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Former Nags Head, Bettisfield
Proposed Residential Development
Great Crested Newt & Protected Species Survey Report
11th July 2025



Report by: Heaven Kyriacou, Ben Box & Chris Hall ACIEEM

Client: Gurjit Mahal

Planning Authority: Wrexham County Borough Council

Grid Reference: SJ 46029 35375 (approximate site centre)

CONTENTS **Page No**

1. Summary 3
2. Introduction 5
3. Methodologies 6
4. Survey Limitations 9
5. Results 10
6. Habitat Evaluation & Impact Assessment 23
7. Species Evaluation & Impact Assessment 23
8. Protected Sites Impact Assessment 27
9. Mitigation Measures 28
10. Biodiversity Enhancement & Green Infrastructure Statement 36
11. Legal Implications 42
12. References 43
13. Appendices 44
    - 13.1 Guidance for Sensitive Habitat Clearance
    - 13.2 Site Photographic Record
    - 13.3 Review Table



Fig. 1: Site Location.

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1. Summary

A Preliminary Ecological Assessment (PEA) and subsequent great crested newt; (*Triturus cristatus*) and other protected species survey work was carried out by Cambrian Ecology during April and May of 2025 on land east of the Former 1DJ¶V +HDG 5RDG IURP &DPEULDQ 9L Bettisfield, SY13 2LJ. It is proposed to develop the site with the erection of four dwellings and associated infrastructure (see Figure 2).

The survey revealed that the habitats on the site include are degraded improved grassland, dense scrub, tall ruderal vegetation, scattered willow; (*Salix spp*) scrub, vegetated spoil bunds, standing water and wet modified bog with ephemeral ponds.

The only habitats to be directly negatively impacted by the proposed works are the degraded improved grassland, dense scrub and tall ruderal vegetation, all of which are of minimal ecological value.

The loss of these habitats will be compensated for through the favourable (meadow) management of a large Public Open Space (POS) area to promote floristic diversity.

Also impacted is a small area of trees which will require mitagtion for their loss (see Section 9.1.3). A significant amount of the habitats present on site will be retained including the scattered willow scrub, areas of dense scrub, areas of tall ruderal vegetation, the vegetated spoil bunds and the wet modified bog with ephemeral ponds. No invasive non-native species (INNS) were recorded onsite.

A biological records search was carried out as recommended in the guidance for PEAs by the Chartered Institute of Ecology & Environmental Management (CIEEM). This enables the potential impact of a development to be assess HG LQ WKH FRQWH[W RI WKH ZLGHU C RI LQIOXHQFH¶ WR EH WDNHQ LQWR DFFRXQW

The biological records search, which was carried out with the Local Records Centres (LRCs) &RIQ DQG 7¶ and Telford Ecological Data Services (TEDS) revealed the presence of a number of relevant statutory and non-statutory protected sites within the search radii.

The site was assessed as having potential to support Great Crested Newts (GCN) with previous GCN surveys completed by Betts Ecology in 2023 confirming a small population onsite (Betts Ecology, 2023). In consideration of these factors, further GCN survey work was required prior to the submission of a planning application for the works which included a presence and absence survey along with a population size class assessment. Current guidelines state a minimum of three different

survey methods are required, and six visits should be carried out in suitable weather conditions during mid-March to mid-June with at least three of these visits during mid-April to mid-May.

The survey methods utilised were eDNA testing, torching, egg searching and bottle trapping carried out between April –May 2025. One torching and one bottle trapping survey were positive for GCN with one male and one female recorded, this generates a population class estimate of small. Smooth/Palmate newts (*Lissotriton spp*) and common frogs (*Rana temporaria*) were also recorded. All amphibian species recorded, were so on the area to the northwest of site which will not be developed and will be retained and enhanced for biodiversity (see Figures 2 & 21). One water shrew; (*Neomys fodiens*) was also recorded on the site. Following this sighting, the traps were modified for further surveys (see Section 3.5.1). Both the eDNA survey and the egg searches were negative.

Due to the fact that GCN, their eggs, breeding sites and resting places are protected by UK and EU legislation, a European Protected Species (EPS) licence will be required from Natural Resources Wales (NRW) to carry out the proposed works.

The assessment of the site identified the potential for bats to be commuting around the site, however, remote monitoring surveys recorded only very low levels of bat activity. Some precautionary measures have, been recommended in relation to exterior lighting as a precautionary measure to ensure no negative impact on bats occurs as a result of habitat fragmentation (see Section 9.2.1).

The data search also identified a number of other protected species to be present within the search area [redacted] hedgehogs; (*Erinaceous europaeus*), herpetofauna (reptiles and amphibians) species and polecat; (*Mustela putorius*). [redacted]. There is also some potential for nesting birds to be present in the dense scrub, tall ruderal vegetation, scattered willow scrub and trees. 6RPH 5HDVRQDEOH $YRLGDQFH 0HDVXUHV¶ in Sections 9.2.2, 9.2.3 & 9.2.4 to ensure there is no negative impact on these taxa.

The site contains modified bog which is connected to the adjacent Llangollen canal via a drainage ditch. While this drainage ditch was blocked and so sat stagnant during the course of the survey ZRUN LW VWLOO KDV WKH SRWHQWLDO WR DFW DV D Due to this, guidance is given in Section 7.3 to ensure there is no negative impact on protected sites and associated species including otter; (*Lutra lutra*) and water vole (*Arvicola amphibius*) as the result of a pollution incident. Numerous records of water vole and a single otter record were returned in the data search.

Under Chapter 6 of Planning Policy Wales 12, Planning Authorities must seek to maintain and enhance biodiversity in the exercise of their functions. It is also a priority for developments in Wales to also consider ecosystem resilience and green infrastructure in the development of enhancement schemes. In this case biodiversity enhancements will be achieved through favourable management and modification of the retained habitat on the site (see Figure 21) to the benefit of range of taxa including GCN and water voles as well as the provision of a bee tower onsite and bat tubes into the fabric of the new housing (see Section 10).

Key Messages:

1. **The site was assessed as having potential to support GCN. Under current guidance, eDNA testing along with a suite of torching, bottle trapping and egg search surveys were carried out.**
2. **One torching and one bottle trapping survey were positive for GCN with one male and one female recorded onsite.**
3. **Due to the presence of GCN an EPS licence will be required from Natural Resources Wales (NRW) to carry out the proposed works.**
4. **The habitats which will be directly impacted are are degraded improved grassland, dense scrub and tall ruderal vegetation, all of which are of minimal ecological value. Mitigation for habitat loss will be achieved through the favourable management of a large area of POS to increase floristic diversity.**
5. **Also impacted is an area of trees which will require mitigagtion for their loss (see Section 9.1.3).**
6. **Large areas of habitat present including scattered willow scrub, vegetated bunds and wet modified bog with ephemeral ponds will be retained onsite and will be the focus of the biodiversity enhancement scheme.**
7. **No INNS were recorded onsite.**
8. **Recommendations are provided for any exterior lighting in order to prevent a negative impact on bat species through habitat fragmentation (see Section 9.2.1).**
9. **Recommendations have been made in Sections 9.2.2, 9.2.3 & 9.2.4 to avoid any impact on terrestrial fauna and nesting birds during the works.**
10. **Recommendations have been made in Section 9.3 to avoid any negative impacts on the wet modified bog with ephemeral ponds habitat, drainage ditches and connected canal, protected sites and associated species as the result of a pollution incident.**
11. **Biodiversity enhancements will be achieved via favourable management and modification of the retained habitat (see Figure 21) for the specific benefit of GCN and water voles, the provision of a bee tower and the inclusion of bat tubes into the new dwellings (see Section 10).**

2. Introduction

Cambrian Ecology Ltd was commissioned by Gurjit Mahal to carry out a PEA and subsequent GCN surveys and other protected species surveys at land HDVW RI WKH)RUPHU 1DJ¶V Cambrian View to Back Station Road, Bettisfield, SY13 2LJ.

It is proposed to develop the site with the erection of four dwellings and associated infrastructure (see Figure 2).

The relevant Planning Authority is Wrexham County Borough Council, which requires ecological survey reports to be submitted as an integral part of the planning application.

The proposed location of the new housing development is in a urban location within the town of Bettisfield at Grid Reference SJ 46029 35375 (approximate site centre).



Fig. 2: Proposed site layout.

3. Methodologies

The surveys were carried out between April - May 2025 by ecologists Chris Hall (Bat Licence No: S095271/1), Ben Box (S095274/1), Heaven Kyriacou (GCN licence No: S094756/1) and Mel Gautier. Chris is an associate member of the Chartered Institute of Ecology & Environmental Management (CIEEM) has been working as an independent ecologist for 20 years and has held a bat licence from CCW/NRW for 28 years and an otter licence (No S089662-2) for 25 years. Ben is a qualifying member of CIEEM, holds a bat survey licence from NRW and has been working with Cambrian Ecology since 2022. Prior to holding his own bat licence, he was an accredited agent on the bat licence of Chris Hall (S095271/1). Heaven is also a qualifying member of CIEEM and holds a great crested newt licence from NRW (No: S094756/1). Heaven is also an accredited agent on the bat licence held by Chris Hall. Melanie has been assisting Cambrian ecology with emergence surveys since 2022 and is now working as an assistant ecologist.

3.1 Badgers

Where possible, a survey for a minimum of 30m radius from the proposed construction zone was carried out for any evidence of the presence of badgers, including setts, latrines, evidence of foraging, (snuffle holes) and hairs caught on wire or vegetation where animals were breaching field boundaries. 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).

3.2 Bats

In order to assess the levels of general bat activity at the site, a period of eight consecutive nights of remote monitoring was carried out between 22nd –30th May 2025 using an Anabat Express unit. All calls recorded were then identified using the Analook software.

3.3 Other Ecological Issues

In accordance with the guidelines from CIEEM, the presence of any other protected species was also recorded along with any potential bio-security issues such as the presence of INNS.

3.4 Desk Study

The desktop study aims to collate existing information about priority species, habitats, and designated sites. 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 and TEDS for all priority species, habitats, and designated sites as recommended in the guidance from CIEEM. This enables the proposed GHYHORSPHQW VLWH WR EH DVVHVVHG LQ D ZLGHU FRQ development to be taken into account The search parameters were 2km from the survey site area for all protected sites and species and 10km for any protected sites with specific relevance to bat species.

3.5 Habitats

The survey took the form of an extended Phase I survey, which 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.

3.6 GCN Surveys

The surveys were carried out in between April –May 2025 by Heaven Kyriacou (No: S094756/1) and Ben Box.

Objectives of the GCN surveys at former Nag Head were:

- Identify any signs of the presence of GCN onsite.
- Assess the status of any populations GCN populations present.
- Identify any specific areas that GCN are using.
- Assess the levels of potential disturbance and loss of habitat due to the proposed works.
- Gather detailed evidence to support any ensuing development license application to NRW.
- Recommend mitigation and compensation measures to ensure the continued ecological functionality of the site for GCN.
- Identify any other protected species issues associated with the development proposals.
- Identify any bio-security issues associated with the proposals, including the presence of any non-native species.

3.6.1 *Torching and Bottle Trapping Surveys*

Bottle trapping surveys were carried out on the 23rd April, 8th May and 22nd May 2025. During every bottle trapping survey, prior to traps being set, a thorough torching survey was also carried out. In addition to these surveys a further three torching surveys were carried out on 30th April, 14th May and 29th May 2025, bottle traps were not set during these surveys. During all torching surveys, thorough egg searches were also carried out. Two surveyors were utilised to ensure effective coverage of the site. The bottle traps were left out no longer than 9 hours each survey. High powered halogen torches were used for the torching surveys. During bottle trapping, a total of 20 traps were set out with 10 placed within ephemeral ponds in the area of wet modified bog and 10 with the accessible drainage ditch.

One water shrew was recorded on the site on the 24th April 2025. Their presence prior to this was unknown. After this, all bottle traps were modified with a hole cut into the top to allow the shrew to escape the bottle traps if required.

The surveys were carried out between shortly after dusk and midnight as recommended in the current guidance, (Froglife, 2001). Weather conditions were appropriate for the surveys, see Table 1 below.

Table 1: Environmental conditions

2025	**23rd –24th April 2025**	**30th April 2025**	**8th-9th May 2025**	**14th May 2025**	**22nd-23rd May 2025**	**29th May 2025**

Air temperature °C	11.6 / 11.9	11.5 / 12	5.9 / 5.9	7.1 / 7.2	9.4	15 / 14.8
Water temperature °C	11.1 / 10.7	10.9 / 11	13.9 / 12.7	10.9 / 11.5	11.9	14.7 / 15.5
Wind	Still	Light breeze	Still	Still	Still	Still
Rain	Light rain prior	None	None	None	None	Rain prior
Sunset time	20.22	20.36	20.49	20:59	21:12	21:21
Water Level	High	Low	Low	Very low	Very Low	Moderate

3.6.2 *eDNA Testing*

eDNA testing was carried out using eDNA sample kits from SureScreen Scientific. All samples were collected following the kit makers instructions and samples were refrigerated prior to being sent for analysis. Samples were sent for analysis within 24hrs of being collected.

3.7 Other Protected Species

The site was assessed on its potential to support any other 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).

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.

Badgers are territorial animals, and the death or debilitation of the dominant boar could feasibly lead to a change in territorial boundaries and new sites becoming occupied. An assessment of the suitability of a site to support badgers is therefore important in determining the likelihood of this occurring. The results presented in this report were accurate at the time of survey. Some areas of the site were inaccessible.

Due to a prolonged period of no rain during the survey period the water level on many of the surveys was very low making torching and bottle trapping less effective. Large areas of the water were often covered in duckweed and other vegetation inhibiting visibility when torching and blocking areas for

bottle trapping. However, these factors will also reduce the viability of the site for GCN and so it is considered that survey results are valid. A full suite of GCN surveys were carried out and GCN were recorded on the site.

Modification of the bottle traps to allow water shrews to escape increased the chances of GCN also escaping potentially lowering the recorded number. However, one study (John Durkin, 2014) found that the use of water shrew escape holes only result in the escape of ~40% of GCN, as such, if significant populations of GCN were, present positive results would still be expected.

5 Results

5.1 Desk Study

5.1.1 *Statutory Protected/Designated Sites*

The biological records search carried out with Cofnod and TEDS revealed two relevant statutory designated sites within the 2km search area in the form of a Site of Special Scientific Interest (SSSI), a Special Area of Conservation (SAC), a Ramsar site and National Nature Reserve (NNR) (see Figure 3).

- The)HQQ¶V :KL[DOO %HWWLVILHOG :HP DQG &DQH\ Designated 1km away and is designated for series of open water and peatland sites with lowland raised mire and exceptionally diverse invertebrate fauna. Other species present include a variety of breeding birds including sparrowhawk; (*Accipiter nisus*), curlew; (*Numenius Arquata*), snipe; (*Gallinago gallinaqo*), nightjar; (*Caprimulgus europaeus*) and overwintering species include short-eared owl; (*Asio flammeus*). The moss complex is also a local stronghold for the adder; (*Vipera berus*).
- 7KH)HQQ¶V :KL[DOO %HWWLVILHOG (England) SAC lies 1.4km away and is designated for its active raised bogs and degraded raised bog. This is a different location to the above site.

There are no relevant protected sites within the 10km search radius with specific relevance to bats.

5.1.2 *Non-Statutory Designated Sites*

There are three relevant non-statutory sites within the search area in the form of Wildlife Sites. The closest of the sites is the Balmer Heath Lyneal site which sits 1km away and is designated for its landscape of meres and mosses developed on old industrial land. The next closest site is the Lyneal Moss Hampton Bank site which sits 1.2km away and is designated for its wetland landscape. The last is The Rookery site which sits 1.6km away and is designated for its area of oak woodland with adjoining broadleaf woodland plantations (see Figures 4 & 5).

The site also lies within an Important Curlew Area. These areas comprise a network of sites which are considered strongholds for curlews (see Figure 6). Although the survey site itself is deemed of no significant value to this species in its current condition.

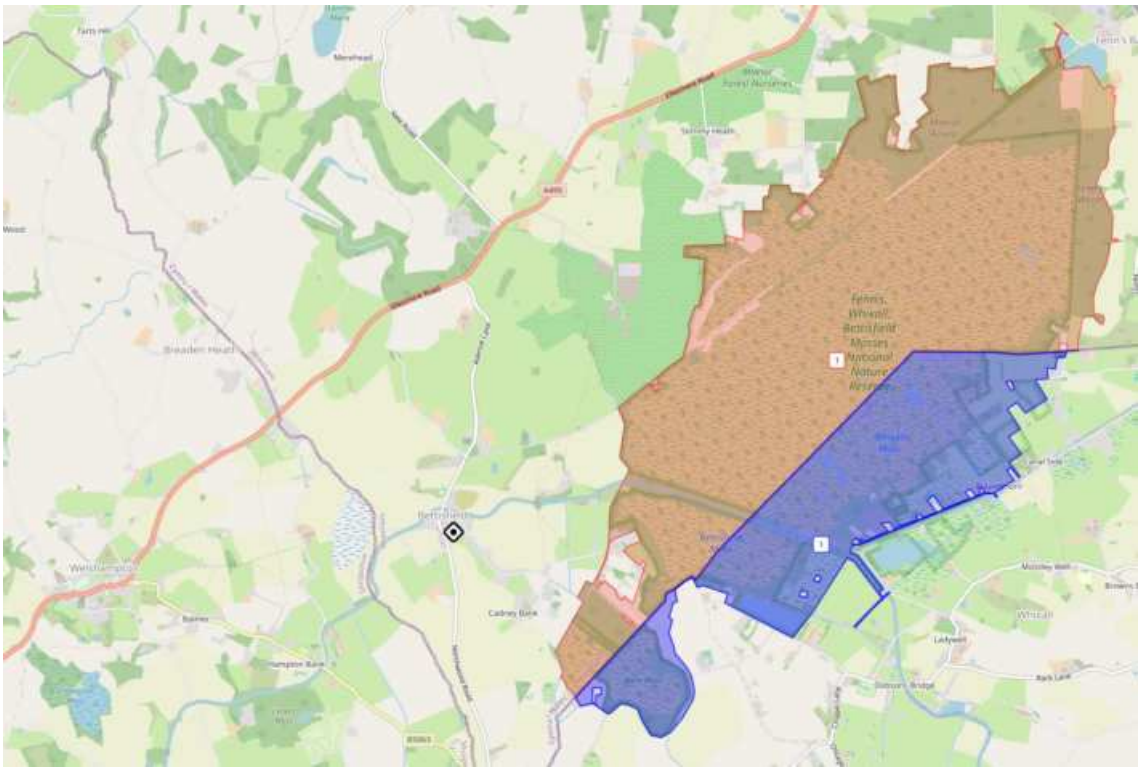


Fig. 3: The location of the)HQQ¶V :KL[DOO %HWWLVILHOG :HP DQG 5DPVHU VLWH UHG DQG WKH)HQQ¶V :KL[DOO %HWWLVILHOG :HP DQG 5DPVHU VLWH (England) SAC (blue).



Fig. 4: The location of the survey site in relation to The Rookery Wildlife Site (pink).

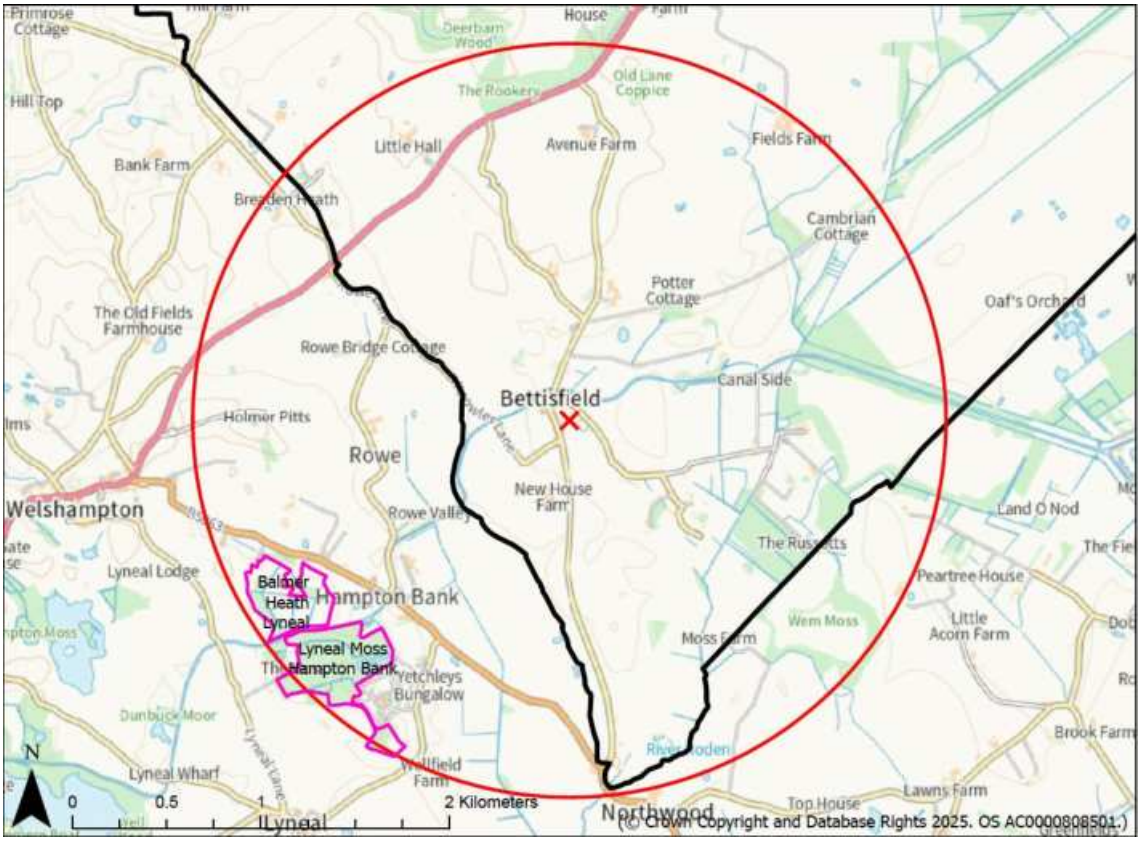


Fig. 5: The location of the survey site in relation to the Balmer Heath Lyneal Wildlife Site and the Lyneal Moss Hampton Bank Wildlife Site.



Fig. 6: The location of the site within the Important Curlew Area (black).

5.1.3 *Protected Species*

There are a number of relevant protected species records within the data search radius which are presented in Table 2 below.

Table 2: Protected species within the 2km radius search area

Common Name	**Zoological Name**	**No of Records**
Adder	*Vipera berus*	30
[redacted]	[redacted]	[redacted]
Bat (species unknown)	*Chiroptera spp*	1
Common frog	*Rana temporaria*	20
Common lizard	*Zootoca vivipara*	10
Common toad	*Bufo bufo*	10
Common pipistrelle	*Pipistrellus pipistrellus*	19
Great crested newt	*Triturus cristatus*	9
Hare	*Lepus europaeus*	8
Hedgehog	*Erinaceous europaeus*	1
Lissotriton newt (species unknown)	*Lissotriton spp*	4
Otter	*Lutra lutra*	1
Natterer ¶ bat	*Myotis nattereri*	1
Pipistrelle bat (species unknown)	*Pipistrellus*	1
Polecat	*Mustela putorius*	6
Smooth newt	*Lissotriton vulgaris*	2
Water vole	*Arvicola amphibius*	168

5.2 Habitat

The survey site is made up of areas of degraded improved grassland, dense scrub and tall ruderal vegetation within the proposed developemnt area at the southeast of the site. There is also tall ruderal vegetation, vegetated spoil bunds, scattered willow scrub, wet modified bog with ephemeral ponds and a small group of broadleaved trees with the area to be retained, modified and enhanced (see Figure 21) at the northwest of the site. A drainage ditch runs along the eastern boundary of the site cutting through the site in one area splitting the area of grassland, dense scrub and some of the tall ruderal vegetation from the rest of the site (see Figure 11).

The habitats to the northwest of the site will not be impacted by the proposals and will be managed as part of the biodiversity enhancement scheme (see Figures 2 & 21). Habitats to the southeast of the site will be lost to facilitate the development. New road access will be constructed from the existing main road through the degraded improved grassland, tall ruderal vegetation, resulting in the loss of the tree group (see Figure 2). The site is surrounded on three boundaries by houses with the southern boundary surrounded by improved grassland.

The site historically comprised of improved grassland (see Figure 11), from inspection of historical aerial photography, the variation of habitats present seems to have developed some time between 2012 and 2018 (see Figures 8 & 9) when the site was partially excavated to below the water table, resulting in the formation of vegetated bunds and the wet modified bog area with ephemeral ponds. It appears that the site also saw a reduction in management over this time as dense scrub, tall ruderal vegetation, scattered willow scrub and the tree group appeared to develop (see Figure 10).

5.2.1 *Degraded Improved Grassland*

Plant species present within this habitat include encroaching bramble; (*Rubus fruticosus),* creeping buttercup; (*Ranunculus repens*), perennial ryegrass; (*Lolium perenne*), rosebay willowherb; (*Chamaenerion angustifolium*), creeping thistle; (*Cirsium arvense*), dandelion; (*Taraxacum officinale*), cuckoo flower; (*Cardamine pratensis*), meadow foxtail; (*Alopecurus pratensis*), meadow buttercup; (*Ranunculus acris*), nettle; (*Urtica dioica*), common sorrel; (*Rumex acetosa*) and lady fern; (*Athyrium filix-femina*).

5.2.2 *Dense Scrub*

This habitat is dominated by bramble. Other species present within this habitat include Yorkshire fog; (*Holcus lanatus*) and nettle.

5.2.3 *Tall Ruderal Vegetation*

Species present within this habitat include willow saplings; (*Salix spp*), rosebay willowherb, hogweed; (*Heracleum sphondylium*), nettle, Yorkshire fog, broadleaved dock; (*Rumex obtusifolius*), creeping buttercup, soft rush; (*Juncus effusus*) and encroaching bramble.

5.2.4 *Scattered Willow Scrub and Vegetated Spoil Bunds*

This habitat contains high levels of ornamental garden species in the areas close to the boundaries where the site bordered domestic gardens. Species present within this habitat include Yorkshire fog, nettle, bramble, immature willow, ground elder; (*Aegopodium podagraria*), immature silver birch; (*Betula pendula*), broadleaved dock, curly leaved dock; (*Rumex crispus*), dandelion, rosebay willowherb, common vetch; (*Vicia sativa*), cleavers; (*Galium aparine*), ribwort plantain; (*Plantago lanceolata*), creeping thistle, common sorrel, evening primrose; (*Oenothera biennis*), soft rush, forget-me-not; (*Myosotis spp*), golden chervil; (*Chaerophyllum aureum*), red deadnettle; (*Lamium purpureum*), honesty; (*Lunaria annua*), common ragwort; (*Jacobaea vulgaris*), white comfrey; (*Symphytum orientale*), ground ivy; (*Glechoma hederacea*), purple cut-leaved dead nettle; (*Lamium hybridum*), common bittercress; (*Cardamine bulbifera*), daffodil; (*Narcissus spp*), raspberry; (*Rubus spp*), foxglove; (*Digitalis purpurea*), red campion; (*Silene dioica*), selfheal; (*Prunella vulgaris*), snowdrop; (*Galanthus nivalis*) and yarrow; (*Achillea millefolium*).

5.2.5 *Wet Modified Bog with Ephemeral Ponds*

Species present within this habitat include immature willow, soft rush, reed mace; (*Typha latifolia L*), common duckweed; (*Lemna Minor*), curly-leaf pondweed; (*Potamogeton crispus*) and yellow iris; (*Iris pseudacorus*).

5.2.6 *Trees*

Species present within this habitat include silver birch and willow. All trees are either immature or early mature.



Fig. 7: Aerial photography from 2006 taken from Google Earth showing the site as improved grassland and the tree group as only a single tree.



Fig. 8: Aerial photography from 2012 taken from Google Earth showing the site as improved grassland with some minor scrub development and the tree group as only a single tree.



Fig. 9: Aerial photography from 2018 taken from Google Earth showing the site the start of excavations on the site with bunds created and more development of scrub.



Fig. 10: Aerial photography from 2023 taken from Google Earth showing the creation of the more varied habitats to the northwest of the site and the spread of the tree group and scrub habitats.

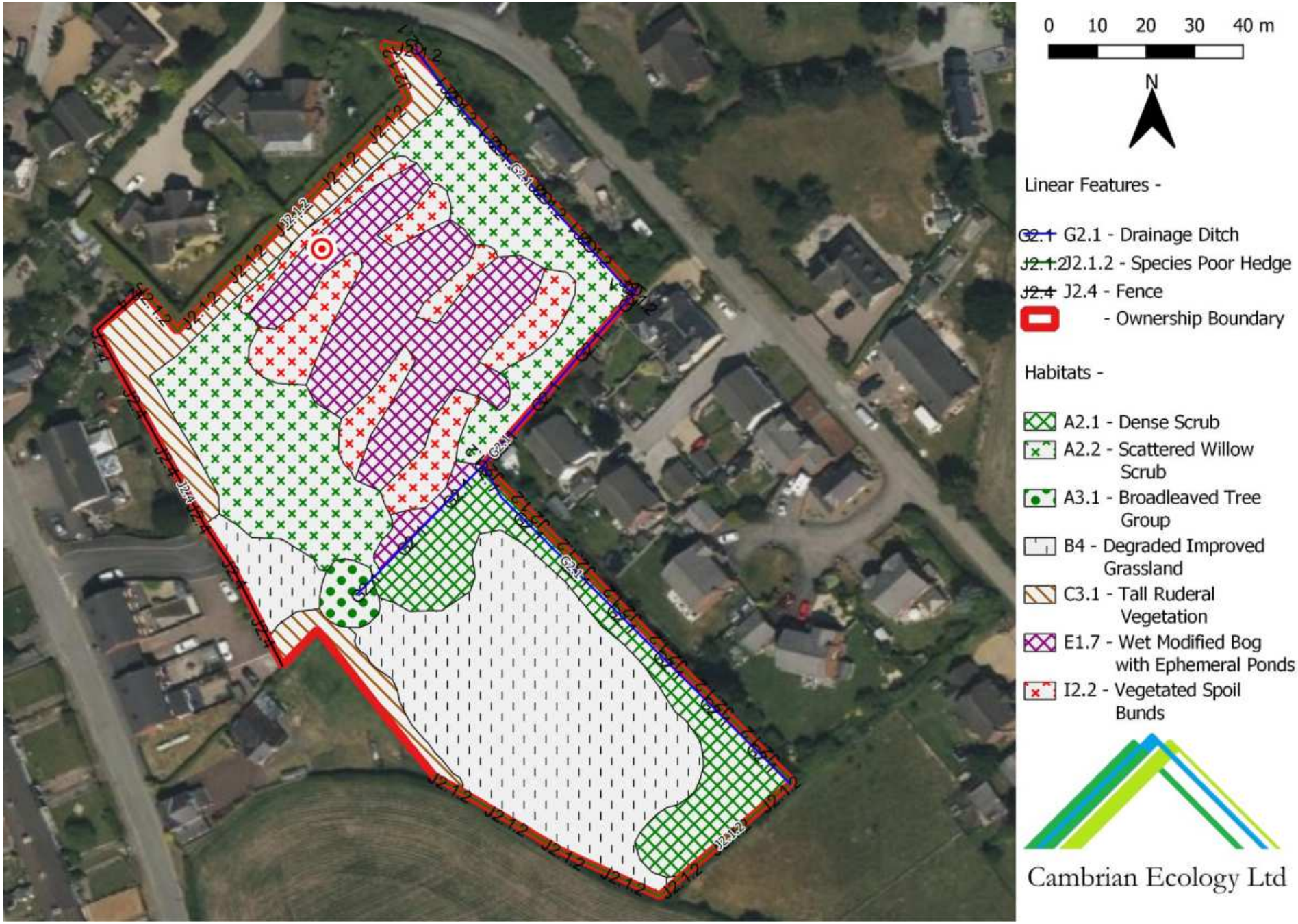


Fig. 11: Phase 1 habitat survey map.

5.2.7 *Surrounding Habitat*

The immediate surrounding area consists of improved grassland, arable land, marshy grassland, semi-improved natural grassland and urban habitats. The site sits within the semi-natural grassland Priority Ecological Network (see Figure 12). The wider landscape consists of more improved grassland and arable land along with semi-natural broadleaf woodland, planted coniferous woodland, wet modified bog and unimproved acid grassland. There are also small pockets of purple moor grass/rush pastures which are listed as a Section 7 Habitat of Principle Importance. The Llangollen canal is ~60m away (see Figure 13).

Connectivity to the site is moderate with proximal treelines linking the site well to other significant connective features present in the wider landscape but the site is surrounded on most boundaries by housing.



Fig. 12: Aerial photograph of the immediate surrounding area.



Fig. 13: The proposed development site (red) in relation to the wider landscape.

5.3 GCN Surveys

For the purposes of the surveys the site was split into two sections which were listed as the Wet Modified Bog with Ephemeral Ponds and the Drainage Ditch (see Figure 11).

5.3.1 *Wet Modified Bog with Ephemeral Ponds*

The survey carried out on 23rd April 2025 was positive for GCN with one female recorded whilst torching and one male within a bottle trap the next morning. All other surveyed dates were negative. Other species recorded in this area are listed in Table 3 below. All amphibian species recorded, were so on the area to the northwest of site which will not be developed and will be retained and enhanced for biodiversity (see Figures 2 & 21). The area to the southeast of the site which is proposed for development is far drier with no standing water present. No amphibian species were recorded in this area during any of the surveys.

Table 3: Amphibian species recorded in the wet modified bog with ephemeral ponds during GCN surveys.

Date	Great Crested Newt	Smooth Newt	Smooth/Palmate Newt
23rd April - 24th April 2025	1 Male 1 Female	2 Male	5 Female
30th April 2025	0	0	0

8th –9th May 2025	0	0	0
14th May 2025	0	0	0
22nd –23rd May 2025	0	0	0
29th May 2025	0	1 Male 3 Female	0

All six egg searches carried out in this area were negative.

5.3.2 *Drainage Ditch*

All surveys within this area were negative for GCN. Other species recorded in this area are listed in Table 4 below.

Table 4: Species recorded.

Date	Smooth Newt	Smooth/Palmate Newt	Common Frog
23rd April / 24th April 2025	1 Male	1 Female 1 Male	0
30th April 2025	0	0	0
8th –9th May 2025	0	0	0
14th May 2025	0	0	0
22nd –23rd May 2025	0	0	0
29th May 2025	0	0	3

5.3.3 *eDNA testing*

Both areas tested negative for GCN eDNA. The samples were run twice due to negative result but confirmed sighting of GCN onsite, the results came back negative on the 2nd time. The false negative could possibility be due to high vegetation levels and a very small population size of GCN onsite.

5.4 Bats

No buildings are to be impacted by the works and none of the trees to be removed have the potential to support roosting bats. Therefore, there is no potential for a negative impact on bats as a result of roost loss.

There is potential for bats to be commuting or foraging in and around the area on occasion. The remote monitoring survey recorded only very low activity levels (see Table 5 below).

Table 5: Results of the bat remote monitoring survey with calls from each species broken down by night.

Remote Monitoring Data

	Species-			
	Pipistrellus pipistrellus	*P. Pygmaeus*	*Myotis spp*	*Nyctalus noctula*
Date	**Call Count**			
22.05.2025 –23.05.2025	2	0	6	0
23.05.2025 –24.05.2025	2	0	0	0
24.05.2025 –25.05.2025	4	2	0	16
25.05.2025 –26.05.2025	11	1	0	3
26.05.2025 –27.05.2025	0	0	0	0
27.05.2025 –28.05.2025	3	0	0	0
28.05.2025 –29.05.2025	1	1	0	2
29.05.2025 –30.05.2025	2	0	0	6
Totals	**25**	**4**	**6**	**27**

Very low levels of activity in *Myotis spp,* common pipistrelle, soprano pipistrelle and noctule bats with a total of only 62 bat calls recorded across the entire eight-night recording period.

[redacted]

5.6 Hares, Hedgehogs and Polecats

There was no evidence of the presence these species on the site although there is some potential for them to be present as records of all of these species were listed within 2km on the Cofnod and TEDS database. There is potential for these species to be using the habitats on the site for cover while commuting, daytime concealment and foraging.

5.7 Nesting Birds

There is a high potential that the dense scrub, tall ruderal vegetation, scattered willow scrub and tree group support nesting birds at the appropriate time of the year. No birds nesting behaviour was recorded on the site, however most visits took place at night when most birds would not be active.

5.8 Otter and Water Vole

There is potential for otters and water voles to be using the modified bog and drainage ditch onsite along with the canal 57m from the site for foraging and commuting. These watercourses are also survey sheltered by with other freshwater habitats.

suitable for these species present within the wider landscape. A separate drainage ditch ~380m from the site, on the other side of the canal, contains a very high density of water vole records.

5.9 Other Protected Species

A single water shrew was recorded during the GCN survey of 23rd –24th April 2025. An unidentified small deer species was also recorded on the site during the GCN torching survey of 14th May 2025.

6 Habitat Evaluation & Impact Assessment

6.1 Drainage Ditches & Hedgerows

It is understood that all drainage ditches present on the site and all bordering hedgerows will be retained long-term following the development of the site. There will therefore be no negative impact as the result of a loss of either of these features.

6.2 Northwest Section

The habitats present here comprise of wet modified bog with ephemeral ponds, vegetated spoil bunds, scattered willow scrub and tall ruderal vegetation. While this mosaic of habitats is of significant ecological value, supporting a range of protected species showing good floristic and habitat diversity, this area will not be directly impacted by the proposed works (see Figure 2). These habitats will instead be subject to favourable man D J H P H Q W U H V X O W L Q J L Q W K H H ecological value (see Section 10).

6.3 Southeast Section

The habitats present here comprise of the degraded improved grassland, tall ruderal vegetation and dense scrub. Under the proposed development, most or all of these habitats will be lost. These habitats show impoverished species assemblages, and all species present are common and widespread. These habitats themselves are also common and widespread and so are of minimal ecological value. There will be only a minor negative ecological impact at a local level as the result of the loss of some or all of the habitats present in this area.

6.4 Tree Group

In addition to the loss of habitats in the Southeast section, the small tree group will also likely require removal to allow for the construction of the site access (see Figure 2). The trees present are common and widespread species of no conservation or biodiversity concern and are not old enough to represent significant ecological interest. The loss of them, however, could result in a minor negative ecological impact at a local level with taxa such as nesting birds potentially impacted.

7 Species Evaluation & Impact Assessment

7.1 Bats

7.1.1 *Roost Loss/Disturbance*

No potential roosts will be lost or damaged or disturbed as a result of the proposals. There will therefore be no negative impact on bats at any level as a result of roost loss/disturbance.

7.1.2 *Habitat Fragmentation/Exterior Lighting*

Habitat fragmentation can have a negative impact on bats, particularly species which are heavily reliant on linear landscape features. There are records of lesser horseshoe bat maternity roosts within 1km of the site.

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 (BCT 2018). 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.

While the remote monitoring survey only recorded very low levels of bat activity, a precautionary approach should still be taken to ensure no negative impact on bats as a result of habitat fragmentation. Additionally, the ongoing favourable management of both the POS area of the development site (see Section 9.1.1 below) and the retained habitat at the northwest of the site (see Section 10) has the potential to significantly enhance the value of the site for bats as a foraging area. It is therefore essential to ensure that connectivity to the site for this species is retained. Provided the recommendations with regards to lighting are adhered to, any negative impacts as a result of inappropriate lighting will be avoided (see Section 9.2.1). Vegetation to be removed offers no significant connective feature for bat species.

[redacted]

[redacted]

7.2.3 *Development Phase Impacts*

Development sites can be hazardous places for badgers with the potential for animals to become trapped in open excavations for footings etc, and exposed pipe systems such as storm drains, sewage pipes etc which can potentially lead to the entrapment of animals.

Some precautionary measures have therefore been recommended in Section 9.2.2.

7.2.4 *Post Development Phase Impacts*

No negative impact on badgers as a result of post development activities is anticipated. Housing developments can lead to productive foraging habitat for badgers but can cause habitat fragmentation.

7.3 Hares, Hedgehogs and Polecats

There is potential for these taxa to be present on the site on occasion. The primary risk to these taxa on construction sites comes from entrapment within excavations and/or pipelines left open overnight. Entrapment could result in the death or injury of individual animals which would have a negative impact on the species affected at a local level.

Additionally, the degraded improved grassland, dense scrub and tall ruderal vegetation present has the potential to support daytime concealment in hedgehogs and other terrestrial fauna. The insensitive clearance of this vegetation has the potential to result in the injury or death of individual animals of these species and so have a negative impact on the species affected at a local level.

The retention and enhancement of large areas of habitat on the site as well as the retention of KHGJHURZ ERXQGDULHV DURXQG WKH VLWH¶V ERUGHUV Z loss of connectivity for these taxa.

The proposed works will not result in the significant loss of any habitat of value to these taxa with large areas of the habitat present on the site to be retained and enhanced.

7.4 Herpetofauna

These taxa face the same risk of entrapment in open excavations as mentioned in section 7.3 above. Herpetofauna also face the risk of death or injury of individual animals whilst taking refuge in building material left onsite during the development stage if commuting across the site. There is also the possible risk of death or injury as the result of insensitive habitat clearance/soil stripping.

Additionally, higher activity levels on the site could have the potential to result in the disruption or injury of commuting amphibian species in their terrestrial phase.

With regards to GCN, the proposed works have the potential to result in the loss of small areas of terrestrial habitat of value to this species. However, the retention and enhancement of large areas of habitat on the site greatly reduce this risk. There is also the potential for a negative impact on GCN and other amphibian species present on the site if a pollution incident were to occur and so impact on the freshwater habitats present both on and in proximity to the site. The proposed works will not result in the loss of the aquatic habitats occupied by GCN, however, in the absence of mitigation, works could result in the disturbance, death or injury of individual animals as well as the loss of small areas of terrestrial habitat of some value.

Due the results of current and previous GCN surveys at the site, it has been concluded that only a small population (peak count of two individuals) of GCN are present on the site. As such, any potential negative impacts will only be minor and restricted to a local level. However, due to the *&1¶V SURWHFWHG VWDWXV DQ\ VXFK LPSDFWHG PXVW E to be acquired from NRW to ensure that this is the case.

In the presence of appropriate RAMs and mitigation measures, it is considered that the proposed works will have no negative impact on GCN. On the contrary, through the enaction of the biodiversity enhancement plan (see Section 10) and the retention and enhancement of the POS area (see Section 9.1.1) it is anticipated that the value of the site for GCN will be greatly enhanced following the completion of the proposed works.

7.5 Nesting Birds

If nesting birds are present in the dense scrub, tall ruderal vegetation and tree group to be cleared during the course of the proposed works, it is likely that any nests will be abandoned resulting in the failure of the brood which could have a negative impact on the species affected at a local level. In the absence of mitigation, this habitat clearance could also result in an overall reduction of nesting opportunities for birds on the site.

7.6 Otters, Water Voles and Water Shrews

These species face the same risks from a pollution incident mentioned above in section 7.4. If this were to occur, this could result in a reduction in prey biomass for otter and water shrews and a loss of plant communities on which water vole rely on as a food source. Any negative impact would be directly proportional to the scale of any pollution incident to occur.

Additionally, any inappropriate illumination of the drainage ditch through the site and on the eastern boundary has the potential to have a negative impact on otters via habitat fragmentation. Otters often commute between foraging areas at night and significant illumination could inhibit this.

Retention of drainage ditches and the retention and enhancement of the wet modified bog with ephemeral ponds area will ensure no negative impact on these species as the result of habitat loss or loss of habitat connectivity.

7.7 Other Protected Species

There is no potential for any other protected species to be present or impacted by the proposals.

8 Protected Sites Impact Assessment

8.1 All Statutory Protected Sites

Due to the drainage ditch running through the site and along the eastern boundary discharging into the Llangollen canal which flows through all of the nearby statutory protected sites, there is the potential for any pollution event on the site to have a negative impact on these sites if pollutants enter this watercourse. Some basic precautionary measures for working close to water are given in Section 9.2.3 to ensure no negative impact occurs.

8.2 All Other Sites

Due to the scale of the proposed works and the lack of any other potential pathways of influence, it is not anticipated that there will be any negative ecological impacts on any other sites.

9 Mitigation Measures

9.1 Habitats

9.1.1 *Drainage Ditches & Hedgerows*

Due to the lack of negative impacts and retention of these features, no mitigation measures will be required. Guidance is given in Section 9.2.3 below to ensure no negative impacts on the drainage ditches at the result of a pollution incident.

9.1.2 *Northwest Section*

The habitats present in this area will not be directly impacted by the proposed works, as such no mitigation measures are required. Guidance is given is Section 9.2.3 below to ensure no negative impact on the wet modified bog with ephemeral ponds.

9.1.3 *Southeast Section*

In order to mitigate for the minor negative impact caused by the loss of habitats in this area, it is recommended that the large POS area within the development (see Figure 2) is managed as a wildflower meadow in order to promote floristic diversity.

This area should be subject to a three/four annual cuts to a height of no less than 50mm, arisings should be left for at least one week for seeds to be dropped before being removed from the site. These cuts should take the form of a spring cut which will occur no later than the end of April, a main summer cut which should occur in either July or August and then one or two autumn cuts which should take place between the end of August and the end of November. This regime will decrease soil enrichment and allow native wildflowers which thrive under a less intensive management regime to flourish. All arisings should be used to form habitat piles within the retained habitat on the site.

9.1.4 *Tree Group*

The loss of any trees could have a minor negative impact at a local level due to their value as a habitat feature for some protected species. To mitigate against the loss of these trees, planting must take place on the site replacing each tree lost on a three to one basis. For every tree within this group to be removed three broadleaved trees must be planted elsewhere onsite within the ownership boundary. A mixture of the following species should be used to replace the ash trees being lost:

- Sessile oak; (*Quercus petraea*)
- Field maple; (*Acer campestre*)
- Lime; (*Tilia x europaea*)
- Wych elm; (*Ulmus glabra*)
- Hawthorn; (*Crataegus monogyna*)
- Hornbeam; (*Carpinus betulus*)
- Black poplar; (*Populus nigra*)

Consultation with an arboricultural specialist may influence the choice of trees used, however native species must be favoured.

Establishing the New Planting

The location of all new planting will be clearly marked on a plan submitted to support any planning permission application.

All plants must be securely protected from any livestock and rabbits. In this case, stock-proof fencing around the area of tree planting would be the most efficient means of protection. , I W U H H W X E used, these should be one of the readily available biodegradable products.

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 Protected Species

9.2.1 *Bats*

Habitat Fragmentation/New Exterior Lighting

7R SUHYHQW DQ\ OLJKW EDUULHU¶ LPSDFW DQG SURE
component, the following measures will be implemented with regards to any exterior lighting on the site, which are compliant with the current guidelines (Bat Conservation Trust, 2018):

- No new exterior illumination of the site boundaries, hedgerows, drainage ditches, retained habitat, POS or any new planting described in Section 9.1.3 above must take place.
- Any new exterior illumination will be movement activated.
- 7KH LOOXPLQDWLRQ XVHG ZLOO EH /LJKW (PLWWLQJ
- The illumination will all be directional and downward facing which is easily achieved when using LEDs. There must be no upward illumination.
- All luminaires will lack any UV component.
- /XPLQDLUHV ZLWK D ZDUP ZKLWH¶ VSHFWUXP VKRXO blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the light component most disturbing to bats.

9.2.2 *Badger, Hedgehogs and Polecats*

Development sites are hazardous places for hedgehogs and other terrestrial fauna with the potential for animals to become trapped in open excavations and exposed pipe systems such as storm drains, sewage pipes etc. 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.
- Any exposed pipe systems must be capped at the end of each working day and never left open overnight.
- 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.

In order to avoid injury or death of individual animals during clearance of the degraded improved grassland, dense scrub and tall ruderal vegetation it is recommended that any clearance of these habitats are carried out in accordance with the 3UHFDXWLRQDU\ Method of Working for reptiles, FRPPRQ WRDGV KHGJHKRJV EDGJHUV DQG QHVWLQJ ELU Nature, 2022) which is given in Section 13.1.

9.2.3 *Herpetofauna*

Due to the presence of GCN on the site, prior to any works commencing, an EPS development licence from NRW will need to be acquired. The below mitigation measures will be required to be included within the conditions of any such licence.

The guidance given in Section 9.2.2 above will ensure there is no negative impact on herpetofauna including great crested newts as a result of entrapment in open excavations or insensitive habitat clearance.

In order to remove the risk of death or injury of individual animals during the translocation of building materials, all building materials must be stored either off the ground, indoors or on pallets. Any spoil removed during excavations should either be kept onsite long-term, immediately removed from the site or stored in skips until it is removed.

Any soil stripping must be supervised by a site ecologist to ensure there is no inadvertent harm to any protected species that may be present.

To prevent any pollutants from entering the adjacent watercourses and so impacting herpetofauna, all works must be carried out in accordance with Guidance for Pollution Prevention (GPP 5) which can be found at: -

https://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017

Temporary one-way exclusion fencing will be required to prevent GCN from (re-)entering the area due for development. One-way amphibian fencing should be installed separating the area of the site to be developed from the surrounding habitats and the rest of the site including the wet modified bog area and drainage ditches with vertical fencing along the southern and western boundaries (see Figures 15 & 16). This fencing should remain in place and be maintained in a functional condition until the completion of the works. 2QHZD\ ¶ IHQFLQJ should be used to allow newts to cross into the safe area (northwest area of the site), whilst preventing dispersal back into a development site. The following guidelines should be followed (English Nature, 2001):

- Fencing installation should be instructed by, and if necessary carried out under the supervision of, an appropriately experienced and licenced amphibian worker.
- Engaging the services of an experienced amphibian fencing contractor, who can fine-tune construction methods to cope with the different problems associated with different soil types, is strongly recommended.
- The proposed fence-line should first be searched and cleared of amphibians if it is likely that they are present. If clearance of the fence-line is required, vegetation can be cut back, taking care to avoid damage to any resting amphibians.
- The fencing design must avoid gaps through which newts could pass, thus avoiding capture.
- 7KH IHQFH VKRXOG EH LQVWDOOHG WR WKH FRUUHFW¶
to prevent newts from passing underneath.
- The backfill should be placed turf downwards in the trench (to suppress re-growth of grass) and well compacted to eliminate any lumps or gaps. Backfill must not remain un-compacted overnight, and all fence trenches must be filled the same day as they have been dug, as amphibians may seek shelter within any un-compacted soil or turf.
- Exclusion fencing should have an RYHUKDQJ RU WRS FXUO¶ WR SUHY
the fence.

- The fencing membrane should be of a type that will not break down or become brittle under exposure to the elements, notably UV OLJKW JDXJH¶ WUDQVSDU works well in many situations, as do woven polypropylene and black polythene DPC. Ensure WKDW WKH VKHHW ZLGWK LV VXIILFLHQW WR DOORZ IRU RSW sufficient for most fences).
- The fencing membrane should be as taut as possible without noticeable creases or folds which could allow newts to climb the fence. The use of too heavy a gauge of plastic may make it difficult to remove the creases and folds, and this could be a problem on uneven ground.
- The fence should ideally be secured to the supporting posts by pads and nails or staples (not battens, which may allow newts to scale the fence).
- One-way fencing should be sloped at an angle of between 45° and 40°. This may allow amphibians to climb over into the receptor area, but prevent them from escaping back into the clearance area.
- $Q\ MRLQV LQ WKH PHPEUDQH¶ XVXDOO EH RYHUODS nails. This jointing method should continue underground as well as above. Adhesive taped joins are not normally acceptable for long-term repairs to important parts of the fence, as they are not durable.
- A record of fence inspection and damage repair work should be kept by the licence holder as evidence that the newt-proof barrier has been properly maintained.
- Newts may seek refuge in the shrinkage cracks that will occur between the fence and the backfill; therefore special care needs to be exercised when removing fencing. Should any fencing need replacement (including any that has to be replaced due to faulty installation), or during the final fence removal process, then all backfill should be removed carefully by hand under the supervision of the licence holder or an agent, if it is thought likely that newts are present. This will minimise the risk of damaging or killing any amphibians that may be sheltering in the back-fill along the fence line.
- It is sometimes necessary to control the vegetation along the fence-line to prevent the fence becoming overgrown, which helps the newts to breach the fence. This is best achieved by the careful application of an approved herbicide which is licensed for aquatic use to a narrow strip (50cm) on whichever side(s) of the fence newts are being prevented from climbing. Cutting the vegetation using a strimmer may be undertaken but care should be exercised to prevent damage to newts or to the fence.

In conjunction with the exclusion fencing, pitfall trapping will be required to exclude and move as many newts as possible, prior to works commencing, to the receptor site which in this case will be the wet modified bog with ephemeral ponds area to the northwest of the site. The traps will go along the entirety of the exclusion fencing with traps to be installed at a higher density on the northern and HDVWHUQ IHQFLQJ %DVHG RQ WKH SRSXODWLRQ VL]H trapping should last a minimum of 30 nights with appropriate weather and seasonal conditions with a minimum of 50 traps placed.

The following guidance should be followed regarding the installation and servicing of pitfall traps (English Nature, 2001) (see Figure 16):

- Pitfall trap design: plastic buckets should lack a top lip, as this might allow newts to walk between the fence and the bucket without falling in. If necessary, plastic tape can be used around the inner edge of the top of the bucket, forming a small overhang to prevent escapes.
- Pitfall traps will only work effectively if they are fitted flush to the barrier fence, with their tops just below ground level. Frequent checks should be made to ensure that the traps have not pulled away from the fence or their tops raised above the ground, especially after periods of heavy rainfall or dry weather. In very wet periods, especially in clay areas where the water t DEOH FDQ ULVH UDSLGO\ WKH HPSW\¶ EXFNHWV D ineffective) unless some form of pegging-down is used. If remedial works are required, the bucket-hole and backfill should be carefully searched for newts prior to the trap being re-seated. Drilling holes in traps may improve drainage on free-draining soils.
- Spacing of the pitfalls should generally be between 5 and 10 metres.
- Servicing of pitfall traps and refuges must be carried out on a daily basis before 11am.
- Pitfall traps must be checked at least once in every 24 hours between 06.00 and 11.00 hours; preferably they should be checked more frequently.
- Any amphibians captured must be moved to the receptor area and released as soon as possible, using suitable, lidded containers with air-holes.
- A trapping night is only counted as one during which the weather and seasonal conditions indicate newt capture is likely. Such conditions are generally taken to be night air temperature >5°C, with rain (or if no rain, there should have been some rain in the last few days, such that the ground is damp).
- Pitfall trapping should be suspended during periods of dry summer weather with traps covered.
- As the presence of water shrews were recorded, the traps must be designed to allow shrews and other small mammals/non-target species to escape.
- Pitfall traps must be furnished with a sufficient quantity of suitable vegetation to act as an amphibian refuge. This material must be kept moist at all times and must be replenished as necessary. A mammal ladder, consisting of a twig not more than 1cm in diameter must be installed in each pitfall. Where buckets are liable to flooding, a floating raft such as tree bark must be added.

For the area which will require road access for the development a newt grid must be installed over the road connecting to the exclusion fencing (see Figure 17). Newt grids are specialised structures designed to allow vehicles to cross a newt fence barrier while preventing amphibians and reptiles from passing through. Due to the channel's design, the newts can only exit the grid at either end, on the correct side of the fence, effectively preventing them from crossing the road or path.

New drainage ditches will also be created along the southeast and southwest boundaries. These new ditches will connect to the existing ditches along the northeast and northwest boundaries resulting in the site being encompassed on all sides by drainage ditches. This will greatly enhance connectivity around the site for GCN and other amphibian species, creating a safe commuting route to the area to be retained and enhanced (see Figure 21), in part, for the benefit of GCN.

9.2.4 *Nesting Birds*

To prevent potential disturbance to nesting birds, it is recommended that the removal of the dense scrub, tall ruderal vegetation, willow scrub and trees on the site occurs outside of the bird nesting season, usually recognised as 1st March –31st August. If this is not possible, a survey must be carried out by a suitably experienced person of the vegetation and trees to be removed immediately prior to works commencing. If any active nests are found to be present during this search, work must be delayed until such time as the young have fledged.

9.2.5 *Otters, Water Shrews and Water Voles*

The guidance given in Section 9.2.3 above will ensure there is no negative impact as a result of a pollution incident. Lighting guidance given in Section 9.2.1 above will ensure there is no negative impact on otters as the result of habitat fragmentation.

Retention of drainage ditches and the retention and enhancement of the wet modified bog with ephemeral ponds area will ensure no negative impact on these species as the result of habitat loss or loss of habitat connectivity.



Fig. 15: Location of the one-way exclusion fencing (orange line) and vertical exclusion fencing (blue line).

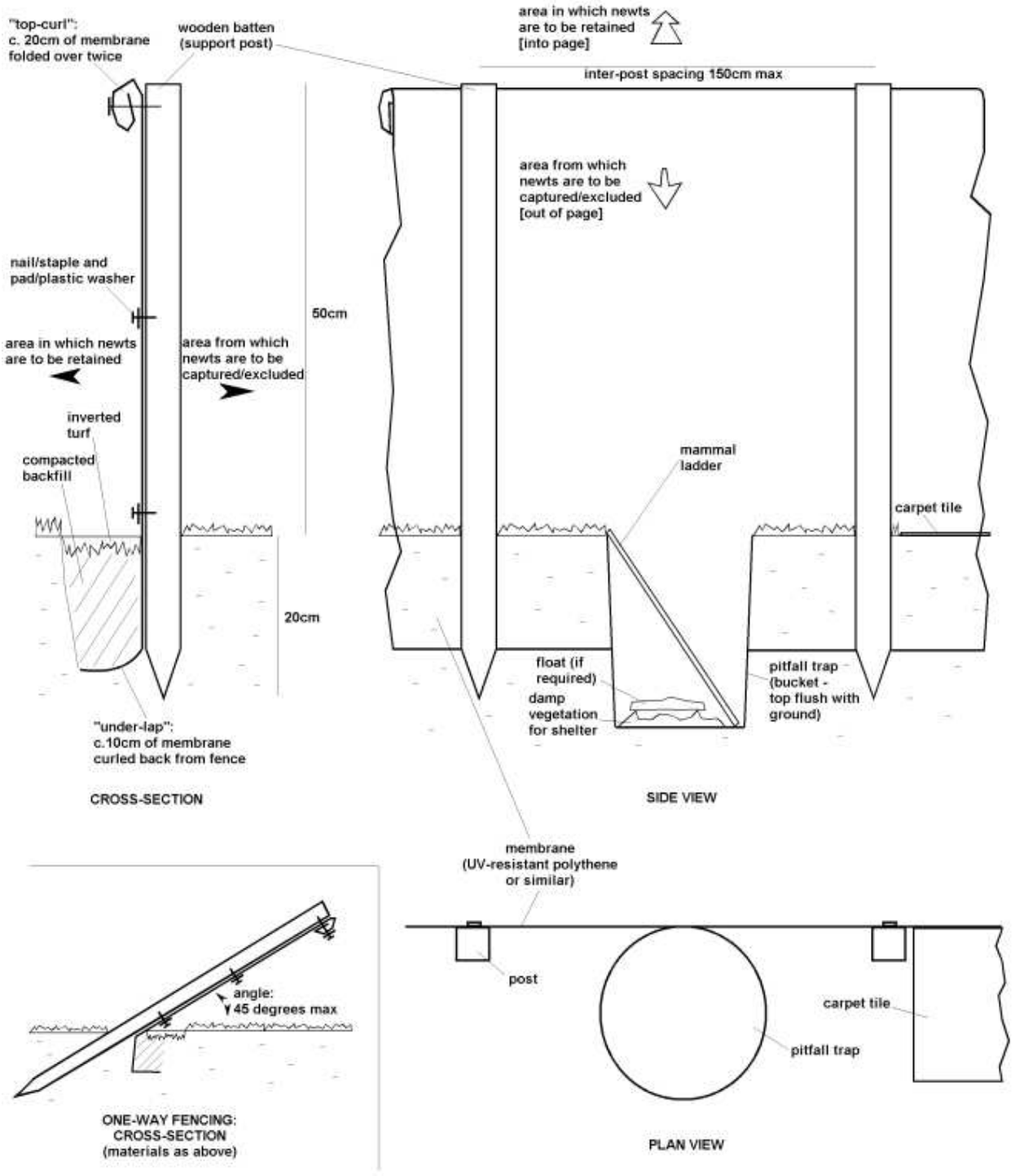


Fig. 16: Recommended design for exclusion fence with straight fencing design and one way fencing design with pitfall trap placement.



Fig. 17: Example design of the newt grid.

9.3 Protected/Designated Sites

9.3.1 *All Statutory Protected Sites*

In order to avoid any negative impact on the above sites as a result of a pollution incident, the guidance detailed in Section 9.2.3 must be adhered to.

9.3.2 *All Other Sites*

Due to a lack of potential negative impacts, no mitigation measures are required.

10 Biodiversity Enhancement & Green Infrastructure Statement

10.1 Biodiversity Enhancement

Under Chapter 6 of Planning Policy Wales 12, 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 2016 and results in the likelihood of planning applications being refused unless they can show a positive impact on biodiversity.

In this case biodiversity enhancements will be achieved through favourable management and modification of retained habitats on the site, the provision of a bee tower onsite and bat tubes into the fabric of the new housing.

10.1.1 *Bat Tubes*

It is recommended that new bat accommodation is built into each of the new houses (see Figure 20). Standard off-the-shelf Bat Tubes would be ideal for this purpose as they can be built into the fabric of the buildings, alternatively, wall mounted products could be used (see Figure 18). These are very discreet as they can be rendered over leaving only the small access point exposed. It is recommended that the two bat tubes are included in each new property in locations where they will be unaffected by existing street lighting (see Figure 20), or light-spill from windows. The tubes must be located as high as possible from the ground to reduce the potential for disturbance and the location of the boxes ZLOO EH FOHDUO\ VKRZQ RQ WKH DUFKLWHFW¶V GUDZLQ must be no external lighting installed that could illuminate the roost entrances. :RRGFUHWH RU :RRGVWRQH¶ should be used due to these PDWHULDOV¶ favourable longevity and insulative properties. This will be of benefit to the pipistrelles and other crevice-dwelling bat species revealed to be present in the locality from the data search and remote monitoring survey.



Fig. 18: Example of an integral bat tube.

10.1.2 *Bee Tower*

It is recommended that a single bee tower (see Figure 19) is installed in an unshaded location within the POS area to the northeast of the site near the tree line with the holes facing south (see Figure 20).

This product only attracts solitary bees and does not therefore cause any problems to the landowner. Solitary bees have no queen or honey to protect and as a result are non- DJJUHVVLYH DQG ZF



Fig. 19: Example of an appropriate bee tower product.

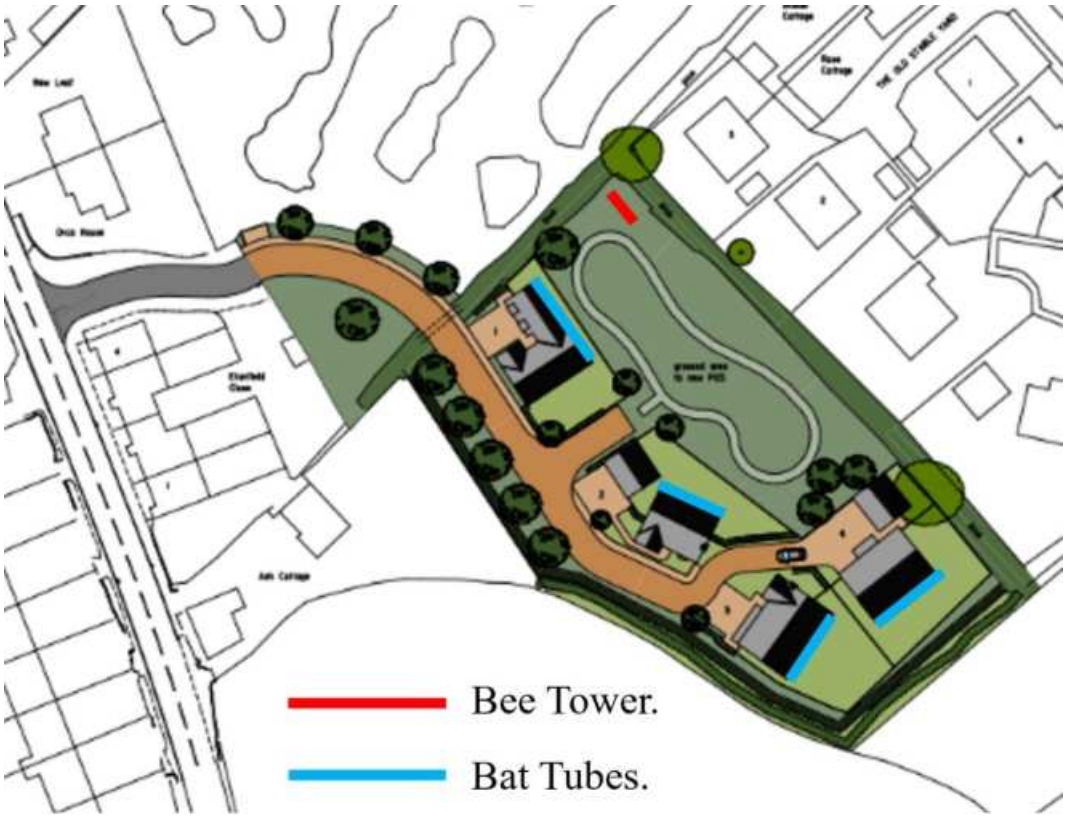


Fig. 20: Proposed locations of the biodiversity enhancements.

10.1.3 *Retained Habitat Modification and Enhancement*

The habitat in the northwest of the site is to be retained (see Figure 21). This area should be subject to an enhancement and ongoing management plan to the benefit of a range of taxa with specific intension to enhance the site for GCN and water voles.



Fig. 21: A map of the site showing the approximate proposed development area (red) and the approximate proposed enhancement and modification area (blue).

A Landscape Environmental Management Plan (LEMP) should be produced to illustrate how the retained habitat will be modified and enhanced to the benefit of these species. This plan must include but not be limited to the following points –

- The enhancement and ongoing management of the site must be placed under the direction of a suitably experienced third party such as the charity, Wild Ground.
- This area should be a closed site with fencing erected to prevent public access, this fencing must be wildlife permeable.
- Connectivity around the site perimeter must be retained and all boundary hedgerows retained.
- Multiple scrapes should be made across the site in order to create a complex of permanent and ephemeral ponds.
- Terrestrial habitat must be retained and enhanced for the benefit of GCN. The provision of hibernacula may be required.
- Ponds should be kept separate from the drainage ditches present on the site to prevent colonisation of ponds by small fish present in the ditches.
- The management of the site must also include scrub control to maintain suitable habitat for water voles
- Ongoing monitoring of the site will be required to inform the ongoing site management and must include, but not necessarily be restricted to GCN and water voles.

10.2 Green Infrastructure Statement

Under Chapter 6 of Planning Policy Wales 12, Planning Authorities must seek to maintain and enhance biodiversity in the exercise of their functions. It is also a priority for developments in Wales to consider ecosystem resilience and green infrastructure in the development of enhancement schemes.

Many habitats and associated species are dependent on habitat connectivity to allow the freedom of movement of both animal and plant species between habitats to avoid problems such as genetic ERRWWOHQHFN¶ + DELWDW IUDJPHQWDWLRQ and the resulting isolation of populations can be problematic IRU VSHFLHV ZKLFK UHO\ RQ. D PHWDSRSXODWLRQ G\QDP

In this case, the following habitat features, species and potential issues have been identified with regards to the proposed develop PHQW¶V UHODWLRQVKLS ZLWK WKH ZLGH

- The treelines, hedgerows, willow scrub and modified bog/drainage ditches on the site provide habitat connectivity with habitats in the wider landscape.
- These habitats include the)HQQ¶V :KL[DOO em% and Wadney LWRSG : SSSIs/SAC/NNR/Ramsar.
- The species primarily potentially impacted by any fragmentation of the habitat would be bats, otter, water voles and GCN which were found to be present in the data search and site surveys.
- The lighting guidance will ensure that connectivity for bat species across the site is retained.
- The new bat tubes will ensure that connectivity for crevice-dwelling bat species across the site is retained and enhanced.
- The drainage ditch will not be directly affected by the works and the avoidance of lighting facing the ditches will ensure that connectivity for otters around the site is retained.
- The new bee tower will ensure that connectivity for solitary bees across the site is retained and enhanced as the site is located within the B-lines.
- Guidance for working in proximity to water will ensure that there is no impact on nearby freshwater habitats, protected sites and associated species as the result of a pollution incident.
- Illumination of the boundaries and drainage ditches will be avoided, and new planting will ensure that there will be no negative impact on the green infrastructure of the proposed development site and the wider landscape.

Details regarding how each biodiversity enhancement measure improves ecosystem resilience and green infrastructure are given below-

- Bat Tubes- These features are to be installed in the new housing, providing roosts for bat species recorded in the data search and during the site surveys. These features will improve connectivity for crevice- GZHOOLQJ EDW VSHFLHV E\ DFWLQJ DV D VWHS radiate into wider habitats. The provision of new roosting opportunities will greatly improve the value of the site for bats.

- Bee Tower – The bee tower will provide additional nesting opportunities for the target taxon, solitary bees. By increasing nesting opportunities for these species, potentially their populations will be bolstered within area surrounding the site, again allowing for the site to ask as a VWHS-SVSWLRQ DQG IDFLOLWDWLQJ the radiation of these species into the wider landscape. This will help to facilitate the objectives of the Welsh B-Lines initiative.

- Habitat Modification and Enhancement – The modification, enhancement and ongoing management of the site will reap a wide range of benefits for a wide variety of taxa. The provision of complex of high quality and (in some cases) more permanent ponds will greatly improve the ecosystem resilience in the area by ensuring the presence of open standing water in times of drought. The retention and enhancement of this habitat will also allow the GCN population present on site to grow significantly as new, more suitable breeding ponds will be provided. The site all also be more suitable for water voles, hopefully encouraging nearby populations to colonise the site and so bolster their populations in the area. In addition to this the enhanced habitats will be of greater value for other taxa including bats, nesting birds, invertebrates and other amphibian species.

Table 6 EHORZ VKRZV stepwise LV WKDW SURDFK KDV EHHQ LPSOHPH goals of Chapter 6 of the Planning Policy Wales (Updated 2023).

Table 6- How the stepwise approach will be implemented on this development.

Stepwise Step-	**How the step has been implemented**
1 - Avoid	Any negative impact on bats and bat movements will be avoided via the implementation of a lighting scheme which complies with the recognised, national guidance, (BCT 2018). Any negative impact on bats as a result of roost loss will be avoided as no PRFs are to be affected. Any negative impact on the statutory protected sites will be avoided via the implementation of the lighting scheme which complies with the recognised, national guidance, (BCT 2018). Any negative impact on any other designated sites will be avoided as there are no SRWHQWLDO SDWKZD\V the survey site and any other protected sites. Any potential negative impact on birds as a result of disturbance while nesting will be avoided through the sensitive timing of works. Any negative impact on otters, water voles or amphibian species as well as freshwater habitats and protected sites as a result of a pollution incident will be avoided via the implementation of the standard guidance for working in or near watercourses.

2 –Minimise	Negative impact as a result of habitat loss will be minimised as all habitats present in the northwest of the site (which are generally of greater ecological value) will be retained and enhanced. Habitats in the southeast of the site to be lost as a result of the proposed development are of minimal ecological value.
3 –Mitigate	Any potential negative impact on terrestrial fauna such as hedgehogs will be mitigated for via the adoption of simple precautionary measures during the development phase. Any potential negative impact on herpetofauna including GCN will be mitigated for via the adoption of precautionary measures including supervision of soil stripping, exclusion fencing and pitfall trapping and through the adherence to the conditions of the EPS development licence to be acquired from NRW for GCN. Any negative impact on terrestrial fauna as the result of insensitive vegetation clearance will be avoided through adherence to the guidance for vegetation removal given in Section 13.1.
4 –Onsite compensate	Any negative impact as a result of habitat loss caused by the removal of any trees will be compensated for onsite through replacement tree planting on a three-for-one basis. Any negative impact caused by the loss of tall ruderal vegetation, dense scrub and degraded improved grassland in the southeast of the site will be compensated for onsite through the favourable management of the large POS area to promote floristic diversity.
5 –Offsite compensate	N/A

11 Legal Implications

11.1 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.

11.2 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 to disturb a badger whilst it is occupying a sett.

11.3 Hedgehogs, Polecats and Water Voles

These are priority species across North Wales and are included in Section 7 of the Environment Wales Act (2016) as species of importance to the maintenance and enhancement of Biodiversity in Wales.

11.4 Herpetofauna

All native reptiles, with the exception of smooth snakes (*Coronella austriaca*) are priority species across North Wales, including Anglesey and are included in Section 7 of the Environment Wales Act (2021) as a species of importance to the maintenance and enhancement of Biodiversity in Wales.

All British herpetofauna receive limited legal protection under Schedule 5 of the Wildlife & Countryside Act which protects the animals and their spawn from sale. Great crested newts are JLYHQ IXOO SURWHFWLRQ XQGHU WKH &RQVHUYDWLR amended in 2017.

Great crested newts are also protected under European law by the Habitat and Species Regulations 2021. Under these laws it is an offence to deliberately kill or injure a great crested newt, to disturb a great crested newt or to damage, destroy or block access to a breeding place.

11.5 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 bir G WR GHVHUW LWV QHVW 7KLV FRYHUV DOO ELUG V VSHFLHV¶ ZKLFK FDQ EH FRQWUROOHG E\ VSHFLDO OLF

In 2000, the Countryside and Rights of Way Act (CROW Act) was made law, strengthening the legal protect LRQ IRU PDQ\ VSHFLHV DQG LQWURGXFLQJ D 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.

11.6 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 (2010). 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 NRW are empowered to issue licences to disturb them and disturb or destroy their habitat for reasons of overriding public interest.

12 References

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

Biodiversity Specification #1, Building with Nature (2022)

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

Environment Wales Act (2021)

Planning Policy Wales v12 (2023)

Wildlife and Countryside Act (1981)

English Nature (2001) Great Crested Newt Mitigation Guidelines

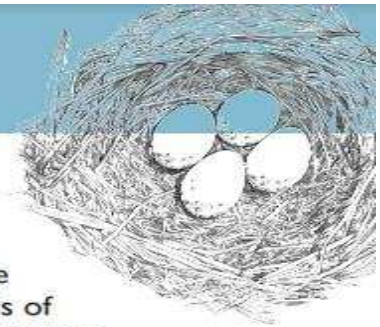
Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth

John Durkin (2014) Bottle Trapping for Newts and not for Water Shrews

13 Appendices

13.1 Guidance for Sensitive Habitat Clearance

Precautionary method of working for reptiles, common toads, hedgehogs, badgers and nesting birds **Biodiversity Specification #1**



This is a summary document to outline the precautionary working practices for protected species (reptiles, common toads, badgers, hedgehogs and nesting birds), on sites where there is a low risk of the species being present and when the local planning authority (LPA) considers the precautionary measures to be applicable. This is not a legal document and does not include all information on wildlife protection and legislation.

The purpose of this document is to set out a method of working for sites where:

- Suitable features (such as rough grassland, hedgerows, trees, scrub and previously developed sites) for reptiles, common toads, badgers, hedgehogs and nesting birds are present, but are very limited in extent, and are likely to be affected by development, or;
- The risk of reptiles, common toads, hedgehogs, badger and nesting birds being present and affected by development proposals is unlikely but cannot be ruled out.
- Reptiles, common toads, hedgehogs, badgers and nesting birds can be found in a range of habitats. Where the LPA considers it appropriate, developers must adhere to the following specific requirements, depending on the suitability for particular species/ species groups.

Precautionary measures:

1. 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. Where applicable, this advice will be given through site inductions, tool box talks (such as CIRIA toolbox talks) or similar. A copy of this Precautionary Method of Working will be kept on site and available for inspection at all times.

2. Should any protected species (i.e. common toads, reptiles, birds, hedgehogs and badger) be discovered during construction or other works on site, which are likely to be affected by the development, works will cease immediately. The owner/ site manager will then seek the advice of a suitably qualified and experienced ecologist and works will only proceed in accordance with the advice they provide. The Chartered Institute of Ecology and Environmental Management (CIEEM) provides further guidance and advice on finding a suitably qualified ecologist.



In implementing the planning permission and related works, the following methods of working will be adopted:

3. Any vegetation clearance (i.e. removal of trees, scrub, hedgerows) or works to buildings shall not commence until a careful check for nesting birds has been completed, particularly during the main breeding season (months of March to August). If bird nests are found then works in the area must stop until the chicks have fledged the nest.

4. All clearance works (i.e. clearance of log piles, debris, rough grass etc.) will be undertaken when common reptiles and amphibians are likely to be fully active i.e. during the April to September period.

5. Clearance of dry stone walls, logs, brash, stones, rocks or piles of similar debris will be undertaken carefully and by hand.

6. 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;

Precautionary method of working for reptiles, common toads, hedgehogs, badgers and nesting birds **Biodiversity Specification #1**



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;

7. Following removal of tall vegetation, using the methods outlined in point 5, remaining vegetation will be maintained at a height of 30mm through regular mowing or strimming to discourage common reptiles and amphibians from returning.

8. Ground clearance of any remaining low vegetation (if required) and any ground works will only be undertaken following the works in point 5) above.

9. Any trenches left overnight will be covered or provided with ramps to prevent animals falling into the trenches and being trapped. Excavations left overnight should be checked prior to filling. Any open pipes left overnight will be covered.



10. Any building materials such as bricks, stone etc. will be stored on pallets to discourage reptiles from using them as shelter. Any demolition materials will be stored in skips or similar containers rather than in piles on ground.



For further information on the relevant protected species and legislation, please refer to the website links below:

https://www.arc-trust.org/legislative-protection-for-the-uks-herpetofauna

https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/

https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-hedgehog/

https://www.gov.uk/guidance/badgers-protection-surveys-and-licences

Further information about protected species and development including their ecological requirements, protection and the planning development system can be found at:

https://www.gov.uk/government/organisations/natural-england



13.2 Site photographic record



Part of Southeast Section with tree group.



Improved grassland and dense scrub on Southeast section.



Degraded improved grassland in Southeast section.



Improved grassland and dense scrub on Southeast section.



Tree group to be lost.





Scattered willow scrub and vegetated bund in Northwest section.



End of drainage ditched intersecting site.



Wet modified bog with ephemeral ponds in Northwest section.



Wet modified bog with ephemeral ponds in Northwest section.



Willow scrub and wet modified bog with ephemeral ponds in Northwest section.



Part of drainage ditch intersecting the site after dry period.



Drainage ditch intersecting site.



Drainage ditch intersecting site.



Drainage ditch intersecting site.



Modified wet bog with ephemeral ponds in Northwest of site.



Modified wet bog with ephemeral ponds in Northwest of site.



Modified wet bog with ephemeral ponds in Northwest of site.



Willow scrub and modified wet bog with ephemeral ponds in Northwest of site.



Tall ruderal vegetation in Northwest section.



Modified wet bog with ephemeral ponds in Northwest of site.



Modified wet bog with ephemeral ponds in Northwest of site.



Vegetated spoil bunds in Northwest section of the site.



Drainage ditch intersecting the site.



Drainage ditch intersecting the site.



Tall ruderal vegetation in Northwest section.



GCN recorded while torching the site on 23rd April 2025.



Bottle traps being checked.

13.3 Review Table

Name	**Task**	**Date**
Heaven Kyriacou	Author	11.07.2025
Ben Box	Reviewing	23.07.2025
Chris Hall	Proofreading	24.07.2025