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**Preliminary Ecological Assessment
Land at Cae Stanley
Bontnewydd, Caernarfon**

Proposed Residential Development

14th February 2023 (v2)



Report by: Ben Box QCIEEM

Client: Kingscrown Land & Commercial Ltd, Suites 7-10, Prudential Buildings, 61 St Peter's Gate, Stockport, SK1 1DH

**Planning
Authority:** Cyngor Gwynedd

**Grid
Reference:** SH 48398 60164 (approximate site centre)

CONTENTS	Page No
1. Summary	3
2. Introduction	4
3. Methodology	5
4. Survey Limitations	6
5. Results	6
6. Habitat Evaluation & Impact Assessment	13
7. Species Evaluation & Impact Assessment	14
8. Protected Sites Impact Assessment	16
9. Mitigation Measures	17
10. Biodiversity Enhancement	20
11. References	23
12. Legal Implications	23
13. Appendices	24
13.1 Site Photographic Record	
13.2 Phase 1 Habitat Map	
13.2 Review Table	

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1. Summary

A preliminary ecological assessment, (PEA) was carried out by Cambrian Ecology Ltd on land at Cae Stanley on the edge of Bontnewydd, Caernarfon. The site is proposed for residential development although details had not yet been finalised at the time of the survey.

The survey revealed that the only habitats present on the site are improved grassland and scattered scrub. The site is encompassed on three sides by a post and wire fence and a wooded riparian corridor lies to the immediate north of the site in the form of the Afon Beuno. No 'invasive non-native species' (INNS), other biosecurity issues or evidence of any protected species were recorded during the survey.

The biological records search, which was carried out with the Local Records Centre, (LRC) 'Cofnod' revealed that there are a number of statutory and non-statutory designated sites within the 2km and 10km search radius, none of which will be impacted by the proposed development as long as some basic 'Reasonable Avoidance Measures' (RAMS) are adhered to.

The data search also revealed records of multiple bat species as well as records of other protected species including badgers; (*Meles meles*), hedgehogs; (*Erinaceus europaeus*), otters; (*Lutra lutra*), pine martens; (*Martes martes*) and water voles; (*Arvicola amphibius*). Recommendations are provided regarding new external illumination in order to prevent a negative impact on bats.

No evidence of the presence of any protected species was recorded during the survey. However, it was deemed that there is the potential for badgers and hedgehogs to be accessing the site to forage and for otters to be crossing over the site when moving between water courses. Additionally, there is high potential for bats to be using boundary features to commute and forage. As such, a precautionary approach has been recommended to avoid any negative impact on these taxa, see Section 9. Recommendations are also provided regarding the potential for nesting birds to be present within the trees adjacent to the site.

Under Chapter 6 of Planning Policy Wales 11, Planning Authorities must seek to maintain and enhance Biodiversity in the exercise of their functions. In this case Biodiversity enhancements will be achieved through native tree and wildflower planting and the inclusion of 10 bat tubes integral to the fabric of the new properties.

Key Messages:

1. The only habitat expected to be lost consists of poor-quality improved grassland and scattered scrub, it is considered unlikely that the loss of any of this habitat will need to be mitigated for
2. Recommendations are provided for any exterior lighting in order to prevent a negative impact on bat species through habitat fragmentation, see Section 9.2
3. Some reasonable avoidance measures (RAMS) are provided to avoid any negative impact on badgers, hedgehogs, otters and nesting birds, see Section 9.2.
4. Biodiversity enhancements will be achieved through native tree and wildflower planting and the inclusion of 10 bat tubes, see Section 10

2. Introduction

Cambrian Ecology Ltd was commissioned by Daniel Russell on behalf of the Kingscrown Group to carry out a PEA on land at Cae Stanley on the edge of Bontnewydd, Caernarfon. The site is proposed for residential development although details had not yet been finalised at the time of the survey.

The relevant Planning Authority is Cyngor Gwynedd, which requires an ecological survey report to be submitted as an integral part of the planning application.

The proposed development site is located on the edge of Bontnewydd at Grid Reference SH 48398 60164 (approximate site centre).

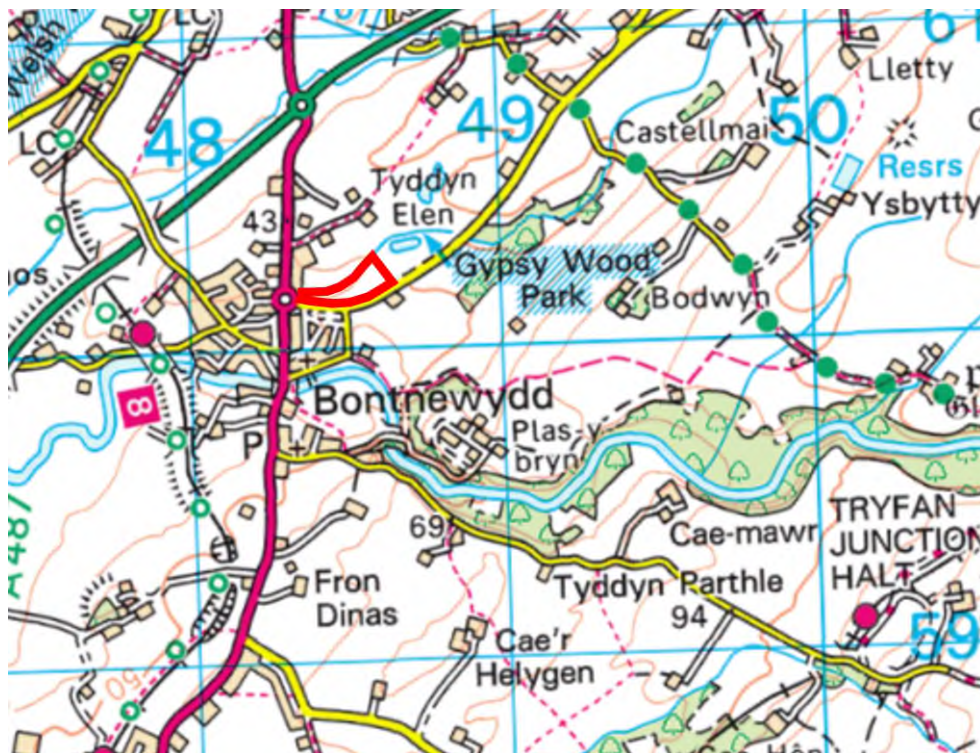


Fig.1: Site Location (Red)

3. Methodologies

The survey was carried out on 5th December 2022 by ecologist Chris Hall (Bat Licence No S085724-1) and assistant ecologist Ben Box. Chris has been working as an independent ecologist for 17 years and has held a bat license from the Countryside Council for Wales and Natural Resources Wales (CCW/NRW) for 26 years. He is an associate member of Chartered Institute of Ecology & Environmental Management, (CIEEM). Ben is a qualifying member of the Chartered Institute of Ecology & Environmental Management, (CIEEM). Ben has been employed by CEL since early 2022.

3.1 Habitats

The survey took the form of an extended Phase I survey and identified baseline ecological conditions, as well as any important or notable habitats. All habitats within the proposed development site were classified, species lists were drawn up for each habitat type identified and the habitat condition was assessed. In the context of this report, *important or notable habitats* are considered to be those which are of a sustainable size and which meet any of the following criteria:

- Habitats which have a high intrinsic ecological value, i.e. they support a diverse range of vascular plant and/or faunal species;
- Mature or semi-natural habitats in built-up areas;
- Environment Wales Act priority habitats;
- Habitats considered as having a significant extent and/or ecological interest;
- Invasive Non-Native Species, (INNS)

All habitats considered as having the potential to support rare, protected or otherwise notable species of flora and fauna were noted, as were any direct signs of these species. Where possible, habitats were cross-referenced to any relevant UK/Wales priority habitats.

3.2 Protected Species

The site was assessed on its potential to support any protected or important species. During this survey, a search was made for field signs of protected or notable species and assessments made of the potential of habitats to support these species. In the context of this report important or notable species are considered to be those that meet any of the following criteria:

- Species protected by British or international law;
- Environment Wales Act priority species;
- Nationally rare or scarce species;
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber lists)

The site was specifically searched for signs of badgers, such as hair on boundary features, snuffle holes from foraging within the amenity grassland and any latrines. The surrounding habitat within an approximate radius of 30m was also searched for these signs. The status and activity of any recorded sett was to be determined in accordance with the standard published descriptions and criteria, (Cresswell, Harris and Jeffries, 1989).

With regards to bats, reptiles and nesting birds, the habitat features on the site were assessed on their potential to support these species. Trees present on the site had dropped their leaves and were inspected from the ground using binoculars in order to assess their potential to support roosting bats.

3.3 Desk Study

The desktop study aims to collate existing information about priority species, habitats and designated sites within 2km of the survey area. This information has relevance to the likelihood of priority species being present within the survey area, as well as giving context to any species and habitat records from the actual site.

A biological records search was carried out with Cofnod for all priority species, habitats and designated sites as recommended in the guidance from CIEEM. This enables the proposed development site to be assessed in a wider context and a potential wider 'zone of influence' of the development to be taken into account. The search parameters were a 10km radius for any protected sites with specific relation to bats and a 2km radius for all other protected sites and species.

4 **Survey Limitations**

Field signs for protected and important species are often difficult to find or absent from a site. For this reason, the site and its habitats are assessed on their potential to support these species.

Although this survey was conducted outside of the normally recognised botanical survey season, due to the heavily improved condition of the grassland habitat, dominated by perennial ryegrass, it is considered that the timing of this survey will not have unduly influenced the results.

5 **Results**

5.1 Habitat

The proposed development site is dominated by improved grassland with occasional small areas of scattered bramble and blackthorn scrub. The sites boundaries are marked by fences with the exception of the eastern boundary which was unmarked. There is an area of mature deciduous woodland and running water to the immediate north of the site in the form of the Afon Beuno riparian corridor. This habitat is outside of the proposed development boundary but may still need to be considered in any future plans.

5.1.1 Fences

All boundaries with the exception of the eastern boundary are marked by wire and post fences. The fences offer no valuable habitat for any taxa and have no significant specific vegetation associated with them.

5.1.2 Improved Grassland

This is the dominant habitat on the site; this habitat is of poor quality with the vegetation cropped very low as a result of intensive management and sheep grazing. The habitat showed an impoverished species assemblage indicative of high levels of nitrogen enrichment combined with heavy grazing.

The dominant grass species present was perennial ryegrass; (*Lolium perenne*) with abundant stands of common bent; (*Agrostis capillaris*).

White clover; (*Trifolium repens*) is present as a frequent feature with occasional stands of creeping buttercup; (*Ranunculus repens*), broadleaved dock; (*Rumex obtusifolius*), black knapweed; (*Centaurea nigra*), ribwort plantain; (*Plantago lanceolata*), common sorrel; (*Rumex acetosa*), dandelion; (*Taraxacum officinale*) and yarrow; (*Achillea millefolium*)

5.1.3 Mature Deciduous Woodland and Running Water

Directly to the north of the proposed development site is the Afon Beuno riparian corridor. This habitat is entirely outside of the proposed development site but is present up to the sites northern and western boundaries. It is mentioned here due to the potential of any works on the site to impact this habitat.

Due to a lack of access, the vegetation growing within the stream of running water was not identifiable but at the points where the banks of the river could be clearly viewed, the vegetation present in the area of mature deciduous woodland was present all the way to the banks of the river.

The under storey was dominated by bramble; (*Rubus fruticosus*) and ivy; (*Hedera helix*) with occasional stands of blackthorn; (*Prunus spinosa*).

Alder; (*Alnus glutinosa*) is present as an abundant feature with frequent stands of oak; (*Quercus robur*) and occasional stands of sycamore; (*Acer pseudoplatanus*), hazel; (*Corylus avellana*), holly; (*Ilex aquifolium*) and ash; (*Fraxinus excelsior*). Some of the ash trees showed signs of dieback.

5.1.4 Scattered Scrub

This habitat was present in two different forms in two separate areas. Along part of the northern boundary of site, scattered scrub was present in the form of occasional short stands of blackthorn which likely originate from the blackthorn present within the deciduous woodland habitat.

Along part of the sites southern boundary, scattered scrub is present in the form of a small patch of very sparse bramble scrub along part of the fence line.



Fig.2: The immediate habitats surrounding the proposed development site (red)



Fig.3: The habitats present in the wider landscape surrounding the proposed development site (red)

The surrounding habitat is dominated by arable fields and infrastructure associated with Bontnewydd. The treeline and riparian corridor along the northern boundary of the proposed development site offers excellent connectivity to a complex network of hedges and treelines which,

in turn, offer excellent connectivity to habitats in the wider landscape, including some small areas of woodland.

5.2 Protected Species

The protected species survey was negative, with no field signs or direct sightings of any protected species recorded.

5.2.1 Badgers

There were no signs of badgers and/or badger setts recorded within the site boundaries. There was no evidence of badgers accessing the site through the boundary fences and no evidence of foraging. The high density of earthworm biomass in improved grasslands does however mean that these are often popular foraging sites for badgers and as such is possible that badgers may be accessing this site at night.

5.2.2 Bats

No possible roosting features on trees such as rot holes were recorded during the survey, however, some of the larger trees supported a significant growth of ivy which may have obscured potential roosting features.

The surrounding area contains optimal foraging habitat for bats and the treeline and riparian corridor present at the north of the site provides excellent habitat connectivity within the surrounding area. As such is it deemed very likely that this treeline supports commuting bats at the appropriate time of the year.

5.2.3 Hedgehogs

No evidence of hedgehog presence was recorded during the site survey; however, the improved grassland habitat and adjacent treeline provides appropriate foraging habitat for hedgehogs and as such it is not unlikely that hedgehogs are accessing the site at night. The scattered scrub present does not have the potential to support hedgehogs during daytime concealment as the growth is too sparse.

5.2.4 Nesting Birds

There is the potential for nesting birds to be present within the treeline on the site's northern boundary at the appropriate time of the year.

5.2.5 Otters

The proximal Afon Beuno and the nearby Afon Gwyrfai are both highly likely to support otters at some point along their courses. As such, it is deemed possible that otters may cross the proposed development site when moving between water courses.

5.2.6 Water Voles

The data search revealed one record of a water vole from 1988. This record was from over 650m away and is associated with the Afon Gwyrfa. While it is possible that the Afon Beuno does still support water voles, it is deemed highly unlikely that this species will access the proposed development site. The Afon Beuno at this location was assessed as being unsuitable for this species due to the combination of heavy shading, rapid flow and rocky substrate.

5.3 Desk Study

5.3.1 Protected Species

The Cofnod search revealed 83 bat records within the 2km search area (see table 1). These records include roosts of a variety of species including brown long-eared bats; (*Plecotus auritus*), lesser horseshoe bats; (*Rhinolophus hipposideros*) and pipistrelle bat species; (*Pipistrellus spp.*).

Also seen in table 1 are the records returned of various other mammal species deemed potentially relevant to this development i.e. hedgehogs, badgers, otters, pine martens and water voles.

Table 1- a summary of the bat and other mammal records returned in the data search

Common Name	Zoological Name	No of Records
Badger	<i>Meles meles</i>	13
Bat (species unknown)	<i>Chiroptera</i>	14
Brown long eared bat	<i>Plecotus auritus</i>	12
Common pipistrelle bat	<i>Pipistrellus pipistrellus</i>	5
Hedgehog	<i>Erinaceus europaeus</i>	14
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	13
Myotis bat (species unknown)	<i>Myotis spp.</i>	7
Natterer's bat	<i>Myotis nattereri</i>	3
Noctule bat	<i>Nyctalus noctula</i>	6
Otter	<i>Lutra lutra</i>	17
Pine marten	<i>Martes martes</i>	1
Pipistrelle bat (species unknown)	<i>Pipistrellus spp.</i>	10
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	11
Water vole	<i>Arvicola amphibius</i>	1
Whiskered/Brandt's bat	<i>Myotis mystacinus/brandtii</i>	2

5.3.2 Protected Sites

The search also revealed that the site lies within 2km of two relevant statutory protected sites, the details of these sites are as follows;

- Afon Seiont Site of Special Scientific Interest (SSSI), 1485m away, designated for its intertidal and river cliff habitats.
- Afon Gwyrfaï a Llyn Cwellyn Special Area of Conservation (SAC) and SSSI, 246m away the SSSI boundaries extends slightly further than those of the SAC which only covers the river itself, these sites are designated for their geological and biological features including aquatic plant assemblages as well as otter and Atlantic salmon populations; (*Salmo salar*).

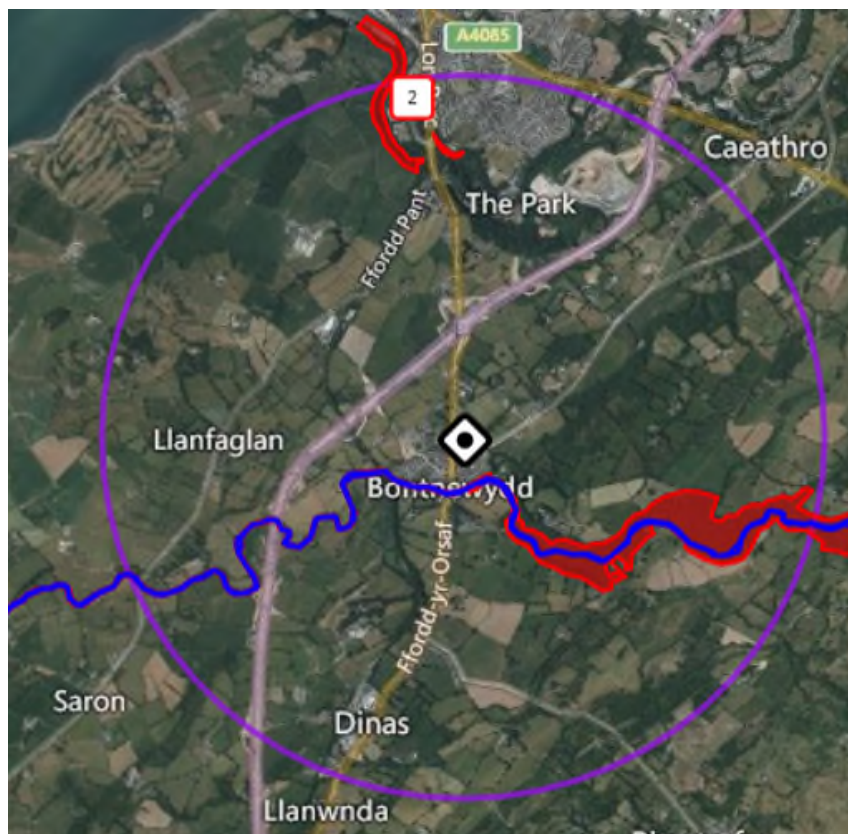


Fig.4: Location of the Afon Seiont (2), and the Afon Gwyrfaï a Llyn Cwellyn SAC (blue) and SSSI (red east) in relation to the survey site

The survey site also sits within 10km of one additional statutory protected site with specific relevance to bats. This is in the form of the Glynllifon SSSI and SAC which is designated for its population of lesser horseshoe bats.



Fig.5: Location of the Glynllifon SSSI and SAC (1) within the wider 10km search radius

Additionally, the site lies within 2km of 18 Gwynedd Wildlife and Candidate Wildlife Sites. The closest of the Wildlife sites is the Ty'n-y-Coed Wildlife Site which sits 281m from the survey site and is designated for its woodland and marshy grassland habitats.



Fig.6: Location of the Gwynedd Wildlife and Candidate Wildlife sites within 2km of the survey site including the Ty'n-y-Coed Wildlife Site a short distance to the east of the proposed development site

6 Habitat Evaluation & Impact Assessment

The proposed development site was originally listed as improved grassland in the original phase 1 map carried out by CCW (now NRW).



Fig.7: The original phase 1 map carried out by CCW showing the historic status of the proposed development site as improved grassland.

6.1 Fences

These features have no significant vegetation associated with them and provide no valuable habitat. As such, it is deemed that the loss of any or all of these features will have no negative ecological impact.

6.2 Improved Grassland

It is likely that much of this habitat will be lost to make way for any development on the site. However, this habitat shows an impoverished species assemblage and is very common in the surrounding landscape. As such, it is deemed that the loss of a large area of this habitat will have no significant negative impact on biodiversity at any level.

Additionally, future recommendations regarding Biodiversity enhancement may have a significant positive affect on Biodiversity if part of this habitat is enhanced with new planting.

6.3 Mature Deciduous Woodland and Running Water

This habitat lies beyond the boundary of the proposed development site and as such, it is deemed that there will be no reduction in the size or composition of this habitat.

However, ground works in close proximity to the treeline may cause fatal damage to the root plates of trees, thus killing some individual mature trees on the edge of this habitat. Additionally, some ash trees infected with dieback may require removal for the sake of health and safety. The loss of any trees within this habitat will likely have a negative impact on Biodiversity at a local level as mature deciduous trees often support a vast array of species including invertebrates, nesting birds and roosting bats. Recommendations are provided to ensure that no accidental damage to trees occurs and that any loss of diseased tree is mitigated for, see Section 9.1.2.

Furthermore, a pollution incident during the development of the site would likely find its way to the nearby Afon Beuno, thus extending such an incidents zone of influence by a significant degree. Depending on the scale of the incident, this could have a significant negative impact on biodiversity as a regional level, given the importance of the proximal water courses to biodiversity in the wider area. Recommendations are provided to ensure that no such pollution incident occurs, see section 9.3.

6.4 Scattered Scrub

Both areas of scattered scrub are very sparse and offer no dense ground vegetation. Additionally, the species present are very common within the surrounding and wider habitats. As such, it is deemed that the loss of any or all of this habitat type will have no negative impact on biodiversity at any level.

7 **Species Evaluation & Impact Assessment**

7.1 Badgers

No signs of badgers were recorded in the survey, but the data search returned 13 records of badgers within the 2km search radius.

Improved grassland habitat is considered optimal for badger foraging. The use of this land by foraging badgers can therefore not be ruled out. Improved grassland is a very prevalent habitat in the surrounding area and as such it is deemed that there will be no negative impact to badgers through loss of foraging habitat.

The remaining risk to badgers comes from entrapment in excavations and pipes left open overnight. This could result in harm being done to badgers at a local level. To prevent this, some precautionary measures have been recommended in Section 9.2.

7.2 Bats

While no potential roosting features were recorded in the trees to the immediate north of the site, the presence of dense ivy growths on some trees may have obscured the view of some potential roosting features such as rot holes. The accidental killing of any trees or the removal of infected ash trees

which may contain concealed bat roosting features could have a negative impact on tree-roosting bat species at a local level.

From the data search, bats are known to forage and roost in the surrounding area and so habitat connectivity is important to ensure continued use of this area by bats. Habitat fragmentation can have a negative impact on bats, particularly species which are heavily reliant on linear landscape features. From the results of the data search, some of these species are known to be present in the area including brown long-eared and lesser horseshoe bats. Key flight paths identified in studies, (BCT 2018) include hedgerows, woodland edges and river corridors. Any interruption/severing of flight paths, either physical or due to inappropriate lighting, can not only result in the bats being unable to access foraging areas but also cause the abandonment of roosts as a result. The impact is primarily on the slower flying *Rhinolophus*, as well as *Myotis* and *Plecotus* species. Even species such as pipistrelles can be inhibited from flying across very open, illuminated areas.

All the above could have a negative impact on bat species at a local level, which could extend to a regional level if any maternity roosts are impacted. Due to the mobility of the bat species, any negative impact can extend beyond the application boundary, extending the 'zone of influence' of a development to a much wider area.

Additionally, some species such as pipistrelles and noctule bats are known to be attracted to the accumulation of invertebrates often present around certain types of lighting, intensive foraging by these species can result in the surrounding area becoming 'prey depleted' thus putting more light sensitive species at a competitive disadvantage.

Provided the recommendations provided regarding lighting are adhered to, any negative impacts will be avoided, see Section 9.2.

7.3 Hedgehogs

It is possible that hedgehogs are accessing the site nocturnally to forage. The surrounding landscape contains a large amount of improved grassland in the form of grazing farmland. As such, it is deemed that there will be no negative affect on hedgehogs as a result of habitat loss.

Similarly to badgers, hedgehogs are also at risk of suffering harm or death as a result of entrapment in open excavations and pipes, this would have a negative effect on this species at a local level.

An additional risk to hedgehogs comes in the form of habitat fragmentation. Domestic gardens are often popular foraging sites for hedgehogs and the erection of fencing can prevent hedgehogs from being able to access foraging grounds within or beyond the gardens of any proposed development. This could have a significant negative impact on hedgehogs at a local level. However, the nature of the proposed development is not yet known.

Any negative impact on hedgehogs can be avoided provided that mitigation measures laid out in section 9.2 are adhered to.

7.4 Nesting Birds

It is likely that nesting birds will be present in the treeline and woodland at the appropriate times of the year.

If some ash trees need to be removed, the loss of these trees will result in an overall reduction in bird nesting opportunities. Additionally, the insensitive timing of tree removal could cause the disruption or death of nesting birds.

Any disturbance resulting in the failure of the brood would have a negative impact on nesting birds at a local level. All birds, with the exception of some 'pest species' which can be controlled under licence, are protected while nesting.

Some recommendations are provided to avoid any disturbance during the nesting season.

7.5 Otters

Similarly to badgers and hedgehogs, the main risk to otters crossing the site comes from entrapment in open excavations and pipes. This could result in the injury or death of individuals which would have a negative effect on otters at a local level. Recommendations are provided in section 9.2 to ensure this doesn't happen

Additionally, a potential pollution incident could result in a significant reduction in prey biomass within the Afon Beuno and the Afon Gwyrfai. This would likely have a significant negative affect on otters at a regional level. Recommendation are provided to ensure that no such pollution incident occurs, see section 9.3.

7.6 Pine Martens and Water Voles

The records of both of these species that were returned in the data search were historic. Due to this and the lack of appropriate habitat on the proposed development site, it is deemed that there is no potential for any proposed development to have a negative impact on either of these species at any level.

8 Protected Sites Impact Assessment

Due to the lack of any significant loss of habitat, it is deemed that any potential works on the proposed development site will have no negative impact on any of the Gwynedd Wildlife Sites, Candidate Wildlife Sites or the Afon Seiont.

However, any pollution incident on the site could have a significant negative impact on the Afon Gwyrfai a Llyn Cwellyn SAC and SSSI and any other protected sites connected to the Afon Gwyrfai in the wider area. Recommendations are provided in section 9.3 to ensure that no such incident occurs.

9 Mitigation Measures

9.1 Habitats

9.1.1 Improved grassland, Scattered Scrub and fences

It is considered that any loss of these habitats will have no negative impact on Biodiversity at level and as such, no mitigation measures are required.

9.1.2 Mature Deciduous Woodland and Running Water

In order to prevent the accidental damaging of root plates and thus the killing or damaging of trees in this habitat which lies outside of the proposed development boundary, it is recommended that a full arboriculture survey is carried out. This survey will provide exclusion zones for any ground works in order to prevent damage to any root plates.

It is also recommended that if any trees are required to be removed on health and safety grounds due to disease, these must be replaced with an equivalent number of trees. This will ensure that habitat connectivity along the riparian corridor is maintained.

With regards to the proximal Afon Beuno, the recommendations provided in section 9.3 to ensure no pollution incident occurs on the site will protect this habitat.

9.2 Protected Species

9.2.1 Badgers

There will be no negative impact on badgers as a result of sett loss, disturbance or habitat loss.

Development sites are however hazardous places for commuting and foraging badgers with the potential for animals to become trapped in open excavations for footings etc, and on larger development such as this, exposed pipe systems such as storm drains, sewage pipes etc can potentially lead to the entrapment of animals. The simple precautionary measures below have therefore been recommended.

- Escape ramps must be fitted to any excavations left open overnight to allow animals to escape.
- These excavations must be checked for the presence of animals prior to work commencing each morning.
- All open pipes must be securely capped at the end of each day.
- Site hygiene with regards to food waste must be enforced to reduce the chances of animal being tempted to stray onto the construction site overnight.

9.2.2 Bats

Potential Roost Loss

If any trees are to be removed such as ash trees infected with dieback, the trees must first be thoroughly inspected by an appropriately experienced ecologist to ensure that they do not contain any potential bat roosting features. If this is not possible then the removal of these trees must be carried out under the supervision of a licensed bat worker who can examine any potential roosting features with an endoscope prior to removal. If potential, but unoccupied roosting features are identified then it may be necessary to provide alternative roosting features such as bat boxes on trees elsewhere on the site.

New Exterior Lighting

Provided that the measures detailed below with regards to any exterior lighting are adhered to, there will be no negative impact on the movements of bats.

- There must be no exterior lighting directed towards the treeline along the northern boundary of the site. The overall aim of the lighting plan must be to ensure that there is no illumination in excess of 0.5 Lux within 1m of this boundary feature
- All exterior lighting will be 'low level' and will be movement activated.
- The illumination used will be 'Light Emitting Diodes' (LEDs).
- The illumination will be directional and downward facing to avoid illumination of the wider area. This is easily achieved when using LEDs.
- There must be no upward illumination in any direction where it could inhibit bat movements.
- All luminaires will lack any UV component.
- Luminaires with a 'warm white' spectrum should be used, (ideally <2700 Kelvin) to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the light component most disturbing to bats.
- The location of exterior lights (if any) must be clearly shown on the architect's drawings submitted with the planning application.

9.2.3 Hedgehogs

There will be no negative impact on hedgehogs as a result of disturbance or habitat loss. The recommendations provided above regarding badgers will prevent the risk of entrapment for hedgehogs.

In relation to habitat fragmentation, it may be necessary to add 'hedgehog corridors' to any fencing that is erected on the site to ensure that all fencing is 'hedgehog permeable'. However, the nature of the proposed development is not yet known and so mitigation measures regarding habitat connectivity for hedgehogs will need to be confirmed after development plans have been finalized.

9.2.4 Nesting Birds

Any tree removal should be undertaken outside the bird nesting season, 1st March – 31st August to avoid potential disturbance to nesting birds. If this is not possible due to time constraints, a survey for nesting birds must be undertaken by a suitably experienced ecologist of the trees to be removed and all trees within a 5m radius of the trees to be removed prior to works commencing. If any active nests are found to be present, work may need to be delayed until such time as the young have fledged.

To mitigate for the loss of nesting opportunities, any trees removed must be replaced either in the same location or elsewhere on the site. The following tree species are recommended:

- Rowan; (*Sorbus aucuparia*)
- Cherry; (*Prunus avium*)
- Bird cherry; (*Prunus padus*)
- Cherry plum; (*Prunus cerasifera*) and
- Crab apple; (*Malus sylvestris*)

These species are of great benefit to native birds, invertebrates and small mammals due to the fruit and nectar they produce. Although these trees provide nesting opportunities for native birds, they are also unlikely to be required to be removed in the future due to their limited heights.

Establishing the New Planting

All plants must be securely protected from any livestock or rabbits.

Any plant casualties within the first 5 years must be replaced.

To ensure that the new planting does not have to compete with other vigorous plant species, ground preparation must include the eradication of deep-rooted perennial weeds.

It is recommended that small, bare rooted plants are used as these become established more easily.

Bare root planting must take place in autumn/winter when the plants have dropped their leaves.

Watering during dry weather in the first 12 months is recommended as this can significantly reduce the number of casualties.

9.2.5 Otters

The recommendations provided for badgers will also protect otter from the risk of entrapment when crossing the site.

Regarding a potential loss of prey biomass as a result of a pollution incident, recommendations are provided in section 9.3.

9.2.6 Pine Martens and Water Voles

Due to the lack of potential negative impact on these species, no mitigation measures will be required.

9.3 Protected/Designated Sites

To prevent the Afon Beuno or the Afon Gwyrfai from acting as a transmission vector for pollutants, extending the zone of influence of the proposals over a potentially wide area, all works must be carried out in accordance with (Guidance for Pollution Prevention (GPP 5) which can be found at:-

<http://www.netregs.org.uk/media/1303/gpp-5-works-and-maintenance-in-or-near-water.pdf>

The above precautionary measures will successfully prevent any impact on the SSSI/SAC or any of the species and habitats associated with these sites.

10 **Biodiversity Enhancement**

Under Chapter 6 of Planning Policy Wales 11, Planning Authorities must seek to maintain and enhance Biodiversity in the exercise of their functions. This policy addresses the Section 6 Duty of the Environment (Wales) Act 2021 and results in the likelihood of planning applications being refused unless they can show a positive impact on Biodiversity. In this case, biodiversity enhancement recommendations will be achieved through native tree and wildflower planting and the inclusion of 10 bat tubes.

Tree planting-

A total of 13 new trees will be planted on the site. These trees will consist of a combination of the following species-

- *Prunus padus*
- *Acer pseudoplatanus*
- *Sorbus aucuparia*
- *Prunus avium*
- *Malus sylvestris*

Establishing the New Planting

All plants must be securely protected from any livestock or rabbits.

Any plant casualties within the first 5 years must be replaced.

To ensure that the new planting does not have to compete with other vigorous plant species, ground preparation must include the eradication of deep-rooted perennial weeds.

It is recommended that small, bare rooted plants are used as these become established more easily.

Bare root planting must take place in autumn/winter when the plants have dropped their leaves.

Watering during dry weather in the first 12 months is recommended as this can significantly reduce the number of casualties.

Meadow reseeding and management-

The location of the wildflower meadow planting is shown in blue on the landscaping plan to be submitted alongside this report. It is recommended that the area of the proposed wildflower meadow has the turf removed to reduce soil fertility and is reseeded using a seed mix which includes but is not necessarily limited to the species listed below.

Flowering Plants:

- Bird's foot trefoil; (*Lotus corniculatus*)
- Betony; (*Stachys officinalis*)
- Black medick; (*Medicago lupulina*)
- Bladder campion; (*Silene vulgaris*)
- Common knapweed; (*Centaurea nigra*)
- Field scabious; (*Knautia arvensis*)
- Lady's bedstraw; (*Galium verum*)
- Meadow buttercup; (*Ranunculus acris*)
- Oxeye daisy; (*Leucanthemum vulgare*)
- Ribwort plantain; (*Plantago lanceolata*)
- Salad burnet; (*Poterium sanguisorba*)
- Selfheal; (*Prunella vulgaris*)
- Sheep's sorrel; (*Rumex acetosella*)
- Yellow rattle; (*Rhinanthus minor*)

Grasses:

- Common bent; (*Agrostis capillaris*)
- Crested dog's tail; (*Cynosurus cristatus*)
- Red fescue; (*Festuca rubra*)
- Sheep's fescue; (*Festuca ovina*)
- Sweet vernal; (*Anthoxanthum odoratum*)

It is recommended that perennial rye grass is not included in the seed mix as this robust species can easily out-compete other grasses and wildflowers and in time will dominate the species assemblage.

A range of companies provide seed mixtures which would include the majority of these species. This includes, but is not limited to, the EG7 and EM7F mixes by Emorsgate Seeds and the LW3M seed mix by Landlife Wildflowers.

As the site shows signs of nutrient enrichment it is recommended that additional yellow rattle seed is included in the mix. This species is semi-parasitic on the roots of grasses and will help to prevent coarser grasses from dominating the sward.

Sowing

It is recommended that further sowing is carried out either in early Spring or in the Autumn. Sowing should be carried out following the manufacturer's instructions.

Wildflower Meadow Management

Wildflower meadows require ongoing management to ensure that they do not degenerate into rough grassland. Mowing and the removal of arisings, to prevent enrichment of the soil, are key components of this management. The long-term aim must be to continually reduce the high nutrient levels which favour the coarser grasses to the detriment of the flowering plant species. It is also essential that this is carried out at the appropriate time of year to allow for seed production and dispersal.

- Cut down growth to 70-100mm from early September. Remove all arisings to prevent enrichment of the soil.
- Continue to lightly mow the remaining area as required over the winter months, removing the clippings each time.
- No mowing to be carried out from March – September.
- It is recommended that a composting area is established for the disposal of the mowing as this will also provide a valuable habitat.

Inclusion of bat tubes

It is recommended that 10 bat tubes are installed as high as possible on house numbers 1-8 and 23 & 24. These tubes must be installed as high as possible on the elevations of these buildings facing the hedgerow/treeline along the sites north and west boundaries. Bat tubes are very discreet and can be rendered over leaving only the small bat access point visible.

The potential new roosts must be clearly shown on the architect's drawings. There must be no exterior lighting installed that could inhibit the use of these potential new bat roosts.



Fig.7: Example of a bat tube designed to be part of the fabric of the building.

11 References

Bat Conservation Trust (2018) Bats and artificial lighting in the UK

Cresswell, W. J. Harris, S. and Jeffries, D. J (1989). *Surveying Badgers*. An occasional publication. No. 9, Mammal Society, London.

Environment Wales Act (2021)

Wildlife and countryside act (1981)

12 Legal Implications

12.1 Badgers

Badgers and their setts are protected by the Protection of Badgers Act 1992. Under this Act it is an offence to damage, destroy or obstruct access to a badger sett, and also to disturb a badger whilst it is occupying a sett.

Undertaking an activity within 30 metres of a badger sett, which could result in damage to the sett, obstructing access to it or disturbance of any occupying badgers, may constitute an offence. This distance may be extended to 100 metres if the activity involves blasting or pile-driving.

12.2 Bats

Bats are protected under UK law by the Wildlife and Countryside Act 1981 (as amended) and also under European law by the Conservation of Habitats and Species Regulations 2021. Under these laws it is an offence to deliberately kill or injure a bat, to disturb a bat or to damage, destroy or block access to a roost. Bat roosts are protected under these laws whether the animals are present at the time of survey or not. NRW are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest.

12.3 Hedgehogs

The hedgehog is a priority species across North Wales, including Anglesey and is included in Section 7 of the Environment (Wales) Act (2016) as a species of importance to the maintenance and enhancement of Biodiversity in Wales.

12.4 Nesting Birds

Under the Wildlife and Countryside Act 1981, all nesting birds and their nests are protected. Once a bird places a single piece of material then it constitutes a nest. It is then an offence to cause damage to the bird, nest, eggs or chicks and immediate habitat which is likely to result in damage by causing the bird to desert its nest. This covers all bird species, with the exception of a small number of 'pest species' which can be controlled by special license.

In 2000, the Countryside and Rights of Way Act (CROW Act) was made law, strengthening the legal protection for many species and introducing a 'reckless disturbance' offence. Planning Authorities are also obliged to take nesting birds into account in relation to planning decisions following guidance from the Welsh Government detailed in Technical Advice Note (TAN) 6.

12.5 Otters

Otters are protected under UK law by the Wildlife and Countryside Act 1981 (as amended) and also under European law by the Habitat and Species Regulations (2021). Under these laws it is an offence to deliberately kill or injure an otter, to disturb them or to damage, destroy or block access to their place of shelter. Under both laws the Welsh Assembly Government are empowered to issue licences to disturb them and disturb or destroy their habitat for reasons of overriding public interest.

13 **Appendices**

13.1 Site photographic record



The bridge and walled banks of the nearby Afon Beuno on the opposite side of the A487



Culverts allowing the Afon Beuno to flow under the road



A section of the Afon Beuno to the immediate northwest of the site



The habitat to the immediate south of the site



The improved grassland habitat which dominated the site



An example of the improved grassland sward



The fence and deciduous woodland to the immediate north of the site and some sparse blackthorn scrub on the site's northern boundary

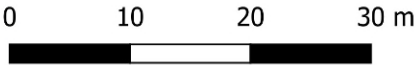


An example of a tree on the treeline which is covered with a thick growth of ivy



Another section of the deciduous treeline to the immediate north of the site

09.01 Phase 1 Habitat Map



- Key-
- Linear Features -
- G2.2 G2.2 - Running water (Afon Beuno)
 - J2.4 J2.4 - Fence
 - [Red outline] - Development Boundary
- Habitats
- [Green fill] A1.1.1 - Broadleaved treeline
 - [Green 'x' pattern] A2.2 - Scrub - scattered
 - [White fill with vertical lines] B4 - Improved grassland



Cambrian Ecology Ltd

13.3 Review Table

Name	Task	Date
Ben Box	Author	03.01.2023
Chris Hall	Review	09.01.2023
Lizzie Richardson	Proofreading	09.01.2023
Ben Box	Report amendments	14.02.2023
Chris Hall	Review	15.02.2023