Preliminary Ecological Appraisal of Bersham Ironworks Site on Behalf of Groundwork North Wales

Date	Author	Project Number	Approved by	Version	Comments
06/10/2025	AB	5177	Tim Yardley	01	

Report Reference: EE.5177.2025.AB

Author contact information: anne@enfysecology.co.uk

This report has been prepared by Enfys Ecology Ltd with all reasonable skill, care and diligence, within the terms of the Contract with the Client and in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Practice. The report is confidential to the Client and Enfys Ecology Ltd accepts no responsibility of whatever nature to third parties to whom this report may be made known.

Wildlife Trust Consultancies

Aelod o Cymdeithas Ymgyngoriaethau Ymddiriedoleathau Natur

Mae Enfys Ecology yn is-gwmni I Ymddiriedolaeth Natur Gogledd Cymru

Enfys Ecology is a subsidiary of North Wales Wildlife Trust

Rhif Cwmni/ Company Number 2535184

Ymddiriedolaeth Natur Gogledd Cymru North Wales Wildlife Trust

Executive Summary

Site	Bersham Iron Works Site	**OS Grid Reference**	SJ306493
Surveyors	Anne Butler	**Survey Date**	25–09-2025
Type of Survey	Preliminary Ecological Appraisal		
Summary of Proposed Work	Erection of timber classroom, WCs, access track and installation of services		
Designated Sites Affected	None.		
Habitats Affected	A small area of improved and poor semi-improved grassland will be lost, otherwise the development is affecting hardstanding.		
Species Affected	There is a small chance that great crested newts and nesting birds could be impacted. Impacts to foraging bats using adjacent woodland will be minimised by careful lighting design.		
Survey Conclusions	As the development does not affects habitats of significant biodiversity value, the compensatory and enhancement measures will result in net enhancement of biodiversity on the site. The risk of impacts to protected species can be minimised with mitigation measures.		
Further Surveys Required	None		
Avoidance Requirements	Avoidance measures for bats in the form of the avoidance of lighting and careful lighting design.		
Mitigation / Restoration Requirements	Mitigation measures for great crested newts and birds.		
Compensation Requirements	Bat and bird boxes recommended.		
Proposed Enhancements	Planting locally-native trees and shrubs.		

Copyright Enfys Ecology Ltd 2025

Contents

Executive Summary 2

1.0 Introduction 4
2.0 Site Description 6
3.0 Methodology 8
4.0 Results 10
5.0 Discussion 19
6.0 Avoidance, Mitigation and Restoration 22
7.0 Compensation and Enhancement 25
8.0 Further Works 26
9.0 References 27
APPENDIX A Legislation and Planning Policy 28
APPENDIX B Desk Study 32
APPENDIX C Plant Species List 33
APPENDIX E General Biosecurity Measures 36

1.0 Introduction

1.1 Project Introduction

1.1.1 Enfys Ecology were commissioned by Groundwork North Wales to undertake a Preliminary Ecological Appraisal (PEA) of Bersham Iron Works Site.

1.1.2 The proposed works involve the creation of a new access track, timber classrooms, toilets and associated services.

1.1.3 The existing site is currently a track, hard standing and an agricultural field.

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 This report has been produced by Anne Butler, MSc Ecology. Anne is an Ecologist for Enfys Ecology and an experienced ecologist who has worked in ecology and biodiversity since 1998, as an Ecologist, Conservation Officer and Biodiversity Officer. She is an experienced Phase I surveyor and has also been providing Preliminary Ecological Appraisals for Enfys Ecology for two years. She also has experience of protected species surveys for bats, birds, water voles, reptiles, dormice and badgers.

1.1.8 The survey work to inform this report was carried out in September 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 months in accordance with best practice (CIEEM, 2019).

1.1.9 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
Proposed site plan	Bhb architects	4269 – 50 – B 16/4/25
Mechnical services overview	Bhb architects	25817/M/05 23/6/25
Proposed plan of classroom and eco-WC	Bhb architects	4269 – 51 – C 16/4/25
Sketch layout	Bhb architects	SK05

The proposed site plan is shown below in Figure 1.

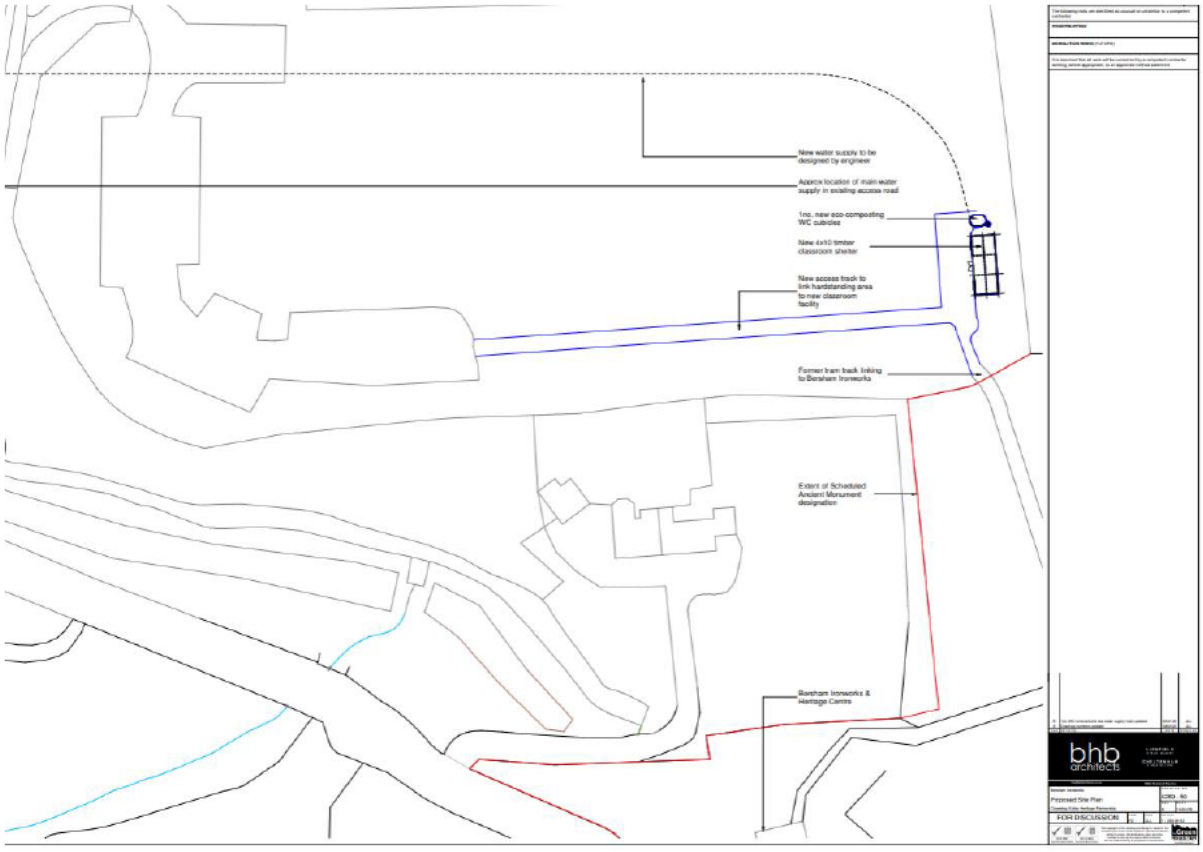


Figure 1.1: Proposed site plan

2.0 Site Description

2.1 Survey Area

2.1.1 The survey area agreed with Groundwork North Wales is shown in Figure 2.1 below.

2.1.2 The site was accessed along the track. It consisted of an existing track from a minor road, leading to an agricultural field with areas of hard standing. There was woodland to the south and west of the field.



Figure 2.1: The survey area (red outline)

2.2 Wider Area - Connectivity and Green Infrastructure

2.2.1 The wider area around the site is shown in Figure 2.2 below. The wooded Clywedog valley stretched north-west from the west of the site, otherwise the area was mainly surrounded by agricultural fields and some woodland. The A483 dual carriageway lay 250m east of the proposed development and further east was the town of Wrexham. A small lake can be seen in the northern, central area of Figure 2.2.



Figure 2.2: The site (red star) and the wider surrounding area

(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.

2.2.2 The survey site contained open green space but the connectivity was broken by hardstanding areas. There were good connections from the east part of the site to the nearby woodland to the south and west, and to agricultural fields to the north and east. The woodland formed part of the Clywedog river valley which is a long stretch of woodland which runs from adjacent to the west of the site to the north-west. Connectivity to the south was somewhat limited by the road to the south, however this is a quiet, minor road, and beyond this lay more wooded areas and fields. The dual carriageway to the east was a major barrier to connectivity eastwards. In summary the site contained some green infrastructure and was mainly surrounded by further green infrastructure. The main barrier to connectivity was 250m to the east.

[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 11th September 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 a 1km search radii for this project.

3.2 Field Survey

3.2.1 The field survey was conducted on 25th September 2025 by Anne Butler, a suitably experienced professional ecologist assisted by Lowri Parry.

3.2.2 The weather conditions during the survey were dry and warm (17 degrees).

3.2.3 All parts of the site were visited, 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.

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 Whilst 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 no statutory designated sites within 1km of the survey area.

4.1.2 There were two non-statutory wildlife sites within 1km of the survey area. The nearest was Big Wood Wildlife Site for Wrexham which is the woodland immediately adjacent to the access track to the west of the site, as shown in Figure 4.1 below. This is designated for its broadleaved and coniferous woodland and the part of the site shown in Figure 4.1 is also classified as restored ancient woodland.



Figure 4.1 Big Wood Wildlife Site for Wrexham (red area)
© OpenStreetMap Contributors 2025

The second Wildlife Site is Nant Mill Wildlife Site for Wrexham which is 900m from the site and is designated for its grassland.

4.1.3 As mentioned above the woodland to the immediate west of the survey site is classified as restored ancient woodland and the woodland adjacent to the south-west of the survey field is classed as ancient semi-natural woodland. Most of the woodland along the River Clywedog to the north-west of the site, and some along the valley to the south-east of the site is classed as ancient woodland. There are also other patches of ancient woodland in other areas of the 1km search radius.

4.2 Desk Study – Species Records

4.2.1 Cofnod holds 754 records within 1km of the site from the previous 20 years, including 532 records of UK and European protected species.

4.2.2 The results of the desk study for protected fauna are detailed in Table 4.4, Section 4.7. Results of the Cofnod 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 survey site.

4.3 Phase 1 Habitat Survey

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

A1.3.2	Mixed woodland – plantation
B4	Improved grassland
B6	Poor semi-improved grassland
A2.2	Scattered scrub
A3.1	Broadleaved tree
A3.2	Coniferous tree
J5	Other – here used for hardstanding

4.3.2 A Phase 1 Habitat map with target notes is provided in Figure 4.1 below. Please refer to Figure 2.1 for features visible on the aerial image that are not visible on the Habitat map. Descriptions of the habitats are provided in Table 4.2 with information associated with target notes provided in Table 4.3. Where relevant, photographs are included with the text.

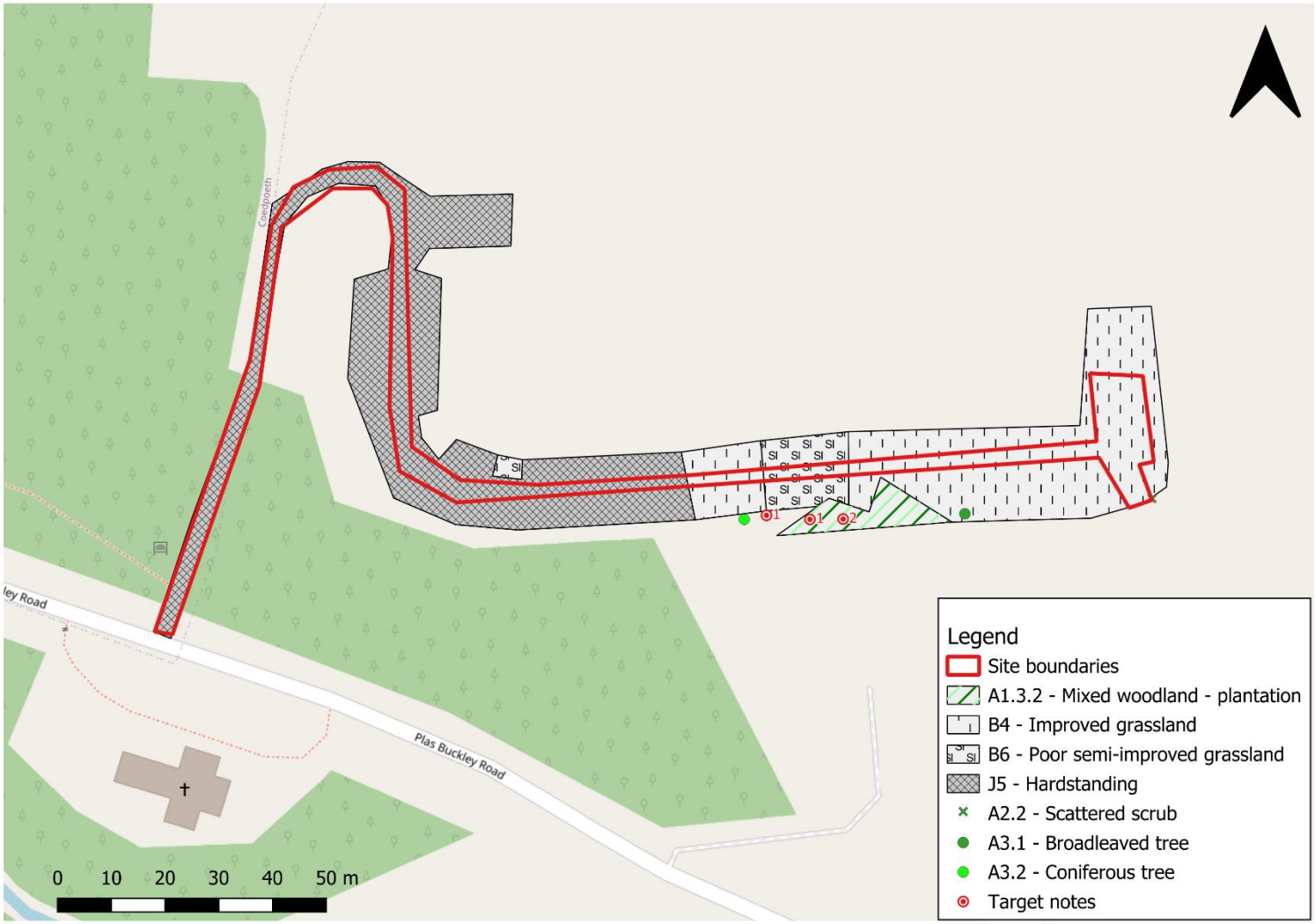
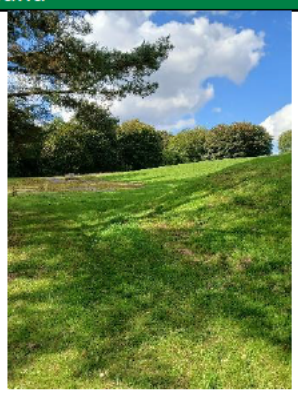


Figure 4.1: Phase 1 Habitat Survey Map

Base image © OpenStreetMap Contributors 2025

Table 4.2: Habitat Descriptions

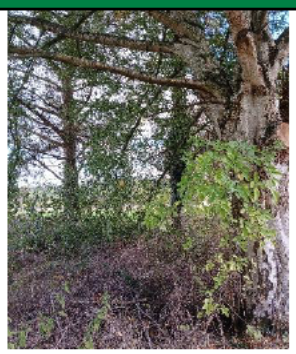
Habitat Description	Photo
Mixed woodland - plantation	
A small area of planted trees outside and just to the south of the survey boundary, 3 pines and 2 silver birches with young rowan and wild plum. The understorey was long semi-improved grassland dominated by false oat grass and couch with common bent, creeping bent and Yorkshire fog. Non-grasses included bramble, cleavers and nettles.	 
Improved grassland	
The field was predominantly improved grassland. The sward was dominated by perennial rye grass with some Yorkshire fog with common agricultural species such as daisy and dandelion.	
Poor semi-improved grassland	
Part of the field inside the survey boundary was a steep bank. The grass on this bank was not dominated by perennial rye grass as was the case with the improved grassland around it. The most abundant grasses were creeping bent and Yorkshire fog and non-grasses were mainly creeping buttercup, dandelion, curled dock with occasional cuckoo flower.	

Copyright Enfys Ecology Ltd 2024

Hardstanding	
Much of the survey area on the west of the site was hardstanding.	
Scattered scrub	
A small area of raspberry bushes by the gate.	
Scattered trees	
Trees outside but close to the area mapped as mixed woodland plantation. One was a small rowan and the other was a pine tree with nettles and long grass underneath.	

Copyright Enfys Ecology Ltd 2024

Table 4.3: Target Note Descriptions

Target Note	Description	
1	Piles of brash	
2	3 bird boxes were located on trees in the small plantation	

4.4 Flora

4.4.2 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.

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

4.5 Invasive Non-Native Species

4.5.2 No invasive non-native species were noted during the survey.

4.6 Fauna

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

4.6.2 The survey results for protected species including records within a 1km radius of the site are described in Table 4.4 below.

Table 4.4: Results of Protected and Notable Species Assessment

Species	Suitability of Habitat	Desk Study Records from the past 20 years	Further Species Consideration Required?
Amphibians – including great crested newts *Triturus cristatus* (GCN)	There were no waterbodies on the survey site so the site itself was not suitable for breeding amphibians including GCN. A pond with historic records of GCN is approximately 900m from the site to the north, and connected by a hedgerow. Another pond with more recent records (2021) of GCN is 900m to the north-west of the site and connected by watercourses, trees and fields. It is unlikely but not impossible that GCN would travel 900m from the ponds to this site. It is possible that GCN use the long grass under the trees in the plantation or the hedgerows and woodland adjacent to the site for foraging and hibernating. However, these areas are outside the survey area and therefore unlikely to be impacted by the works. The habitats on the site itself are short grassland and hardstanding are less likely to be used by GCN or other amphibians but there is a possibility they may be present on these habitats and encountered during the works.	GCN have been recorded 970m from the site.	yes
Badger *Meles meles*	No signs of badger were present in the survey area. The short grassland habitat in the site is not particularly suitable for badger foraging or setts but it is possible that they use the broadleaved woodland adjacent to the site.	[redacted]	No, other than general mitigation measures (Section 6.3).
Bats	The habitats on the site itself were unsuitable for bat roosts or foraging. However, bats may forage over the woodland adjacent to the site or roost in the trees in the woodland. The planted trees adjacent to the south of the site did not appear suitable for bat roosts.	There were 381 records of bats within 1km of the site after 2005. The nearest being a common pipistrelle 85m east. Other species include brandts, brown long eared, daubentons, myotis, natters, noctules and sopranos.	Yes, lighting considerations.

Table 4.4: Results of Protected and Notable Species Assessment

Species	Suitability of Habitat	Desk Study Records from the past 20 years	Further Species Consideration Required?
Birds	The survey site itself is unsuitable for nesting birds, apart from the small area of scrub at the east of the site, presuming that the planted trees south of the site that will not be pruned or felled.	There were 234 records of birds within a 1km radius of the site. Records include numerous Schedule 1 species such as redwings and red kite.	Yes
Dormice *Muscardinus avellanarius*	The site is unsuitable for dormice due to lack of habitat.	None	No
Hedgehog *Erinaceus europaeus*	The short grass and hardstanding is not suitable for hedgehog hibernation although the habitats adjacent to the site (some long grassland, piles of brash and woodland) is suitable for hedgehogs. It is unlikely that they will be using the site.	There are 13 records of hedgehog within 1km, the closest being 330m southeast of the site.	No, other than general mitigation measures (Section 6.3).
Red squirrel *Sciurus vulgaris*	The site is unsuitable for red squirrel.	None	No
Reptiles	The site itself does not contain sufficient dense habitat for cover or hibernation sites for reptiles but the woodland and long grass adjacent to the site could be used. The hardstanding and short grassland could be used for basking but only where dense cover was close to these areas, say, within two metres of the site, such as around the mixed woodland plantation.	None	No, other than general mitigation measures (Section 6.3).
Water vole *Arvicola amphibius*	The site is unsuitable for water vole as there is no watercourse on the site.	None	No

Copyright Enfys Ecology Ltd 2024

Table 4.4: Results of Protected and Notable Species Assessment

Species	Suitability of Habitat	Desk Study Records from the past 20 years	Further Species Consideration Required?
Otter *Lutra lutra*	The habitat on the site is unsuitable for otter. It is possible that otters are in the woodland adjacent to the site as there is a channel 20m south of the site, with woodland in between, and the river is less than 100m away to the south, across a minor road. Otters would be unlikely to be in the open field as it is higher than the watercourses and they tend to use areas with dense cover. There is a small chance otters would traverse the site.	There are 4 records of otters within 1km of site, the nearest being 130m from the site, on the Afon Clywedog.	No, other than general mitigation measures (Section 6.3).

5.0 Discussion

5.1 Proposed Works

5.1.1 The proposed works to the site include the erection of a 4 x 10 timber classroom shelter, composting toilets and access track and the provision of a new water and electric supply. Figure 5.1 below shows the current plans for the site. Figure 5.2 shows the position of the proposed water supply.

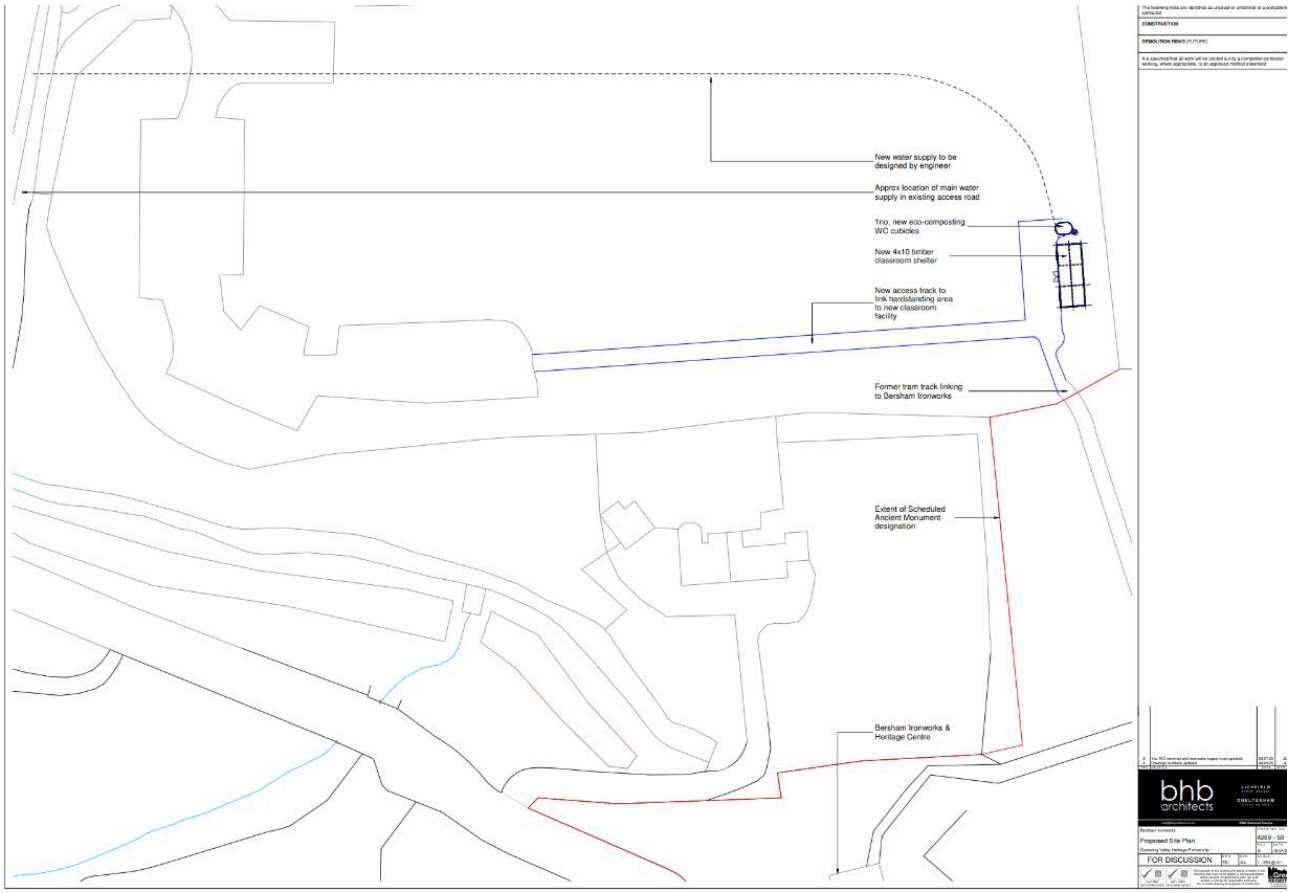


Figure 5.1: Plan of the Proposed Works

©Bhb architects

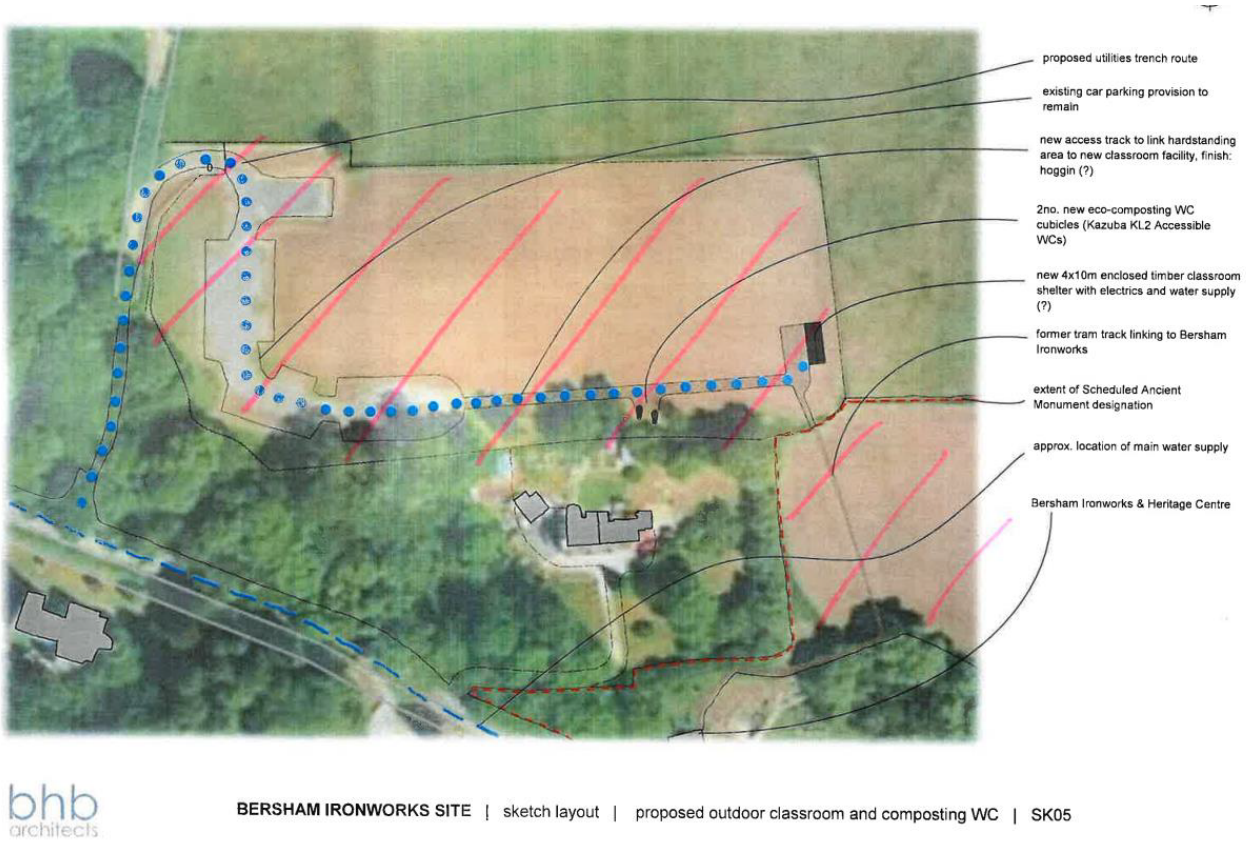


Figure 5.1: Sketch layout showing route of utilities trench (note the position of the WC cubicles is incorrect)
©Bhb architects

5.2 Impacts on Designated and Notable Sites

5.2.1 The proposed works will be highly unlikely to have an impact on any statutory designated nature conservation sites because there are none within 1km of the work.

5.2.2 Big Wood Wildlife Site for Wrexham is immediately adjacent to the access track to the west of the site, as shown in Figure 4.1, and is designated for its broadleaved and coniferous woodland. It is also classified as restored ancient woodland. The utilities trench follows the route of the track, there are no current plans that are likely to impact the adjacent woodland. It is unlikely that the Wildlife Site or ancient woodland would be impacted by work to dig and lay the utilities trench provided it follows the route of the surfaced track and no plant or materials are stored to the west of the track.

5.3.1 Habitats

5.3.1 None of the habitats which were recorded from within the site are listed as a 'habitat of principal importance' under Environment (Wales) Act 2016. The improved and poor semi-

improved grassland are not of significant biodiversity value and the hardstanding is of negligible biodiversity value.

5.3.2 The adjacent plantation woodland to the south of the site is of relatively higher biodiversity value but it is understood that it is unlikely to be impacted by the work.

5.3.3 The broadleaved semi-natural woodland immediately west and south-west of the site is of high conservation value but is unlikely to be impacted by the work.

5.3.3 The grassland within the site forms part of the green infrastructure of the area and is connected to high value woodland habitat. The erection of the timber classroom and creation of an access track will have only a small impact on the connectivity of the green infrastructure, which is already broken by the existing hardstanding areas.

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.

5.5.1 Fauna

5.5.1 ***Great crested newts*** – As great crested newts usually travel up to 500m from their breeding pond, it is unlikely that they would travel 900m from their breeding pond to this site even though the ponds are connected to the site via grassland, watercourses or hedgerow. Also, in light of the small size of the works area, the works are not likely to negatively impact GCN populations or affect the favourable conservation status of these species. However, as it is possible that GCN could have travelled the 900m distance, and there is no physical barrier preventing this, reasonable avoidance measures will be carried out in order to further reduce the small risk of impact on GCN, see Section 6 Mitigation.

5.5.2 ***Birds –*** Birds may nest within the small area of scrub at the east of the site. Mitigation will be given in Section 6.

5.5.3 ***Hedgehog –*** It is possible that hedgehogs could be using areas adjacent to the site such as the woodland, or the brash piles at target note 1, but would be unlikely to be impacted directly by the work. No specific measures will be in place other than those covered under the Site General Reasonable Avoidance Measures in Section 6.3. Should any work be carried out to the long grassland and brash piles, further advice should be sought from an ecologist.

5.5.4 ***Reptiles –*** Although the presence of reptiles on the site is possible, no work is due to take place to areas likely to be used for hibernation so the risk of damaging or killing reptiles is reduced as they would be likely to be able to escape the work. The corridor of potential impact is small so no specific mitigation will be given other than the Site General Reasonable Avoidance Measures in Section 6.3.

5.5.5 ***Bats –*** The site itself is highly unlikely to support bats, but due to the likely presence of bat roosts and high quality foraging adjacent to the area in the woodland, the development

should not result in additional light spill onto the woodland to the south of the site, see Avoidance 6.2.3. Appendix D gives considerations for lighting design to minimise impacts on bat foraging behaviour.

5.5.6 ***Other species –*** No specific mitigation will be required.

5.6 Invasive Non-Native Species (INNS)

No invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981 were noted during the survey so no control measures will be specified, however biosecurity measures will minimise the risk of introducing invasive species on to the site, see Appendix E.

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

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

6.2.2 No work will take place in the long grass below the trees just south of and outside the development site, including strimming or brash removal, and no work will take place within the woodland areas adjacent to the site. These exclusion areas will be marked with a temporary fence.

6.2.3 In order to avoid impacting bat foraging adjacent to the site, the car park and track will not have lighting. Any lighting erected onto the building will be switched off during the summer months and motion-sensor operated. It will follow the guidelines in Appendix D.

6.3 Mitigation

6.3.1 This section sets out the likely mitigation measures which could be adopted as part of the project to minimise potential impacts on biodiversity features.

6.3.2 The following general mitigation measures should be adopted at all times during the works:

- Prior to the start of works, a toolbox talk should be given to everyone involved in the project to set out any ecological protection measures and a log of this should be kept.
- Working areas should be kept to the minimum required.
- Works should be avoided within 1 hour of dawn and dusk where possible, in order 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. Spill kits should be readily available throughout the works.
- Should it be necessary to have any excavations 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 should be stored on hard standing where possible. Materials should 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, alternatively an ecologist should be consulted for advice. If, at any point, GCN are discovered during the works then works will have to stop and a licence may be required from NRW before they can continue.

Copyright Enfys Ecology Ltd 2024

6.3.3 The following mitigation measures should be adopted during the construction-phase in order to minimise any potential impacts on habitats or species.

6.3.3.1 ***Birds***

Any scrub clearance during the nesting season (March-September inclusive) may impact nesting birds, and so further survey may be required in order to establish if nests are present. Therefore it is recommended that as far as possible any scrub clearance takes place outside these months, 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.

6.3.3.2 **Great crested newts (GCNs)**

The long grass underneath the planted trees to the immediate south of the site and adjacent woodland could provide possible hibernation sites for GCN. If the working area is to extend to these areas, no work should be carried out in these areas before consulting an ecologist and a method statement with RAMs provided.

The vegetation within the working area is currently short grassland. This grass should be kept short until development commences.

Before works commence a tool-box talk will be given to all contractors involved in the works; this will outline the species of concern, how to identify them and how to proceed if they are found. It will also outline the working method that is detailed in this document. A log will be signed by all contractors who attend the talk.

All excavated materials will be stored on plywood sheets resting on pallets to keep them off the ground and prevent any amphibians using the piles for refuge.

Should it be necessary to have any excavation left open, these excavations should be securely covered overnight. These excavations must be thoroughly checked prior to back filling, or if leaving them open is unavoidable, a suitable ramp (such as a plank or batter) must be provided to allow animals to escape. All excavations will be inspected by the ecologist on site, or a competent person, at the start of each day to ensure no animals are trapped with them. Common amphibians can be moved to safety with gloves; if a GCN is found all works must stop and the ecologist called.

Once the works within the excavation are completed, the soils and turf will be replaced within two weeks of being lifted from the ground.

Copyright Enfys Ecology Ltd 2024

7.0 Compensation and Enhancement

7.1 Compensation

7.2.1 Although none of the affected habitats are of significant biodiversity value there will be a small impact to the green infrastructure of the site. In order to compensate for this, at least 1 bat box should also be erected on the new structure. These should be placed facing south, south-east or south-west. The boxes should be made from woodcrete or woodstone to ensure the longevity of the boxes.

At least 1 bird box should be erected on the new structure. The box should should ideally be woodcrete or woodstone boxes rather than wooden boxes as they will last longer and require limited maintenance. It should face north.

7.2 Enhancement

7.2.2 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.

- Enhancement measures will include planting of at least three locally native trees or shrubs. A stake and guard will be used and any losses will be replaced over a five year period.
- Recommended native trees and shrubs are given below in Table 7.1.

Table 7.1: Recommended Native Trees 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 domesticus	Denbigh Plum
Prunus domesticus	Damson
Prunus padus	Bird Cherry
Rosa canina	Dog rose
Sorbus aria	Whitebeam
Sorbus aucuparia	Mountain ash/rowan
Sorbus torminalis	Wild service tree

Copyright Enfys Ecology Ltd 2024

Viburnum lantana	Wayfaring tree
Viburnum opulus	Guelder rose

8.0 Further Works

8.1 Further Works

8.1.1 No further survey work will be required on site as the proposed plans currently stand.

8.2 Green Infrastructure Statement

8.2.1 Planning Policy Wales (PPW12, paragraph 6.2.12) states that a green infrastructure statement should be submitted with all planning applications. This statement should be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal. This will need be provided to support a planning application and should illustrate how the step-wise approach has been adopted in relation to the project proposals.

9.0 References

CIEEM. (2017a). *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM. (2017b). *Guidelines for Ecological Report Writing*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM. (2019). 'Advice Note on the Lifespan of Ecological Reports and Surveys'. Chartered Institute of Ecology and Environmental Management, Winchester.

English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature

ILP. (2023). *Bats and Artificial Lighting At Night*. Guidance Note GN08/23. Institute of Lighting Professionals & Bat Conservation TrusT.

JNCC. (2010). *Handbook for Phase 1 Habitat Survey: a technique for environmental audit.* JNCC, Peterborough.

Lanton T, Beckett C & Foster J (2001). Great Crested Newt Conservation Handbook. Froglife, Halesworth, Suffolk

APPENDIX A Legislation and Planning Policy

Amphibians

The most common species are protected from sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These are as follows: common frog, *Rana temporaria*; common toad, *Bufo bufo*; palmate newt, *Lissotriton helveticus*; and, smooth / common newt, *Lissotriton vulgaris.* This legislation protects them from sale, or advertising / offering them for sale.

The UK's two rarest amphibians are protected under the Conservation of Habitats and Species Regulations 2017 (known as 'the Habitats Regulations'). This is because they have declined throughout Europe in recent decades. The Habitats Regulations lists the following amphibians as European Protected Species (EPS):

- Great crested (or Warty) newt, *Triturus cristatus*
- Natterjack toad, *Epidalea calamita*

Under the Habitats Regulations, it is an offence if you:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species;
- Deliberately take or destroy the eggs of such an animal; or,
- Damage or destroy a breeding site or resting place of such an animal.

Disturbance is defined as that 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.

There are other offences relating to the possession, transport, selling or exchange of a protected species.

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.

Reptiles

All British reptiles are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), including the four common species:

- Adder, *Vipera berus*
- Grass snake, *Natrix helvatica**
- Slow worm, *Anguis fragilis*
- Common lizard, *Zootoca vivipara*

* The native UK grass snake (as referred to as the barred grass snake) was originally listed under *Natrix natrix* in the W&CA 1981 (as amended); formerly considered to be a sub-species of *N. natrix* (*N. natrix helvatica*), the barred grass snake was recognised as a separate species in 2017 following genetic analysis of European *Natrix* populations.

This legislation aims to protect them from persecution and also from exploitation in the pet trade, and for which the following are offences:

- Intentional killing, injuring or taking.
- Intentionally or recklessly damaging / destroying a place of shelter / protection.
- Intentionally or recklessly disturbing an animal in its place of shelter / protection.
- Intentionally or recklessly obstructing access to its place of shelter / protection.
- Possession (live or dead, including derivatives), sale and offering for sale.

The UK's two rarest reptiles are afforded additional protection under the Conservation of Habitats and Species Regulations 2017 (known as 'the Habitats Regulations'). This is because they have declined throughout Europe in recent decades. The Habitats Regulations lists the following reptiles as European Protected Species (EPS):

- Sand lizard, *Lacerta agilis*
- Smooth snake, *Coronella austriaca*

Under the Habitats Regulations, it is an offence if you:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species;
- Deliberately take or destroy the eggs of such an animal; or,
- Damage or destroy a breeding site or resting place of such an animal.

Copyright Enfys Ecology Ltd 2024

Disturbance is defined as that 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.

There are other offences relating to the possession, transport, selling or exchange of a protected species.

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, 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
Bramble	*Rubus fruticosus agg.*
Cleavers	*Galium aparine*
Common bent	*Agrostis capillaris*
Couch	*Elymus sp.*
Creeping bent	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Cuckoo flower	*Cardamine pratensis*
Curled dock	*Rumex crispus*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinalis*
False oat grass	*Arrhenatherum elatius*
Nettle	*Urtica dioica*
Perennial ryegrass	*Lolium perenne*
Pine	*Pinus sp.*
Raspberry	*Rubus idaeus*
Rowan	*Sorbus aucuparia*
Silver birch	*Betula pendula*
Wild plum	*Prunus domestica*
Yorkshire fog	*Holcus lanatus*

Copyright Enfys Ecology Ltd 2024

APPENDIX D Bats and Lighting Design Recommendations

To assist with the decision-making process in relation to bats and lighting for development projects, the Institution of Lighting Professionals (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.

ILP (2023) provide guidance associated with the layout (location, orientation and height) of newly built structures and hard standing, as the design can have a considerable impact on light spill:

- Key or Supporting Habitat is often located alongside, or to the rear of buildings, on new developments. In this case, the removal or reduction of windows can be the most effective way to permanently limit light spill, potentially alongside the internal reconfiguration of the building, to ensure high-use spaces are not as impacted by loss of natural light.
- It may be possible to include Key or Supporting Habitat into unlit public open space such as parks. However, schemes should avoid including Key or Supporting Habitats in residential gardens, as uncontrolled and inappropriate lighting may be introduced by residents following occupation.
- It is often considered better for a residential scheme to specify good quality downward-directional external light fittings for security, and/or at the front entrance, on short PIR timers, rather than risk the imposition of poor quality and poorly controlled lighting at a later date.
- Buildings, walls and hard landscaping may be sited and designed so as to block light spill from reaching habitats and features.
- Paved surfaces should not be located within Key Habitat or buffer zones, unless they form part of unlit public open space.
- Taller buildings may be best located toward the centre of the site, or sufficiently set back from Key Habitats, to minimise the effect of their light spill.
- Column mounted luminaires can be located so that the rear shields are adjacent to habitats, or narrow optics selected that direct light into the task area where needed.
- As planting may be removed, die back or inadequately replaced over time, it should never be relied on as the sole means of attenuating light spill.

ILP. (2023). *Bats and Artificial Lighting At Night*. Guidance Note GN08/23. Institute of Lighting Professionals & Bat Conservation Trust.

APPENDIX E 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.

Copyright Enfys Ecology Ltd 2024