Royal Cornwall Museum
Truro, Cornwall

Bat and Nesting Bird Visual Survey and Detailed Bat Surveys

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For:
Royal Cornwall Museum

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1. INTRODUCTION

It is proposed to re-roof the Royal Cornwall Museum, 25 River Street, Truro, Cornwall, TR1 2SJ. The OS Grid reference of the site is SW8237544887.

Bright Environment was commissioned by the Royal Cornwall Museum in October 2021 to carry out a visual bat and nesting bird survey to inform the works. Bats and nesting birds are legally protected (see Appendix 1).

The survey area is defined in Figure 1 over leaf. The roofs are referenced R1-5 and S1-6 on Figure 1 and throughout the report. The presence or absence of bats in the following roofs could not be determined via the visual survey alone - R1, R3, R4 and R5. These roofs were assessed as having low potential for bats so one emergence survey between May and August was required to prove absence (in accordance with Bat Survey Guidelines produced by BCT). Remote monitoring of R1 was also required. These detailed bat surveys were carried out in July 2022. The results of all surveys are included in this report.

2. METHODOLOGY

The survey methodology adopted follows the guidance given in 'Bat Surveys for Professional Ecologists – Good Practice Guidelines' (Collins, 2016) and 'Barn owl survey methodology and techniques for use in ecological assessment' (Shawyer, 2011). Impact assessment and mitigation follows the guidance provided by CIEEM (2018) and the 'Bat Mitigation Guidelines' (Mitchell-Jones, 2004). The survey area is defined in Figure 1 over leaf. The roofs are referenced R1-5 and S1-6 on Figure 1 and throughout the report.

2.1 Visual survey methodology

A visual survey of the building was carried out on 19th October 2021. During this the suitability of the building and surrounding habitats to support bats and nesting birds was made.

A detailed search of the interior of the building was carried out using a high powered torch to illuminate all areas thought suitable for bats and nesting birds. Any accessible cracks and crevices were investigated with the use of a torch and endoscope. The exterior of the building was viewd from ground level and many elevations of the roofs were also viewed from flat roof sections. This allowed the identification of potential bat access points.

The survey involved looking for bats and nesting birds and for evidence of their use, including droppings, pellets, staining, liming, feathers and feeding remains. Survey details are shown in Table 1.

Potential bat roosts identified during the visual inspection of the building were categorised as to their suitability in accordance with the Bat Conservation Trust's (BCT) Good Practice Guidelines (Collins, 2016) as described below:

- Negligible: negligible features with potential to support roosting bats.
- Low: one or more features with potential to support individual bats on an occasional basis. Unlikely to support large numbers of bats.
- Moderate: one or more features with potential to support roosting bats but unlikely to be of high conservation status.
- High: one or more features with potential to support large numbers of bats on a regular basis

2.2 Bat emergence surveys methodology

During the visual survey it was concluded that the following roofs have no potential as bat roosts and do not require further survey - R2, S1, S2, S4, S5, S6 and S7.

The presence or absence of bats in the following roofs could not be determined via a visual survey alone - R1, R3, R4 and R5. These roofs were assessed as having low potential for bats so one survey between May and August was required to prove absence (in accordance with Bat Survey Guidelines produced by BCT). One emergence survey was carried out, on 4th July 2022, to record any bats emerging from the building. The surveys commenced 15 minutes before sunset and continued until one hour after sunset. Six surveyors were employed to provide coverage of the elevations/roofs requiring further survey. All surveyors used Echometer Touch bat detectors, employing heterodyne and real time expansion methods of detection. The location of surveyors is shown Figure 1.

2.3 Remote monitoring methodology

Due to the presence of a hanging ceiling, it was not possible to carry out a visual search of R1. Remote monitoring (at least five consecutive nights between May and August) of R1 was recommended. This was carried out from 4th - 12th July 2022 (8 consecutive nights). A SongMeter (SM2+) detector was placed in the roof void and set to record bats from one hour before sunset to one hour after sunrise (see Figure 1 for location).

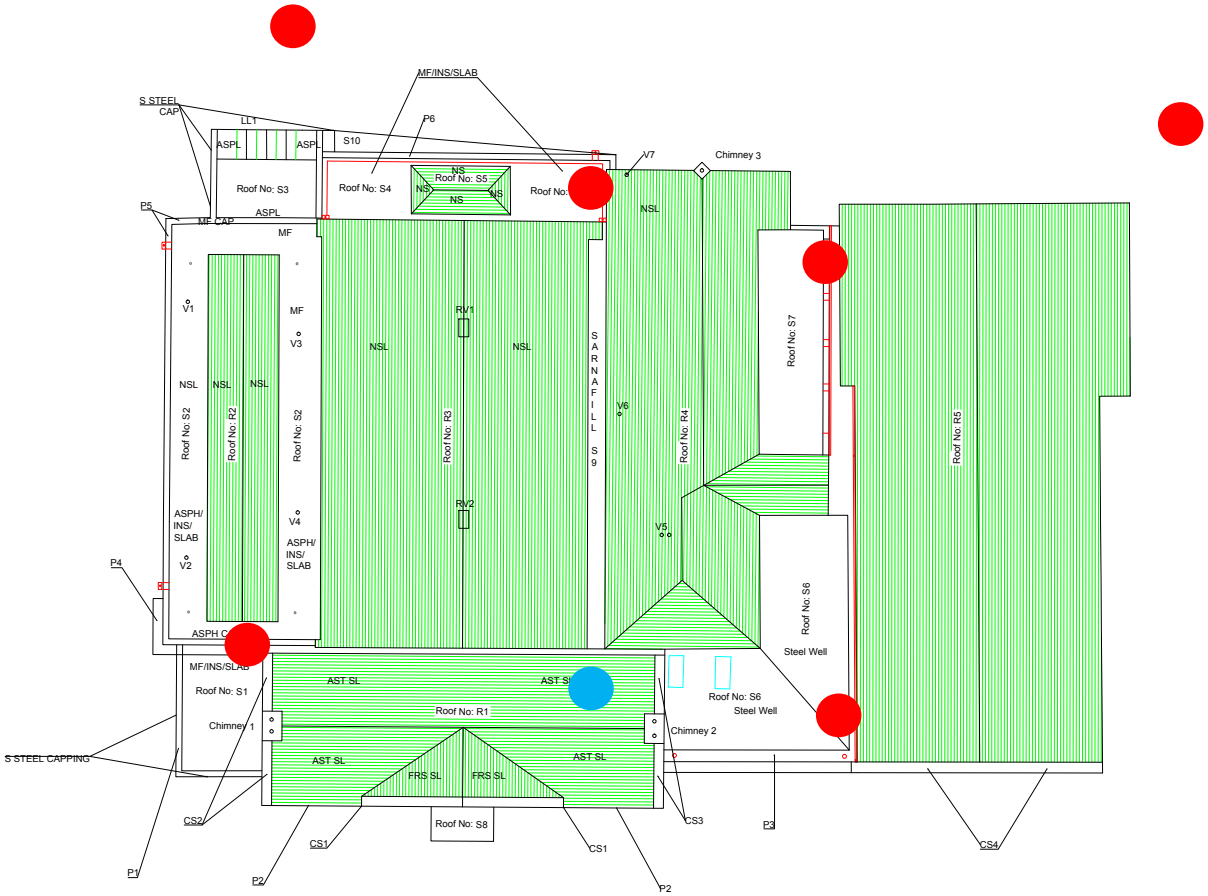

Figure 2. Roof plan showing proposed location of surveyors ( ) and remote monitoring ( ) for phase 2 ecology surveys.

Table 1 Survey details.

Date	Type of survey	Personnel - bat licence number	Weather conditions
19.10.21	Visual survey	Dr Janine Bright 2020-49235-CLS-CLS	Light Rain, light breeze, overcast. Temp 16C
4.7.22	Emergence survey	Dr Janine Bright 2020-49235-CLS-CLS Emma Pethick CL17-2021-53399-CLS-CLS Jason Trewinnard Leanne Rogers Oscar Bright Charlotte Martin-Taylor	Dry, calm, patchy cloud. Temp 13-15C Time of sunset 21.32hrs
4.7.22 to 12.7.22	Remote monitoring	Dr Janine Bright 2020-49235-CLS-CLS	Dry and warm for duration. The temperature range recorded by the detector inside the building was 19-25C

3. SURVEY RESULTS

3.1 Habitat description

The Royal Cornwall Museum is located in the centre of Truro. It is an urban setting with the nearest 'green space' being a park 130m to the west. Foraging opportunities for bats are limited at the site.

The building is Grade II listed and was built in 1845 originally as a bank. Part of the museum was a chapel. The building is fronted with cut granite. Other stone elevations are rendered. There is a flat roof link section connecting the main museum with the chapel. The roof sections are described in detail in section 3.2.

Photograph 1. South (front) elevation.

Photograph 2. North (rear) elevation.

3.2 Visual bat survey results and recommendations

3.2.1 Roof No R1

Roof No R1 is above the library and is a pitched gable roof. It has a granite front façade (Photograph 1) and granite gable (Photograph 3). There are granite cornices at the eaves (Photograph 4). These features do not allow any potential bat access points. The roof covering is natural slate with clay ridge tiles. The front roof slope was not visible from the ground. No obvious potential bat access points were observed in the rear roof slope. It was not possible to gain entry to the roof void as there was a non-weight bearing hanging ceiling. A single ceiling tile was removed so that the void could be seen. The underside of the roof covering has a fibrous insulation. This insulation is above the rafters but below the slates and is likely to block bat entry into the roof void. It is possible that bats could roost unseen beneath ridge tiles or behind slates in the void created by the battens (should potential bat access points be present). The presence or absence of bats in R1 could not be determined via a visual survey alone. R1 has been assessed as having low potential as a bat roost. Therefore, one emergence survey at dusk using two surveyors and 5 consecutive nights of remote monitoring in the roof void was recommended to prove absence of bats.

Photograph 3. Granite gable of Roof No R1 and southern parts of R4.

Photograph 4. Granite cornices of Roof No R1.

3.2.2 Roof No R2

Roof No R2 is pitched gable roof. It has flat roof sections at the eaves (Roof No S2). It is therefore possible to walk entirely around Roof No R2 at the flat roof height. The roof covering is natural slate with clay ridge tiles. There is a foil type membrane present. No potential bat access points were observed to allow bats to the voids between the membrane and slates nor under the ridge tiles. At each gable is a louvred metal door which could potentially allow bat access to the walk-in void within. However, a thorough search of this void was achieved and no evidence of roosting bats was found. The hanging slates on the gables do not have any potential bat access points. A through search or all areas accessible to roosting bats was carried out an no evidence was found. Roof No R2 has been assessed as having negligible potential as a bat roost and no further surveys of this roof were required.

Photograph 5. Roof No R2 North and east elevations. Photograph 6. Roof No R2 internal.

3.2.3 Roof No R3

Roof No R3 is above the main gallery of the museum. This part of the museum has an arched vaulted vaulting. There is a large walk-in roof void above this ceiling. The access is via a wooden louvred door on the north gable. The large pitched gable roof has a covering of natural slate with clay ridge tiles. There are wooden sarking boards beneath the slates. There are two roof vents (see photographs 7 and 8) that have gaps that could potentially allow bats to enter the roof void. Bats may also potentially enter the void via the louvered door. However, no evidence of bats was found within the void.

The soffits are tightly fitted to the render at the gables (Photograph 11), however there are gaps between the slates and the soffit that would allow bats to potentially gain access to the void between the slates and the sarking boards. There are also some lifted slates across the main part of the roof.

The presence or absence of bats in R3 could not be determined via a visual survey alone. R3 was assessed as having low potential as a bat roost. Therefore, one emergence survey at dusk using

two surveyors was recommended to prove absence of bats. Remote monitoring of the void was not required. R3 was surveyed at dusk from the flat roof sections.

Photograph 7. Roof No R3 North and west elevations. Photograph 8. Roof vent in No R3.

Photograph 9. Roof No R3 louvred door. Photograph 10. Roof void No R3.

Photograph 11. Tightly fitted soffit of R3. Photograph 12. Gaps between soffit and slates on R3.

3.2.4 Roof No R4

Roof No R4 is a complex design roof it is pitched with a gable at the north elevation, a hip at the south elevation and an intersecting roof section (see Photograph 3 and Figure 1). It has a roof covering of natural slate and clay ridges. Internally the ceiling is vaulted and there is no accessible roof void. Large gaps were observed between the rafters at the eaves (see Photograph 13). This would potentially allow bats to gain entry into the void between the roof and the vaulted ceiling.

The presence or absence of bats in R4 could not be determined via a visual survey alone. R4 was assessed as having low potential as a bat roost. Therefore, one emergence survey at dusk using two surveyors (a third surveyor covering R3 also covered the west roof slope of R4) was

recommended to prove absence of bats. Remote monitoring was not required. R4 was surveyed at dusk from the flat roof sections.

Photograph 13. Gaps between the rafters at the eaves of R4.

3.2.5 Roof No R5

Roof No R5 is above the former chapel. There is a large walk-in roof void that houses the air circulation system for the museum. The roof covering is natural slate with bitumen felt. No evidence of bats was found within the void. The chapel roof has a stone gable at the south elevation. The soffit is tightly fitted to the render at the north gable, however there are gaps beneath the ridge tiles that may allow bats to gain entry to the ridge void.

The presence or absence of bats in R5 could not be determined via a visual survey alone. R5 was assessed as having low potential as a bat roost. Therefore, one emergence survey at dusk using two surveyors was recommended to prove absence of bats. Remote monitoring of the void was not required. R5 was surveyed at dusk with one surveyor on the flat roof and one on the road on the north elevation.

There is a small eaves void in the north east corner of R5. This has a concrete base. No evidence of bats was found within.

Photograph 14. West roof slope of R5.

Photograph 15. Roof void of R5.

3.2.6 Roof No S5

There is a small hipped roof within the flat roof (S4) to the north of R3 (see Photograph 16). It is possible that this was a former light-well that has been slated. It does not have any potential for roosting bats and no further surveys of S5 were required.

Photograph 16. Roof No S5.

3.2.7 Roof No S1

Roof S1 is a flat roof with stone cornices. It has no potential for roosting bats and did not require further survey.

3.2.8 Roof No S2

Roof S2 is a flat roof with stone cornices (see Photograph 4). It has no potential for roosting bats and did not require further survey.

3.2.9 Roof No S3

Roof S3 is a flat roof with a sloped roof section on the north elevation. The flat roof has no potential for roosting bats. The facias on the north elevation at the eaves of the sloping roof have gaps behind that could harbour roosting bats. These could not be visually searched. The presence or absence of bats in S3 could not be determined via a visual survey alone. S3 was assessed as having low potential as a bat roost. Therefore, one emergence survey at dusk using one surveyor stood at ground level on the north elevation was recommended to prove absence of bats.

3.2.10 Roof No S4

Roof S4 is a flat roof with no fascia or soffit features. It has no potential for roosting bats and did not require further survey.

3.2.11 Roof No S6

Roof S6 is a zinc roof with no potential for roosting bats and did not require further survey.

3.2.12 Roof No S7

Roof S7 is a flat roof with no potential for roosting bats and did not require further survey.

3.3 Emergence survey results

No bats emerged from the museum at dusk.

Bat activity around the museum was very low. Three bat passes from Natterers bat, two from common pipistrelle and one from Noctule were recorded. These bats were not associated with the museum building.

3.4 Remote monitoring bat survey results

No bats were recorded in R1 during the remote monitoring event.

3.5 Interpretation and evaluation of bat survey results

In accordance with the 'Bat Surveys for Professional Ecologists – Good Practice Guidelines' (Collins, 2016); **sufficient survey effort has been employed to demonstrate the absence of roosting bats at Royal Cornwall Museum.** No mitigation for bats is required.

In the unlikely event that bats are discovered during the works, they must not be handled and works must stop immediately and advice sought from Bright Environment (Tel 07974 204078) or Natural (Tel 0300 060 3900).

3.6 Nesting bird survey results and recommendations

During the October 2021 feathers were found within R1 and R2 but no evidence of nesting birds was seen. It is possible that feathers may have blown in via the vents. Seagulls and pigeons were observed with active nests on the flat roof sections of the museum during the July 2022 survey at dusk.

It is possible that bird nests could be concealed from view on wall tops or soffit boxes.

The nests and eggs of all wild birds are protected against taking, damage or destruction under the Wildlife and Countryside Act 1981. It is recommended that the works are carried out between October and February inclusive to avoid disturbing nesting birds. If the works are to be carried out within the bird breeding season (March to September) the building should be searched for nesting birds. If nesting birds are present, works should not commence until dependant young have fledged. Further advice can be sought from Bright Environment (Tel 07974 204078) or Natural England (Tel 0300 0602544).

As ecological features can change over time it is recommended that this report is valid until August 2023.

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Appendix 1 Summary of relevant legislation, policies and case law

Bats

All British bat are European protected species and are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. Together, this legislation makes it illegal to:

- Intentionally kill, injure or capture a bat;
- Intentionally or recklessly disturb a bat;
- Intentionally or recklessly damage, destroy or obstruct access to a place of shelter or breeding (for example, bat roosts), and this applies regardless of whether the species is actually present at the time (for example, a bat roost used in the winter for hibernation is protected throughout the year, even during the summer when it is not occupied).
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats, or parts of a bat.
- Intentionally handle a wild bat or disturb an bat whilst using a place of shelter/ breeding unless licensed to do so by the statutory conservation agency (Natural England).

Barbastelle, Bechstein's, noctule, soprano pipistrelle, brown long-eared, greater horseshoe and lesser horseshoe bats are priority species for conservation on the UK BAP and protected under the NERC Act 2006. Barbastelle, pipistrelle, greater and lesser horseshoe bats are county priority BAP species (CBI, 2004).

Case Law

There are several case laws in Britain relating to the duty of developers and planning authorities with respect to wildlife, resulting in several key principles summarised in the table below:

Case / Appeal	Providing support for
Morge v Hampshire County Council (2011)	'Disturbance' under the Conservation Regulations 2010 applies to an activity likely to impact negatively on the local population of a European Protected Species.
R v Cheshire East Council 'The Woolley Case' (2009)	Regarding European Protected Species, Local Authorities must apply the 'three tests' under the Conservation Regulations 2010 when deciding on planning applications: that there is no satisfactory alternative, there is an appropriate reason for the development, and that the development will not affect the favourable conservation status of protected species present.
APP/P9502/A/08/2070105 (Appeal decision, Brecon, 2008)	Para 18: Local Planning Authorities cannot condition provision of a mitigation scheme; detailed mitigation must be provided prior to determination.
APP/C0820/A/07/2046271 (Appeal decision, Padstow, 2007)	Para 18: Full survey information must be provided prior to determination; not just for protected species, but also for BAP species (in this case corn buntings).
R v London Borough Council Bromley (2006)	Para 30: Environmental Impact Assessment required at outline planning stage.
R v Cornwall County Council 'The Cornwall Case' (2001)	Surveys for protected species cannot be conditioned; must be undertaken prior to determination.

Barn owls and other nesting birds

The nests and eggs of all wild birds are protected against taking, damage and destruction under the Wildlife and Countryside Act 1981. Barn owls are given greater protection against disturbance while breeding under Schedule 1 of the Act.

National Planning Policy Framework 2012

The National Planning Policy Framework (NPPF) sets out national planning policy that is committed to minimising impacts on biodiversity and providing net gains in biodiversity where possible. Under NPPF, local planning authorities have an obligation to promote the preservation, restoration and recreation of Priority habitats, ecological networks and the protection and recovery of Priority species as identified under the Natural Environment and Rural Communities Act (2006). Section 118 of the NPPF also requires enhancements for biodiversity. The NPPF also recognises the wider benefits of ecosystem services.