



NIGHTINGALE HOUSE HOSPICE: BAT AND NESTING BIRD ASSESSMENT

DATE	ECOLOGIST	APPROVED	VERSION	COMMENTS
14/10/2020	Keymar Wake	Rhian Hughes	V1	

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1.0 Introduction

- 1.1 Enfys Ecology Limited were commissioned by TACP Architects to carry out an inspection of trees surrounding Nightingale Hospice, Wrexham, and assess them for bat and nesting bird potential. The proposed works involve creating a new car park and entrance to the road, which will require the removal of several trees. The site is located at approximate Grid Reference SJ 33531 50869.
- 1.2 A site visit was undertaken by Peter Kneen (accredited agent on licence S087351/1) on 22nd September 2020, and a ground-based assessment of the trees within the vicinity of the proposed development was carried out. A static detector was left on site between 22nd September and 3rd October 2020 to record any bats that are present within, and using, the proposed site.
- 1.3 During the site visit, the trees were inspected from the ground, using binoculars where necessary, and their suitability for bats, and any features of particular note were recorded. There are limitations to the detail which can be observed from the ground and there may be some areas of taller trees, or within thick leaf coverage, that could not be assessed thoroughly. However, it is considered the level of assessment was sufficient for the purpose of this survey.
- 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 2010 (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.
- 1.5 All birds (and their nests) are legally protected under the Wildlife and Countryside Act 1981 and it is an offence to intentionally take, damage or destroy the nest of any wild bird while it is in use or being built (as well as kill or injure wild birds of their eggs).

2.0 Site Description

- 2.1 The site proposed for development consists of a small area of amenity grassland with several mature trees and groups of smaller trees, surrounding the eastern, southern and western boundaries; as well as some scattered trees encroaching onto the grassland. The Nightingale House Hospice is located to the north of the site and the surrounding area is primarily buildings and hard standing, with tree and hedge lines along roads (Figure 2.1).
- 2.2 There was a busy car park adjacent to the southern boundary of the site, which appeared to have some associated security lighting. It was not clear at the time of the survey when these lights would be illuminated and whether they would impact on bats using the proposed site.

- 2.3 The wider surrounding area of the site comprises mainly urban developments with areas of amenity grassland and playing fields. There are pockets of scattered trees and hedgerows, with limited connecting tree/hedge lines along the roads and around the areas of grassland (Figure 2.2).



FIGURE 2.1: THE PROPOSED SITE IS SHOWN IN RED. BASE IMAGE © GOOGLE 2020.



FIGURE 2.2: THE WIDER SURROUNDING AREA; SITE SHOWN IN RED. BASE IMAGE © GOOGLE 2020.

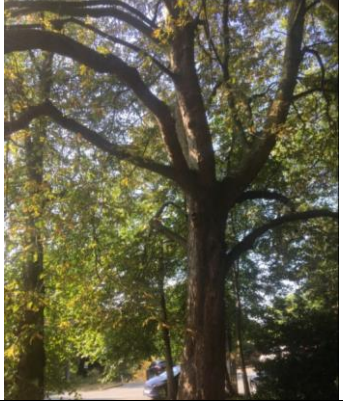
- 2.4 There are no statutory or non-statutory designated sites within 1km of the survey area.

3.0 Survey Results

3.1 Tree Assessment

- 3.1.1 There were 22 individual trees and five groups of trees/areas of ornamental shrubs within the site. The trees were mixed broadleaf and coniferous and species included (but not limited to) sycamore (*Acer pseudoplatanus*), horse chestnut (*Aesculus hippocastanum*), lime (*Tilia x europeae*), ceech (*Fagus sylvatica*), silver birch (*Betula pendula*), juniper (*Juniperus communis*) and Lawson Cypress (*Chamaecyparis lawsoniana*).
- 3.1.2 There are four trees and two areas of ornamental shrub proposed to be removed for the intended works: one Lawson cypress, two silver birch and one hawthorn tree; juniper shrub and an area of holly (*Ilex aquifolium*) and laurel (*Prunus laurocerasus*) shrub. These trees, as well as the surrounding trees on site that are to be retained were assessed for bat potential; the trees to be removed and trees that showed bat potential are detailed in Table 3.1.

TABLE 3.1– RESULTS OF TREE ASSESSMENT SURVEY

Tree number (if found)	Species	Description	Photo
No Number found	Sycamore	Approx. 15m height, multi stemmed with several small knot holes in the stems. Medium potential for roosting bats. Tree to be retained.	
03956	Horse chestnut	Approx. 12m height, single stem horse chestnut. Small knot holes in main stem at 5m. Medium potential for roosting bats. Tree to be retained.	

Tree number (if found)	Species	Description	Photo
No Number found	Horse chestnut	Approx. 15m height, covered in ivy, preventing close inspection of the main stem. There appears to be dead wood in the canopy so probable features not seen from the ground. Medium bat roost potential. Tree to be retained.	
03966	Silver birch	Approx. 10m height. No features found and negligible potential for bats. Tree to be removed.	
No Number	Silver birch and Hawthorn	Both trees within locked garden with no access. No potential bat roost features observed as both trees are relatively young and well managed. Negligible at potential. Trees to be removed.	
No Number	Lawson Cypress	Dense crown but no visible features. Negligible bat potential. Tree to be removed.	

3.2 Static Detector Survey

- 3.2.1 A static bat detector was left onsite from the 22nd September 2020 for 11 nights to record any bats using the area to commute and forage within. There were at least three bats species recorded using the site, common pipistrelle, noctule and *Myotis sp.* While the data appears to show the same *Myotis sp.* in each recording, *Myotis* bats are notoriously difficult to identify accurately as their calls are all very similar, therefore it cannot be discounted that there may be more than one *Myotis sp.* present. The static survey results are summarised in Table 3.2.

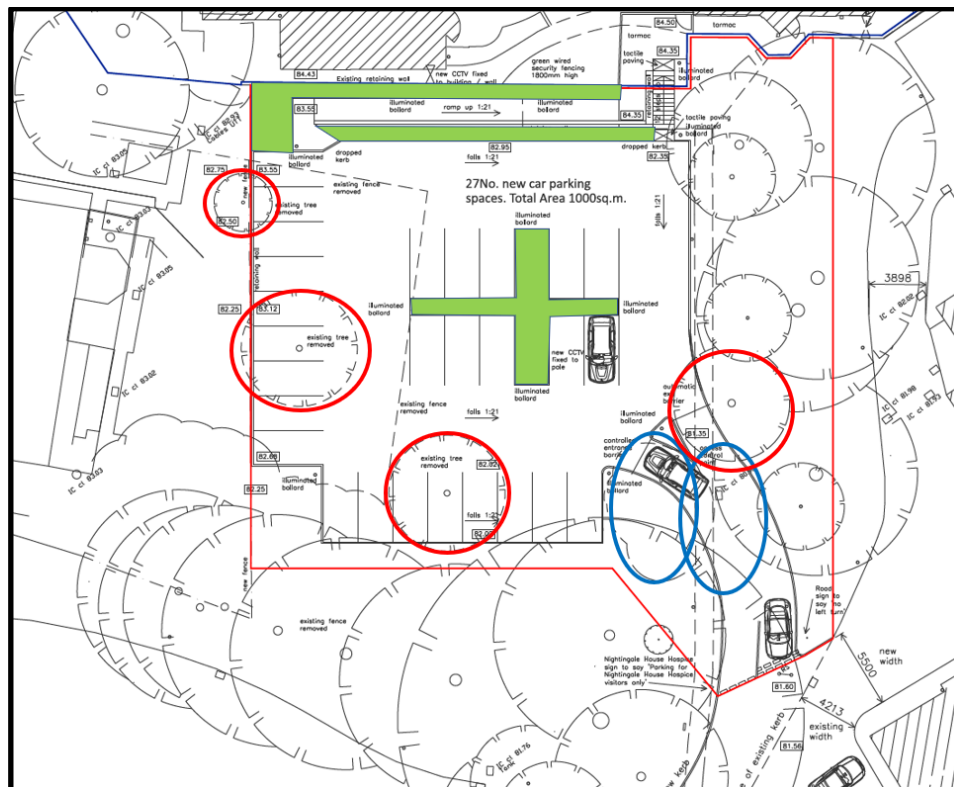
TABLE 3.2– RESULTS OF STATIC DETECTOR SURVEY

Date	Time	Species
22/09/20	19:23 - Throughout the night	Common pipistrelle – and social calls
	00:37	<i>Myotis sp.</i> one pass
23/09/2020	19:00 – 20:00 01:00 – 02:00	Common pipistrelle
24/09/2020	05:21	Common pipistrelle – one pass
25/09/2020	20:00 – 21:00	Common pipistrelle
26/09/2020	19:32 – 21:56	Common pipistrelle
27/09/2020	19:45 – 21:00	Common pipistrelle
28/09/2020	18:55	Noctule – one pass
	21:10 – throughout night	Common pipistrelle
	22:28	<i>Myotis sp.</i> one pass
29/09/2020	20:00 – throughout night	Common pipistrelle
	21:39 + 23:11	<i>Myotis sp.</i>
30/09/2020	19:55	<i>Myotis sp.</i> one pass
	21:06 – 21:13	Common pipistrelle
01/10/2020	19:28	<i>Myotis sp.</i> one pass
02/10/2020	19:31 – 19:44	<i>Myotis sp.</i>

3.3 Nesting birds

The trees and shrubs within the site provided suitable nesting bird habitat. No birds were observed nesting at the time of survey, however, the survey was carried out at the end of the nesting bird season.

The proposed works involve clearing the area of amenity grassland, four trees and two areas of shrub to install a car park. The remaining 18 trees and three tree groups/areas of shrub will be retained around the boundary of the site. There are areas within the proposed car park that have been designated for re-planting. The plans available at the time of this report showed lighting by illuminated bollards around the edge and in the centre of the car park (Figure 4.1).



RED LINE = SITE BOUNDARY; RED CIRCLE = TREE FOR REMOVAL; BLUE CIRCLE = SHRUB FOR REMOVAL; GREEN BLOCKS = AREAS OF RE-PLANTING. BASE IMAGE ©TACP ARCHITECTS

4.2.1 The site has **moderate suitability** for bats due to its tree and shrub boundaries, and grassland. The static detector survey showed at least two bat species, common pipistrelle and *Myotis sp.* that were active and foraging regularly within the site, as well as noctule recorded commuting over the site.

- 4.2.2 There were three trees with medium bat potential within the site, showing potential features that could be used by roosting bats. The static detector survey recorded both common pipistrelle and *Myotis sp.* within 30 minutes of sunset which, based on the emergence times of these species, suggests they are roosting nearby, or even within the site itself. The trees with bat potential are being retained as part of the proposed works so Reasonable Avoidance Measures (RAMs) will be followed to reduce disturbance to bats that are potentially using these trees to roost.
- 4.2.3 The trees and shrubs proposed for removal showed negligible bat potential so no further survey work is required with regards to bats.
- 4.2.4 The proposed works will not have a negative impact on bat populations within the surrounding area, or their favourable conservation status. The removal of the grassland and increased lighting of the proposed works, as well as the actual process of works, have the potential to cause some disturbance to bats using the site, and immediately adjacent areas, without mitigation. It is required that mitigation and RAMs are put in place, during and after the works, to reduce any risk or disturbance to bats within the site (Section 5).
- 4.3 *Nesting birds*
- 4.3.1 The survey was carried out at the end of the nesting bird season so no birds were observed nesting at the time of survey. However, the trees and shrubs on site would provide highly suitable nesting bird habitat and it is likely birds would use them within the nesting bird season. RAMs to reduce risk to nesting birds and compensatory recommendations are provided in section 5.

5.0 Reasonable Avoidance Measures (RAMs), Mitigation and Recommendations

- 5.1 *Bats*
- 5.1.1 Bats were recorded commuting and foraging over the site and several trees that are being retained showed potential roosting features for bats. The trees to be removed as part of the works showed negligible potential for bats so no further survey and no licence is required for the works. RAMs will be followed at all times during the works to reduce the risk of disturbance to bats.
- 5.1.2 The works can be carried out at any time of year (subject to nesting bird checks – Section 5.2) but there will be restrictions on lighting within the site. If it is necessary to remove any other trees as part of the works an ecologist must be called to assess and advise prior to the works.

5.1.3 If bats are encountered at **any point** during any works; all works **must immediately stop** and a licenced ecologist must be called. A licence will then be required from Natural Resources Wales before works can continue.

5.1.4 *Lighting*

The site itself and surrounding habitats are suitable for bats and the static survey showed bats using these areas to commute and forage. Therefore, any lighting associated with the development during and after the works has the potential to impact bats and nocturnal birds. To reduce the potential impact of any light spillage on commuting bats during the construction and post construction phases of the development, lighting design for the site (both during the works and of the completed building) should seek to minimise the levels of light along any areas used by bats. The following recommendations should be used when forming the lighting plan for the proposed development (Bat Conservation Trust (2009) and Stone, E.L. (2013)):

General Lighting Guidance

- There must be no lights focused on tree and shrub boundary surrounding the site during or after the works. There will be no illumination of the recommended bat and bird boxes (see below) once the works are complete.
- Construction should start at least one hour after dawn and finish at least hour before dusk during the summer months (May – August) to prevent light and noise levels disturbing the bats using the site.
- The plans at the time of the report showed lighting would be provided by illuminated bollards within and around the edge of the car park. While this form of lighting is generally considered low level, it will be limited to provide some dark periods during the night.
- Any further external or security 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 of the public when required.

The following luminaire specifications are provided by Bat Conservation Trust and Institute of Lighting Professionals (2018) and must be incorporated into the lighting plan for the proposed development.

- 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 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, ie no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) 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.

5.2 *Nesting birds*

- 5.2.1 No active birds' nest were found within the site but there was highly suitable bird nesting habitat available within the trees and shrubs. Any vegetation removal and destructive works should be undertaken outside of the nesting bird season (March – September inclusive). If it proves necessary to work within the nesting bird season, a nesting bird check should be carried out by a qualified ecologist immediately prior to (no more than 48hrs before) any works being carried out, to ensure that no active nests will be affected. If active nests are found then all work in the vicinity of the nest **must be delayed** until all chicks have fledged.

5.3 *General Reasonable Avoidance Measures*

In order to protect general wildlife on the site the following measures should be implemented at **all times** during the works:

- The times during which the lighting is on should be limited to provide some dark periods during the night.
- If at any point during the works an active bird's nest is encountered, works must stop in the vicinity of the nest until all chicks have fledged.

- Any common amphibians encountered during works should be left undisturbed unless in immediate danger. If active however, they should be moved well away from the working area by site staff **wearing gloves**.
- Should great crested newts be discovered at any point during the vegetation clearance, the works should stop immediately, a GCN licenced ecologist should be called to advise.
- To avoid creating refugia which may attract amphibians, reptiles or small mammals to the construction zone, any materials from the demolition should be stored in skips or off the ground. No piles must be left overnight.
- No trenches will be left open overnight. Trenches must be thoroughly inspected for animals by site operatives prior to back filling.
- At the end of works each day, the site should be inspected by a responsible individual to ensure that the above protocols are being complied with, a log of the inspections must be kept.
- Storage of fuel must be located on hard standing areas in suitable storage containers. The correct spill kits for the pollutants/fuels used should remain on site during the entire construction. The kits must be suitable for the size of likely spills. Stationary plant, including generators, must only be used on drip trays/plant nappies. Refueling must only be undertaken on hard standing areas and drip trays used.

5.4 *Recommendations - Biodiversity Net Gain*

- 5.4.1 In line with Planning Policy Wales, and following the Environment Wales Act (Section 6) and guidance provided in the recent letter by the Chief Planner in Wales, there is a requirement to ensure that a net benefit for biodiversity is provided in all application for planning in Wales.
- 5.4.2 The removal of the amenity grassland will result in a reduced foraging area for bats. The current plans show areas of planting within the proposed car park. A landscaping plan was not available at the time of this report but it is recommended that native wild flowers and fruiting shrub species be planted within the site to encourage insects and pollinators and provide a food source for foraging bats and birds.
- 5.4.3 In order to enhance the site for bats, it is recommended that at least two bat boxes suitable for crevice dwelling bats are erected within the site. It is recommended that woodstone or woodcrete boxes are used as they last longer and require much less maintenance than wooden boxes. A range of bat boxes can be found at www.nhbs.com or www.greenwoodsecohabitats.co.uk and some examples are shown in figure 5.2. The boxes will be mounted on the mature trees along the eastern boundary of the site, situated on a southern elevation of the tree. It is recommended that these boxes that are to be

mounted on the trees, are done so securely using non-harmful nails (non-rusting – ideally aluminium).



FIGURE 5.2: WOODSTONE/WOODCRETE BAT BOXES

5.4.4 To compensate for the loss of bird nesting habitat and enhance the site for birds; bird nesting opportunities will be provided by including bird boxes within the site. A minimum of two boxes suitable for small birds need to be erected on site, - one suitable for house sparrows with a 32mm entrance, and one for smaller birds (28mm). Examples of suitable bird boxes can be found at the following links: <https://www.nhbs.com/vivara-pro-seville-32mm-woodstone-nest-box>; <https://www.nhbs.com/vivara-pro-seville-28mm-woodstone-nest-box>. Woodstone nest boxes are more durable and require less maintenance than wooden boxes. These boxes should be mounted onto the trees along the southern boundary of the site. It is recommended that these boxes that are to be mounted on the trees, are done so securely using non-harmful nails (non-rusting – ideally aluminium).

6.0 Legislation

6.1 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.

6.2 *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, injury 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.

6.3 *Biodiversity Net Gain – Relevant sections of legislation*

- Section 6 of the Environment (Wales) Act 2016:

Biodiversity and resilience of ecosystems duty

(1) A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.

(2) In complying with subsection (1), a public authority must take account of the resilience of ecosystems, in particular the following aspects—

- (a) diversity between and within ecosystems;
- (b) the connections between and within ecosystems;
- (c) the scale of ecosystems;
- (d) the condition of ecosystems (including their structure and functioning);
- (e) the adaptability of ecosystems.

.... (5) In complying with subsection (1), a public authority other than a Minister of the Crown or government department must have regard to—

(a) the list published under section 7;....

- Section 7 of the Environment (Wales) Act 2016:

Biodiversity lists and duty to take steps to maintain and enhance biodiversity

(1) The Welsh Ministers must prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

(2) Before publishing a list under this section the Welsh Ministers must consult the Natural Resources Body for Wales (“NRW”) as to the living organisms or types of habitat to be included in the list.

(3) Without prejudice to section 6, the Welsh Ministers must—

(a) take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and

(b) encourage others to take such steps.

7.0 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

BTHK (2018) Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals: Pelagic Publishing

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

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