



SMALL ECOLOGY LIMITED

Bat emergence surveys Barns at Fears End, Sandon, Buntingford, SG9 0QZ

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Report summary

Scope	Bat emergence surveys,
Project	Barns at Fears End, Sandon, Buntingford,SG9 0QZ
Address	Fears End, Sandon, Buntingford, EAST HERTS SG9 0QZ
Grid reference	532610, 234977
Planning authority	North Hertfordshire District Council
Report author	Chris Smith, CEnv, MIEMA

Non-technical summary

This report is an Bat emergence surveys addendum report completed for Fears End, Sandon, Buntingford, EAST HERTS SG9 0QZ at 532610, 234977.

This report should be read in conjunction with the main Ecological Appraisal Report and details surveys on the use of the building by bats, in particular:

- whether and how bats use features previously identified as having potential for roosting;
- how bats are using commuting and foraging features within the site.

Site description

The site consists of a series of agricultural sheds and buildings of various constructions along with associated hardstanding and small areas of gardens, amenity grassland and fruit trees. There are no mature trees within the site.

The site has a woodland belt with poplars to the south which is connected to a hedgerow network. To the west of the site is a substantial woodland, but the surrounding land use is otherwise predominantly arable.

Previous records

The desktop noted roosts or potential roosts for the following species within 2km

Table 1: Bat roosts within 2km

Common Name	Scientific Name
Natterer's Bat	Myotis nattereri
Barbastelle	Barbastella barbastellus
Brown Long-eared Bat	Plecotus auritus
Common pipistrelle	Pipistrellus pipistrellus
Serotine	Eptesicus serotinus
Soprano Pipistrelle	Pipistrellus pygmaeus

A Preliminary Roost Assessment (Small Ecology Limited 2024a) was carried out on 25/07/23 between 14:00 and 17:30. The site was revisited in July to September 2024 during evening bat surveys, when conditions remained unchanged.

Checks were made of buildings on site and the grounds surrounding these. Access was made to all loft voids and spaces that were safely accessible. There was no direct evidence of bats found during the survey.

Emergence surveys

Upto three emergence surveys were carried out on each buildings on dates of 04/07/2024, 10/07/2024, 30/07/2024 and 19/08/2024 to characterise the roosts within the building, in compliance with guidance from the Bat Conservation Trust (Collins 2023)

There was survey evidence of multiple emerging and returning Common pipistrelle *Pipistrellus pipistrellus* bat, emerging from the southern gable end of Building 1 and potentially some other locations. Numbers of emerging bats were as follows:

- 04/07/2024 Upto ~40 Common pipistrelle;
- 10/07/2024 Upto ~49 Common pipistrelle;
- 30/07/2024 Upto ~96 Common pipistrelle;
- 19/08/2024 Upto ~42 Common pipistrelle.

Common pipistrelle *Pipistrellus pipistrellus* commuting was also noted from Building 1 into tree belt to south and then east into the nearby wood. Social calling and calling by juvenile Common pipistrelles was also noted.

Other species present as commuting or foraging included Brown long-eared *Plecotus auritus*, Natterer's *Myotis nattereri*, Soprano pipistrelle *Pipistrellus pygmaeus* and potential Leisler's *Nyctalus leisleri*. Brief passes of Barbastelle *Barbastellus barbastella* were also noted.

Lighting levels

The site has low levels of lighting approximating to Zone E2. There is existing external lighting on some buildings, but no nearby street lights or urban areas.

Potential effects

The development of Building 1 will affect bat roosts and this is not avoidable due to the location of the roosts within the building. Lighting may increase light levels in nearby woodland to the south and affect other bats.

Conclusions

It is concluded there is a breeding roosts of Common pipistrelles *Pipistrellus pipistrellus* present in Building 1, with no obvious evidence of other species roosting at the site.

Any development works on Building 1 will require a licence from Natural England to proceed.

Survey limitations

Views of the rear of Building 6 were obscured due to dense trees, but this was of “low” potential and was a small building with no internal or external evidence of bats. There were no other significant limitations to the surveys.

1. Background

This report details emergence surveys carried out at Fears End, Sandon, Buntingford, EAST HERTS SG9 0QZ. The site is located at 532610, 234977.

The site consists of a series of agricultural sheds and buildings of various constructions along with associated hardstanding and small areas of gardens, amenity grassland and fruit trees. There are no mature trees within the site. The site has a woodland belt to the south which is connected to a hedgerow network. To the west of the site is a substantial woodland, but the surrounding landuse is predominantly arable.

This report provides additional information on the use of the site by bats:

- whether and how bats use features previously identified as having potential for roosting;
- how bats are using commuting and foraging features within the site.

2. Previous reports

2023 Preliminary Roost Assessment

A Preliminary Roost Assessment was carried out on 25/07/23 between 14:00 and 17:30. The site was revisited in July to September 2024 during evening bat surveys, when conditions remained unchanged.

Checks were made of buildings on site and the grounds surrounding these. Access was made to all loft voids and spaces that were safely accessible.

The desktop study found two European Protected Species Licences (EPSL) for bat roosts within 2km as given in the following table, both of which were for breeding sites.

Table 2.1: Granted European Protected Species Applications (England)

Case reference of granted application	Species group to which licence relates	Species on the licence	Site county of licence	Licence start date
EPSM2010-2257	Bat	C-PIP;BLE;NATT	Hertfordshire	16/09/2010
2019-43358-EPS-MIT	Bat	BARB BLE C-PIP NATT	Hertfordshire	07/11/2019

Potential of the buildings

There was no direct evidence of bats found during the survey.

The potential of the buildings is shown in Table 2.2: Potential of buildings for bats.

There is limited potential within most buildings, except for Building 1. Suitable potential roosting features include weather boarding, tiled roofs and ridge tiles.

For full details of buildings see [Appendix 6 : Detailed descriptions of buildings](#).

Table 2.2: Potential of buildings for bats

Target note	Reference in Building Descriptions	Sworders Building Reference	Details	Potential for bats
[TN7]	Barn #2	Building 1	Large purpose built barn partly converted to storage and studio	Medium
[TN22]	Barn #7	Building 2	Storage unit made from corrugated metal with steel roof	Negligible
[TN9]	Barn #4.	Building 3	Former agricultural shed, now used for storage; false ceiling internally prevented full inspection. Sheet roof; wooden walls	Negligible-Low
[TN10]	Barn #5	Building 4	Former agricultural shed, now used for storage and workshop; false ceiling internally prevented full inspection. Sheet roof; wooden walls	Negligible-Low
[TN8]	Barn #3.	Building 5	Former agricultural shed, now used for storage. Sheet roof; wooden walls	Negligible
[TN11]	Barn #6.	Building 6	Former agricultural shed, now used as workshop. Tiled roof; lined; loft present but no signs of bats on inspection	Low

Other buildings not within application

Table 2.3: Potential of other buildings not within application

Target note	Reference	Sworders Building Reference	Details	Potential for bats
[TN1]	Barn #1	Not in application	Open fronted cart shed; separated from other buildings within complex	Negligible
[TN15]	Existing bungalow	Not in application	Well maintained bungalow; not internally inspected	Medium

3. Methods for field survey

The site was surveyed using the protocols given in this document's appendices for Appendix 1 : Protocol for Emergence Surveys .

3.1 Survey effort

Upto three emergence surveys were carried out on each building on the dates of 04/07/2024, 10/07/2024, 30/07/2024 and 19/08/2024, as per Collins (2023), to characterise the roosts within the building.

Table 3.1: Focus of surveys by building

Date	Building 1	Building 3-5	Building 6	Notes
04/07/2024	(Yes)	Yes		Partial coverage by JC standing to south
10/07/2024	Yes		Yes	
30/07/2024	Yes			
19/08/2024	Yes			
Total surveys	3 (4)	1	1	

3.2 Timings and weather conditions

Full details of times and weather conditions are given in Table 3.4: Surveys - start/finish and weather conditions on p11.

All surveys commenced 15 minutes before sunset and continued at least 90 minutes after sunset.

3.3 Static and Night Vision equipment

Wildlife Acoustic SM4 units and Night Vision equipment were deployed around the building on all surveys to support the visual observations.

The location of this equipment as deployed are shown within Appendix 2b: Figures for survey observations .

3.4 Personnel

Personnel for each survey were as follows and their locations are shown within Appendix 2b: Figures for survey observations .

Table 3.2: Personnel for each survey

Date	Surveyors			
04/07/2024	Chris Smith	Jeremy Copp	Chantal Helm	Nigel Moorhouse
10/07/2024	Chris Smith	Jeremy Copp	Vivien Hartwell	Nigel Moorhouse
30/07/2024	Chris Smith	Chantal Helm	Vivien Hartwell	
19/08/2024	Chris Smith	Chantal Helm	Jeremy Copp	

Table 3.3: Details of personnel's experience

Name	Licencing	Equipment	Location
Chris Smith	Level 2 (CL18)	Bat Scan Stereo. Pixfra TI camera	See survey maps
Jeremy Copp		Eco Meter Touch	See survey maps
Vivien Hartwell	Level 2 (CL18)	Eco Meter Touch, Canon IR camera	See survey maps
Chantal Helm	Level 2 (CL18)	Eco Meter Touch, Nightfox IR camer	See survey maps
Nigel Moorhouse		Eco Meter Touch, Guide TI Camera	

3.5 Survey limitations

The nocturnal surveys for bats included upto three within in the core period of May to August (Collins 2023).

Views of the rear of Building 6 were obscured due to dense trees, but this was of "low" potential and was a small building with no internal or external evidence of bats. There were no other significant limitations to the surveys.

Table 3.4: Surveys - start/finish and weather conditions

Building focus	Date	Sunset	Start time	Finish time	Weather
Building 2,3,4,5	04/07/2024	21:21	21:06	22:57	Cloud 8/8, overcast; BFS 3-4 SE; Start 18°C, End 16°C
Building 1; Building 6	10/07/2024	21:17	21:02	23:00	Cloud 2/8 start, end 8/8; BFS 2-3 S; Start 19°C, End 17°C
Building 1	30/07/2024	20:52	20:37	22:32	Cloud 1/8; BFS 1-2; Start 24°C, End 20°C
Building 1	19/08/2024	20:14	19:57	21:50	Cloud 8/8, BFS 3 S; Start 18°C, End 17°C

4. Results

4.1 Presentation of results

Surveyors visual observations are set out in Appendix 2b: Figures for survey observations .

Observations from statics are summarised in Error: Reference source not found on page Error: Reference source not found.

4.2 Bat species present

Species recorded are summarised in Table 4.2: Summary of species identified within surveys.

Common pipistrelle

There was survey evidence of multiple emerging and returning Common pipistrelle *Pipistrellus pipistrellus* bat, mainly seen emerging from the east and south side of the buildings, in particular from the roof and around the door and gable end above it.

The location of the emerging individuals are illustrated in the field observation diagrams.

Numbers of emerging bats were as follows:

- 04/07/2024 Upto ~40 Common pipistrelle ;
- 10/07/2024 Upto ~49 Common pipistrelle;
- 30/07/2024 Upto ~96 Common pipistrelle;
- 19/08/2024 Upto ~42 Common pipistrelle.

Shortly after emergence, Common pipistrelles were recorded foraging around the building itself and the surrounding woodland belt to the south.

Later after emergence, a strong commuting tendency was also noted into the tree belt to the south of the building with bats then mainly heading due east to the large wood via the connecting southern hedgerow.

Roosts of other species

There was no evidence of roosts of any other bat species than Common pipistrelle *Pipistrellus pipistrellus* being present.

Foraging and commuting by non-roosting bats

There is limited foraging habitat around the buildings , including the lee of the trees and buildings. This habitat was well used by foraging Common pipistrelle *Pipistrellus pipistrellus* but also occasionally by other species.

Other species present as commuting or foraging included Brown long-eared *Plecotus auritus* , Natterer's *Myotis nattereri*, Soprano pipistrelle *Pipistrellus pygmaeus* and potential Leisler's *Nyctalus leisleri*. Brief passes of Barbastelle *Barbastellus barbastella* were also noted.

4.3 Lighting levels

The site is within a rural area and there are presently no external lights on the site; and very limited light spill from adjacent properties.

As per good practice (ILP 2020)¹ the site appears to correspond to Zone E2 "Rural: Low district brightness". A baseline for external lighting would be required to confirm this technically.

Table 4.1: Lighting zones as per ILP Guidance Note 01/20

Zone	Surrounding Lighting	Environment Examples	Sky Quality Measurements
E0	Protected Dark	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places	(SQM 20.5+)
E1	Natural Dark	Intrinsically dark National Parks, Areas of Outstanding Natural Beauty etc	(SQM 20 to 20.5)
E2	Rural Low district brightness	Sparsely inhabited rural areas, village or relatively dark outer suburban locations	(SQM ~15 to 20)
E3	Suburban Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations	
E4	Urban High district brightness	Town/city centres with high levels of night-time activity	

¹ ILP(2020) Guidance Note 01/20: Guidance notes for the reduction of obtrusive light.

Table 4.2: Summary of species identified within surveys

Common name	Species	Present	Field obs?	Static?	Roosting ?	Foraging / commuting	Details of observations
Common pipistrelle	Pipistrellus pipistrellus	Yes	Yes	Yes	Yes	Yes	Emerged from south west gable end. Foraging around south western end of the building and surrounding trees.
Soprano pipistrelle	Pipistrellus pygmaeus	Yes	Yes	Yes	No	Yes	Occasional passes on surveys; infrequent at site
Leisler's	Nyctalus noctula	Yes	Yes	Yes	No	Yes	Occasional passes on surveys; present on multiple surveys
Barbastelle	Barbastellus barbastella	Yes	Yes	Yes	No	Yes	Pass on single survey; likely commuting bats
Brown long-eared	Plecotus auritus	Yes	No	No	No	No	Occasional passes on surveys; likely under recorded

5. Potential effects

The proposals consist of conversion of existing barns, including Building 1, into residential units.

Where works are carried out on Building 1, the development will affect bats roosts and this is not avoidable due to the location of the roosts within the building.

Lighting from this or other buildings may increase light levels in nearby woodland and hedges and affect other species of bats.

6. Recommendations

6.1 Mitigation

Mitigation for bats will be required, parts of which will require licencing and supervision by an ecologist, covering the following:

- during design, the retention of existing roosts in Building 1 and/or new roost creation;
- commencing works outside May – September from breeding roosts that are directly affected;
- potential exclusion of bats in non-breeding roosts;
- during works, prevention of injury and disturbance by working methods; including exclusion zones to prevent disturbance;
- after works, maintenance of any new roosts.

As there is a breeding roost present, bats cannot be left without a roost at anytime and must be allowed sufficient time to find any new roost. It is recommended that the roost is retained in the present location.

Specification of new roosts will need to be on a like-for-like basis, which is dependent on the species present and the types of roost present, but in this case would include bat boxes, access to sarking, and roof access points.

The site should be subject to a lighting plan as per Zone E2 of ILE (2020).

6.2 Enhancement

The planting of additional native hedgerows along the perimeter of the site especially on the northern and western boundary could be considered.

6.3 Requirement for licencing

For bats, there is a requirement for statutory licencing from Natural England for conversion of Building 1.

Impacts on bat roosts are unlikely to be avoidable due to the location of the bat roosts and nature of the works.

7. Conclusions

Upto 96 individuals of Common pipistrelle *Pipistrellus pipistrellus* appear to be roosting within the southern gable of Building 1 under external wooden cladding.

It is concluded this represents a confirmed breeding bat roost of Common pipistrelles *Pipistrellus pipistrellus*, with no obvious evidence of other species or types of roost being noted in other buildings.

Any development works at the site affecting Building 1 will require a licence from Natural England to proceed.

8. References

Small Ecology (2024a) Preliminary Ecological Assessment, Barns at Fears End, Sandon, Buntingford, SG9 0QZ.

Institute of Lighting Professionals (2020) Guidance Note 01/20: Guidance notes for the reduction of obtrusive light.

Appendix 1 : Protocol for Emergence Surveys

Aim of survey

To investigate whether roosting bats use roost features previously identified as having potential for bat roosts.

To provide information on how bats are using commuting and foraging features within the site

Weather conditions/timing constraints

The surveys will be at least two weeks apart, and will be undertaken between early May and end of September with one survey visit between May and August.

Surveys will not be carried out when the temperature is below 10°C at sunset/sunrise, or during heavy rain or strong wind unless justified by the surveying ecologist.

Field methods

The number of surveys will be determined by the suitability of the roost features identified. See for further details: [Appendix 5: Bat Conservation Guidelines \(2016\) Habitat suitability and survey effort](#)

For each dusk emergence, the survey will commence 15 minutes before sunset, and cease 1.5-2 hours after sunset; the dawn re-entry survey will commence 1.5-2 hours before sunrise, and cease 15 minutes after sunrise.

Species, timing, and activity will be noted for each bat identified as emerging or potentially emerging during each survey. Weather conditions including temperature, cloud cover, wind speed and any precipitation, will be recorded at the start and end of each survey visit.

Field observation will be relied upon as the primary method for species identification. Surveyors will record the behaviour of emerging or bats returning to roost at sites, and note the certainty with which any bats were seen to be roosting as “possible”, “probable” or “certain”.

The identification of any bats emerging or potentially emerging will subsequently be confirmed based on recordings (where this is applicable and possible). Many bats do not echolocate on emergence, so identification may sometimes rely on flight pattern or other circumstantial evidence. The certainty of the identification should be indicated when reporting.

The surveys will focus on surveying bats roosting within the identified tree or structure and as such, although other records of bats may be collected, these will be incidental to the surveys.

Where a surveyor is significantly limited in their ability to see the surveyed tree or structure, this limitation will be noted.

A record of any relevant records of emerging bats will be kept and saved within a compressed ZCA format.

Assessment

Based on the field survey results, whether and how bats are using the site to roost will be confirmed.

Equipment used

Bat detectors; binoculars; torch.

Requirements for licencing

Where surveys may involve disturbance to bats (e.g. internal inspection of a barn for roosting bats), then a a licence will be required.

Relevant guidelines

English Nature (2004) Bat Mitigation Guidelines

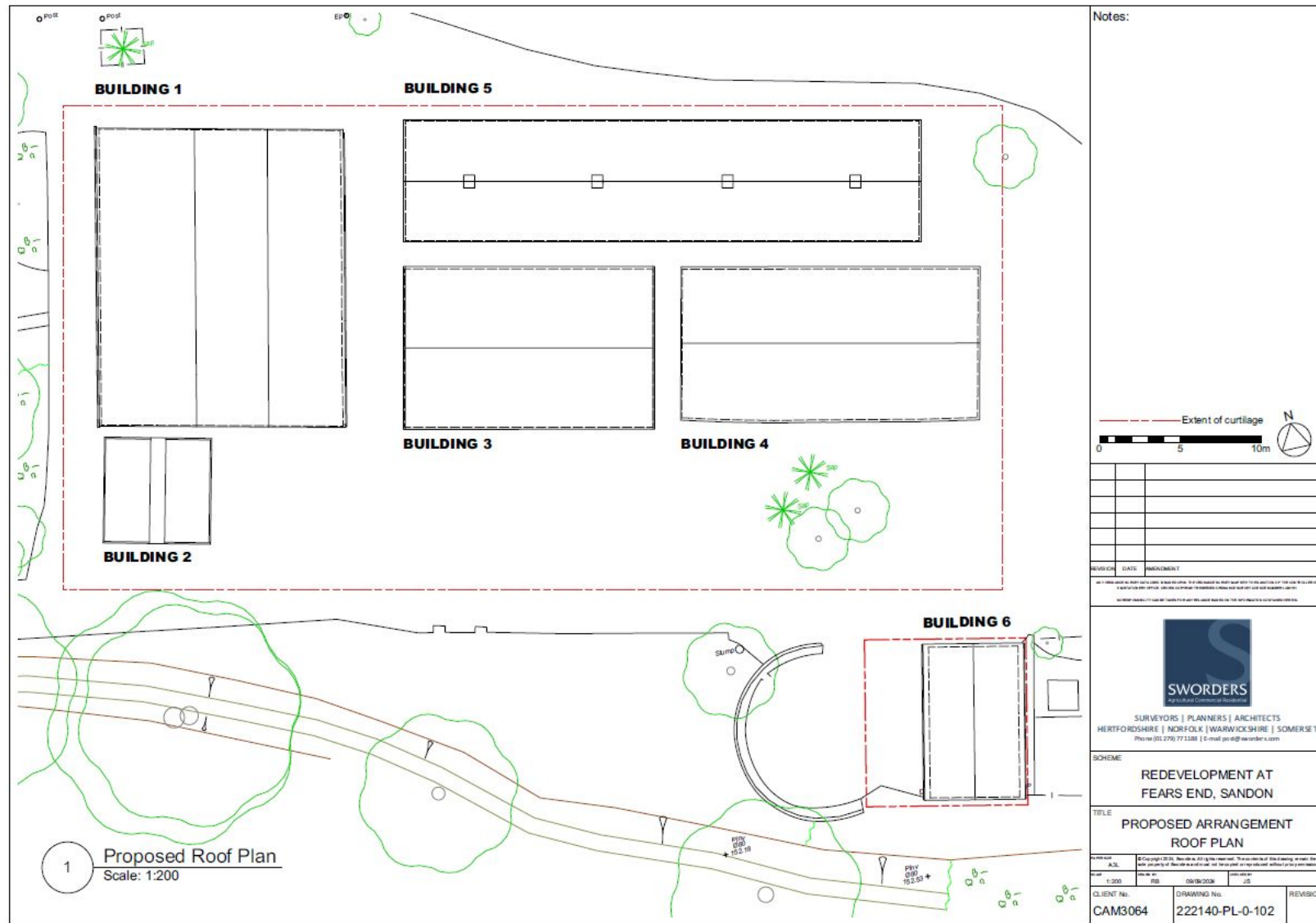
Collins (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th Edition

Appendix 2 : Survey results

Appendix 2a: Survey sheets

Available on request

Appendix 2a: Numbering of buildings



Appendix 2b: Figures for survey observations

Figure 1: Emergence survey, 4th July 2024

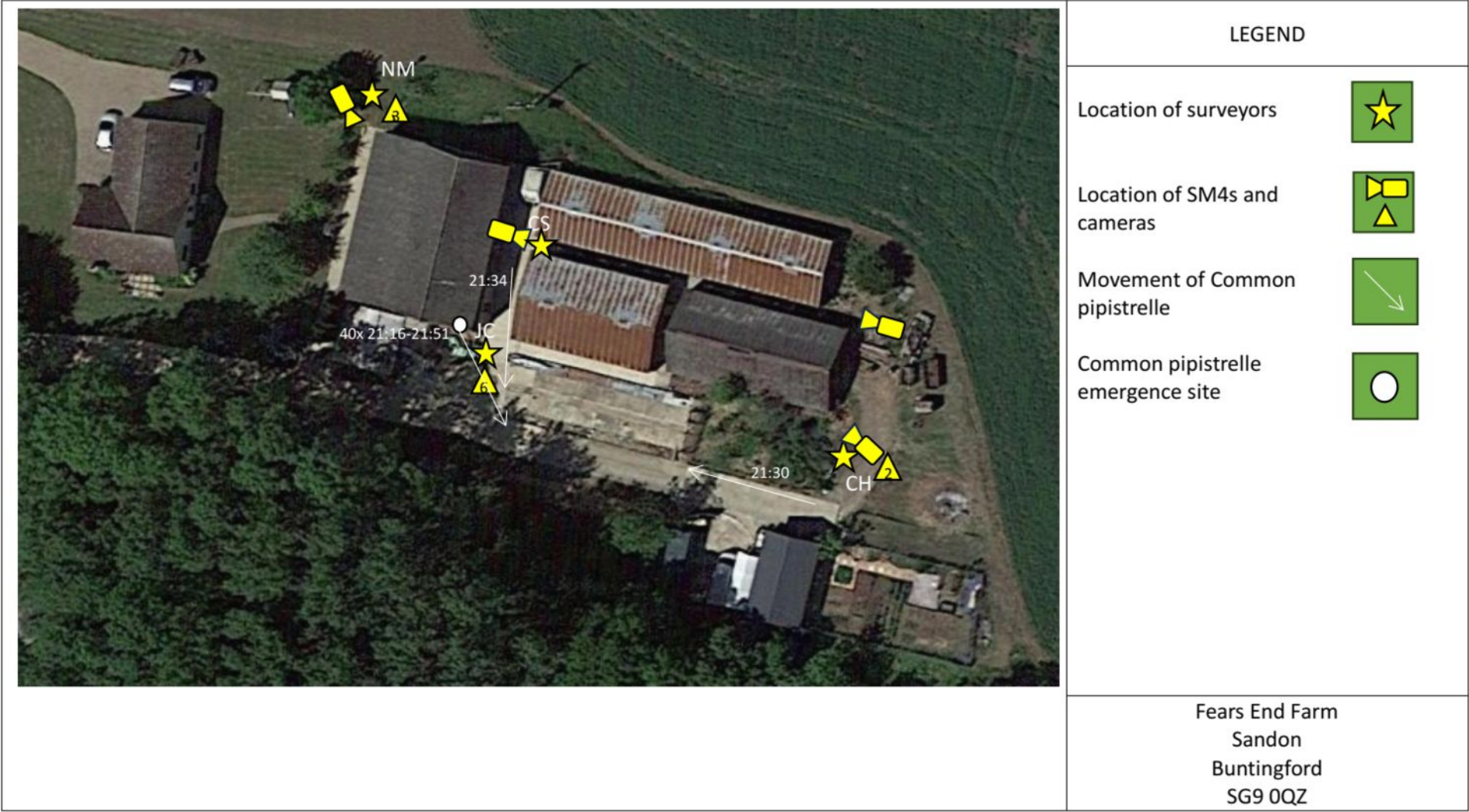


Figure 2: Emergence survey, 10th July 2024

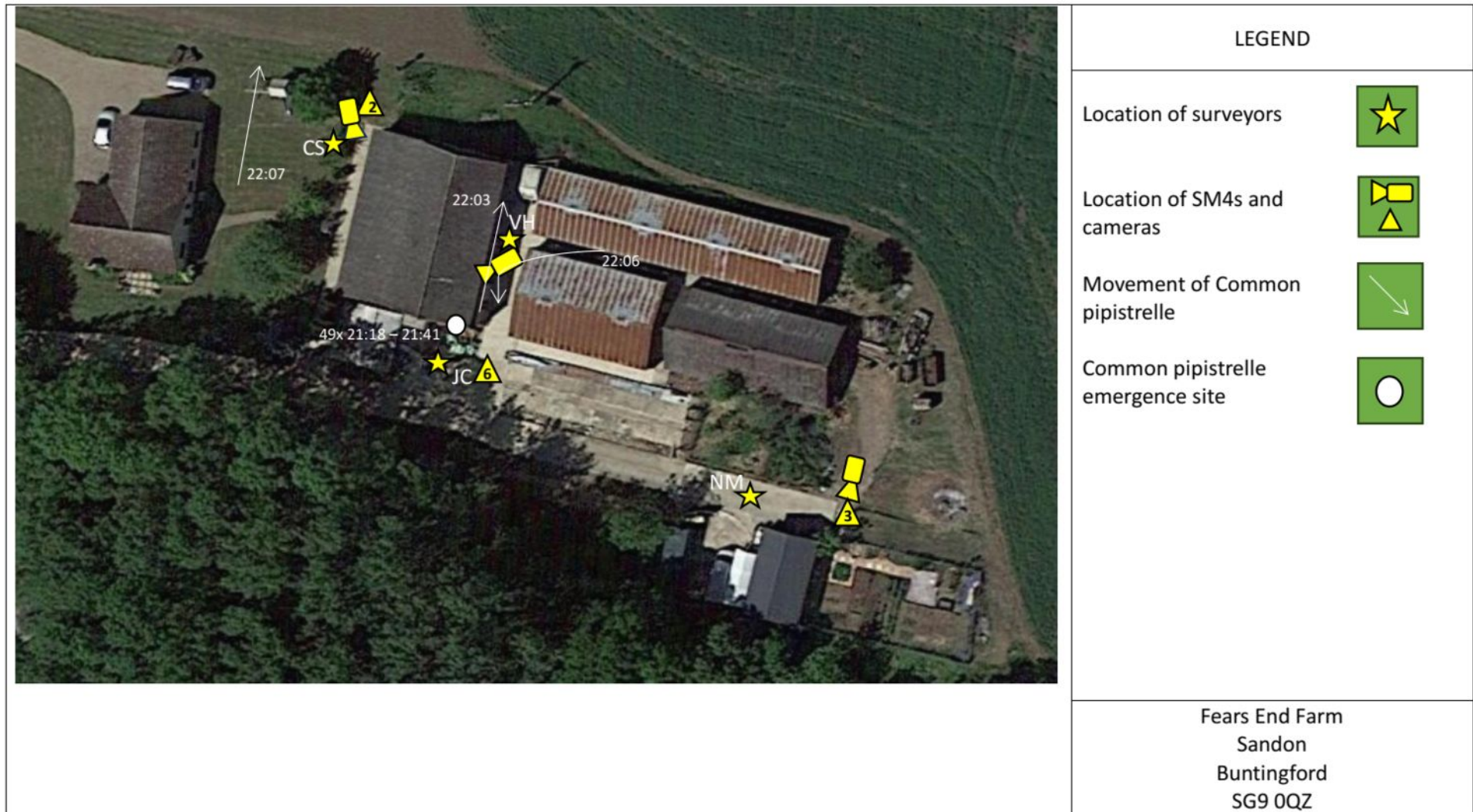


Figure 3: Emergence survey, 30th July 2024

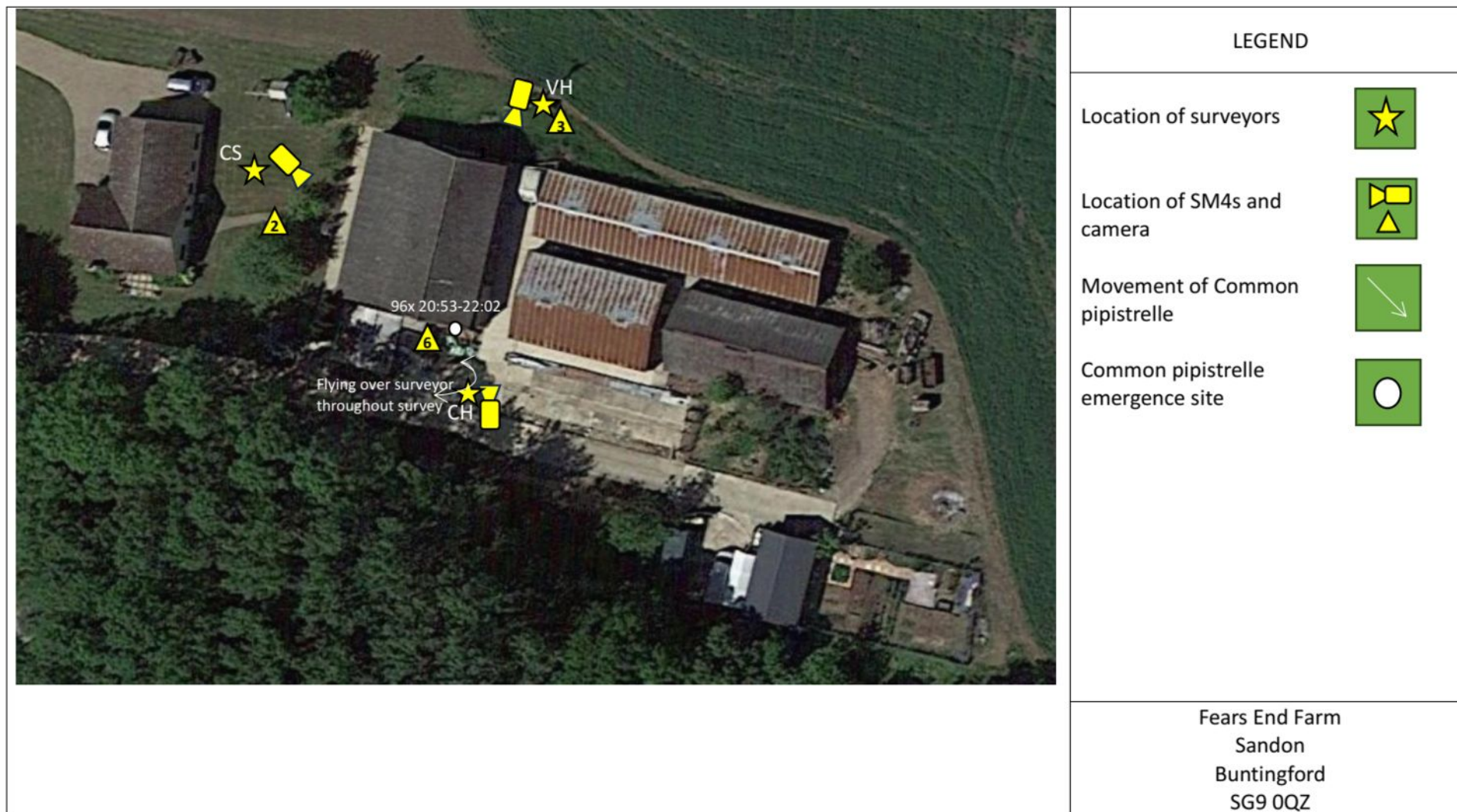


Figure 4: Emergence survey, 19th August 2024

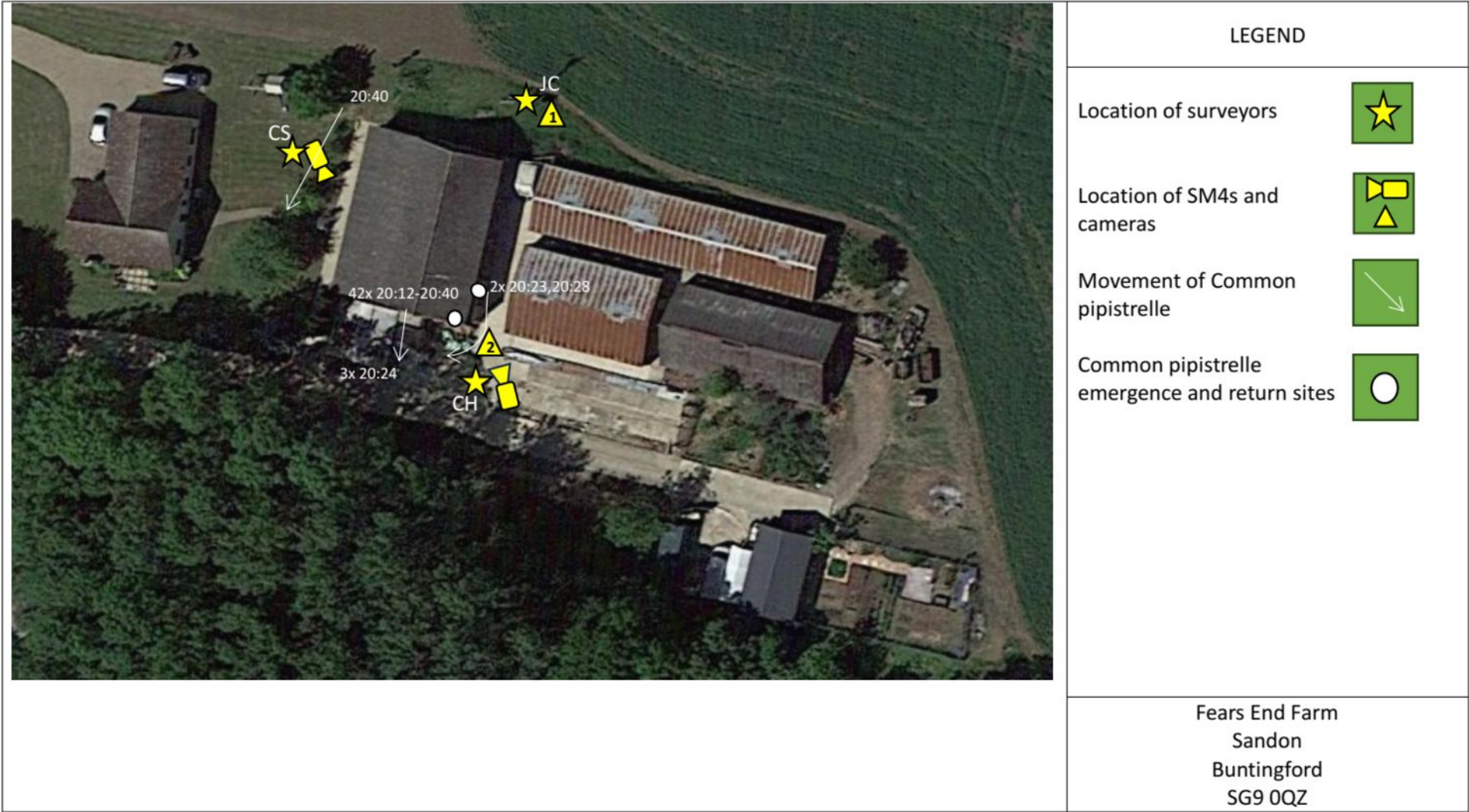
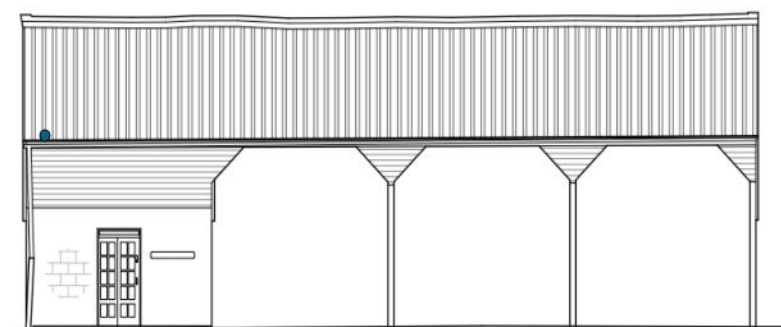


Figure 1: Location of emergences from maternity roost on Building 1



1 South Elevation
Scale: 1:100



2 East Elevation
Scale: 1:100

Appendix 2c: Relevant observations of emergence and returns

Date	Start and end times	Species and number	Roost Type	Roost location within building	Access point
04/07/2024	21:06-22:57	40 Common pipistrelle	Maternity roost	Within roof void	Gable end of south western side of Building 1. Between 2 nd and 3 rd slat under lead flashing
10/07/2024	21:02-23:00	49 Common pipistrelle	Maternity roost	Within roof void	Gable end of south western side of Building 1. Between 2 nd and 3 rd slat under lead flashing and some from slightly lower down here
30/07/2024	20:37-22:32	96 Common pipistrelle	Maternity roost	Within roof void	Gable end of south western side of Building 1. From under different slats on the eastern side of the gable
19/08/2024	19:57-21:50	42 Common pipistrelle	Maternity roost	Within roof void	Gable end of south western side of Building 1. From under different slats on the gable
19/08/2024	19:57-21:50	3 Common pipistrelle	Maternity roost	Within roof void	From the south eastern side of the Building 1. Came out from open side

