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PRELIMINARY ECOLOGICAL APPRAISAL

LLYWN EINION ROAD

Arbor Vitae Environment Ltd, Lower Betton Farm, Cross Houses, Shrewsbury, Shropshire, SY5 6JD

Project name: **Land off Llwyn Einion Rd, Rhos, Wrexham, LL14 4ET**

Grid Reference: SJ28874774

Date: 09/04/2025

Prepared by: Charlotte Skinner BSc MSc

Reviewed by: Phillipa Stirling BSc MSc ACIEEM

Requested by: Roger Parry and Partners

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for an agricultural building at Llywn Einion Road.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation - Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The site is situated approximately 1 mile north from the village of Rhosllannerchrugog, along Llywn Einion Road, which leads east from Vinegar Hill (B5097).

The surrounding landscape predominately consists of agricultural grassland, broadleaved woodland corridors, and residential properties and farmsteads are scattered in between.

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were MagicMap, Data Map Wales and COFNOD.

3.2 SITE SURVEY

A site visit was made on 18/03/2025. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Badger
- Bats
- Breeding birds
- Great Crested Newt
- Hedgehog
- Reptiles

The survey methodology was tailored to evaluate the area for these species in the following ways:

Badger

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,
- Tracks and footprints,

- Latrines,
- Snuffle holes.

Bats

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newt

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010).

Hedgehog

The site was assessed in terms of its suitability for hedgehog e.g. areas of rough vegetation, built structures with cavities beneath, availability of feeding areas.

Reptiles

The site was assessed based on its suitability to support reptile populations including connections to terrestrial land from water and suitable resting habitat nearby.

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist. Natural Resources Wales bat licence number: S094220-1 and GCN licence number: S090921/1.

And Charlotte Skinner MSc: Assistant Ecologist.

3.4 CONSTRAINTS

Breeding birds would not have been present at the time of the survey, but previous nesting and appropriate nesting sites would have been apparent.

4 SURVEY RESULTS

4.1 DESK STUDY

The Ecological Data Search found that there are the following designated statutory sites within 1km of the site (Figure 5):

Name	Designation	Distance from site	Description
W219: Bronwylfa Wood	Local Wildlife Site	500m	Semi-natural broad-leaved woodland. Main canopy is sycamore, with oak and ash. Holly, hazel and elm form the understorey. Ramsons, male fern and soft grass are frequent in the ground flora.
Bryniau Clwyd a Dyffryn Dyfrdwy	Areas of Outstanding Natural Beauty	650m	A chain of heather clad peaks with Iron Ages forts. The Pontcysyllte Aqueduct and Canal is also a World Heritage Site.
W218: Legacy Substation	Local Wildlife Site	600m	Semi-improved grasslands and scrub. Bee orchid, yellow-wort and common centuary occur.
W222: Crematorium	Local Wildlife Site	800m	Herb-rich, semi-improved grassland, broadleaved woodland and areas of parkland.
B-Lines		500m	A stronghold for a rare species such as the Shrill carder

			bee which can be found from Monmouthshire through to Pembrokeshire. B-Lines are essential in conserving wild pollinators and can contribute towards the delivery of the Action Plan for Pollinators in Wales.
ICA 4 Ruabon/ Rhiwabon	Important Curlew Areas	930m	Wales Action Plan for the Recovery of Curlew, to promote the conservation of Eurasian curlew in Wales.

Results from the desk study revealed that there are several protected and priority species within a 1km radius of the proposed development site (Figure 6), which include bat species such brown long-eared, common pipistrelle and soprano pipistrelle 180m south. Additional species include badger, otter and great crested newt within 1km of the site. The search also identified a number of bird species within 1km of the site which can be found on the red list and within Schedule 1 (Table 1).

4.2 HABITATS ON SITE

All habitats are classified using broad UKHab definitions.

Other neutral grassland

A rough, unmanaged grassland in poor condition, where the following species were identified: creeping bent, Cock's foot, perennial rye grass, dandelion, creeping buttercup, spear thistle, soft rush and greater plantain. Broadleaved dock is abundant within the sward. Common Gorse is also found frequently, both sapling and young shrubs.

Artificial, unvegetated, unsealed surface

A crushed stone track leading from the existing access to the south and a yard area, where there are small patches of ruderal vegetation.

4.3 ADJACENT HABITATS

Broadleaved woodland

The grassland is surrounded by a broadleaved woodland on the west and south side. The woodland is planted atop an earth embankment. The main canopy consists of oak and sycamore and the shrub layer is sparse with an open structure, where there are areas of holly shrub and common gorse.

There is a dingle that runs through the woodland corridor which is a former railway line. The following species were found growing within the dingle: wild garlic, dog's mercury and native bluebell. The following species were also found within the ground layer: wood avens, germander speedwell, arum, nettle, lesser celandine, bramble, fox glove, rosebay willowherb, ivy and cleavers. The soil depth is shallow, where it is mostly stony ground.

Bramble

There is an area of bramble scrub developing to the west of the proposed building, along the woodland edge.

4.4 PROTECTED SPECIES

Badgers

There are no historical records of badger at the site and no field signs were found within the search area. However, the adjacent woodland does provide a suitable foraging and commuting area for badgers. The nearest historical record of a badger within 1km of the site is situated 900m north-west.

Bats

There are no buildings or trees within the red line boundary or suitable habitats for bats to roost within. However, the adjacent woodland does provide suitable foraging and commuting opportunities for bats that are present locally.

Breeding birds

The grassland is not suitable for ground nesting birds due to the proximity of dense woodland cover and hedgerows. Both features easily conceal predators and ground nesting birds would not select a site such as this.

The adjacent woodland does provide suitable opportunities for breeding birds.

Woodland bird species recorded within 1km of the site that are of conservation concern include (GOV.UK, 2024):

- Bullfinch,
- Dunnock,
- Fieldfare,
- Spotted flycatcher,
- Tawny owl,
- Willow warbler.

Great Crested Newt

There are several historical records of great crested newts within 1km of the site, where the closest is situated 154m south of the site. However, no ponds were identified within 250m of the site, therefore no further survey work in regard to GCN is required.



Reptiles

There are several historical records of grass snakes within 1km of the site. The rough grassland does provide some opportunities for reptiles, where there is a varying sward height and range of habitats present. The adjacent woodland and specifically woodland edges do offer suitable opportunities for reptiles, as it provides a variety of shelters and crevices such as fallen trees and leaf litter. The woodland edge also means that the reptiles have access to direct sunlight to bask in.

Hedgehogs

The grassland itself does provide a suitable foraging and commuting habitat for hedgehogs. The adjacent woodland provides them with large invertebrate communities, in addition to shelter in the form of fallen trees. Hedgehogs will also hibernate in nests made from leaves in a sheltered area.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

The plans for the site will result in the loss of an area of poor-quality neutral grassland, where part of the proposed agricultural building will be situated. The loss of this habitat is of limited ecological significance, as it has a low botanical diversity, however its loss will require mitigation in the form of enhancement of the surrounding grassland.

The proposed agricultural shed will also be situated over a section of the gravel yard area, where the loss of this habitat has little ecological impact.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

There were no signs of badger within the redline boundary or within the adjacent woodland. Therefore, no further survey work or mitigation is required in regard to this species.

Bats

There are no habitats within the site area that provide suitable roosting opportunities for bat species, therefore no further survey work is required.

The adjacent woodland does provide a suitable habitat for foraging and commuting bats; therefore, a Wildlife Sensitive Lighting Scheme will be implemented to reduce the light disturbance to bats and other nocturnal species.

Breeding birds

The proposals are unlikely to have a direct impact on breeding birds as there are no habitats within the development boundary that provide suitable opportunities for nesting birds. Incidental disturbance must be avoided through appropriate avoidance measures.

Great crested newt

One record of GCN some 150m south from 2017 is thought to be an individual originating from a pond approximately 350m south of the site boundary. There are no records of GCN within 100m of the site and out of a total of 20 records within 1km, all except one are over 350m from the site boundary.

Studies have demonstrated that 95% of all summer refuges of GCN fall within 63m of their summer breeding pond (Jehle, 2000). Subsequent studies also found that capture rates of GCN were at their highest within 50m of a breeding site with a significant reduction in capture rates beyond 100m (Cresswell and Whitworth, 2004).

There are no extant ponds within 250m of the site, therefore, it is unlikely that GCN would be present on-site. In order to remove any residual risk, a set of General Avoidance Measures will be adopted.

Reptiles

The rough grassland and the adjacent woodland provide suitable terrestrial habitat for reptile species. No evidence of reptiles was found at the time of the survey but works should proceed based on the likelihood of common reptiles being present locally. General Avoidance Measures will be implemented throughout the works on site.

Hedgehog

The site does offer suitable opportunities for hedgehogs and there are numerous records of the species within 1km of the site. General Avoidance Measures will be adopted during all construction work on site.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

Approximately 100m2 of other neutral grassland will be replaced by the agricultural building. In order to mitigate for this loss, it is recommended that an area of around 200m2 adjacent to the building is re-seeded with a native mixture of grasses/wildflowers, with an emphasis on reducing the occurrence of undesirable species such as thistles and

docks. Management will include mowing once a year in late July and will only be grazed lightly between August and May, to mimic traditional meadow management.

6.2 PROTECTED SPECIES MITIGATION

Bats

Wildlife Sensitive Lighting Scheme:

- The adjacent woodland site will not be illuminated in order to retain dark movement corridors for nocturnal wildlife.
- Any exterior security or decorative lights to be installed on the development site will be less than 3 m from the ground and fitted with hoods to direct the light below the horizontal plane, at an angle of less than seventy degrees from vertical, and shall not be fixed to, or directed at, bat boxes or gables or eaves.
- Security lighting will be set on motion sensors with short timers (<1 minute) and will be LED with a passive infrared trigger.
- Lighting must be less than 3 lux at ground level and there shall be no light splay exceeding 1 lux along buildings, eaves or roof or adjacent hedgerows or trees.
- External lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires will be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

General Avoidance Measures

The following measures should be implemented to decrease the likelihood of killing/injuring small animals that are present locally:

- The site owner/site manager will ensure that anyone (including sub-contractors) undertaking construction, demolition and landscaping (both creation and management), is made aware of the potential for the site to support protected species, where to expect them, their protected status and the procedure to follow in the unlikely event that protected species are discovered during works. A copy of this Precautionary Method of Working will be always kept on site and available for inspection.
- If piles of rubble, logs, bricks, brash, rocks and other loose materials or other potential refuges are to be disturbed, this should be done by hand and carried out during the active season (March to October) when the weather is warm to allow animals to disperse naturally and where reptiles and hedgehogs are more active.

- All building materials, rubble, bricks and soil must be stored on raised platform (e.g. wooden pallets) to prevent their use as refuges by wildlife.
- Where possible, trenches should be opened and closed in the same day to prevent any wildlife becoming trapped. If it is necessary to leave a trench open overnight then it should be provided with a means of escape in the form of a shallow ramp.
- Any open pipework should be capped overnight. All open trenches and pipework should be inspected at the start of each working day to ensure no animal is trapped.
- Any common reptiles or amphibians discovered should be allowed to naturally disperse. Advice should be sought from an appropriately qualified and experienced ecologist if large numbers of common reptiles or amphibians are present.
- If a great crested newt is discovered at any stage, then all work must immediately halt and an appropriately qualified and experienced ecologist and Natural Resource Wales should be contacted for advice.
- Any chemicals or harmful substances should be kept within a locked container, off the ground and ideally within a structure on site.
- No fire or burning of materials is to take place.
- Clearance of tall vegetation will be undertaken using a strimmer or brush cutter with all cuttings raked and removed the same day. Cutting will only be undertaken in a phased way which may either include: Cutting vegetation to a height of no less than 30mm, clearing no more than one third of the site in any one day or; Cutting vegetation over three consecutive days to a height of no less than 150mm at the first cut, 75mm at the second cut and 30mm at the third cut;
- Following removal of tall vegetation, remaining vegetation will be maintained at a height of 30mm through regular mowing or strimming to discourage common reptiles and amphibians from returning.

6.3 ECOLOGICAL ENHANCEMENT

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted as follows:

- One Woodcrete general purpose bat boxes, suitable for crevice-dwelling species should be installed onto the proposed building. No lighting should be installed in the vicinity of the boxes. They should be at least 3m from the ground and face south or south-west.
- One Woodcrete cavity nesting bird boxes with 28mm or 32mm access holes. These should be positioned onto the new building where the access should face away from the prevailing wind.
- A large (2m x 2m) log pile will be positioned at the periphery of the site, to provide shelter for a range of wildlife including reptiles and hedgehogs.

7 SUMMARY

Planning permission will be sought for an agricultural building at Llywn Einion Road. Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

The plans for the site will result in the loss of an area of poor-quality neutral grassland, where part of the proposed agricultural building will be situated. The loss of this habitat is of limited ecological significance, as it has a low botanical diversity, however its loss will require mitigation in the form of enhancement of the surrounding grassland.

There were no signs of badger within the redline boundary or within the adjacent woodland. Therefore, no further survey work or mitigation is required in regard to this species.

There are no habitats within the site area that provide suitable roosting sites for bat species, therefore no further survey work is required. The adjacent woodland does provide a suitable habitat for foraging and commuting bats; therefore, a Wildlife Sensitive Lighting Scheme will be implemented to reduce the light disturbance to bats and other nocturnal species.

The proposals are unlikely to have an impact on breeding birds as there are no habitats within the site that provide suitable opportunities for nesting birds.

There are no extant ponds within 250m of the site, therefore, it is unlikely that GCN would be present on-site. In order to remove any residual risk, a set of General Avoidance Measures will be adopted.

The rough grassland and the adjacent woodland provide a suitable terrestrial habitat for reptile species. No evidence of reptiles was found at the time of the survey but works should proceed based on the likelihood of common reptiles being present locally. General avoidance measures will be implemented throughout the works on site.

The site does offer suitable opportunities for hedgehogs and there are numerous records of the species within 1km of the site. General avoidance measures will be adopted during all construction work on site.

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted.

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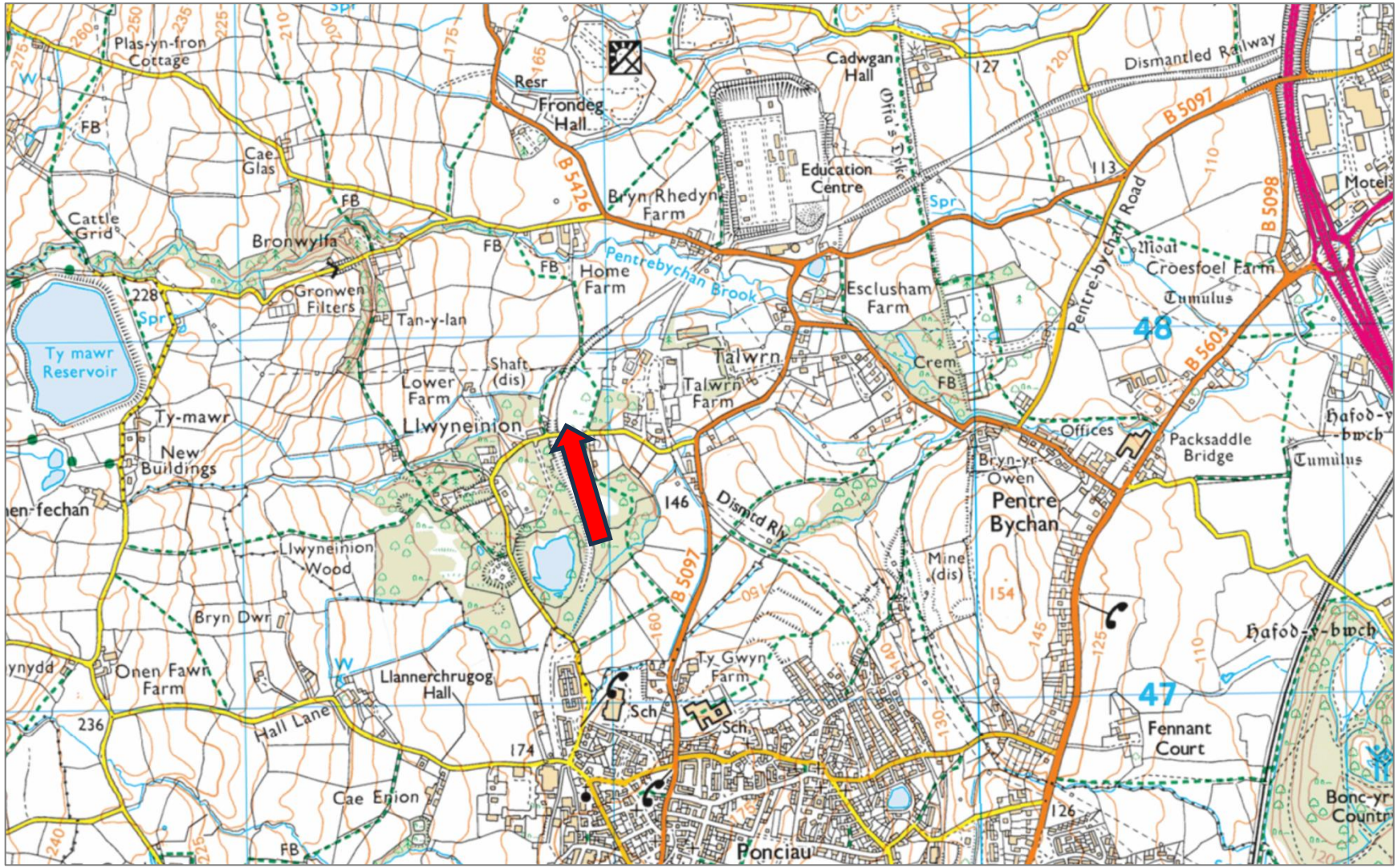
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FIGURE 1 LOCATION



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FIGURE 2 AERIAL PHOTOGRAPH



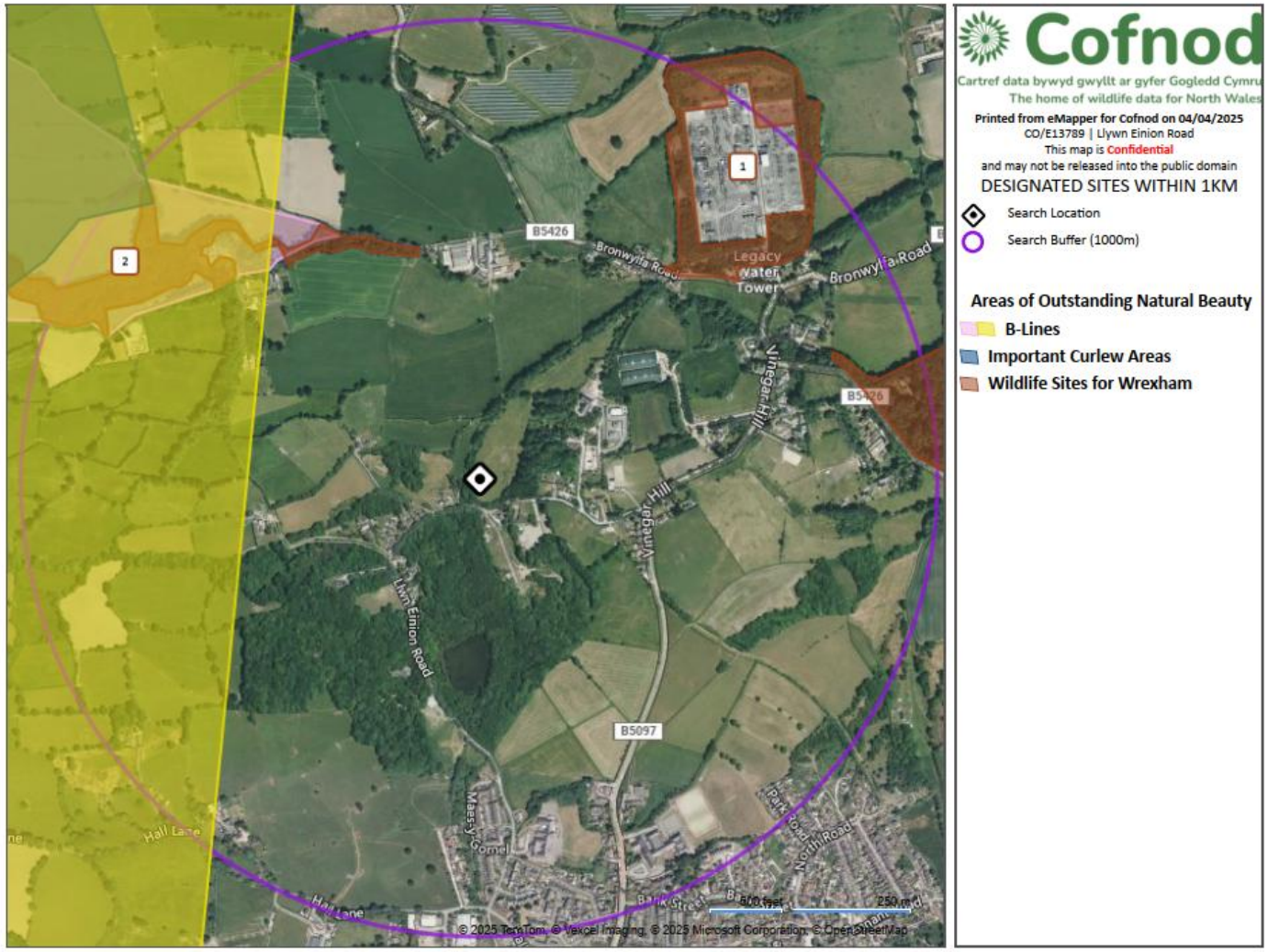
FIGURE 3 PROPOSED SITE PLAN (FOR ILLUSTRATIVE PURPOSE ONLY)



FIGURE 4 BASELINE HABITAT MAP

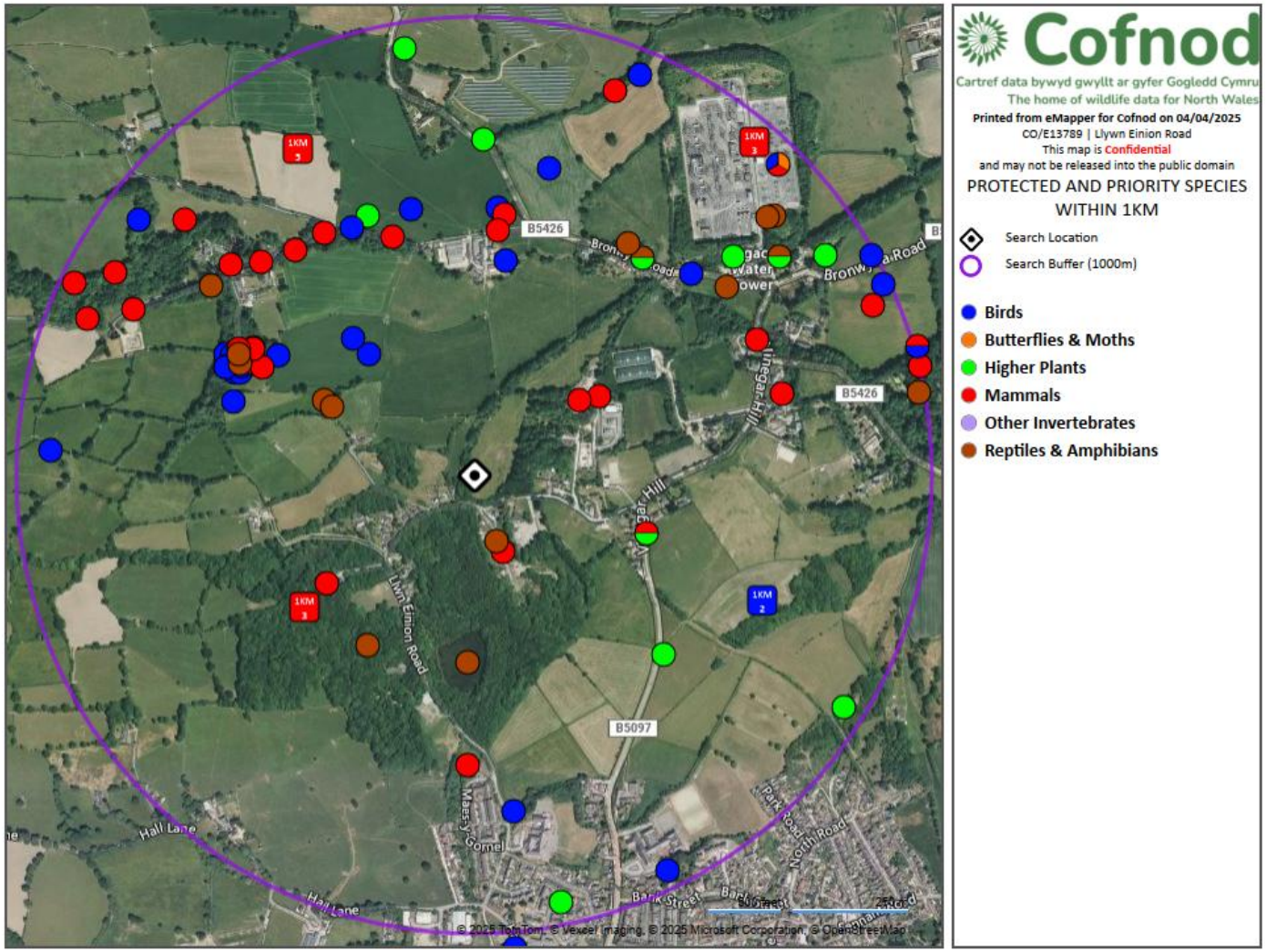


FIGURE 5 DESIGNATED SITES WITHIN 1KM



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FIGURE 6 PROTECTED AND PRIORITY SPECIES WITHIN 1KM



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APPENDIX 1 PHOTOGRAPHS



Exisisting access from Llywn Einion Road and crushed stone track.



Wooded embankment to the west of the site boundary.



Adjacent woodland and crushed stone yard area.



Grassland and yard area.



Crushed stone track.



Crushed stone yard and other neutral grassland.

	
Site area, showing the adajcent woodland.	Dingle within the woodland.
	
Other neutral grassland.	Crushed stone yard area and adjacent woodland.

APPENDIX 2- TABLE 1 PROTECTED AND PRIORITY SPECIES (DESK STUDY) WITHIN 1KM

Scientific Name	Common Name	Total Records	Lists
Amphibians			
Triturus cristatus	Great Crested Newt	20	BAP, Bern2, CHS2, HDir2, HDir4, S7, WCA5
Lissotriton vulgaris	Smooth Newt	20	Bern3, WCA5
Bufo	Common Toad	3	BAP, Bern3, S7, WCA5
Lissotriton helveticus	Palmate Newt	7	Bern3, WCA5
Rana temporaria	Common Frog	1	Bern3, HDir5, WCA5
Reptiles			
Natrix helvetica	Grass Snake	7	BAP, Bern3, S7, WCA5
Birds			
Vanellus	Lapwing	26	BAP, BDir2.2, Bonn2, RL-EN, RL-VU, S7, UKBR, WBR
Cuculus canorus	Cuckoo	13	BAP, RL-VU, S7, UKBR, WBR
Falco peregrinus	Peregrine	2	BDir1, Bern2, Bonn2, CITES-A, WCA1.1
Passer domesticus	House Sparrow	22	BAP, S7, UKBR, WBA
Tyto alba	Barn Owl	14	Bern2, CITES-A, WBA, WCA1.1, WCA9
Milvus	Red Kite	8	BDir1, Bonn2, CITES-A, WBA, WCA1.1, WCA9
Pyrrhula	Bullfinch	4	BAP, S7, UKBA, WBR
Prunella modularis	Dunnock	16	BAP, Bern2, S7, UKBA
Alauda arvensis	Skylark	2	BAP, BDir2.2, S7, UKBR, WBA
Chroicocephalus ridibundus	Black-headed Gull	5	BDir2.2, RL-VU, S7, UKBA, WBR
Larus argentatus	Herring Gull	14	BAP, BDir2.2, RL-DD, RL-EN, S7, UKBR, WBR
Passer montanus	Tree Sparrow	1	BAP, RL-VU, S7, UKBR, WBR
Turdus pilaris	Fieldfare	8	BDir2.2, RL-PX, UKBR, WBA, WCA1.1
Falco subbuteo	Hobby	9	Bern2, Bonn2, CITES-A, WBA, WCA1.1
Falco tinnunculus	Kestrel	4	Bern2, Bonn2, CITES-A, RL-VU, S7, UKBA, WBR
Lagopus	Red Grouse	1	BAP, S7, WBR

Lyrurus tetrix	Black Grouse	3	BAP, BDir2.2, RL-VU, S7, UKBR, WBR
Numenius arquata	Curlew	36	BAP, BDir2.2, Bonn2, RL-EN, S7, UKBR, WBR
Turdus philomelos	Song Thrush	10	BAP, BDir2.2, S7, UKBA, WBA
Ficedula hypoleuca	Pied Flycatcher	1	Bonn2, RL-VU, S7, UKBA, WBR
Linaria cannabina	Linnet	7	BAP, Bern2, RL-NT, S7, UKBR, WBR
Dryobates minor	Lesser Spotted Woodpecker	1	BAP, Bern2, RL-EN, S7, UKBR, WBR
Sturnus vulgaris	Starling	14	BAP, BDir2.2, RL-VU, S7, UKBR, WBR
Acanthis cabaret	Lesser Redpoll	1	BAP, S7, WBR
Alcedo atthis	Kingfisher	4	BDir1, Bern2, WBA, WCA1.1
Coccothraustes	Hawfinch	1	BAP, Bern2, RL-EN, S7, UKBR, WBA
Emberiza schoeniclus	Reed Bunting	1	BAP, Bern2, S7, UKBA, WBA
Falco columbarius	Merlin	1	BDir1, Bern2, Bonn2, CITES-A, RL-EN, UKBR, WBA, WCA1.1
Fringilla montifringilla	Brambling	2	WCA1.1
Numenius phaeopus	Whimbrel	2	BDir2.2, Bonn2, RL-CR, UKBR, WBA, WCA1.1
Pandion haliaetus	Osprey	2	BDir1, Bonn2, CITES-A, RL-NT, UKBA, WBA, WCA1.1
Pernis apivorus	Honey-buzzard	1	BDir1, Bonn2, CITES-A, RL-EN, UKBA, WBA, WCA1.1
Turdus iliacus	Redwing	9	BDir2.2, RL-CR, UKBA, WBA, WCA1.1
Phoenicurus ochruros	Black Redstart	1	Bern2, RL-EN, RL-NT, UKBA, WBA, WCA1.1
Coturnix	Quail	1	BDir2.2, UKBA, WBA, WCA1.1
Muscicapa striata	Spotted Flycatcher	1	BAP, Bern2, Bonn2, S7, UKBR, WBR
Tringa nebularia	Greenshank	1	BDir2.2, Bonn2, UKBA, WCA1.1
Hirundo rustica	Swallow	37	Bern2, WBA
Picus viridis	Green Woodpecker	5	Bern2, WBA
Apus	Swift	9	RL-EN, UKBR, WBA
Accipiter nisus	Sparrowhawk	4	Bonn2, CITES-A, RL-NT, UKBA
Strix aluco	Tawny Owl	3	Bern2, CITES-A, RL-NT, UKBA
Aegithalos caudatus	Long-tailed Tit	14	WBA
Columba palumbus	Woodpigeon	35	BDir2.1, UKBA
Streptopelia decaocto	Collared Dove	8	BDir2.2, GBNNSIP, RL-NT
Troglodytes	Wren	31	Bern2, UKBA

Anas platyrhynchos	Mallard	22	BDir2.1, Bonn2, RL-NT, UKBA, WBA
Aythya fuligula	Tufted Duck	5	BDir2.1, Bonn2, WBA
Bucephala clangula	Goldeneye	1	BDir2.2, Bonn2, RL-VU, UKBR, WCA1.2
Chloris	Greenfinch	15	Bern2, RL-EN, UKBR
Columba oenas	Stock Dove	5	BDir2.2, UKBA
Corvus frugilegus	Rook	6	BDir2.2, RL-NT, UKBA
Fulica atra	Coot	13	BDir2.1, RL-NT
Larus canus	Common Gull	4	BDir2.2, UKBA, WBR
Larus fuscus	Lesser Black-backed Gull	12	BDir2.2, RL-DD, UKBA, WBA
Larus marinus	Great Black-backed Gull	1	BDir2.2, RL-EN, UKBA, WBR
Phylloscopus trochilus	Willow Warbler	13	UKBA, WBR
Podiceps cristatus	Great Crested Grebe	18	RL-VU
Regulus	Goldcrest	17	Bern2, WBA
Riparia	Sand Martin	2	Bern2, WBA
Turdus viscivorus	Mistle Thrush	16	BDir2.2, RL-VU, UKBR
Anthus pratensis	Meadow Pipit	19	Bern2, UKBA, WBA
Delichon urbicum	House Martin	7	Bern2, RL-VU, UKBR, WBA
Motacilla cinerea	Grey Wagtail	21	Bern2, RL-NT, UKBA
Oenanthe	Wheatear	2	Bern2, UKBA, WBA
Periparus ater	Coal Tit	12	Bern2, WBA
Uria aalge	Common Guillemot	1	UKBA, WBA
Ardea cinerea	Grey Heron	8	RL-NT
Gallinula chloropus	Moorhen	15	BDir2.2, Bonn2, RL-VU, UKBA
Actitis hypoleucos	Common Sandpiper	7	Bonn2, RL-VU, UKBA, WBA
Anas crecca	Teal	1	BDir2.1, Bonn2, CITES-C, UKBA, WBA
Anser	Greylag Goose	25	BDir2.1, Bonn2, UKBA, WCA1.2
Calidris alpina	Dunlin	2	Bern2, Bonn2, RL-EN, RL-VU, UKBR, WBR
Curruca communis	Whitethroat	3	UKBA, WBA
Haematopus ostralegus	Oystercatcher	2	BDir2.2, UKBA, WBA
Phalacrocorax carbo	Cormorant	16	RL-NT, WBA
Phoenicurus	Redstart	8	Bern2, UKBA, WBA

Spatula clypeata	Shoveler	1	BDir2.1, Bonn2, CITES-C, UKBA, WBA
Tadorna	Shelduck	1	Bern2, Bonn2, RL-EN, UKBA, WBA
Scolopax rusticola	Woodcock	1	BDir2.1, Bonn2, RL-VU, UKBR, WBA
Tringa totanus	Redshank	1	BDir2.2, Bonn2, RL-NT, RL-VU, UKBA, WBA
Branta canadensis	Canada Goose	23	BDir2.1, Bonn2, GBNNSIP, INNS, INNS-W, WCA9
Terrestrial Mammal			
Nyctalus noctula	Noctule	7	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Pipistrellus	Common Pipistrelle	17	Bonn2, CHS2, HDir4, S7, WCA5
Pipistrellus pygmaeus	Soprano Pipistrelle	15	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Plecotus auritus	Brown Long-eared Bat	5	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Chiroptera	Bat	5	Bern2, Bonn2, CHS2, HDir4, WCA5
Myotis mystacinus/brandtii	Whiskered/Brandt's Bat	6	Bern2, Bonn2, CHS2, HDir4, RL-DD, WCA5
Pipistrellus	Pipistrelle Bat species	1	Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Myotis	Myotis Bat species	1	Bern2, Bonn2, CHS2, HDir4, WCA5
Erinaceus europaeus	Hedgehog	20	BAP, Bern3, RL-VU, S7, WRL-TM[VU]
Mustela erminea	Stoat	1	Bern3, Bern3-App3, WRL-TM[NT]
Lutra	Otter	2	BAP, Bern2, CHS2, CITES-A, HDir2, HDir4, S7, WCA5, WRL-TM[VU]
Myotis mystacinus	Whiskered Bat	1	Bern2, Bonn2, CHS2, HDir4, RL-DD, WCA5, WRL-TM[DD]
Lepus europaeus	Hare	3	BAP, S7
Meles	Badger	10	Bern3, PBA
Mustela putorius	Polecat	1	BAP, Bern3, CHS4, HDir5, S7
Neovison vison	American Mink	1	GBNNSIP, INNS, INNS-W, WCA9
Sciurus carolinensis	Grey Squirrel	1	GBNNSIP, INNS-IAS, INNS-W, WCA9
Neovison vison	American Mink	1	GBNNSIP, INNS, INNS-W, WCA9
Insect			
Agelastica alni	Alder Leaf Beetle	1	RDB-NR, RL-DD
Harmonia axyridis	Harlequin Ladybird	1	GBNNSIP, INNS
Lasiommata megera	Wall	3	BAP, RL-NT, S7

Coenonympha pamphilus	Small Heath	2	BAP, RL-NT, S7
Hipparchia semele	Grayling	2	BAP, RL-VU, S7
Plants			
Tsuga heterophylla	Western Hemlock-spruce	1	GBNNSIP, INNS-W
Polystichum setiferum	Soft Shield-fern	1	LI-VP-48
Ceterach officinarum	Rustyback	1	LI-VP-51[LS]
Buxus sempervirens	Box	1	RDB-NR, RL-DD
Sinapis arvensis	Charlock	1	GBNNSIP, WRL-VP[VU]
Stachys arvensis	Field Woundwort	2	GBNNSIP, LI-VP-48[LS], LI-VP-49[NLS], LI-VP-50[LNS], LI-VP-51[LR], RL-NT, WRL-VP[VU]
Meconopsis cambrica	Welsh Poppy	1	LI-VP-48[LS], LI-VP-49[LS], RDB-NS
Jasione montana	Sheep's-bit	1	LI-VP-51[LR], WRL-VP[NT]
Ribes alpinum	Mountain Currant	1	RDB-NS
Carex pendula	Pendulous Sedge	3	LI-VP-48
Lamiastrum galeobdolon subsp. montanum	-	1	LI-VP-48[LS], LI-VP-49[LS]
Salix cinerea subsp. oleifolia	Rusty Willow	3	LI-VP-52
Tanacetum parthenium	Feverfew	2	GBNNSIP, LI-VP-48
Viola odorata	Sweet Violet	1	LI-VP-48[LR]
Betula pendula x pubescens = B. x aurata	Hybrid Birch	1	LI-VP-51[LS]
Rumex crispus x obtusifolius = R. x pratensis		1	LI-VP-48[LS], LI-VP-49[LR]
Sagina apetala	Annual Pearlwort	1	LI-VP-51
Lathraea squamaria	Toothwort	1	LI-VP-48[LR], LI-VP-49[LR], LI-VP-51[LS]
Acer campestre	Field Maple	5	LI-VP-48[LS], LI-VP-49[LS]
Bromopsis ramosa	Hairy-brome	2	LI-VP-48[LS]
Cruciata laevipes	Crosswort	3	LI-VP-49[LS], LI-VP-52[LS]
Epilobium parviflorum	Hoary Willowherb	3	LI-VP-48
Juncus inflexus	Hard Rush	4	LI-VP-48[LR]
Viburnum opulus	Guelder-rose	2	LI-VP-48, LI-VP-52[LS]
Tragopogon pratensis	Goat's-beard	2	LI-VP-48[LS]
Fallopia convolvulus	Black-bindweed	1	GBNNSIP, LI-VP-48[LS]
Reseda luteola	Weld	2	GBNNSIP, LI-VP-48[LS]

Ranunculus lingua	Greater Spearwort	1	LI-VP-48[LR], LI-VP-50[LS], LI-VP-51[LS]
Potentilla anglica x reptans = P. x mixta	Hybrid Cinquefoil	1	LI-VP-49[LR], LI-VP-51
Clinopodium vulgare	Wild Basil	1	LI-VP-48[LS]
Tripleurospermum inodorum	Scentless Mayweed	1	GBNNSIP, LI-VP-48[LS]
Viola arvensis	Field Pansy	1	GBNNSIP, LI-VP-48[LS]
Geranium pusillum	Small-flowered Crane's-bill	1	LI-VP-48[LR], LI-VP-49[LS], LI-VP-52[LS]
Artemisia absinthium	Wormwood	1	GBNNSIP, LI-VP-48[LS], LI-VP-50[LNS]
Barbarea vulgaris	Winter-cress	1	LI-VP-48[LS]
Dipsacus fullonum	Wild Teasel	1	LI-VP-48[LR]
Euphorbia lathyris	Caper Spurge	1	CITES-B, GBNNSIP, LI-VP-49[LS]
Matricaria chamomilla	Scented Mayweed	1	GBNNSIP, LI-VP-48[LS]
Papaver dubium	Long Smooth-headed Poppy	1	GBNNSIP, LI-VP-52
Persicaria hydropiper	Water-pepper	1	LI-VP-51[LS]
Potamogeton berchtoldii	Small Pondweed	1	LI-VP-48[LS], LI-VP-49[LS], LI-VP-51[LS]
Sagina apetala subsp. apetala	-	1	LI-VP-51[LR]
Silene latifolia	White Campion	1	GBNNSIP, LI-VP-48[LS]
Carduus crispus	Welted Thistle	1	LI-VP-48[LR], LI-VP-52[LS]
Hypericum humifusum	Trailing St John's-wort	1	LI-VP-51[LR]
Prunus laurocerasus	Cherry Laurel	2	GBNNSIP, INNS, INNS-W
Cotoneaster simonsii	Himalayan Cotoneaster	2	GBNNSIP, INNS, INNS-W, WCA9
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	2	GBNNSIP, INNS, INNS-W, WCA9
Fallopia japonica	Japanese Knotweed	2	GBNNSIP, INNS, INNS-W, WCA9
Crassula helmsii	New Zealand Pigmyweed	1	GBNNSIP, INNS, INNS-W, WCA9
Rhododendron ponticum	-	1	GBNNSIP, INNS, INNS-W, WCA9
Prunus laurocerasus	Cherry Laurel	2	GBNNSIP, INNS, INNS-W
Cotoneaster simonsii	Himalayan Cotoneaster	2	GBNNSIP, INNS, INNS-W, WCA9
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	2	GBNNSIP, INNS, INNS-W, WCA9
Buddleja davidii	Butterfly-bush	3	GBNNSIP, INNS-W
Fallopia japonica	Japanese Knotweed	2	GBNNSIP, INNS, INNS-W, WCA9

Vinca major	Greater Periwinkle	1	GBNNSIP, INNS-W
Crassula helmsii	New Zealand Pigmyweed	1	GBNNSIP, INNS, INNS-W, WCA9
Rhododendron ponticum	-	1	GBNNSIP, INNS, INNS-W, WCA9

APPENDIX 3- TABLE 2 ABBREVIATIONS LIST

BDir1:	EU Birds Directive Annex 1 - Birds which are the subject of special conservation measures
BDir2.1:	EU Birds Directive Annex 2.1 - Birds which may potentially be hunted
BDir2.2:	EU Birds Directive Annex 2.2 - Birds which may potentially be hunted within certain member states
Bern2:	Bern Convention on the Conservation of European Wildlife and Natural Habitats, Appendix 2 - Strictly protected fauna species
Bern3:	Bern Convention on the Conservation of European Wildlife and Natural Habitats, Appendix 3 - Protected fauna species
Bern3-App3:	Bern Convention - Appendix 3
Bonn2:	Bonn Convention on the Conservation of Migratory Species of Wild Animals, Appendix 2 - Migratory Species to be the subject of agreements
CHS2:	The Conservation of Habitats and Species Regulations 2010, Schedule 2 - European Protected Species of Animals
CHS4:	The Conservation of Habitats and Species Regulations 2010, Schedule 4 - Animals which may not be captured or killed in certain ways

CITES-A:	Convention on International Trade in Endangered Species, Annex A - Species threatened with extinction
CITES-B:	Convention on International Trade in Endangered Species, Annex B - Species that may become extinct unless trade is closely controlled
CITES-C:	Convention on International Trade in Endangered Species, Annex C - Species subject to regulation
GBNNSIP:	Great Britain Non-native Species Inventory Portal Checklist of Non-native Species
HDir2:	Habitats Directive, Annex II - Species requiring designation of Special Areas of Conservation
HDir4:	Habitats Directive, Annex IV - Species in need of strict protection
HDir5:	Habitats Directive, Annex V - Species where population management is decided by individual countries
INNS:	Invasive Non-native Species
INNS-IAS:	The Invasive Alien Species (Enforcement and Permitting) Order 2019: Species of Special Concern
INNS-W:	Invasive Non-native Species (INNS) of Interest to Wales

LI-VP-48[LR]:	Rare Plant Register for Vice-County 48: Merionethshire (Locally Rare)
LI-VP-48[LS]:	Rare Plant Register for Vice-County 48: Merionethshire (Locally Scarce)
LI-VP-49[LR]:	Rare Plant Register for Vice-County 49: Caernarvonshire (Locally Rare)
LI-VP-49[LS]:	Rare Plant Register for Vice-County 49: Caernarvonshire (Locally Scarce)
LI-VP-49[NLS]:	Rare Plant Register for Vice-County 49: Caernarvonshire (Not Locally Scarce)
LI-VP-50[LNS]:	Rare Plant Register for Vice-County 50: Denbighshire (Locally near scarce)
LI-VP-50[LS]:	Rare Plant Register for Vice-County 50: Denbighshire (Locally scarce)
LI-VP-51[LR]:	Rare Plant Register for Vice-County 51: Flintshire (Locally rare)
LI-VP-51[LS]:	Rare Plant Register for Vice-County 51: Flintshire (Locally scarce)
LI-VP-52[LS]:	Rare Plant Register for Vice-County 52: Anglesey (Locally Scarce)
PBA:	Protection of Badgers Act 1992
RDB-NR:	Red Data Book listing (not based on IUCN guidelines) - Nationally Rare
RDB-NS:	Red Data Book listing (not based on IUCN guidelines) - Nationally Scarce
RL-CR:	IUCN Red List of Threatened Species - Critically Endangered
RL-DD:	IUCN Red List of Threatened Species - Data Deficient
RL-EN:	IUCN Red List of Threatened Species - Endangered
RL-NT:	IUCN Red List of Threatened Species - Near Threatened
RL-PX:	IUCN Red List of Threatened Species - Possibly Extinct
RL-VU:	IUCN Red List of Threatened Species - Vulnerable
S7:	Environment (Wales) Act 2016 (Section 7)
UKBA:	RSPB/BTO Birds of Conservation Concern - Amber list (not based on IUCN criteria)
UKBR:	RSPB/BTO Birds of Conservation Concern - Red list (not based on IUCN criteria)
WBA:	RSPB/BTO Birds of Conservation Concern in Wales - Amber list (not based on IUCN criteria)
WBR:	RSPB/BTO Birds of Conservation Concern in Wales - Red list (not based on IUCN criteria)
WCA1.1:	Wildlife & Countryside Act 1981 Schedule 1.1 - Birds which are protected at all times
WCA1.2:	Wildlife & Countryside Act 1981 Schedule 1.2 - Birds which are protected during the close season
WCA5:	Wildlife & Countryside Act 1981 Schedule 5 - Animals which are protected
WCA9:	Wildlife & Countryside Act 1981 Schedule 9 - Animals and plants which may not be released/planted or allowed to escape/grow in the wild
WRL-TM[DD]:	IUCN compliant Red List for Britain's Terrestrial Mammals (Data Deficient)
WRL-TM[NT]:	IUCN compliant Red List for Britain's Terrestrial Mammals (Near Threatened)
WRL-TM[VU]:	IUCN compliant Red List for Britain's Terrestrial Mammals (Vulnerable)
WRL-VP[NT]:	Vascular Plant Red Data List for Wales (Near Threatened)
WRL-VP[VU]:	Vascular Plant Red Data List for Wales (Vulnerable)