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Ecological Appraisal V3

**LAND AT BRYN MORFA
BODELWYDDAN
DENBIGHSHIRE
LL18 5TR**

ON BEHALF OF: MR MAX JONES

DATE: DECEMBER 2019

**REPORT BY: GARETH JONES
VERIFIED BY PAUL ROBERTS.**

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Executive Summary

Instruction

PJ Ecological Solutions was commissioned by Mr Max Jones to undertake the ecological appraisal of a proposed development site at Bryn Morfa, Bodelwyddan. The site consists of unmanaged semi improved grassland reverting to scrub incursion within the margins. The site is bordered by hedgerows, post and wire stock proof fencing and three semi mature sessile oak trees. A stream/drain (eutrophic running water) separates the site from the neighbouring allotments and sewage works.

The site is situated at Land adjacent to Bryn Morfa, Bodelwyddan, Denbighshire LL18 5TR. Ordnance Grid Reference (SH 99687 75985).

The proposals

The proposed scheme is for the construction of 28 residential properties, an access road, installation of servicing, parking facilities and associated landscaping.

Method of Study

An initial survey and report provided by Ecoscope Ltd dated 29th July 2019 identified the need for further survey work and recommended that a water vole survey/assessment of the stream/drain, a reptile/amphibian survey and bat surveys are all undertaken to rule out the presence. The report provided by Ecoscope Ltd (29th July 2019) should be read in conjunction with this report.

The contents of this report details the findings of a water vole survey, reptile surveys and bat activity surveys undertaken in August and September 2019, to identify potential impacts and make recommendations for general mitigation, compensation, enhancements and further surveys as appropriate.

These further studies/surveys were carried out over the 2019 field season by experienced ecologists using recognised methodologies.

This is in accordance with TAN 5 (Technical Advice Note 5 – Nature Conservation and Planning) to enable an assessment of impacts and mitigation to negate impact as a consideration, material to the determination of planning requirements.

Results

A data search with the Local Records Centre revealed the following species relevant to the surveys/studies:

- Grass snake within 300m of the proposed site
- Common lizard within 300m of the proposed site
- Great Crested Newt within 700m of the proposed site
- Common frog recorded on site by Ecoscope Ltd on the 18th June 2019

A water vole survey of the stream/drain was undertaken by Paul Roberts on the 26th of August 2019.

Reptile surveys were undertaken throughout September 2019 by Paul Roberts assisted with Gareth Jones(MSc).

Bat activity surveys were undertaken in August and September 2019 by Paul Roberts assisted with Gareth Jones (MSc) and Clifford Roberts.

No signs of water vole were recorded during the surveys furthermore, a water vole habitat assessment was undertaken using ' A Method for Assessing Water Vole Habitat

Suitability ` (Harris *et al.*2009) found the stream/drain unsuitable for water vole with very few features of benefit to the species, lack of water in the watercourse and no berms present.

During the reptile surveys no reptiles were recorded on site. Common Toad and Common Frog were found.

The bat surveys involved dusk emergence surveys, observing the Sessile Oak Tree which was found to contain features identified during the initial surveys of the site (Ecoscope Ltd on the 18th of June 2019). Transect surveys were undertaken recording bat movements within the site and its boundary. The sessile oak tree was found to contain roosts for two soprano pipistrelle bats and the majority of the bat activity after the emergence was along the hedgerow within the eastern boundary. Other bats observed and recorded during the surveys were common pipistrelle and noctule. None of the species were found to be roosting on site.

Mitigation

With reference to bats, no specific mitigation is recommended as it is understood the tree is to remain in situ which in turn the bat roosts will be unaffected by the proposals. Some reasonable avoidance measures are recommended to ensure that there is continued ecological functionality of the commuting routes, including lighting restrictions on the hedgerows and trees of the site.

Due to the fact that Great crested newts were confirmed within 320m of the scheme/site a European Protected Species Licence prior to the works is likely. Forming part of the licence, sensitive site clearance (phased vegetation clearance) will be required for Great crested newts and this process will ensure no toads or frogs are killed during the site clearance.

Enhancements and Recommendations

14 x Vivara Pro Built-In Bat tubes will be erected on the southern aspects of the new buildings.

Planting of a tree/ trees (native species of local provenance) is recommended within the of the new development – suitable species include crab apple or bird cherry. This would provide a beneficial foraging resource for bats and birds.

The conclusions of the surveys is that the proposed development is unlikely to have a negative impact on these protected species, as long as the recommendations are adhered to.

Section 1

Introduction

- 1.1 P J Ecological Solutions were commissioned by Mr Max Jones to undertake the ecological appraisal to ascertain whether the proposed works would affect protected species: specifically bats, water vole and reptiles.
- 1.2 The surveys were undertaken at Land adjacent to Bryn Morfa, Bodelwyddan, Denbighshire LL18 5TR (hereafter referred to as 'the site'). The site is centred on approximate Ordnance Grid Reference (SH 99687 75985).
- 1.3 The findings of this report have been used to inform a planning application for the proposed construction of 28 residential properties, an access road, installation of servicing, parking facilities and associated landscaping.
- 1.4 The aim of this appraisal is to establish the following:
 - Identify both habitats and species constraints pertinent to the development proposals.
 - Detail EPS licensing requirements, reasonable avoidance measures, mitigation and compensation measures where necessary;
 - Identify opportunities for the proposed development to provide enhancements and add to the biodiversity resource within the site.

Section 2 Methodology

- 2.1 This section summarises the methodologies used during the ecological studies, undertaken to inform the proposed development of the site, in line with the aims set out in **Section 1** of this report.

Desk Study

- 2.2 The desk study is an important part of the ecological assessment; it provides contextual information, such as the sites proximity to designated sites. This information is used to supplement the findings and support the recommendations and conclusions in this report.

Table 2.1: Summary of resources and information requested during the desk study (December 2019).

Resource	Information Assessed (search distance from site boundary)
Cofnod Data Search	<ul style="list-style-type: none">• Protected/UK BAP species records (1km)

- 2.3 The search areas described, above and resources used, are considered to be sufficient to assess the potential for the proposals to affect protected species and designations of conservation concern. All pertinent information obtained during the desk study is referenced within this report.

Species Surveys

Bat activity and transect Survey

- 2.4 A bat roost and transect survey was undertaken on the 30th of August and 13th and 20th of September 2019 by Paul Roberts (Paul Roberts - Licence number 55319: OTH: CSAB: 2018) and assisted by Gareth Jones (BSc, Student member of CIEEM) and Cliff Roberts. Three surveyors were present during the survey, one covering a tree and two covering the transect route.
- 2.5 A large sessile oak tree in the sites boundary was found to contain potential features suitable for bats. This is the only tree on site with apparent features that held potential for roosting bats.
- 2.6 Three activity surveys were undertaken to determine whether features recorded within the ash tree accommodate roosting bats.
- 2.7 Transects were undertaken in accordance with current statutory and best practice guidelines (Natural Resources Wales, Bat Conservation Trust). The primary objective of the transect survey was to identify foraging areas, commuting routes and to gain understanding of species utilisation of the site.

2.8 The dates, times, and weather conditions of each survey are given within Table 1 of this report. The bat detectors used were a heterodyne and frequency division bat detector (Anabats SD1 and Bat box duet).

Table 2.2: Dates and weather conditions.

Date	Survey Type	Sunset/sunrise time	Survey start /finish	Cloud cover	Rain	Wind (Beaufort)	Temperature (°C)
30/08/19	Transect and Emergence	20:08	20:08-22:08	40	Nil	1	14.5
			19:25-21:25				
13/09/19	Transect and Emergence	19:34	19:30-21:35	25	Nil	0	15.5
			19:05-21:05				
20/09/19	Transect and Emergence	19:17	19:17-21:17	55	Nil	1	14
			18:45-20:45				

Limitations

2.9 There are no limitations associated with the weather conditions of the survey.

2.10 As the potential of the site for roosting bats may change over time, it is recommended that bat surveys are updated after two years, if development has not yet commenced.

Reptile Survey

2.11 The reptile survey followed the standard best practice methodology set out in Froglife Sheet 10: Reptile Survey.

2.12 A total of 21 0.5m x 0.5m squares of various materials were used as artificial reptile refugia and set out around the margins of the site. There were a total of 6 corrugated metal refugia and 15 bitumen roofing felt refugia used. The variety of materials was to ensure that a range of different basking and sheltering options were present during any given environmental conditions. The refugia were set out on the 30th of August 2019 and surveyed throughout September 2019.

2.13 A total of 7 surveys were completed. Species, life stage and sex were recorded, where animals were present, as well as environmental data. Non-target species, such as amphibians and small mammals, utilizing the refugia were also recorded during the surveys.

Water Vole Survey

2.14 The banks of the small stream and drainage ditches within the site were examined for signs of water voles using the methodology described in the Water Vole Conservation Handbook 2011. This included searching the banks for evidence of

droppings, latrines, feeding stations, burrows, footprints and runways through bankside vegetation.

- 2.15 Furthermore, a habitat assessment was undertaken using 'A Method for Assessing Water Vole Habitat Suitability' (Harris *et al.* 2009).

Section 3 Results

Desk Study

Species records specific to the assessment

- 3.1 A review of information available from a data search which was obtained by Ecoscope Ltd, identifies no bats recorded for the site or the 1km study area. Grass snake has been identified within 300m, Common lizard within 300m, Great Crested Newt within 700m and Common frog recorded on site by Ecoscope Ltd on the 18th June 2019.

Reptile Survey

- 3.2 No reptile species were recorded on site. Although common toad (*Bufo bufo*) and common frog (*Rana temporaria*) were found during the surveys. The presence of common toad at refugia nos. 2, 8, 9, 10, 11, 12 and 13, all of which are located within the western and northern boundary of the site. A common frog was found at refugia 10 on one occasion.

Figure 3.1: Location of reptile refugia

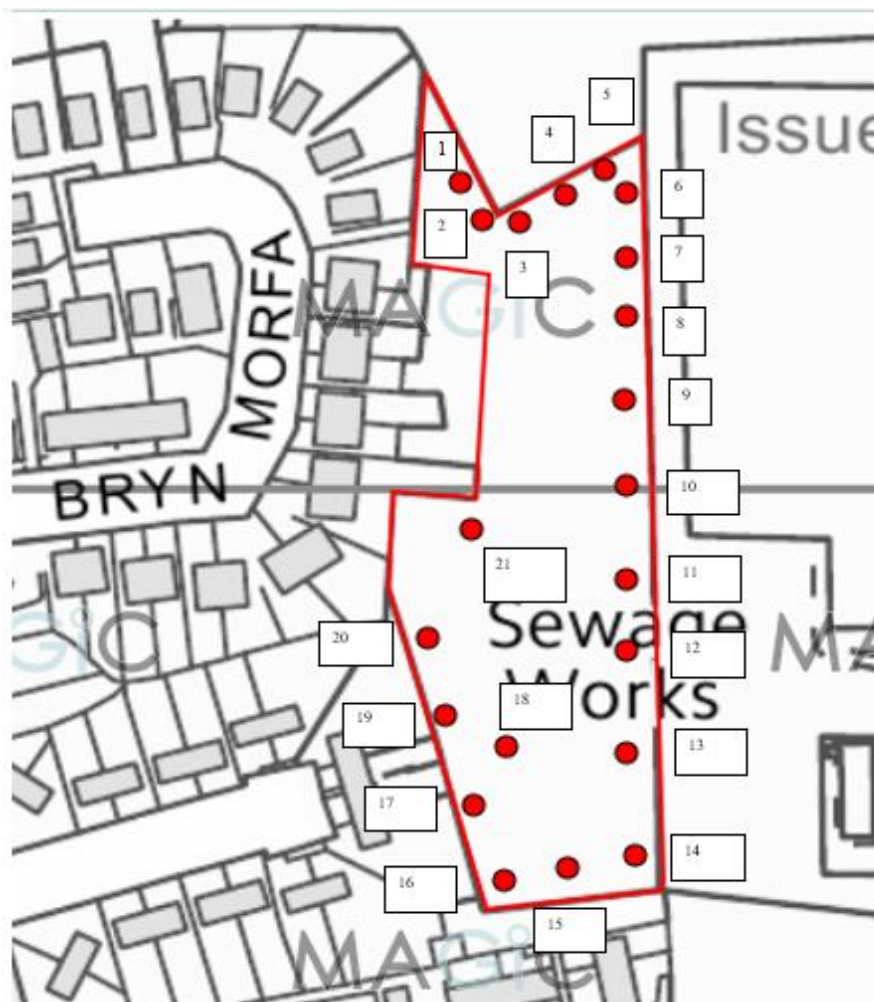


Table 3.1: Conditions and results from the survey

Date	Temp (°C)	Wind Speed (Beaufort Scale)	% Cloud cover	Refugia No /		Total Adult	Total Juvenile	Total
05/09/19	14°	1	33	0	0	0	0	0
10/09/19	16°	2	35	8	1 A 0 J	4	0	4
				9	1 A 0 J			
				10	1 A CFrog 0 J			
				11	1 A 0 J			
12/09/19	14°	2	42	10	1 A 2 J	5	3	8
				11	2 A 0 J			
				12	1 A 1 J			
				13	1 A 0 J			
17/09/19	14°	3	30	0	0	0	0	0
19/05/19	15°	1	46	9	1 A 0 J	2	0	2
				11	1 A 0 J			
25/05/19	16°	1	76	0	0	0	0	0
31/05/19	16°	2	41	2	1 A 0 J	2	0	2
				12	1 A 0 J			

- 3.3 The maximum number of Common toad individuals seen by one person in one day was 8, meaning the population on site is low and the common frog population is considered very low.

Timing

- 3.4 All reptile survey work was undertaken during September 2019; therefore, the surveys were completed within the optimal survey period.

Weather conditions

- 3.5 Surveys were carried out when temperatures were between 10°C and 18°C. If temperatures are above 18°C then reptiles are less inclined to use refugia.

- 3.6 Surveys were not undertaken if it was raining, when it was windy or during excessive heat periods.
- 3.7 Weather conditions prior to and during the reptile surveys were suitable to undertake such a survey.

Personnel

- 3.8 All surveys were undertaken by experienced ecologist Mr Paul Roberts and graduate ecologist Mr Gareth Jones.

Constraints

- 3.9 There were no constraints experienced during the surveys.

Water vole Survey

Small stream/drain

- 3.10 This watercourse enters the site at OS grid reference SH 9971 7590 and leaves the site at OS grid reference SH 9971 7608. The stream is variable in character, with an average width of approximately 50cm, and an average depth of 10 – 20cm at the time of survey. The substrate is composed predominantly of silt with the occasional small stones. The banks are very variable in height, generally between 15cm – 125cm tall, and are composed of exposed earth and overhanging vegetation. A species-poor hawthorn *Crataegus monogyna* hedgerow is present along the western bank top, with an allotment situated to the west. There is no vegetation along the channel. A section in the middle contains a ford for pedestrians to access the allotment.

Figure 3.2: an indication of the depth of water



- 3.11 The structure and composition of the small stream/drain and its banks provides unsuitable habitat to support water voles, with the banks composed of earth and ivy growth, no grassed lawns and very slow-flowing water. The shading by the adjacent vegetation does decrease the suitability of the watercourse in relation to water vole. No evidence of water vole was found and no burrows were located. No footprints or droppings of water vole or brown rat were located along the watercourse at any point during the survey.

Figure 3.2: an indication of the depth of water and ivy growth



Timing

- 3.12 All water vole survey work was undertaken early September 2019; therefore, the survey was completed within the optimal survey period.

Personnel

- 3.13 All surveys were undertaken by experienced ecologist Mr Paul Roberts and graduate ecologist Mr Gareth Jones.

Constraints

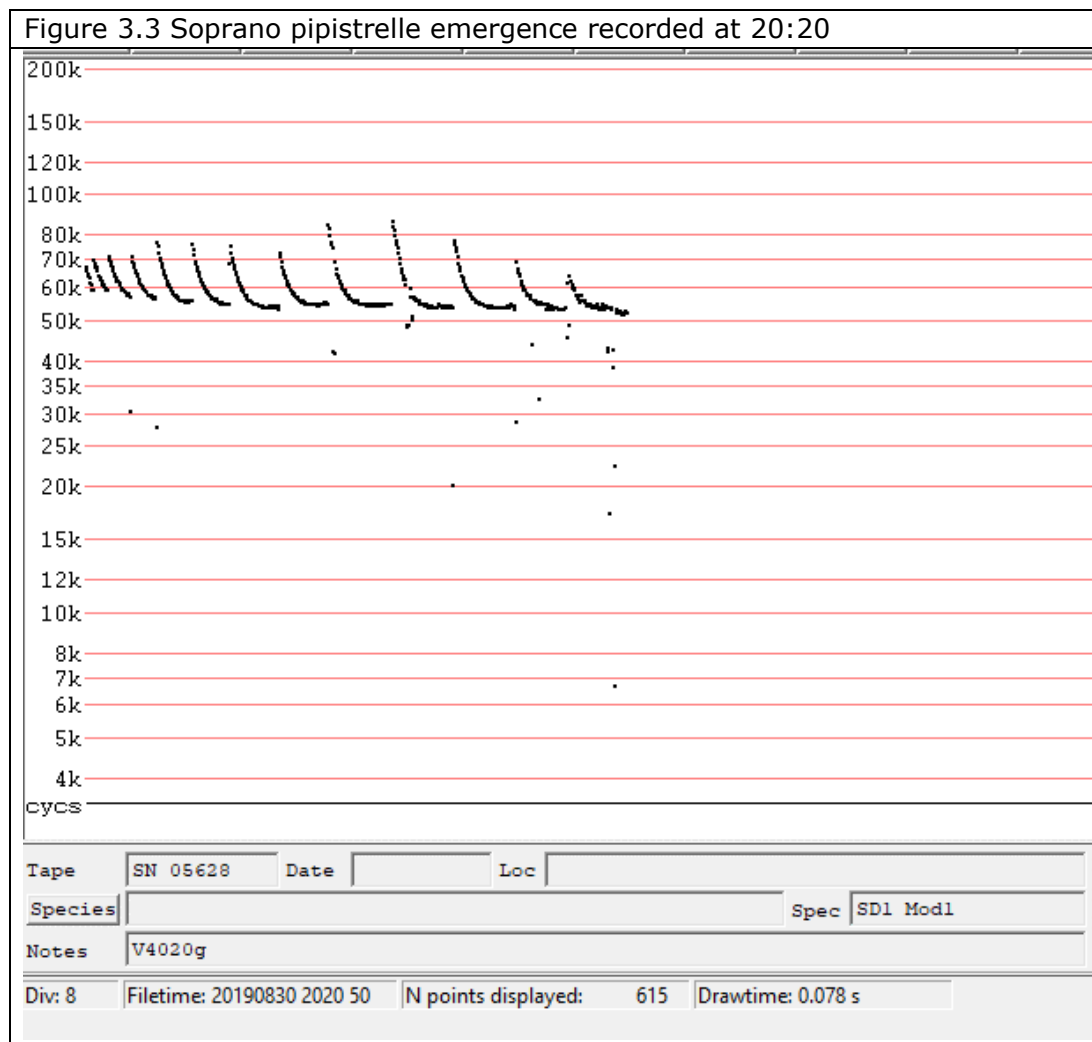
- 3.14 There were no constraints experienced during the surveys.

Bat Surveys

Results – Emergence survey

30th August 2019

- 3.15 At 20:20, twelve minutes after sunset a soprano pipistrelle bat emerged from the mid-section of the sessile oak tree (ordnance grid reference SH 9971 7607). At 20:26 a further soprano pipistrelle bat emerged from the same area of the tree.
- 3.16 Both of these bats were observed flying south alongside the hedgerow which is situated within the site boundary. No other bats were observed emerging from this tree during the survey session.
- 3.17 Very good level of bat activity as recorded throughout the survey period; Common pipistrelle (*Pipistrellus pipistrellus*) and Noctule (*Nyctalus noctula*) bats were recorded foraging or commuting along the site boundary adjacent to the tree.



13th of September 2019

- 3.18 At 19:58, a soprano pipistrelle was observed emerging from the mid-section of the sessile oak tree (ordnance grid reference SH 9971 7607). A further soprano pipistrelle emergence was observed at 20:03. Both of these bats were observed flying south alongside the hedgerow forming the sites boundary. Good levels of bat activity was recorded throughout the survey period; Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrelle pygmaeus*) and Noctule (*Nyctalus noctula*) bats were recorded foraging or commuting along the boundary.

20th of September 2019

- 3.19 At 19:24, six minutes after sunset a soprano pipistrelle bat was observed emerging from the mid-section of the sessile oak tree (ordnance grid reference SH 9971 7607). A further soprano pipistrelle bat was observed from the same area of the tree. Both of these bats flew south alongside the hedgerow which is the site boundary. Good levels of bat activity were recorded throughout the survey period; Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrelle pygmaeus*) and Noctule (*Nyctalus noctula*) bats were recorded foraging or commuting along the hedgerow.

Results – Transect survey

- 3.20 Three transects were undertaken on the 30th of August and the 13th and 20th September to identify foraging areas, commuting routes and to gain understanding of species utilisation of the site.
- 3.21 The two surveyors followed a predetermined route which incorporated habitat features with potential for use by foraging and commuting bats, in the majority of cases the route focused on vegetated liner features.
- 3.22 The routes were walked slowly by the surveyors using visual observations and recordings from bat detectors to identify bat activities.
- 3.23 Surveyors were equipped with the following bat detectors:
- Anabat SD1 frequency division detectors
 - Batbox heterodyne
- 3.24 Confirmed bat activity was detected during the survey with a maximum accumulation of 28 bat passes observed.
- 3.25 Three species of bats were observed and recorded during the survey period. The species are Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrelle pygmaeus*) and Noctule (*Nyctalus noctula*) bats.
- 3.26 The bat activity detected was that of foraging and commuting bats. The majority of the commuting and foraging was observed along a section of hedgerow on the east of the site (Highlighted in Figure 3.4).

Figure 3.4: showing the bat activity (shaded), Blue and Yellow arrows are the transect survey paths.



Section 4

Species Evaluation

Water vole

- 4.1 The site is negative for Water vole. Although the species is present within 350m of the site, records for this species are very rare and scattered in North Wales, partly due to lack of recording, but also because environmental conditions and land use is not particularly conducive. Furthermore, an assessment of stream/drain found that the features alongside the stream/drain did not present suitable habitat for Water vole.

Reptiles and Amphibians

- 4.2 No records of reptile species were made during the surveys and confidence is high that this is a true reflection of the site and its likelihood of supporting reptiles.
- 4.3 The survey effort on this site was considered sufficient , with 21 tiles/refugia placed around all suitable edge habitat on the site and checked on 7 occasions. This constitutes a total of 147 refugia checks, alongside the visual encounter surveys. There was minimal problems with disturbance during all the surveys.
- 4.4 The site has been shown to support a small population of Common toad and a very small population of Common frog. It is almost certain that some of these sightings were of the same animals, as they were mainly recorded from under a single refugium.
- 4.5 The main features that the species are utilising for shelter are situated around the margins of the site and can be retained or mitigated for in the development proposals. The interior of the site is fairly dense vegetation, with few open areas or basking potential and nowhere for animals to shelter.

Bats

- 4.6 The bat activity surveys undertaken of the sessile oak tree which is situated within the north eastern corner confirmed two bat roosts to be present. On the three occasions two soprano pipistrelle bats were observed emerging from the tree.
- 4.7 The site is bordered to the east, south and north by hedgerows and tree lines, which provide flight lines for the bat species recorded. There is a relatively good network of potential commuting features within the landscape in this area, which allows bats to travel from roosts to foraging sites further afield. The number of passes recorded along the boundaries during the surveys suggests that the animals are foraging over the hedgerows, resulting in multiple passes of individuals.
- 4.8 It is understood that the hedgerows and the sessile oak tree which contains two bat roosts are to remain in situ and will be unaffected by the proposals. Therefore,

it is concluded that this proposal will have no impact on the roosts in the tree or on the hedgerows.

Section 5

Recommendations

Amphibians

- 5.1 Due to the small number of animals involved and the fact that they are almost certainly restricted to the margins of the site, it is recommended that they can be addressed through 'avoidance measures' during the site clearance phase. This is likely to coincide with a Mitigation Licence for Great crested newts.
- 5.2 If these measures are adopted fully, it is highly unlikely that there will be any direct disturbance or impact on Common toad or Common frog.
- 5.3 Any vegetation clearance within 10m of the site boundary will be supervised by a suitably qualified ecologist, who will undertake a destructive search.
- 5.4 No heavy machinery will be used until it is established beyond reasonable doubt that the area is clear of amphibians including Great crested newts.
- 5.5 Some vegetation removal may be required to be undertaken using hand tools.

Bats

- 5.6 Due to the recorded use of the sessile oak tree containing two bat roosts and the boundary features on the site by bats as commuting routes, it is important to build in some 'reasonable avoidance measures' to the design of the proposed development to ensure that there will be no negative impact on these European Protected Species.
- 5.7 If the following measures are included, not only is it anticipated that the development will have no detrimental impact, but it could bring Biodiversity gain in the provision of new bat roosting opportunities.

Reasonable Avoidance Measures and Habitat Enhancements

- 5.8 14 x Vivara Pro Build-in bat tubes will be erected on the southern eastern gable of the new buildings at a height of no less than 4m. The site ecologist should be consulted over the exact siting and number of these features, which will need to be assessed in accordance with the lighting and planting plans.
- 5.9 Planting of a tree/ trees (native species of local provenance) is recommended within the new development – suitable species include crab apple or bird cherry. This would provide a beneficial foraging resource for local wildlife.
- 5.10 Any lighting installed near the boundary of the site and likely to have an impact on the flight lines will be downward facing and either on a timer or movement activated.

Section 6

References

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Joint Nature Conservation Committee (1989). Guidelines for the selection of biological SSSIs. Part 2: Detailed guidelines for habitats and species groups - 15 REPTILES AND AMPHIBIANS. Under Revision. <http://jncc.defra.gov.uk/page-2303>

Appendix 2

Procedure to Follow if Bats are Discovered during the Works

- o If at any point during the works bats are discovered then contractors must stop work immediately and telephone Paul Roberts on 07706 904666.
- o P J Ecological Solutions will either provide an appropriately licensed bat worker to the site or provide a member of staff who will liaise directly with Natural Resources Wales. Actions will then be taken following advice given. This may include removal of bats, but only where direct written or verbal permission is gained from Natural Resources Wales.
- o Bats are a protected species and there should be no attempt to handle a bat if discovered. The bat should be covered with a light material (cloth) and the bat ecologist called out to carry out the rescue.
- o Only when Natural Resources Wales is satisfied that the risk to bats is ceased will works recommence.
- o Should it transpire that the operation being carried out is of more risk to bats than was originally thought, then works will be stopped until they can be supervised by an appropriately licensed bat worker.
- o If a bat is found under roofing material or within any other niche to the building fabric, works will stop immediately (as above). If the bat does not voluntarily fly out, then the aperture will be carefully covered over to protect the bat(s) from the elements, leaving a small gap for the bat to escape voluntarily. Any covering should be free from grease or other contaminants and should not be a fibreglass-based material.