



Autumn Leaves

Merthyr Tydfil

Ecological Impact Assessment

November 2022

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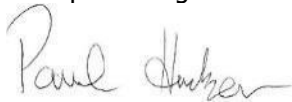
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Document Verification Table

Autumn Leaves, Merthyr Tydfil Ecological Impact Assessment				
Revision	Date	Prepared by	Checked by	Verified by
1.0	07 December 2022	Megan Fowler Assistant Ecologist 	Holly Gillon Assistant Ecologist 	Paul Hudson MCIEEM Principal Ecologist 
2.0	01 November 2022	Megan Fowler Assistant Ecologist 	Rebecca Corley Assistant Ecologist 	Paul Hudson MCIEEM Principal Ecologist 

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Summary

Brief and Site Location	Acer Ecology Ltd. were commissioned by Clive Tovey to conduct an Ecological Impact Assessment of land at Autumn Leaves, Grawen Lane, CF48 2NP, within the boundary of Merthyr Tydfil County Borough Council (Ordnance Survey Grid Reference centred at: SO 0288 0811). 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. This assessment will provide initial recommendations based on the development proposals available at the time of writing. They should be revised upon finalisation of the design.
Development Proposals	The proposed development works have not been finalised at the time of writing. However, preliminary proposals comprise clearance of the site to facilitate the development of a holiday home with associated parking, in the garden of the property named Autumn Leaves. Two copper beech tree T09 (Low Bat Roosting Potential) and T10 (Moderate Bat Roosting Potential) and an area of amenity grassland will need to be cleared for the development. In addition, a common oak tree T06 (Moderate Bat Roosting Potential) and a sycamore tree T08 (Low Bat Roosting Potential) will be pruned for construction access.
Impacts to Key Receptors	No habitats on site are likely to be greater than site value. Whilst the loss of the on-site habitat would be unlikely to have a significant impact outside of the context of the site, it would nevertheless be desirable that the impact be either minimised or appropriately mitigated where possible. There is potential for impacts to nesting birds, bats, and hedgehogs. Provided appropriate precautionary and mitigation measures detailed in Section 4 are implemented, the above impacts can be avoided.
Invasive Species	The development may result in the spread of montbretia and rhododendron which are invasive plant species. Measures to prevent this are set out in Section 4.
Recommendations	The following provisional recommendations have been developed based on the development proposals available at the time of writing. • Precautionary measures for birds, reptiles and hedgehogs; • Tree felling; • Tree retention; • Sensitive lighting strategy for bats; • Montbretia and rhododendron treatment; and • Compensation and enhancement measures.
Licensing Requirements	In the event that works impact T06 and T10, a European protected species mitigation licence may be required upon completion of further surveys.
Conclusions	Provided the precautionary and mitigation measures detailed in Section 4 are implemented, the development is not anticipated to result in adverse impacts to any protected sites, habitats or species. The site's ecological value is not considered to represent a fundamental in-principal constraint to the proposed development.

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	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 Natural Resources Wales (NRW), (CIEEM, 2019) and BS 42020:2013, to determine if conditions have changed since those described in this report.
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1. Introduction

1.1. Brief

Acer Ecology Ltd. were commissioned by Clive Tovey to conduct an Ecological Impact Assessment of land at Autumn Leaves, Grawen Lane, CF48 2NP, within the boundary of Merthyr Tydfil County Borough Council (Ordnance Survey Grid Reference centred at: SO 0288 0811)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.

This assessment will provide initial recommendations based on the development proposals available at the time of writing. They should be revised upon finalisation of the design.

1.2. Site Description

The site proposed for development measures approximately 0.20ha and is situated within the garden of a house known as Autumn Leaves. The site is located within a walled garden and is surrounded by two separate dwellings with associated gardens. The garden is bordered by trees on its southern, eastern, and northern boundaries. Along the western boundary lies further housing and associated gardens. It is situated rurally, on the edge of Cefn-Coed-y-Cymmer, to the north-west of Merthyr Tydfil. The River Taff lies 0.13km to the west of the site, surrounded by woodland.

1.3. Proposed Works

The proposed development works have not been finalised at the time of writing. However, preliminary proposals comprise clearance of the vegetation and trees to facilitate the development of a single-storey holiday home with associated parking in the garden of Autumn Leaves dwelling².

The proposed development plan is provided in Appendix 2.

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;
- A Phase 1 Habitat Survey of the site, extended to search for evidence of, and potential for, protected fauna; and

¹ Latitude and Longitude: 51.763220, -3.4086818/ what06words: stack.lace.filer

²https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/SearchResult/RunThirdPartySearch?FileSystemId=DC&FOLDER1_REF=P/21/0194

- 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 2016 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 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 3. Plans 2, 3, and 4 show the statutory and non-statutory 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	SEWBRcC
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 ³ SACs (designated for bats) - 10km. 2km.
SEWBRcC	Protected species records (SEWBRcC unique reference 0212-570) SINCs	1km for most species (records from up to 2km were returned by SEWBRcC). 1km.

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

³ 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.

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

The protected species search of 1km is considered appropriate. Page 15 of CIEEM's Guidelines for Preliminary Ecological Appraisals states that 'Existing ecological information for the site and adjacent areas should be obtained, normally extending to at least 1km from the site boundaries (or 0.5 km for sites of approximately 1 ha or less). The search for desk study information will need to extend further beyond the site boundaries to ensure that all information of relevance to the assessment has been collected. In this instance a 1km data search for protected species is considered appropriate.

2.1.2. Landscape Context

The site and wider landscape were assessed and characterised using aerial images and SEWBRc 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 Merthyr Tydfil County Borough Council planning portal⁴ 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 field survey was undertaken in fair weather on the 27th October (2021) by Ffion Jones⁵ and Megan Fowler⁶.

⁴ <https://publicaccess.merthyr.gov.uk/online-applications/>

⁵ 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>.

⁶ 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 several years and has undertaken conservation work in Mexico and with several UK-based organisations.

2.2.2. Vegetation and Habitats

The vegetation and habitat types present within the survey area were categorised and mapped in accordance with the standard⁷ 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 3).

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 9⁸ 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 Project⁹ reviews, in the Species of Conservation Concern Red, Amber or Near Threatened List¹⁰, Birds of Conservation Concern in Wales¹¹, or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);

⁷ Some additional categories were also used if applicable e.g. hard standing and Japanese knotweed.

⁸ 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.

⁹ 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>).

¹⁰ 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.

¹¹ 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).

- 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:

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 bats could use for roosting (Potential Roost Features¹² (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 Plan 5.

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 9). A high-powered torch (Clulite), an endoscope (Snake vision) and binoculars.

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 7). 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.

¹² 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.

Dormice

The habitats on site were 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 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.

No fruiting 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.

A full nest tube/box survey was not undertaken as this was beyond the scope of the assessment.

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).

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. Water bodies were identified within the study area (see Plan 6).

The River Taff also lies within 0.5km of the study area. However, flowing water is considered to act as a barrier to GCN migration (English Nature, 2001). This water body was therefore deemed unsuitable for supporting GCN.

No ponds or other areas of standing water were recorded on site during the survey or within the 0.5km range. The site, therefore, does not contain suitable habitat for supporting great crested newt during the aquatic stage of their lifecycle. This species is therefore not mentioned further in this report.

Otters

The nearest suitable water body for otters comprises the River Taff, which lies approximately 0.13km west of the proposed development site. The watercourse itself is likely to not be of any influence on the possible presence of otters as there is currently a large construction site, which has cleared the majority of the suitable woodland habitat between the site and watercourse, to the west of the proposed site. Additionally, the site is surrounded by a stone wall making it unlikely that otters would venture onto 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.

This species is therefore not mentioned further in this report.

Badgers

Earth embankments, wooded copses, 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

An assessment of the suitability of on-site habitats to support reptiles was made. Reptiles require a diverse range of habitats to meet their needs such as hedgerows, scrub, rough grassland, woodpiles, rubble, banks and compost heaps. The potential of the site to provide hibernation opportunities and spring/summer/autumn habitat was also assessed, with reference to guidance provided in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003), the Reptile Management Handbook (Edgar, Foster & Baker, 2011) and the Reptile Mitigation Guidelines Technical Note TIN 102 (Natural England, 2013). The following factors were considered: vegetation type and structure; insolation (sun exposure); slope aspect; topography; surface geology; habitat connectivity; habitat size; prey abundance; refuge opportunity; hibernation opportunity; egg-laying potential for grass snake (*Natrix helvetica*); public pressure; percentage of shade; levels of disturbance and management regime.

A targeted presence/likely absence reptile survey was not undertaken as it was beyond the scope of this assessment.

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 6.

2.2.5. Constraints and Limitations

General Temporal Constraints

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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.

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.

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

No statutory sites (SACs or SSSIs) designated for bats were found within 10km of the site.

SSSIs, LNRs, and National Parks within 2km of Site

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

Table 4: Statutory Sites Designated Within 2km

Site Name	Designation	Description	Distance and Direction from Development Site	Development Impacts
Brecon Beacons	National Park	National Parks are designated for their aesthetic and recreational value as opposed to wildlife value as well. However, they often contain habitats of high ecological value. The Brecon Beacons National Park comprises a rich mosaic of upland habitats and rolling valleys.	0.13km to the east.	No adverse impacts are anticipated due to the scale of development.
Cwn Taf Fechan Woodlands ¹³	SSSI LNR	Where the partially wooded valley of the Taf Fechan crosses the north crop Carboniferous Limestone. Mixed deciduous woodlands cover steep slopes and spoil from quarries with one of the few Glamorgan stations for limestone oak fern (<i>Gymnocarpium robertianum</i>). There are interesting plant	0.49km to the east.	No adverse impacts are anticipated due to the scale of development.

¹³ https://naturalresources.wales/media/642350/SSSI_0404_Citation_EN001d5eb.pdf

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		communities in flushes around tufa springs and luxuriant growths of bryophytes in the splash zone of the river.		
Penmoelallt ¹⁴	SSSI	A mixed woodland of ash, oak, wych elm and small-leaved lime overlying Carboniferous Limestone. The rare Ley's whitebeam (<i>Sorbus leyana</i>) grows on a small escarpment within the wood.	1.40km to the north east.	No adverse impacts are anticipated due to the distance to 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 2km

Site Name	Designation	Description	Distance and Direction from Development Site	Development Impacts
Cwm Taf Fawr	SINC	The upper reaches in particular are of high ecological value, comprising limestone gorge woodland with a rich ground flora. Numerous rare plant species occur here. Further south the riverside woodland is more acid in character, but nevertheless supports a relatively diverse ground. The site also includes some adjacent areas of species-rich calcareous, neutral and acid grasslands. The calcareous grasslands in particular support numerous species which are scarce in the County Borough.	0.07km to the west.	No adverse impacts due to: - the nature of its designating features; and - the small-scale of the proposals.
Cilsanws Common South	SINC	Main habitats are acid grasslands with bracken slopes intermixed with numerous areas of acid flush and marshy grassland. Also present are areas of semi-natural woodland, including wet woodland areas, neutral grassland, ponds and streams, a small reedbed and some small areas of species-rich calcareous grassland on a limestone tip	0.25km to the north.	

¹⁴ https://naturalresources.wales/media/638595/SSSI_0245_Citation_EN001815d.pdf

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Cwm Taf Fechan	SINC	The limestone geology gives rise to limestone woodlands, species-rich calcareous grasslands, species-rich neutral grasslands and calcareous scrub. Many species of interest have been recorded from the woodlands which are the designated feature of the SSSI. The neutral and calcareous grasslands of the valley slopes and bottom are typically species-rich. Otter ranges along the Afon Taf Fechan, which also supports a range of native fish species including salmon.	0.35km to the east.	
Cwm Ffrwd	SINC	Valley habitats along the Nant Ffrwd, a large stream draining from the uplands in a largely unmodified course, passing through narrow gorges in places. The woodlands have a rich ground flora supporting many ancient woodland indicator species. Regionally rare plant species frequent the steep woodlands, several nationally scarce bryophytes and lichens have also been recorded.	0.41km to the south.	
Cwm Taf Fields & Cefn Coed Tip	SINC	Linear series of fields between the Afon Taf Fawr and the A470, also containing areas of semi-natural woodland and a re-vegetated limestone slag tip from the former Cyfarthfa Ironworks as well as smaller areas of semi-improved acid grassland, scrub, bracken slopes and dry heathland. The fields are a mosaic of damp and dry neutral grasslands with species-rich areas. The woodlands are variable in character, including areas of wet willow woodland, acid oak woodland and some base-rich ash woodland near the calcareous tip.	0.42km to the south	
Gellideg North Fields	SINC	Series of fields containing species-rich rhos pastures, acid grasslands, marshy grasslands, neutral grasslands and areas of bracken, together with scattered mature trees and sections of dry acid oak woodland and wet alder woodland alongside a small	0.52km to the south.	

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		stream. The grasslands support a wide range of regionally scarce insect species.		
Y Graig	SINC	Area of fridd habitats dominated by bracken with patches of unimproved acid grassland and dry heathland, particularly around gritstone outcrops. An area of species-rich damp neutral and marshy grassland to the west and some wet willow woodland exists to the south. Other habitats include scrub and boulder scree.	0.55km to the east.	
Coed Meirig Pastures	SINC	Small group of horse-grazed fields supporting a mosaic of marshy grassland and semi-improved acid grassland. The marshy areas are mostly species-rich with bordering rush pastures. An area of fen meadow in the east of the site supports the regionally scarce plants. There are also small areas of species-rich neutral grassland and bramble scrub. Mature broadleaved trees are present along field boundaries and several small streams cross the site.	0.92km to the south-west.	

Ancient Woodland

There are 19 areas of ASNW, seven PAWS, and three RAWs located within 2km of the proposed development site, the nearest of which is an area of ASNW 0.12km to the east 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. They are therefore not mentioned further in this report.

3.3. Habitats and Vegetation

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

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

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Table 6: Habitats Recorded on Site

Habitat	Description	Ecological Value	Development Impacts
Mixed Woodland (A1.3.1)	North of the development site outside the boundary of the site and there is a small area of mixed woodland (GO3). This woodland contains various species including conifers spp. (<i>Pinophyta spp.</i>), scotch pines (<i>Pinus sylvestris</i>) and mature sycamore trees (<i>Acer pseudoplatanus</i>).	Local Value.	These trees are proposed for retention in the updated development plans and are now not to be impacted by the development. However, if it is determined that these trees are to be affected and will be required to be pruned to achieve 1.5m construction access, additional surveys will be needed on the mature sycamore trees located within this area. Recommendations to avoid such impacts and mitigate accordingly are set out in Section 4.
Scattered Broadleaved and Coniferous Trees (A3.1 and A3.2)	The site contains several trees. There is a distinct treeline bordering the eastern boundary of the wider site. The treeline is made up of semi-mature sycamore trees. There are three trees within or on the north of the boundary of the proposed development site to east of the site, two copper beech (T09 and T10) (<i>Fagus sylvatica</i>) and a common oak (<i>Quercus sp.</i>). T09 is a copper beech located approximately 4m east of the greenhouse and has a disused bird box located around 4m above ground level. T06 is a mature common oak tree and is approximately 2m south of T09 and has a DBH of 55cm. Limbs on the northern elevation of the tree contain dead wood that bats may potentially use as roosting sites. Additionally, a bird box is attached to the trunk. T08 is a sycamore tree located off site and has a DBH of 35cm. T10 is also a copper beech approximately 3m north of T09 and is located nearest to the stone wall, on the northern boundary of the wider site. T10 has an identified potential bat roost feature (PRF).	Local Value.	The majority of the trees are proposed for retention on site, however, T09 and T10 is within the development footprint, and are proposed to be felled. . Additionally, T10 has potential for roosting bats and the felling may result in the loss of roosting sites. Recommendations to avoid such impacts and mitigate accordingly are set out in Section 4. T06 and T08 are proposed to be retained but will require to be pruned to achieve 1.5m construction access. Felling of these trees may result in direct adverse impacts to birds nesting within these habitats, including the loss of potential nesting sites.
Semi-Improved Neutral Grassland (B2.2)	Semi-improved neutral grassland is located to the west of the greenhouse, running parallel to the bungalow and the greenhouse. The grasses dominating this vegetation, include the most abundant species cock's-foot (<i>Dactylis glomerata</i>), false oat-grass (<i>Arrhenatherum elatius</i>), red fescue (<i>Festuca rubra</i>) with occasional Timothy (<i>Phleum</i>	Site value.	This habitat is proposed for retention.

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	<i>pratense</i>). Frequent forbes include creeping buttercup (<i>Ranunculus repens</i>), ivy (<i>Hedera helix</i>), common nettle (<i>Urtica dioica</i>), common knapweed (<i>Centaurea nigra</i>) and common ragwort (<i>Senecio jacobaea</i>).		
Amenity grassland (J1.2) and Garden planting.	The rest of the remaining grassland in the wider development footprint and within the proposed development footprint is comprised amenity grassland dominated by mosses and red fescue. Areas of grassland to the north and south of the main house are bordered by ornamental planting including but not limited to evening primrose (<i>Oenothera sp.</i>), montbretia (<i>Crocsmia sp.</i>), rhododendron (<i>Rhododendron ponticum</i>), Yucca-leaved (<i>Yucca sp.</i>), Mediterranean cypress (<i>Cupressus sempervirens</i>) and wildflower plantings. However, native species have also colonised these areas including species such as soft shield fern (<i>Polystichum setiferum</i>), creeping buttercup (<i>Ranunculus repens</i>), common ragwort (<i>Senecio jacobaea</i>) and dandelion (<i>Taraxacum sp.</i>). Other less frequent species include wall speedwell (<i>Veronica arvensis</i>) and silver lady's mantle (<i>Alchemilla conjuncta</i>).	Site Value.	An area of amenity grassland comprises the majority of the proposed development footprint and proposed parking. This area of amenity grassland will be permanently lost to the development.
Tall Ruderal Vegetation (C3.1) and Bare Ground (J.4)	There are two areas of tall ruderal vegetation located to the north-west and north-east of the site. The north-western tall ruderal area is dominated by bramble (<i>Rubus fruticosus</i> agg.), great hairy willowherb (<i>Epilobium hirsutum</i>) and soft shield-fern. There are two oak saplings located on the within this habitat. Ivy, herb-robert (<i>Geranium robertianum</i>) creeping ivy (<i>Glechoma hederacea</i>), buttercup (<i>Ranunculus sp.</i>), clover (<i>Trifolium sp.</i>), dandelion and evening primrose species form the understory of this habitat. Additionally, grasses include cock's-foot and red fescue. The north-eastern area of the site is dominated by pheasant berry (<i>Levcesteria formosa</i>), bramble and cypress species. It also contains young specimens of holly (<i>Ilex sp.</i>), hazel and sycamore. Forbes include but are not limited to great hairy willow herb, dandelion, common nettle,	Site Value.	The north western area of tall ruderal will to be retained, however, the area of tall ruderal to the north east of the site may be compromised by the development. The development plans, illustrates that the development will need to be 10 m from the eastern stone wall of the garden. Therefore, the majority of the north-eastern area of the tall ruderal may not be affected during development.

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	broadleaved dock (<i>Rumex obtusifolius</i>) and wood avens (<i>Geum urbanum</i>). This section of tall ruderal vegetation also contains the invasive species rhododendron and montbretia.		
Fence (J3.4)	There is a wooden fence present on part of the site, approximately 8m to the north of the main house.	Site Value.	There will be no effect on habitat loss.
Disturbed ground/ Bare Ground (J.4)	There is an area directly north of T06 that has been recently cleared and disturbed. Soil currently dominates this habitat.	Negligible value.	There will be no effect on habitat loss.
Hard Standing ¹³	There are several different areas of hard standing located across the site creating pathways. The main area is located to the south of the main house, the hard standing is currently used as parking and a small drive for the residents.	Negligible value.	No loss.
Montbretia	Montbretia is located in the north-east of the wider site and south of the wider site. It is scarcely spread in these sections of vegetation.	See Section 3.4.	The montbretia within the tall ruderal to the north-east of the site may be disturbed and spread accidentally during the development. See Section 3.4.
Rhododendron	Rhododendron is in the northeast of the site and south of the site. It is scarcely spread in these sections of vegetation.	See Section 3.4.	The rhododendron within the tall ruderal to the north-east of the site may be disturbed and spread accidentally during the development. See Section 3.4.
Species-poor Hedge	Bordering the north-west of the wider site is a species-poor hedge comprising predominately of privet (<i>Ligustrum ovalifolium</i>) with some occasional holly. The understory mainly comprises of creeping ivy, soft-shield fern, and bramble.	Site Value.	Not within the development footprint no impacts are foreseen.

As the impact of the proposals are to be confined to the development footprint, it is not anticipated that there will be any adverse impact to habitats outside of this footprint.

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Photo 1: Hardstanding



Photo 2: Garden Planting Vegetation and Hardstanding



Photo 3: Amenity Grassland, Garden Planting and Shrubs



Photo 4: Garden Planting Bordering Amenity Grassland



Photo 5: Wooden Fence



Photo 6: Amenity Grassland and Garden Plantings



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Photo 7: Semi-Improved Neutral Grassland



Photo 8: T10 Near Northern Wall of the Wider Site



Photo 9: Bare Ground North of T06



Photo 10: Amenity Grassland and View of T09



Photo 11: Sycamore Treeline on the Eastern Boundary of the Wider Site



Photo 12: Invasive Species Monbretia in Tall Ruderal to the North-East of Wider Site



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Photo 13: Sycamore Treeline on the Eastern Boundary of Wider Site

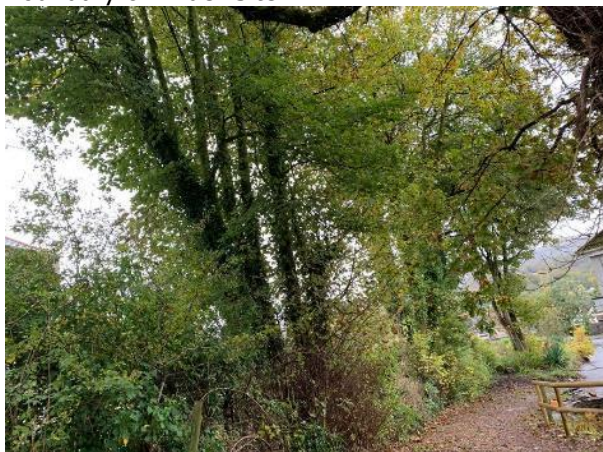


Photo 14: Invasive Species Rhododendron in Tall Ruderal to the North-East of Wider Site



Photo 15: Invasive Species Montbretia in Tall Ruderal to the North-East of Wider Site



Photo 16: Disturbed Ground on the Northern Boundary of the Site



3.4. Invasive Plant Species

Details of the invasive species on site are described in detail below:

Species	Occurrence on Site	Legislation	Assessment of Potential Development Impacts
Montbretia	Occasional. Mostly located within the garden planting bordering the amenity grassland and within the tall ruderal to the north-east of the site.	Schedule 9 invasive plant. A non-native species that poses a conservation threat to native biodiversity and habitats, such that further releases should be regulated.	The clearance of the site will involve the removal of the invasive montbretia. If the montbretia and rhododendron are not cleared carefully and sensibly this may spread further. In addition to this if left unmanaged, the montbretia and rhododendron will continue to spread across the site, resulting in a reduction in species richness and biodiversity (although the site is a garden hence mainly of only site value for wildlife). Recommendations for appropriate removal and control of these species is provided in section 4.
Rhododendron	Occasional. Mostly located within the garden planting bordering the amenity grassland and within the tall ruderal to the north-east of the site.	This species has a negative effect on the biodiversity of the site.	

3.5. Protected and Notable Species

3.5.1. Notable Plant Species

Data Trawl Results

SEWBReC returned a number of records of rare or '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:

- Bee Orchid (*Ophrys apifera*), 0.87km in 2015;
- Limestone Fern (*Gymnocarpium robertianum*), 0.64km in 2013;
- Fritillary (*Fritillaria meleagris*), 0.62km in 2018;
- Welsh Poppy (*Meconopsis cambrica*), 0.01km in 2020; and
- Soft-leaved Sedge (*Carex montana*), 0.64km in 2013

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:

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Table 7: Records of Birds

Species		Schedule 1	Section 7 list – Environment Act Wales	UK BAP	Red list ¹⁵	Amber list ¹⁶	Breeding Habitat ¹⁷	Wintering Habitat
Dunnock	<i>Prunella modularis</i>		Yes	Yes		Yes	Scrubland, woodland, field hedgerows, suburban parks and gardens	As breeding habitat
House sparrow	<i>Passer domesticus</i>		Yes	Yes	Yes		Agricultural land, grasslands, hedgerows, scrub, parks, gardens and farmyards	As breeding habitat
Kestrel	<i>Falco tinnunculus</i>		Yes			Yes	Widespread and diverse including grasslands, moorland, heathland, open woodland, forestry plantations, farmland and urban	As breeding habitat
Linnet	<i>Linaria cannabina</i>		Yes	Yes	Yes		Gorse heath, shrubby thickets, farmland hedges, orchards, uncultivated fields, young plantations, gardens and industrial wasteland	As breeding habitat, but increases use of farmland and resorting to saltmarsh, shingle banks and sand dunes
Starling	<i>Sturnus vulgaris</i>		Yes	Yes	Yes		Farmland, woodland and suburban habitats	As breeding habitat
Swallow	<i>Hirundo rustica</i>						Lowland farmland, usually associated with buildings	N/A
Swift	<i>Apus apus</i>					Yes	Agricultural and urban habitats	N/A

¹⁵ 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.

¹⁶ 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.

¹⁷ Breeding and wintering habitat descriptions from Key Habitat Attributes for Birds and Bird Assemblages in England Part 1 (ENRR359)

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Field Survey Results

A low number of birds were recorded on site, including blackbird (*Turdus merula*), collared dove (*Streptopelia decaocto*), house sparrow (*Passer domesticus*) and robin (*Erithacus rubecula*).

Assessment of Ecological Value of Site for Birds

The scattered broadleaved trees provide some nesting and foraging opportunities for birds. Two bird boxes were *in situ* on T09 and T06, with a third bird box on the ground at the base of T06. The tall ruderal habitat, semi-improved grassland to the north-east and north-west of the site could feasibly provide some foraging habitat for birds. Additionally, a number of house sparrows were recorded in close association with garden shrubs to the south of the wide site. The remainder of the habitats likely offer limited foraging and nesting value for birds.

Impact Assessment of Proposed Development on Birds

Impacts to nesting birds may occur as a result of the development such as small losses of nesting and foraging habitat. Direct impacts may include the destruction of birds' nests if works occur during the nesting season (March-August). These may occur as a result of the felling of T09 and T10 within the development footprint. T06 on the boundary of the development footprint may also be disturbed. Recommendations to avoid destruction or disturbance of nests and to enhance retained areas of the site for birds are included in Section 4.

3.5.3. Bats

Desk Study Results

SEWBRc returned a total of four 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
<i>Plecotus</i> bat species	1	0.47km	13/06/2012	N/A
<i>Pipistrellus</i> bat species	2	0.47km	13/06/2012	N/A
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	1	0.57km	2020	N/A

In addition to the roost records, SEWBRc returned many records of bats foraging or commuting within 1km of the site. These included, brown long-eared (*Plecotus auritus*), Daubenton's bat (*Myotis daubentonii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), and unidentified *Myotis* species.

There were no records of bat surveys having been previously undertaken on at the same postcode on the Local Authority planning portal.

Field Survey Results

Trees

All of the trees within the survey area were assessed for their suitability to support roosting bats. The site contained a number of trees; however, three broadleaved trees are within or near the development footprint and potentially affected by the works. These trees have Diameters at Breast height (DBH)' ranging from 30-55cm, with PRFs identified in two of the trees (Photos 17-22). They were therefore assessed as ranging from low to moderate potential for supporting roosting bats. There is one tree off site and outside the survey boundary (T08) which may be impacted by the development, therefore it has been assessed below.

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
T06	A mature common oak tree (<i>Quercus robur</i>), with a DBH of approximately 55cm. It is located south of the development footprint.	None	There are several fragments of dead wood on limbs extending northwards. They are approximately 6m above ground level. Additionally, there is a knot located on the split trunk.	Moderate
T08	A semi-mature sycamore with a DBH of approximately 35cm. The tree is located outside the site development.	None	No potential roost features were noted besides those that are superficial in nature.	Low
T09	A mature copper beech (<i>Fagus sylvatica 'Purpurea'</i>), with a DBH of approximately 40cm, is located in the centre of the development area within amenity grassland northeast of the wider site.	None	No potential roost features were noted besides those that are superficial in nature.	Low
T10	A semi-mature beech with a DBH of approximately 30cm. The tree is located towards the northern boundary of the development footprint.	None	The trunk has split down the centre, with a cavity reaching vertically upwards. Measuring approximately 2m in length.	Moderate

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Photo 17: Copper Beech tree (T09)



Photo 18: Copper Beech Tree (T10) with Highlighted Bird Box (Red) and Split in Trunk (Yellow)



Photo 19: Copper Beech Tree (T10) Showing PRF



Photo 20: Mature Common Oak (T06) with Bird Box



Photo 21: Mature Common Oak (T06) and Highlighted Knot Hole



Photo 22: Dead Wood (T06)



Foraging and Commuting Habitat

The development footprint comprises mainly amenity grassland and a single broad-leaved tree that hold limited value for foraging and commuting bats due to the small area needed to be cleared. Additionally, the wider site comprises amenity grassland, semi-improved grassland, hardstanding, tall ruderal vegetation.

and garden planting which is considered to have limited value for foraging and commuting bats. However, the scattered trees on the eastern boundary of the wider site provide some foraging opportunities, and a linear habitat feature that are likely to be utilised by commuting/foraging bats. These scattered trees are all to be retained.

The site has some connectivity to the wider landscape, via the tree line on the eastern boundary. Therefore, the bat habitat quality of the site was assessed against tables 4.2 of the Bat Survey Guidance (Collins, 2016, Table 4.1) which would suggest that the site is of moderate habitat quality for bats.

Impact Assessment of Proposed Development on Bats

Potential Tree Roosts

The removal of T09 and T10 could result in the destruction of potential bat roosts, or the killing of any individuals present within them. In addition, the pruning of T06 and T08 could have the potential of destruction of potential bat roosts.

Potential Foraging and Commuting Habitat

The proposed development will impact the following trees T06, T08, T09, T10 and amenity grassland within the development footprint will result in the loss of some, if not limited, foraging and commuting habitat for bats.

Indirect Lighting Impacts

The construction of the new residential development may result in an increase in artificial light spilling onto the site, especially onto T06, T09, T10 and the retained treeline on the eastern boundary of the wider site during the construction phase and the operational phase of the development. This would disturb foraging, and commuting bats. Increased lighting from the development may negatively impact 'light-sensitive' long-eared bats foraging and commuting on the eastern tree line boundary.

Any new artificial lighting, if not appropriately controlled, has potential to alter bat behaviour as light sensitive species were recorded within 1km of the site.

A sensitive lighting strategy must therefore be developed, as detailed in Section 4.

3.5.4. Dormice

Desk Study Results

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

Field Survey Results

No signs or evidence of dormice was recorded on site.

Assessment Ecological Value of Site for Dormice

Some of the favoured foodplants of dormice occurred on site (hazel, bramble, holly and sycamore) albeit immature. The majority of the site contains amenity grassland, hardstanding and garden planting habitats which are considered to be unsuitable for dormice. Additionally, the wider site is largely isolated from any woodland surrounding the site, by the immediately adjacent residential housing. The site is considered to hold very little potential for dormouse as it is relatively ecologically isolated from nearest ancient woodland, which is 0.12km to the north-west of the site, due to the lack of substantial tree lines or hedgerows within or adjacent to the site.

Impact Assessment of Proposed Development on Dormice

Given there are no records of dormice within 1km, poor ecological connectivity with the wider area, and the works are not affecting the tall ruderal habitat or the majority of the broadleaved trees within the wider site, dormouse are highly unlikely to occur on site and are not mentioned any further in this report.

3.5.5. Badgers

Desk Study Results

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

Field Survey Results

No setts or other signs of badgers were recorded on site. The presence of badgers as a resident species on site was assessed as being unlikely due to the absence of any obvious signs. Furthermore, the site is mainly open in nature, making it generally unsuitable for sett building.

Assessment of Ecological Value of Site for Badgers

Although no evidence of badgers was recorded on site, there is considered to be limited potential for them to forage within the amenity grassland on site, though no evidence of such was recorded.

Impact Assessment of Proposed Development on Badgers

No evidence of badgers or records of badgers were recorded within 1km of the site. Additionally, the walled in garden means that there is very limited chance for badgers to venture into the garden to forage sporadically. Furthermore, the small size of the actual development footprint means that it is highly unlikely that badgers will be affected by the works, as a result, badgers are not mentioned any further in this report.

3.5.6. Reptiles

Desk Study Results

SEWBRc returned 22 records of reptiles within 1km of the site. These included eleven records of slow-worm (*Anguis fragilis*) and eleven records of common lizard (*Zootoca vivipara*). The nearest record is of a common lizard approximately 0.64km away towards the north-east of the site.

Field Survey Results

No direct evidence of reptiles was recorded on site, although a targeted reptile survey was not undertaken at that time.

Assessment of Ecological Value of Site for Reptiles

The development footprint generally contains habitats which are wholly unsuitable for reptiles due to the lack of suitable refuges and structural diversity of the vegetation, as it is mostly comprising amenity grassland. The transitional habitat between the tall ruderal and the amenity grassland on the eastern boundary of the development footprint may offer some limited potential as the varying sward heights within the vegetation could potentially offer refuge and basking opportunities. However, this interface is a very slim area of habitat, and the numerous buildings and hardstanding are unsuitable for reptiles due to a lack of cover and regular disturbance.

Impact Assessment of Proposed Development on Reptiles

The majority of the development is considered unsuitable for reptiles due to the lack of suitable refuges and structural diversity of the vegetation. However, does have some superficial potential for reptiles from the garden wall surrounding the site. The anticipated risk of adversely affecting reptiles cannot be ruled out, as a result this report has put in precautionary measures for reptiles (see Section 4).

3.5.7. Other Mammals

Desk Study Results

SEWBRc returned nine records of common hedgehog (*Erinaceus europaeus*), within 1km of the site. The nearest of which was recorded 0.14km to the east of the site in 2017.

Field Survey Results

No incidental sightings or field signs of other mammals were recorded on site. However, it is likely that a range of common 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 mole (*Talpa europaea*) etc., occurring either as resident species or whilst foraging and/or commuting. It is likely that the habitat within site could be used as a daytime refuge or hibernacula for hedgehogs. Hedgehogs are afforded partial protection under the wildlife and Countryside Act (1981).

Assessment of Ecological Value of Site for Other Mammals

The tall ruderal habitats are considered to potentially provide some potential refugia for day-resting hedgehogs, and hibernacula during winter months.

Impact Assessment of Proposed Development on Other Mammals

The potential impacts to hedgehogs and other mammals are considered to be very low as the habitats within the development footprint are generally unsuitable for foraging mammals and a small area of the garden is proposed to be affected by the works. Additionally, the walled garden makes it unlikely that mammals regularly use the garden for commuting. However, the presence of other mammals, including hedgehogs, cannot be ruled out entirely due to the recordings of hedgehogs within 1km of the site, precautionary measures are set out in section 4.

3.5.8. Invasive species

Presence of Rhododendron and Montbretia

Two stands of rhododendron and two montbretia are present on site. One stand each within the tall ruderal vegetation on the north-eastern boundary of the proposed development site and one stand each to the south of the wider site.

Assessment of Potential Development Impacts

The proposed development could potentially result in the further spread of rhododendron and montbretia due to the proximity of the stands on the north-eastern boundary of the works, through the accidental distribution of soils containing root fragments or rhizomes during earthworks and haulage, and the spread of seeds etc. The spread of this species must be prevented through the implementation of appropriate mitigation measures. The eradication of rhododendron and montbretia from the site is desirable.

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)¹⁸, 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 Work

If the development proposal cannot avoid either felling, or other arboricultural works (e.g. pruning, lopping, crown reduction etc.) to T06 and T10, they should be subject to dusk emergence and dawn re-entry surveys prior to works to better establish and quantify their use by roosting bats. Targeted mitigation and any protected species derogation licenses will only be available following the completion of the further surveys for bats.

4.2. Precautionary Measures

4.2.1. Site Induction/Toolbox Talk

Clearance and construction personnel will be made aware of the ecological value of the retained habitat.

4.2.2. Timing of Vegetation Clearance for Birds

To avoid adverse impacts to nesting birds, the clearance of vegetation, pruning of T06, T08, the felling of T09, T10 and potentially the tall ruderal to the east of the development footprint will be undertaken from September to February outside of the bird breeding season (March to August inclusive). Alternatively, any work from March to August will be subjected to a check for nesting birds by a suitable qualified ecologist immediately prior to removal of such habitats. If any active nests are found these will be protected along with an appropriate buffer zone of 5m, until the nesting is complete, and the young have fledged.

4.2.3. Root protection of Retained Trees

Retained 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) *Trees in Relation to Design, Demolition and Construction- Recommendations* (Appendix 10).

¹⁸ 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.

Where possible, any future developments will avoid felling of any further trees. This will help maintain the ecological connectivity of the site, maintain its biodiversity value, and reduce potential requirements for further protected species or breeding bird surveys.

4.2.4. Trees with Low Roosting Potential (T08 and T09) Soft Felling

T08 and T09 is considered to have low potential for supporting bats due to the nature and size of the tree it appears to have superficial roosting potential for bats and as a result it requires 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 which may still have bats within cavities:

- Works to T08 and T09 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;
- If any hollow cavities were found within low roosting trees works will be halted and a further survey will be required as a result;
- 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.

4.2.5. Species Deterrence Measures- Reptiles and Hedgehogs

Reptiles and hedgehogs may be present within the hedgerows and the adjacent area of amenity grassland and in the tall ruderal vegetation. Measures to prevent direct impacts to these species should concentrate primarily on minimising the risk of causing death and injury to individuals during site clearance and

construction operations, via the implementation of 'species deterrence' measures in the run-up to the commencement of works on-site, and 'destructive searches', where required.

Firstly, the development will seek to retain as much peripheral vegetation as possible in order to preserve the habitat for any wildlife that may utilise the site.

Secondly, if any areas of amenity grassland and tall ruderal vegetation are to be cleared, vegetation will be strimmed or brush cut to a height of approximately 300mm during this period, to make the area less suitable for reptiles and hedgehogs. Arisings will be removed immediately from site. The remaining vegetation 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 these species prior to development, thus encouraging them to leave the area. Mechanical clearance methods (e.g. gang-mowing, flail-cutting etc.) will not be used (to avoid killing wildlife and committing an offence).

Any open trenches and excavations associated with the development will either be closed and covered at night, or a means of escape provided (e.g. plank at no greater angle than 45° or gently graded site wall of the same angle or equivalent) to prevent any hedgehogs or other animals falling in and becoming trapped). Any exposed pipes and trenches must be checked for trapped wildlife each morning before starting construction activities.

Clearance and construction personnel will be briefed as to the possible presence of reptiles on the site and the necessary course of action if any reptile is encountered i.e. stopping clearance works and allow the reptile to migrate voluntarily away into the retained habitat. An ecologist from Acer Ecology will be on call at all points during the works.

Clearance of vegetation will involve species deterrence and displacement measures ahead of other site work. This will be undertaken to encourage and compel individual reptiles that may be present in the works area to migrate away voluntarily from the works area and into the retained area. Appropriate measures will include the following:

- Potential refugia such as logs, discarded timber, sheet metal, plastic sheet, carpets and large rocks etc. will be carefully lifted by hand and removed from the area to be cleared;
- Clearance of the site will be undertaken in a piecemeal fashion, the main clearance of site will commence from the north and proceed towards the amenity grassland to the south, outside of the works area. Clearance will be spread over several hours to allow reptiles time to disperse out of the immediate works area into safe habitats at the site periphery;
- The services of an appropriately qualified reptile consultant will be available on an 'on-call' basis at all stages of the works.

4.2.6. Action To be Taken if Reptiles 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 habitats to the south. An exception applies in the event that an adder is encountered: site personnel will be warned not attempt to handle this species, and it will either be allowed to escape voluntarily into safe habitats, or an appropriately experienced and equipped reptile-handler will be summoned to remove it.

The on-call ecologist will be informed of all reptile encounters, and if more than a few individuals are found during the subsequent works, the ecologist will re-evaluate whether the mitigation undertaken has been sufficient, or whether any additional measures are needed.

4.2.7. Eradication of Invasive Species

Montbretia will be eradicated from the site as far as possible and appropriate measures implemented to prevent the accidental spread of this species during the development. Invasive plant material is considered a 'controlled waste' and must be disposed of in accordance with, and environmental permit issued under, the Environmental Permitting (England and Wales) Regulations 2007. It would be favourable if rhododendron was prevented from spreading on site, however, due to the nature of the site eradication of the rhododendron will not be enforced.

4.3 Mitigation Measures

4.3.1. Lighting Plan

The site is currently relatively dark at night with the exception of any light spillage from the residential housing to the south and west of the site. After the works have been completed, increased external lighting and light spill from internal lighting is likely. However, the northern boundary of the site will be kept dark creating a dark corridor for bats.

Lighting will be only 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). Front and side hoods/shields or cowls will be installed to prevent upwards and horizontal light spill.

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 30 seconds, to reduce the amount of 'lit time'. The bulbs in the lights will ideally be low intensity (i.e. circa 11 watts), glass-glazed and the light source will either be compact fluorescent light sources fitted with appropriate UV filters, low pressure sodium bulbs, or warm light LED bulbs. White lighting sources including mercury or metal halide, CPO and CDO (ceramic discharge metal-halide) bulbs which have a significant effect on bats will be avoided. These measures will ensure that lighting impacts to other

nocturnal wildlife are kept to a minimum. Examples of suitable light fittings are provided within Appendix 11.

4.4. Compensation and Enhancement Measures

4.4.1. Enhancement Measures for Birds

At least two bird boxes will be provided as mitigation within the development. The installed bird boxes will be maintained in perpetuity. The bird boxes will be erected upon the line of sycamore trees at the eastern boundary of the wider site. 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 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 12 for details.

4.4.2. 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. One bat box will be installed on a tree along the eastern boundary 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 13 for further details.

4.4.3. Compensatory Planting

To compensate for the felling of the trees T09 and T10 and the pruning of T06 and T08. The area containing the trees will be replaced with three new native trees which are of local prov, preferably Welsh (See plan 7). Consultation with an arboriculturist is recommended in order to select an appropriate native species and spacing for long-term viability.

4.4.4. Use of Native Landscaping Scheme

Trees and Shrubs

Any landscaping in the garden surrounding the new property will use native shrubs and trees which are of UK provenance. Berry and nut producing species should also be used, which will increase foraging opportunities for numerous animal species including birds, foraging bats, hedgehogs and invertebrates. Shrub species recommended include common hawthorn, blackthorn, hazel, guelder rose (*Viburnum opulus*), rowan (*Sorbus aucuparia*), wild cherry (*Prunus avium*) and holly. These shrubs could be planted along the periphery of the site, to strengthen the existing boundary hedgerows, as well as within the central reaches of the garden to increase the diversity of habitats present for wildlife.

Plant species that provide a rich source of nectar could be used. Suitable species include flowering herbs such as lavender (*Lavendula* spp.) and violets (*Viola* spp.), and shrubs such as flowering currant (*Ribes sanguineum*), privet (*Ligustrum vulgare*), forsythia (*Forsythia* spp.), dogwood (*Cornus sanguinea*), berberis (*Berberis* spp.), pyracantha (*Pyracantha* sp.) and ceanothus (*Ceanothus* sp.).

Wildflower Planting

Spaces within the proposed development site could be set aside to create areas of species-rich wildflower grassland. The LWX Dual Purpose species mix provided by Landlife Wildflowers¹⁶ is recommended, though other appropriate seed mixes will also be acceptable. This mix contains twenty-eight UK native wildflower species, with a larger quantity of annuals, ideal for situations where first year colour is important, but a permanent meadow is required. LWXP supports bees, butterflies and other pollinators as 81% of the wildflowers included in this mixture are recommended by the Royal Horticultural Society (RHS) as 'Perfect for Pollinators'. Species include; black medick 4.9%, meadow buttercup 4.2%, red campion 4.2%, white campion 3.5%, night-Flowering catchfly 3.5%, wild clary 3.5%, cowslip 0.7%, field forget-me-not 2.8%, foxglove 2.8%, common knapweed 4.2%, goat's-beard 2.8%, greater knapweed 2.8%, lady's bedstraw 4.2%, musk mallow 2.1%, oxeye daisy 2.1%, hoary plantain 1.4%, ribwort plantain 2.1%, salad burnet 5.6%, selfheal 3.5%, common sorrel 3.5%, common St John's-wort 1.4%, wild carrot 2.8%, yarrow 1.4%, corn chamomile 4.5%, corncockle 13.5%, cornflower 6%, corn marigold 4.5%, field poppy 1.5%.

Ground preparation and sowing will need to take place in April or October. The most successful way to establish wildflowers and grasses from seed is to sow into a clean seedbed that has been first cleared of all weeds and other vegetation and then cultivated to produce optimum conditions for germination. Planting is recommended to be undertaken during the autumn to allow seedling roots to establish over the winter and have a greater chance of competing with the existing sward in the spring and summer.

Subsequent aftercare and site management will be required. The species-rich flower border habitat should ideally be mown in autumn as this timing allows plants to flower and set seed which will not only increase the floristic diversity of the site, but will also benefit invertebrates that require nectar sources and roosting locations during the spring and summer. Ideally, the sward should be cut to a height of about 8 to 10cm. Different areas of grassland should be mown on rotation in every second year in late summer (September),

by hand or with small-scale mowing machine (i.e only half of grassland area will be cut each year). The uncut areas will be cut the following year so that the grassland areas are cut at least once every two years. Arisings should then be collected and removed from site.

The use of herbicides, pesticides and artificial fertilisers on site should generally be avoided, although pernicious weeds may need to be spot-treated with herbicide.

4.5 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 NRW¹⁹, (CIEEM, 2019) and BS 42020:2013²⁰, to determine if conditions have changed since those described in this report.

4.6 Conclusions

Provided the precautionary and mitigation measures detailed in Section 4 are implemented, the development is not anticipated to result in adverse impacts to any protected sites, habitats or species. The evaluation is based on current knowledge of the site, if any of the sycamore trees located in G03 are to be affected by Arboricultural works e.g. pruning and this cannot be avoided, these trees are to be subjected to additional inspection from a qualified ecologist for their ability to support roosting bats.

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

¹⁹ 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.

²⁰ 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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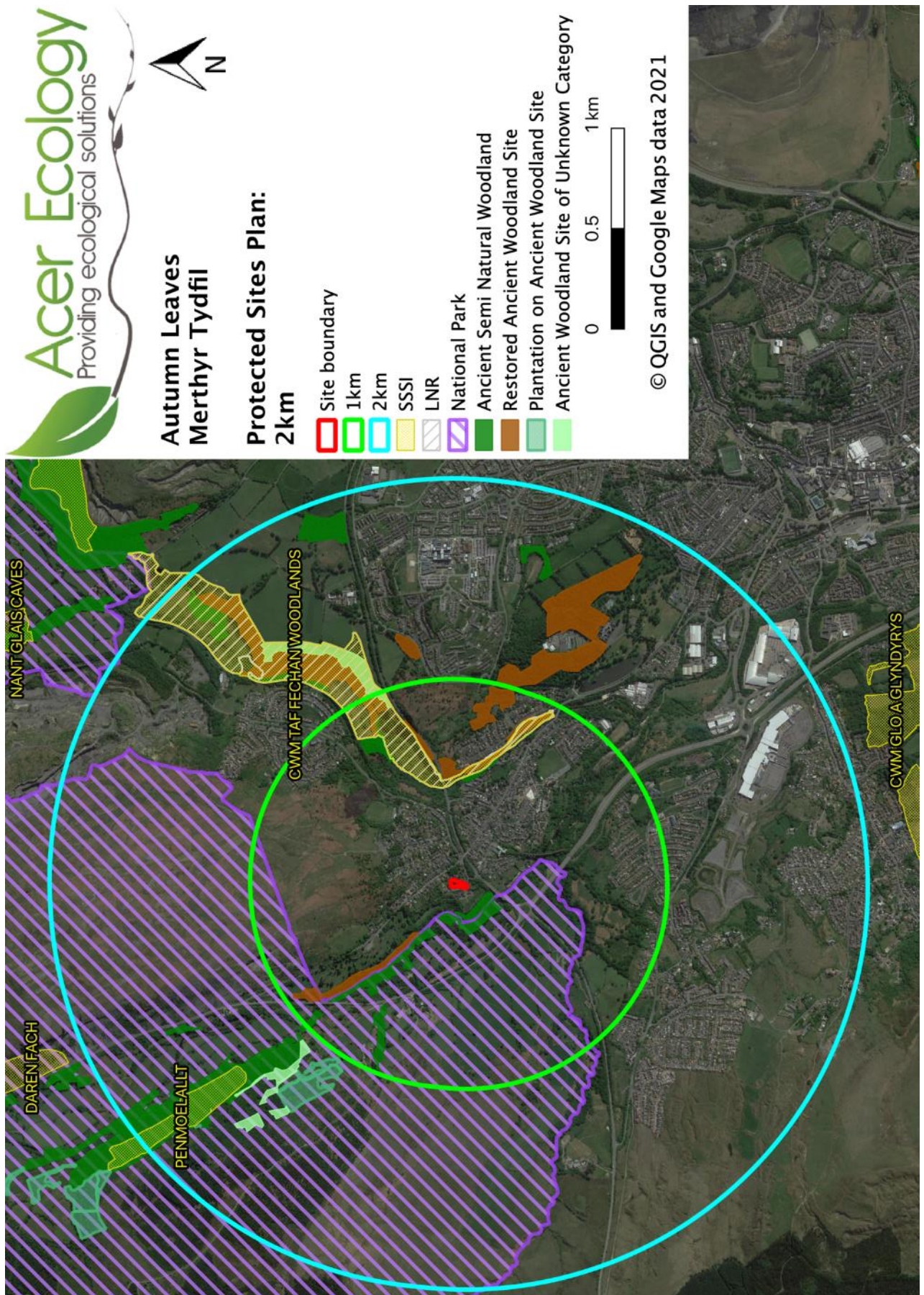
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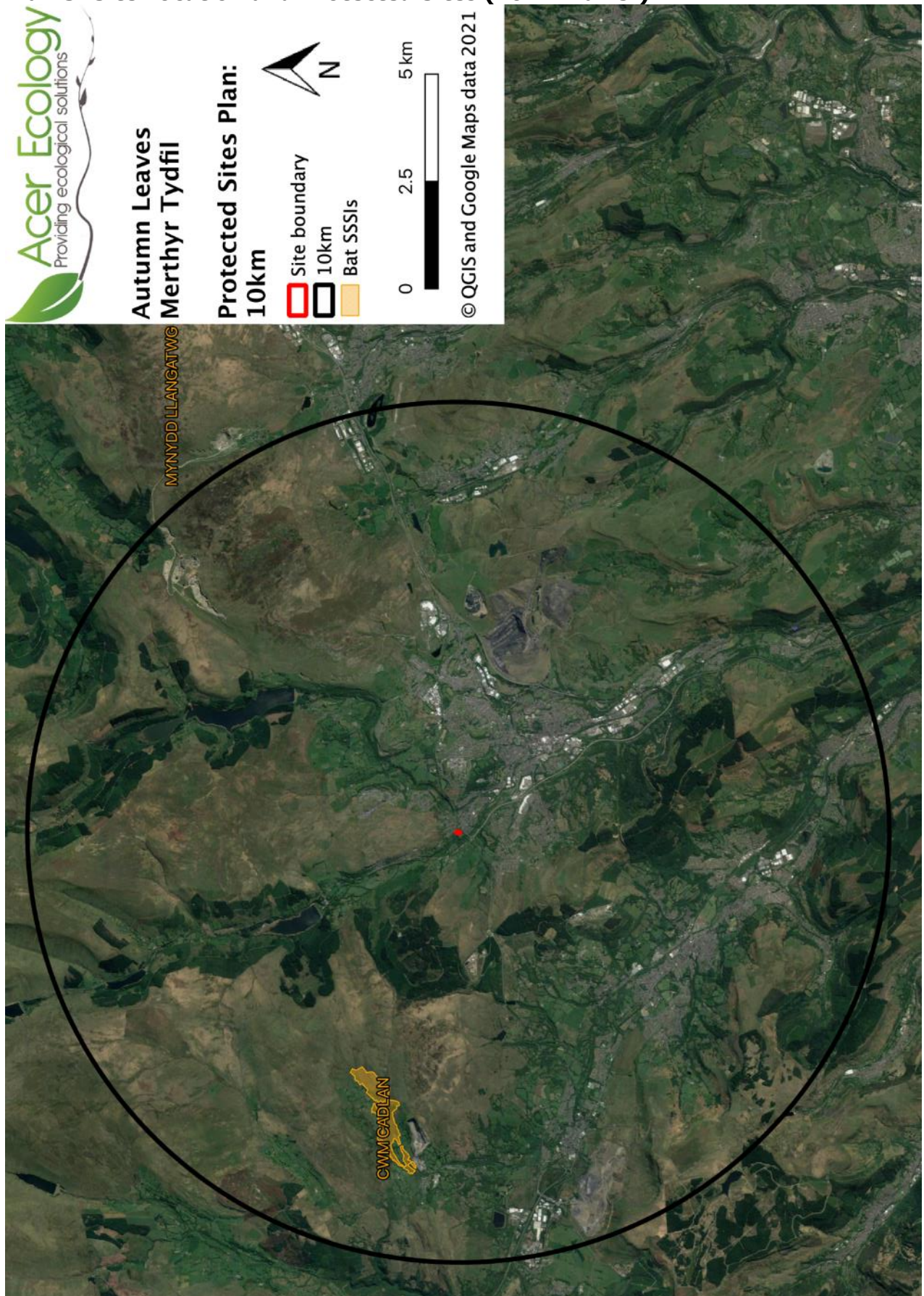
Plan 1: Site Location



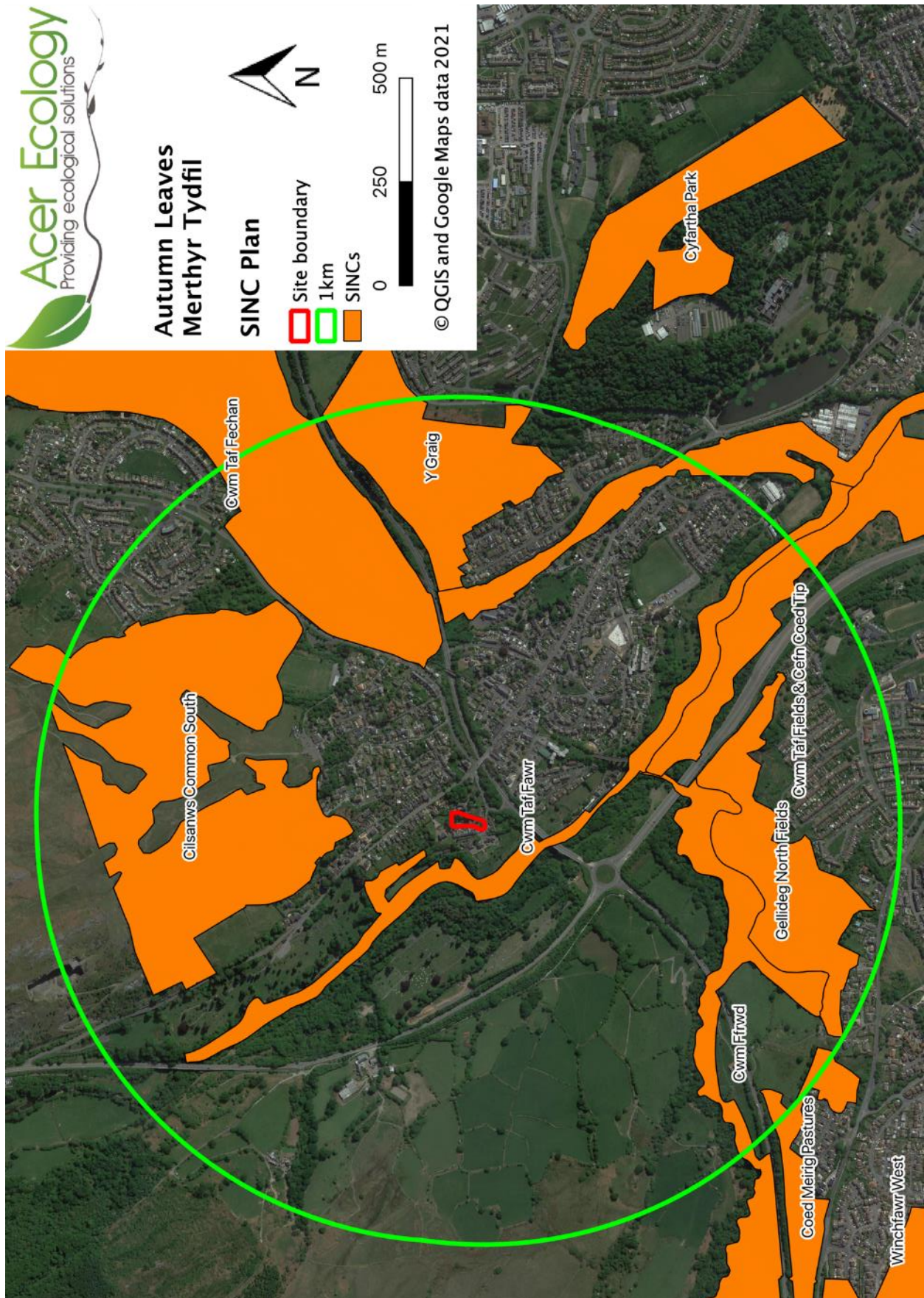
Plan 2: Site Location and Protected Sites (2km Buffer)



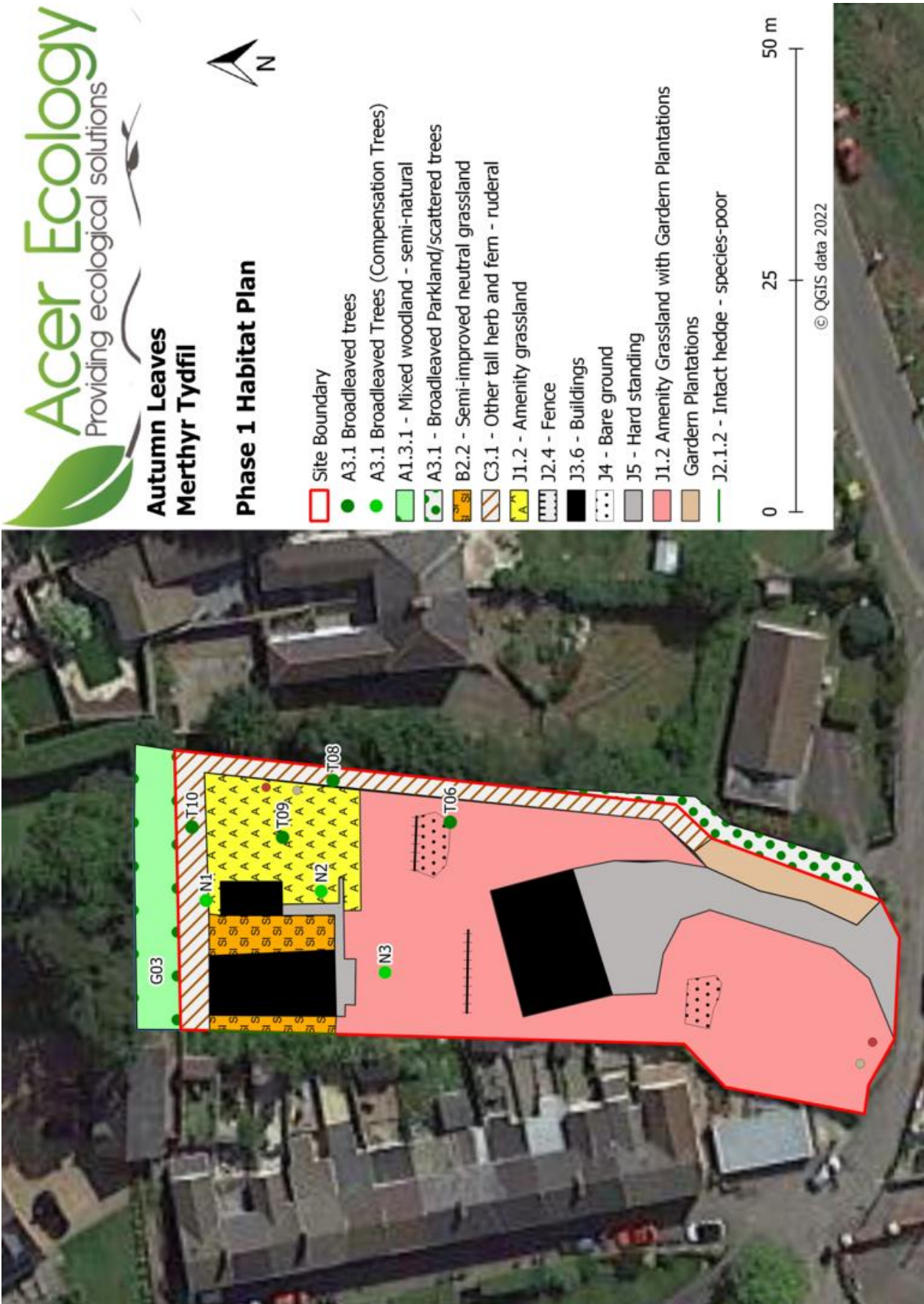
Plan 3: Site Location and Protected Sites (10km Buffer)



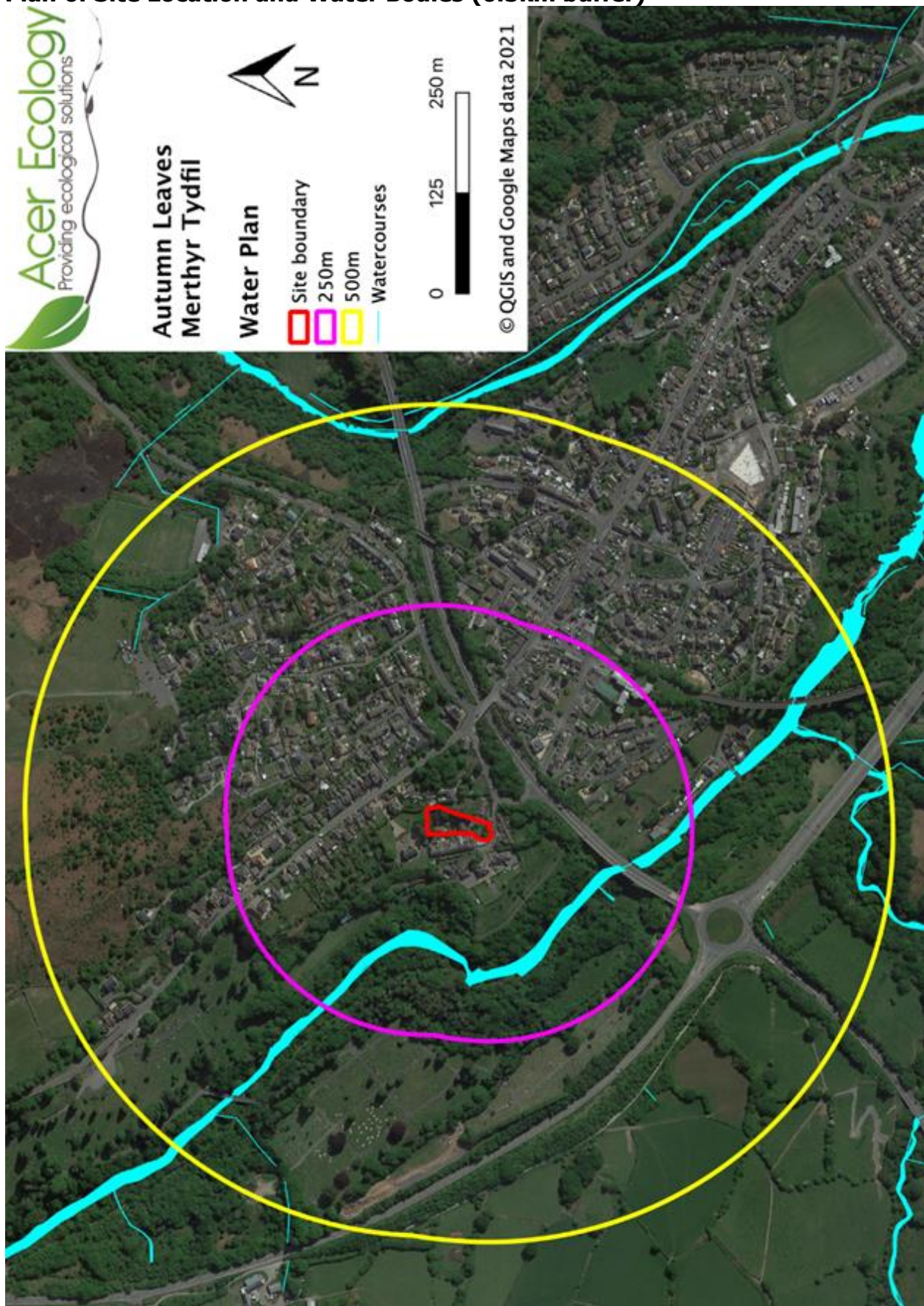
Plan 4: Site Location and SINCS (1km Buffer)



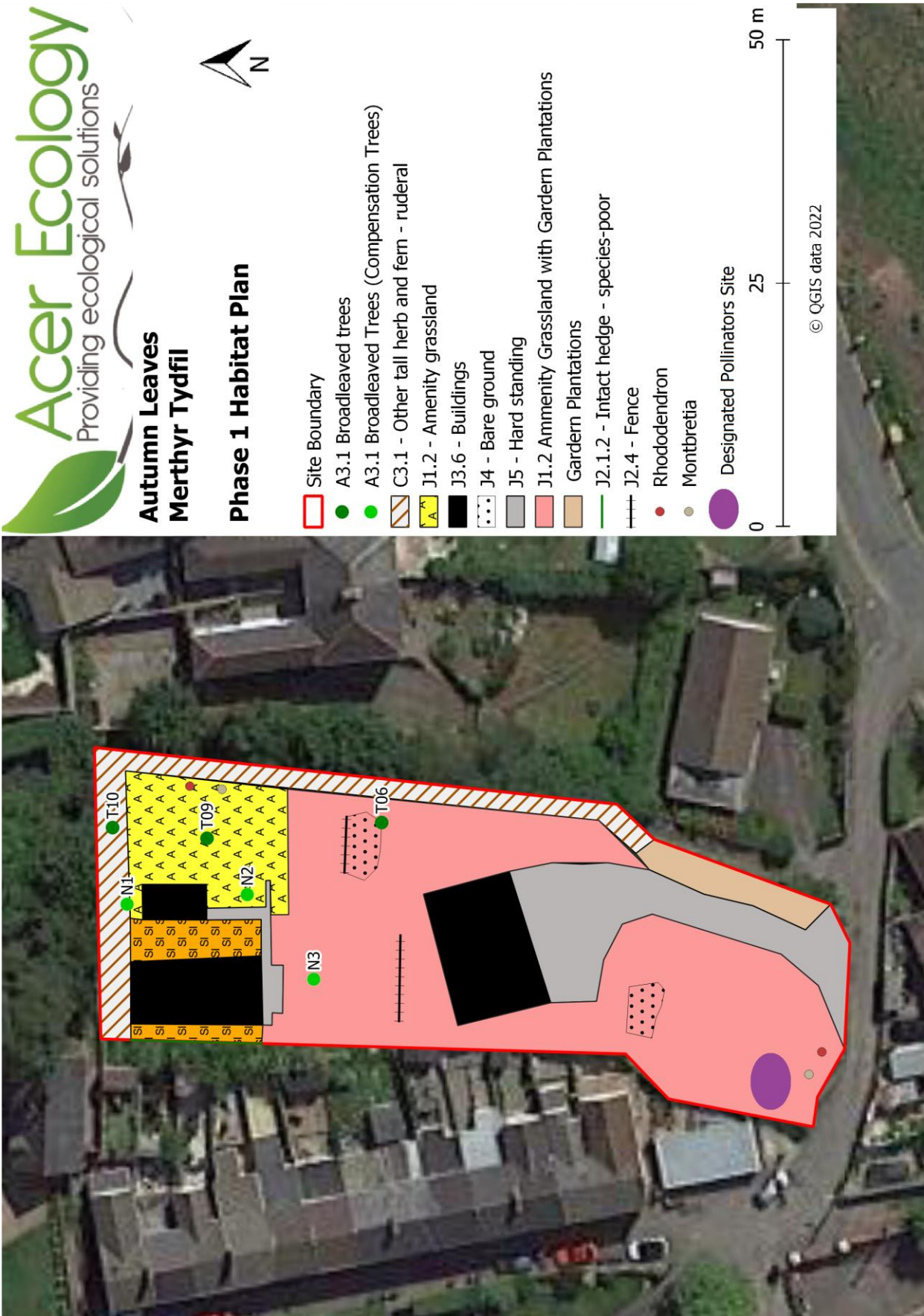
Plan 5: Habitats and Vegetation



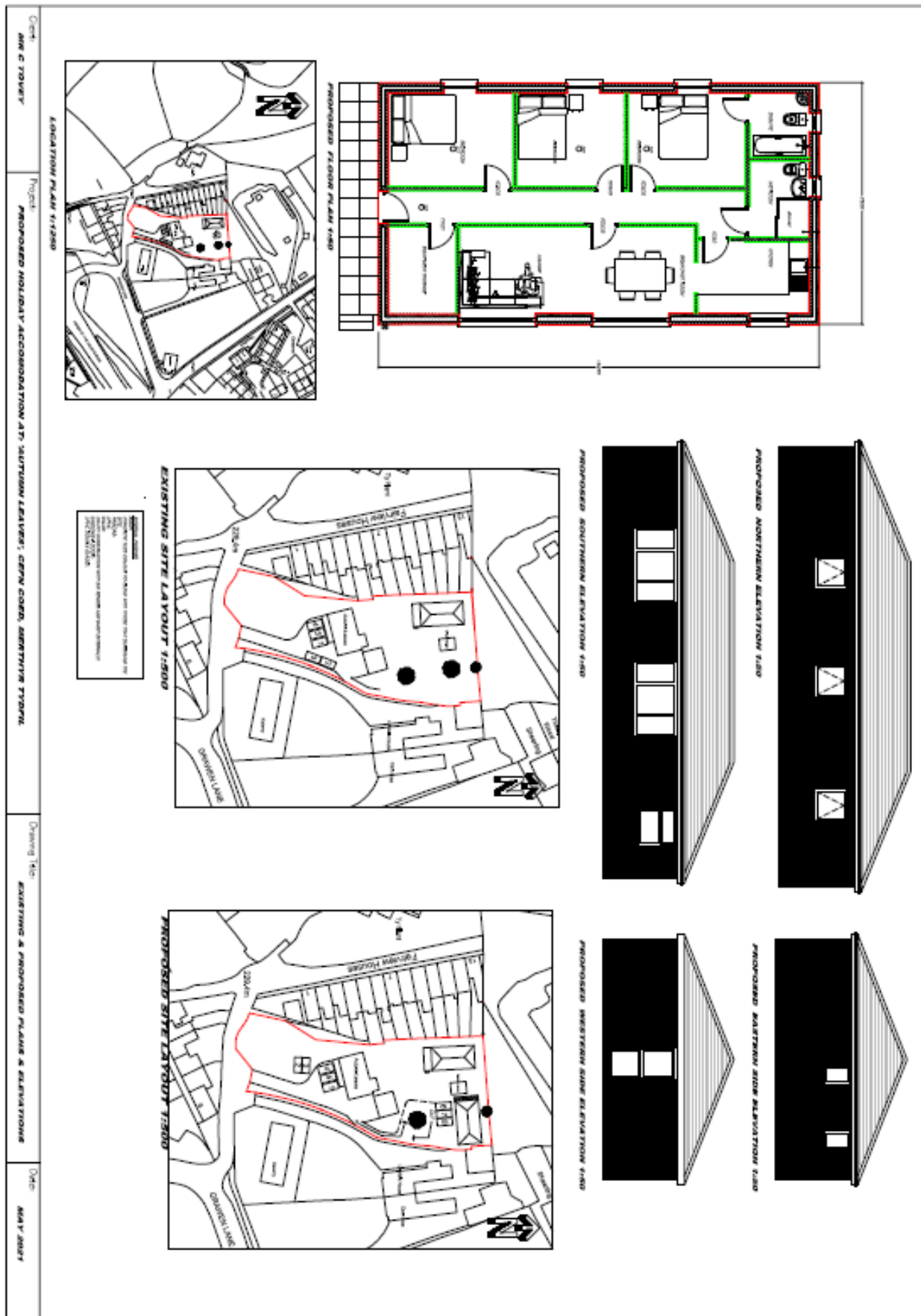
Plan 6: Site Location and Water Bodies (0.5km buffer)



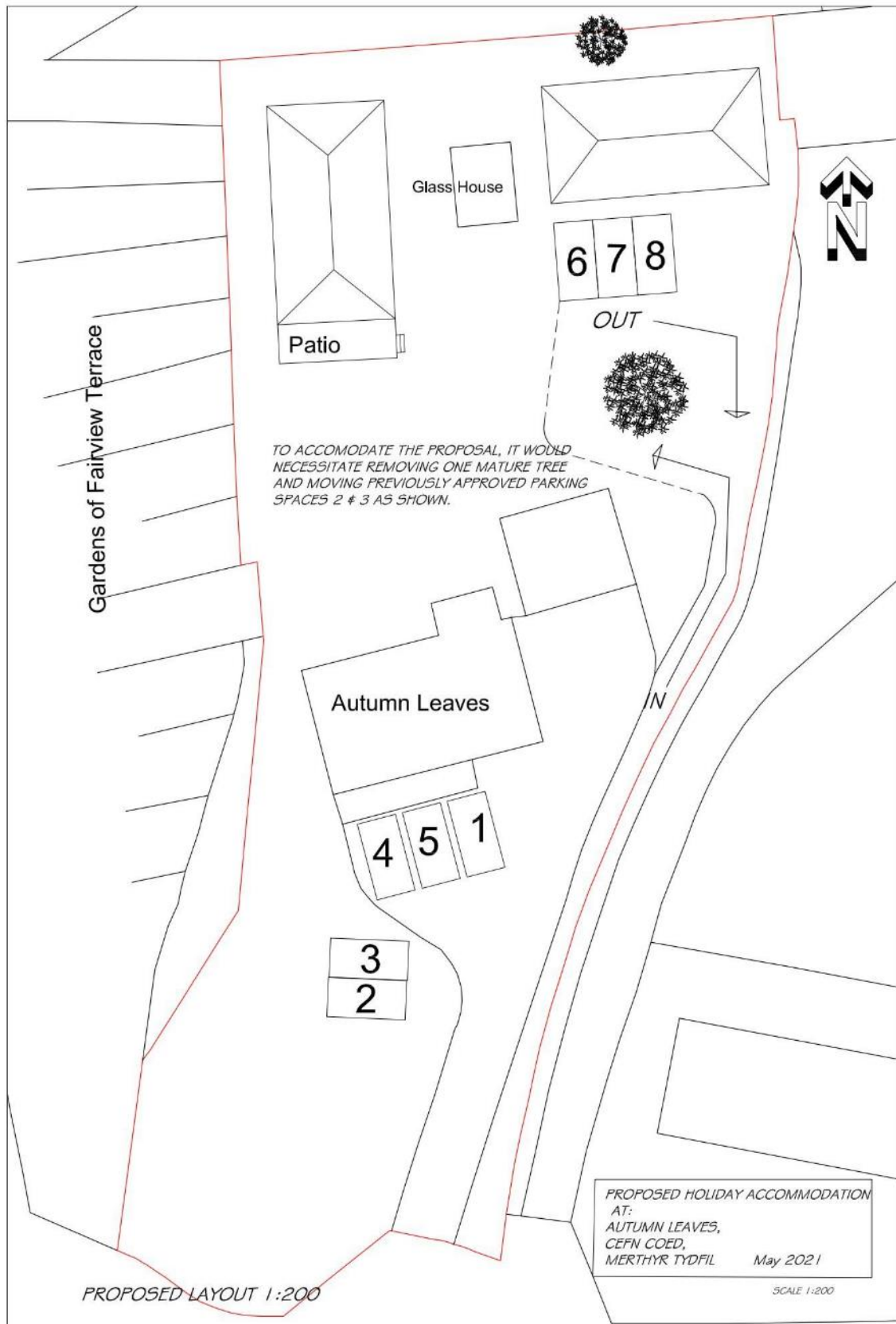
Plan 7: Compensation for Development



Appendix 1: Existing Layout



Appendix 2: Proposed Development Works



Appendix 3: Legislation and Policy Relating to Statutory and Non-Statutory Designated Sites and Planning Policy

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.

Merthyr Tydfil Local Development Plan

The Merthyr Tydfil Replacement Local Development Plan 2016-2031²¹ which was adopted in January 2020 sets out Merthyr Tydfil Councils policies and proposals to guide all development in the area. The following policies are of note regarding ecological issues and safeguarding biodiversity:

- Policy EnW1 Nature Conservation and Ecosystem Resilience;
- Policy EnW2 Internationally and Nationally Protected Sites and Species;
- Policy EnW3 Regionally Important Geological Sites, Sites of Importance for Nature Conservation, Local Nature Reserves and Priority Habitats and Species;
- Policy EnW4 Environmental Protection; and
- Policy EnW5 Landscape Protection.

²¹ <https://www.merthyr.gov.uk/media/5642/replacement-ldp-written-statement-final-composite-version-140120.pdf>

Appendix 4: Protected and Invasive 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 (*Pipistrellus pygmaeus*), barbastelle (*Barbastella barbastellus*), Bechstein’s (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), brown long-eared (*Plecotus auritus*), lesser horseshoe (*Rhinolophus hipposideros*) and greater horseshoe bats (*Rhinolophus ferrumequinum*)) 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 0.5km² 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.

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).

Badgers

Badgers are protected under the Protection of Badgers Act 1992. Protection applies both to the animal itself and to its nesting burrows (setts), and current interpretation of the Act also confers some protection to key foraging areas.

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 biodiversity²³. In effect, 'conserving biodiversity' includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

Montbretia and Rhododendron

Montbretia and rhododendron are both listed under Schedule 9²⁴ of the Wildlife and Countryside Act (1981), as amended. This act prohibits the reckless or deliberate spreading of these species. Ideally, both species will be eradicated from the site.

²³ Biodiversity conservation in respect to hedgehogs is interpreted as a commitment to restoring or enhancing their population.

²⁴ <https://www.legislation.gov.uk/ukpga/1981/69/schedule/9/part/II>

Acer Ecology

Appendix 5: Species Recorded

All species recorded by Acer Ecology, 2021

Taxonomic Name	Common Name	W	LM	CG	LDA	PMG	PIL	TF	Status
Trees and Shrubs									
<i>Acer pseudoplatanus</i>	Sycamore								Alien
<i>Betula</i> sp.	Birch								
<i>Cornus sanguinea</i>	Dogwood								
<i>Corylus avellana</i>	Hazel								
<i>Fagus sylvatica</i>	Beech								
<i>Ilex aquifolium</i>	Holly								
<i>Quercus</i> sp.	Oak								
<i>Rhododendron ponticum</i>	Rhododendron								Alien
<i>Rubus fruticosus</i> agg	Bramble								
<i>Salix</i> sp.	Willow sp								
Herbaceous Plants									
<i>Alchemilla conjuncta</i>	Silver lady's-mantle								
<i>Anthriscus sylvestris</i>	Cow parsley								
<i>Arrhenatherum elatius</i>	False oat-grass								
<i>Bellis perennis</i>	Daisy								
<i>Crocsmia</i> sp.	Montbretia								Alien
<i>Dactylis glomerata</i>	Cock's-foot								
<i>Elytrigia repens</i>	Couch grass								
<i>Festuca rubra</i>	Red fescue								
<i>Geranium robertianum</i>	Herb-robert								
<i>Geum urbanum</i>	Wood avens								
<i>Glechoma hederacea</i>	Ground-ivy								
<i>Hedera helix</i>	Ivy								
<i>Heracleum sphondylium</i>	Hogweed								
<i>Holcus lanatus</i>	Yorkshire fog								
<i>Juncus bulbosus</i>	Bulbous rush								
<i>Juncus effusus</i>	Soft rush								
<i>Oenothera</i> sp.	Evening-primrose								
<i>Polystichum setiferum</i>	Soft shield-fern	W							
<i>Ranunculus acris</i>	Meadow buttercup								
<i>Ranunculus repens</i>	Creeping buttercup								
<i>Taraxacum officinale</i> agg.	Dandelion								
<i>Urtica dioica</i>	Common nettle								
<i>Cupressus sempervirens</i>	Mediterranean cypress								Alien
<i>Beschorneria yuccoides</i>	Mexican Lily								Alien
<i>Veronica arvensis</i>	Wall speedwell			CG					

'Habitat Indicator Species' Totals	1	0	1	0	0	0	0	0	2
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Acer Ecology

(Wales Biodiversity Partnership 2008 ²⁵)									
		W	LM	CG	LDA	PMR	PIL	TF	

Key to Indicator Species (Wales Biodiversity Partnership 2008²⁶)

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

SINC Selection

Sites which support one primary species or five contributory species; or habitats which support eight lowland meadow, eight calcareous grassland, seven lowland dry acid grassland, twelve purple moor-grass and rush pasture or eight tillage field and margins indicator species, should be considered for SINC selection. Post-industrial sites supporting 20 or more indicator species from the combined post-industrial land, acid, neutral, calcareous and marshy grassland lists should be also considered for selection.

WCA 5 – Species protected under Schedule 5 of the Wildlife and Countryside Act

WCA 9 – Species listed under Schedule 9 of the Wildlife and Countryside Act [Edit status column for invasive species so that it says WCA 9]

Appendix 6: 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 7: Guidelines for Assessing 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	<u>Commuting Habitat</u> 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. <u>Foraging Habitat</u> 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	<u>Commuting Habitat</u> 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. <u>Foraging Habitat</u> Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	<u>Commuting Habitat</u> 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. <u>Foraging Habitat</u> 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. <u>Proximity to Known Bat Roosts</u> Site is close to and connected to known roosts.
Suitability	Description of Roosting Habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	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 ²⁷ 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 ²⁸ .
Moderate	A structure 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 ²⁹ (with respect to roost type only) the assessments in this table are made irrespective of conservation status, which is established after presence is confirmed.
High	A structure 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.

²⁷ For example, in terms of temperature, humidity, height above ground levels, light levels or levels of disturbance.

²⁸ 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.

²⁹ 'High roost status' is not defined within Collins, 2016. Acer Ecology Ltd. interpret maternity, hibernation, swarming sites, mating sites, and satellite roosts as being of 'high roost status' and exclude day roosts, night roosts, feeding roosts, transitional/occasional roosts from this definition.

Appendix 8: Local Authority Ecologist Internal Memorandum

To: Rebecca Owens
From: Matt Davies (Ecologist)
Ext: 5278
Memo number: 1
Date of Memo #1: -
Date: 08/06/2021

SUBJECT: P/21/0194 | ERECTION OF A NEW UNIT OF HOLIDAY ACCOMMODATION | AUTUMN LEAVES GRAWEN LANE CEFN COED MERTHYR TYDFIL CF48 2NP

The site is within a residential setting. Onsite habitat appears to include grassland areas along with some semi-mature / mature trees. This habitat is linked to the wider environment that includes woodland, scrub, grassland, wooded river corridor, agricultural fields.

Designated sites within 500m of the application site:

- Site of Special Scientific Interest (SSSI) – x1: Cwm Taf Fechan Woodlands, 458m
- Local Nature Reserve (LNR) – x1: Cwm Taf Fechan Woodlands, 458m
- Sites of Importance for Nature Conservation (SINC) – x5 (closest to site: Cwm Taf Fawr, 71m)
- Regionally Important Geological Sites (RIGS) – x1: Nant Ffrwyd, 399m
- Wildlife Trust Reserve (WTR) – x1: Taf Fechan, 455m
- Ancient Semi Natural Woodland (ASNW) – x4
- Restored Ancient Woodland Site (RAWS) – x1
- Within a Buglife B-Lines area

Priority and protected species within 500m of the application site:

- Birds (including Schedule 1¹ species);
- Fish (including Section 7² species);
- Invertebrates (including Marsh Fritillary butterfly – 549m from site – and other Section 7² species);
- Bats (closest roost record for unidentified bat (likely maternity roost for pipistrelle), 129m from site). Other bat species (identified to species level) recorded included brown long-eared bat, common pipistrelle, Daubenton's bat, lesser horseshoe bat, Natterer's bat, noctule and soprano pipistrelle);
- Otter;
- Hedgehog;
- Reptiles;
- Amphibians (including great crested newt, closest record 712m from site);
- Vascular plants (including Section 7² species).

¹ Wildlife & Countryside Act 1981 (as amended)

² Environment (Wales) Act 2016

A Preliminary Ecological Appraisal (PEA) of the site (undertaken by a suitably qualified and experienced ecologist) is required. This must provide sufficient information for the local planning authority to assess

any potential adverse impacts of the proposed development on priority and protected species and/or habitats, or to identify what further information is required before a full assessment is possible.

The results of the PEA will be used to inform whether further surveys are required, or to establish the need for and extent of any mitigation and compensation measures required as part of the proposed development.

NB – a PEA provides the results of initial ecological surveys associated with a proposed development. The PEA report is used to identify further ecological surveys necessary to inform an Ecological Impact Assessment (EcIA), to identify ecological constraints to a project and make recommendations for design changes, and to highlight opportunities for ecological enhancement. It should not be submitted as part of a planning application unless it can be determined that the project would have no significant ecological effects, no mitigation is required and no further surveys are necessary; with the exception of such cases it should be superseded by an EcIA report.

Enhancement measures will also be required in accordance with the Environment (Wales) Act 2016.

An Aderyn data search is required from SEWBRcC (Package C 2km). Reports without data will not be accepted.

There will need to be enhancement of the site in line with the Environment (Wales) Act 2016.

NB these requirements are in line with those provided in relation to the Pre- Application Enquiry – PA/21/0004 in an internal memo dated 27/01/2021.

Appendix 9: Bat Survey Protocol for Trees Affected by Arboricultural Work

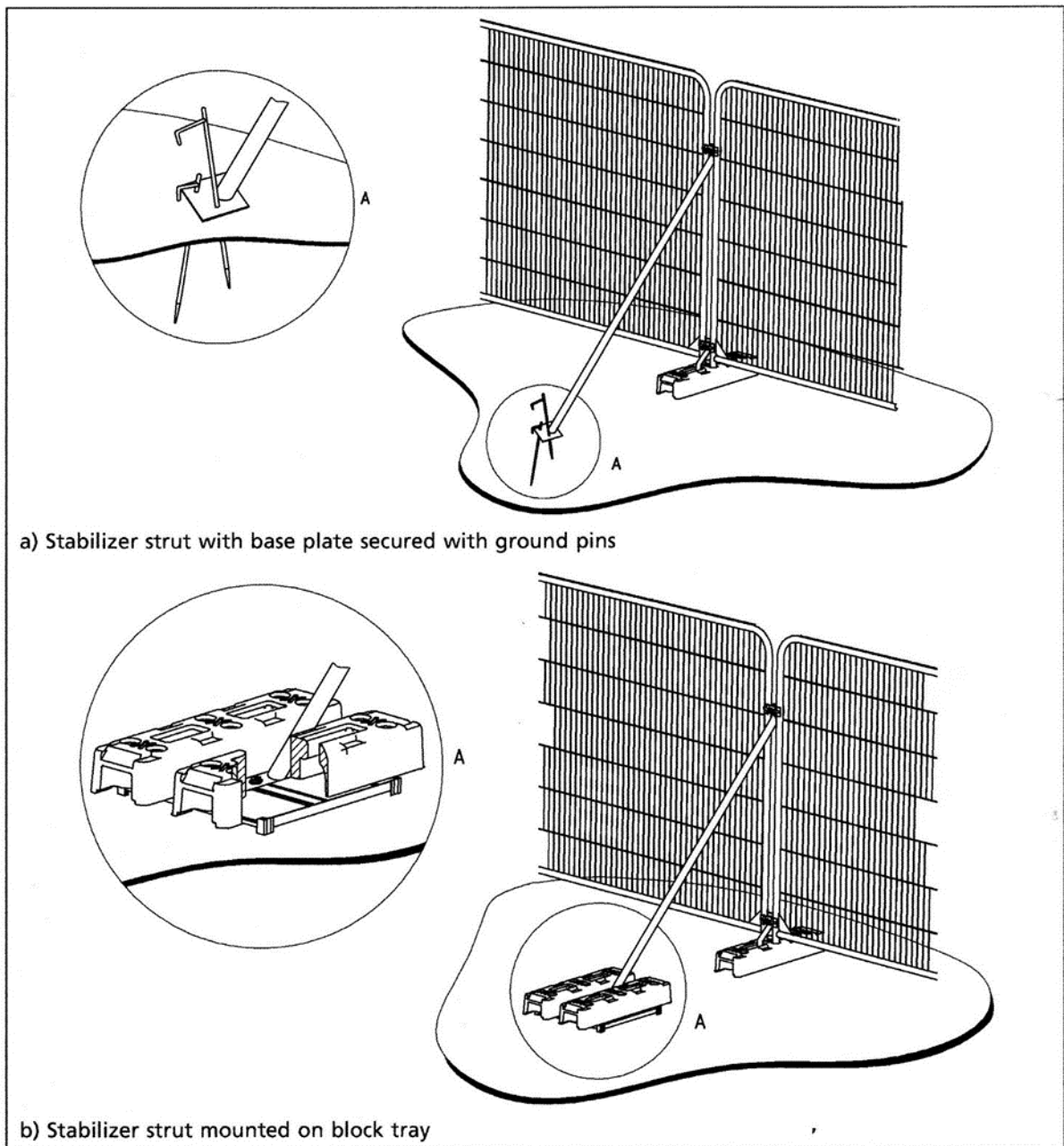
The trees were assigned to the following categories:

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	A tree of sufficient size and age to contain PRFs but with none seen from the ground ³⁰ .	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 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.

³⁰ This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Appendix 10: Protective Barriers - BS 5837:2012

Above Ground Stabilising Systems



Appendix 11: 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 12: 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.

Appendix 13: 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 fibres 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 £19.99 including VAT.