



Glaven Ecology



**Garage at
Church Cottage
Morston**

**Preliminary Roost
Appraisal**

**Prepared by
Glaven Ecology**

**on behalf of
SMG Architects**

August 2021

Reference: 2192-GE-SMG

www.glavenecology.co.uk | 07532444829 | office@glavenecology.co.uk



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Version	Status	Changes	Date	Author
1.1	Draft	Site visit and desktop results added	02/08/2021	Carolyn Smith BSc (Hons), MCIEEM
1.2	Issued	Reviewed	03/08/2021	Carolyn Smith BSc (Hons), MCIEEM

The data contained within the report are accurate to the best of our knowledge and have been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

The report conforms to the British Standard 42020:2013 Biodiversity – Code of practice for planning and development.

We confirm that any opinions expressed are our best and professional true opinions. This report has been prepared by an ecology specialist and does not purport to provide legal advice.

1 Summary

- 1.1 Glaven Ecology was commissioned to undertake a Preliminary Roost Assessment (PRA) on a garage at Church Cottage, The Street, Morston, NR25 7AA. The survey work was completed by Carolyn Smith BSc. (Hons) MCIEEM on 2nd August 2021.
- 1.2 Planning is sought to convert the existing garage into a living area with bedroom with en-suite that will remain as a part of Church Cottage.
 - 1.2.1 The site sits within the SSSI Impact Risk Zone for the North Norfolk Coast. However, it does not fall into the categories requiring further consultation with Natural England.
- 1.3 The garage was assessed as having negligible potential for bats, with minimal roosting opportunities noted.
- 1.4 No other protected species were assessed as being on site.
- 1.5 The following recommendations have been made for protected species:

Species	Requirement for Further Surveys and Recommendations
Bats	No further surveys required. Any external lights associated with the finished project should be of a low light level to minimise impacts on bats that might forage and commute in the vicinity. Warm white lights should be used at <2700k. This reduces the ultraviolet component or that has high attraction effects on insects which can lead to a reduction in prey availability for some light sensitive bat species.
Birds	No further surveys required.

- 1.6 Enhancement suggestions include the installation of a bat box as well as bat access tiles.

2 Introduction

2.1 Background

2.1.1 Glaven Ecology was commissioned to undertake a Preliminary Roost Assessment (PRA) on a garage at Church Cottage, The Street, Morston, NR25 7AA. The survey work was completed by Carolyn Smith BSc. (Hons) MCIEEM on 2nd August 2021.

2.1.2 The survey and report aim to describe how the garage supports birds, bats and any other protected species. It assesses potential impacts on these features as a result of the works and advises on the need for further surveys or mitigation strategies.

2.2 Site Location and Description

2.2.1 The site was located at OS Grid Reference TG 0080 4386 (Appendix 1) and consisted of a detached garage with pantile roof and rendered brickwork, set within a gravel driveway and adjacent to the churchyard and Church Cottage gardens.

2.2.2 The wider environment is dominated by the North Norfolk Coast to the north and arable land to the south with small pockets of scattered woodland.

2.3 Project Overview

2.3.1 Planning is sought to convert the existing garage into a living area with bedroom with ensuite that will remain as a part of Church Cottage.

3 Legal Protection

3.1.1 The main piece of legislation relating to nature conservation in Great Britain is The Wildlife and Countryside Act 1981 (as amended). This Act is supplemented by provision in The Countryside and Rights of Way (CROW) Act 2000 and The Natural Environment and Rural Communities Act 2006 (in England and Wales). This act provides varying degrees of protection for the listed species of flora and fauna, including comprehensive protection of wild birds and their nests and eggs.

3.1.2 UK wildlife is also protected under The Conservation (Natural Habitats &c.) Regulations 1994 (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. In 2010, these Regulations, together with subsequent amendments, were consolidated into The Conservation of Habitats and Species Regulations 2010.

3.2 Birds

3.2.1 All birds, their nests and eggs are protected by law under Part 1 of the Wildlife and Countryside Act 1981 (as amended).

3.3 Bats

3.3.1 All bat species are listed under Annex IV (and certain species also under Annex II) of the European Union's Council Directive 92/43/EEC (The Habitats Directive) and are given UK protected status by Schedule 2 of the Conservation of Habitats and Species Regulations 2010. All UK bat species are also protected under The Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).

3.3.2 This legislation fully protects bats and their breeding sites or resting places, making it an offence to deliberately capture, injure or kill bats, deliberately disturb bats, damage or destroy a bat breeding or resting place.

3.4 Statutory Designated Conservation Sites

3.4.1 National designations such as Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR), are afforded statutory protection. SSSIs are notified and protected under the Wildlife and Countryside Act 1981 as amended. SSSIs are notified based on specific criteria, including the general representativeness and rarity of the site and of the species or habitats supported by it.

4 Survey Methods

4.1 Desk Study

4.1.1 Records held on Magic.gov.uk on Designated Sites and granted European Protected Species Licences were reviewed in August 2021 as was the map of Norfolk County Wildlife Sites on data.gov.uk.

4.1.2 A quantification of the value of the garage for bats was carried out using the Bat Roost Trigger Index (BRT) (Underhill-Day, 2017). The BRT Index uses a suite of 28 environmental and habitat features recorded during the PRA survey which are known to influence roost selection. This generates a numerical value, from 0 to 1, which is in turn used to assign to a corresponding roost suitability class of either negligible, low, moderate or high potential. This is used as guidance only.

4.2 Protected Species Survey

4.2.1 The survey was undertaken by Carolyn Smith BSc (Hons) MCIEEM (Natural England Level 1 Licence for bats [reference 2018-34461-CLS]) on 2nd August 2021.

Birds

4.2.2 On-site habitats were assessed for their potential to support breeding (nesting) birds. This consisted of a methodical search for actual nesting birds or their signs.

Bats

4.2.3 A Preliminary Roost Assessment was completed on the garage. The survey work was completed in accordance with the Bat Conservation Trust's "Bat Surveys for Professional Ecologists" (Collins, 2016). A scoring system was applied to the building using the criteria shown in Table 1.

4.2.4 The garage was investigated for evidence of bat use and evaluated for bat roosting potential. The visual search for signs of bats consisted of a slow methodical search both internally and externally, using a high powered torch, ladders, binoculars and extendable LED mirror. The search was looking for actual roosting bats and/or their signs:

- Droppings on walls, windowsills and floors can be used to identify species;
- Scratch marks and staining at roosts and exit holes can be used to identify the presence of bats;
- Dense spider webs at a potential roost can often indicate bat absence;
- The presence of butterfly wings may be an indication of bat presence.

Table 1: Assessing the potential suitability of a development site for bats (Collins, 2016)

Suitability	Description of roosting habitats	Description of commuting and foraging habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features onsite likely to be used by commuting or foraging bats
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats</p> <p>A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub</p>
Moderate	A structure or tree with one or more potential roost sites 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 (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed)	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge

4.2.5 Table 2 shows the criteria used when assessing the likelihood of a protected species being present within the survey area:

Table 2: Criteria considered when assessing the likelihood of occurrence of protected species

Assessment Category	Criteria
Present	Species are confirmed as present from the current survey or historical confirmed records.
High	Habitat and features of high quality for species/species assemblage. Species known to be present in wider landscape. Good quality surrounding habitat and good connectivity.
Moderate	Habitat and features of moderate quality. The site in combination with surrounding land provides all habitat/ecological conditions required by the species/assemblage. Within known national distribution of species and local records in desk study area. Limiting factors to suitability, including small area of suitable habitat, some severance/poor connectivity with wider landscape, poor to moderate habitat suitability in local area.
Low	Habitats within the survey area poor quality or small in size. Few or no records from data search. Despite above, presence cannot be discounted as within national range, all required features/conditions present on site and in surrounding landscape. Limiting factors could include isolation, poor quality landscape, or disturbance.
Negligible	Very limited poor quality habitats and features. No local records from desk study; site on edge of, or outside, national range. Surrounding habitats considered unlikely to support species/species assemblage.

5 Results

5.1 Desk Study

5.1.1 The site sits within the Norfolk Coast Area of Outstanding Natural Beauty (AONB).

5.1.2 Eight other statutory designated sites and one non-statutory site were identified within 2km of the site on MAGIC Maps and data.gov.uk (Table 3, Appendix 2).

5.1.3 The site sits within the SSSI Impact Risk Zone for the North Norfolk Coast. However, it does not fall into the categories requiring further consultation with Natural England which is for residential developments outside existing settlements and 10 units or more.

Table 3: Non-statutory designated sites within 2km of site

Site designation and name	Site description (Statutory designated sites only)	Distance from site
Morston Marshes Country Wildlife Site (CWS) 1112	-	300m north
North Norfolk Coast Site of Special Scientific Interest (SSSI) Ramsar Special Area of Conservation (SAC) Special Protection Area (SPA)	The whole of the North Norfolk Coast SSSI has now been proposed as a RAMSAR site and also for designation as a Special Protection Area under the EEC Birds Directive. Most of the coast is managed for nature conservation	350m north
Blakeney National Nature Reserve (NNR)	The reserve is part of the Wash and North Norfolk Coast possible Special Area of Conservation (pSAC) for its many features of interest, including subtidal sandbanks, saltmarsh, intertidal mudflats and sandbanks, shallow inlets and bays and seal colonies.	350m North
Wiveton Downs SSSI	Wiveton Downs (known to geologists as the Blakeney Esker) is a classic landform of outstanding importance for teaching, research and demonstration purposes.	850m east
Morston Cliff SSSI	Morston Cliff is a key Pleistocene site providing a view of what is probably the only interglacial raised-beach deposit in East Anglia	1600m west
Stiffkey Valley SSSI	Stiffkey valley comprises a range of different wetland habitats created in the flood plain of the River Stiffkey. The majority of the site comprises areas of standing open water, grazing marsh and reedbed. Smaller areas of carr woodland and scrub are also present	1750m west

5.1.4 There are no records of a granted European Protected Species Mitigation Licence within 2km of the site showing on MAGIC maps.

5.1.5 The Bat Roost Trigger (BRT) assessment concluded that the garage offers negligible roost suitability for bats giving a score of 0.49 (Table 4). The full results of this assessment and the 28 roost selection parameters used in the BRT Index are included in Appendix 3.

Table 4: Bat roost trigger index score and roost suitability class highlighted for the building (Underhill-Day, 2017)

> 0.7	HIGH	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.
0.6 - 0.7	MODERATE	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.
0.5 - 0.6	LOW	One survey visit. One dusk emergence or dawn re-entry survey.
< 0.5	NEGLIGIBLE	No further surveys required. Reasonable precautionary measures applicable.

5.2 Protected Species - Bats

Foraging and Commuting

5.2.1 The habitats immediately around the site were considered to have **moderate** potential to support foraging and commuting bats mainly over the churchyard to the east. The wider environment offered **moderate** foraging and commuting opportunities as it was dominated by arable fields to the south.

Visual inspection

5.2.2 The garage was of brick construction with concrete rendering and a pantile roof (Figures 1 and 2).

5.2.3 The ridge tiles were well sealed with no gaps or cracks noted although the concrete seal was wearing away in places.

5.2.4 There were some raised tiles, predominantly on the southern aspect, but on inspection many were well cobwebbed and on careful lifting no signs of bats were noted (Figure 3).

5.2.5 There were gaps around roof beams at the eaves giving potential access into the garage and they did not appear to lead to any other crevices.

5.2.6 There were some cracks in the render but these were superficial and very narrow and shallow.

5.2.7 The window frames were well sealed but there was a gap above the doors on the western aspect giving access into the garage.



Figure 1: The garage at Church Cottage (western and northern aspect).



Figure 2: The garage – southern aspect.



Figure 3: Gaps under tiles on southern aspect (circled).

5.2.8 Internally the garage was one space, open to the roof, with no void present (Figures 4 and 5). The space was bright and airy with windows on both aspects and the eastern gable wall.

5.2.9 The roof was lined with some tears but there was heavy cobwebbing throughout (Figure 6).

5.2.10 The beams were narrow and machine cut with no cracks or splits (Figure 7).



Figure 4: Garage – internal view.



Figure 5: Garage – internal view.



Figure 7: Roof lining and cobwebs throughout.



Figure 8: Narrow, machine cut beams.

5.2.11 No signs of bats such as droppings or staining were found during the visual inspection of the garage. No actual bats were observed.

5.2.12 The garage was assessed as having **negligible potential** to support roosting bats.

5.2.13 There were access points into the garage but minimal roosting opportunities and those that were there were well cobwebbed.

5.2.14 The building had **negligible potential** to support hibernating bats.

5.3 Other protected species

5.3.1 No evidence of any other protected species was found during the survey.

5.4 Survey Limitations

5.4.1 There were no significant constraints to the survey.

6 Impact Assessment

6.1.1 Table below summarises the potential impacts of the works:

Table 5: Impact assessment on the ecology of the site

Ecological Factor	Impact Assessment
Designated Sites and Habitats	<p>No impacts on Designated Sites are envisaged given the scale of the development.</p> <p>No other habitats of ecological significance will be impacted by the proposed works</p>
Bats	<p>The field survey and desk study conclude bats are highly unlikely to be present on site.</p> <p>The development is not considered to have a significant impact upon commuting or foraging bats and there will be no severing of connectivity.</p> <p>The works will have a negligible impact on these species.</p>
Birds	<p>No bird's nests were noted within the site boundary and nesting opportunities were limited.</p> <p>It is considered that the works will have a negligible impact on local bird populations.</p>

7 Recommendations

7.1.1 As good practice, any trenches or holes created during the works must be backfilled at the end of the day or covered overnight to ensure any wildlife passing through the site, such as hedgehogs, do not get trapped.

7.1.2 The following species-specific recommendations are made for the site:

Table 6: Recommendations for further surveys and mitigation

Species	Requirement for Further Surveys and Recommendations
Bats	<p>No further surveys required.</p> <p>Any external lights associated with the finished project should be of a low light level to minimise impacts on bats that might forage and commute in the vicinity.</p> <p>Warm white lights should be used at <2700k. This reduces the ultraviolet component or that has high attraction effects on insects which can lead to a reduction in prey availability for some light sensitive bat species.</p>
Birds	No further surveys required.



8 Enhancements

8.1 The Local Planning Authority has a legal duty to consider enhancements on proposed development sites. Furthermore, the National Policy Planning Framework (NPPF) requires planning decisions to aim to promote net gains in biodiversity on development sites.

8.2 The following enhancements are suggested for the site (see also Appendix 4):

- Install two bat access tiles onto the southern aspect of the roof (to give access to crevice dwelling bats in between the tile and the lining). Something similar to the [Bat Access Tile Kit](#) would be suitable. Alternatively, two ridge access points can be created by using a spacer to create gap 20mm x 50mm in size in the mortar under the tiles.
- A bat box could be installed on the eastern gable end, facing the churchyard, at least 3m high where there is a clear flight path for bats entering and leaving.

There are two options available:

- *Integrated bat box.* These are built into the fabric of a property and come in a variety of designs depending on the materials being used. For example, the Habibat bat box comes in a selection of designs to suit brick built buildings (Figure 9), whilst the Schwegler bat tube (Figure 10) is designed to be installed beneath a rendered surface. This makes it ideal for situations where you wish the box to be discrete as only the entrance hole will be visible. It can also be painted to match your building with an air permeable paint if desired.
- *Wall mounted bat box.* Fixed to the external wall of a building, the [Beaumaris bat box](#) is a popular choice as is the [Schwegler 1FQ Bat Roost](#).



Figure 8: Habibat integrated bat box with brick finish.



Figure 9: Schwegler 1FR bat tube

9 References

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Appendix 1 – Site Location



(Source Google Earth Pro: 2021)

Appendix 2 – Statutory and non-Statutory Designated sites

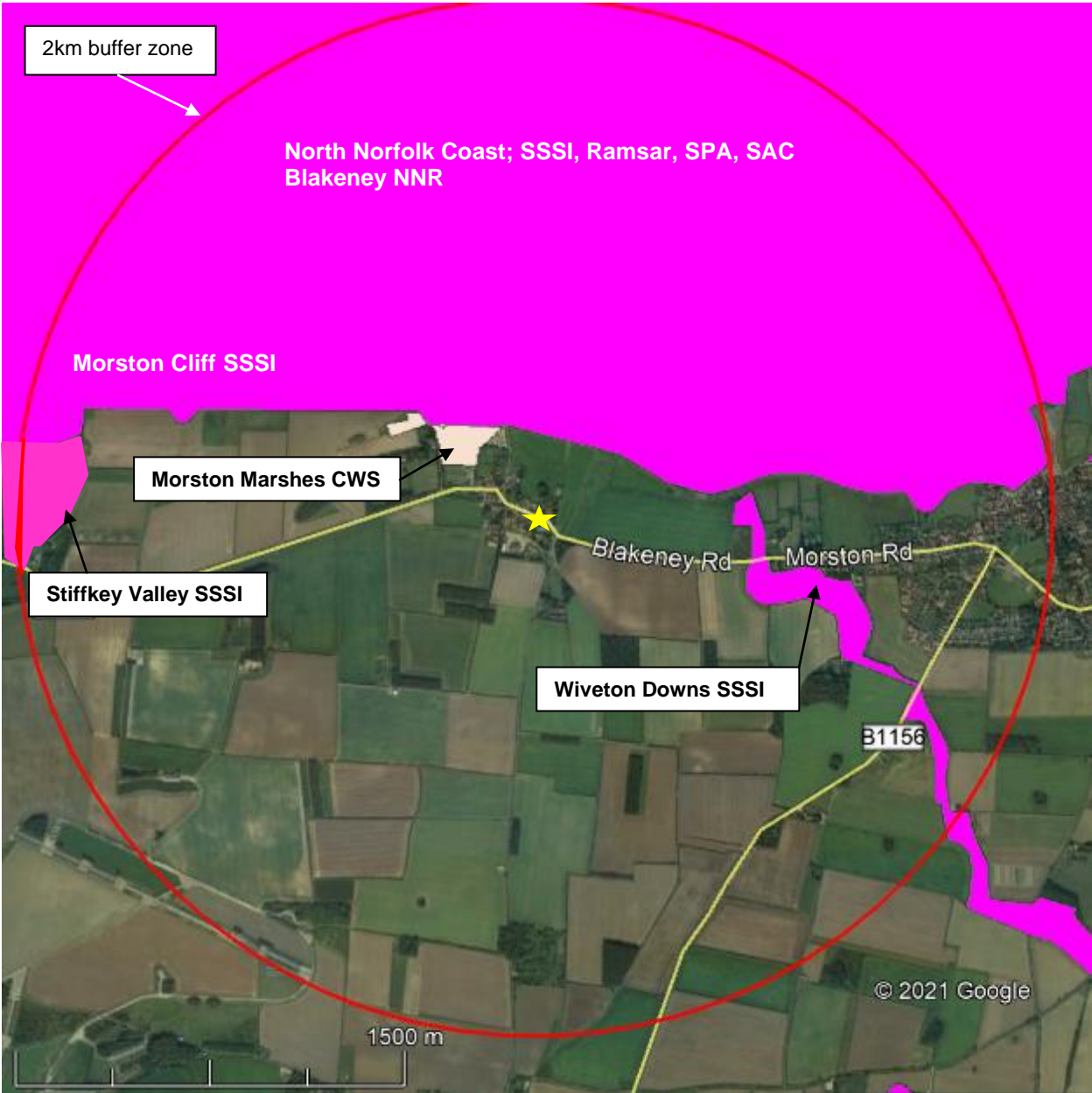


Image source Google Earth: 2021

Appendix 3 – Bat Roost Trigger Assessment

Trigger Indices	Category	T1 Score
A) Location, habitat and environmental context		
T1: General location	Suburban or intensive farmland	0.67
T2: Foraging opportunities within 250 m	Moderate	0.67
T3: Foraging opportunities within 5 km	Moderate	0.67
T4: Commuting opportunities	Moderate	0.67
T5: Cover in vicinity of structure	Poor	0.33
T6: External lighting in vicinity of structure	Low level	0.67
T7: Number and character of nearby buildings	Good variety of old buildings	1
T8: Structure/building exposure	Moderate	0.67
B) Exterior features and characteristics of building		
T9: Structure/building age	Intermediate	0.67
T10: Size of Building	Small size	0.33
T11: Main wall construction material	Mixture of materials	0.67
T12: Condition of wall/roof pointing/render	Some gaps, cracks or crevices noted	0.67
T13: Condition of lintel/door frame features	Tightly sealed	0.33
T14: Condition of eaves/soffits/bargeboards	Some gaps or cracks noted	0.67
T15: Condition of weatherboarding/cladding	No boarding present	0.2
T16: Condition of lead flashing	No flashing	0.2
T17: Roofing material	Older style tiling	1
T18: Bat access potential	Several small gaps noted	0.67
C) Interior features and characteristics of building		
T19: Character of roof void/roof space	Small low void or open roof space	0.33
T20: Character and condition of roof supports	Tightly sealed modern timbers/supports	0.33
T21: Presence and extent of cobwebbing	Numerous cobwebs in roof space	0.33
T22: Presence and condition of roof lining	Lined with various small gaps	1
T23: Light levels in roof void/space	Light	0.33
T24: Protection from weather/wind	Draughty and exposed	0.33
T25: Temperature regime	Cold, north-facing or too hot	0.33
T26: Level of (human, animal) disturbance	High	0.33
T27: Flight Space	Good	1
T28: Flying Access (Horseshoe bats)	N/A	0.33
TRIGGER INDEX SCORE =		0.49
BAT ROOST SUITABILITY =		NEGLECTIBLE