lott D.A., Alexander, K.N.A and Webb, J. (2007). *Surveying Terrestrial and Freshwater Invertebrates Conservation and Evaluation*. Natural England Research Report NERR005.
[32] http://publications.naturalengland.org.uk/publication/69045

- Areas of early successional habitat, free draining ‘bare ground’ substrata such as chalk, sand, gravel and rock. When adjacent to other habitat types (thus forming a mosaic) can be especially good and are often used as sunning spots. Former derelict ‘brownfield’ sites can display these features.

- Scrub and scrubby grassland, particularly where this forms a mosaic with other habitats. Scrub provides nesting areas, perches and shelter as well as food for many species.

- Mature and veteran trees can be of high value for invertebrates especially where these form part of a network of trees within the wider countryside. Specimens that are in middle to later stages of decay with hollowed trunks are of most value to invertebrates. Open-grown trees and those in partial shade are often of higher value for invertebrates as they are often better developed than those with a deep canopy.

Connectivity of these habitats with or closely adjacent to complementary habitats which could also be connected to designated sites.

Some taxonomic groups can only be surveyed within very short timescales, and therefore it is important that the surveyor is experienced enough to make an informed judgement on the potential quality of a site without having done extensive sampling.

When assessing the importance of a site for invertebrates, site quality indicators include;

- Rarity - the most commonly used indicator of quality. Sites that support rare species can be considered as being of higher conservation importance.

- Fidelity - this measures a species’ selectivity to certain habitats. Some species are very specific to certain habitats and are not found elsewhere therefore sites which support species with high habitat fidelity should be considered of high importance.

- Species richness within any given community/assemblage - species richness of a specific community, can infer site quality. Species richness of a particular taxonomic group can also infer quality.

The survey was carried out by Invertebrate Ecologist Scotty Dodd MSc MCIEEM Mem.RES.

Features of interest were sampled using the following four techniques – sweep netting, beating, suction sampling and hand searching.

Sweep netting involved using a heavy-duty calico sweep net and a butterfly net for spot netting. Herbaceous vegetation and grassland was swept and the net was inspected after every 10-20 sweeps.

Beating involved using a beating tray and stick to dislodge invertebrates from the lower branches of trees and shrubs, the tray was then inspected at regular intervals.

Suction sampling involved using a petrol-powered suction sampler to target areas of short turf and tussocks.

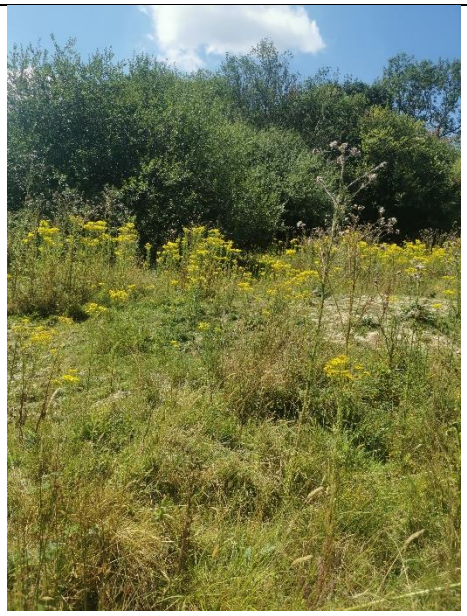
Hand searching involved generally searching areas on the ground and under reptile mats; and visual observations of any mobile invertebrates were also noted.

The species list was analysed using Pantheon. Pantheon is a database tool developed by Natural England and the Centre for Ecology and Hydrology to analyse invertebrate sample data for favourable versus unfavourable condition by SSSI standards. Hence, if an assemblage or suites of assemblages are found to be favourable this would indicate that the site is likely to be of significant importance for invertebrates. Further information on Patheon is available here: http://www.brc.ac.uk/pantheon/

*Limitations*

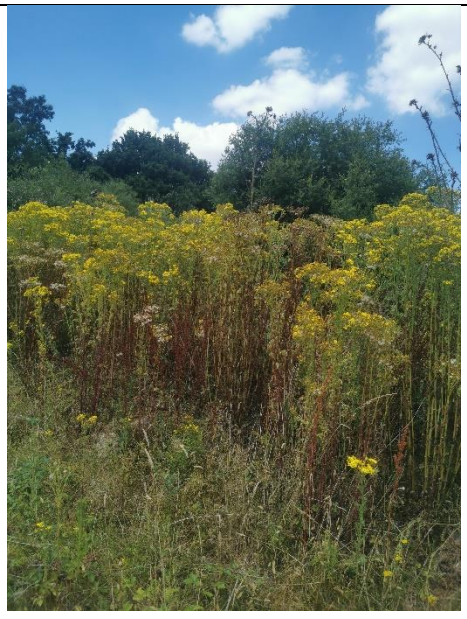
The scoping assessment was carried out early in the season, when many species are still juvenile and difficult to identify to species level. Another survey later in the summer was recommended to inform this assessment, however, as areas of suitable habitat are being retained and the proposals include new planting of benefit to invertebrates, this is not considered to be a significant limitation.

## APPENDIX 5: SITE PHOTOGRAPHS

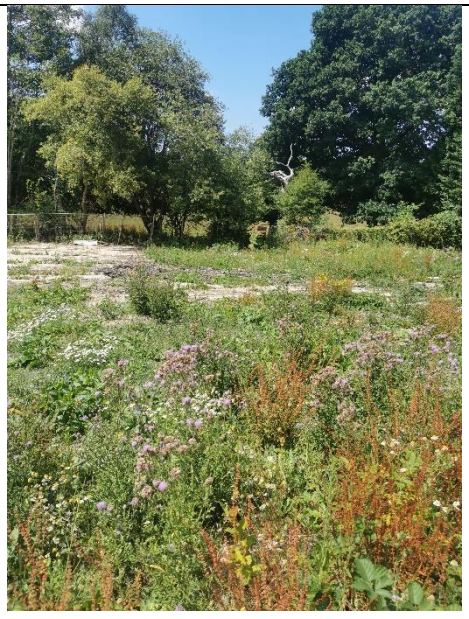


**Photograph 1:** Semi-improved grassland in bare ground mosaic to the north of the Application Site.

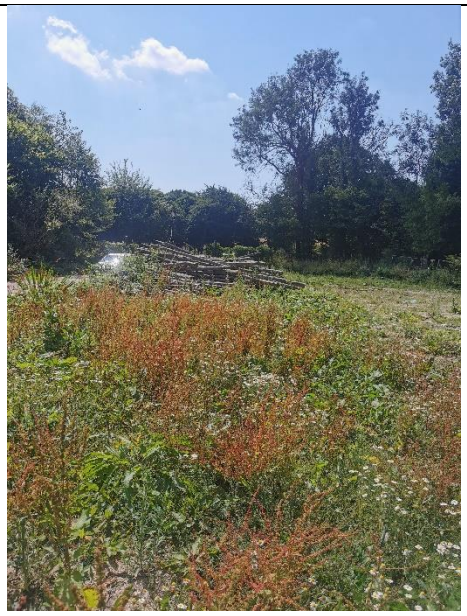
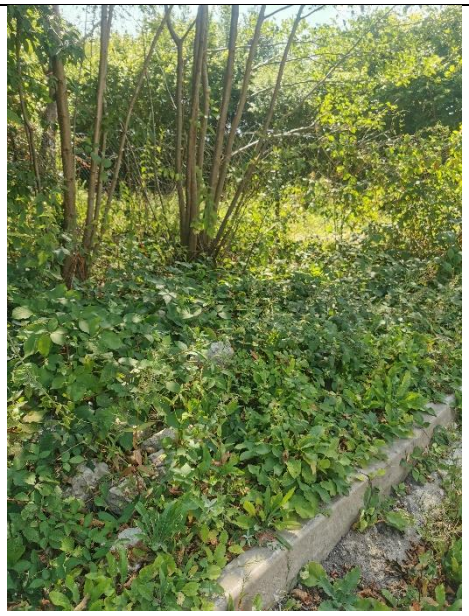
**Photograph 2:** Building and hardstanding.



**Photograph 3:** Tall ruderal vegetation in bare ground mosaic to the north of the Application Site.



**Photograph 4:** Ephemeral vegetation in bare ground mosaic present on southern portion of the Application Site.

| | |
|---|---|
|  |  |
| **Photograph 5:** Log pile in southern portion of the Application Site. | **Photograph 6:** Woodland present on eastern aspect of the Application Site. |

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