

Report Title	Proposed Demolition of Redwither Business Centre, Abbey Road, Wrexham Industrial Estate, Wrexham – Preliminary Roost Assessment
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EXECUTIVE SUMMARY

Site	Redwither Business Centre, Abbey Road, Wrexham, LL13 9XR.
Grid Reference	SJ 3843 5034
Surveyors	Preliminary Roost Assessment and tree Potential Roost Feature Assessment – Lucy Boyett.
Proposed work	The Redwither Business Centre building is proposed to be demolished. Trees within the site are to be retained and unaffected by the proposed works.
Type of survey	Preliminary Roost Assessment and tree Potential Roost Feature Assessment.
Results of survey	• A small number of potential roosting features were identified within the building; no evidence or signs of bats were found. • The building has low potential for roosting bats. • Two trees to the north of the building had low potential for roosting bats and one was found to have moderate potential. One tree on the eastern site boundary was found to have low potential for roosting bats.
Survey conclusions	• As the building has potential for roosting bats, at least one emergence survey must be carried out during May to August (inclusive), prior to any works to the building. • As the trees will not be affected by the works, no further surveys are required; reasonable avoidance measures will be followed throughout the works.
RAMs and Mitigation	• To reduce the potential impact of lighting on roosting, foraging or commuting bats during the demolition works, all lighting will be directed towards the building, avoiding the site boundaries and particularly the trees with roosting potential. • Specific mitigation and site enhancement measures will be recommended following the emergence survey.

1.0 INTRODUCTION

- 1.1.1 Enfys Ecology Limited was commissioned by Marches Ecology to carry out a Preliminary Roost Assessment (PRA) of Redwither Business Centre and a Potential Roost Feature (PRF) assessment of a number of trees within the site. The surveys were commissioned following a Preliminary Ecological Appraisal (PEA), which was carried out by Marches Ecology (Marches Ecology, 2020).
- 1.1.2 The proposed works are for the current building to be demolished; trees on site are to be retained and will not be affected by the proposed works.
- 1.1.3 The survey was required to determine whether the proposed works would affect bats. The survey work to inform this report was carried out on the 11th November 2020. This report is valid for a period of two years from this date in accordance with best practice.
- 1.1.4 All British bats (and roost sites) are protected under the *Wildlife and Countryside Act (WCA) 1981* (as amended). In addition, all bats are classified as European Protected Species by *The Conservation of Habitats and Species Regulations 2017* (as amended). Under this legislation, it is an offence to kill, injure or disturb a bat, or to destroy any place used as a shelter by bats.
- 1.1.5 Should evidence of bats be found and it is deemed likely that the proposed works will disturb them; a licence from Natural Resources Wales (NRW) must be obtained before any work may proceed.

2.0 SITE DESCRIPTION

2.1 Survey Area

- 2.1.1 The site is located within Wrexham Industrial Estate, approximately 3 km to the east of Wrexham (*Figure 2.1*). The wider area comprises industrial units, a large road network and areas of amenity grassland. There are pockets of broadleaved woodland within the industrial estate and also a number of water bodies. The nearest area of woodland to the site, is approximately 180 m to the east and the nearest water body is a large pond approximately 130 m to the south east.
- 2.1.2 The building, which is due to be demolished, is identified in the PEA (Marches Ecology, 2020) as *Target Notes 14* and *14a* and is highlighted with a solid red line in *Figure 2.2* below. The area immediately surrounding the building was relatively open, with amenity grassland, scattered broadleaved trees and shrubs, and hardstanding car parking areas (*Figure 2.2*). To the north of the building there is short amenity grassland with three mature *Quercus robur* (Pedunculate Oak) trees and a *Cedrus atlantica* f. *glauca* (Blue Atlas Cedar), and an area of rough grassland and scrub beyond. To the west, is a large industrial unit with associated parking areas and a line of broadleaved trees. To the south is a large hardstanding parking area with broadleaved trees at the end of each row and the area to the east of the building comprised a hardstanding parking area, amenity grassland and a row of broadleaved trees following the eastern boundary edge.

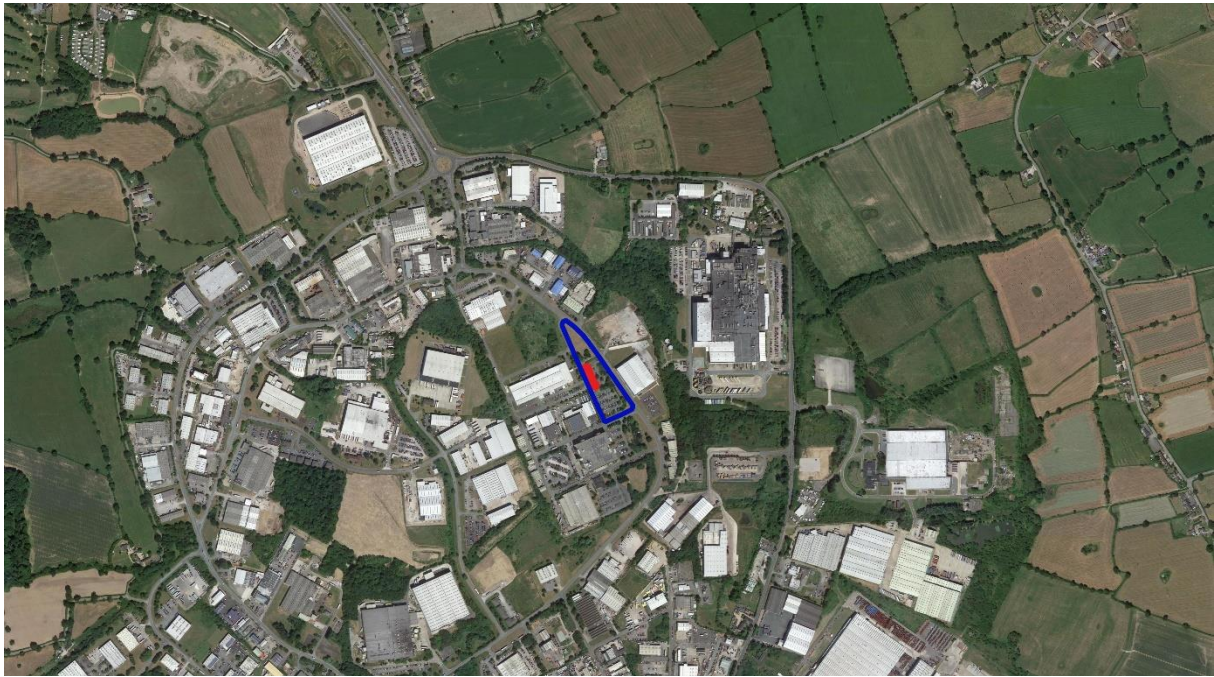


Figure 2.1: The site is shown by the blue line and surveyed building shown by the red line.
Base Image © Google 2020.

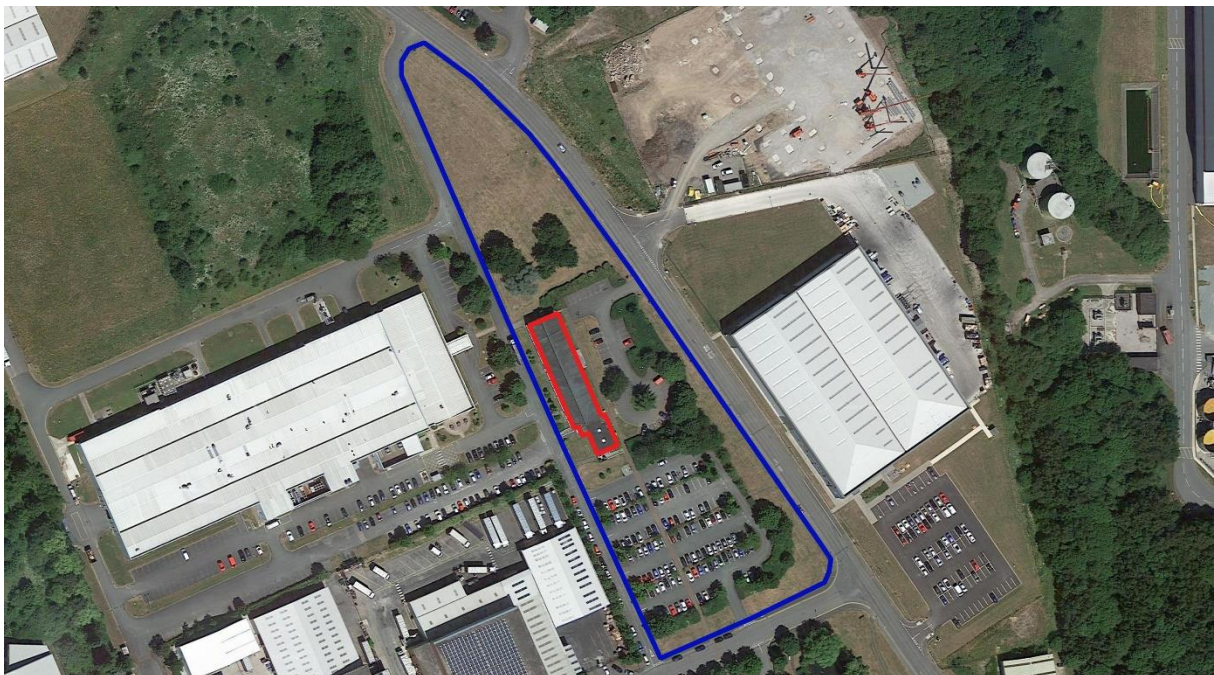


Figure 2.2: The site is shown by the blue line and surveyed building shown by the red line.
Base Image © Google 2020.

2.2 Statutory and Non-Statutory Designated Sites

- 2.2.1 There is one non-statutory Wildlife Site and no statutory designated sites, within 1 km of the site.
- 2.2.2 Wrexham Industrial Estate Wildlife Site (WW337), comprises three separate sites within the industrial estate, designated for the unmanaged grassland and ancient broadleaved woodland habitats. The closest part of the Wildlife Site is approximately 509 m to the south east of the Redwither Business Centre.

3.0 METHODOLOGY

3.1 Preliminary Roost Assessment and Potential Roost Features

- 3.1.1 The building was assessed for any signs of bats; these include droppings, feeding remains, and other indicative marks, plus features of potential use to bats such as crevices, cracks and other holes, and any potential access points into the building. High powered torches were used to inspect any identified features, and an endoscope was used to investigate any gaps or crevices, where appropriate. Both the exterior and interior of the building was surveyed.
- 3.1.2 The trees identified as Target notes TN3, TN4, TN5, TN6, TN11 and TN13 in Marches Ecology (2020) were assessed for Potential Roost Features (PRF) from the ground using high powered torches and binoculars. The roost potential of each tree was then classified, as appropriate, using the guidelines for assessing the potential suitability of trees as detailed in Table 3.1 below (adapted from Collins, 2016).

*Table 3.1 - Guidelines for assessing the potential suitability of trees for bats
(adapted from Collins, 2016)*

Suitability	Description - Roosting Habitats
Negligible	Negligible features likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
High	A tree with one or more potential roost sites that are obviously suitable for use by a larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

- 3.1.3 The building and tree inspections were carried out on the 11th November 2020 by Lucy Boyett (accredited agent on bat licence No. S087351/1). Potential roost assessments were carried out following the guidelines set by the Bat Conservation Trust, 'Bat Surveys – Good Practice Guidelines' (Collins, J. 2016). Photographic evidence was taken where necessary.

3.2 Limitations

- 3.2.1 Due to the height of the building, and the nature of the split level, sloping roof, it was not possible to see a large proportion of the roof area, however, due to the nature and design of the roof, it is unlikely that potential roosting features would be present here.
- 3.2.2 Bats are highly mobile animals and it is possible that they may move into a building after the survey has occurred.

4.0 SURVEY RESULTS

4.1 Building Descriptions

- 4.1.1 The building comprises two main sections, a two-storey section and a single-storey section.
- 4.1.2 The western and eastern elevations of the two-storey section, are both faced with prefabricated concrete panels and have two rows of windows (*Photos 4.1 & 4.2*). The southern and northern elevations are of brick, with three small windows on the southern side and two fire escape doors and external metal stairs on the northern side. The roof is covered by roofing felt and is split level, with the western half having less of a slope and almost flat.
- 4.1.3 There is a small roof void over the first floor WC and kitchen, within the two-storey section, which measures approximately 2.5 m x 5 m x 1 m in height. The roof comprises a concrete beam and block construction, which is sloped. There is a window approximately 50 cm in height, on the western elevation, which spanned the width of the void. The void houses a number of water tanks and pipework.
- 4.1.4 A single-storey, brick-built section, adjoins the two-storey section on its southern gable end (*Photos 4.3 & 4.4*). It has a flat roof, covered with roofing felt and has large timber fascias.



Photos 4.1 & 4.2: The eastern and western elevations of the two-storey section
(*Target Note 14 in Marches Ecology, 2020*)



Photos 4.3 & 4.4: The eastern and western elevations of the single storey section
(*Target Note 14a in Marches Ecology, 2020*)

4.2 PRA Results - Building

- 4.2.1 Both sections of the building are in good condition with very few potential roosting features present.
- 4.2.2 Within the small roof void, the window on the western elevation has a circular hole of approximately 10 cm diameter in it, providing potential access into the space (*Photo 4.5*). There are a number of deep gaps between the blocks forming the roof, where corners had chipped off (*Photo 4.6*). No bats or signs of bats were seen within this space and there is moderate airflow and the light levels are high.



Photo 4.5: Location of small roof void

Photo 4.6: Concrete beam and block roof structure with gaps between the blocks

- 4.2.3 On the northern elevation of the building, there are two old drill or pipe holes approximately 0.5 m down from the roof line at the eastern edge (*Photo 4.7*). At least one of these holes is big enough to be a potential roosting feature. There are also three small gaps between concrete panels near the roof level where the sealant has come apart.



Photo 4.7: Location of potential roosting features on the northern elevation of the building

- 4.2.4 There are small gaps under lead flashing on the southern elevation, however the gaps are unlikely to be big enough to be a potential roosting feature.
- 4.2.5 The western and eastern elevations are well sealed with no visible potential roosting features.
- 4.2.6 The single-storey section is generally well sealed though there are a few small gaps beneath the timber fascias.



Photo 4.8: Small gap beneath fascia on single-storey section

4.3 PRF Assessment - Trees

- 4.3.1 A number of trees were identified as requiring a Potential Roost Feature (PRF) assessment, due to their proximity to the building and the potential for indirect disturbance during demolition. These trees were assessed from the ground. A location plan of the trees is provided as *Figure 4.1* below (Reproduced from Marches Ecology, 2020) and a summary description is provided in *Table 4.1* below. The target note numbers in *Table 4.1* are taken from Marches Ecology (2020) and shown on *Figure 4.1*.



Figure 4.1a: Locations and numbers of trees identified as requiring a Potential Roost Feature Assessment – TN3, TN4, TN5 & TN6 (Marches Ecology, 2020)

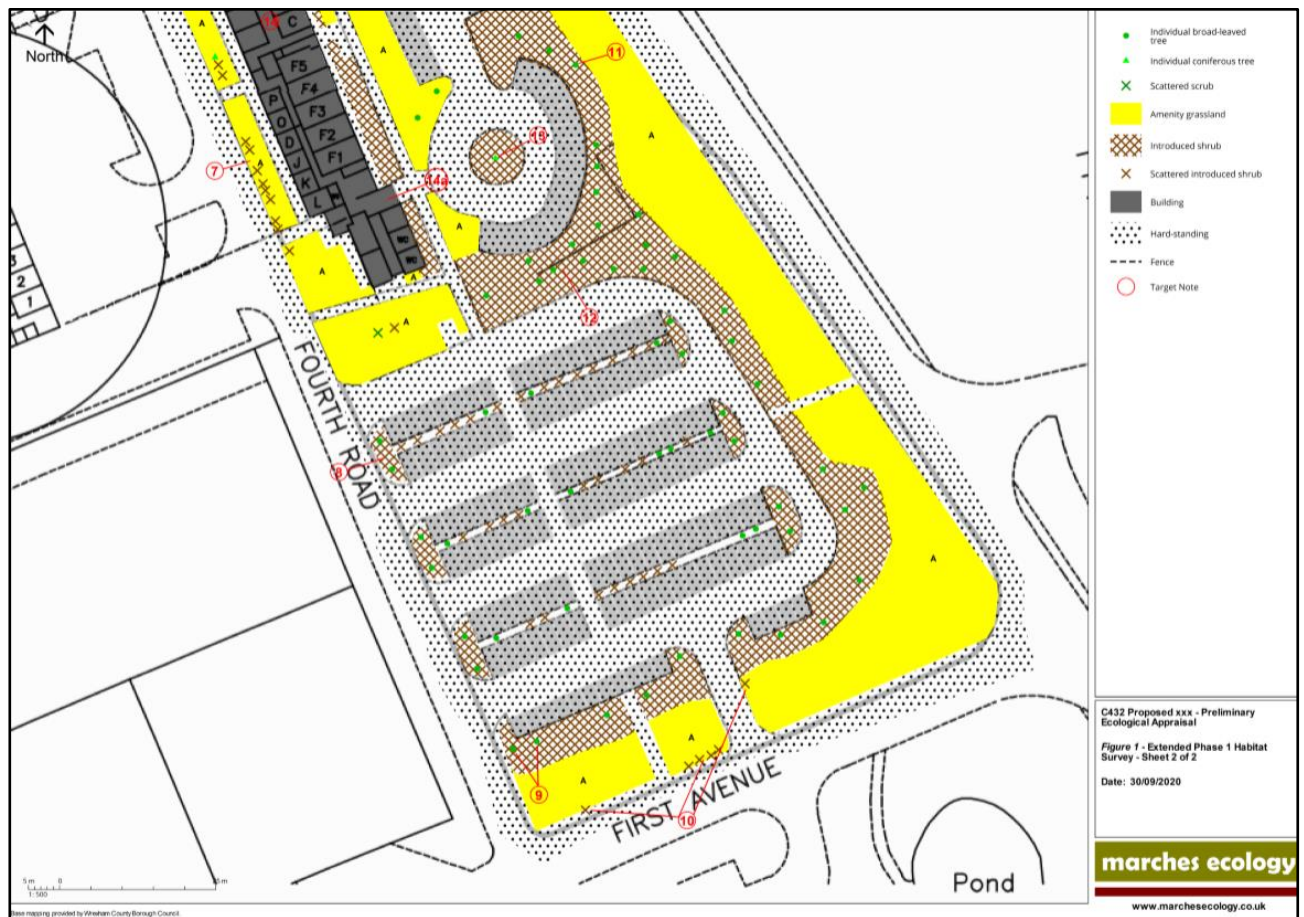


Figure 4.1b: Locations and numbers of trees identified as requiring a Potential Roost Feature Assessment – TN11 & TN13 (Marches Ecology, 2020)

Table 4.1 - Results of PRF Assessment

Tree number	Species	Preliminary Roost Feature Description	Photos (where relevant)	Suitability
TN3	<i>Quercus robur</i> (Pedunculate Oak)	- Semi-mature, with an approximate diameter at breast height (dbh) of 0.7 m. - Woodpecker hole in a small limb at approximately 3.5 m on the west side (as shown by red circle in photo). - A large limb has internal rot and is split at approximately 2.5 m on the east side. - There is a bark split/ rot-hole at approximately 6 m in a limb on the southwest side.		Moderate
TN4	<i>Cedrus atlantica</i> f. <i>glauca</i> (Blue Atlas Cedar)	- Semi-mature, largest stem has an approximate dbh of 0.45 m. - No features of potential value for roosting bats were visible.		Negligible

TN5	<i>Quercus robur</i> (Pedunculate Oak)	- Over-mature tree, with an approximate dbh of 1.2 m. - The main trunk is partly filled with concrete and bricks (approximately 1 m from the ground), though some of it had fallen out on the southern side. This left a large cavity in the main trunk with access holes from the southern elevation and top of the trunk. - A large limb has been removed on the west side at approximately 2 m. This may contain a cavity.		Low
TN6	<i>Quercus robur</i> (Pedunculate Oak)	- Semi-mature tree, with an approximate dbh of 0.5 m. - A large limb has been removed at approximately 2 m on the southwest side. This feature may contain a small cavity. - Split/ rot-hole at approximately 4.5 m on the northwest side. - Small rot-hole at approximately 4.5 m in the southern limb. - Several further small pruning wounds.		Low

TN11	<i>Acer platanoides</i> (Norway Maple)	• Semi-mature tree, with an approximate dbh of 0.3 m. • Large split down the centre of the trunk to approximately 1.3 m long. The split is up to 2.5 cm wide and may be too open/exposed to be of value for roosting bats.		Low
TN14	<i>Cedrus deodara</i> (Deodar)	• Semi-mature tree, with an approximate dbh of 0.4 m. • No features of potential value for roosting bats were visible.		Negligible

4.5 Cofnod Data Search

- 4.5.1 The Cofnod data search returned a number of bat records from within a 1 km search radius, including Soprano and Common Pipistrelles (*Pipistrellus pygmaeus* & *Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Brandt's (*Myotis brandti*), Whiskered (*Myotis mystacinus*), Brown Long-eared (*Plecotus auritus*), Lesser Horseshoe (*Rhinolophus hipposideros*) and Noctule (*Nyctalus noctula*).
- 4.5.2 The closest records are of a Brown Long-eared bat approximately 72 m to the east in 2017 and a *Myotis* sp. roost in a bat-box approximately 95 m to the east in 2016.

5.0 DISCUSSION AND EVALUATION

- 5.1.1 The site is surrounded by many industrial units, large open areas of amenity grassland and hardstanding; the trees within the site are not well connected to further suitable habitat in the surrounding area. Under the Good Practice Guidelines (Collins, J., 2016), the immediate surrounding area has 'low suitability' habitat for commuting and foraging bats.
- 5.1.2 A small number of potential roosting features were identified within the building; however, they are likely to only be suitable for a small number of crevice dwelling bats. There was access available for bats into the small roof void, though no signs of bats were found in this space.
- 5.1.3 In accordance with the Good Practice Guidelines (Collins, J., 2016), considering the potential roosting features identified and the surrounding habitat, the building is of **low** suitability for roosting bats. Therefore, at least one emergence survey must be carried out during May to August (inclusive), prior to any works to the building. If bats are found to be roosting within the building, a licence from NRW must be obtained before any works can begin.
- 5.1.4 The three mature Pedunculate Oaks, approximately 20 m to the north of the building, and the Norway Maple, approximately 35 m to the east, were found to have potential roosting features and are of low and moderate suitability for bats. As the works are not due to directly affect the trees no further surveys are recommended. If works to these trees are required in the future, further surveys will be required, to include a climbed PRF inspection, followed by at least one emergence or re-entry survey if the features are found to be suitable or signs of bats are found. Although the trees are not due to be affected by the proposed works, Reasonable Avoidance Measures (RAMs) must be implemented during the works to reduce the risk of disturbance to bats (see *Section 6*).

6.0 REASONABLE AVOIDANCE MEASURES (RAMs) AND RECOMMENDATIONS

6.1 Building

- 6.1.1 To determine if a roost is present within the building, at least one emergence survey must be carried out during May to August (inclusive), prior to any works to the building. If bats are found to be roosting within the building, a licence from NRW must be obtained before any works can begin.

6.2 Reasonable Avoidance Measures

Temporary Protective Fencing

- 6.2.1 Marches Ecology (2020) recommends the installation of temporary protective fencing around the trees at *Target Notes 4* and *5* prior to, and during, the demolition. This fencing does not need to encircle the trees – it should be located to the south of them and be aligned approximately east-west across the entire site. The fence should be installed at least 10 m from the trees so that should any bats be using them their flight-lines would not be obstructed. All site personnel should be made aware of the importance of not entering the area to the north of this fence.

Lighting

- 6.2.2 The trees to the north of the building and the Norway Maple to the east, have potential for roosting bats. The remaining trees within the site, the tree-line to the west of the site, and the tree-line along the eastern and southern boundaries of the site, all have the potential to be used by commuting and foraging bats. Therefore, any lighting used during the demolition works, has the potential to impact bats.
- 6.2.3 To reduce the potential impact of lighting on roosting, foraging or commuting bats during the demolition works, the following measures must be followed at all times.

General Lighting Guidance

- Lighting should be minimised along the site boundaries and must avoid the trees identified as having potential roosting features to the north and to the east of the building.
 - Works should start at least one hour after dawn and finish at least one hour before dusk during the summer months (May – August) to prevent light and noise levels disturbing any bats using the site.
 - Any external or security lighting should be limited to provide some dark periods during the night. Ideally the lighting should be motion activated, and not stay on longer than one minute, in order to provide maximum darkness when not needed as well as providing safe lighting conditions when required.
- 6.2.3 If any permanent lighting is to be installed after the demolition works are completed, the following luminaire specifications are provided by Bat Conservation Trust and Institute of Lighting Professionals (2018) and must be incorporated into a lighting plan:
- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.

- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce the blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Column heights should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used.
- Luminaires should always be mounted on the horizontal, *i.e.* no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1 min.) timers.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

7.0 MITIGATION AND ENHANCEMENT MEASURES

- 7.1.1 Specific mitigation and site enhancement measures will be recommended following the emergence survey.

8.0 LEGISLATION

8.1 Bats

The *Wildlife and Countryside Act (WCA) 1981* (as amended) forms the key legislation protecting habitats and species in the UK. All UK bat species are fully protected under the 1981 Act through inclusion on *Schedule 5*. All bats are also listed under *Schedule 2* of the *Conservation of Habitats and Species Regulations (2017)* which transcribes the EC Habitats Directive into UK law. In combination, this legislation makes it an offence to:

- Deliberately or recklessly take, injure or kill a bat;
- Deliberately or recklessly damage or destroy a place or structure used by bats for shelter or protection;
- Deliberately or recklessly obstruct access to a bat roost; or
- Deliberately or recklessly disturb bats while occupying a roost.

Bat roosts are protected under these laws whether the animals are present at the time of survey or not. Under both laws the Welsh Government and D.E.F.R.A. are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest. It is not illegal to tend to a disabled bat pending recovery.

8.2 Birds

In addition, under the *Wildlife and Countryside Act, 1981* (as amended) and the *Countryside and Rights of Way, 2000*, all wild birds, their nests and eggs are protected during the breeding season (typically March to August inclusive). This makes it an offence to:

- Intentionally kill, injure or take any wild bird.
- Take, damage or destroy the nest of a wild bird included in Schedule ZA1.
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built.
- Take or destroy an egg of any wild bird.

9.0 REFERENCES AND INFORMATION SOURCES

Bat Conservation Trust (2018). *Bats and artificial lighting in the UK- bats and the built environment series*. www.bats.org.uk

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd Edition)*. Bat Conservation Trust, London.

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Stone, E.L. (2013). *Bats and lighting: Overview of current evidence and mitigation guidance*.