







Land south of Bryn Lane

Wrexham

Bat Survey Technical Report

Prepared For: Net World Sports Ltd

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1.0 INTRODUCTION

1.1 TEP was commissioned by Net World Sports Ltd in September 2024 to undertake bat surveys at the site known as Land south of Bryn Lane, Wrexham. The Scheme is located at grid reference SJ 38450 50752 and is approximately 3.5 ha in extent. For the purposes of this report this will be referred to as 'the Scheme'.

1.2 This technical report includes details of the methods employed and any limitations of the surveys undertaken thus far, with further surveys undertaken during winter 2025. Results are provided with supporting maps, together with an evaluation of bats within the Scheme. An assessment of the potential impacts associated with the development proposals and requirements for mitigation are presented within the main body of the Ecological Impact Assessment (EcIA) report (TEP Refs: 10204.002).

Purpose of this Document

1.3 This report has the following objectives:

- give an overview of the habitats present within the site which could be used by bats for roosting, foraging and commuting;
- identify and characterise any confirmed bat roosts within the site, including species, type and status of roost;
- identify how bats use the site for foraging and commuting; and
- evaluate the value of the site for bats.

Legislation

1.4 All bat species and their roosts are legally protected in the UK. All bats are listed as European Protected Species (EPS) in Conservation of Natural Habitats and of Wild Fauna and Flora, better known as the Habitats Directive. There is also protection for bats and roosts in England and Wales under the Wildlife & Countryside Act 1981 (as amended).

1.5 It is a criminal offence if any persons:

- deliberately capture, injure or kill a bat;
- intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);

- possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; or
- intentionally or recklessly obstruct access to a bat roost.

Scheme Description

1.6 The Scheme is situated north of Wrexham Industrial Estate. The site itself is a large open field of previously grazed semi-improved grassland. To the north are agricultural fields, whereas to the south, east and west are areas of heavy industrial estate, interspersed with parcels of broadleaved woodland and scrub. The location of the site is depicted by the red line shown in Figure 1.

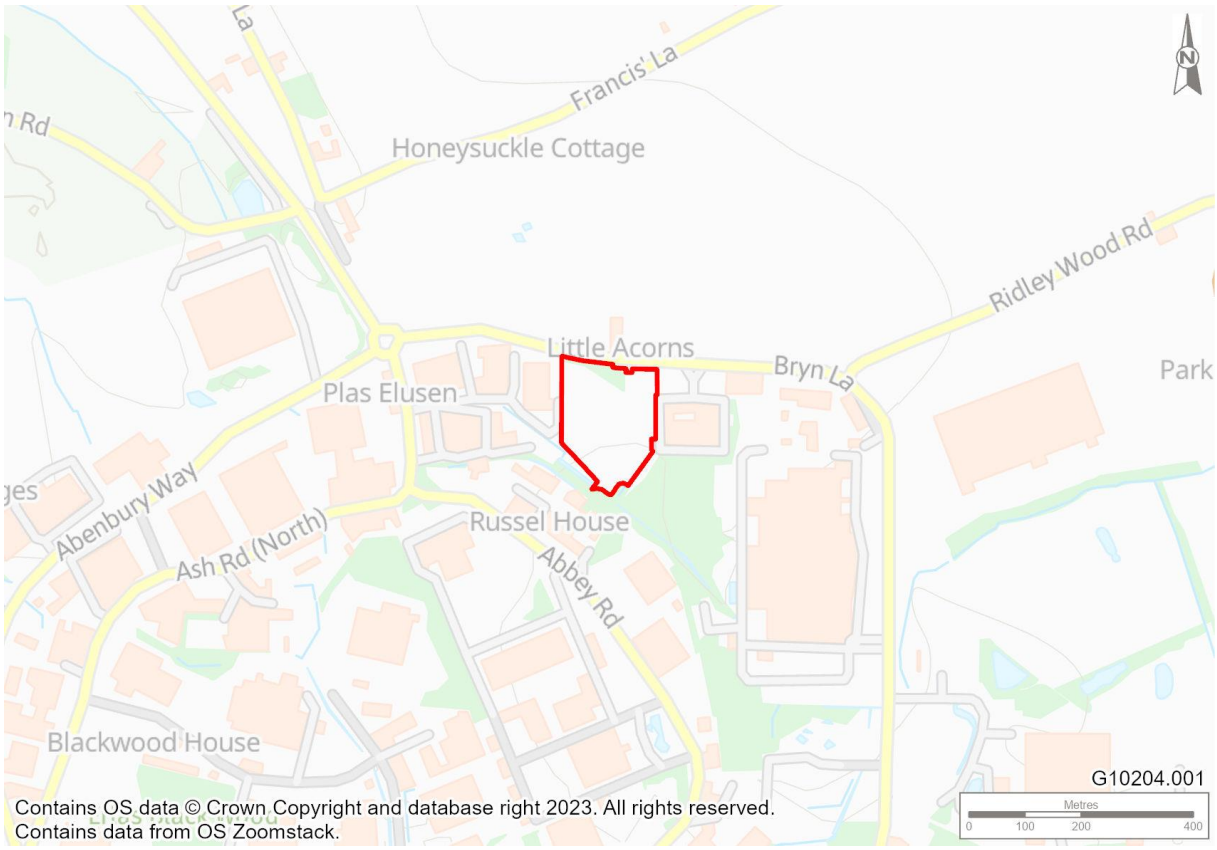


Figure 1: Site Location and Context

2.0 Methods

2.1 The following bat surveys were undertaken in accordance with the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2023[1]).

Ecological Desk Study

2.2 In line with current best practice (CIEEM, 2016[2], 2017b[3]), information regarding designated sites, notable habitats and existing protected and notable species records of the past decade, within a minimum 2km radius of the Site, was collated and reviewed to inform the EcIA reports. This included pre-existing records for bats. further details are presented within the Ecological Desk Study (TEP Ref: 10204.001).

Roost Surveys

Preliminary Roost Assessment

2.3 A daytime survey of the structure on site was carried out at one structure on site on 20th August 2024 by an experienced TEP ecologist.

2.4 The structure was inspected externally and partially internally for field signs of bats such as droppings, scratch marks, insect remains and urine smear marks, with an endoscope used as an aid. The survey was conducted with year-round use by bats in mind.

2.5 The structure was then categorised according to its bat roost suitability as determined by the characteristics and potential roost features (PRF) detailed in table 4.1 of the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2023[4]).

Survey Constraints

2.6 Bat droppings are one of the field signs the survey looks to identify as evidence of bat activity. However, droppings on external surfaces can be washed or blown away by weather. Weather prior to and during the daytime survey was calm with no rain and therefore there was no significant constraint to the external inspections.

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[1] Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London

[2] CIEEM (2016) Guidelines for Accessing and Using Biodiversity Data. Chartered Institute of Ecology & Environmental Management

[3] CIEEM (2017b) Guidelines for Preliminary Ecological Appraisal, 2nd Edition. Chartered Institute of Ecology & Environmental Management

[4] Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London

Nocturnal Roost Surveys of Structure

2.7 The structure was identified during the daytime evaluation to have moderate suitability for roosting. The structure was therefore subject to two nocturnal surveys in accordance with the evaluation.

2.8 Surveys were led by experienced TEP surveyors. Two surveyors were stationed at fixed vantage points around the structure. All structure building access points for bats were covered by strategic placements of surveyors. Two dusk emergence surveys were used and commenced 15 minutes before sunset and finished 1.5 hours after sunset.

2.9 One full spectrum detector (BatLogger M and Anabat Scout) was employed at each vantage point on all surveys. Night vision aids (NVA) were deployed at one vantage point focusing on key features of the building during both surveys alongside a surveyor.

2.10 During each survey observations such as bat species, the number of bats entering or leaving the structure, the location of entry and exit points, behaviours such as close interest in a building or its features, commuting or passing bats and weather conditions were recorded.

2.11 Surveys were carried out during the optimal survey period of the year (May to September) and slightly after in the beginning of October. Weather conditions were recorded at the start and end of surveys in addition to any significant change in condition during the survey and are outlined in Table 2.

Table 1: Weather conditions during nocturnal building surveys

Date	Sunset	Start	End	Temperature		Wind*		Cloud**		Precipitation	Moon Illumination
				Start	End	Start	End	Start	End		
30/08/24	21:11	19:58	22:41	18	15	2	2	7	7	Rain lasting one minute before survey end.	Waning Crescent
02/10/24	18:45	18:30	20:15	13	11	0	0	5	0	None	New Moon

*Cloud cover is reported in oktas or eights (i.e. oktas represents the complete absence of cloud, 1 okta cloud cover or 1 eighth or less and so on to 8 oktas which represents full cloud cover), with the additional convention that 9 oktas represent sky obscured by fog or mist
**Wind strength is reported using the Beaufort Scale of Wind Force, this scale runs from 0 to 12, information on the conditions experience during the survey were as follows: 1 - Light air (Smoke drifts); 2 – Light breeze (Leaves rustle); 3 – Gentle breeze (Small twigs constantly move); 4 - Moderate breeze (Small branches begin to move); 5 - Fresh breeze (Small trees in leaf begin to sway).

2.12 Calls of bats recorded by the full spectrum detectors were analysed to verify species identification after the completion of nocturnal surveys using Kaleidoscope Pro Software by suitably trained TEP ecologists.

Survey Constraints

2.13 Visit one incurred an SD error in one detector, which resulted in no sonogram data for one of the vantage points although the detector functioned to enable live listening to bat calls during the survey. For visit one, the second vantage point detector recorded a large number of noise files and very little bat activity. Both vantage points were focused on one group of features. These features were the only access point into the internal of the structure. The second surveyor was present as a health and safety second, so the data provided by the bat detector that worked was sufficient for the purposes of the survey. Visit one also incurred SD errors in the NVA which led to no footage. In terms of NVA the vantage points were in close proximity to the features and bat activity was very low throughout the survey. Given these factors we are confident that bat emergence would have been recorded despite the failure of the NVA.

2.14 Weather was optimal during all the nocturnal surveys, being dry with little breeze and temperatures ranging from 18ºC at the start to 11ºC at the finish. There was light breeze during the first nocturnal survey and light rain 1 minute before end of survey but this did not affect bat activity.

2.15 The building has been assessed as having moderate suitability as set out in Table 7.2 of the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2023[5]), this requires two surveys, one between May and August and one can be in September. The second survey was undertaken on the 2nd October 2024. The reason for this is that most of the month of September was affected by heavy rain. Whilst acknowledging the survey was undertaken in October it was undertaken just within the month of October, moreover weather conditions were optimal and moderate levels of bat activity was recorded on site.

Hibernation Surveys of Structure

2.16 Hibernation surveys of the structure for roosting bats have been undertaken from November 2024 to March 2025. The first inspection was undertaken on the 5th November 2024. The structure was inspected for signs of hibernating bats. Were appropriate a torch and endoscope were used as aids. Whilst the structure was assessed as having moderate suitability, given that the roosting features within the structure can be fully viewed with an endoscope and torch as the deepest feature is no more than approx. 10cm

[5] Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London

then it was deemed that a total of two surveys spaced a minimum of four weeks part during the months of November, January and February was sufficient to ascertain if bats are using the structure for hibernation.

2.17 Winter hibernation surveys of the structure including external and internal inspection surveys was undertaken on the 5th November 2024 and 14th January 2025. Between 5th November 2024 and 14th January 2025 the structure gradually filled with water. This meant that the second survey on the 14th January was greatly restricted. Therefore it was decoded that continuous automated static detector monitoring from January 2025 to March 2025 would be undertaken by a qualified TEP ecologist and health and safety assistant.

2.18 A summary of structure surveyed, number of survey visits, dates of survey, automated static detector monitoring survey periods are provided in Table 2.

Table 2: Summary of structures surveyed, number of survey visits, dates of survey, automated static detector monitoring periods and location description.

Structure Ref.	Survey Method	Survey Dates	Further Information
B1	Internal and External Inspection	05/11/2024	First internal and external inspection
	Internal and External Inspection	14/01/2025	Internal building containing deep water. Only limited inspection internally.
	Automated Static Detector	28/01/2025 – 02/03/2025	Detector deployed for 33 nights within the bunker (18 valid nights)

Survey Constraints

2.19 The internal structure could not be fully endoscopically inspected all the way on 14th January 2025 due to the present of deep water, access restrictions and health and safety constraints associated with deep water. However, the structure could be entered and a static placed near the entrance and automated static detector were positioned to monitor any bat activity associated with PRFs recorded.

2.20 The automated static detector positioned within the bunker failed to record between 30th January and 13th February 2025. Equipment failure during the static monitoring period was a result of a failed connection to the SD causing the detector to not turn on as programmed. The automated static detector did not record for the required period in this instance but continued to record when batteries and SDs were swapped over on 14th January 2025. Overall limitations to the length of the automated static detector monitoring period did not impair confidence in the interpretation of the baseline data.

2.21 There were no other constraints affecting the winter hibernation surveys.

Constraints

2.22 Analysing bat sonograms using Kaleidoscope software can clearly identify certain species however, bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc.). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor-quality recordings (e.g., brief, and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g., Myotis species, and Nyctalus/Eptesicus) (Russ, 2012[7]). Where call parameters are inconclusive the species has been labelled as 'unidentified'. This ensures the dataset is interpreted accurately and transparently.

2.23 The detectability of some bat species, such as *Plecotus* and *Barbastella*, is lower than that of, for example, *Nyctalus* and *Pipistrellus*. The echolocation calls of *Plecotus* and *Barbastella* are comparatively more difficult to detect with bat detectors, and their particular hunting strategies take them into less open habitats, where survey transect routes may not venture. Careful interpretation has been applied when comparing survey results across species.

2.24 *Myotis* species have overlapping call characteristics and it is therefore not possible to identify these bats to species level with good confidence (at least 80%). *Myotis* data represent a small proportion of the activity recorded and therefore for the purposes of meaningful data presentation, Myotis species have been grouped. Where possible, individual *Myotis* species are identified.

2.25 Large bats noctule and serotine have been identified through sonogram analysis. However, very few serotines were recorded and therefore for the purposes of meaningful data presentation, big bat species (*Nyctalus* and *Eptesicus*) have been grouped.

3.0 Results

Ecological Desk Study

3.1 The desk study identified the following bat records:

- Brandt's bat *Myotis brandtii* – 2 records, nearest 0.7 km southwest
- Brown long-eared bat *Plecotus auratus* – 3 records, nearest 0.2 km east
- Common pipistrelle *Pipistrellus pipistrellus* – 8 records, nearest 0.8 km southwest
- Daubenton's bat *Myotis daubentonii* – 2 records, nearest 0.9 km east
- Lesser horseshoe bat *Rhinolophus hipposideros* – 1 record, 0.9 km east
- Myotis bat species *Myotis sp.* – 2 records, nearest 0.3 km east
- Natterer's bat - *Myotis nattereri* – 1 record, 0.9 km east
- Noctule bat *Nyctalus noctula* – 5 records, nearest 0.7 km southwest
- Soprano pipistrelle *Pipistrellus pygmaeus* – 3 records, nearest 0.7 km southwest
- Whiskered/Brandt's bat *Myotis mystacinus/brandtii* – 1 record, 0.9 km east
- Whiskered bat *Myotis mystacinus* – 1 record, 1.6 km east

Roost Surveys

Preliminary Roost Assessment

3.2 The findings and a photographic record of the daytime assessment of the structure is presented in Table 3. The location of the structure and wider habitats is illustrated in Drawing G10204.008A.

3.3 No bats or evidence of roosting bats was found during daytime survey of the structure. Based on the daytime surveys, the structure was assessed to have moderate suitability for summer roosting bats and moderate hibernation suitability in winter.

Table 3: Results of daytime structure inspection on the structure present on site

Description	Photographs
Exterior: Concrete bunker structure. The structure has concrete sides and roof. The structure is largely surrounded by bramble. The only access points are some gaps to the side of the doorway. *Doorway was removed prior to internal inspection of structure then replaced immediately after internal inspection of the structure. A crack willow is situated between the two sections of the building that can be seen from above ground.	     

Description	Photographs
Interior: Internally the walls are composed of corrugated metal. Some areas of the roof and sides have plywood boarding on them where sections of the original structure are missing. There are a number of gaps were the walls of the structure meet the roof. These gaps are no more than 10 cm in depth.	  
Roost suitability: A number of gaps in plyboard beside the boarded-up entrance provide the only access for bats into the internal of the structure. Internally roosting features are a number of gaps associated were the walls meet the roof and gaps associated with the roof of the structure. These gaps provide suitability for small numbers of roosting of day roosting bats and low numbers of hibernating bats. No evidence was found nor does the structure have features suitable for supporting maternity roosting. The entrance to the structure was too small and cluttered to allow access for lesser horseshoe bats. Moderate (Summer) Moderate (Hibernation)	

3.4 No other buildings or structures were recorded on site.

Nocturnal Roost Surveys of the structure

3.5 Nocturnal survey results and surveyor locations are presented in Drawing G10204.008A.

3.6 No roosting bats were identified in the structure during the nocturnal emergence surveys.

3.7 During visit one, 30th August, no foraging or commuting activity was observed. Two species were recorded, that being common pipistrelle and soprano pipistrelle, both with a first contact at 20:37.

3.8 During visit two, 2nd October, foraging activity was recorded taking place along the treeline and Bryn Lane. Foraging was near constant between 19:15 and 20:05, with reduced foraging for the remainder of the survey. Common pipistrelle and soprano pipistrelle were the only bat species recorded with first contacts taking place at 19:12 and 19:24 respectively. A myotis bat was also recorded with a first contact at 19:41 following sonogram analysis. A tawny owl *Strix aluco* was also incidentally recorded calling from the trees south of the building during the survey.

Winter Hibernation Survey of Structure

3.9 No roosting bats were found during the winter hibernation surveys on 5th November 2024 and 14th January 2025.

3.10 No bat activity was recorded during automated static detector monitoring between 28th January to 2nd March 2025. A summary of average weather conditions recorded during winter hibernation survey automated static detector monitoring periods, is provided in Table 4.

Table 4: Summary average weather conditions recorded during winter hibernation survey automated static detector monitoring.

Structure Ref.	Survey Dates	Average Sunset Temp. (°C)	Sunrise Temp. (°C)	Average Humidity (%)
B1	28/01/2025 – 02/03/2025	7	3	78%

4.0 Conclusions

3.11 No summer roosting bats were identified in the structure during nocturnal emergence surveys; therefore, no European Protected Species Licence (EPSL) will be required. The findings of these surveys are valid for up two survey seasons from the completion date of the final nocturnal survey (October 2024), pending the site is subject to no changes.

3.12 Precautionary working measures are set out in section 5 of this report to take into account bats that may have moved to roost in the structure in the intervening period between the 2024 roost surveys and demolition of the structure.

3.13 The structure was assessed as having moderate suitability to support hibernating bats. Two internal and external hibernation surveys static monitoring between January and March 2025 were undertaken to assess hibernation usage. No evidence of bat hibernation usage in the bunker structure was recorded.

5.0 Recommendations

3.14 This section sets out the recommendations for appropriate further survey, mitigation, avoidance and enhancement required for the site.

Hibernation Roosting

3.15 Precautionary working measures should be adopted if demolition works are undertaken between November and March. Measures will include a pre works check of suitable features from the daytime survey of the structure identified in Table 3. These checks must be undertaken by a Natural Resources Wales licensed bat ecologist prior to renovation works impacting the features. Should hibernating bats be found during these pre demolition checks then a licence from Natural Resources Wales will be required to permit demolition of the structure.

Summer Roosting

3.16 Precautionary working measures should be adopted if demolition works are undertaken between April and October, to minimise the risk of harm or injury to bats. Measures will include a pre works check of suitable features from the daytime survey of structure identified in Table 3. These checks must be undertaken by a Natural Resources Wales licensed bat ecologist prior to renovation works impacting the features. The inspection will involve using an endoscope and 1 million clulite torch.

3.17 In the unlikely event bat(s) are found roosting during pre works checks then a licence from Natural Resources Wales will be required to permit demolition of the structure.

Drawings

G10204.007A Phase 1 Habitat Survey
G10204.008A Bat Emergence Building Survey Results



KEY

- Site boundary
- Target note
- Scattered scrub
- Scattered broad-leaved tree
- Standing water
- Native species-rich hedge and trees
- Species-poor hedge and trees
- Fence
- Plantation broad-leaved woodland
- Dense/continuous scrub
- Semi-improved neutral grassland
- Tall ruderal
- Wet ditch
- Bare ground with ephemeral/short perennial
- Introduced shrub
- Building
- Hardstanding

Species Codes

Cm Hawthorn
Fx Ash
Sxc Goat willow

Note:
The locations of habitats and habitat features are indicative.
Off-site habitats displayed with transparency.

Metres
0 20 40 80

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Rev	Description	Drawn	Approved	Date
A	Update to site boundary and habitats	OH	LG	12/11/2024

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Project
Land South of Bryn Lane, Wrexham

Title
Phase 1 Habitat Survey

Drawing Number
G10204.007A

Drawn	Checked	Approved	Scale	Date
OH	SP	KR	1:1,100 @ A3	12/11/2024



KEY

Site boundary

Building

Survey locations

Night Vision Aid

Surveyor

Note:
No emergence recorded during the survey.
The locations of habitats and habitat features are indicative.

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Site Map



Rev	Description	Drawn	Approved	Date
A	Updated survey locations	SP	JC	29/11/2024

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Project
Land South of Bryn Lane, Wrexham

Title
Bat Emergence Survey Results Plan

Drawing Number
G10204.008A

Drawn	Checked	Approved	Scale	Date
IJ	BJ	CN	1:500 @ A3	29/11/2024

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