Pontllanfraith CVL

Pontllanfraith

Ecological Impact Assessment Report (EIA)

January 2022

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Pontllanfraith CVL, Pontllanfraith Ecological Impact Assessment				
Revision	Date	Prepared by	Checked by	Verified by
1.0	13 January 2022	Megan Fowler Assistant Ecologist	Ffion Jones Assistant Ecologist	Paul Hudson MCIEEM Principal Ecologist

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Summary

Brief and Site Location	Acer Ecology Ltd. were commissioned by Caerphilly County Borough Council to conduct a preliminary ecological appraisal and reptile surveys of land at the former Pontllanfraith Comprehensive School, Pontllanfraith, NP12 2DA (Ordnance Survey Grid Reference: ST 1766 9582).
Development Proposals	The proposed development works comprise the refurbishment of a former school complex, comprising several detached buildings, providing a centre for vulnerable learners (CVL) for up to 100 pupils. In addition to this, a new sports hall and changing room facility will be constructed.
Impacts to Key Receptors	The development is not considered to have any adverse impacts to statutory or non-statutory nature conservation sites.
Recommendations	The following provisional recommendations have been developed based on the development proposals available at the time of writing. They may be subject to change upon receipt of the final design: • Further Work – Bat dusk emergence and dawn re-entry surveys on buildings; • Precautionary measures – Construction and Environmental Management Plan; Timing of works; Protective measures for retained trees; Pollution prevention measures; Good construction practices for mammals. • Mitigation measures – Sensitive lighting strategy for bats etc • Compensation and enhancement measures –; Bird and Bat boxes and hedgehog enhancements.
Reptile Survey Results	There were no reptiles detected throughout the duration of the surveys, indicating a likely absence of reptile population on the proposed site.
Licensing Requirements	A bat protected species mitigation licence may be required upon completion of further surveys.
Conclusions	The full extent of ecological impacts and potential constraints of the proposed development cannot be fully determined, based on the results of the current ecological survey. Further bats surveys are required before such assessments can be comprehensively made.

1. Introduction

1.1 Brief

Acer Ecology Ltd. were commissioned by Caerphilly County Borough Council to conduct ecological impact assessment including reptile surveys and a bat preliminary roost assessment of land at the former Pontllanfraith Comprehensive School site, Pontllanfraith, NP12 2DA, (Ordnance Survey Grid Reference centred at: ST 1766 9582)[1]. The purpose of the assessment was to document the baseline ecological condition of the survey area, which comprises the red line boundary shown in Plan 1. This included identification of any designated sites or habitats that could be affected by the proposed works, and identification of or potential for, protected and/or otherwise notable species of conservation interest that could be affected. Potential ecological constraints were identified, and subsequent recommendations developed.

The site boundary is located within the Caerphilly County Borough Council.

1.2 Site Description

The site proposed for development measures approximately 1.59ha, and mainly comprises hard standing with scattered scrubs and semi-improved grassland with buildings intermittently spread throughout. There are several distinct habitats located within the site from dense scrub to a small area of scattered broadleaved woodland. Additionally, there are 13 buildings on site. The site is situated in Pontllanfraith, a large village, bordered to the south and west by residential housing, with the northern and eastern boundaries comprising ancient, semi-natural woodland and tree-lined grassland.

1.3 Proposed Works

The proposed development works comprise the refurbishment of Block A (B1) and demolishment of the majority remaining buildings making up the former school complex, comprising several detached buildings, providing a centre for vulnerable learners (CVL) for up to 100 pupils. In addition to this, a new sports hall and changing room facility will be constructed.

The proposed development plan is provided in

Appendix 1.

1.4 Scope of the Study

The study comprised the following:

- A desk study to identify existing information on statutory and non-statutory sites of nature conservation interest, and records of notable or protected habitats or species within the site and its environs;

[1] Latitude and Longitude: 51.655993, -3.191575 / what3words: presume.detective.remedy

- A Phase 1 Habitat Survey of the site, extended to search for evidence of, and potential for, protected fauna;
- A presence/likely absence reptile survey utilising a combination of artificial cover objects (or refugia as they are also known) and direct observation whilst walking across the site;
- A bat preliminary roost assessment (PRA); and
- Identification of potential ecological constraints to the proposed works at the site and assessments of impacts including appropriate mitigation measures where necessary.

1.5 Reporting

This report aims to:

- Outline the methodology used during the survey;
- Present the results of the survey;
- Provide an ecological evaluation of on-site habitats, including an assessment of the potential for protected species;
- Provide an assessment of the potential impacts of the development proposals on ecological receptors identified through the desk and field study;
- Provide an assessment of the potential ecological constraints to the proposals; and
- Provide recommendations for further survey, avoidance, mitigation and enhancement where appropriate.

2. Methods

The survey was undertaken following standard methods as described in the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal 2017 guidelines, and the Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee, 2010). The methodology utilised for the survey work comprised a desk study, habitat survey, reptile survey and a survey of protected and notable species.

2. 1 Desk Study

2.1.1 Protected Sites, Habitats and Species

Information on designated sites and protected species was obtained from the sources detailed in Table 2. The legislation and policy relating to statutory and non-statutory designated sites can be found in Appendix 2. Plans 2 and 3 show the protected sites in relation to the proposed development site.

Table 1: Summary of Designated Sites and Other Abbreviations

Abbreviations	
Special Areas of Conservation	SAC
Special Protected Area	SPA
Site of Special Scientific Interest	SSSI
National Nature Reserve	NNR
Local Nature Reserve	LNR
Site of Importance for Nature Conservation	SINC
Ancient Semi-Natural Woodland	ASNW
Restored Ancient Woodland Site	RAWS
Plantation on Ancient Woodland Site	PAWS
South East Wales Biological Records Centre	SEWBReC
Natural Resources Wales	NRW

Table 2: Sources of Data

Source	Data	Radius of Search
NRW Geographical Information Systems (GIS) Layers	Statutory and non-statutory nature conservation designated sites ASNW, RAWS and PAWS	Ramsar/SACs/SPAs/SSSIs/NNRs/LNRs – 2km[2] SACs (designated for bats) - 10km. 2km.
SEWBReC	Protected species records SINCs	1km. 1km.

All available records of bat roosts were considered. For other species, only records collected within the last 10 years were considered relevant.

[2] The citations of all the SSSIs and SACs within 2km of the site were consulted to determine if any of them had features or species which could be affected by the development proposals.

2.1.2 Landscape Context

The site and wider landscape were assessed and characterised using aerial images and SEWBReC data. The presence of off-site features and habitats, which add to the ecological value within the wider area (for example, ponds within 0.5km of the site) were identified. Where appropriate, such features were scoped into the detailed assessment of impacts presented in Section 3.

2.1.3 Ancient Woodland

Although ancient woodland is not a designated site as such, it is often listed as a designated site due to its ecological significance and associated protection. Ancient woodland has therefore been included within the non-statutory designated site section of this report.

2.1.4 Planning Authority

The Caerphilly County Borough Council Planning portal[3] was consulted to determine if any previous survey information was available for the site, or immediate surroundings.

2.2 Field Study

2.2.1 Personnel

The reptile surveys were undertaken by Megan Fowler from 29th September to 15th October 2021. The preliminary roost assessment was undertaken on the 4th November 2021 by Ffion Jones[4] and Megan Fowler[5]. The preliminary ecological appraisal was undertaken by Ffion Jones and Megan Fowler on 29th October and 17th November.

2.2.2 Vegetation and Habitats

The vegetation and habitat types present within the survey area were categorised and mapped in accordance with the standard[6] Phase 1 Habitat assessment methodology (Joint Nature Conservation Committee, 2010), dominant and conspicuous plant species were recorded for each habitat. Target notes were used to record information on features of ecological interest, such as evidence of, or habitats with potential to support protected species. Following the completion of the survey, a colour-coded habitat plan was digitised using QGIS to show the extent and distribution of the different habitat types present within the site (see Plan 5).

[3] https://www.caerphilly.gov.uk/Services/Planning-and-building-control/Search,-track-and-comment-on-planning-applications
[4] Ffion graduated with a degree in Ecology and Conservation from the University of Exeter during which she studied modules on biodiversity, ecological consultancy, and conservation. She is an Assistant Ecologist with Acer Ecology working and has two seasons experience of bat survey work. She is listed as an accredited agent on Paul Hudson's bat licence (S088190/1) and has undergone training with Acer Ecology in basic bat ecology and bat survey techniques (including preliminary roost assessments and dusk emergence/dawn re-entry surveys). Further details of her qualifications and experience can be found at https://www.linkedin.com/in/ffion-jones-17ab63197.
[5] Megan graduated with an Undergraduate Masters in Zoology with Climate Change from Bangor University in 2019 and has recently completed an MSc in Conservation Biology from Manchester Metropolitan University. She has been employed as a sub-contractor for a couple of years and has undertaken conservation work in Mexico and with several UK-based organisations
[6] Some additional categories were also used if applicable e.g. hard standing and Japanese knotweed.

Target notes (TN) were labelled on the plan where any features of interest too small to map were recorded.

Habitats on site were assessed to determine whether they qualified as Section 7 habitats (Environment Wales Act 2016), Priority Habitats of the UK Biodiversity Action Plan (BAP) (Biodiversity Reporting & Information Group, 2007), habitats of local priority for conservation, for example in the relevant Local Biodiversity Action Plan (LBAP), or if they qualified for inclusion as non-statutory designated site inclusion (SINC).

The presence of invasive plant species listed on Schedule 9[7] of the Wildlife and Countryside Act 1981 (as amended), such as Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (*Fallopia japonica*) were also noted during the survey, if present.

2.2.3 Protected and Notable Species

During the survey, emphasis was placed on searching for evidence of, and habitats with, potential to support protected or notable species, especially species meeting any of the following criteria:

- Listed under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019;
- Listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales;
- Listed as a local priority for conservation, for example in the relevant Local Biodiversity Action Plan (LBAP);
- Red Listed using International Union for the Conservation of Nature (IUCN) criteria (e.g. in one of the UK Species Status Project[8] reviews, in the Species of Conservation Concern Red, Amber or Near Threatened List[9], Birds of Conservation Concern in Wales[10], or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- Listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- Endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

It should be noted that only those species with potential to be present on-site are mentioned within this report. The methodologies used were as follows:

[7] Schedule 9 species of plants and animals are ones that do not naturally occur in Great Britain but have become established in the wild and represent a threat to the natural fauna and flora.

[8] The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (http://jncc.defra.gov.uk/page-1773).

[9] Eaton *et al.* (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108: 708-746.

[10] Johnstone, I. and Bladwell, S. (2016) Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales 13 (1).

Birds

Any birds observed during the field survey were recorded, in addition to features capable of supporting nesting birds (e.g., trees, hedgerows, buildings, bramble, ruderal vegetation and rough grassland etc.). The site was also assessed for its actual and potential suitability to support Wildlife and Countryside Act 1981 (as amended) Schedule 1 species.

A comprehensive bird survey, such as a breeding bird survey, was not undertaken as this was beyond the scope of the assessment.

Bats

Preliminary Ground-level Roost Assessment

A preliminary ground-level roost assessment of the trees within the survey area was undertaken, looking for features that bat could use for roosting (Potential Roost Features[11] (PRF) and evidence of bats (i.e. droppings in, around or below a PRF; odour emanating from a PRF; audible squeaking at dusk or during warm weather; or staining below the PRF). A systematic inspection was carried out around all accessible aspects of the tree, from both close to the trunk and further away. The location of the trees is shown on **Error! Reference source not found.**.

The trees were assessed for their suitability to support roosting and hibernating bats in accordance with Table 4.1 of the Bat Conservation Trusts Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) (See Appendix 4). A high-powered torch (Clulite), an endoscope (Snake vision), binoculars and a ladder were used as appropriate during the survey.

Daytime Internal and External Building Inspection

A systematic search was made of the exterior and interior of two of the 13 buildings (B1-B13) on site looking for features those bats could use for entry/exit and roosting[12] and to search for the presence of bats or evidence of bat use, such as droppings, feeding remains, urine staining, scratch marks and the remains of dead bats. Asbestos was present in the remaining 11 buildings and consequently no internal inspection was undertaken, in addition the remaining buildings had flat roofs with no roof voids. B1 and B13 were the only two buildings inspected internally as a result. B1 had four separate voids, all but one void was inspected. As it was inaccessible due to height required to reach the loft shown in Plan 13.

A high-powered torch (Clulite), an endoscope (Snake vision), binoculars and a ladder were used as appropriate during the survey.

The location of the buildings are shown on Plan 5.

[11] Potential Roost Features that bats may use identified by Andrews include: woodpecker-holes; squirrel-holes; knot-holes; pruning-cuts; tear-outs; wounds; cankers; compression-forks; butt-rots; lightning strikes; hazard-beams; subsidence-cracks; shearing cracks; transverse cracks; welds; lifting bark; frost-cracks; fluting and ivy.
[12] Bats may utilise gaps as small as 8mm by 20mm (Bat Conservation Trust, Cluster flies leaflet)

Terrestrial Habitat Assessment

A preliminary assessment of the value of the site for bats (and any potential roost sites therein) was made in accordance with Table 4.1 of the Bat Surveys for Professional Ecologists (Collins, 2016) (see Appendix 4). The assessment was based on the relative abundance and quality of habitat features within the site, and surrounding landscape, suitable for roosting, foraging and commuting bats.

Dormice

The scrub habitats and woodland on the east of the boundary of the site was assessed for their suitability to support dormice (*Muscardinus avellanarius*) with reference to guidance such as The Dormouse Conservation Handbook (Bright, Morris & Mitchell-Jones, 2006). The structure and composition of these habitats within the site were assessed with respect to the presence of flower, fruit or nut-bearing food-plants such as hazel (*Corylus avellana*) (a favoured food-plant of dormice), oak (*Quercus* sp.), honeysuckle (*Lonicera periclymenum*), bramble (*Rubus fruticosus* agg.), sycamore (*Acer pseudoplatanus*), as well as other trees and shrubs listed in Bright, Morris & Mitchell-Jones (2006) as being of value to dormice. In addition, connectivity to other areas of suitable habitat in the wider landscape, such as hedgerows and woodland, was assessed.

Very limited hazel was present on site and, therefore, it was not possible to undertake a search for hazelnut shells to determine if they had been opened by dormice.

Great Crested Newts

The survey area was appraised for its suitability to support great crested newts (*Triturus cristatus*) (GCN). The assessment was based on guidance outlined in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett & Foster, 2001). One potentially suitable water body was identified within the study area (see Plan 6). The Habitat Suitability Index (HSI) (Oldham et al., 2000) was applied to this waterbody. As part of the assessment, ponds are scored using 10 suitability indices. Each of these features is awarded a score between 0 and 1, and a final score is calculated, also between 0 and 1 (a higher score representing more optimal conditions for great crested newts). This final score enables the pond to be ranked in terms of its suitability (poor, below average, average, good or excellent) and to estimate the likely presence of great crested newts within the water body.

The HSI assessment is not a substitute for undertaking great crested newt surveys but can be used to inform the assessed likelihood of presence or absence. It is not sufficiently precise to prove that higher score confirms presence, or a lower score confirms absence.

The stream branches within the study area. However, fast flowing water is considered to act as a barrier to great crested newt migration (English Nature, 2001).

A full GCN survey was not undertaken, as this was beyond the scope of this assessment.

Otters

The nearest suitable main river is the Sirhowy River, which lies approximately 0.5km east of the proposed development site. There are several much smaller streams that run adjacent to the site, one of which has been culverted underneath the site. The culverted watercourse may be affected by works over the proposed site and could possibly lead to the watercourse being opened up. This has limited potential to affect otters through the proposed development site, as the watercourse is shallow and narrow so is deemed largely unsuitable for use by otters. Furthermore, the site is surrounded by stone walls and metal fences preventing entry by otters to site or under the culverted watercourse beneath the site. The likelihood of otters being present within the site, therefore is considered negligible and they are not mentioned any further in this report.

Water Voles

An assessment of watercourses within and adjacent to the survey area was undertaken to determine their suitability for supporting water voles (*Arvicola amphibius*), following methods set out in the Water Vole Conservation Handbook (Strachan & Moorhouse, 2006). In addition, a search for evidence of activity was undertaken, including droppings, latrines, burrows, footprints and feeding lawns, of any areas considered suitable.

A full water vole survey was not undertaken as this was beyond the scope of this assessment.

White-Clawed Crayfish

An assessment of the watercourses within the survey area was undertaken to determine its suitability to support white-clawed crayfish (*Austropotamobius pallipes*) (WCC), based on the habitat requirements set out in the Ecology of the White-Clawed Crayfish Handbook (Holdich, 2003). Specifically, the presence of undermined/overhanging banks, soft banks for burrows, cobble and rock substrate, submerged refugia and macrophytes.

Ordnance survey maps and aerial images of the land surrounding the site were consulted to determine if any water bodies were present within the site or within 0.5km of it. Only two water bodies are identified within or in the surrounding area (Plan 6). WCC are typically found in watercourses of 0.75m to 1.25m deep, although they may occur in very shallow streams (around 5cm) and in deeper, slow-flowing rivers (up to 2.5m) (Holdich, 2003). The water course within the site comprised a narrow stream with an estimated depth of approximately 20cm, therefore it was deemed this shallow and polluted stream is unsuitable to support WCC, Furthermore, the Caerphilly Local Biodiversity Action plan[13] states that there are no recent records of white-clawed crayfish within Caerphilly County Borough. The likelihood of WCC being present on site is considered to be negligible and no adverse impacts are subsequently anticipated. They are therefore not mentioned further in this report.

[13] https://www.caerphilly.gov.uk/CaerphillyDocs/Planning/Biodiversity-Action-Plan-Caerphilly-County-Borough.aspx

Badgers

Earth embankments, wooded copse, hedgerows and dense bramble beds are habitat features that often contain evidence of badger (*Meles meles*). Where present on-site and within a 30m buffer adjacent to the site, these and other suitable habitat features were searched for such evidence. Where present, the location of badger signs such as setts, runs, dung pits or latrines, prints, hair and foraging snuffle holes were recorded.

A full badger survey was not undertaken as it was beyond the scope of this assessment.

Reptiles

Based on Froglife survey methodology, 65 artificial reptile refuges were set out in areas considered suitable for these species, i.e., south-facing, sunny positions and on grass/light vegetation in potential hotspot zones, base of hedges and tree lines, edge of woodland/scrub/bramble patches and tussocky grassland. See Plan 15 for details of refugia location. The artificial refugia consisted of bitumen roofing felt, carpet tile and corrugated roofing sheets and varied in size from 60cm x 60cm to 1m x 50cm. The 65 refugia were set out on 21st September 2021 and left in situ for eight days allowing time for reptiles to become acclimatized to their presence prior to commencement of the surveys on 29th September 2021.

The surveys consisted of seven repeat visits undertaken between 29th September 2021 and 15th October 2021. There was a 48-hour interval between visits and, in accordance with Froglife (2016) guidance, each of the visits was undertaken in optimal weather conditions (air temperature 9-20°C, avoiding rain and high winds). The surveys were completed within the reptile active season (March to early-October). Each survey involved slowly walking a transect along each array scanning ahead to check for basking spots and also checking the artificial refugia.

Other Species

General habitat suitability and incidental sightings of other animal species were also noted.

2.2.4 Assessment of Ecological Value

The value of the habitats and features of the site have been provisionally evaluated and graded in accordance with a geographical frame of reference as detailed in Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2018). The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and, lastly, within the immediate zone of influence of the site only. Brief descriptions of how Acer Ecology interprets these categories are set out in Appendix 4.

2.2.5 Constraints and Limitations

General Temporal Constraints

Any ecological survey can only identify what was present on-site at the time the survey was conducted and habitat usage by species can change over time.

Asbestos constraint

Asbestos is considered to be a health and safety risk, as any exposure to asbestos can be considered to be fatal. The presences of asbestos were previously recorded by an asbestos surveyor in 11 of the buildings on site. Following advice from the asbestos surveyor these buildings were only surveyed externally.

Seasonality of Survey

The present survey was undertaken outside of the optimal survey period for certain species of flora and fauna, with many species having died back or having become inconspicuous at the time of the survey. The survey can be considered as providing a reasonable, though not exhaustive or full, plant list. The survey noted the habitat types present on site and the dominant vegetation at the time of the survey, which is likely to be constant and a fair reflection of the habitat quality present.

Reptile Survey Sub-Optimal Conditions During Reptile Surveys

One of the seven visits took place in weather with short periods of light rain which may be considered a constraint. Additionally, another survey was undertaken when the air temperature was 19°C. This is above the maximum recommended 18^{o}C (Froglife 1999). Furthermore, the last survey was undertaken in October when reptiles begin to hibernate, this may explain why no reptiles were recorded during the final survey. All other survey visits were undertaken in suitable weather conditions (9 – 18°C and in the absence of high wind and heavy rain). These sub-optimal conditions are not considered to be a significant restraint to the survey on reptiles as reptiles were not recorded under optimal conditions and so this is not considered to pose a significant constraint.

Interference with Artificial Cover Objects

During the survey there was a small amount of interference with the artificial cover objects, as a result of site work in the tennis courts. However, due to the large number of artificial cover objects used and relatively small number involved in any disturbance, it is not considered to have any effect on results.

Access restrictions

Access to the south east of the site was restricted by gates due to the large number of break-ins occurring. This has the potential to cause a constraint on the study. However, the boundaries of the proposed development site and the former site of Pontllanfraith Comprehensive school are separate but overlap. The proposed site was able to be completely surveyed with no access restrictions. Though if the development plans change to include the wider site of Pontllanfraith school further surveys may be needed.

3. Baseline Ecological Conditions, Evaluation and Development Impacts

The baseline conditions and evaluation of the *in-situ* habitats and the actual/ potential presence of protected species are discussed in this section. Potential impacts on protected sites, *in-situ* habitats and protected or notable species arising from the proposed development are identified, including both direct and indirect impacts, and those associated with construction and operational stages.

A summary of relevant legislation and planning policies relating to protected sites, habitats and species is provided in Appendices 2 and 3.

3.1 Statutory Nature Conservation Designated Sites

Statutory Sites (SACs or SSSIs) Designated for Bats within 10km of Site

The proposed development site lies within 10km of the following site which has been specifically designated for bats:

Table 3: Statutory Sites Designated for Bats Within 10km

Site Name	Designation	Description	Distance and Direction from Development Site	Development Impacts
Ruperra Castle & Woodlands[14]	SSSI	The site is of special interest as the only known nursery roost for the greater horseshoe bat (*Rhinolophus ferrumequinum*) in the Mid and South Glamorgan Area. The SSSI supports a colony of greater horseshoe bats of national and international importance.	9.74km to the south-east.	None, due to the small scale of the works and the distance from site.

SSSIs and LNRs within 2km of Site

The proposed development site lies within 2km of the following statutory sites:

[14] https://naturalresources.wales/media/669047/SSSI_2987_Citation_EN001bc78.pdf

Table 4: Statutory Sites Designated Within 2km

Site Name	Designation	Description	Distance and Direction from Development Site	Development Impacts
Memorial Park Meadows[15]	SSSI LNR	A large area of unimproved grassland made up of four fields which are the remnants of a traditionally managed farm unit now completely surrounded by urban development. The site also supports large populations of a number of locally rare species, including greater burnet (*Sanguisorba officinalis*), lady's mantle (*Alchemilla xanthochlora)* and bistort (*Polygonum bistorta*).	0.01km to the north	The development is outside of the SSSI/LNR but due to the sites close proximity the measures detailed in Section 4 will need to be implemented to that there are no negative impacts on this site. .
Penllwyn Grassland[16]	SSSI	This site is comprised of a mosaic of habitats including wet acid grassland, woodland, scrub and tall herb vegetation. This complex range of habitats supports a diversity of macro-invertebrate communities. More than 12 species of butterfly and 90 species of macro-moths have been recorded for this site.	0.71km to the north west	No adverse impacts are anticipated due to the distance between designated site and the proposed development site.

3.2 Non-statutory Nature Conservation Designated Sites

SINCs

The proposed development site lies within 1km of the following non-statutory sites:

Table 5: Non-Statutory Sites Designated Within 1km

Site Name	Designation	Description	Distance and Direction from Site	Development Impacts
Penllwyn Woodland	SINC	This SINC supports semi-natural broadleaved woodland and marshy grassland that was more extensive in the past. The majority of the site comprises sessile oak (*Quercus*	0.1km to the west.	No adverse impacts due to the nature of the site and its separation

[15] https://naturalresources.wales/media/635362/SSSI_0106_Citation_EN001d5b5.pdf
[1616] https://naturalresources.wales/media/649636/SSSI_0702_Citation_EN001603e.pdf

		petraea) and downy birch (*Betula pubescens*), with hazel (*Corylus avellana*) and holly (*Ilex aquifolium*) understory. The ground flora is dominated by bramble (*Rubus fruticosus* agg.); however, there are significant areas of cow parsley (*Anthriscus sylvestris*), yellow pimpernel (*Lysimachus nemorum*), bluebell (*Hyacinthoides non-scripta*) and wood anemone (*Anemone nemorosa*) in places. The marshy grassland supports species rich purple moor-grass pasture (Molinia caerulea), which supports small patches of devil's-bit scabious (Succisa pratensis), bog asphodel (*Narthecium ossifragum*), cross-leaved heath (*Erica tetralix*), Sphagnum moss (*Sphagnum* sp.), tormentil (*Potentilla erecta*) and goldenrod (*Solidago virgaurea*). There is potential for Marsh fritillary butterfly, bleached pug and Lead-coloured pug moths, bats and reptiles.		from the proposed development site.
River Sirhowy	SINC	The River Sirhowy. has resident populations of bullhead, and brown trout and is used as regular migratory routes by Atlantic Salmon and sea trout. The watercourse is a probable area for breeding otter, plus areas for foraging, laying up and territorial use. It is relatively unpolluted, with unmodified bed and banks and exposed sediment/erosion features. There is adjacent semi-natural wetland, grassland and woodland habitats as part of the wider river corridor. There is potential for roosting bats, particularly Daubenton's and other Myotis bat species, in the mature trees alongside the river.	0.33km to the east.	No adverse impacts due to the distance between the designated site and the proposed development site.
Enterprise Way Grasslands, Pontllanfraith	SINC	This SINC comprises broadleaved woodland with an assemblage of semi-natural woodland indicator species, marshy grassland with at least 14 indicator species, neutral grassland with at least 8 indicator species, and post-industrial land with at least 20 indicator species. The site is likely to provide good foraging and roosting habitat for bats and well as supporting a high	0.60km to the east.	No adverse impacts due to the distance between the designated site and the proposed development site.

		diversity of invertebrates, potentially including marsh fritillary butterflies. The grassland and post-industrial areas are very likely to support reptiles.		
Glan-Brynar Woodlands, Pentwynmawr	SINC	This SINC comprises a mix of habitats including three small broad-leaved woodlands with an assemblage of semi-natural woodland indicators, three small fields of damp neutral/marshy grassland with at least 12 indicator species, a small area of semi-improved acid grassland and a disused railway-line. The woodlands are likely to support dormice and bats as they provide good foraging and roosting opportunities. The drier grasslands are likely to support good numbers of grassland fungi and the disused railway is likely to support reptiles with the ditch beside it a potential breeding site for amphibians.	0.78km to the east.	No adverse impacts due to the distance between the designated site and the proposed development site.
Crown Estate Meadows, Pontllanfraith	SINC	This SINC comprises semi-improved neutral grassland with at least 8 indicator species, marshy grassland with at least 12 indicators, a network of mature hedges as well as acid grassland, scrub, small streams/ ditches, and bracken. The site is likely to support a high diversity of invertebrates and could potentially include marsh and Small pearl-bordered fritillary species. The field margins and marshy grassland areas have potential to support reptiles, the mature hedgerows and wooded areas are likely to provide good foraging and roosting habitat for bats. The well-connected hedge network has potential to support dormice.	0.82km to the west.	No adverse impacts due to the distance between the designated site and the proposed development site.
Coedcae Newydd, Gelligroes	SINC	This SINC includes several connected strips of broadleaved woodland with an assemblage of semi-natural indicators including greater stitchwort, pignut, cow wheat and bluebell. The woodland and quarry have potential to provide foraging and roosting opportunities for bats, potential to support dormice, and the pond is likely to support amphibians,	0.89km to the south.	No adverse impacts due to the distance between the designated site and the proposed development site

		potentially including great crested newts and may be used by otters.		

Ancient Woodland

There are 43 areas of ASNW, 2 PAWS, and 11 RAWS located within 2km of the proposed development site, the nearest of which is an area of ASNW which lies approximately 0.10km km to the west of the site.

Considering the distances between these woodlands and the proposed development site, together with the small scale of the works, none of these woodlands are anticipated to be affected by proposals. Additionally, the proposed development will only affect the eastern area of the site which means the ASNW of the west is buffered by the remaining retained site. They are therefore not mentioned further in this report.

Country Parks

The Sirhowy Valley country park is located 1.50km to the south of the site.

3.3 Habitats and Vegetation

The results of the general survey of habitats and vegetation are shown on Plan 5. A botanical species list is provided in Appendix 4.

The site consists of twelve elements which are described in detail overleaf. These comprise:

Table 6: Habitats Recorded on Site			
Habitat	**Description**	**Ecological Value**	**Development Impacts**
Mixed Woodland (A1.1.1)	Detailed tree descriptions are provided in Section 3.5.3. The main area of woodland is located to the south-east of the site. Cherry laurel *(Prunus laurocerasus)* dominates the canopy. Other woody species include yew *(Taxus baccata),* oak *(Quercus sp.),* silver birch *(Betula pendula*), sycamore *(Acer pseudoplatanus),* common lime *(Tilia x europaea)* and ash (*Fraxinus excelsior).* The trees reach a maximum of 80cm diameter at breast height (DBH), although some have a DBH of less than 10cm. There is a sparce understory of scattered shrubs including oak and ash saplings, garden cotoneaster *(Cotoneaster sp.),* bramble (*Rubus fruticosus* agg.) and holly (*Ilex aquifolium*). The ground flora is dominated by ivy *(Hedera helix).*	Section 7/ LBAP/ SINC etc (Wales).	Felling of these trees would result in the loss of a habitat of principal importance listed under Section 7 of the Environment (Wales) Act 2016. No adverse impacts are envisioned within the current site as proposals are to retain the mixed woodland on site. Recommendations to avoid and mitigate potential impacts due to the construction works on site are presented in Section 4.
Broadleaved woodland Tree line	Detailed tree descriptions are provided in Section 3.5.3. Two semi-mature tree lines are present within the site. The first tree line is close to Building 4 in the northern part of the site. The tree line is made up of oak, ash, sliver birch *(Betula pendula)* and silver birch. The second treeline is located close to Building 1. The dominant species are common lime *(Tilia x europaea)* and cherry laurel. Bramble is abundant in the field layer, together with elder (*Sambucus nigra).*	Site value	Clearance of the site to facilitate the new development will result in the permanent loss of areas of this habitat. Recommendations to avoid and mitigate impacts to protected species are presented in Section 4.
Dense Scrub (A2.1)	Dense scrub is present towards the western part of the site. The trees and shrubs in this area are young, apart from a mature goat willow (*Salix caprea*) which has a 35cm DBH. The dominant species are bramble, dogwood *(Cornus sanguinea)* and dog rose *(Rosa canina).* The field layer includes red clover *(Trifolium pratense),* soft shield fern *(Polystichum setiferum),*	Site value	Clearance of the site to facilitate the new development will result in the permanent loss of areas of this habitat. Recommendations to avoid and mitigate impacts to protected species are presented in Section 4.

	wild strawberry (*Fragaria vesca*), garden cotoneaster and common lime saplings.		
Semi-Improved Neutral Grassland (B2.2)	Semi-improved neutral grassland is located throughout the site, a large section is located to the east of B1 and to the south of B12. Additionally, there are two areas located in the south-eastern part of the site. Grasses dominate the vegetation throughout these areas including cock's-foot *(Dactylis glomerata),* false oat's - grass *(Arrhenatherum elatius)* and red fescue *(Festuca rubra)*. Frequent forbs included common knapweed (*Centaurea nigra*), common spotted-orchid *(Dactylorhiza fuchsii),* vetch's (*Vicia sativa*.) common-bird's foot trefoil *(Lotus corniculatus),* silver lady's mantle *(Alchemilla mollis)* and broad-leaved helleborine *(Epipactis helleborine).*	Site value.	Clearance of the site to facilitate the new development will result in the permanent loss of areas of habitat. This loss of habitat may impact reptiles and hedgehogs. Recommendations to avoid and mitigate such impacts are presented in Section 4.
C3.1 Other Tall herb and fen - Ruderal vegetation	A small section of semi-improved neutral grassland with dense scrub is located on the outskirts of the mixed woodland. The dominant species of this is bramble and hoary willowherb (*Epilobium hirsutum*). Additionally, oak saplings are frequent in this habitat.	Site Value	Clearance of the site to facilitate the new development will result in the permanent loss of areas of this habitat.
Felled Woodland	An area of felled woodland is present in the northern part of the site. These are mainly semi-mature yew trees that have been felled within the last 6 months.	Site value	Most of the semi-mature yew trees have already been felled. However, if more trees in this area need to be felled to facilitate the development this will result in the loss of bird nesting habitat. Recommendations to avoid and mitigate such impacts are presented in Section 4.
Running Water (G.2)	There is a shallow stream that runs for approximately 4m through the site. It is located to the north-east of the site with semi-improved grassland and hardstanding, with some vegetation coverage which includes a *sage* sp., soft rush (*Juncus effusus)* and meadow sweet (*Filipendula ulmaria).* The stream is a tributary of the river Sirhowy and emergencies from the SINC known as Penllywn Woodlands	Qualifies as Section 41 and LBAP habitat via the presence of various Annex II Habitats Directive species, priority and non-priority species.	The proposed works could adversely affect the ecological integrity of Sirhowy river via indirect impacts such as pollution or sediment deposits associated with construction works and site waste. These impacts may move downstream and thus affect areas beyond the immediate zone of influence. However, such an occurrence can be adequately avoided by the implementation of pollution prevention measures, as set out in Section 4.
Amenity Grassland (J1.2)	There is a small section of amenity grassland located towards the western boundary of the site, the amenity	Site value	Clearance of the site to facilitate the new development will result in the permanent loss of areas of this habitat.

	grassland is split with hardstanding pathway through. The dominant species are cock's -foot, red clover and red fescue. Other species include but not limited to are creeping buttercup (*Ranunculus repens*), oak saplings and yarrow *(Achillea millefolium).*		
Fence (J3.4)	There are multiple difference fences located throughout the site. The main surrounds the boundary of the site, and the second one is located east of the site, separating the tennis court and the dense understory vegetation.	Negligible value	No loss to the development.
Buildings (J.3.6)	Detailed building descriptions are provided in Section 3.5.3 below.	Site value	B1, B10, B11 and B13 are proposed to be retained. All other buildings will be demolished as part of the development proposal.
Hard Standing[13] and Scattered Scrub (A2.2)	Throughout the site, between buildings B1-B10 the dominant habitat type is hard standing, as a result there are some emerging colonising shrubs within the hardstanding. The dominant species for this is buddleja, bramble, dogwood *(Cornus sanguinea),* and garden cotoneaster. The potted shrubs are located towards the main entrance of the site, to the south-west of the site. The dominant species is garden cotoneaster. In this habitat there is also a cherry tree with a DBH of 25cm.	Negligible value	Permanent loss to the development.
Hard Standing[13]	Hardstanding is frequently found within the site. The central part of the site was formerly in uses as a tennis court. Hard standing also forms the pathways between buildings.	Negligible value	Permanent loss to the development.

Photo 1: Hard Standing, Building (B2) (J.3.6) and Scattered scrubs (A2.2).

Photo 2: Hard Standing and Buildings (B4) (J.3.6).

Photo 3: Semi-Improved Grassland with A Mature Maple Tree (B2.2).

Photo 4: Hard Standing.

Photo 5: Dense Scrub (A2.1).

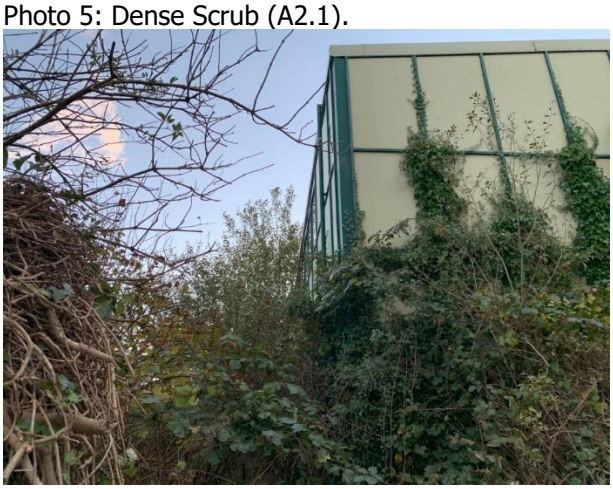


Photo 6: Tree Line to the East of B1.

Photo 7: Dense Scrub (A2.1) and Semi-Improved Grassland (B2.2) to the East of the Site.

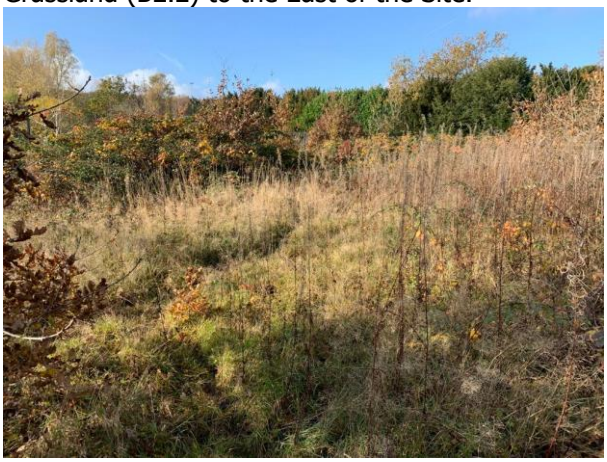


Photo 8: Semi-Improved Grassland (B2.2) to the South of B12.

Photo 9: Semi-Improved Grassland (B2.2) to the West of the Site.

Photo 10: Semi-Improved Grassland around B4 (B2.2).

Photo 11: Semi-Improved Grassland (B2.2) and Scattered Scrub (A2.2) with a Metal Fence (J4.3).

Photo 12: Semi-Improved Grassland (B2.2).

Photo 13: Amenity Grassland (J1.2).

Photo 14: Amenity Grassland (J1.2) and Hardstanding.

Photo 15: Amenity Grassland (J1.2).

Photo 16: Hardstanding with Scattered Shrubs (A2.2).

Photo 16: Hard Standing with Scattered Shrubs (A2.2).

Photo 17: Broadleaved Treeline to the West of the Site.

Photo 18: Potted Shrub with Scattered Shrub (A2.2) and Hard Standing to the South of B1.

Photo 19: Dense Scrub (A2.1) and Hard Standing.

Photo 20: Felled Yew (*Taxus baccata*) Trees.

Photo 21: Felled Yew (*Taxus baccata*) Trees.

Photo 22: Scrub Habitat

Photo 23: Dense Scrub (A2.1)

Photo 24: Mixed Woodland (A2.1).

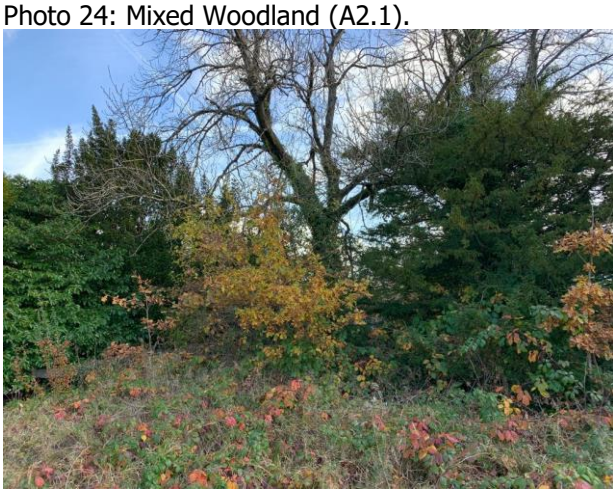


Photo 25: Dense Scrub (A2.1)

Photo 26: Running Water (G.2).

Photo 27: Amenity Grassland (J1.2).

3.4 Invasive Plant Species

No invasive plant species were found in the site boundary.

3.5 Protected and Notable Species

3.5.1 Notable Plant Species

Data Trawl Results

SEWBReC returned four records of 'notable' plants (including species regarded as 'Locally Important', LBAP species and UK Red Data Book-listed species) from within 1km of the development footprint comprising:

- Smooth lady's-mantle (*Alchemilla glabra*), 0.70km, 30/05/2019;
- Bird cherry (*Prunus padus)*, 0.70km, 30/05/2019;
- Landy's mantle (*Alchemilla xanthochlora*), 0.36km, 30/05/2019; and
- Green field-speedwell (*Veronica agrestis*), 0.70km, 30/05/2019.

However, none of the records provided relate to the proposed development site.

Field Survey Results

No plant species, which individually are considered to be of either of national, regional or local significance were recorded on the site.

3.5.2 Birds

Desk Study Results

The following table shows nesting birds and wintering birds of note recorded within 1km of the site, that are also associated with the habitats present on-site and their conservation status:

Table 7: Records of Birds

Species		Schedule 1	Section 7 Species	UK BAP	Red list[17]	Amber list[18]	Breeding Habitat[19]	Wintering Habitat
Black-headed gull	*Chroicocephalus ridibundus*					Yes	Saltmarshes, sand dunes, freshwater lakes, marshes, gravel pits, moorland etc.	Estuaries and coastal beaches, inland waters, rubbish dumps and farmland
House sparrow	*Passer domesticus*		Yes	Yes	Yes		Agricultural land, grasslands, hedgerows, scrub, parks, gardens and farmyards	As breeding habitat
Lesser black-backed gull	*Larus fuscus*					Yes	Grassy slopes of coasts, saltmarsh, sand-dune, shingle bans and offshore islands. Also wet moorland inland	Estuaries and coastal beaches, at sea, on inland waters, rubbish dumps and farmland

[17] Bird species of high conservation concern, such as those whose population or range is rapidly declining, recently or historically, and those of global conservation concern.

[18] Bird species of medium conservation concern, such as those whose population is in moderate decline, rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe.

[19] Breeding and wintering habitat descriptions from Key Habitat Attributes for Birds and Bird Assemblages in England Part 1 (ENRR359)

Previous Survey Results

Ecus Ltd were commissioned in May 2017 to undertake nocturnal surveys and a building inspection at Pontllanfraith Comprehensive School, Blackwood. Observed that swifts (*Apus apus*), were roosting within the gables of the building described as B1 in this report (See Plan 14: ECUS Ltd Survey Results).

Field Survey Results

A low number of birds were recorded on site including blackbird (*Turdus merula*), black-headed gull (*Larus ridibundus*), collared dove (*Streptopelia decaocto*), house sparrow and robin (*Erithacus rubecula*).

A bird box [TN1] located on a mature oak and the second bird box [TN2] is located on a second mature oak. The bird box [TN3] is located on a semi-mature horse chestnut *(Aesculus hippocastanum)* and another bird box is [TN4] located on a mature goat willow. An unknown defunct bird nest [TN5] was found in a mature common lime (T13). None of the bird boxes or nests are proposed to be affected by the current proposals.

During the survey there was an observed re-entry of a robin [TN6] under the fascia of B1, shown in photo 33.

Photo 28: TN1

Photo 29: TN2

Photo 30: TN3

Photo 31: TN4

Photo 32: TN5 An Unknown Defunt Bird Nest in an Mature Broadleaved Lime (T13).

Photo 33: TN6 Re-entry of a Robin into B1.

Evaluation of Ecological Value of Site for Birds

The mixed woodland, scrub and mature tree habitat provide nesting and foraging opportunities for a range of tree and scrub nesting birds including house martins and house sparrows. In additions the mature trees could provide nesting opportunities for a range of bird species.

As a whole, the site is considered to be local value to birds.

Impact Assessment of Proposed Development on Birds

The following direct impacts to nesting birds may occur as a result of the development:

- Death or injury to adults or destruction of nests during vegetation clearance. However, such impacts can be avoided either via the retention of the mixed woodland habitat, or by timing works so that they occur outside of the nesting bird season (September to February inclusive), and by adopting sensitive working practices as detailed in Section 5; and
- Permanent nesting habitat loss at a small scale.

3.5.3 Bats

Desk Study Results

SEWBReC returned a total of six records of bat roosts within 1km of the site. The roost records are summarised in the table below.

Table 8: Bat Roost Records

Species	Total Number of Records	Distance to Nearest Record	Most Recent Record	Maximum Count
Common pipistrelle (*Pipistrellus pipistrellus*)	6	0.88km	24/05/2017	2

Previous Survey Results

Ecus Ltd were commissioned in May 2017 to undertake nocturnal surveys and a building inspection at Pontllanfraith Comprehensive School, Blackwood. The nocturnal bat surveys determined presences of bats roosting in B1, a couple of locations within the gable area (See Plan 14: ECUS Ltd Survey Results). The species was identified as common pipistrelle.

Field Survey Results

Trees

All of the trees within the survey area were assessed for their suitability to support roosting bats. The majority of scattered trees were semi-mature in age with low numbers of PRFs.

The majority of the scattered trees within the tree lines to the south east of the site were young in age, with Diameters at Breast height (DBH) ranging from 15 to 45cm, with no PRFs. They were therefore assessed as having negligible bat roost potential and were scoped out of the assessment. They are therefore not mentioned further in this context in the report.

However, there fifteen trees (T1-T15) within the site with above low bat roosting suitability. These have been described in detail in the table below and numbered on Plan 5, which should be read in conjunction with this section of the report.

Table 10: Trees Assessed for Bat Potential

No.	Description	Evidence of Roosting Bats	PRF	Potential for Roosting Bats
T1	Mature Oak, single trunk. Approximately 12m tall, DBH of 25cm.	None.	A mature Oak, single stemmed from base to canopy. The main feature being the presence of a knot hole at approximately 8m on the main steam (Photos 34 and 35).	Moderate
T2	Mature Oak, Single trunk. Approximately 13m tall, DBH of 20cm.	None.	A mature oak, with a single stem from base to canopy. The trunk is surrounded by dense ivy growth which is substantial in places with a girth of up to 20cm (Photo 36).	Low
T3	Mature Beech, Single trunk. Approximately 11m tall, DBH of 35cm.	None.	A Beech tree, with a single trunk reaching to a height of 4m before dividing into two main limbs (Photo 38). Some light to moderate ivy cover on the trunk.	Low

No.	Description	Evidence of Roosting Bats	PRF	Potential for Roosting Bats
T4	Mature Oak, single trunk. Approximately 12m tall, DBH of 25cm.	None.	A mature oak, with a single stemmed trunk. There is also moderated ivy on the trunk of the oak. Additionally, there is the presence of a bird box (Photo 39 and 40).	Low
T5	Mature Oak, single trunk. Approximately 12m tall, DBH of 25cm.	None.	A mature oak, with a single steamed to a height of 4m before dividing into two main limbs. There is very light ivy cover on trunk. The main feature of the oak is lifted bark located on the trunk, one of the limbs has snapped and broken off and has end cavities and crevices. Shown in photo 41 and 42. Additionally, there is the presence of a bird box.	Moderate
T6	Field Maple, Single trunk. Approximately 11m tall, DBH of 20cm.	None.	A field maple (Acer campestre), with a single stemmed trunk. There is limited ivy coverage (Photo 43) .	Low
T7	Mature Goat Willow, Multiple steams. Approximately 12m tall, DBH of 70cm.	None.	A mature goat willow; multi stem specimen where individual branches emerge from the trunk of the tree. The trunk is surrounded by dense ivy growth; the trunk is very large in places with DBH of up to 70cm (Photo 44). There is some evidence of some dead wood within the upper crown. There are split limbs and broken branches observed in the canopy (Photos 45-47).	Moderate
T8	Mature broadleaved lime, single trunk. Approximately 16m tall, DBH 70cm.	None.	A mature broadleaved lime, single stemmed trunk; situated within a linear wooded. The trunk and branches are surrounded by dense ivy growth, the trunk has a DBH of up to 70cm (Photo 48).	Moderate
T9	Mature Ash, Single trunk. Approximately 15m tall, DBH of 80cm.	None.	A mature ash; single stemmed trunk situated within the mixed woodlands. There is limited ivy on the trunk (Photo 47). Some dead wood is present on the outer limbs.	Low

No.	Description	Evidence of Roosting Bats	PRF	Potential for Roosting Bats
T10	Broadleaved lime, single trunk. Approximately 11m tall, DBH of 80cm.	None.	A mature Broadleaved lime; single stemmed trunk; situated within the mixed woodland. There is limited ivy on the trunk. Additionally, there is a knot hole in the truck approximately 3m from ground.	Moderate
T11	Mature Ash. Single trunk. Approximately 14m tall, DBH of 75cm.	None.	A mature Ash; single stemmed trunk; situated within a linear mixed woodland. There is moderate amount of ivy on the trunk (Photo 49).	Low
T12	Mature Oak, twin steamed. Approximately 14.5m tall. First stem DBH of 50cm and second DBH of 80cm.	None.	A mature oak, single stemmed to a height of 1m before stem splits in two to give a twin-stemmed mid crown; there is limited to moderate ivy on the two split stems (Photo 52).	Moderate
T13	Broadleaved Lime, Single trunk. Approximately 11m tall. DBH of 60cm.	None.	A mature broadleaved lime tree, single stemmed; with limited to moderate ivy on trunk. There is a defunct bird nest near the base of the trunk (Photo 48),	Moderate
T14	Mature oak, Single trunk. Approximately 14m tall. DBH of 100cm	None.	A mature, single stemmed; very limited ivy coverage on trunk and or branches; dead wood is abundant; there is also a cavity quite low down that extends from 1.5m to 2m and is 0.30m wide (Photo 55).	Moderate
T15	White Willow. Single trunk. Approximately 9m tall. DBH of 45cm.	None.	A white willow; single trunk; with moderate ivy coverage on trunk (Photo 56).	Low
DBH – Diameter at Breast Height DBH. This refers to the tree diameter measured at 4.5 feet above the ground.				

Photo 34: T1 Mature Oak.

Photo 35: T1 Knot Hole in Wood.

Photo 36: T2 Mature Oak.

Photo 37: T2 Ivy Coverage

Photo 38: T3 Beech.

Photo 39: T4 Oak.

Photo 40: T4 Mature Oak, with Bird Box.

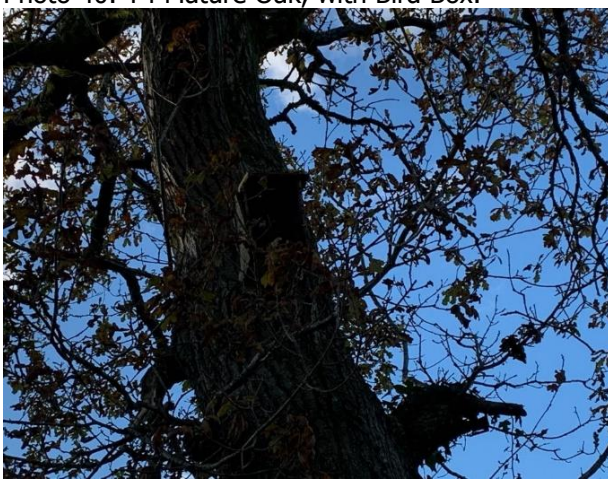


Photo 41: T5 Mature Oak, with Bird Box.

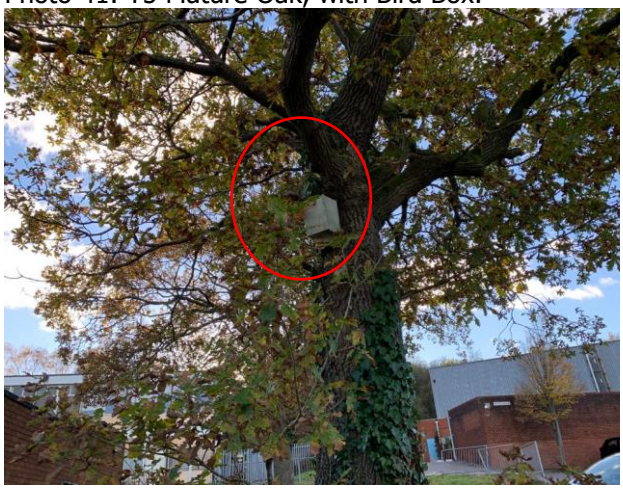


Photo 42: T4 Broken Limb

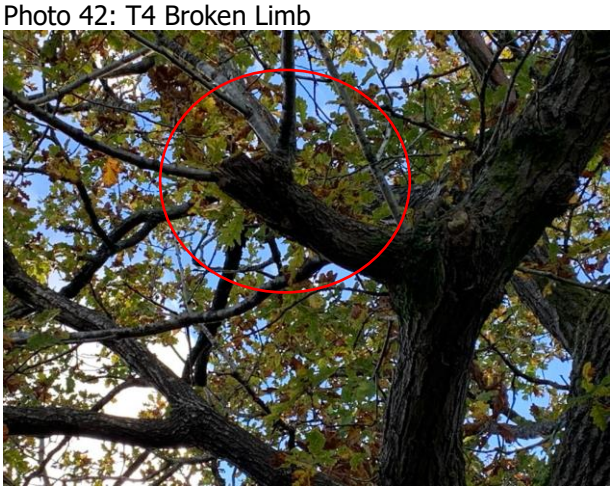


Photo 43: T6 Maple Tree

Photo 44: T7 Mature Goat Wiliow

Photo 45: T7 Mature Goat Wiliow with Ivy.

Photo 46: T7 Mature Goat Williow with Ivy.

Photo 47: T7 Mature Goat Wiliow with Broken Branches.

Photo 48: T8 Broadleaved Lime with Moderate Ivy Coverage.

Photo 49: T9 Mature Ash.

Photo 50: T10 Broadleaved Lime.

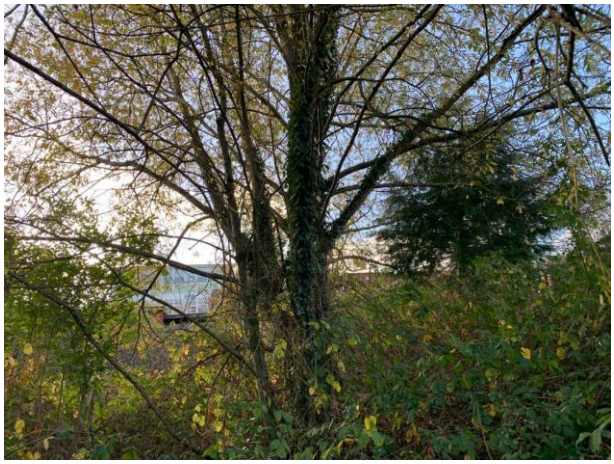
Photo 51: T11 Mature Ash.

Photo 53: T12 Mature Oak.

Photo 54: Broadleaved Lime T13.

Photo 55: T14 Mature Oak with Dead Wood and Cavity in Trunk.

Photo 56: T15 White Willow.



Buildings and Other Structures

The buildings on site were assessed externally and internally for its suitability to support roosting bats, as set out in the table below:

Table 11: Buildings Assessed for Bat Potential

Buildings are described using simple number scheme (B1-B13), shown in Plan 5.

Building Number	Description and PRF	Evidence of Bats	Roosting Suitability	Hibernation Potential
B1	B1 is a derelict, two-storey structure constructed from stone and mortar. Previously known as Block A. The main part of the building has a pitched slate roof in good condition (Photos 57-60). At the north-western elevation is a single storey brock section has a flat bitumen felt (Photos 62, 75-78). This extension of B1 has suitable features that bats may use including gaps between the fascia boards and stone walls. There was also a damaged soffit with several	Droppings found in void one on the eastern elevation of the building. The possible entry point was on the	High	Moderate

	large holes in the timber soffit box (Photo 76 and 77). Several PRF's or entry points for bats were recorded on B1 as follows: • Multiple broken windows on the northern and southern elevations on both the first and second floors; • Lifted lead flashing on the northern elevation; • Lifted ridge tiles on the north-eastern elevation; and • Gaps in soffit and wall. B1 contains four lofts all but one were searched internally. <u>Void 1 to the North of the Building</u> Droppings were observed in the north-western gable end of the building within the void 1 (Photo 64). In void 1 there was a covered water tank (Photo 74). Additionally, there was a defunct bird's nest (see photo 75). There are two covered waters tank (Photo 74). In addition, towards the north-eastern side of the loft there was a defunct bird nest (Photo 75). The second void was located to the south east of B1. Lastly, void 3 located south eastwards of B1, again had no evidence of birds or bats (Photo 78). (See Plan 13: An Illustration of the Voids in B1). B1 also has an extension on the western elevation. It is a single- storey, flat roofed structure rendered in pebbled dash painted white and in good condition. It has a flat roof made of bitumen felt. The felt itself appears to be in good condition with no noticeable gaps (Photo 65). There were no PRF's on this section of the building. B1 is proposed to be retained.	north-western elevation through a gap between the wall and the timber fascia board (Photo 63).		
B2	B2 is a derelict, single-storey building rendered with concrete. The roof is flat comprised of bitumen felt. There is extensive coverage of ivy (Photo 82) on the south-western elevation of B2. Additionally, the building contains a metal shutter door (Photo 80), with a gap within the wall. This building is proposed for demolition.	None	Low	Low
B3	B3 is a derelict, single-storey building constructed from red brick and mortar. The roof is flat and made of bitumen felt, both the walls and the roof are considered to be in good condition. There is no missing guttering or broken windows in B3 as most of the windows are covered in metal mesh (Photo 83).	None	Negligible	Negligible

	This building is proposed for demolition.			
B4	B4 is a derelict, two-storey building constructed of prefabricated materials made up of mainly cladding and glass windows. The roof is flat and of bitumen felt. The building is in good condition, however there is a window open (Photo 85). There is a two-storey extension on the eastern elevation (Photo 86), constructed from brick with a pitched roof. The extension appears to have some potential features such as raised lead flashing and missing guttering exposing the bitumen felt that bats may use as roosting sites. B4 is proposed to be demolition.	None	Low	Low
B5	B5 is a derelict, single-storey building. The building is made of prefabricated material. The roof is flat, which consists of bitumen felt, attached with lead flashing which is in moderate to good condition. This is on all elevations of B5. There are two broken windows located on the south western elevation (photo 89). Additionally, there is a lifted metal panel on the south western elevation. This building is proposed for demolition.	None	Low	Low
B6	B6 is a derelict single storey shed approximately 2 x 2m^2. There is a single metal roller window located on the north elevation of the shed (Photo 92). The door has been broken in to, therefore leaving a large gap into the shed. The shed is made of wood with, lead flashing. The shed is considered to be suitable for roosting direct by horseshoe bats (*Rhinolophus* species*).* This building is proposed for demolition.	None	Low	Low
B7	B7 is a derelict two-storey building constructed of prefabricated materials made up of mainly cladding and glass windows. The roofs are flat and of bitumen felt. The building itself is considered to be in good condition with one PRF noted with gap in the cladding (Photo 93) . This building is proposed for demolition.	None	Low	Low
B8	B8 is a derelict two-storey buildings constructed of prefabricated material made up of mainly cladding and glass windows. The roofs are flat and consist of bitumen felt. Is considered to be in good condition with no PRFs observed (Photo 94). This building is proposed for demolition.	None	Negligible	Negligible
B9	B9 is derelict, single storey building, constructed of red brick. The roof is flat, which is made of bitumen felt. There are gaps between the wall and the fascia along the eastern elevation (Photo 97). This building is proposed for demolition.	None	Low	Low

B10	B10 is outside the proposed development site, it was previously identified as the Grammar School building. B10 is a derelict, two-storey building constructed of prefabricated material made up mainly of cladding and glass windows, it has components of brick work throughout. The roof is flat, made of bitumen felt that is attached with led flashing. There were gaps in the soffit panelling and also an open door (Photos 101-103). B10 is proposed to be retained.	None	Low	Low
B11	B11, is the first outbuilding, located next to B10 on the boundary of the proposed site development. The outbuilding is approximately 1 x 1m, made of brick and has a pitched roof, comprising corrugated metal. There were no noticeable gaps, with no cracks in brick work and B11 does not provide suitable gaps for roosting bats (Photo 104). B11 is proposed to be retained.	None	Negligible	Negligible
B12	B12 was used as a gym and comprises mainly of corrugated metal for its external walls and roof. The roof has a shallow pitch and runs on an east to west axis. The windows on the northern elevation are broken leaving the interior open to the environment (Photo 105). A flat roof structure is attached to the western elevation of the gym and is constructed of timber, the extension has a flat roof comprising bitumen. There are gaps in the timber soffits of the extension on the northern elevation (Photos 113 and 114). The windows of the extension are boarded up with plywood. Additionally, there is a presence of a security light (Photo 113). This building is proposed for demolition.	None	Low	Negligible
B13	B13 is the second outbuilding located on the northern boundary of the proposed development site, within the mixed woodland habitat. B13 is a derelict brick building approximately 1 x 1m and has a flat roof made of bitumen felt that is attached with led flashing. This is currently coming away due to the ivy covering on the building (Photo 115). The steel door is broken leaving it open to the environment (Photo 116). There is extensive ivy growth on the north-eastern elevation wall which is also spreading on to the southern elevation and the roof. There is also a considerable gap present on the south eastern elevation of B14. The outbuilding is considered to be suitable for roosting horseshoe bats. B13 is proposed to be retained.	None	Low	Low

Photo 57: B1 South-Western Elevation.

Photo 58: B1 South-Eastern Elevation.

Photo 59: B1 South Elevation.

Photo 60: B1 North-East Elevation.

Photo 61: B1 East Elevation.

Photo 62: B1 North-West Elevation.

Photo 63: Access Point Of Confirmed Roost.

Photo 64: Droppings Found in Void 1.

Photo 65: Gaps in Flashing and Timber Frame.

Photo 66: B1 Gap in soffit Box on Western Elevation.

Photo 67: Gap Between Wall and Soffit.

Photo 68: Gaps in Lead Flashing.

Photo 69: Gap in Wall and Soffit.

Photo 70: Drainage Gap in External Wall of B1.

Photo 71: Lifted Ridge Tiles.

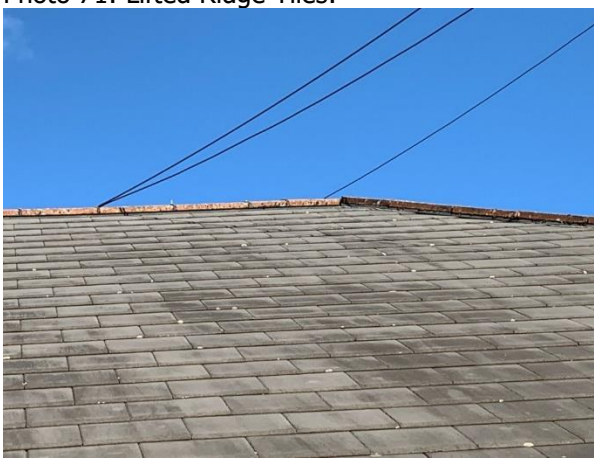


Photo 72: Void One Northern Elevation Within B1.

Photo 73: Void One.

Photo 74: Water Tank in Void One.

Photo 75: A Defunt Nest in Void One on the Eastern Elevation in B.

Photo 76: Void Two in Centre of B1.

Photo 77: Void Two in B1.

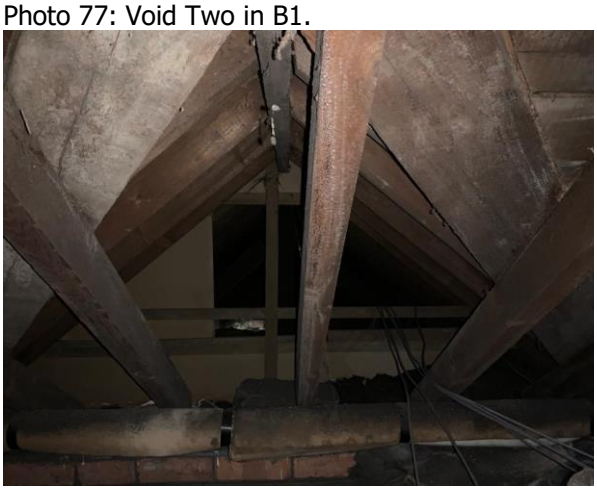


Photo 78: Void Three in B1.

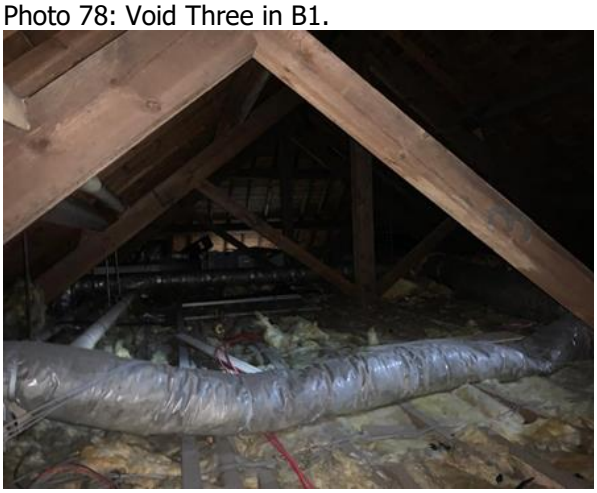


Photo 76: B1 Attached Building.

Photo 77: B1 Broken Soffit with Large gap and Bird's Nest.

Photo 78: B2 North-Eastern Elevation with Ivy.

Photo 79: B2 South- Eastern Elevation.

Photo 80: South-Western Elevation, Gap in Roller Door.

Photo 81: Timber frame breaking.

Photo 82: Extensive Ivy Coveraing Part of B2, Eastern Elevation.

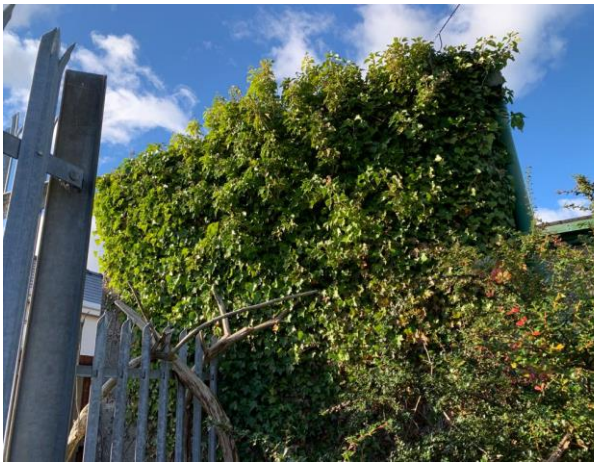


Photo 83: B3 North-Eastern Elevation.

Photo 84: B4 North-Eastern Elevation.

Photo 85: B4 Open Window

Photo 86: B4 Extension.

Photo 87: B5 North Elevation.

Photo 89: B5 Broken Windows.

Photo 90: Lifted Cladding

Photo 91: North East Elevation.

Photo 92: B6 Shed with Open Steel Door.

Photo 93: B7 North- Western Elevation and Gap in Cladding.

Photo 94: B8 Western Elevation.

Photo 95: B9 Eastern Elevation.

Photo 96: B9 Northern Elevation.

Photo 97: B9 Gap Between Wall and fascia.

Photo 98: B9 Western Elevation.

Photo 99: B10 South -Eastern Elevation.

Photo 100: B10 Southern Elevation.

Photo 101: B10 North-Eastern Elevation.

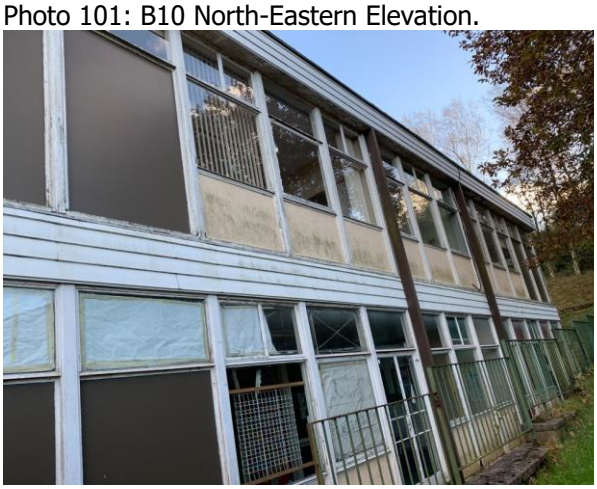


Photo 102: B10 Open Door.

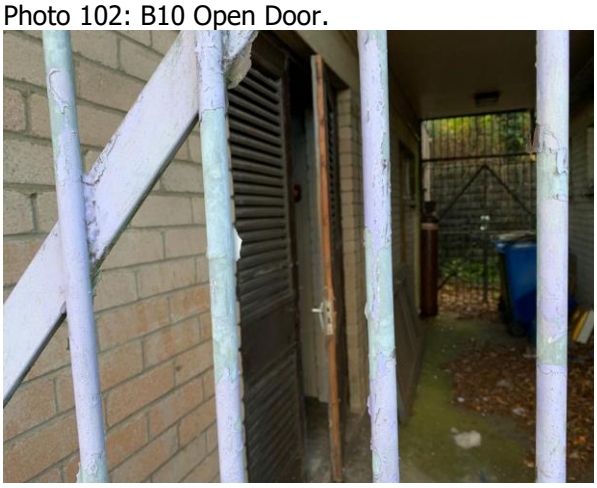


Photo 103: B10 Gap in uPVC soffit Box.

Photo 104: B11 Outbuilding to the South of B10.

Photo 105: B12 South Eastern Elevation, Multiple broken Windows.

Photo 106: B12 South Eastern Elevation.

Photo 107: B12 North-Eastern Elevation.

Photo 108: B12 North Elevation.

Photo 109: B12 South-Eastern Elevation.

Photo 110: B12 North- Eastern Elevation.

Photo 111: B12 Gap in Timber Frame.

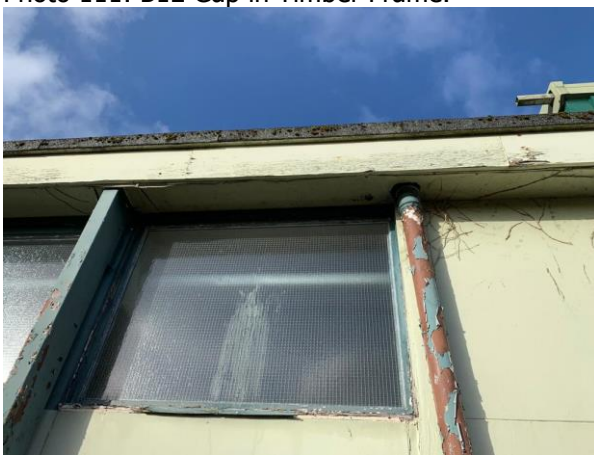


Photo 112: Gap in timber frame.

Photo 113: B12 Security Light and Gap in Soffit Box.

Photo 114: B12 Gap in Soffit Box.

Photo 115: B13 North-Eastern Elevation.

Photo 116: B13 Open Door.

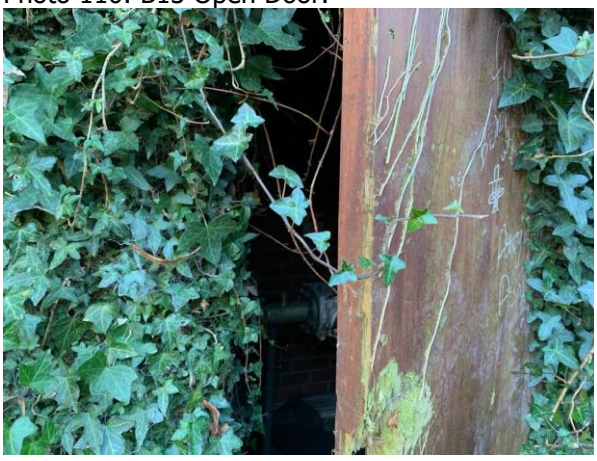


Photo 117: B13 Hole into the interior.

Photo 118: B13 Wall Covered In Ivy.

Foraging and Commuting Habitat

The main area where work is proposed consists of hard standing, semi-improved grassland and amenity grassland, which is suboptimal for bats. However, the dense scrub provides some foraging opportunities that could be utilised by bats. In addition, the mixed woodland and tree lines provide ample foraging opportunities and contribute to linear habitat features that could be utilised by commuting bats.

Evaluation of Ecological Value of Site for Bats

Potential Tree Roosts

The following trees: T1, T5, T7, T8, T10, T12, T13 and T14 have been assessed as having moderate potential to support roosting bats.

The following trees: T2, T3, T4, T6, T9, T11, and T15 have been assessed as having low potential to support roosting bats.

Confirmed/ Potential Building Roosts

B1 has been assessed as having a confirmed roost and hence having high suitability to support roosting bats, due to the droppings found on the northern gable end of Void 1 of the B1. B2, B9, B7, B10, B12 and

B13 were all described as having low potential due to the lack of loft or possible voids and limited entry points. B3, B8 and B11 were described as having negligible potential to support roosting bats.

Potential Foraging and Commuting Habitat

The site is collectively considered to provide high-quality foraging and commuting habitat for bats as it is 400m to the west of the Sirhowy River, with associated tributaries running through the site. Additionally, lines of trees and mixed woodland provide foraging and commuting opportunities for bats. Furthermore, the site is located on the boundary of a SINC which is made up of ASNW and grazed parkland. These habitats form a continuous ecological habitat corridor and connect the site to the wider landscape.

An assessment of the value of the habitats on site for foraging and commuting bats is given in the table below:

Table 12: Bat Habitat Suitability

On-site Habitat	Habitats Value for Commuting and Foraging Bats	Justification for Assessment
Mixed Woodlands (A1.1).	High	The mixed woodlands (A1.1) has some connectivity to the ASNW to the west of the site, with a road in-between the site and extensive tree-lined parkland to the east. The mixed woodland and broadleaved tree line found in front of B1 may acts an important commuting route for bats travelling between these habitats. The habitat itself also provides abundant foraging opportunity for bats.
Broadleaved Woodland Tree Lines	Moderate	The Broadleaved woodland tree lines likely provide some foraging and commuting habitat and provide ecological connectivity between the site and the wider landscape. However, the tree lines are some what isolated from the more suitable habitat on site.
Semi-Improved Grassland	Low	The semi-improved grassland is suitable for foraging bats.
Amenity Grassland	Negligible	Negligible habitat features on-site likely to be used by commuting and foraging bats.
Hard standing	Negligible	Negligible habitat features on-site likely to be used by commuting and foraging bats.
Dense Scrub	Low	Contains some connectivity to wider landscape, has potential to be used as foraging. However, the habitat cover of the dense scrub is fragmented and unlikely to support a large number of bats.

Impact Assessment of Proposed Development on Bats

The following direct impacts to bats may occur as a result of the development:

- According to the development plan T1-T6 and T15 will be felled for the proposed development site. T2, T3, T4, T6 and T15 have been assessed as having low bat roost potential. Felling of low potential trees are therefore unlikely to result in the death, injury or disturbance to bats at the time of work, however precautionary measures have been outlined in Section 4.

- T1 and T5 have been assessed as having moderate bat roost potential. Further survey will be required before the extent of such impacts can be assessed, as detailed in Section 4.
- Buildings: B1 will be retained but alterations to the building will be made. B1 has been assessed as having a confirmed roost and having high bat roost potential, as droppings were found in void one. Further survey will be required before the extent of such impacts can be assessed, as detailed in Section 4.
- B2, B4, B5, B6, B7, B9 and B12 are all being demolished to facilitate construction access. Although, no evidence indicate that these buildings are being occupied by roosting bats these buildings have been assessed as having low potential for roosting bats. Further surveys will be needed, details are provided in section 4.
- B3 and B8 is being demolished to facilitate construction. The building has been assessed as having negligible potential for roosting bats. No surveys of these building would be required if development plans change, and they need to be altered or demolished.
- B10 and B13 are all being retained. These buildings have been assessed as having low potential for roosting bats. However, if development plans change and work will be undertaken on these buildings further bat survey work will be required.
- The remaining building B11 is being retained. The building has been assessed as having negligible potential for roosting bats. No surveys of these building would be required if development plans change, and they need to be altered or demolished.

The following indirect impacts to bats may occur as a result of the development:

- T7-T16 are proposed for retention in the mixed woodlands located north east of the site. However, there is still risk that they may be subjected to root damage as a result of heavy plant movement near the trees or accidental damage during general construction activities. T7-T16 have been assessed as having moderate to low bat roost potential. Protective barriers will therefore be installed prior to any site work, to ensure that no such inadvertent impacts occur (see Section 4). If an adequate barrier cannot be established around T7, T8, T10, T13, and T14, as these trees have been assessed as being moderate potential for bats, these trees will require further surveys, as detailed in Section 4;
- Clearance of the dense scrub will result in fragmentation of ecological connectivity for commuting bats from the woodland to west of the site; and
- Due to the change of use of the site, increases in artificial lighting levels will be significant, both during the construction phase and the operational phase of the development. If this lighting envelops the retained trees on site, it could adversely affect foraging and commuting bats. Measures to avoid such impacts are set out in Section 4.

3.5.4 Dormice

Desk Study Results

SEWBReC did not return any published records of dormice from within 1km of the site.

Field Survey Results

No signs or evidence of dormice was recorded on site (though relatively little hazel was recorded on site, making a thorough nut search not possible). The majority of the site is largely unsuitable for dormice. As hard standing, amenity grassland and semi-improved grasslands are considered to be unsuitable for dormice. However, the mixed semi-natural woodland is structurally suitable for dormice, although it contains a relatively low number of the food-plants known to form part of the dormouse diet as is comprises mainly cherry laurel, yew, oak and willow. Some bramble, holly and sycamore are present in low numbers within the woodland. However, the mixed woodland is largely ecologically isolated from more suitable habitat to the east of the site due to the large number of buildings and areas of hard standing to the west of the site. The mixed woodland is proposed to be retained and will not be impacted during the site development. Dormice are unlikely to be observed in the remaining of the site as it is dominated with scattered scrubs and hardstanding, with little to no connectivity within the proposed development. There have also been no records published of dormice within 1km of the site.

Therefore, the likelihood of dormice being present on site is considered to be negligible due to the isolated nature of the limited suitable habitat on site and no adverse impacts are subsequently anticipated. Additionally, the mixed woodland on site is proposed to be retained on site. They are therefore not mentioned further in this report.

3.5.5 Great Crested Newt

Desk Study Results

SEWBReC did not return any records of GCN from within 1km of the site. There are records of other amphibians, comprising two records of common frog (*Rana temporaria*), one record of common toad (*Bufo bufo*), and one records of palmate newt (*Lissotriton helveticus*). The nearest record is of a common frog which was recorded 0.20km from the site in 2012.

Field Survey Results

Aquatic Habitat

The HSI assessments of the one suitable water body within 0.5km of the site is displayed in the table below. The location of the water body is shown in Plan 6.

Table 13: Pond 1 HSI Scores

Pond Reference	Water Body 1
Distance and Direction from Site	77m to the north-east
SI1 Field location	0.5
SI2 Pond area	0.1
SI3 Pond drying	0.9
SI4 Water quality	1
SI5 Shade	0.8
SI6 Fowl	0.01
SI7 Fish	0.33
SI8 Ponds	0.1
SI9 Terrestrial habitat	0.67
SI10 Macrophytes	0.9
HSI SCORE:	0.32
Pond Suitability:	Poor

The results of the Habitat Suitability Index indicate the water body has 'Poor' potential to support breeding GCN.

Photo 119: Pond 1

Photo 120: Pond 1

Terrestrial Habitats

The pond is located in a public park, that is predominately made up of amenity grassland and the pond covers an approximate area of 621m^2. This habitat is surrounded by residential housing with no connectivity to larger water bodies. The pond comes from a shallow stream that emerges under the proposed site development 0.1km south of the pond.

Photo 121: Terrestrial features of Pond 1

Evaluation of Ecological Value of Site for Great Crested Newt

The accessible water body (Water Body 1) scored 'Poor' in the HSI assessment. The figure below (ARG, 2010) shows that the proportion of GCN presence in ponds that scored 'Poor' is 0.03 or 3%. However, this water body lies on the opposite side of the A4119 to the proposed development site. The A4199 is considered likely to comprise a hard barrier to GCN migration. The water body was subsequently scoped out of the assessment, as the likelihood of GCNs migrating from it into the proposed development site is considered to be negligible.

Impact Assessment of Proposed Development on Great Crested Newt

The likelihood of GCN being present on site is considered to be negligible and no adverse impacts are subsequently anticipated. They are therefore not mentioned further in this report.

3.5.6 Water Vole

Desk Study Results

SEWBReC did not return any records of water vole from within 1km of the site.

Field Survey Results

No water voles, or signs of water vole were recorded along the short section of watercourse within the site. The stream itself is heavily polluted and is isolated from the wider landscape. There is considered to be negligible potential for water vole to be present on site. This species is not discussed further in this report.

3.5.7 Badgers

Desk Study Results

SEWBReC did not return any records of badgers from within 1km of the site.

Field Survey Results

The presence of badgers as a resident species on site was assessed as being extremely unlikely due to the absence of any obvious signs and the nature of the site. Furthermore, the site is mainly level and open

in nature making it generally unsuitable for sett building. It is also likely to be subject to regular disturbance by people. The mixed woodlands do offer some possible foraging opportunities; however it is regularly disturbance and relatively isolated for a badger to utilise as it surrounded by the A4119 and heavy duty fencing. No gaps in the fence are of sufficient size, to enable badger access into the site, were recorded at the time of the survey and are unlikely to travel through residential housing.

Impact Assessment of Proposed Development on Badgers

The likelihood of badger's sett building on site is considered to be negligible and no adverse impacts are subsequently anticipated. Likewise, there is considered to be a very low risk of badgers foraging or commuting across the site. Precautionary measures are set out in section 4.

3.5.8 Reptiles

Desk Study Results

The data search returned six records of slow worm (*Anguis fragilis*) within 1km of the site. The nearest recorded approximately 0.37km from the site in 2013.

Additionally, a reptile survey was carried out by Acer Ecology prior to the preliminary ecological appraisal for the proposed site development. The subsequent results of the survey are below.

Field Survey Results

The survey results and weather conditions of each survey are summarised below:

Table 14: Survey Weather Conditions

Survey	Date	Start Time	Air Temperature (Min and Max ºC)	Rain	Wind Speed (Beaufort)	Cloud Cover (Oktas)
1	29/09/2021	10:00	16 ºC	0	4	7/8
2	04/10/2021	09:00	14 ºC	1	4	8/8
3	06/10/2021	11:00	13 ºC	0	4	6/8
4	08/10/2021	10:00	16 ºC	0	2	2/8
5	11/10/2021	14:00	19 ºC	0	2	2/8
6	13/10/2021	10:30	14 ºC	0	2	4/8
7	15/10/2021	9:30	12 ºC	0	2	7/8

Table 15: Survey Results

Survey	**Date**	**Records**			**Additional Notes**
		Species	**Adults**	**Juveniles**	
1	29/09/2021	No Reptiles Recorded			
2	04/10/2021	No Reptiles Recorded			
3	06/10/2021	No Reptiles Recorded			
4	08/10/2021	No Reptiles Recorded			
5	11/10/2021	No Reptiles Recorded			
6	13/10/2021	No Reptiles Recorded			
7	15/10/2021	No Reptiles Recorded			

The grassland areas of the site are superficially suitable for reptiles, although none were recorded during the surveys. Whilst the reptile surveys were undertaken in September and October the weather conditions were still mild, and there is a reasonably high level of confidence that reptiles are likely to be absent from the site.

Evaluation of Ecological Value of Site for Reptiles

The semi-improved grassland habitats within the development footprint have superficial potential to support common reptiles on site. The site is large and considered to be prey abundant. It is currently unused therefore has little to no public pressure so minimal disturbance. Additionally, the hardstanding adjacent to semi-improved grassland areas may act as basking sites for reptiles. The watercourse itself could feasible be used by grass snakes. There are other features that could be utilise by hibernating reptiles such as the stream banks and the felled yew trees within the mixed woodland on site. Some of the development site is located on easterly slopes providing alternative basking opportunities.

Impact Assessment of Proposed Development on Reptiles

Reptiles ate likely to be absent from the site and as such any impact on reptiles is unlikely. As the survey was undertaken slightly out of season there is a chance that reptiles could have been present on site but undetected. Clearance of the vegetation may therefore result in the accidental killing or injury of reptiles. Precautionary measures to avoid such an occurrence are set out in Section 4.

3.5.9 Other Mammals

Desk Study Results

SEWBReC returned seven records common hedgehog (*Erinaceus europaeus*) within 1km of the site. The nearest of which was recorded 0.36km from the site in 2013.

Field Survey Results

No incidental sightings of other mammals were recorded on site. However, it is highly likely that a range of small mammals are present on the site, including hedgehogs *(Erinaceus europaeus),* shrews *(Sorex sp.),* voles *(Microtus/Myodes sp.),* mice *(Apodemus sp.),* fox *(Vulpes vulpes)* and moles *(Tapla europaea)* etc., occurring either as resident species or whilst foraging and/or whilst foraging and/or commuting. The scrub and wood piles form the felled woodland are considered to provide optimal refugia for day-resting hedgehogs and hibernacula during the winter months.

Evaluation of Ecological Value of Site for Other Mammals

Hedgehogs are considered likely to forage within the site and could potentially nest and hibernate within the dense scrub habitat. The dense scrub are considered to provide highly optimal refugia for day resting for hedgehogs and hibernacula during the winter months. These habitats will be cleared to facilitate the development which could lead to negative impact on this species if present.

Impact Assessment of Proposed Development on Other Mammals

The mixed woodland within the site are proposed to be retained. Any clearance of scrub habitat or damage to the mixed woodland during the development, may result in accidental killing or injury of hedgehogs and other mammals. Mitigation to avoid such impacts are provided in Section 4.

4. Recommendations and Conclusions

The following recommendations are likely to be secured through planning conditions. They have been developed based on the development proposals available at the time of writing.

The implementation of these recommendations will ensure compliance with the Environment (Wales) Act 2016, Planning Policy Wales version 11 (Welsh Government, 2021)[20], TAN 5 *Nature Conservation and Planning* (2009), Section 6 and 7 of the Environment Wales Act, 2016, the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019, and help to avoid or minimise adverse impacts on the environment and protected species, mitigate and compensate for losses where damage is unavoidable and promote opportunities to enhance biodiversity.

There is a requirement that developments must provide net benefit for biodiversity.

4.1 Further Bat Survey Work

Further Surveys of Buildings:

Buildings B2, B4, B5, B6, B7, B9 and B12 are proposed for demolition. As they have been assessed as having low suitability for roosting bats, they must be subject to further survey before they can be demolished. Current best practice guidelines (Collins, 2016) state that the buildings B2, B3, B4, B5, B6, B7, B9 and B12 with low roost suitability should be subject to one dusk emergence or dawn re-entry survey. For the further survey on B2, B4, B5, B6, B7, B9 and B12, the number of surveyors that will be present for each building is shown in Table 16 (See Plan numbers: 8 to 12: Proposed surveyor positions).

Additionally, B1 has a confirmed roost and high roost suitability so should be subject to three separate dusk emergence and dawn re-entry surveys. Comprising at least one dusk emergence and a separate dawn re-entry survey. The third visit could be either a dusk emergence or a dawn re-entry survey. To ensure that all potential bat access/roosting features are covered, all three surveys will require seven surveyors to be present (see Plan number 7: Proposed Surveyor Positions) for B1.

If any other buildings that are listed as low are to be destroyed or affected further surveys will be needed.

Table 16: Summary surveys and surveyors required for each structure

Structure	Number of Surveys Required	Number Surveyors Required
B1	3	7
B2	1	3
B4	1	3
B5 +B6	1	5
B7	1	3
B9	1	4

[20] Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions … and in so doing promote the resilience of ecosystems. Development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity.

B12	1	4

Surveys should be timed to sample as much of the survey period as possible[2], undertaken at intervals of at least two weeks apart, or preferably more (Collins, 2016). This increases the possibility of encountering bats that may only use the building for short periods throughout the summer.

Further Tree Surveys:

If any of these mature trees T7, T8, T10, T12, T13 and T14 with moderate potential for supporting roosting bats, are to be either felled or have other arboriculture works done to them (e.g., pruning, lopping, crown reduction etc.), they should be subject to two dusk and dawn re-entry surveys.

These mature trees are expected to be felled T1 and T5, with moderate potential for supporting roosting bats, therefore will require two dusk and a dawn re-entry survey before work can commence.

4.2 Precautionary Measures

4.2.1 CEMP

A Construction and Environmental Management Plan should be produced detailing how construction work will take place on site.

The CEMP will:

- Detail management measures to minimise environment impact from the construction phase to the development;
- Provide a framework within which the measures will be implemented throughout the project; and
- Provide project-specific management measures.

4.2.2 Destructive Searches for Hedgehogs

If the felled trees, and debris to the north-west of the proposed works area are to be removed, destructive searching of the timber piles will take place at the time of site clearance to limit potential harm and injury to hibernating hedgehogs. These features will be deconstructed by hand in a piecemeal fashion, commencing from one end and progressing in the other direction. Arisings will be removed immediately from site.

Hedgehogs may be present within the rank areas of grassland and the dense scrub understoreys. Measures should be taken to minimise the potential for causing the death and injury of individuals during site clearance, via the implementation of 'species deterrence' measures in the run-up to the commencement of works on-site, and 'destructive searches' of semi-improved neutral grassland and dense scrub, where required. Vegetation should be strummed, or brush cut to a height of approximately 300mm during this period, to make the area less suitable for hedgehogs. Arisings should be removed immediately from site. This will be left for at least 48 hours and then cut down to near ground level and left for another 48 hours prior to works commencing. This should make the areas unattractive to hedgehogs prior to development,

and thus encourage them to leave the area. Mechanical clearance methods (e.g., gang-mowing, flail-cutting etc.) will not be used.

The dense scrub understorey and semi-improved neutral grassland will not be subject to ground disturbance during the hedgehog hibernation period, which runs approximately from October to March inclusive, so as to reduce the risk of encountering (and potentially injuring or killing) any hibernating individuals. The winter nests of hedgehogs are constructed from a ball of vegetation (principally leaves) that is pressed up against fallen branches/ bramble scrub etc.

4.2.3 Vegetation Clearance for Reptiles

Timing of Vegetation Clearance for Reptiles

Habitats which could potentially support common reptiles should not be subject to ground disturbance during the reptile hibernation period (approximately from October to February inclusive), so as to reduce the risk of encountering (and potentially injuring or killing) any hibernating individuals. Clearance works will be instead undertaken within the active period for reptiles (March to September inclusive).

Destructive Searching

The destructive search will comprise the sequential removal of the overlying vegetation, and then the removal of the top 250mm of soil using a wide toothed bucket on the back-actor of a suitable excavator. The search will be carried out under the close supervision of an appropriately experienced reptile handler who will stop works, and rescue and remove any reptiles which are found during the operation. Once the reptile suitable areas have been destructively searched in this manner, they will be considered to have been cleared of reptiles, and normal earthworks and construction activities will then proceed in a conventional manner with no further constraint. However, the services of an appropriately experienced reptile-handler will be kept available on an 'on call' basis throughout the remainder of the construction period to deal promptly with any unexpected emergencies involving reptiles which may arise.

Action to be Taken if Reptiles are Encountered on Site

In the event that any reptiles are encountered in the course of any of the above works, or at any subsequent stages, the site personnel will be instructed to carefully remove the animal from the development site and place it in the unaffected receptor habitat.

4.2.4 Timing of Vegetation Clearance for Birds

Clearance of the dense scrub and scattered trees with T6 in front of B1 within the site will be undertaken from September to February outside the bird breeding season (March to August inclusive). Alternatively, any work undertaken from April to July should be subjected to a check from nesting birds by a suitably qualified ecologist immediately prior to removal of such habitats, especially if any of the retained mixed woodland is to be felled. If any active nests are found these should be protected, along with an a 5-10m buffer zone, until the nesting is complete, and the young have fledged.

4.2.5 Tree Retention and Protection Zone

Retrained trees will be securely fenced-off to prevent accidental damage prior to the commencement of construction work and treated in accordance with British Standards BS5837 (2012) Tree in Relation to Design, Demolition and Construction- Recommendation (see appendix 8).

Where possible, any future developments will avoid felling of these trees. As these trees are key to maintaining the ecological connectivity of the site, maintain its biodiversity value and reduce potential requirements for further protected species and/or breeding birds. If these trees are not retained, then further surveys will be required.

4.2.6 Soft Felling of Low Potential Trees

T1-T6 and T15 are to be felled as part of the development and are considered to have low potential to supporting bats. Both trees will therefore require soft felling. 'Soft felling' is a generic term used to describe more cautious felling approaches, using lowering and cushioning techniques to reduce the impact of felling limbs/ivy growth which may still have bats within cavities:

- Works to the tree will take place between October and February to coincide with the period of lowest bat activity and likelihood of bats being present. This timescale would also eliminate the risk of causing accidental harm to nesting birds;
- Tree surgeons undertaking felling works will be warned of the possible presence of roosting bats (and/or nesting birds), and of their protected status. It will be clearly understood that in the event of any bats (or occupied birds' nests) being found the contractor must halt works in the area surrounding the roost (i.e. at least 15m from the identified roost) and advice sought from Acer Ecology Ltd;
- Any hollow sections of any tree, or any limbs with cavities etc, will be severed above and below the cavity, taking care not to cut through any potential cavities or hollows, and lowered to the ground with minimal force using rope slings. This technique will be employed if the trees are subsequently found to have large cavities or split limbs;
- Any removed hollow sections which cannot be fully examined for bats will be removed to a shaded location and left undisturbed on the ground in a safe condition for 24 hours. This will allow any bats present to rouse themselves and fly off after nightfall. The sections will be positioned on the ground so that access to the cavities is unobstructed, but so that the cavities will not become filled with rain water; and
- The services of an appropriately qualified and licensed bat consultant will be available on an 'on-call' basis at all stages of the works to deal with any unexpected encounters with bats or nesting birds.

4.2.7 Good Construction Practices for Mammals

In line with good practice, any open trenches and excavations associated with the development will either be closed at night or means of escape provided (e.g., a wider plank at no greater angle than 45° to help any badgers, hedgehogs or other trapped animal's escape.

4.2.8 Pollution Prevention Measures

Care will be taken to avoid pollution and excess sediments of off-site habitats, both during construction and post construction phase. Current Environment Agency best practice guidance should be observed. It is recommended that surface water/ pollutant run-off is avoided during site preparation and construction phases and the measures recommended for achieving this outlined in the Environment Agencies guidance document *Working at construction and emollition sites: PPG6 Pollution Prevention Guidelines* are implemented.

Full pollution prevention measures will be devised and detailed in the required CEMP (Section 4.2.1).

4.3 Mitigation Measures

4.3.1 Lighting Plan

A sensitive lighting strategy must form part of the development plan during both the construction and operational phases. This will mitigate against any light disturbance to foraging/commuting bats using the mixed broadleaved woodland habitats. Where practicable, this will involve no external lighting projecting towards the trees. This will create a 'dark corridor', allowing bats to continue to forage and commute along these linear features.

The lighting will follow a 'bat friendly' specification:

External lighting will be minimised and installed at low-level only (i.e. no higher than eaves level and lower than 2.4m) and directed downward (i.e. below the horizontal plane with no upward tilt). Fully shielded lights with front and side hoods/shields or cowls will be installed to prevent upwards and horizontal light spill. The lighting source will not be visible. See Appendix 9 for examples.

Any security lights used will operate off a passive infrared (PIR) motion sensor sensitive to large objects only, to avoid constant triggers by bat passes and with timers set on a short duration (i.e. a maximum 'on' time of one minute) to reduce the amount of 'lit time'. The lights will either have an integrated LED light source or use LED bulbs. They will be low intensity (i.e. circa 11 watts) and have a warm white colour temperature of 3000K or less (ideally 2700K if commercially available). White, blue and green lighting sources, including mercury or metal halide, CPO and CDO (ceramic discharge metal-halide) bulbs, will be avoided as these have effects on bats.

If bollard-style lighting will be used this will similarly be downward facing.

Full details of precautionary measures will be devised after completion of the further surveys detailed above.

4.4 Compensation and Enhancement Measures

4.4.1 Enhancement Measures for Bats

To enhance the site for bats, roosting opportunities should be provided on the site through the provision of artificial bat roosts. A variety of durable, woodcrete bat boxes, including maintenance free boxes suitable for trees are available from Vivara Pro. Four bat boxes will be installed on four separate mature trees (one bat box on each tree) within the mixed woodland to the east of the site. They will face a westerly through south easterly aspect and placed in a position which is not overly-exposed. Boxes should be located at least 3.5m (preferably 5m) above ground level, with bat boxes in positions where the entrance is not artificially illuminated at night.

See Appendix 10 for further details.

4.4.2 Enhancement Measures for Birds

To enhance the site for nesting birds, four bird boxes will be fitted to trees within mixed woodland to the east of the site, with entrance holes facing to the north or east. They should be located in secluded positions, ideally within dense cover and at a minimum height of 3 metres from ground level.

A variety of durable, woodcrete bird boxes, including maintenance free boxes suitable for trees, are available from Vivara Pro.

- Open fronted – Open fronted nest boxes cater for a range of bird species, including robin, dunnock (*Prunella modularis*) and wren. Due to the more exposed nature of these nest boxes, it is especially important to ensure that they are located in dense cover in order to avoid the attention of potential predators; and
- Standard nest boxes – An entrance hole of 32mm will attract species such as great, blue, blackbirds and sparrows.

See Appendix 11 for further details.

4.4.3 Hedgehogs Habitat Management

The following hedgehog friendly features should be considered for incorporation in the final design of the development:

- "Wild corners"- patches of long, natural vegetation could be left;
- Log piles to provide a secure site for use by breeding and hibernating hedgehogs. This should be sited in longer vegetation;
- The use of hedgerows instead of fences;
- The avoidance of pesticides including slug pellets, herbicides and insecticides during landscaping of the site; and

- Dedicated hedgehog nesting/hibernation shelters could be placed in suitable well-vegetated areas of the site.

4.5 Licensing

It has not been possible to determine whether a NRW Protected Species mitigation licence with respect to bats will be required. This will be determined after the further targeted surveys detailed in Section 3.4 have been completed.

4.6 Longevity of Report

If development works do not begin within eighteen months to two years of the date of this report of this report, an update survey is likely to be required in accordance with guidance from NRW[21] (CIEEM, 2019) and BS 42020:2013[22], to determine if conditions have changed since those described in this report.

4.7 Conclusions

The full extent of ecological impacts and potential constraints of the proposed development cannot be fully determined, based on the current survey results survey alone. Further survey work will be required before such assessments can be comprehensively made, as detailed in Section 4.1.

At this stage, the site's ecological value is not considered to represent a fundamental in-principal constraint to the proposed development.

[21] As set out in Point 5 of the NRW *Bat Surveys - Frequently Asked Questions* and Point 4 of the guidance included within the NRW European Protected Species Development Application Form.

[22] As set out in Section 6.2.1, point 7 which states that ecological information should not normally be more than two/three years old, or as stipulated in good practice guidance).

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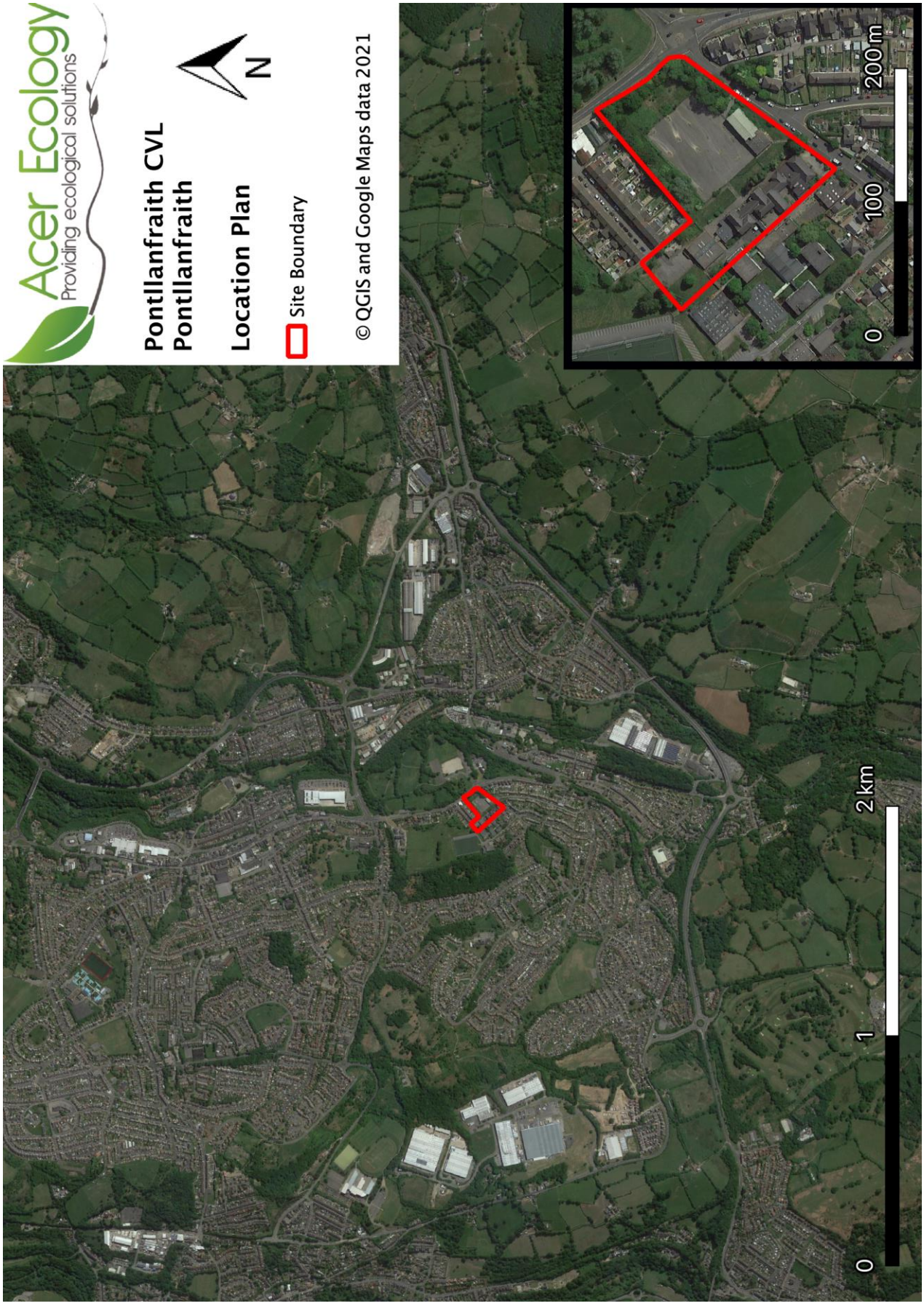
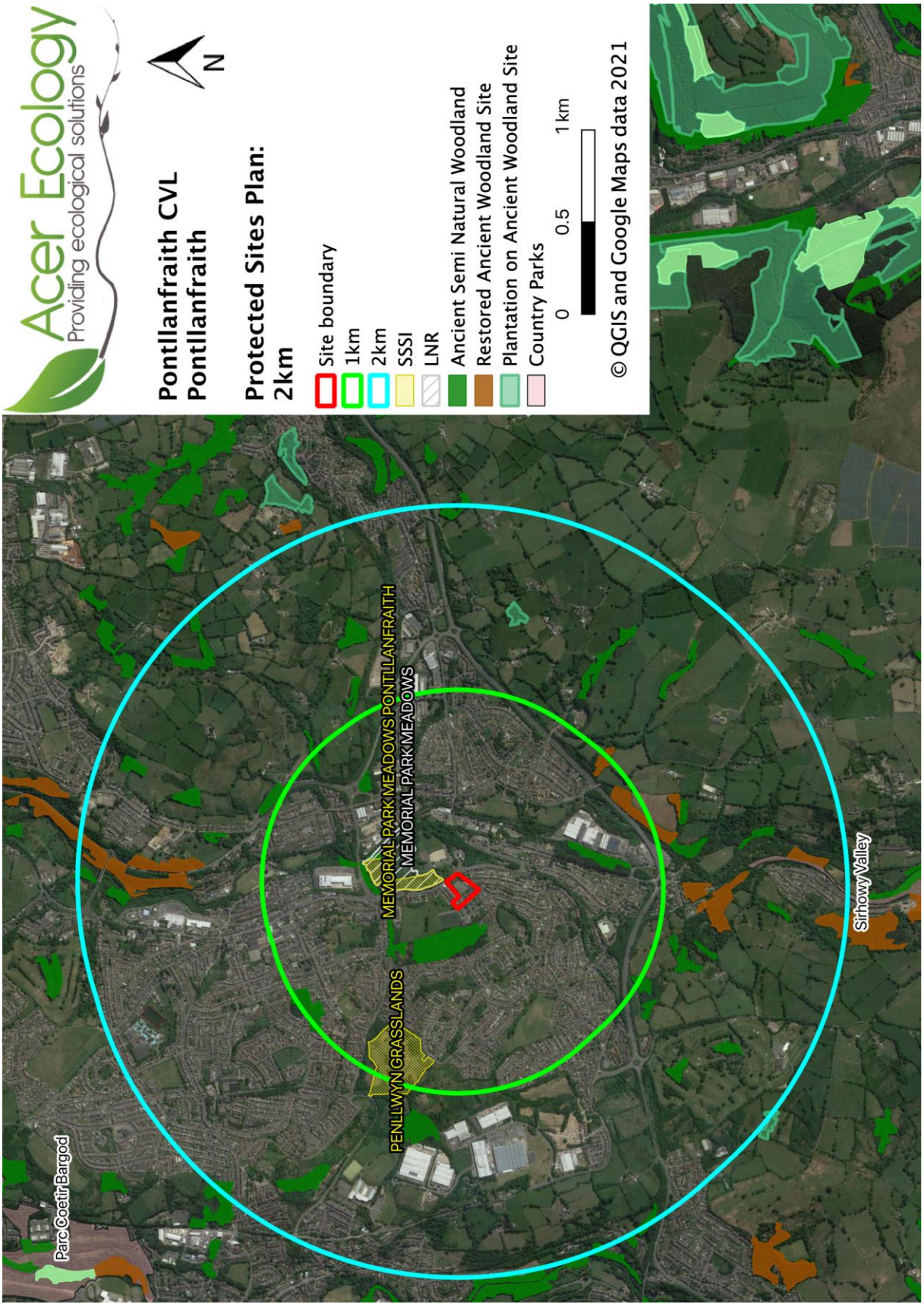
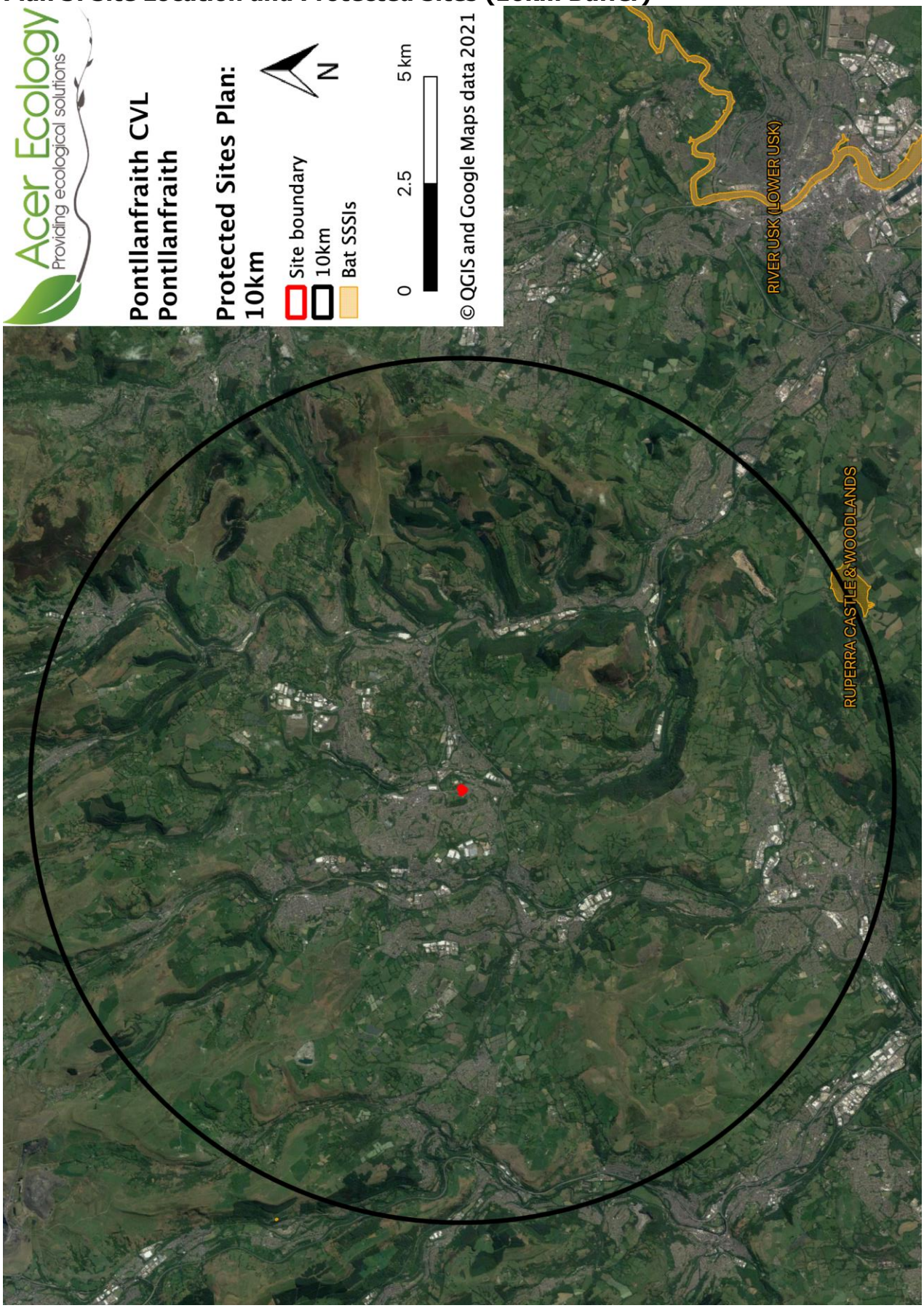
Plan 1: Site Location



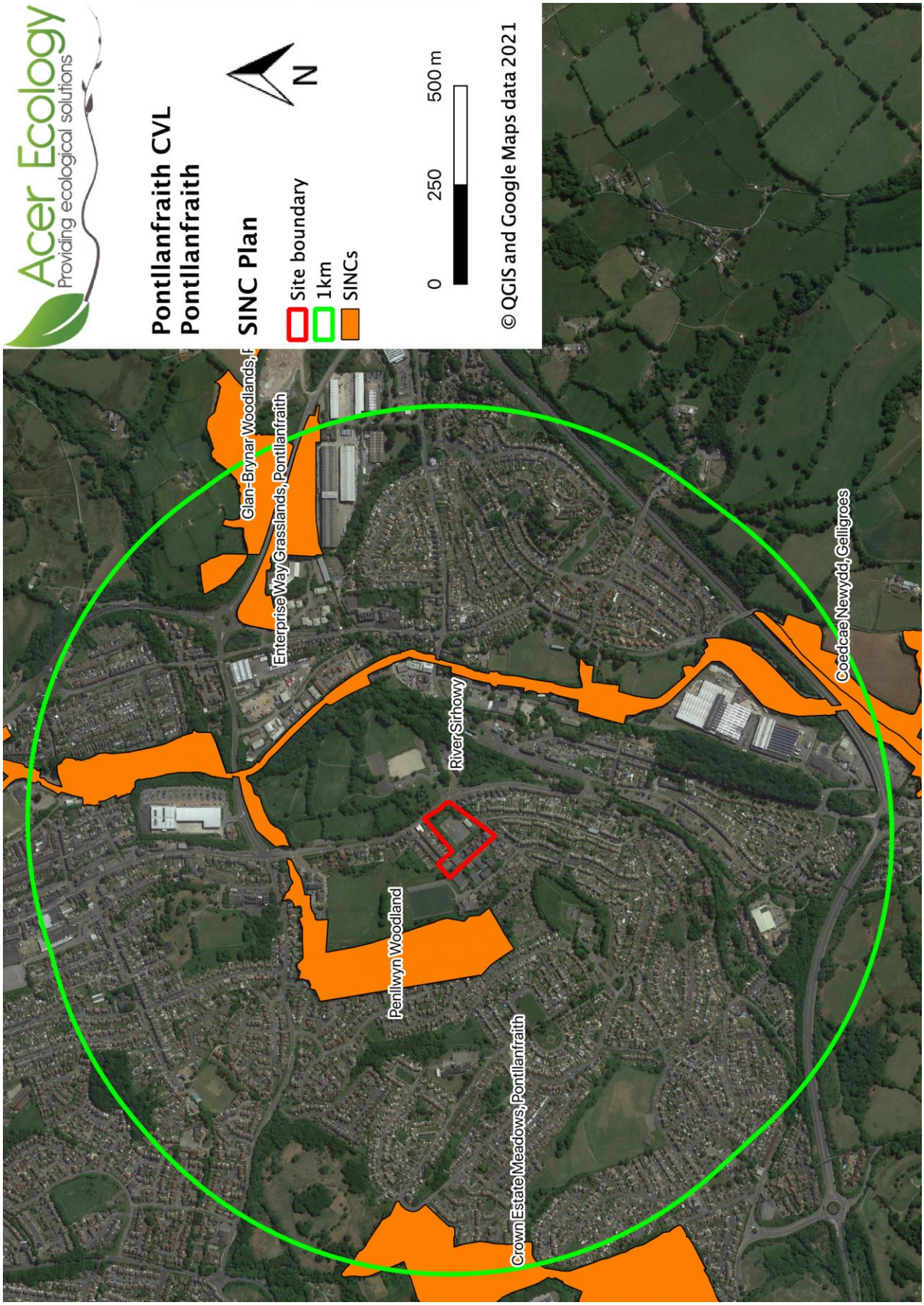
Plan 2: Site Location and Protected Sites (2km Buffer)



Plan 3: Site Location and Protected Sites (10km Buffer)

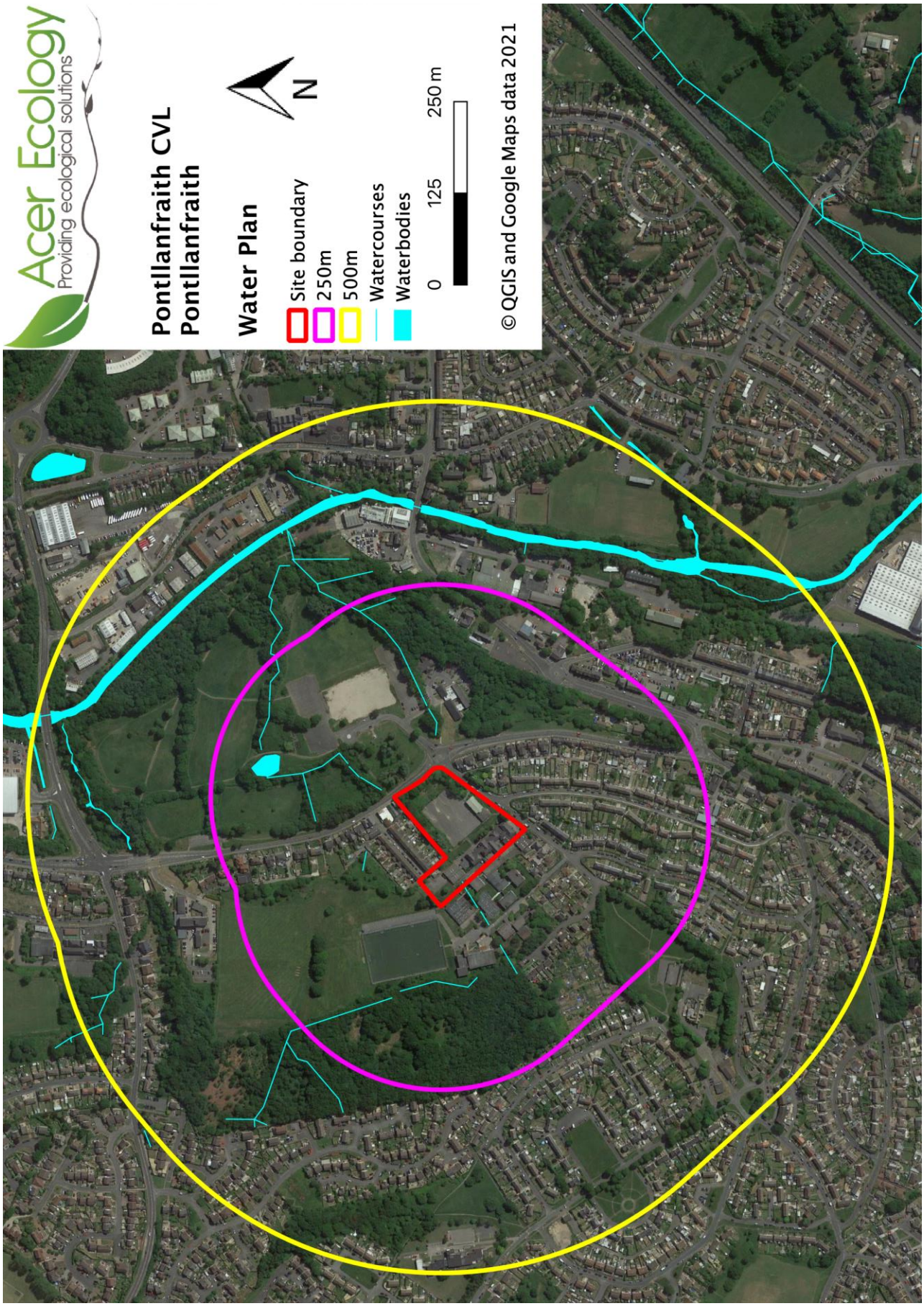


Plan 4: Site Location and SINCS (0.5km Buffer)



Plan 5: Habitats and Vegetation

Plan 3: Location of Water Bodies within 0.5km of Site



Plan 7: Recommended Surveyor Positions B1

Plan 8: Recommended Surveyor Positions B2

Plan 9: Recommended Surveyor Positions B4

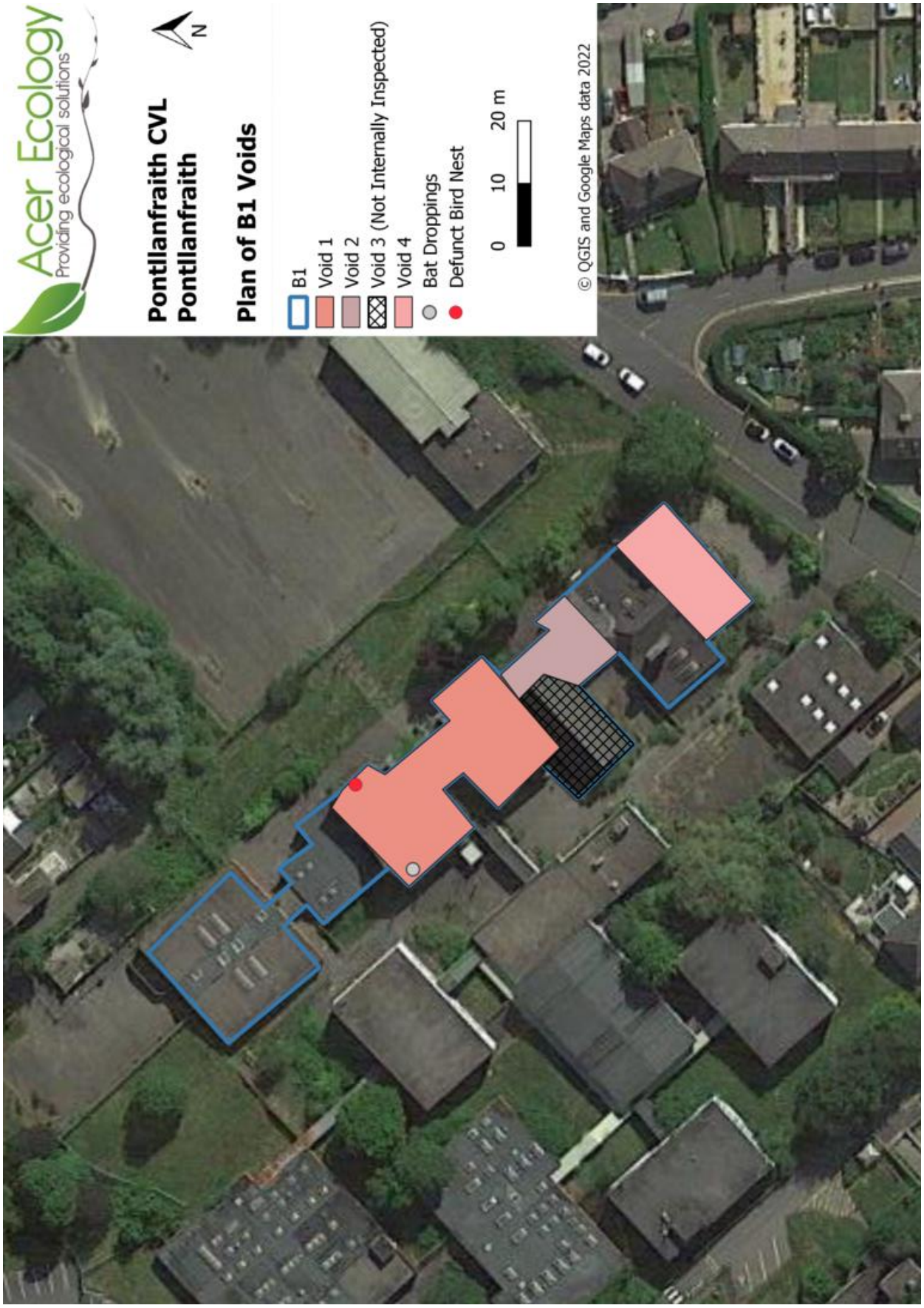
Plan 10: Recommended Surveyor Positions B5 and B6

Plan 11: Recommended Surveyor Positions B7

Plan 12: Recommended Surveyor Positions B9

Plan 12: Recommended Surveyor Positions B12

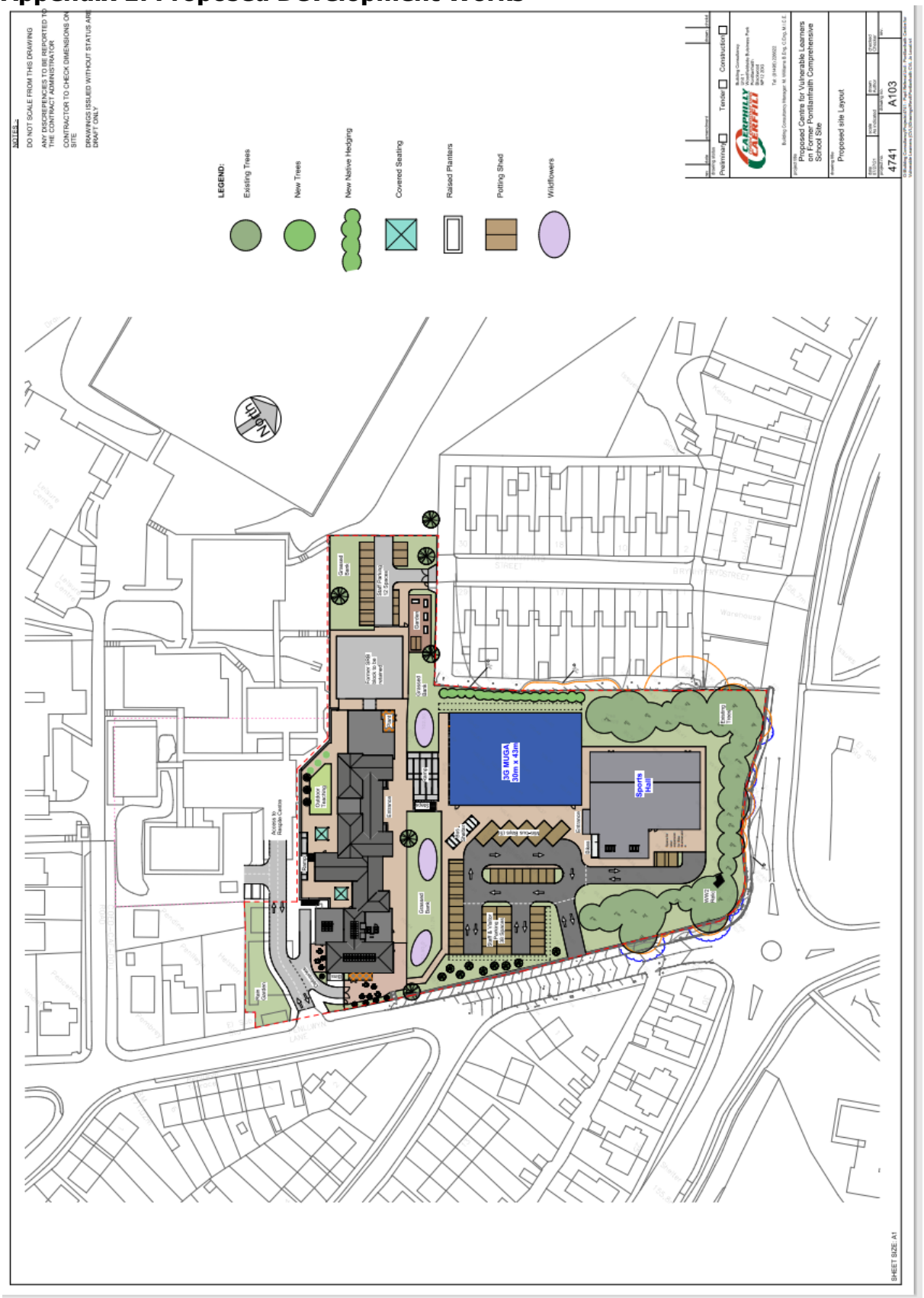
Plan 13: An Illustration of the Voids in B1



Plan 14: ECUS Ltd Survey Results

Plan 15: Location of Reptile Artificial Cover Objects

Appendix 1: Proposed Development Works



Appendix 2: Legislation and Policy Relating to Statutory and Non-Statutory Designated Sites and Planning Policy

SSSIs

SSSIs are important as they support plants and animals that find it difficult to survive elsewhere in the countryside, and they represent the country's best wildlife and geological sites. SSSIs are legally protected under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006, and are of national (second tier) biodiversity significance and form the essential building blocks of the United Kingdom's protected areas for nature conservation. Many are also designated as Natura sites i.e. internationally (first tier) designated sites. It is an offence for any person to intentionally or recklessly damage the protected natural features of a SSSI.

LNRs

Under the National Parks and Access to the Countryside Act 1949, LNRs may be declared by local authorities after consultation with the relevant statutory nature conservation agency. LNRs are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.

SINCs

SINCs are one of a class of nature conservation designations collectively referred to as 'Wildlife Sites'. Wildlife Sites are so-called 'third tier' sites, generally ranked below sites which are of international (first tier) or national (second tier) biodiversity significance, but which are considered to have substantive nature conservation value at the regional or district level. They are usually designated at the county or county borough level by the relevant local planning authority and are recognised as a planning constraint in the relevant statutory development plan.

The framework for the identification and designation of 'Wildlife Sites' is set out in various Government documents, and is referred to in *Planning Policy Wales* (2021) *and Technical Advice Note (Wales)* 5: *Nature Conservation & Planning*.

Protection in planning policies

- The Authority recommends that the Sites of Importance for Nature Conservation all be afforded protection in London's Unitary Development Plans, against proposals that may harm their value. The detailed policy wording should take planning guidance into account.

Environment (Wales) Act 2016

The Environment (Wales) Act Section 6 duty, or the Biodiversity Duty, requires that public authorities must seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions

and in so doing promote the resilience of ecosystems. In fulfilling this duty, planning authorities must have regard to the list of habitats and species of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016.

The Section 6 duty requires that developments should not be permitted which result in net loss of value to biodiversity and must seek to achieve biodiversity net gain. Where net loss cannot be achieved through avoidance or mitigation, compensation is required but it should be noted that ancient woodland cannot be compensated for.

Future Wales - the National Plan 2040

Future Wales is the national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities. Future Wales - the national plan 2040 is the national development framework and it is the highest tier plan, setting the direction for development in Wales to 2040. It is a framework which will be built on by Strategic Development Plans at a regional level and Local Development Plans. Planning decisions at every level of the planning system in Wales must be taken in accordance with the development plan as a whole.

National Planning Policy Wales (2021)

The primary objective of PPW is to ensure the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

Planning Policy Wales (PPW) Edition 11 - 24th Feb 2021 states that planning authorities must follow a stepwise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible. The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered.

Appendix 3: Protected Species Legislation

Birds

All wild British birds (while nesting, building nests and sitting on eggs), their nests and eggs (with certain limited exceptions) are protected by law under Section 1 of the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. Included in this protection are all nests (at whatever stage of construction or use) and all dependent young until the nest is abandoned and the young have fledged and become independent. Particularly rare species such as barn owl (*Tyto alba*) are listed on Schedule 1 which gives them additional protection from disturbance whilst nest building, whilst near a nest with eggs or young, or from disturbing the dependent young.

Bats

All species of bats and their roosting sites are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019 All species of UK bats are designated as 'European protected species'. Seven species of bat soprano pipistrelle, barbastelle, Bechstein's, noctule, brown long-eared, lesser horseshoe and greater horseshoe bats are listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales.

Great Crested Newt

GCN is a 'European protected species' afforded full protection under both UK and European legislation. This protection extends to the habitats which support GCN and it is generally assumed that the species might be present in terrestrial habitats up to 0.5km[23] of a breeding pond, depending on habitat quality, connectivity and population size. The GCN newt is a priority species in Wales Under Section 7 of the Environment (Wales) Act 2016.

It is also included in Caerphilly County Borough Council Local Biodiversity Action Plan.

Dormice

Dormice are a 'European protected species' and afforded full protection under both UK and European legislation. Dormice are listed under section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales. Since 2000, the UK population has declined by over a half (51%), decreasing on average by 3.8% per year (PTES, 2019). It is included in the Caerphilly County Borough Council Local Biodiversity Action Plan.

[23] Great Crested Newts have been recorded travelling long distances: 1.3km within a 7-week period by an immature individual GCN (Kupfer 1998, detailed in Jehle et al 2011); 250m in a study by Beebee and Griffiths (2000) and 120-360m in a study by Arntzen and Tenuis (1993). In addition, a study by Duff (1989) found that over half of a population overwintered in an area more than 120m away from the main breeding pond. However, long-distance movement of GCN is rare and most studies indicate that much shorter distances are typical (Jehle et al 2011). As a general rule, suitable habitats within 250m of a breeding pond are likely to be used most frequently (English Nature 2001).

Otters

Otters are designated as 'European Protected Species'. Their breeding sites or resting places[24] are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019 Otter is a priority species in Wales Under Section 7 of the Environment (Wales) Act 2016. Works affecting otter are subject to licensing procedures by NRW.

Water Voles

Water voles are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which prohibits the deliberate killing or injury of individuals, damaging, destroying or blocking access to their places of protection (either intentionally or through ignorance), disturbing them in a place of shelter, or possessing them. The habitats of common water voles are not specifically protected. Water voles are listed as a priority species in Wales Under Section 7 of the Environment (Wales) Act 2016.

Reptiles

With the exception of smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) (which are afforded greater protection), common reptiles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). They are given so-called 'partial protection', which prohibits the deliberate killing or injury of individuals. The habitats of common reptiles are not specifically protected. These species are listed as priority species in Wales under Section 7 of the Environment (Wales) Act 2016.

Hedgehogs

Hedgehogs are listed as a Red List mammal species in Britain and are afforded partial protection under the Wildlife and Countryside Act (1981) and are listed as priority species under Section 7 of the Environment (Wales) Act 2016. Additionally, hedgehogs are listed a priority species listed under the UK Biodiversity Action Plan in light of dramatic population declines. The legislation afforded to hedgehogs in Section 7 of the Environment (Wales) Act 2016 means that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity[25]. In effect, 'conserving biodiversity' includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

They are also listed in the Caerphilly County Borough Council LBAP in light of dramatic population declines.

[24] Resting places are defined as 'areas that are essential to sustain an animal or group of animals when they are not active' (Anon 2007).
[25] Biodiversity conservation in respect to hedgehogs is interpreted as a commitment to restoring or enhancing their population.

Appendix 4: Species Recorded

All species recorded by Acer Ecology, 2021

Taxonomic Name	Common Name	W	LM	CG	LDA	PMG	PIL	TF	Status
Trees and Shrubs									
Acer campestre	Field maple	W							
Acer pseudoplatanus	Sycamore								Alien
Aesculus hippocastanum	Horse chestnut								Alien
Betula pendula	Silver birch								
Betula sp.	Birch								
Buddleja davidii	Buddleia								Alien
Cornus sanguinea	Dogwood								
Corylus avellana	Hazel								
Cotoneaster sp.	Garden cotoneaster								Alien
Fraxinus excelsior	Ash								
Ligustrum ovalifolium	Garden privet								Alien
Ligustrum vulgare	Wild privet								
Olearia x haastii	Daisy-bush								Alien
Prunus avium	Wild cherry								
Quercus sp.	Oak								
Rosa canina	Dog-rose								
Rubus fruticosus agg	Bramble								
Salix alba	White willow								
Sambucus nigra	Elder								
Taxus baccata	Yew	W							
Tilia x europaea	Common lime								Alien
Herbaceous Plants									
Achillea millefolium	Yarrow								
Alchemilla conjuncta	Silver lady's-mantle								
Alchemilla sp.	Lady's-mantle								
Arrhenatherum elatius	False oat-grass								
Bellis perennis	Daisy								
Centaurea nigra	Common knapweed		LM	CG					
Chrysosplenium oppositifolium	Opposite leaved golden saxifrage	W							
Conopodium majus	Pignut	W	LM		LDA				
Dactylis glomerata	Cock's-foot								
Dactylorhiza fuchsii	Common spotted-orchid								
Epipactis helleborine	Broad-leaved helleborine	W							
Festuca rubra	Red fescue								
Fragaria vesca	Wild strawberry								
Geranium robertianum	Herb-robert								
Geum urbanum	Wood avens								

Glechoma hederacea	Ground-ivy								
Hedera helix	Ivy								
Holcus lanatus	Yorkshire fog								
Juncus inflexus	Hard rush								
Lotus corniculatus	Common bird's-foot-trefoil		LM	CG			PIL		
Oenothera sp.	Evening-primrose sp.								
Phleum pratense	Timothy grass								
Plantago lanceolata	Ribwort plantain								
Poa annua	Annual meadow-grass								
Polystichum setiferum	Soft shield-fern	W							
Ranunculus acris	Meadow buttercup								
Ranunculus repens	Creeping buttercup								
Rumex obtusifolius	Broad-leaved dock								
Senecio jacobaea	Common ragwort								
Trifolium pratense	Red clover		LM						
Tussilago farfara	Colt's-foot						PIL		
Urtica dioica	Common nettle								
Veronica arvensis	Wall speedwell			CG					
Veronica persica	Common field speedwell								

'Habitat Indicator Species' Totals (Wales Biodiversity Partnership 2008[26])		6	4	3	2	0	3	0	
		W	**LM**	**CG**	**LDA**	**PMR**	**PIL**	**TF**	

Key to Indicator Species (Wales Biodiversity Partnership 2008[27])

W - Woodland, LM – Lowland meadow, CG - Calcareous Grassland, LDA – Lowland Dry Acid Grassland, PMR Purple moor-grass and rush pasture, PIL – Post Industrial Land, TF Species-rich Tillage Fields and Margins

PS – Primary Species, CS – Contributory Species

[26] Wales Biodiversity Partnership (2008) Wildlife Sites Guidance Wales: A Guide to Develop Local Wildlife Systems in Wales. Wales Biodiversity Partnership/Welsh Assembly Government.

Appendix 5: Definitions of Site Value

International Value

Internationally designated or proposed sites such as Ramsar Sites, Special Protection Areas, Biosphere Reserves and Special Areas of Conservation, or non-designated sites meeting criteria for international designation. Sites supporting populations of internationally important species or habitats.

National Value

Nationally designated sites such as Sites of Special Scientific Interest (SSSIs), or non-designated sites meeting SSSI selection criteria (NCC 1989), National Nature Reserves (NNRs) or Nature Conservancy Review (NCR) Grade 1 sites, viable areas of key habitats within the UK Biodiversity Action Plan. Sites supporting viable breeding populations of Red Data Book (RDB) species (excluding scarce species), or supplying critical elements of their habitat requirements.

Regional Value

Sites containing viable areas of threatened habitats listed in a regional Biodiversity Action Plan, comfortably exceeding Site of Importance for Nature Conservation (SINC) criteria, but not meeting SSSI selection criteria. Sites supporting regionally significant areas of BAP habitats or large and viable populations Nationally Scarce species, or those included in the Regional Biodiversity Action Plan on account of their rarity, or supplying critical elements of their habitat requirements.

County Value/District Value

Site identified as a Site of Importance to Nature Conservation (SINC) at the district level; meeting South Wales Wildlife Sites Partnership (SWWSP) 2004 published designation criteria, but falling short of SSSI designation criteria, whether designated as a SINC or not. Ancient woodlands and sites supporting regionally significant areas of UK BAP habitat. Large scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/ LBAP or threatened species (other than badger).

High Local

Habitats which just fail to meet regional value criteria, but which appreciably enrich the ecological resource of the locality. Sites supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area. Moderate scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/LBAP or threatened species.

Local Value

Old hedges, woodlands, ponds, significant areas of species-rich grassland, small scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/LBAP or threatened species. Undesignated sites or features which appreciably enrich the habitat resource in the context of their immediate surroundings, parish or neighbourhood (e.g. a species-rich hedgerow). Rare or uncommon species may occur but are not restricted to the site or critically dependent upon it for their survival in the area.

Site Value (within the immediate zone of influence)

Low-grade and widespread habitats. Woodland plantations, structured planting, small areas of species-rich grassland and other species-rich habitats not included in the UK or Local BAP.

Negligible

No apparent nature conservation value.

Appendix 6: Guidelines for Assessing Potential Suitability for Proposed Development Site for Bats

Suitability	Commuting and Foraging Habitat
Negligible	Negligible habitat features on-site likely to be used by commuting and foraging bats.
Low	Commuting Habitat Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Foraging Habitat Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Commuting Habitat Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Foraging Habitat Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Commuting Habitat Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Foraging Habitat High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Proximity to Known Bat Roosts Site is close to and connected to known roosts.

Appendix 7: Guidelines for Assessing Potential Suitability of Buildings and Proposed Development Site for Bats [28]

Suitability	Description of Roosting Habitat	Commuting and Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting and foraging bats.
Low B2, B3, B4, B5, B6, B9, B10, B12, B13	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection appropriate conditions[29] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity) or hibernation[30]. A tree of sufficient size and age to contain PRFs but with none seen from the ground[31].	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only) the assessments in this table are made irrespective of conservation status, which is established after presence is confirmed.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High B1	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[28] Table 4.1 in Collins (2016)

[29] For example, in terms of temperature, humidity, height above ground levels, light levels or levels of disturbance.

[30] Evidence from the Netherlands, shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for large numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

[31] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Appendix 8: Bat Survey Protocol for Trees Affected by Arboricultural Work

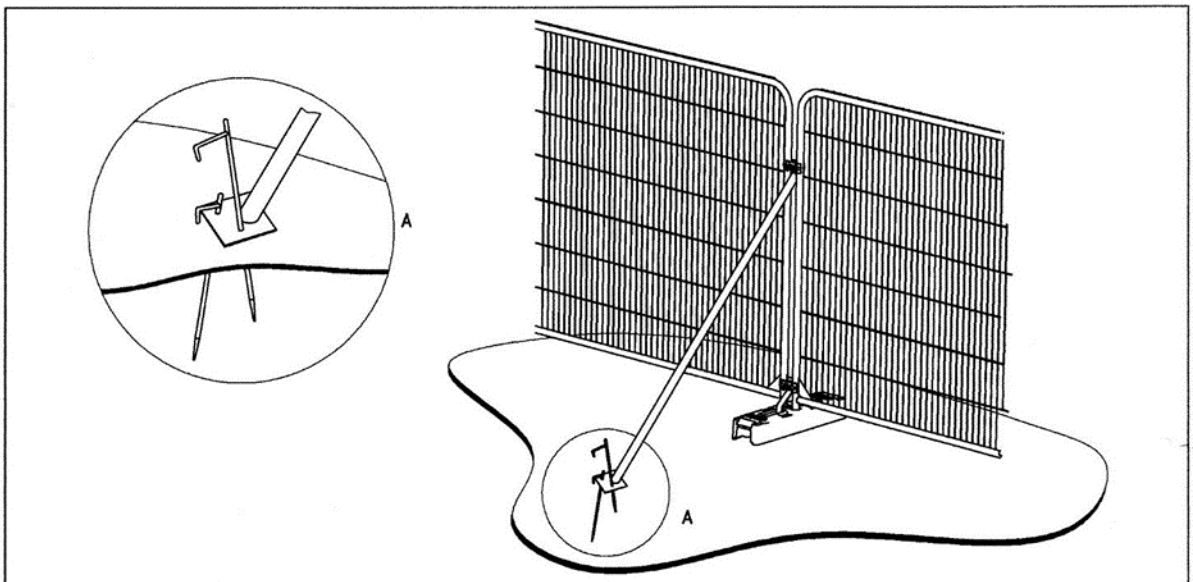
The trees were assigned to the following categories:

Suitability	Description of Roosting Habitat	Commuting and Foraging Habitat
Negligible		Negligible habitat features on site likely to be used by commuting and foraging bats.
Low (T2, T3, T4, T6, T7, T11, T15)	A tree of sufficient size and age to contain PRFs but with none seen from the ground[32].	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate (T1, T5, T7, T8, T10, T12, T13, T14)	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only) the assessments in this table are made irrespective of conservation status, which is established after presence is confirmed.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

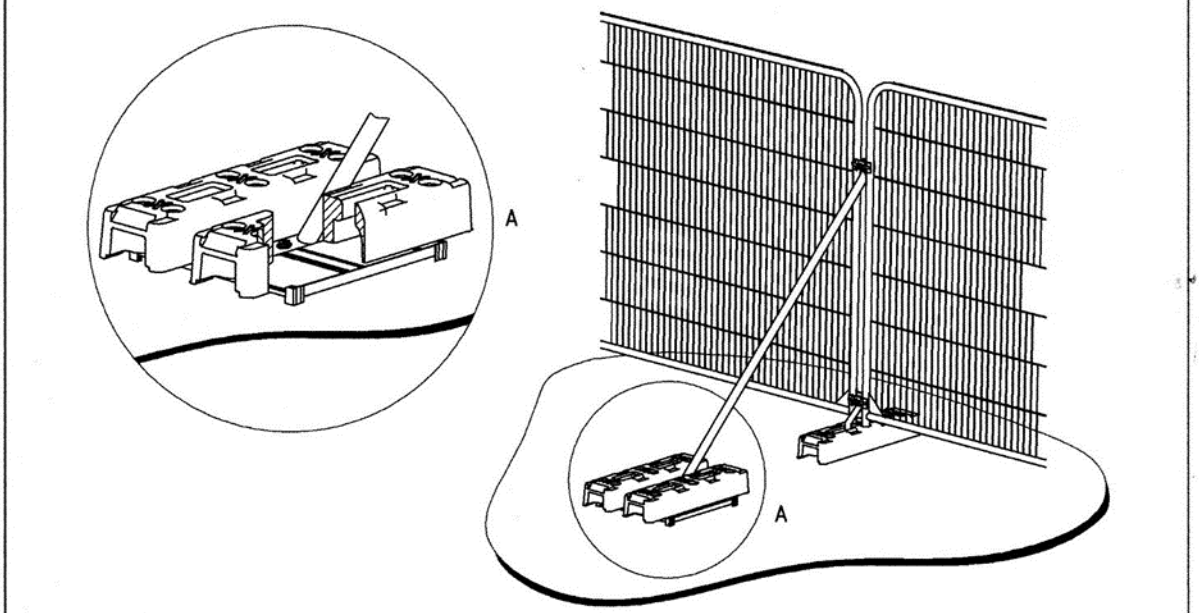
[32] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Appendix 9: Protective Barriers - BS 5837:2012

Above Ground Stabilising Systems



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Appendix 10: Example of Suitable Wall Light Fittings

	Description
	Light fitting sourced from http://www.energylightbulbs.co.uk/products/single-outdoor-wall-with-pir-movement-sensor-stainless-steel?gclid=CLuf2c63hM4CFYVAGwod0sYPvg
	Light fitting sourced from https://www.kichler.com/kichler/products/outdoor-lighting/outdoor-wall-lights/outdoor-wall-lights-no-arms/outdoor-wall-1lt-led-azt/
	Lighting sourced from https://www.kichler.com/kichler/products/outdoor-lighting/outdoor-wall-lights/outdoor-wall-lights-no-arms/3000-k-led-outdoor-lantern-bkt/
	Light fitting sourced from https://hammertonstudio.com/products/arch-sconce-24-h/
	Lighting sourced from https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/#!/Aged-Bronze-Bell-Shaped-Dark-Sky-Outdoor-Wall-Lantern/p/116556105/category=12541418
	Lighting sourced from https://www.homedepot.com/p/Home-Decorators-Collection-1-Light-Champagne-Silver-Outdoor-Wall-Mount-Barn-Lantern-Sconce-22999/302006431
	Lighting sourced from https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/#!/Bronze-Outdoor-LED-Wall-Lantern-Sconce/p/50117847/category=12541418
	Lighting sourced from http://www.theopenboxshop.com/hampton-bay-lexington-collection-outdoor-rustic-bronze-led-medium-wall-lantern/

A tool for finding 'bat-friendly' lighting is available at https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/

Appendix 11: Bat Boxes

Vivara Pro Woodstone Bat Box

The Vivara Pro WoodStone Bat Box is a hard waring bat box. It is made from WoodStone, a mixture of wood fibers from fully certified FSC wood sources and concrete, and it is designed to last for years.

It is breathable so there will be no problems with condensation and WoodStone maintains a consistent temperature inside, providing excellent insulation for roosting bats. WoodStone also provides a rough surface which the bats can easily cling to and move around the box. The Vivara Pro WoodStone Bat Box is black with a grey front panel.

Siting - The box can be attached to either a wall or a tree and should be sited at a height of at least 3-m from the ground. Bats prefer to change roosts to benefit from varying ambient temperatures, so bat boxes should ideally be clustered in small groups.

Dimensions - (H) 250 x (W) 190 x (D) 165 mm, weight: 4.5 kg.

Bat Box Availability

The bat box is available from NHBS (www.nhbs.com) where it retails at approximately £20.99 including VAT.

Appendix 12: Bird Nest Boxes

Vivara Pro Barcelona WoodStone Open Nest Box

These should never be hung on trees or bushes as this could allow small predators to access the interior and predate nesting birds.

This nest box should always be installed on the external walls of houses, barns, garden sheds etc. It is designed to be hung so that the entrance is to one side (90° angle to wall).

Correctly positioned it can attract species such as Black Redstart, Pied Wagtail, Grey Spotted Flycatcher, and occasionally Robin and Wren.
The front panel is easily removed to facilitate cleaning.

Dimensions - (H) 240 x (W) 190 x (D) 175 mm.

Bat Box Availability

The bat box is available from NHBS (www.nhbs.com) where it retails at approximately £22.99 including VAT.

NHBS Traditional Wooden Nest Box

The wooden bird nest boxes have been custom designed and manufactured from substantial 2cm thick FSC-certified European Redwood. These simple, breathable wooden bird boxes have a sloping roof and four drainage holes and are ideal for providing crucial nesting spaces for the smaller garden birds.
Nest boxes also provide vital roosting spaces for birds during the cold winter months and the thick walls of these nest boxes will ensure that roosting birds stay warm.

The boxes can be expected to last 5-10 years and are constructed using stainless steel staples which will not rust.

These boxes can be installed on a tree or wall and should be placed two to four metres above ground. There should be a clear flight path to the entrance hole and the boxes should be placed so that the entrance is not exposed to strong sunlight or winds.

Dimensions - (H) 245 x (W) 135 x (D) 185 mm

Bird Box Availability

The bat box is available from NHBS (www.nhbs.com) where it retails at approximately £14.95 including VAT.