Land at Junction 37,
M4

Preliminary Ecological Appraisal

September 2022

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Document Verification Table

Land at Junction 37, M4 Preliminary Ecological Appraisal				
Revision	Date	Prepared by	Checked by	Verified by
1.0	27 September 2022	Ffion Jones Assistant Ecologist	Paul Hudson MCIEEM Principal Ecologist	Paul Hudson MCIEEM Principal Ecologist

Summary

Brief and Site Location	Acer Ecology Ltd. were instructed by G Powys Jones to conduct a preliminary ecological appraisal of land at Junction 37, M4, within the boundary of Bridgend County Borough Council (Ordnance Survey Grid Reference centred at: SS 8214 8100.
Development Proposals	The proposed development works comprise clearance of the site to facilitate the construction of a commercial motorway service area. The site will be cleared of vegetation to make way for four new buildings, associated car parks and a new roundabout and access point through mature scrub and trees.
Impacts to Key Receptors	The development is not considered to have any adverse impacts to statutory on non-statutory nature conservation sites.
Further Surveys	During vegetation clearance precautionary surveys for bats and badgers to be undertaken.
Recommendations	The following provisional recommendations have been developed based on the development proposals available at the time of writing. They may be subject to change upon receipt of the final design: • Further Survey During Vegetation Clearance - Update Tree Surveys for Bats and Update Badger Assessment; • Precautionary measures – Timing of Vegetation Clearance for Birds; Protective Fencing; Soft Felling of T1-T7; Species Deterrence Measures for Dormice; Species Deterrence Measures for Reptiles and Species Deterrence Measures for Hedgehogs; • Mitigation Measures – Sensitive Lighting Strategy for Bats; • Compensation and enhancement measures – Native Landscaping Scheme; Grassland Botanical Management; Compensation for Nesting Birds and Hedgehog Habitat Management.
Conclusions	At this stage, the site's ecological value is not considered to represent a fundamental in-principal constraint to the proposed development. 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.

1. Introduction

1.1. Brief and Site Location

Acer Ecology Ltd. were instructed by G Powys Jones to conduct a preliminary ecological appraisal of land at Junction 37, M4, within the boundary of Bridgend County Borough Council (Ordnance Survey Grid Reference centred at: SS 8214 8100)[1]. The assessment documents the baseline ecological condition of the survey area, which is shown by the red line boundary on Plan 1. Designated sites, habitats, protected and notable species of conservation interest that could be affected by the proposed works are identified, and subsequent recommendations provided.

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 mainly comprises a cattle-grazed field with bordering scrub and woodland. It is situated directly to the south-west of the M4. The A4229 runs to the south of the site, and the B4283 is situated to the west. The Pyle Interchange roundabout connects the M4 and the A4229 on the eastern side of the site.

1.3. Proposed Works

The proposed development works comprise clearance of the site to facilitate the construction of a commercial motorway service area. The site will be cleared of vegetation to make way for four new buildings, associated car parks and a new roundabout and access point through mature scrub and trees. Approximately, 0.11km of the scrub and woodland to the south of the site needs to be cleared to facilitate the development. Additionally, stands of woodland to the east and west of the site will likely need clearance. The final development proposals are yet to be finalised at the time of the preliminary ecological appraisal.

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
- Identification of potential ecological constraints to the proposed works at the site and assessments of impacts including appropriate mitigation measures where necessary.

[1] Latitude and Longitude: 51.51560658, -3.70018423 / what3words: ///play.this.dolls / nearest postcode: CF33 4SA

1.5. Reporting

This report aims to:

- Outline the methodology used during the survey;
- Present the baseline ecological information;
- Provide an ecological evaluation of on-site habitats, including an assessment of the potential for protected species;
- Assess the potential impacts of the development proposals on ecological receptors;
- Assess 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 derailed in the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal 2017 guidelines, and the Phase 1 Habitat Survey manual (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 2. Plans 2 and 3 show the protected sites in relation to the proposed development site.

Table 1: Summary of Designated Sites and Other Abbreviations

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

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 Historic Phase 1 Habitat Survey Data JNCC (1992 - 96)	Ramsar/SACs/SPAs/SSSIs/NNRs/LNRs – 2km[2] SACs (designated for bats) - 10km. 1km. Site boundary.
SEWBReC	Protected species records SINCs	1km. 1km.

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

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

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 extend to at least 1km from the site. 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, Ordnance Survey maps and SEWBReC data. The presence of off-site features and habitats, which add to the ecological value within the wider area (for example, ponds within 0.5km of the site) were identified. Where appropriate, such features were scoped into the detailed assessment of impacts presented in Section 3.

2.1.3. Ancient Woodland

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

2.1.4. Planning Authority

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

An internet-based search of the Bridgend Local Biodiversity Action Plan (BAP)[4] was undertaken.

2.2. Field Study

2.2.1. Personnel

The field survey was undertaken in good weather on the 11th August 2022 by Ffion Jones[5].

[3] http:// https://www.bridgend.gov.uk/residents/planning-and-building-control/
[4] https://www.bridgend.gov.uk/media/2036/sd95.pdf
[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 ecological survey work. She is listed as an accredited agent on Paul Hudson's bat and dormouse licences and has undergone training with Acer Ecology in habitat and protected species surveying. Further details of her qualifications and experience can be found at https://www.linkedin.com/in/ffion-jones-17ab63197.

2.2.2. Vegetation and Habitats

The vegetation and habitat types present within the survey area were categorised and mapped in accordance with the standard[6] Phase 1 Habitat assessment methodology (Joint Nature Conservation Committee, 2010), dominant and conspicuous plant species were recorded for each habitat. Target notes were used to record information on features of ecological interest, such as evidence of, or habitats with potential to support protected species or where any features of interest too small to map were recorded. Following the completion of the survey, a colour-coded habitat plan was digitised using Corel Draw to show the extent and distribution of the different habitat types present within the site (see Plan 3).

Section 7 habitats (Environment Wales Act 2016 Priority Habitats of the UK Biodiversity Action Plan (BAP) (Biodiversity Reporting & Information Group, 2007) were identified and assessed to determine of the site meets the non-statutory designated site criteria (SINC).

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

2.2.3. Protected and Notable Species

Evidence of, and habitats with, potential to support protected or notable species were noted, especially species meeting any of the following criteria:

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

[6] Some additional categories were also used if applicable e.g. hard standing and Japanese knotweed.
[7] Schedule 9 species of plants and animals are ones that do not naturally occur in Great Britain but have become established in the wild and represent a threat to the natural fauna and flora.
[8] The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (http://jncc.defra.gov.uk/page-1773).
[9] Eaton *et al.* (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108: 708-746.
[10] Johnstone, I. and Bladwell, S. (2016) Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales 13 (1).

- 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).

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 Features[11] (PRF) and evidence of bats (i.e. droppings in, around or below a PRF; odour emanating from a PRF; audible squeaking at dusk or during warm weather; or staining below the PRF). A systematic inspection was carried out around all accessible aspects of the tree, from both close to the trunk and further away. The location of the trees is shown on Plan 3.

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

Buildings Assessment

There are no buildings present within the survey area therefore a building assessment was not carried out.

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 3). 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.

[11] Potential Roost Features that bats may use identified by Andrews include: woodpecker-holes; squirrel-holes; knot-holes; pruning-cuts; tear-outs; wounds; cankers; compression-forks; butt-rots; lightning strikes; hazard-beams; subsidence-cracks; shearing cracks; transverse cracks; welds; lifting bark; frost-cracks; fluting and ivy.

Dormice

The woodland and scrub habitats were assessed for their suitability to support dormice (*Muscardinus avellanarius*). 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.) and sycamore (*Acer pseudoplatanus*), as well as other trees and shrubs listed in the Dormouse Conservation Handbook (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.

A search for hazelnuts opened by dormice was not undertaken due to the lack of any fruiting hazel specimens.

A full nest tube/box/footprint tunnel 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. One potentially suitable water body was identified within the study area (see Plan 5).

Due to access constraints, HSI assessments of the waterbody were not able to be undertaken. However, this is not considered to be a significant constraint to the overall assessment for GCN, due to the distance of this water body from the proposed development, the restricted ecological connectivity due to the A4229 acting as a hard barrier to any potential commuting GCN and the sub-optimal nature of the terrestrial habitats on the majority site. Furthermore, the site is surrounded to the east and south by further 'hard barriers', with the M4 less than 5m to the north, the A4229 less than 5m to the south, the Pyle Interchange roundabout less than 5m to the east, and the B4283 directly to the west. Major highways are considered to act as barriers to GCN migration (English Nature, 2001) therefore the likelihood of GCN migrating onto the proposed development site is considered to be very low. In addition to the absence of records of GCN within 1km of the site, the likelihood of GCN being present on site is considered to be negligible. No adverse impacts to GCN are therefore anticipated and this species is 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 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.

Hedgehogs

The sites potential to support hedgehog was assessed using guidance of habitats of importance in Hedgehogs and Development (unknown year) with the following habitats particularly favoured: dense scrub to build hibernation nests in during the winter; short grass to forage in for invertebrate prey; longer grass to forage in and to make nests in during the summer; areas of leaf litter to collect and use for hibernation nests; log piles and decaying vegetation to forage in and hibernate in; and hedgerows and boundary vegetation are important corridors for travel and nesting sites.

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 5.

2.2.5. Constraints and Limitations

General Temporal Constraints

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

Access Difficulties Due to Dense Scrub

As a result of the dense scrub habitats on site, it was not possible to fully access all of the site, and consequently trees within this area were surveyed via binoculars, and a thorough search for the presence of badgers was not undertaken. Consequently, it is possible that the trees within this area were under-assessed for bat roosting potential and evidence of badger use could have been missed.

Restricted Access to Water Bodies Within 0.5km of Site

Access to the waterbody within 0.5km of the site was not possible it was situated on private land and access permissions had not been agreed at the time of the survey. See section 2.2.3 above as to why this is not considered a significant restraint.

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 SACs or SSSIs specially designated for bats lie within 10km of the site.

RAMSARs, SPAs, SACs, SSSIs, NNRs, LNRs, National Parks and AONBs within 2km of Site

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

Table 3: Statutory Sites Designated Within 2km

Site Name	Designation	Description	Distance and Direction from Development Site	Development Impacts
Kenfig[12]	SSSI	Kenfig is of special interest for its extensive sand dune habitats and standing waters together with a mixture of associated coastal habitats including saltmarsh, intertidal areas, swamp, woodland and scrub. In addition, the site is of special interest for the assemblages of plants, fungi and invertebrates that are associated with the sand dunes and standing waters	1.4km to the north-west	No adverse impacts are anticipated due to the distance of the site from the development site.

[12] https://naturalresources.wales/media/676497/sssi_0308_citation_en001.pdf

Kenfig[13]	SAC, National Nature Reserve and Local Nature Reserve	Annex I habitats that are a primary reason for selection of this site, including: extensive areas of fixed dune vegetation, a shallow lake system within the extensive sand dune system and the SAC contains the largest example of dune slacks in Wales. Kenfig also contains the most important example of Humid dune slacks in the UK.	1.4km to the north-west	No adverse impacts are anticipated due to the distance of the site from the development site.
Penycastell, Cefn Cribwr[14]	SSSI	Penycastell, Cefn Cribwr is of special interest for its marshy grassland and species-rich neutral grassland and for the association of these vegetation types with others including swamp, carr woodland and scrub.	1.8km to the north-east.	No adverse impacts are anticipated due to the distance of the site from the development site.
Stormy Down[15]	SSSI	A locality in the Rhaetian Quarella Sandstone, a littoral deposit characteristic of the area between the Lias - L. Jurassic "Cowbridge Island" and the "mainland". Here these sandstones have produced the fish Hybodus, and "Schizodus" with a limited molluscan fauna, as well as the dinosaur	1.9km to the east.	The development is outside of the AONB but the development may still have to ensure that it does not adversely affect the character of the AONB.

[13] https://sac.jncc.gov.uk/site/UK0012566
[14] https://naturalresources.wales/media/677056/sssi_1481_citation_en001.pdf
[15] https://naturalresources.wales/media/677268/sssi_0149_citation_en001.pdf

		Zanclodon cambrensis.		
Cefn Cribwr Grasslands [16]	SAC	This is one of four sites selected to represent *Molinia* meadows in south and central Wales, one of the major UK strongholds for this habitat type. At this site, there are extensive stands of *Molinia – Cirsium dissectum* fen-meadow (M24).	1.9km to the north-east	No adverse impacts are anticipated due to the distance of the site from the development site.

3.2. Non-statutory Nature Conservation Designated Sites

SINCs

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

Name	Description	Distance
Old Ballas Wood[17]	Broad-Leaved Semi-Natural Woodland and Improved grassland	0.7km to the east of the site.
Ty Tanglwst Wood[18]	Broad-Leaved Semi-Natural Woodland	0.5km to the south of the site.
Cornelly Quarry[19]	Limestone cliffs/tiers reclaimed by scattered and dense continuous scrub. Broad-Leaved Semi Natural Woodland	0.3km to the south of the site.

These sites are shown in plan 4.

No adverse impacts are envisioned to the designated sites due to the distance of the SINC's from the development site and due to the barriers, such as the A4229, between the proposed development site and the SINC's. They are therefore not mentioned further in this report.

Ancient Woodland Sites

The following table shows the ancient woodland sites within 2km of the site:

Table 4: Ancient Woodland Sites Within 2km

Ancient Woodland Site	Number within 2km of Site
Ancient Semi-Natural Woodland (ASNW)[73]	18

[16] https://naturalresources.wales/media/671199/Cefn%20Cribwr%20Core%20SAC%20plan%20290108%20English.pdf
[17] http://citations.lercwales.org.uk/sinc/brg/CYN-3-N.pdf
[18] http://citations.lercwales.org.uk/sinc/brg/CYN-5-S.pdf
[19] http://citations.lercwales.org.uk/sinc/brg/CYN-1-N.pdf

Restored Ancient Woodland Sites (RAWS)[74]	Two
Plantations on Ancient Woodland Sites (PAWS)[75]	Zero
Ancient Woodland Sites of Unknown Category[76]	Zero
Nearest Area of Ancient Woodland	An unnamed area of ASNW located 0.4km to the south 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 3. A botanical species list is provided in Appendix 4.

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

Table 5: Habitats Recorded on Site				
Phase 1 Habitat	**Habitat UK Habitats**	**Description**	**Ecological Value**	**Development Impacts**
Broadleaved Semi-Natural Woodland (A1.1.1)	Woodland and forest - Lowland mixed deciduous woodland (w1)	Two small distinct stands of woodland were identified during the survey, one located at the most eastern corner of the site and the other at the most western corner of the grassland within the survey area. The eastern corner was dominated by semi-mature specimens of alder (*Alnus glutinosa*) and beech (*Fagus sylvatica*) with three leyland cypress *(Cupressus × leylandii)* trees also recorded. The field layer was bare ground with the occasional common nettle (*Urtica dioica)* (Photo 1). The western woodland comprises semi-mature stands of sycamore (*Acer pseudoplatanus*), beech and horse chestnut (*Aesculus hippocastanum*). The field layer has been heavily grazed and mainly consists bare ground (Photo 2). Additionally, two tree lines run along either side of a track on the western boundary of the site. These were dominated by hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*) with the occasional sycamore (Photo 5).The groups of semi-mature trees within the dense scrub habitats are described below. Additionally, detailed tree descriptions can be found in section 3.5.3.	Local value. UK Habs Medium distinctiveness	The majority of the woodland and trees on site are proposed to be removed as part of the development (Appendix 1). It appears that some of the marginal trees on the southern boundary can be retained, however, as the proposed plans are not yet finalised it is not known to what extent the trees and woodland to the south of the site will need to be removed. Precautionary measures are set out in Section 4 to mitigate impacts to protected species. Additionally, if any trees are proposed for retention on the south-western and south-eastern areas of the site these could be subject to root damage as a result of heavy plant movement over the root protection area, or accidental damage during general construction activities (See section 4.2.2). Ash trees may also need to be felled or reduced due to the presence of ash dieback (*Hymenoscyphus fraxineus*).
Dense Scrub (A2.1)	Heathland and shrub - Mixed scrub (h3)	A large area of scrub runs the length of the southern boundary of the site between the grazed grassland and the A4229. This is a southern sloping bank of scrub that has scattered mature broadleaved trees dotted throughout, including ash (*Fraxinus excelsior*), wild cherry (*Prunus avium*) and sycamore. The scrub habitat is dominated by bramble (*Rubus fruticosus*), hawthorn and blackthorn (*Prunus spinosa*). With frequent dog rose (*Rosa canina*), elderberry (Sambucus) and nettle (Photo 4).	Site value. UK Habs medium distinctiveness.	Clearance of the site to facilitate the new development will result in the permanent loss of areas of this habitat. Which could affect protected species such as nesting birds, dormice, bats and badgers. Further recommendations are set out in Section 4.

		Additionally, small areas of dense scrub are present along the fence line perimeter of the site, including hawthorn, bramble and Blackthorn, with occasional cotoneaster (*cotoneaster sp.*), hazel and honeysuckle (*Lonicera periclymenum).* The field layer is populated with common nettle, dogrose, creeping thistle (*Cirsium arvense),* ivy (*Hedera helix*), red campion (*Silene dioica),* creeping bent (*Agrostis stolonifera),* false oat-grass (*Arrhenatherum elatius*) and rosebay willowherb (*Chamerion angustifolium*) (Photo 3).		
Improved Grassland (B4)	G4 Modified Grassland	The majority of the site is dominated by a short-sward of amenity grassland, dominated by perennial rye-grass (*Lolium perenne*), with occasional Yorkshire fog (*Holcus lanatus*) and creeping bent sand sparse false oat grass. Other forbs include creeping buttercup (*Ranunculus repens),* broadleaved dock (*Rumex obtusifolius*), dandelion (*Taraxacum officinale*), white clover (*Trifolium repens*), common nettle, speedwell sp., and self-heal (*Prunella vulgaris*) (Photo 6).	Site value UK Habs low distinctiveness	The majority of this habitat is to be lost to the development permanently.
Fence (J3.4)	Urban-Built Linear Features	A timber fence runs round the length of the improved grassland and separates the scrub and trees to the south of the site from the improved grassland.	Site Value. Uk Hab Low Distinctiveness	This will likely be lost permanently to the development.
Log Pile	N/A	A log pile (TN1) is located along the western boundary tree line (Photo 7).	Site Value.	Clearance of the log pile to facilitate the new development may result in the permanent loss of potential refugia for sheltering wildlife, such as reptiles and hedgehogs (see Section 3.5.6 and 3.5.7).
Stone Piles	N/A	Two stone piles (TN2-TN3) are located along the track on the western boundary of the site (Photos 8 and 9).	Site Value.	Clearance of the log pile to facilitate the new development may result in the permanent loss of potential refugia for sheltering wildlife, such as reptiles (see Section 3.5.6).

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 the habitats off site.

Photo 1: Eastern Woodland

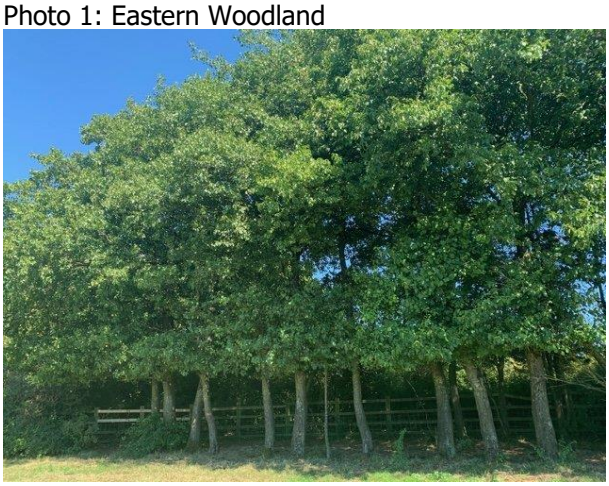


Photo 2: Western Woodland

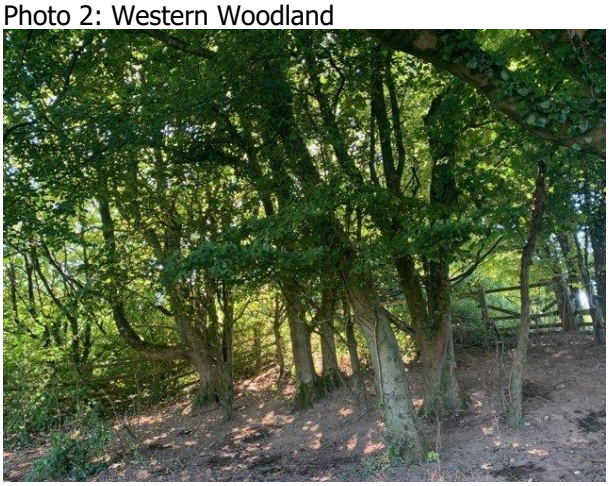


Photo 3: Northern Boundary Scrub

Photo 4: Southern Boundary Scrub

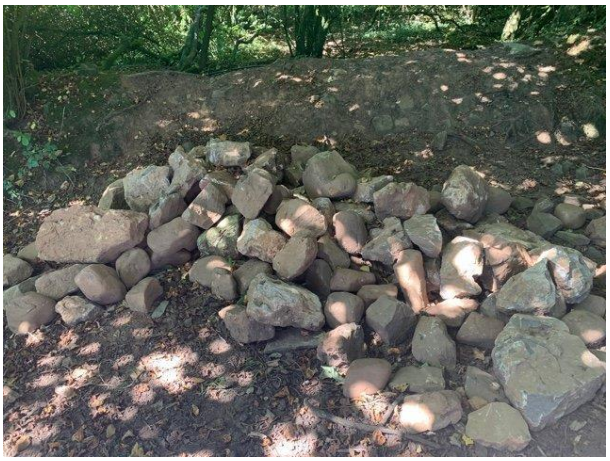
Photo 5: Tree-lined Track on Western Boundary

Photo 6: Improved Grassland Facing East

Photo 7: Log Pile (TN1)

Photo 8: Stone Pile (TN2)

Photo 9: Stone Pile (TN3)



3.4. Invasive Plant Species

No invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the site visit.

3.5. Protected and Notable Species

3.5.1. Notable Plant Species

Data Trawl Results

SEWBReC returned one record of a 'notable' plant species: bluebell (*Hyacinthoides non-scripta*) within 1km of the site. This record was 0.7km to the east of the site. However, this record does not relate to the proposed development site.

Field Survey Results

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

3.5.2. Birds

Desk Study Results

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

Table 6: Bird Records within 1km of the Site

Species		Schedule 1	Section 7 list – Environment Act Wales	UK BAP	Red list[20]	Amber list[21]
Black redstart	*Phoenicurus ochruros*	Yes			Yes	
Black-headed gull	*Chroicocephalus ridibundus*					Yes
Brambling	*Fringilla montifringilla*	Yes				
Bullfinch	*Pyrrhula pyrrhula*		Yes	Yes		
Dunnock	*Prunella modularis*		Yes	Yes		Yes
Fieldfare	*Turdus pilaris*	Yes			Yes	
Goshawk	*Accipiter gentilis*	Yes				
Herring gull	*Larus argentatus*		Yes		Yes	
Hobby	*Falco subbuteo*	Yes				
House martin	*Delichron urbica*					Yes
House sparrow	*Passer domesticus*		Yes	Yes	Yes	
Kestrel	*Falco tinnunculus*		Yes			Yes
Lesser Black-backed Gull	*Larus fuscus*					Yes
Linnet	*Linaria cannabina*		Yes	Yes	Yes	
Meadow pipit	*Anthus pratensis*					Yes
Peregrine	*Falco peregrinus*	Yes				
Red kite	*Milvus milvus*	Yes				
Redstart	*Phoenicurus phoenicurus*			Yes		Yes
Redwing	*Turdus iliacus*	Yes			Yes	
Skylark	*Alauda arvensis*		Yes	Yes	Yes	
Song thrush	*Turdus philomelos*		Yes	Yes	Yes	
Spotted flycatcher	*Muscicapa striata*		Yes	Yes	Yes	
Starling	*Sturnus vulgaris*		Yes	Yes	Yes	

[20] 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.

[21] 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.

Stock dove	*Columba oenas*					Yes
Wood warbler	*Phylloscopus sibilatrix*		Yes	Yes	Yes	

Field Survey Results

A low number of birds were recorded on site, including blackbird (*Turdus merula*) and wood pigeon (*Columba palumbus*).

Evaluation of Ecological Value of Site for Birds

The scrub and woodland habitats on site are suitable for scrub-nesting and foraging birds. However, the grazed grassland, comprising the majority of the site, is unsuitable for nesting and foraging birds.

Impact Assessment of Proposed Development on Birds

Removal of the woodland and scrub habitats on site would directly impact nesting birds on site. As a result, precautionary and compensation measures are set out in section 4.

3.5.3. Bats

Desk Study Results

SEWBReC returned a total of two 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
Lesser horseshoe (*Rhinolophus hipposideros*)	Two	2.4km north-west	2015

In addition to the roost records, SEWBReC returned many records of bats foraging or commuting within 1km of the site. These included common pipistrelles (*Pipistrellus pipistrellus*), soprano pipistrelles (*Pipistrellus pygmaeus*) and long-eared bats (*Plecotus auritus*), noctules (*Nyctalus noctula*), greater and lesser horseshoe (*Rhinolophus ferrumequinum* and *Rhinolophus hipposideros*) and unidentified bats.

Field Survey Results and Evaluation of Ecological Value of Site for Bats

Trees

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

These have been described in detail in the table below and numbered on Plan 3, which should be read in conjunction with this section of the report.

Table 7: Trees Assessed for Bat Potential

No.	Description	Evidence of Roosting Bats	PRF	Suitability for Roosting Bats
T1-4	Four semi-mature hawthorns with dense mature ivy covering. Approximately 9m tall.	None.	Dense ivy coverage with stems greater than 50mm diameter[22].	Low
T5	Semi-mature sycamore, twin stemmed. Moderate ivy coverage. Approximately 11m tall.	None.	There is dense ivy cover extending into canopy. The specimen is large enough to potentially have PRF's out of sight from ground level.	Low
T6	Semi-Mature sycamore, single stemmed. Approximately 12m tall.	None.	Knot hole approximately 6m high on trunk and extensive dead wood.	Low
T7	Mature sycamore, single stemmed. Approximately 13m tall.	None.	The specimen is large enough to potentially have PRF's out of sight from ground level.	Low
DBH – Diameter at Breast Height DBH. This refers to the tree diameter measured at 4.5 feet above the ground.				

Photo 10: Four Mature Hawthorns (T1-T4)

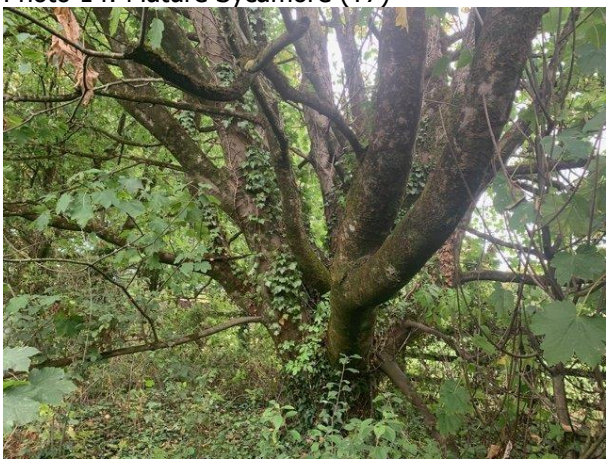
Photo 11: Example of Dense Ivy Coverage on Hawthorns

Photo 12: Semi-mature Sycamore (T5)

Photo 13: Semi-Mature Sycamore with Knot Hole (T6)

[22] For ivy to provide an environment suitable for occupation by roosting bats it has to have attained significant age. Typically, the stems should be a minimum of 50mm diameter (ideally some even larger) and have sections that have formed pockets into which bats slide or crawl up and under to rest against the bark of the mature tree (G Billington 2011, *pers comm.*, quoted in Andrews 2013).

Photo 14: Mature Sycamore (T7)



Foraging and Commuting Habitat

The mature scrub and woodland habitats around the boundaries of site have moderate suitability for commuting and foraging bats. However, the grassland is likely to have low suitability for commuting and foraging bats. Additionally, due to the light pollution from the nearby main roads, the A4492 and the M4 likely reduces the quality of these habitats somewhat.

Evaluation of Ecological Value of Site for Bats

Potential Tree Roosts

T1-7 have been assessed as having low potential to support roosting bats.

Potential Foraging and Commuting Habitat

The site is collectively considered to provide low quality foraging and commuting habitat for bats. The grazed grassland would be considered sub-optimal for foraging bats. There are lines of trees and scrub with small areas of woodland that form a continuous habitat around the edges of the site, however, light pollution from the surrounding main roads likely reduces the quality of these habitats on the site.

Impact Assessment of Proposed Development on Bats

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

- T1-7 will potentially be felled to facilitate construction access. T1-7 have been assessed as having low bat roost potential. Felling may therefore result in the death, injury, or disturbance to any bats present at the time of works, or the loss of the roost. However, this is considered unlikely, as a result precautionary measures are set out in section 4;
- The proposals will result in and area of low-quality foraging and commuting habitat being lost, and these losses will be permanent in nature. The landscaping of the site should seek to replace such habitats on the site.

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

- Clearance of the any scrub and woodland habitats on site will result in fragmentation of ecological connectivity for commuting bats; and
- Due to the change of use of the site, increases in artificial lighting levels will be significant, both during the construction phase and the operational phase of the development. If this lighting envelops the retained hedgerows and trees of the site, it could adversely affect foraging and commuting bats. A sensitive lighting strategy plan

3.5.4. Dormice

Desk Study Results

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

Field Survey Results Evaluation of Ecological Value of Site for Dormice

No signs of dormice were recorded during the survey. The majority of the site comprises improved grassland which is currently grazed by cattle. Semi-mature tree lines that have hazel present were recorded within the site, however, these were not fruiting at the time of the survey. The scrub and woodland habitat on the southern, western and eastern boundary have 8 plants known food-plants that form part of the dormice diet (hazel, holly, ash, sycamore, honeysuckle, bramble, ivy and hawthorn). However, these potentially suitable habitats are isolated from similar surrounding habitat by major roads such as the M4 and A4492.

Impact Assessment of Proposed Development on Dormice

The likelihood of dormice being present on site is low. The presence of dormice within the scrub and woodland habitats cannot be ruled out completely. The scrub and woodland habitat on site has potential for foraging dormice, however these areas are isolated from extensive areas of woodland and no records of dormice were recorded within 1km of the area. The proposals are not anticipated to result in adverse impacts to dormice, however, the presence of dormice within the scrub cannot be ruled out completely. Precautionary measures are outlined in Section 4.

3.5.5. Badgers

Desk Study Results

SEWBReC returned two badger records within 1km of the site. The nearest record was made in 2014 approximately 0.5km away to the north-west of the site.

Field Survey Results

No direct evidence of badgers were recorded during the survey.

Evaluation of Ecological Value of Site for Badgers

Although no evidence of badgers was recorded on site, there is considered to be some potential for them to venture onto the site from the surrounding landscape to forage.

Impact Assessment of Proposed Development on Badgers

The presence of badgers foraging or commuting across the site cannot be ruled out completely due to the records of badgers close to the site returned in the data trawl and the dense bramble vegetation on site which made it difficult to undertake a thorough search. The clearance of the woodland and scrub habitat may result in direct impacts to badgers, as this area was not able to be thoroughly inspected during the survey, due to restricted access (see section 4). An update badger survey is recommended immediately prior to or at the time of site clearance.

3.5.6. Reptiles

Desk Study Results

SEWBReC returned one record of reptiles within 1km of the site. This included a record of a slow-worm (*Anguis fragilis*) approximately 0.8km away towards the west of the site.

Field Survey Results and Evaluation of Ecological Value of Site for Reptiles

No evidence of reptiles were noted during the survey, however, the majority of the site is unsuitable for reptiles due to the short length of the sward. It is regularly grazed by cattle which keeps the sward less than 5cm high. The western boundary where the track forms the boundary, stone piles and piles of dead wood were noted (TN1-TN3). These have potential to act as refugia and hibernation sites for reptiles. Additionally, the field margins where grassland and scrub interface have potential for reptiles to be present in.

Impact Assessment of Proposed Development on Reptiles

The central parts of the site are wholly unsuitable for reptiles however, there is some limited potential for the boundaries of the site to provide shelter to reptiles. Additionally, the stone and log piles on site could potentially support these species during the hibernation period in the winter. The proposed works to the central area of the site will therefore not result in the loss of potential reptile habitat or pose a risk of death or injury to reptiles. However, the boundaries and refugia could potentially support reptiles and therefore

any clearance of these areas to facilitate the development may result in the accidental killing or injury of reptiles, as well as losses to optimal habitat.
The anticipated risk of adversely affecting reptiles during such works is thought to be low, provided that suitable precautionary measures are implemented (see section 4).

3.5.7. Other Mammals

Desk Study Results

SEWBReC returned four records of other mammals within 1km of the site, comprising four common hedgehog (*Erinaceus europaeus*) records within 1km of the site. The nearest of which was recorded 0.2km to the north-west of the site.

Field Survey Results

Hedgehog faeces were noted within the grazed grassland on the eastern side of the site near the scrub and grassland interface.

Evaluation of Ecological Value of Site for Other Mammals

The majority of the site will be permanently lost to the development, habitat suitable for other animals including hedgehogs. The scrub and woodland habitats act as resting places for hedgehog in the summer. Additionally, log piles on site (TN1) may act as hibernation sites in the winter.

Hedgehogs may forage and rest during the day within the scrub and tree understories during spring/summer months. These habitats along with any log piles on site could also be used by hibernating hedgehogs during the winter.

Hedgehogs are considered likely to forage within the site and could potentially nest and hibernate within the grassland margins, scrub and tree habitats. The loss of these habitats could lead to negative impacts upon this species if present.

Impact Assessment of Proposed Development on Other Mammals

Assuming the majority of the site is to be cleared for development, the impact on potential hedgehog habitat on site is considered to be moderate and potentially permanent. Mitigation measures are outlined in Section 4 to enable the requirements of the local planning authority to be met, namely the restoration or enhancement of hedgehog habitat.

3.5.8. Invertebrates

Desk Study Results

SEWBReC returned a of notable invertebrate records from within 1km of the study area, comprising:
knot grass (*Acronicta rumicis*), dusky brocade (*Apamea remissa*), small pearl-bordered fritillary (Boloria selene), mottled rustic (*Caradrina Morpheus),* dusky thorn *(Ennomos fuscantaria*), dingy skipper (*Erynnis*

tages), dusky dart (*Euxoa tritici*), rustic (*Hoplodrina blanda*), rosy rustic (*Hydraecia micacea*), wall (*Lasiommata megera*), lackey (*Malacosoma Neustria*), dot moth (*Melanchra persicariae*), buff ermine (*Spilosoma lutea*), cinnabar (*Tyria jacobaeae*), small phoenix (*Ecliptopera silaceata*), marsh fritillary (*Euphydryas aurinia*), brindled beauty (*Lycia hirtaria*), oblique carpet (*Orthonama vittate*) and shaded broad-baz (*Scotopteryx chenopodiata*).

Field Survey Results

Two large white (*Pieris brassicae*) butterflies were noted during the survey.

Evaluation of Ecological Value of Site for Invertebrates

The majority of the habitat on site is unlikely to support an insect flora of conservation significance, however, the scrub habitats likely provide some foraging opportunities for invertebrates, but the site is unlikely to support notable or rare species.

Impact Assessment of Proposed Development on Invertebrates

The development will likely result in the permanent loss of some suitable foraging habitat for invertebrates. Compensation and enhancement measures are set out in Section 4 of the report.

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. It should be noted that they may be subject to change upon receipt of the final design. The implementation of these recommendations will ensure compliance with the Planning Policy Wales version 11 (Welsh Government, 2021)[23], TAN 5 *Nature Conservation and Planning* (2009), Section 6 and 7 of the Environment Wales Act, 2016, the Conservation of Habitats and Species Regulations 2017 which has been updated by the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019 and Bridgend County Borough Council Local Development Plan 2006-2021[24], adopted in 2013 and currently under review.

The recommendations aim 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

4.1.1. Update Tree and Badger Surveys

Update badger and tree roosting surveys should be undertaken at the time of site clearance to ensure that no badger setts are present and ensure that the trees have been accurately assessed as having low bat roosting suitability. This is necessary due to the dense bramble habitat on site which means that the badger and bat roost surveys were somewhat constrained.

4.2. Precautionary Measures

4.2.1. Timing of Vegetation Clearance for Birds

To avoid adverse impacts to nesting birds, the clearance of vegetation including trees, scrub and bramble beds will be undertaken from September to February outside of the bird breeding season (March to August inclusive). Alternatively, any works undertaken from March to August will be subject to a check for nesting birds by a suitably 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 10m, until the nesting is complete, and the young have fledged[25].

4.2.2. Protective Fencing

The retained hedgerows and trees could be accidentally affected by plant during the construction phase of works. They will require a degree of protection, to ensure that they are not accidentally damaged during

[23] 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.
[24] https://www.bridgend.gov.uk/media/1899/written-statement.pdf
[25] Some bird species, especially raptors and owls remain dependent upon the nesting site after fledging and so depending upon the species the nest site may need to be protected for a period of time after fledging.

construction. They will be securely fenced-off to prevent accidental damage, prior to the commencement of construction work and treated in accordance with British Standard BS5837 (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations*. A protective fence (see Appendix 9) will be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site, development or the stripping of soil commences. The fence shall have signs attached to it stating that no works are permitted within the fence. The protected fence will only be removed following completion of all construction works.

4.2.3. Soft Felling of T1-T7

T1-T7 are considered to have low potential to support roosting bats due to the presence of ivy growth, knot holes, dead wood and therefore require soft felling. 'Soft felling', is a generic term used to describe more cautious felling approaches, using lowering and cushioning techniques to reduce the impact of felling limbs/ivy growth which may still have bats within cavities:

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

4.2.4. Species Deterrence Measures for Dormice

Natural England Standing Advice[26] (last updated 29th July 2015) states that dormouse surveys can be limited to visual searches for nests and opened nuts if the work only involves losing a small amount of

[26] Natural England guidance is references as no equivalent guidance is available from NRW.

habitat, for example, gaps in hedgerows and removing a small amount of bramble scrub. As the proposed development is likely to involve such works, it is recommended that a visual search of this type is undertaken by a licensed ecologist before any scrub, hedgerows or bramble beds are cleared. In the unlikely event that dormice are found during the proposed works, all works should stop immediately, and advice sought from NRW and/or a licensed ecological consultant. If the development cannot be amended, a European Protected Species Mitigation Licence from NRW may be required.

As an extra precautionary measure, any sections trees, hedgerows or dense bramble beds to be cleared will first be coppiced or cut back during the winter months (November – March inclusive). Hand tools will be used to minimise ground disturbance. The subsequent removal of the remaining vegetation and stumps (if required) will not be undertaken until late April/early May, so that any dormice present will have emerged from hibernation and will be able to disperse into neighbouring areas of woodland and scrub. This phased approach is timed to avoid disruptive works when these animals are hibernating at ground level and are less unable to escape the area of works. On the southern site boundary, works will begin at the existing site entrance/gate and progress in a linear fashion southwards and eastwards so that any animals present can move to safer areas.

4.2.5. Species Deterrence Measures for Reptiles

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 in to 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 west and proceed towards the scrub and woodland to the south-eastern area of the site, 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;
- Taller vegetation in the areas to be cleared will initially be strimmed or brush cut to a height of no less than 15cm, and raked away so as to reduce its attractiveness for reptiles, small mammals, hedgehogs and terrestrial amphibians. The cut will be made in a direction which allows any species present to move to the area of the site which is being retained in order to find refuge.

- Arisings will be removed immediately from site i.e. in retained habitat that will not be affected by the works, as the vegetation piles may act for refuge by displaced fauna;
- Any reptiles (or other wildlife encountered) will be allowed to vacate the works area voluntarily, or will be carefully collected and removed to safety;
- Immediately prior to the commencement of other site works (i.e. 24-48 hours ahead), the area to be cleared will be strimmed a second time, cutting the vegetation to 5cm with the cut vegetation again being raked away. A suitably qualified ecologist will supervise the second cut before works can commence; During the second cut, the arisings from the cut vegetation will be dealt with in the same was as during the first cut;
- 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. Good Construction Practices for Hedgehogs

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

4.3. Mitigation Measures

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

4.3.1. Sensitive Lighting Strategy for Bats

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

The lighting will follow a 'bat friendly' specification:

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

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

sources, including mercury or metal halide, CPO and CDO (ceramic discharge metal-halide) bulbs, will be avoided as these have effects on bats.

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

4.4. Compensation and Enhancement Measures

Full details of compensation and enhancement measures will be devised after completion of the further surveys detailed above and the finalisation of development proposals.

4.4.1. Native Landscaping Scheme

Any new soft landscaping scheme for the site will include habitat enhancements that will benefit invertebrates, birds, foraging bats and reptiles. They will include the provision of shrubs or trees that bear berries or nuts. Native trees and shrubs that are indigenous to the region will be utilised, and any new plantings of native species should be of UK provenance.

Suitable species for use in any new tree or shrub planting include holly, common hawthorn, wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*) and guelder rose (*Viburnum opulus*). These shrubs could be planted along the periphery of the site, to strengthen the existing boundary scrub to increase the diversity of habitats present for wildlife.

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

4.4.2. Grassland Botanical Enhancement

Any areas of improved grassland to be retained can be enhanced by adopting appropriate meadow management techniques, thus making it more valuable for invertebrates and therefore birds, bats and reptiles (see Plan 6). Appropriate neutral wildflower seed mixes could be sown to enhance the floristic diversity of this habitat. They provide a source of food and shelter for a host of insects, which in turn benefits species higher up the food chain. To ensure the success of the seedlings, planting will be carried out by hand. Subsequent aftercare and site management will be required. All plant stock will be of British native origin. 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.

New tree planting should not occur in the semi-improved grassland habitats.

The grassland 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 8 to 10cm. The grassland should be divided into two areas and each area mown on rotation in

every second year in late summer (September), by hand or with a small-scale mowing machine (i.e only half of grassland area will be cut each year). Arisings should be collected and removed from site. in addition, further wildlife friendly mowing practices, such as cutting the field from the centre outwards, or mowing from one side of the grassland to the other, may benefit late season ground nesting birds.

Consideration could be given to specifically sowing yellow rattle, which is an indicator species of unimproved neutral grassland. It is semi-parasitic and will reduce the vigour of grasses within the sward if its abundance increases, thus benefiting some of the other herb species.

Furthermore, allowing the already tussocky and rank grassland to remain in this state will encourage small rodent populations to flourish which, in turn, will benefit barn owls and other birds of prey such as buzzards, kestrels and little owls.

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.

The provision of log and rubble piles could be sited in shaded areas across the site. These will provide valuable habitats for invertebrates which in turn provide a food source for birds, bats, amphibians, reptiles and hedgehogs.

4.4.3. Compensation for Nesting Birds

Bird boxes can be installed on trees or buildings around the site. They should be located in secluded positions, ideally within dense cover and at a minimum height of 3m from ground level. The retained trees to the east of the site and the proposed buildings on site provide suitable locations for such boxes (Appendix 8).

Specialised boxes that cater for specific bird species could be deployed as detailed below:

- Open fronted – Open fronted nest boxes cater for a range of bird species, including robin, dunnock, wren, (*Troglodytes troglodytes*), pied wagtail (*Motacilla alba*) and redstart (*Phoenicurus phoenicurus*). 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. Suitable locations could be within ivy coverage on trees. Appendix 8 displays a typical example;
- Standard nest boxes – An entrance hole of 32mm will attract species such as great, blue and coal tits, along with nuthatch (*Sitta europaea*), flycatchers (*Muscicapa striata* and *Ficedula hypoleuca*) and sparrows. These nest boxes can be sited in a wide range of locations throughout the site. Typical places would be on trees within the areas of scrub and woodland. Alternatively, boxes could be placed externally on building walls; and
- House sparrow boxes– House sparrows are sociable birds and prefer to nest in colonies. Appendix 8 shows a typical house sparrow terrace nest box, which allows up to three pairs to breed in proximity to each other. Several terrace nest boxes could be sited in the same location to encourage a large colony of this vulnerable species.

The terraces could be fitted to the external walls of the buildings, at elevations away from prevailing weather conditions (typically the south-west);

4.4.4. Hedgehog Habitat Management

If solid fences are installed on site, these will have holes 13cm x 13cm at the base to allow hedgehogs to move across the site.

In addition, the following hedgehog friendly features should[27] be considered for incorporation to the final design of the development:

- "Wild corners"- patches of long, natural vegetation could be left (comprising a minimum 2m wide boundary buffer);
- A log pile to provide a secure site for use by breeding and hibernating hedgehogs. This should be connected to the surrounding area by longer vegetation or hedgerows;
- The use of hedgerows instead of fences;
- The avoidance of pesticides including slug pellets, herbicides and insecticides during landscaping of the site; and
- Dedicated hedgehog nesting/hibernation shelters could be placed in suitable well-vegetated areas of the site. The Hogitat Hedgehog House could be used[28].

4.5. Sustainable Urban Drainage Systems (SuDs)

As of 7th January 2019, all new developments of more than one dwelling house or where the construction area is 100m² or more are required to have SuDS to manage on-site surface water. SuDS must be designed and constructed in accordance with the Welsh Government Standards for Sustainable Drainage[29].

4.6. Longevity of Report

If development works do not begin within eighteen months to two years of the date of this report of this report, an update survey is likely to be required in accordance with guidance from NRW[30], (CIEEM, 2019) and BS 42020:2013[31], to determine if conditions have changed since those described in this report.

4.7. Conclusions

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

[27] The recommendations are considered an enhancement that would be desirable but the mitigation scheme will still be acceptable if this is not implemented. As a result, it is not considered appropriate to use enforceable language stating that this will definitely be implemented

[28] http://www.nhbs.com/title/179699/hogitat-hedgehog-house

[29] https://gov.wales/sites/default/files/publications/2019-06/statutory-guidance.pdf

[30] 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.

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

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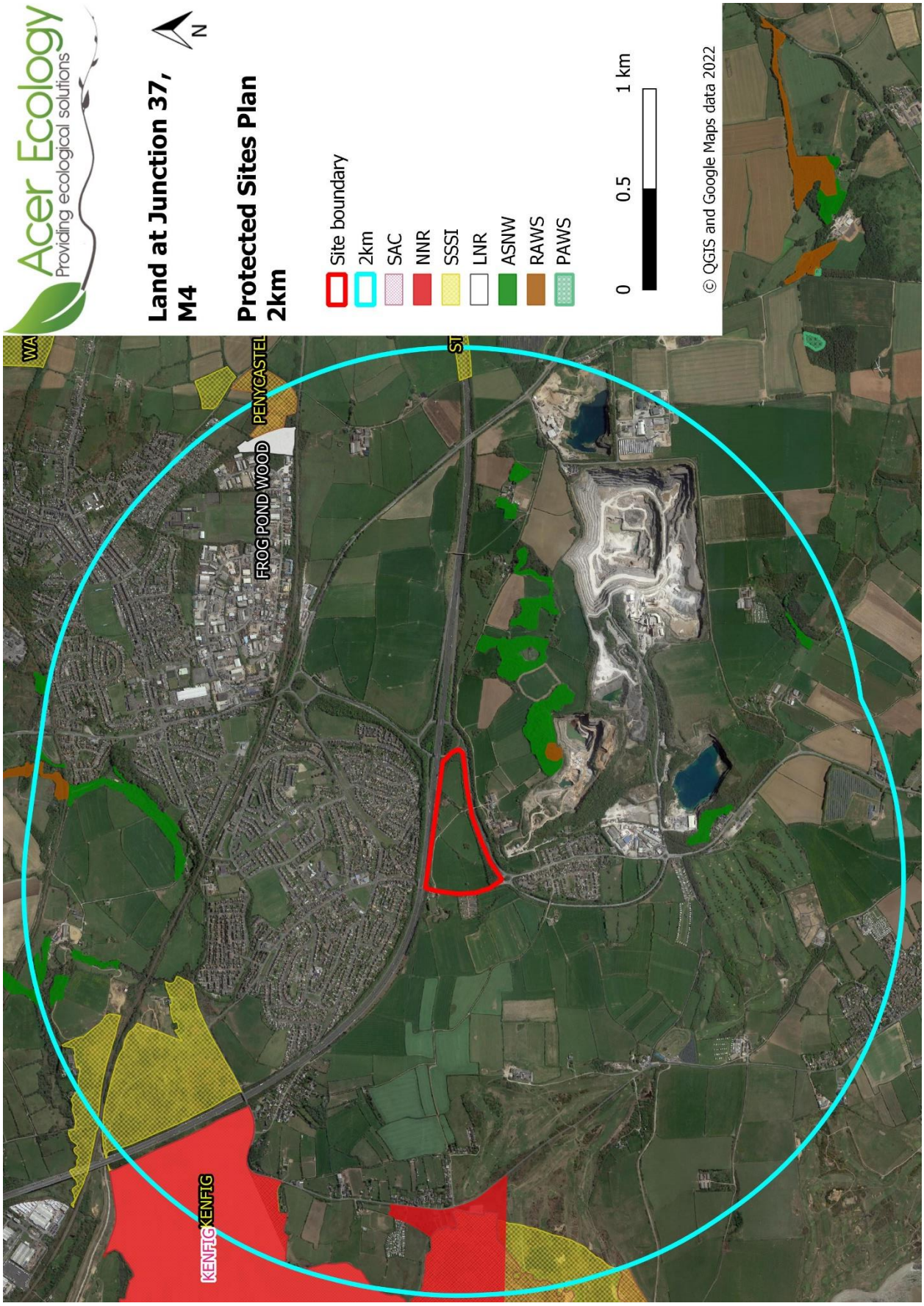
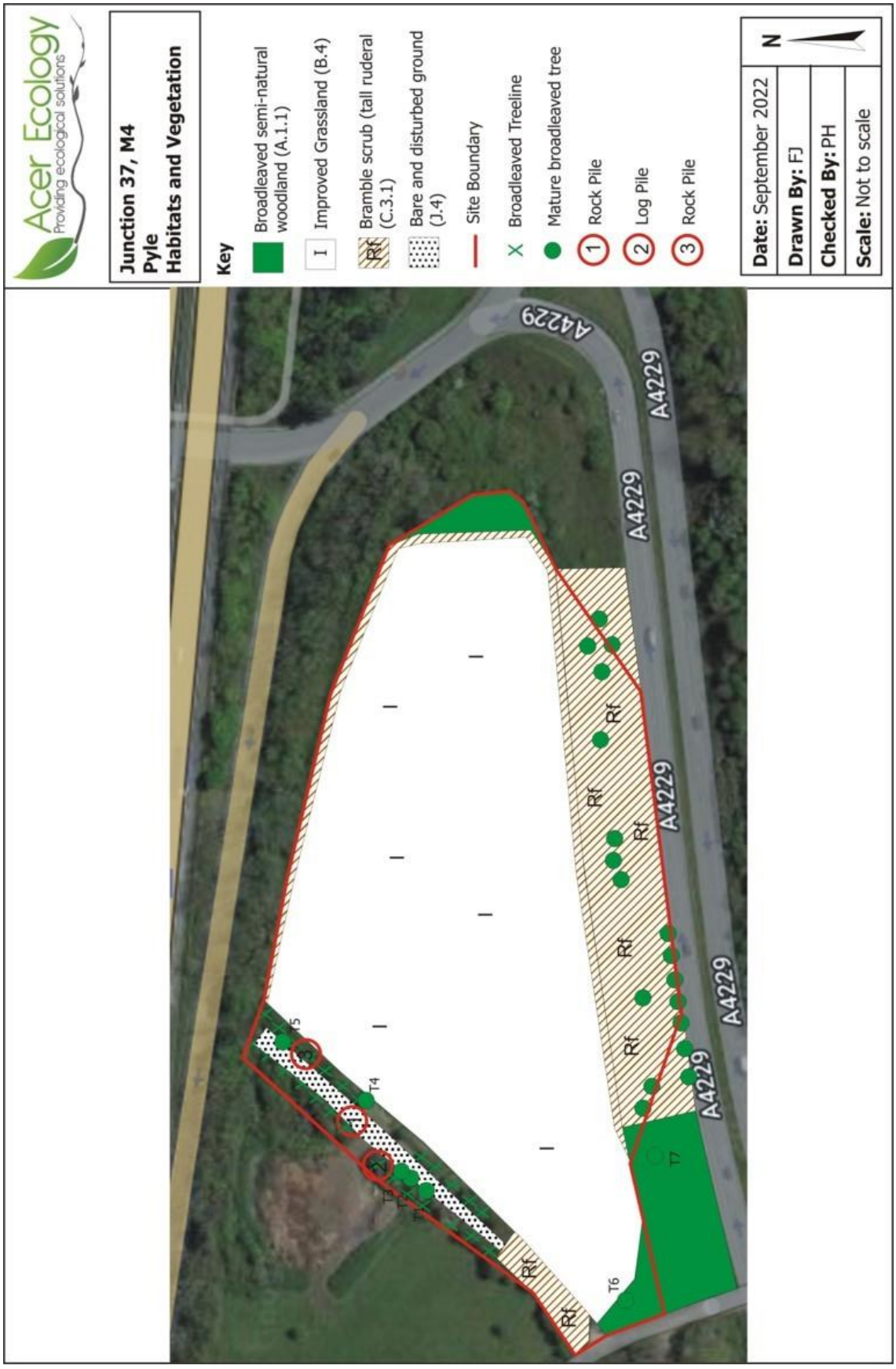
Plan 1: Site Location

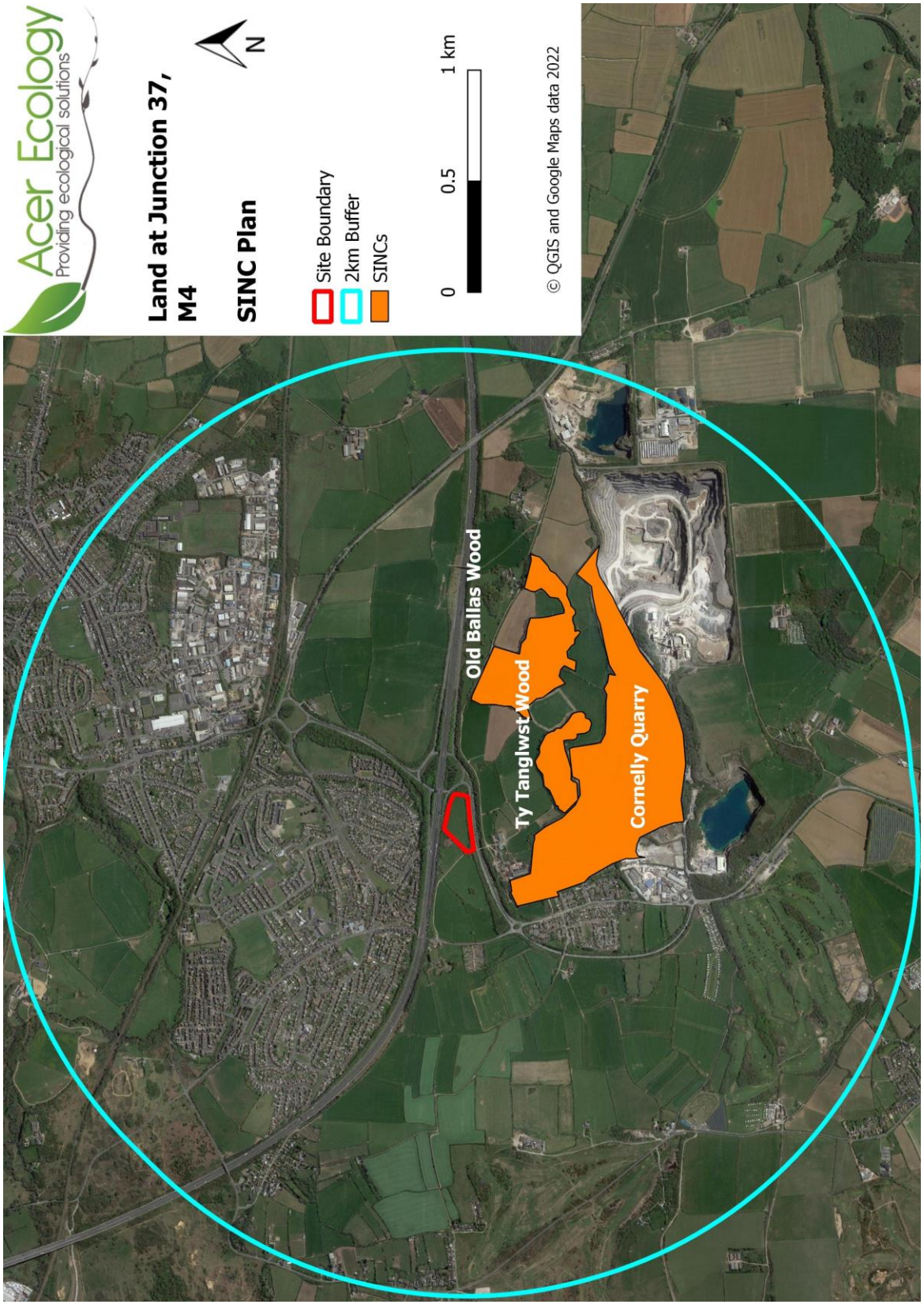
Plan 2: Site Location and Protected Sites (2km Buffer)



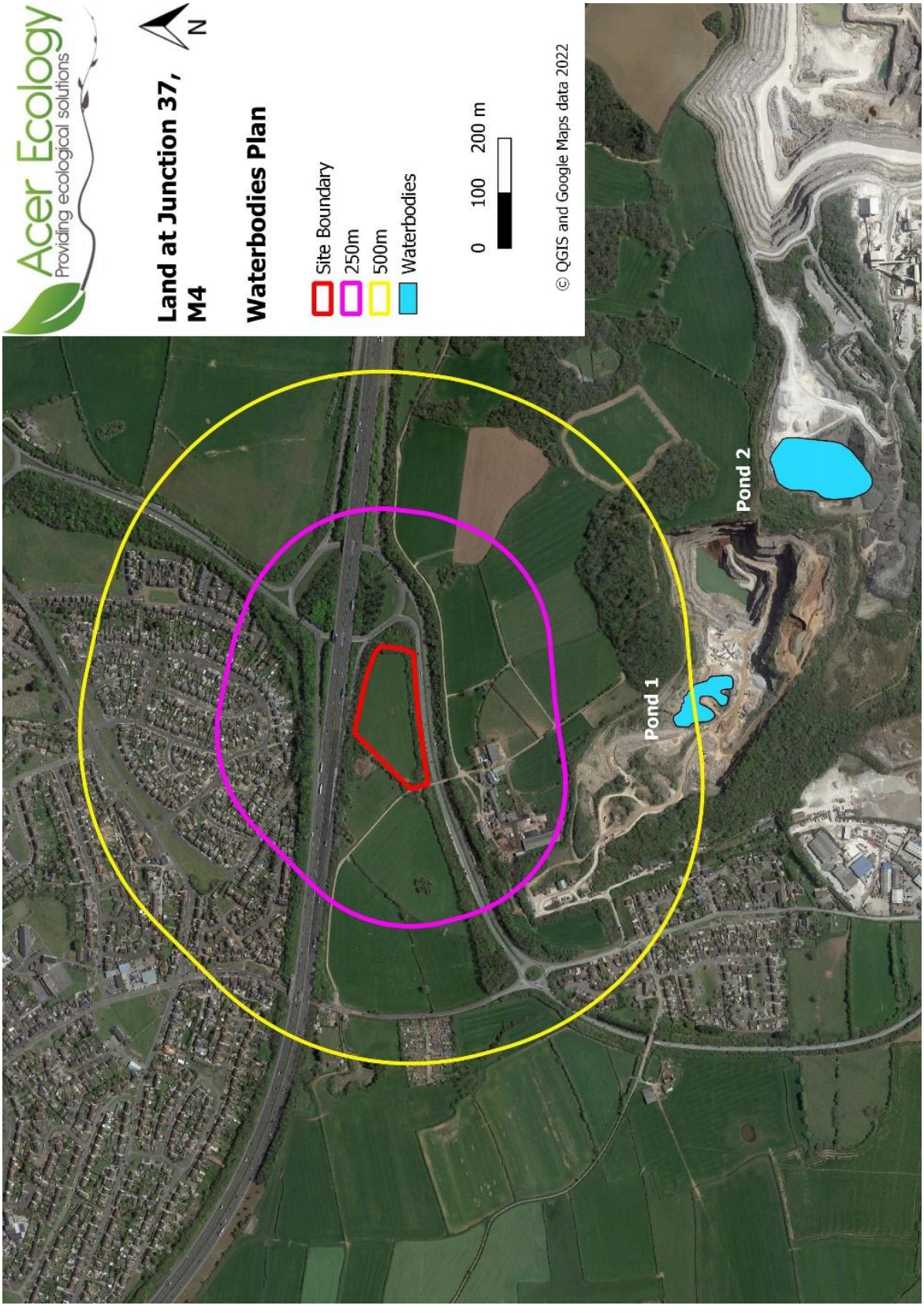
Plan 3: Habitats and Vegetation



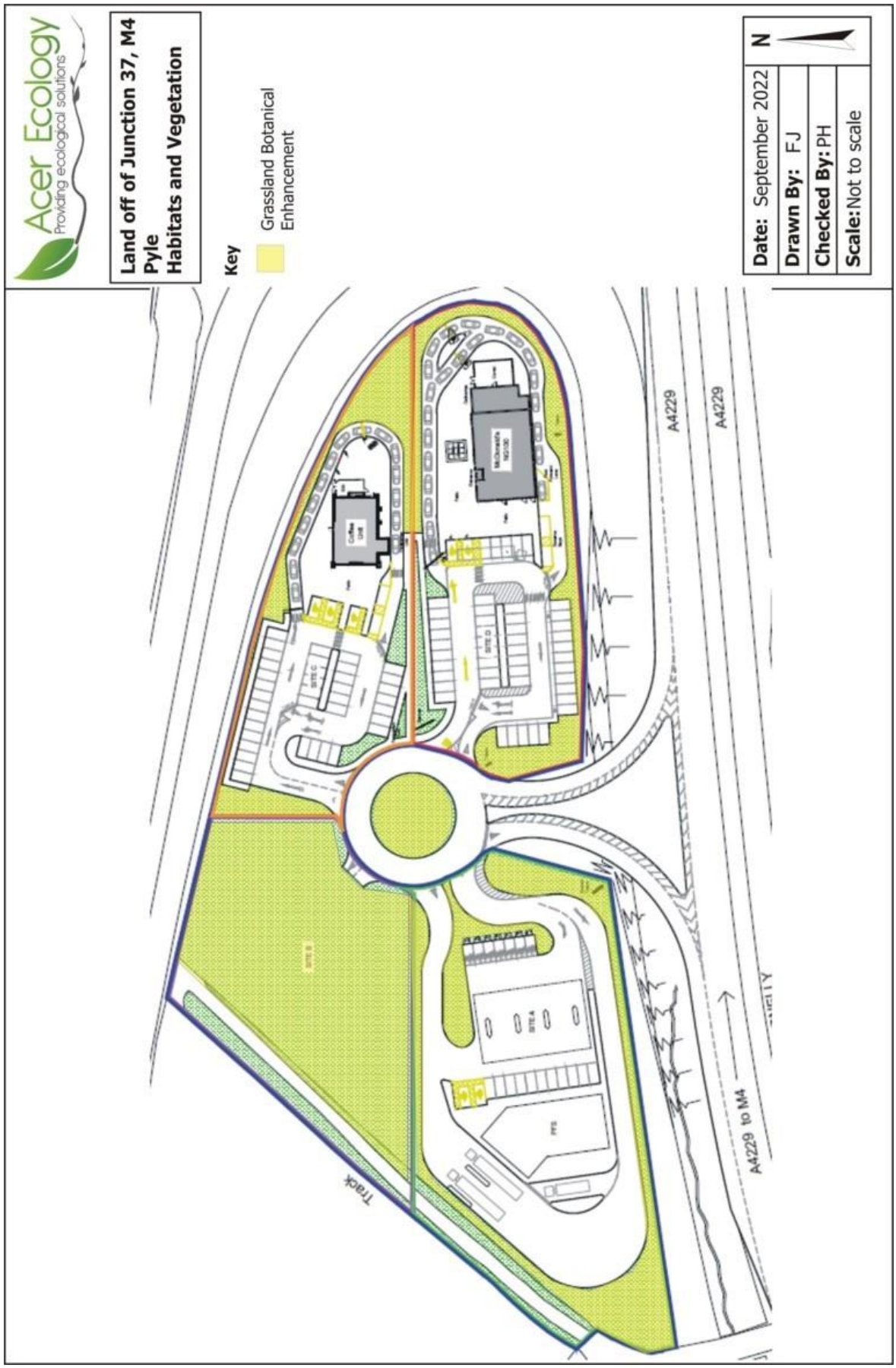
Plan 4: Location of SINCS within 2km of Site



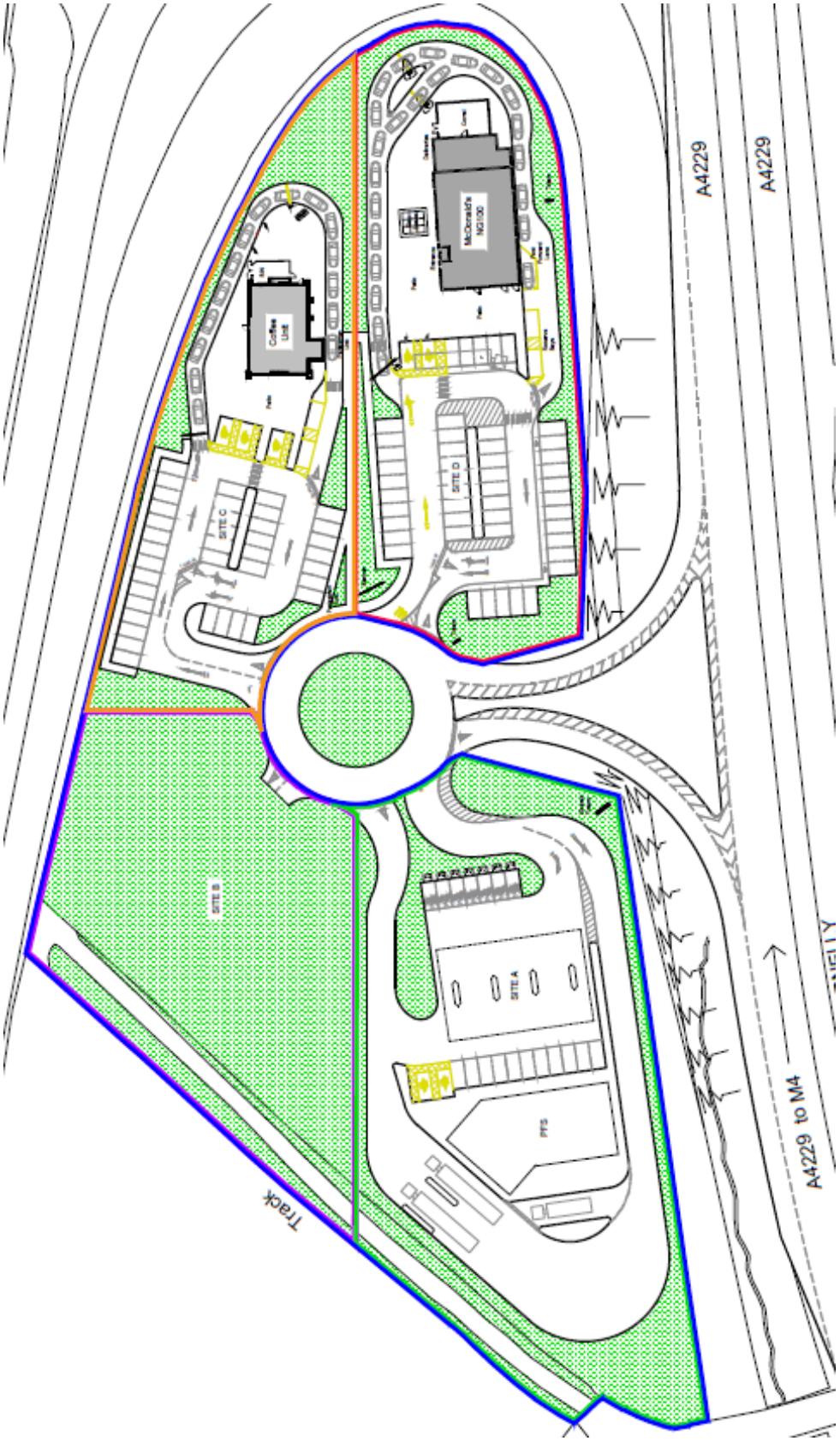
Plan 5: Location of Water Bodies within 0.5km of Site



Plan 6: Grassland Botanical Management



Appendix 1: Proposed Development Works



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

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.

Bridgend Country Borough Council Local Development Plan

Bridgend Country Borough Council Local Development Plan was adopted in 2013 and is currently under review. The document sets out values and principles that control future development and policies to guide development. The following polices are of note regarding ecological issues and safeguarding biodiversity:

- Section 3: Producing High Quality Sustainable Places:
    - 3.1 Regeneration-Led Sustainable Development Distribution Strategy
    - 3.2 Design and Sustainable Place Making
    - 3.3 Transport Planning
- Section 4: Protecting and Enhancing the Environment
    - 4.1 Natural Environment

- 4.2 Built and Historic Environment
- 4.6 Energy Generation, Efficiency and Conservation

- Section 6: To Create Safe, Healthy and Inclusive Communities
  - 6.1 Housing
  - 6.2 Social and Community Facilities

Biodiversity Net Gain

Net benefit for biodiversity Planning Policy Wales (PPW) 11 sets out that "*planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means that development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity*" (para 6.4.5 refers). This policy and subsequent policies in Chapter 6 of PPW 11 respond to the Section 6 Duty of the Environment (Wales) Act 2016.

Appendix 3: Protected Species Legislation Relevant to Site

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.

Section 10.8 of the Conservation of Habitats and Species Regulations 2017 state that Local authorities must use all reasonable endeavours to avoid any deterioration of habitats of wild birds.

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 Regulations 2017 which continues to apply in UK law through 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.

Dormice

Dormice are a 'European protected species' and afforded full protection under UK legislation. Dormice are listed under section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales.

Since 2000, the UK population has declined by over a half (51%), decreasing on average by 3.8% per year (PTES, 2019). It is included in the Bridgend County Borough Council Local Biodiversity Action Plan.

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 protected under Schedule 6 of the Wildlife and Countryside Act (1981). They are "protected from being killed or taken by certain methods under Section 11(1) of the Wildlife and Countryside Act 1981. The methods listed are: self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys. The species listed are also protected from the following activities: trap, snare or net, electrical device for killing or stunning, poisonous, poisoned or stupefying substances or any other gas or smoke, automatic or semi-automatic weapon, device for illuminating a target or sighting device for night shooting, artificial light, mirror or other dazzling device, sound recording, and mechanically propelled vehicle in immediate pursuit. They are also listed as priority species under Section 7 of the Environment (Wales) Act 2016.

Additionally, hedgehogs are listed a priority species listed under the UK Biodiversity Action Plan in light of dramatic population declines. The legislation afforded to hedgehogs in Section 7 of the Environment (Wales) Act 2016 means that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity[32]. In effect, 'conserving biodiversity' includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

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

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

Appendix 4: Species Recorded

All species recorded by Acer Ecology, 2022

Species	Common name	W	LM	CG	LDA	PMR	PIL	TF	Status
Trees and Shrubs									
Acer pseudoplatanus	Sycamore								*Alien*
Aesculus hippocastanum	Horse chestnut								*Alien*
Alnus glutinosa	Common alder								
Corylus avellana	Hazel								
Cotoneaster sp	Garden cotoneaster								*Alien*
Crataegus monogyna	Common hawthorn								
Fagus sylvatica	Beech								
Fraxinus excelsior	Ash								
Lonicera periclymenum	Honeysuckle								
Prunus spinosa	Blackthorn								
Rosa canina agg	Dog-rose								
Rubus fruticosus agg.	Bramble								
Sambucus nigra	Elder								
x Cuppressocyparis leylandii	Leyland cypress								*Alien*
Herbaceous Plants									
Agrostis stolonifera	Creeping bent								
Arrhenatherum elatius	False oat-grass								
Arum maculatum	Lords-and-ladies								
Calystegia sepium	Hedge bindweed								
Cirsium acaule	Creeping thistle								
Epilobium sp	Willowherb species								
Galium aparine	Cleavers								
Geranium robertianum	Herb-robert								
Hedera helix	Ivy								
Holcus lanatus	Yorkshire fog								
Lolium perenne	Perennial rye-grass								
Plantago major	Greater plantain								
Polygonum aviculare	Knotgrass								
Prunella vulgaris	Self-heal								
Ranunculus repens	Creeping buttercup								
Rumex crispus	Curled dock								
Rumex obtusifolius	Broad-leaved dock								
Senecio jacobaea	Common ragwort								
Silene dioica	Red campion								

Solanum dulcamara	Bittersweet								
Taraxacum officinale agg.	Dandelion								
Trifolium repens	White clover								
Urtica dioica	Common nettle								
Veronica persica	Common field speedwell								

'Habitat Indicator Species' Totals (Wales Biodiversity Partnership 2008[33])		0	0	0	0	0	0	0	
		W	**LM**	**CG**	**LDA**	**PMR**	**PIL**	**TF**	
'Primary' and 'Contributory' Totals (Wales Biodiversity Partnership 2008)		0				0			
		Primary Species				**Contributory Species**			

Key to Indicator Species (Wales Biodiversity Partnership 2008[34])

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

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

Appendix 5: Definitions of Site Value

International Value

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

National Value

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

Regional Value

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

County Value/District Value

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

High Local

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

Local Value

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

Site Value (within the immediate zone of influence)

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

Negligible

No apparent nature conservation value.

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

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

Appendix 7: 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[35].	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.

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

Appendix 8: Bird Nest Boxes

Vivara Pro WoodStone House Sparrow Nest Box

This House Sparrow Nest Box is manufactured from WoodStone - a mix of concrete and FSC wood fibres. This material is strong and highly insulating which helps to provide a thermally stable environment within the box. It also protects against damage from predators such as cats, woodpeckers and squirrels. It is available with one or two breeding chambers, which can be particularly suitable for house sparrows as they prefer to nest in colonies.
The House Sparrow Nest Box can be integrated into the masonry of a new house or fixed onto an external wall using strong screws and wall plugs (not included). If possible, it should be positioned near to vegetation and at a minimum of 2m above ground.

Double Chamber:
*** Weight: 7.5kg**
*** Dimensions: Depth 16cm x Height 29cm x Width 21cm**
*** Number of chambers: 2**

Bird Box Availability

The bat box is available from NHBS (www.nhbs.com) where it retails at approximately £31.50 including VAT.

Vivara Barcelona WoodStone Open Nest Box

These attractive nestboxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres. Unlike a traditional wooden nest box, these boxes will not rot away or deteriorate and are guaranteed for 10 years. This robust material safeguards against attacks from predators such as woodpeckers, cats and squirrels, whilst also providing a well-insulated interior with a more consistent internal temperature than an ordinary wooden box. This is especially important during the breeding season and ensures that young birds have a greater chance of survival. Nesting sites have become rare for cavity nesting birds due to changes in woodland management practices, so you can provide much-needed space for rearing chicks and birds that are roosting overwinter with these durable, long-lasting nest boxes.

These open nest boxes are suitable for wrens, robins, spotted flycatchers, pied and grey wagtails, song thrushes and blackbirds, and they are available in brown, green or grey to complement both natural woodland and garden settings.

The best height for your nest box is between 1.5m and 3m high, and open nest boxes should be sited in undergrowth such as ivy to provide cover for the nest.

These nest boxes have a removable front panel for easy cleaning. Although birds will clean their own nest boxes before each breeding season, cleaning the boxes out at the end of each breeding season may encourage them to be used again in future years, as it reduces parasites. The nesting time of birds varies from species to species so we suggest you wait until October when the last of the birds will have left before cleaning. The nest may come out easily but if there are any deposits scrape them out. We recommend using hot water rather than chemicals to remove any parasites that remain.

Specification
* Width: 19cm
* Height: 24cm
* Length: 17.5cm
* Entrance hole: Open

Schwegler 1B General Small Bird Box, 26mm Entrance Hole

The Schwegler 1B Woodcrete nest box is available with different entrance hole sizes to attract a wide range of species and prevent competition between birds. The nest box can be attached to the tree or wall using an aluminum nail or by hanging over a branch. The nest box has removable front panel to aid inspection and cleaning.
Entrance hole sizes:

Entrance hole sizes:

- **32mm entrance hole** will attract great, blue, marsh, coal and crested tit, redstart, nuthatch, collared and pied flycatcher, wryneck, tree and house sparrow and bats.
- **26mm entrance hole** suits blue, marsh, coal and crested tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole.
- **Oval entrance hole** (29 x 55mm) suits redstarts because more light enters the brood chamber. It is also suitable for all other species which nest in the 32mm boxes

The Schwegler 1B general small bird box will be preferably mounted on a stable tree trunk, rather than on branches which will sway. The mounting location will not be heavily shaded. Boxes should be mounted vertically on the tree.

Boxes will be mounted a minimum of 2m, and preferably 3m, above the ground, and as far as possible placed on the SE- or SW-facing surfaces of the tree trunks.

Appendix 9: Protective Barriers