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ECOLOGICAL IMPACT ASSESSMENT REPORT

LAND AT BIKE PARK WALES, MERTHYR TYDFIL

BIKE PARK WALES

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Surveyed by:	Amy Williams Schwartz, Jenny O'Neill, Alex Wilson, Matt Davies, Charlotte Poole, Jody Webb
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The evidence which we have prepared and provided is true and has been prepared and provided in accordance with the guidance of The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

SUMMARY

Purpose	- Wildwood Ecology was commissioned by Bike Park Wales (the client) to undertake a Preliminary Ecological Appraisal (PEA) and Phase II surveys at Land at Bike Park Wales, Merthyr Tydfil - The site is the subject of a planning application for construction of woodland camping pods, workshops, a linen store, and toilet blocks within the Phase 3 area.
Work undertaken	Pre-2022 - The PEA was undertaken in June 2018, consisting of a desk study and field survey, following the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal (2017) guidelines and standard Phase 1 Habitat Survey protocol (JNCC, 2010). - The survey informed the need for subsequent Phase II surveys – bat transect surveys, static monitoring, reptile surveys, and breeding bird surveys, all carried out in 2018. - Bat surveys followed the Bat Conservation Trust Bat Surveys for Professional Ecologists: Good Practice Guidelines (2016). An artificial refugia survey was carried out in order to determine the presence or likely absence of reptiles onsite. A night-time assessment for nightjar was carried out in July 2018 guided by Collins et al. (2007) survey methodology. - Ecological supervision was undertaken in early 2021 during clearance of ground prior to undertaking of Phase 2 – the construction of 2no. new car parking bays. 2022 - A PEA update and ground-level tree assessment were undertaken in April 2022. An updated desk study was undertaken in May 2022. - Following consultation with the LPA Ecologist, additional bat and bird surveys were undertaken in Autumn 2022. - Two bat activity transects were undertaken in September and October 2022 (with surveyors being vigilant to any potential sight or sound of nightjar during the September survey) and static monitoring in the same months (12th-23rd September & 17th-26th October), with two static detectors deployed at a time. - Three bird survey visits were undertaken in 2022 (23rd September, 17th October, and 26th October).
Key issues	- The development may result in impacts on wildlife and habitats affecting the following protected species: - Nesting birds - Reptiles - Amphibians (non-European Protected Species (EPS)) - Bats - Invertebrates

	◦ Hedgehog • There may be minor impacts on the Abercanaid Fields Site of Importance for Nature Conservation (SINC) and Craig Gethin SINC, but no impacts on their designated features are anticipated as a result of the works.
Recommendations	• A suite of recommendations to avoid impacts on protected species and habitats are presented in Section 5 of the report that includes: ◦ Bats ◦ Hazel dormouse ◦ European otter, badger, other mammals ◦ Great crested newt and common amphibians ◦ Reptiles ◦ Nesting birds ◦ Invertebrates ◦ Fungi ◦ Semi-natural woodland ◦ Semi-improved grassland ◦ Marshy grassland ◦ Ffridd habitat
Conclusions	• Providing that the recommendations outlined within this report are successfully implemented, it should be possible for the proposed development to proceed and for there to be no long-term impacts upon the key protected species present at the site. • This ecological report will remain valid for a period of 18 months from the date of the last survey – i.e. until May 2024.

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1 INTRODUCTION

- 1.1 Wildwood Ecology was commissioned by Bike Park Wales (the client) to undertake a series of surveys at Land at Bike Park Wales, Merthyr Tydfil (the site), centred at grid reference SO 05132 03460.

Site description

- 1.2 The aerial image of the site (Figure 1) shows the site to consist of an area of woodland with some open and hard standing areas, and access tracks running through it.
- 1.3 The wider area includes a mix of woodland types on the valley sides above the River Taff. The A470 runs north-west-south-east past the site to the east, and the small towns of Abercanaid and Pentrebach are situated to the east, with industrial, retail, residential and public spaces present.
- 1.4 Previous works at the site have been completed in recent years – Phase 1 involved the construction of the bike hire centre, and Phase 2 was construction of 2no. new car parking bays (visible near the centre of the site next to the northern boundary).



Figure 1 – Aerial image of the site (red line shows the site boundary for the Phase 3 area). Image used under licence (©2023 Google). Imagery date 20/07/2021.

Proposed development

- 1.5 The site is the subject of a planning application for construction of woodland camping pods, workshops, a linen store, and toilet blocks within the Phase 3 area.

Purpose of this report

- 1.6 The purpose of this report is to provide sufficient information for the local planning authority to fully assess the potential ecological impacts of the proposed development, or to identify what further information is required before a full assessment can be made.

2 METHODOLOGY

Desk study

- 2.1 A biodiversity desk study was undertaken in relation to the site in May 2022 (LERC reference 0223-083). The sources consulted and the type of information obtained are summarised in Table 1.

Table 1 – Sources of biodiversity and ecological records.

Source	Information requested (search buffer from site centre/boundary)
South East Wales Biodiversity Records Centre (SEWBReC)	- Protected and priority species (2km) - Sites of local importance/designation (1km)
Multi-Agency Geographic Information for the Countryside (MAGIC) ¹	- International statutory designations (5km) - National statutory designations (2km)

- 2.2 The search buffers are considered to be sufficient to cover the potential zone of influence (Zol²) of the proposed development.
- 2.3 The impact of the proposed development on the biological integrity of any nearby designated protected sites has been fully considered.
- 2.4 A previous suite of surveys was undertaken by Wildwood Ecology in 2018 (as presented in report WWE18125 ECIA REV E) - the results of which are included within this report, where appropriate.

Field survey

- 2.5 An updated field survey was undertaken on 27 April 2022, with the original survey having been undertaken on 22 June 2018.
- 2.6 All habitats present within the site with the potential to support rare, protected, or otherwise notable species of flora or fauna (together with any direct signs) were noted.
- 2.7 In the context of this report, rare, protected, or otherwise notable species of flora or fauna were those considered to meet any of the following criteria:
- Species protected by legislation (see Appendix IX);
 - UK Post 2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species;
 - Nationally rare or nationally scarce species;
 - Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists).

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

² Zol definition – 'the areas/resources that may be affected by the biophysical changes caused by activities associated with a project' (CIEEM, 2018).

- 2.8 A PEA habitat map was drawn up incorporating target notes used to highlight features of particular ecological interest (see Appendix I).
- 2.9 The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during the survey. Examples include species such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*.

Bat activity surveys

- 2.10 Bat activity transects were undertaken at the site in July, August, and September 2018 alongside periods of static monitoring (at least five consecutive nights) in each month. Two static detectors were deployed at a time.
- 2.11 Further activity transects were undertaken in September and October 2022 within the Phase 3 area alongside periods of static monitoring in the same months (12th-23rd September & 17th-26th October), with two static detectors deployed at a time. During transect surveys, an Elekon Batlogger was used.
- 2.12 The static monitoring was concentrated in the area proposed for camping pod locations (see Figure 2 for detector locations), as this will be the area potentially impacted by artificial light.



Figure 2 – Location of deployment of static detectors in 2018 (red pins) and 2022 (yellow pins) inside the Phase 3 area.

- 2.13 Transects commenced at the time of local sunset (source www.sunrisesunsetmap.com) and continued for approximately 2 hours after sunset. Surveyors were equipped with broadband bat detectors (Elekon BatScanner Stereo) and a recording Elekon Batlogger.
- 2.14 Static bat detectors (either an Anabat Express, an Anabat Swift or Wildlife Acoustics SM2+ or SM3) were mounted and locked to trees within the central onsite woodland, adjacent to the trackway, at a height of between 2 and 2.5m.
- 2.15 Note was made of all bat activity recorded including (where appropriate) roost access points, species, time of re-entry, direction of flight, behaviour (foraging or commuting) and use of landscape features. Minimal lighting was used during the surveys as this can alter the behaviour of the bats emerging from or entering a roost, or foraging or commuting over a site.

Ground-level tree assessment

- 2.16 During the updated PEA survey in April 2022, a ground-level tree assessment was undertaken of the trees within the Phase 3 area in accordance with the latest published best practice guidance (Collins, 2016).
- 2.17 The suitability of the trees to support roosting bats was assessed using close-focusing binoculars.
- 2.18 The trees were classified according to its suitability for bats, based on the presence of features within the structure and / or landscape (see Table 2).

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

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

³ To provide confidence that bats are absent from the structure

Suitability	Description of building, tree, or structure	Number of activity survey visits required ³
Confirmed roost	Evidence of bats or use by bats found.	Minimum of two – to characterise the roost

Nightjar survey

- 2.19 During the July 2018 and September 2022 bat transect surveys, a surveyor remained vigilant for churring males, wing clapping, or birds in flight.
- 2.20 When such behaviour is noted, the location of the behaviour and timing is noted.
- 2.21 The methodology follows an amended version of that outlined in Conway *et al* 2007.

Bird surveys

- 2.22 Three bird survey visits were undertaken in 2022 (23rd September, 17th October, and 26th October).
- 2.23 A transect was walked multiple times across the Phase 3 area of the site for a period of two hours (see Figure 3), with all birds present on or from the site identified either by sight or sound.



Figure 3 – Routes (in green) walked within/around the Phase 3 area and surrounding habitat during the bird surveys.

Reptile surveys

- 2.24 No universally agreed upon methodology for surveying reptiles is currently available. Therefore, the methodology employed in this survey was adapted from the following reptile survey publications:
- Evaluation of reptile survey methodologies (1996), Report No. 200. *English Nature Research*.
 - Advice sheet 10 reptile survey: an introduction to conduction and interpreting surveys for snake and lizard conservation (1999). *Froglife*.
 - Technical Information Note TIN102, Reptile Mitigation Guidelines (2011) [withdrawn] *Natural England*.
 - Herpetofauna workers' manual (2003), *JNCC*.
 - Sewell et al. (2013) Survey protocols for British herpetofauna; Version 1.0. *Amphibian and reptile conservation; Durrell Institute of Conservation and Ecology (DICE); University of Kent; University of Sussex*.
- 2.25 The survey assumed the possible presence of all common UK reptile species (adder, common lizard, grass snake and slow worm).
- 2.26 An artificial refugia survey (ARS) was carried out in order to determine the presence or likely absence of reptile species at the site. This type of survey exploits the affinity of reptiles for microhabitats created beneath objects on the ground that are warmed by the sun. In this survey the artificial refugia used were made from roofing felt (0.5m x 0.5m); with onsite detritus (roofing felt pieces, plastic sheeting, discarded building materials) also checked.
- 2.27 A total of 37 refugia were deployed at the site (see Figure 4). The refugia were placed at an approximate density of 100 per hectare, but limited to areas that were suitable for reptiles. The artificial refugia were pressed down on to vegetation in order to create a microclimate favoured by reptiles. The refugia were allowed to 'bed in' for 14 days prior to the start of the survey.
- 2.28 A total of nine separate reptile survey visits were made over a 28-day period from 27/08/2018 to 24/09/2018. In addition to this, searches were undertaken of natural refugia (e.g. stones, rocks) and discarded rubbish found onsite.
- 2.29 Any reptiles observed were identified to species level and, where possible, their sex determined.
- 2.30 Surveys were undertaken at a suitable time of day and in suitable weather conditions as defined by Natural England Technical Information Note TIN102, Reptile Mitigation Guidelines (see Appendix IV).

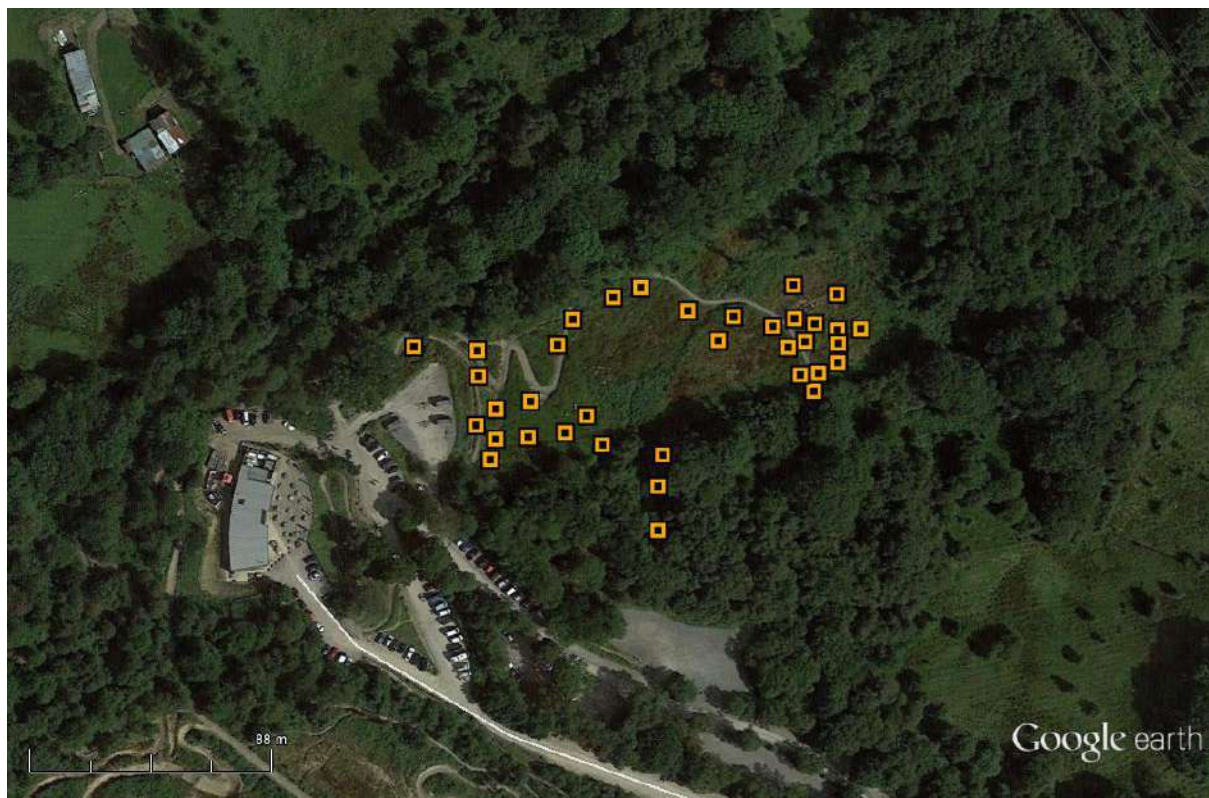


Figure 4 - Location of reptile refugia deployed onsite (orange squares).

Surveyor information

2.31 The updated 2022 PEA and bird surveys were undertaken by Amy Williams Schwartz. The 2022 bat transect surveys were led by Amy Williams Schwartz with assistance from Jenny O'Neill – see Table 3 for further information.

2.32 Previous surveys in 2018 were undertaken by Alex Wilson, Matt Davies, Charlotte Poole, and Jody Webb - see Table 3 for further information.

Table 3 – Surveyor information.

Surveyor	Licences	Ecological experience	Survey(s) undertaken
Amy Williams Schwartz Ph.D., M.Sc., B.Sc. (Hons.), ACIEEM Senior Ecologist	Bat Great crested newt (GCN)	Experienced in surveying for a wide range of protected species including great crested newt, reptiles, and bats within a consultancy and volunteer capacity. PhD in wildlife/road interactions in the UK, and experienced in performing academic ecological research projects, as well as species identification.	PEA & ground-level tree assessment (April 2022) Bat and bird transect surveys (September & October 2022)

Surveyor	Licences	Ecological experience	Survey(s) undertaken
Jenny O'Neill B.Sc. (Hons) Ecologist Qualifying CIEEM	-	Holds a 2:1 honours degree in Ecology. Has field experience through academic and professional training. Experience in undertaking protected species surveys including reptiles, bats, and hazel dormouse from 3 years of seasonal work.	Bat transect surveys (September & October 2022)
Alex Wilson Ph.D., B.Sc. (Hons.), MCIEEM Principal Ecologist	Bat Dormouse Barn owl	Holds a Ph.D. (Visual constraints in bird behaviour). Experienced in undertaking ornithological surveys, and bat surveys. Is a licensed bat and dormouse ecologist in England and Wales. Supervisor and advisor to undergraduate and postgraduate ecological research projects.	PEA; nightjar survey; bat activity transects; reptile survey (2018)
Matt Davies Ph.D., B.Sc. (Hons), MCIEEM Senior Ecologist	Bat Dormouse	Holds a Ph.D. (Chemical communication in the European otter). Knowledge of otter and mustelid ecology in general. Experienced in undertaking bat surveys and is a licensed bat ecologist in Wales and England. Experienced in undertaking hazel dormouse surveys and is a licenced dormouse ecologist in Wales and England.	PEA; nightjar survey; bat activity transects; reptile survey (2018)
Charlotte Poole M.Sc., B.Sc. (Hons) Assistant Ecologist	-	Holds a 2:1 Honours degree in Biology and a Masters (Conservation and Geographical Information Systems). Experience of working with ecological consultancies and local authorities as a surveyor of bats and newts.	Bat activity transects; reptile survey (2018)
Jody Webb Seasonal Ecologist	-	Has assisted on Wildwood Ecology bat surveys for several seasons; competent at bat identification using bat detectors and confident field worker.	Bat activity transects (2018)

Limitations and assumptions

- 2.33 The desk study and field survey do not produce a comprehensive list of plants and animals as this is limited by factors that influence their presence (e.g. activity and dormancy periods). An assessment can however be made of the

habitats within the survey area, their nature conservation importance and suitability to support protected or priority species.

- 2.34 The reptile survey was limited to indicating presence or likely absence together with a rough population estimate.
- 2.35 Individual reptiles were not handled during the survey in order to prevent unnecessary disturbance or distress. Therefore, it was not possible to precisely determine the age class of the animals observed. This has not affected the validity of the results, which are considered to represent an estimate of population size sufficient to assess the effects of the proposed development and inform the design of any mitigation/enhancement recommendations in relation to the reptiles
- 2.36 The survey focused only on reptile populations within the survey area. Individuals observed within the site could be members of an expanding population or could be indicative of a small, fragmented population.
- 2.37 No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

3 RESULTS

Desk study

Designated sites (statutory)

- 3.1 There were no international statutory designations within 5km of the site and one national statutory designation within 2km (see Table 4).

Designated sites (non-statutory)

- 3.2 There were six non-statutory designations within 1km of the site (see Table 4), two of which were situated onsite.

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

Site name	Designation	Description / key reason for designation	Distance & direction
Abercanaid Fields (20)	SINC	Series of fields situated either side of the A470, containing mainly species-rich semi-improved grasslands and marshy grasslands, with some small areas of semi-natural oak/birch woodland, scattered scrub, and trees. The SINC also includes Webber's Pond, a private nature reserve with well-developed marginal emergent vegetation, a section of the Glamorganshire Canal and an adjacent disused railway embankment which supports unimproved and semi-improved acid grassland, bracken slopes and trees.	onsite
Graig Gethin (30)	SINC	Wooded ffridd slopes, supporting extensive ancient semi-natural woodland and bracken slopes with large trees, together with some scree areas supporting lichen heath. The bracken slopes support abundant bluebell. Also includes an area of wet heathland which extends along a ride within a conifer plantation and supports plant species of interest. The SINC supports a good range of breeding bird species and brown hare has also been recorded.	onsite
Rhydycar West (36)	SINC	Extensive mosaic of ffridd enclosures supporting complex of semi-upland and lowland habitats, partly contained within conifer plantation. Main components are ancient semi-natural woodland fragments, other semi-natural woodlands, wet heathland, dry heathland, marshy grassland, and semi-improved neutral grasslands. There are some bracken slopes, scrub, small ponds, streams and sections of dismantled railway. There are areas of semi-improved acid grasslands to the south especially. The habitats intergrade to form a complex mosaic, and may therefore also include some small areas of improved or low diversity semi-improved grassland, but	75m N

		any such areas are a very minor component. Great crested newt occurs in small pools; noctule and pipistrelle bats have both been recorded. Nationally rare and scarce invertebrates are varied and common throughout the area.	
Cwm Woods (37)	SINC	Area of ancient semi-natural woodland within a much larger conifer plantation. The grassy field layer has locally abundant bluebell. Also includes some associated areas of bracken, dry heathland, scrub, marshy grassland, and acid grassland. A range of localised bird and moth species have also been recorded.	450m NW
Buarth-Waunydd (26)	SINC	Series of semi-upland ffridd fields containing a mosaic of several locally important habitats, notably acid and marshy grasslands, wet heaths, acid flushes, bracken slopes and semi-natural broadleaved woodlands. There are also areas of neutral grassland and scrub.	563m SE
Afon Taf (58)	SINC	The major river in the county borough. Includes areas of bankside habitats, particularly towards the south where the river corridor is less industrialised than further north. Associated habitats are chiefly semi-natural woodland, including areas of ancient semi-natural woodland and linear wet woodlands. There are also numerous neutral grasslands, scrub patches and bracken stands, as well as small areas of marshy grassland and tall herb vegetation. Notable features of the river course include cobble banks which support localised plants. Otter occurs throughout the length of the river which is known to be of value to a wide variety of birds, fish, bats, and reptiles.	630m E
Cwm Glo a Glyndyrys	Site of Special Scientific Interest (SSSI)	Cwm Glo a Glyndyrys is of special interest for its extensive areas of marshy grassland, species-rich neutral grassland and acid grassland, and for the association of these habitats with others including woodland and heath. It is also of special interest for its outstandingly diverse assemblage of grassland fungi, including 32 species of waxcap <i>Hygrocybe</i> spp. making it one of the best sites in Britain.	946m N

Priority and protected species

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

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

Protected & priority		# of records (# species)			Further information (distance from centre of site)
Groups	Species	Onsite	<500m	>500m	
Bats	Common pipistrelle	-	1	44	Closest record: field sighting 0.4km. Closest roost: 0.8km.
	Soprano pipistrelle	-	-	22	Closest record: field sighting 0.6km. Closest roost: 2.1km.
	Unidentified pipistrelle	-	-	7	Closest record: field sighting 0.6km. Closest roost: 1.7km.
	Brown long-eared bat	-	-	4	Closest record: field sighting 0.8km. Closest roost: 1.1km.
	Noctule	-	-	8	Closest record: field sighting 0.6km.
	Unidentified <i>Myotis</i>	-	-	2	Closest record: field sighting 0.8km.
	Lesser horseshoe bat	-	-	1	Closest record: roost 3.1km.
	Unidentified bat	-	1	8	Closest record: field sighting 0.4km. Closest roost: 1.0km.
	TOTALS	-	2 (1+)	96 (6+)	
Mammals (excluding bats)	Badger	-	2	6	Closest record: dead on road 0.3km.
	Brown hare	-	2	1	Closest record: unspecified sighting 0.1km.
	Hedgehog	-	1	7	Closest record: dead on road 0.4km.
	Otter	-	-	17	Closest record: unspecified sighting 0.8km.
	Polecat	-	1	2	Closest record: field sighting 0.4km.
	Stoat	-	-	1	Closest record: field sighting 1.4km.

Protected & priority		# of records (# species)			Further information (distance from centre of site)
Groups	Species	Onsite	<500m	>500m	
	Water vole	-	-	1	Closest record: unspecified sighting 1.4km.
	Weasel	-	-	1	Closest record: field sighting 1.3km.
	<i>TOTALS</i>	-	6 (4)	36 (8)	
Amphibians	Common frog	1	1	5	Closest record: field sighting on site of adults and spawn.
	Common toad	-	2	3	Closest record: unspecified sighting 0.2km.
	Great crested newt	-	-	18	Closest record: unspecified sighting 1.1km.
	Palmate newt	-	-	1	Closest record: field sighting 1.9km.
	<i>TOTALS</i>	1 (1)	3 (2)	27 (4)	
Reptile	Common lizard	-	1	5	Closest record: unspecified sighting 0.2km.
	Grass snake	-	-	2	Closest record: field sighting 0.8km.
	Slow worm	-	-	4	Closest record: field sighting 0.8km.
	<i>TOTALS</i>	-	1 (1)	11 (3)	
Birds	Schedule 1	1 (1)	5 (3)	87 (13)	Closest record: crossbill on site. Other Schedule 1 species <500m include brambling and goshawk. Additional Schedule 1 species >500m include barn owl, fieldfare, green sandpiper, hen harrier, hobby, kingfisher, merlin, peregrine, red kite, and redwing.
	Non-schedule 1	4 (4)	25 (14)	258 (27)	Closest records: kestrel, spotted flycatcher, tree pipit, and wood warbler on site. Other non-Schedule 1 species <500m include bullfinch, cuckoo,

Protected & priority		# of records (# species)			Further information (distance from centre of site)
Groups	Species	Onsite	<500m	>500m	
					curlew, dunnoek, herring gull, house sparrow, lesser redpoll, nightjar, pied flycatcher, song thrush, and starling. Additional non-Schedule 1 species >500m include black-headed gull, grasshopper warbler, lapwing, lesser spotted woodpecker, linnet, marsh tit, red grouse, reed bunting, ring ouzel, skylark, willow tit, and yellowhammer.
Invertebrates	Totals:	-	17 (11)	239 (47)	Closest record: broom moth 0.1km. Other species <500m include brown-banded carder-bee, buff ermine, dot moth, dusky brocade, grayling, shoulder-striped wainscot, small heath, small square-spot, wall, and white ermine. Additional species >500m include anomalous, autumnal rustic, blood-vein, brindled beauty, brown-spot pinion, centre-barred sawfly, cinnabar, dark brocade, dark-barred twin-spot carpet, dingy skipper, dusky thorn, ear moth, flounced chestnut, gallium carpet, garden dart, garden tiger, ghost moth, goat moth, grayling, green-brindled crescent, grey dagger, grey mountain carpet, hedge rustic, knot grass, marsh fritillary, mottled rustic, mouse moth, neglected rustic, powdered

Protected & priority		# of records (# species)			Further information (distance from centre of site)
Groups	Species	Onsite	<500m	>500m	
					quaker, rosy minor, rosy rustic, rustic, sallow, shaded broad-bar, small pearl-bordered fritillary, small phoenix, and spinach.
Plants	See further information	3 (1)	3 (1)	17 (2)	Closest record: bluebell on site. Other species records include stag's-horn clubmoss 1.4km.
Fish	See further information	-	-	3 (2)	Closest record: brown/sea trout 1.7km. Other species records include Atlantic salmon 2.0km.
Fungi and slime moulds	See further information	-	-	2	Closest record: earth tongue and dark-purple earthtongue 1.8km.

Field survey

Timing and conditions

- 3.4 Prevailing weather conditions during the field survey are summarised within Table 6.
- 3.5 The distribution and extent of habitats observed within the site is illustrated in the PEA plan (see Appendix I). An accompanying species list (including scientific names) can be found in Appendix VIII.
- 3.6 The habitats present onsite are described in detail in Table 6 using the standard Phase 1 survey habitat classification hierarchical alphanumeric reference codes (JNCC, 2010).
- 3.7 Please also refer to Table 6 for a list and description of the onsite target notes. The positions for these target notes are highlighted in the PEA plan in Appendix I.
- 3.8 The site was classified according to the following habitat types: semi-natural broad-leaved woodland, scrub, semi-improved acid grassland, standing water, running water, ephemeral/short perennial, buildings, and other habitat (hard standing and path).

Invasive species

- 3.9 No stands of invasive species were noted during the surveys.

Onsite fauna

3.10 The following species were observed onsite during the survey: swallow, robin, wren, dunnock, chiffchaff, willow warbler, blackcap, blackbird, magpie, nuthatch, goldcrest, chaffinch, bullfinch, common whitethroat, great spotted woodpecker, honeybee, meadow brown, green lacewing sp., white-tailed bumblebee, common carder-bee, common blue, small skipper, speckled brown, six-spot burnet and orange tip.

Table 6 – Summary of weather conditions during the site surveys.

Survey	Date	Weather conditions			
		Temp [°C]	Cloud cover [Oktas]	Wind speed [Beaufort scale]	Rain
2022 surveys					
PEA/tree assessment	27/04/2022	12	3	3	Nil
Bat transect	12/09/2022	18	2	2	Nil
Bat transect	10/10/2022	11	0	0	Nil
Bird survey	23/09/2022	18	0	2	Nil
Bird survey	17/10/2022	16	1	2	Nil
Bird survey	26/10/2022	17	7	2	Nil
2018 surveys					
PEA	22/06/2018	26	0	1	Nil
Bat transect/ nightjar survey	03/07/2018	23	1	0	Nil
Bat transect	14/08/2018	17	2	1	Nil
Bat transect	12/09/2018	15	3	2	Nil
Reptile survey	27/08/2018	18	4	1	Nil
Reptile survey	31/08/2018	15	6	2	Nil
Reptile survey	04/09/2018	16	8	0	Nil
Reptile survey	07/09/2018	16	4	0	Nil
Reptile survey	12/09/2018	12.5	8	0	Nil
Reptile survey	14/09/2018	14.5	6	0	Nil
Reptile survey	19/09/2018	17	8	1	Nil
Reptile survey	21/09/2018	11	4	0	Nil
Reptile survey	24/09/2018	12.5	3	0	Nil
Tree assessment	24/10/2018	13	4	0	Nil

Table 7 – Habitats and linear features present onsite.

Habitat type / Linear feature	Species present
<i>A1.1.1 Semi-natural, broad-leaved woodland</i> This habitat type was present from the centre of the site southwards, and surrounding the site boundary.	Pedunculate oak, sessile oak, ash, birch sp., willow sp., hazel, alder, sweet chestnut, common nettle, bramble, cherry, bracken, hawthorn, beech, ivy, holly, bluebell, hogweed, herb Robert, wood sorrel, sycamore, comb fern, rough meadow grass
<i>A2.1 Scrub (dense/continuous)</i> Areas of scrub were present along the woodland margins, as understorey (particularly at the south-east part of the site) and encroaching within the acid grassland area.	Yellow pimpernel, alder, hazel, ash, bramble, bracken, rowan, creeping buttercup, sowthistle, foxglove, hogweed, knapweed, heath bedstraw, common centaury, hawkbit sp., gorse, lady's mantle, hoary plantain
<i>B1.2 Semi-improved acid grassland</i> Area of acid grassland with encroaching scrub and bracken. Previously areas were plantation forestry (cleared before 2013) with successional growth. Some areas around the car park were recently seeded.	Hedge woundwort, great willowherb, bramble, meadow thistle, Yorkshire fog, sorrel, creeping cinquefoil, hazel, alder, willow, herb bennet, silverweed, compact rush, cleavers, crested dog's-tail, pedunculate oak, soft rush, common nettle, red clover, ribwort plantain, creeping buttercup, smaller cat's-tail, figwort, cock's-foot, perennial rye grass, rosebay willowherb, creeping thistle, herb Robert, dandelion, ragwort, tormentil, purple loosestrife, jointed rush, flowering rush, square-stalked willowherb, bracken, meadowsweet, black medick, orchid sp. (<i>Dactylorhiza</i> sp.), buddleia, bird's-foot trefoil, meadow vetchling, cherry, hemp agrimony, lesser trefoil, field woodrush, white clover, spear thistle, self-heal, mare's tail, sweet vernal grass, perforate St John's wort, devil's bit scabious

<i>G1 Standing water</i> Reedbed filtration system installed to the immediate west of the site with small area of open water present.	N/A
<i>G2 Running water</i> Drains (manmade) running through the acid grassland were present (dry during the survey); also stream and land drains within woodland at the south-east, culverted under the main access road.	N/A
<i>J1.3 Ephemeral/short perennial</i> Small areas of this habitat type were present around the edges of the car parks.	Daisy, hoary plantain, scarlet pimpernel
<i>J3.6 Buildings</i> Small buildings (which will be unaffected by the current proposals) were present at the west of the site.	N/A
<i>J5 Other habitat</i> Car parking, access road/tracks, and paths.	N/A

Nightjar survey

- 3.11 Nightjar (at least two churring males) were heard to the south-west of the site within the Gethin Forest/Graig Gethin SINC during the bat activity surveys in 2018. No nightjars were heard or seen onsite during the nightjar surveys, or any other survey undertaken.
- 3.12 No nightjar were recorded during the bat activity survey in September 2022 (nor in subsequent surveys, although birds will have migrated by October).

Bat activity transects (2018)

- 3.13 Transect routes were chosen to include a range of onsite habitats.
- 3.14 Species recorded during the transects were *Myotis* sp., noctule, brown long-eared, common pipistrelle, and soprano pipistrelle (see Figure 5-7 below).
- 3.15 The earliest passes were noted within the central woodland (common and soprano pipistrelle) with roosts likely to be present within the larger trees at the eastern part of this woodland (see red dotted area in Figure 5). This area of woodland will be unaffected by the current proposals as it is outside of the Phase 3 boundary, and far enough away that it will be unaffected by any lighting.
- 3.16 In future phases of work this (red dotted) area may be affected if the proposed lodges at the east of the site on the site masterplan are constructed.



Figure 5 – Location of bat passes during the July 2018 transect survey. Blue icons demark bat passes; dotted area indicates area of early bat activity, with roosts possibly present in trees.

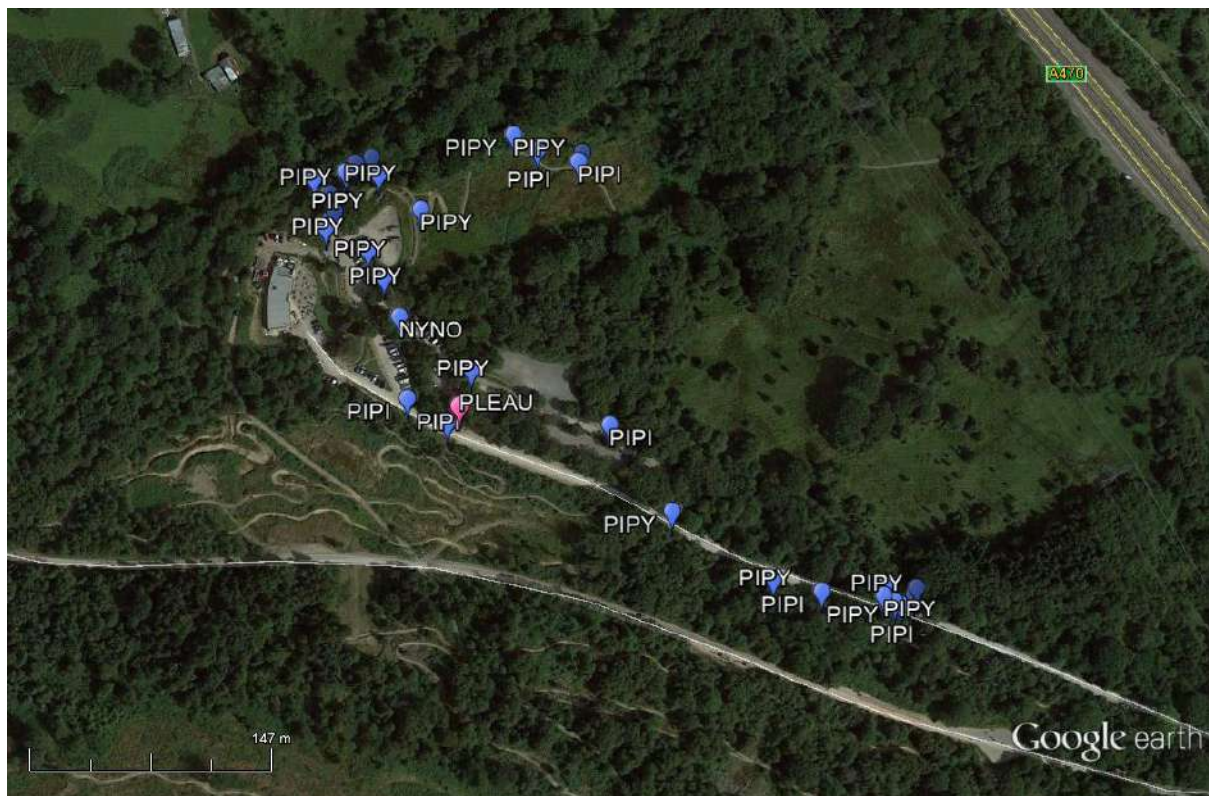


Figure 6 - Results of the August 2018 bat transect survey. Blue icons demark bat passes, with the pink icon denoting visual observation of long-eared bats (x2) not picked up on the detector.



Figure 7 - Results of the September 2018 bat transect survey. Blue icons demark bat passes.

Bat activity transects (2022)

- 3.17 Species recorded during the transects in 2022 were common pipistrelle, soprano pipistrelle, and lesser horseshoe bat.
- 3.18 Lesser horseshoe calls were recorded only just outside the very south-east corner of the Phase 3 boundary (at SO 05435 03198 at SS+115 on 10th October 2022, Figure 9), and calls of common and soprano pipistrelle were recorded sporadically across the site during both surveys.
- 3.19 Activity was much lower during the October transect (Figure 9) than during the September transect.
- 3.20 The earliest calls recorded were soprano pipistrelle at SS+4 on 12th September and common pipistrelle at SS+16 on 10th October, so it is likely that roosts are present within the woodland either on site (perhaps within one of the trees in Figure 11) or within connected woodland.



Figure 8 - Results of the September 2022 bat transect survey. Blue icons demark bat passes.

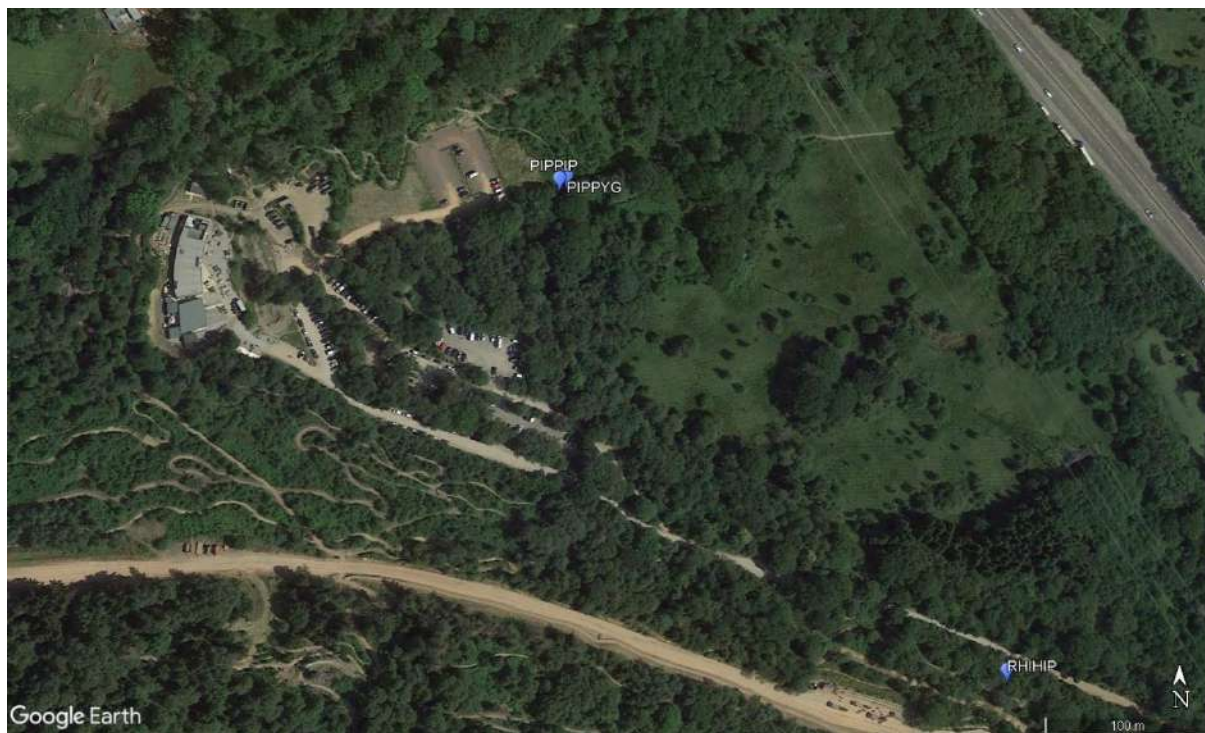


Figure 9 - Results of the October 2022 bat transect survey. Blue icons demark bat passes.

Static monitoring (2018)

- 3.21 The static bat detectors recorded for 5 nights (3rd-7th) in July 2018; 8 nights in August/Sept 2018 (31st-7th) and 6 nights (14th – 19th) in September 2018. Original complete bat survey data was not available, and therefore the following data is taken from previous reports at the site by Wildwood Ecology. However it is considered that this provides suitably sufficient information to inform the report.
- 3.22 There were several nights during the recording periods where no bat activity was recorded (3 out of 19), and several nights when only a few bat calls were recorded.
- 3.23 Species recorded in July were noctule, *Myotis* sp., common pipistrelle, soprano pipistrelle, and brown long-eared bat. The earliest/latest recordings were from common and soprano pipistrelles (last activity at 1 hour before sunrise; earliest at 20 minutes after sunset).
- 3.24 Species recorded in August/September were noctule, *Myotis* sp., and common pipistrelle, with some pipistrelle social calls. The earliest and latest activity was from common pipistrelle at 20 minutes after sunset and 25 minutes before sunrise.
- 3.25 Species recorded in September were pipistrelle social calls and noctule, with the latest activity recorded for noctule at 30 minutes before sunrise. All other calls were recorded in the middle of the night.

Static monitoring (2022)

- 3.26 The static bat detectors recorded for 11 nights (12th-23rd) in September 2022, and 8 nights (17th-25th) in October 2022. See Appendix VI for full results of the 2022 static surveys.
- 3.27 Species recorded in September were *Myotis* sp., noctule, possible Leisler's (unconfirmed due to difficulty in analysis from sound files only, but calls are consistent with this species), Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle, and brown long-eared.
- 3.28 Species recorded in October were *Myotis* sp., noctule, common pipistrelle, soprano pipistrelle, and brown long-eared bat.
- 3.29 Several species (common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, and possible Leisler's) were recorded +/- 10 minutes from sunset, meaning roosts are likely to be present within the wider woodland.

Bird surveys

- 3.30 Three bird survey visits were undertaken in autumn 2022; (23rd September, 17th October, and 26th October).
- 3.31 Bird species recorded were blackbird, blue tit, bullfinch, carrion crow, chaffinch, chiffchaff, coal tit, dunnock, goldfinch, great spotted woodpecker, great tit, grey wagtail, jay, long-tailed tit, nuthatch, raven, redwing, robin, siskin, song thrush, treecreeper, willow warbler, woodpigeon and wren.

Table 8 - Bird species diversity, abundance and observed behaviour on each survey visit.

Date	Bird species	Behaviour/comments
23/09/2022	Blackbird	Single bird alarm calling
	Blue tit	Several birds calling throughout woods as part of larger tit flock
	Bullfinch	Heard not seen calling in scrub habitat to the north
	Chiffchaff	At least two birds present – one calling in scrub to the north, one singing in central woods
	Coal tit	Several birds calling throughout woods as part of larger tit flock
	Goldfinch	Flock overhead in scrub habitat to the north
	Great spotted woodpecker	Heard not seen calling in central woods
	Great tit	Several birds calling throughout woods as part of larger tit flock – one bird singing
	Long-tailed tit	Vocal flock moving throughout woods
	Nuthatch	Single bird calling and feeding throughout central woods on mature oaks
	Robin	Several birds present throughout woods – including singing individuals
	Siskin	Flock overhead – heard but not seen
	Song thrush	Single bird seen in central woods
	Willow warbler	Single bird calling in scrub habitat to the north

	Woodpigeon	Single bird flying overhead in scrub habitat to the north
	Wren	Several birds alarm calling throughout woods
17/10/2022	Blackbird	Single bird calling in woods
	Blue tit	Several birds calling throughout woods as part of larger tit flock
	Bullfinch	Heard not seen
	Carrion crow	Birds seen to the north of the site sat in large trees and calling
	Great spotted woodpecker	Single bird calling and flying throughout woods
	Great tit	Several birds calling throughout woods as part of larger tit flock
	Jay	Heard not seen
	Long-tailed tit	Vocal flock moving throughout woods
	Nuthatch	Single bird calling and feeding throughout central woods on mature oaks
	Raven	Heard not seen – two or more birds flying overhead
	Robin	Several birds calling throughout woods – one singing
	Woodpigeon	Several birds flying overhead in scrub habitat to the north
	Wren	Several birds alarm calling throughout woods

3.32 Of those recorded bird species, those for which the site is unsuitable for nesting are grey wagtail and raven. Redwing will also not nest as they are an exceptionally rare bird to breed in the UK, but visit in large numbers in autumn.

Reptile survey

3.33 Table 9 outlines the findings of the reptile survey.

Table 9 – Results of the reptile survey.

Visit	Reptiles found	Other species
1	Nil	Common toad
2	Nil	Common toad
3	Nil	Common toad
4	1 adult and 1 juvenile common lizard	Common toad
5	Nil	Common toad
6	Nil	Common toad
7	1 adult common lizard	Common toad
8	2 adult common lizard	Common toad
9	3 adult common lizard	Common toad, palmate newt

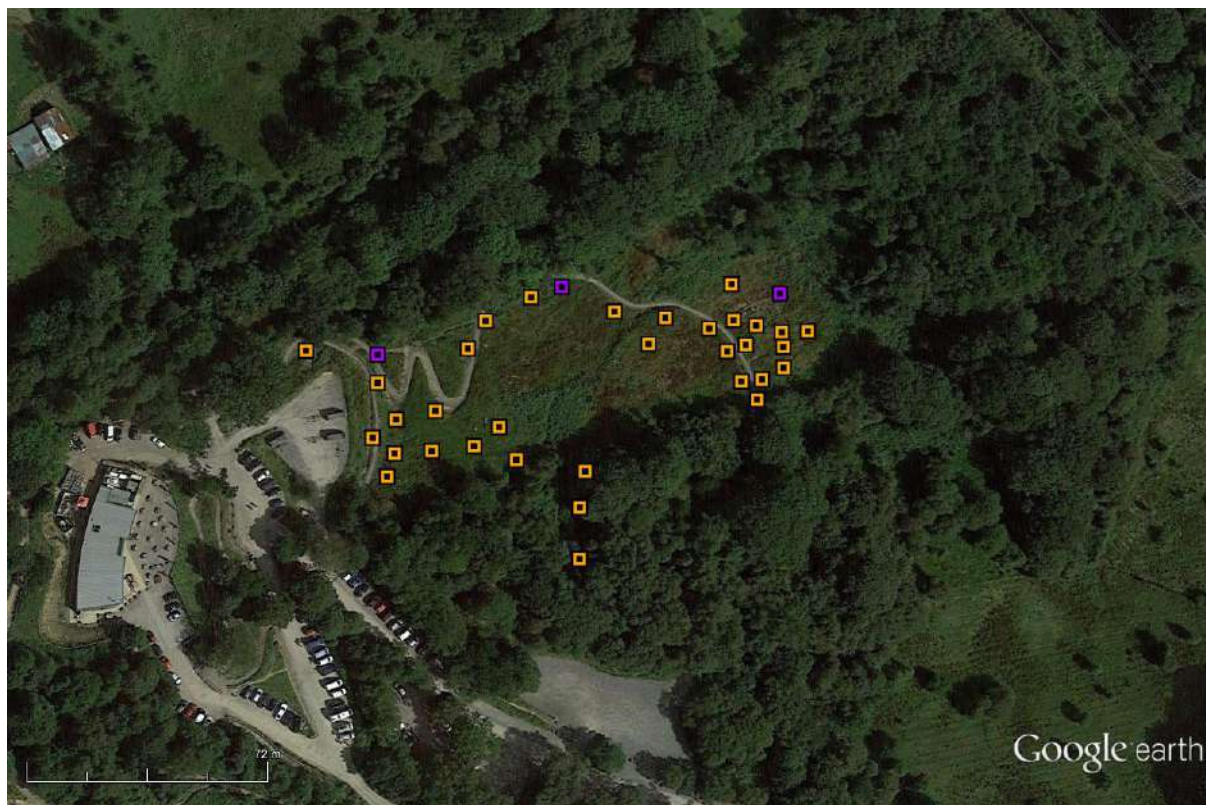


Figure 10 - Reptiles (common lizards) were found under the sheets highlighted in purple. Yellow squares show the refugia locations.

3.34 Further reptile surveys were not undertaken in 2022, but it is likely that small numbers of common lizard will use the woodland edges, and edges of areas of scrub which are part of the Phase 3 proposal area, as there is suitable connectivity between areas where lizards are known to be present and habitats as part of the Phase 3 boundary.

Population size estimate (reptile)

3.35 Table 10 summarises the results of the population size estimate based on the results of the reptile presence or likely absence survey and habitat quality.

Table 10 – Results of the population size estimate.

Reptile species	Peak count (<i>adult</i> individuals)	Population level (Natural England Technical Information Note TIN102)
Common lizard	3	medium

Ground-level tree assessment

3.36 Figure 11 shows the location of trees with Potential Roost Features (PRFs) identified within the Phase 3. Green markers show trees with low roost suitability, yellow moderate, and red high. All other trees within the area are negligible, and it should be noted that much of the woodland consists of fairly

young / immature tree growth with very limited opportunities for roosting bats.



Figure 11 – Locations of trees suitable for roosting bats within the survey area.

- 3.37 The current proposals (see Appendix II) show three of these trees to be removed, the young oak at the west part of the site, the stump/monolith, and another young oak at the east of the site.
- 3.38 Both young oaks marked in green have been assessed as having low suitability to support roosting bats due to the presence of ivy cover on their stems. However, if these trees are to be affected by the proposals, then removal of the ivy must first be undertaken (under ecological supervision) to allow the status of the tree to either be confirmed as low suitability or adjusted as necessary, as it is possible that the ivy may be covering features with suitability for bats. Any relevant further surveys would then be specified.
- 3.39 The stump/monolith marked in yellow has a prominent hole (possible old woodpecker hole) on its trunk which could be used by roosting bats. This hole is within reach of a surveyor with a ladder and endoscope, and must be inspected prior to felling.
- 3.40 The other trees are high potential veteran oak trees with several PRFs visible from the ground, and likely many more – although these are remaining in place.

4 INTERPRETATION AND ASSESSMENT

- 4.1 The proposed development will result in the loss of onsite habitats and disturbance to their associated features. This section concerns an assessment of ecological impacts resulting from the proposed development.
- 4.2 The following interpretation and assessment is provided to ensure full compliance with legislation and planning policy (see Appendix IX).

Designated sites

- 4.3 There were both statutory and non-statutory designated sites identified within the vicinity of the site (see Table 4). The closest statutory site was Cwm Glo a Glyndyrys SSSI at 946m to the north and the closest non-statutory site were Abercanaid Fields SINC and Craig Gethin SINC (both partially onsite).
- 4.4 Given the scale of the proposed development, and the lack of likely impacts beyond the site boundary, the nearby statutory designated site is sufficiently well separated so that no impacts on their designated features are anticipated as a result of the works.
- 4.5 Abercanaid Fields SINC is designated due to the species-rich semi-improved grasslands and marshy grasslands that are present within it. The onsite portion of this SINC is predominantly woodland, which will be retained (with some removal of understorey and smaller trees). There will be limited impacts on the grassland parts of the designation, with only small amounts of removal with the expansion of the car park.
- 4.6 Craig Gethin SINC is designated due to the ffridd habitat and semi-natural woodland. As before, the part of this site that which is within the designation is wooded and has paths and access roads through. The proposals will result in a loss of some of the trees and additional open areas, potentially offering some opportunities for positive ffridd management.

Priority and protected habitats

- 4.7 The following priority habitat (as listed in Section 7 of the Environment (Wales) Act 2016) was present onsite: broadleaved woodland.
- 4.8 The species and ages of trees present was indicative of a mix of some areas being managed and some left unmanaged. Historic aerial imagery documents that the site has undergone changes in its woodland composition over the last 75 years with semi-natural broadleaved areas initially, then areas of plantation and scrub encroachment, then felling and scrub clearance.
- 4.9 Despite the fact that the pods will be positioned within the woodland, very minimal clearance will be required (only the footprint of the buildings and associated paths) and the character of the woodland area will be retained. It is also possible that the buildings could be stilted, which may provide e.g. additional hibernation opportunities for amphibians.

Priority and protected species

4.10 The following priority species (as listed in Section 7 of the Environment (Wales) Act 2016) were present or likely to be present onsite:

Bats

4.11 The local records search returned a number of bat records in the vicinity of the site (see Table 5).

4.12 The earliest bats recorded during the 2022 bat transects were at 4 minutes after sunset (soprano pipistrelle) observed within the central woodland. These results indicate that there are likely to be tree roosts of these species on or near to the BikePark Wales site (but not necessarily within the Phase 3 boundary).

4.13 The static monitoring surveys resulted in a variety of bat species being recorded, including potential Leisler's bat passes, and confirmed passes by lesser horseshoe bats within the woodland. The latter species is very light-sensitive, so particular care will need to be taken to ensure any additional lighting does not negatively impact lesser horseshoe foraging areas. There are no suitable roost locations for lesser horseshoe within the Phase 3 boundary.

4.14 There were several trees identified with crevices, gaps, and other features suitable for use as bat roosts within the Phase 3.

- Two trees with low bat roost suitability will need to be assessed following ivy removal under ecological supervision – if they then continue to be classed as low (or downgraded to 'negligible', then they can be felled under ecological supervision. However, further bat surveys may be required if the initial assessment is increased to categorise the tree as 'moderate' or 'high' suitability for bats if potential roost features are uncovered.
- One stump/monolith can be felled following an inspection of a prominent hole in the trunk by a licensed ecologist.
- No trees with high roost suitability will be removed.

4.15 There may be a negative impact on bats as a result of the proposed development due to loss of foraging areas and increased disturbance at night through additional lighting (if present).

Hazel dormouse

4.16 The local records search did not return any records of hazel common dormouse in the vicinity of the site.

4.17 There were habitats onsite which may support dormice – e.g. hazel, oak, bramble and ash within woodland, however there has been extensive survey for this species to the north of the site with no positive results (S. Hand, pers. comm.). No dormouse evidence was included in the Acer Ecology report.

4.18 The proposals will result in the removal of understorey within the woodland and woodland edges, within areas of the site that are relatively well disturbed

at present. The majority of onsite scrub habitat was relatively open-structured bramble with few opportunities for nesting within. There will remain crevices and gaps in larger trees for use by small mammals.

- 4.19 Given that dormouse presence was not confirmed near the site by Acer Ecology's surveys, there is unlikely to be a negative impact on the favourable conservation status of hazel dormouse as a result of the proposed development.

European otter

- 4.20 The local records search returned 17 records of European otter in the vicinity of the site (see Table 5) – the closest being an unspecified record 0.8km from the site.
- 4.21 The Afon Taf is known to be used by otter and there was a small tributary running along the northern part of the site (offsite) which links to the river. It is therefore possible that otter use some undisturbed and quieter areas of scrub in the local area to lie up.
- 4.22 Although no evidence of holts or otter use was found during the onsite surveys, precautionary methods are recommended for the construction and operational phase with respect to otter as they may pass through the site nocturnally (the site and its trails are often very busy during the day) - during the construction phase they could possibly fall into excavations and become trapped, and any water bodies on site should remain unlit during the operational phase.
- 4.23 There is unlikely to be a negative impact on European otter as a result of the proposed development providing the recommended precautionary methods are undertaken.

Great crested newt and common amphibians

- 4.24 The local records search returned 18 records of great crested newt in the vicinity of the site (see Table 5) – the closest was an unspecified record 1.1km away.
- 4.25 The adjacent SINC (Rhydycar West) is known to support great crested newt (GCN), with other ponds in the local area also known to support other amphibian species (palmate newt). A bottle trapping and torching survey of a nearby pond (undertaken by Acer Ecology) did not confirm GCN presence.
- 4.26 The new reedbed pond within the site may provide suitable habitat for GCN (breeding frogs were noted on a visit in 2021) but this will be unaffected by the proposals.
- 4.27 The onsite habitats (damp acid grassland and scrub with drainage ditches), provide suitable terrestrial habitat for amphibians, with many young and adult toads noted using the grassland habitat during the bat transect surveys, and toads and a palmate newt found under reptile refugia.

- 4.28 There may be a negative impact on common amphibians as a result of the proposed development in the absence of mitigation for use of the site during the amphibians' terrestrial phase.

Reptiles

- 4.29 The local records search returned a number of reptile records in the vicinity of the site (see Table 5). The reptile survey undertaken confirmed that the site is used by common lizard, with a likely low to medium population (based on numbers of adults and habitat quality), and the record search confirmed that grass snake and slow worm were present 0.8km from the site.
- 4.30 The grassland and ffridd habitats at the northern part of the site offer opportunities for reptiles to hunt, bask and hibernate, given the structural diversity and mosaic that was present.
- 4.31 There is sufficient habitat locally for lizards to use, with the surrounding ffridd and grasslands likely to be used by members of the wider population.
- 4.32 There will be a negative impact on reptiles as a result of the proposed development in the absence of mitigation.
- 4.33 The broad impact level of the proposed development across the site on the reptile populations present is categorised (according to Natural England Technical Information Note TIN102) as 'Negative: low'. See Table 10.

Table 11 – Broad impact level of proposed development on reptiles.

Impact on population	Typical effects on reptiles and their habitats
Negative: negligible	- Minor disturbance to individual reptiles - Minor loss or damage to broad habitat
Negative: low	- Killing of small proportion of population - Fragmentation minimally affecting dispersal - Moderate damage of broad habitat - Introduction of minimal decline factors
Negative: medium	- Killing of a moderate proportion of population - Fragmentation moderately affecting dispersal - Minor damage to key habitat feature - Moderate loss of broad habitat - Introduction of moderate decline factor
Negative: high	- Killing of high proportion of population - Fragmentation seriously affecting dispersal - Loss of key habitat feature - Major loss of broad habitat - Introduction of serious decline factor

Nesting birds

- 4.34 The local records search returned a number of bird records in the vicinity of the site, including some Schedule 1 protected species (see Table 5). In

addition, based on the surveys on site, a number of bird species are known to use the site and local area to nest and forage within.

- 4.35 Unmitigated, there will be adverse impacts on nesting birds as a result of vegetation clearance, with potential killing/ injury and destruction of active nests, triggering legislation. Unmitigated, there will also be adverse impacts due to the loss of nesting opportunities as well as loss of foraging resources.
- 4.36 No impacts are anticipated for nightjar as the habitat within the Phase 3 boundary is of negligible suitability for nightjar breeding use; all areas are within 20m of an existing well-used track or road, and habitats are either broadleaf woodland or dense scrub. Wider areas of the BikePark Wales site (for example on the hillside to the west) which include areas of clearfell plantation however are likely to be used by nightjar, but the current proposals should not impact nightjar.
- 4.37 The proposals will reduce the available nesting and foraging habitat with a loss of understorey and scrub, and small grassland areas. The larger trees themselves will be retained and there will be areas of woodland in the wider site retained without disturbance.
- 4.38 Unmitigated, there will be a negative impact on nesting bird species as a result of the proposed development.

European badger

- 4.39 The local records search returned eight records of European badger in the vicinity of the site (see Table 5) – the closest of which was an individual dead on a road 0.3km from site.
- 4.40 There were no setts, latrines, hairs or snuffle holes indicative of badger use onsite. Several mammal paths were observed in the woodland, however these could be attributed to fox.
- 4.41 As there is a possibility of badger being present in the wider area and coming onsite to forage or commute, there may be a negative impact on European badger as a result of the proposed development, during the construction phase, (i.e. falling into excavations and becoming trapped) and so precautionary working methods are advised.

West European hedgehog

- 4.42 The local records search returned eight records of West European hedgehog in the vicinity of the site (see Table 5) – the closest of which was an individual dead on a road 0.4km from site.
- 4.43 The habitats present onsite may support hedgehog, though no field signs were found for this species. There will be leaf litter present after autumn and therefore suitable areas for resting are likely to be present.
- 4.44 As there is a possibility of hedgehog being present, there may be a negative impact on hedgehog as a result of the proposed development, during

clearance and construction phase (killing/ injury; triggering legislation) as for badger, and so precautionary working methods are advised.

Invertebrates

- 4.45 The mosaic of habitats within the ffridd is known to support a wide range of invertebrate species. A single devils' bit scabious plant was found onsite within the northern grassland in 2018, though large patches were found in the adjacent eastern field offsite. Throughout the reptile surveys, this single plant was monitored for signs of use by marsh fritillary, and none were found. Dog violet was not found onsite (food plant for small pearl-bordered fritillary).
- 4.46 There were nearby areas of ffridd in the local area with species assemblages not dissimilar to those found onsite.
- 4.47 There will be a negative impact on invertebrate species at a local level, as a result of the proposed development in the short term (in the absence of mitigation), due to loss of habitat, however given the local proximity of connected similar habitat, there is unlikely to be any long-term adverse impacts on invertebrate populations at a county level.

5 CONCLUSIONS AND RECOMMENDATIONS

- 5.1 Wildwood Ecology was commissioned to undertake suite of surveys of Land at Bike Park Wales, Merthyr Tydfil
- 5.2 The site is the subject of a planning application for construction of camping pods, workshops, a linen store, and toilet blocks within the Phase 3 area.

Designated sites

- 5.3 There may be minor impacts on the Abercanaid Fields Site of Importance for Nature Conservation (SINC) and Craig Gethin SINC, but no impacts on their designated features are anticipated as a result of the works.
- 5.4 The two SINC's are designated for ffridd habitat (Craig Gethin) and semi-improved grasslands and marshy grassland, with some semi-natural oak/birch woodland, scattered scrub and trees (Abercanaid Fields).
- 5.5 There will be no removal of any mature trees, though there will be a loss of some understorey to allow the new camping provisions. Additional new planting is proposed to provide screening as per the landscape proposals masterplan and to replace any trees which may be removed, with the species planted to be of local provenance (grown in the UK) and native species only. The management plan as outlined in the landscape proposals masterplan will be implemented to ensure the survival of plants, and if any fail, these will be replaced like-for-like in the next winter season.
- 5.6 Therefore, **no woodland area will be lost as part of the current proposals** but will be altered although the woodland character will be retained, with only very minimal clearance on the footprint of the small buildings and associated paths. It is unlikely that the SINC status of these areas will be negatively impacted long-term as a result of these proposals providing this compensation planting is undertaken.
- 5.7 Root protection zones are recommended to ensure the long-term survival of retained trees, although based on the masterplan, building is not proposed within the canopy spread of the large trees (marked as 'significant trees' on the landscape masterplan).

Protected species

- 5.8 Recommendations regarding protected species are shown in Table 12.

Table 12 – Recommendations.

Species	Recommendations
Bats	Two trees (identified in Figure 11) will need to be assessed following ivy removal under ecological supervision – if they then continue to be classed as low (or downgraded to 'negligible', then they can be felled under ecological supervision. However, further bat surveys may be required if the initial assessment is increased to

	categorise the tree as 'moderate' or 'high' suitability for bats if potential roost features are uncovered. • The stump/monolith (identified in Figure 11) will be checked by a suitably qualified and experienced ecologist using a ladder and endoscope prior to removal. • If any trees are found to support bat roosts, a NRW licence will be obtained prior to their removal. • The existing dark corridors across the site will be retained, with no lighting of trees with potential roost features (see Figure 11), or water bodies, • A sensitive lighting strategy to be developed with input from an ecologist is required in respect to bats due to the presence of light-sensitive species identified during the bat surveys in 2022 – see Appendix VII for more information. This is to ensure the best outcome for bats along with other species which could be impacted by Artificial Lighting at Night (ALAN). • All works will be undertaken in daylight hours only with no external lighting used. • Four bat boxes (Schwegler 2F or similar) should be installed on mature trees within the woodland to provide additional roosting opportunities for bats. The exact locations will be decided on site with an ecologist, but proposed areas are highlighted in Figure 12.
Hazel dormouse	• No surveys are required. • Precautionary working methods and ecological supervision will be required during the scrub/ woodland understorey clearance. Removal will be undertaken after the bird breeding season (i.e., after mid-September) with woody vegetation only removed in the winter period, following a check by a licensed dormouse ecologist. If there are root balls or features suitable for use by hibernating animals, these will be left in situ until temperatures regularly rise above 10°C (May). They then may be removed following a further ecologist-led check. • If any signs of dormouse are found on site during these checks, then work must cease and a licence from NRW must be obtained before works can continue. • Compensation planting for lost woodland understorey will be undertaken as per the landscape masterplan.
European otter, badger, other mammals	• No surveys are required. • All uncovered excavations or trenching will include a means of escape for animals that may fall into them. This may be a plank set at 30° to allow escape. All chemicals will be stored safely away from areas which may be accessible to wildlife. • Water bodies should not be lit at night to minimise potential disruption to otters.

Great crested newt and common amphibians	- No surveys are required. - Precautionary works are advised as per the advice for reptiles.
Reptiles	- A reptile mitigation strategy is required; to be agreed by the LPA planning ecologist, and then followed. - Please see Appendix V for details of this.
Nesting birds	- Vegetation clearance will take place outside of the bird nesting season. In the event that clearance work has to be undertaken during the nesting season (generally from 1st March until 31st August, although birds are known to nest outside of these dates in suitable conditions), a nesting bird check will be required and must be carried out by a suitably qualified person. Active nests will be protected until the young have fledged. Where a Schedule 1 species (as defined in the Wildlife and Countryside Act - http://www.jncc.gov.uk/page-3614) is confirmed, compensation for impacts, e.g., loss of nesting sites, should be devised and implemented. - Two crevice bird boxes and two open-fronted nest boxes will be installed within the woodland to provide additional nesting opportunities for birds. The exact locations will be decided on site with an ecologist, but proposed areas are highlighted in Figure 12.
Invertebrates	- No surveys are required. - Native species of local provenance and grown in the UK will be used for new planting on the site.
Fungi	- Woodland (saprophytic) fungi growth will be promoted by retaining deadwood piles within woodland areas, and also within the habitat piles (see reptile mitigation strategy). - Grassland fungi will be allowed to grow onsite (where existing soil conditions are appropriate and suitable spores are likely already to be present) with management tailored for promotion of fungal growth. This will involve no fertiliser use on grassed areas; cuttings removed from site (can be used to create and enhance habitat piles); no removal of mosses (i.e. no scarification). No cuts will be undertaken in late summer or autumn to allow fruiting bodies to grow.

Biodiversity enhancement

- 5.9 Local Authorities have a duty (known as the 'Biodiversity and resilience of ecosystems duty') under the [Environment \(Wales\) Act 2016](#) to seek to maintain and *enhance* biodiversity in the exercise of their functions.
- 5.10 Where possible the existing onsite habitat of ecological importance will be retained to ensure that habitats and species that rely on them are not adversely affected by the development. Native species of local provenance and grown in the UK will be used for new planting on the site to support The Action Plan for Pollinators in Wales, 2013

(<http://gov.wales/docs/desh/publications/130723pollinator-action-plan-en.pdf>).

- 5.11 Four bat boxes (Schwegler 2F or similar) should be installed on mature trees within the woodland to provide additional roosting opportunities for bats. The exact locations will be decided on site with an ecologist, but proposed areas are highlighted in Figure 12.
- 5.12 Two crevice bird boxes and two open-fronted nest boxes will be installed within the woodland to provide additional nesting opportunities for birds. The exact locations will be decided on site with an ecologist but proposed areas are highlighted in Figure 12.
- 5.13 Any woody arisings from clearance work should be placed as habitat piles within the areas marked in Figure 12, in order to provide an additional habitat feature for a variety of species. This is in line with the current Landscape Plan shown in Appendix I.



Figure 12 - Proposed locations for enhancement measures – yellow pins = bat box areas, red pins = bird box area, and purple pins = location for habitat piles.

Overall conclusion

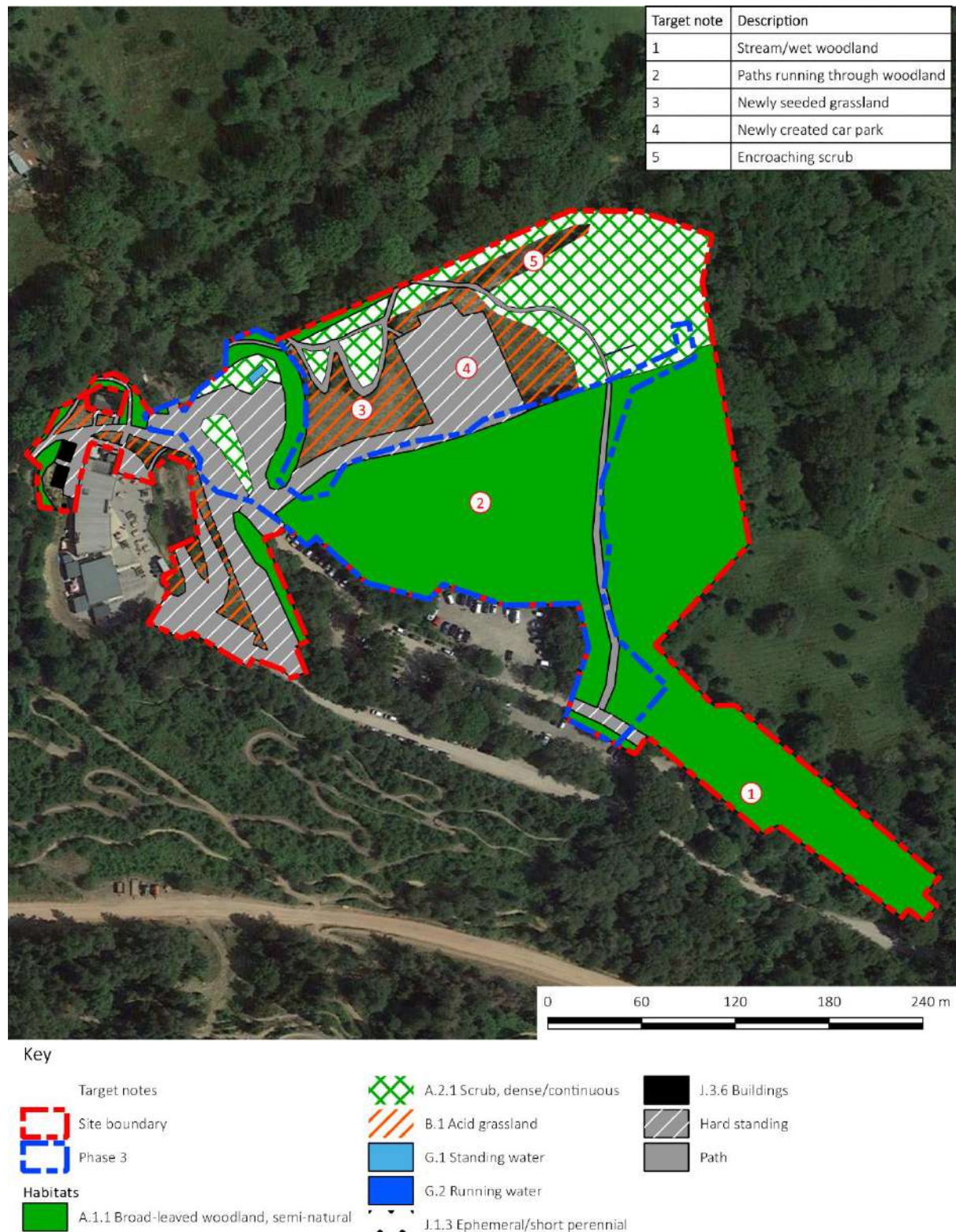
- 5.14 Providing that the recommendations outlined within this report are successfully implemented, it should be possible for the proposed development to proceed and for there to be no long-term impacts upon the key protected species present at the site.

This ecological report will remain valid for a period of 18 months from the date of the last survey - i.e. until May 2024. Further surveys may be required to update the site information if planning is not obtained or works do not commence within this time period.

6 REFERENCES

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APPENDIX I: PEA PLAN



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Figure 13 - PEA plan of habitats and features present on site.

[illegible]

The landscape proposals have evolved significantly, in response to adverse effects that were identified as being likely to result from the development of the site in line with the initial plans. The design presented is the result of series of refinements to layout and specification which are intended to avoid or reduce such effects.

SCALE

0 1 50 100

100

VIEW AND REVERSE

[illegible]

APPENDIX III: SURVEY IMAGES



Figure 15 – View south across new car park area.



Figure 16 – New hibernacula along northern edge of site – constructed during Phase 2 works in early 2021.



Figure 17 – View of small area of grassland and scrub at the north-east of Phase 3 (area to be enhanced for reptiles).



Figure 18 – Main path running north-south at the eastern edge of Phase 3.



Figure 19 – Stump/monolith with moderate bat roost suitability (prominent hole) in woodland of Phase 3.



Figure 20 – View of typical woodland structure of young trees and scattered understorey in western part of main Phase 3 area.

APPENDIX IV: REPTILE SURVEY GUIDELINES

All information is taken from Natural England Technical Information Note TIN102.

Time of day

Times will be limited to 0700 to 1800, on the condition that date and weather conditions (see below) must also be suitable throughout the duration of the survey visit.

Weather

In general, surveys should be targeted to the following weather conditions:

- Air temperature – 10-20°C;
- Wind – none to moderate;
- Precipitation – none

Season

Reptile detectability varies throughout the year dependent upon species (for all species, the optimal months are April, May and September).

Survey effort

A minimum amount of survey effort in terms of numbers of days of surveys and visits throughout the year can be calculated. Each species has a recommended number of 'minimum standard effort units', ranging from 25 to 50 (see TIN102 Table 2, Appendix IV – also provides the recommended survey methods). This is allied to 'monthly survey effort weighting' specific to a particular month across the year (see Table 3, Appendix IV). For each species the 'minimum standard effort units' figure is divided by the 'monthly survey effort weighting' in the months that the survey is proposed. This will provide a figure for the number of survey days recommended. Standards for each species can be combined into a single site survey standard.

Calculation for this survey

This survey was carried out during the months of August and September. MSEW = minimum survey effort weighting.

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Slow-worm	MSEW	NR	2	5	5	5	3	2	4	2
25 (minimum effort)	Min Visits	N/A	13	5	5	5	9	13	7	13
Common Lizard	MSEW	2	3	5	5	5	4	3	5	3
30 (minimum effort)	Min Visits	15	10	6	6	6	8	10	6	10
Grass Snake	MSEW	NR	3	4	5	5	3	3	4	2
30 (minimum effort)	Min Visits	N/A	10	8	6	6	10	10	8	15

Number of visits x MSEW = 7 x 4 + 2 x 2 (slow worm) = 32
 7 x 5 + 2 x 3 (common lizard) = 41
 7 x 4 + 2 x 3 (grass snake) = 34
 7 x 4 + 2 x 2 (adder) = 32

APPENDIX V: REPTILE MITIGATION STRATEGY

- 6.1 This section of the Reptile Mitigation Strategy (RMS) outlines appropriate protective measures and mitigation for reptiles at risk of harm from activities associated with site clearance and construction. The mitigation strategy consists of a phased methodology for reptile removal at the site. In addition, the strategy considers the needs of other protected species, and the enhancement of the receptor site (Edgar et al., 2010; Froglife, 1999, Gent & Gibson, 2003).

Enhancement of habitat outside of the Phase 3 boundary

- 6.2 An offsite (offsite meaning outside the Phase 3 development footprint) receptor site will be enhanced to compensate for the loss of habitat due to the proposed development. Enhancements will be carried out prior to clearance works in Phase 3 (except where cuttings/brash from these works is to be used for certain elements of the enhancement). This can be carried out following acceptance of this document by the LPA planning ecologist, and agreement with the landowner/manager.
- 6.3 A suitable receptor site/compensatory habitat has been identified along the north-eastern boundary of the wider site, but outside of the Phase 3 boundary (see Figures 17 & 21). This part of the site has habitat suitable for supporting reptile populations and is likely to have individuals from the same populations as on the site, given their adjacent locations. The receptor site has some connectivity into the surrounding habitat (where reptiles are already present – yellow arrow in Figure 21) allowing reptiles to naturally disperse.



Figure 21 - Identification of patch of scrub to be thinned (orange polygon) to enhance area for reptiles. An overlay of the masterplan is included to show this area is outside

of the Phase 3 boundary (blue line) and outside of future proposed expansions. Purple pin indicates proposed hibernacula location, and yellow arrow shows connecting suitable reptile habitat.

- 6.4 Removal of some denser scrub patches in this area and allowing natural regeneration of grassland flora as well as creation of a hibernacula; will provide cover, additional structure, and enhance prey availability. This will improve this area for reptiles and compensate for a loss of small amount of grassland habitat during construction of the car park extension.
- 6.5 The design of the hibernacula should be as per: <https://www.froglife.org/wp-content/uploads/2015/09/Hibernacula.pdf>.

Vegetation management (two-stage clearance)

- 6.6 This part of the strategy is required to encourage reptiles away from the Phase 3 areas of the site and into other areas away from works.
- 6.7 The majority of habitats impacted will be scrub or woodland which are less suitable for reptiles, a two-stage clearance will be undertaken if any edge habitat/scrub is to be cleared.
- 6.8 Vegetation within the proposed development footprint that is marked as suitable for reptiles (see Figure 22) will be cut with hand-held machinery (i.e., trimmers or brush cutters) to a height of 150mm during the active reptile season (March to October, inclusive) progressing as per Figure 22. This is to allow reptiles to move away from the edge of the cut area. This process may take some time as the tussocky ground is uneven and will require a careful approach to prevent triggering legislation by killing or injury of protected species.
- 6.9 After at least 48hrs, the vegetation will be cut again, this time down to ground level in the same direction as per Figure 22. No cuttings or chippings will be left on the development footprint but may be moved to form parts of the brash and hibernaculum areas. The vegetation will remain kept very short and unsuitable for reptiles until works have been completed to discourage reptiles from re-colonising the area.
- 6.10 This approach will be carried out directionally as shown in Figure 22 to encourage reptiles to move away from areas of work into more suitable habitat.



Figure 22 - Direction of vegetation cuts to be made (if required). Proposed enhancement area outside of Phase 3 boundary in orange, with hibernacula location as a purple pin. Marked in green are areas within the wider with reptile suitability.

- 6.11 An experienced ecologist will supervise the vegetation management work in liaison with the groundwork contractor, and it will be ensured that there is suitable connecting habitat between the new enhancement area and existing marked suitable reptile habitat.
- 6.12 Connectivity is not currently available between the receptor area and the grassland area to the south-east, as the woodland in the connecting area is mature.

Post-construction

- 6.13 The new habitat in the receptor site will be managed post-development (see previous section – ‘Enhancement of habitat’ for further details). Management of the receptor site by BikePark Wales will be carried out for at least ten years (and should be in line with the Ten-year Landscape Maintenance Programme document) post-development, ensuring scrub does not re-colonise and become too dense.
- 6.14 In addition, monitoring of the reptile population at the enhanced site (see Figure 21) will be undertaken by a suitably qualified ecologist and in liaison with the landowner. This will comprise:
- A reptile survey in Years 1 and 3 following completion of the proposed development. A total of 25 artificial refugia will be set out within the site, and checked monthly throughout the active season.

- Data collation and reporting: at the end of each season (Years 1 and 3), data will be collated and a status report produced.
- 6.15 All records from monitoring and the translocation will be submitted to the South East Wales Biodiversity Records Centre (SEWBRc).

APPENDIX VI: BAT STATIC MONITORING RESULTS

2018 Surveys

6.16 Original detailed survey data from 2018 was not available in full.

2022 Surveys

September

Table 13 – Results for static monitoring period 12th – 23rd September for northern static detector.

Night <i>Sunset time</i>	Species	Number passes	Earliest pass
12/09/2022 19:35	Leisler's*	1	19:09
	Noctule	2	19:10
	Brown long-eared	1	23:04

6.17 Calls were only detected on 12th September, but detector otherwise appeared to continue to function.

*Unconfirmed but likely.

Table 14 - Results for static monitoring period 12th – 23rd September for southern static detector.

Night <i>(Sunset time)</i>	Species	Number passes	Earliest pass
12/09/2022 (19:35)	Common pipistrelle	56	19:55
	Soprano pipistrelle	12	20:30
	<i>Myotis</i> species	1	00:18
	Leisler's*	1	04:29
	Brown long-eared	1	01:34
14/09/2022 (19:31)	Common pipistrelle	11	19:54
15/09/2022 (19:28)	Common pipistrelle	46	19:45
	Soprano pipistrelle	5	19:55
17/09/2022 (19:24)	Soprano pipistrelle	3	19:37
	Noctule	1	04:22
18/09/2022 (19:21)	Common pipistrelle	1	19:33
	Soprano pipistrelle	7	19:47
19/09/2022 (19:19)	Common pipistrelle	13	19:28
	Soprano pipistrelle	4	19:40
20/09/2022 (19:17)	Common pipistrelle	56	19:28
	Soprano pipistrelle	7	19:30
	Nathusius' pipistrelle	5	19:28
21/09/2022 (19:14)	Common pipistrelle	66	19:19
	Soprano pipistrelle	2	19:42
	Noctule	1	00:27
22/09/2022 (19:12)	Common pipistrelle	3	19:13

October

Table 15 - Results for static monitoring period 17th-25th October for northern static detector.

Night (Sunset time)	Species	Number passes	Earliest pass
17/10/2022	Common pipistrelle	3	18:36
	Soprano pipistrelle	4	18:13
	Noctule	2	18:33
	<i>Myotis</i> species	1	19:01
18/10/2022	Common pipistrelle	4	18:29
	Soprano pipistrelle	7	18:21
	Noctule	2	18:23
	Brown long-eared	1	20:05

6.18 Calls were only detected on these two days, but the detector otherwise appeared to continue to function.

Table 16 - Results for static monitoring period 17th-25th October for southern static detector.

Night (Sunset time)	Species	Number passes	Earliest pass
17/10/2022	Common pipistrelle	44	18:25
	Soprano pipistrelle	2	18:20
	Noctule	2	18:31
	<i>Myotis</i> species	1	18:56
	Brown long-eared	1	04:04
18/10/2022	Common pipistrelle	95	18:20
	Soprano pipistrelle	25	19:16
	Noctule	1	19:03
	<i>Myotis</i> species	2	20:49
19/10/2022	Common pipistrelle	321	18:17
	Soprano pipistrelle	115	18:39
	<i>Myotis</i> species	1	05:47
20/10/2022	Common pipistrelle	25	18:24
	Soprano pipistrelle	2	18:24
22/10/2022	Soprano pipistrelle	1	19:09
23/10/2022	Brown long-eared	1	18:47

APPENDIX VII: INFORMATION TO INFORM SITE LIGHTING PLAN

- 6.19 The following information must be taken into account when the site lighting plan/lighting strategy is produced, and is in line with the following guidance produced by the Institute of Lighting Professionals and Bat Conservation Trust: <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>
- 6.20 Dark corridors are required in areas of the site as illustrated in Figure 23 to ensure connectivity for foraging and commuting bats, as well as ensuring potential roosting areas remain dark - both existing trees with potential roost features (Figure 11) as well as areas where bat boxes are being proposed to be installed (Figure 12).
- 6.21 This is particularly important given the presence of lesser horseshoe bat in the wider woodland (see Figure 9).



Figure 23 – Areas to remain as ‘dark corridors’ in purple. Yellow pins show areas recommended for installation of new bat boxes. Red and green pins show retained trees with potential roost features (red: high suitability, green: low suitability).

- 6.22 In dark corridors, the specifications for lighting must be as follows:
- Illuminance <0.2 lux on the horizontal plane
 - Illuminance <0.4 lux on the vertical plane
- 6.23 Lighting installed outside of the dark corridors must also follow the below specifications:
- Colour temperature <2700K and peak wavelength of >550nm

- Lighting limited to only where it is required, for example using bollard-style lighting, directional lighting, and/or the use of baffles and hoods.
- Lights should not remain on throughout the night, e.g., lights could be motion-activated.
- The use of red light could be considered; red lighting is likely to have a reduced effect on bats compared to lighting of other colours, as bat vision is more sensitive to shorter wavelengths (blue and ultraviolet light) than longer wavelengths (red light).

6.24 Additionally, all construction works will be undertaken in daylight hours only with no external lighting used.

APPENDIX VIII: SPECIES LIST

To be submitted to the appropriate Local Records Centre

Site Name: Land at Bike Park Wales, **Provided by:** Wildwood Ecology Ltd
Merthyr Tydfil

Grid ref: SO 05132 03460 **Verified by:** Amy Williams Schwartz,
Alex Wilson

Common name	Scientific Name (if known)	Number	Comment
Bats			
Common pipistrelle	<i>Pipistrellus pipistrellus</i>		Passes, detector records
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>		Passes, detector records
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>		Static detector records
Noctule	<i>Nyctalus noctula</i>		Passes, detector records
Brown long-eared bat	<i>Plecotus auritus</i>		Passes, detector records
<i>Myotis</i> sp.	<i>Myotis</i> sp.		Passes, detector records
Lesser horseshoe	<i>Rhinolophus hipposideros</i>		Passes, detector records
Herpetofauna			
Common lizard	<i>Zootoca vivipara</i>	Maximum 3 adults	Under reptile sheets
Common toad	<i>Bufo bufo</i>	Maximum 20 juveniles	Under reptile sheets
Palmate newt	<i>Lissotriton helveticus</i>		Under reptile sheet
Birds			
Blackbird	<i>Turdus merula</i>		
Blackcap	<i>Sylvia atricapilla</i>		
Blue tit	<i>Cyanistes caeruleus</i>		
Bullfinch	<i>Pyrrhula pyrrhula</i>		
Carrion crow	<i>Corvus corone</i>		
Chaffinch	<i>Fringilla coelebs</i>		
Chiffchaff	<i>Phylloscopus collybita</i>		
Coal tit	<i>Periparus ater</i>		
Common whitethroat	<i>Sylvia communis</i>		
Dunnock	<i>Prunella modularis</i>		
Goldcrest	<i>Regulus regulus</i>		
Goldfinch	<i>Carduelis carduelis</i>		
Great spotted woodpecker	<i>Dendrocopos major</i>		
Great tit	<i>Parus major</i>		
Grey wagtail	<i>Motacilla cinerea</i>		
Jay	<i>Garrulus glandarius</i>		

Long-tailed tit	<i>Aegithalos caudatus</i>		
Magpie	<i>Pica pica</i>		Magpie
Nightjar	<i>Caprimulgus europaeus</i>	2+	Offsite to the southwest, churring males in 2018
Nuthatch	<i>Sitta europaea</i>		
Raven	<i>Corvus corax</i>		
Redwing	<i>Turdus iliacus</i>		
Robin	<i>Erithacus rubecula</i>		
Siskin	<i>Spinus spinus</i>		
Song thrush	<i>Turdus philomelos</i>		
Swallow	<i>Hirundo rustica</i>		
Tawny owl	<i>Strix aluco</i>	2+	Calling during bat surveys in 2018, including chicks
Treecreeper	<i>Certhia familiaris</i>		
Willow warbler	<i>Phylloscopus trochilus</i>		
Woodpigeon	<i>Columba palumbus</i>		
Wren	<i>Troglodytes troglodytes</i>		
Invertebrates			
Fox moth	<i>Macrothylacia rubi</i>		Caterpillars under reptile sheets
Honeybee	<i>Apis mellifera</i>		
Meadow brown	<i>Maniola jurtina</i>		
Green lacewing sp.	<i>Chrysoperla</i> sp.		
White-tailed bumblebee	<i>Bombus lucorum</i>		
Common carder-bee	<i>Bombus pascuorum</i>		
Common blue	<i>Polyommatus icarus</i>		
Small skipper	<i>Thymelicus sylvestris</i>		
Speckled wood	<i>Pararge aegeria</i>		
Six-spot burnet	<i>Zygaena filipendulae</i>		
Orange tip	<i>Anthocharis cardamines</i>		
Flora			
Hedge woundwort	<i>Stachys sylvatica</i>		
Great willowherb	<i>Epilobium hirsutum</i>		
Bramble	<i>Rubus fruticosus</i> agg.		
Meadow thistle	<i>Cirsium dissectum</i>		
Yorkshire fog	<i>Holcus lanatus</i>		
Sorrel	<i>Rumex</i> sp.		
Meadow vetchling	<i>Lathyrus pratensis</i>		
Creeping cinquefoil	<i>Potentilla reptans</i>		
Hazel	<i>Corylus avellana</i>		
Willow	<i>Salix</i> spp.		
Herb bennet	<i>Geum urbanum</i>		
Silverweed	<i>Potentilla anserina</i>		
Compact rush	<i>Juncus conglomeratus</i>		

Cleavers	<i>Galium aparine</i>		
Crested dog's-tail	<i>Cynosurus cristatus</i>		
Pedunculate oak	<i>Quercus robur</i>		
Soft rush	<i>Juncus effusus</i>		
Common nettle	<i>Urtica dioica</i>		
Red clover	<i>Trifolium pratense</i>		
Ribwort plantain	<i>Plantago lanceolata</i>		
Creeping buttercup	<i>Ranunculus repens</i>		
Smaller Cat's-tail	<i>Phleum bertolonii</i>		
Figwort	<i>Scrophularia nodosa</i>		
Cock's-foot	<i>Dactylis glomerata</i>		
Perennial rye grass	<i>Lolium perenne</i>		
Rosebay willowherb	<i>Chamerion angustifolium</i>		
Creeping thistle	<i>Cirsium arvense</i>		
Herb Robert	<i>Geranium robertianum</i>		
Dandelion	<i>Taraxacum officinale</i> agg.		
Ragwort	<i>Senecio jacobaea</i>		
Tormentil	<i>Potentilla erecta</i>		
Purple loosestrife	<i>Lythrum salicaria</i>		
Jointed rush	<i>Juncus articulatus</i>		
Flowering rush	<i>Butomus umbellatus</i>		
Square-stalked willowherb	<i>Epilobium tetragonum</i>		
Bracken	<i>Pteridium aquilinum</i>		
Meadowsweet	<i>Filipendula ulmaria</i>		
Black medicks	<i>Medicago lupulina</i>		
Orchid sp. (Dactylorhiza sp).	<i>Dactylorhiza</i> sp.		
Buddleia	<i>Buddleia davidii</i>		
Bird's-foot trefoil	<i>Lotus corniculatus</i>		
Cherry	<i>Prunus</i> sp.		
Hemp agrimony	<i>Eupatorium cannabinum</i>		
Lesser trefoil	<i>Trifolium dubium</i>		
Field woodrush	<i>Luzula campestris</i>		
White clover	<i>Trifolium repens</i>		
Spear thistle	<i>Cirsium vulgare</i>		
Self-heal	<i>Prunella vulgaris</i>		
Mare's tail	<i>Hippuris vulgaris</i>		
Sweet vernal grass	<i>Anthoxanthum odoratum</i>		
Perforate St John's wort	<i>Hypericum perforatum</i>		
Devil's bit scabious	<i>Succisa pratensis</i>		
Yellow pimpernel	<i>Lysimachia nemorum</i>		
Scarlet pimpernel	<i>Anagallis arvensis</i> subsp. <i>arvensis</i>		

Ash	<i>Fraxinus excelsior</i>		
Rowan	<i>Sorbus aucuparia</i>		
Sowthistle	<i>Sonchus</i> sp.		
Foxglove	<i>Digitalis purpurea</i>		
Hogweed	<i>Heracleum sphondylium</i>		
Knapweed	<i>Centaurea nigra</i>		
Heath bedstraw	<i>Galium saxatile</i>		
Common centaury	<i>Centaureum erythraea</i>		
Hawkbit sp	<i>Leontodon</i> sp.		
Gorse	<i>Ulex europaeus</i>		
Lady's mantle	<i>Alchemilla mollis</i>		
Hoary plantain	<i>Plantago media</i>		
Pedunculate oak	<i>Quercus robur</i>		
Sessile oak	<i>Quercus petraea</i>		
Birch sp.	<i>Betula</i> sp.		
Alder	<i>Alnus glutinosa</i>		
Crab apple	<i>Malus sylvestris</i>		
Sweet chestnut	<i>Castanea sativa</i>		
Hawthorn	<i>Crataegus monogyna</i>		
Beech	<i>Fagus sylvatica</i>		
Ivy	<i>Hedera helix</i>		
Holly	<i>Ilex aquifolium</i>		
Bluebell	<i>Hyacinthoides non-scripta</i>		
Wood sorrel	<i>Oxalis acetosella</i>		
Sycamore	<i>Acer pseudoplatanus</i>		
Rough meadow grass	<i>Poa trivialis</i>		

APPENDIX IX: PLANNING POLICY AND LEGISLATION

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

- Planning and biodiversity

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

Planning Policy Wales (2021) and Technical Advice Note 5 (2009)

Planning Policy Wales (Edition 11, February 2021) sets out the land use planning policies of the Welsh Government, integrating with the Environment (Wales) Act (2016). The advice contained within Planning Policy Wales (PPW) is supplemented for some subjects by Technical Advice Notes (TANs).

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

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

- Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;
- Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
- Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
- Ensure that appropriate weight is attached to designated sites of international, national and local importance;
- Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;
- Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;
- Ensure that the range and population of protected species is sustained;

- Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered;

Legislation and biodiversity

Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside Act 1981 (as amended) or are named as European Protected Species (EPS) in the Conservation of Habitats and Species Regulations 2017 (as amended). These two main pieces of legislation have been consulted when writing this report and are therefore described in detail within this section.

Other relevant legislation and policy documents that have been consulted include – The Environment (Wales) Act 2016; The Countryside and Rights of Way Act 2000; The Hedgerow Regulations 1997; Biodiversity Action Plans, both UK-wide (UKBAP) and Local plans (LBAPs), and The National Planning Policy Framework (NPPF). There is also legislation that legally protects certain animals - for example, the Protection of Badgers Act (1992) protects badgers and their setts, and the Deer Act (1991) places restrictions on actions that can be taken against deer species.

Environment (Wales) Act 2016

Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty.

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

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

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

Wildlife & Countryside Act 1981 (as amended)

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

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

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

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

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

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

Conservation of Habitats and Species Regulations 2017 (as amended)

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

These regulations provide for the:

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

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

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

Licensing: it is possible for actions which would otherwise be an offence under the Regulations to be undertaken under licence issued by the proper authority. For

example, where a European Protected Species has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required.

- Species protection

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

Amphibians

The common frog, common toad, common newt, and palmate newt receive limited protection under the Wildlife and Countryside Act 1981 (as amended), making it illegal to sell or trade them.

The Great Crested Newt and Natterjack Toad are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) as European Protected Species. It is illegal to:

- Deliberately capture, injure, kill, or disturb either species,
- Intentionally or recklessly obstruct access to any structure/place used for shelter or protection, or
- Damage or destroy a breeding site or resting place.

Badger

Badgers are protected in the UK under the Protection of Badgers Act 1992. Under the act it is an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat⁴ a Badger, or attempt to do so;
- To intentionally or recklessly interfere with a sett⁵ (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain; it is not intended to prevent properly authorised development.

⁴ The intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting "cruel ill treatment" of a Badger

⁵ A sett is defined as "any structure or place which displays signs indicating current use by a Badger". Advice issued by Natural England (June 2009) is that a sett is protected as long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger.

Bats

All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence *inter alia* to:

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

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

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

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

Birds

In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended). All wild birds, their nests and eggs are protected it an offence to:

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

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

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

Dormice

The common dormouse is classed as a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence *inter alia* to:

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

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

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

Otters

The European Otter, *Lutra lutra* is a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately capture, injure or kill any wild otter;
- deliberately disturb wild otters;
- damage or destroy a breeding site or resting place of an otter.

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

- disturbs an otter while it is occupying a structure or place which it uses for shelter or protection; or
- obstructs access to such a place.

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

Reptiles

Adders, slow worms, grass snakes and common lizards are protected against killing and injuring under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it illegal to intentionally kill or injure a common reptile. As a result, reptiles must be removed from areas of development and relocated onto suitable release sites before any site works can commence.

Smooth snakes and sand lizards are European Protected Species under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). This makes it illegal to carry out the following activities:

- Deliberately or recklessly disturb, capture or kill these animals;
- Deliberately or recklessly take or destroy eggs of these animals;
- Damage or destroy a breeding site or resting place of such a wild animal; or

Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from such a wild animal.