

Bat Survey and Roost Appraisal

The Star Inn,

Harbottle,

Northumberland.

Grid ref NT93420469.



10/09/2020

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Document Control Sheet

Project Title The Star Inn, Northumberland.

Report Title Bat Survey and Roost Appraisal

Revision

Control Date 10/09/2020

Record of Issue 23/10/2020

Issue	Status	Author	Date	Reviewed
1	Final	SMJ	21/10/2020	RAR 22/10/2020

This report is presented in respect of the proposed redevelopment at The Star Inn, Harbottle Northumberland and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this report. Notwithstanding anything to the contrary contained in the report, we are obliged to exercise reasonable skill, care and diligence in the performance of the services required by the client and we shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this report shall be read and construed accordingly.

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1 Summary

This report has been prepared by Stuart Johnson BSc, MSc, MCIEEM, MSc, for Karen Wilkinson.

It has been written in accordance with the Chartered Institute of Ecology & Environmental Management (CIEEM) Guidelines on Ecological report writing (CIEEM, 2015) and BS 42020:2013 (BSI, 2013) and the Bat Conservation Trust Document Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition 2016.

The purpose of this report is to provide general advice on ecological constraints and recommendations for further surveys where necessary associated with the proposed development at this site.

Bats are small and highly mobile creatures and their presence is not always readily identifiable. Therefore, this risk assessment and presence survey provides information as to the presence and potential presence of these mammals. The report is based upon various guidance material as listed within the reference section of this document and from the experience of the surveyor.

The initial roost appraisal survey was followed up by a single evening's emergence survey at the site during September 2020, supplemented with static detectors placed within the structures recording any bat presence over a number of days.

These surveys identified that bats of several species are known to roost within the barn/stable (building 1) structure to the north of the site. There is no evidence to show that bats use the garages (building 2) to the south east.

We note that the redevelopment of the site is to be undertaken over an extended period of time with works to building 1 to be undertaken in approximately 18 months' time, after completion of the development of building 2. Therefore, this document advises as to the need for further surveys at the site to identify the presence of bats within the building 1 prior to works to this structure. This additional data would be used to support a Natural England protected species development licence. Data from 2020 surveys being considered to be out of date by the time works are to commence.

The initial risk assessment survey identified the risk for the potential presence of bats within this site for both structures as "**LOW**". The assessment was based upon experience and guidance found within the documents listed within the reference section.

However, as a result of our single emergence survey we believe that there is an increased potential for roosting bats within building 1 and we now consider this structure to have a **MODERATE** potential.

- Evidence was found indicating the potential presence of bats to the barn/stable building within the site. Such indicators led us to assume at this time to be a feeding perch for one of the larger bat species.
- There are numerous potential roosting features present to building located to the northern side of the site. With gaps to external walls and below the roof line primarily to the south face.
- The garages located to the east of the courtyard with its slated roof provides low roosting potential within for solitary bats.
- Evidence of nesting by birds was found within the barn therefore there is clearly some limited potential for nesting birds.

- There is no evidence of barn owl *Tyto alba* being present within the site, however suitable habitat for roosting and foraging barn owls is available both within the site and locally.
- The habitat surrounding the site is considered to be excellent for the potential presence of bats.
- Bat roosts are assumed to be present in the local area.
- Several species of bat were identified to emerge from the south face of the barn/stable building during the emergence survey
- No bats were recorded either within the garages or to emerge from the garage structure.
- There may be a requirement for a Natural England European Protected Species Licence (EPSL) or its future equivalent prior to works commencing as a result updated surveys will be required to support such an application.
- This requirement for future surveys should form part of any planning permission for the proposed development.

Results and potential impacts of this proposed development are as follows:

- Loss/disturbance of potential bat roosts within the barn/stable structure.

2 Recommendations (survey/mitigation)

The following additional surveys are considered relevant to these proposals as part of a planning application.

A bat emergence and return surveys as per the Bat Survey Good Practice Guidelines for Professional Ecologists 3rd Edition 2016 these should be conducted to the barn/stable structure building 1, to identify if bats continue to utilise this structure as a roost site, this is the minimum recommended survey effort for moderate risk structures. Note that the risk for this structure has been increased from the original LOW to MODERATE as a result of our emergence survey results.

Surveys should be undertaken during the bat breeding season between May and October.

3 Introduction

This report has been prepared by Stuart Johnson BSc, MSc, MCIEEM, MSc, for Karen Wilkinson.

The work was commissioned by Karen Wilkinson of the Star Inn, Harbottle, Northumberland it has been written in accordance with the Chartered Institute of Ecology & Environmental Management (CIEEM) Guidelines on Ecological report writing (CIEEM, 2015) and BS 42020:2013 (BSI, 2013).

Stuart Johnson has held Natural England bat licences for more than fifteen years and now holds Class 1 and Class 2 survey licences (Natural England WML-A34 - Level 1 (Class Licence) and WML-A34 - Level 2 (Class Licence), registration number CLS00470) and a voluntary bat roost visitor and trainers' licence (Natural England WML16 Level 2 (Class licence), registration number CLS00470). Stuart is a Natural England bat roost visitor trainer within Northumberland Licence Number 2016-27202-CLS-CLS together he also holds a Science and Education Licence number 2015-10609-CLS-CLS for Class 1-2.

The purpose of this report is to provide information on ecological constraints and recommendations for further surveys associated with the proposed development of the structures within this site.

The Star Inn is located to the northern side of Harbottle, Northumberland 150m to the south of the River Coquet. The buildings forming the proposal are located to the east side of the Star Inn.

We understand that these structures are to be refurbished to provide holiday let/bothy accommodation in the case of the former barn/stable for visitors to the area. The garages are to be converted to provide dining facilities as part of the Inn.

The proposed development within the site will involve the demolition of internal walls to building two with internal works, the removal of the current doorways to the interior and window replacements.

Works to building 1 are thought to be more substantial with the removal and replacement of the existing roof. Refurbishment of external walls. Removal of the internal floor and replacement with sub division of the internal space to provide the proposed accommodation.

The site is centred on Ordnance Survey grid reference NT93420469.

To inform this report on potential ecological impacts regarding the proposed development at this site a Preliminary Roost Appraisal (PRA) survey and desktop study were completed on 10/09/2020 for all structures within the site and followed the guidance found within the Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition 2016 Collins *Ed.*

During this survey visit two Audio Moth bat detectors were inserted one within each structure recording prior to sunset until after sunrise the following day for as dictated by the length of the battery life starting on 10/09/2020.

A subsequent evening emergence survey was undertaken on these structures by two experienced surveyors on 16/09/2020.

The Audio Moth detectors were subsequently retrieved on 18/09/2020 and the recorded was analysed thereafter.

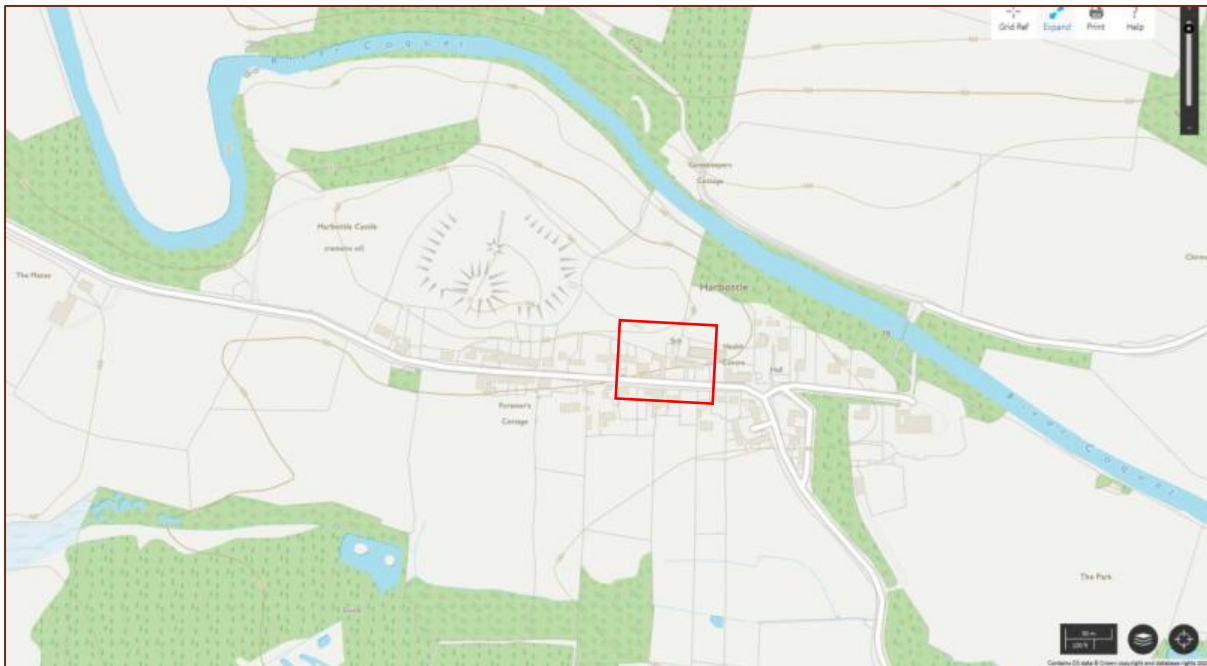


Figure 3-1 Site within red polygon NT93420469

4 Legislation

Summary of legislation

All bat species are fully protected through the Conservation of Habitats and Species Regulations 2010 as a European Protected Species (EPS). They also receive some protection through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to either deliberately or recklessly:

- ❖ Kill or injure a bat;
- ❖ Disturb a bat while it is occupying a structure or place which it uses for shelter or protection, or obstruct access to any structure or place which it uses for that purpose;
- ❖ Disturb a bat while it is rearing or caring for its young;
- ❖ Disturb a bat in a manner that is, or circumstances which are likely to significantly affect the local distribution or abundance of the species to which it belongs;
- ❖ Disturb a bat in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce or rear or otherwise care for its young, and;
- ❖ Disturb a bat while it is migrating or hibernating.

Other potential impact species:

- ❖ Breeding birds

All wild birds in England and Wales are protected under Section 1 of the Wildlife and Countryside Act, 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs.

Species listed on Schedule 1 of The Act, e.g. kingfisher *Alcedo atthis* and barn owl *Tyto alba*, receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest, or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird. Further enhanced statutory protection is provided for bird species included on Annex 1 of the Wild Birds Directive.

5 Methods

Desktop study

The desktop study was used to guide the field survey and to give additional information outside the remit of a field survey.

The following sources were contacted/used to collate historical biological records within the study area and surrounding 2km radius:

- ❖ Environmental Records Information Centre, Newcastle
- ❖ Multi Agency Geographic Information Centre website (www.magic.gov.uk);
- ❖ National Biodiversity Network (NBN) Gateway (www.nbn.org.uk).

Preliminary Roost Assessment Survey (PRA)

The survey was conducted on the 10/09/2020 by Stuart Johnson BSc, MSc, MCIEEM.

Weather was fine, dry and sunny with 2/8 cloud cover an external temperature on 18°C was noted, visibility was excellent.

The PRA involved the detailed inspection of the exterior and interior of the buildings 1 and 2 where accessible in order to determine the likelihood or identify the actual presence of bats.

The upper floor of building 1 was not accessed due to the rotten support timbers and flooring.

The information gained from the PRA assessment survey is used to establish the presence or potential presence for bats to the structures and site, which would provide guidance as to the subsequent survey effort required.

This assessment is based upon guidance set out in the Bat Mitigation Guidelines (E.N., 2004) and Bat Surveys for Professional Ecologist, Good Practice Guidelines 3rd Edition (Collins, 2016). The risk level is classified as either: negligible, low, medium, or high (Collins, 2016). If a roost is identified during the risk assessment, the roost is assessed, based on the evidence found, to establish surveying effort required to identify the nature of the bat roost.

Limitations

Desk study limitations

Species specific groups, i.e. Environmental Records Information Centre, Newcastle, were contacted for their detailed records within the survey area.

However, such data does not provide full information of the bat presence in an area, it is subject to observations which are dependent upon the survey effort undertaken for the particular area.

Due to the remote location of Harbottle the quantity of records is considered unlikely to provide a detailed picture of the bat species and locations where present.

The combination of data obtained was however felt to be sufficient to carry out the objectives of the report and identify potential habitats for these protected species, recommend and target further detailed studies.

Field Survey Limitations

The survey was undertaken during of the bat breeding season (May-October) when pregnant female bats are starting to gather into what is termed maternity colonies, none breeding females and males tend to either roost in small groups or singly. Observing bats within structures at any time of the year in the north of England is unlikely as all species tend to crevice dwell however, observing evidence of their current or past presence is possible.

Access to the walls of the upper floors was not possible within the barn structures due to water ingress rendering the flooring unsafe. Therefore. Potential roost features to the walls of the upper floor were not examined.

Solitary bats using a structure may in fact have multiple roosts within a site, potentially changed on a daily basis, therefore identifying their roost locations can be problematic.

Assessment methodology

The bat roost potential of the features within the site has been assessed with reference to the criteria laid out in the Bat Mitigation Guidelines (Mitchell-Jones, 2004). These criteria are listed below with the features **highlighted in bold**.

Table 5-1 Roost Potential

The likelihood of bat roosts being present will be higher where structures:

- ❖ **Are of a pre-20th Century construction;**
- ❖ **Are in a lowland rural setting;**
- ❖ **Have woodland, mature trees, species-rich grassland and/or water nearby;**
- ❖ **Have large dimension roof timbers with cracks, joints and holes;**
- ❖ **Have numerous crevices in stonework and structures;**
- ❖ Have an uneven roof covering with gaps, though not too draughty;
- ❖ Have hanging tiles or roof cladding, especially on south-facing walls;
- ❖ Have a roof warmed by the sun;
- ❖ **Are disused or little used; largely undisturbed; or**
- ❖ Provide appropriate/potential hibernation conditions, such as abandoned mines, tunnels, kilns, or fortifications
- ❖ Recent or historical records of bats on the site, or bat roosts in the general area

The likelihood of bat roosts being present will be lower where structures:

- ❖ Are in an urban setting with little green space;
- ❖ Are subject to heavy disturbance;

- ❖ **Have a small, cluttered roof void (particularly for brown long-eared);**
- ❖ Are of a modern construction with few gaps or crevices that bats can fly or crawl through (though pipistrelle bats may still be present);
- ❖ Are comprised of prefabricated of steel or sheet materials;
- ❖ Are active industrial premises; please note that the above list provides generic screening criteria only and there are exceptions to consider. For example, pipistrelle breeding roost sites are often found in modern housing estates and therefore the absence of bats from such locations should not always be assumed.
- ❖ **Condition of walls (damp/wet walls)**

In addition to this, other assessment criteria have been used including Roost Feature Suitability published within The Bat Survey Good Practice Guidelines for Professional Ecologists 3rd Edition 2016, the availability and type of roosting opportunities observed to the structure/s on site (Table 2 below). From these a final assessment is made based upon the guidance and the surveyor's 15 years of experience surveying for bats.

The following table shows the criterial for assessing the potential presence for bats taken from The Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition 2016.

Table 5-2 Taken from Bat Survey Good Practice Guidelines

Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.		
Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site 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^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation^b).</p> <p>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.^c</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 ^a 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).	<p>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.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
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 ^a and surrounding habitat.	<p>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.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.
^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

It is clear from the above based upon the data gathered at site that there was a potential **Low** probability of bats utilising these structures as a day roost site or night roost during the breeding season.

Potential Roost Locations

Table 5-3 Generic potential roost features

Location of Roost Site and Potential Features	
Externally	Gaps between window frames and walls
-:-	Lifted render
-:-	Hanging tiles
-:-	Soffit boxes
-:-	Eaves
-:-	Facias and external boarding
-:-	Below lifted lead flashing
-:-	Below slates (especially stone roof slate and pan tiles)
-:-	Bat and bird boxes
-:-	Missing mortar/cement
-:-	Missing brickwork/holes within brickwork
-:-	Holes to masonry
-:-	Flaking brickwork
-:-	Gaps below roofing felt
Internally	Within cavity walls
-:-	Within rubble infill
-:-	Gaps to lintels
-:-	Behind window shutters and curtains
-:-	Behind furniture items
-:-	Chimneys and chimney breasts
-:-	Roof voids
-:-	Internal walls within roof void
-:-	Wall tops
-:-	Ridge beams, hipped roofs and valley junctions
-:-	Gaps to timber roof support beams
-:-	Between roof lining and exterior slates/tiles
-:-	Cavity between flat roofs and internal ceiling
-:-	Below wall plates

Surveyor Details

Name	Experience	Licence
Stuart Johnson BSc, MSc, MCIEEM	15+ years	Yes, NE Volunteer & Science & Education. Natural England trainer.
Susan Johnson	8+ years as a surveyor at numerous sites throughout the north east of England	No

Survey Details

Date	Start	End	Temp	Weather	Sunset/Sunrise	Surveyors
15-09-2020 Dusk Survey	18.45	21.05	15° - 13°C	Fine Dry Light Breeze 4/8, cloud	18.58	2

Equipment List

The following equipment was used whilst conducting this PRA survey.

Table 5-4 Equipment List Risk Assessment Survey

Telescopic Ladder
ProVision Flexible Endoscope
Nikon Camera
High Powered Handlamp (Cluson)
Close Focus Binoculars
Site Plan

The following equipment was used for the evening and static surveys.

Table 5-5 Emergence survey Equipment

Audio Moth Detectors x 2
Anabat Walkabout
Peterson 240X detector and Recorder
Anabat SD2

6 Results

Desk Study Results

Details of species records for the area are to be found within the attached appendix 3.

There are no EPS licences recorded within 5km of the site for bats or other species.

The site lies within the Northumberland National Park.

Within the surrounding 5km of the site there are multiple site designations as shown in Tables (6-1 to 6-3) below.

The River Coquet corridor is located to the immediate north of the site provides high quality bat foraging habitat with its tree lined banks providing shelter belts for foraging bats and commuting routes to the wider environment. The moorland to the south will also provide suitable foraging areas for bats during evenings when the wind speeds in this area are light. A tree line to the north east of the site provides a direct link to the river for commuting bats.

Local nature reserves

Table 6-1 Local Nature Reserves

Site	Size	Grid Ref	Distance	Potential Impact
Barrow Burn Wood	2.78ha.	NT91500616	2.5km approx.	Negligible

SSSI Sites

Table 6-2 Sites of Special Scientific Interest

Site	Size	Grid Ref	Distance	Potential Impact
Holystone Burn Woods	25.25	NT94550198	4km	Negligible
Linbrigg	7.34	NT89420699	5km	Negligible
Harbottle Moors	932.72	NT92600451	500m	Minor negative
River Coquet and Coquet Valley Woodlands	39.53	NT92520737		Minor negative
Holystone North Wood	14.53 – 111.17	NT94540290	2.5km approx.	Negligible
Barrow Meadow	5.72	NT91320625	2.5km approx.	Negligible
Otterburn Mires	24	NT89530163	5km	Negligible

Special Areas of Conservation (England)

Table 6-3 Special Areas of Conservation

Site	Size	Grid Ref	Distance	Potential Impact
Harbottle Moors	932.72	NT92600451	500m	Minor negative

7 Survey Results

Risk Assessment Survey

The PRA survey was undertaken on Thursday, 10 September 2020 which is within the bat maternity season at this time the presence of bats tends to be more readily identifiable.

Observations were made for the following indicators of a bat presence. Droppings, feeding remains, corpses, staining, smell, scratch marks and grease marks indicating a potential roost entry point.

Where accessible and safe to do so, holes and crevices were examined with an endoscope looking for a bat presence current or previously and in some cases this examination was performed from the head of a ladder.

The survey was undertaken during good weather with a temperature of 18°C with a clear sky and light winds. There had been no rain for a number of days prior to the survey visit. The survey was undertaken over a 4-hour period.

The site is located approximately 150m to the south of the River Coquet.

The surrounding habitat is predominantly that of pastureland surrounding the village of Harbottle with moorland to the south.

Building 1 *Low Bat Roost Potential.*

The structures to be redeveloped involve a two-storey former barn/stable (Building 1) with a hayloft storage area over (Inaccessible) and is located on an approximate east west orientation with the front of the building facing south. Built from random sandstone external and internal walls with a rubble infill. The rear of the building is built into the hillside to the north up to the first-floor level resulting in a wet/damp internal north, east and west walls.

The structure has a slate roof to the south side and a corrugated cement reinforced asbestos fibre sheet roof to the north side. The ground floor was formerly split into a number of sections providing stabling for horses/animal husbandry, the floors are dirty throughout. The central and western section have subsequently been used to store building materials and articles used in connection with the Inn.

The flooring of the upper floor is in an extremely poor state as a result of water ingress over a considerable period of time and was deemed unsafe to access the upper floor.

Internal walls and ceiling are all heavily cobwebbed throughout.

Externally the walls show that minimal maintenance has been undertaken to this structure some stone work is missing to the western side of the south face providing potential access to the rubble infill by bats.

Missing mortar together with a number of holes are evident predominantly to the south facing wall.

Hay loft doorways pierce the south facing wall to the upper floor, doorways are noted to the ground floor together with a single boarded window to the eastern side.

Boarding to the doorways and window appears to be recent.

Internally we noted a considerable number of butterfly wings to the internal southern wall at the south eastern corner of the building. No bat droppings or other evidence of a bat presence was noted.

Evidence of previous nesting by Barn swallow *Hirundo rustica* was noted to the ground floor of this structure. Barn swallow were also noted to be present within this structure internally to the ground and upper floor. They were noted entering through the hay loft doorway.

Building 2 Low Bat Roost Potential.

Built on an approximate north south orientation, constructed from random stone with the internal wall also constructed from random stone with a rubble infill between. The structure is considered to be approximately 100 years old and is currently in a good state of repair there is evidence of some recent maintenance.

This single storey building is attached to the south eastern section of building 1.

This building has a peaked slate roof that is in a good condition with ceramic ridge which is well bedded on cement, the floor is divided into a number of sections each accessed by a separate arched doorway located to the western side of the building. A total of 4 double doorways pierce the west facing wall each have been fitted with timber vertical boarded doors. The southern doorway is used as a servery with a pizza kitchen to the area to the immediate south.

Internally the remaining three sections are used for storage, the southern one is used as a wood store for the pizza kitchen, the middle section is used as a materials storage with the northern section used for storing kayaks and cycles etc. above the central two sections is a recently created mezzanine floor which the area above being used as a storage area for building materials. There is a gap between this level and the western wall providing access along the full length of the mezzanine from any point.

There is no waterproof membrane below the slates which are supported by laths with timber beams below.

Internally walls and roof are covered by cobwebs.

As the southernmost section of this structure formed part of the Inn facilities, it was reconfigured previously to provide a kitchen area and servery for the production of pizza. This area therefore does not form part of the proposed development. Internally this building is open to the roof with a recently added storage mezzanine at wall top height running over approximately half of the roof space.

External walls are all in a good state of repair.

The internal and external survey of the structures where accessible found no evidence of a bat presence other than possible feeding remains to building 1 internal wall, checks were made to window frames, door and window lintels, accessible holes to walls and to horizontal surfaces for any evidence.

Emergence Survey & Static Data

A single evening emergence survey was undertaken on the evening of 15/09/2020 using a total of two experience surveyors one within the courtyard area and the second to the north eastern corner formed by the garages and the barn/stable building.

A soprano pipistrelle was noted to emerge from the upper right-hand side of the south facing wall of building 1 above the ridge of building 2 at 19.34.

A single myotis bat was observed to emerge from the upper south western corner of the barn/stable building 20.04.

Finally, a single common pipistrelle bat was observed to emerge from the hayloft entrance doorway lower western corner 20.29. See image below for locations.

All bats from the roosts flew south from building 1 exiting the site via the courtyard entrance.

Bats primarily common pipistrelle with occasional soprano pipistrelle were noted feeding to the north and east of the site together with occasional foraging behaviour within the courtyard area.

A solitary brown long eared bat was recorded commuting through the site east to west flying approximately 1 metre above the roof of building 2.

The following species of bat were recorded in the area of the site during the evening emergence survey.

Table 7-1 Species list

Common name	Latin name	Emerged
Common pipistrelle bat	<i>Pipistrellus pipistrellus</i>	Yes location 2 below
Soprano pipistrelle bat	<i>Pipistrellus pygmaeus</i>	Yes Location 1 below
Natterer's bat	<i>Myotis natterii</i>	Yes Location 3 below
Brown long eared bat	<i>Plecotus auritus</i>	No
Noctule bat	<i>Nyctalus noctula</i>	No
Brandt's / Whiskered	<i>Myotis Brandii / Mystacinus</i>	No
Myotis spp. Bat	<i>Myotis spp.</i>	No



Figure 7-1 Emergence locations

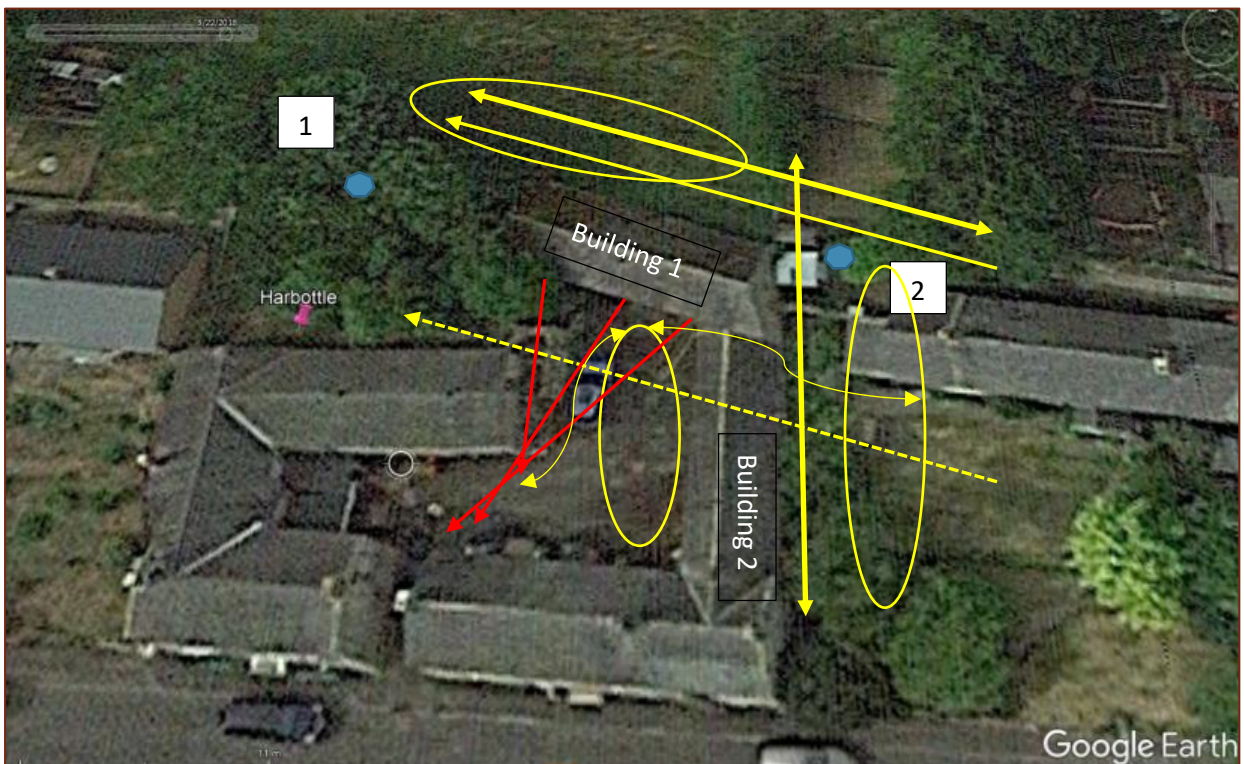


Figure 7-2 Observed Flight

Emergence  Brown long eared bat  Foraging  Commuting 

(note trees shown to west of barn/stables shown in the above are no longer present)

8 Discussion

The Star Inn is located within the village of Harbottle Northumberland to the south side of a steep embankment with the River Coquet beyond. Within the landscape surrounding the village are a number of priority habitats. A SAC together with a number of SSSI sites, a Local Nature Reserve is also located to the wider countryside surrounding the village. The village is also noted to sit within the Northumberland National Park.

Several species of bat are recorded to be present within the local area with a single maternity roost of Soprano pipistrelle bats being recorded in 2012.

Bat species data within the immediate area is likely to be somewhat limited due to the paucity of survey effort in the area.

These surveys were undertaken during of the bat breeding season shows that the barn/stable building 1 possess suitable features which are used by bats, such locations were originally assumed as being of a Low potential for roosting bats.

Evidence of a probable bat feeding perch to the internal south east corner of the ground floor was observed with numerous butterfly wings being found to the cobwebs to the wall and to the floor at this point. No bat droppings or other indicators of a bat presence was noted to the ground floor of this structure. No access was possible to the upper floor.

Internally and in particular walls to the north and west are damp. Internally the building is somewhat draughty thus reducing the potential for a bat presence.

However, the single evening emergence survey noted 3 different species of bat emerging from the south face of building 1 two from wall tops and a further bat from a hayloft doorway clearly showing that bats utilise this structure as a roost albeit in low numbers.

An Audio Moth detector was placed within 2m of the feeding perch location on the day of the PRA survey and ran for some 6 nights before the batteries failed. No evidence of this location being used as a roost or feeding perch by bats was recorded. Some poor-quality calls were recorded however these were considered to be from bats echolocating close to but external to the structure.

The arched entrances to building 2 have recently been fitted with timber double doors to the west face as part of the modernisation/visual improvements to the courtyard area of the Inn. The courtyard being used for al fresco dining. The intention is to convert building 2 into a restaurant.

Building 2 showed no evidence of a bat presence internally or externally. A further Audio Moth was placed within this structure near to the mezzanine floor which again ran for 6 nights, there was some considerable recorded bat activity during this period these again were of a poor quality and again considered to be from bats passing externally or feeding within the courtyard adjacent to the structure.

Any development of Building 1 has the potential to result in the loss of a minimum of three day roosts for low numbers of 3 species of bat. However, as the survey of this structure was only commissioned late in the season, this may not be the complete picture as to the use of this structure by bats throughout the year. With the butterfly wing cases showing that at some time the building is used as a feeding perch for one of the larger bat species i.e. Natterer's or brown long eared bats.

With regard to building 2 the redevelopment of this structure we consider is highly unlikely to have a negative impact upon the bats that may use the site, also for bats in the wider area surrounding.

We believe that there is no ecological reason why the development of building 2 cannot proceed as a separate entity from building 1.

With regard to building 1 we note that works to this structure are not going to proceed for at least 18 months.

In order to ensure that bats remain free from harm or disturbance we would advise that further surveys of this structure be undertaken during the bat breeding season 1st May till 30th September (approx.) of the year prior to development works taking place. This is in order that as the structure has been identified as a roost location for 3 species of bat there will be a requirement for an EPS licence or its equivalent from Natural England.

As survey data is thought to be useful for a maximum of 18 months before requiring updating this period will have elapsed.

The requirement for further surveys should form part of any conditions imposed as part of this planning permission.

This risk assessment together with the single emergence survey for bats due to the 18-month proposed delay in converting this structure is considered by the author to be insufficient in the information to provide sufficient data for a Natural England EPS licence application for building 1. Therefore, additional survey effort should be undertaken closer to works commencing in order that an appropriate licence with relevant mitigation can be applied for.

Evidence of a previous nesting by birds was noted within the structures was observed.

There is no evidence to suggest a barn owl *Tyto alba* presence, although it is apparent that they may be found to the wider countryside.

We believe that the development of these structures over the next few years will at worst have a minor negative impact on the surrounding environment. This being due to the slight increase in the number of tourists visiting the village as a result.

9 Conclusions

The use of the structures at The Star Inn, Harbottle by bats has been identified as follows.

Building 1 is used as a day roost by at least 3 species of bats as detailed earlier. There is evidence within the ground floor area of a probable feeding perch used by one of the larger bat species.

No evidence of a bat presence was found to building 2 nor were bats observed to emerge or enter this structure during our evening survey. A static detector within the structure recorded an external bat presence.

Therefore, this report considers that any development of building 1 has the potential to impact on bats. We would now assess these structures to have at least a moderate potential for a bat presence based upon current guidance and our emergence survey.

Development of Building 2 can proceed without further surveys as the conversion of this structure is unlikely to have an impact on bats noted to be present within the site.

Further surveys are considered necessary to identify all bat species using building 1 as a roost site or for other purposes, together with entrance and exit points, numbers present etc.

We believe that the data acquired in 2020 will be considered out of date and unsuitable for the application and acquisition of a Natural England EPS licence for works which will not start for approximately 18 months.

These surveys should be undertaken in the bat season prior to the works to building 1.

10 Recommendations

Further Surveys Required

Bat emergence and return surveys should be undertaken during the bat breeding season (May – September) to building 1 in the year prior to works in order to provide sufficient up to date information to support a licence application.

A minimum of two surveys 1 dusk emergence and a dawn return survey should be undertaken as per current guidance to provide sufficiently robust information to the planners in order that they can make an informed decision.

A bat friendly lighting scheme should form part of the proposed redevelopment as per guidance found within <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

11 References

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Appendix 1 - Aerial photo of site location

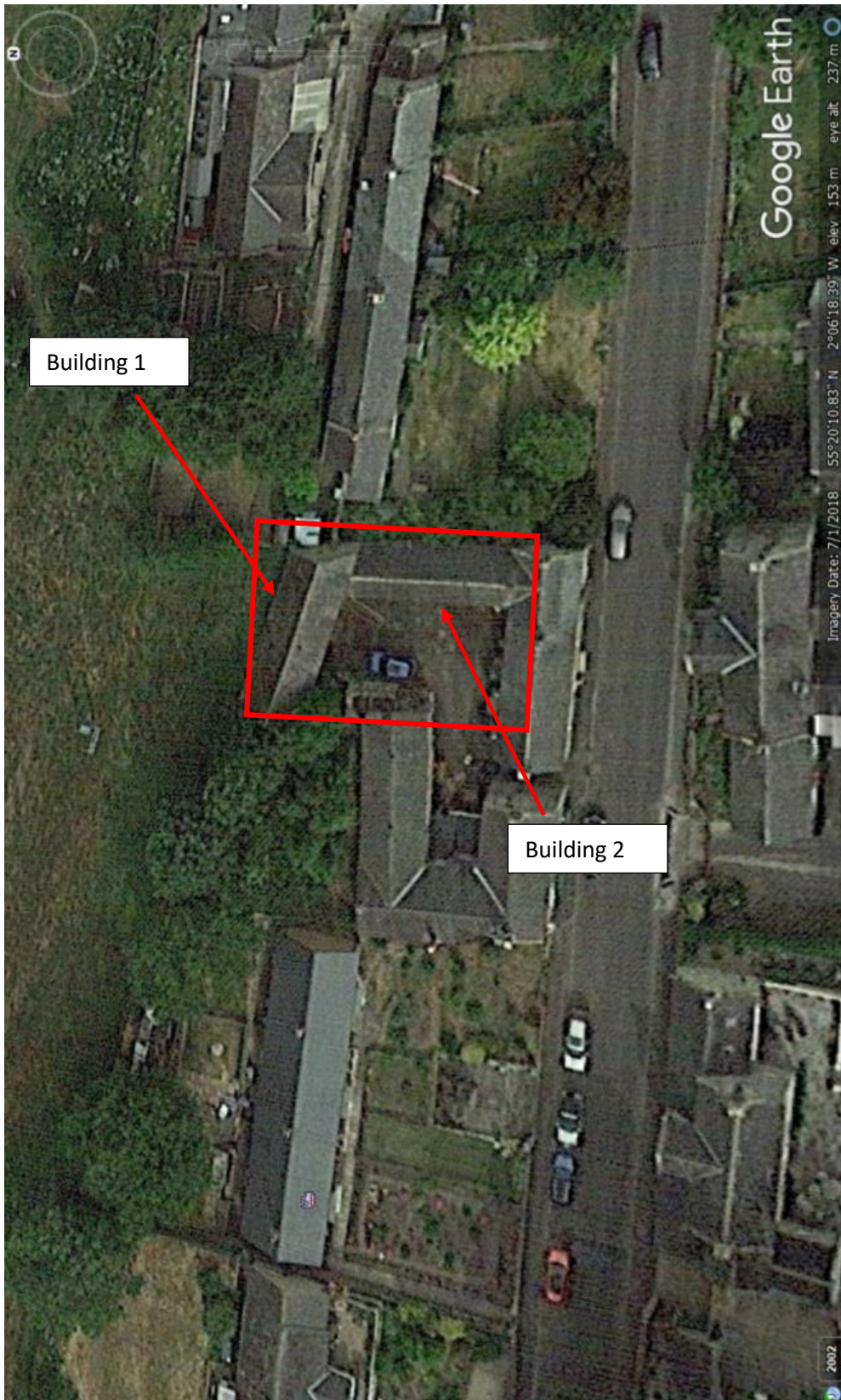


Figure 0-1 Aerial Image of site showing buildings and numbers

Appendix 2 – Images

Image Number and description	Image
<p>1.</p> <p>South face of building 1. With building 2 to right</p>	
<p>2.</p> <p>Showing timber double doors to building 2.</p>	
<p>3.</p> <p>Firewood store for Pizza kitchen no evidence of a bat presence.</p>	

4.

Mezzanine floor area from below, no evidence of a bat presence.



5.




Mezzanine floor from above showing roof construction and cobwebs. No evidence of a bat presence.









6.

Storage area no evidence of a bat presence.



<p>7.</p> <p>Final garage space no evidence of a bat presence.</p>	 A photograph showing the interior of a stone-walled garage. The walls are made of rough-hewn stone. The ceiling has exposed wooden beams. In the foreground, there is a wooden ladder, a black bag, and a sign with a blue star and red text. The floor is cluttered with various items, including a red and white striped object.
<p>8.</p> <p>Ground floor building 1 south east corner note butterfly wings.</p>	 A close-up photograph of a floor covered with straw. Numerous butterfly wings are scattered across the straw, indicating a large number of butterflies or a roost.
<p>9.</p> <p>Ground floor building 1 south east corner note butterfly wings to wall..</p>	 A close-up photograph of a stone wall. Several butterfly wings are attached to the wall, likely due to the insects' behavior or the texture of the stone.

<p>10.</p> <p>Looking up through upper floor building 1 rot hole and showing roof to north side.</p>	
<p>11.</p> <p>One of a number of horizontal surfaces within building 1 Ground floor building 1 no evidence of a bat presence.</p>	
<p>12.</p> <p>Showing missing mortar to wall of building 1 south side.</p>	

<p>13.</p> <p>Showing missing mortar to wall of building 1 south side a potential roost site.</p>	 A close-up photograph of a stone wall. The stones are irregular in shape and color, ranging from light grey to yellowish-brown. There is a noticeable gap in the mortar between two stones in the upper center. Two small, circular holes are visible on either side of this gap, one on the left and one on the right.
<p>14.</p> <p>Showing missing mortar and stone to wall of building 1 south side which potentially could allow bats to enter the rubble infill.</p>	 A close-up photograph of a stone wall. The wall is made of irregular stones in shades of grey and yellow. A dark blue wooden door is visible on the right side. There is a hole in the masonry above the door, where the mortar and stone appear to be missing or crumbling.
<p>15.</p> <p>Showing missing mortar to wall of building 1 south side.</p>	 A close-up photograph of a stone wall. The wall is made of irregular stones in shades of grey and yellow. A dark blue wooden door is visible on the right side. There is a hole in the masonry above the door, where the mortar and stone appear to be missing or crumbling.

Appendix 3 – Biological Records

Latin Name	Common Name	Abundances	Comments	Location Name	Date	Grid Reference	Approx. Distance (m)
<i>Rana temporaria</i>	Common Frog	1 Count of Present	Amphi common frog. Habitat = B5.	Pheasantry Wood	28/06/1978	NT933044	327
<i>Apus apus</i>	Swift	4 Count				2007	
<i>Cuculus canorus</i>	Cuckoo	1 Count	stage:adult Heard calling but not seen	Harbottle Crags	12/05/2016	NT925047	929
<i>Falco tinnunculus</i>	Kestrel			Harbottle Castle NT935047		1994	71
<i>Phoenicurus phoenicurus</i>	Redstart	1 Count of Present	Bird redstart. Habitat = J25.	Harbottle Castle NT937046	26/05/1994	NT937046	289
<i>Lampetra planeri</i>	Brook Lamprey	>0 Count		Harbottle, Coquet		Aug-99	289
<i>Briza media</i>	Quaking-grass					NT933049	19/07/2010
<i>Buxus sempervirens</i>	Box	1 Count of Present	<i>Buxus sempervirens</i> .	Lightpipe Wood	22/05/1992	NT937043	484
<i>Calluna vulgaris</i>	Heather			Drakestone Burn		31/07/1996	
<i>Campanula rotundifolia</i>	Harebell					19/07/2010	237
<i>Cruciata laevipes</i>	Crosswort			The Peels		19/05/2015	
<i>Erica tetralix</i>	Cross-leaved Heath			Cold Law. East		NT9203	
<i>Fragaria vesca</i>	Wild Strawberry		Alwinton churchyard	2Km - NT90H - Alwinton South		23/05/2010	
<i>Fragaria vesca</i>	Wild Strawberry	1 Count of Present	<i>Fragaria vesca</i> . Habitat = A112.	Harbottle Castle NT935047	22/05/1992	NT935047	71
<i>Myrica gale</i>	Bog-myrtle	1 Count of Abundant	<i>Myrica gale</i> . Habitat = A22.	Harbottle Wood ride	04/09/1995	NT938038	974
<i>Nardus stricta</i>	Mat-grass					13/07/2004	440
<i>Oxalis acetosella</i>	Wood-sorrel			The Peels		NT90M	19/05/2015
<i>Plantago media</i>	Hoary Plantain		River Coquet, NE bank near Sharperton 5x5	2Km - NT90L - Sharperton		06/07/1983	
<i>Populus tremula</i>	Aspen	1 Count of occasional	<i>Populus tremula</i> . Habitat = A112.	Lightpipe Wood	22/05/1992	NT937043	484
<i>Potentilla erecta</i>	Tormentil					09/07/2013	237

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Potentilla erecta subsp. erecta	Tormentil			The Peels		19/05/2015	
Pyrola minor	Common Wintergreen	1 Count of Rare	Pyrola minor. Habitat = A111.	Ramshaugh Plantation	16/07/1992	NT925052	1055
Sanicula europaea	Sanicle	1 Count of Present	Sanicula europaea.	Lightpipe Wood	22/05/1992	NT937043	484
Succisa pratensis	Devil's-bit Scabious	1 Count of Present	Succisa pratensis. Habitat = A111.	Ramshaugh Plantation	16/07/1992	NT925052	1055
Succisa pratensis	Devil's-bit Scabious					NT933049	19/07/2010
Triglochin palustre	Marsh Arrowgrass					NT941042	16/07/2015
Valeriana dioica	Marsh Valerian	1 Count of Present	Valeriana dioica. Habitat = A112.	Harbottle Castle NT935047	22/05/1992	NT935047	71
Valeriana officinalis	Common Valerian			The Peels		NT90M	19/05/2015
Veronica officinalis	Heath Speedwell			The Peels		NT90M	19/05/2015
Coenonympha pamphilus	Small Heath	2 Count		Holystone Valley		26/06/2005	
Coenonympha tullia	Large Heath	3 Count				06/07/2010	
Lasiommata megera	Wall		in the same area.	Harbottle Castle		31/08/2005	163
Brachylochia viminalis	Minor Shoulder-knot		Heath Trap (8W actinic). Adult. Resident.	Harbottle		23/08/1978	835
Chiasmia clathrata	Latticed Heath	2 Count	Field record / observation. Adult. Resident.	Harbottle Common	12/05/2016	NT925047	929
Entephria caesiata	Grey Mountain Carpet	1 Count	Larval Case. Cocoon. Resident. Empty cocoon and parasitised larva on grass stem..	Harbottle	03/08/1974	NT926048	835
Spilosoma lubricipeda	White Ermine	1 Count	Heath Trap (8W actinic). Adult. Resident.	Harbottle	15/06/2002	NT926048	835
Erinaceus europaeus	West European Hedgehog	1 Count	crossing road	Harbottle Hills	29/07/2019	NT9204	
Lutra lutra	European Otter		Alive, Spraint, rock	River Coquet, Harbottle Castle, Northumberland		03/05/2011	565
Meles meles	Eurasian Badger	1 Count	crossing road	Low Alwinton	29/07/2019	NT9205	
Myotis mystacinus/brandtii	Whiskered/Brandt's Bat	1 Count	Foraging. House.	Harbottle	04/06/2012	NT934046	105
Myotis nattereri	Natterer's Bat		from sound file,3 passes recorded			NT9377003798	08/08/2013
Pipistrellus	Pipistrelle Bat species		from sound file			NT9382603859	08/08/2013

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Pipistrellus pipistrellus	Pipistrelle	1 Count of Present	Mammal pipistrelle bat. via EJS - max %0Acount 6 pipistrelle	Light Pipe Hall	01/09/1994	NT940043	698
Pipistrellus pipistrellus	Common Pipistrelle		from sound file			NT9382603859	08/08/2013
Pipistrellus pygmaeus	Soprano Pipistrelle		from sound file,3 passes recorded			NT9393804117	08/08/2013
Pipistrellus pygmaeus	Soprano Pipistrelle	137 Count	Roost in House	HARBOTTLE	21/08/2012	NT9304	
Plecotus auritus	Brown Long-eared Bat	1 Count	Foraging. House.	Harbottle	04/06/2012	NT934046	105
Sciurus vulgaris	Red squirrel	1	In trees on steep slopes above River Coquet, Harbottle			23/10/2018	
Vespertilionidae	Bats		Maternity Roost in House, Possible Brown Long Eared or Natterer's Bat	HARBOTTLE	2012	NT9304	

Appendix 4 - ERIC Maps

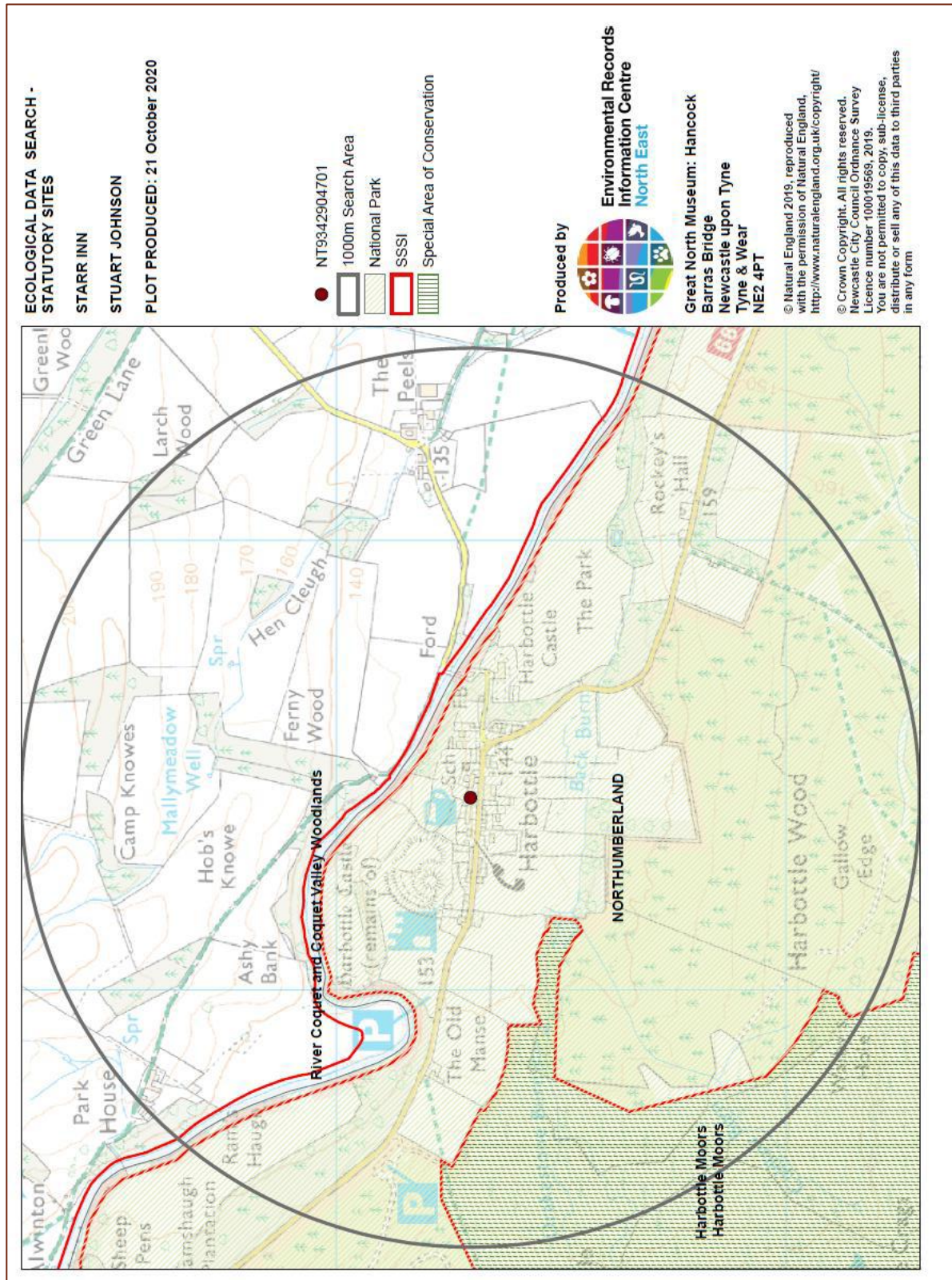


Figure 0-1 Statutory Sites

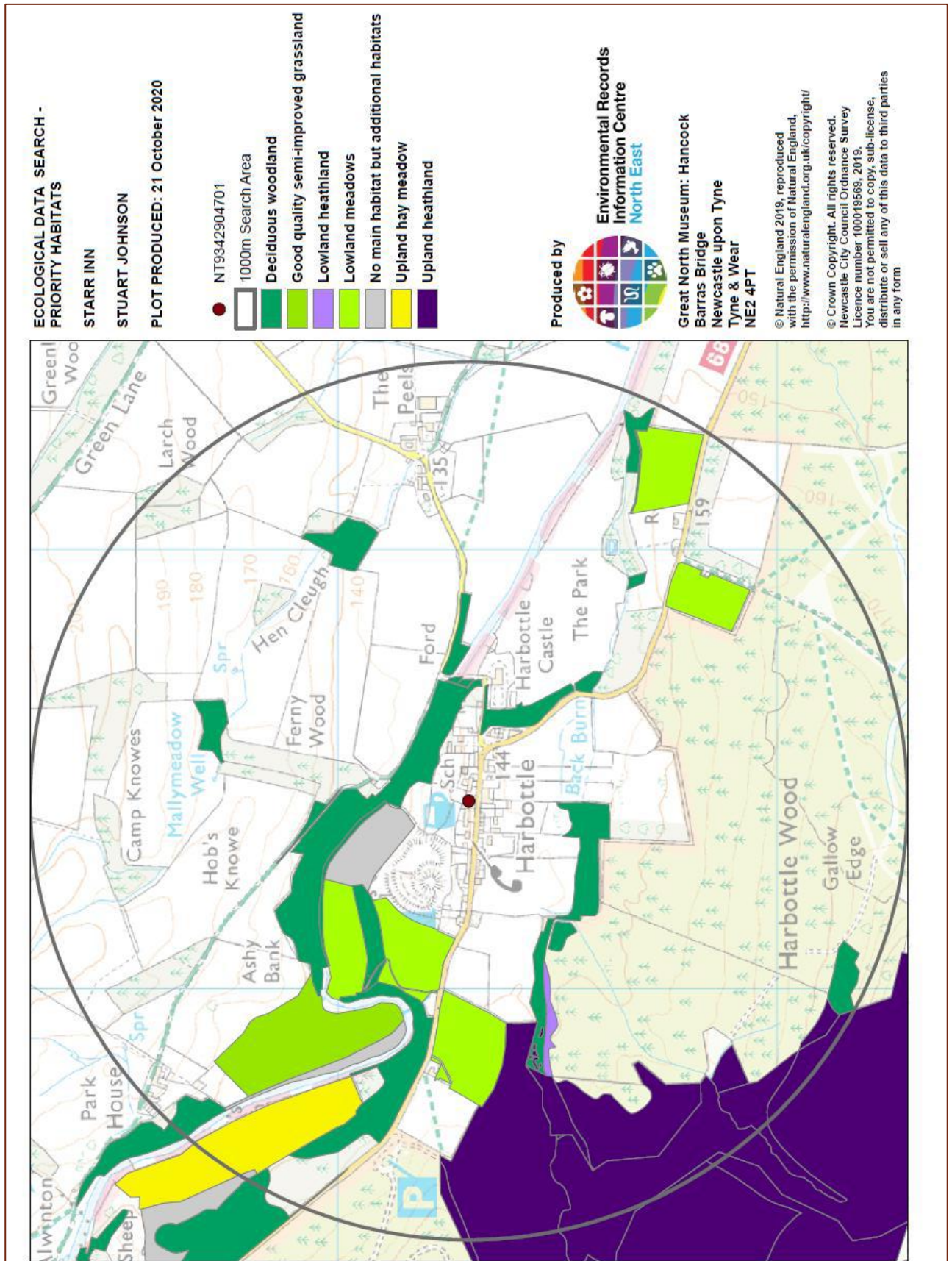


Figure 0-2 Priority Habitats

Appendix 5 – Emergence Survey Data

Walkabout Courtyard Area

Date	Time	Mbra/Mmys	Myotis spp.	Mnat	NSL	Paur	Ppip	Ppyg
		Brandt's Whiskered	Myotis species	Natterer's	Noctule	Brown Long Eared	Common pipistrelle	Soprano pipistrelle
15/09/2020	19:29:53	0	0	0	1	0	0	0
15/09/2020	19:30:06	0	0	0	1	0	0	0
15/09/2020	19:30:29	0	0	0	1	0	0	0
15/09/2020	19:33:07	0	0	0	1	0	0	0
15/09/2020	19:34:09	0	0	0	1	0	0	0
15/09/2020	19:34:54	0	0	0	0	0	0	1
15/09/2020	19:35:27	0	0	0	0	0	0	1
15/09/2020	19:42:06	0	0	0	0	0	1	1
15/09/2020	19:48:13	0	0	0	1	0	0	0
15/09/2020	19:48:16	0	0	0	1	0	0	0
15/09/2020	19:49:28	0	0	0	1	0	0	0
15/09/2020	19:52:29	0	0	0	0	0	0	1
15/09/2020	19:53:04	0	0	0	0	0	1	0
15/09/2020	19:54:41	0	0	0	1	0	0	0
15/09/2020	19:56:13	0	0	0	1	0	0	0
15/09/2020	19:59:54	0	0	0	0	1	0	0
15/09/2020	20:00:00	0	0	0	0	1	0	0
15/09/2020	20:00:09	0	0	0	0	1	0	0
15/09/2020	20:04:29	1	1	0	0	0	0	0
15/09/2020	20:06:58	1	1	0	0	0	0	0
15/09/2020	20:07:27	1	0	0	0	0	0	0
15/09/2020	20:08:29	0	0	0	0	0	0	1
15/09/2020	20:17:55	1	1	1	0	0	0	0
15/09/2020	20:23:16	0	0	0	1	0	0	0
15/09/2020	20:29:04	0	0	0	0	0	1	0
15/09/2020	20:29:27	0	0	0	0	0	1	0
15/09/2020	20:33:57	0	0	0	0	0	1	0
15/09/2020	20:41:36	0	0	0	0	0	1	0
15/09/2020	20:41:43	0	0	0	0	0	1	1
15/09/2020	20:42:19	0	0	0	0	0	1	0

Table 0-1 Building 1 Species Records

20200914_225500T.WAV	0	0	0	1
20200914_225600T.WAV	0	0	0	1
20200914_225700T.WAV	0	0	0	1
20200914_225800T.WAV	0	0	0	1
20200914_225900T.WAV	0	0	0	1
20200914_230000T.WAV	0	0	0	1

20200914_230100T.WAV	0	0	0	1
20200914_230200T.WAV	0	0	0	1
20200914_230300T.WAV	0	0	0	1
20200914_230400T.WAV	0	0	0	1
20200914_230500T.WAV	0	0	0	1
20200914_230600T.WAV	0	0	1	1
20200914_230700T.WAV	1	1	1	1
Total	1	1	2	13
	Mnat	Paur	Ppip	Ppyg

Table 0-2 Building 2 Audio Moth Records

File name	NSL	Ppip	Ppyg
20200910_205300T.WAV	0	1	0
20200910_205400T.WAV	0	1	0
20200911_200000T.WAV	0	1	0
20200911_200200T.WAV	0	1	0
20200911_200300T.WAV	0	1	0
20200911_200600T.WAV	0	1	0
20200911_200700T.WAV	0	1	0
20200911_200800T.WAV	0	1	0
20200911_201800T.WAV	0	1	0
20200911_201900T.WAV	0	1	0
20200911_202300T.WAV	0	1	0
20200911_202400T.WAV	0	1	0
20200911_202500T.WAV	0	1	0
20200911_202600T.WAV	0	1	0
20200911_202900T.WAV	0	1	0
20200911_203000T.WAV	0	1	0
20200911_203100T.WAV	0	1	0
20200911_204100T.WAV	0	1	0
20200911_204200T.WAV	0	1	0
20200911_204300T.WAV	0	1	0
20200911_204400T.WAV	0	1	0
20200911_204500T.WAV	0	1	0
20200911_204600T.WAV	0	1	0
20200911_204700T.WAV	0	1	0
20200911_204800T.WAV	0	1	0
20200911_205900T.WAV	0	1	0
20200911_210000T.WAV	0	1	0
20200911_210100T.WAV	0	1	0
20200911_210200T.WAV	0	1	0
20200911_210300T.WAV	0	1	0
20200911_210400T.WAV	0	1	0

20200911_210600T.WAV	0	1	0
20200911_211100T.WAV	0	1	0
20200911_211200T.WAV	0	1	0
20200911_212800T.WAV	0	1	0
20200911_213800T.WAV	0	1	0
20200911_214900T.WAV	0	1	0
20200911_215000T.WAV	0	1	0
20200911_215100T.WAV	0	1	0
20200911_215200T.WAV	0	1	0
20200911_215300T.WAV	0	1	0
20200911_215400T.WAV	0	1	0
20200911_215500T.WAV	0	1	0
20200911_215600T.WAV	0	1	0
20200911_215700T.WAV	0	1	0
20200911_215800T.WAV	0	1	0
20200911_215900T.WAV	0	1	0
20200911_220000T.WAV	0	1	0
20200911_220100T.WAV	0	1	0
20200911_220200T.WAV	0	1	0
20200911_220300T.WAV	0	1	0
20200911_220400T.WAV	0	1	0
20200911_220500T.WAV	0	1	0
20200911_220600T.WAV	0	1	0
20200911_220700T.WAV	0	1	0
20200911_220800T.WAV	0	1	0
20200911_221100T.WAV	0	1	0
20200911_221300T.WAV	0	1	0
20200911_221400T.WAV	0	1	0
20200911_221500T.WAV	0	1	0
20200911_221600T.WAV	0	1	0
20200912_200000T.WAV	0	1	0
20200912_200200T.WAV	0	1	0
20200912_200300T.WAV	0	1	0
20200912_200400T.WAV	0	1	0
20200912_200500T.WAV	0	1	0
20200912_200600T.WAV	0	1	0
20200912_200700T.WAV	0	1	0
20200912_200900T.WAV	0	1	0
20200912_201000T.WAV	0	1	0
20200912_201100T.WAV	0	1	0
20200912_201200T.WAV	0	1	0
20200912_201500T.WAV	0	1	0
20200912_201600T.WAV	0	1	0
20200912_201700T.WAV	0	1	0

20200912_201900T.WAV	0	1	0
20200912_202000T.WAV	0	1	0
20200912_202300T.WAV	0	1	0
20200912_202400T.WAV	0	1	0
20200912_202900T.WAV	0	1	0
20200912_203000T.WAV	0	1	0
20200912_203200T.WAV	0	1	0
20200912_203700T.WAV	0	1	0
20200912_203800T.WAV	0	1	0
20200912_204000T.WAV	0	1	0
20200912_204200T.WAV	0	1	0
20200912_204400T.WAV	0	1	0
20200912_204500T.WAV	0	1	0
20200912_204600T.WAV	0	1	0
20200912_204700T.WAV	0	1	0
20200912_204800T.WAV	0	1	0
20200912_204900T.WAV	0	1	0
20200912_205000T.WAV	0	1	0
20200912_205200T.WAV	0	1	0
20200912_210500T.WAV	0	1	0
20200912_210600T.WAV	0	1	0
20200912_210700T.WAV	0	1	0
20200912_210800T.WAV	0	1	0
20200912_210900T.WAV	0	1	0
20200912_211100T.WAV	0	1	0
20200912_211200T.WAV	0	1	0
20200912_211300T.WAV	0	1	0
20200912_211500T.WAV	0	1	0
20200912_211600T.WAV	0	1	0
20200912_211800T.WAV	0	1	0
20200912_211900T.WAV	0	1	0
20200912_212000T.WAV	0	1	0
20200912_212100T.WAV	0	1	0
20200912_212200T.WAV	0	1	0
20200912_212300T.WAV	0	1	0
20200912_212400T.WAV	0	1	0
20200912_212600T.WAV	0	1	0
20200912_212700T.WAV	0	1	0
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20200912_213000T.WAV	0	1	0
20200912_213100T.WAV	0	1	0
20200913_052400T.WAV	0	1	0
20200913_053400T.WAV	0	0	1

20200913_212400T.WAV	0	1	0
20200913_212900T.WAV	0	0	1
20200913_213000T.WAV	0	1	0
20200913_213100T.WAV	0	1	0
20200913_213200T.WAV	0	1	0
20200913_214300T.WAV	0	1	0
20200913_214400T.WAV	0	1	0
20200913_215600T.WAV	0	1	0
20200913_220500T.WAV	1	0	0
20200913_221700T.WAV	0	1	0
20200913_222000T.WAV	0	1	0
20200913_222100T.WAV	0	1	0
20200913_223200T.WAV	0	1	0
20200913_223300T.WAV	0	1	0
20200913_223400T.WAV	0	1	0
20200913_223500T.WAV	0	1	0
20200913_223700T.WAV	0	1	0
20200913_223900T.WAV	0	1	0
20200913_224000T.WAV	0	1	0
20200913_224200T.WAV	0	1	0
20200913_224300T.WAV	0	1	0
20200913_224500T.WAV	0	1	0
20200913_224600T.WAV	0	1	0
20200913_224900T.WAV	0	1	0
20200913_225000T.WAV	0	1	0
20200913_225200T.WAV	0	1	0
20200913_225400T.WAV	0	1	0
20200913_225500T.WAV	0	1	0
20200913_225600T.WAV	0	1	0
20200913_225800T.WAV	0	1	0
20200913_225900T.WAV	0	1	0
20200913_230000T.WAV	0	1	0
20200913_230100T.WAV	0	1	0
20200913_230200T.WAV	0	1	0
20200913_230300T.WAV	0	1	0
20200913_230400T.WAV	0	1	0
20200913_230500T.WAV	0	1	0
20200913_230700T.WAV	0	1	0
20200913_230800T.WAV	0	1	0
20200913_230900T.WAV	0	1	0
20200913_231000T.WAV	0	1	0
20200913_231100T.WAV	0	1	0
20200913_231200T.WAV	0	1	0
20200913_231300T.WAV	0	1	0
20200913_231500T.WAV	0	1	0

20200913_231600T.WAV	0	1	0
20200913_232500T.WAV	0	1	0
20200913_233400T.WAV	0	1	0
20200913_234300T.WAV	0	1	0
20200913_234500T.WAV	0	1	0
20200913_234900T.WAV	0	1	0
20200913_235200T.WAV	0	1	0
20200913_235300T.WAV	0	1	0
20200914_000200T.WAV	0	1	0
20200914_001300T.WAV	0	1	0
20200914_002400T.WAV	0	1	0
20200914_002600T.WAV	0	1	0
20200914_015700T.WAV	0	1	0
20200914_020100T.WAV	0	1	0
20200914_020500T.WAV	0	1	0
20200914_021800T.WAV	0	1	0
20200914_022000T.WAV	0	1	0
20200914_024500T.WAV	0	1	0
20200914_024600T.WAV	0	1	0
20200914_024700T.WAV	0	1	0
20200914_024900T.WAV	0	1	0
20200914_025900T.WAV	0	1	0
20200914_030300T.WAV	0	1	0
20200914_030400T.WAV	0	1	0
20200914_031000T.WAV	0	1	0
20200914_031100T.WAV	0	1	0
20200914_031200T.WAV	0	1	0
20200914_031300T.WAV	0	1	0
20200914_033000T.WAV	0	1	0
20200914_034700T.WAV	0	1	0
20200914_035600T.WAV	0	1	0
20200914_035700T.WAV	0	1	0
20200914_040300T.WAV	0	1	0
20200914_045700T.WAV	0	1	0
20200914_201500T.WAV	0	1	0
20200914_201600T.WAV	0	1	0
20200914_201700T.WAV	0	1	0
20200914_201900T.WAV	0	1	0
20200914_202100T.WAV	0	1	0
20200914_202300T.WAV	0	1	0
20200914_202500T.WAV	0	1	0
20200914_203200T.WAV	0	1	0
20200914_203300T.WAV	0	1	0
20200914_204400T.WAV	0	1	0

20200914_204500T.WAV	0	1	0
20200914_204700T.WAV	0	1	0
20200914_204800T.WAV	0	1	0
20200914_204900T.WAV	0	1	0
20200914_205000T.WAV	0	1	0
20200914_205200T.WAV	0	1	0
20200914_205300T.WAV	0	1	0
20200914_205700T.WAV	0	1	0
20200914_210200T.WAV	0	1	0
20200914_211700T.WAV	0	1	0
20200914_212100T.WAV	0	1	0
20200914_212800T.WAV	0	1	0
20200914_220400T.WAV	0	1	0
20200914_220700T.WAV	0	1	0
20200914_220900T.WAV	0	1	0
20200914_221300T.WAV	1	0	0
20200914_222900T.WAV	0	1	0
20200914_223500T.WAV	0	1	0
20200914_224000T.WAV	0	1	0
20200914_224100T.WAV	0	1	0
20200914_224700T.WAV	0	1	0
20200914_225200T.WAV	0	1	0
20200914_225800T.WAV	0	1	0
20200914_225900T.WAV	0	1	0
20200914_231000T.WAV	0	1	0
20200914_232100T.WAV	0	1	0
20200914_232600T.WAV	0	1	0
20200914_233000T.WAV	0	1	0
20200914_233800T.WAV	0	1	0
20200914_234500T.WAV	0	1	0
20200914_234600T.WAV	0	1	0
20200914_234900T.WAV	0	1	0
20200915_000200T.WAV	0	1	0
20200915_000300T.WAV	0	1	0
20200915_001300T.WAV	0	1	0
20200915_001400T.WAV	0	1	0
20200915_001500T.WAV	0	1	0
20200915_002600T.WAV	0	1	0
20200915_002700T.WAV	0	1	0
20200915_003500T.WAV	0	1	0
20200915_004100T.WAV	0	1	0
20200915_005300T.WAV	0	1	0
20200915_010500T.WAV	0	1	0
20200915_010600T.WAV	0	1	0
20200915_011800T.WAV	0	1	0

20200915_013300T.WAV	0	1	0
20200915_013700T.WAV	0	1	0
20200915_050200T.WAV	0	1	0
20200915_215500T.WAV	0	1	0
20200915_220600T.WAV	0	1	0
20200915_223200T.WAV	0	1	0
20200915_233000T.WAV	0	1	0
20200916_023600T.WAV	0	1	0
20200916_033300T.WAV	0	1	0
20200916_044200T.WAV	0	1	0
20200916_045700T.WAV	0	1	0
20200916_051700T.WAV	0	1	0
20200916_201300T.WAV	0	1	0
20200916_201500T.WAV	0	1	0
20200916_201600T.WAV	0	1	0
20200916_201700T.WAV	0	1	0
20200916_202400T.WAV	0	1	0
20200916_203800T.WAV	0	1	0
20200916_203900T.WAV	0	0	1
20200916_204900T.WAV	0	1	0
Total	2	268	3

Table 0-3 Anabat SD2 Data North East Corner

Y	M	D	H	M	S	Species
2020	9	15	20	6	34	PipPIP
2020	9	15	20	10	0	PipPIP
2020	9	15	20	22	41	PipPIP
2020	9	15	20	24	21	PipPIP
2020	9	15	20	27	30	PipPIP
2020	9	15	20	27	38	PipPIP
2020	9	15	20	29	7	PipPIP
2020	9	15	20	33	59	PipPIP
2020	9	15	20	34	30	PipPIP
2020	9	15	20	39	19	PipPIP
2020	9	15	20	39	34	PipPIP
2020	9	15	20	39	52	PipPIP
2020	9	15	20	40	19	PipPYGM
2020	9	15	20	43	17	PipPIP
2020	9	15	20	43	32	PipPIP
2020	9	15	20	44	1	PipPIP
2020	9	15	20	44	14	PipPIP
2020	9	15	20	44	29	PipPIP

2020	9	15	20	44	40	PipPIP
2020	9	15	20	44	58	PipPIP
2020	9	15	20	45	13	PipPIP
2020	9	15	20	45	28	PipPIP
2020	9	15	20	45	40	PipPIP
2020	9	15	20	45	51	PipPIP
2020	9	15	20	46	6	PipPIP
2020	9	15	20	46	15	PipPIP
2020	9	15	20	46	31	PipPIP
2020	9	15	20	46	46	PipPIP
2020	9	15	20	48	44	PipPIP
2020	9	15	20	49	7	PipPIP
2020	9	15	20	50	19	PipPIP
2020	9	15	20	50	28	PipPIP
2020	9	15	20	50	58	PipPIP
2020	9	15	20	51	13	PipPYGM,PipPIP
2020	9	15	20	51	31	PipPIP
2020	9	15	20	51	53	PipPIP
2020	9	15	20	52	8	PipPIP
2020	9	15	20	52	23	PipPIP
2020	9	15	20	52	38	PipPIP
2020	9	15	20	52	55	PipPIP
2020	9	15	20	53	10	PipPIP
2020	9	15	20	55	22	PipPIP
2020	9	15	20	55	38	PipPIP
2020	9	15	20	55	53	PipPIP
2020	9	15	20	56	8	PipPIP
2020	9	15	20	56	23	PipPIP
2020	9	15	20	59	31	PipPIP
2020	9	15	20	59	52	PipPIP
2020	9	15	21	0	7	PipPIP
2020	9	15	21	0	23	PipPIP
2020	9	15	21	1	7	PipPIP
2020	9	15	21	1	22	PipPIP
2020	9	15	21	1	37	PipPIP
2020	9	15	21	1	52	PipPIP
2020	9	15	21	2	5	PipPIP
2020	9	15	21	5	7	PipPIP
2020	9	15	21	5	22	PipPYGM
2020	9	15	21	5	35	PipPIP
2020	9	15	21	5	59	PipPIP
2020	9	15	21	6	8	PipPIP
2020	9	15	21	6	23	PipPIP
2020	9	15	21	6	38	PipPIP
2020	9	15	21	6	50	PipPIP

2020	9	15	21	7	5	PipPIP
2020	9	15	21	7	20	PipPIP
2020	9	15	21	7	35	PipPIP
2020	9	15	21	7	56	PipPIP
2020	9	15	21	8	11	PipPIP
2020	9	15	21	8	26	PipPIP
2020	9	15	21	9	7	PipPIP