

FEEDER PIPE BRIDGE

PRELIMINARY ECOLOGICAL APPRAISAL

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Feeder Pipe Bridge

Preliminary Ecological Appraisal

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Appendix B - Protected/Notable Species within 1 km (5 km for bats)

Appendix C - Target Notes

Appendix D - Botanical Species List

Non-Technical Summary

Site Location	Feeder Pipe Bridge, Abercynon, Rhondda Cynon Taf. Central Grid Reference for Feeder Pipe Bridge: ST 09208 95484
Proposed Development	Construction of a new bridge crossing at or near the location of the recently demolished Feeder Pipe Bridge, to include associated repairs to abutments /walls and linking infrastructure to facilitate public access to the crossing.
Date of survey and names of surveyors	Preliminary Ecological Appraisal survey – 22nd August 2022 Emma Carney (Ecologist) and Anwen Moon (Assistant Ecologist).
Overview of Results	- No Statutory designated sites lay within 1 km of the scheme. 12 non-statutory designated sites lay within 1 km of the site, including two within the scheme boundary – Taff & Rhondda Rivers SINC and Lower Taff & Edwardsville Woods SINC. - Priority habitats river and lowland mixed deciduous woodland were present in the scheme area. - Ancient Woodland was present in the scheme area. - Woodland and river habitats were suitable for bats to roost, forage and commute. - River habitat was suitable to support otter. Otter spraint was noted within 30 m of the bridge. - There was some suitable habitat for dormouse within the scheme area. - Habitats were suitable for badger to feed and commute only. - Evidence for hedgehog was found in the scheme area. - There was some habitat suitable for common reptile and amphibian species. Numerous toadlets were observed during the survey. - Habitats were suitable for a range of invertebrate species. - Invasive non-native species Japanese knotweed, Himalayan balsam and montbretia were present in the scheme area.
Further Survey	- Pre-construction bat inspection of the existing structure on day of works starting, if works are scheduled prior to June 2023. If works are scheduled to commence after June 2023, update bat surveys (one dusk emergence and one dawn re-entry bat survey) will be required. To be undertaken between May and August prior to commencement of works. - Pre-construction otter check of riverbanks within 30 m of the proposed works construction area. To be undertaken at a minimum of 6 weeks prior to commencement of works.
Recommendations	- Damage to priority habitat (particularly Ancient Woodland and mature tree specimens) should be avoided where possible and clearance at least kept to a minimum. - Siting of plant and machinery should ideally be on areas of existing hard standing, not within 7 m of any watercourse. Alternative siting should be discussed with an ecologist prior to commencement of works. - Suitable pollution prevention measures, forming part of a suitable pollution prevention plan, should be employed to all works to avoid pollution of the river. - General bat, otter and badger mitigation to include: - Avoidance of night-working, and directional safety lighting if required. - Maintenance of open commuting corridor along river at night. - Materials and machinery locked away in compound at night. - Any excavations covered overnight or when not in use or fitted with a ramp as a means of escape to prevent animals becoming trapped.

	• If a bat, otter or badger, or their places of shelter are discovered during works, all works should cease in the area until an ecologist is contacted for advice. • A combined method statement for dormouse, reptiles, amphibians and hedgehog should be produced for any vegetation clearance work. • Vegetation clearance and tree removal should ideally be undertaken outside the bird breeding season (i.e. works should be conducted between September and February inclusive) or under ecological supervision. Possible winter clearance (November to March) to tree stump level feasible if access paths through woodland cleared under the combined species method statement in early October. • Any in-channel works should be avoided or undertaken outside of the fish spawning season (i.e. be carried out between 30th June and the 14th October) unless carried out within a dry bed or under appropriate consent from Natural Resources Wales. • The appointed contractor should provide an appropriate Invasive Species Method Statement for the proposed works that should be followed for the duration of onsite activities. • All site personnel should receive a toolbox talk, provided by an experienced ecologist, prior to commencing work on site.
Enhancement	• Installation of three summer roost bat boxes. • Installation of three small passerine and one grey wagtail/dipper bird boxes. • Creation of brash pile hibernacula for reptiles and amphibians.

1. Introduction

Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to undertake an update Preliminary Ecological Appraisal (PEA) of an area centred on Feeder Pipe Bridge, near Abercynon, Rhondda Cynon Taf (Central Grid Reference ST 09208 95484).

The survey was undertaken to identify any constraints that may present to the proposed development and to identify the need for further surveys/ mitigation measures.

This report includes details of the survey methodologies, results and discussion and contains recommendations for further survey/ mitigation where appropriate. This will ensure the proposed works progress in compliance with relevant wildlife legislation outlined in Appendix A.

1.1 Site Description

Feeder Pipe Bridge spans the River Taff approximately 1 km north-east of Abercynon town centre, Rhondda Cynon Taf. Feeder Pipe Bridge lies between two road bridge crossings carrying the A472 to the north and A470 to the south-west.

Land use in the surrounding area was predominantly agricultural with scattered farmsteads and residential dwellings.

The site location is illustrated in Figure 1 and hereafter referred to as 'the scheme'. The wider area surveyed during the Preliminary Ecological Appraisal includes the scheme area and up to 100 m radius around the scheme area referred to as the 'survey area' (as shown in Drawing GC3880-RED-74-XX-M2-L-3001).

Figure 1. Location of Feeder Pipe Bridge (red rectangle-not to scale). Adapted from Google Earth. (Google Earth, 2021).



1.2 Proposed Works

Proposed works comprise the construction of a new bridge at the location of the previous bridge crossing (Feeder Pipe Bridge) which was dismantled and removed during September and October 2020. The bridge had been assessed as being irreparably damaged during storm flood events in the winter of 2020. The previous bridge was supported on existing stone piers and abutments, carrying three redundant but structurally intact ironwork pipes which were left in situ.

Works to include:

- Construction of a new bridge crossing
- Repair to existing abutments
- Possible removal of one of the feeder pipes
- Scour repair; and
- Linking works to provide public access.

Figure 2. Proposed construction areas.



2. Methodology

This report has been prepared in accordance with best practice guidance as outlined in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).

2.1 Desk Study

A desk study was undertaken to identify ecological information relating to the proposed development site and its surroundings. The following organisations/ websites were consulted during August 2022.

A request to the South East Wales Biodiversity Records Centre (SEWBRc) was made for information on any ecologically designated sites, habitats and protected species or species of conservation concern within a 1 km radius (5 km for bats) of the proposed development site (SEWBRc, 2022). This included a request for data for priority habitats and species listed under Section 7 of the Environment (Wales) Act 2016. The results of this search are summarised in Appendix B.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (MAGIC, 2022) was accessed to search for additional statutory designated sites i.e., Special Areas of Conservation (SAC) sites specifically designated for bats.

The Natural Resources Wales online Lle Ancient Woodland (AW) Inventory interactive map (NRW, 2011) was consulted in August 2022 to identify AW areas within 100 m of the proposed scheme. Rhondda Cynon Taff Technical Support Officer was also contacted for information regarding TPOs within the survey area in August 2022. (Pers. Comm., 2022), alongside the Merthyr Tydfil County Borough Council – Tree Preservation and Conservation Areas Interactive Map (MTCBC, 2022)

Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify features with potential significance in relation to habitats and species on site.

2.2 Field Survey

2.2.1 *Extended Phase 1 Habitat Survey*

Redstart surveyors, Emma Carney (Ecologist) and Anwen Moon (Assistant Ecologist), conducted the survey based on Extended Phase 1 habitat survey techniques (JNCC, 2010) on the 22nd August 2022. The survey consisted of a thorough walkover of the survey area, mapping the habitat types and listing floral species within each habitat. Invasive plant species were also mapped. The botanical list is provided in Appendix C and nomenclature of vascular plants follows Stace (2010). The relative abundance of each vascular plant species was recorded using the **A**bundant, **C**ommon, **F**requent, **O**ccasional, **R**are (ACFOR) scale. Dominant vascular plant species were noted, as were any uncommon species or species indicative of particular habitat types, but exhaustive species lists were not compiled.

The habitats were also assessed for their potential to support protected/notable species of plants and/or animals and observation was made of any incidental signs of protected/notable species. The outputs of the surveys include a Phase 1 Habitat Map which is illustrated on Drawing GC3880-RED-74-XX-M2-L-3001. Any target notes compiled are illustrated in the Phase 1 Habitat Map and detailed fully in Appendix D.

2.2.2 *Preliminary Roost Assessments for Bats (External Assessment)*

Redstart ecologists conducted an external inspection of all trees and structures within the survey area during the PEA visit. Ecologists inspected any features present for potential bat access and egress points, potential roosting sites and signs of bats themselves, using binoculars and torches where appropriate.

The survey methods were based on Bat Conservation Trust guidelines (3rd Edition) (Collins, J (ed), 2016).

2.3 Review of Previous Reports

To help inform this report the following initial reports/surveys undertaken for the scheme were consulted:

- Redstart (2021a) Feeder Pipe Bridge: Preliminary Ecological Appraisal (PEA) Report – survey undertaken in November 2020.
- Redstart (2021b) Feeder Pipe Bridge: Otter Survey Report – survey undertaken in October 2020.
- Redstart (2021c) Feeder Pipe Bridge: Bat Survey Report – surveys undertaken in September 2020 and June 2021.

2.4 Survey Constraints

Bankside vegetation on the south-eastern side of the River Taff was largely inaccessible due to being on a steep slope which prevented direct access for health and safety reasons. Vegetation along the upstream and downstream side of the river was observed from the opposite bank using binoculars which allowed broad habitat types to be accurately recorded.

Any ecological survey can only identify what was present in the survey area at the time it was conducted, and habitat use by species can change over time. The length of time that the survey data remains valid will depend on a case-by-case basis, but it is generally considered that if the proposed works do not commence within 2 years of the date of the survey in this report an update may be required. Survey results and desktop data presented in this report therefore remain valid until August 2024.

3. Results

3.1 Designated Sites

3.1.1 Statutory Designated Sites

There were no statutory designated sites (e.g., Sites of Special Scientific Interest) within 1 km (5 km for bat sites) of the central grid reference for the scheme (ST 09208 95484).

3.1.2 Non- statutory Designated Sites

There were 12 non-statutory sites (e.g., Site of Importance for Nature Conservation (SINCs)) located within 1 km of the scheme and are detailed in Table 1.

Non-statutory designated sites are illustrated on Drawing GC3880-RED-74-XX-M2-L-3002.

Table 1. Non-statutory sites within 1 km of Feeder Pipe Bridge.

Site Name	Designation (RCT SINC's with numerical reference).	Designatory features	Distance & direction from structure
Taff and Rhondda Rivers	SINC - 142	The River Taff is the main river of the County Borough and a major biodiversity artery. The river and its bank side habitats are extremely diverse and varied. The river supports kingfisher (<i>Alcedo atthis</i>), sand martin (<i>Riparia riparia</i>), otter (<i>Lutra lutra</i>), salmon (<i>Salmo salar</i>) and brown trout (<i>Salmo trutta</i>). The river contains shingle banks, undercut bank sections, and riparian woodland.	0 m
Lower Taf & Edwardsville Woods	SINC	Ancient semi-natural woodland with rich ground flora. A wide range of bird species and grassland areas important for reptiles.	0 m eastern side of River Taff
Whitehall Golf Course	SINC	A small SINC within Merthyr County Borough that is an extension of Graig -Evan Lyshon SINC which falls within Rhondda Cynon Taf Borough. See description for Graig -Evan Lyshon for SINC details.	92 m east
Craig-Evan Leyshon Common	SINC - 78	An extensive mosaic ffridd, which runs along the eastern flank of the Taff valley. Bracken dominates huge areas with an understory of acid grassland. The SINC includes vegetating coal spoil tips, the relic ancient woodlands of Craig Pant-du Isaf, and the clean fast-flowing stream of Nant cae-dudwg which supports dipper (<i>Cinclus cinclus</i>), kingfisher and Daubenton's bats (<i>Myotis daubentonii</i>). Grayling (<i>Hipparchia semele</i>) butterflies occur on the coal spoil grasslands and adder (<i>Vipera berus</i>) occur within the main Common.	300 m south
Cwm Mafon	SINC	Transboundary SINC falling within Merthyr and Caerphilly Boroughs. Wet woodland, marshy grassland and damp neutral grassland along the Nant Mafon. Rich ground flora in woodland areas.	345 m east

Site Name	Designation (RCT SINC's with numerical reference).	Designatory features	Distance & direction from structure
Craig Berthlwyd	SINC	Urban valley side slope with mosaic habitat of dry heathland, acid grassland (unimproved), bracken and broadleaved woodland.	487 m north-east
Darren y Celyn	SINC - 70	A large mosaic SINC of conifer plantation and heath on the eastern valley side of the lower Cynon Valley. Includes large areas of dry heath with heather. (<i>Calluna vulgaris</i>), bilberry (<i>Vaccinium myrtillus</i>) and wavy-hairgrass (<i>Deschampsia flexuosa</i>) blending with areas of scree and bracken/acid grassland to form extensive areas of open ground heath which will support strong reptile populations.	500 m west
Goetre-coed Wood	SINC	Remnant ancient semi-natural woodland. Small areas of dry heath.	547 m north/north-west
Mynydd Goetre-Coed	SINC	Hilltop dry heath, acid grassland. Disused quarries. Colliery spoil areas with species rich neutral grassland.	692 m north-west
Cwm Afon Railway Line, West of Nelson	SINC	A disused railway embankment runs the length of the SINC. Comprising of sheep-grazed semi-improved acid grassland, with patches of rocks and scrub, as well as species-rich marshy grassland. Purple moor-grass (<i>Molinia caerulea</i>) and sharp-flowered rush (<i>Juncus acutiflorus</i>) dominate the wetland habitats.	659 m east/south-east
Cwm Afon, West of Nelson	SINC	Field of tussocky semi-improved acid and species-rich marshy grassland/flush. Dominant species include purple moor-grass and sharp-flowered rush. Other species include bog pimpernel (<i>Anagallis tenella</i>), marsh violet (<i>Viola palustris</i>) and common cottongrass (<i>Eriophorum angustifolium</i>).	690 m east
Lower Cynon River	SINC 57	A wide river marked by a series of long riffle and pool sequences, supporting kingfisher dipper, otter and brown trout. Also includes the wetlands of Pwll Waun Cynon Nature Reserve, as well as the woodlands and pastures of Pontcynon. The nationally scarce flies (<i>Tetantocera punctifrons</i>) and (<i>Sapromyza opaca</i>) have been recorded within the Phurnicite Works part of the SINC.	965 m west/south-west

3.1.3 Tree Preservation Orders (TPOs) / Ancient Woodland (AW)

A search for records within 200 m of Feeder Pipe Bridge did not identify any tree preservation orders (TPOs) present.

The nearest Ancient Woodland (AW) site lies directly north of the bridge where an extensive area of AW completely encompasses the northern riverbank at the bridge location. A further extensive area of AW along the riverbank lies 93 m south-west of the bridge (see Figure 3 for locations in relation to the bridge).

Figure 3. AW sites (blue) in relation to Feeder Pipe bridge (red) which spans the River Taff. The purple dash shows border between Rhondda Cynon Taff County Borough on the north-west of the river and Merthyr County Borough south-east of the river.



3.2 Phase 1 Habitat Survey

Habitats recorded within the survey area are described as follows.

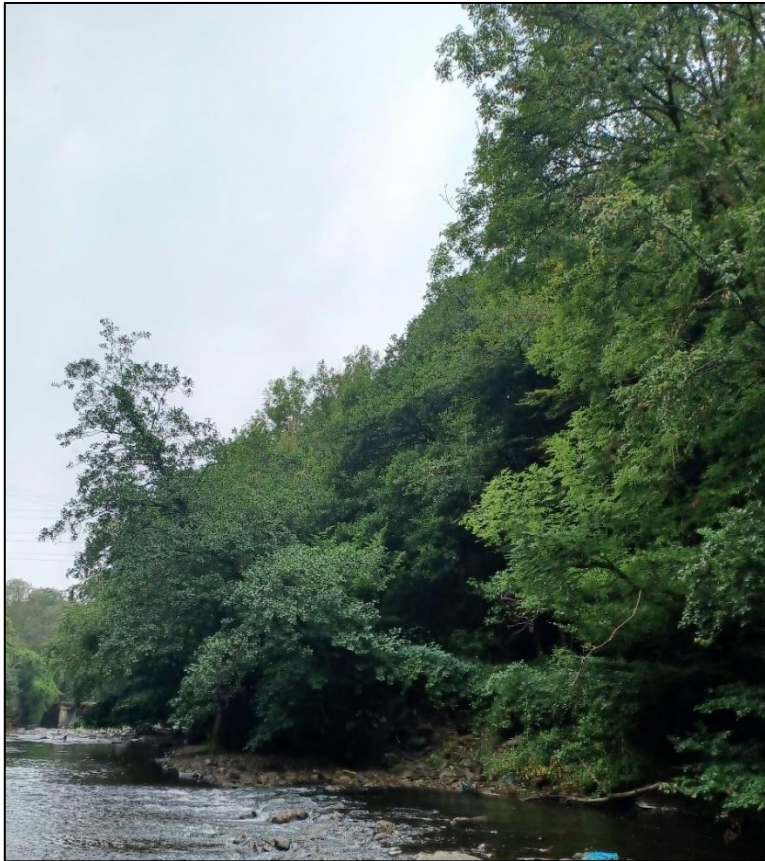
Semi-Natural Broadleaved Woodland

Semi-natural broadleaved woodland was the dominant habitat across the survey area. The habitat was recorded extensively on both sides of the River Taff. Tree species included commonly occurring alder (*Alnus glutinosa*) interspersed with silver birch (*Betula pendula*), hazel (*Corylus avellana*), pedunculate oak (*Quercus robur*), beech (*Fagus sylvatica*), hawthorn (*Crataegus monogyna*) and holly (*Ilex aquifolium*). Trees were generally more mature (mostly mature beech) on the north-western side of the river (which includes areas of ancient woodland) (see Photograph 1). Trees to the south-eastern side were predominately semi-mature specimens (see Photograph 2).

Ground flora species composition was similar across the site with commonly found woodland species such as common ivy (*Hedera helix*) and bramble (*Rubus fruticosus* agg.) present.

To the north-western side of the river it was noted that ground flora was more sparse compared to the south-east, particularly where mature beech trees were present. Species diversity was however slightly more diverse on this side and in places, areas of wet ground were also noted with species such as brooklime (*Veronica beccabunga*) and remote sedge (*Carex remota*) present. A number of ferns were also recorded which are often associated with ancient woodland (as this area is designated) such as hard fern (*Blechnum spicant*) and hart's tongue (*Asplenium scolopendrium*).

Photograph 1. Semi-natural broadleaved woodland adjacent to the north-western side of the structure. Photograph looking downstream towards bridge.



Photograph 2: Semi-natural broadleaved woodland to the south-eastern side of the structure. Photograph looking downstream towards bridge.



Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*) were both frequently present within the woodland understorey, being most abundant along the riverbank.

Scattered Trees

An area of scattered trees within a stand of bracken was noted just south of the road (Tram Road side) and comprised abundant semi-mature silver birch and rarely occurring willow species (*Salix* sp.).

Additionally, scattered trees (mostly immature alder and willow) were also noted within the mid- channel bar in the river downstream of the bridge (see Photograph 3).

Photograph 3. Scattered trees in mid-channel bar in river. Photo looking downstream south of the bridge.



Poor Semi-Improved Grassland

An informal poor semi-improved grassland path was located to the north-west of the bridge. This path also linked with a poor semi-improved grassland field further to the north. Both grassland areas were horse grazed. Along the footpath species included abundant white clover (*Trifolium repens*), commonly occurring common bent (*Agrostis capillaris*) and frequently occurring greater plantain (*Plantago major*) and Yorkshire-fog (*Holcus lanatus*). Within the larger field area additional species included commonly occurring crested dog's-tail (*Cynosurus cristatus*), and selfheal (*Prunella vulgaris*), alongside frequently occurring rough hawkbit (*Leontodon hispidus*) and yarrow (*Achillea millefolium*).

Bracken

Large parcels of continuous bracken (*Pteridium aquilinum*) were recorded, particularly on the north-western side of the River Taff, growing between areas of semi-natural broadleaved woodland, often with bisecting informal paths comprising poor semi-improved grassland (see Photograph 4). Additional species within the bracken included commonly and frequently occurring Himalayan balsam and bramble.

Photograph 4: Continuous bracken on the western side of river. Photograph taken looking north.



Tall Ruderal

Areas of tall ruderal vegetation, largely dominated by dense stands of Japanese knotweed and Himalayan balsam, were noted to the south-western side of the bridge in addition to along the water's edge to both sides of the river. The larger parcel located to the south-western side of the bridge appeared to have been subject to previous clearance works in which the vegetation has quickly re-colonised.

Running Water

Running water in the form of the River Taff flowed south-west under the bridge (see Photograph 5). The river was approximately 20 m wide at the crossing point. The riverbed largely comprised small to large cobbles with silty areas noted in the deeper pools.

The banks on the south-eastern side were steep sided and formed from natural rock outcrop and engineered stonework which formed part of the Feeder Pipe Bridge original structure.

On the north-western side, the banks upstream of the bridge were formed by a stone-built retaining wall and there was a wide stony shoal extending out into the river. Downstream the banks were gently shelving.

Photograph 5: River Taff flowing south -west under piers and iron feeder pipes left in situ following removal of the main bridge.



Other Habitat – Rocky Shoal/Mid-Channel Bar

The large areas of rocky shoal and mi-channel bar within the scheme area comprised several emerging plant species including frequently occurring redshank (*Persicaria maculosa*), Himalayan balsam and Japanese knotweed. The latter two species (both Schedule 9 invasive species – see Section 3.3.3) were also evident in the surrounding and within immediate bridge area.

3.3 Species

Species results combining information from data searches and physical observations during the PEA survey are presented as follows. A full list of protected or priority species and species of conservation concern within a 1 km radius of the site (5 km for bats) is provided in Appendix B.

Where TNs are stated, these refer to target notes and are illustrated on Drawing GC3880-RED-74-XX-M2-L-3001 and also described further in Appendix D.

3.3.1 *European Protected Species*

Bats

There were 169 records for bats returned from the SEWBRc data search within the last 10 years and within a 5 km radius of the scheme area, with only 17 records within 1 km. Records included 10 species plus a further 4 categories for records not identified to species level. Pipistrelle species (*Pipistrelle* spp.) accounted for the majority (103) of the records. The nearest record was for a commuting soprano pipistrelle (*Pipistrellus pygmaeus*) located 469 m north at Quakers Yard (south). The nearest bat roost record was for a common pipistrelle (*Pipistrellus pipistrellus*) roost 1.1 km north-east on Brynherwyn Avenue, Quaker's Yard.

Habitats on site such as the River Taff and semi-natural broadleaved woodland recorded during the survey provided suitable habitat for bats to forage and commute.

Bat roost assessments are detailed separately in Section 3.4.

Otter

The SEWBRc data search returned four records for otter within 1 km of the scheme within the past 10 years. The nearest record was for fresh spraint 292 m east of Feeder Pipe Bridge close to the River Taff. Otter records were returned upstream and downstream of the bridge. Additionally, otter spraint was also recorded during the otter survey associated with the scheme (Redstart, 2021b).

Evidence of otter in the form of a fresh spraint (alongside two older degraded spraints) was noted on a large river boulder within approximately 25 m of the bridge during the survey (see TN4 & Photograph 6). The varied river habitat with riffles, deep pools and shoals in the survey area was suitable for otter to commute, feed, rest and potentially to establish holts. The River Taff is known to support food prey species such as salmon (*Salmo salar*) and brown trout (*Salmo trutta*) (see Section 3.1.2) and further species e.g. minnow (see Section 3.2.2) were also noted in the river during the survey. The bank side vegetation provided some areas where otter may rest up during daylight hours and two large log piles/fallen tree debris on the eastern riverbank approximately 35 m upstream (see TN3) and approximately 35 m downstream (see TN5) provided potential sites for a resting holt to be established.

Photograph 6. Otter spraint (x 3) identified on large rock in river downstream of the bridge. Red illustrates fresh spraint and yellow circle two older degraded spraints.



Hazel Dormouse

No records were returned from the SEWBrEC data search for hazel dormouse (*Muscardinus avellanarius*) within 1 km of the scheme.

Habitat on site was sub-optimal for the presence of dormouse during the survey.

Although there was relatively good connectivity across the site and along the river corridor, the woodland areas on both sides of the river were in places wet (due to frequent springs issuing into the area). Density of food resources such as fruiting hazel and bramble were also often sparse.

Great Crested Newt

No records for great crested newt (GCN) (*Triturus cristatus*) were returned within 1 km of the scheme. In addition, no potential breeding sites in the form of suitable ponds were present within 2 km, the nearest being over 2 km to the west in Abercynon.

Whilst woodland within the survey area offered suitable terrestrial habitat for GCN, the distance from suitable breeding sites and presence of commuting barriers (major roads) means it is highly unlikely for GCN to be present. GCN will therefore not be considered further in this report.

3.3.2 *UK Protected/Priority Species*

Badgers

One record was returned from 1 km data searches for badger (*Meles meles*). This was located 133 m east of the scheme in 2021 and comprised a badger latrine and general signs of activity.

No evidence for the presence of badger such as latrines or regular commuting paths (runs) was recorded during the PEA. Habitats on site had some limited suitability for badger to forage and commute.

Other Mammals

Seven records were returned from the SEWBRc data search for West European hedgehog. The closest record was located 178 m south-west of the scheme, recorded as roadkill on Tram Road Side parallel to the River Taff. The most recent record was from 2021. Additionally, one record for polecat (*Mustela putorius*) was returned in 2013.

Hedgehog droppings was noted during the survey confirming presence (see Photograph 7), and habitats within the scheme area were considered suitable to support these and other mammals for foraging, nesting and commuting purposes.

Photograph 7. Hedgehog droppings with berries and beetle fragments, found to the western side of the bridge along an informal grassland path surrounded by bracken.



Birds

The SEWBRc data search returned 149 individual records for 14 priority bird species within 1 km of the scheme. Records also comprised four Schedule 1 species, including kingfisher (*Alcedo atthis*), redwing (*Turdus iliacus*), barn owl (*Tyto alba*) and goshawk (*Accipiter gentilis*). The closest record for a Schedule 1 species was for kingfisher, 68 m south-west along the River Taff.

Section 7 Environment (Wales) Act 2016 priority species accounted for the remaining 10 species, with the closest record being for kestrel (*Falco tinnunculus*), 190 m north-east of the scheme.

Common woodland bird species were recorded during the PEA, including chiffchaff (*Phylloscopus collybita*), robin (*Erithacus rubecula*) and carrion crow (*Corvus corone*). It is likely the species previously recorded within the survey area i.e., long-tailed tit (*Aegithalos caudatus*), treecreeper (*Certhia familiaris*) and great spotted woodpecker (*Dendrocopos major*) are also still likely to use the scheme area.

Additionally, kingfisher (*Alcedo atthis*) (x2), grey wagtail (*Motacilla cineria*) (x3) and mallard (*Anas platyrhynchos*) (x1) were recorded feeding and/or commuting back and forth frequently along the River Taff during the survey.

Habitats on site including semi-natural broadleaved woodland, bracken and gaps within walls and the remaining bridge structure were suitable for common and Section 7 woodland and riverine bird species to nest in the breeding season and shelter and feed all year around. No potential for nesting Schedule 1 species was identified within the survey area however, kingfisher was actively using the affected section of the river for foraging and commuting.

Fish

No protected fish species were returned from the SEWBRcC data search, however, protected species such as salmon and brown trout are included in the citation for the River Taff and Rhondda SINC (see Section 3.1.2), and they are likely to be present within the watercourse.

Two fish species were recorded during the survey comprising shoals of minnow (*Phoxinus phoxinus*) and a dead stone loach (*Barbatula barbatula*) (see Photograph 8). For the latter species spawning potential may exist in the cobble substrate of the riverbed. No spawning areas for priority species such as brown trout were identified in the riverbed which was predominantly larger cobbles and areas of silt in the deeper pools. The river however, is likely to be used by priority and common fish species to commute between spawning and foraging areas up- and downstream of the scheme area.

Photograph 8. Deceased stone loach recorded within the river.



Reptiles

A total of seven records for reptiles, comprising two species, were returned from the 1 km data search. Slow worm (*Anguis fragilis*) was recorded on five occasions and adder (*Vipera berus*) twice. The closest record was for adder located near Treharris, 212 m north-east of the scheme.

Habitats in the scheme area such as abundant woodland were generally unsuitable for reptile species, with the exception of large bracken areas and informal grassland footpaths to the western side of the bridge.

These dense areas of bracken are also likely to have concealed the large pile of felled timber (approximate grid reference ST 09135 95474) which was assessed as offering basking and sheltering suitability for reptiles e.g., common lizard (*Zootoca vivipara*) and slow worm in the previous survey report (Redstart, 20221a, see also Photograph 9).

Photograph 9. Felled timber (stacked) in a clearing -suitable habitat for reptiles to bask, feed and shelter. approximate grid reference ST 09135 95474. Photograph taken looking west (taken from Redstart, 2021a).



Amphibians

A total of five records for two amphibian species, common frog (*Rana temporaria*) and common toad (*Bufo bufo*) were returned from the SEWBReC data search. The closest record was for common toad, 250 m north-east of the scheme.

Numerous toadlets were recorded during the survey (see Photograph 10) within the extensive areas of bracken and adjoining poor semi-improved grassland informal paths/field. Habitats were considered suitable to support common amphibians during their terrestrial life stages. No ponds or ditches however, suitable for breeding were located during the survey.

Photograph 10. Toadlets identified predominantly within bracken and informal grassland path areas during the survey to the western side of the river.



Invertebrates

A total of 129 records for 24 species of priority invertebrate species were returned from the SEWBReC data search. The majority of records were for Section 7 listed moth species. The closest record, however, was for white-letter hairstreak (*Satyrrium w-album*) butterfly, located 194 m south/south-west of the scheme.

Several bumblebees (*Bombus* spp.) and common blue butterfly (*Polyommatus icarus*) were recorded in the grassland/bracken areas during the survey. It is anticipated that a wide range of common aquatic and terrestrial invertebrates are highly likely to be present in the habitats in the scheme area.

Protected Plant Species

Two records for protected plant species were returned from 1 km data searches, both being for bluebell (*Hyacinthoides non-scripta*). The closest was located 283 m south-west of the scheme.

No protected plant species were recorded during the survey and will therefore not be considered further in this report.

3.3.3 *Invasive Plant Species*

A total of three Schedule 9 invasive non-native plant species were returned from the data search: Japanese knotweed, Himalayan balsam and entire-leaved cotoneaster (*Cotoneaster integrifolius*). The closest record was for Japanese knotweed, recorded 283 m from the scheme along the banks of the River Taff.

Schedule 9 Invasive plant species Japanese knotweed, Himalayan balsam and montbretia (*Crocsmia pottsii x aurea* = *C. x crocosmiiflora*) were recorded during the survey. Large stands of Japanese knotweed and Himalayan balsam were recorded on both sides of the River Taff including adjacent to the footpath providing access to the bridge on the south-eastern side and within 1 m of the bridge on the north-western side. Montbretia was recorded at approximate grid reference ST 09254 95486 (TN8), growing close to Tram Side Road where it joined the path leading to the south-eastern access point of the bridge.

3.4 Preliminary Roost Assessments for Bats (External)

3.4.1 Previous Bat Roost Assessments 2020

Previous assessments of the existing structure (stone-built piers, abutments, redundant feeder pipes and training walls) assigned a moderate level of bat roost potential in accordance with Bat Conservation Trust Good Practice Guidelines (Collins, 2016) due to the presence of gaps in the feeder pipe, abutments and training walls on both sides of the river (Redstart, 2021a).

3.4.2 2022 Bat Roost Assessments

Structure

The bridge abutments and retaining walls were re-assessed following initial assessments/surveys undertaken in 2020/2021 (Redstart, 2021a & c) to account for any further degradation exhibited at the existing structure which may now offer additional bat roosting potential.

During the re-assessment, the numerous crevices/gaps particularly in the adjoining retaining river walls, were considered either too shallow or too open/accessible to species such as rats which would leave roosting bats open to predation, lowering the likelihood of usage by roosting bats (see Photograph 10). A moderate potential to support roosting bats, however, was still retained and no significant changes to previously identified features was noted.

Photographs 11. Gaps/crevices noted in the existing bridge and adjoining structures. Left: Eastern abutment with missing stone identified (depth not ascertained during survey). Right: Several gaps in upstream retaining wall to western side of bridge, many open and likely to facilitate access by predators and/or relatively shallow.



Trees

Trees within the survey area were also preliminarily assessed for roosting potential during the PEA survey. Most offered negligible bat roost potential. Two trees offered low potential due to presence of a knot hole and/or gaps between the bark (see TN2 & TN6; also Appendix D). These features were all located on thinner branching limbs or trunks and as such are unlikely to offer suitable hibernation potential, with potential limited to ad-hoc transitional usage by single bats.

4. Evaluation of Ecological Features and Potential Impacts

The desk study and field survey revealed the following ecological features of value to nature conservation.

4.1 Designated Sites/Habitats

Non-statutory designated sites & Priority habitats - Two Sites of Interest for Nature Conservation were present within the works site. The Taff and Rhondda Rivers SINC flowed under the remaining river crossing structure and habitat on the north-eastern side of the river lay within the Lower Taff and Edwardsville Woods SINC. Both these SINC have high ecological value and are classified as Priority habitats in Wales (river and semi-natural broadleaved lowland woodland).

Ancient Woodland - The footprint of the works on the north-western side of the river also falls within an area of ancient semi-natural woodland.

There is high potential for both SINC to be adversely impacted by the works. The river is vulnerable to pollution caused by accidental fuel spills and disturbance of the riverbed during construction works. The woodland areas, including AW will also be adversely impacted by removal of trees to facilitate access for plant and machinery during construction works and / or accidental root ball damage during works.

Section 7 of the Environment (Wales) Act 2016 places a duty on Welsh Ministers to “take all reasonable steps to maintain and enhance the types of habitat included in any list published under this section and, encourage others to take such steps”.

All other non-statutory designated sites, ancient woodland and priority habitats identified during the desk study and survey visit are highly unlikely to be impacted by the works due to the relatively minor and localised nature of the works alongside the spatial and topographic separation of these from the scheme area.

4.2 Species

4.2.1 Bats

Bats are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and it is an offence to deliberately disturb and damage or destroy a breeding or resting site of any European protected species.

Habitats on site were highly likely to support commuting and foraging bats and there was moderate potential within stone walls, feeder pipes and abutments supporting the now redundant pipework, to provide roosting sites for bats. Previous bat surveys undertaken in October 2020 and June 2021 concluded no bats were roosting in the structure and six species were using the area for commuting and foraging (Redstart, 2021c). Results of the bat roost surveys remain valid until June 2023.

If works are carried out on site during the active season there is potential for commuting and foraging bats to be disturbed by construction noise, additional lighting and/or ground vibration. Impact from these activities is likely to be adverse short-term, lasting for the duration of works. Results of previous bat surveys indicate it is unlikely roosting bats will be disturbed by proposed works. In the unlikely event bats are now roosting in the existing abutments and associated walls, there may be potential for these to be disturbed or inadvertently killed during works.

4.2.2 *Otter*

Otters are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and it is an offence to deliberately disturb and damage or destroy a breeding or resting site of any European protected species.

The River Taff and riparian habitat provided suitable conditions for otter to feed, commute and rest. The previous otter survey undertaken for the scheme in October 2020 indicated otter were actively using the section of the River Taff for commuting and foraging purposes. Additionally, fresh evidence of otter was identified during the PEA update survey, indicating the scheme area is likely to be frequently used by otter. No holt sites were identified within 30 m of the scheme area during this survey, and it was concluded there was no potential for holts to be established within 30 m of the bridge. This was due to the presence of the steep sided natural outcrop and stone walls associated with the existing bridge structure. During the PEA update survey these conclusions were confirmed, however, due to the wider anticipated construction zones along the riverbank there may be potential for otter to be disturbed if using the log piles/fallen tree debris at TN3 & TN5 as resting sites.

As otters are naturally inquisitive it is possible that construction activity may attract them to investigate the works area. Impacts to otter during work activity is likely to relate to inadvertent harm caused by otter being trapped in uncovered excavations on site. Any additional lighting and /or night- time working is also likely to adversely impact otter by disrupting established feeding and commuting activity. Additionally, if the river channel is blocked to facilitate works commuting otter may be inhibited or completely excluded from feeding and sheltering areas.

4.2.3 *Hazel Dormouse*

Hazel dormouse are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and it is an offence to deliberately disturb and damage or destroy a breeding or resting site of any European protected species.

No records for dormouse were returned from the data search and habitats on site were sub-optimal for dormouse due to the wet understorey lowering the suitability for hibernation sites, and the tree and ground flora species recorded considered limited in terms of providing sufficient successional food resources to sustain a population. It is therefore unlikely that dormouse would be present. However, as dormouse is a difficult species to detect, living at low population densities even in optimal habitat, presence cannot be completely discounted. If dormouse were to be present there is low potential for disturbance during de-vegetation works if carried out in the dormouse active season (April to late October) and therefore a precautionary approach to works will be required.

4.2.4 *Badgers*

Badgers and their setts are protected under the Protection of Badgers Act 1992, making it an offence to deliberately kill or injure a badger or damage or destroy their setts.

The site had some potential habitat to support commuting and foraging badger, however, the generally wet ground conditions, and relatively high levels of disturbance including from off lead dogs, make the site unsuitable for the establishment of setts.

Any adverse impact on badger is likely to relate to an inquisitive animal being accidentally trapped in uncovered excavations on site.

4.2.5 *Hedgehog / Other Mammals*

Hedgehogs are a species of principal importance for the purpose of maintaining and enhancing biodiversity in Wales under Section 7 of the Environment (Wales) Act 2016.

Evidence of hedgehog was confirmed in the survey area and this species is likely to be using habitats for foraging, breeding, nesting and commuting. Adverse short-term impacts to hedgehog from works such as accidental killing or injury may occur in the absence of mitigation measures when vegetation clearance is carried out. No long-term impacts are anticipated however, due to the relatively small scale of works and presence of suitable habitat to support displaced individuals.

4.2.6 *Birds*

Birds are protected under the Wildlife and Countryside Act 1981 (as amended) and it is an offence to damage or destroy a bird's nest whilst it is in use, or to kill or injure a bird, or to destroy an egg.

There is potential for site clearance works and construction activity on and near the river or within woodland areas to cause disturbance to nesting birds if works are conducted during the breeding season (March to August inclusive).

Any restriction to access e.g., from scaffolding or netting during bridge construction works has the potential to adversely impact on species such as Schedule 1 kingfisher (*Alcedo atthis*), dipper (*Cinclus cinclus*) and grey wagtail (*Motacilla cinerea*); restricting access to nest sites, breeding territories and food resources.

If works are conducted outside the breeding season the impact due to the temporary loss of a small amount of terrestrial foraging and shelter habitat is considered to be minor adverse as the surrounding environment offers suitable habitat for displaced birds during the relatively short time period when clearance work will be carried out.

The long-term impact on breeding birds resulting from the scheme is likely to be minor. This is due to the abundance of breeding habitat in the wider landscape suitable to support the full range of species recorded in the scheme area or those likely to be present.

4.2.7 *Reptiles*

Common reptiles are protected against intentional killing and injury under the Wildlife and Countryside Act (WCA) 1981 (as amended).

There was limited optimal habitat for reptiles within the survey area. If reptiles are present, it is likely to be in low numbers and limited to the bracken slopes and grassland footpaths on the western side of the river, neither of these areas are likely to be significantly disturbed as a result of the proposed works.

There is low potential for reptiles to be harmed during habitat clearance activities (within bracken, scrub and woodland understory) present on both sides of the feeder pipe crossing.

4.2.8 *Amphibians*

Common toad is listed under Section 7 of the Environment (Wales) Act 2016 as a species of principle importance for conserving biodiversity in Wales.

The damp woodland, scrub and bracken areas within the scheme area provide suitable terrestrial habitat for amphibian species such as common toad. A number of toadlets were also recorded during the survey visit confirming presence, however, no suitable breeding sites such as ponds were located.

There is potential for common toad to be killed or injured as a result of vegetation clearance works to facilitate site access. Long-term impacts from habitat loss, however, are considered to be minor to negligible as suitable habitat exists in the wider area to support any displaced individuals.

4.2.9 *Fish*

Priority fish species such as brown trout are known to use the River Taff and are likely to be present within the scheme area. Proposed works have the potential to disrupt commuting pathways for fish species if in-channel works were to block the river corridor.

There may also be potential for species such as stone loach to be spawning in the scheme area. Under the Salmon and Freshwater Fisheries Act 1975, it is a criminal offence for anyone to wilfully disturb spawn or spawning fish on any bed bank or shallow where there are spawning fish. Works therefore may have potential to detrimentally disturb spawning fish if any in-channel works are carried out during the spawning season (between 15th October to 29th June).

Additionally, any pollution of the watercourse would also likely impact on fish species with severity determined by the nature and extent of the pollution. In the absence of mitigation, any spills of oil, chemicals or fuel are likely to have a high short-term impact on fish. There will also be a limited disturbance of sediment during works such as demolition of the bridge or repair to scour which would be likely to have a low to moderate short-term impact on fish.

4.2.10 *Invertebrates*

Disturbance to terrestrial invertebrates is likely to be minor and of short duration, affecting common species only. Records for priority and protected species from the desk study were predominantly for moth species which reside in commonly occurring habitats and have generalist larval feeding requirements. Moth species are unlikely to be adversely impacted other than at site level in the short term as suitable habitat is available in the wider landscape to support these.

Aquatic invertebrates may be impacted adversely in the short to medium term through construction activities causing silting of the water and/ or pollution events.

4.2.11 *Invasive Plant Species*

Schedule 9, Section 14 of the Wildlife and Countryside Act 1981 (as amended) makes it an offence to “plant or otherwise cause to grow in the wild any plant which is included in Part II of Schedule 9”.

Schedule 9 invasive plant species were recorded in abundance across the site including Himalayan balsam and Japanese knotweed of which were growing within 1 m of the bridge. Vegetation clearance during the pre-construction phase is highly likely to cause disturbance and potentially the spread of these species which constitutes an illegal action.

5. Conclusion

Overall, the scheme area and immediate surroundings are considered to be of high ecological value, due to the presence of SINC designated sites and priority habitats of county level ecological importance and Ancient Woodland of regional level (see Section 5.1). Additionally, the scheme area has potential to support a range of protected species (see Section 5.2). Providing measures outlined in Section 6 are implemented, proposed works are anticipated to cause moderate adverse short-term impacts and negligible long-term impacts to habitats and species.

5.1 Designated Sites and Habitats

The River Taff has high ecological value, being listed as a priority habitat in Wales and designated as a SINC. It is highly likely to support a range of protected species such as otter, brown trout, salmon and Schedule 1 bird species kingfisher.

Woodland on the north-western side of the river (part of the Lower Taff and Edwardsville SINC), within the footprint of proposed works, forms part of ancient semi-natural woodland (AW) which is of high ecological value. AW is a priority habitat under Section 7 of the Environment (Wales) Act 2016 and is of "Principal Importance" for maintaining and enhancing biodiversity in relation to Wales. Woodland habitat on site is highly likely to support a range of bird species, terrestrial invertebrates and support foraging and commuting bats, badger and hedgehog.

The woodland and river habitats in combination provide an important wildlife corridor within Rhondda Cynon Taf.

The main impacts of the proposed works, in the absence of mitigation, will include loss of trees particularly associated with ancient woodland and pollution to the River Taff.

5.2 Species

The survey and scheme area had high ecological value for a range of priority species including bats, otter, dormouse, badger, hedgehog, nesting birds, reptiles, common amphibians, fish and invertebrates. Impacts may include disturbance to foraging and commuting individuals, destruction or damage to nests/places of shelter, or accidental killing or injury. Due to the presence of adjoining suitable habitat to support displaced individuals and the relatively confined nature of proposed works, negligible impacts to these species are anticipated in the long-term. Any short-term impacts will be minimised providing mitigation measures outlined in Section 6 such as avoidance of night-working and sensitive site clearance practices are implemented during the construction phase.

Three Schedule 9 invasive plant species were noted in the survey area. Measures outlined in Section 6 need to be implemented to ensure these are not spread away from the scheme area.

Mitigation recommendations detailed in Section 6 will ensure proposed works are compliant with wildlife legislation. Compensation and enhancement measures recommended should also be adopted to ensure long-term biodiversity enhancement in the scheme area in line with the Environment (Wales) Act 2016 and Planning Policy Wales 11 (2021).

6. Recommendations for Further Survey, Mitigation and Enhancement

6.1 Further Survey

6.1.1 Bats

Pre-construction inspection - If works are set to commence before June 2023, then results of the initial bat surveys (Redstart, 2021c) can be accepted. To account for the temporal gap between these bat surveys and works, however, a precautionary pre-construction inspection of the structure by a bat licensed ecologist on the morning of works is still recommended.

Should works be scheduled to commence after June 2023, then updates to the bat surveys will be required prior to works commencing as follows:

- One dusk emergence survey and one dawn return to roost survey to be carried out between May-August to determine whether the crossing and associated structures are used by roosting bats.

Should bats be found to be roosting in the structure then a European Protected Species Licence will be required from Natural Resources Wales (NRW) prior to works commencing.

6.1.2 Otter

A pre-construction otter survey of the riverbanks should be carried out within 30 m upstream and downstream of Feeder Pipe Bridge construction area boundary. This should be carried out at a minimum of 6 weeks prior to works commencing. This will help determine the presence of any otter holts within proximity to the works area.

Should an otter holt be identified during this check a European Protected Species Licence will be required from NRW prior to works commencing.

6.2 Ecological Method Statement

An ecological method statement detailing all the required mitigation measures should be prepared prior to commencement of works and followed for the duration of the works. This method statement should detail in full the measures described in the Sections 6.3 & 6.4.

Construction methods, plant and machinery, access routes and siting of compounds / welfare facilities should also be discussed with an ecologist to ensure that damage to designated/priority habitats and species is minimised.

6.3 Habitat Mitigation

6.3.1 Woodland (Ancient Woodland (AW), SINC & Priority Habitat)

Avoidance/Clearance Minimisation - Damage or destruction of high value woodland habitat, particularly areas identified as Ancient Woodland and mature tree specimens, should be avoided in the first instance and at least kept to the minimum required to effectively implement the scheme. Use of smaller machinery i.e., smallest machine(s) that can sufficiently undertake the works, should also be considered where possible to minimise the clearance widths required for access.

Any loss of woodland plants should be replaced as a minimum on a like for like basis or left to revegetate naturally. In this case likely rapid re-colonisation by invasive plant species and bracken could hinder natural woodland revegetation and as such tree planting may be more beneficial. Smaller tree specimens in clearance areas could be considered for retention on site to be reinstated post-works.

Root Protection Zones - Root protection zones for retained trees at the construction boundaries should be employed in line with the British Standard - Trees in relation to construction — Recommendations (BS 5837:2005).

Construction Boundary Fencing - Any retained woodland areas not affected by the works should also be protected during and post-construction via fencing to prevent machinery straying outside the immediate area of works and/or access tracks.

AW Consultation with NRW - Impacts to trees designated within AW areas will also require permission granted from Natural Resources Wales.

6.3.2 *River (SINC & Priority Habitat)*

Pollution Prevention Measures - Standard best practice and pollution control measures should be implemented in accordance with relevant guidance (e.g. CIRIA, 2001 and Net Regs Guidelines for Pollution Prevention (GPP), particularly GPP 5 Works and maintenance in or near water (NetRegs, 2018)) to ensure the River Taff is not adversely affected by silt, dust, uncontrolled surface water run-off, inappropriate storage of materials and/or inappropriate refuelling of machinery. This should be detailed in a suitable risk prevention plan and include the following measures:

- The compound and all materials (especially if hazardous or toxic) should be stored securely at least 7 m away from any watercourses.
- Refuelling of machinery should not be carried out on site.
- All static machinery should be placed on drip-trays or oil absorbent nappies. Trays should be emptied regularly to ensure that they contain any spills.

Riverbed/bank disturbance minimisation - Construction methods should be adopted which minimise disturbance to the riverbed/banks and / or structure of the watercourse.

6.3.3 *Compound Siting*

The site compound should be sited where possible on areas of existing hard standing or already cleared areas, unless protected species are known to be present. This will reduce additional damage to natural habitats onsite. Alternative siting should be discussed with an ecologist prior to commencement of works.

6.4 Species Mitigation

If any vegetation removal or disturbance of natural ground is required, the area should be checked by an ecologist for protected species prior to contractors arriving on site and /or any relevant method statement followed.

6.4.1 *General Bat, Otter & Badger Mitigation*

The following measures in Table 2 should be employed to all works to reduce disturbance to bats, otter and badger using suitable habitat within the scheme area. Dependent upon results of the emergence/return to bat roost surveys (if required) and pre-construction otter check, further measures may also be required.

Table 2. General bat and otter mitigation measures to be employed to all works.

Mitigation Measure	Description
Avoidance of night working	If the proposed works are carried out during the time of year when bats are active (i.e., April to September inclusive), works should be carried out during daylight hours; commencing at least 1 hour following sunrise and finishing at least 1 hour before sunset, to avoid unnecessary disturbance to bats. Similarly, all works within 30 m of a waterbody should also be restricted to starting one hour after sunrise and completing one hour before sunset. This should allow otters using the river to carry out their normal nocturnal activities. If night- time working is unavoidable then advice on how to reduce potential disturbance to bats and otter should be sought from a suitably qualified ecologist.
Maintenance of commuting/ foraging corridors	No fencing or scaffolding should completely obstruct the River Taff at night in order to maintain an open commuting/foraging pathway along the river corridor and allow bats and otter to move freely.
Construction lighting	If construction lighting is required for safety, any light sources used should be directional and positioned to prevent excessive light spill from the immediate works area. The layout and specification should be discussed with and agreed by an ecologist – directional lighting and screening may be required.
Compound siting	The site compound (and all machines and materials) should be located away from watercourses. A suitable location for the compound should be agreed with an ecologist to ensure that this doesn't conflict with other ecological considerations.
Materials & Machinery	Materials and machinery should be locked away in the site compound when not in use, day, night or weekend. Where this is not possible, they will need to be fenced off.
Excavations	Any excavations should be securely fenced off and covered over at the end of the working period, at weekends or when not in use. If it is not possible to cover excavations an escape ramp should be installed to limit the possibility of animals such as otters or badger becoming trapped.

In the unlikely event of a bat, otter, badger or their places of shelter being discovered during construction, works in the area should cease immediately until advice is sought from an ecologist. A European Protected Species Licence (EPSL) (bats/otter only) may then be required from Natural Resources Wales before works can recommence.

6.4.2 Design Lighting

No lighting should be incorporated into the scheme design to ensure a dark commuting and foraging corridor for bats, otter and badger is maintained along the river and woodland corridors.

In the event lighting is required for public safety purposes, then the specification and layout of any new lighting included within the design should be agreed with an experienced ecologist at the design stage and designed following best practice guidelines (BCT, 2018).

6.4.3 Method Statement for Vegetation Clearance – to Include Dormouse, Reptiles, Amphibians and Hedgehog

A combined method statement inclusive of dormouse (on a precautionary basis), reptiles, amphibians and hedgehog, will be required for all vegetation clearance and terrestrial ground excavations. This will include the following measures:

- **Timing** – Clearance works should ideally be carried out within the active period for each species (between April and early October).

- **Methods** - directional 2-stage cut using hand-tools only, finger-tip search and hand dismantlement of potential refugia i.e., log piles.
- **Ecological supervision** - All vegetation clearance undertaken under the supervision of an Ecological Clerk of Works (ECoW).

The method statement will also detail actions needed to be taken for each species in the event any are discovered during clearance works. For example:

- **Dormouse** – works should cease until advice sought from NRW. An EPSL licence may be required before works recommence.
- **Reptiles and Amphibians** – relocated to safe, suitable habitat outside of the construction zone by the supervising ecologist.
- **Hedgehog** - relocated to safe, suitable habitat outside of the construction zone by the supervising ecologist. If a mother and hoglets are found and disturbance unavoidable, a wildlife rehabilitator contacted as the adult female may abandon the nest and juveniles may not survive independently of her. This is particularly important for late autumn young.

6.4.4 *Burrowing Small Mammals*

All plant and machinery should remain within pre-determined routes cleared of vegetation under ecological supervision to avoid crushing and/or asphyxiation of burrowing mammals.

6.4.5 *Birds*

Any vegetation or tree clearance should ideally be undertaken outside the bird breeding season (i.e. works conducted during September to February inclusive).

Due to conflicts of this timing with methods for other species, it may be possible to undertake partial tree clearance prior to the main works whereby trees are cut to a minimum of 1.5 m height (leaving the tree stumps in place) during November-March. This method **should only be** undertaken where access paths for machinery through the woodland have been previously cleared during early October under methods outlined in the combined species method statement (see Section 6.4.3).

If avoidance of the bird breeding season is not possible, clearance works should be carried out carefully following a check by an ecologist for active bird nests immediately prior to works commencing.

If an active nest is discovered, all works in the immediate area should cease and an exclusion zone established as determined by the ecologist, and the nest protected until the young have fledged and / or the nest is no longer active.

6.4.6 *Fish*

Works should in the first instance be carried out from the riverbank where possible. Should in-channel works be required these should ideally take place outside of the fish spawning season (i.e. be carried out between 30th June and the 14th October), unless carried out within a dry bed or under appropriate consent from Natural Resources Wales.

Where in-channel works are carried out in water, a continuous fish passage should be retained along the river corridor throughout the works to limit disruption to commuting fish.

A check of the cobble riverbed for stone loach should also be made prior to installation of any scaffolding in the river (if required). Should a stone loach be found during this check then it should be safely relocated to a suitable area of riverbed outside the area of works.

Pollution prevention measures should also be implemented as per Section 6.3.2.

6.4.7 *Invasive Plant Species*

The appointed contractors should provide an appropriate Invasive Species Method Statement for the proposed works that should be followed for the duration of the works, to minimise the risk of spreading invasive plant species recorded on site. The risk of spreading invasive plant species can be reduced by avoiding unnecessary disturbance (e.g., siting of plant/tools/ machinery) in areas where Schedule 9 species are present.

6.4.8 *Toolbox Talk*

All site operatives should receive an ecological toolbox talk prior to commencement of works. The toolbox talk should be delivered by a suitably experienced ecologist and cover the ecological constraints on site and mitigation required. A reminder of the requirement to follow an appropriate management plan for invasive species should be included.

6.5 Enhancement Opportunities

The following enhancement measures are recommended to comply with The Environment (Wales) Act 2016 and Planning Policy Wales (11th Ed. 2021):

6.5.1 *Bats*

Three 'summer roost' crevice bat boxes could be installed, under guidance of an ecologist, on mature trees within the adjacent woodland. These should be sited facing south, south-east and south-west to give a range of temperatures throughout the season. Recommended make and model: Treble or Double Crevice; NHBS reference #187784/ #187782; available at: <https://www.nhbs.com/improvedcrevice-bat-box> (similarly specified makes/models from reputable ecological organisations also acceptable where recommended model not available).

6.5.2 *Birds*

At least three bird boxes for small passerines such as blue tit could be installed, under guidance of an ecologist, approximately 3-4 m high within the woodland. These should be installed facing between a northerly and eastern direction. Recommended make and model for installation is Apex Bird Box 28 mm entrance hole; NHBS reference #233975; available at: <https://www.nhbs.com/apex-bird-box>.

Additionally, a bird box for grey wagtail and dipper could be sited on a wall on or near the replaced structure above the highest water line. Recommended make and model: Vivara Pro Woodstone Grey Wagtail and Dipper box; NHBS reference #238825; available at: <https://www.nhbs.com/vivara-pro-woodstone-grey-wagtail-and-dipper-nest-box>

Similarly specified makes/models from reputable ecological organisations also acceptable where recommended models are not available.

6.5.3 *Reptiles – Brash Piles*

Cuttings from vegetation clearance works could be used to create reptile hibernacula adjacent to areas being cleared for site access. Reptile hibernacula can be composed of brash and log piles created from cleared trees or scrub cuttings placed in suitable sunny areas.

7. References

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Drawings

- GC3880-RED-74-XX-M2-L-3001 - Phase 1 Habitat Map
- GC3880-RED-74-XX-M2-L-3002 - Designated Sites Map

Key

- Target Note
- Scattered trees (broadleaved)
- Wall
- - - Informal path
- 100m Survey boundary
- Feeder Pipe Bridge
- Broadleaved woodland (semi-natural)
- Poor semi-improved grassland
- Bracken - continuous
- Tall ruderal
- Running water
- Other Habitat - Rocky shoal/mid-channel bar
- Hardstanding

Purpose of issue					
S2 - Suitable for Information					
Classification					
Confidential - Internal					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
Feeder Pipe Bridge, Abercynon					
Drawing Title					
Phase 1 Habitat Map (Update 2022 Report)					
Drawn	NP	Checked	EC	Approved	GP
Project No	Date		Scale		Size
GC/003880	September 2022		1:800		A3
Drawing identifier		Revision: P01			
GC3880-RED-74-XX-M2-L-3001					
 REDSTART. St David's House, Pascal Close, St Melons, Cardiff CF3 0LW www.redstartwales.com					



Key

1km Radius

Feeder Pipe Bridge (Grid Ref. ST092954)

MTCBC SINC Sites

Craig Berthlwyd

Cwm Afon Railway Line, West of Nelson

Cwm Afon, West of Nelson

Cwm Mafon

Goetre-coed Wood

Lower Taf & Edwardsville Woods

Mynydd Goetre-coed

Whitehall Golf Course

RCT SINC Sites

SINC 142 - Taff and Rhondda Rivers

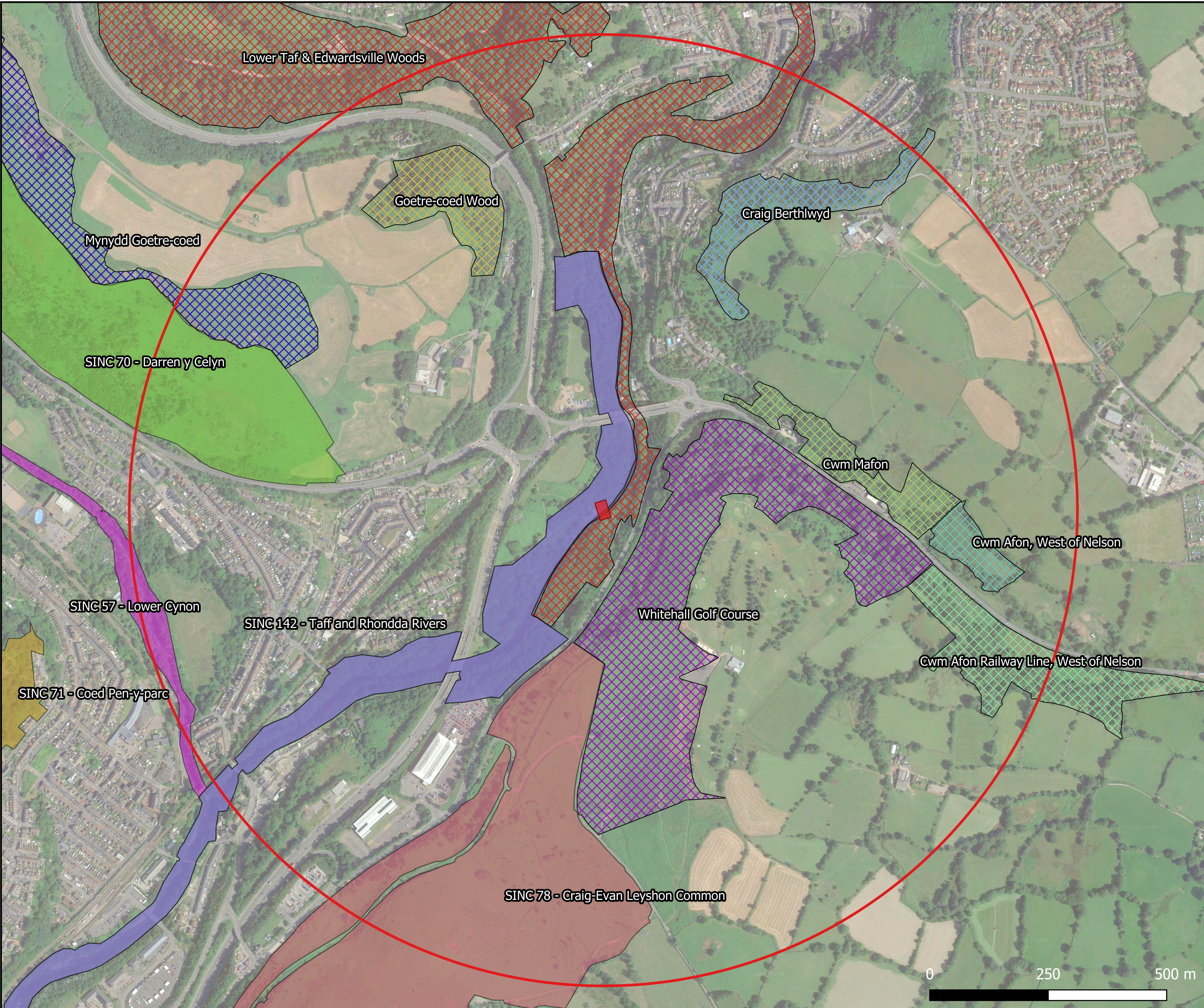
SINC 57 - Lower Cynon

SINC 70 - Darren y Celyn

SINC 71 - Coed Pen-y-parc

SINC 78 - Craig-Evan Leyshon Common

Purpose of issue			
S2 - Suitable for Information			
Classification			
Confidential - Internal Use Only			
Client			
Rhondda Cynon Taf County Borough Council			
Project			
Feeder Pipe Bridge, Abercynon			
Drawing Title			
Designated Sites Map (Update 2022 Report)			
Drawn	NP	Checked	EC
Approved	GP		
Project No	Date	Scale	Size
GC/003880	August 2022	1:12,000	A3
Drawing identifier		Revision: P01	
GC3880-RED-74-XX-M2-L-3002			
 REDSTART. St David's House, Pascal Close, St Mellons, Cardiff CF3 0LW www.redstartwales.com			



Appendix A – Legislation

European Protected Species

European Protected Species are those species listed on Schedule 2 of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The list includes all species of bats, dormouse, great crested newt and otter. The species listed on Schedule 2 are afforded protection against:

- deliberate capture, injury or killing;
- deliberate disturbance;
- deliberate taking or destruction of the eggs; and
- damage or destruction of a breeding site or resting place of such an animal.

Where a European protected species is present, a development may only proceed, under a licence issued by the relevant governing body i.e. Natural Resources Wales.

Birds Directive (Directive 2009/147/EC)

Annex 1 of the Birds Directive lists species and sub-species which are:

- in danger of extinction;
- vulnerable to specific changes in their habitat;
- considered rare because of small populations or restricted local distribution;
- requiring particular attention for reasons of the specific nature of habitat.

For these species Member States must conserve their most suitable territories in number and size as Special Protection Areas (SPAs). Species listed on Annex 1 of the Birds Directive include kingfisher and red kite.

Wildlife and Countryside Act 1981 (as amended)

Schedule 1

All naturally occurring British bird species are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs and it is an offence to:

- intentionally kill, injure and take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

Birds listed on Schedule 1 of the above legislation (e.g. kingfisher and red kite) are afforded further protection and it is an offence to:

- intentionally or recklessly disturb the bird while nest building or while at (or near) a nest with eggs or young; or
- disturb the dependent young of such a bird.

Schedule 5

Section 9 of the Wildlife and Countryside Act 1981 (as amended) offers varying degrees of protection to species including otter, bats, dormice, amphibians and reptiles. Animals listed on Schedule 5 of the Act are protected against one or more of the following:

- intentional killing, injuring or taking (not applicable to bats);

- intentional or reckless damage or destruction, or obstruction of access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection;
- disturbance of any such animal while it is occupying a structure or place which it uses for that purpose;
- sell, offer or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead wild animal included in schedule 5, or any part of, or anything derived from such an animal.

Schedule 8

Plant species listed on Schedule 8 are protected under Section 13 of the Wildlife and Countryside Act 1981 (as amended). Section 13 protects plants from:

- intentional picking, uprooting or destruction;
- selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative);
- advertising (any of these) for buying or selling.

Schedule 9

Section 14 of the Wildlife and Countryside Act 1981 (as amended) makes it an offence to “plant or otherwise cause to grow in the wild any plant which is included in Part II of Schedule 9”.

Wild Mammals (Protection) Act 1996

Provides protection for wild mammals against certain acts of deliberate harm including crushing and asphyxiation.

Wild mammal means any mammal which is not a ‘protected animal’ within the meaning of the Animal Welfare Act 2006 (Schedule 3, Section 13). Hedgehog would be included under this definition.

Environment (Wales) Act 2016

Section 7 of the Environment (Wales) Act has replaced the Section 42 of the NERC Act 2006 in Wales. Section 7 lists the living organisms and types of habitat in Wales which are considered to be of key significance to sustain and improve biodiversity in relation to Wales.

The Act states that Welsh Ministers must 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.

UK BAP

UK BAP priority species are those that have been identified as being the most threatened and requiring conservation action. This includes (but is not limited to) species such as common toad, otter, great crested newt, slow worm, common lizard, brown long-eared bat, noctule and soprano pipistrelle.

Red and Amber Lists

Red-listed bird species are those which:

- Are globally threatened;
- Have suffered a historical population decline in the UK during 1800–1995;
- Have suffered a severe (at least 50%) decline in the UK breeding population over the last 25 years, or longer-term period (the entire period used for assessments since the first review, starting in 1969);
- Have suffered a severe (at least 50%) contraction of the UK breeding range over the last 25 years, or the longer-term period;

Amber-listed bird species are those which:

- Have unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
- Have suffered a historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years
- Have suffered a moderate (25-49%) decline in the UK breeding population over the last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) contraction of the UK breeding range over last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) decline in the UK non-breeding population over last 25 years, or the longer-term period
- Are rare breeders; 1–300 breeding pairs in UK
- Are rare non-breeders; less than 900 individuals
- Are localised; at least 50% of the UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders
- Are internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively).

Nationally Scarce

These are species occurring in 16-100 hectares in Great Britain.

Invasive Non-Native Species

Any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live.

Appendix B – Protected/Notable Species within 1 km (5 km for bats)

Bats Within 5 km				
Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Bats	<i>Chiroptera</i>	EPS, WCA5, S7, LBAP (RCT)	16	July 2021
Brandt's bat	<i>Myotis brandtii</i>	Bern, EPS, HDir, RD2(UK), WCA5	1	May 2022
Brown long-eared bat	<i>Plecotus auritus</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK)	14	August 2020
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, HDir, WCA5, S7, Bonn, Bern	53	May 2022
Daubenton's bat	<i>Myotis daubentonii</i>	Bern, EPS, HDir, RD2(UK), WCA5	7	September 2019
Long-eared bat species	<i>Plecotus</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK)	1	January 2020
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK)	3	July 2019
Natterer's bat	<i>Myotis nattereri</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK)	1	May 2013
Noctule bat	<i>Nyctalus noctula</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK)	16	October 2020
Pipistrelle	<i>Pipistrellus pipistrellus agg.</i>	EPS, HDir, WCA5, S7, Bonn, Bern, RD2 (UK)	16	May 2022
Serotine	<i>Eptesicus serotinus</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK)	1	May 2017
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK)	34	May 2022
Unidentified bat	<i>Myotis</i>	EPS, HDir, WCA5, Bonn, Bern	5	May 2020
Whiskered bat	<i>Myotis mystacinus</i>	Bern, EPS, HDir, RD2(UK), WCA5	1	May 2021

Protected and Priority Species within 1 km (Excluding bats)				
Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Amphibians				
Common frog	<i>Rana temporaria</i>	Bern, HDir, WCA5	1	July 2020
Common toad	<i>Bufo bufo</i>	Bern, S7, WCA5	4	April 2021
Birds				
Black-headed gull	<i>Chroicocephalus ridibundus</i>	BDir2.2, S7, UKBA, WBR	1	July 2017
Cuckoo	<i>Cuculus canorus</i>	S7, WBR, UKBR	1	June 2013
Dunnoek	<i>Prunella modularis</i>	S7, Bern, UKBA	38	January 2021
Eurasian bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBA, WBR	18	January 2021
Eurasian skylark	<i>Alauda arvensis</i>	BDir2.2, S7, UKBR, WBA	2	2020
Goshawk	<i>Accipiter gentilis</i>	CITES, WCA1.1, WCA9	1	June 2017
House sparrow	<i>Passer domesticus</i>	S7, UKBR, WBA	29	January 2021
Kestrel	<i>Falco tinnunculus</i>	S7, Bonn, Bern, CITES, WBR, UKBA	1	October 2020
Kingfisher	<i>Alcedo atthis</i>	BDir1, WCA1.1, Bern, WBA, UKBA	11	November 2020
Linnet	<i>Linaria cannabina</i>	S7, Bern, WBR, UKBR	3	March 2020
Redwing	<i>Turdus iliacus</i>	BDir2.2, UKBR, WBA, WCA1.1	10	2021
Song thrush	<i>Turdus philomelos</i>	BDir2.2, Bern, S7, UKBR, WBA	28	2020
Starling	<i>Sturnus vulgaris</i>	BDir2.2, Bern, S7, UKBR, WBR	4	January 2021
Western barn owl	<i>Tyto alba</i>	Bern, CITES, WCA1.1, WCA9	2	May 2020
Invertebrates				
August thorn	<i>Ennomos quercinaria</i>	S7	5	2021
Blood-vein	<i>Timandra comae</i>	S7	2	2021
Brindled beauty	<i>Lycia hirtaria</i>	S7	11	2022
Buff ermine	<i>Spilosoma lutea</i>	S7	23	2022
Centre-barred sallow	<i>Atethmia centrargo</i>	S7	9	2020

Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Cinnabar	<i>Tyria jacobaeae</i>	S7	7	2022
Dot moth	<i>Melanchra persicariae</i>	S7	8	June 2022
Dusky brocade	<i>Apamea remissa</i>	S7	1	June 2022
Dusky thorn	<i>Ennomos fuscantaria</i>	S7	15	2021
Ear moth	<i>Amphipoea oculatea</i>	S7	1	July 2020
Flounced chestnut	<i>Agrochola helvola</i>	S7	2	2020
Garden tiger	<i>Arctia caja</i>	S7	1	July 2020
Green-brindled crescent	<i>Allophytes oxyacanthae</i>	S7	4	2021
Hedge rustic	<i>Tholera cespitis</i>	S7	2	2020
Knot grass	<i>Acronicta rumicis</i>	S7	4	May 2022
Rosy rustic	<i>Hydraecia micacea</i>	S7	2	2020
Rustic	<i>Hoplodrina blanda</i>	S7	5	June 2022
Sallow	<i>Cirrhia icteritia</i>	S7	2	2020
Shoulder-striped wainscot	<i>Leucania comma</i>	S7	10	2022
Small phoenix	<i>Ecliptopera silaceata</i>	S7	4	2022
Small square-spot	<i>Diarsia rubi</i>	S7	7	2020
Streak	<i>Chesias legatella</i>	S7	1	October 2020
White ermine	<i>Spilosoma lubricipeda</i>	S7	2	June 2022
White-letter hairstreak	<i>Satyrrium w-album</i>	RD1(UK)EN, S7, WCA5, LI[SEWBRc]	1	July 2016
Mammals				
Eurasian badger	<i>Meles meles</i>	BA, Bern,	1	February 2021
European otter	<i>Lutra lutra</i>	EPS, HDir, WCA5, S7, Bern, CITES, RD1 (UK), RD2 (UK)	4	November 2020
Polecat	<i>Mustela putorius</i>	HDir, S7, UKBAP, Bern, RD2 (UK)	1	January 2013
West European hedgehog	<i>Erinaceus europaeus</i>	S7, Bern, LBAP (RCT)	7	July 2021
Plants				
Bluebell	<i>Hyacinthoides non-scripta</i>	WCA8	2	April 2020
Reptiles				
Adder	<i>Vipera berus</i>	WCA5, S7, UKBAP, Bern	2	April 2021
Slow-worm	<i>Anguis fragilis</i>	WCA5, S7, UKBAP, Bern	6	May 2022

Species of Conservation Concern within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Birds				
Common sandpiper	<i>Actitis hypoleucos</i>	UKBA, WBR	1	June 2020
Cormorant	<i>Phalacrocorax carbo</i>	WBA	4	January 2021
Dipper	<i>Cinclus cinclus</i>	Bern, UKBA, WBA, LBAP (MTR, RCT),	18	2020
European green woodpecker	<i>Picus viridis</i>	Bern, WBA	2	December 2020
Goldcrest	<i>Regulus regulus</i>	Bern, WBA	26	2020
Greenfinch	<i>Chloris chloris</i>	Bern, WBA	5	2020
Grey heron	<i>Ardea cinerea</i>	WBA, LBAP[RCT]	7	January 2021
Grey wagtail	<i>Motacilla cinerea</i>	Bern, UKBR, WBA	12	2020
Lesser black-backed gull	<i>Larus fuscus</i>	BDir2.2, UKBA, WBA	5	January 2021
Long-tailed tit	<i>Aegithalos caudatus</i>	WBA	60	January 2021
Mallard	<i>Anas platyrhynchos</i>	BDir2.1, UKBA, WBA	16	2020
Meadow pipit	<i>Anthus pratensis</i>	Bern, WBA, UKBA	15	2020
Mistle thrush	<i>Turdus viscivorus</i>	BDir2.2, Bern, UKBR, WBA	10	January 2021
Sand martin	<i>Riparia riparia</i>	Bern, WBA	16	June 2020

Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Swallow	<i>Hirundo rustica</i>	Bern, WBA	4	2020
Swift	<i>Apus apus</i>	UKBA, WBA, LBAP[RCT]	4	June 2020
Wheatear	<i>Oenanthe oenanthe</i>	Bern, WBA	1	March 2020
Whitethroat	<i>Curruca communis</i>	WBR	3	2020
Willow warbler	<i>Phylloscopus trochilus</i>	WBR, UKBA	17	2020
Woodcock	<i>Scolopax rusticola</i>	BDir2.1, UKBR, WBR	4	2019
Invertebrates				
Black-headed cardinal beetle	<i>Pyrochroa coccinea</i>	RD2 (UK)NB	1	June 2013
<i>Caenopsis fissirostris</i>	<i>Caenopsis fissirostris</i>	RD2(UK)NB	1	October 2020
<i>Deleaster dichrous</i>	<i>Deleaster dichrous</i>	RD2(UK)NB	1	June 2021
<i>Euphranta toxoneura</i>	<i>Euphranta toxoneura</i>	RD2(UK)N	1	May 2020
Northern grey	<i>Scoparia ancipitella</i>	RD2(UK)NB	1	July 2020
Pied grey	<i>Eudonia delunella</i>	RD2(UK)NB	11	June 2022
Psylliodes cuprea	<i>Psylliodes cuprea</i>	RD2(UK)S	2	2020
Scarce grass-veneer	<i>Crambus pratella</i>	RD2(UK)NB	1	June 2022
Plants				
Rock stonecrop	<i>Sedum forsterianum</i>	RD2(UK)S, LI[LR, LS, SEWBReC]	1	June 2020
Spreading hedge-parsley	<i>Torilis arvensis</i>	RD1(UK)EN, RD1(Wales)RE, RD2(UK)S	2	July 2018
Welsh poppy	<i>Meconopsis cambrica</i>	RD2(UK)S	1	April 2020

Invasive species within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	No. of Records	Most Recent Record
Invertebrates				
Harlequin ladybird	<i>Harmonia axyridis</i>	INNS	10	2022
Mammals				
American mink	<i>Neovison vison</i>	INNS, WCA9	1	September 2020
Plants				
Entire-leaved cotoneaster	<i>Cotoneaster integrifolius</i>	INNS, WCA9	2	January 2021
Greater periwinkle	<i>Vinca major</i>	INNS	1	April 2020
Heath star moss	<i>Campylopus introflexus</i>	INNS	2	January 2018
Himalayan balsam	<i>Impatiens glandulifera</i>	INNS, WCA9	8	July 2020
Japanese knotweed	<i>Fallopia japonica</i>	INNS, WCA9	4	2020
Snowberry	<i>Symphoricarpos albus</i>	INNS	1	May 2020
Spanish bluebell	<i>Hyacinthoides hispanica</i>	INNS	1	May 2015

Legislation: Abbreviations			
BAP	UK Biodiversity Action Plan	UKBA	RSPB UK Birds Amber List (not based on IUCN criteria)
BDir1	EU Birds Directive Annexe 1	UKBR	RSPB UK Birds Red List (not based on IUCN criteria)
BDir2.1	EU Birds Directive Annexe 2.1	WBA	RSPB Welsh Birds Amber List (not based on IUCN criteria)
BDir2.2	EU Birds Directive Annexe 2.2	WBR	RSPB Welsh Birds Red List (not based on IUCN criteria)
Bern	Bern Convention on the Conservation of European Wildlife and Natural Habitats	WCA1.1	Wildlife & Countryside Act 1981 Schedule 1.1 (Birds which are protected at all times)
Bonn	Bonn Convention on the Conservation of Migratory Species of Wild Animals	WCA1.2	Wildlife & Countryside Act 1981 Schedule 1.2 (Birds which are protected at certain times)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	WCA5	Wildlife & Countryside Act 1981 Schedule 5 (Animals which are protected from killing and taking, possession, disturbance and sale)
EPS	European Protected Species	WCA8	Wildlife & Countryside Act 1981 Schedule 8 (Plants which are protected)
HDir	EU Habitats Directive	WCA9	Wildlife & Countryside Act 1981 Schedule 9 (Non-native animals and plants which are established in the wild)
INNS	Invasive Non-native Species	WVP	IUCN Threat Listing of Welsh Vascular Plants
LBAP	Local Biodiversity Action Plan species for the listed area	LI	Locally Important within the listed area
LBAP [RCT]	Rhondda Cynon Taff County Borough Council Local Biodiversity Action Plan	LI (SEWBReC)	Locally Important Species (as identified by local specialists) in SEWBReC area.
LBAP [MTR]	Merthyr Tydfil County Borough Council Local Biodiversity Action Plan	LI (VC##)	Locally Important Species (as identified by local specialists) in Vice County ##
NRW	Natural Resources Wales Priority Species	LI (VC##, LS)	Locally Scarce in Vice County ##
PBA	Protection of Badgers Act 1992	LI (VC##, LR)	Locally Rare in Vice County ##
RD1(UK)	Red Data Book listing for the UK based on IUCN guidelines (CE= Critically Endangered, EN= Endangered, VU= Vulnerable, NT= Near Threatened, LC=Least Concern)	LI (VC##, EX)	Extinct in Vice County ##
RD1 (Wales)	Red Data Book listing for Wales based on IUCN guidelines	LI (VC##, UR)	Under Recorded in Vice County ##
RD2(UK)	Red Data Book listing for the UK not based on IUCN guidelines	##	Vice County number. For more information on Vice Counties visit: https://www.ukbutterflies.co.uk/webpage.php?name=site_terms
S7	Environment (Wales) Act 2016 (Section 7)		

Appendix C – Botanical List

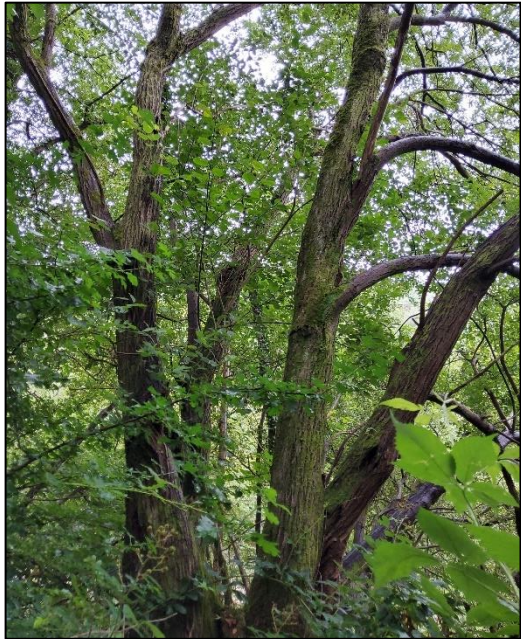
Common Name	Scientific Name	ACFOR (L=Locally)
Semi-natural broadleaved woodland – either side of the River Taff and Tram Rd Side		
Alder	<i>Alnus glutinosa</i>	C
Ash	<i>Fraxinus excelsior</i>	O
Hazel	<i>Corylus avellana</i>	O
Pedunculate oak	<i>Quercus robur</i>	O
Sycamore	<i>Acer pseudoplatanus</i>	O
Willow species	<i>Salix</i> sp.	O
Beech	<i>Fagus sylvatica</i>	O/LF
Silver birch	<i>Betula pendula</i>	O/LF
Understory species (including shrub layer and ground flora)		
Japanese knotweed	<i>Fallopia japonica</i>	A
Fern species	<i>Dryopteris</i> spp.	C
Himalayan balsam	<i>Impatiens glandulifera</i>	C
Remote sedge	<i>Carex remota</i>	C – western riverbank
Bramble	<i>Rubus fruticosus</i> agg.	F
Common ivy	<i>Hedera helix</i>	F
Bindweed species	<i>Calystegia silvatica</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Dog rose	<i>Rosa canina</i>	O
Hart's tongue	<i>Asplenium scolopendrium</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Wood avens	<i>Geum urbanum</i>	O
Nightshade species	<i>Solanum</i> sp.	O/LA
Hard fern	<i>Blechnum spicant</i>	O/LF
Holly	<i>Ilex aquifolium</i>	O/LF
Hemlock water-dropwort	<i>Oenanthe crocata</i>	O/LF along water's edge
Herb-Robert	<i>Geranium robertianum</i>	O/LF by paths
Montbretia	<i>Crocasmia pottsii</i> x <i>aurea</i> = <i>C. x crocosmiiflora</i>	R
Traveller's joy	<i>Clematis vitalba</i>	R
Bracken	<i>Pteridium aquilinum</i>	R/LF - at edges
Brooklime	<i>Veronica beccabunga</i>	R/LF – western riverbank
Scattered trees – within bracken area eastern side of Tram Road Side		
Silver birch	<i>Betula pendula</i>	A
Willow Species	<i>Salix</i> sp.	R
Scattered trees – within central bar in river (semi-mature, immature and saplings)		
Alder	<i>Alnus glutinosa</i>	C
Willow	<i>Salix</i> sp.	C
Sycamore	<i>Acer pseudoplatanus</i>	R
Poor semi-improved grassland – informal footpaths		
White clover	<i>Trifolium repens</i>	A
Common bent	<i>Agrostis capillaris</i>	C
Greater plantain	<i>Plantago major</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	O
Creeping buttercup	<i>Ranunculus repens</i>	O

Common Name	Scientific Name	ACFOR (L=Locally)
Himalayan balsam	<i>Impatiens glandulifera</i>	O
Red clover	<i>Trifolium pratense</i>	O
Barren strawberry	<i>Potentilla sterilis</i>	R
Common ragwort	<i>Senecio jacobaea</i>	R
Goldenrod species	<i>Solidago</i> sp.	R
Self-heal	<i>Prunella vulgaris</i>	R
Poor semi-improved grassland –horse-grazed field north-west of survey area.		
Common bent	<i>Agrostis capillaris</i>	C
Crested dog's-tail	<i>Cynosurus cristatus</i>	C
Self-heal	<i>Prunella vulgaris</i>	C
Rough hawkbit	<i>Leontodon hispidus</i>	F
Yarrow	<i>Achillea millefolium</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	F
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	O
Common ragwort	<i>Senecio jacobaea</i>	O
Creeping cinquefoil	<i>Potentilla reptans</i>	O
Fescue species	<i>Festuca</i> sp.	O
Perennial rye-grass	<i>Lolium perenne</i>	O
Red clover	<i>Trifolium pratense</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
White clover	<i>Trifolium repens</i>	O
Curled dock	<i>Rumex crispus</i>	R
Bracken		
Bracken	<i>Pteridium aquilinum</i>	A
Himalayan balsam	<i>Impatiens glandulifera</i>	C
Bramble	<i>Rubus fruticosus</i> agg.	F
Hemp-agrimony	<i>Eupatorium cannabinum</i>	LO – near woodland areas
Common ragwort	<i>Senecio jacobaea</i>	O
Curled dock	<i>Rumex crispus</i>	O
Rosebay willowherb	<i>Chamaenerion angustifolium</i>	O/LF
Gorse	<i>Ulex europaeus</i>	R
Common bent	<i>Agrostis capillaris</i>	R/LF by paths
Tall ruderal – across survey area		
Japanese knotweed	<i>Fallopia japonica</i>	A
Himalayan balsam	<i>Impatiens glandulifera</i>	C
Willowherb species	<i>Epilobium</i> sp.	O
Bramble	<i>Rubus fruticosus</i> agg.	O/LF
Other habitat – rocky shoal/mid-channel bar - -species growing in rocky shoal/ mid-bar channel area of river		
Redshank	<i>Persicaria maculosa</i>	F
Himalayan balsam	<i>Impatiens glandulifera</i>	F
Japanese knotweed	<i>Fallopia japonica</i>	F
Butterfly-bush	<i>Buddleia davidii</i>	O
Dock species	<i>Rumex</i> sp.	O
Bittercress species	<i>Cardamine</i> sp.	O
Reed canary-grass	<i>Phalaris arundinacea</i>	O
Fool's-water-cress	<i>Helosciadium nodiflorum</i>	R

Appendix D – Target Notes

Target Notes detailed are illustrated on Drawing GC3880-RED-74-XX-M2-L-3001.

Target Note (TN)	Grid Reference	Description	Photograph
1	ST09214 95500	Large cavity in retaining wall likely open to predation lowering suitability for roosting bats or nesting birds. Japanese knotweed & Himalayan balsam growing below.	
2	ST09237 95496	Mature beech tree – diameter at breast height (DBH) 80cm 12m high, some knot holes on branching limbs possibly too shallow but not viewed closely due to height. No bat hibernation potential due to small diameter of branching limbs with knot holes present.	
3	ST09239 95498	Log pile with some potential as an otter resting site.	

Target Note (TN)	Grid Reference	Description	Photograph
4	ST09186 95467	Otter spraint on river boulder within river with 1 x fresh otter spraint and 2 x old, degraded spraints. All contained fish scales. Approximately 25 m downstream of the existing bridge structure.	
5	ST09186 95444	Potential otter resting site within fallen tree debris	
6	ST09146 95487	Multi-stemmed willow, 8m high. Some cracks evident in trunk but looked possibly too shallow for roosting bats, not closely inspected due to height. No hibernation potential due to trunk diameter where cracks present.	
7	ST09096 95446	Two informal tracks leading down to bridge.	No photo taken
8	ST 09254 95486	Montbretia	No photo taken

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