

BELLWAY HOMES

CRAIG Y PARCAU, BRIDGEND

PRELIMINARY ECOLOGICAL APPRAISAL

OCTOBER 2025



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SUMMARY

Soltys Brewster Ecology were instructed by Bellway Homes to undertake a Preliminary Ecological Appraisal of a parcel of land at the south-western edge of Bridgend in the Bridgend County Borough of Wales. The site has been allocated for proposed redevelopment as part of the Bridgend Local Development Plan review. The redevelopment scheme involves the construction of approx. 108 residential properties at the site, with associated landscaping, drainage infrastructure, access roads, and other supporting amenities. The ecological baseline conditions at the site were established in April 2025 through a combination of desk study and Extended Phase 1 Habitat Survey.

Desk-based consultation confirmed that the Coed-y-Tyle SINC is located within the site boundaries, overlapping with a parcel of woodland listed as a Restored Ancient Woodland Site under the Ancient Woodland Inventory (2021). In addition, the River Ogmore is located 20m from the eastern site boundary at its nearest point and a ditch/drain located within a woodland parcel at the site is hydrologically connected to the watercourse, as well as to the Chapel Hill SINC located adjacent to the southern boundary of the site.

The proposed layout will avoid direct impacts to the Coed-y-Tyle SINC and ancient woodland parcel located onsite with the exception of minor loss to create an east/west link at the northern end of the woodland. The adjacent Chapel Hill SINC and River Ogmore would be vulnerable to potential indirect impacts in the absence of appropriate protection/mitigation. Records of protected species within 1km (extended to 2km for bats) included 6no. foraging/commuting bat species, Badger, Hazel Dormouse, priority fish species, Hedgehog, and Grass Snake, as well as a range of protected and priority bird and invertebrate species.

An Extended Phase 1 Habitat Survey conducted in April 2025 identified a range of habitats onsite. The site is predominantly composed of poor semi-improved/improved grassland, semi-natural broadleaved/mixed woodland (including restored ancient woodland), mature species-rich hedgerow, ephemeral / short perennial vegetation, scattered mature trees, 2no. derelict buildings, and a dry ditch/drain. Semi-natural woodland and species-rich mature hedgerows are listed as priority habitats under the UK BAP and are subsequently considered of most ecological significance at the site, capable of support and range of protected and priority species.

Various mature trees located within or directly adjacent to the site boundaries were assessed as suitable for roosting bats, and the 2no. derelict buildings onsite were considered to be potentially suitable for roosting bats but a full assessment was unable to be made due to restricted access. Under the current proposed scheme, loss and disturbance to a number of features/habitats considered suitable for foraging, commuting, and roosting bats at the site will occur. Therefore, further bat activity surveys are required to inform

appropriate mitigation and licensing prior to building demolition and tree felling. Additional surveys are also likely to be required as part of a planning application to determine the presence or absence of Hazel Dormouse within woodland and hedgerow habitats at the site. Furthermore, the production and implementation of an environmental management plan is recommended to limit risks to the River Ogmore, Coed-Y-Tyle SINC, Chapel Hill SINC, onsite ancient woodland, and other retained habitats. A suite of avoidance, mitigation and enhancement opportunities at the site has been identified and discussed in the current report.

1.0 INTRODUCTION

- 1.1 Soltys Brewster Ecology were instructed by Bellway Homes to undertake a Preliminary Ecological Appraisal (PEA) of a parcel of land located south of the A48 at the south-western edge of Bridgend in the Bridgend County Borough of Wales (hereafter referred to as 'the site'). The site, centrally located at OS Grid Reference SS 88960 78609, has been allocated for proposed redevelopment as part of the Bridgend Local Development Plan (LDP) review. The redevelopment scheme involves the construction of approx. 108 residential properties at the site, with associated landscaping, drainage infrastructure, access roads, and other supporting amenities (see Appendix I). A survey to establish the ecological baseline conditions and identify any ecological constraints or opportunities at the site is therefore required to inform a planning application.
- 1.2 The site, approximately 6.5ha in size, supports a range of habitat types. The majority of the area comprises 2no. parcels of agricultural grassland managed for livestock grazing, along with areas of woodland (including ancient woodland), mature trees and hedgerow boundaries, and a disused residential property comprising 2no. derelict buildings. The site is bounded by roads to the north and south, the River Ogmore and its associated riparian woodland corridor to the east, and agricultural grassland to the west. The surrounding landscape is predominantly agricultural in character, with a mosaic of agricultural fields, mature hedgerow, and woodland corridors to the south, east, and west, and suburban areas associated with the town of Bridgend located on the opposing side of the A48 to the north. A small unnamed drainage channel, believed to be an artificial or modified watercourse/drain originating from the adjacent town, flows through the centre of a parcel of woodland at the site and into the River Ogmore, which is located approx. 20m to the east of the site at its nearest point. Furthermore, two permanent ponds are located within 500m of the site boundary, approximately 123m to the north-east and 211m to the south-west.
- 1.3 The current report presents the findings of an ecological desk study and Extended Phase 1 Habitat survey undertaken at the site in April 2025. The current report describes the existing ecological conditions as well as identifying any potential ecological constraints/opportunities associated with the proposed development at the site.

2.0 METHODOLOGY

- 2.1 In order to establish the baseline ecological conditions at the site and adjacent habitats, a combination of desk-based consultation and Extended Phase 1 Habitat Survey were undertaken in April 2025.

Desk study

- 2.2 The desk study involved consultation with the South East Wales Biodiversity Records Centre (SEWBReC) to identify any records of rare, protected or notable flora and fauna at the site and within a radius of 1km (extended to 2km for bats as per the Bat Conservation Trust's good practice guidelines) extending from the central point of the site (Appendix II). The search criteria also included information relating to the location and citation details (where available) for any sites designated for their nature conservation interest such as Sites of Special Scientific Interest (SSSIs) or Sites of Importance for Nature Conservation (SINCs).

Extended Phase 1 Habitat Survey

- 2.3 The fieldwork was undertaken on 22nd April 2025 by suitably experienced ecologists¹ and followed standard Phase 1 Habitat Survey protocol (JNCC, 2010 & Institute of Environmental Assessment, 1995). All habitats within and immediately adjacent to the site boundaries, were classified and mapped as accurately as possible. Habitats considered to have potential to support rare, protected or otherwise notable species of flora and fauna were noted, as were any direct signs of these species (e.g. Eurasian badger *Meles meles* setts and dung-pits). Incidental observations of birds on or flying over the site were also recorded and any incidence of invasive weed species (e.g. Japanese knotweed *Fallopia japonica*) noted.
- 2.4 A map of habitats was drawn up and if required, target notes were used to identify features of ecological interest. Where possible, habitats were cross-referenced to any relevant important UK or Wales priority habitats as identified under Section 7 of the Environment Act (Wales) 2016 as well as local habitats adopted by the Bridgend County Borough Council Local Biodiversity Action Plan (LBAP).
- 2.5 During the field survey any trees found within or directly adjacent to the site boundaries were assessed for their potential to support roosting bats and were categorised in relation to the bat roosting features (BCT, 2023). The categories are as follows:

¹ Associate Member of the Chartered Institute of Ecology and Environmental Management with experience in protected species and habitat surveys.

- **PRF-I** – Potential Roost Feature (PRF) is only suitable for individual bats or very small numbers of bats either due to their size or lack of suitable surrounding habitats;
- **PRF-M** - PRF is suitable for multiple bats and may therefore be used by a maternity colony;
- **Negligible** – Negligible habitat features on site likely to be used by roosting bat.

External/Internal Building Inspection

2.6 As part of the Extended Phase 1 Habitat survey, an external (and internal where possible) inspection of any existing buildings/structures present within the site boundaries was also completed. The focus of the building inspection was to establish the likelihood that the buildings could be used by roosting bats (or nesting birds) and aimed to identify:

- If bats are, or have been, present within the building and if so, which species are present;
- The type of roost (e.g. maternity roost, day roost used by males or non-breeding females, feeding perch, night roost, mating roost, transitional roost, hibernaculum);
- How bats use the building (e.g. location of exit and entrance points to potential roosts).

2.7 The inspection of the buildings involved the use of binoculars and a hand torch to identify possible access/entry points into the structures and any evidence of use by bats such as droppings, prey remains, staining etc. The buildings were assigned to the relevant categories listed below, as per latest guidelines published by the Bat Conservation Trust (BCT, 2023). An assessment of the buildings potential to support nesting birds was also undertaken.

- **Known or confirmed roost.**
- **High** - A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.
- **Moderate** – A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this list is made irrespective of species conservation status, which is established after the presence is confirmed).
- **Low** – A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for

maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).

- **Negligible** – No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
- **None** – No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).

Survey Constraints

- 2.8 Access to a fenced compound area at the north-east of the site, which contains the disused residential property comprising 2no. derelict buildings, was unavailable at the time of the survey. Consequently, the buildings, mature trees, and habitats within this area were assessed from outside the boundary fence. As a result, a full assessment of the buildings and trees for their potential to support roosting bats and nesting birds could not be undertaken during the survey. Although this did not constrain the broad classification and mapping of habitats at the remainder of the site, an updated assessment of the mature trees and derelict buildings within this area will be required once access is obtained, in order to determine the need for any further survey work.
- 2.9 The field survey was undertaken in April, outside of the main flowering season for plant species (May to August), and therefore the survey took place during sub-optimal conditions for plant identification, particularly for the identification of grass and herbaceous perennial species. However, this did not constrain the broad classification and mapping of habitats on the site and is not considered a significant limitation.

3.0 RESULTS

Desk Study

SEWBreC Records

- 3.1 Consultation with SEWBreC identified that the proposed site does not hold any statutory designation for nature conservation. However, a single statutory designated site is located within 2km, with the Craig-Y-Parciau Woodland Local Nature Reserve (LNR) located approx. 400m to the north-east. The Craig-Y-Parciau Woodland LNR lies directly adjacent to the River Ogmore and is designated for its semi-natural Oak and Ash woodland, species-rich ground flora, and for supporting a number of protected species including Otter *Lutra lutra*, Kingfisher *Alcedo atthis*, and Daubenton's bat *Myotis daubentonii*. Although it is located upstream of the proposed development site and therefore lacks hydrological connectivity, the presence of a continuous woodland corridor along the bank of the River Ogmore provides good habitat connectivity to the site. No other statutory designated sites are present within 2km of the proposed development site. However, the site is hydrologically connected to the River Ogmore and therefore to a number of statutory designated sites within 5km to the south-west, including the Kenfig / Cynffig Special Area of Conservation (SAC), Merthyr Mawr Warren National Nature Reserve (NNR), Merthyr Mawr Site of Special Scientific Interest (SSSI), and Southerndown Coast SSSI. Summary plans to illustrate the SEWBreC records are included in Appendix II.
- 3.2 The desk study also revealed the location of 6no. Sites of Importance for Nature Conservation (SINCs) found within a 1km radius of the site (see Table 1 and Appendix II). Part of the Coed-y-Tyle SINC, designated for its broadleaved semi-natural woodland, is located within the boundary of the proposed development site and within the proposed development footprint, encompassing the woodland parcel that separates the two agricultural fields at the site. Furthermore, two additional SINCs are located adjacent to the northern and southern boundaries of the proposed development site, with the Chapel Hill SINC located approx. 20m to the south and the Craig-y-Parcau SINC located approx. 45m to the north-east. Both SINCs located adjacent to the site boundaries are physically separated from the site by roads. However, the unnamed drainage channel present on site flows through the Chapel Hill SINC, resulting in hydrological connectivity between the SINC and the proposed development site.
- 3.3 A number of sites listed under the Ancient Woodland Inventory 2021 were returned within the 1km search radius (see Appendix II), with 9no. Ancient Semi Natural Woodland (ASNW) sites, 8no. Restored Ancient Woodland Site (RAWS), and 1no. Ancient Woodland Site of Unknown Category. A RAWS is located within the proposed development site and within the development footprint itself, encompassing part of the woodland parcel that separates the two agricultural fields at the site. A

separate RAWs is located adjacent to the south of the proposed development site and is hydrologically connected to the proposed development site through the unnamed drainage channel present onsite. No other ancient woodland sites returned within 1km search radius are considered to be within the zone of influence of the proposed development. Furthermore, 3no. NRW Enclosed Farmland Priority Areas are located within the 1km search radius, the nearest of which is located approximately 65m to the south of the site and is not considered to be within the zone of influence of the proposed development.

Table 1 – Summary of Statutory & non-statutory designated sites in the local area

Site Name	Reason for Designation	Location/Distance from Site
Craig-Y-Parciau Woodland LNR	- Ancient Semi Natural Woodland predominantly comprised of Oak <i>Quercus robur</i> and Ash <i>Fraxinus excelsior</i>. - Species-rich ground layer including, wood anemone <i>Anemonoides nemorosa</i>, Bluebell <i>Hyacinthoides non-scripta</i>, and Lesser Celandine <i>Ficaria verna</i>. - Support populations of protected species, including Otter, Kingfisher, and Daubenton's bat. - Also designated for public enjoyment, featuring several footpaths that facilitate public engagement with nature.	Approx. 400m north-east of the site.
Coed-y-Tyle SINC	Broadleaved semi-natural woodland, including restored ancient woodland.	On site.
Chapel Hill SINC	Broadleaved plantation woodland, including ancient semi-natural woodland and restored ancient woodland.	Approx. 20m south of the site.
Craig-y-Parcau SINC	- Broadleaved semi-natural woodland, including ancient semi-natural woodland. - Amenity grassland.	Approx. 45m north-east of the site.

Coed-y-Nawern SINC	Broadleaved woodland plantation, including ancient semi-natural woodland and restored ancient woodland.	Approx 80m south-west of the site.
Island Farm POW Camp SINC	- Broadleaved semi-natural woodland. - Unimproved grassland. - Mature hedgerows.	Approx. 485m east of the site.
Coed Pwlldu SINC	Broadleaved semi-natural woodland, including restored ancient woodland.	Approx 585m south-west of the site.

- 3.4 The desk study also revealed a number of protected/priority species records within the local area. This included foraging and commuting bats recorded within a 2km radius of the site with species limited to Daubenton's bat *Myotis daubentonii*, Noctule *Nyctalus noctule*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Lesser Horseshoe Bat *Rhinolophus hipposideros*, unknown *Myotis* *Myotis* sp., and unknown Pipistrelle *Pipistrellus* sp.. There are several confirmed bat roosts within the search radius, with the nearest record belonging to a roost of unknown bat species (Chiroptera) associated with a building within Merthyr Mawr Estate located approx. 490m from the site.
- 3.5 Other priority/protected mammals found within the 1km search radius include 21no. records for Hedgehog *Erinaceus europaeus*, 11no. records for Otter *Lutra lutra* associated with the River Ogmore, 1no. record for Badger *Meles meles*, 1no. record for Pygmy Shrew *Sorex minutus*, and 2no. records for Hazel Dormouse *Muscardinus avellanarius* located 753m and 885m from the site.
- 3.6 Records for a single reptile species was returned via the 1km search undertaken, with 1no. record of Grass Snake *Natrix Helvetica*. No records for amphibian species, including Great Crested Newt *Triturus cristatus*, were returned within 1km.
- 3.7 The desk study identified a limited number of bird species listed under Schedule 1 of the Wildlife & Countryside Act (1981) (as amended) found within 1km of the site including Goshawk *Accipiter gentilis*, Kingfisher *Alcedo atthis*, Ruff *Calidris pugnax*, Whooper Swan *Cygnus cygnus*, Merlin *Falco columbarius*, Peregrine *Falco peregrinus*, Hobby *Falco Subbuteo*, Crossbill *Loxia curvirostra*, Red Kite *Milvus milvus*, Osprey *Pandion haliaetus*, Firecrest *Regulus ignicapilla*, Redwing *Turdus iliacus*, Fieldfare *Turdus pilaris*, and Barn Owl *Tyto alba*. The data search also included a moderate list of

Priority bird species listed under Section 7 of the Environmental Act (Wales) 2016 within 1km of the site including those for Lesser Redpoll *Acanthis cabaret*, Skylark *Alauda arvensis*, Tree Pipit *Anthus trivialis*, Black-headed Gull *Chroicocephalus ridibundus*, Yellowhammer *Emberiza citronella*, Kestrel *Falco tinnunculus*, Herring Gull *Larus argentatus*, Linnet *Linaria cannabina*, Yellow Wagtail *Motacilla flava*, Spotted Flycatcher *Muscicapa striata*, House Sparrow *Passer domesticus*, Grey Partridge *Perdix perdix*, Golden Plover *Pluvialis apricaria*, Dunnock *Prunella modularis*, Bullfinch *Pyrrhula pyrrhula*, Turtle Dove *Streptopelia turtur*, Starling *Sturnus vulgaris*, Song Thrush *Turdus philomelos*, Ring Ouzel *Turdus torquatus*, and Lapwing *Vanellus vanellus*. The habitats present at the site likely provide nesting opportunities for arboreal nesting species (e.g., Bullfinch, Lesser Redpoll, Song Thrush, etc.) and the presence of buildings and grassland at the site may provide nesting opportunities to urban nesting species (e.g., House Sparrow, Starling, etc.) and ground nesting species (e.g., Skylark, Tree Pipit, Yellow Wagtail, etc.).

- 3.8 The desk study identified a small number of protected or priority fish species within 1km of the site, with records of Brown Trout *Salmo trutta*, Atlantic Salmon *Salmo salar*, and European Eel *Anguilla Anguilla* associated with the River Ogmore adjacent to eastern site boundary.
- 3.9 The desk study identified an extensive list of priority or protected invertebrate species within 1km of the site, comprising records for several species of butterfly, moth, and Hymenoptera that are listed as Priority insect species under Section 7 of the Environmental Act (Wales) 2016. Species of butterfly include Dingy Skipper *Erynnis tages*, Wall *Lasiommata megera*, Small Blue *Cupido minimus*, and White-letter Hairstreak *Satyrrium w-album*, with no records of Marsh Fritillary *Euphydryas aurinia* within 1km. Species of Moth include (but are not limited to) Shoulder-striped Wainscot *Leucania comma*, Dusky Thorn *Ennomos fuscantaria*, Knot Grass *Acronicta rumicis*, and Cinnabar *Tyria jacobaeae*. Species of Hymenoptera include Brown-banded Carder Bee *Bombus humilis* and Moss Carder Bee *Bombus muscorum*.
- 3.10 Records of two Category 1 plant species were returned during the desk study, with 7no. records of Bluebell *Hyacinthoides non-scripta* and 1no. record of Lesser Squirrel-tail Moss *Habrodon perpusillus* within 1km of the site.
- 3.11 A number of invasive species listed under Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) have been recorded in the local area including Three-cornered Garlic *Allium triquetrum*, Montbretia *Crocasmia pottsii x aurea = C. x crocosmiiflora*, Japanese Knotweed *Fallopia japonica*, Himalayan Balsam *Impatiens glandulifera*, and Japanese Rose *Rosa rugosa*. Although the desk study returned no records of invasive flora within the site boundary, both Japanese Knotweed and

Himalayan Balsam have been reported growing along the channel of the River Ogmore located adjacent to the eastern site boundary.

Extended Phase 1 Habitat Survey

- 3.10 The distribution and extent of habitats recorded at the proposed site in April 2025 are illustrated on the Extended Phase 1 Habitat Plan included within Appendix III. The Extended Phase 1 Habitat survey identified that the site supports a range of habitat types as described below:

Poor Semi-improved Grassland

- 3.11 The irregularly shaped field parcel located at the east of the site consists of poor semi-improved grassland that appears to be subject to a combination of consistent grazing by Rabbit *Oryctolagus cuniculus* and livestock, as well as irregular mowing, resulting in a generally low sward height with a high prevalence of short grass tussocks. However, some taller stands of tall ruderal species, such as Common Nettle *Urtica dioica*, Broad-Leaved Dock *Rumex obtusifolius*, and invasive Himalayan Balsam *Impatiens glandulifera* were present, particularly along field margins. Grassland species composition includes a mix of common grassland species and herbaceous species including; Cocks-Foot *Dactylis glomerata*, Creeping Bent *Agrostis stolonifera*, Yorkshire Fog *Holcus lanatus*, Annual Meadow Grass *Poa annua*, Meadow Foxtail *Alopecurus pratensis*, Sweet Vernal Grass *Anthoxanthum odoratum*, Mouse-ear Chickweed *Cerastium vulgatum*, Creeping Buttercup *Ranunculus repens*, Meadow Buttercup *Ranunculus acris*, Lesser Celandine *Ficaria verna*, Broad-Leaved Dock, Clover *Trifolium sp.*, Common Nettle, Ribwort Plantain *Plantago lanceolata*, Slender Speedwell *Veronica filiformis*, Creeping Thistle *Cirsium arvense*, Marsh Thistle *Cirsium palustre*, Wild Angelica *Angelica sylvestris*, Himalayan Balsam, Cowslip *Primula veris*, Meadowsweet *Filipendula ulmaria*, and Common Hogweed *Heracleum sphondylium*. Bramble *Rubus fruticosus*, Sycamore *Acer pseudoplatanus* saplings, Horse Chestnut *Aesculus hippocastanum* saplings, Blackthorn *Prunus spinosa*, Cuckoo-pint *Arum maculatum*, Cleavers *Galium aparine*, Broad-leaved Willowherb *Epilobium montanum*, and Bush Vetch *Vicia sepium* were occasionally present along field margins and were associated with the encroachment of adjacent hedgerow and woodland habitats. Although the field was dry at the time of the survey, the presence of several plant species typically associated with moist soils (e.g., marsh thistle, wild angelica, meadowsweet, etc.) suggests that the field experiences moist or seasonally wet conditions for at least part of the year.

Plate 1 – Poor semi-improved grassland comprising the eastern field parcel.



Improved Grassland

- 3.11 The field parcel located at the west of the site consists of improved grassland that appears to be subject to regular grazing by livestock, reducing species richness and resulting in a low sward height. Grassland species composition includes a mix of common grassland species, including Sweet Vernal Grass, Meadow Foxtail, Cocks-foot, Annual Bluegrass, Yorkshire Fog, Field Wood-rush *Luzula campestris*, Creeping Buttercup, Ribwort Plantain, Lesser Celandine, Dandelion *Taraxacum sp.*, Clover, Broad-Leaved Dock, and Broadleaf Plantain *Plantago major*. Bramble, Hawthorn *Crataegus monogyna*, Oak *Quercus robur* saplings, Ash *Fraxinus excelsior* saplings, Common Nettle, Dog Rose *Rosa canina*, Cuckoo-pint, Hedge Woundwort *Stachys sylvatica*, Blackthorn, and Dog Violet *Viola riviniana* were occasionally present along field margins and are associated with the encroachment of adjacent hedgerow and woodland habitats.

Plate 2 – Improved grassland comprising the western field parcel.



Hedgerows

- 3.12 The 2no. field parcels within the site are bounded by species-rich mature hedgerows, each supporting more than 5no. woody species within each 30-metre section. Many of these hedgerows also contain mature trees. With the exception of the hedgerows bordering the access road at the north of the site, most do not appear to have been subject to recent management and have begun to develop a more scrub-like structure with tree growth.
- 3.13 The eastern field parcel is predominantly bounded by defunct species-rich hedgerow with trees, with part of the northern boundary comprised of intact species-rich hedgerow (devoid of trees). Species include Hazel *Corylus avellana*, Blackthorn *Prunus spinosa*, Hawthorn, Box Leaf Honeysuckle *Lonicera nitida*, Ash, Sycamore *Acer pseudoplatanus*, Oak, Horse Chestnut *Aesculus hippocastanum*, Cherry Plum *Prunus cerasifera*, Rowan *Sorbus aucuparia*, and Wych Elm *Ulmus glabra*, with a ground layer including Bramble, Bush Vetch *Vicia sepium*, Ivy *Hedera helix*, Cleavers *Galium aparine*, Bluebell *Hyacinthoides non-scripta*, Hart's-tongue Fern *Asplenium scolopendrium*, Common Nettle, Broad-leaved Dock, Lesser Celandine, Dog's Mercury *Mercurialis perennis*, Cuckoo-pint, Common Hogweed *Heracleum sphondylium* and Cock's-foot. 4no. trees located within or directly adjacent to this habitat were assessed as having suitability to support roosting bats (see Table 2 on page 28).

Plate 3 – Intact species-rich hedgerow bordering part of the eastern field parcel.



- 3.14 The western field parcel is bounded by defunct species-rich hedgerow with trees. Species include Hazel, Hawthorn, Blackthorn, Holly *Ilex aquifolium*, Elder *Sambucus nigra*, Wych Elm, Sycamore, Ash, oak, and Field Maple *Acer campestre*, with a less diverse ground layer characteristic of intensive grazing by livestock, including Bramble, Ivy, Cleavers, Common Nettle, Bluebell, Lady Fern *Athyrium filix-femina*, Hart's-tongue Fern, Dog's Mercury, Cuckoo-pint, and Cock's-foot. A series of Rabbit burrows was noted within a hedgerow along the western boundary of the site (TN1 in Appendix III). 3no. trees located within this habitat were assessed as having suitability to support roosting bats (see Table 2 on page 28).

Plate 4 – Defunct species-rich hedgerow with trees bordering the western field parcel.



Semi-natural Woodland

- 3.15 An area of semi-natural woodland is located between the two field parcels and at the south of the site. The woodland forms part of a larger network of wooded areas to the south and west of the site and is listed as a Restored Ancient Woodland Site (RAWS) under the Ancient Woodland Inventory (2021). This woodland can be separated into two areas with distinct structural characteristics, with an area of semi-natural mixed woodland separating the two field parcels and an area of semi-natural coppice woodland at the south-east of the site. Furthermore, an additional narrow band of semi-natural mixed woodland surrounds part of the fenced compound area within the eastern field parcel.
- 3.16 The area of semi-natural mixed woodland that separates the two fields parcels at the site and extends south supports a woodland canopy comprised of a combination of young and mature trees, primarily Oak, Beech *Fagus sylvatica*, Ash, Sycamore, Elm *Ulmus sp.*, and Pine *Pinus sp.*, with smaller stands of Hawthorn, Hazel, and Blackthorn present. Common Ivy and Common Polypod *Polypodium vulgare*, as well as various moss and lichen species, can be found growing epiphytically on mature trees. This area of woodland possess a rich ground layer characteristic of ancient woodland, including Bluebell, Wood Anemone *Anemonoides nemorosa*, Dog's Mercury, Wood Speedwell *Veronica montana*, Hart's-tongue Fern, Cuckoo-pint, Wood Avens *Geum urbanum*, Lesser Celandine, Soft Shield Fern *Polystichum setiferum*, Lady Fern, Broad Buckler Fern *Dryopteris dilatate*, Himalayan Balsam, Cleavers, Red Campion *Silene dioica*, Cuckoo Flower *Cardamine pratensis*, Opposite-leaved Golden Saxifrage *Chrysosplenium oppositifolium*, Herb Robert *Geranium robertianum*, Common Nettle, Creeping Buttercup, Primrose *Primula vulgaris*, Wild Daffodil *Narcissus pseudonarcissus*, Cock's-foot,

Meadowsweet, Broad-leaved Dock, Common Dogwood *Cornus sanguinea*, Box Leaf Honeysuckle, Elder, Red Valerian *Valeriana rubra*, Wood Sedge *Carex sylvatica*, Common Hogweed, Dog Rose, and Great Scented Liverwort *Conocephalum conicum*. A linear open glade runs through the centre of the part of the woodland, allowing increased light penetration and resulting in a denser ground layer in this area, which supports a high abundance of Himalayan Balsam. In addition, a stream-like feature, which was dry at the time of the survey, follows the length of the woodland. The presence of several plant species typically associated with moist soils suggests that this feature is seasonal and retains water for at least part of the year. 11no. mature trees within this habitat were assessed as having suitability to support roosting bats (see Table 2 on page 28).

Plate 5 – Semi-natural Mixed Woodland that separates the two fields parcels at the site.



- 3.17 The area of semi-natural broadleaved woodland in the south-east of the site is predominantly composed of young trees, with few mature specimens present, and shows evidence of recent management, particularly coppicing. The woodland canopy is relatively open in structure and consists primarily of Hazel, Sycamore, Beech, Willow *Salix sp.*, Ash, Hawthorn, and Wild Cherry *Prunus avium*. Due to the more open canopy structure in this area, the ground layer is less diverse and supports fewer woodland-associated species, consisting of Cocks Foot, Sweet Vernal Grass, Bluebell, Cowslip, Lesser Celandine, Bramble, Cuckoo-pint, Creeping Cinquefoil *Potentilla reptans*, Ribwort Plantain, Box Leaf Honeysuckle, Red Campion, Hart's-tongue Fern, Hairy Bittercress *Cardamine hirsute*, Creeping Thistle, Meadowsweet, Himalayan Balsam, Broad-leaved Willowherb, Hoary Willowherb *Epilobium parviflorum*, Fringed Willowherb *Epilobium ciliatum*, Square Stalked Willowherb *Epilobium tetragonum*, Dandelion, Opposite-leaved Golden Saxifrage, Bugle *Ajuga*

reptans, and Common Ivy. A series of Rabbit burrows was noted along the eastern boundary of the woodland parcel (TN 16 in Appendix III). 1no. tree mature tree within this habitat was assessed as having suitability to support roosting bats (see Table 2 on page 28).

Plate 6 – Semi-natural Broadleaved Woodland with evidence of coppice management at the site.



- 3.18 The narrow strip of semi-natural mixed woodland that surrounds the fenced compound area in the eastern field at the site is comprised of a mixture of young and mature trees, predominantly Field Maple *Acer campestre*, Horse Chestnut, Sycamore, Oak, Ash, and Pine, with smaller stands of Cherry Laurel *Prunus laurocerasus*, Hawthorn, Blackthorn, and Bamboo *Bambusoideae* present. The ground layer is relatively species-poor, consisting of Bramble, Ivy, Box Leaved Honeysuckle, Cowslip, Himalayan Balsam, Cock's-foot, Bluebell, Hart's-tongue Fern, and Broad-leaved Willowherb. A large pile of brash, logs, crushed aggregate, and soil is located within this habitat and may offer suitable cover habitat and hibernation opportunities to herpetofauna (reptiles and amphibians) and small mammals (TN 27 in Appendix III). 5no. mature trees located within this habitat were identified as containing features suitable to support roosting bats (See Table 2 on page 28).

Plate 7 – Semi-natural mixed woodland surrounding fenced compound area at the site.



Scattered Trees

- 3.19 A number of mature scattered trees are located at the north-east of the site, with 9no. trees located within the area of ephemeral / short perennial vegetation, 5no. trees located within the fenced compound area, and a line of mature trees located along the boundary of the poor semi-improved grassland parcel. 5no. mature scattered trees at the site were assessed as having suitability to support roosting bats (see Table 2 on page 28).

Dense scrub

- 3.20 An area of dense scrub primarily dominated by Bramble is located adjacent to the north-western boundary of the eastern field parcel.

Plate 8 – Dense scrub dominated by Bramble within eastern field parcel.



Scattered scrub

- 3.21 Areas of scattered scrub are present along southern boundary of the western field parcel and the northern boundary of the eastern field parcel. These areas are predominantly comprised of Bramble, with Cleavers, Hawthorn, Blackthorn, and Himalayan Balsam present to a lesser extent.

Tall Ruderal

- 3.22 A small area of tall ruderal vegetation is located in the north-east of the eastern field parcel. This area was dominated by Common Nettle and Himalayan Balsam, with Bramble and Broad-leaved Dock present to a lesser extent.

Ephemeral / Short Perennial

- 3.23 An area of ephemeral / short perennial vegetation is located at the north-east of the site. Species in this area include Common Nettle, Spear Thistle *Cirsium vulgare*, Creeping Thistle *Cirsium arvense*, Ragwort *Jacobaea vulgaris*, Himalayan Balsam, Coltsfoot *Tussilago farfara*, Broadleaf Plantain, Bramble, Cleavers, Common Sorrel *Rumex acetosa*, Broad-leaved Dock, Creeping Buttercup, Common Dandelion, Bush Vetch, Herb Robert, Fringed Willowherb, Broad-leaved Willowherb, Cuckoo-pint, Bluebell, Bugle, Perennial Ryegrass, Cock's-foot, Sweet Vernal Grass, and False Oat Grass *Arrhenatherum elatius*. Small patches of vegetation characteristic of grassland, where grass species were dominant, were occasionally recorded throughout this area, with a higher frequency noted in the northern part of the habitat. The vegetation present at the time of the survey was low-

growing and characteristic of ephemeral / short perennial habitat. However, the presence of species typically associated with tall ruderal communities suggests that this area may transition to tall ruderal vegetation as the growing season progresses.

Plate 9 – Ephemeral / short perennial with scattered trees at north-east of site.



- 3.24 A second area of ephemeral / short perennial vegetation is located at the south of the site. Species in this area include Common Nettle, Elder *Sambucus nigra*, Rosebay Willowherb *Chamaenerion angustifolium*, Cleavers, Bramble, Herb Robert, Creeping Thistle, Broad-leaved Dock, Creeping Buttercup, Common Sorrel, Cuckoo-pint, Wild Daffodil, Common Dandelion, Yellow Archangel *Lamium galeobdolon*, Spear Thistle, Hairy Bittercress *Cardamine hirsute*, Hoary Willowherb, Fringed Willowherb, Broad-leaved Willowherb, Sweet Vernal Grass, Cocks-foot, Bluebell, Bush Vetch, Red Campion *Silene dioica*, Ribwort Plantain, Common Corn Salad *Valeriana locusta*, Meadow Buttercup, Bugle, Hart's-tongue Fern, Bracken *Pteridium aquilinum*, Hairy St John's-wort *Hypericum hirsutum*, and Silver Moss. The vegetation present at the time of the survey was low-growing and characteristic of ephemeral / short perennial habitat. However, the presence of species typically associated with tall ruderal communities suggests that this area may transition to tall ruderal vegetation as the growing season progresses.

Plate 10 – Ephemeral / short perennial at the south of the site.



Buildings

- 3.25 A total of 2no. buildings were located on site, within the fenced compound area to the north-east, and have been described in the building inspection section on the following page.

Fences

- 3.26 Steel security fencing, approx. 2m in height, was present surrounding the compound area at the north-east of the site. Furthermore, livestock fencing was present within hedgerow features at field parcel boundaries.

Invasive Species

- 3.27 Himalayan Balsam was recorded throughout the site, with dense stands present at clearings within the area of woodland that separates the 2no. field parcels at the site (TN 11 in Appendix III), as well as at the north-east of the eastern field parcel (TN 30 in Appendix III) and within the patch of tall ruderal in the same area. Himalayan Balsam was also noted growing occasionally along the western boundary of the eastern field parcel (TN 22 in Appendix III), and within the areas of semi-natural broadleaved woodland (TN 36 in Appendix III) and ephemeral / short perennial vegetation (TN 29 in Appendix III) at the south of the site. It is assumed that Himalayan Balsam will emerge at additional locations within the site boundaries as the growing season progresses. This species is listed under Schedule 9, Section 14 of the Wildlife and Countryside Act (1981) (as amended), making it an offence to plant or otherwise encourage such species to grow in the wild.

External building inspection

3.28 An external building inspection was undertaken on the 2no. buildings present on site. Both buildings were located within the fenced compound area at the north-east of the site which was inaccessible at the time of the survey. Therefore, the external inspection of these buildings was undertaken from a distance through the boundary fencing and a thorough inspection of these buildings for their potential to support roosting bats and nesting birds could not be undertaken at the time of the current survey.

Building 1

3.29 The building located at the southern end of the fenced compound area (TN 37 in Appendix III) is a two-storey derelict structure primarily constructed from stone and brick. While the roof appears to be absent, not all elevations were visible during the survey, limiting a full assessment. The structure is considered unlikely to support cavity-roosting bat species (e.g., Horseshoe Bats *Rhinolophus spp.*) due to the apparent absence of suitable voids. However, several deep cracks within remaining wall sections may provide potential roosting opportunities for crevice-dwelling bat species (e.g., Pipistrelles *Pipistrellus spp.*).

Plate 11 – Building 1 at the southern end of the fenced compound area.



Building 2

3.30 The building located at the northern end of the fenced compound area (TN 38 in Appendix III) is a single-storey, derelict structure primarily constructed from stone and concrete block with a slate roof. A vast majority of roof slates appear to be missing from elevations that were visible at the time of the survey. However, small sections at the southern end still appear to have intact slates. Most of the walls

remain relatively intact, although several cracks are present within the stonework that may offer suitable roosting opportunities for crevice-dwelling bat species. Dense ivy cover is also present on many of the walls, which may be obscuring additional Potential Roosting Features (PRFs).

Plate 12 – Building 2 at the northern end of the fenced compound area.



Fauna

3.31 During the course of the survey, a search of field signs for protected or notable species was undertaken and the potential of the habitats to support these species considered. In the context of this report, these species meet any of the following criteria:

- Species protected by British or international law;
- Priority species included on Section 7 (Environment Act, Wales);
- Nationally rare or nationally scarce species;
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists);

Amphibians

3.32 There are no ponds or any other suitable breeding habitats for Great Crested Newt (GCN) within the site boundary or within the immediately adjacent habitats. 3no. permanent waterbodies are located within 500m of the site boundary that may offer some suitability for GCN, with ponds located approx. 110m north-east, 200m south-west, and 460m west. However, no records for GCN were returned during the desk study and the likelihood of GCN using the site during their terrestrial phase is considered to be very low/negligible. Therefore, this species is not considered a constraint to the proposed development and is not considered further within this report.

- 3.33 Due to the presence of permanent waterbodies within 500m of the site as discussed in the previous section and the presence of various drainage channels both on site and in the immediate surrounding area, it is considered likely that the woodland and scrub habitats at the site, as well as within other vegetated habitats may support other common amphibians within their terrestrial phase.
- 3.34 A large pile of brash, logs, crushed aggregate, and soil is located within an area of woodland at the north-east of the site (TN 27 in Appendix III), providing appropriate cover habitat and hibernation opportunities for amphibians using the site. Additional but less significant hibernation features are present throughout the areas of woodland at the site in the form of fallen deadwood.

Badger

- 3.35 No evidence of Badger (setts, latrines, foraging signs, guard hairs, etc.) were identified during the site survey. However, various mammal pathways were noted within woodland and ephemeral /short perennial habitats, particularly at the south of the site. Only 2no. records for Badger were returned during the desk study, with the closest record located approx. 800m from the site. However, the woodland and hedgerows at the site form part of a network of mature hedgerows and woodland corridors in the surrounding area, providing good habitat for badger and excellent ecological connectivity to the wider area. Therefore, it is considered likely that the site is used by foraging/commuting Badger on at least an occasional basis.

Bats

- 3.36 The habitats located within the site were considered suitable to support a range of foraging and commuting bat species, with the adjacent River Ogmores and linear habitat features considered likely to provide connectivity for bats in the local area. Suitable habitat features at the proposed site include semi-natural broadleaved woodland, semi-natural mixed woodland, line of mixed trees, scattered trees within hedgerows and ephemeral / short perennial habitats, dense scrub, and mature hedgerows.
- 3.37 During the survey 29no. trees that contained PRFs were identified, of these 7no. contained features considered suitable for use by multiple roosting bats and were therefore assessed as PRF-M. The remaining 22no. trees contained features considered suitable for use by only individual or small numbers of roosting bats and were therefore assessed as PRF-I. Trees with identified PRFs were associated with habitats including the semi-natural broadleaved/mixed woodland, line of mixed trees, and scattered trees within ephemeral / short perennial habitats and hedgerows. A summary of trees within or immediately adjacent to the site boundaries that contain PRFs is available in Table 2 below.

Table 2 – Trees with features suitable for roosting bats within or immediately adjacent to the site boundaries (to be read in conjunction with Appendix III).

Target Note (Appendix III)	Habitat / Location	Tree Species	PRF-I / PRF-M
2	Species-rich hedgerow with trees (western field parcel)	Ash	PRF-I
3	Species-rich hedgerow with trees (western field parcel)	Sycamore	PRF-I
4	Semi-natural mixed woodland separating field parcels.	Oak	PRF-I
5	Semi-natural mixed woodland separating field parcels.	Oak	PRF-M
6	Semi-natural mixed woodland separating field parcels.	Oak	PRF-I
7	Semi-natural mixed woodland separating field parcels.	Not specified	PRF-I
8	Semi-natural mixed woodland separating field parcels.	Oak	PRF-M
9	Semi-natural mixed woodland separating field parcels.	Ash	PRF-I
10	Semi-natural mixed woodland separating field parcels.	Oak	PRF-I
12	Semi-natural mixed woodland separating field parcels.	Oak	PRF-M
13	Semi-natural mixed woodland separating field parcels.	Oak	PRF-M
14	Semi-natural mixed woodland separating field parcels.	Oak	PRF-I
15	Semi-natural mixed woodland separating field parcels.	Not specified	PRF-M

18	Semi-natural mixed woodland separating field parcels.	Ash	PRF-I
19	Semi-natural mixed woodland at north-east of site.	Ash	PRF-I
20	Line of mixed trees at north-east of site.	Ash	PRF-I
21	Line of mixed trees at north-east of site.	Horse Chestnut	PRF-I
23	Semi-natural mixed woodland at north-east of site.	Ash	PRF-I
24	Within inaccessible fenced compound area.	Ash	PRF-I
25	Ephemeral / short perennial at north-east of site.	Ash	PRF-I
26	Semi-natural mixed woodland at north-east of site.	Ash	PRF-I
28	Species-rich hedgerow with trees (eastern field parcel)	Oak	PRF-M
31	Directly adjacent to semi-natural mixed woodland at north-east of site (off site).	Ash	PRF-I
32	Directly adjacent to semi-natural mixed woodland at north-east of site (off site).	Ash	PRF-I
33	Directly adjacent to mature hedgerow with trees at eastern field parcel (off site).	Oak	PRF-I
34	Directly adjacent to mature hedgerow with trees at eastern field parcel (off site).	Oak	PRF-I

35	Semi-natural broadleaved woodland at south of site.	Beech	PRF-M
39	Ephemeral / short perennial at north-east of site.	Oak	PRF-I
40	Semi-natural mixed woodland at north-east of site.	Not specified	PRF-I

3.38 The 2no. buildings within the site boundary (TN 37 and 38) were assessed as having potential suitability to support roosting bats, with a variety of PRFs observed within both buildings from a distance during the survey. However, as these buildings are situated within a fenced compound that was inaccessible at the time of the survey, a full assessment could not be undertaken without closer inspection.

3.39 The desk study identified at least 6no. different bat species previously recorded within a 1km radius of the site. While the semi-improved fields likely provide limited foraging resources for bats, the boundary hedgerows and treelines were considered suitable of supporting a range of foraging bat species. These boundary features are likely to provide habitat connectivity for bats within the wider landscape.

Birds

3.40 During the survey a small number of bird species were heard/seen flying over or within the habitats present at the site including Rook *Corvus frugilegus*, Blackbird *Turdus merula*, Wood Pigeon *Columba palumbus*, Blue Tit *Cyanistes caeruleus* and Wren *Troglodytes troglodytes*. The species present at the time of current survey would not be considered representative of the full range of species that the proposed site could potentially support (i.e., during the breeding season or over-wintering). The established boundary hedgerows, scattered trees, and semi-natural woodland were considered likely to support a variety of arboreal nesting bird species. The poor semi-improved field parcels were considered of limited suitability for ground-nesting species due to the presence of sheep grazing and the relatively small size of the field parcels. The two derelict buildings at the north-east of the site were considered suitable for urban nesting bird species (e.g., Swallow and House Sparrow).

Hazel Dormouse

3.41 Although no evidence of Hazel Dormice (e.g. Hazel nuts with characteristic signs of being gnawed by Dormouse) was identified at the time of the survey, the desk study revealed 5no. records of Dormouse within a 1.5km radius of the site, with the nearest record located approx. 750m from the site. The

semi-natural broadleaved/mixed woodland, dense scrub, scattered trees, and mature hedgerows across the site contained potential foraging resources (e.g. Hazel, Hawthorn, Blackthorn, Sycamore, and Bramble), nesting and hibernating opportunities, and had sufficient structure to support this species with a dense and continuous understorey. The areas of woodland and mature hedgerows at the site were considered to be suitable to support foraging/dispersing dormouse and are well connected to other semi-natural woodland and mature hedgerow habitats in the wider area which could also support a source population. The field parcels comprising poor semi-improved and improved grassland within the site would be considered unsuitable for this species.

Otter & Water Vole

- 3.42 The desk study revealed several known records of Otter within a 1km radius of the site, although none were returned for Water Vole. Furthermore, the habitats found within the site boundary were considered unsuitable for Water Vole and the wooded banks of the adjacent River Ogmore lack wide buffers or significant marginal vegetation that would be suitable for this species. As such, the presence of Water Vole is not considered further in this report. The nearest record of Otter returned via the desk study was for an adult Otter commuting along the River Omore situated adjacent to the eastern site boundary. The immediate surrounding area is considered suitable for Otter, with the River Ogmore, various ditches/drains, and suitable terrestrial habitat (dense scrub and woodland) located within and adjacent to the site boundaries. Although no evidence of Otter (spraints, slides, resting places, feeding remains, etc.) was identified during the site survey, it is considered likely that Otter use the site for foraging and commuting purposes on at least an irregular basis. The proposed development will therefore need to consider its potential impact to Otters, with particular regards to any works proposed to occur in close proximity to the River Ogmore.

Reptiles

- 3.43 The desk study only revealed records of a single reptile species, Grass Snake, within a 1k radius, with no records associated with the site or immediately adjacent habitats. The areas of semi-improved/improved grassland and ephemeral / short perennial vegetation were considered to be of limited suitability due to a general lack of cover/shelter from potential predators and limited foraging resources. However, the areas of semi-natural broadleaved/mixed woodland, dense scrub, tall ruderal, and mature hedgerows at the site are considered to be suitable for common reptile species. Furthermore, these habitats support existing connectivity with additional suitable habitats in the surrounding local area and are considered capable of supporting populations of common reptile species, particularly Slow-worm.

- 3.44 A large pile of brash, logs, crushed aggregate, and soil is located within an area of woodland at the north-east of the site (TN 27 in Appendix III), providing appropriate cover habitat and hibernation opportunities for reptiles using the site. Additional but less significant hibernation features are present throughout the areas of woodland at the site in the form of fallen deadwood.

Terrestrial Invertebrates

- 3.45 While the central regions of the field parcels are likely to be unsuitable of supporting a wide range of invertebrate species, the marginal scrub and boundary hedgerows are likely to support greater number of invertebrates in the context of the site, containing foodplants for common butterfly and moth species. The areas of ephemeral / short perennial contain a high proportion of native flowering species and are considered of value to pollinating insects. In addition, the semi-natural broadleaved/mixed woodland is considered likely to support a wide range of invertebrates, including deadwood obligate species.

Other Species

- 3.46 The desk study revealed 21no. records for Hedgehog within a 1km radius, with the nearest record located approx. 205m from the site. The woodland, hedgerows, and scrubby field margins were considered suitable for use by hedgehog.

4.0 POLICIES AND PLANS

- 4.1 The following local and national planning policy relating to nature conservation and biodiversity are considered of relevance to the site.

Planning Policy Wales (2024)

- 4.2 This document set out the land use planning policies of the Welsh Government with Chapter 6 dealing with Distinctive and Natural Places which covers Biodiversity and Ecological Networks. The advice contained within PPW is supplemented for some subjects by Technical Advice Notes (TAN's), with TAN 5 addressing Nature Conservation & Planning.

- 4.3 TAN 5 identifies a number of key principles, which the town and country planning system in Wales should consider. Those relevant are detailed below:

- *Work to achieve nature conservation objectives through a partnership between local planning authorities, Natural Resources Wales (NRW), voluntary organisations, developers, landowners and other key stakeholders;*
- *Integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;*
- *Ensure that the UK's international obligations for site, species and habitat protection are fully met in all planning decisions;*
- *Look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally;*
- *Promoting approaches to development which create new opportunities to enhance biodiversity, prevent biodiversity losses, or compensate for losses where damage is unavoidable. Minimising or reversing the fragmentation of habitats and improving habitat connectivity through the promotion of wildlife corridors;*
- *Local planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality;*
- *The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat.*

Updates to PPW Chapter 6: Distinctive and Natural Places (October 2023)

- 4.4 An updated version of PPW: Chapter 6 was published with immediate effect on 11th October 2023 in a published letter to Local Authorities from Julie James AS/MS – Minister for Climate Change². These changes have now been incorporated as part of the latest edition (February 2024) of PPW. The new guidance provides an update on Net Benefit for Biodiversity and the Step-wise Approach, with extracts considered of relevance to the development site provided below:

Maintaining and Enhancing Biodiversity

- 4.5 Planning authorities must follow a step- wise approach to maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for. Enhancement must be secured by delivering a biodiversity benefit primarily on site or immediately adjacent to the site, over and above that required to mitigate or compensate for any negative impact.
- 4.6 All development must deliver a net benefit for biodiversity and ecosystem resilience from the baseline state (proportionate to the scale and nature of the development proposed). Even if the biodiversity value has been maintained, there must still be a pro-active process to look for and secure enhancement through the design and implementation of the development.

Environment (Wales) Act, 2016

- 4.7 Part 1 of the Environment Act Wales came into force in May 2016 and sets out the approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

Section 6 - Biodiversity and resilience of ecosystems duty

- 4.8 *Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'.*

Section 7 - Biodiversity lists and duty to take steps to maintain and enhance biodiversity

- 4.9 *This section lists living organisms and types of habitat in Wales which are considered of key significance to maintaining and enhancing biodiversity in relation to Wales. The Welsh Ministers are required to*

² Published letter from Julie James AS/MS (Minister for Climate Change) to Local Authorities – Heads of Planning. Reference: MA/JJ/2512/23. Dated 11th October 2023.

take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

Local Planning Policy

Bridgend County Borough Local Development Plan 2018-2033

- 4.10 The Bridgend County Borough Local Development Plan (LDP) 2018-2033 provides the local planning policy framework for Bridgend County Borough. The Plan sets out the vision, objectives, strategy and policies for managing development in Bridgend County Borough and contains a number of local planning policies and makes provision for the use of land for the purposes of housing, employment, retailing, recreation, transport, tourism, minerals, waste, and community uses. Policies within the current LDP relating to biodiversity, and considered of relevance to the site proposals, are listed below.

Policy SP17: Conservation and Enhancement of the Natural Environment

Development proposals will not be permitted where they will have an adverse impact upon:

- 1) The integrity of the County Borough's countryside;*
- 2) The character of its landscape;*
- 3) Its biodiversity and habitats; and*
- 4) The quality of its natural resources including water, air and soil.*

Areas having a high and/or unique environmental quality will be protected and the following strategically important areas within the County Borough will specifically be protected from inappropriate development which directly or indirectly impacts upon them:

- SP17(1) National Site Network Sites (including Special Areas of Conservation (SACs);*
- SP17(2) Sites of Special Scientific Interest (SSSIs);*
- SP17(3) Kenfig and Merthyr Mawr National Nature Reserves (NNRs);*
- SP17(5) Mynydd Margam Registered Historic Landscape.*

Policy DNP1: Development in the Countryside

There is a presumption against development in the countryside, except where it is for:

- 1) Agriculture and/or forestry purposes;*
- 2) The winning and working of minerals;*
- 3) Appropriate rural enterprises where a countryside location is necessary for the development;*
- 4) The implementation of an appropriate rural enterprise/ farm diversification project;*
- 5) The expansion of an existing business (subject to other relevant policies in the plan);*

- 6) *Land reclamation purposes;*
- 7) *Transportation and/or utilities infrastructure to enable implementation of LDP allocations;*
- 8) *Renewable energy projects;*
- 9) *Affordable housing to meet locally identified need in accordance with COM5;*
- 10) *The suitable conversion of, and limited extension to, existing structurally sound rural buildings where the development is modest in scale and clearly subordinate to the original structure;*
- 11) *The direct replacement of an existing dwelling;*
- 12) *Outdoor recreational and sporting activities;*
- 13) *The provision of Gypsy, Traveller and Showperson sites in accordance with COM8; or*
- 14) *Education provision where a need has been identified by the Local Education Authority.*

Policy DNP4: Special Landscape Areas

Development in Special Landscape Areas will only be permitted where:

- 1) *It retains or enhances the character and distinctiveness of the SLA;*
- 2) *The design of the development reflects the building traditions of the locality in its form, materials and details, and/or assimilates itself into the wider landscape; and*
- 3) *The proposed development is accompanied by a Landscape Impact Assessment (LIA), which takes into account the impact of the development and sets out proposals to mitigate any adverse effects.*

Policy DNP5: Local and Regional Natural Conservation Sites

Development within or adjacent to a:

DNP5(1) Local Nature Reserve (LNR);

DNP5(2) Site of Importance for Nature Conservation (SINC); or

DNP5(3) Regionally Important Geodiversity Site (RIGS);

must be compatible with the nature conservation or scientific interest of the area, whilst promoting their educational role.

POLICY DNP6: Biodiversity, Ecological Networks, Habitats and Species

Development proposals that result in an adverse effect on the connectivity of biodiversity and ecological networks and/or have a significant adverse effect on the resilience of protected habitats and species will only be permitted where:

- 1) *The need for development outweighs the nature conservation importance of the site;*
- 2) *It can be demonstrated that there is no satisfactory alternative location for the development which*

avoids damage to biodiversity and ecosystem functioning;

3) A functional connected element of the natural resource is retained as part of the design of the development to maintain and enhance biodiversity and build resilient ecological networks; and

4) Any unavoidable harm is minimised by effective mitigation to ensure that there is no reduction in the overall biodiversity value of the area. Where this is not feasible, compensation measures must be provided to enable habitat creation, or the provision of long-term management arrangements to enhance existing habitats and deliver a net benefit for biodiversity. Compensatory provision must be of comparable or greater ecological value to that lost as a result of the development.

POLICY DNP7: Trees, Hedgerows and Development

Development proposals on sites containing or adjacent to, trees will be required to assess the trees in line with BS 5837:2012 Trees in relation to design, demolition and construction. The assessment must include:

- 1) a tree survey;*
- 2) an arboriculture impact assessment;*
- 3) an arboriculture method statement;*
- 4) and/or a tree protection plan.*

POLICY DNP8: Green Infrastructure

Development proposals will be required to integrate, protect and maintain existing green infrastructure assets and to enhance the extent, quality, connectivity and multi-functionality of the green infrastructure network. Where the loss or damage of existing green infrastructure is unavoidable, appropriate mitigation and compensation will be required.

POLICY DNP9: Natural Resource Protection and Public Health

Development proposals will only be permitted where it can be demonstrated that they would not cause a new, or exacerbate an existing, unacceptable risk of harm to health, biodiversity and/or local amenity due to:

- 1) Air pollution;*
- 2) Noise pollution;*
- 3) Light pollution;*
- 4) Water pollution;*
- 5) Contamination (including invasive species);*
- 6) Land instability;*
- 7) Sustainable development of mineral resources;*

- 8) Sustainable waste management;
- 9) Any other identified risk to public health or safety

POLICY SP18: Conservation of the Historic Environment

The County Borough has a rich and diverse built heritage and historic environment. Development proposals must protect, conserve, and, where appropriate, preserve and enhance the significance of historic assets, including their settings. In particular, there is a general presumption in favour of the preservation or enhancement of the significance of historic assets and their settings including:

- 1) World Heritage Sites*
- 2) Scheduled Monuments*
- 3) Archaeologically Sensitive Areas and Archaeological Remains*
- 4) Listed Buildings*
- 5) Conservation Areas*
- 6) Historic Parks and Gardens*
- 7) Historic Landscapes*

5.0 CONCLUSIONS AND RECOMMENDATIONS

- 5.1 The combination of desk study and Extended Phase 1 Habitat survey undertaken at the site in April 2025 identified a range of habitats at the site. Although approx. half of the site area consists of heavily grazed poor semi-improved and improved grassland considered to be of low ecological value, a large portion of the site is comprised of priority habitats listed under Section 7 of the Environment (Wales) Act 2016 in the form of semi-natural broadleaved woodland, semi-natural mixed woodland (listed as a Restored Ancient Woodland Site under the Ancient Woodland Inventory 2021), and mature species-rich hedgerows. These features were considered to be of the most ecological value in the context of the site and of local importance, capable of supporting a range of protected/priority listed species such as nesting birds, common herpetofauna (reptiles and amphibians) Badger, Otter, Hazel Dormouse, foraging/commuting/roosting bats, and other small mammals. Site use by foraging/commuting Badger on at least an occasional basis could also not be precluded. Additional common habitat types were also present onsite, which are considered of some ecological value within the context of the site only, with scattered trees and areas of scrub, tall ruderal, and ephemeral / short perennial vegetation present throughout the site. A dry ditch/drainage channel runs through an area of woodland that separates the 2no. field parcels at the site and flows off site to the south-west.
- 5.2 The site has been allocated for proposed redevelopment as part of the Bridgend LDP review. The redevelopment scheme involves the construction of approx. 108 residential properties at the site, with associated landscaping, drainage infrastructure, access roads, and other supporting amenities (see Appendix I). The majority of the proposed development is to be constructed on the two fields of poor semi-improved/improved grassland, with the layout comprising 2no. residential parcels separated by the existing woodland. An access road is proposed through the area of woodland that separates the 2no. proposed residential parcels (existing field parcels) at the site. This woodland is located within the Coed-Y-Tyle SINC and a row of mature oak trees along its western boundary is designated as ancient woodland (RAWS). As such, the proposed location of the woodland crossing point was chosen to make use of a pre-existing track that connects the two field parcels at the site to minimise disturbance to the existing woodland. Under the current proposed design, only a single mature ash tree (displaying signs of ash dieback infection) will required removal, along with minor crown reduction to 2no. mature oak trees, to achieve the required access road through the designated woodland area. In addition, the northern portion of semi-natural woodland located in the southern part of the site (outside the SINC and Restored Ancient Woodland boundary) is to be removed to accommodate the development. A proportion of the semi-natural mixed woodland surrounding the fenced compound area at the north-east of the site is also proposed for removal, along with all areas of ephemeral/short perennial

vegetation, scrub, and tall ruderal habitat. Some hedgerow loss will occur under the current proposals, primarily along the south-eastern boundary of the western field parcel. However, this will be compensated for within the proposed design. The scheme also includes the demolition of 2no. derelict buildings located at the north-east of the site and the removal of several scattered trees throughout the site. The following avoidance, mitigation, and enhancement measures are therefore considered appropriate to the construction and operational phases of the future development at the site:

Badger

- 5.3 Although no evidence of Badger (setts, latrines, guard hairs, foraging signs, etc.) were identified during the survey, the habitats on site and in the surrounding area are considered suitable and site use by foraging/commuting Badger on at least an occasional basis cannot be precluded. Therefore, an updated badger survey would be recommended within 1 year of the date of this report to confirm any changes to badger activity (e.g., identify novel setts or evidence of activity), to inform any future mitigation or licensing measure.
- 5.4 It is also recommended that during the construction phase of any future development, any excavations with steep/near vertical sides are covered overnight, or a means of escape provided (e.g. rough sawn timber board of 300mm width placed at an angle of $\leq 45^\circ$) to minimise the risk to Badger and any other small mammals (e.g. Hedgehog) that may become trapped. Construction materials should also be stored properly when not in use to prevent Badger access. Any boundary security fencing (if required) should include an appropriate access gap at the bottom to allow the free movement of Badgers (and other mammals) throughout the site.

Bats

- 5.5 The survey identified a range of suitable roosting opportunities for bats across the site, including multiple trees with Potential Roost Features (PRFs) classified as PRF-I (low potential) and PRF-M (moderate/high potential). At least 9no. PRF-I and 3no. PRF-M trees are proposed for removal to facilitate the proposed development in its current form. All bats and their resting places (roosts) are fully protected under the Conservation of Habitat and Species Regulations (2017) and Wildlife and Countryside Act (1981) (as amended). For trees assessed as PRF-I or Negligible Potential, the Bat Conservation Trust (BCT, 2023) guidelines indicate that these do not require further surveys prior to felling. However, as a precautionary measure, any PRF-I trees scheduled for removal should be soft-felled. This involves sectional felling, with cut limbs carefully lowered and left on the ground overnight to allow any bats present to vacate naturally (Jackson, 2015). For trees assessed as PRF-M or Moderate Potential, further survey would be required in order to confirm the presence/absence of roosting bats

prior to tree removal. Surveys can consist of dusk emergence surveys or features can be inspected with an endoscope by a licensed ecologist. If surveys confirm the presence of a roost within any tree, a licence application to Natural Resources Wales (NRW) will be required before felling.

- 5.6 Additionally, 2no. buildings were identified within the site boundaries, Building 1 and Building 2, both of which were considered to be potentially suitable for roosting bats. However, the buildings are located within a fenced compound area that was inaccessible at the time of the survey and were therefore assessed from distance through the boundary fencing. Consequently, a full assessment of their suitability to support roosting bats could not be made. A follow-up Preliminary Roost Assessment (PRA) will be required once access to the compound area is available. The findings of this assessment will inform the potential requirement for further bat surveys.
- 5.7 The linear habitat features at the site including the hedgerow, woodland edges, scrub, and line of mature trees were considered likely to support a range of foraging and commuting bats species. The proposed scheme involves impacts to these features, with works planned to take place in close proximity to features outside of the scope of the proposals (e.g., corridor of the River Ogmore). Therefore, further activity surveys (manual transects and automated surveys) may be required to establish how bats are using the site to inform any particular mitigation/avoidance measures. Based on the availability of suitable habitats at the site, the minimum survey effort recommended in the best practice guidelines (BCT, 2023) is considered appropriate in the first instance is to achieve a representative sample of bat activity across the site. This would comprise of 3no. activity survey visits in spring, summer and autumn in appropriate weather conditions. Separate automated/static surveys (minimum 1no. static per transect) would also be required, with each session recording for 5no. consecutive nights *in situ* per season. The location of the static detectors (e.g. Anabat Express units) would be focused on the areas likely to be subject to development impacts (e.g. hedgerow/woodland breaches). It is also recommended that the design of any site lighting (if required) should seek to reduce artificial light spill onto the retained boundary features, including hedgerows, woodland, and the adjacent river corridor. These habitat features should be maintained as dark corridors (e.g. lux level increases minimised to at or below 0.5 lux) for use by bats and other nocturnal wildlife. Furthermore, site lighting should be designed to maintain current or lower levels of brightness to all retained PRFs identified during the survey. See lighting guidance note produced by BCT & ILP (2023) for advice on how to mitigate for impacts of artificial lighting on bats (Appendix V).

Birds

- 5.8 The site has the potential to support breeding birds due to suitable habitats comprising semi-natural broadleaved/mixed woodland, line of mature trees/scattered trees, dense scrub, hedgerows and derelict buildings. All birds, their nests and young are protected from damage and destruction under the Wildlife and Countryside Act 1981 (as amended). Due to high likelihood of nesting birds being present within the suitable habitats, any future vegetation works that would affect the aforementioned habitats would be subject to seasonal constraints and should be undertaken outside of the nesting bird season (undertaken between September – February). If this is not possible an ecologist should be present to inspect habitats for the presence of nesting birds prior to removal and to supervise vegetation clearance. Mitigation/enhancements for tree and scrub nesting species could be provided via nest boxes on new buildings or retained trees.

Hazel Dormice

- 5.9 Dormice and their breeding and resting places are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended), and partially protected by the Wildlife and Countryside Act 1981 (as amended). Furthermore, Hazel Dormouse is a priority species listed under Section 7 of the Environment (Wales) Act 2016. The woodland and hedgerow habitats present on site are considered suitable to support a breeding population of Dormouse, particularly given the high availability of suitable habitat in the surrounding landscape. The removal or breaching of existing hedgerows, as well as the removal of or works within woodland parcels, could result in disturbance to Dormice and a reduction in available habitat. Further survey work for this species is recommended to inform any necessary mitigation, enhancement, and licensing measures, should Dormice be present. This would involve the deployment and regular inspection of Dormouse nest tubes within suitable habitats from April to November to determine the presence or likely absence of this species, in accordance with best practice guidelines (Bright, Morris, & Mitchell-Jones, 2006). Should Hazel Dormouse be present, appropriate mitigation measures would be required, which may include an application for a Protected Species Licence from Natural Resources Wales.

Reptiles

- 5.10 The semi-natural broadleaved/mixed woodland, hedgerows, ephemeral/short perennial, tall ruderal, and scrubby field margins were considered suitable to support populations of common reptile species, particularly given the high availability of suitable habitat in the surrounding landscape. Under Section 9(5) of the Wildlife and Countryside Act (1981) (as amended), all UK reptiles and amphibians are protected against intentional killing or injuring. Therefore, further survey work for reptiles is

recommended to inform the necessary mitigation measures required if the site supports a population of reptiles. Firstly, this would involve the deployment of artificial refugia at low density within suitable habitats and regular inspection between March to October (dependant on weather) to confirm the presence/absence of reptiles at the site. If reptiles are confirmed to be present at the site, a detailed population assessment and corresponding mitigation strategy, such as an appropriate translocation effort within the development footprint, may be required to ensure their protection during the proposed development.

- 5.11 A large pile comprised of brash, logs, crushed aggregate, and soil at the north-east of the site (TN27 in Appendix III) is located within the development footprint and is therefore subject to proposed plans for removal. This feature is suitable for use by hibernating herpetofauna (reptiles and amphibians) and overwintering small mammals (e.g. Hedgehog). Therefore, the removal of this feature should be subject to seasonal constraints and should be undertaken outside of the main hibernation season for herpetofauna (undertaken between mid-March – September). This will avoid disturbance to herpetofauna and small mammals that may use the feature for hibernation/overwintering, as they are more vulnerable to harm during this sensitive period. If this is not possible an ecologist should be present to inspect the feature for the presence of hibernating herpetofauna prior to removal and to supervise the works.

Otter

- 5.12 Although no evidence of Otter was identified during the site survey, Otter are known to use the River Ogmore located approx. 20m from the eastern site boundary at its nearest point. Furthermore, the site contains a variety of terrestrial habitat considered suitable for foraging/commuting Otter, including semi-natural woodland, mature hedgerow, and dense scrub. Therefore, the following constraints regarding the timing of works should be considered to reduce disturbance to foraging/commuting Otter and other nocturnal species that may be using the site or immediate surrounding area. No construction works are to take place at night. This limit on work hours will minimise disturbance of the river corridor and retained woodland for Otter and as an added control, during the winter months (November – February inclusive), no works within 50m of the river corridor will be undertaken within 1hr of sunset or sunrise. With these timing restrictions, no construction lighting will be required which will further limit any potential disturbance to retained habitats and prevent the artificial illumination of PRFs identified on site during the construction of the proposed scheme.

Priority Habitats

- 5.13 The semi-natural broadleaved/mixed woodland and mature species-rich hedgerows are listed as Priority Habitats under Section 7 of the Environmental Act (Wales) 2016 and as such should be retained and protected wherever possible and incorporated as part of a strategic green infrastructure (GI) network.
- 5.14 Current plans indicate a loss of hedgerow to occur along the boundaries of the eastern field parcel and a minor loss of hedgerow to occur at the eastern boundary of the western field parcel. Species-rich hedgerows should be retained wherever possible and loss of hedgerows mitigated through replacement planting elsewhere with hedgerows comprising the same or an increased diversity of woody species.
- 5.15 Current plans indicate some loss of semi-natural woodland to occur at the north-east and south-east of the site, as well as minor losses to the SINC/Ancient woodland that separates the 2no. field parcels to create an east/west link between development parcels. Two attenuation features are proposed (see Appendix I), located within the grassland in the east and partially within the area of semi-natural broadleaved woodland at the south of the site. All other semi-natural woodland at the site will be retained and any loss mitigated through replacement planting within the site boundary and/or enhancement (e.g. through management and removal of non-native invasive species) of retained woodland areas.

River Ogmore

- 5.16 Although no development is proposed within or directly adjacent to the river corridor, the eastern boundary of the development footprint is situated approx. 50m from the river channel. Furthermore, the unnamed ditch/drain that runs through the area of ancient woodland separating the 2no. field parcels at the site is hydrologically connected to the River Ogmore and is within the footprint of the proposed work. Risk from indirect impacts, such as surface water run off during the construction or operation of the scheme could be controlled by an environmental management plan. This could set out measures to avoid the risk of pollutants entering the river and information on the drainage design for the completed scheme.

Designated Sites and Priority Areas

- 5.17 The Coed-y-Tyle SINC lies within the site boundary and encompasses the woodland strip separating the two existing field parcels. A row of mature oak trees comprising the western boundary of this woodland is also listed as a Restored Ancient Woodland Site (RAWS) under the Ancient Woodland Inventory (2021). Under the current proposals, direct impacts to this habitat have been minimised and are limited to the requirement to construct an access road linking the two proposed residential parcels via a route through the woodland. The proposed location of the woodland crossing point was chosen based on ecological and arboricultural advice to make use of a pre-existing track that connects the two fields parcels at the site, so to minimise tree felling and overall disturbance to the woodland. The current design of the proposed woodland crossing point only requires the felling of a single mature ash tree (displaying signs of ash dieback infection) within the footprint of the ancient woodland. The current proposals will also require minor crown reduction to 2no. mature oak trees within the boundary of the RAWS to accommodate the access road. Any habitat loss or disturbance that does occur as a result of proposed works within the footprint of the SINC/RAWS must be minimised and appropriately mitigated. This should include avoidance of mature or veteran trees, replacement native tree planting (or natural regeneration) within the site boundary, and enhancement of the retained ancient woodland to promote its ecological value, such as removing the abundance of invasive Himalayan Balsam. These measures could be set out in a biodiversity enhancement plan for the site.
- 5.18 The unnamed ditch/drain that flows through the area of ancient woodland that separates the 2no. fields parcels at the site is hydrologically connected to the Chapel Hill SINC, designated for its broadleaved plantation woodland. Risk from indirect impacts to the designation, such as surface water run off during the construction or operation of the scheme could be controlled by an environmental management plan. This could set out measures to avoid the risk of pollutants entering the river and information on the drainage design for the completed scheme.

Other Consideration and Enhancements

- 5.19 Other possible enhancement and mitigation measures could include the provision of hibernacula or brash/log piles within retained areas of woodland and grassland. The positive management of the retained and newly created habitats in order to encourage botanical diversity would further contribute to providing a net benefit to biodiversity. Any retained or created areas of the grassland could be seeded with a species-rich meadow seed mixture. This could be managed by an annual cut in late

summer with all arisings either removed from site or used to create compost/cutting heaps around site margins.

- 5.20 Himalayan Balsam is present throughout the site (TN 11, 22, 29, 30, 36 in Appendix III). This species is listed under Schedule 9, Section 14 of the Wildlife and Countryside Act (1981) (as amended) meaning it is an offence to plant or cause the spread of it in the wild. Development should seek to control the spread of invasive species and eradicate them from within the site boundary to prevent further spread. All invasive plants should be eradicated and disposed appropriately via professional invasive species specialist contractors.

Avoidance, Mitigation and Enhancements

- 5.21 The avoidance, mitigation and enhancements described in the sections above are summarised below:

Avoidance

- Retention and protection of priority habitats as far as possible (e.g. semi-natural woodland and species-rich hedgerows);
- Vegetation clearance (trees and scrub) to avoid nesting bird season and be undertaken over the winter period (between September – February).
- Removal of brash pile feature suitable for use by hibernating herpetofauna to avoid main hibernation season (to be undertaken between mid-March – September).

Mitigation

- Woodland crossing point (access road) to be located at the north of the woodland parcel and make use of an existing track to minimise habitat loss/disturbance to the Coed-y-Tyle SINC and RAWS.
- Design of site lighting to minimise artificial light spill onto boundary features and all retained PRFs within mature trees to limit impacts to bats (foraging/commuting/roosting) and other nocturnal wildlife. Any increase in lux level to be less than or equal to 0.5 lux.
- Covering of any excavations overnight or means of escape provided during construction phase to minimise risks to Badger and any other small mammals that may become trapped.
- Any required security fencing to include an access gap at the bottom to allow continued connectivity for Badger and other small mammals post-development;
- Environmental management plan prepared for construction and operational phases to limit risk to the River Ogmore, Coed-y-Tyle SINC, Chapel Hill SINC, Restored Ancient Woodland, and other retained habitats;

- Planting of new native hedgerow to mitigate for loss of hedgerow required to facilitate the construction of the proposed scheme;
- Timing constraints for construction works to reduce disturbance to Otter and other nocturnal species.

Enhancement

- Inclusion of bat and bird boxes onto retained trees and new buildings;
- Provision of new native tree/shrub planting to provide additional habitat resources for a wide variety of wildlife and compensate for any loss of woodland area;
- Strengthening of existing hedgerows with new native tree planting;
- Enhancement through management of retained woodland areas;
- Landscape plan to include native tree and shrub species or those with a known benefit to local biodiversity;
- Creation of log/brash piles within appropriate habitats to enhance site suitability for herpetofauna (reptiles and amphibians);
- Enhancement of created and retained grassland and SUDs areas with a species-rich meadow seed mixture to promote value to wildlife;
- Management and control of invasive Himalayan Balsam within the site boundary;
- Implement Management Plan for retained and proposed planting to maintain and enhance value to Biodiversity.

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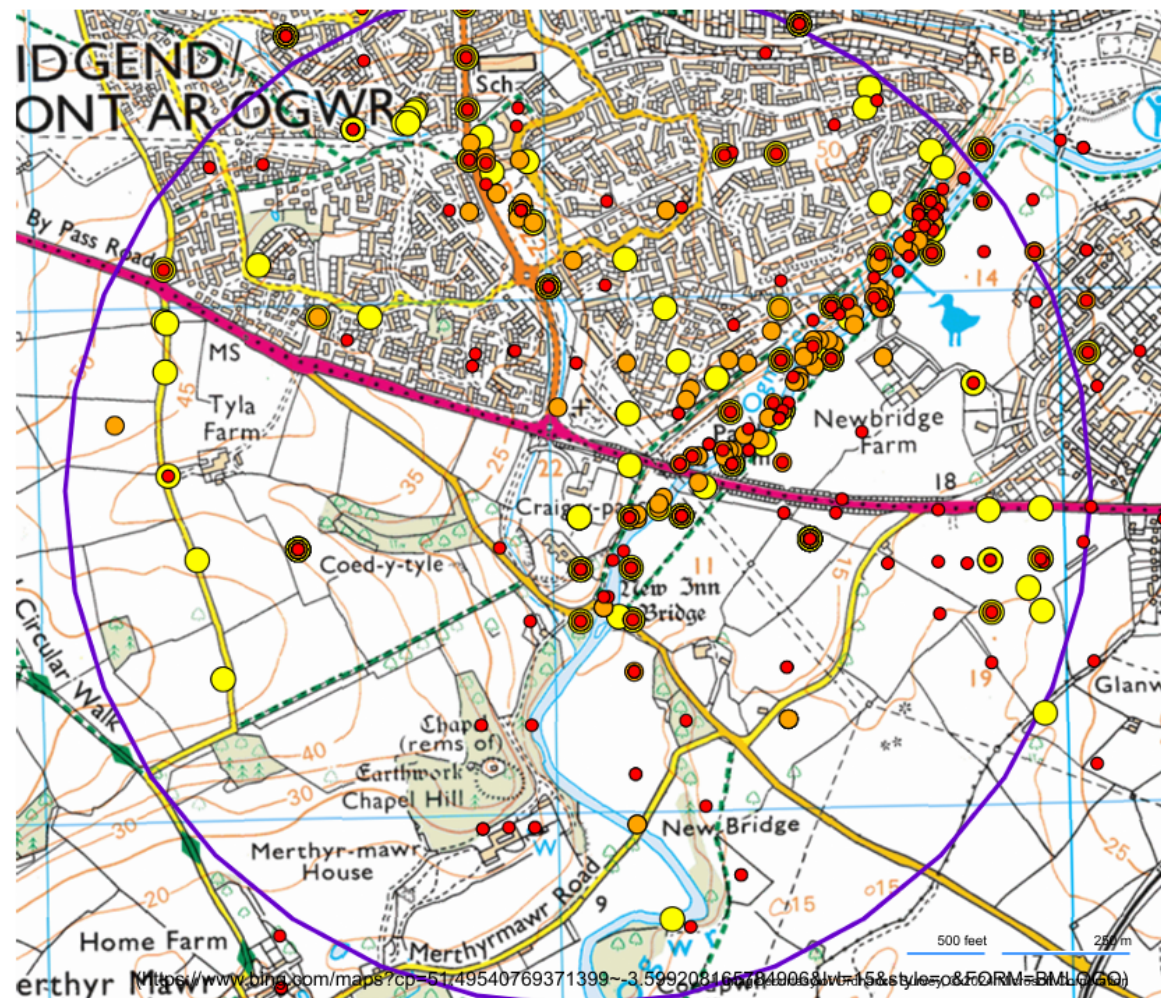
Welsh Assembly Government (2024). Planning Policy Wales Edition 12. February 2024.

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APPENDIX II DESK STUDY INFORMATION RECEIVED FROM SEWBRcC

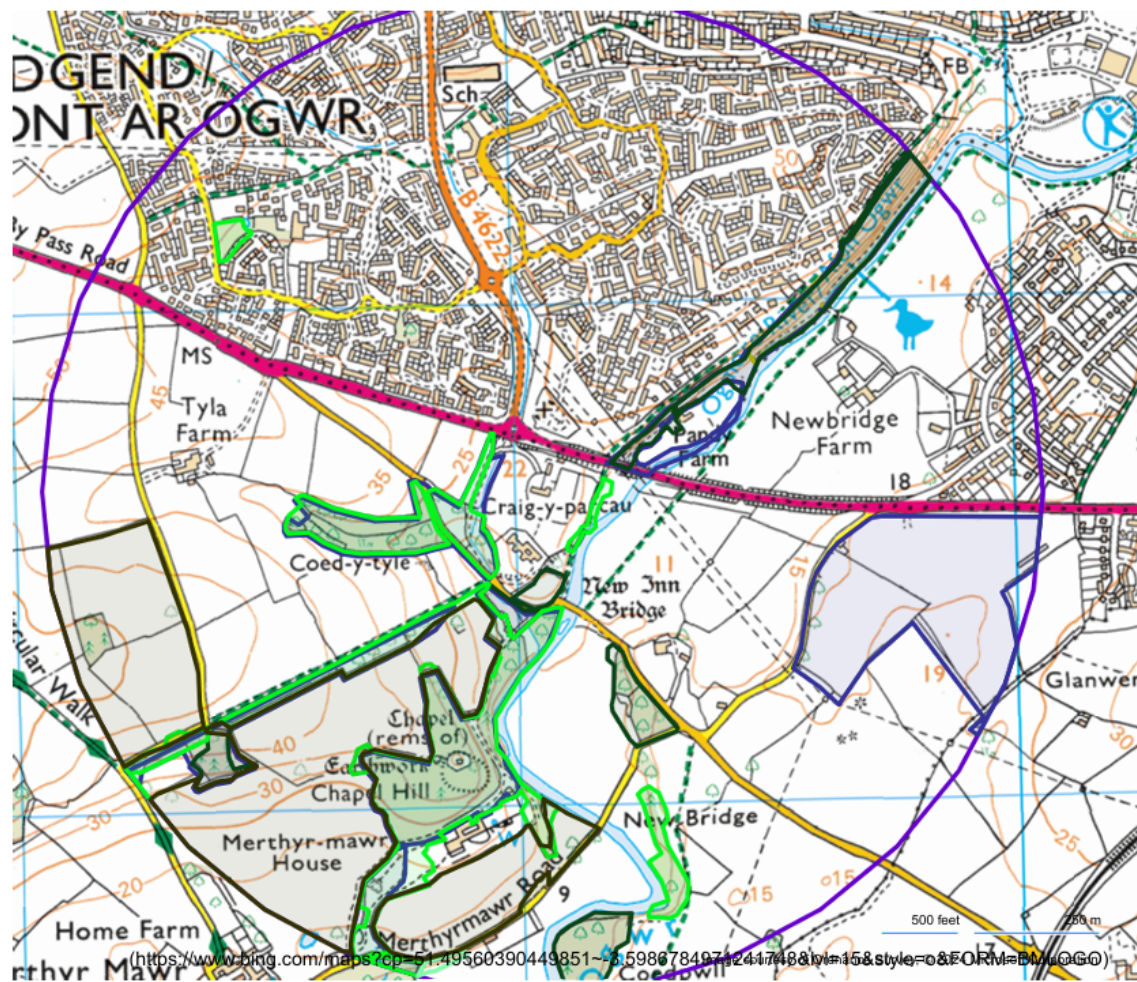
Species Map

Species records are mapped below. Records are mapped as centred points (centre of grid reference polygon).



Icon	Name
●	Pri. Species
●	Cons. Concern
●	Loc. Important

Designated Sites Map



APPENDIX III EXTENDED PHASE 1 HABITAT PLAN



APPENDIX IV EXTENDED PHASE 1 HABITAT PLAN TARGET NOTES

Target Notes for Extended Phase 1 Habitat Plan	
SITE NAME	Craig y Parcau, Bridgend
DATE	22 nd April 2025
PURPOSE OF VISIT	Extended Phase 1 habitat survey of site and immediate adjacent areas to inform an application for planning permission. External inspection of two derelict buildings on site subject to proposed plans for demolition for their potential to support roosting bats.
General	The site comprises 2no. field parcels of semi-improved/improved grassland (western and eastern fields) bordered by mature hedgerows with trees, woodland (including ancient woodland), a fenced area/compound used as a work yard with two derelict buildings and a number of mature trees, as well as other common habitats including scrub, scattered trees, and short perennial. A ditch/drain runs through the woodland that separates the two field parcels at the site. A number of trees are located on site that have the potential to support roosting bats. Himalayan Balsam <i>Impatiens glandulifera</i> was present at multiple locations throughout the site. The fenced compound area was inaccessible at the time of the survey and therefore the buildings, trees, and habitats within were assessed from a distance. Most elevations/sides of the buildings and trees within the fenced compound area were not visible at the time of the survey and the parts that were visible had to be assessed from a distance. Therefore, a full assessment of the trees and buildings within the fenced compound area for their potential to support roosting bats was not possible at the time of the survey.
Target Note 1	Series of Rabbit burrows within hedgerow along north-western boundary of western field parcel.
Target Note 2	Mature Sycamore <i>Acer pseudoplatanus</i> tree with features suitable for roosting bats at south-western boundary of western field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 3	Mature Sycamore tree with features suitable for roosting bats at south-western boundary of western field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 4	Mature Oak <i>Quercus robur</i> tree with features suitable for roosting bats located adjacent to the south-western site boundary within the parcel of ancient woodland. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 5	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland located adjacent to the south-eastern boundary of the western field parcel. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 6	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland located adjacent to the south-eastern boundary of the western field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 7	Mature tree with features suitable for roosting bats within the parcel of ancient woodland separating the two fields parcels at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.

Target Note 8	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland separating the two fields parcels at the site. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 9	Mature Ash <i>Fraxinus excelsior</i> tree with features suitable for roosting bats within the parcel of ancient woodland located adjacent to the south-eastern boundary of the western field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 10	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland located adjacent to the south-eastern boundary of the western field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 11	Himalayan Balsam can be found growing abundantly throughout the area of mixed semi-natural woodland separating the two field parcels, particularly along the dry ditch/drain feature within the woodland.
Target Note 12	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland separating the two fields parcels at the site. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 13	Mature oak tree with features suitable for roosting bats within the parcel of ancient woodland separating the two fields parcels at the site. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 14	Mature Oak tree with features suitable for roosting bats within the parcel of ancient woodland separating the two fields parcels at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 15	Mature tree with features suitable for roosting bats located within the woodland parcel separating the two field parcels adjacent to the western boundary of the eastern field parcel. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 16	Series of Rabbit burrows at the base of mature trees within the woodland that separates the two field parcels at the site.
Target Note 17	Stand of Butterfly Bush <i>Buddleja davidii</i> adjacent to pathway within the woodland that separates the two field parcels at the site.
Target Note 18	Mature Ash tree with features suitable for roosting bats located within the woodland parcel separating the two field parcels adjacent to the western boundary of the eastern field parcel. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 19	Mature Ash tree with features suitable for roosting bats located adjacent to the northern site boundary within the woodland parcel at the north of the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 20	Mature Ash tree with features suitable for roosting bats located between the eastern field parcel and fenced compound area. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 21	Mature Horse Chestnut <i>Aesculus hippocastanum</i> tree with features suitable for roosting bats located between the eastern field parcel and fenced compound area. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.

Target Note 22	Himalayan Balsam found growing along the western boundary of the eastern field parcel.
Target Note 23	Mature Ash tree with features suitable for roosting bats located at the south-western area of the strip of woodland surrounding the fenced compound area at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 24	Mature Ash tree with Ash Dieback with features suitable for roosting bats located within the east of the fenced compound area. Features visible were suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I. However, the western side of the tree was not visible due to a lack of access into the fenced compound area at the time of the survey and therefore there may be additional and more significant roosting features that were not recorded during the survey.
Target Note 25	Mature Ash tree with features suitable for roosting bats located at the south-east area of the strip of woodland surrounding the fenced compound area at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 26	Mature Ash tree with features suitable for roosting bats located at the south-western area of the strip of woodland surrounding the fenced compound area at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 27	Large pile of brash, logs, crushed aggregate, and soil. Suitable hibernation feature for Reptiles and Amphibians.
Target Note 28	Mature semi-fallen Oak tree with features suitable for roosting bats located on the eastern boundary of the strip of woodland surrounding the fenced compound area at the site. Features suitable for multiple roosting bats were present, resulting in tree being assessed as PRF-M.
Target Note 29	Himalayan Balsam found occasionally growing within the area of short perennial at the north-east of the site.
Target Note 30	Himalayan Balsam found growing abundantly within the north-eastern area of the eastern field parcel.
Target Note 31	Mature Ash tree with features suitable for roosting bats located adjacent to the northern site boundary. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 32	Mature Ash tree with features suitable for roosting bats located adjacent to the eastern site boundary. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 33	Mature Oak tree with features suitable for roosting bats located adjacent to the eastern site boundary. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 34	Mature Oak tree with features suitable for roosting bats located adjacent to the eastern site boundary. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 35	Mature Beech <i>Fagus sylvatica</i> tree with features suitable for roosting bats located within the area of semi-natural broadleaved woodland (coppice woodland) at the south of the site. Features suitable for multiple roosting bats, with potential to support a maternity roost, resulting in tree being assessed as PRF-M.
Target Note 36	Himalayan Balsam found growing occasionally within the area of semi-natural broadleaved woodland (coppice woodland) at the south of the site.
Target Note 37	Derelict building with features suitable for roosting bats located within the fenced compound area at the north-east of the site. Access to the fenced

	compound area was unavailable at the time of the survey and therefore only part of the building was visible at a distance during the survey. The building appears to be missing a majority of its roof which may reduce roost suitability for cavity roosting bat species. However, there is a large number of cracks, gaps, and crevices that provide features suitable for crevice dwelling bat species. The building has been assessed to likely have moderate potential to support roosting bats. However, a full assessment cannot be made from the information gathered during the survey due to a lack of access to the building.
Target Note 38	Derelict building with features suitable for roosting bats located within the fenced compound area at the north-east of the site. Access to the fenced compound area was unavailable at the time of the survey and therefore only part of the building was visible at a distance during the survey. The building appears to be missing a majority of its roof which may reduce roost suitability for cavity roosting bat species. However, there is a large number of cracks, gaps, and crevices that provide features suitable for crevice dwelling bat species. The building has been assessed to likely have moderate potential to support roosting bats. However, a full assessment cannot be made from the information gathered during the survey due to a lack of access to the building.
Target Note 39	Mature Oak with features suitable for roosting bats within the area of short perennial at the north-east of the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.
Target Note 40	Mature multi-stem tree with dead streams with features suitable for roosting bats within the strip of woodland surrounding the fenced compound area at the site. Features suitable for individual or a small number of roosting bats resulting in tree being assessed as PRF-I.

APPENDIX V BATS AND ARTIFICIAL LIGHTING IN THE UK GUIDANCE NOTE

The following is an extract from the Bat Conservation Trust and Institution of Lighting Professionals (2023) guidance note on Bats, Lighting and the Mitigation Hierarchy. Section 4 contains advice on how to mitigate for the impacts of artificial lighting on bats. Full citation:

Bat Conservation Trust & Institution of Lighting Professionals (2023) *Bats and Artificial lighting at Night Guidelines. Guidance Note 08/23*. Bat Conservation Trust, London.

4. Bats, lighting and the mitigation hierarchy

Introduction

- 4.1 This chapter provides a process for considering the impact on bats as part of a proposed lighting scheme or new development incorporating night-time lighting. It contains a toolkit of techniques which can be used on any site, whether a small domestic project or larger mixed-use, commercial or infrastructure development. It also provides best practice advice for the design of a lighting scheme, for both lighting professionals and other users who may be less familiar with the terminology and theory.
- 4.2 Under the Agent of Change principle within national planning policy, those seeking to introduce a new plan or project are also responsible for the management of its impact. Therefore, it is crucial that the impacts of obtrusive lighting are mitigated or avoided altogether. While this chapter focuses on how potential lighting impacts on bats can be identified, avoided and mitigated, opportunities for ecological betterment beyond maintaining the status quo should be pursued wherever possible. Doing so would not only fulfil our responsibilities under this principle but contribute to Biodiversity Net Gain in line with legislation.^{xlix} Further information on Biodiversity Net Gain can be found here: <https://cieem.net/i-am/current-projects/biodiversity-net-gain/>
- 4.3 Effective avoidance and mitigation of lighting impacts on bats relies on close collaboration from the outset between multiple disciplines. Depending on the specific challenges this will almost certainly involve ecologists working alongside architects and/or engineers; however, lighting professionals and landscape architects should be approached when recommended by your ecologist. This should be done at as early a stage as possible, in order to ensure the proposed lighting strategy is acceptable to all disciplines, mitigation is effective and is not in breach of legislation. In this way, delays to approval/adoption and unforeseen costs or liability can be avoided.
- 4.4 The stepwise process and key follow-up actions are outlined in the flowchart overleaf see figure 3 and followed throughout the Chapter. The questions in the flowchart should be asked in good time to allow any necessary bat survey information to be gathered in advance of lighting design, or fixing a scheme design.
- 4.5 It should be noted that the measures discussed in this document relate only to the specific impacts of lighting upon retained or newly created bat habitat features, on or adjacent to the site. If loss or damage to roosting, foraging or commuting habitat is likely to be caused by other aspects of the development, separate ecological advice will likely be necessary in order to avoid, mitigate or compensate for this legally and/or in line with ecological planning policies.

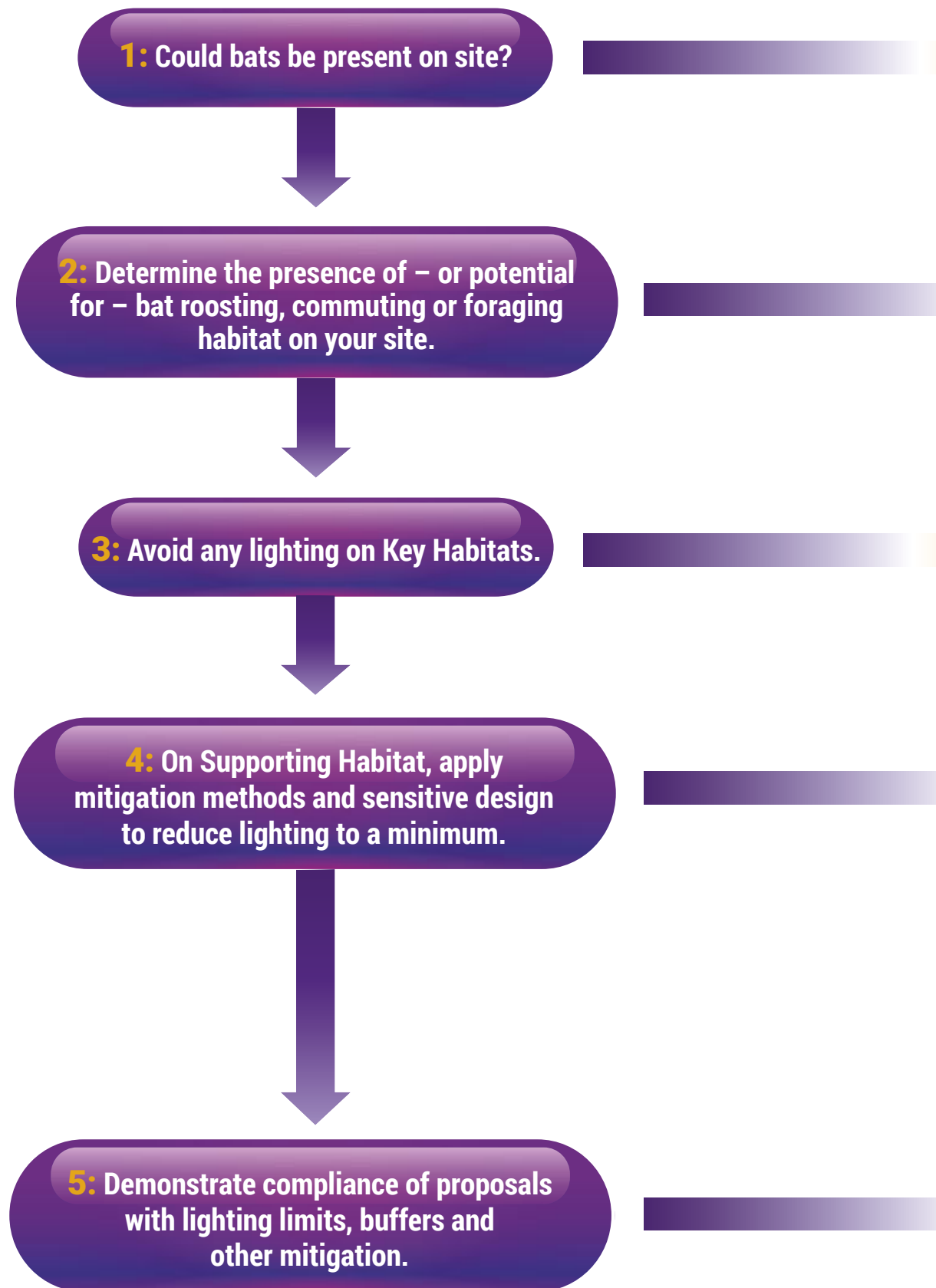




Figure 3. Ecology process for lighting.

Step 1: Could bats be present on site?

- 4.6 If there is no ecological data for your site, an ecologist should be contacted at the earliest opportunity to advise on an initial survey and any potential follow-on surveys. This information should be collected as early as possible in the design process, and certainly before lighting is being specified, so as to avoid the need for costly revisions.
- 4.7 If any of the following habitats occur on site, and are adjacent to or connected with any of these habitats on or off site, it is possible that proposed lighting may impact local bat populations (please note this list is indicative and advice should be sought from an ecological consultant):
- Woodland, individual mature trees or lines of trees
 - Hedgerows and scrub
 - Ponds, lakes and other wetland
 - Ditches, streams, canals and rivers
 - Infrequently managed grassland, or parks, gardens and Public Open Space
 - Buildings - Especially, **but not limited to**, those in disrepair or built pre 1970s
 - Gravel pits, quarries, cliff faces, caves and rock outcrops
 - Any building or habitat known to support protected species
 - Any additional scenarios as advised by your Local Planning Authority (LPA)
- 4.8 If you are unsure about whether bats may be impacted by your project, and an ecologist has not yet been consulted, sources of information on the presence of bats within the vicinity of your site include the following.
- Local Environmental Records Centres (LERC) - Will provide third-party records of protected and notable species for a fee. Search <http://www.alerc.org.uk/> for more information
 - The Wildlife Assessment Check is a free online tool designed by the Partnership for Biodiversity in Planning to support small-to-medium scale developments by helping identify whether ecological advice should be sought prior to submitting a planning application. The WAC is available online at www.biodiversityinplanning.org/wildlife-assessment-check/
 - National Biodiversity Network Atlas - Provides a resource of third-party ecological records searchable online at <https://nbnatlas.org> - typically this is less complete than LERC data. Please note: Some datasets are only accessible on a non-commercial basis, while most can be used for any purpose, provided the original source is credited
 - Local Authority Planning Portal - Most local planning authorities have a searchable online facility detailing recent planning applications. These may have been accompanied by ecological survey reports containing information on bat roosts and habitats

- Defra's MAGIC map - Provides an online searchable GIS database including details of recent European Protected Species licences, and details of any protected sites designated for bat conservation
- 4.9 The professional directory at the website of the Chartered Institute of Ecology and Environmental Management (www.cieem.net) provides details of ecologists in your area with the relevant skills/experience. The early involvement of a professional ecologist can minimise the likelihood of delays at the planning stage (if applicable) and ensure your project is compliant with conservation and planning legislation and policy.

Step 2: Determine the presence of/potential for bat roosts or habitat and evaluate their importance

- 4.10 Once a potential risk to bats has been identified, the ecologist will visit the site in order to record the habitats and features present, and evaluate their potential importance to bats. Additionally, they should consider the likelihood that bats could be affected by lighting both on and immediately off site. This survey may also include daytime building and tree inspections, and the deployment of automated bat detectors. On the basis of these inspections, further evening surveys may be recommended, either to determine the presence or likely absence of bats within buildings and/or trees, or to assess the use of the habitats by bats by means of a walked survey. Such surveys may be undertaken at different times during the active season (May - September) and should also involve the use of automated bat detectors left on site for a period of several days. The surveys should be carried out observing the recommendations within the Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and the Interim Guidance Note: Use of Night Vision Aids for Bat Emergence Surveys (BCT, May 2022), or as superseded.
- 4.11 The resulting report will detail the relative conservation importance of each habitat feature to bats, including the roost-supporting potential of any built structures or trees. The ecologist's evaluation of the individual features will depend on the specific combination of contributing factors about the site, including:
- The conservation status of species likely to be present
 - Geographic location
 - Type of bat activity likely (breeding, hibernating, night roosting, foraging etc.)
 - Habitat quality
 - Habitat connectivity off-site
 - The presence of nearby bat populations or protected sites for bats (usually identified in a desk study)

- 4.12 The evaluation will enable the ecologist to determine the presence of any Key Habitats or Supporting Habitats for bats. The whereabouts of these habitats should be set out on a plan of the site or as an Ecological Constraints and Opportunities Plan (ECOP), see Case Study 3. The bat habitat plan/ECOP and report can then be used to help guide the design of the lighting strategy (see next steps) as well as the wider project.
- 4.13 Key Habitats are those which are considered essential for the function and stability of local bat populations, while Supporting Habitats may be of lesser significance or usage. Habitats falling within neither category are considered to be of negligible or very low importance to bats.
- 4.14 Examples of Key Habitats include:
- Roosting and swarming sites for all species and their associated flightpaths and commuting habitat
 - Foraging or commuting habitat for highly light-averse species (greater and lesser horseshoe bats, some *Myotis* bats, barbastelle bats and all long-eared bats) or nationally/locally rare species
 - Foraging or commuting habitat supporting relatively large numbers of bats or high activity rates as assessed through survey
 - Any habitat otherwise assessed by the ecologist as being of elevated importance in maintaining the 'favourable conservation status' of the bat population using it

Step 3: Avoid lighting on any Key Habitats

- 4.15 An adverse impact from illumination onto a Key Habitat feature is likely to have a significant effect on the bats using it. Therefore, an absence of artificial illumination and glare acting upon both the feature and an appropriately sized buffer zone is most often the only acceptable solution. An ecologist will be best placed to set the size of such a buffer zone according to the species present and the level of usage, and these can be tens of metres if unattenuated light spill or glare from local sources is predicted. The input of a lighting professional should be sought when determining the distances of light spill from new sources and likelihood of glare. It is recommended that proposals are communicated by them to the Principal Designer and the Highways Designer, (if applicable) as in some circumstances these decisions may influence highway function (e.g. visibility departures). Further information on demonstrating an absence of illumination within proposals via lux/illuminance contour plans is provided in Step 5.
- 4.16 As detailed in Section 2.1, there is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24hr operation, or in high-risk security situations. Nevertheless, these are not exempt from

the statutory protection afforded to bats, their roosts and commuting routes directly associated with roosts, and good design principles recommended under industrial documents such as the Institution of Lighting Professionals' GN01: The Reduction of Obtrusive Light remain best practice. However, in the public realm, while lighting can increase the perception of safety and security, measurable, objective benefits on safety and security are less well established. Consequently, lighting design should be holistic, taking into consideration the relevant British Standards or local policies concerning lighting but, through a risk assessment-style process, be able to fully take into account the presence of protected species and the likely adoption of mitigation approaches through proper engagement with local communities (see Case Study 4).

- 4.17 Completely avoiding any lighting conflicts in the first place is advantageous, because proposals would be automatically compliant with the relevant wildlife legislation and planning policy, and costly, time-consuming additional surveys, mitigation and post-development monitoring would be avoided. Furthermore, LPAs are likely to favour applications where steps have been taken to avoid such conflicts.
- 4.18 Sources of lighting which can have the potential to disturb bats are not limited to roadside, footpath or security lighting, but can also include light spill via windows, permanent but sporadically operated lighting such as sports floodlighting, and in some cases car headlights. It is important to note that these situations often comprise many complex variables, and light emission is often difficult to predict or model accurately.
- 4.19 A competent lighting professional should be involved in the design of proposals as soon as potential impacts (including from glare) are identified by the ecologist, in order to avoid planning difficulties, or late-stage design revision. The lighting professional will be able to make recommendations about placement of luminaires tailored to the project.

Glare

- 4.20 Glare (extremely high contrast between a source of light and the surrounding darkness - linked to the 'intensity' of a luminaire) may additionally affect bats over a greater distance than the area directly lit by a luminaire. Glare impacts on bats and other wildlife should be considered on the site alongside best practice advice on reducing obtrusive light (see ILP GN01).

Highways

- 4.21 Where highways lighting schemes are to be designed by the LPA, the ecology officer (or planning officer) should be consulted on the presence of important bat constraints, determined in Step 2, which may impact the design of the lighting scheme in order to ensure compliance with wildlife legislation.

LPA-specific guidance

- 4.22 Some LPAs have Supplementary Planning Documents (SPD) or other guidance concerning the management of potential development impacts on particular species of bats, or in relation to certain protected sites, such as Special Areas of Conservation (SACs). These should be consulted for particular advice concerning lighting. For example, the North Somerset and Mendip Bats SAC Guidance on Development SPD provides a methodology for calculating the specification of compensatory habitat required to off-set certain development impacts on the bat population of the SAC. In it, retained or created habitats that are subject to lighting above certain lux levels, are considered to be lost to development, with implications for compensation requirements¹.

Environmental Impact Assessment (EIA)

- 4.23 For plans and projects subject to the Environmental Impact Assessment (EIA) Regulations screening process, it is important for LPAs to understand the nature of mitigation measures at this relatively early stage. Under current EIA Regulations, schemes planning to avoid likely significant effects on the environment through either embedded design measures, such as sensitive site configuration or strategic land/building usage etc., or by other robust mitigation, may be exempt from EIA and therefore less costly. However, the over-reliance on conditions to effect environmental mitigation may be open to legal challenge.

Step 4: On Supporting Habitat, apply mitigation methods and sensitive design to reduce lighting to a minimum

- 4.24 Supporting Habitats may be less frequently used by bats compared to Key Habitats, or support fewer, or more light-opportunistic species. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved.
- 4.25 It is important to reiterate the legal protection from disturbance that bats receive under the Wildlife and Countryside Act 1981, as amended. Where the risk of offences originating from lighting is sufficiently high, it may be best to apply the avoidance approach in Step 3. (see Case Study 5).
- 4.26 Advice from an ecologist and lighting professional will be essential in finding the right approach for the site according to their evaluation. The following are techniques which have been successfully used on projects to limit lighting impacts on bats, and are often used in combination for best results.

¹ <https://n-somerset.gov.uk/sites/default/files/2020-03/North%20Somerset%20and%20Mendip%20Bats%20SAC%20guidance%20supplementary%20planning%20document.pdf>

Dark buffers and concentric zonation

- 4.27 A buffer zone subdivided to into smaller zones of increasing illuminance limit further away from the Supporting Habitat would ensure light levels (illuminance - measured in lux) do not exceed certain defined limits. This has the effect of a gradual decrease in lighting from the developed zone, rather than a distinct cut-off, which may provide useable area for the project which also limits lighting impacts on less sensitive species, or less well-used habitat.
- 4.28 The ecologist (in collaboration with a lighting professional) can help determine the most appropriate buffer widths and illuminance limits according to the value of that habitat to bats. Figure 4 gives an example of a multi-zoned approach which includes Key Habitat (Zone A) which would receive no ALAN, and Supporting Habitat (Zones B and C) which would act as a 'light attenuation zone', but remain within the public realm, and so receive reduced light levels.

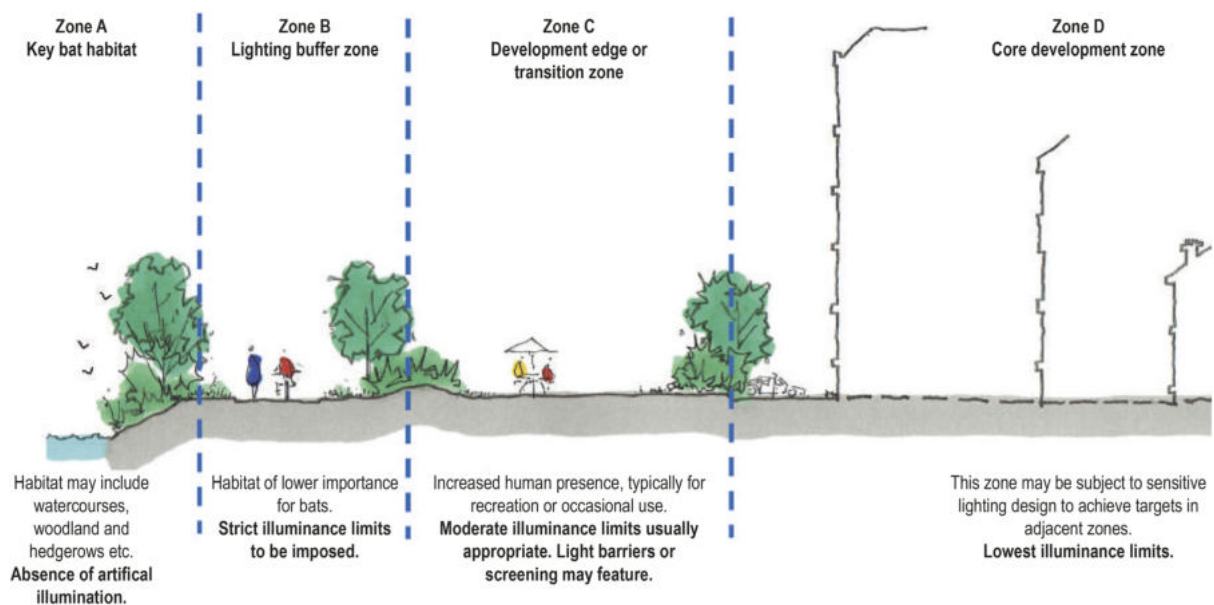


Figure 4. Example of illuminance limit zonation.

Appropriate luminaire specifications

- 4.29 Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:
- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability
 - A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component

- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
- Internal luminaires can be recessed (as opposed to using a pendant fitting - See Figure 5) where installed in proximity to windows to reduce glare and light spill
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1)
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues. See Case Study 6
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely

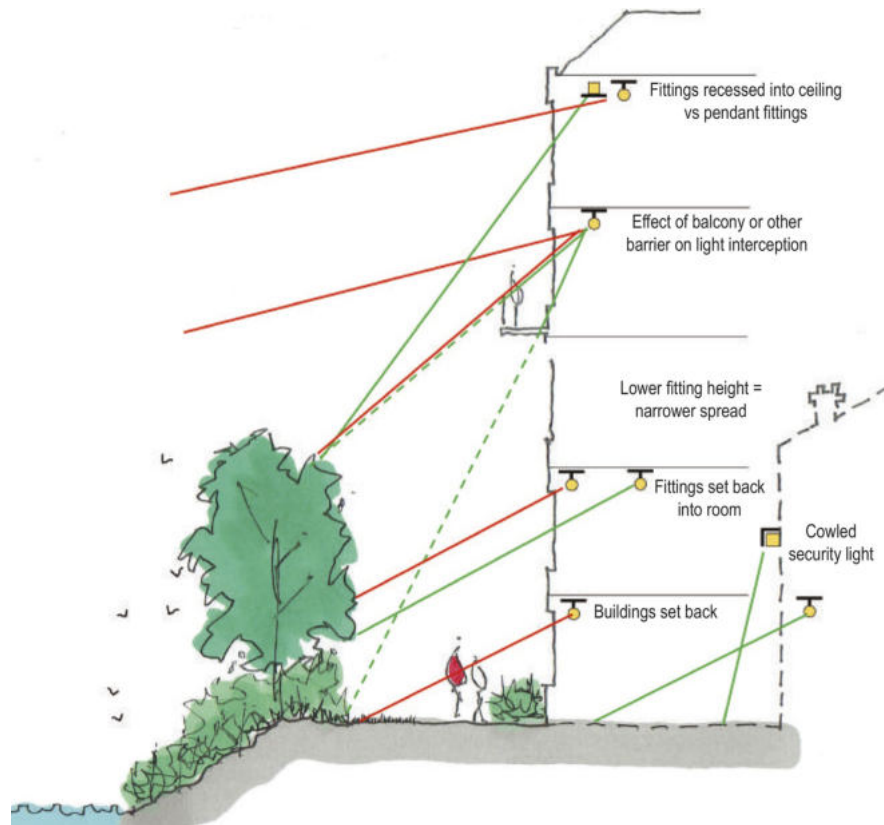


Figure 5. Internal lighting mitigation options.

Sensitive site configuration

4.30 The location, orientation and height of newly built structures, and hard standing, relative to each other can have a considerable impact on light spill. Small changes in terms of the placement of footpaths, open space and windows can all help to achieve a better outcome in terms of minimising light spill onto Key Habitats and features.

- Key or Supporting Habitat is often located alongside, or to the rear of buildings, on new developments. In this case, the removal or reduction of windows can be the most effective way to permanently limit light spill, potentially alongside the internal reconfiguration of the building, to ensure high-use spaces are not as impacted by loss of natural light
- It may be possible to include Key or Supporting Habitat into unlit public open space such as parks. However, avoid including into residential gardens, as uncontrolled and inappropriate lighting may be introduced by residents following occupation
- It is often considered better for a residential scheme to specify good quality downward-directional external light fittings for security, and/or at the front entrance, on short PIR timers, rather than risk the imposition of poor quality and poorly controlled lighting at a later date
- Buildings, walls and hard landscaping may be sited and designed so as to block light spill from reaching habitats and features

- Paved surfaces should not be located within Key Habitat or buffer zones, unless they form part of unlit public open space
- Taller buildings may be best located toward the centre of the site, or sufficiently set back from Key Habitats, to minimise the effect of their light spill
- Column mounted luminaires can be located so that the rear shields are adjacent to habitats, or narrow optics selected that direct light into the task area where needed

Physical screening

- 4.31 Light spill can be successfully screened through landscaping and the installation of walls and fences, or even banks and bunds (See Figure 6). In order to ensure that fencing makes a long-term contribution, it is recommended that it is supported on concrete or metal posts. Fencing can also be over planted with hedgerow species or climbing plants to soften its appearance and provide a vegetated feature which bats can use for navigation or foraging.
- 4.32 The planting of substantial landscape features integrated to the wider network of green corridors such as hedgerows, woodland and scrub would make a long-term positive contribution to the overall connectivity of bat habitat and light attenuation. It would also contribute to any local Nature Recovery and Green Infrastructure policies and help achieve obligatory Biodiversity Net Gain targets. A landscape architect can be appointed to collaborate with the ecologist on maximising these natural light screening opportunities.
- 4.33 It should be noted that newly planted vegetation (trees, shrubs and scrub) is unlikely to adequately contribute to light attenuation upon Key Habitats for a number of years, until it is well established. Sufficient maintenance to achieve this is also likely to be required. Consequently, this approach is best suited to the planting of dense, mature or translocated vegetation. In some cases, it is appropriate to install temporary fencing, or other barrier, to provide the desired physical screening effects until the vegetation is determined to be sufficiently established.
- 4.34 Given the fact that planting may be removed, die back or inadequately replaced over time, it should never be relied on as the sole means of attenuating light spill.

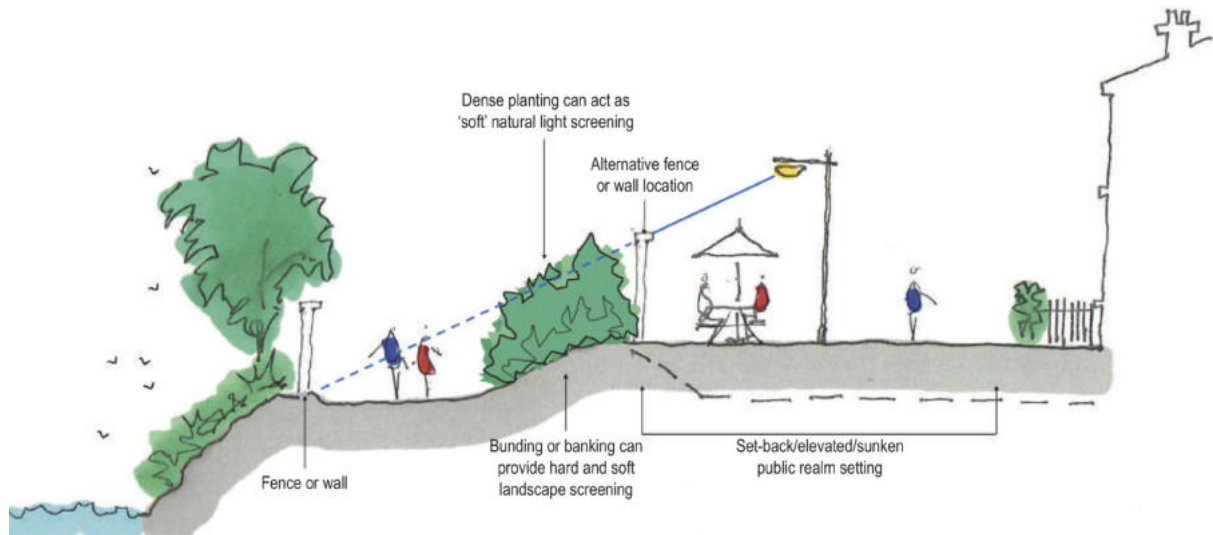


Figure 6. Examples of physical light screening options.

Dimming and part-night lighting

- 4.35 Depending on the pattern of bat activity across the Supporting Habitat identified by the ecologist, it may be appropriate for an element of on-site lighting to be controlled by dimming or switching either diurnally, seasonally, or according to human activity (light on demand). This is known as Part-Night Lighting (PNL). It is important to state that PNL is not likely to be appropriate where Key Habitats are at risk, especially as PNL often results in lighting when bats are most active.
- 4.36 A Central Management System (CMS) can be specified by the lighting engineer to dim or turn off individual or groups of luminaires when not in use or during less busy times. Dimming can be precisely controlled, with dimming states often being as low as 10 or 20%. However, due to the electrical difficulties of maintaining a dimming state of under 10%, luminaires should be set to off below this point.
- 4.37 Lighting could be set to a low output state by default, to turn up to a pre-determined output in response to a trigger, and be combined with a timeclock or photocell to further add an element of seasonal or diurnal control. For example, Passive Infrared (PIR), Artificial Intelligence enabled cameras, on demand controls, or pressure sensors may be used to trigger lights to come on or dim in response to movements, either by vehicles (for example at car parks or industrial loading bays) or by pedestrians (for example a footpath leading from residential development through an area of Supporting Habitat). The timeclock or photocell could ensure that this response only occurs during a set window of hours after sunset and before sunrise, or during certain months.
- 4.38 Where some trigger is used to temporarily modify lighting states, it will be necessary to specify the timed trigger window during which the response is maintained beyond the last triggering activity. For most typical residential purposes, 1-2 minutes is likely to be sufficient, however risk assessments must

be performed in line with BS5489-1. The proposed system of lighting control will be determined by the outcome of the risk assessment. Where used in locations which receive distinct busy periods, such as cycle paths used by commuters, care will be needed to ensure lighting responds adequately to permit safe usage, but avoids both over-illumination and potentially disruptive dimming states of lighting groups.

- 4.39 Alternative lighting designed for subtle waymarking, rather than illumination, may be more appropriate, such as very low-wattage, ground-level luminaires (photo 4). This lighting option can have a number of additional benefits such as a reduced risk of vandalism, lower carbon footprint during manufacture and fitting and no requirement for cabling. However, it should be noted that these systems depend on regular maintenance and a long-term



*Photo 4: Waymarkers installed on a multi-user path in Worcester.
Image credit: Cody Levine.*

- commitment for them to be successful, as well as a clear view of the sky for solar-powered options. Due to this, proposals and potential planning conditions should be considered in liaison with maintenance teams, to ensure success (and any handover of assets) post install. See Case Study 1 for further information.
- 4.40 Part-Night Lighting should be designed with input from an ecologist as it may still produce unacceptably high light levels when active or dimmed. Part-Night Lighting is not usually appropriate where lights are undimmed during key bat activity times, as derived from bat survey data or within riparian habitats (see research chapter 1.27). Research has indicated that impacts upon commuting bats are still prevalent where lighting is dimmed during the middle of the night at a time when illumination for humans' use is less necessary (Azam et. al., 2015) thus this approach should not always be seen as a solution, unless backed up by robust ecological survey and assessment of nightly bat activity. In this case, designing areas to be lit to avoid retained Key Habitat, or the provision of sufficient alternative dark corridors, may be the only solution.

Glazing treatments on buildings

- 4.41 As mentioned, glazing should be restricted and reduced wherever the ecologist and lighting professional determine there to be a likely significant effect upon bats' Key Habitat and associated features.
- 4.42 Where Supporting Habitat is present, glazing treatments such as tinted, frosted or low transmission glazing treatments are not generally considered suitable ways of fully mitigating light spill. In the case of frosted or 'frit' glazing, windows typically remain luminous surfaces in their own right, defeating the objective of reducing lighting impacts. Although promisingly named, low-transmission glazing (glazing with a lower visible light transmittance) often makes only a very small difference to light spill in practice - a window's fundamental objective is to transmit light!
- 4.43 Automatic blinds should be discouraged as their longevity depends on regular maintenance and successful routine operation by the occupant. Such blinds are generally only suited to commercial situations where maintenance can be incorporated into the long-term regime routine for the building.
- 4.44 Depending on the height of the building and windows, and therefore predicted light spill, glazing treatments or window design restrictions may not be required on all storeys. This effect can be more accurately determined by a lighting professional.

Creation of alternative valuable bat habitat on site

- 4.45 The provision of new, additional or alternative bat flightpaths, commuting or foraging habitat is encouraged and could result in appropriate compensation for any such habitat being lost to the development. The ecologist will be able to suggest and design such alternative habitats, although particular consideration should be given as to its connectivity to other features, the species to be used, the lag time required for a habitat to sufficiently establish and the provision for its ongoing protection and maintenance.
- 4.46 As almost all new development will be required to result in at least 10% Biodiversity Net Gain (BNG), opportunities to improve habitat connectivity for bats should always be considered. Further to the 10 principles at the core of BNG, the implementation of sensitively sited habitat features for bats would be a clear contribution to 'additionality'. Particularly when considering achieving BNG off-site, assessment should be made of the impacts of altering the type and proportion of bat-suitable habitats, both within and beyond the site, upon the potential Core Sustenance Zone of any maternity roosts which use them.²

² <https://cdn.bats.org.uk/uploads/pdf/Bat-Species-Core-Sustenance-Zones-and-Habitats-for-Biodiversity-Net-Gain.pdf>

Step 5: Demonstrate compliance with illuminance (lux) limits and buffers within proposals and, where appropriate, the operational scheme

- 4.47 Once it has been determined through the above process how Key and Supporting Habitats will be protected, or impacts on them mitigated or compensated for, it will be necessary to demonstrate how this will be achieved. For a planning application, this information is increasingly required prior to determination in order for the LPA to make an informed decision and discharge statutory duties towards protected species legislation and policies. This is most likely to be the case for 'Full' planning applications. For 'Outline', phased or complex applications, this information is, at times, deemed a 'Reserved Matter', for which detail will normally follow at a later date before final consent is granted, or in the discharging of reserved matters. Incidences include EIAs and should be made prior to determination. It is appropriate for a pre-commencement planning condition to be imposed on a consented application which would require that an ecologically sensitive lighting plan is prepared, or is achievable.
- 4.48 In all cases where impacts from lighting on bats are possible, the LPA will require some form of documentation to be produced by the lighting engineer, either in collaboration with the ecologist, or working to the constraints set out within the bat habitat plan/ECOP (see Step 2), in order to demonstrate compliance. Usually, this will take the form of a 'Lighting Strategy', 'Lighting Design' or 'Lighting Impact Assessment', depending on the level of detail in the application. A Lighting Strategy may simply set out the agreed lighting parameters, objectives and likely mitigation requirements (e.g. unlit zones and any other bat mitigation), together with a plan. A Lighting Design/Impact Assessment would provide finalised details, consisting of a plan to show modelled illuminance from all proposed (and existing, where necessary) light sources, taking into account all site configuration, physical screening and glazing measures adopted. It would usually be accompanied by an explanatory document detailing the specification of each luminaire, as well as all assessment assumptions made and any other rationale for lighting mitigation, such as recessed light fittings or part-night lighting.
- 4.49 In the case of Outline or phased applications, the precise detail of architectural materials, glazing, landscaping etc. might not be known at the time of submission, therefore a Lighting Strategy may be the most appropriate document to provide. As described above, the bat mitigation objectives derived from the ecologist's bat habitat plan/ECOP should be referenced. It is worth being aware of the potential for matters such as highways (incorporating highways-specific lighting needs) to be fixed at Outline consent stage, which can make the resolution of bat mitigation requirements at a later stage challenging. This highlights the importance of inter-discipline collaboration and early communication of ecological constraints.
- 4.50 In the case of small or simple planning applications, where significant impacts upon bats from lighting are of a low likelihood, the production of a full Lighting Design package may be disproportionately costly and time-consuming. It may therefore be appropriate to provide a simplified document produced between

the ecologist and lighting engineer, setting out design decisions undertaken and the likely achievability of the recommendations within the ECOP according to the lighting engineer's professional judgment.

Lighting contour plans

- 4.51 A horizontal illuminance contour plan can be prepared by a suitably experienced and competent lighting professional (Member of the Institution of Lighting Professionals (ILP), Chartered Institution of Building Services Engineers (CIBSE), Society of Light and Lighting (SLL) or similar to ensure competency) using an appropriate software package to model 'Day 1', extent of light spill from the proposed, retained and, possibly, existing luminaires. The various buffer zone widths and illuminance limits which may have been agreed can then be overlaid to determine if any further mitigation is necessary. In some circumstances, a vertical illuminance contour plot may be necessary to demonstrate the light in sensitive areas, such as entrances to roosts or the Key Habitat associated with it (see Appendix).
- 4.52 Such calculations and documentation would enable the LPA ecologist to fully assess impacts and compliance.
- 4.53 Because illuminance contour plots and plans may need to be understood and examined by non-lighting professionals, such as architects and local planning authority ecologists, the following should be observed when producing or assessing illuminance contour plans, to ensure the correct information is displayed.
 - A calculation showing output of luminaires to be expected at 'Day 1' of operation should be included, where the luminaire and/or scheme Maintenance Factor is set to 1. Schemes using Constant Light Output (CLO) luminaires should also be calculated using 'Day 1' output
 - Where deemed necessary by a lighting professional, models should be issued so that all luminaires (i.e. internal and external, or between different phases/plots) can be assessed and each should be set to the maximum output anticipated to be used in normal operation on site (i.e. no dimming where dimming is not anticipated during normal operation)
 - Where dimming, PIR, or variable illuminance states are to be used, an individual set of calculation results should accompany each of these states
 - A horizontal calculation plane representing levels of illuminance at ground level should always be used
 - Vertical calculation planes should be used wherever appropriate, for example along the site-facing aspects of a hedgerow or façade of buildings containing roosts, to show the illumination directly upon the vertical faces of the feature. Vertical planes can also show a cross-sectional view within open space (however, they will only face one direction.) Vertical planes will enable a visualisation of the effects of illumination at the various heights at which different bat species fly. An ecologist can

advise on the most appropriate dimensions to use according to the likely locations of bat flight around the site's habitats

- The contours (and/or coloured numbers) for 0.2, 0.5, 1, 5, and 10 lux must be clearly shown, as well as appropriate contours for values above these
- Each illuminance/lux contour plan should be accompanied by a table showing their minimum and maximum illuminance/lux values
- Where buildings are proposed in proximity to key features or habitats, plots should also model the contribution of light spill through nearby windows, making assumptions as to internal luminaire specification, internal lighting levels, and visible light transmittance of windows. It should be assumed that blinds or curtains are absent or fully open. Assumptions will need to be made as to the internal luminaire specification and levels of illuminance likely to occur on 'Day 1' of operation. These assumptions should be clearly stated and guided by the building/room type and discussions between architect, client and lighting professional. Consideration may also need to be given to the site topography, and differences in ground levels between key features and lit areas or buildings. It is acknowledged that in many circumstances, only a 'best effort' can be made in terms of accuracy of these calculations as it is often not possible to account for all 'real world' conditions and variables which influence light. Note that evidence-based professional judgement is needed to assess whether light from windows should undergo a full assessment, dependent on factors such as the distance between light source and critical habitats
- Modelled plots should not include any light attenuation factor from new or existing planting, due to the lag time between planting and establishment and the risk of damage, removal or failure of vegetation. This may result in difficulties in the long-term achievement of the screening effect and hamper any post-construction compliance surveys
- The illuminance contour plots should be accompanied by an explanatory note from the lighting professional to list where, in their opinion, sources of glare acting upon the key habitats and features may occur, and what has been done/can be done to reduce their impacts

4.54 **N.B.** It is acknowledged that, especially for vertical calculation planes, very low levels of light (<0.5 lux) may occur even at considerable distances from the source if there is little intervening attenuation. It is therefore very difficult to demonstrate 'complete darkness' or a 'complete absence of illumination' on vertical planes where some form of lighting is proposed on site, despite efforts to reduce them as far as possible and where horizontal plane illuminance levels are zero. Consequently, where 'complete darkness' on a feature or buffer is required, it may be appropriate to consider this to be where illuminance is at or below 0.2 lux on the horizontal plane, and at or below 0.4 lux on the vertical plane. These figures are still lower than what may be expected on a moonlit night and are in line with research findings for the illuminance found at hedgerows used by lesser horseshoe bats, a species well known for its light averse behaviour. ^{xvi}

Baseline and post-completion light monitoring surveys

- 4.55 Baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on Key and Supporting Habitats and features, and so may prevent the agreed or modelled illuminance limits being achieved. This data can then be used to help isolate which luminaires might need to be removed, or where screening should be implemented, or establish a new illuminance limit reduced below existing levels. For example, where baseline surveys establish that on or off-site lighting illuminates potential Key Habitat, improvements could be made by installing a tall perimeter fence adjacent to the habitat, and alterations to the siting and specification of new lighting, to avoid further illumination.
- 4.56 Baseline lighting surveys must be carried out by a suitably qualified competent person with the correct equipment. As a minimum, readings should be taken at ground level on the horizontal plane (to give illuminance hitting the ground), and in at least one direction on the vertical plane at between either 1.5m or 2m above ground (to replicate the likely location of bats using the feature or site). The orientation should be perpendicular to the dominant light sources, or perpendicular to the surface/edge of the feature in question (such as a wall or hedgerow), in order to produce a 'worst case' reading. Further measurements at other orientations may prove beneficial in capturing influence of all luminaires in proximity to the feature, or principal directions of flight used by bats. This should be discussed with the ecologist.
- 4.57 Baseline measurements should be taken systematically across the site or features in question, with time, date and time of sunset also recorded. They will need to be repeated at intervals to sample across the site or feature, either in a grid or linear transect, as appropriate. The lighting professional will be able to recommend the most appropriate grid spacing.
- 4.58 Measurements should always be taken in the absence of moonlight, either on nights of a new moon or heavy cloud, to avoid artificially raising the baseline. As an alternative, moonlight can be measured at a place where no artificial light is likely to affect the reading.
- 4.59 As all illuminance level contours will be produced from modelled luminaires at 100% output, baseline measurements should, wherever practicable, be taken with all lights on and undimmed, and with blinds or screens over windows removed. Cowls and other fittings on luminaires can remain in place.
- 4.60 Where possible, measurements should be taken during the spring and summer, when vegetation is mostly in leaf, in order to accurately represent the baseline during the principal active season for bats, and to avoid artificially raising the baseline.
- 4.61 The topography of the immediate surrounding landscape should be considered in order to determine the potential for increased or decreased light spill beyond the site.

Post-construction/operational phase compliance-checking

- 4.62 Post-completion lighting surveys are often required where planning permission has been obtained on the condition that the proposed lighting levels are checked to confirm they are in fact achieved on site, and test that the lighting specification (including luminaire heights, design and presence of shielding etc.) is as proposed.
- 4.63 All lighting surveys should be conducted by a suitably qualified competent person. They should be conducted using the same measurement criteria and lighting states used in the preparation of the illuminance contour plots and/or baseline surveys, as discussed above. It may be necessary to conduct multiple repeats over different illumination states, or other conditions specific to the project.
- 4.64 Depending on the potential for residual impacts on bats, and the scale of the proposed scheme, it is often appropriate to factor in bat monitoring surveys. These should have the aim of confirming an absence of significant changes in bat presence, species assemblage or behaviour between lit and unlit areas, compared to baseline results. Results should always be reported to the LPA as per any such planning condition. A 'Statement of Conformity' or similar report should be prepared in order to provide an assessment of compliance by the lighting professional, and a discussion of any remedial measures which are likely to be required in order to achieve compliance. Any limitations or notable conditions such as deviation from the desired lighting state, or use of blinds/barriers should be clearly reported. Ongoing monitoring schedules can also be set, especially where compliance is contingent on automated lighting and dimming systems, or on physical screening solutions.

Conclusion

- 4.65 **In summary,** the importance of integrating avoidance measures (as per the first step of the mitigation hierarchy) into developmental design, cannot be overemphasised. Retaining ecologically functional 'dark corridors' and Key Habitats for bats within schemes (in preference to seeking lighting mitigation strategies), avoids costly and time-consuming additional surveys, mitigation and post-development monitoring. Furthermore, LPAs are likely to favour applications where steps have been taken to avoid such conflicts. This master-planning work needs to be informed by robust ecological survey data and lighting assessments, carried out by the relevant experts at the earliest opportunity in the project. Ultimately, light levels should always be designed to minimise potential environmental impact, and maximise the potential of habitat and species enhancement work, through multidisciplinary working and evidence-based new, or retrofit, scheme design.