Preliminary Ecological Appraisal of Land at Clawdd Poncen, Corwen on behalf of Williams Homes Ltd.

Date	Author	Project Number	Approved by	Version	Comments
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Wildlife Trust Consultancies

Aelod o Cymdeithas Ymgyngoriaethau Ymddiriedoleathau Natur

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Executive Summary

Site	Land at Clawdd Poncen, Corwen, LL21 9RT	**OS Grid Reference**	SJ 07139 44592
Surveyors	Lucy Boyett Lowri Parry	**Survey Date**	23/07/2025
Type of Survey	Preliminary Ecological Appraisal		
Summary of Proposed Work	A new residential development of one hundred plots, with associated access roads, gardens and amenity spaces.		
Designated Sites Affected	The nearest designated site is The River Dee and Bala Lake Site of Special Scientific Interest and Special Area of Conservation, 0.6km to the east of site.		
Habitats Affected	• Arable • Species poor intact hedge • Scattered trees.		
Species Affected	Impacts likely to nesting birds and bats without mitigation.		
Survey Conclusions	• The development will result in the removal of arable habitat. • Bats highly likely to use the field boundaries, particularly the southern site boundary, for commuting and foraging. • Potential for nesting birds within the site boundaries. • There will be net enhancement to biodiversity if the avoidance, mitigation and enhancement measures are followed.		
Further Surveys Required	No further surveys required.		
Avoidance Requirements	Avoidance and mitigation measures will be implemented to protect bats and nesting birds as well as other species which may occasionally visit the site.		
Mitigation Requirements	• Timing of works • Lighting guidance		
Compensation and Enhancement Requirements	Compensation and biodiversity enhancements will include bat and bird boxes, creation of hedgehog highways and planting to include trees, shrubs and wildflower grassland.		

Contents

1.0 Introduction

1.1 Project Introduction

1.1.1 Enfys Ecology were commissioned by Williams Homes (Bala) Ltd to undertake a Preliminary Ecological Appraisal (PEA) of an area of land at Clawdd Poncen, Corwen LL21 9RT.

1.1.2 The proposed works comprise the development of an arable field, to create a new residential development of one hundred plots with associated access roads, gardens and public open space.

1.1.3 The site comprised a single arable field bounded by scattered broadleaf trees and hedgerows, situated to the north west of Corwen, Denbighshire.

1.1.4 The primary objectives (CIEEM, 2017a) of a Preliminary Ecological Appraisal Report (PEAR) are to:

- identify the likely ecological constraints associated with a project;
- identify any mitigation measures likely to be required;
- identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and,
- identify the opportunities offered by a project to deliver ecological enhancement.

1.1.5 This document has been produced to advise a client of ecological constraints and opportunities to inform their design options (avoidance), likely mitigation, restoration and compensation requirements, and the need for further surveys. In addition, the report may provide initial recommendations in relation to relevant ecological enhancement opportunities given the site's context. This report may not necessarily provide the Local Planning Authority with enough information to assess the ecological impacts of a proposal.

1.1.6 This report has been produced in accordance with CIEEM (2017a) 'Guidelines for Preliminary Ecological Appraisal' and CIEEM (2017b) 'Guidelines for Ecological Report Writing'.

1.1.7 The survey work to inform this report was carried out in July 2025. Habitats and species found within a discrete area of land are subject to change, this report should therefore be considered valid for a period of eighteen in accordance with best practice (CIEEM, 2019).

1.1.8 Relevant legislation and planning policy information are included in Appendix A.

1.2 Project Proposals

1.2.1 The reports/drawings provided by the client at the time of production of this PEAR are detailed in Table 1.1.

Table 1.1: Project Information Sources

Information	Organisation	Reference and Date
Feasibility Site Masterplan (Preliminary)	Ainsley Gommon Architects	C1163 SK005 18/02/2025

2.0 Site Description

2.1 Survey Area

2.1.1 The site was situated in the village of Clawdd Poncen, approximately two kilometres northwest of Corwen. To the northeast of the site there was an industrialised area and to the southeast was a residential area including a primary school. To the north and west of the site were arable fields and two A-roads bordered the site to the north and east. The site itself comprised an arable field, with narrow strips of semi improved grassland along the field margins, mature hedgerows along the northern and eastern boundaries and mature scattered trees along the southern boundary. The survey area is shown in Figure 2.1 below.

Figure 2.1: The survey area (red outline)
Base image © Google Maps 2025

2.2 Wider Area - Connectivity and Green Infrastructure

2.2.1 The wider area comprised predominantly pastureland. The nearest watercourse was the Afon Camddwr approximately 400 meters to the west and the River Dee was also nearby, approximately 600 meters east of the site. There were a few areas of small, scattered woodland to the south and west of the site, the closest of which was 200m to the west. There were large woodland areas approximately 1.3km to the west and 1.4km to the south of the site. The wider area is shown in Figure 2.2.

2.2.2 (PPW 12, paragraph 6.2.1). Green infrastructure (GI) is defined in Planning Policy for Wales (PPW) Edition 12[1] as "*the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places*". Green infrastructure (GI) can function at a range of different scales; from entire ecosystems such as wetlands and rivers to parks, fields and gardens at the local scale and street trees, hedgerows, roadside verges, and green roofs/walls at the micro scale. Development proposals should take GI into consideration in order to avoid negative impacts on habitats and species, and seek ways to maintain and enhance biodiversity.

2.2.3 This site and the surrounding areas were at the time of survey considered to be entirely comprised of areas considered green infrastructure under current planning guidance. The entire site is in a semi natural state, and is likely to support a range of species, both plant and animal, with good connectivity to a large area of similar, surrounding areas.

Figure 2.2: The site (red star) and the wider surrounding area
Base image © Google Maps 2025

[1] See: https://www.gov.wales/planning-policy-wales

3.0 Methodology

3.1 Desk Study

3.1.1 A desk study was undertaken through Cofnod, the North Wales Environmental Information Service, to determine the presence of statutory and non-statutory sites for nature conservation, and records of protected, or species and habitats of principal importance listed under Section 7 of the Environment (Wales) Act 2016. Desk study data was provided by Cofnod on 22/07/2025. The records were used to inform the survey and recommendations, and to provide context for evaluating the species and habitats found during the survey. Any relevant species results from the desk study are referred to in Section 4.

3.1.2 The desk study used the following search radii for this project: 1km

3.2 Field Survey

3.2.1 The field survey was conducted on 23/07/2025 by Lucy Boyett, a suitably experienced professional ecologist and assistant, Lowri Parry.

3.2.2 The weather conditions during the survey were fine and dry.

3.2.3 All parts of the site were visited where possible, the habitats were mapped following the standard Phase 1 Habitat Survey methodology (JNCC, 2010). Any rare or invasive species or incidental sightings of protected species were recorded, as necessary. A search for evidence or potential for protected species was carried out, including amphibians, bats, and reptiles. Evidence of badgers (*Meles meles*) including setts, dung pits, hairs, footprints, and scratching posts or trees was searched for. Trees with suitable features for roosting bats, including knot holes and other crevices, hollow trunks and dense ivy coverage were identified.

3.3 Limitations

3.3.1 The results of this survey consist only of those species encountered during a short space of time on one day. Species that use the site infrequently or are present at different times of the year may not be recorded, and the absence of species from the results of a single survey should not be taken as indicating the species' definite absence from the area in question. Descriptions of plant species concentrate on the most obvious and abundant species present as determinant of habitats present.

3.3.2 While reasonable efforts have been made to search for invasive non-native species (INNS), and any seen were recorded, this is not a comprehensive invasive species survey and does

not claim or imply the definite absence of Japanese knotweed or other invasive plants, for which a specific survey should be commissioned.

3.4 Terminology

3.4.1 In this report 'site' and 'survey area' are used to refer to the area surveyed by the ecologist, which is subject to the proposed development or planning application. The only exception may be some unavoidable use of 'site' when discussing designated sites such as SSSIs. 'Search area' refers to the area from which data was obtained for the desk study.

3.4.2 English species names are generally (but not exclusively) used in the text for readability, however Appendix C contains a list of species recorded and gives scientific names.

4.0 Results

4.1 Desk Study – Designated and Notable Sites

4.1.1 There were three statutory designated sites and two non-statutory sites within 1km of the survey area.

4.1.2 Details of the designated sites are provided in Table 4.1.

Table 4.1: Designated Sites within 1km of the Site

Name	Designation	Approximate distance from site (km)	Reason for designation
The River Dee	Site of Special Scientific Interest (SSSI)	0.6km	Geomorphology, geology and river habitats.
The River Dee and Bala Lake	Special Area of Conservation (SAC)	0.6km	Populations of Atlantic salmon, freshwater pearl mussels, white clawed-crayfish and floating water plantain.
Clwydian Range and Dee Valley	Area of Outstanding Natural Beauty	0.6km	To protect the landscape, heritage and biodiversity in the area.
Rug Estate	Wildlife Site	0.6km	A parkland with invertebrate interest associated with mature trees
Corwen Swamp	Wildlife Site	0.7km	South bank of a short stretch of the River Dee including mature trees, scrub, neutral grassland and swamp. Wetland species include meadowsweet, yellow iris, greater bird's-foot-trefoil and marsh ragwort.

4.2 Desk Study – Species Records

4.2.1 Cofnod hold 190 records within 1km of the site from the previous 20 years, including 79 records of UK and European protected species; individual records can include a number of sightings and therefore reflect the minimum number of plants or animals of a given species observed in the area.

4.2.2 The results of the desk study for protected fauna are detailed in Table 4.3. Results of the Cofond data search are provided in Appendix B; full data (e.g. specific locations) has not been provided for sensitive data.

4.2.3 There are no records of notable flora from within the study site.

4.2.4 No records of invasive non-native species were recorded within the site. The River Dee is approximately 580m to the south east of the site, with 51 records of invasive non-native plant species along the stretch of the River Dee that is within 1km of the site. These records included Himalayan balsam, hybrid monkeyflower and American skunk cabbage.

4.3 Phase 1 Habitat Survey

4.3.1 The following Phase 1 Habitat and feature types were recorded within the site:

A2.2	Scattered scrub
A3.1	Scattered broadleaved trees
B6	Species poor semi-improved grassland
J1.1	Arable
J2.1.2	Intact hedge
J2.4	Fence

4.3.2 A Phase 1 Habitat map with target notes is provided in Figure 4.1 below. Descriptions of the habitats are provided in Table 4.2. Where relevant, photographs are included with the text.

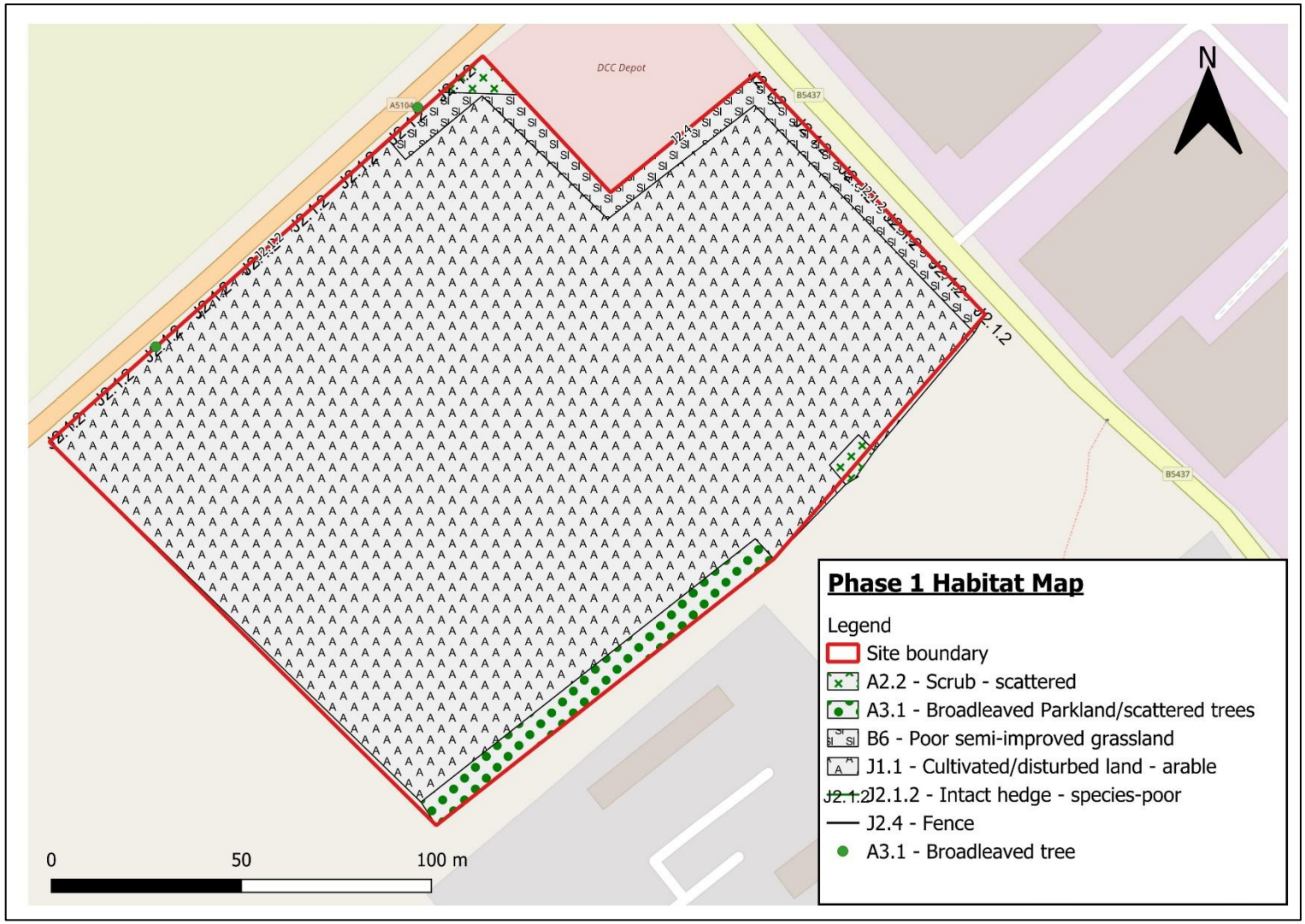

Figure 4.1: Phase 1 Habitat Survey Map

Base image © OpenStreetMap Contributors 2025

Table 4.2: Habitat Descriptions

Habitat Description	Photo
	Arable
The site predominantly comprised an arable field, which had been sown with a herbal ley, which included ribwort plantain and red and white clover.	**North of site**  **East of site**  **South of site**  **West of site** 

Field Margins & Boundaries	
Poor semi-improved/neutral semi-improved grassland The northern and southern field margins comprised poor semi-improved grassland whereas the eastern field margin was more diverse, neutral semi-improved grassland. The northern and southern field margins were dominated by grasses including Yorkshire fog and vernal grass with other species including sorrel, broadleaved dock, black knapweed, common ragwort and hogweed. The eastern field margin was more diverse and included purple vetch, greater birds foot trefoil, St John's wort, chicory, rosebay willowherb, silverweed and creeping buttercup. ***Scattered Trees and Hedgerows*** A species poor intact hedge ran along the northern and eastern boundaries. The majority of the hedge comprised blackthorn with other species including oak, sycamore, hazel, honeysuckle and bramble. There was also a dense patch of bramble scrub in the north east corner. There were two large oak trees along the northern boundary and along the southern boundary there were multiple mature trees, inclusive of three oak trees, a dead ash tree, one sycamore and one silver birch. Dense blackthorn scrub was also present in between the mature trees.	**East field margin**  **East field margin**  **South field margin**  **North field margin** 

4.3 Flora

4.3.1 Floral diversity of the site was low on average, due to the majority of the site being arable. The field margins made up a small portion of the site but did comprise more diverse neutral semi-improved grassland in areas. The hedgerows and mature trees added to the diversity of the site, although the hedges were predominantly blackthorn.

4.3.2 None of the species recorded during the survey are protected by the Wildlife and Countryside Act 1981 (as amended) or listed under Section 7 of the Environment (Wales) Act 2016. No other nationally or locally rare species were recorded.

4.3.3 Appendix C contains a list of plant species recorded during the survey.

4.4 Invasive Non-Native Species

4.4.1 No non-native species were recorded on site.

4.5 Fauna

4.5.1 No protected or notable species or signs of the presence of protected or notable species were seen within the survey area during the survey.

4.5.2 The survey results for protected species including records within a 1km radius of the site are described in Table 4.3 below.

Table 4.3: Results of Protected and Notable Species Assessment

Species	Suitability of Habitat	Desk Study Records	Further Species Consideration Required?
Great crested newts (GCN) *Triturus cristatus*	The site did not contain standing water, therefore there was no breeding habitat for GCN within the survey area. The area of arable land was generally unsuitable for amphibians with little to no cover apart from at the field boundaries. The field margins and boundaries did however provide higher quality habitat for cover and foraging common amphibians.	No records of great crested newts within 1km of the site.	No
Badger *Meles meles*	No evidence of badgers, including setts, latrines or snuffle holes were identified during the survey. The field margins and boundaries provided habitat for foraging badgers and they are highly likely to forage in the surrounding area.	One record of a badger within 1km of the site.	No
Bats	The hedgerows and trees along the site boundaries, particularly those along the southern boundary, provided high-quality habitat for foraging and commuting bats, offering good connectivity to the wider landscape and potential roosting opportunities. The grassland area within the site, provided very limited foraging opportunities.	Five records of bats within 1km of site. Species included soprano pipistrelle, common pipistrelle, noctule and brown long-eared.	Yes Avoidance, mitigation and enhancement measures will be required. See discussion, mitigation and enhancement sections.
Birds	The scattered trees, bramble scrub and hedgerows were all suitable for nesting birds. Ground nesting birds are considered less likely due to the majority of the site being arable.	One hundred and sixty-four records of fifty-four bird species within a 1km radius of site. Records included Schedule 1 species such as red kite and redwing.	Yes See discussion, mitigation and enhancement sections.

Table 4.3: Results of Protected and Notable Species Assessment

Species	Suitability of Habitat	Desk Study Records	Further Species Consideration Required?
Hedgehog *Erinaceus europaeus*	The boundary edges provided suitable habitat for hedgehogs.	Eight records of hedgehog within 1km, the closest being 220m east of the site.	Yes See discussion, mitigation and enhancement sections.
Reptiles	The site provided limited suitable habitat for reptiles.	One record of a slow worm within 1km of site. The record is 300m from site.	Yes See discussion, mitigation and enhancement sections.

5.0 Discussion

5.1 Proposed Works

5.1.1 The proposed works comprise the development of an arable field, to create a new residential development of one hundred plots with associated access roads, gardens and public open space. Figure 5.1 below shows the Feasibility Site Masterplan as provided by the client.

Figure 5.1: Plan of the Proposed Works
Base image © Ainsley Gommon (C1163 SK005 18/02/2025)

5.2 Impacts on Designated and Notable Sites

5.2.1 The proposed works will not have an impact on any statutory or non-statutory designated nature conservation sites.

5.3 Habitats

5.3.1 *Arable*

The development will result in the loss of arable land, which had limited ecological value. The development with associated residential gardens and planting will increase the biodiversity across the site.

5.3.2 *Semi-improved grassland*

The strips of species poor and the more diverse neutral semi-improved grassland, along the field margins, will be lost to the planned development. Replacement meadow creation should take place to compensate for the loss of biodiversity in these areas.

5.3.3 *Hedgerows*

The most ecologically significant features of the site were the hedgerows along the northern and eastern boundaries. While these hedgerows did not qualify as native species-rich under formal definitions, they were intact and provided valuable connectivity to similar hedgerows in the surrounding landscape. Hedgerows are recognised as Habitats of Principal Importance under Section 7 of the Environment (Wales) Act 2016. Although the final landscaping plan is yet to be confirmed, the northern boundary hedge is expected to be largely retained, with the exception of a small section to accommodate an alternative access point. The eastern boundary hedge is likely to be removed to allow for the construction of an access road and a public footpath, but will be replaced by a new hedge in a similar location.

5.3.4 *Scattered trees*

Scattered mature native trees were present along the southern boundary, with two mature oak trees located on the northern boundary. All trees are scheduled to be retained, except for a dead ash tree on the southern boundary, which is likely to be removed. The planting of additional locally native trees is recommended, particularly to enhance habitat connectivity across the site.

5.4 Flora

5.4.1 None of the plant species recorded during the survey are protected by the Wildlife and Countryside Act 1981 (as amended) or listed on Section 7 of the Environment (Wales) Act 2016. In addition, no nationally or locally rare species were recorded.

5.5 Fauna

5.5.1 *Amphibians*

The site has low potential to support amphibians including great crested newts (GCN) due to the absence of standing water and consequently, a lack of suitable breeding habitat. The arable land was largely unsuitable for amphibians, offering limited opportunities for shelter or foraging. Although higher quality habitats such as hedgerows, woodland, and scrub are present in the surrounding landscape, there were no water bodies within 500m.

5.5.2 *Badger*

There were no badger setts present within the site, and there was limited potential for sett building within the site.

The proposed works will not cause disturbance to a badger sett or remove any optimal foraging habitat; general RAMs will be followed at all times during the works to minimise any risk or disturbance to potential badgers and other wildlife entering the site.

5.5.3 *Bats*

The hedgerows and tree lines along the site boundaries—particularly the southern boundary, which adjoins more suitable habitat—are likely to be used by bats for both foraging and commuting. Although the hedgerow along the eastern boundary is expected to be removed to facilitate the development, it will be replaced where possible to help maintain habitat connectivity across the site. As most bat activity is anticipated to occur along the southern boundary, the loss of the eastern hedgerow is unlikely to significantly impact overall connectivity. Additionally, the proposed increase in hedgerows, trees, and pollinator-friendly shrubs will enhance the site's suitability for foraging bats.

Lighting levels across the site are expected to increase during the construction phase and as a result of the completed development, due to external lighting and light spill from internal sources within the properties. A buffer in the form of an amenity area will be retained between the development and the southern site boundary, where bat activity is likely to be highest. However, increased lighting may deter or disturb bats from commuting across the site to suitable habitats beyond. To mitigate this, lighting during construction and in the final site design will be carefully planned to minimise light levels and reduce potential impacts on bats. RAMs for during the construction phase and lighting guidance, to reduce the impact to bats, are detailed in Section 6.

5.5.4 *Birds*

The removal of any hedgerow will lead to the loss of suitable nesting habitat for birds. However, the proposed planting of hedgerows, trees, and shrubs across the site as part of the development will result in an overall increase in suitable nesting habitat. Recommendations for mitigation, compensation, and habitat enhancement for nesting birds are provided in Sections 6 and 7.

5.5.5 *Hedgehog*

The boundary edges of the site had good potential for hedgehogs and good connectivity to other suitable hedgehog areas and hedgehogs have been found within 2km of the site. Mitigation measures will be in place to minimise any impacts on hedgehogs. Enhancement measures will be also be taken.

5.5.6 ***Reptiles***

The site is not considered to provide good habitat for reptiles as there was limited vegetation for cover, apart from along the boundary edges. Mitigation measures will be implemented to minimise the risk of any impacts on reptiles in the unlikely event that they are encountered during the work.

5.5.7 ***Other Species***

No specific mitigation is necessary for other protected species as none are expected to be present. General RAMS set out in Section 6 should be followed and will also minimise any potential impacts on any other small animals using the site.

5.6 Invasive Non-Native Species (INNS)

5.6.1 No invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 were recorded during the survey.

6.0 Avoidance, Mitigation and Restoration

6.1 The Step-Wise Approach

6.1.1 Development proposals should take green infrastructure into consideration in order to avoid negative impacts on habitats and species, and seek ways to maintain and enhance biodiversity. Impacts on habitats and species should be treated in a step-wise manner (Planning Policy Wales PPW12, paragraph 6.4.15), by seeking to:

- **Avoid** damage to biodiversity in its widest sense by maintaining the largest possible area of existing habitat supporting biodiversity and functioning ecosystems, particularly Section 7 habitats and species where present, through careful development design and consideration of long-term maintenance and management and ensuring that retained habitats continue to be well connected to adjacent habitats to provide connectivity for key species.

- **Mitigate** or **restore** by identifying measures to address the specific negative effects by repairing damaged habitats and disturbed species. The measures should seek to restore in excess of like for like, accounting for disturbance and time lags for the recovery of habitat and species, and in every case, mitigation or restoration measures should seek to build ecosystem resilience within the site and where possible the wider area.

- As a last resort off-site **compensation** for unavoidable damage must be provided. This must be of significant magnitude to fully compensate for any loss.

- All development must **deliver a net benefit** for biodiversity and ecosystem resilience from the baseline state (proportionate to the scale and nature of the development proposed).

6.2 Avoidance and Mitigation

6.2.1 ***Bats - Roosting***

If any felling or works to trees is required, a survey for potential roosts must be carried out by an ecologist, including tree climbing if necessary. If a roost is suspected then reasonable avoidance measures must be followed. A licence may be required from Natural Resources Wales.

6.2.2 ***Bats - Lighting***

It is likely that bats will use the site boundaries, particularly the southern boundary, for foraging and commuting. It is therefore essential that the lighting is limited not only across the whole site but importantly along the southern boundary with no direct lighting onto the hedges or trees.

To reduce the potential impact of additional lighting, which may be installed, the following measures will be incorporated into the lighting design.

- There will be no lights focused on the tree line to the south or individual trees during or after the works. There will be no illumination of the new bat and bird boxes once the works are complete.

- Any external or security lighting should be limited to provide some dark periods during the night. Ideally the lighting should be motion activated, and not stay on longer than one minute, in order to provide maximum darkness when not needed as well as providing safe lighting conditions for residents when required.

- During the construction phase, works should be avoided within 1 hour of dawn and dusk to avoid disturbance to nocturnal animals (especially during the time when bats are active April – October). If works outside this time are needed, all lighting should be directional and be directed away from the southern tree line.

6.2.3 ILP (2023) conclude that for bats, artificial lighting at night (ALAN) is thought to increase the chances of predation by avian predators (such as owls and hawks) and in lit areas, bats are known to modify their behaviour, potentially in response to this threat. Illuminating a bat roost can cause disturbance and this may result in the bats deserting the roost, or even becoming entombed within it. Lighting would therefore be considered an obstruction under the legislation protecting bats and their roosts. In addition, artificial lighting can also affect the feeding behaviour of bats.

6.2.4 Ecological and lighting design advice should be sought right at the start of a project whenever lighting is being considered, in advance of any lighting design or fixing of scheme layout.

6.2.5 Key messages from the ILP (2023) 'Bats and Artificial Lighting at Night' guidance include:

- The ecological mitigation hierarchy applies to lighting design: impacts to biodiversity should be avoided in the first instance through design and where this has been clearly demonstrated not to be possible, appropriate mitigation needs to be put in place. Compensation is the least desirable option, so all other avenues should first be explored and ruled out. In parallel, opportunities to design lighting betterment for biodiversity should be sought wherever possible.

- It is important to integrate avoidance measures into developmental design, by retaining ecologically functional 'dark corridors' within schemes wherever feasible, and in preference to seeking lighting mitigation strategies. Consideration should be given to the lighting effect of a scheme on Key Habitat and Supporting Habitat areas for bats, as well as commuting routes.

- It is important to minimise Artificial Lighting At Night (ALAN) close to vegetation, particularly for slower-flying bat species.

- ALAN has been shown to be particularly harmful along river corridors, near woodland edges and hedgerows.

- Bats have considerable sensitivity to very low light levels and distances from light sources, and there is a need to maintain or reduce existing light levels in the environment.

- Careful choices would need to be made about the type of lighting chosen for a scheme, and this should be designed through a multi-disciplinary design approach. Whilst Part Night Lighting (PNL) schemes and the installation of LED lights may have energy-saving benefits, they can result in an increase in light intensity, impacting on bat behaviours, and the lighting design for each site should be developed using information from bat surveys, and pre-development light level data.

6.2.6 After avoiding, wherever possible, the potential impacts of Artificial Lighting At Night (ALAN) through scheme designs, if further mitigation measures are required in the form of lighting controls, ILP (2023) recommend that a lighting professional helps to select those light sources, lamps, LEDs and their fittings which are most appropriate for the project. To assist with the decision-making process, ILP (2023) suggest that the following are considered when choosing luminaires:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.

- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.

- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone et al, 2012).

- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.

- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.

- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.

- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - see ILP (2021) GN01.

- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.

- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.

- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS.

- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.

- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

6.2.7 ***Trees and Hedges***

To prevent access and avoid damage to trees and hedgerows within or adjacent to the site, Root Protection Zones must be clearly demarcated and securely fenced off using Heras fencing for the duration of the construction period.

6.2.8 ***Hedgehogs***

Care must be taken regarding clearance of any piles of brushwood, rubble, plant material or other 'habitat piles' in the colder months due to the possibility of disturbing hibernating animals including hedgehogs. Such piles should not be disturbed between October and April or when daytime temperatures are below 10°C. Removal should then take place by hand.

6.2.9 ***Nesting Birds***

Any removal or pruning of trees or hedges should ideally take place outside the bird breeding season (March to September inclusive). If this is not possible, all vegetation to be cleared MUST be thoroughly checked for nests, immediately prior to the works**; if any active nests are present all works in the vicinity must cease until all chicks have fledged**.

6.2.10 ***Biosecurity***

General biosecurity measures which should be adopted as part of any development project and are provided in Appendix D.

6.2.11 ***General Site Mitigation Measures***

Suitable RAMs will be implemented to reduce the potential impact to species that may be found on site or passing through the site. All measures in this section should be implemented as appropriate.

The following measures should be implemented at all times during the works:

- Working areas should be kept to the minimum required.

- Works should be avoided within 1 hour of dawn and dusk where possible to avoid disturbance to nocturnal animals. If works during this time are needed, all lighting should be directional and directed away from boundary edges and any surrounding habitat.

- Storage of fuel must follow best practice. Potential pollutants should be restricted to site compounds and hardstanding areas.

- Should it be necessary to have any excavation left open overnight a suitable ramp (such as a plank or branch) must be provided to allow badgers, and other animals to escape the pit. Ramps could be created by grading the slope at the edges or using scaffold boards.

- All materials brought onto site are to be stored on hard standing. Materials will be stored on raised pallets or bagged, to prevent amphibians (or other wildlife) from taking refuge beneath them.

- Any terrestrial mammals seen must be allowed to leave the area on their own. If this is not possible e.g. the animal is injured or trapped then an ecologist must be called.

- If at any point in the works an amphibian or reptile is found within the works area all works in the vicinity of the sighting must immediately cease. Common amphibians should be moved from the working area by site workers (wearing gloves) and placed in a nearby hedgerow. Reptiles will usually retreat to a safe area of their own accord.

- Any terrestrial mammals seen must be allowed to leave the area on their own. If this is not possible e.g. the animal is injured or trapped then an ecologist must be called.

7.0 Compensation and Enhancement

7.1 This section of the report identifies which habitats/species features may need to be compensated for as part of the proposed development, and provides information to incorporate the recommended compensation proposals into the scheme design.

7.2 Planning Policy Wales (PPW12, paragraph 6.4.5) confirms that planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species (not including non-native invasive species), locally or nationally and must work alongside nature and it must provide **a net benefit for biodiversity** and improve, or enable the improvement, of the resilience of ecosystems.

7.3 Although the proposed works will result in a loss of arable land and hedgerow, there will be a net gain of hedgerows, trees, shrubs and other species planted as part of the development, which will enhance the site for foraging and commuting for a large number of species.

7.4 ***Bats***

7.4.1 At least fifteen bat boxes will be in-built into the new houses located along potential commuting and foraging routes to increase the roosting opportunities within the area.

7.4.2 The boxes will be at least 4m above the ground and be in-built on elevations facing preferably south, south-east and south-west. The positions of these will be agreed with an experienced ecologist and must be placed where there will be the least likely disturbance from light spill, windows doors and patios.

7.4.3 Examples of recommended integrated bat boxes include:

- Green & Blue Bat Block/Bat Brick for crevice dwelling bats (recommended by Bat Conservation Trust)
- Schwegler 1FR
- Habibat Bat Box

7.5 ***General Birds***

7.5.1 To enhance the site for birds, ten bird boxes will be in-built on the northern elevations of the new properties. These are to be placed at the eaves, positioned away from doors, windows and vents to prevent disturbance.

7.5.2 Examples of recommended integrated bird boxes include:

- Green & Blue Bird Block/Nest box

- Schwegler Brick box type 24
- Habibat 003 Bird Nest Box

7.6 *Hedgehogs*

As hedgehogs have been recorded in the area, a 'hedgehog highway' comprising a 13 x 13cm (5 x 5") square hole at the bottom of every fence should be created. This will ensure they can continue to move through the area to forage. The hole is designed to be too small for most pets to get through.

7.7 *Planting*

7.7.1 The gardens of the properties will be sown with grass and there will be areas of low level planting across the site. There will also be a large area of public open space retained along the southern most part of the site. Native trees and shrubs, should be incorporated into the final landscape design, to create connectivity across the site and to the wider area and increasing the value of the site for pollinators. Examples of suitable species are given in Table 7.1.

Table 7.1: Recommended Native Tree and Hedgerow Species

Latin name	Common name
Acer campestre	Field maple
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Euonymus europaea	Spindle
Ilex aquifolium	Holly
Prunus avium	Wild Cherry
Prunus padus	Bird Cherry
Quercus petraea	Sessile oak
Rosa canina	Dog rose
Sorbus aucuparia	Mountain ash/rowan
Sorbus torminalis	Wild service tree
Viburnum lantana	Wayfaring tree
Viburnum opulus	Guelder rose

7.8 *Wildflower grassland*

7.8.1 An area of native wildflower grassland should be sown and maintained in the area of public open space to compensate for loss of the semi-improved grassland. The ground should be suitably prepared for the establishment of the seed mix and should be cut annually, with cuttings removed.

8.0 Further Works

8.1 Further Works

8.1.1 Table 8.1 below provides a summary of ecological considerations associated with the proposed development. Note that "Pre-construction" means prior to the works phase beginning on site, whereas "Immediately prior to clearance" means during the works, but prior (ideally within 48 hrs) to that particular operation (e.g. tree felling, demolition) beginning.

Table 8.1 Summary of Other Ecological Considerations

Constraint	Work Stage	Species	Work	Location	When possible
If any vegetation clearance in March – September	Immediately prior to clearance, whenever this occurs	Nesting birds	Nesting bird checks (see 9.2).	Any scrub, tree, or tall vegetation clearance	March-September
Removal of dead ash tree	All	Ash tree	Tree removal	Tree line on eastern boundary	All year

9.0 References

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APPENDIX A Legislation and Planning Policy

Bats

All species of bat, their breeding sites and their resting places in England and Wales are protected through a 'dual' system of protection, under the England and Wales Habitats Regulations and Wildlife and Countryside Act (1981) as amended. Because two regimes give legal protection to bats, the implications of both regimes must be fully understood.

Regulation (Reg.) 43 of the England and Wales Habitats Regulations makes it an offence to:

- deliberately capture, injure or kill a bat;

- deliberately disturb bats (which includes any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate or to affect significantly the local distribution or abundance of the species to which they belong);
- damage or destroy a breeding site or resting place of a bat; or
- possess, control, transport, sell or exchange, or offer for sale or exchange, any live or dead bat or part of a bat or anything derived from a bat or any part of a bat

Under Section 9 of the W&CA (s.9(4)(b), 9(4)(c) and 9(5) only), it is an offence (in relation to bats) to:

- intentionally or recklessly disturb a bat while it is occupying a structure or place of shelter or protection;
- intentionally or recklessly obstruct access to any structure or place used by a bat for shelter or protection; or
- sell, offer or expose for sale, or have in their possession or transports for the purpose of sale, any live or dead bat or any part of, or anything derived from a bat (or be responsible for adverts suggesting the intention to do this).

Under both laws Natural Resources Wales are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest. It is not illegal to tend to a disabled bat pending recovery.

Birds

Under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way (CRoW) Act 2000, all wild birds, their nests and eggs are protected during the breeding season (typically March to August inclusive). This makes it an offence to:

- Intentionally kill, injury or take any wild bird.
- Take, damage or destroy the nest of a wild bird included in Schedule ZA1.
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built.
- Take or destroy an egg of any wild bird.

Hedgehogs

Hedgehogs are listed under Section 7 of the Environment (Wales) Act 2016, therefore public bodies have a duty to conserve them in the exercise of their functions.

They are listed under Section 6 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence for them to be killed or taken by certain methods.

National Planning Policy

National Planning Policy in Wales is set out in Planning Policy Wales, Edition 12 , issued in February 2024. This document sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.

PPW Edition 12 Section 6.4 states that "*biodiversity underpins the structure and functioning of ecosystems*" and identifies that the "*planning system has a key role to play in helping to reverse the decline in biodiversity and increase the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement*". The broad framework for implementing the Environment (Wales) Act 2016 Section 6 Duty, securing a net benefit for biodiversity and building resilience through the planning system includes addressing all of the following attributes: diversity, extent, condition, connectivity, and adaptability to change.

Green infrastructure (GI) is defined in Planning Policy for Wales (PPW) Edition 12 as "*the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places*". Green infrastructure can function at a range of different scales, from entire ecosystems to street trees and is capable of providing several functions at the same time and as a result offers multiple benefits, for social, economic and cultural as well as environmental resilience.

Development proposals should take biodiversity and green infrastructure (GI) into consideration in order to avoid negative impacts on habitats and species, and seek ways to maintain and enhance biodiversity. Impacts on habitats and species should be treated in a step-wise manner (PPW 12, paragraph 6.4.15), by seeking to:

- **Avoid** damage to biodiversity in its widest sense by maintaining the largest possible area of existing habitat supporting biodiversity and functioning ecosystems, particularly Section 7 habitats and species where present, through careful development design and consideration of long-term maintenance and management and ensuring that retained habitats continue to be well connected to adjacent habitats to provide connectivity for key species.
- **Mitigate** or **restore** by identifying measures to address the specific negative effects by repairing damaged habitats and disturbed species. The measures should seek to restore in excess of like for like, accounting for disturbance and time lags for the recovery of habitat and species, and in every case, mitigation or restoration measures should seek to build ecosystem resilience within the site and where possible the wider area.
- As a last resort off-site **compensation** for unavoidable damage must be provided. This must be of significant magnitude to fully compensate for any loss.
- All development must **deliver a net benefit** for biodiversity and ecosystem resilience from the baseline state (proportionate to the scale and nature of the development proposed).

PPW12 also sets out the national policy requirements in relation to planning permissions where protected species, trees, hedgerows and woodlands and *irreplaceable natural resources* have the potential to be impacted.

APPENDIX B Desk Study

Desk Study Data included as separate Appendix

APPENDIX C Plant Species List

This list is not exhaustive but refers to species observed during the site visit. Mosses (except indicators of bog habitat if present), lichens, algae and other lower plants and fungi were not identified. No protected or notably rare plant species were found.

Table C.1: Plant Species List

English Name	Scientific Name
Ash	*Fraxinus*
Black knapweed	*Centaurea nigra*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus*
Broad-leaved dock	*Rumex obtusifolius*
Chicory	*Cichorium intybus*
Common ragwort	*Jacobaea vulgaris*
Creeping buttercup	*Ranunculus repens*
Creeping thistle	*Cirsium arvense*
Greater birds-foot-trefoil	*Lotus pedunculatus*
Hazel	*Corylus*
Hogweed	*Heracleum sphondylium*
Honeysuckle	*Lonicera periclymenum*
Lesser stitchwort	*Stellaria graminea*
Oak	*Quercus petrea*
Purple vetch	*Vicia benghalensis*
Red clover	*Trifolium pratense*
Ribwort plantain	*Plantago lanceolata*
Rosebay willowherb	*Chamaenerion angustifolium*
Selfheal	*Prunella vulgaris*
Silver birch	*Betula pendula*
Silverweed	*Potentilla anserina*
Soft rush	*Juncus effusus*
St John’s wort	*Prunella vulgaris*
Sycamore	*Acer pseudoplatanus*
Sweet vernal grass	*Anthoxanthum odoratum*
White clover	*Trifolium repens*
Yorkshire fog	*Holcus lanatus*

APPENDIX D General Biosecurity Measures

Biosecurity means taking measures to ensure that good practices are in place to minimise the risk of importing and spreading invasive non-native species (INNS), pests and infectious disease. As non-native species or diseases could be transmitted in any water or material, a good biosecurity routine is essential, even if invasive non-native species are not apparent.

General good-practice biosecurity measures include:

- A toolbox talk detailing the general risks of invasive non-native species (INNS) relevant to the site and the project should be delivered to all workers, showing the various life stages and how to recognise these plants and animals.

- A cleaning station should be set up at the site exits including facilities to wash boots and vehicles.

- **All** footwear of staff leaving site (for **any** reason and no matter for how short a time) should be cleaned (i.e., visually free of soil and debris) before leaving site.

- Soil and vegetation should be washed off with clean water (and brushes). Water (which should not be contaminated with any disinfectant or other pollutants) should then be disposed of by pouring on site to soak away. No water should be disposed of directly into a watercourse.

- The wheels or tracks (and any other part which has come into contact with the soil) of all vehicles which have entered the area must be thoroughly washed and be free of soil and debris before leaving the site.

- No one should remove any soil or vegetation from the working area for any reason.

It may be necessary to produce a site-specific and project-specific Biosecurity Risk Assessment to support the construction-phase of the project, once detailed design works have been completed and timings and construction methods are known. This Biosecurity Risk Assessment should identify the specific biosecurity risks associated with the works and detail operational procedures to minimise the risk of spreading invasive non-native species (INNS) and other biosecurity risks.