Stainborough Castle, Wentworth Castle

Bat Survey Report

27th February 2020

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Document ref: MBE/BAT/2020/12/2				
Purpose and Description	Originated	Checked	Reviewed	Date
For Planning	R Bell MCIEEM	P Middleton MCIEEM	R Bell MCIEEM	27/02/20

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1. Summary

1.1.1 A bat survey of the Stainborough Castle, located in the grounds of Wentworth Castle, was commissioned by Sarah Dennett of the National Trust on 17th February 2020.

1.1.2 The survey was undertaken to inform a proposed programme of repair to this Grade II* listed gothic folly. Repair works are to include re-building and repointing of walls, together with the replacement of window lintels, vegetation removal and the replacement of sections of balustrade.

1.1.3 The bat survey works carried out comprise a preliminary roost assessment undertaken on 19th February 2020.

1.1.4 Stainborough Castle is located in Wentworth Castle Gardens near the village of Hood Green. The site is surrounded by extensive high-quality bat foraging habitat with a diverse range of bat species known from the local area. Historic records detail the locations of four bat roosts in Stainborough Castle including a relatively large Natterer's bat transitional roost in one of the turrets.

1.1.5 During the visual survey two new bat hibernation roosts were recorded, both from Tower 1. These roosts comprised a noctule roost used by a single bat and a brown long-eared bat roost used by two bats. Turrets and towers within Stainborough Castle display high potential for year-round use by roosting bats.

1.1.6 Much of the proposed programme of repair works may proceed in summer 2020, provided that roosted bats are not impacted and that precautionary working methods presented in this document are strictly adhered to. Such works include most re-pointing, vegetation removal and the replacement of sections of balustrade.

1.1.7 Other parts of the repair programme will need to be permitted by an EPS mitigation licence. In particular, proposed lintel replacement works require some impacts to known roosts. Additional nocturnal survey is required to inform the EPS mitigation licence application and it is recommended that all replacement of lintels is delayed until these surveys are completed.

2. Introduction

2.1.1 A bat survey of Stainborough Castle, located in the grounds of Wentworth Castle near the village of Hood Green, was commissioned by Sarah Dennett of the National Trust on 17th February 2020.

2.1.2 The survey was undertaken to inform a proposed programme of repair to this Grade II* listed structure. Repair works are to include re-building and repointing of walls, together with the replacement of window lintels, vegetation removal and the replacement of sections of balustrade.

2.1.3 The bat survey works carried out comprise a preliminary roost assessment, undertaken on 19th February 2020.

3. Habitat Assessment

3.1.1 Stainborough Castle is situated in mixed woodland, within an area of Wentworth Castle Gardens known as The Wilderness. This wooded area is part of a large connected network of woodlands, which includes Lowe Wood, an area of semi-natural ancient woodland situated 60m northwest of the site.

3.1.2 The parkland of Wentworth Castle also includes a number of ponds, with the closest pond to site 190m southeast of the castle.

3.1.3 The local area supports extensive coverage of prime bat foraging habitats and the area is known to support a high density of bats belonging to a wide range of species.

Table 1. Location and habitat table

Name and address: Stainborough Castle, Wentworth Castle, Hood Green, Barnsley S75 3EZ			
OS Grid Ref. SE 31549 03063		Altitude. 195m	
Local Planning Authority: Barnsley Metropolitan Borough Council			
Features on site and adjacent to site			
Feature	On site	Adjacent	Comments
Buildings	✔		Stainborough Castle is located in the gardens of Wentworth Castle
River			
Standing water			Various ponds in grounds of Wentworth Castle, with closest pond 190m southeast
Bridges tunnels and culverts			
Trees	✔	✔	Stainborough Castle is situated in mixed woodland
Woodland	✔	✔	
Grassland	✔	✔	Grassland within perimeter wall of castle structure

Figure 1. Site location, as indicated by red circle

3.2 Aims

3.2.1 The survey was conducted to help determine the following:

- The presence/absence of roosting bats.
- Bat roosting areas and access/egress points into the structure.
- The level of bat roost potential associated with the structure.
- The number and species of bat roosting within the structure.
- Identify further survey work or mitigation requirements.

4. Methodology

4.1 Data Consultation

4.1.1 Bat records for locations within 2km of the site were obtained from South Yorkshire Bat Group (SYBG).

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was also undertaken to identify historic European Protected Species (EPS) licences obtained for locations within 2km of the site.

4.1.3 The bat record search highlighted the undertaking of a historic bat survey of Stainborough Castle in 2004 (EBC, 2004). The related bat survey report was obtained, and observations detailed in the report are summarised in the data consultation section of this report.

4.2 Field Survey

Preliminary Roost Assessment

4.2.1 The following personnel conducted the preliminary roost assessment on 19th February 2020:

- Robert Bell (MCIEEM; Class license WML-A34-Level 4, 2016-25236-CLS-CLS)
- Peter Middleton (MCIEEM; Class license WML-A34-Level 4, 2017-27977-CLS-CLS)

4.2.2 The following activities were carried out during the surveys in compliance with relevant Bat Survey Guidelines (Collins 2016):

- A brief inspection and assessment of the site and habitats present to within 300m.
- An extensive examination of all parts of the buildings both inside and out to record structural features and condition and to record features that may be suitable for roosting bats. Particular attention was paid to any crevices or gaps in walls, lintels, gaps between beams and joists and to the possibility of finding droppings stuck to walls, floors or other surfaces, or insect remains below beams, among a number of other factors. All signs indicative of a bat roost presence including live or dead bats, droppings, feeding remains, scratch marks and staining were recorded.
- A 5m ladder was used to assess all sections of the inner and out walls up to this level, where crevices and voids were noted.
- An assessment of the building's bat roost potential (negligible, low, moderate, high or confirmed roost).

4.2.3 The following equipment was used or at hand during the survey:

- Clulight
- Binoculars
- Endoscope
- Ladders
- Camera

4.3 Survey Limitations

4.3.1 Whilst a 5m ladder was used to access external walls up to this height, the two gatehouse turrets are approximately 18m tall. As a result, it was not possible to directly inspect the majority of these structures.

4.3.2 Whilst an endoscope was used to inspect accessible crevices and openings in masonry, many of these continued into the wall interior and the presence of further roosting bats in these areas could not confidently be ruled out.

5. Results

5.1 Data Consultation

5.1.1 South Yorkshire Bat Group provided 511 bat records for locations within 2km of Stainborough Castle. Species positively identified comprise brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus*, Daubenton's bat *Myotis daubentonii*, noctule *Nyctalus noctule* and Leisler's bat *Nyctalus leisleri*. Other bat records related to either an unidentified *Myotis* species, an unidentified *Pipistrellus* species, an unidentified *Nyctalus* species or an unidentified bat species.

5.1.2 Of the bat records received, five related to confirmed roost locations in Stainborough Castle, with Natterer's bat, soprano pipistrelle and brown long-eared bat recorded roosting in the structure. Four of these roost locations were made during a programme of bat survey works of the site completed in 2004 (EBC, 2004), with the fifth roost recorded in 2015. These roost observations are summarised in Figures 2 and 3.

5.1.3 Other notable bat roosts present in the local area, include a Natterer's bat transitional roost of approximately 40 bats, recorded from Rockley Tunnel which is located 1.6km southeast of the site. A Natterer's bat maternity roost of approximately the same size is also known from Rockley Engine House, which is located approximately 2.4km southeast of the site. In addition, Rockley Tunnel comprises one of South Yorkshire's largest bat hibernation roosts, used by Natterer's bat, Daubenton's bat and brown long-eared bat. These roosts were all last recorded in either 2019 or 2020.

Figure 2. Historic bat roost records from Stainborough Castle

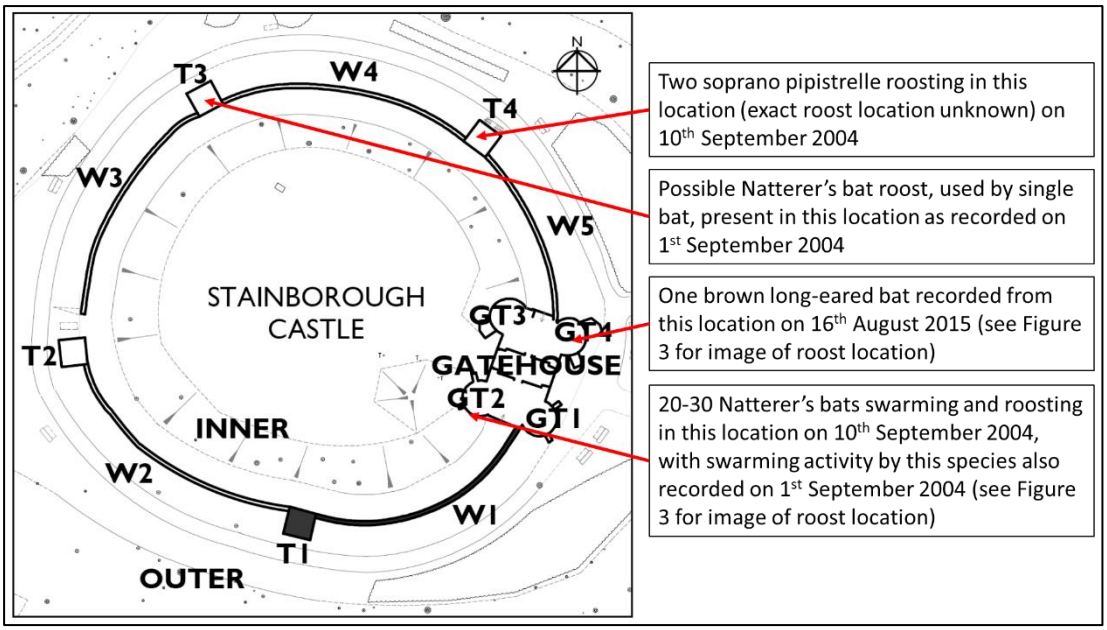
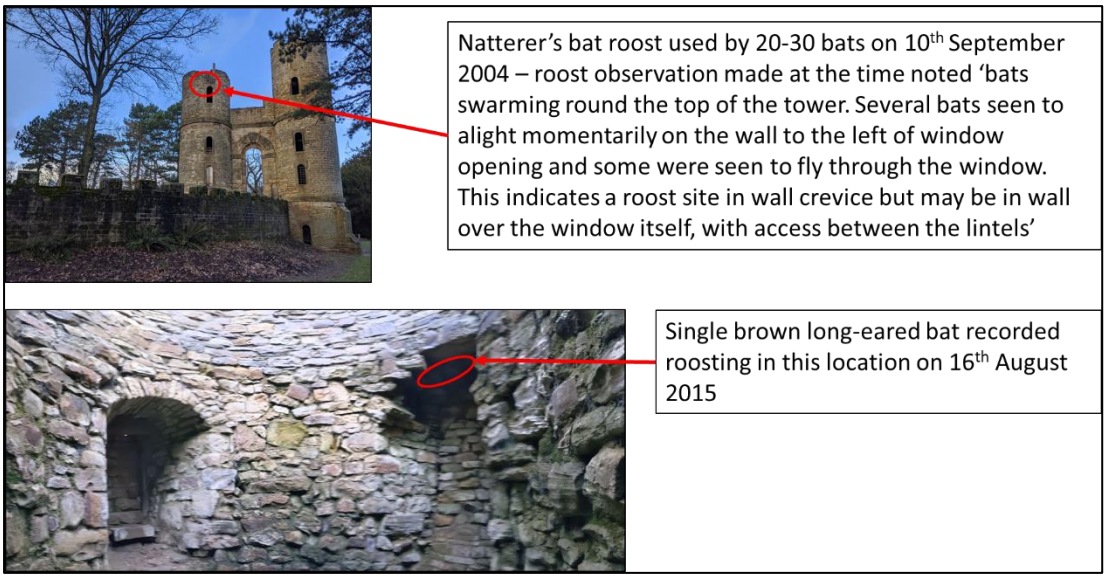


Figure 3. Images of the two historic roost locations, for which detailed descriptions are known



5.1.4 The wider Wentworth Castle site has a well-documented early history of bat studies, with surveys undertaken by Arthur Whitaker in the early 1900s, during which time at least seven bat species were confirmed as present on site (Whitely, 1987). Most of the roost locations recorded from trees by Mr Whitaker are untraceable, however, others such as Rockley Tunnel still support roosting bats (Middleton & Bell, 2017).

5.1.5 No European Protected Species (EPS) mitigation licences have been issued for locations within 2km of the site.

5.2 Field Survey

Preliminary Roost Assessment

5.2.1 The numbering system shown in Figure 2 has been used when describing the structure. During the visual inspection, two new bat hibernation roosts were recorded, both from Tower 1. These roosts comprised a noctule roost used by a single bat and a brown long-eared bat roost, used by two bats. Stainborough Castle is considered to display a high level of bat roost potential and is suitable for bat use throughout the year.

5.2.2 Stainborough Castle comprises a Grade II* listed gothic folly, constructed between 1728-1730 from coursed dressed sandstone with ashlar dressings. The castle comprises a roughly circular curtain wall, with four square guard towers, and a large gatehouse on the east side which includes an archway, originally located beneath four circular turrets. Two of these turrets remain either at, or close to, their original height (GT1 & GT2, Figure 2; Plate 1).

Plate 1. Gatehouse viewed from east, with the southeast turret (GT1) in the foreground

Plate 2. North side of turrets GT1 and GT2

Gatehouse

5.2.3 Turrets GT1 and GT2 are linked by a wall, which includes a tall round-arched doorway. The southeast turret (GT1, Figure 2) had a spiral metal staircase fitted c.2005, which allows visitors to reach a viewing platform just below parapet height. Turrets GT1 and GT2 both have numerous window openings present in the outer walls. The embattled parapet present on GT1 is missing from GT2. Turrets GT1 and GT2 are connected by an arched stone passageway, with a second arch forming the roof of the main vault. The vault comprises the main entry point into the folly for visitors. On the north side of the vault, a stone passageway connects the vault to turret GT4, which comprises the single storey remains of a tower, with two arched roofed former window openings built into the wall (Figure 3). Little remains of turret GT3, with the outer wall now largely collapsed.

5.2.4 The exterior of the turrets GT1 and GT2 includes mostly superficial gaps in masonry joints, with occasional deeper holes present. Deeper crevices were noted on the south side of GT2, within the area where the Natterer' bat roost was recorded in 2004 (Figure 2). Joints in this area were difficult to inspect from the ground due to their height. Numerous shallow crevices were present between masonry in the areas where a former wall has collapsed, or been removed, on the north side of turrets GT1 and GT2 (Plate 2). Bats may also roost within deeper crevices and voids between stone blocks on the turret exteriors.

5.2.5 The arched roof of the vault, and also passageways leading to the base of the turrets were mainly well pointed with few deeper crevices present. These areas also experience frequent disturbance from visitors. However, the roofs of the recessed window openings in GT4 includes numerous deeper crevices and voids, with the 2015 brown long-eared bat roost record, collected from this area. Although also disturbed by visitor presence it is possible a bat or bats still roost in this area, although no evidence of bats was recorded at the time of survey.

Towers in the curtain wall

5.2.6 Four square towers are present in the curtain wall (Plate 3). These are mainly two stories in height, with T4 also supporting a basement room. None of the towers have roofs and all have two door or window openings in each elevation. Pairs of wooden lintels are present above upper window openings and above door openings. Door openings connect the tower interiors to the open space enclosed by the curtain wall. A fire opening and associated flue is built into the wall on the north side of T4, with the basement room beneath this tower accessed from the outside of the curtain wall.

5.2.7 The tower exteriors are generally reasonably well pointed; however, some deeper crevices were recorded, for example, the open joint between parapet masonry on the north side of T1, from which a hibernating noctule bat was noted (Plate 4). On the interior of the towers, all lintels above upper windows and lower doors display good potential to support roosting bats, both between lintels and within voids in masonry either side of the lintel ends. A pair of brown long-eared bats were recorded roosting within the wall, beside a lintel beam in the west wall of T1 (Plate 5). Deep crevices were also noted in the north wall of T4, above the doorway into the basement room.

Plate 3. View from top of GT1, GT2 in foreground plus T2, T3 and curtain wall

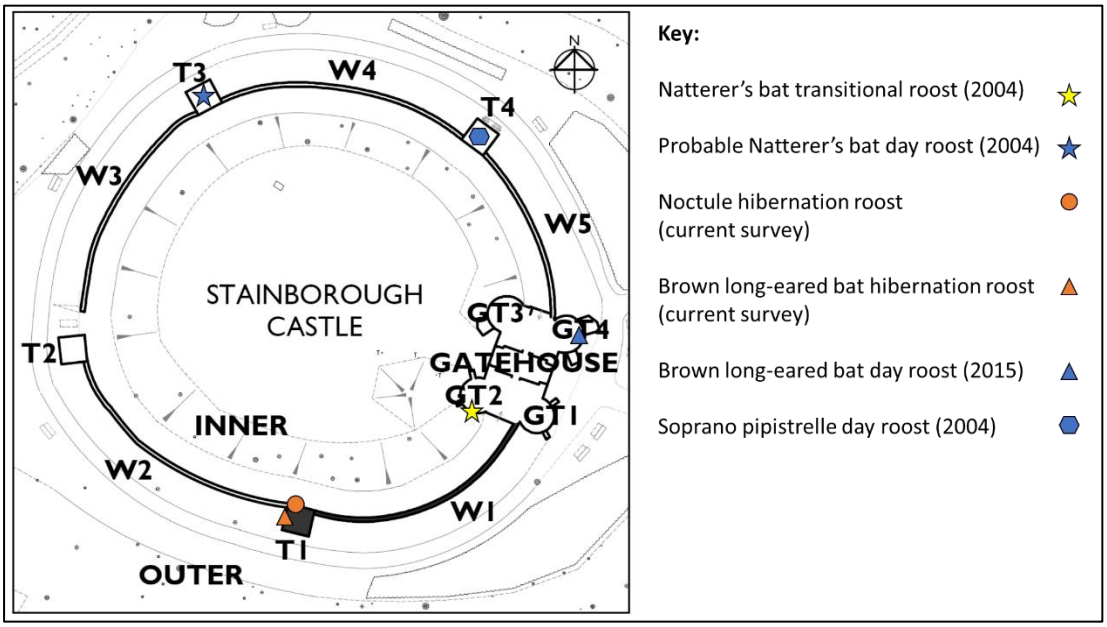
Plate 4. Noctule roost in north elevation of T1

Plate 5. Brown long-eared bat roost in west wall of T1

Curtain wall

A curtain wall capped with coping stones is constructed in a roughly circular shape connecting the gatehouse to the towers. These walls are higher on their external side but do not exceed a height of 2m. Occasional crevices were present in the walls, however, these could all be inspected, and the curtain wall displays low potential to be used by roosting bats.

Figure 4. Bat roost locations recorded from Stainborough Castle during both the current and historic bat survey works



6. Assessment

6.1 Summary and Evaluation of Findings

6.1.1 Stainborough Castle supports six current or historic bat roost locations, used by four bat species and includes hibernation, day and transitional roost types. There is no existing evidence of bat maternity roosts being present on the site, however, it does not appear that any structured bat survey has taken place during the peak maternity period (June-July) (EBC, 2004). In the absence of updated nocturnal surveys, it should be assumed that historically recorded roosts are still in use.

6.1.2 Turrets and towers at Stainborough Castle display high potential for year-round use by roosting bats. The main areas with bat roost potential comprise crevices associated with lintels, which are positioned above windows and doors, in both the turrets and the towers. Crevices in external and internal walls, away from the window lintels, are mainly superficial, however, there are occasional exceptions, such as the noctule roost location in T1 and cracks and voids in the upper reveal of the former window recesses in GT4.

6.2 Legislation and Policy Guidance

6.2.1 Bats receive protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).

6.2.2 It is an offence to:

- Deliberately capture (or take), injure or kill a bat.
- Intentionally or recklessly disturb bats whilst they are occupying a structure or place used for shelter or protection or obstruct access to any such place.
- Damage or destroy the breeding or resting place (roost) of a bat.
- Possess a bat (live or dead), or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.
- Sell (or offer for sale) or exchange bats (dead or alive), or parts of parts.

6.2.3 The Convention on Biological Diversity, signed in Rio de Janeiro, Brazil in 1992, requires member states to develop national strategies and to undertake a range of actions aimed at maintaining or restoring biodiversity. The UK Biodiversity Strategy was produced in response to the Convention.

6.2.4 In England & Wales, the Natural Environment and Rural Communities (NERC) Act, 2006 imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". It notes that "conserving biodiversity includes restoring or enhancing a population or habitat". Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, brown long-eared, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, noctule and soprano pipistrelle bats are included as priority species within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. At a more local level there are Local Biodiversity Action Plans for smaller geographical areas which may cover a greater or lesser range of bat species.

6.2.5 Where it is proposed to carry out works which will have an adverse impact on roosting bats, the site must either be registered on the Bat Mitigation Class Licence (BMCL) or

a European Protected Species (EPS) license must first be obtained from Natural England. This requirement applies even if no bats are expected to be present when the work is carried out.

6.2.6 The National Planning Policy Framework for England was revised in 2019. This document states that plans should 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity'.

6.3 Further Survey, Recommendations and Enhancements

6.3.1 An EPS mitigation licence is required to permit certain elements of the repair works. Existing bat survey information for the site is limited and it is likely there are other as-yet-undiscovered roost locations. Some of the roost locations noted in 2004 have not been precisely recorded. On the basis of current survey information, the elements of works detailed in Table 2 are likely to require an EPS mitigation licence, if they are to be completed in full.

Table 2. Works which are likely to require an EPS licence, based on current survey information

Item reference	Description
C46-48	Lintel replacement in T1
G39	Repointing of open joints on upper level of GT2
G26	Partial rebuilding and repointing of GT4
C102 –103	Lintel replacement in T3

6.3.2 It is noted that during re-pointing there is potential for open joints and voids in masonry, which support roosting bats, to be retained. As a result, there is scope for work items G39, G26 to be modified in order to retain potential roost locations. It is considered that lintel replacement where bat roosts are present, will need to be permitted by an EPS mitigation licence as it will entail a change in roost materials. Given the high potential for additional roosts to be present in association with lintels, it is recommended that all lintel replacement works be delayed until further nocturnal surveys have been completed.

6.3.3 The proposed programme of repair works is scheduled to commence in May 2020, with funding commitments tied to this start date. It is considered possible to commence repointing works, and other elements of works not likely to impact roosting bats at this time, providing that precautionary working practices are enacted and strictly enforced.

6.3.4 Precautionary working practices should include the following. A Toolbox Talk should be delivered to all operatives by a licensed bat worker, prior to works commencing. Where works are to impact any turret or tower, a pre-works nocturnal survey of that structure should be undertaken, not more than 48 hours prior to scaffold erection or other enabling works. If a bat roost, or roosts, are recorded during the pre-commencement survey, then a decision will need to be made regarding whether works can proceed at that time. As detailed in Section 6.2, outside of a bat mitigation licence any works which would damage or destroy a bat roost or impact roosting bats through either direct or indirect disturbance, are illegal. Following scaffold erection and prior to any re-pointing works commencing, a licenced bat worker should inspect the structure with an endoscope to check for signs of roosting bats. If evidence of current or historic bat roosting (i.e. droppings) is recorded, then the associated roost feature must be

retained unaltered. Prior to re-pointing works commencing on the curtain wall, this feature should be re-inspected by a licensed bat worker.

6.3.5 If works to turret GT2, which supported a large Natterer's bat transitional roost in September 2004, are to commence in summer 2020 then some elements of re-pointing to the upper tower may not be possible. Under the precautionary working method, a pre-works nocturnal survey would take place to highlight any bat roosts present at the time of works. Nevertheless, it is recommended that works to GT2 avoid the late summer period, in order not to prevent bats returning to this previously recorded roost location.

6.3.6 In order to inform the EPS mitigation licence application, nocturnal surveys of the entirety of Stainborough Castle should take place. Given the layout of the structure and the presence of nearby trees, it is considered that dawn surveys will be most effective in locating roosts. Consequently, it is recommended that two five-person dawn surveys are undertaken, with one survey visit during the peak maternity period (June to July) and a second in late August/early September. If a significant (high numbers) bat roost is recorded, then the relevant part of the structure should be targeted with a two-person dusk emergence survey, in order to obtain an effective count of bats present. All nocturnal surveys should be undertaken by experienced bat surveyors equipped with ultrasonic bat detectors and recording devices, in accordance with best practice guidance (Collins, 2016).

6.4 Conclusions

6.4.1 Stainborough Castle supports six current or historic bat roosting locations, used by four bat species and including hibernation, day and transitional roost types. In the absence of updated nocturnal surveys, it should be assumed that all historically recorded bat roosts are still in use.

6.4.2 The proposed repair works entail elements which require an EPS mitigation licence in order to proceed, most notably including some of the lintel replacement proposals. Additional nocturnal survey work is required to inform the EPS mitigation licence application. It is recommended that all lintel replacement works are delayed until these surveys are completed. Other elements of the proposed repair works may proceed in advance of further nocturnal surveys, providing the precautionary working methods presented in this document are strictly adhered to.

7. References

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