



ISSUING OFFICE:

The Lodge
Caerphilly Business Park
Van Road
Caerphilly
CF83 3GG

T: 029 2002 2320

E: info@wildwoodecology.com

W: www.wildwoodecology.com

ECOLOGICAL IMPACT ASSESSMENT REPORT

TAFF AND CRESCENT STREETS, MERTHYR VALE

MERTHYR TYDFIL COUNCIL

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Director: Richard Dodd, BSc (Hons), CEcol, MCIEEM

Wildwood Ecology Limited. Registered in England & Wales, Company No. 6646654 VAT No. 938019610

Registered Office: Queen Anne House, 66 Cricklade Street, Cirencester, Gloucestershire, GL7 1JN

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Surveyed by:	Alex Wilson MCIEEM, Julie Player MCIEEM, Kiani Perera StudCIEEM, Emma Douglas, Stephen Shutt, Marie Pugh, Chloe Curran
Architect/Agent:	Chris Jones, Merthyr Tydfil Council
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B	Final	06/12/2019	Alex Wilson MCIEEM Principal Ecologist	Julie Player MCIEEM Senior Ecologist	Alex Wilson MCIEEM Principal Ecologist
	FINAL				

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The evidence which we have prepared and provided is true, and has been prepared and provided in accordance with the guidance of The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

SUMMARY

Purpose	- Wildwood Ecology was commissioned by Merthyr Tydfil Council (the client) to undertake a series of ecological surveys (Preliminary Ecological Appraisal, Preliminary Roost Assessment and Bat Activity Surveys) of Taff and Crescent Streets, Merthyr Vale. - The site is the subject of plans to demolish the buildings onsite.
Methodology	- A PEA was undertaken consisting of a desk study and field survey undertaken in August 2019 following the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal (2013) guidelines and standard Phase 1 Habitat Survey protocol (JNCC, 2010). - A PRA, two dusk and a dawn bat activity survey, and a period of static monitoring was undertaken in line with the Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edn (2016), where appropriate.
Key issues	- The site has confirmed roosts for Daubenton's bat (small maternity and individual), common pipistrelle (small maternity, small numbers of non-breeding animals and individuals) and soprano pipistrelle (small maternity, small numbers of non-breeding animals and individuals). - Two roosts for unconfirmed bats (likely pipistrelle species) were also observed. - The surveys (static and activity) also recorded early noctule passes with high levels of activity associated with the river and woodland to the west of the river. - Long-eared bat passes were detected occasionally by static monitoring with some activity associated with the site relatively late towards sunrise, indicating roosts nearby or on site (likely individual or night roost onsite). - Nathusius pipistrelle passes were detected on one evening, with timing also indicating a roost nearby or onsite (likely individual). - The gardens of the properties are overgrown and offer some suitability for reptile use, as well as for nesting birds (which may also use the derelict buildings). - There is extensive Japanese knotweed onsite and along the river corridor, as well as Himalayan balsam. - The river corridor is suitable for use by otter.
Recommendations	- A European Protected Species licence for bats must be obtained in order for the works to be legally undertaken. This will require the implementation of mitigation (timing of works, maintenance of roosts, supervision of high risk works by an ecologist) and compensation (provision of further roosting features within the building and maintenance of dark flight lines) measures. - No night lighting of any retained bat roost feature will occur, with no lighting of the river corridor or any retained linear or stepping stone vegetation (i.e. tree lines). - Works affecting vegetation will be carried out outside of the bird breeding season to ensure that there are no impacts on nesting birds. - A Reptile Mitigation Strategy will be agreed by the LPA ecologist prior to works being carried out, and implemented during works. - A Japanese knotweed and (as appropriate) Himalayan balsam eradication strategy will be required to be in place to ensure that these non-native invasive species do not spread, and are controlled effectively.

Conclusions

- Providing that the recommendations outlined within this report are successfully implemented, it should be possible for the proposed development to proceed and for there to be no long-term impacts upon the key protected species present at the site.
- This ecological report will remain valid for a period of 18 months from the date of the last survey – i.e. until April 2021.

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1 INTRODUCTION

- 1.1 Wildwood Ecology was commissioned by Merthyr Tydfil Council (the client) to undertake an ecological impact assessment (EclA) at Taff and Crescent Streets, Merthyr Vale (the site) centred at grid reference ST 07546 99441.
- 1.2 A preliminary ecological appraisal (PEA) and a preliminary roost assessment (PRA) for bats and nesting birds was undertaken at the site on the 10/07/2019.
- 1.3 Further bat activity surveys (x3) were recommended, along with a period of static monitoring. The surveys (dusk emergence and pre-dawn re-entry) were undertaken on the 16/07/2019, 22/07/2019 and 17/09/2019.

Site description

- 1.4 The aerial image of the site (Figure 1) shows the site to consist of two derelict residential streets running parallel to the River Taff. The site has scrub and trees to the east and western edges, with further residential (occupied) properties to the east, and a school (beyond the river) to the west.
- 1.5 Woodland blocks (mixed) are found on the valley sides to the east and west, with agricultural land interspersed.



Figure 1 – Aerial image of the site (red line shows the site boundary).
Image used under licence (©2019 Google). Imagery date 25/06/2018.

Proposed development

- 1.6 The site is the subject of plans to demolish the buildings onsite. The properties were flooded in recent years and are at risk of further flooding, making them unsuitable for inhabitation. The properties since becoming vacant are in a state of decay and disrepair due to vandalism and are regularly accessed by drug users.

Purpose of this report

- 1.7 This report aims where possible to provide sufficient information for the local planning authority to fully assess the potential ecological impacts of the proposed development, or alternatively, to identify what further information is required to fully inform the scheme.
- 1.8 The results of the EcIA have been used to establish the need for, and extent of, any mitigation or compensation measures required as part of the proposed development.

2 METHODOLOGY

Desk study

- 2.1 A biodiversity desk study was undertaken in relation to the site in July 2019. The data was provided by Merthyr Council's ecologist, via Aderyn. The sources consulted and the type of information obtained are summarised in Table 1.

Table 1 – Sources of biodiversity and ecological records.

Source	Information requested (search buffer from site centre/boundary)
Aderyn (Merthyr Council)	- Bats and roof-nesting birds only: - Bats (2km) - Roof nesting birds (0.15km)
Multi-Agency Geographic Information for the Countryside (MAGIC) ¹	- International statutory designations (5km) - National statutory designations (2km)

- 2.2 The search buffers are considered to be sufficient to cover the potential zone of influence (ZoI²) of the proposed development.
- 2.3 The impact of the proposed development on the biological integrity of any nearby designated protected sites has been fully considered.
- 2.4 Data for bats and birds only was obtained due to the demolition impacting upon the built structures in the main. Other species are considered within this report, based on the available onsite and adjacent habitats.
- 2.5 No previous survey information was available for the site itself.

Field surveys

Preliminary ecological appraisal

- 2.1 A field survey was undertaken on the 10th July 2019.
- 2.2 All habitats present within the site with the potential to support rare, protected, or otherwise notable species of flora or fauna (together with any direct signs) were noted.
- 2.3 In the context of this report, rare, protected, or otherwise notable species of flora or fauna were those considered to meet any of the following criteria:
- Species protected by UK or European legislation (see Appendix V);
 - UK Post 2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species;
 - Nationally rare or nationally scarce species;
 - Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists).
- 2.4 The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during the survey. Examples include species such as Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*).

¹ <http://magic.defra.gov.uk/MagicMap.aspx>

² ZoI definition – 'the areas/resources that may be affected by the biophysical changes caused by activities associated with a project' (CIEEM, 2016).

Preliminary roost assessment (PRA) for bats and nesting birds

- 2.5 A field survey was undertaken on the 10th July 2019.
- 2.6 An assessment of the onsite buildings was undertaken in accordance with the latest published best practice guidance (Collins, 2016).
- 2.7 The buildings were externally and internally (where possible) inspected for bats and their signs with the aid of high-powered lamps and close-focussing binoculars.
- 2.8 The suitability of the building to accommodate bats was assessed, along with a systematic search for signs of bats (e.g. droppings, moth wings, scratch marks, staining, etc.) or actual bats that were present. Particular attention was paid to the roof areas, with searches for any crevices or gaps in walls, gaps between beams and joists, droppings stuck to the walls, floors or other surfaces, or feeding remains below beams, in addition to a number of other factors and signs indicative of a bat roost.
- 2.9 In addition, the building was classified according to its suitability for bats, based on the presence of features within the structure and / or landscape (see Table 2).

Table 2 – Summary of guidelines for assessing the potential suitability of proposed development sites for bats (from Collins 2016).

Suitability	Description of building, tree, or structure	Number of activity survey visits required ³
Negligible	Negligible habitat features on site likely to be used by roosting bats.	None
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, potential roost sites not suitable for larger numbers or regular use (i.e. maternity or hibernation).	One
Moderate	A structure or tree with one or more potential roost sites that could be used by bats, but unlikely to support a roost of high conservation status.	Two
High	A structure or tree with one or more potential roost sites obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time.	Three
Confirmed roost	Evidence of bats or use by bats found.	Minimum of two – to characterise the roost

Bat activity surveys (dusk emergence and pre-dawn re-entry)

- 2.10 Three bat activity surveys (dusk emergence survey – 22/7/2019; 17/9/19 and pre-dawn re-entry – 16/7/2019) were undertaken at the onsite buildings.
- 2.11 The dusk emergence surveys commenced approximately 15 minutes before the time of local sunset (source www.sunrisesunsetmap.com) and continued for approximately 1.5 hours after sunset.
- 2.12 The pre-dawn re-entry survey commenced approximately 2 hours before the time of local sunrise (source www.sunrisesunsetmap.com) and continued for approximately 15 minute after sunset.
- 2.13 Surveyors were equipped with broadband bat detectors (Elekon BatScanner Stereo and Elekon Batloggers).
- 2.14 Note was made of all bat activity recorded including (where appropriate) roost access points, species, time of re-entry, direction of flight, behaviour (foraging or commuting) and use of landscape features. Minimal lighting was used during the surveys as this can alter the behaviour of the bats emerging from or entering a roost, or foraging or commuting over a site.
- 2.15 In addition, two static bat detectors (Anabat Express) were deployed at southern end of the site and within the central area of the site. These collected data for a total of five consecutive nights (17/7/19 until 22/7/19) – see Appendix I.

Surveyor information

- 2.16 The surveys were led by Alex Wilson, assisted by Julie Player, Kiani Perera, Emma Douglas, Marie Pugh, Stephen Shutt and Chloe Curran. See Table 3 for further information.

Table 3 – Surveyor information

Surveyor	Licences	Ecological experience
Alex Wilson Ph.D., B.Sc. (Hons.), MCIEEM Principal Ecologist	Bat Dormouse Barn owl	Holds a Ph.D (Visual constraints in bird behaviour). Experienced in undertaking ornithological surveys, and bat surveys. Is a licensed bat and dormouse ecologist in England and Wales. Supervisor and advisor to undergraduate and postgraduate ecological research projects.

³ To provide confidence that bats are absent from the structure

Surveyor	Licences	Ecological experience
Julie Player B.Sc. (Hons) MCIEEM Senior Ecologist	Bat Dormouse GCN	Holds a first-class honours degree in International Wildlife Biology. Experience in working for ecological consultancies since 2012. Experienced in undertaking bat, dormouse, reptile and great crested newt surveys. Is a licensed bat, dormouse and great crested newt surveyor in England and Wales.
Kiani Perera M.Sc., B.Sc. (Hons.), Student CIEEM Assistant Ecologist	GCN	Holds a 2:1 Honours degree in Wildlife and Plant Biology and a Masters in Wildlife and Conservation Management. Experienced in ecological management and co-ordination of desk study research. As well as protected habitat and species surveys and mitigation on large and small-scale sites throughout the UK, for both residential and commercial developments. Capable in undertaking out great crested newt, water vole, badger, reptile and bat surveys.
Survey assistants Emma Douglas, Marie Pugh, Stephen Shutt, Chloe Curran	-	All survey assistants received training in use of bat detectors and survey methodologies. Deemed competent and confident to use bat detectors to observe bats in flight and conduct an emergence/re-entry survey in conjunction with a licenced ecologist. Assistants backed up by experienced surveyors and/or recording detectors where possible.

Limitations and assumptions

- 2.17 Many species of bat in the UK are crevice dwelling, and bats or signs of bats can be difficult to find within a building. In addition, there may be areas that are inaccessible to the surveyor.
- 2.18 Inaccessible areas on this site were extensive due to the risk of encountering drug paraphernalia (needles were found within several properties and within the gardens). No internal access was possible within the properties and no access was permitted along the rear gardens other than the northernmost property (flats) and two southernmost properties during the bat surveys.
- 2.19 There was a high level of antisocial behaviour onsite with 24hour security required. Despite this, access into the properties by vandals and drug users still occurred during survey nights, with a minor disruption in surveillance by one surveyor to alert a guard during the 22/7/19 survey.
- 2.20 The surveys were undertaken in July (16th and 22nd) and September (17th). The July surveys were carried out closer to each other than would be normally done, in order to assess the general bat activity across the site, within the maternity period. The survey in September was carried out with the aim of investigating transitional roosting, given the proximity of the site to the river, which is likely to be used as a commuting route during this time of year.
- 2.21 The surveyors were positioned to maintain close contact within each other or security guards, with no access into the rear gardens (other than that gained during the surveys). This meant that the rear aspects of much of the site remained unsighted.

3 RESULTS

Desk study

Designated sites (statutory)

- 3.1 There were no international or national statutory designations within 5km (or 2km respectively) of the site.

Designated sites (non-statutory)

- 3.2 There were five local non-statutory designations (SINC) within 1km of the site (see Table 4). A small area of Ancient Semi Natural Woodland was also noted approximately 200m to the east of the site.

Table 4 – Summary of designated sites in range of the site.

Site name	Designation	Description / key reason for designation	Distance & direction
Afon Taf	SINC	The major river in the County Borough. Includes areas of bankside habitats, particularly towards the south where the river corridor is less industrialised than further north. Associated habitats are chiefly semi-natural woodland, including areas of ancient semi-natural woodland and linear wet woodlands. There are also numerous neutral grasslands, scrub patches and bracken stands, as well as small areas of marshy grassland and tall herb vegetation. Notable features of the river course include cobble banks which support localised plants. Otter occurs throughout the length of the river which is known to be of value to a wide variety of birds, fish, bats and reptiles.	Adj, W
Merthyr Vale	SINC	Complex mosaic of ffridd habitats above the Afon Taf. These comprise mainly seminatural woodlands, acid grasslands, dry heathlands and bracken slopes. Other habitats include dense and scattered scrub, marshy grassland and neutral grassland. There is also a large disused quarry with associated spoil tips which have revegetated with heathland. In the north of the site is a large regraded colliery spoil tip supporting acid grassland with several species of interest.	0.18km E
West Aberfan	SINC	Two parcels of land situated on the lower slopes of the Taff valley between Aberfan and the A470. The southern areas of the site support a mosaic of damp neutral grasslands, semi-natural broadleaved woodlands along minor streams and bracken stands. The woodlands include areas of wet woodland) and drier areas. The neutral grasslands are generally species-rich and include both unimproved and semi-improved areas. The northern portion of the site consists of a colliery spoil substrate that has revegetated with a mosaic of neutral grasslands and mixed-species scrub.	0.32km W
Mynydd-y-Capel Common	SINC	Area of upland common land and ffridd occupying part of the hilltop between the Taf and Bargoed Taf valleys. Supports a mosaic of habitats characteristic of dry acid soils, particularly unimproved and semi-	0.42km E

		improved acid grasslands, with bracken slopes and small areas of heathland gorse scrub. There are numerous outcrops of acidic rock and small disused quarries.	
Tarren-y-Gigfran	SINC	Semi-upland valleyside slopes above the A470, including a large disused quarry with screes and outcrops, supporting dry heathland, bracken slopes and semi-improved acid grassland. Also includes numerous areas of semi-natural woodland, including ancient semi-natural woodland and wet woodland along the course of small streams. A second, smaller parcel of land to the west of the main part of the site comprises a hilltop heathland. The site is partially enclosed by conifer plantation.	0.47km W

Protected species

3.3 Table 5 summarises the priority and protected species records found within the local area within the last 10 years.

Table 5 – Priority and protected species records found in the vicinity of the site

Protected & priority		# of records (# species)			Further information
Groups	Species	Onsite	<500m	>500m	
Bats	Common pipistrelle	-	3	8	Closest records are for bats in flight (335m); no roost records returned
	Soprano pipistrelle	-	1	9	Closest records are for bats in flight (304m); no roost records returned
	Unidentified pipistrelle	-	1	2	Closest record for unspecified roost
	Noctule	-	1	3	Closest records are for bats in flight (335m); no roost records returned
	Natterer's bat	-	-	1	Flight record at 653m away
	Unidentified <i>Myotis</i>	-	-	-	Flight record at 653m away
	Unidentified bat	-	1	3	Flight record at 335m away; roost at 653m away (unspecified)
	TOTALS	-	7 (3+)	26 (4+)	
Mammals (non-bat)	Otter	-	-	20	Closest record at 506m
	Other mammals	3 (2)	-	10 (3)	Hedgehog (187m), weasel (491m), polecat (1.4km)
Birds (Schedule 1)	Goshawk	-	3 (2)	66 (13)	Closest records for goshawk (85m) and kingfisher (360m). Other records include peregrine, common crossbill, merlin, red kite, redwing, marsh harrier, brambling, Mediterranean gull, firecrest and barn owl.

Birds (non-Schedule 1)	See further information	-	6 (4)	297 (24)	Closest records for tree pipit (85m), song thrush (329m) bullfinch (335m) and kestrel (394m)
Plants	See further information	-	-	10 (3)	Cornflower (756m), bluebell (793m) and wood bittercress (2.1km)
Invertebrates	See further information	-	8 (3)	93 (12)	Closest records for small heath and cinnabar (85m) and small pearl-bordered fritillary (345m). Other species include wall, small square-spot, grayling, broom moth, buff ermine.
Reptiles	See further information	-	-	20 (3)	Slow worm (531m), common lizard (813m), grass snake (1.8km)
Amphibians	See further information	-	1 (1)	4 (2)	Common toad (200m), common frog (571m)
Fish	See further information	-	2	2	Salmon, closest record 311m

3.4 There are no protected areas (SSSIs or SACs) designated for their bat populations within 10km of the site.

Field surveys

Timing and conditions

3.5 The survey timings and prevailing weather conditions during the PRA and bat activity surveys can be seen in Table 6.

Table 6 – Summary of survey timing and conditions during surveys.

Date	Type	Conditions						
		Temp [°C]	Cloud cover [Oktas]		Wind speed [Beaufort]	Rain		
10/07/2019	PEA/PRA	18	3		2		Nil	
Date	Type	Survey Timing			Conditions			
		Start	End	Sunset / Sunrise	Temp [°C]	Cloud Cover [Oktas]	Wind Speed [Beaufort]	Rain
16/07/2019	Pre-dawn re-entry	03:13	05:28	05:13	Start: 14 End: 14	Start: 1 End: 0	Start: 2 End: 2	-
22/07/2019	Dusk emergence	21:03	22:48	21:18	Start: 20 End: 17	Start: 1 End: 1	Start: 1 End: 1	-
17/09/2019	Dusk emergence	19:09	20:54	19:24	Start: 16 End: 13	Start: 0 End: 0	Start: 1 End: 0	-

Preliminary ecological appraisal

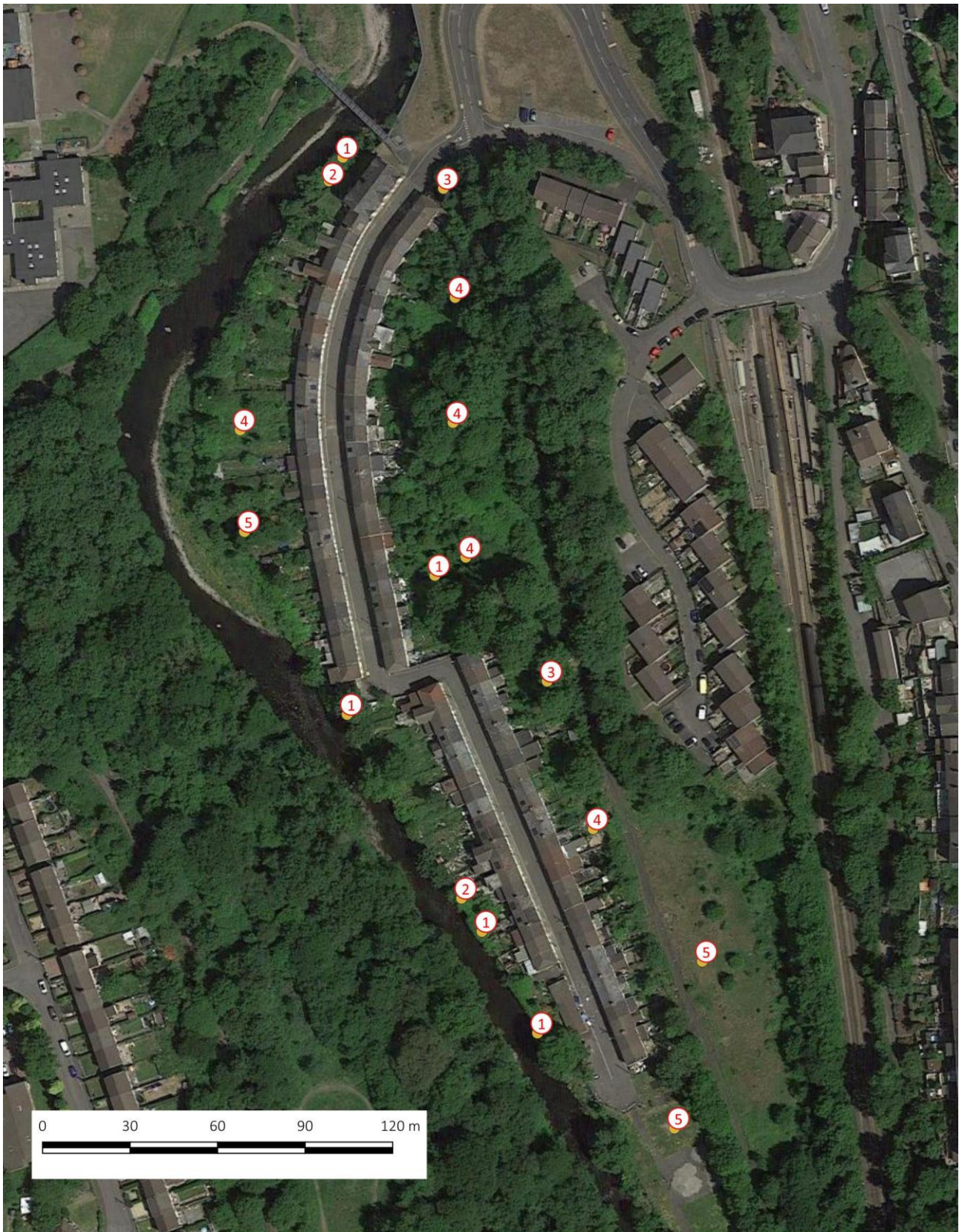
3.6 The site was comprised of buildings, hardstanding, amenity grassland, introduced shrubs, scrub, soft landscaping and scattered trees/treeline.

3.7 Immediately adjacent to the site runs the Afon Taf, with the western properties' gardens being built above the bank with retaining walls present.

- 3.8 The gardens of each property were separated by either fencing or walls (block and brick) with some vandalism meaning that some walls and rear access routes were blocked or impeded.
- 3.9 As the site access was restricted to the hardstanding areas, a full assessment of the species present within the gardens was not possible, and a full map was not able to be produced. A Target Note plan (Figure 2) was however produced to illustrate the survey and provide information on the key areas for consideration.
- 3.10 Table 7 outlines the habitats and floral species found associated with them (during the PEA).
- 3.11 Fauna observed during the survey: nuthatch, magpie, jackdaw, goldfinch, mallard, orange-tip butterfly, white-tailed bumblebee, robin and blackbird. Tawny owl, swift, grey wagtail, pied wagtail, grey heron, dipper and cormorant were heard or observed during the bat activity surveys.

Table 7 - Habitat and associated species

Habitat type / Linear feature	Species present
<i>J1.2 Amenity grassland</i> Overgrown gardens and verges within and around the properties	False-oat grass, sow thistle sp, common nettle, brome sp, perennial ryegrass, Yorkshire fog, cock's foot grass, bramble, creeping buttercup, meadow buttercup, white clover, broad-leaved dock, rosebay willowherb, annual meadow grass
<i>A2.1 Scrub (dense/continuous)</i> Patches within gardens and encroaching from eastern boundary.	Hedge bindweed, bramble, common nettle, ivy, buddleja,
<i>A3.1 Broad-leaved, parkland and scattered trees</i> Scattered and linear treelines along the eastern boundary forming the boundary. Scattered trees onsite also within gardens including ornamental specimens and variants.	Ash, sycamore, silver birch, cherry, alder, hazel
<i>J1.4 Introduced shrub</i> Gardens include a variety of non-native species, as well as significant Japanese knotweed onsite and adjacent, and Himalayan balsam (offsite).	Buddleia, rhododendron sp, rose sp, honeysuckle, Japanese knotweed, apple, <i>Mahonia</i>.
<i>J3.6 Buildings</i> Two streets of terraced properties, garages, outbuildings and a block of flats are present onsite.	
<i>J5 Other habitat</i> Hardstanding paths and roads through the site; paths through gardens	Hoary mustard, sow thistle
<i>F2.2 Inundation vegetation</i> (Offsite, bounding the site to west along gardens)	Willow sp, Himalayan balsam, Japanese knotweed, buddleia, hogweed, hemlock water dropwort
<i>G2 Running water</i> (Offsite, bounding site to west along gardens)	



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Figure 2 – Target note plan of the site. 1 – Japanese knotweed; 2 – Himalayan balsam; 3- dense scrub; 4 – Unsurveyed area; 5 – Habitat suitable for use by reptiles (including some adjoining offsite areas)

Preliminary roost assessment (PRA) for bats and nesting birds

- 3.12 No internal assessment was undertaken within the properties (except the accessible garages) and a walkover of the site was instead undertaken due to health and safety constraints.
- 3.13 The site contained two residential streets with garages, terraced houses, outbuildings/sheds and a block of flats.
- 3.14 There was variation in the state of the buildings with many having relatively intact roofs (some with solar panels, some with roof lights). There are both tiled and slated roofs, with a mixture of uPVC and timber soffits, fascias and barge boards. Some have chimneys intact, with many having had these capped or replaced with flues.
- 3.15 The terraced properties are over two storeys with many having rear extensions projecting into the gardens. These vary from single storey to double storey with a variety of roof designs seen (catslide, pitched, flat). The terraced properties are mainly rendered, with some pebble-dashed, or stone cladding. Where buildings have decayed, the render has come away leaving the brick exposed.
- 3.16 The garages (block built) onsite were vandalised and burned out, with holes in the roofs noted. One garage inspected was found to have a breathable membrane roof lining below a tile system (at the southern end) and one at the centre of the site was noted to have a corrugated sheet roof and large opening to the western aspect.
- 3.17 The block of flats at the northern end is over four storeys and is a brick-built structure with a slated and hipped/pitched roof. The windows and doors (many open or missing) were uPVC and the soffits were timber.
- 3.18 Whilst many (most) properties have been boarded closed by either plywood sheeting, block work or metal security doors/window coverings, there are some which remain open (particularly to the rear of the properties, and upper floors).
- 3.19 No signs of bat use were observed during the walkover survey however there were many potential access points and roost features suitable for all bat species, including open windows, roof lights and doors, missing and slipped tiles/slates, and gaps at soffits and barge boards.
- 3.20 The images in Appendix IV show the range of features found onsite.

Links to surrounding habitat

- 3.21 The site is well linked to woodland and water (the Afon Taf is adjacent to the site).
- 3.22 There are no working street lights onsite with lighting present to the east and north.
- 3.23 The site itself is therefore quite dark with an approximate radiance level of $3.52 \times 10^{-9} \text{ W cm}^{-2} \text{ *sr}$ (see Figure 3), and there are dark commuting corridors from the site to the river and nearby woodland.

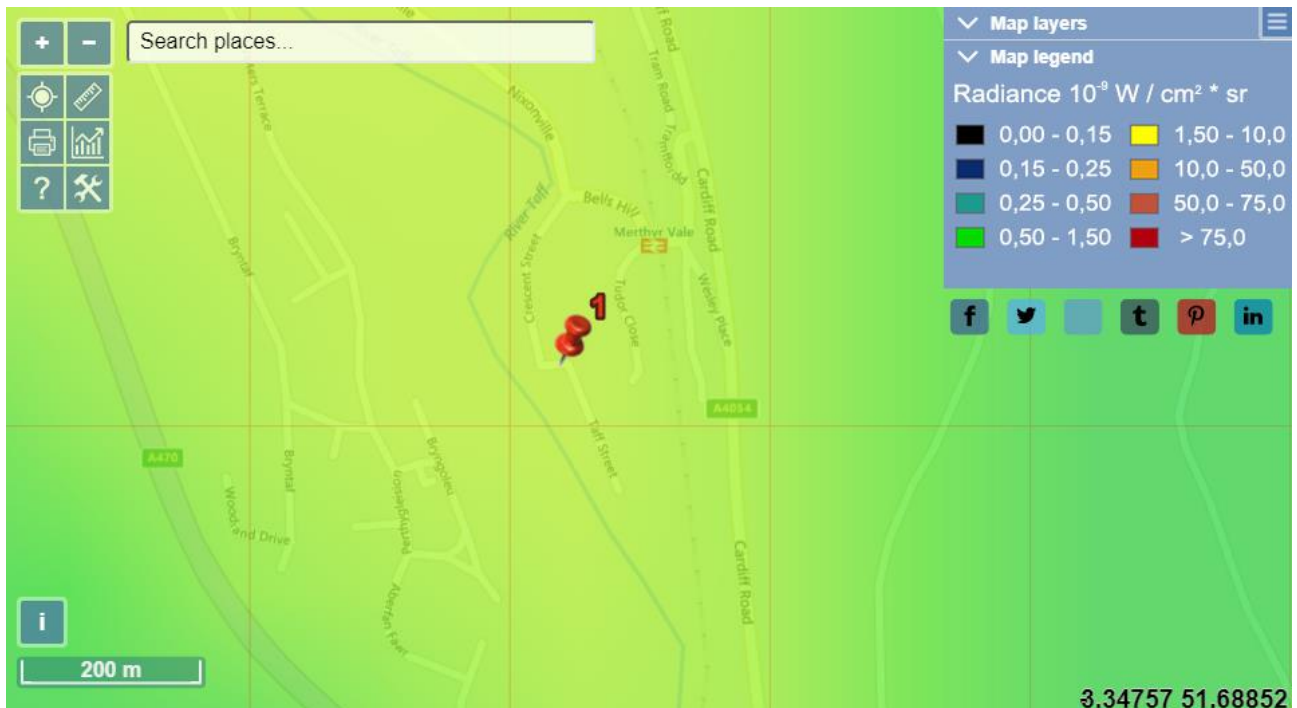


Figure 3 – Radiance levels at the site and local area are moderate (www.lightpollutionmap.info).

Bat activity surveys

3.24 The results of the bat activity surveys are summarised in Table 9.

Table 8 – Bat activity survey results. SS±xx refers to the time in minutes before/after sunset and SR±xx refers to the time in minutes before/after sunrise.

Survey type and date	Roosts and activity/points of particular interest	General observations
Pre-dawn re-entry 16/07/2019	10+ common pipistrelle entered roost at south-east of site from SR-36 8 soprano pipistrelle entered roost at northern end of site (flats) from SR-8 4 Daubenton's bats entered roost at northern end of site (flats) from SR-45 1 common pipistrelle entered roost at northern end of site (flats) at SR-18	- Constant activity throughout the survey over the river and along the vegetation to the east of the site – Daubenton's bat, soprano pipistrelle, noctule and common pipistrelle. - Significant noctule activity associated with the woodland to the west of the river, with one individual observed flying towards the ancient woodland site to the east at sunrise
Dusk emergence 22/07/2019	2 common pipistrelle emerged from 2 roosts at south-east end of site at SS+44 and SS+19 2 common pipistrelle emerged from roost at northern end of site at SS+52 1 unspecified bat emerged from property on Crescent Street, towards river at SS-2 2 soprano pipistrelle emerged from 2 roosts within northern (flats) at SS+21 and SS+32 1 soprano pipistrelle emerged from northern (open upper floor window of property opposite flats) at SS+31 1 Daubenton's bat emerged from roost in northern building at SS+38	As before with occasional long-eared pass.

Survey type and date	Roosts and activity/points of particular interest	General observations
Dusk emergence 17/09/2019	5 common pipistrelle emerged from north-westernmost property on Taff Street from SS+39 2 soprano pipistrelle emerged from roost within northern (flats) at SS+8 1 soprano pipistrelle emerged from roost within property towards south east end of Crescent Street at SS+48 1 unspecified bat emerged from roost within property towards south east end of Crescent Street at SS+53 2 soprano pipistrelle emerged from property towards south-western end of Taff Street at SS+12 1 unspecified (not echolocating) bat emerged at SS+18 from a nearby property to previous	Quieter than previous surveys, however with much noctule activity along the river corridor as before.

3.25 Bat flight lines, surveyor positions and roost locations can be seen in Appendices I and II.

3.26 The results of the static monitoring survey can be seen in Table 9. Highlighted in yellow are those records within 30 minutes of sunset or sunrise for more light tolerant species and highlighted in green are those within an hour (for more light intolerant species). This is likely to indicate a roost within the local area for the species detected.

Table 9 – Results of the static monitoring survey.

Static location	Date	Species	Earliest relative to sunset/sunrise (mins)	Latest relative to sunset/sunrise (mins)
1	17-Jul	Common pipistrelle	6	108
1	17-Jul	Noctule	-6	33
1	17-Jul	Soprano pipistrelle	3	86
1	17-Jul	Nathusius pipistrelle	46	53
1	17-Jul	Myotis sp	64	64
1	18-Jul	Common pipistrelle	-18	25
1	18-Jul	Brown long-eared	132	43
1	18-Jul	Noctule	-3	24
1	18-Jul	Soprano pipistrelle	25	75
1	20-Jul	Noctule	-3	15
1	20-Jul	Brown long-eared	183	36
1	20-Jul	Common pipistrelle	3	71
1	20-Jul	Soprano pipistrelle	14	13
1	20-Jul	Myotis sp	70	201
1	21-Jul	Noctule	2	4
1	21-Jul	Brown long-eared	96	308
1	21-Jul	Myotis sp	308	302
1	21-Jul	Soprano pipistrelle	8	137
1	21-Jul	Common pipistrelle	10	230
1	22-Jul	Noctule	36	46

2	17-Jul	Soprano pipistrelle	5	28
2	17-Jul	Noctule	12	16
2	17-Jul	Common pipistrelle	16	28
2	18-Jul	Noctule	9	23
2	18-Jul	Common pipistrelle	21	136
2	18-Jul	Soprano pipistrelle	23	43
2	19-Jul	Common pipistrelle	12	50
2	19-Jul	Noctule	25	74
2	19-Jul	Soprano pipistrelle	13	24
2	20-Jul	Common pipistrelle	27	37
2	20-Jul	Noctule	12	133
2	20-Jul	Soprano pipistrelle	28	22
2	21-Jul	Common pipistrelle	30	66
2	21-Jul	Noctule	1	-3
2	21-Jul	Soprano pipistrelle	20	16
2	21-Jul	Myotis sp	50	56
2	22-Jul	Common pipistrelle	28	98
2	22-Jul	Noctule	30	89
2	22-Jul	Soprano pipistrelle	30	89

4 INTERPRETATION AND ASSESSMENT

- 4.1 The following interpretation and assessment is provided to ensure full compliance with both UK and European legislation and both local and national planning policy (see Appendix V).

Designated sites

- 4.2 There were several non-statutory designated sites identified within the vicinity of the site. The closest of these, the Afon Taf SINC is directly adjacent to the site and its protected features may be impacted as a result of the proposals, for example, through dust generation, pollution events and spread of non-native invasives, in the absence of mitigation.
- 4.3 The proposals are however unlikely to impact on any other local sites, given the localised nature of the work at the present time.

Preliminary ecological assessment (PEA)

Priority and Protected Habitats

- 4.4 It is possible that the treeline along the eastern boundary was a former hedgerow having grown out with inadequate management over time. It is leggy and gappy and so does not constitute a hedgerow (which is a priority habitat) at the current time. This treeline is envisaged to be retained.
- 4.5 No priority habitats (as classified in Section 7 of the Environment (Wales) Act (2016)) were found onsite. The Afon Taf runs adjacent (priority habitat).

Priority and Protected Species

Bats

- 4.6 The records returned included records for at least four species of bat (common and soprano pipistrelle, noctule, Natterer's bat) in addition to unspecified bats.
- 4.7 The onsite habitats are suitable to support a range of bats species (see below for further detail and assessment) including light intolerant species due to its excellent location alongside unlit woodland and a river corridor.

Common dormouse

- 4.8 No dormice records are known within the local area (no records returned from the local biodiversity records search).
- 4.9 The treelines and vegetation bounding the site do however provide linkages for species such as dormice to use, with several plant species noted onsite that are supportive of this species in terms of foraging.
- 4.10 The boundary vegetation in places is gappy, however there are denser sections which offer more suitable opportunities for nesting.
- 4.11 The site's history (recent active use as a residential area with terraced housing built in the early 1900's) involves continued use of the site for over 100 years, with pre-1900s vegetation removed (was previously part of Ynys Owen Farm (map imagery dating to 1876) to build the houses. The eastern boundary vegetation is therefore relatively recent and has been isolated from nearby or linked habitats for some time. This long-standing inhabitation and disturbance (through management in gardens and human activity), and isolation does not support the possibility that the site is used by dormice.
- 4.12 Despite this, if present, dormice will be impacted by the demolition due to disturbance and removal of garden vegetation, in the absence of mitigation.

European otter

- 4.13 Otter are known to use the Afon Taf (records within 506m of the site on the river) and the section that passes the site is relatively shallow with gravel beds formed. This is likely to mean that otter routinely use the river, and the woodland the west of the site to commute and potentially rest within. This woodland is accessible via the western river bank.
- 4.14 The walls separating the river and its inundation habitat from the onsite gardens of the properties are several metres in height and are likely to serve as an adequate barrier to otter.
- 4.15 There is suitable onsite habitat to support resting otter if they were to enter and the demolition may impact upon them through disturbance (if they are onsite or present on the river during works) and through pollution events causing loss of foraging opportunities within the river corridor.

Reptiles and amphibians

- 4.16 There are records of slow worm within 531m of the site, with common lizard and grass snake found further afield but still present within 2km of the site.
- 4.17 The site offers some suitable areas for use by reptiles, with overgrown gardens and unmown amenity areas potentially having been colonised by species such as common lizard and slow worm. Larger snake species may be present, though the previous use and management of the site, and isolation from other large suitable habitat areas means that this is less likely.
- 4.18 No ponds were noted onsite, though it is possible that small garden ponds are present, and which may support breeding amphibians. There was a lack of any significant (suitable) waterbody to support breeding great crested newt, though this species can be found within networks of small garden ponds.
- 4.19 It is possible that the vegetated sections of the site may provide suitable resources for amphibians in their terrestrial phase, and so may be impacted by the proposals, in the absence of mitigation.

Nesting birds

- 4.20 Several bird species were heard and seen during the survey, with many species records returned.
- 4.21 The proposals will disturb vegetation which may be used by nesting birds, as well as removing portions of it which will directly impact upon nests, if works are completed during the breeding season.
- 4.22 The properties themselves are likely to be used by nesting birds also, with freely available access into nooks and crannies within the main buildings as well as outbuildings and sheds.
- 4.23 The birds using the river itself (cormorant, dipper, mallard, heron) are unlikely to be directly impacted, unless there is a pollution event causing detritus, dust or other pollution to enter the water or its margins.
- 4.24 The tawny owls observed and heard were using the woodland to the west of the river and the woodland to the east of the site also, with it unlikely that they will use onsite trees to nest within due to their lack of suitable features.
- 4.25 The works will result in the loss of nesting, commuting and foraging habitats in the absence of mitigation and compensation.

European badger

- 4.26 No signs of badger use were noted during the surveys undertaken at the site, with no observed setts, latrines, hairs, snuffle holes or scent. No records of badger were returned from the biodiversity records search.

- 4.27 The security guards onsite also had not seen any badger (they had noted bats, birds, cats, rats and foxes) which would have been possible given their 24hour presence.
- 4.28 The dense scrub to the rear of the eastern properties may superficially offer refuge for badger, though the local area is relatively urban with adjacent properties and roads. There is also limited foraging resources onsite for badger and it is more likely that this species would be present within the nearby woodland to the east or that on the opposite side of the river, which are connected to open foraging areas and woodland pockets.
- 4.29 There is unlikely to be any impacts on badger as a result of the proposals.

West European hedgehog and other mammals

- 4.30 No hedgehogs were noted onsite during the surveys, however hedgehogs may be present onsite and using the gardens or eastern scrub and treeline, out of sight of security or surveyors. Records for hedgehog were returned as present in the local area.
- 4.31 Any vegetation removal has the potential to kill or injure hedgehogs that may be present within the leaf litter or scrub layer, as hedgehogs use these to nest and rest within. Hedgehogs will still have a continued vegetated corridor to forage along and rest within, along the eastern boundary post works.
- 4.32 Polecat and weasel records were returned also, with the nearest (weasel) being found within 500m of the site). This record was found to the east of the site, with an animal found running across the track within the woodland (east of the A4054). This habitat is suited to polecat with woodland edges present offering opportunities to forage and hide. It is possible that the site may be used by polecat (and weasel) foraging upon rats and other rodents within the gardens and structures, and that they may therefore be impacted by the works (construction related impacts only). There will continue to be linkages across the site for foraging and commuting and so it is unlikely that there will be any long-term impacts on these species.

Invertebrates

- 4.33 Several common species of invertebrate were observed during the surveys. It is likely that a range of such species will visit the onsite flora.
- 4.34 The closest species returned from the local records search were for small heath, small pearl-bordered fritillary and cinnabar. The small heath forages upon bent, fescues and meadow grasses, some of which are found onsite. Ragwort was not noted, however it is likely to be present.
- 4.35 No species supportive of fritillary species was noted onsite, with no devil's bit scabious or other scabious seen, nor any violet species.
- 4.36 The proposals will mean that most of the garden vegetation is removed, however it is unlikely that the southern grassland will be destroyed, and the boundary trees and scrub will be retained, and so there will still be some habitat onsite and linking to others in the local area, suitable for use by common invertebrate species.

Invasive species

- 4.37 The site was found to have a significant amount of Japanese knotweed present, along with Himalayan balsam within the inundation zone of the river (potentially meaning that the seeds have spread onto the site).
- 4.38 Garden specimens are also present, with rhododendron and buddleja with others (including crocosmia) likely to be present.

4.39 In the absence of mitigation, these species may spread offsite, causing damage to structures (i.e. retaining walls of the river) and harming biodiversity.

Other priority or protected species

4.40 No other priority or protected species as returned from the local records search were found onsite, or were likely to be found onsite.

Bat surveys

4.41 Bat roosts for common pipistrelle, soprano pipistrelle, and Daubenton's bat were confirmed within the onsite buildings. Appendices I and II shows the results of the survey with the locations of the roosts, numbers of bats using them and flight paths from and to the roosts.

4.42 Three bats were observed to emerge either too far from the surveyor location to pick up an echolocation call, or that did not echolocate. All of these had flight behaviour indicative of pipistrelles.

4.43 It is likely that a structure towards the south of the site is also used occasionally by brown long-eared bats as either a night roost or feeding perch, given the results of the static monitoring.

4.44 Other bat species heard onsite were noctule, brown long-eared and Nathusius' pipistrelle. Noctule were unlikely to roost onsite, given a lack of suitable tree crevices (as observed), with their activity focussed along the woodland edge to the west of the site, and with a likely roost within the ASNW to the east of the site.

4.45 The timing of the Nathusius' pipistrelle activity may indicate an occasional use, with this species only detected on one night of five, and on the southernmost detector. Nathusius' pipistrelle are known to roost with other pipistrelles (or at least close by) and so as a precaution, this species is considered as roosting onsite.

4.46 The movement between the roosts in a relatively short space of time indicates that the conditions across the site are suitable to support bats, with a single property not able to support a maternity roost throughout the summer season. This was illustrated by all maternity roosts onsite (noted on the dawn survey of the 16th July) moving by the 22nd July (dusk survey). The temperatures at this time were very warm, and so the movement is likely to have been to utilise optimal climatic conditions elsewhere onsite.

4.47 It is unlikely that the maternity colonies would have disbanded entirely at this time as the young would be unlikely to be volant.

4.48 The Daubenton's bat roost (four individuals) was considered a small maternity roost. Daubenton's bats are known to regularly switch roosts, even during the maternity season (albeit less so than non-breeding individuals), remaining within a river catchment area. This species uses both buildings and trees, and so it is likely that the bats observed on the dawn survey moved to an alternative roosting location within the local area subsequently (Ngamprasertwong, T et al, 2014).

4.49 Neither the static detectors (placed within or on the edge of vegetation cover) or the detectors used during the activity surveys detected any horseshoe bat activity. Whilst this does not mean that these species will never use the site, no record of their use was found during the survey period. Any use of the vegetated boundary would have been determined by the static detectors, especially if significant numbers of these species were present. The routes that these bats would likely use (avoiding light) would be southwards along the eastern boundary or the river corridor.

- 4.50 No investigation of the site for hibernating bats was undertaken due to the lack of access. The buildings are likely to provide resources for bats at this time of year due to the multitude of gaps and crevices present within the buildings.
- 4.51 In the absence of mitigation, there will be a negative impact on bat species as a result of the proposed development of the site.
- 4.52 An assessment was made of the value of all bat roosts identified onsite (plus the value of the site for commuting and foraging) using the framework suggested by Wray et al (2010) – see Table 10.
- 4.53 This analysis suggests that the roosts present onsite (or likely to be present onsite) range in importance from regional level for maternity Daubenton's roost and commuting/foraging Nathusius pipistrelle; to local level for individual and small numbers of common ad soprano pipistrelles.

Table 10 – Value of the site for bats (from Wray et al 2010)

Site location	Wales					
Type & complexity of linear features	Complex network or mature well-established hedgerows, small fields and rivers/streams					
Foraging habitat characteristics	Isolated woodland patches, less intensive arable and/or small towns/villages					
Species on site	Roost type	# of bats	Roosts/potential roosts nearby	Geographic frame of reference [score]		
				Roost	Commuting	Foraging
Brown long-eared	Individual bats	Individual	Moderate/unknown	County	Local [19]	Local [17]
Common pipistrelle	Individual bats	Individual	Moderate/unknown	Local	Local [16]	Local [14]
Common pipistrelle	Small numbers of non-breeding bats	Small	Moderate/unknown	Local	County [21]	Local [19]
Common pipistrelle	Maternity sites	Small	Moderate/unknown	County	County [21]	Local [19]
Daubentons	Maternity sites	Small	Moderate/unknown	Regional	County [24]	County [22]
Daubentons	Individual bats	Individual	Moderate/unknown	County	Local [19]	Local [17]
Nathusius pipistrelle	Individual bats	Individual	Moderate/unknown	County	Regional [34]	Regional [32]
Soprano pipistrelle	Individual bats	Individual	Moderate/unknown	Local	Local [16]	Local [14]
Soprano pipistrelle	Small numbers of non-breeding bats	Small	Moderate/unknown	Local	County [21]	Local [19]
Soprano pipistrelle	Maternity sites	Small	Moderate/unknown	County	County [21]	Local [19]

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Wildwood Ecology was commissioned by Merthyr Tydfil Council (the client) to undertake an ecological impact assessment (EcIA) for bats and nesting birds at Taff and Crescent Streets, Merthyr Vale.

5.2 The site is the subject of plans to demolish the onsite structures.

Designated sites

5.3 The Afon Taf SINC may be impacted in the absence of adequate pollution control measures – this includes for light, debris, dust, chemical, fuel and invasive species. A pollution control strategy will be implemented to ensure that the river corridor is not impacted. This may include dust fencing along the western boundary, more careful demolition methods along this section, spill kits (and trained personnel available to use them), no night working, no lighting of the river corridor, and an invasive species eradication and control programme to be agreed and implemented.

5.4 The treeline along the eastern boundary and along the river will be retained. This will provide continued connectivity for wildlife.

Protected species

5.5 Recommendations regarding protected species are shown in Table 11.

5.6 Liaison with an invasives specialist will be required in order to adhere to the timescales below and also ensure that the invasive species onsite are not spread, and are controlled.

5.7 A Construction Environmental Management Plan (CEMP) will be produced with respect to the demolition works and minimising/eliminating risks to water quality of the Afon Taf (and subsequent impacts on fish, invertebrates and other species that rely upon these for food).

5.8 An ecological watching brief will be required, with a retained ecologist onsite during works. A pre-commencement tool-box talk will be provided to all onsite contractors and staff.

Table 11 – Recommendations.

Species/habitats	Recommendations
Bats	Please see below for detail – an EPS licence will be required to be in place prior to works commencing. This will also require a method statement to be adhered to, and compensation roosts installed or amendment to retain existing roosts. There will be no night time working, onsite night lighting of the river corridor or eastern treeline, or any new or retained roosts.
Nesting birds	Retain any shrubs/scrub and trees where possible. Any works / vegetation clearance that may impact upon nesting birds will take place outside of the bird nesting season. In the event that clearance work has to be undertaken during the nesting season (generally from 1st March until 31st August, although birds are known to nest outside of these dates in suitable conditions), a breeding bird survey will be required and must be carried out by a suitably qualified person. Any active nests identified should be protected until the young have fledged. Where a Schedule 1 species (as defined in the Wildlife and Countryside Act - http://www.jncc.gov.uk/page-3614 is involved, compensation for impacts, e.g., loss of nesting sites, should be devised and implemented. Compensation nesting sites will be installed on the northern block of flats: 2 x swift boxes at the eaves 2 x house sparrow terraces at first floor level In addition, 2 x open fronted boxes and 2 x 32mm boxes will be installed on the southern bat house (as directed by the ecologist). These will all be woodcrete type.

	Bramble and scrub will be encouraged to grow to form natural thickets for natural nesting opportunities.
Reptiles	Vegetation (grassland) within gardens will be cut to ground level between November and March (single cut), and maintained as such until demolition is complete. The southern area of grassland will be retained as suitable for reptiles, with no plant or machinery parked on this area. Existing stone piles, debris or brash onsite will be retained in situ until after April when temperatures warm up sufficiently to allow bromating reptiles to safely escape to safety. The area to the south of the site will be enhanced for reptiles, with stone/rubble, brash or vegetation cuttings (not invasives) placed in an ordered heap to form a habitat pile. In the event that any reptiles are found onsite, the retained ecologist will provide advice on the best course of action, with translocation possible to the southern offsite grassland. This would then require reptile fencing to be installed along the southern boundary to prevent reptiles re-entering the site.
Dormice	A precautionary approach is advised with pre-commencement check of vegetation to be cut back by a licenced ecologist. The vegetation will only be removed in the winter period (above ground) with the ecologist making a decision on whether or not the remaining root ball or any cavity present is suitable for use by hibernating animals. In the event that there no chance of dormouse use, the root ball may be removed in winter also. If not, then it will be left until after May. If at any time a dormouse is found. Any works impacting vegetation will cease and a licence from NRW sought. Mitigation measures may be required (i.e. planting of hedgerow).
Hedgehog	Vegetation will be cut to 200mm height with contractors maintaining full vigilance of the ground. The leaf litter layer and any dense sections will be manually checked through prior to continuing. In the event that a hedgehog is found, it will be checked for health by the ecologist and either taken into care, or repositioned in a safe location with similar cover.
Amphibians	A pre-commencement check for ponds will be made as gardens become more accessible. Works will be carried out with care, as for reptiles. In the event that any great crested newt are found, works will cease until an NRW licence is in place along with the appropriate mitigation measures.
Invertebrates	Retention of boundary vegetation, and the southern grassland parcel will ensure that there are continued resources and linkages for invertebrates already present on site to continue to use.
Otter	A pre-commencement and ongoing check of the site for otter will be undertaken as gardens are made more accessible. There will be no night time working and no lighting of the river. Any excavations will include a means of escape for entrapped animals. All rubbish and materials will be collected and removed from site on a regular basis to prevent trapping or injury of any wildlife. All equipment, materials and chemicals will be stored away from the Afon Taf. Any chemical, fuel and oil stores will be sited on impervious bases within a secured bund. In the unlikely event that evidence suggesting otter presence within the site footprint, works must stop immediately and the retained ecologist or NRW contacted for advice.
Badger	As for otter.

Bats

- 5.9 Bat roosts for common pipstrelle, soprano pipistrelle and Daubenton's bat were confirmed within the onsite buildings, with it also likely that Nathusius' pipistrelle and brown long-eared bats roost occasionally.

- 5.10 In the absence of mitigation, there will be a negative impact on bat species as a result of the proposed development of the site.
- 5.11 A European Protected Species licence (EPSL) for all species of bats roosting onsite will be obtained in order for the works to the building(s) to be legally undertaken. The EPSL will require a detailed mitigation and compensation strategy to be devised in the form of a method statement. This will aim to ensure that the maintenance of the roosts and local bat populations are maintained at a favourable conservation status.
- 5.12 The method statement will include mitigation recommendations as follows:
- 5.13 The northernmost building (block of flats) will be repaired and made into a bat house, with no access for humans. This is already a roost for Daubenton's bat (maternity and single), soprano pipistrelle (maternity, small numbers and individual) and common pipistrelle (individual). Repairs would require that the roof is reinstated, windows closed with more appropriate (and not able to be vandalised) access in place; and that the structure is regularly monitored for signs of vandalism or interference. Further exterior features will be created in the form of either bat boxes or wooden cladding at 2nd/3rd floor and above height with gaps within, on the southern aspect.
- 5.14 Bat worker access will be made possible at the first floor level via a locked steel door accessible only by ladder or MEWP.
- 5.15 All windows and doorways (other than as directed for bat or bat worker access) within the property will be blocked off to ensure the interior is dark – these will be blocked off using bricks or blocks, and the glass (and frame) removed to prevent it being smashed at a later date.
- 5.16 The method statement will also detail the appropriate timing for works to the buildings. This will be outside of the most vulnerable time periods for bats (maternity season and the hibernation season), either in the autumn (October/November) or the spring (March/April).
- 5.17 Only BS747 Type 1F bitumen roofing felt or wooden sarking will be used to line the roof. Breathable membranes will not be used as they are detrimental to the welfare of bats and when used in bat roosts are known to lose their functionality over time.
- 5.18 The retained building will be made good (re-roofed as appropriate, internal bat features added, access features added or made safe for bat access, and unauthorised human access prevented) prior to the onset of demolition works to provide a continued enhanced roosting resource for bats. Additional bat boxes (Greenwood's Eco-habitat single crevice box) x 3 will be installed on retained trees as interim measures.
- 5.19 In order to prevent an impact on local bat populations, foraging and commuting routes along the river corridor and the eastern boundary must remain un-fragmented. Fragmentation can occur by physical removal of the woodland habitat, but also by artificial light spilling onto them.
- 5.20 All UK bats are nocturnal species and light averse (horseshoe bats particularly so). Artificial lighting of foraging and commuting routes is known to act as a barrier to bats and fragment otherwise suitable habitats, causing a negative impact on their local populations.
- 5.21 The external works for the proposed development will be undertaken during daylight hours with no night lighting of the site. Planting (or translocation of onsite plants/trees already present) may be required to form a screen to retained/new roosts once demolition has occurred, as the buildings onsite will provide a screen to lighting. No other lighting will be installed onsite.

- 5.22 If any major tree works (e.g., felling, removal of major limbs, crown lifting) are planned (i.e. to trees unable to be inspected due to lack of safe access) then these trees must be subject to a preliminary ground level roost assessment to identify any potential roost features (PRFs). Any PRFs identified will require further investigation – a PRF inspection survey (involving tree climbing/endoscopy) prior to works. The retained ecologist will advise on this.

Biodiversity enhancement

- 5.23 Local Authorities have a duty (known as the 'Biodiversity and resilience of ecosystems duty') under the [Environment \(Wales\) Act 2016](#) to seek to maintain **and enhance** biodiversity in the exercise of their functions.
- 5.24 Where possible the existing onsite habitat will be retained to ensure that species are not adversely affected by the development. Native species of local provenance will be used for any new planting on the site to support The Action Plan for Pollinators in Wales, 2013 (<http://gov.wales/docs/desh/publications/130723pollinator-action-plan-en.pdf>).
- 5.25 Bird nesting boxes and bat roosting boxes (over and above that required for mitigation on this site) should be incorporated within any newly constructed buildings and boundary features. A range of types should be used in order to cover a variety of species. Many designs are available and we would initially recommend the following for this site:
- Bats – 5 Kent Style wooden boxes to be installed within the northern bat house
 - 2x Schwegler No.19 (or similar) Dipper box to be installed on the retaining wall behind thick growth (if appropriate); or under the foot bridge – this box may be used by a range of bird species
 - General open fronted x 2 bird boxes to go in trees
- 5.26 Where possible, new planting of wetland loving trees (i.e. willow and alder) along the river corridor would be of benefit for helping to mitigate against climate change, to help reduce flood risk and to provide an enhanced biodiverse corridor. These species may also help to provide some (willow specifically) competition for the knotweed.

Overall conclusion

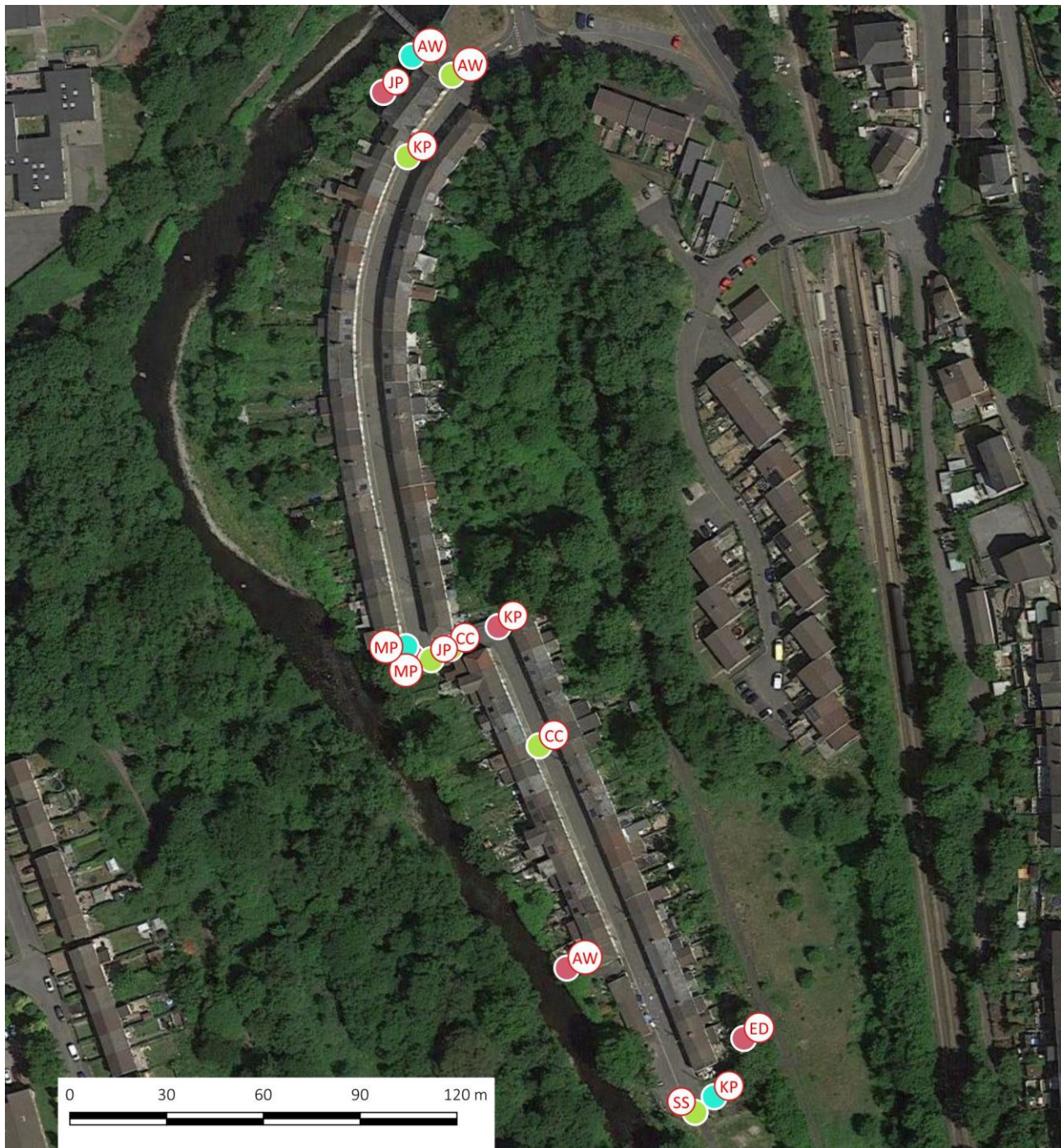
- 5.27 Providing that the recommendations outlined within this report are successfully implemented, it should be possible for the proposed development to proceed and for there to be no long-term impacts upon the key protected species present at the site.

This ecological report will remain valid for a period of 18 months from the date of the last survey – i.e. until February 2021. Further surveys may be required to update the site information if planning is not obtained or works do not commence within that time period.

6 REFERENCES

- Bat Conservation Trust and the Institution of Lighting Professionals (2018) Bats and artificial lighting in the UK; *Bats and the Built Environment* series (Guidance Note 08/18), The Bat Conservation Trust, London.
- Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
- Institute for Environmental Assessment (1995). Guidelines for Baseline Ecological Assessment. E & FN Spon, Hong Kong.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey; A technique for environmental audit. Reprinted by JNCC, Peterborough.
- Mitchell-Jones, A.J. & McLeish, A.P. Ed., (2004) 3rd Edition Bat Workers' Manual. Joint Nature Conservation Committee, Peterborough.
- Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. Natural England, Peterborough.
- Rowse E.G., Lewanzik D., Stone E.L., Harris S., Jones G. (2016) Dark Matters: The Effects of Artificial Lighting on Bats. In: Voigt C., Kingston T. (eds) Bats in the Anthropocene: Conservation of Bats in a Changing World. Springer, Cham
- Stare, J. (accessed 2019). www.lightpollutionmap.info
- Thongchaingamprasertwong, T., Piernney S. B., Mackie, I., & Racey, P. A. (2014). Roosting Habits of Daubenton's Bat (*Myotis daubentonii*) during Reproduction Differs between Adjacent River Valleys. *Acta Chiropterologica*, 16(2): 337–347
- Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010) Valuing bats in ecological impact assessment. In Practice, No 70, Institute of Ecology and Environmental Management.

APPENDIX I: SURVEYOR AND STATIC LOCATIONS



Key

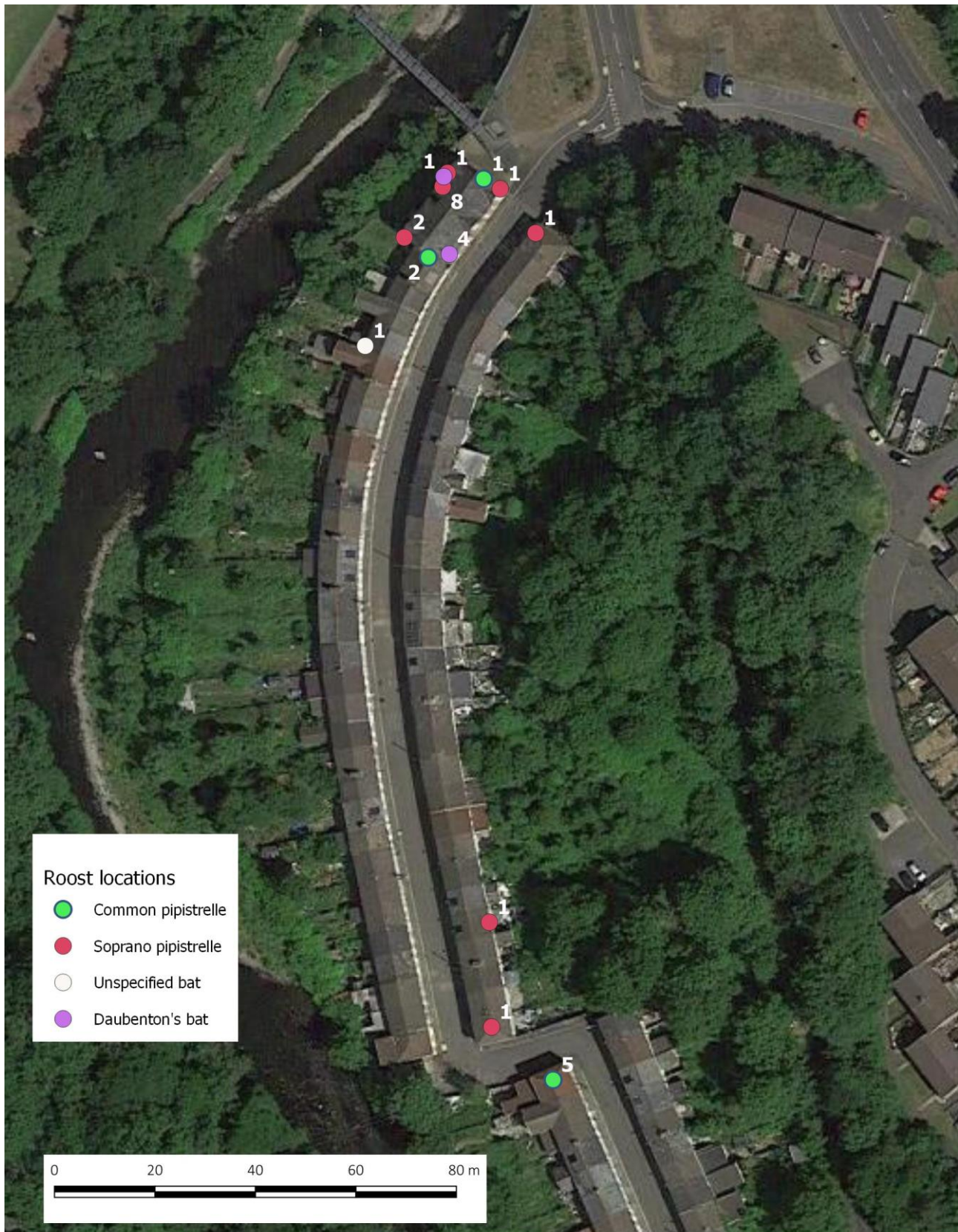
- 16/7/19
- 22/7/19
- 17/9/19

MP and CC in the central area were present on the 17/9/19 and 16/7/19 respectively

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APPENDIX II: ROOST LOCATIONS AND FLIGHT LINES



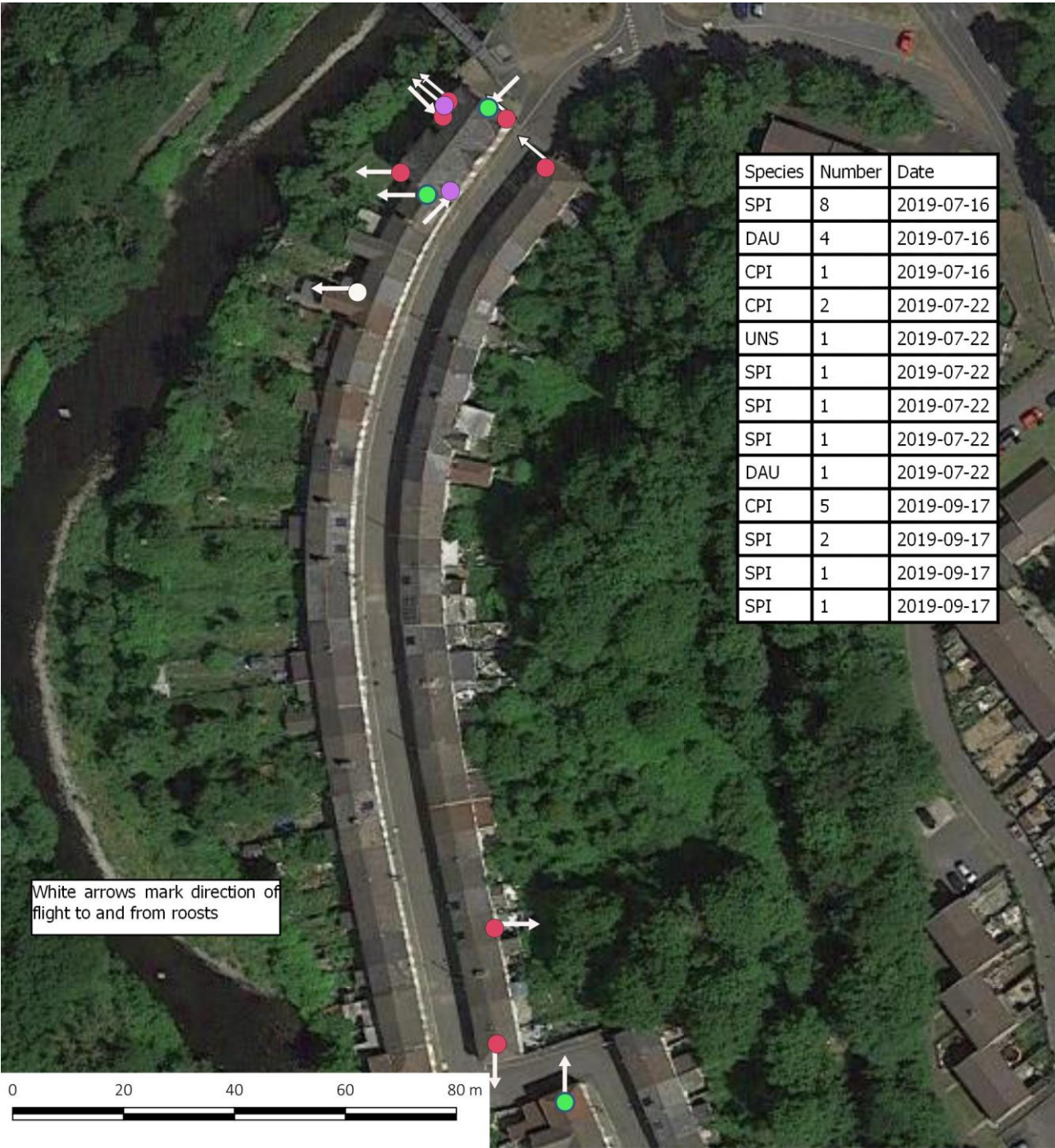
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(numbers indicate numbers of bats)



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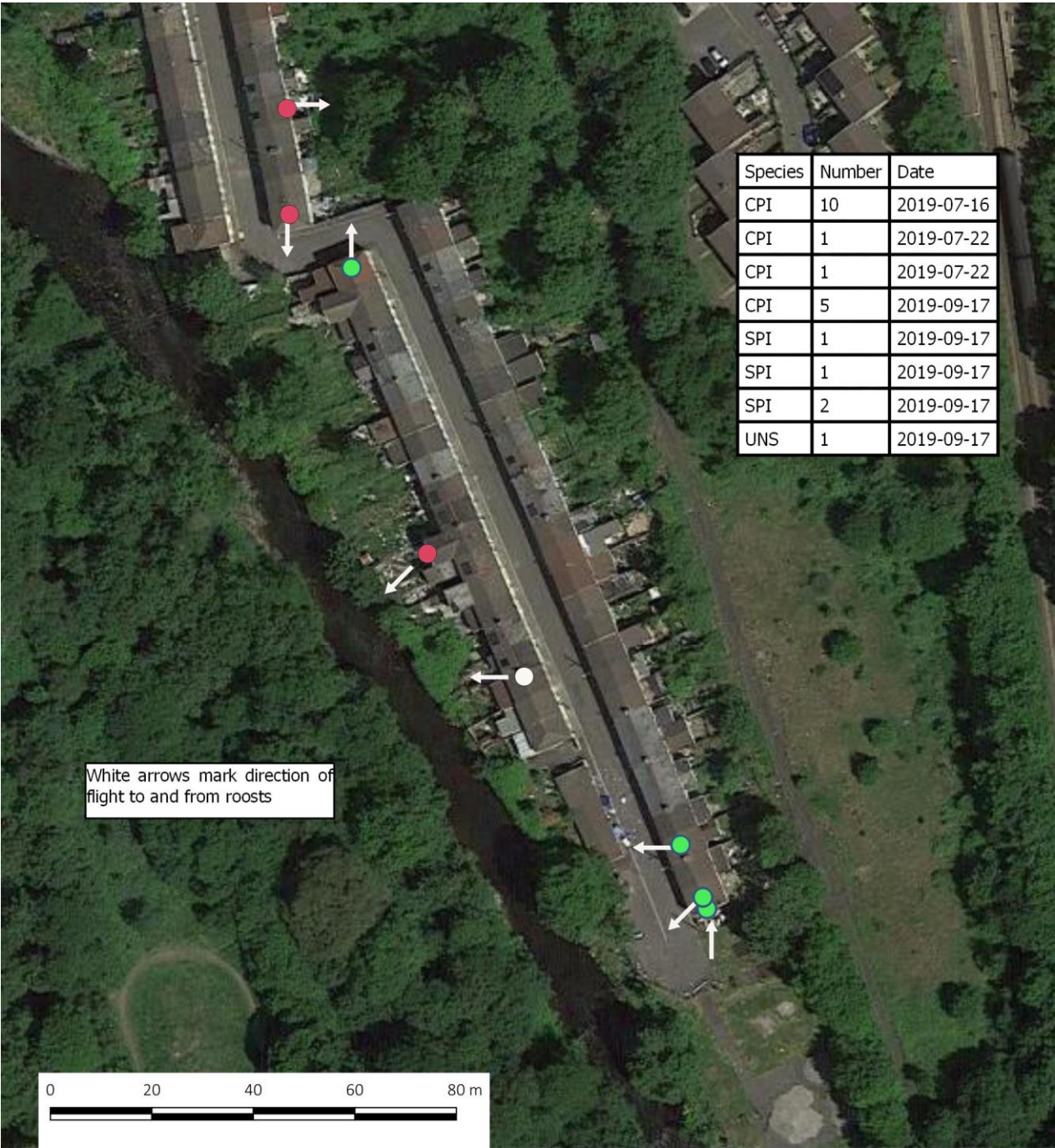
(numbers indicate numbers of bats)



Key

- Roost locations
- Common pipistrelle
 - Soprano pipistrelle
 - Unspecified bat
 - Daubenton's bat

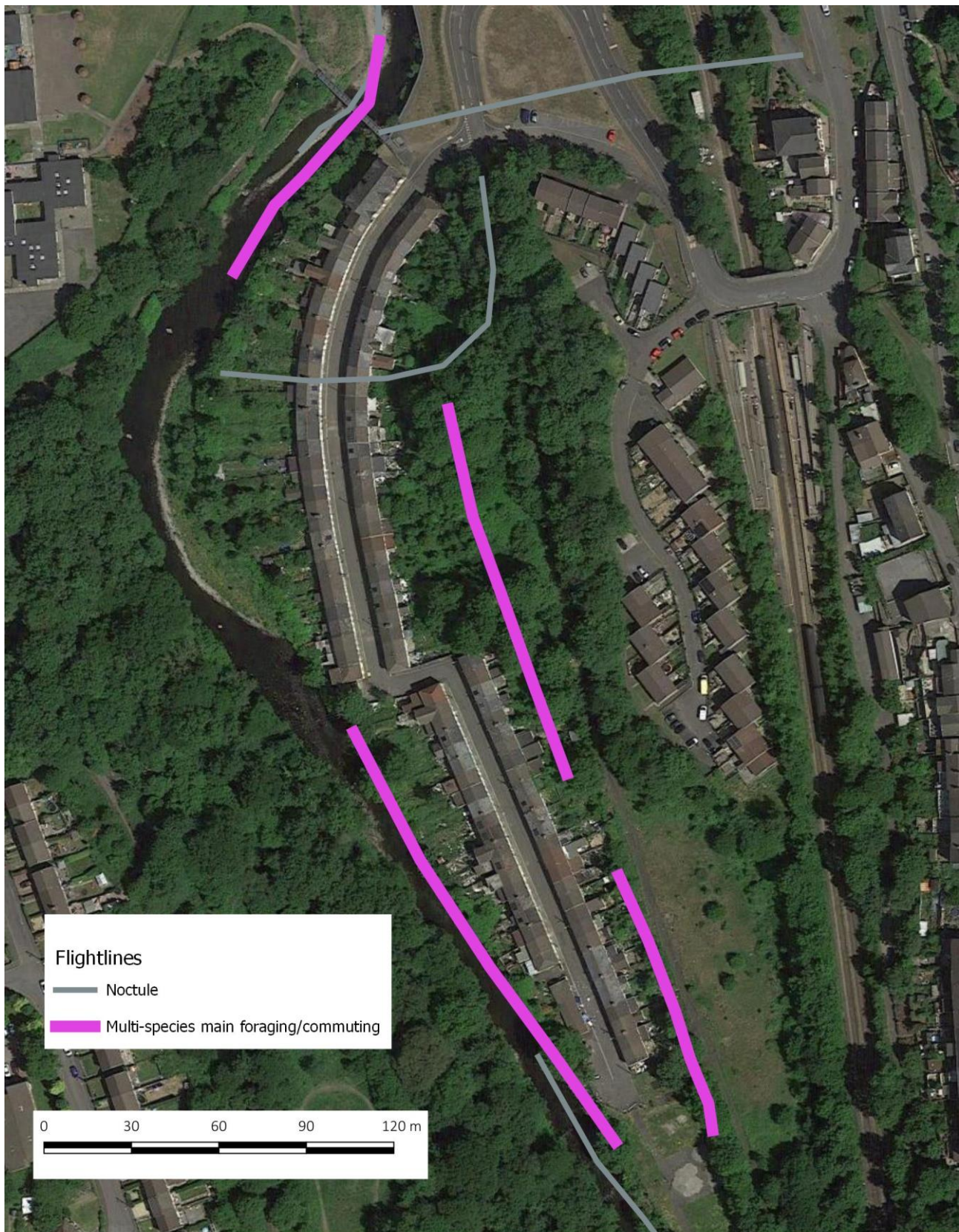
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Key

- Roost locations
- Common pipistrelle
 - Soprano pipistrelle
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APPENDIX III: POTENTIAL COMPENSATION AREA PLAN



Figure 4 – Location of retained bat house (red bounded polygon)

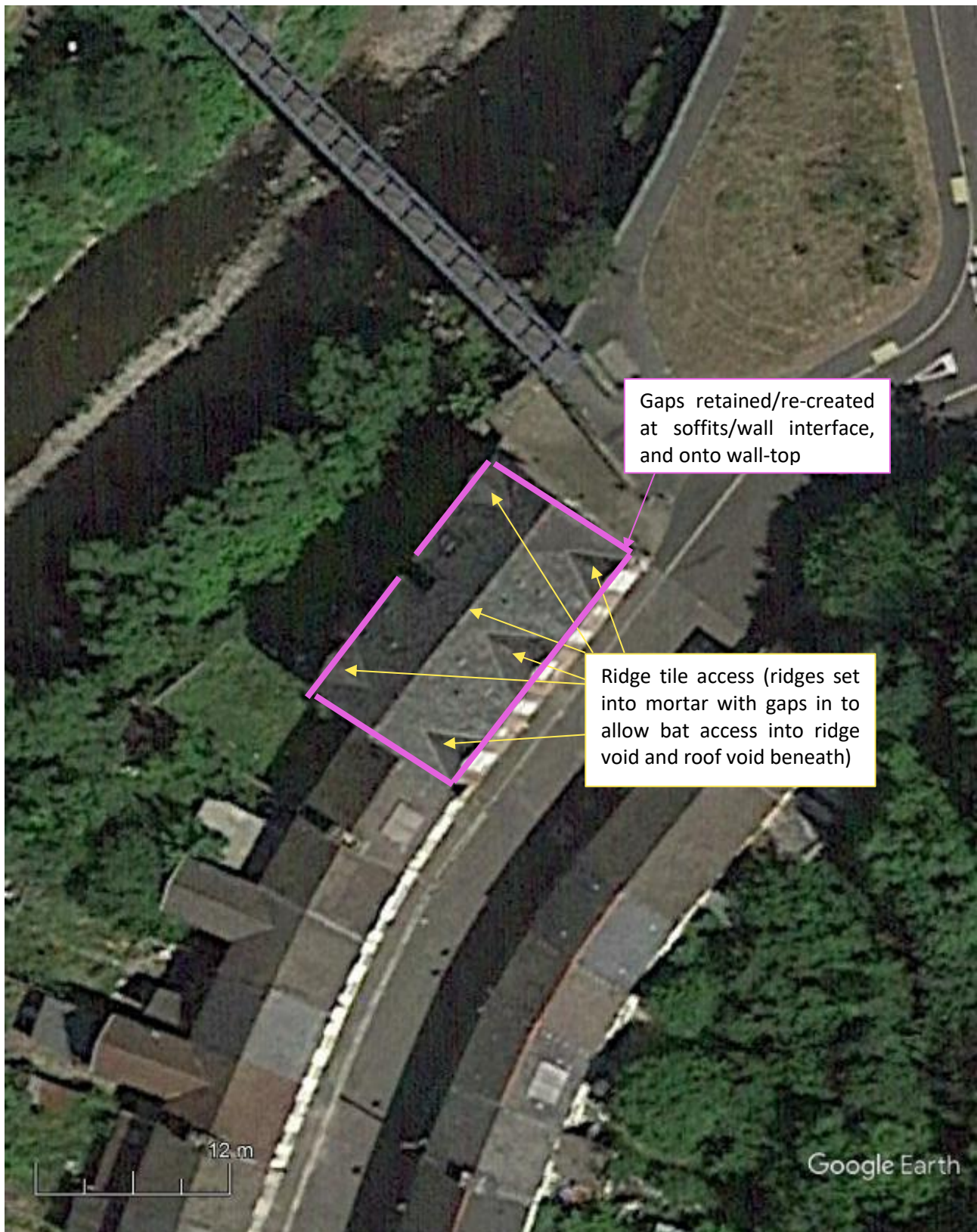


Figure 5 – Northern bat house with access maintained for bats at points illustrated

APPENDIX IV: SPECIES LIST

To be submitted to the appropriate Local Records Centre

Site Name: Taff and Crescent Streets, Merthyr Vale
Grid ref: ST 07546 99441
Provided by: Wildwood Ecology
Verified by: Alex Wilson

Common name	Scientific Name (if known)	Number	Comment
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	10+	Roosts
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	8+	Roosts
Daubenton's bat	<i>Myotis daubentonii</i>	4+	Roosts
Noctule	<i>Nyctalus noctula</i>	4+	Roost nearby
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	1	Roost
Myotis sp	<i>Myotis sp</i>		Static record
Brown long-eared bat	<i>Plecotus auritus</i>	1	Roost
Grey heron	<i>Ardea cinerea</i>		
Grey wagtail	<i>Motacilla cinerea</i>		
Pied wagtail	<i>Motacilla alba</i>		
Dipper	<i>Cinclus cinclus</i>		
Mallard	<i>Anas platyrhynchos</i>		
Cormorant	<i>Phalacrocorax carbo</i>		
Swift	<i>Apus apus</i>		
Robin	<i>Erithacus rubecula</i>		
Blackbird	<i>Turdus merula</i>		
Magpie	<i>Pica pica</i>		
Nuthatch	<i>Sitta europaea</i>		
Jackdaw	<i>Corvus monedula</i>		
White-tailed bumblebee	<i>Bombus lucorum</i>		
Orange-tip butterfly	<i>Anthocharis cardamines</i>		
False oat-grass	<i>Arrhenatherum elatius</i>		
Yorkshire fog	<i>Holcus lanatus</i>		
Annual meadowgrass	<i>Poa annua</i>		
Perennial ryegrass	<i>Lolium perenne</i>		
Sow thistle sp	<i>Sonchus sp</i>		
Common nettle	<i>Urtica dioica</i>		
Ivy	<i>Hedera helix</i>		
Hedge bindweed	<i>Calystegia sepium</i>		
Brome sp	<i>Bromus sp</i>		
Cock's foot	<i>Dactylis glomerata</i>		
Bramble	<i>Rubus fruticosus agg.</i>		
Creeping buttercup	<i>Ranunculus repens</i>		
Meadow buttercup	<i>Ranunculus acris</i>		
Rosebay willowherb	<i>Chamerion angustifolium</i>		
White clover	<i>Trifolium repens</i>		
Buddleia	<i>Buddleia davidii</i>		
Ash	<i>Fraxinus excelsior</i>		
Sycamore	<i>Acer pseudoplatanus</i>		
Silver birch	<i>Betula pendula</i>		
Hazel	<i>Corylus avellana</i>		
Alder	<i>Alnus glutinosa</i>		
Cherry	<i>Prunus sp</i>		
Rhododendron sp	<i>Rhododendron sp</i>		

Rose sp	<i>Rosa sp</i>		
Honeysuckle	<i>Lonicera periclymenum</i>		
Japanese knotweed	<i>Fallopia japonica</i>		
Apple	<i>Malus pumila</i>		
Mahonia	<i>Mahonia sp</i>		
Hoary mustard	<i>Hirschfeldia incana</i>		
Himalayan balsam	<i>Impatiens glandulifera</i>		
Willow sp	<i>Salix sp</i>		
Hogweed	<i>Heracleum sphondylium</i>		
Hemlock water dropwort	<i>Oenanthe crocata</i>		

APPENDIX V: IMAGES



Figure 6 – Typically open property at south-eastern end of Taff Street (roosts at ridge as well as shown in Figure 6)



Figure 7 – Grassland to south of Taff Street, suitable for reptile use



Figure 8 – Common pipistrelle maternity roost at southern end (east) of Taff Street



Figure 9 – Garages on Taff Street



Figure 10 – View along Taff Street to north



Figure 11 – Japanese knotweed in garden to rear of south-westernmost property (Taff Street)



Figure 12 – Interior view (from outside) of south-westernmost property



Figure 13 – View along rear of south-western properties



Figure 14 – View of open windows along Taff Street



Figure 15 – North-westernmost property with common pipistrelle roost (at roof light)



Figure 16 – South-eastern end of Crescent Street – roosts marked with arrows



Figure 17 – View to south along Crescent Street.



Figure 18 – Northern gable of block of flats. Partially open window (arrow) indicated entry point for single pipistrelle



Figure 19 – Block of flats, rear aspect with soprano maternity roost circled.



Figure 20 – View downstream towards rear of flats at north of site.



Figure 21 – View downstream from foot bridge



Figure 22 – Location of 4 x Daubenton's roost within northern flats



Figure 23 – View of soprano pipistrelle and unknown bat roosts at south-west end of site

APPENDIX VI: PLANNING POLICY AND LEGISLATION

The following local and national planning policy and both primary and European legislation relating to nature conservation and biodiversity status are considered of relevance to the current proposal.

Planning and biodiversity

Local Authorities have a requirement to consider biodiversity and geological conservation issues when determining planning applications under the following planning policies.

Planning Policy Wales (2018) and Technical Advice Note 5 (2009)

Planning Policy Wales (Edition 10, December 2018) sets out the land use planning policies of the Welsh Government, integrating fully with the Environment (Wales) Act 2016. The advice contained within Planning Policy Wales (PPW) is supplemented for some subjects by Technical Advice Notes (TAN's).

TAN 5 (Welsh Government, 2009) specifically provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on the key principles of positive planning for nature conservation; nature conservation and Local Development Plans; nature conservation in development management procedures; development affecting protected internationally and nationally designated sites and habitats; and development affecting protected and priority habitats and species.

Under Section 2.4 within the TAN 5, 'when deciding planning applications that may affect nature conservation local planning authorities should':

- Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;
- Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
- Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
- Ensure that appropriate weight is attached to designated sites of international, national and local importance;
- Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;
- Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;
- Ensure that the range and population of protected species is sustained;
- Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered;

Legislation and biodiversity

Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside Act 1981 (as amended) or are named as European Protected Species (EPS) in the Conservation of Habitats and Species Regulations 2010 (as amended). These two main pieces of legislation have been consulted when writing this report and are therefore described in detail within this section.

Other relevant legislation and policy documents that have been consulted include – The Environment (Wales) Act 2016; The Countryside and Rights of Way Act 2000; The Hedgerow Regulations 1997; Biodiversity Action Plans, both UK-wide (UKBAP) and Local plans (LBAPs), and The National Planning Policy Framework (NPPF).

There is also legislation that legally protects certain animals - for example, the Protection of Badgers Act (1992) protects badgers and their setts, and the Deer Act (1991) places restrictions on actions that can be taken against deer species.

Environment (Wales) Act 2016

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'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty.

Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.

Section 7 replaces the duty in section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

The Welsh Ministers must also 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.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) [WCA] is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part I within the Act deals with the protection of wildlife.

Most European Protected Species offences are now covered under the Conservation of Habitats and Species Regulations (see below), but some 'intentional' acts are still covered under the WCA, such as obstructing access to a bat roost.

The WCA prohibits the release to the wild of non-native animal species listed on Schedule 9 (e.g. Signal Crayfish and American Mink). It also prohibits planting in the wild of plants listed in Schedule 9 (e.g. Japanese Knotweed and *Rhododendron ponticum*) or otherwise deliberately causing them to grow in the wild. This is to prevent the release of invasive non-native species that could threaten our native wildlife.

The provisions relating to animals in the Act only apply to 'wild animals'; these are defined as those that are living wild or were living wild before being captured or killed. It does not apply to captive bred animals being held in captivity.

There are 'defences' provided by the WCA. These are cases where acts that would otherwise be prohibited by the legislation are permitted, such as the incidental result of a lawful operation which could not be reasonably avoided, or actions within the living areas of a dwelling house.

Licensing: certain prohibited actions under the Wildlife and Countryside Act may be undertaken under licence by the proper authority. For example scientific study that requires capturing or disturbing protected animals can be allowed by obtaining a licence – e.g. bat surveys.

Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (which are the principal means by which the EC Habitats Directive is transposed in England and Wales) update the legislation and consolidate all the many amendments which have been made to the Regulations since they were first made in 1994.

These regulations provide for the:

- protection of European Protected Species [EPS] (animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain) including bats, dormice, great crested newts, and otters;
- designation and protection of domestic and European Sites - e.g. Site of Special Scientific Interest [SSSI] and Special Area of Conservation [SAC]; and
- adaptation of planning controls for the protection of such sites and species.

Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in exercising their function – i.e. when determining a planning application.

There is no defence that an act was the incidental and unavoidable result of a lawful activity.

Licensing: it is possible for actions which would otherwise be an offence under the Regulations to be undertaken under licence issued by the proper authority. For example, where a European Protected Species has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required.

Species protection

The following protected species information is relevant to this report. Legislation is only discussed in relation to planning and development; other offences may exist.

Bats

All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2010 (as amended), making it an offence inter alia to:

- Deliberately kill, injure or capture a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place of a bat.

In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- Obstruct access to any structure or place which any bat uses for shelter or protection; or
- Disturb any bat while occupying a structure or place which it uses for that purpose.

If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural Resources Wales, which would be subject to appropriate measures to safeguard bats.

Birds

In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended). All wild birds, their nests and eggs are protected it an offence to:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any such bird whilst it is in use or being built; or
- take or destroying an egg of any such wild bird.

The law covers all species of wild birds including common, pest or opportunistic species.

Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.