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ERWALLO UCHAF, PONTFADOG

BUILDING CONVERSION

Protected Species Survey

Client Address:	Mr Jim Ashworth. 1 Croesnewydd Road, Wrexham. LL13 7TB.
Site Address:	Erwallo Uchaf, Pontfadog, Dolywern, Llangollen. LL20 7AG.
Planning Authority:	Wrexham County Borough Council
Grid Reference:	SJ 21849 37772
Date of Survey:	Preliminary Survey: 15th November 2016 Emergence Survey: 13th June 2017

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1: Introduction:

Sam Dyer, an NRW licensed bat worker (74337a:OTH:CSAB:2016) was commissioned by Mr. J. Ashworth to carry out a protected species survey of two storey farm house and attached hay barn. The building is the subject of a planning application for demolition followed by the re-building of a new dwelling. The building is located at Grid Reference SJ 21849 37772.

2: Proposed Works:

The proposed works will involve the total demolition of the entire house and attached hay barn. The new dwelling will be built with an adjusted footprint that will move it further from the road on which it currently projects into.

3: The Building:

The building surveyed is shown in Appendix, 15, Site Plan. The building has stood empty for two years before renovations started (works were then halted when the decision was made to demolish). Construction details are given below.

Building/Construction Detail:

Walls	House: The walls are stone construction, pointing is in good condition externally; internally walls were plastered however this has been hacked off in some location exposing crevices. Barn: The walls are also of stone construction, pointing is in good condition externally; internally pointing is poor condition and lots of crevices were noted. Wall top crevices were also noted.
Roof	House: Slate clad pitched roof. Slate was in a reasonable state of repair. There were currently no separate roof voids as ceilings had been removed internally. The rear of the roof was therefore exposed and visible. The roof was lined with bitumen felt and supported with wooden rafters and purlins. Occasional raised slates and ridge tiles were noted along with slate edge gaps. The flat roof lean-to was clad with corrugated plastic sheeting. Barn: Corrugated metal sheeting clad, supported by timber rafters and truss. Plastic sheet insert forms skylight. Unlined. There was no separate roof void.
Doors / Windows	House: Fitted and functional. Barn: Door fitted, windows absent.
Light Levels	House: High Barn: High
Airflow	House: Low Barn: High
Rain Water Goods	House: Fitted and functional. Barn: Absent.

4: Surrounding Habitat:

The building surveyed is located in a rural area, beyond the small bake house outbuilding on the opposite side of the public highway it is a relatively isolated property. It is located on the northern slopes of the Ceiriog Valley. The area is dominated by semi improved pasture divided by tree lines and hedgerows.

There is direct connectivity via a tree line with a small broad leaf woodland to the north. The Afon Ceiriog runs down the valley bottom approximately 300m to the south west. Overall the surrounding landscape is of high potential value to bats.

5: Survey Methodology:

The building survey was carried out on 15th November 2016 and repeated on the 13th June 2017 by licensed bat worker Sam Dyer. All accessible roof spaces, crevices and other potential roosting areas were methodically searched for signs of bat occupation such as droppings, staining around crevices and feeding remains as well as for the animals themselves. This included both the interior and exterior of the buildings. Crevices were examined using a Ridgid CA-300 Video Endoscope where possible.

The emergence survey was also carried out on 13th June 2017, lead by licensed bat worker Sam Dyer and assisted by two additional experienced bat surveyors, namely Tom Simone and Sam Bryan. Locations of the surveyors is show on Appendix, 15, Site Plan. The surveyors each utilised an Anabat SD1 and Bat Box Duet or a Anabat Walkabout unit recording Full Spectrum files. Any calls recorded were later analysed using Analook and Insight to confirm field identification.

The emergence survey commenced 20 minutes before sunset and the survey continued until 90 minutes after sunset to allow for the possible presence of late emerging species such as brown long-eared (*Plecotus auritus*) and natterers bats (*Myotis nattereri*). Where required a Yukon head mounted night vision monocular and Sony Nightshot Camcorder with infra-red floodlighting was utilised to look for later emerging species against darker backgrounds.

Sunset was calculated to be at 21:39 on the 13th June 2017; the weather conditions were suitable for an emergence survey with a temperature of 14.9°C, there was 75% cloud cover and no recordable wind.

Environmental conditions were measured using a Kestrel 4000 weather station.

6: Survey Limitations

Bats are highly mobile animals and some species move roosts on a regular basis. It is possible that bats could move into any building after the survey has taken place. An assessment of the suitability of the building to support roosting bats is therefore important to establish the likelihood of this occurring.

7: Evidence and Interpretation of Bat Usage - Building Survey

Approximately 30 droppings consistent with those produced by brown long-eared bats were recorded within a crevice exposed when the render was hacked off the chimney in the bathroom within the main house. The crevice was below a wooden lintel as shown in Photo A and B. Droppings were all very old and no fresh droppings were found during either survey. This certainly suggested no use during the first half of 2017 and the age of the droppings suggested that they were at least several years old. These were only located due to the plaster removal and thus the exit for the bats would have been through the wall between the barn and bathroom; bats would have emerged into the barn. Given the age and quantity of droppings located it is likely that this was a historic roost for a single male or non-breeding female bat rather than a maternity roost.



Photo A: Droppings consistent with those produced by brown long-eared bats located below bathroom chimney lintel.



Photo B: Bathroom chimney lintel crevice.

8: Evidence and Interpretation of Bat Usage - Activity Survey

During the emergence survey a single common pipistrelle bat was observed exiting the ridge line from under a ridge tile on the north west side of the house as indicated in Photograph C. This bat was likely a male or non-breeding female.

No other emergence was observed from either the house or barn.

Regular common and soprano pipistrelle bat activity was recorded from bats commuting and foraging along the road. Occasional noctule passes from bats flying high over head were also recorded. None of these bats were thought to be connected with the surveyed building.



Photo C: Location of observed common pipistrelle emergence point.

9: Evidence and Interpretation of Other Protected Species

Nesting swallows were observed within the hay barn.

10: Assessment of the Structures Potential to Support Bats or Other Protected Wildlife

The building contained potential to support low numbers of male and/or non-breeding female crevice dwelling bat species, which was confirmed by the emergence of a single common pipistrelle. The building also contained potential to support low numbers of male and/or non-breeding female void dwelling bat species, which was again confirmed by the location of evidence of a historic brown long-eared roost. In its current condition, with no roof voids present resulting in high light levels within the house roofs and the metal cladding of the barn roof it is unlikely to be able to support a maternity roost of significance for void dwelling species.

11: Conclusions

The surveyed building has shown evidence that it is a current day roost for a single male or non-breeding female common pipistrelle bat and it has shown evidence of historic low level usage as a day roost for single male or non-breeding female brown long-eared.

As the building has been confirmed as a roosting location for bats, the building should be considered to constitute a bat roost and no works may be undertaken on the structure and surrounding habitat until the correct permissions and a NRW EPS Derogation Licence has been obtained. This should be applied for by a suitably qualified ecologist. Suggested mitigation should be utilised to decrease the potential impact of the development.

12: Impact Assessment

12.1: Status of species

Common Pipistrelle (*Pipistrellus pipistrellus*)

On both a local and county and regional level, the common pipistrelle is relatively common. On a UK level, the BCT's NBMP 2016 report lists field survey counts showing the overall index is currently 82.1% above the 1999 base year value, equivalent to an annual increase of 3.6%. However, colony counts show a continued significant decline with the 2016 index currently -58.0% below the 1999 value, equivalent to an annual decrease of -5.0% and there is a significant downward trend.

This result must be treated with caution as it may be strongly influenced by the mobility of pipistrelle roosts and colony dynamics are not yet fully understood. Overall the field survey data has been judged to be more representative and the species has actually shown an upward trend.

Brown Long-eared Bat (*Plecotus auritus*)

Very little information is available on the status of the brown long eared bat on a local or county level. On a UK level, the BCT's NBMP 2016 report states that hibernation survey results show the index has fluctuated since 1999 and is currently -31.3% below the 1999 base year value, with a average annual decrease of -2.2% this year. NBMP 2016 Colony survey results show the index has fluctuated since 2001 and is currently 20.1% above the base year value, equivalent to an annual increase of 1.2% however these figures are considered less statistically robust than the hibernation count data. Overall there is no significant trend from either survey for this species and it is currently considered to be stable. This species is a 'Priority Biodiversity Action Plan Species' which carries certain obligations for local authorities under the NERC Act (2006).

12.2: Impact Assessment

12.2.1: Short term: Disturbance

In the absence of mitigation, the works are likely to cause significant disturbance to the common pipistrelle bat via physical disturbance, noise, dust and vibration etc as the identified roost is a current day roost. As the brown long-eared roost is historic no disturbance will occur.

If mitigation, including alternative roosting locations are provided, then due to the fact that it is a single bat currently roosting within the building, and with the implementation of RAMs, the impact of short term disturbance due to the proposed works is not anticipated to be significant on FCS or CEF.

12.2.2: Long term: Roost Loss

The historic brown long-eared roosting location and common pipistrelle bat roosting location will be lost long term. As the brown long-eared roost is not currently utilised then there will be no impact from roost loss. Due to the status of the common pipistrelle bat roost being lost (single male or non-breeding female day roost), no long term impact on the species is predicted. If mitigation is provided it is anticipated the bats utilising the building will have a roosting location of greater quality with the potential to support a greater number of bats in a secured location.

12.2.3: Long term: Roost Modification

N/A

12.2.4: Long term: Fragmentation/isolation

No habitat fragmentation or isolation will occur due to the proposed development therefore no impact is anticipated.

12.2.5: Post development interference

Provision for common pipistrelle and brown long-eared roosting will be in Schwegler 1FR bat tubes building into external walls of the new house. Schwegler 2FN bat boxes will be erected in surrounding trees. As alternative roosting locations during the works. All integrated boxes are sealed units and will be in locations that will not be disturbed by humans in the future. Access by non-authorised persons will be restricted and only licensed bat workers will ever check boxes. Therefore low impact is anticipated due to post development interference.

There will be no additional lighting in the vicinity of the roost entrances or connecting habitat.

12.2.6: Predicted scale of impact.

Provided the suggested mitigation is implemented, no significant negative impact is anticipated on the either common pipistrelle or brown long-eared bat either at a local, regional or national level.

12.2.7: Favourable Conservation Status & Continued Ecological Functionality

The favourable conservation status and continued ecological functionality of the species will not be affected by the proposed works.

13: Mitigation & Recommendations

13.1: Bats

13.1.1: Reasonable Avoidance Measures

All works which may effect bat species will be completed between 1st September and 15th April; works should be commenced between 1st September and 15th October or between April 1st and April 15th to prevent the issue of disturbance to any bats hibernating within the buildings structure which may be present, and to avoid the start of the maternity season. If initiated in the autumn period, they may then continue through the winter.

Prior to works commencing two Schwegler 2FN bat boxes will be erected on suitable mature trees within the ownership of Mr Ashworth, these boxes will act as refuges for bats to roost within during the works, and remain in situ for the boxes lifespan.

Also prior to the start of the works an ecological induction will also be given to all construction personnel.

A licensed bat worker will inspect the interior of the buildings immediately before the works are commenced and advise on how to proceed should any bats be found to be present. If a bat is located, depending upon the situation, the licensed bat worker may place the bat in one of the bat boxes erected or halt works until the bat move voluntarily.

The works will start with the removal of roofs as required. All destructive works on the building structure where bat potential exists will be under direct supervision of a licensed bat worker; the slate roof cladding will be removed by hand with particular care taken when removing ridge tiles and over wall tops. Should a

bat be located during the works at a stage where the licensed bat worker is not on site, all work will be stopped until the licensed bat worker can be consulted.

Permanent mitigation as described in section 13.1.3 will be installed as early within the construction phasing as possible.

The new dedicated bat roosting locations will be inspected by the site ecologist upon completion to ensure conformance and that all the requirements are delivered

A licensed bat worker will be retained 'on call' for the duration of the project.

13.1.2: Works to be undertaken by the site ecologist:

Capture & exclusion

It is not anticipated that any bats will need to be excluded however during hand stripping of the roof capture of bats by hand may be necessary to ensure they are not harmed. The site ecologist will have a current, valid licence to handle bats to cover this eventuality. Bats will be released into the refuge bat boxes erected prior to the commencement of the works.

13.1.3: Works to be undertaken by the developer:

Roost Construction Detail:

Two Schwegler 2FN bat boxes will be hung on a nearly mature trees; the exact location will be selected by the licensed bat worker to ensure the best location is chosen to maximise the potential of usage.

A total of four Schwegler 1FR will be built into the new build. Location will be selected depending upon the final building design, however in principal gable end walls on different aspects will be a favoured position. Boxes may be rendered over leaving only entrance points exposed.

Where barge boarding is applied the boarding will be set off the wall maintaining an 18mm gap to the rear to allow bats to access the wall tops where possible. Bat access to soffit / fascia box sections will be provided where appropriate given the design by leaving one or two 18mm x 150mm gaps, as shown in Figure 1, and roosting potential within ridge tiles, as shown in Figure 2, will also be created where appropriate. These details will be confirmed when the required EPS Licence application is submitted.

Any timber treatment in areas accessible to bats will need to be carried out using chemicals from the list approved by NRW.

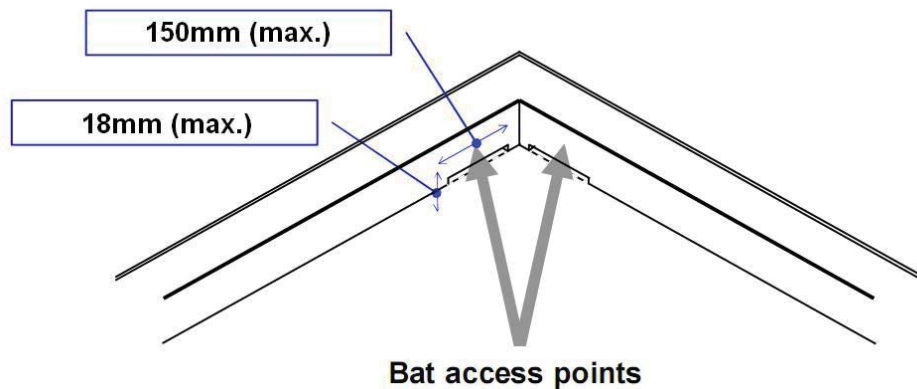


Figure 1: Pipistrelle bat mitigation.

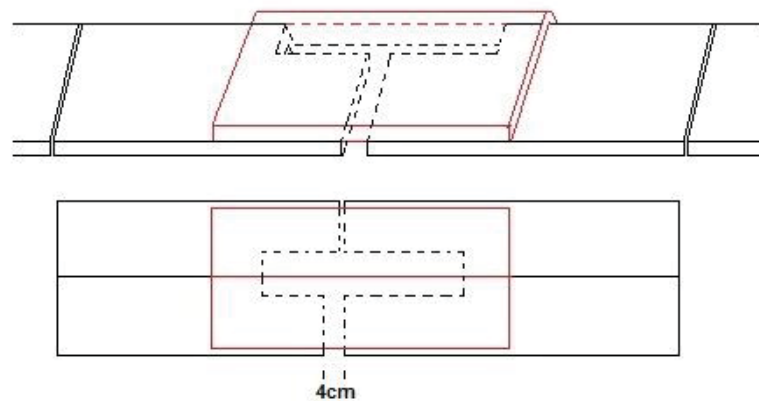


Figure 2: Ridge tile bat mitigation.

13.1.4: Lighting

There will be no exterior lighting on the new building which could spill on to the new roosting location, the entrances, or into the immediate surrounding connecting habitat. Where lighting is already installed on other areas of the property, light 'shades' will be utilised where necessary to ensure light spill is limited.

13.1.5: Flight Lines:

There will be no loss of vegetation which could affect connectivity with the building or the new roosting locations.

13.1.6: Scaled maps/plans

See enclosed documentation.

13.1.7: Post development site safeguard.

All documentation relating to the presence of bats and the dedicated bat roost will be deposited with deeds of the property to ensure that if the property changes hands, the new owners are aware of their legal obligations. This will include a copy of this document.

13.1.8: Habitat/site management & maintenance.

The site owner will have sole responsibility for all future management / maintenance of the bat roost.

13.1.9: Population monitoring, roost usage etc

Future monitoring of the use of the roosts and the success of the mitigation measures will be carried out by a licensed bat worker. This monitoring will occur during year 1, 3 and 5 from the completion of the project but will cease if the success of the mitigation is established prior to the end of this time period.

13.1.10: Performance Indicators:

During the initial survey it was discovered that a single common pipistrelle was currently roosting within the building and a historic single brown long-eared bat roost was also located in building to be demolished. The mitigation measures will be judged to have been successful if the following are achieved:

- A post development audit finds that all of the prescribed mitigation measures have been implemented.
- The work was carried out within the prescribed period.
- The roosts are used by an equal or greater number common pipistrelle or brown long-eared bats in the future.
- Any other bat species are found to be roosting within the provided roosting locations.

13.1.11: Management Plan

- The property owner will have sole responsibility for future maintenance of the bat roost.
- If future cleaning of the roost area is required, the owner will first consult with NRW and any cleaning will be carried out under their recommendations.
- No future lighting will be installed that could inhibit bat use of the roosts.
- All bat access points will be kept clear.

13.1.12: Mechanism for ensuring delivery

All mitigation measures will be inspected/audited by an ecologist to ensure compliance with measures detailed in this method statement.

The licensed bat worker will be retained to consult on finer points of construction detail as the project progresses.

The presence of a bat roost and the legal responsibilities which accompany this will be written into the deeds of the property, this will inform any future owners of their continued responsibilities.

13.1.13: Timetable of works

The works detailed below will be carried out in the order in which they are laid out in the table.

Order of works	Description of works
1	Application and receipt of EPS Derogation Licence.
2	All site personnel to be given ecological induction and informed of the risk and implications of bat presence.
3	Erection of 2 Schwegler 2FN bat boxes to act as refuges during the works.
4	Building scheduled for conversion to be checked for bat species presence by licensed bat worker.
5	Supervision of hand stripping/demolition of all areas with bat potential by licensed bat

	worker. Followed by unsupervised demolition once the bat worker has signed off the remaining structure.
6	Construction of the new dwelling incorporating permanent integrated bat mitigation.
7	Inspection of the bat mitigation provisions by the site ecologist, ensuring conformance. Final licence return completed.
8	Monitoring of mitigation.

13.2 Other Protected Species - Bird Mitigation

Building schedules should be planned to avoid disturbance during the nesting period, if birds are found to be nesting within the building it is vital to ensure that all bird species have fledged all broods before the works commence.

Where possible, nesting opportunities for species such as swallows, house martins and house sparrows should be incorporated into the design of the planned conversion, e.g. eaves suitable for house martins or the installation of commercially available swallow nesting locations. Suitable crevices left unsealed provide potential for nesting house sparrows. Bird boxes could be erected in the local area as a positive conservation measure. Further details of suitable mitigation methods can be provided upon request.

14: Legal Implications

14.1: Bats

General Implications

Bats are protected under UK and European law by The Conservation of Habitats and Species Regulations 2010, Regulation 41. Under this law it is an offence to: deliberately capture, injure or kill a bat, to deliberately disturb bats or to damage/destroy a breeding site or resting place. Bat roosts are protected under this law whether the animals are present at the time of survey or not. Under the regulations NRW are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest. It is not illegal to tend a disabled bat pending recovery.

Specific Implications

The buildings surveyed at Erwallo Uchaf, Pontfadog, was shown to constitute a historic roost for a single brown long-eared and a day roost for a single common pipistrelle bat. There are therefore legal implications for the development and no works may be undertaken on the building or within the surrounding habitat until the correct permissions and a NRW EPS derogation licence has been obtained. This should be applied for by a suitably qualified ecologist. Suggested mitigation should be utilised to decrease the potential impact of the development.

14.2: Nesting Birds

General Implications

Schedule 1 Species and Nesting Birds.

Under Section 4 of the 1967 Act, any person who wilfully disturbs any wild bird included in Schedule 1 of the 1954 Act, while it is on or near a nest containing eggs or unflown young, shall be guilty of an offence and liable to prosecution. It is also an offence to disturb the dependent young of Schedule 1 species after they have left the nest.

With the introduction of the Wildlife and Countryside Act 1981, all nesting birds received even greater protection under the Act. Once a bird has placed a single piece of material into place it then constitutes a nest. The nest is then protected by the Wildlife and Countryside Act which makes it an offence to cause

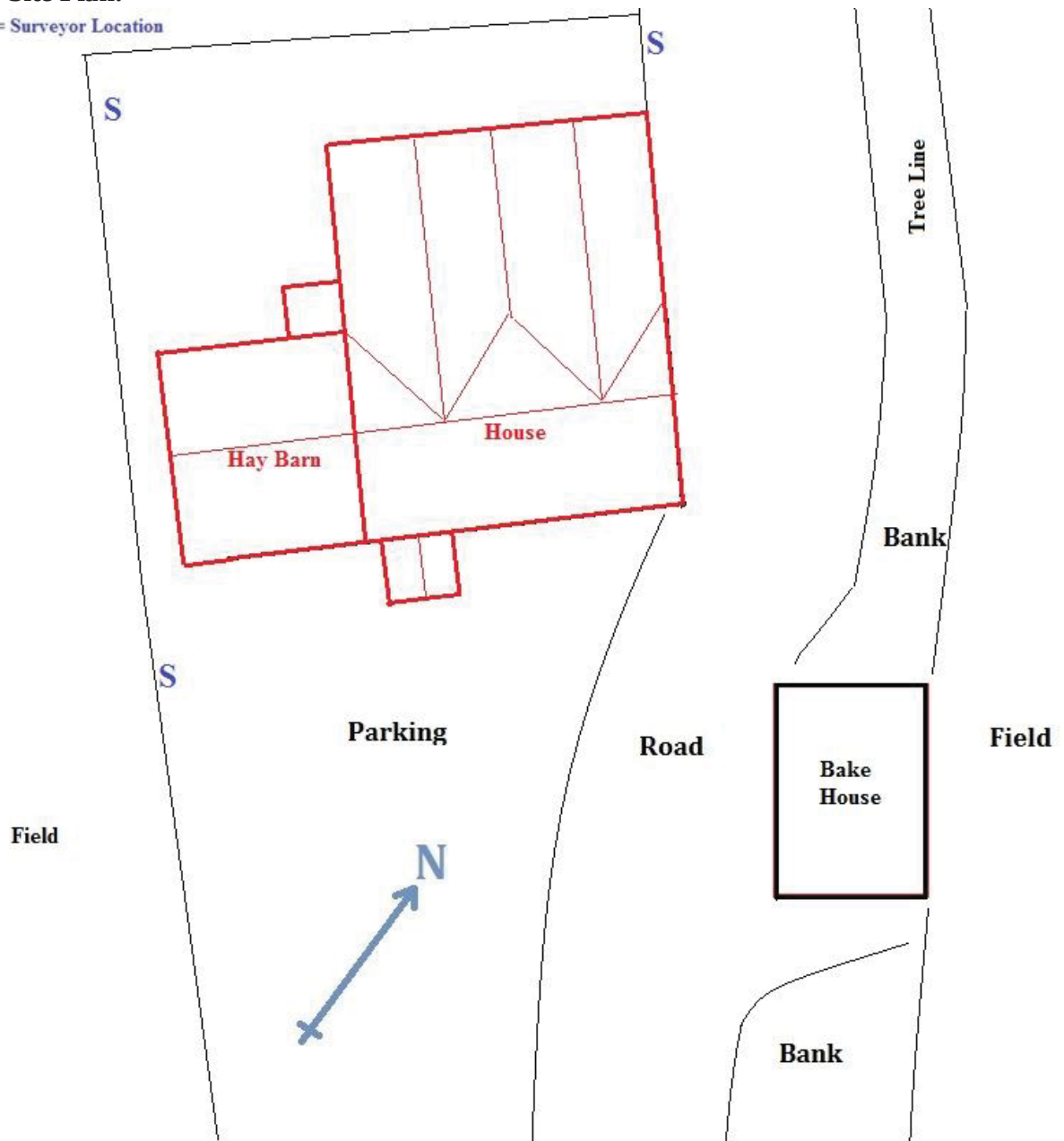
damage to the bird, nest, eggs or chicks and immediate habitat which is likely to result in damage by causing the bird to desert its nest. This covers all bird species with a small number of exceptions (pest species which can be controlled by special licence). In 2001, the Countryside and Rights of Way Act (CROW Act), was made law strengthening the legal protection for many species and introducing reckless disturbance as an offence. Special licences can be issued by NRW for scientific research, conservation, photography, ringing of young at the nest and mitigation of schedule 1 species.

Specific implications

As birds have been found to be nesting within the building, any disturbance of said nesting birds between 1st March and 30th September would constitute a criminal offence.

**Appendix:-
15: Site Plan:**

S = Surveyor Location



Site Layout Plan: Buildings surveyed are outlined in Red. Not to Scale.

16: Site Photos:



Photo 1: House viewed from the south east.



Photo 2: Hay barn viewed from the south east..



Photo 3: Hay Barn viewed from the west.



Photo 4: House viewed from the south west.



Photo 5: House viewed from the north.



Photo 6: Internal view of house - ground floor.



Photo 7: Internal view of house - upper room.



Photo 8: Internal view of hay barn.