BIGLIS TO DINAS POWYS ATR

Ecological Impact Assessment

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Biglis to Dinas Powys Active Travel Route

Ecological Impact Assessment

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01	**26/09/2024**	**Rachel Turcan**	**Siân Carr**	**Samantha Walters**	**First Issue**

Contents

EXECUTIVE SUMMARY

An ecological impact assessment (EcIA) was commissioned by the Vale of Glamorgan Council (the applicant) in support of a planning application for an all traffic route (ATR) between Biglis and Dinas Powys. This EcIA should be read in conjunction with the Preliminary Ecological Appraisal; Badger Survey Report; Hazel Dormouse Survey Report; Water Vole and Otter Report; and Bat Roost Assessment Report.

An initial Phase 1 Habitat Survey was undertaken in 2022 to assess and map habitats within the site (red line boundary) and included an assessment of habitat in relation to its condition to support protected / notable species. Further survey work for badgers, bats, water vole**,** otter and hazel dormouse was undertaken over the appropriate survey windows in 2023 and great crested newt in 2024 to ensure sufficient baseline results were recorded to inform an impact assessment in line with CIEEM guidelines for an EcIA. A walkover was completed in July 2024 to ensure no change in conditions had occurred on site that would affect the validity of the survey results, no significant changes were noted.

The following ecological features have been scoped in as needing further consideration with regard to the proposed development (potential for significant effects from construction and/or operation). Mitigation measures have also been identified:

- **Non-Statutory Designated Sites**: Pwll Erw-Naw Site of Importance to Nature Conservation (SINC) is adjacent to the site, no direct impact has been identified but there could be an indirect impact to its designating feature (great crested newt) which will be mitigated by sensitive vegetation clearance detailed in an ecological working method statement. North of North Road SINC has the potential to be indirectly impacted by pollution events due to hydrological connectivity to the works area via Cadoxton Brook. A pollution prevention plan will be detailed in the construction environmental management plan accordingly.
- **Habitats:** The proposed development will lead to the loss of 0.02ha semi natural broadleaved woodland, 0.02ha hedgerows and 0.02ha species poor semi-improved grassland. New habitats are to be created to mitigate for this habitat loss and provide a net benefit to biodiversity, see text below. The potential for a pollution event to affect the Cadoxton Brook during construction works will be mitigated for through the implementation of a pollution prevention plan.
- **Reptiles, amphibians and hedgehog**: Habitats within the site were suitable to support reptiles, amphibians during their terrestrial phase, and foraging/nesting hedgehog. During vegetation clearance method statements will be followed which outline sensitive vegetation clearance methods, reducing the potential for injury/harm to these species.
- **Birds**: The woodland, hedgerows, scattered trees and scrub on site are likely to support nesting birds. All works (where possible) will be undertaken outside of nesting bird season which runs for March to August (inclusive). If this is not possible a nesting bird check will be undertaken by an experienced ecologist no more than 48 hours prior to clearance, if nesting birds are present, a suitably sized buffer will be located around the nest and all vegetation within the buffer will be left until the chicks have fledged.
- **Bats**: There were multiple records for bat species returned as part of the desk study. Trees within the hedgerow and woodland have low potential to support roosting bats and the hedgerow and woodland networks provide foraging habitats. Bats may be negatively impacted by the proposed development through the loss of roosting sites and increased lighting along the route. Bat boxes will be installed on retained trees prior to the felling or tree works on low bat roost potential trees under method statement. A sensitive lighting scheme has been designed suitable for bats to avoid negative effects.
- **Badger and otter**: Woodland and adjacent fields were suitable for supporting foraging badger. No badger setts or otter holts were identified, but a pre-construction check should be undertaken 8-10 weeks before construction commences and if a holt or sett is identified then a working method statement shall be implemented (and a licence applied for if necessary). Badger and otter may be negatively impacted by the proposed works if they cross the site during construction and/or lighting disrupts their nocturnal activities. All works during the construction phase will be restricted to day light hours only, all construction materials

will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a badger/otter or other animal enters the excavation they can escape and do not become trapped. During construction works the implementation of a pollution prevention plan, especially in the region of Cadoxton Brook will ensure no impacts on otter. Sensitive lighting forms part of the proposed development to ensure dark corridors are retained for nocturnal species this includes the Cadoxton Brook.

- **Water vole**: Water vole burrows were identified near to where the proposed development crosses Cadoxton Brook. Preconstruction checks will be undertaken 8-10 weeks before works commence, if burrows are found within 10m of the footprint a method statement will be developed to ensure there are no excavations within 5m of a burrow unless a licence is in place. During construction works the implementation of a pollution prevention plan, especially in the region of Cadoxton Brook will ensure no water quality impacts on water vole. The design retains open grassland habitat alongside Cadoxton Brook and piers of bridge are set back 1m from the bank top to ensure water vole have access to the banks of the brook with no obstructions.
- **Dormouse**: A single dormouse nest was found during survey work in 2023 at the west end of the proposed development. Population density is low, and the extent of habitat removal is considered to be minor. Vegetation clearance should be timed and be undertaken in a sensitive manner to ensure dormouse are not impacted.

Proposed landscape planting (hedgerow and tree planting) will reinforce east-west connectivity especially south of the Cardiff Road, the A4055. The planting will provide replacement foraging habitat for birds, bats, badger, dormouse, hedgehog, reptiles and common amphibians. Removal of grazing along a section of Cadoxton Brook may encourage water vole dispersal further north; east-west connectivity will be re-enforced through planting and any north-south connectivity fragmentation will be minor (<4m wide) and short – moderate term (canopy allowed to connect). Once the landscape planting is established, it is considered that, in combination with the benefits to air quality and climate change from providing improved non-car transport options in the Dinas Powys area and increased flood resilience that there will be an overall net benefit for biodiversity if all the mitigation is followed, including a sensitive lighting scheme to retain dark corridors for nocturnal species.

1 INTRODUCTION

1.1 Background

Arcadis Consulting (UK) Limited (Arcadis) was commissioned by Vale of Glamorgan Council to produce an Ecological Impact Assessment in support of a planning application submitted to Vale of Glamorgan Council under Planning Policy Wales [1] for the development of an active travel route (ATR) located between Biglis and Dinas Powys ("the proposed development").

1.2 Site Location and Setting

The proposed development is in the Vale of Glamorgan with a central grid reference of ST 15393 70215. The proposed development links Biglis in Barry (southwest end of the ATR) to Dinas Powys (northeast end of the ATR) via woodland, grazed semi-improved grasslands, and existing footpath/road along Cardiff Road and through Parc Bryn y Don skate park. The route will terminate at Dinas Powys train station. The route of the proposed development is shown in Figure 1 below.

Figure 1 Overview of proposed active travel route between Biglis (south-west) to Dinas Powys (north-east). © Google

1.3 Previous Reports

In 2022 Arcadis was commissioned to undertake a Preliminary Ecological Appraisal [2] in support of the planning application for the ATR. An extended Phase 1 habitat survey and desk study were completed in 2023, with subsequent surveys completed for great crested newt (GCN) (*Triturus cristatus*); ground level tree assessment for roosting bats (GLTA) [3]; dormouse (*Muscardinus avellanarius*); [4] badger (*Meles meles*); [5] otter (*Lutra lutra*) and water vole (*Arvicola amphibius*) [6].

1.4 Scope of Work

In 2024 Arcadis was commissioned to undertake an Ecological Impact Assessment in support of the planning application for the ATR.

The following objectives were set:

- Establish the baseline through field and desk-based assessment work.
- Identify important ecological features that may be affected.by the proposed development
- Consider the potential legal and policy implication of the proposed development and refer to the latest guidance.
- Assess the potential impacts on important ecological features and the significance of the residual effects of the project.
- Incorporate methods to avoid, reduce and compensate negative ecological impacts and their effects and provide ecological enhancement measures.

The methods, results and assessment are provided in this report.

1.5 Proposals

The proposals are for a new ATR between Dinas Powys and Biglis. An ATR is a path that will be used for walking and cycling (including the use of mobility scooters) for everyday journeys.

The site is situated to the southeast of the roundabout where Cardiff Road (A4055), A4231, and Sully Moors Road (B4267) meet. The route moves in a northeast direction and runs parallel to the south (and then east) of Cardiff Road. It intersects with the junction of Cardiff Road and Green Lane before crossing over Green Road. Continuing north, it merges back to the east of Cardiff Road and continues north until reaching a crossing at the entrance of Parc Bryn-y-Don. From there, it moves from the southeast to the northwest and into Heol Y Frenhines, reconnecting with Cardiff Road before utilising an existing signalised crossing to access St Cadoc's Avenue. The route then links with the existing shared route to the south of the abandoned railway.

The existing footpath/road along the northern section of the proposed development will likely need widening with some adjacent trees and scrub requiring some management and/or clearance. Sections of hedgerow, woodland, and semi-improved grassland will require some vegetation clearance to the south of A4055.

The proposed development consisting of a shared footway and cycleway from Biglis, finishing in Dinas Powys. Works will include:

- Site drainage, access roads and footpaths, task specific lighting during construction, security gates and fencing, landscaping, biodiversity planting and CCTV;
- Path and cycle path creation through widening of existing path;
- Pedestrian and cycle footbridge;
- Toucan crossing creation; and
- Lighting of the operational scheme.

2 METHODOLOGY

2.1 Overview

This section sets out the methodologies applied to establish the baseline conditions and identifies any limitations encountered.

The baseline was established through a desk-based study and Phase 1 habitat field survey which was extended to consider all protected and notable species relevant to the area. Following the initial habitat suitability assessment, further survey work was then completed for:

- Great crested newt
- Roosting bats
- Dormouse
- Badger
- Otter and water vole

Details of the methods employed are presented below.

2.2 Desk Study

A desk study was undertaken in February 2023 to identify any existing ecological information relating to the proposed development and its surroundings. The following resources/sources were used/consulted:

- The Multi-Agency Geographical Information for the Countryside (MAGIC) website [7] was used to search for statutory designated sites of nature conservation value within 2km of the proposed development. The search buffer was extended to 10km for Special Areas of Conservation (SACs) designated for bats.
- Natural Resources Wales' Ancient Woodland Inventory 2021 [8] was used to search for areas of ancient woodland within 200m of the proposed development.
- South East Wales Biodiversity Records Centre (SEWBReC) was consulted for records of protected and notable species or species of conservation concern (from data collected in the last 10 years only), including Species of Principal Importance listed under Section 7 of the Environment (Wales) Act 2016 [9] and Local Nature Conservation Sites within 2km of the proposed development.
- Habitats of Principal Importance in Wales listed under Section 7 of the Environment (Wales) Act 2016 [9] within 200m were also gathered from SEWBReC data.
- A review of Ordnance Survey data for waterbodies within 500m of the proposed development.

The desk study area for the proposed development comprised various search areas as listed in Table 1. These are the Zones of Influence over which effects may arise. These distances are precautionary and were identified ahead of the field survey before the ecological features where known. Where hydrological links to the site or mobile species have been identified the search area is large. Any variation is explained in the results section.

Table 1 Desk Study Search Buffers

Policy / Guidance	Search Buffer / Zone of Influence
International or European statutory designated sites	2km (SAC designated for bats – 10km)
National statutory designated sites	2km

Policy / Guidance	Search Buffer / Zone of Influence
Non-statutory designated sites Protected and notable species Invasive, non-native species	2km
Protected and notable habitat (including ancient woodland)	200m

2.3 Field Survey

2.3.1 Survey Area

All surveys were conducted within the red line boundary.

2.3.2 Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey was undertaken on 8 February 2023 by experienced Arcadis Senior Ecologist Julie Player (MCIEEM) accompanied by Ecologist Joe D'Souza (ACIEEM). The survey was undertaken during the daytime. Weather conditions were foggy, dry, and cold. Following a design change a extended Phase 1 habitat survey through the Parc Bryn y Don skate park was carried out on 15 September 2023 by experienced Arcadis Senior Ecologists Julie Player (MCIEEM) and Rebecca Howells. The weather conditions during this survey were considered optimal.

The survey comprised a walkover survey to map habitats present within the proposed development and a 50m buffer following standard survey methodology [10]. Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. The habitats on site were assessed for their potential to support protected or notable species of plants and animals, and observation was made of any incidental signs of protected or notable species.

A walkover update was undertaken on 30 July 2024 to identify whether conditions on site had changed sufficiently to affect the validity of the survey results.

2.3.3 Ground Level Tree Assessment

A preliminary GLTA was undertaken during daylight hours of Tree Groups A – G on 13 July 2023 and Tree Groups H – I on 8 August 2023 by experienced Arcadis Senior Ecologist Rebecca Howells and assistant Morgan Greedy (Tree Locations shown on Figure 2). The GLTA covered 42 trees which were assessed and categorised following Bat Conservation Trust Good Practice Guidelines [11] to identify features that bats could potentially use for roosting and record any evidence of roosting bats.

Figure 2 Overview of tree group locations (areas further north did not contain any suitable trees for assessment or were considered unlikely to be impacted by the works within existing hardstanding).

An update survey was undertaken on 30 July 2024 to ensure conditions had not changed.

2.3.4 Badger Survey

A badger survey was undertaken by experienced Arcadis Senior Ecologist Rebecca Howells and assisted by Morgan Greedy on 18 July 2023. Weather conditions were dry and sunny.

The survey was completed within suitable habitat along the proposed ATR, including 30m either side of the route where accessible. The survey involved a walkover of the proposed development site, concentrating on habitat suitable for badger (i.e. hedgerow, scrub, and woodland) and searching for characteristic signs of badger activity, including setts, latrines, paths, footprints, hairs, and signs of digging and foraging. Badger setts and their entrance holes were then classified as Main, Annex, Subsidiary, or Outlier, and Well-Used, Partially Used, or Disused, following best practice guidance [12] [13] [14].

2.3.5 Dormouse Survey

Dormouse surveys were undertaken in accordance with the guidance provided in The Dormouse Conservation Handbook [15]. The 'dormouse nest-tube survey methodology' was used, whereby specially constructed artificial nesting tubes were fastened underneath horizontal branches in areas of suitable habitat using garden wire and were left in place over a period of several months. When present, dormouse often find and make nests in these tubes and presence can then be detected by means of periodic monitoring to find actual animals or nests, both of which are distinctive.

Fifty dormouse tubes were deployed in hedgerows identified as suitable dormouse habitat on 24 May 2023 by experienced Arcadis Senior Ecologist and licensed surveyor Julie Player MCIEEM (licence number: S089877-1) and assisted by Rachel Turcan (qualifying member of CIEEM). A further 11 tubes were deployed on 8 August 2023 by experienced Arcadis Senior Ecologist Rebecca Howells and assisted by Morgan Greedy through the Parc Bryn Y Don skate park following a design change.

Nest tube checks were carried out monthly between June and November 2023. Surveys were carried out by licensed surveyors Julie Player, Siân Carr MCIEEM (licence number: S089962-1), and Rebecca Howells (accredited on Siân Carr's licence) assisted by Morgan Greedy and Rachel Turcan.

2.3.6 Otter and Water Vole Survey

Water vole surveys were undertaken on 7 July 2023 and 25 September 2023 by experienced Arcadis Senior Ecologist Rebecca Howells, assisted by Morgan Greedy (7 July 2023) and Rachel Turcan (25 September 2023). The survey comprised a 250m search up and downstream where the proposed ATR crosses Cadoxton River and Cold Brook. Surveys were carried out following standard guidance within The Water Vole Mitigation Handbook [16]. This included searching the banksides for latrines/droppings, feeding stations, burrows, nests, and footprints.

Otter surveys were undertaken on 7 July 2023 and 25 September 2023 by experienced Arcadis Senior Ecologist Rebecca Howells and assisted by Morgan Greedy (7 July 2023) and Rachel Turcan (25 September 2023). The survey comprised a detailed search of each waterbody present on site in accordance with best practice guidelines [17]. Searches took place along sections of the Cadoxton River and Cold Brook within 250m of the proposed ATR looking for any evidence of otter, including footprints, spraints, anal jelly, feeding remains, mammal paths, slides, laying up areas/resting sites, and holts.

2.4 Limitations

In line with CIEEM guidance [18] the baseline surveys undertaken are considered to be valid to the periods outlined in Table 2.

Table 2 Limitations of previous surveys.

Survey	Limitations	Data Validity Expiration (providing no change in site use or management)
Extended Phase 1	Surveyors did not enter residential gardens; however, they are likely to have limited ecological value, and it is not considered to have affected the impact assessment. Due to access issues surveyors could not enter Field A (Figure 3) and were only able to view this field from Green Lane and the field immediately south of this location. The grassland was considered to be very similar to adjacent habitat, with a very short grassland sward and evidence of grazing. The optimal period for surveying for habitats and plant species is in the spring or summer months, but the initial survey was undertaken in February when not all plant species may have been identifiable or present and the species list should be considered a snapshot of those present at the time of the survey. This is not considered to be a constraint to the habitat classification as the site was revisited a number of times during the course of the other surveys and no changes to habitat classification were identified. The protected species assessment provides a preliminary view of the likelihood of protected species occurring within the proposed	12 December 2025

Survey	Limitations	Data Validity Expiration (providing no change in site use or management)
	development. This is based on the suitability of the habitat, known distribution of the species in the local area and any direct evidence within the survey area. It should not be taken as providing a full and definitive survey of any protected species group. It is only representative of the time the survey was carried out. Targeted surveys have been undertaken to overcome this limitation.	
GLTA	The GLTA can only identify what was present on the site at the time of the field survey, and trees and their features and usage by bat species can change over time. The surveys were undertaken in line with Edition 3 of the Bat Conservation Trust Good Practice Guidelines [19] which were current at the time of survey. In October 2023 a fourth edition was published; recommendations are based on this edition [11].	9 February 2026
Dormouse	Nest tubes could not be deployed in Field A (Figure 3) due to access issues. The presence of livestock in Field B and Field D (Figure 3) prevented checking of some tubes due to safety concerns: four tubes could not be checked in Field B during the September, October and November surveys, and 12 tubes could not be checked in Field D during the July survey. The impact on the overall assessment as a result of these safety concerns is considered minimal as the proportion of tubes not inspected is relatively small. Overgrown Bramble scrub resulted in surveyors being unable to locate four tubes during the July survey and six tubes during the August survey. Six tubes were found to be missing the inserts during the August survey. Two inserts were found on the ground and reinserted. The design change to include the Parc Y Don skate park route on the north-west side of Cardiff Road meant that 11 tubes were deployed mid-way through the season in this area. Despite this, a score of 20 was already met due to the original 50 tubes deployed throughout the site. The 11 tubes that were deployed in July 2023 are therefore providing additional information that is important for understanding dormouse presence within the Parc Bryn Y Don skate park area but is not necessary for increasing the overall survey score. These limitations are not considered to have had a significant effect on validity of the surveys as the presence of dormouse was confirmed through survey.	13 June 2025

Survey	Limitations	Data Validity Expiration (providing no change in site use or management)
Badger	Surveyors could not enter Field A due to access issues, and therefore a badger survey could not take place in this field. Activity in the surrounding fields was low and it is considered unlikely that a main sett is located in this field, but a pre-construction survey (Section 4.2.9) should be undertaken before works commence. Livestock were present in Field C, so the survey could not take place in this field due to health and safety concerns (Figure 3).	24 November 2025

Figure 3 Areas with access limitations (Field A – all surveys), and livestock constraints (Field B, C, D – limiting badger survey and dormouse surveys on some visits).

2.5 Assessment Methodology

In accordance with the BS 42020:2013 Biodiversity - Code of Practice for Planning and Biodiversity [20], the criteria that have been used to determine the assessment of effects and follows the approach recommended by the CIEEM guidelines [21], with the focus on those activities that could potentially generate significant ecological effects on Important Ecological Features (IEF) or result in a breach of wildlife legislation.

2.5.1 Determining Importance

A geographic frame of reference has been used to determine the importance of the ecological feature, from the most important being International and European to National, County, Local and the least important being Site level importance (see Appendix C: Valuation Criteria).

Those ecological features of Site importance and above, i.e., of sufficient importance to be material to decision-making and which could potentially experience significant effects as a result of the proposed development (effects that could negatively affect the integrity of the habitat or the favourable conservation status of a species' population), have been classified as Important Ecological Features (IEFs) and have been 'Scoped in' for more detailed assessment, as outlined in the CIEEM Guidelines [21]. Those ecological features of less than 'Site' importance have been 'Scoped Out' and are not subject to any further assessment within this impact assessment.

In accordance with the CIEEM Guidelines [21], where there is the potential for a breach of legislation in relation to protected species (regardless of their value), those species are also considered as IEFs.

2.5.2 Assessing Significance

The significance of an effect on an IEF has been determined following an analysis of the factors that characterise the effect. The CIEEM Guidelines [21] define significant effects as those that:

'…either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general... In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).'

Thus, in each case, significance has been determined on the basis of a likely effect on the integrity or favourable conservation status of a feature, at a given geographic scale. The nature conservation importance of significantly affected IEF has been used to guide mitigation and related measures and help interpret the significance of residual effects.

3 RESULTS

3.1 Reporting Outline

This section outlines the biodiversity baseline based on both desk-based research and field survey. Based on the information obtained, a statement is made whether an ecological feature will be scoped in for impact assessment based on the assessment methodology outlined in Section 2.5. It is noted that although a feature may not be scoped in, mitigation and / or enhancement measures may still be applied in line with legal compliance and both national and local planning policy.

3.2 Desk Study

3.2.1 Designated Sites for Nature Conservation

3.2.1.1 Statutory Designated Sites for Nature Conservation

There are five statutory designated sites within 2km of the proposed development and these are considered to be of **national** importance. One of these sites known as Hayes Point to Bedrick Rock Site of Special Scientific Interest (SSSI) is designated for geological reasons and is therefore not of ecological importance or considered further in this report. The four sites of **national** importance for biodiversity are included in Table 3. There are no SACs designated for bats within 10km of the proposed development.

Table 3 Statutory Designated Sites within 2km of the proposed development.

Site Name	Reasons for Designation	Distance from proposed development
Cog Moors SSSI	This SSSI supports extensive areas of relatively unimproved species rich grassland, which traditionally managed for hay. Grassland is characterised by Common Knapweed (*Centaurea nigra*), Crested Dog's-tail (*Cynosurus cristatus*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and Meadow Vetchling (*Lathyrus pratensis*). Other distinctive species found at Cog Moors include Pepper-saxifrage (*Silaum* silaus) and Meadow Barley (*Hordeum secalinum*). Cog Moors also supports populations of several species which are uncommon including Brown Sedge (*Carex disticha*), Adder's-tongue (*Ophioglossum vulgatum*) and Green-winged Orchid (*Orchis morio*).	465m east
Cosmeston Lakes Country Park Local Nature Reserve (LNR)	Cosmeston has a variety of habitats covering over 100 hectares of land and water including habitats such as reedbeds, meadows, lakes, ponds, woodland and commons. Water vole have recently been introduced here [22].	1,489m east
Barry Woodlands SSSI	Barry Woodlands is of special interest for its semi-natural broadleaved woodland.	1,800m west

Site Name	Reasons for Designation	Distance from proposed development
Llynnoedd Cosmeston / Cosmeston Lakes SSSI	Located within Cosmeston Lakes LNR, this site relates to the two lakes, created from flooded limestone quarries which are connected by a narrow channel. These are deep, eutrophic water bodies which support a range of submerged plants. The presence of Starry Stonewort (*Nitellopsis obtuse*) in one of the lakes is of special interest. This site also includes areas of swamp, ponds, grassland that form part of the water catchment area for the lake.	1,900m east

3.2.1.2 Non-statutory Designated Sites for Nature Conservation

There are 20 non-statutory designated sites within 2km of the proposed development, including 19 Sites of Importance for Nature Conservation (SINCs) and one Wildlife Trust Reserve (WTR) (Table 4). These are considered to be of **county** importance.

Table 4 Non-Statutory Designated Sites

Site Name	Reasons for Designation	Distance from proposed development
Pwll Erw-naw SINC	Pond which supports good population of GCN.	10m
North of North Road SINC	Site with large pond supporting large stands of reed beds, scrub and scattered trees.	45m
North of Pop Hill SINC	Series of species-rich unimproved neutral grasslands with large anthills.	81m
Shortlands Wood SINC	Semi-natural broadleaved woodland, part on an ancient woodland site.	108m
Dinas Powys Moors SINC	Series of species-rich semi-improved neutral grasslands with ponds.	254m
Cross Common SINC	Semi-natural broadleaved woodland, part on an ancient woodland site.	296m
Pond 11 Biglis Moors SINC	Pond which supports good population of GCN.	533m
Cog Moors SINC	Presence of Purple Moor-grass and rush pasture. A botanical survey found this area also supports broadleaved plantation woodland, scrub, species-rich semi-improved neutral grassland, marshy grassland and tall ruderal habitat **[23] [24]**.	540m
Dinas Powis Castle Woodland SINC	Ancient semi-natural woodland.	558m

Site Name	Reasons for Designation	Distance from proposed development
North of Cog Moors SINC	Ancient semi-natural woodland.	602m
Pop Hill SINC	Predominately ancient semi-natural broadleaved woodland	616m
Coed Twyncyn SINC	Broadleaved woodland. Support floral species including bluebell (*Hyacinthoides non-scripta*).	680m
Coed Clwyd-Gwyn South West of Michaelston le Pit SINC	Very large site of restored semi-natural and ancient replanted woodlands comprised of species including Field Maple (*Acer campestre*), Holly (*Ilex aquifolium*) and Wych Elm (*Ulmus glabra*) with a Hazel (*Corylus avellana*) understory. Very diverse ground flora and abundant bryophytes. European eel (*Anguilla anguilla*) present.	775m
Case Hill Wood SINC	Broadleaved woodland.	867m
Cadoxton Wetlands SINC	Site supports a mosaic of ponds, reedbeds, tall herb swamp, grassland, scrub and scattered trees. Supports a range of Section 7 species including wintering bittern (*Botaurus stellaris*).	942m
Cadoxton Ponds WTR	Two large reed-fringed ponds, a reed bed and considerable area of tall herb, scattered scrub and short perennial vegetation. Dominated by Common Reed (*Phragmites australis*).	950m
Coed Ysgubor-Goch SINC	Calcareous woodland dominated by Ash (*Fraxinus excelsior*) with some mature Pedunculate Oak (*Quercus robur*). Abundant Wych Elm with old Hazel stools and Holly below. Woodland floor heavily shaded, limited ground flora and bryophytes.	1,402m
Cogan Pond SINC	Large pond supporting reedbed.	1,470m
Cosmeston Lakes SINC	An extensive country park supporting a mosaic of habitats including species-rich calcareous grassland and neutral grassland, scrub, hedgerows, woodland, streams and ponds which all support a wide assemblage of species including many species listed on the Section 7 of the Environment (Wales) Act 2016.	1,490m
Cadoxton River (part) SINC	A small section of tidal canalised watercourse. The banks comprise dense scrub (mostly Hawthorn (*Crataegus monogyna*)) with tall ruderal vegetation. There are large stretches dominated by Common Reed (*Phragmites australis*).	1,680m

3.2.2 Important Habitats

There are no areas of ancient semi-natural woodland within 200m of the proposed development.

Other important habitats within 200m was a B-line (pollinator wildlife corridor) located within the southern section of the proposed development connecting to B-lines along the south coast of Vale of Glamorgan. B-lines are chosen for restoring and improving insect/pollinator wildlife corridors and may not currently be high-value.

Priority habitats are considered to be of **county** importance.

All works will be localised affecting the site and the immediate adjacent habitats. The project may lead to loss of habitat within the B-line.

3.3 Habitats

3.3.1 Overview

The proposed development site comprises amenity grassland, species poor semi-improved grassland, species-poor hedgerow, species poor hedgerows with trees, semi-natural broadleaved woodland, scrub, scattered trees, Cadoxton River, running water with marginal vegetation, a dry ditch and hardstanding in the form of roads and footpaths. These habitats are shown on the Phase 1 Habitat Plan (Drawing 10058585-ARC-XX-XXX-DR-E-00001).

3.3.2 Semi-natural Broadleaved Woodland

Areas of semi-natural broadleaved woodland are present along the northern, central and southern section of the proposed development adjacent to the roundabout. Canopy level tree species within the woodland consist of Oak (*Quercus spp*), Sycamore (*Acer pseudoplatanus*), Ash, Field Maple, English Elm (*Ulmus procera*) and Apple (*Malus sylvestris*).

Understorey habitat within the woodland is minimal, the dominant understorey species is Bramble (*Rubus fruticosus agg.)* with Hawthorn, Blackthorn (*Prunus spinosa*), Dog Rose (*Rosa canina agg.)* and Butterfly-bush (*Buddleia davidii*) also present.

Ground flora species recorded in the woodland include Common Nettle (*Urtica dioica*), Yorkshire-fog (*Holcus lanatus*), Cock's-foot (*Dactylis glomerata*), Herb-Robert (*Geranium robertianum*), Ivy (*Hedera helix)*, Hart's-tongue (*Asplenium scolopendrium*), Lord's-and-Ladies (*Arum maculatum*), Wild Teasel (*Dipsacus fullonum*), Great Willowherb (*Epilobium hirsutum*), Meadowsweet (*Filipendula ulmaria*), Pendulous Sedge (*Carex pendula*) and Nipplewort (*Lapsana communis*).

Lowland mixed deciduous woodland is an Environment (Wales) Act 2016 Section 7 [9] Habitat of Principal Importance and is therefore considered to be of **county** importance.

3.3.3 Scattered Broadleaved Trees

Scattered broadleaved trees are located adjacent to Cardiff Road within the northern and central section of the proposed development, species recorded include Ash, Oak, Conifer sp. and Sycamore.

Scattered broadleaved trees are considered to be of **local** importance.

3.3.4 Hedgerow

There is a species-poor hedgerow located on the north-western boundary of the site to the west of the A4055 road which forms a field boundary. The hedgerow is dominated by Blackthorn along with Bramble. Species poor hedgerows with trees are located adjacent to the footpath and Cardiff Road within the southern section of the proposed development, creating boundaries around horse and cattle grazed fields. These hedgerows are dominated by Hawthorn with Bramble, Field Maple, and Ash also present. Trees within the hedgerow include Sycamore, Ash, Oak, and Hawthorn. Species recorded in the ground flora included Cock's-foot, Traveller's-joy (*Clematis vitalba*), and Common Reed. A dry ditch is located within the grazed fields east of the hedgerow, stands of Common Reed are present indicating that the ditch is wet during periods of sufficient rainfall.

Hedgerows are an Environment (Wales) Act 2016 Section 7 [9] habitat of principal importance and is therefore considered to be of **county** importance.

3.3.5 Species poor semi-improved grassland

An area of species poor semi-improved grassland is located within the southern section of the proposed development where the proposed development leaves Cardiff Road, at Green Lane and into horse and cattle grazed fields. Some areas of the field are dominated with Soft-Rush (*Juncus effusus*) and Hard Rush (*Juncus inflexus*), with some evidence of previous water logging indicating that the dry ditch located adjacent to the hedgerow does fill with water, occasionally flooding the fields. The grassland sward height varies and stands between 5cm to 10cm tall. Areas of scattered scrub are located around the boundaries of the fields adjacent to the hedgerow. Fly tipping was recorded in the field.

Species present include Cock's-foot, Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog, White Clover (*Trifolium repens*), Lesser Celandine (*Ranunculus ficaria*), Creeping Buttercup (*Ranunculus repens*), Hoary Willowherb (*Epilobium parviflorum*), Daisy (*Bellis perennis*), Dandelion (*Taraxacum agg*) and Smooth Sow-thistle (*Sonchus oleraceus*).

A second parcel of species-poor semi-improved grassland is located on the northwest boundary of the site adjacent to a parcel of woodland which is parallel with the A4055 road. The grassland contains Perennial Rye-grass, Cock's-foot, False Oat-grass (*Arrhenatherum elatius*), Yorkshire-fog, Meadow-grass (*Poa* sp.), Wavy Hair-grass (*Deschampsia flexuosa*) and Timothy (*Phleum pratense*) in combination with White Clover, Sheep's Sorrel (*Rumex acetosella*) and Tufted Vetch (*Vicia cracca*).

Species poor semi-improved grassland is not considered to be of significant geographical importance, i.e., this habitat is of **less than site** importance.

3.3.6 Scrub

Areas of dense and scattered scrub are located within the woodland understorey and adjacent to hedgerows and footpaths. Species recorded include Bramble, Hawthorn, Blackthorn and Butterfly-bush.

Scrub is not considered to be of significant geographical value, i.e., this habitat is of **less than site** importance.

3.3.7 Amenity Grassland

Amenity grassland is located on the roundabout on Cardiff Road and adjacent to footpaths occasionally throughout the proposed development. Species recorded include Annual Meadow-grass (*Poa annua*), Perennial Rye-grass, Dandelion and Daisy.

Amenity grassland is not considered to be of significant geographical value, i.e., this habitat is of **less than site** importance.

3.3.8 Running Water

The proposed development crosses over Cadoxton River via a footbridge within the centre of the proposed development. The river continues to flow through the southern extent of the proposed development within a semi-improved grazed field.

There is a stream (running water) that runs adjacent to a parcel of woodland in the northwest of the site parallel with the A4055 road. The vegetation alongside this stream comprises largely terrestrial species including Marsh Thistle (*Cirsium palustre*), Common Nettle, Horsetail (*Equisetum* sp.), Hedge Bindweed (*Calystegia sepium*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Creeping Cinquefoil (*Potentilla reptans*), Hogweed (*Heracleum sphondylium*), Great Willowherb (*Epilobium hirsutum*), Bulbous Buttercup (*Ranunculus bulbosus*), Lesser Burdock (*Arctium minus*), Hedge Bedstraw (*Galium album*), Perforate St John's Wort (*Hypericum perforatum*), Ribwort Plantain (*Plantago lanceolata*) and Self-heal (*Prunella vulgaris*).

Rivers are an Environment (Wales) Act 2016 Section 7 [9] habitat of principal importance and are therefore considered to be of **county** importance.

3.3.9 Dry Ditch

A dry ditch is located within grazed fields within the southern section of the proposed development, immediately adjacent to a hedgerow with trees. Although the ditch was dry, there was evidence of previous waterlogging in some of the fields, indicating that it may occasionally fill and flood the fields.

Dry ditches are not considered to be of significant geographical value, i.e., this habitat is of **less than site** importance.

3.3.10 Other Habitat

Hardstanding footpaths and roads are located predominately along the north-eastern, northern, and central section of the proposed development. Hardstanding is not considered to be of any ecological importance.

3.4 Potential for Protected Species

3.4.1 Desk study data

The full species list returned by the local record centre can be found in Appendix B, key species are discussed below.

3.4.2 Protected and Notable Plants

The desk study returned records of Bluebell (*Hyacinthoides non-scripta*) and Jersey Cudweed (*Gnaphalium luteoalbum*), protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (WCA) [25]. The closest record was Jersey Cudweed growing within a pavement 420m north-west from the proposed development and Bluebell 600m east at Pop Hill SINC.

No records of plant species listed under Section 7 of the Environment (Wales) Act 2016 [9] were returned within 2km of the proposed development and none were identified during the surveys. The proposed development is considered to be **of less than site** importance to protected plant species.

3.4.3 Invasive non-native species

The desk study returned 30 records of invasive non-native species (INNS) within 2km of the proposed development including Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) and American mink (*Neovison vison*).

No invasive plant species were recorded within areas surveyed in 2023. In 2024, Himalayan Balsam was noted along Cadoxton River. American mink may be present in the area, especially moving along the watercourses, but no field signs were observed.

INNS are not assigned a level of ecological importance, but they are a threat to biodiversity.

3.4.4 Invertebrates

The desk study returned records of 69 terrestrial invertebrate species, including 40 species listed under Section 7 of the Environment (Wales) Act 2016 [9] including shrill carder-bee (*Bombus sylvarum*), ghost moth (*Hepialus humuli*) and white-letter hairstreak (*Satyrium w-album*) within 2km of the proposed development site. The closest record was for dusky thorn (*Ennomos fuscantaria*) found in a garden moth trap 50m east of the proposed development.

Deadwood within woodland within the proposed development site is suitable to support beetles amongst other invertebrate species. Grassland, scrub and some understorey species (e.g. Butterfly-bush) within the woodland are suitable to support a range of butterfly species. Important food plants (such as Devil's-bit Scabious (*Succisa pratensis*)) for marsh fritillary (*Euphydryas aurinia*) were not recorded within the survey boundary. If it was not so closely grazed the poor semi-improved grassland could be suitable to support a variety of invertebrate species. The woodland within the proposed development is also suitable to support a range of moth species.

Although part of the proposed development falls within the margins of the B-line along the Vale of Glamorgan coast, the habitats within the proposed development are not considered high value to invertebrates and are unlikely to support a large number of priority/protected species that may be present in the area. The proposed development is considered to be **site** importance to invertebrates.

3.4.5 Amphibians

The desk study returned records of common toad (*Bufo bufo*) and GCN within 2km of the proposed development. GCN is a European Protected Species under The Conservation of Habitats and Species Regulations 2017 [26]. The closest records demonstrate that a medium sized population (i.e. between 11 and 99 GCN found during any one survey) is found at Pwll Erw-naw SINC 235m north-west of the proposed development.

The proposed development will require the construction of a crossing over Cadoxton River, within a grazed field in the southern section of the proposed development. The river was slow flowing at the time of the survey and did not support emergent vegetation, it is therefore unlikely to be used by breeding GCN or other amphibians. The network of ditches present within 250m of the proposed development were considered unlikely to support breeding GCN, following the water vole survey (either dry or fast flowing).

There are further waterbodies within 500m of the site identified from Ordnance Survey data with four at the north end of the proposed development (pond locations shown on Figure 4a):

- Parc Bryn y Don skate park (within 10m of the proposed development, see below)
- Pwll-erw Naw SINC (265m from nearest breeding pond to the proposed development)
- Green Lane (110m to the proposed development, no access to the pond during survey work)
- Cardiff Road (200m to the proposed development, but separated from the site by the Cardiff Road)

A single pond was identified within North of North Road SINC (140m to site boundary, but separated from works by Sully Moors Road (pond location shown on Figure 4b)).

Terrestrial habitats such as woodland and hedgerows are considered suitable for amphibian species during their terrestrial phases. These habitats provide cover from predation, foraging and potential hibernation sites.

Figure 4a Water body locations (blue dot) at north end of scheme

Figure 5b Water body locations (blue dot) at south end of scheme – North of North Road

The pond adjacent to Parc Bryn Y Don skate park when visited on 26 June 2024 was dry, heavily shaded by a small woodland copse, there was no emergent vegetation visible and it was considered unlikely to contain water except on a temporary basis during periods of heavy rainfall (a photograph of this pond is provided as Figure 6).

Figure 6 Pond adjacent to Parc Byrn y Don Skate Park.

The population of GCN at Pwll-erw SINC is considered to be of county importance. The likelihood that GCN using the pond would be present within the proposed development site which is more than 250m from the pond and comprises hardstanding and amenity grassland within the Parc Bryn y Don skate park is considered low. Where the proposed development affects the tree canopy leading to Heol y Frenhinnes which are closer to this pond no dig methods are to be used during construction. The proposed development site is therefore considered to be of **negligible** importance to GCN. There is a low risk of encountering GCN during construction at Parc Bryn Y Don and off Green Lane (assuming a population is present here but there are no records and historically no evidence) [27].

3.4.6 Reptiles

The desk study returned records of common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow-worm (*Anguis fragilis*) within 2km of the proposed development. The closest record was of slow worm in a residential garden 50m east of the proposed development.

The woodland, hedgerow, and field boundaries can be utilised by reptile species for foraging, cover from predation and hibernation, whilst more open areas may be used for basking.

The site is considered to be of **site** significance to reptiles.

3.4.7 Birds

The desk study returned records of 40 bird species specially protected when nesting under Schedule 1 of the WCA [25] within 2km of the proposed development site including brambling (*Fringilla montifringilla*), barn owl (*Tyto alba*) and kingfisher (*Alcedo atthis*). The closest breeding record was of a possible breeding Cetti's

warbler (*Cettia cetti*) in Cog Moors approximately 400m east of the proposed development. There was also a record of kingfisher sighted on the Cadoxton River approximately 180m east of the proposed development.

The desk study returned records of 35 bird species listed under Section 7 of the Environment (Wales) Act 2016 [9], including bullfinch (*Pyrrhula pyrrhula*), curlew (*Numenius arquata*) and dunnock (*Prunella modularis*). Records of 37 bird species listed on the Status of Birds in Wales Red list [28] were returned, including linnet (*Linaria cannabina*), kestrel (*Falco tinnunculus*) and hawfinch (*Coccothraustes coccothraustes*) within 2km of the proposed development. Records of 72 bird species listed on the Status of Birds in Wales Amber list [28] including song thrush (*Turdus philomelos*), meadow pipit (*Anthus pratensis*) and skylark (*Alauda arvensis*) were returned within 2km of the proposed development.

The section of Cadoxton River crossed by the proposed development was not considered suitable for kingfisher to use for nesting as the bank profile was too low and shallow to support burrows. The hedgerow, scrub, woodland and trees present along the proposed development are suitable to support a range of breeding birds. The grasslands within the proposed development site may support ground-nesting birds, but in most fields there was evidence of livestock grazing that could increase into spring reducing the suitability of this habitat for ground-nesting birds. The farmland habitat is considered suitable to support foraging barn owl, but no suitable trees for nest sites were identified within the proposed development site.

The site is considered to be of **site** significance to birds.

3.4.8 Bats

The desk study returned records of 13 bat species including common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), lesser horseshoe (*Rhinolophus hipposideros*), noctule (*Nyctalus noctula*) and brown long-eared bat (*Plecotus auritus*), within 2km of the proposed development. The closest record of a confirmed bat roost was for three male common pipistrelle bats 320m north-west of the proposed development.

Habitats located within the survey boundary are suitable for foraging and commuting bats, include Cadoxton River, watercourses, hedgerows, scattered trees, woodland and poor semi-improved grassland.

The GLTA [3] identified no evidence to indicate bats were utilising the assessed trees; 33 trees with features of low potential and three trees with features of moderate potential to support roosting bats were identified. Full details and results of the survey can be found in the protected species report [3].

The site is considered to be of **local** importance for bats.

3.4.9 Badger

The desk study returned one record of badger (roadkill fatality) 1.9km northeast of the proposed development.

Woodland and hedgerows are suitable to support badgers and their setts. Adjacent fields are also suitable to support foraging badger along the proposed development. Mammal paths were noted within the grassland, but they were narrow in nature and unlikely to have been created by badger and more likely created by fox (*Vulpes vulpes*).

The field study confirmed that badger is using habitats within the development boundary to the south of the site for foraging and / or commuting [5] but activity levels were considered to be low. No badger setts were identified at the time of the survey. It is possible that setts are located nearby (including within the surveyed area (Figure 3, Field A), but outside the proposed development site boundary. The low levels of recorded activity in the surrounding fields indicate that it is unlikely that a main sett is located nearby. Badgers can have a large range between 30 and 150ha [29] and it is possible that they forage within different parts of the proposed development site throughout the year as food sources become seasonally available. Full details and results of the survey can be found in the protected species report [5].

The site is considered to be of **site** importance for badger.

3.4.10 Hazel Dormouse

The desk study returned two records of hazel dormouse within 2km of the proposed development. The closest record was of a dormouse nest found at Cog Moors WwTW, 600m east of the proposed development. The proposed development is connected to the record via woodland and hedgerows.

The woodland and hedgerows within the proposed development site are suitable to support foraging and breeding dormouse, a range of suitable food sources are present within the site, including, Bramble, Hawthorn, Blackthorn and Oak. The field survey identified dormouse as using the site in the hedgerow on the southwest end of the route. There is connectivity and suitable habitat throughout the route. Full details of the surveys and results can be found in the protected species report [4].

Published guidance [15] indicates that nest tube surveys are not sufficient to estimate dormouse population nor dormouse density, only presence/absence. However, the dormouse population which could be supported by the habitats which will be removed to facilitate the proposed development can be estimated using guidance [15] and this indicates that less than one adult may be impacted by the habitat loss as a result of the proposed development (Table 5). The site is considered to be of **site** importance for dormouse.

Table 5 Estimate of Dormouse Population Density

Habitat Type	Number of Dormouse per hectare [15]	Approximate Area Affected	Estimated number of dormouse affected
Woodland	2 adults	0.02ha	0.04
Hedgerow	1.3 adults	0.002ha	0.003
Total			**<1 adult**

3.4.11 Otter

The desk study returned two records of otter within 2km of the proposed development including field signs (spraint) at Cadoxton Ponds WTR 1.3km west of the proposed development and along Cadoxton River 1.3km north of the proposed development.

Cadoxton River is crossed by the proposed development and offers suitable habitat to support commuting and foraging otter and otter holts. The stream in the north of site may also provide suitable commuting and foraging habitat for the species.

Otter footprints and other field signs were identified during targeted surveys. Four watercourse sections contained suitable habitat to support commuting, foraging and resting otter and potentially their holts. The findings indicate otter presence in the section of river affected by the proposed ATR, but most likely commuting and foraging rather than resting. Full details of the surveys and results can be found in the protected species report [6].

The site is considered to be of **site** importance to otter.

3.4.12 Water Vole

The desk study returned a single record of water vole on Sully Brook 2km east of the proposed development. Sully Brook is connected to Cosmeston Lakes, 2.2km east of the proposed development, known to support a population of water vole [22]. Suitable food sources were located nearby up and downstream from the proposed development and with the watercourse being linked to a known population within Cosmeston Lakes

there is potential for water vole to commute through the proposed development where it crosses the river. Evidence of water vole was found during field surveys on the Cadoxton Brook and included burrows, droppings, feeding stations and probable footprints [6] 100m downstream of the proposed ATR crossing of the brook. Full details of the surveys and results can be found in the protected species report [6].

The location of the ATR crossing of the Cadoxton Brook is in an area of heavy poaching by cattle limiting burrowing and feeding opportunities and it is therefore considered this section is most likely only used for commuting/dispersing.

The site is considered to be of **local** importance to water vole.

3.4.13 Other Mammals

The desk study provided records of polecat (*Mustela putorius*), hedgehog (*Erinaceus europaeus*) and harvest mouse (*Micromys minutus*) within 2km of the proposed development. The hedgerow, scrub and woodland habitat is suitable to support breeding and foraging hedgehog. Woodlands, grassland and farmland are suitable to support polecat. The grassland habitats within the proposed development site are not considered optimal for harvest mouse as they are mainly heavily grazed semi-improved grassland, but harvest mouse may use the woodland and scrub habitats. The site is considered to be **site** importance for polecat, hedgehog and harvest mouse.

3.5 Summary of Baseline Importance

All relevant ecological features and the geographical context in which each is considered to be important (Appendix C) in relation to the site is summarised in Table 6. Those considered to be of site importance and above will be taken forward for assessment as IEFs.

Table 6 Relevant ecological features and their geographical importance.

Ecological Feature	Importance
Statutory Designated Sites	National
Non-Statutory Designated Sites	County
Ancient Woodland	National
Priority Habitats	County
B-line	County
Habitats	
Semi-natural broadleaved woodland	County
Scattered broadleaved trees	Local
Hedgerow	County
Species poor semi-improved grassland	Less than site
Scrub	Less than site
Amenity grassland	Less than site

Ecological Feature	Importance
Running Water	County
Dry Ditches	Less than site
Hardstanding	N/A
Protected and Notable Plant Species	Less than site
INNS	N/A
Invertebrates	Site
Amphibians	Site
Reptiles	Site
Badger	Site
Bats	Local
Birds	Site
Otter	Site
Water Vole	Local (connected to Cosmeston Lakes population [30])
Dormouse	Local (connected to population at Cog Moors)
Other Mammals	Site

4 DISCUSSION

4.1 Potential Ecological Constraints

4.1.1 Ecological Features Scoped Out

The following ecological features have been scoped out as not requiring further consideration with regard to the proposed development (no significant effects are anticipated from construction or operation):

Cog Moors SSSI, Cosmeston Lakes SSSI and LNR, Barry Woodlands SSSI. All works will be localised affecting the site and the immediate adjacent habitats. These sites are considered to be sufficiently distanced from the site, with no impact pathways identified such that they will not be impacted by the proposed development.

Non -statutory designated sites (except Pwll Erw-naw SINC and North of North Road SINC) and **Important Habitats** (ancient woodland, NRW priority habitats, B-line). All works will be localised affecting the site and the immediate adjacent habitats. Most of these sites are sufficiently distanced from the site with no impact pathways identified and so they will not be impacted by the proposed development.

Protected and Notable Plant Species: The woodland and grassland within the site were suitable to support protected/notable species, but with the clearance of vegetation will be localised with large areas of similar habitat within the wider area. There will be no significant impacts on the species recorded as part of the desk study.

Invertebrates: The site offered a range of habitats within its boundaries suitable to support invertebrates, but the clearance of vegetation will be localised with larger areas of similar habitat within the wider area. New habitats will be created as part of the landscape planting for the proposed development that will mitigate for any habitat that is removed. There will be no significant impacts to invertebrates.

4.1.2 Ecological Features Scoped In

The following ecological features have been scoped in as needing further consideration with regard to the proposed development (potential for significant effects from construction and/or operation):

Pwll Erw-naw SINC and GCN– no direct impacts have been identified to habitats within the SINC boundary. There is potential for harm to individual GCN during their terrestrial phase and loss of habitat within the works footprint that may support GCN, the designating criteria for the SINC.

North of North Road SINC – potential pollution pathway during construction works.

Habitats – broadleaved woodland, broadleaved trees, hedgerow will be lost within the footprint of the proposed development. Potential pollution pathway during construction works to running water (namely Cadoxton Brook)

INNS – Himalayan Balsam was found in 2024 along Cadoxton Brook. Construction works could lead to the spread of this species.

Reptiles and common amphibians: Reptiles and common amphibian species were recorded as part of the desk study. Aquatic habitats within the site were not suitable to support breeding amphibians, but the site contained habitats suitable to support reptiles and amphibians during their terrestrial phase. In the absence of mitigation, if reptiles or amphibians are present, they may be negatively impacted through killing/injury during vegetation clearance.

Badgers: No records of badger were returned as part of the desk study, but the woodland and adjacent fields were suitable for supporting foraging badger and may support badger setts. A minor loss of foraging habitat is anticipated and there is a risk of harm during construction from moving machinery and plant.

Bats: There were multiple records for bat species. Scattered trees, trees within the hedgerow and woodland may have bat roosting potential. Sixteen trees were identified to have low bat roost potential. In the absence of mitigation if roosting bats are present, they would be negatively impacted by the proposed development through the loss of roosting sites (up to 12), loss of connectivity, loss of (minor) foraging habitats and increased lighting along the route once operational.

Birds: The woodland, hedgerows, scattered trees and scrub on site were likely to support nesting birds. The nesting bird season for most UK species runs for March to August (inclusive). If vegetation clearance is undertaken on site during this period in the absence of mitigation, there will be potential for negative impacts on nesting bird species. Development on site is also likely to lead to the loss of bird nesting habitat.

Otter: No otter holts were found but footprints indicate that they commute along Cadoxton Brook. There is a risk of harm during construction from moving machinery and plant.

Water vole: Water vole was found 100m downstream of the proposals. There is a loss of sub-optimal habitat (heavily poached river bank) and risk of harm during clearance and construction.

Dormouse: Dormouse have been identified using the hedgerows in the south-west end of the route. There is connectivity and suitable habitat throughout the site. Proposed works require removal of sections of hedgerow and woodland and have the potential to kill, injure or disturb dormouse and fragment available habitat.

Hedgehog, polecat and harvest mouse: The dense scrub/woodland and edge habitats were considered suitable for foraging and nesting hedgehog and polecat whilst the grass margins may support harvest mouse and the presence of these species on site was considered to be likely. In the absence of mitigation site clearance/construction works will have potential to negatively impact these species through loss of resting and foraging habitat and potential for harm during construction.

4.2 Ecological Impacts and Mitigation

4.2.1 General

Where possible, the development should satisfy the requirements of the 'mitigation hierarchy' of Planning Policy Wales 12 [1] with regard to impacts to ecological features, through the following stepwise approach:

- Avoidance of impacts to wildlife and habitats e.g., by designing the layout to avoid ecological features;
- Mitigation, where significant harm cannot be entirely or partially avoided e.g., through the creation of alternative habitats elsewhere on site; and
- Compensation, where significant residual harm is offset e.g., through the provision of an equivalent or greater value of biodiversity.

More details are provided in Section 5.2.

4.2.2 Proposed Works

Proposed works are for a shared footway and cycleway from Biglis, finishing in Dinas Powys. Works will include:

- Installation of site drainage and flood compensation area near Green Lane;
- Temporary access roads and footpaths, task specific lighting during construction, security gates and fencing, and CCTV during construction;
- Path and cycle path creation through widening of existing path;

- Installation of a pedestrian and cycle footbridge and a toucan crossing creation; and
- Installation of a wildlife sensitive lighting scheme.

This assessment assumes the proposed development would be constructed in accordance with industry standard techniques and mandatory minimum standards. It assumes suitably experienced contractors would be appointed to construct and commission the proposed development. A Construction Environmental Management Plan (CEMP) would be produced detailing all construction standards and techniques. The CEMP would include, as a minimum, the following environmental measures:

- Correct storage of materials and chemicals;
- Appropriate cleaning/maintenance of machinery and tools including provision of wheel washing;
- Appropriate pollution prevention control plan in line with CIRIA (2001) including spillage/containment procedures;
- Monitoring of surface water quality during the construction phase will be followed in order to ensure that the specified mitigation measures are effective and that there are no impacts on surface water features.
- Construction waste to be removed at earliest opportunity;
- Measures to reduce dust, noise and light spill (including no night time working); and
- Implementation of habitat protection areas including root protection zones where necessary, where no construction can be undertaken, and no materials or soil can be stored.

Extent of vegetation clearance to enable the construction includes:

- Broadleaved semi-natural woodland (approx 0.06ha) and scrub (0.03ha) associated with the eastern end near the Biglis roundabout;
- Species poor hedgerow (approx 24m – 6 sections, each up to 4m long) ;
- Species poor semi-improved grassland (approx 1.63ha); and
- Amenity grassland (0.04ha) mainly associated with Parc Bryn Y Don skate park.

A further 6.2ha of species poor semi-improved grassland will be temporarily removed whilst the subsoil is removed, and then the top soil and turf will be reinstated to create an area of flood compensation area near Green Lane.

The landscape proposals are shown on Drawing 10058585-ARC-XX-300-DR-LA-0006 include:

- Planting a species rich native hedgerow and native deciduous woodland belts along the southern boundary of the ATR, south of the A4055 in parallel with the existing one, creating a corridor for the ATR.
- Species rich grassland in associated with Cadoxton Brook crossing and between the proposed development and the A4055 including shaded seed mix associated with hedgerows and woodland belts.
- Amenity grassland mix in association with proposed development verges and Parc Bryn Y Don skate park.
- Standard trees in Parc Bryn Y Don skate park.

4.2.3 Pwll Erw-naw SINC

No direct impacts have been identified as the boundary of the proposed development is outside the boundary of the SINC, but it has been identified that some of the development within the skate park is within the typical foraging zone of GCN which are the designating feature of the Pwll Erw-naw SINC.

There is no loss of habitats suitable for GCN as the habitats to be disturbed within the skate park are hardstanding and amenity grassland distant (>250m) from a breeding pond and no-dig methods are to be used between the skate park and Heol y Frenhinnes, Dinas Powys to protect the avenue of trees.

For dispersing GCN in the intermediate foraging zone between 100m and 250m from breeding ponds, there is a residual risk of harm during topsoil stripping of the amenity grassland within the skate park and within hedgerows in proximity to Green Lane pond (if presence is assumed at this location, although historically GCN

have been absent). A reasonable avoidance measures approach would be undertaken within the skate park and near Green Lane detailing a phased vegetation clearance approach to displace GCN:

- Cutting of vegetation to a height of approximately 100-150mm. The area would then be left for a minimum of 24 hours to allow any GCN to disperse. This stage could be undertaken at any time of the year; however, appropriate nesting bird checks and mitigation would be required if undertaken between March to August inclusive.
- The next stage – vegetation clearance to bare ground – would then proceed; however, this phase would be restricted to the GCN active season (end February to October). The area would then be left for another minimum 24 hours.
- After each vegetation removal, all arisings would be collected and removed to avoid creating additional refugia.

If a GCN was encountered then works would stop, an ecologist contacted (if not on site) and Natural Resources Wales consulted.

It is considered that an ecological working method statement is sufficient to prevent harm to GCN and other common amphibians and that there is no requirement for a development licence from Natural Resources Wales for these works and no need for a separate long term management plan to ensure that any local population if present is maintained. Assuming the successful implementation of the mitigation measures outlined above and delivered through the CEMP, no significant negative residual effect is predicted on Pwll Erw-naw SINC.

4.2.4 North of North Road SINC

No direct impacts have been identified as the proposed development is outside the boundary of the SINC, but it has been identified that there is a risk of damage to the North of North Road SINC habitats if there is a pollution event during construction of the new bridge over Cadoxton Brook which flows from the site through the North of North Road SINC.

The likelihood of contaminants and silt entering Cadoxton Brook and affecting water quality of this SINC would be reduced by implementing standard pollution controls as detailed in a CEMP, but there remains a possibility of a pollution event. Given the limited footprint of the proposed development and the nature of the work it is considered that the effect of any pollution event would be limited to onsite once emergency procedures as detailed in a CEMP are followed and will be diluted downstream and will not affect the SINC designation along the length of the whole designation boundary.

Effects would be at site level only and therefore no significant adverse effect is predicted on North of North Road SINC if a pollution event occurred and there will be no residual effect.

4.2.5 Priority Habitats – broadleaved woodland and hedgerows

There will be a loss of 0.02ha woodland and approx. 30m of hedgerow (spread over 6 locations). This is not considered significant in the context of the wider farmland landscape. Replacement hedgerow of approx. 1.2km along the south edge of the proposed development south of A4055 is considered to provide a significant long term increase in priority hedgerow at a local level. Tree belt planting alongside the proposed development and scattered tree planting within Parc Bryn y Don skate park will mitigate for loss of trees within the woodland and there will be no residual effect from the habitat loss once the planting matures.

4.2.6 Priority habitats – watercourses

There will be no loss of watercourses, but there is a risk of damage to the Cadoxton Brook banks and risk of pollution during construction. Standard pollution prevention measures during construction (as outlined in a

CEMP) will reduce the risk of pollution. The bridge will be set back 1m from the top of the Cadoxton Brook banks ensuring the bankside habitats and structure are retained.

The removal of cattle from the river bank tops between A4055 and the proposed development (which will be fenced) may lead to improved bankside habitat and reduce any short term sedimentation effects from poaching by livestock.

It is considered that there will be no significant residual effect on the watercourses.

4.2.7 INNS

The works, especially in the vicinity of Cadoxton Brook, have the potential to spread INNS (namely Himalayan Balsam). The likelihood of dispersing INNS will be reduced by standard methodology to be detailed in the CEMP and it is considered there will be no residual effect on the watercourse or adjacent terrestrial habitats if control measures are implemented correctly.

4.2.8 Reptiles and Common Amphibians

(see Pwll Erw-naw SINC for GCN Section 4.2.3)

Small areas of woodland and grassland will be removed, semi-improved grassland will be temporarily disturbed in the flood compensation area. New hedgerow planting will be undertaken along the length of the proposed development.

It is considered that a minor decrease in habitat suitable for reptiles and amphibians (in their terrestrial phase) is not significant in the wider landscape context and will be offset by be the planting scheme (once matured).

There is a risk that amphibians and reptiles could become injured/killed during vegetation clearance. A method statement should be followed during vegetation clearance which will include sensitive methods for clearance to reduce the risk of injury/killing of common amphibians and reptiles on site (similar to those detailed for GCN, see section 4.2.3 above). Materials arising from site clearance can be used to build habitat piles for reptiles and amphibians to shelter.

4.2.9 Birds

Removal of vegetation on site has the potential for damaging and destroying active birds' nests and/or eggs. The removal of nesting habitat is considered to be a negative impact for bird nesting and foraging until replacement planting is established (approximately 10 years). Disturbance to birds during construction would be temporary. The decrease in bird foraging and nesting opportunities is considered to have a minor negative effect at site level in the short term and there will be no residual effect.

Vegetation clearance, should be undertaken outside of nesting bird season which generally runs from March to September (although some birds can breed throughout the year). If this is not possible, an experienced ecologist should undertake a nesting bird check of habitat no more than 48 hours prior to clearance to ensure that active bird's nests are not disturbed or destroyed. If nesting birds are present, a suitably sized buffer should be located around the nest and all vegetation within the buffer will be left until the chicks have fledged. Measures to safeguard nesting birds would be captured in method statements incorporated into the CEMP.

4.2.10 Bats

Removal of vegetation on site has the potential for damaging and removing bat feeding and commuting habitat. However, only small areas of woodland, hedgerow and grassland will require removal and in the context of the wider landscape the loss of habitat is not considered significant, but mitigation will be required to ensure that commuting pathways are not lost.

The detailed design shows no direct impacts to those trees with moderate potential to support roosting bats. Any trees with low potential [19] that will be subject to works will be removed/managed under a method statement incorporated into the CEMP. Bat boxes will be located on retained trees prior to the commencement of the works, this will mitigate for the loss of low potential bat roosting features and enhance the habitat for roosting bats. If retained trees with moderate bat potential cannot be sufficiently protected, an aerial assessment would be completed prior to works being undertaken on the tree, and works should be undertaken under the guidance of a qualified Ecological Clerk of Work (ECoW).

With additional planting the commuting routes will be maintained and feeding/roosting re-established.

To mitigate for any short term loss of potential roost resource it is recommended that two bat boxes are erected per felled tree with low roost potential. A working method statement should be prepared to ensure a licenced ecologist is present when these trees are soft felled, this method statement would be incorporated into the CEMP. No licence would be required to undertake tree works unless the presence of roosting bats is confirmed. In that instance tree works would cease and the ECoW consulted to establish whether a licence is required for tree works to continue.

The minor decrease in bat commuting and foraging habitat, and potential loss of low potential roost features is not considered to have a significant residual effect at site level in the long term.

There is to be no night-time working during construction. A sensitive lighting scheme has been designed to ensure dark corridors are maintained to avoid negative effects on commuting or foraging bats once the proposed development is operational.

4.2.11 Badger

During construction activities have the potential to harm individual badgers (e.g. construction materials being left on site, excavations being left open) and task lighting along the proposed development has the potential to harm and disturb foraging and commuting badger.

Although no setts have been identified to date, a preconstruction check 8-10 weeks before will be undertaken to ensure no new activity is identified.

All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a badger enters the excavation it can escape and do not become trapped.

A sensitive lighting scheme has been designed to ensure dark corridors are maintained once the proposed development is operational.

The minor reduction in badger foraging habitat in the short term, is not considered to have a significant residual effect at site level in the long term.

4.2.12 Dormouse

Removal of vegetation on site has the potential to harm dormouse, damaging and destroying dormouse habitat and reducing connectivity through fragmentation. The removal of habitat is considered minor (approx 0.02ha woodland and 24m hedgerow (six separate 4m sections) and at most would affect one individual dormouse, this is not considered significant.

To prevent harm to individual dormouse sensitive site clearance should be undertaken under method statement incorporated into the CEMP with an ecologist present when dormouse are most likely to be active (May to September). Fragmentation, through the removal of sections of hedgerow and woodland vegetation no more than 4m in width is considered to be temporary, whilst construction is undertaken and human activity is high, and dormouse will cross the proposed development once construction is complete.

The short term decrease in habitat will be mitigated for by replacement hedgerow and tree belt planting (which will increase foraging and nesting habitat and improve east-west connectivity. It is considered that there will be no long term residual negative effect on dormouse.

A sensitive lighting scheme has been designed to ensure dark corridors are maintained which will ensure that dormouse (a nocturnal species) is not negatively affected by the proposed development once operational.

4.2.13 Otter

There is no loss of habitat for otter. The proposed development is not considered a barrier to movement (up to 4m wide), there is no risk of injury from traffic (pedestrians, and slow moving cyclists) and during periods of flood, otters will be able to cross over the top of the new bridge at Cadoxton Brook.

During construction activities have the potential to harm otters (e.g. construction materials being left on site, excavations being left open) and task lighting along the proposed development has potential to harm and disturb foraging and commuting otters. A pollution event could also cause harm to otters.

Although no holts have been identified to date, a preconstruction check 8-10 weeks before will be undertaken to ensure no new holts are identified.

The CEMP will detail that all works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if an otter enters the excavation it can escape and do not become trapped. To safeguard water quality in the area the CEMP will also detail pollution control measures. Once the CEMP is implemented the project is considered to not have a significant residual effect on otter in the long term.

4.2.14 Water vole

Although no burrows have been identified in proximity to the proposed watercourse crossing point, a preconstruction check 8-10 weeks before and immediately before bankside vegetation clearance commences will be undertaken to ensure no burrows are within 5-10m of the Cadoxton Brook bridge works. If water vole burrows are found at this stage an approach will be agreed with Natural Resources Wales and works may need to proceed under licence, this would affect the construction programme.

No significant negative residual effects have been identified and it is possible the works will be beneficial to water vole as the erection of boundary fencing south of the proposed will remove cattle from the section of the Cadoxton Brook between the proposed development and the A4055. No tree planting is proposed alongside the brook and the revegetation of banks in this area (a species rich grassland mix is proposed) which may encourage water vole to inhabit this area and aid dispersal to habitats north of the A4055 where no evidence of water vole was found during the 2023 surveys.

It is considered that there will be no long term residual negative effects.

4.2.15 Other Species – hedgehog, polecat and harvest mouse

During construction activities have the potential to harm individuals (e.g. construction materials being left on site, excavations being left open) and task lighting along the proposed development has potential to harm and disturb foraging and commuting hedgehog.

All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a hedgehog enters the excavation they can escape and do not become trapped.

The proposed sensitive lighting scheme will ensure dark corridors are retained suitable for nocturnal species.

The minor reduction in hedgehog, polecat and harvest mouse habitat in the short term, is not considered to have a significant residual effect at site level in the long term. The long term management of grassland habitats retained between the proposed development and the A4055 as meadows with a single late autumn cut adjacent to the scheme, may be of benefit to harvest mouse.

4.2.16 Summary

Table 7 summarises any residual effects predicted to result from the proposed development, as well as any mitigation required and how this mitigation can be secured.

Table 7: Summary of residual effects

Receptor	Significance of residual effects	Mitigation
Pwll Erw-naw SINC (and GCN)	None	Pollution prevention measures to be detailed in a CEMP. Reasonable avoidance measures method statement delivered through the CEMP for vegetation clearance for works within Dinas Powys Skate park. If GCN are encountered an ecologist and NRW will be consulted.
North of North Road SINC	None	Pollution prevention measures to be detailed in a CEMP.
Habitats (broadleaved woodland, hedgerows)	None	Replacement native tree and hedgerow planting. Species rich grassland mixes. Green corridors will be maintained alongside the proposed development will interconnecting canopies.
Habitats (Cadoxton Brook)	None	Pollution prevention plan to be included within CEMP. Bridge piers to be set 1m back from river bank top.
INNS	N/A	INNS management plan to be included within CEMP to include a toolbox talk, a preconstruction walkover of construction limits for invasive species and appropriate management activities.
Amphibians and Reptiles	None	Reasonable avoidance measures method statement for vegetation clearance delivered through the CEMP.
Birds	None	Reasonable avoidance measures method statement for vegetation clearance. Planting will provide additional resources for both foraging and nesting birds.
Bats	None	Felling and/ or pruning should be carried out as “soft / section felling” under supervision by a licensed bat worker as a precaution. These works should be undertaken in accordance with a method statement and 2x bat boxes per tree with low potential should be erected in advance, mitigation measures delivered through the CEMP. A sensitive lighting design will be implemented and dark corridors maintained. Planting will provide additional resources for foraging bats.

Receptor	Significance of residual effects	Mitigation
Badger	None	Pre-construction check for badger activity, 8-10 weeks before construction commences. CEMP to include safe practices such as construction works will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a badger enters the excavation they can escape and do not become trapped. Planting will provide additional resources for foraging badgers. A sensitive lighting design will be implemented and dark corridors maintained.
Dormouse	None	Reasonable avoidance measures method statement for vegetation clearance delivered through the CEMP. If a dormouse nest is encountered then NRW will be consulted. A sensitive lighting design will be implemented and dark corridors maintained. Planting will provide additional resources for foraging dormouse.
Water vole/otter	None	Pre-construction check for water vole and otter activity, 8-10 weeks before construction commences. If water vole is identified within 5-10m of the proposed works then a working method statement will be agreed with NRW and may be subject to licensing. Design retains open grassland habitat alongside Cadoxton Brook and piers of bridge are set back 1m from the bank top to aid movement. A sensitive lighting design will be implemented and dark corridors maintained.
Hedgehog, polecat and harvest mouse	None	Reasonable avoidance measures method statement for vegetation clearance delivered through the CEMP. A sensitive lighting design will be implemented and dark corridors maintained. Planting will provide additional resources for resting and foraging hedgehog, polecat and harvest mouse.

5 LEGISLATION AND POLICY COMPLIANCE

5.1 Legislation

5.1.1 Invasive Non-Native Species

Numerous floral and faunal species are listed on Schedule 9 of the WCA 1981 (as amended) [25] whereby it is an offence to grow or to cause to grow certain plants (Sch 9 Part 1) or to release certain animals into the wild (Sch 9 Part 2)including Himalayan Balsam which is found on site.

Mitigation measures outlined within this document shall ensure compliance with this legislation.

5.1.2 Amphibians

The most common amphibian species are protected from sale under Schedule 5 of the WCA 1981 (as amended) [25]. These include:

- Common frog (*Rana temporaria*)
- Common toad (*Bufo bufo*)
- Palmate newt (*Triturus helveticus*)
- Smooth / common newt (*Triturus vulgaris)*

NRW can issue licenses for several purposes under this legislation including scientific, research, educational, conservation and photography, but not development.

GCN and Natterjack toad (*Bufo calamita*) are protected under the Conservation of Habitats and Species Regulations 2017 [26]. This is because they have declined throughout Europe in recent decades. Under the Habitats Regulations, it is an offence to deliberately:

- capture, injure or kill any wild animal of an EPS,
- disturb wild animals of any such species,
- take or destroy the eggs of such an animal, or
- damage or destroy a breeding site or resting place of such an animal

Disturbance is defined as that which is likely:

- To impair their ability –
    - To survive, to breed or reproduce, or to rear or nurture their young, or
    - In the case of animals of a hibernating or migratory species, to hibernate or migrate; or
    - To affect significantly the local distribution or abundance of the species to which they belong

GCN are protected by law, including their breeding sites and resting places. It is against the law to:

- Capture, injure or kill great crested newts,
- Damage or destroy a breeding or resting place,
- Obstruct access to their resting or sheltering places,
- Possess, transport, sell or exchange live or dead great crested newts,
- Take great crested newt effs.

A licence may be obtainable from NRW should proposed work be likely to commit an offence. Retaining suitable habitat for these species (by avoiding key habitats and implementing a no-dig method of instatement within Parc Bryn Y Don, and implementing a sensitive vegetation clearance method statement will comply with this legislation.

5.1.3 Reptiles

UK Legislation

All British reptiles are protected from international killing, injuring and sale under Schedule 5 of the WCA 1981 (as amended) [31]. These are as follows:

- Adder (*Vipera berus)*
- Grass snake (*Natrix natrix)*
- Slow worm (*Anguis fragilis)*
- Common lizard (*Lacerta vivipara)*

5.1.4 Implementing a sensitive vegetation clearance method statement will comply with this legislation. Birds

All wild birds in the UK are protected from killing and injury, and against the destruction of eggs and active nests, under the WCA 1981 (as amended) [31]. Undertaking vegetation clearance outside of the breeding bird season or providing pre-clearance nest checks (within 48 hours prior to clearance) will comply with this legislation.

5.1.5 Bats

All UK bat species are European Protected Species (EPS). It is an offence under the Conservation of Habitats and Species Regulations 2017 (as amended) [26] and WCA 1981 (as amended) [31] to recklessly, intentionally, or deliberately:

- Take, kill or injure EPS;
- Damage, destroy or obstruct access to any structure or place which EPS use for shelter or protection; and/ or
- Disturb EPS

The Habitats Regulations further define disturbance as acts which are likely to:

- Impair the ability to survive, breed, reproduce, rear/nurture their young, hibernate or migrate; or
- Significantly affect the local distribution or abundance of the species.

Maintaining hedgerows, woodland and scrubland, with particular attention to trees with potential roost features will minimise the loss of biodiversity on site. Maintaining low light levels on site will be imperative to maintaining connectivity between feeding and roosting locations.

5.1.6 Badger

Badger are afforded legal protection under the Protection of Badgers Act 1992 [32], which makes it an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so);
- Cruelly ill-treat a badger;
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett;
- Disturb a badger when it is occupying a sett;

- Possess or control a live badger; and
- Mark or ring a badger.

Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) [31] protects badgers (and other mammals) against being killed or taken by certain methods (i.e., trapping or snaring).

Badgers are also protected by the Wild Mammals (Protection) Act 1996 [33], which prohibits cruel treatment.

If disturbance is considered likely to occur or sett closure is considered likely to be required as the results of any works, appropriate monitoring of affected setts would need to be carried out and the works undertaken under a licence from NRW. Such licences can only be obtained after planning permission is granted and are usually only issued between July and November (inclusive). Artificial setts may need to be constructed in advance of sett closure to provide shelter for badgers displaced by sett closure.

Mitigation measures outlined within this document shall ensure compliance with this legislation.

5.1.7 Dormouse

Dormouse are protected from international killing, injuring, possession and sale on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) [31] and are protected from the following:

- Disturbing whilst occupying place of shelter or protection
- Obstructing access to a place of shelter or protection
- Sale/offering for sale.

NRW can issue licences for several purposes under this legislation, including scientific, research, educational, conservation and photography, but not for development.

Dormouse are also protected under the Conservation of Habitats and Species Regulations 2017 [31]. Under the Habitat Regulations it is an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS
- Deliberately disturb wild animals of any such species
- Deliberately take or destroy the eggs of such an animal, or
- Damage or destroy a breeding site or resting place

5.1.8 Hedgerow, scrub and trees will be removed under a sensitive vegetation clearance method statement with an ecologist present shall ensure compliance with legislation. Otter

Otter are listed on Schedule 5 of the WCA 1981 (as amended) [25] and are subject to the provisions of Section 9 of the Act, which make it an offence to intentionally or recklessly:

- kill, injure or take otter;
- disturb otter whilst it is occupying a structure or place which it uses for shelter or protection;
- obstruct access to any structure or place used for shelter or protection by otter;
- sell, offer or expose for sale, or to possess or transport for sale a live or dead otter or any part of or anything derived from otter.

Otter are also listed on Schedule 2 of Conservation of Habitats and Species 2017, as amended [26] and are subject to the provisions of Regulation 41 which makes it an offence to:

- deliberately capture, injure or kill otter;

- deliberately disturb otter (where disturbance is likely to impair their ability to survive, breed or reproduce, rear or nurture their young; or to hibernate or migrate; or to affect significantly the local distribution or abundance of the species);
- damage or destroy a breeding site or resting place of otter; or
- be in possession of, control, transport, sell or exchange, or offer for sale or exchange any live or dead otter or any part of an otter or anything derived from an otter or any part of an otter.

Mitigation measures outlined within this document, namely a pre-construction check for holts and implementation of the CEMP and the pollution prevention plan shall ensure compliance with this legislation.

5.1.9 Water Vole

Water vole are protected under the WCA 1981 (as amended) [25]. Water vole are listed on Schedule 5 of the Act and are subject to all of the provisions of Section 9 of the Act, which make it an offence to intentionally or recklessly:

- kill, injure or take a water vole;
- possess or control any live or dead specimen or anything derived from a water vole;
- damage or destroy any structure or place used for shelter or protection by a water vole;
- disturb a water vole whilst it is occupying a structure or place which it uses for shelter or protection;
- obstruct access to any structure or place used for shelter or protection by a water vole;
- sell, offer or expose for sale, or to possess or transport for sale a live or dead water vole or any part of or anything derived from a water vole.

Under the WCA 1981(as amended) [25] NRW are able to issue licences of relevance to water voles for the following purposes:

- Scientific or Educational
- Ringing or marking
- Conservation
- Protecting any zoological or botanical collection
- Photography
- Preserving public health or public safety
- Preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.
- Preventing the spread of disease

It is not possible to issue a licence for development under the WCA 1981. Licences can be issued for the purpose of preserving public health and public safety e.g. restoration of a canal bank.

Mitigation measures outlined within this document shall ensure compliance with this legislation.

5.1.10 Other species - Hedgehog, harvest mouse and polecat

Hedgehog is listed on Schedule 6 of the WCA 1981 (as amended) [25], which makes it illegal to kill or capture wild hedgehog using certain techniques. They are also covered by the Wild Mammals (Protection) Act 1996 [33], which prohibits cruel treatment, and hedgehog are also a species of principal importance under the Natural Environment and Rural Communities Act 2006 [34].

Hedgehog, harvest mouse and polecat are all listed under Section 7 of the Environment (Wales) Act 2016 [9] and are Species of Principal Importance in Wales and efforts should be made to maintain and enhance populations of these species in the natural environment.

Sensitive vegetation clearance mitigation measure outlined in this document will ensure compliance with this legislation.

5.2 Policy

5.2.1 Net Benefit to Biodiversity Policy

The Well-being of Future Generations Act 2015 [35], Planning (Wales) Act 2015 [36] and the Environment (Wales) Act 2016 [9] provide the legislative context for delivering green infrastructure across Wales. Green infrastructure is also a key thread that runs through Planning Policy Wales 12 [1] and the National Development Framework, Future Wales: the National Plan 2040 [37]. The Welsh Government has prepared new guidance on green infrastructure and its delivery within the planning system, as an update to the National Planning Policy for Chapter 6 of Planning Policy Wales [1], published in October 2023 which advocates a more proactive approach to Green Infrastructure setting out how in particular, planning authorities must demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment (Wales) Act [9] by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions including a broad framework for delivery called DECCA, Diversity, Extent, Condition Connectivity and Adaptation attributes of ecosystem resilience (adaptability, recovery and resistance).

New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless it can be demonstrated that: 1) the need for the development clearly outweighs the biodiversity value of the proposed development; and 2) the impacts of the development can be satisfactorily mitigated and acceptably managed through appropriate future management regimes.

When considering Net Benefit to Biodiversity (NBB) in Wales, a whole system approach is encouraged with an understanding of the following required:

- The biodiversity value of the site,
- Its ecosystem resilience (using DECCA),
- The ecosystem services or benefits provided,
- Its existing and potential linkages with the wider green infrastructure network pre- and post- development proposals.

In order for a planning proposal to be accepted, the application must demonstrate it has maintained and enhanced biodiversity as well as built resilient ecological networks. A stepwise approach needs to be implemented which comprises:

- Avoidance
- Minimising
- Mitigating (as a last resort)
- Compensating for any adverse impacts as a result of the development
- In the event of adverse effects outweighing other material considerations then the application would be refused.

For the proposed development, the following has been considered in relation to NBB:

- Evaluation of the current ecosystem resilience, achieved through the undertaking of the walkover survey and habitat mapping as well as the consideration of suitability for protected species.
- Consideration of the value of the site for biodiversity.
- Review of existing linkages with surrounding green infrastructure.
- Review of the masterplan of the proposed Development and application of the “Stepwise” approach.

5.2.2 Site Valuation

The site is very typical of the surrounding agricultural grazing landscape and. overall is considered to be of **local** value.

The woodland, hedgerow and watercourse (i.e. Cadoxton Brook) habitats are of **county** importance (as they are habitats of principal importance).

The site is considered to be of **local** importance to bats, water vole and dormouse.

5.2.3 Green Infrastructure

The proposed development is considered unlikely to impact the green infrastructure: the main east-west connectivity alongside the A4055 will be retained as will the Cadoxton Brook and surrounding ditch network. Woodland and hedgerow planting alongside the southern edge of the proposed development will reinforce and improve the east-west connectivity between Biglis roundabout and Green Lane, creating a double/ parallel “green lane”. Further details are provided in the Green Infrastructure Statement [38].

The scheme will lead to creation of more woodland belts and hedgerow which are target habitats on the local nature recovery plan [39]. These will provide opportunities for a range of species currently using the site (birds, bats, amphibians, reptiles) but will has the potential to encourage new species, in particular:

- the species mix has been chosen to target dormouse, a target species of the local nature recovery plan, know to the be in the wider Dinas Powys area but not recorded during the survey work undertaken in 2023; and
- the species rich grassland mix and shaded grassland mix will provide additional nectar sources for invertebrates reinforcing the B-line.

5.2.4 Stepwise Approach

Avoidance – the design has kept to existing hardstanding (along the A4055) and low biodiversity value habitats (i.e. species poor semi-improved grassland) where possible. Existing gateways and gaps in vegetation have been used where possible to reduce the loss of hedgerow and woodland habitats and maintain connectivity. No-dig methods are to be used between the skate park and Heol y Frenhinnes, Dinas Powys to protect the avenue of trees.

Minimise – the footprint will be the extent of the proposed development, with minor disturbance either side during construction. Compounds will be located elsewhere on hardstanding. The lighting design is in line with IPL guidance for bats [40].

Mitigate - Preparation and adherence to a CEMP will ensure impacts are avoided and/or minimised. The CEMP shall include those items listed in Section 4 and:

- Preconstruction checks for otter, badger and water vole.
- Toolbox talk about the sensitivities of the site (proximity to watercourses, and fauna that are present)
- Sensitive vegetation clearance method statement in respect to fauna (nesting birds, dormouse, harvest mouse, polecat, hedgehog, amphibians and reptiles with ecological supervision/clerk of works where necessary).
- Habitat protection fencing/clear demarcation of working areas to protect retained habitats and prevent accidental damage to trees [41].
- Pollution prevention plan including surface water runoff and pollution control to protect watercourses including Cadoxton Brook.
- INNS management plan.
- Excavations covered and/or means of egress provided

- No night-time working unless agreed with an ecologist and only task lighting for dusk/dawn during winter months.

The short term negative effects of the scheme (bisection of hedgerows north-south) are considered to be off-set by the implementation of the long term additional east-west connectivity.

5.2.5 DECCA

Extending the woodland, grassland and hedgerow habitats along the south of the A4055, will improve connectivity east-west between Biglis and Dinas Powys. The proposed development will promote sustainable travel, reducing congestion, air pollution and increase resilience. A full assessment against all attributes of the DECCA framework is provided in Table 5 and overall a NBB is anticipated.

Table 5 – Assessment against the attributes of the DECCA framework pre- and post- development.

Attribute	Baseline	Post Development	Assessment
Diversity	Woodland (10 species) Scattered trees (4) Scrub (2) Hedgerow (8) Amenity grass (6 species) Semi-improved grassland (8)	New Woodland (10) New Scattered trees (8) New Hedgerows (10) Amenity grassland in verges (4) New semi-improved grassland in meadows (14) Hedgerow grass margins (30) Flood compensation area (10)	Loss of semi-improved grassland to accommodate the ATR replaced by additional woodland and shrub planting and species rich grassland mixes.
Extent[1]	Woodland (0.06ha) Scrub (0.03ha) Hedgerow (24m) Amenity grassland (0.04ha) Semi-improved grassland (1.72ha and 6.5ha for the flood compensation) Hardstanding/paving (0.47ha)	Woodland (0.6ha) Hedgerow (579m) Amenity grassland (0.35ha) Semi-improved grassland (0.44ha along route and 6.5ha for the flood compensation) Hedgerow grass margins (0.2ha) Hardstanding (0.95ha)	Reduction in extent of semi-improved grassland to accommodate the footprint of the ATR. Replacement planting is species rich and includes priority woodland and hedgerow habitats.
Condition	A condition assessment (Appendix D) has identified the habitat condition as follows:- Woodland – Moderate Hedgerow – Good	Condition of woodland will remain unchanged, changes in management may see improvements to existing hedgerows and grassland	Management of new habitats to ensure that the proposed landscaping establishes.

[1] Extent areas are based on maximum 4m wide footprint of the ATR and associated mitigation planting areas.

Attribute	Baseline	Post Development	Assessment
	Scattered Trees – Good Amenity grass - Poor Semi-improved grass - Good	conditions once grazing is removed.	
Connectivity	Good – network of hedgerows and woodland blocks across the ATR and out into wider landscape.	Good – minor improvement east-west by creating a parallel green corridor to the existing one.	Additional tree and shrub planting will increase east-west connectivity in particular and provide additional screening from the road.
Adaptability	Moderate	Good – the ATR will provide opportunities for non-motorised traffic.	The ATR will encourage bicycle use. Whilst the additional trees will capture pollutants and help improve air quality. The flood alleviation area will increase flood capacity.

5.2.6 Compensation, Enhancement and Monitoring

No off-site compensation is considered necessary as all mitigation would occur on site.

Enhancement measures that will be incorporated include, wildlife piles created from removed vegetation and management of grassland between the proposed development and the existing hedgerow of the A4055 as a species rich meadow.

Monitoring of the new landscaping for the first three years with weeding, watering and replacement planting being completed during this period will ensure habitats are established and then habitats and bat boxes will be incorporated into the council's Right of Way management and maintenance schedule. The nature of the development and lack of anticipated residual effects mean that it is considered unnecessary to undertake any long term population monitoring for species.

6 CONCLUSIONS

Survey work identified the potential for impacts on Pwll Erw-Naw SINC, North of North Road SINC, loss of priority habitats (lowland mixed deciduous woodland and hedgerows), potential for damage to priority habitats (watercourses due to pollution incidents), potential for harm to reptiles, amphibians, birds, bats, badger, water vole, dormouse, hedgehog, harvest mouse and polecat due to the construction of the ATR.

All impacts are considered to be adequately mitigated for through:

- sensitive site clearance and pollution prevention control, in line with method statements to be detailed in the CEMP;
- Implementation of the landscaping plan to replace loss planting and re-enforce existing green infrastructure, and
- a sensitive lighting design.

Once the landscape planting is fully established, it is considered that, in combination with the benefits to air quality and climate change from providing improved non-car transport options in the Dinas Powys area that there will be an overall net benefit for biodiversity if all the mitigation is followed.

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Appendix A

Site Drawings

Drawing 10058585-ARC-XX-XXX-DR-E-00001 – Phase 1 Habitat Plan

Drawing 10058585-ARC-XX-XXX-DR-A-00001 - 00008 – Soft Landscape Design

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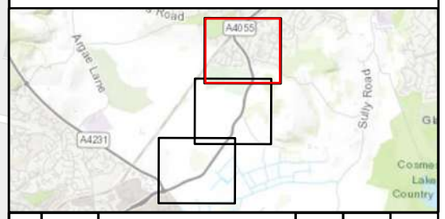
Legend

- Site boundary
- Study area 30m
- Target note
- Scattered trees broadleaved
- Scattered trees coniferous
- Broadleaved Parkland/ scattered trees
- Species poor hedgerow with trees
- Dry ditch
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- Improved grassland
- Running water
- Standing water
- Amenity grassland
- Buildings and residential gardens
- Other habitat



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01	10-03-23	INITIAL ISSUE	DP	JD	SW

Client:

VALE of GLAMORGAN
BRO MORGANNWG

PROJECT:
BIGLIS TO DINAS POWYS ATR

Site: Biglis to Dinas Powys ATR

Client: Vale of Glamorgan County Borough Council

ARCADIS

Registered office:
80Fen
80 Fenchurch Street
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Title:

Phase 1 Habitat Plan
Biglis to Dinas Powys ATR
Page 1 of 3

Designed	J D'Souza	Date: 13 DEC 23	Signed:
Drawn	R. Pakhare	Date: 13 DEC 23	Signed:
Checked	J Player	Date: 13 DEC 23	Signed:
Approved	S. Walters	Date: 13 DEC 23	Signed:
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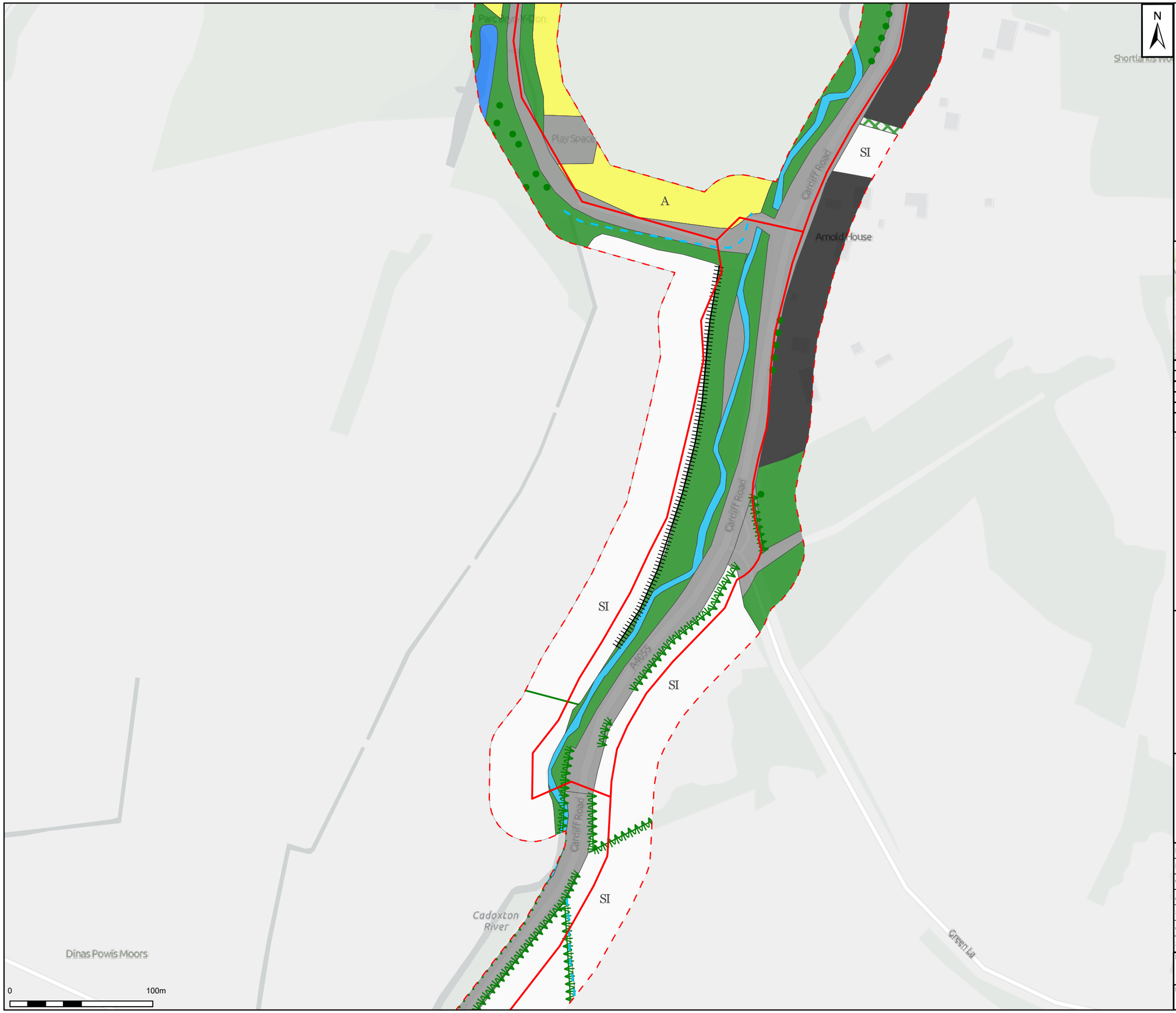
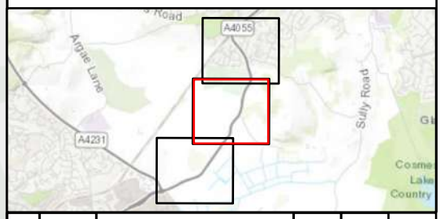


Legend

- Site boundary
- Study area 30m
- Scattered trees broadleaved
- Broadleaved Parkland/ scattered trees
- Species poor hedgerow with trees
- Intact hedge - species-poor
- Fence
- Dry ditch
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- SI Poor semi-improved
- Running water
- Standing water
- A Amenity grassland
- Buildings and residential gardens
- Other habitat



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Phase 1 Habitat Plan
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Page 2 of 3

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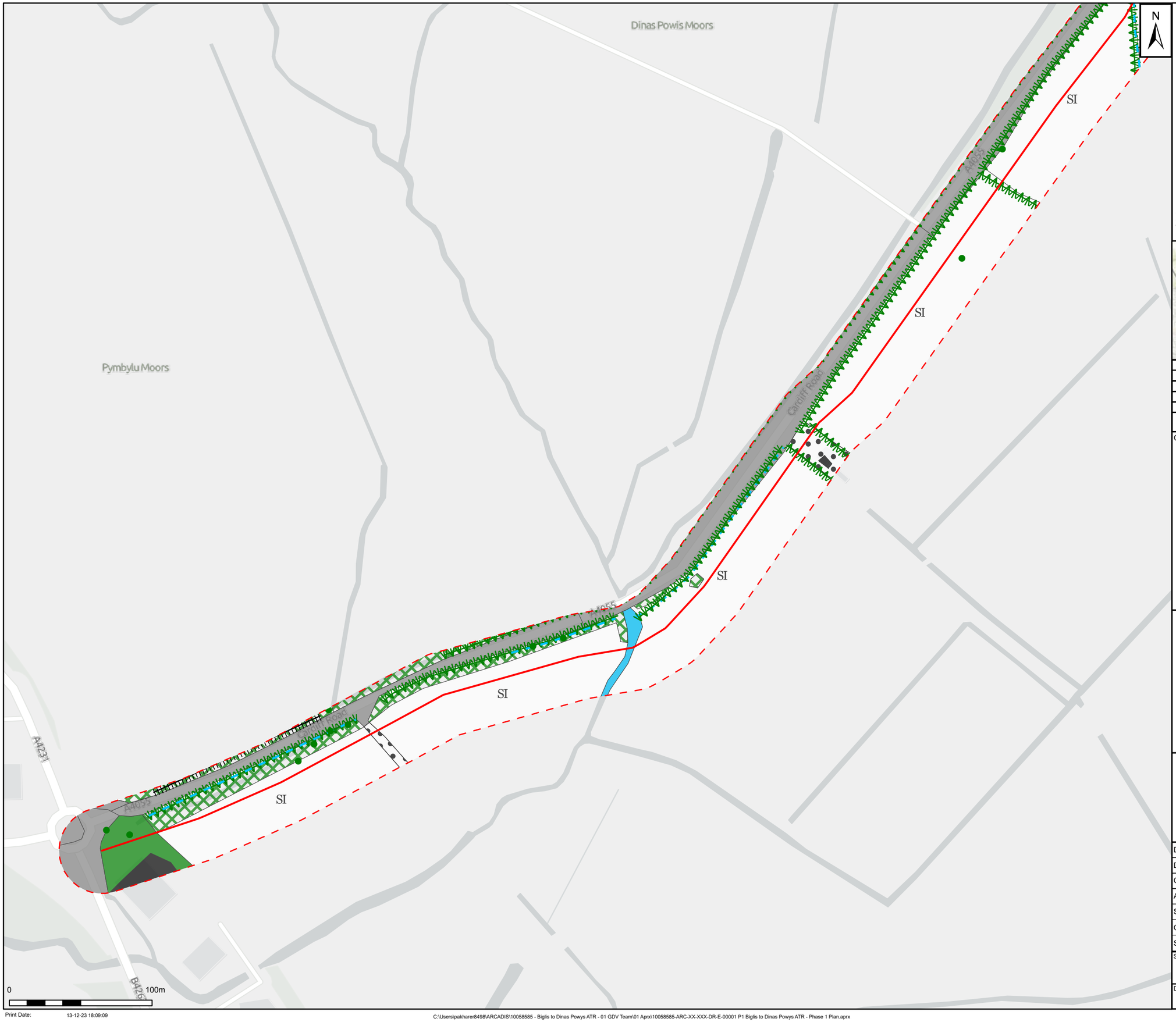
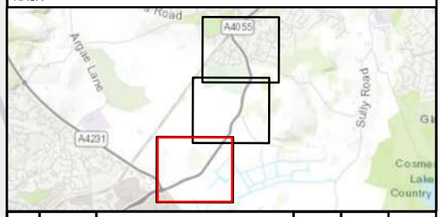


Legend

- Site boundary
- Study area 30m
- Scattered trees broadleaved
- Species poor hedgerow with trees
- Fence
- Dry ditch
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- SI Poor semi-improved
- Running water
- Buildings and residential gardens
- Bare ground
- Other habitat



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4. REFER TO DRG 10058585-ARC-XX-300-DR-A-00008 FOR PROPOSED PLANTING AND SEED MIXES

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary
- Public Rights of Way

Proposed

- Active Travel Route
- Highway
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Raised Table
- Specimen Tree
- Native Deciduous Woodland
- Native Hedgerow
- Amenity Grassland (EG22)
- Species-Rich Grassland (EM1)
- Shaded Species-Rich Grassland (EH1)
- Meadow Grass for Wet Soils (EG8)
- Type 1 Hardstanding

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P01	22/10/24	FOR PLANNING	HG	DW	BH	MH

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Drawing Title:

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Sheet 1 of 8

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Reviewed: B.Hilder	Signed: Digitally Signed	Date: 22/10/24
Approved: M.Houlston	Signed: Digitally Signed	Date: 22/10/24
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Suitable for Review and Acceptance

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10058585 - ARC - XX - XRF - DR - A - 00001

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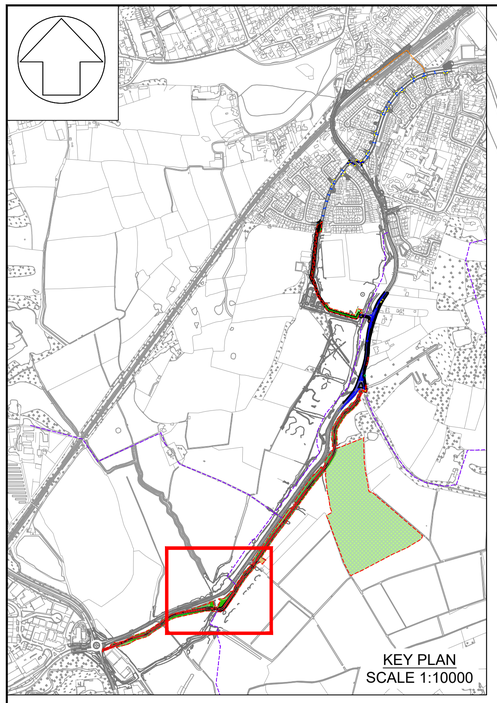

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4. REFER TO DRG 10058585-ARC-XX-300-DR-A-00008 FOR PROPOSED PLANTING AND SEED MIXES

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary
- Public Rights of Way

Proposed

- Active Travel Route
- Highway
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Raised Table
- Specimen Tree
- Native Deciduous Woodland
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- Amenity Grassland (EG22)
- Species-Rich Grassland (EM1)
- Shaded Species-Rich Grassland (EH1)
- Meadow Grass for Wet Soils (EG8)
- Type 1 Hardstanding

Rev.	Date	Description	Prod.	Chk.	Rev.	App.
P01	22/10/24	FOR PLANNING	HG	DW	BH	MH

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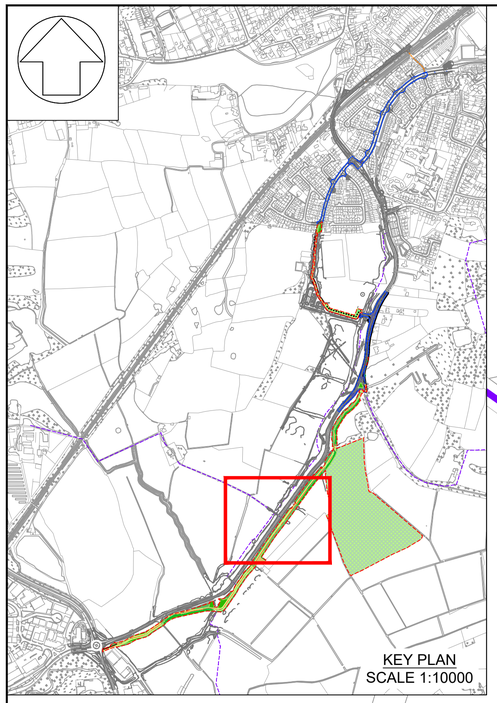

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Drain

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Legend

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- Meadow Grass for Wet Soils (EG8)
- Type 1 Hardstanding

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P01	22/10/24	FOR PLANNING	HG	DW	BH	MH

VALE of GLAMORGAN
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Approved: M.Houlston	Signed: Digitally Signed	Date: 22/10/24

Design Stage: Preliminary Design

Original Size: A1	Grid: OS	Datum: AOD
Suitability Code: S5	Scale: 1:500	Project Number: 10058585

Suitability Description:

Suitable for Review and Acceptance

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Revision: P01

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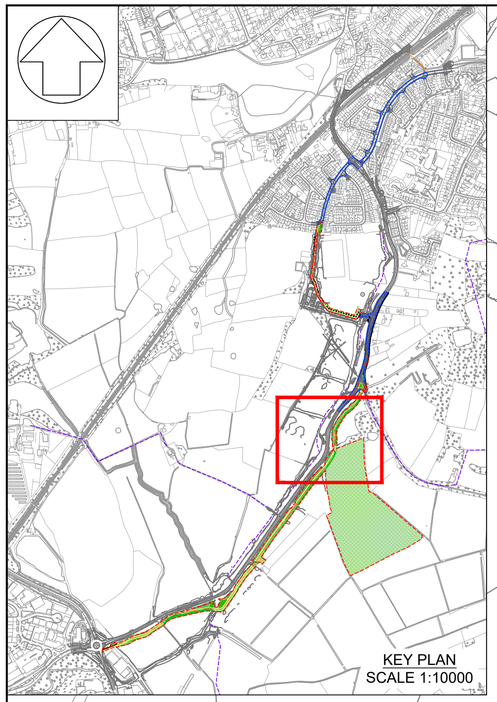

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Dinas Powis Moors

Pond

CUTLINE - FOR CONTINUATION SEE SHEET 3 of 7

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4. REFER TO DRG 10058585-ARC-XX-300-DR-A-00008 FOR PROPOSED PLANTING AND SEED MIXES

Legend

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- Public Rights of Way

Proposed

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- Pedestrian Priority Crossing
- Raised Table
- Specimen Tree
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- Meadow Grass for Wet Soils (EG8)
- Type 1 Hardstanding

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P01	22/10/24	FOR PLANNING	HG	DW	BH	MH

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Soft Landscape Design
Sheet 4 of 8

Designed: D.Watts	Signed: Digitally Signed	Date: 18/10/24
Produced: H.Gilroy	Signed: Digitally Signed	Date: 18/10/24
Checked: D.Watts	Signed: Digitally Signed	Date: 22/10/24
Reviewed: B.Hilder	Signed: Digitally Signed	Date: 22/10/24
Approved: M.Houlston	Signed: Digitally Signed	Date: 22/10/24
Design Stage: Preliminary Design		
Original Size: A1	Grid: OS	Datum: AOD
Suitability Code: S5	Scale: 1:500	Project Number: 10058585

Suitability Description:

Suitable for Review and Acceptance

Drawing Number:
10058585 - ARC - XX - 300 - DR - A - 00004

Revision:
P01

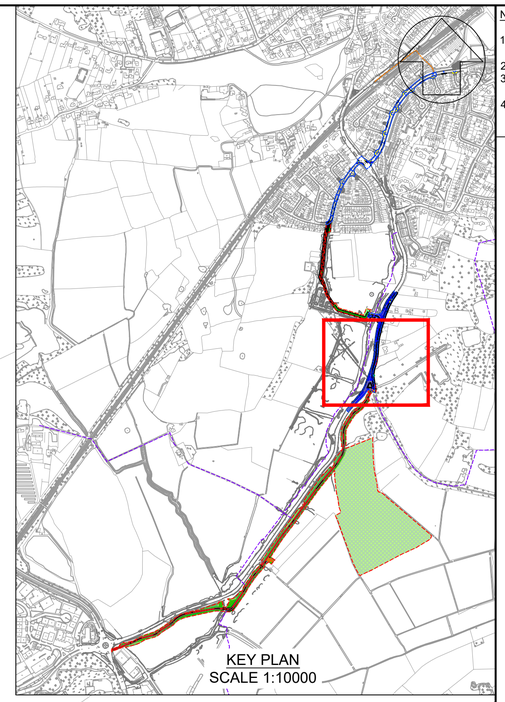
0 10 20 30 40 50
METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

CUTLINE - FOR CONTINUATION SEE SHEET 6 of 7

CUTLINE - FOR CONTINUATION SEE SHEET 4 of 7



NOTES

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2. ALL UNITS ARE IN METRES UNLESS STATED.
3. REFER TO DRG 10058585-ARC-XX-010-DR-C-00004 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRG 10058585-ARC-XX-300-DR-A-00008 FOR PROPOSED PLANTING AND SEED MIXES

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary
- Public Rights of Way

Proposed

- Active Travel Route
- Highway
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Raised Table
- Specimen Tree
- Native Deciduous Woodland
- Native Hedgerow
- Amenity Grassland (EG22)
- Species-Rich Grassland (EM1)
- Shaded Species-Rich Grassland (EH1)
- Meadow Grass for Wet Soils (EG8)
- Type 1 Hardstanding

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P01	22/10/24	FOR PLANNING	HG	DW	BH	MH

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Biglis to Dinas Powys ATR

Site

Biglis to Dinas Powys
Cardiff

Client

Vale of Glamorgan Council
Civic Offices,
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

Registered office:
80 Fenchurch Street
London
EC3M 4BY

Coordinating office:
Arcadis Suite 4d,
4th Floor, Hodge House
144-166 St Mary St,
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Drawing Title:

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Sheet 5 of 8

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Suitability Code: S5	Scale: 1:500	Project Number: 10058585
Suitability Description: Suitable for Review and Acceptance		

Drawing Number: 10058585 - ARC - XX - 300 - DR - A - 00005

Revision: P01

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

CUTLINE - FOR CONTINUATION SEE SHEET 7 of 7

Tennis Court

Football Pitches

Pavilion

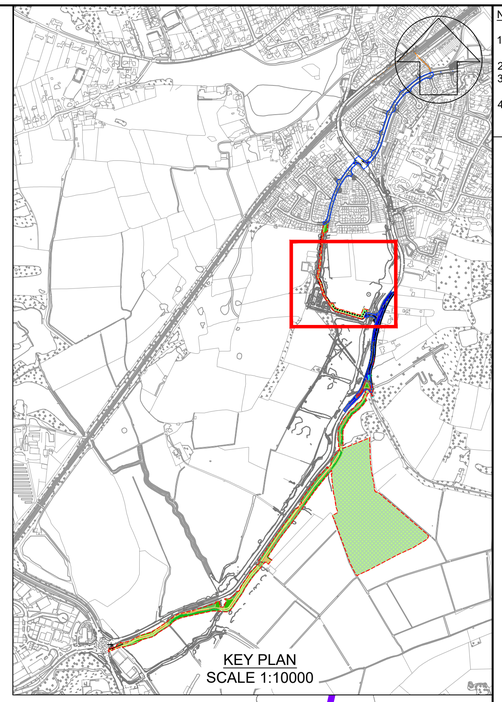
Pond

Pwll Erw-nglw

Football Pitches

Arnold House

CUTLINE - FOR CONTINUATION SEE SHEET 5 of 7



KEY PLAN
SCALE 1:10000

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Suitability Description:

Suitable for Review and Acceptance

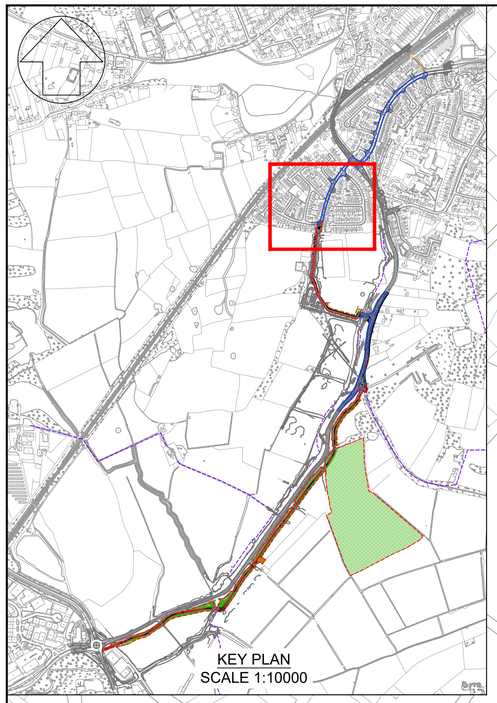
Drawing Number:
10058585 - ARC - XX - 300 - DR - A - 00006

Revision:
P01

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



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Suitability Code: S5	Scale: 1:500	Project Number: 10058585

Suitability Description:

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Drawing Number: 10058585 - ARC - XX - 300 - DR - A - 00007

Revision: P01

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

Proposed Plants & Grass Seed Species

Native Hedgerow			
Planted at 0.5m centres in a double staggered row with 0.3m between rows. 5 Plants per linear m			
Species	**Height cm**	**Root**	**Specification**
Acer campestre	60-80	BR	Transplant - seed raised
Cornus sanguinea	60-80	BR	1+1; Transplant - seed raised; branched; 3 breaks
Corylus avellana	60-80	BR	Transplant - seed raised; branched; 3 breaks
Crataegus monogyna	60-80	BR	Transplant - seed raised
Euonymus europaeus	60-80	BR	1+2; Transplant - seed raised; branched; 5 breaks
Ilex aquifolium	80-100	RB	Leader with laterals
Malus sylvestris	60-80	BR	1+1; Transplant - seed raised
Prunus spinosa	60-80	BR	Transplant - seed raised; branched; 2 breaks
Rosa Canina	60-80	BR	1+1; Transplant - seed raised; branched; 3 breaks

Native Deciduous Woodland			
Planted at 1.5m centres			
Species	**Height cm**	**Root**	**Specification**
Acer campestre	60-80	BR	Transplant - seed raised
Betula pendula	60-80	BR	1+1; Transplant - seed raised
Corylus avellana	60-80	BR	1+2; Transplant - seed raised; branched; 3 breaks
Crataegus monogyna	60-80	BR	Transplant - seed raised
Cytisus scoparius	40-60	2L	Bushy; 5 breaks
Hedera helix	40-60	2L	Several shoots; 3 breaks
Ilex aquifolium	80-100	RB	Leader with laterals
Malus sylvestris	60-80	BR	1+1; Transplant - seed raised
Prunus avium	60-80	BR	1+1; Transplant - seed raised
Prunus spinosa	60-80	BR	1+1; Transplant - seed raised; branched; 2 breaks
Quercus robur	60-80	BR	1+2; Transplant - seed raised
Salix caprea	60-80	BR	0/1; Cutting; branched; 2 breaks
Viburnum lantana	60-80	BR	1+2; Transplant - seed raised; branched; 3 breaks

Grasses	**Sowing Rate**
Emorsgate - EG8 Meadow Grass Mixture for Wet Soils (for flood attenuation)	5g/m²
Emorsgate - EG22 Strong Lawn Grass Mixture (for verges)	25g/m²
Emorsgate - EM1 Basic General Purpose Meadow Mixture (for general meadow areas)	4g/m²
Emorsgate - EH1 Hedgerow Mixture (for shaded areas)	4g/m²

Specimen Trees					
Number of Plants	**Species**	**Common Name**	**Height**	**Specification**	**Girth**
4	Acer campestre	Common Maple	2.5-3.0m	Heavy Standard : RB	12-14cm
4	Betula pendula	Common Silver Birch	2.5-3.0m	Heavy Standard : RB	12-14cm
3	Prunus padus	Bird Cherry	2.5-3.0m	Heavy Standard : RB	12-14cm
2	Sorbus aria	Whitebeam	2.5-3.0m	Heavy Standard : RB	12-14cm
3	Sorbus aucuparia	European Mountain Ash	2.5-3.0m	Heavy Standard : RB	12-14cm
16					

NOTES

1. REFER TO DRAWINGS 10058585-ARC-XX-300-DR-A-00001 - 00007 FOR SOFT LANDSCAPE DESIGN

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10058585 - ARC - XX - 300 - DR - A - 00008

Revision:
P01

0 10 20 30 40 50
METRES
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

Appendix B

Local Record Centre Data

Latin Name	Common Name	Designation
Botanical Species		
Allium triquetrum	Three-cornered Garlic	WCA9, INNS
Anacamptis pyramidalis	Pyramidal Orchid	LI(SEWBReC), LI(VC47), LI(VC48, LS)
Arum italicum subsp. neglectum	Arum italicum subsp. neglectum	RDB1 (UK) - NT, RDB2 (UK) - S, LBAP (VOG), RDB1 (Wales) - CR
Ballota nigra	Black Horehound	LI(SEWBReC)
Blackstonia perfoliata	Yellow-wort	LBAP (GWY), LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC52, LS)
Bromopsis erecta	Upright Brome	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC49, LR), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
Buddleja davidii	Butterfly-bush	INNS
Butomus umbellatus	Flowering-rush	RDB1 (Wales) - VU, LI(SEWBReC), LI(VC43), LI(VC51, LR), LI(VC52)
Carex strigosa	Thin-spiked Wood-sedge	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC50, LR), LI(VC51, LR)
Ceratophyllum demersum	Rigid Hornwort	LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
Chrysosplenium alternifolium	Alternate-leaved Golden-saxifrage	LI(SEWBReC), LI(VC47), LI(VC50, LS)
Cirsium eriophorum	Woolly Thistle	LI(SEWBReC), LI(VC43)
Clinopodium ascendens	Common Calamint	LBAP (VOG), LI(SEWBReC), LI(VC47), LI(VC49, LS), LI(VC50), LI(VC51, LR), LI(VC52, LR)
Cotoneaster	Cotoneaster	WCA9, INNS
Cotoneaster horizontalis	Wall Cotoneaster	WCA9, INNS
Crocosmia	Montbretia	WCA9, INNS
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	WCA9, INNS
Daphne laureola	Spurge-laurel	LBAP (GWY), LI(SEWBReC), LI(VC47), LI(VC49, LS), LI(VC52, LS)
Echium vulgare	Viper's-bugloss	LBAP (BGW, GWY), LI(SEWBReC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LS)
Euphorbia amygdaloides	Wood Spurge	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC50, LR), LI(VC51, LS)
Fallopia japonica	Japanese Knotweed	WCA9, INNS
Ficaria verna var. bulbifer	Ficaria verna var. bulbifer	LI(VC49, LS), LI(VC52, LS)
Frangula alnus	Alder Buckthorn	LBAP (GWY, NEW), LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR)

Latin Name	Common Name	Designation
Gnaphalium luteoalbum	Jersey Cudweed	WCA8
Hyacinthoides hispanica	Spanish Bluebell	INNS
Hyacinthoides non-scripta	Bluebell	WCA8, LBAP (ANG, CLY, CON, FLI, SNP, TRA, TRF)
Hyacinthoides non-scripta x hispanica = H. x massartiana	Bluebell	INNS
Hypericum hirsutum	Hairy St John's-wort	LI(SEWBReC), LI(VC48, LR), LI(VC49, LR)
Impatiens glandulifera	Himalayan Balsam	WCA9, INNS
Iris foetidissima	Stinking Iris	LI(SEWBReC), LI(VC51, LS)
Lactuca virosa	Great Lettuce	LBAP (CON), LI(SEWBReC), LI(VC50, LR)
Leycesteria formosa	Himalayan Honeysuckle	INNS
Linum bienne	Pale Flax	LBAP (BRG), LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
Lonicera nitida	Wilson's Honeysuckle	INNS
Malva neglecta	Dwarf Mallow	RDB1 (Wales) - NT, LBAP (BRG), LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC52, LR)
Medicago arabica	Spotted Medick	LBAP (GWY), LI(SEWBReC), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)
Mercurialis annua	Annual Mercury	LI(SEWBReC), LI(VC48, LR), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)
Ophrys apifera	Bee Orchid	CITES, LBAP (CLY, GWY, TRA, TRF), LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LS)
Papaver dubium subsp. lecoqii	Yellow-juiced Poppy	LI(SEWBReC), LI(VC52, LR)
Paris quadrifolia	Herb-Paris	LBAP (CDF, CON, FLI), LI(SEWBReC), LI(VC43), LI(VC47), LI(VC51, LS), LI(VC52, LR)
Parthenocissus quinquefolia	Virginia-creeper	WCA9, INNS
Picris hieracioides	Hawkweed Oxtongue	LI(SEWBReC), LI(VC43), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR)
Plantago media	Hoary Plantain	LI(SEWBReC), LI(VC43), LI(VC48, LR), LI(VC49, LR), LI(VC50, LS), LI(VC52, LR)
Platanthera chlorantha	Greater Butterfly-orchid	RDB1 (UK) - NT, LBAP (GWY, MON, TRA), LI(SEWBReC), LI(VC43), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
Polypodium cambricum	Southern Polypody	LBAP (ANG, CON, FLI, GWY, PEM), LI(SEWBReC), LI(VC43), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC50, LS), LI(VC51, LR), LI(VC52, LS)
Prunus laurocerasus	Cherry Laurel	INNS
Prunus padus	Bird Cherry	LBAP (GWY), LI(SEWBReC), LI(VC47), LI(VC49, LS)

Latin Name	Common Name	Designation
Ranunculus auricomus	Goldilocks Buttercup	LI(SEWBReC), LI(VC48, LR), LI(VC49, LS), LI(VC52, LS)
Robinia pseudoacacia	False-acacia	INNS
Sedum album	White Stonecrop	INNS
Sinapis arvensis	Charlock	RDB1 (Wales) - VU
Sison amomum	Stone Parsley	LI(SEWBReC), LI(VC47), LI(VC49, LS)
Sparganium emersum	Unbranched Bur-reed	LBAP (GWY), LI(SEWBReC), LI(VC49, LS), LI(VC51, LS)
Spiranthes spiralis	Autumn Lady's-tresses	RDB1 (UK) - NT, LBAP (CON, GWY, TRA), LI(SEWBReC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
Symphoricarpos albus	Snowberry	INNS
Torilis nodosa	Knotted Hedge-parsley	LI(SEWBReC), LI(VC47), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
Viburnum lantana	Wayfaring-tree	LI(SEWBReC), LI(VC51, LS)
Vicia bithynica	Bithynian Vetch	RDB1 (Wales) - EN, RDB1 (UK) - VU, RDB2 (UK) - S, LBAP (DEN, VOG), LI(VC50, LR), LI(VC51, LR)
Vicia sylvatica	Wood Vetch	LBAP (GWY, VOG), LI(VC49, LR), LI(VC51, LR)
Viscum album	Mistletoe	LBAP (CDF, TRF), LI(SEWBReC), LI(VC48, LR), LI(VC51, LR)
Algae and Bryophytes		
Asparagopsis armata	Harpoon Weed	WCA9, INNS
Bryum gemmiferum	Small-bud Bryum	RDB1 (Wales) - LC, LI(BIS), LI(VC45, LR), LI(VC46, LR), LI(VC48, LR), LI(WWBIC)
Campylopus introflexus	Heath Star Moss	INNS
Didymodon nicholsonii	Nicholson's Beard-moss	RDB1 (Wales) - LC, LI(BIS)
Oxyrrhynchium pumilum	Dwarf Feather-moss	RDB1 (Wales) - LC, LI(VC43, LR)
Plasteurhynchium striatulum	Lesser Striated Feather-moss	RDB1 (Wales) - LC, LI(BIS), LI(VC35), LI(VC35, LR), LI(VC42, LR), LI(VC44, LR), LI(VC45, LS), LI(VC49, LR), LI(VC50, LR), LI(VC52, LR), LI(WWBIC)
Syntrichia papillosa	Marble Screw-moss	RDB1 (Wales) - LC, LBAP (CON, FLI)
Invertebrates		
Acronicta psi	Grey Dagger	S7, LBAP (GWY, VOG)
Acronicta rumicis	Knot Grass	S7, LBAP (GWY, VOG)
Agonopterix atomella	Greenweed Flat-body Moth	S7
Agrochola lychnidis	Beaded Chestnut	S7, LBAP (GWY, VOG)
Allophyes oxyacanthae	Green-brindled Crescent	S7, LBAP (GWY, VOG)
Amphinemura standfussi	Amphinemura standfussi	RDB2 (UK) - S
Amphipoea oculea	Ear Moth	S7, LBAP (GWY, VOG)

Latin Name	Common Name	Designation
Apamea remissa	Dusky Brocade	S7, LBAP (GWY, VOG)
Arctia caja	Garden Tiger	S7, LBAP (GWY, VOG)
Argolamprotes micella	Bright Neb	RDB2 (UK) - N
Argynnis paphia	Silver-washed Fritillary	LBAP (BRG, CDF, CON, FLI, MON, NEW, POW, SWN), LI(SEWBReC), LI(VC43)
Asteroscopus sphinx	Sprawler	S7, LBAP (VOG)
Atethmia centrago	Centre-barred Sallow	S7, LBAP (GWY, VOG)
Bombus humilis	Brown-Banded Carder Bee	S7, LBAP (CER, CON, FLI, GWY, PEM, POW, VOG)
Bombus sylvarum	Shrill Carder Bee	S7, RDB2 (UK) - NB, LBAP (CER, FLI, PEM, VOG)
Brachytron pratense	Hairy Dragonfly	LBAP (BRG, CLY, GWY, PEM, SNP), LI(BIS), LI(SEWBReC)
Calamotropha paludella	Bulrush Veneer	RDB2 (UK) - NB, LBAP (NEW)
Calopteryx splendens	Banded Demoiselle	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)
Calopteryx virgo	Beautiful Demoiselle	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)
Caradrina morpheus	Mottled Rustic	S7, LBAP (GWY, VOG)
Celastrina argiolus britanna	Holly Blue	LBAP (CON)
Chiasmia clathrata	Latticed Heath	S7, LBAP (GWY, VOG)
Chiasmia clathrata clathrata	Latticed Heath	S7, LBAP (GWY, VOG)
Cirrhia icteritia	Sallow	S7, LBAP (GWY, VOG)
Coenonympha pamphilus	Small Heath	S7, RDB1 (UK) - NT, LBAP (GWY, VOG)
Conocephalus dorsalis	Short-winged Cone-head	LBAP (BRG, TRF), LI(SEWBReC)
Conocephalus fuscus	Long-winged Cone-head	LI(SEWBReC)
Cordulegaster boltonii	Golden-ringed Dragonfly	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)
Deleaster dichrous	Deleaster dichrous	RDB2 (UK) - NB
Diarsia rubi	Small Square-spot	S7, LBAP (GWY, VOG)
Diloba caeruleocephala	Figure of Eight	S7, LBAP (VOG)
Ecliptopera silaceata	Small Phoenix	S7, LBAP (GWY, VOG)
Ennomos fuscantaria	Dusky Thorn	S7, LBAP (GWY, VOG)
Ennomos quercinaria	August Thorn	S7, LBAP (GWY, VOG), LI(BIS)
Erynnis tages	Dingy Skipper	S7, RDB1 (UK) - VU, LBAP (BGW, BRG, CON, FLI, GWY, SWN, VOG), LI(SEWBReC)
Eudonia delunella	Pied Grey	RDB2 (UK) - NB
Forficula lesnei	Lesne's Earwig	RDB2 (UK) - S, LBAP (BRG), LI(SEWBReC)
Harmonia axyridis	Harlequin Ladybird	INNS
Hemistola chrysoprasaria	Small Emerald	S7, LBAP (GWY, VOG)

Latin Name	Common Name	Designation
Hepialus humuli	Ghost Moth	S7, LBAP (GWY, VOG)
Hoplodrina blanda	Rustic	S7, LBAP (GWY, VOG)
Hydraecia micacea	Rosy Rustic	S7, LBAP (GWY, VOG)
Hydroporus marginatus	Hydroporus marginatus	RDB2 (UK) - S
Ischnura pumilio	Scarce Blue-tailed Damselfly	RDB1 (UK) - NT, LBAP (BGW, BRG, CLY, GWY, PEM, SNP, TRF), LI(BIS), LI(SEWBReC)
Lateroligia ophiogramma	Double Lobed	LI(VC42)
Leptoglossus occidentalis	Western Conifer Seed Bug	INNS
Leptophyes punctatissima	Speckled Bush-cricket	LI(SEWBReC)
Lestes sponsa	Emerald Damselfly	LBAP (CLY, SNP), LI(SEWBReC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
Leucania comma	Shoulder-striped Wainscot	S7, LBAP (GWY, VOG)
Lycia hirtaria	Brindled Beauty	S7, LBAP (GWY, VOG)
Malacosoma neustria	Lackey	S7, LBAP (GWY, VOG)
Melanargia galathea	Marbled White	LBAP (SWN, VOG), LI(BIS)
Melanchra persicariae	Dot Moth	S7, LBAP (GWY, VOG)
Melanthia procellata	Pretty Chalk Carpet	S7, LBAP (GWY, VOG), LI(BIS)
Mirificarma lentiginosella	Greenweed Groundling	RDB2 (UK) - N
Ophonus ardosiacus	Ophonus ardosiacus	RDB2 (UK) - NB
Orthetrum cancellatum	Black-tailed Skimmer	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)
Psychomyia fragilis	Psychomyia fragilis	RDB2 (UK) - N
Pyrochroa coccinea	Black-headed Cardinal Beetle	RDB2 (UK) - NB
Rhizedra lutosa	Large Wainscot	S7, LBAP (BRG, GWY)
Satyrium w-album	White-letter Hairstreak	WCA5, S7, RDB1 (UK) - EN, LBAP (BRG, FLI, NEW, SWN, VOG), LI(SEWBReC)
Scotopteryx chenopodiata	Shaded Broad-bar	S7, LBAP (GWY, VOG)
Spilosoma lubricipeda	White Ermine	S7, LBAP (GWY, VOG)
Spilosoma lutea	Buff Ermine	S7, LBAP (GWY, VOG)
Sympetrum danae	Black Darter	LBAP (CLY, SNP), LI(BIS), LI(SEWBReC)
Sympetrum sanguineum	Ruddy Darter	LBAP (CLY, SNP), LI(SEWBReC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
Timandra comae	Blood-vein	S7, LBAP (VOG)
Tyria jacobaeae	Cinnabar	S7, LBAP (GWY, VOG)

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Watsonalla binaria	Oak Hook-tip	S7, LBAP (GWY, VOG)
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	S7, LBAP (GWY, VOG)
Amphibians		
Bufo bufo	Common Toad	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, TRA, VOG)
Lissotriton helveticus	Palmate Newt	WCA5, Bern, LBAP (ANG, CLY, CON, DEN, FLI, POW, TRA), LI(BIS)
Lissotriton vulgaris	Smooth Newt	WCA5, Bern, LBAP (CLY, CON, DEN, FLI, POW, TRA), LI(BIS)
Rana temporaria	Common Frog	HDir, WCA5, Bern, LBAP (ANG, CLY, CON, FLI, POW, TRA)
Triturus cristatus	Great Crested Newt	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, CON, DEN, FLI, MON, POW, SNP, TRA, TRF, VOG, WRE)
Reptiles		
Anguis fragilis	Slow-worm	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)
Natrix helvetica	Grass Snake	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG), LBAP (ANG, CLY, DEN, FLI, POW, SNP, TRA, VOG)
Zootoca vivipara	Common Lizard	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
Birds		
Acanthis cabaret	Lesser Redpoll	S7, LBAP (CON), LBAP (DEN, POW, VOG), WBAm(RSPB), UKBR(RSPB)
Accipiter gentilis	Goshawk	WCA1.1, WCA9, CITES, LBAP (CLY, CON, POW, VOG)
Actitis hypoleucos	Common Sandpiper	WBR(RSPB), UKBAm(RSPB)
Aegithalos caudatus	Long-tailed Tit	WBAm(RSPB)
Alauda arvensis	Skylark	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)
Alcedo atthis	Kingfisher	BDir1, WCA1.1, Bern, LBAP (CLY, CON, DEN, FLI, GWY, POW, TRA), WBAm(RSPB), UKBAm(RSPB)
Alopochen aegyptiaca	Egyptian Goose	WCA9, INNS
Anas acuta	Pintail	BDir21, WCA1.2, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Anas crecca	Teal	BDir21, CITES, LBAP (ANG, CON, DEN, FLI, GWY), LBAP (ANG, DEN, FLI), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
Anas platyrhynchos	Mallard	BDir21, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Anser indicus	Bar-headed Goose	WCA9, INNS
Anthus pratensis	Meadow Pipit	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)

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Anthus spinoletta	Water Pipit	Bern, UKBAm(RSPB)
Anthus trivialis	Tree Pipit	S7, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB)
Apus apus	Swift	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)
Ardea cinerea	Grey Heron	LBAP (BRG, RCT), WBAm(RSPB)
Arenaria interpres	Turnstone	Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Aythya ferina	Pochard	BDir21, WBR(RSPB), LBAP (CON, POW), UKBR(RSPB)
Aythya fuligula	Tufted Duck	BDir21, LBAP (CON, POW, VOG), WBAm(RSPB)
Aythya marila	Scaup	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
Botaurus stellaris	Bittern	BDir1, WCA1.1, S7, Bern, LBAP (ANG, BBNP, CER, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)
Branta bernicla bernicla	Dark-bellied Brent Goose	S7, LBAP (VOG), WBAm(RSPB)
Branta canadensis	Canada Goose	BDir21, WCA9, INNS
Branta leucopsis	Barnacle Goose	BDir1, WCA9, Bern, UKBAm(RSPB), INNS
Bucephala clangula	Goldeneye	BDir22, WCA1.2, LBAP (CON, POW), UKBAm(RSPB)
Calidris alba	Sanderling	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)
Calidris alpina	Dunlin	Bern, WBR(RSPB), LBAP (CON, GWY, POW), LI(VC43), UKBAm(RSPB)
Calidris maritima	Purple Sandpiper	WCA1.1, Bern, LBAP (CON, VOG), WBAm(RSPB), UKBAm(RSPB)
Calidris pugnax	Ruff	BDir1, BDir22, WCA1.1, LBAP (CON), WBAm(RSPB), UKBR(RSPB)
Cettia cetti	Cetti's Warbler	WCA1.1, LBAP (ANG, PEM, VOG)
Charadrius hiaticula	Ringed Plover	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, CRM, GWY, VOG), UKBR(RSPB)
Chloris chloris	Greenfinch	Bern, LBAP (CON, POW), WBAm(RSPB)
Chroicocephalus ridibundus	Black-headed Gull	BDir22, S7, WBR(RSPB), LBAP (GWY, VOG), UKBAm(RSPB)
Cinclus cinclus	Dipper	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB), UKBAm(RSPB)
Circus aeruginosus	Marsh Harrier	BDir1, WCA1.1, CITES, LBAP (CON), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)
Circus cyaneus	Hen Harrier	BDir1, WCA1.1, S7, CITES, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, SNP, VOG), LBAP (BBNP, DEN, FLI, POW, SNP, VOG), LI(VC43)
Clangula hyemalis	Long-tailed Duck	BDir22, WCA1.1, RDB1 (UK) - VU, WBR(RSPB), UKBR(RSPB)
Coccothraustes coccothraustes	Hawfinch	S7, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB)

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Coturnix coturnix	Quail	BDir22, WCA1.1, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
Cuculus canorus	Cuckoo	S7, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB)
Curruca communis	Whitethroat	WBR(RSPB), LBAP (CON, POW)
Cygnus atratus	Black Swan	WCA9, INNS
Cygnus cygnus	Whooper Swan	BDir1, WCA1.1, Bern, LBAP (CON, GWY, POW), UKBAm(RSPB)
Delichon urbicum	House Martin	Bern, LBAP (BRG, CON, POW, RCT, VOG), UKBAm(RSPB)
Emberiza citrinella	Yellowhammer	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), UKBR(RSPB)
Emberiza schoeniclus	Reed Bunting	S7, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBAm(RSPB)
Falco columbarius	Merlin	BDir1, WCA1.1, Bern, CITES, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, POW), LI(VC43), UKBR(RSPB)
Falco peregrinus	Peregrine	BDir1, WCA1.1, Bern, CITES, LBAP (ANG, CLY, CON, GWY, PEM, POW, TRF, VOG), LI(VC43)
Falco rusticolus	Gyr Falcon	BDir1, WCA1.1, Bern, CITES
Falco subbuteo	Hobby	WCA1.1, Bern, CITES, LBAP (CON, GWY, POW, VOG), LI(VC43)
Falco tinnunculus	Kestrel	S7, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)
Ficedula hypoleuca	Pied Flycatcher	S7, WBR(RSPB), LBAP (CON, GWY, POW, SNP, VOG), UKBR(RSPB)
Fringilla montifringilla	Brambling	WCA1.1, LBAP (CON), WBAm(RSPB)
Fulica atra	Coot	BDir21, LBAP (BRG), WBAm(RSPB)
Fulmarus glacialis	Fulmar	Bern, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Gallinago gallinago	Snipe	BDir21, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
Gavia arctica	Black-throated Diver	BDir1, Bern, WBAm(RSPB), UKBAm(RSPB)
Gavia immer	Great Northern Diver	BDir1, WCA1.1, Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Grus grus	Crane	BDir1, WCA9, Bern, CITES, UKBAm(RSPB)
Gulosus aristotelis	Shag	Bern, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
Haematopus ostralegus	Oystercatcher	BDir22, LBAP (CON, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
Hirundo rustica	Swallow	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB)
Hydrobates pelagicus	Storm Petrel	BDir1, Bern, LBAP (GWY, PEM), WBAm(RSPB), UKBAm(RSPB)

Latin Name	Common Name	Designation
Ichthyaetus melanocephalus	Mediterranean Gull	BDir1, WCA1.1, Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)
Larus argentatus	Herring Gull	BDir22, S7, WBR(RSPB), LBAP (CON, GWY, POW, VOG), UKBR(RSPB)
Larus cachinnans	Caspian Gull	UKBAm(RSPB)
Larus canus	Common Gull	BDir22, WBR(RSPB), UKBAm(RSPB)
Larus fuscus	Lesser Black-backed Gull	BDir22, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)
Larus marinus	Great Black-backed Gull	BDir22, WBR(RSPB), UKBAm(RSPB)
Larus michahellis	Yellow-legged Gull	UKBAm(RSPB)
Larus michahellis michahellis	Larus michahellis michahellis	UKBAm(RSPB)
Limosa lapponica	Bar-tailed Godwit	BDir1, BDir22, S7, WBR(RSPB), LBAP (BBNP, CON, GWY, VOG), UKBAm(RSPB)
Limosa limosa	Black-tailed Godwit	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
Limosa limosa limosa	Limosa limosa limosa	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
Linaria cannabina	Linnet	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)
Locustella naevia	Grasshopper Warbler	S7, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)
Loxia curvirostra	Crossbill	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)
Lullula arborea	Woodlark	BDir1, WCA1.1, S7, LBAP (BBNP, CER, POW)
Lymnocryptes minimus	Jack Snipe	BDir21, LBAP (CON, POW), WBAm(RSPB)
Mareca penelope	Wigeon	BDir21, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Melanitta nigra	Common Scoter	BDir22, WCA1.1, S7, LBAP (ANG, BBNP, CER, CON, CRM, DEN, FLI, GWY, PEM, VOG), WBAm(RSPB), UKBR(RSPB)
Mergus serrator	Red-breasted Merganser	BDir22, LBAP (CON, POW), WBAm(RSPB)
Milvus milvus	Red Kite	BDir1, WCA1.1, WCA9, CITES, LBAP (CON, CRM, GWY, POW), WBAm(RSPB)
Morus bassanus	Gannet	LBAP (CON, GWY, PEM), WBAm(RSPB), UKBAm(RSPB)
Motacilla cinerea	Grey Wagtail	Bern, LBAP (CLY, CON, POW, TRA), WBAm(RSPB), UKBR(RSPB)
Motacilla flava	Yellow Wagtail	S7, Bern, WBR(RSPB), LBAP (CON, DEN, FLI, POW, TRA, VOG), LI(VC43), UKBR(RSPB)
Motacilla flava flavissima	Yellow Wagtail	S7, WBR(RSPB), LBAP (DEN, FLI, TRA), LI(VC43), UKBAm(RSPB)
Muscicapa striata	Spotted Flycatcher	S7, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)

Latin Name	Common Name	Designation
Numenius arquata	Curlew	BDir22, S7, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), LI(VC43), UKBR(RSPB)
Numenius phaeopus	Whimbrel	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
Nycticorax nycticorax	Night-heron	BDir1, WCA9, Bern, INNS
Oenanthe oenanthe	Wheatear	Bern, LBAP (BRG, CON, POW), WBAm(RSPB)
Oxyura jamaicensis	Ruddy Duck	WCA9, INNS
Pandion haliaetus	Osprey	BDir1, WCA1.1, CITES, LBAP (GWY), WBAm(RSPB), UKBAm(RSPB)
Panurus biarmicus	Bearded Tit	WCA1.1, Bern, LBAP (CON, POW), WBAm(RSPB)
Passer domesticus	House Sparrow	S7, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)
Phalacrocorax carbo	Cormorant	LBAP (CON, GWY, POW), WBAm(RSPB)
Phoenicurus ochruros	Black Redstart	WCA1.1, Bern, LBAP (GWY, VOG), WBAm(RSPB), UKBR(RSPB)
Phoenicurus phoenicurus	Redstart	Bern, LBAP (CON, GWY, POW, SNP), WBAm(RSPB), UKBAm(RSPB)
Phylloscopus sibilatrix	Wood Warbler	S7, WBR(RSPB), LBAP (CON, GWY, SNP, VOG), UKBR(RSPB)
Phylloscopus trochilus	Willow Warbler	WBR(RSPB), LBAP (CON), UKBAm(RSPB)
Picus viridis	Green Woodpecker	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB)
Pluvialis apricaria	Golden Plover	BDir1, BDir22, S7, WBR(RSPB), LBAP (BBNP, CON, CRM, FLI, GWY, POW, SNP, VOG), LI(VC43)
Pluvialis squatarola	Grey Plover	BDir22, WBR(RSPB), LBAP (CON, GWY), UKBAm(RSPB)
Podiceps auritus	Slavonian Grebe	BDir1, WCA1.1, Bern, WBR(RSPB), UKBR(RSPB)
Poecile palustris	Marsh Tit	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)
Prunella modularis	Dunnock	S7, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)
Puffinus puffinus	Manx Shearwater	Bern, LBAP (CON, GWY, PEM), WBAm(RSPB), UKBAm(RSPB)
Pyrrhula pyrrhula	Bullfinch	S7, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBAm(RSPB)
Regulus regulus	Goldcrest	Bern, LBAP (CON, POW), WBAm(RSPB)
Riparia riparia	Sand Martin	Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB)
Saxicola rubetra	Whinchat	Bern, WBR(RSPB), LBAP (BRG, CON, DEN, FLI, GWY, PEM, POW, RCT), UKBR(RSPB)
Scolopax rusticola	Woodcock	BDir21, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, POW), LI(VC43), UKBR(RSPB)

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Somateria mollissima	Eider	BDir22, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Spatula clypeata	Shoveler	BDir21, CITES, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)
Spatula querquedula	Garganey	BDir21, WCA1.1, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Stercorarius parasiticus	Arctic Skua	LBAP (CON), WBAm(RSPB), UKBR(RSPB)
Sterna dougallii	Roseate Tern	BDir1, WCA1.1, S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, GWY), UKBR(RSPB)
Sterna hirundo	Common Tern	BDir1, Bern, LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Sternula albifrons	Little Tern	BDir1, WCA1.1, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY), UKBAm(RSPB)
Streptopelia turtur	Turtle Dove	BDir22, S7, CITES, WBR(RSPB), LBAP (BBNP, CON, GWY, MON, POW), UKBR(RSPB)
Sturnus vulgaris	Starling	BDir22, S7, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)
Tadorna tadorna	Shelduck	Bern, LBAP (CON, GWY, VOG), WBAm(RSPB), UKBAm(RSPB)
Thalasseus sandvicensis	Sandwich Tern	BDir1, Bern, LBAP (ANG), LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)
Tringa nebularia	Greenshank	BDir22, WCA1.1, LBAP (CON, POW), UKBAm(RSPB)
Tringa ochropus	Green Sandpiper	WCA1.1, Bern, LBAP (CON, VOG), WBAm(RSPB), UKBAm(RSPB)
Tringa totanus	Redshank	BDir22, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)
Turdus iliacus	Redwing	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB)
Turdus philomelos	Song Thrush	BDir22, S7, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)
Turdus pilaris	Fieldfare	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB)
Turdus torquatus	Ring Ouzel	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), LI(VC43), UKBR(RSPB)
Turdus viscivorus	Mistle Thrush	BDir22, Bern, WBAm(RSPB), UKBR(RSPB)
Tyto alba	Barn Owl	WCA1.1, WCA9, Bern, CITES, LBAP (ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE), LI(VC43)
Uria aalge	Common Guillemot	LBAP (CON, PEM), WBAm(RSPB), UKBAm(RSPB)
Vanellus vanellus	Lapwing	BDir22, S7, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRF, VOG), LI(VC43), UKBR(RSPB)

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Bats		
Eptesicus serotinus	Serotine	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (GWY, POW, TRA, TRF)
Myotis brandtii	Brandt's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)
Myotis daubentonii	Daubenton's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)
Myotis mystacinus	Whiskered Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)
Myotis nattereri	Natterer's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)
Nyctalus leisleri	Lesser Noctule	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)
Nyctalus noctula	Noctule Bat	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
Pipistrellus nathusii	Nathusius's Pipistrelle	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)
Pipistrellus pipistrellus	Common Pipistrelle	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)
Pipistrellus pygmaeus	Soprano Pipistrelle	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)
Plecotus auritus	Brown Long-eared Bat	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
Rhinolophus hipposideros	Lesser Horseshoe Bat	EPS, ANII, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG, WRE)
Other Mammals		
Arvicola amphibius	European Water Vole	WCA5, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VoG)
Erinaceus europaeus	West European Hedgehog	S7, Bern, LBAP (ANG, BGW, BRG, CON, FLI, GWY, NEW, POW, RCT, VOG)
Lutra lutra	Eurasian Otter	EPS, HDir, WCA5, S7, Bern, CITES, RDB2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG, WRE)
Meles meles	Eurasian Badger	BA, Bern, LBAP (CLY, CON, DEN, FLI, PEM, POW, TRF, WRE)
Micromys minutus	Harvest Mouse	S7, LBAP (BRG, CON, FLI, GWY, VOG), LI(BIS)
Muscardinus avellanarius	Hazel Dormouse	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG)

Local Record Centre Data

Latin Name	Common Name	Designation
Mustela putorius	Polecat	HDir, S7, Bern, RDB2 (UK), LBAP (BGW, BRG, CON, FLI, GWY, NEW, POW, SNP, VOG)
Neovison vison	American Mink	WCA9, INNS
Sciurus carolinensis	Eastern Grey Squirrel	WCA9, INNS

Abbreviations			
BA = Protection of Badgers Act	HDir = EU Habitats Directive Species	WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species	LI (BIS) = Locally Important Species (as identified by local specialists) in BIS area
UKBAP = UK Biodiversity Action Plan Priority Species	NRW = Natural Resources Wales Priority Species	WCA5 = Wildlife and Countryside Act Schedule 5 Species	LI (VOG) = Locally or nationally scarce or rare bryophyte in Vale of Glamorgan
UKBAP (R) = UK Biodiversity Action Plan Priority Species (Research only species)	RD1 (Wales) = Welsh Red Data Book listing based on IUCN guidelines	WCA8 = Wildlife and Countryside Act Schedule 8 Species	LI (VC##) = Locally Important Species (as identified by local specialists) in Vice County ##
BDir1 = EC Birds Directive Annex 1 Species	RD1 (UK) = UK Red Data Book listing based on IUCN guidelines	WCA9 = Wildlife and Countryside Act Schedule 9 Species	LI (VC##, LS) = Locally Scarce in Vice County ##
BDir21 = EC Birds Directive Annex 2.1 Species	RD2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)	INNS = Invasive Non-Native Species	LI (VC##, LR) = Locally Rare in Vice County ##
BDir22 = EC Birds Directive Annex 2.2 Species	WBR (RSPB) = RSPB Welsh Red listed birds (not based on IUCN criteria)	WSG.P = Guidelines for the Selection of Wildlife Sites in South Wales - Primary species	LI (VC##, EX) = Extinct in Vice County ##
Bern = The Bern Convention on the Conservation of European Wildlife and Natural Habitats	WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)	WSG.C = Guidelines for the Selection of Wildlife Sites in South Wales - Contributory species	LI (VC##, UR) = Under Recorded in Vice County ##
Bonn = The Bonn Convention on the Conservation of Migratory Species of Wild Animals Species	UKBR (RSPB) = RSPB UK Red listed birds (not based on IUCN criteria)	WVP = IUCN Threat Listing of Welsh Vascular Plants	
CITES = Convention on International Trade in Endangered Species	UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)	LBAP (VoG) = Local Biodiversity Action Plan	

		Species (Vale of Glamorgan)	
EPS = European Protected Species	S7 = Environment Act (Wales) Section 7 Species	LI (SEWBReC) = Locally Important Species (as identified by local specialists) in SEWBReC area	

Appendix C

Valuation Criteria

Importance	Feature type	Attributes
International	Sites	European sites; Ramsar sites; Biogenic Reserves; and World Heritage Sites. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.
	Habitats	N/A
	Species	A species population sufficiently large or critical that its loss would adversely affect the conservation status or distribution at an international or European scale.
National	Sites	Sites of Special Scientific Interest (SSSIs); National Nature Reserves (NNRs) and National Parks. Areas which meet the published selection criteria but have not themselves been designated as such.
	Habitats	Habitats of Principal Importance as listed under Schedule 7 of the Environment Act (Wales) 2016. Areas of irreplaceable habitats including ancient woodland and ancient or veteran trees.
	Species	A species population sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a national scale.
Regional	Sites	Wildlife sites designated at a regional level.
	Habitats	Areas of habitats identified (including for restoration) in regional plans or strategies.
	Species	A species population or community sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a regional scale. Species identified in regional plans or strategies.
County	Sites	Wildlife sites designated at a county (or equivalent) level including: County Wildlife Sites (CWSs); Local Wildlife Sites (LWS); Local Nature Conservation Sites (LNCS); Local Nature Reserves (LNRs); Sites of Importance for Nature Conservation (SINCs); and Sites of Nature Conservation Importance (SNCIs).
	Habitats	Areas of habitats identified in county or equivalent authority plans or strategies (where applicable).
	Species	A species population or community sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a county or unitary authority scale.

		Species identified in a county or equivalent authority area plans or strategies.
Local	Sites	Wildlife sites listed at a local or parish level.
	Habitats	Areas of habitat considered to appreciably enrich the habitat resource in the local context including features of importance for migration, dispersal, or genetic exchange.
	Species	Species populations or communities considered to appreciably enrich the habitat resource in the local context including features of importance for migration, dispersal or genetic exchange.
Site	Sites	N/A
	Habitats	Areas of habitat considered to appreciably enrich the site, but not sufficiently large in extent or favourable condition to warrant inclusion at the Local level.
	Species	Species populations or communities considered to appreciably enrich the site, but not sufficiently large or critical to warrant inclusion at the Local level.
Not important	Sites	N/A
	Habitats	Habitats making a negligible contribution to biodiversity, even at the Site level.
	Species	Small or common / widespread species populations or communities making a negligible contribution to biodiversity, even at the Site level.

Appendix D

Habitat Condition Assessment

Based on Statutory Biodiversity Metric – Technical Annex 1 – Condition Assessment Sheets (July 2024)3

Woodland – parcel adjacent to Biglas Roundabout

Condition Assessment Criteria						
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**	**Notes (such as justification)**
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	2	
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in less than 40% of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3	
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, and other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] ≥10% cover.	3	
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	2	
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3	

F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3	
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2	
H	**Tree health**	Tree mortality 10% or less, no pests or diseases and no crown dieback[9].	11% to 25% tree mortality and or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	3	
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	1	
J	**Woodland vertical structure**	Three or more storeys across all survey plots, or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	2	

K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1	
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1	
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area, and or less than 20% of woodland area has damaged ground[14].	1 hectare or more of nutrient enrichment, and or 20% or more of woodland area has damaged ground[14].	3	
				Total Score (out of a possible 39)		

Condition Assessment Result	Condition Assessment Score	Result Achieved
Total score >32 (33 to 39)	Good (3)	29 - **moderate**
Total score 26 to 32	Moderate (2)	
Total score <26 (13 to 25)	Poor (1)	

Hedgerows

Hedgerow favourable condition attributes					
Attributes and functional groupings (A, B, C, D and E)		**Criteria - the minimum requirements for 'favourable condition'**	**Criteria description**	**Criterion passed (Yes or No)**	**Notes (su**
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Y	
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	Y	

B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	N	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	Y	

C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Y	
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish Flora'[6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website[7].	Y	
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	Y	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[8]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	N	

E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Y	

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees		
Category	**Category Requirements**	**Metric Score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	3 - Good

Scattered Trees – Parc Bryn Y Don

Condition Assessment Criteria		Criterion passed (Yes or No)
A	The tree is a native species (or at least 70% within the block are native species).	Y
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	N
C	The tree is mature (or more than 50% within the block are mature)[1].	Y
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Y
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Y
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y
	Number of criteria passed	5

Habitat Condition Assessment

Condition Assessment Result (out of 6 criteria)	Condition Assessment Score	Score Achieved ×/✓
Passes 5 or 6 criteria	Good (3)	✓
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.		

Amenity Grassland – Parc Byrn Y Don

Condition Assessment Criteria		Criterion passed (Yes or No)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	N
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y

D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y
		Essential criterion achieved (Yes or No)
		Number of criteria passed

Condition Assessment Result (out of 7 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 6 or 7 criteria including passing	Good (3)	

essential criterion A		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	✓

Semi-improved grassland – south of A4055

Condition Assessment Criteria		Criterion passed (Yes or No)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	Y

B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	Y
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y

G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	N
		Essential criterion achieved (Yes or No)
		Number of criteria passed
Condition Assessment Result (out of 7 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 6 or 7 criteria including passing essential criterion A	Good (3)	✓
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	

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