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**BARN AT TY MAWR
PONTFADOG
LLANGOLLEN
WREXHAM
LL20 7AS**

BUILDING DEVELOPMENT

BAT CONSERVATION PLAN



Barn at Ty Mawr, Pontfadog.

Client	Marie Lloyd Jones
Planning Authority	Wrexham County Borough Council
Grid Reference	SJ23303825
Dates of Surveys	24 September 2019, 15 and 31 August 2020, 27 May 2023
Reference	052023/BCP/MLJ



PRO3755

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1.0 INTRODUCTION

1.1 Brief

Stephen Cutmore, a licensed bat worker (NRW[S091618/1]), was instructed by Mari Lloyd Jones, to prepare a Bat Conservation Plan regarding the barn building at Ty Mawr, Pontfadog, Llangollen, Wrexham, LL20 7AS.

1.2 Relevant background information

Planning permission has been granted (GLY P/2021/0654) for conversion of redundant two-storey barn into 2 No. holiday let cottages. A pre-commencement condition requires a bat conservation plan, detailing bat avoidance, mitigation, compensation and enhancement measures to ensure the development has a positive impact on biodiversity. The plan should also contain details of post-construction monitoring and an ecological compliance audit scheme.

1.3 Qualifications

Stephen Cutmore has over twenty five years' experience as an arboricultural and ecological consultant. Stephen holds a BSc (Hons) in Arboriculture & Urban Forestry and is a Chartered Arboriculturist. Stephen is a member of the Bat Conservation Trust (102994) and a member of Clwyd Bat Group. Stephen has been a Licenced Bat Worker since May 2007 and a Licenced Amphibian Worker since March 2011 and currently holds an NRW bat licence (NRW[S091618/1]) and GCN licence (NRW[S092048/1]).

1.4 Copyright

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2.0 DATA COLLECTION

2.1 Site Description

The barn at Ty Mawr, Pontfadog, Llangollen, Wrexham, LL20 7AS, is located at Grid Reference SJ23303825. The site is located approx. 200m to the North of the village of Pontfadog, in the Ceiriog Valley. The B4500 is approx. 200m to the South.

The River Ceiriog lies approx. 200m to the South of the site, with flows into the River Dee. Other small watercourses are in the locality. The surrounding landscape has pasture fields, trees and hedgerows. Areas of woodland are in the locality, including Coed Brongyll (approx. 250m to Southwest) and Coed Pen Craig (approx. 250m to South). All these landscape features provide good habitat for foraging bats.

The Cofnod (Local Ecological Records Centre) website was accessed (www.cofnod.org.uk) and a Cofnod Data Request [E08436] was made for a data search for bats and roof-nesting birds within a 500m radius of the site. Due to the sensitivity of the data, specific records for protected species cannot be disclosed, but there are records of Brown Long-eared, Pipistrelle spp. and an unknown bat species bats within 500m radius of the site. Records of bird species include Blue Tit, Great Tit, House Martin, House Sparrow, Swallow, Swift and Wren. Designated sites within 500m radius include River Dee [SSSI], River Dee and Bala Lake [SAC], Coed Brongyll (Wildlife Site), Coed Pen Graig (Wildlife Site), Coed Garth (Wildlife Site), Cilcochwyn (Wildlife Site) and several Ancient Semi Natural Woodland sites.



Figure 1: Aerial photograph of Ty Mawr, Pontfadog, showing good connectivity in the surrounding landscape.



2.0 DATA COLLECTION (continued)

2.2 Methodology and Results

2.2.1 Scoping survey

A day-time building scoping survey was carried out on 24 September 2019, by licensed bat worker, Stephen Cutmore.

During the scoping survey no bats were encountered. Evidence of recent bat activity was observed in the form of scattered bat droppings on the floor of the upper level hay loft, near the West gable-end and some scattered discarded butterfly wings near the East gable-end. The smooth, tapered droppings approx. 9mm length appear to be *Pipistrelle* spp. The roof was tight, with just a few gaps were observed beneath slates and ridge tiles and beneath the eaves and wall. A few gaps were observed in the exterior stonework. The building was assessed as having a moderate potential for roosting bats (a structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status).

The River Ceiriog lies approx. 200m to the South of the site, with flows into the River Dee. Other small watercourses are in the locality. The surrounding landscape has pasture fields, trees and hedgerows. Areas of woodland are in the locality, including Coed Brongyll (approx. 250m to Southwest) and Coed Pen Craig (approx. 250m to South). All these landscape features provide good habitat for foraging bats.

2.2.2 Nesting birds

There was evidence of nesting birds observed in the ground floor and in the upper level of the barn, in the form of Swallow nests (*Hirundo rustica*).

2.2.3 Emergence surveys

Due to the Covid-19 pandemic, there was a delay before further emergence surveys were carried out on 15 and 31 August 2020, by Stephen Cutmore and three assistant surveyors.

During the emergence surveys, up to 4 x Common Pipistrelles, 2 x Soprano Pipistrelles and 1 x Whiskered were observed emerging from the barn. 1 x Lesser Horseshoe bat was observed emerging from the barn to the Northwest of the barn being surveyed (no works proposed for this other barn, so this roost will be retained intact).

A Brown Long-eared, Noctule and Natterer's bats were detected foraging in the vicinity.

The barn at Ty Mawr, Pontfadog is therefore a confirmed roost, being used by up to 4 x Common Pipistrelles, 2 x Soprano Pipistrelles and 1 x Whiskered as small day-roosts.

A further emergence survey was carried out on 27 May 2023 by Stephen Cutmore and three assistant surveyors, to provide an updated report to satisfy the planners.



2.0 DATA COLLECTION (continued)

2.2 Methodology and Results

2.2.3 Emergence surveys

Evening emergence 27 May 2023

The emergence survey started at 21.05hrs, with sunset time of 21.21hrs. The starting air temperature was recorded as 14°C. The weather was dry, with 10% high broken cloud. There was a gentle breeze.

The survey was stopped at 22.55hrs, with a finishing temperature of 13°C.

The first bat was detected at 21.29hrs and observed foraging over the field to the South of the barn. Echolocation calls recorded [18kHz] identified it as a Noctule (*Nyctalus noctula*). This bat was observed making frequent foraging/commuting passes over the field during the survey.

At 21.32hrs a bat was observed emerging from the left hand side of the apex of the East gable-end. Echolocation calls recorded [55kHz] identified it as a Soprano Pipistrelle (*Pipistrellus pygmaeus*).

At 21.38hrs a bat was observed emerging from the roof of the barn on the opposite side of the track to the barn being surveyed. Echolocation calls recorded [45kHz] identified it as a Common Pipistrelle (*Pipistrellus pipistrellus*).

At 21.53hrs a Common Pipistrelle was observed emerging from the eaves of the South elevation, near the slit openings towards the West gable-end. At 21.56hrs another Common Pipistrelle emerged from the same location.

At 21.56hrs a bat was observed emerging from the window above the middle door of the North elevation of the barn. Echolocation calls recorded [47kHz] identified it as a Myotis species. The call was analysed using Anabat Insight software, which identified it as a Whiskered (*Myotis mystacinus*) or Brandt's (*Myotis brandtii*). In looking at the cycles graph, the bat was identified as a Whiskered. This bat made several foraging/commuting passes around the barn during the survey.

At 21.57hrs and 21.59hrs two Common Pipistrelles were observed emerging from the eaves of the South elevation, approx. 2/3 along the building near the drainpipe.

At 22.03hrs a Soprano Pipistrelle was observed emerging from the eaves of the South elevation, between the two wooden-shuttered openings towards the East gable-end.

The Pipistrelle species bats spent most of the survey constantly foraging around the barn and field to the South.

This survey confirms the barn is still being used by the same number and species of bat (4 x Common Pipistrelles, 2 x Soprano Pipistrelles and 1 x Whiskered) as small day-roosts. Some of the Pipistrelle bats are using slightly different roost access points to the previous surveys.



3.0 IMPACT ASSESSMENT

3.1 Short-term impact

Disturbance through increased human presence, noise and changes in site layout may have a detrimental effect on bats. Bats could be killed or abandon roost if works start when present between spring and summer. If works started in winter and not completed by spring, bats would have no roost to return to. Timing of operation will minimise disturbance.

3.2 Long-term impact – roost losses

Small day-roost roosts for up to 4 x Common Pipistrelles, 2 x Soprano Pipistrelles and 1 x Whiskered would be disturbed during the proposed development, which could have a detrimental impact on the locally recorded population, unless appropriate mitigation was provided.

Alternative roosts in the form of bat boxes will be provided prior to works commencing. The existing day-roosts will be retained intact to secure long-term roosts into the future.

3.3 Long-term impact – fragmentation and isolation

A couple of small shrubs will need to be removed to facilitate the proposed development, but as all the other trees and hedges will be retained, there is no predicted impact from fragmentation or isolation.

3.4 Post-development interference impacts

Any bright, Artificial Lighting at Night (ALAN) which illuminated roost entrances and flightlines could have a detrimental effect on bats. Any external lighting should be low level, with illumination directed downwards to minimise impact (see 4.4 Lighting). External lighting will be motion sensor triggered and on a short timer and positioned so that roost access points and flight-lines are not directly illuminated, to minimise impact. New tree/hedge planting will be used to baffle light spillage, in order to keep flight-lines dark.

3.5 Predicted scale of impact

The impact on individual bats of all species concerned would be high and the impact on the favourable conservation status of locally recorded bats would be low. It is essential that appropriate compensation and mitigation measures are implemented and that Reasonable Avoidance Measures are followed, in order to minimise the impact on locally recorded bats.

4.0 MITIGATION

4.1 NRW Licence

As a confirmed bat roost will be impacted by the proposed work, a derogation licence will be obtained from Natural Resources Wales to avoid an offence being committed and any work that has potential to harm bats will be directly supervised by a licenced ecologist. The NRW licence application will include a licence form and a method statement form (*as referred to in 7.0 Audit Report & Monitoring*).



4.0 MITIGATION (continued)

4.2 Compensation

Bats

Compensation in the form of an alternative bat roost will be provided for crevice-dwelling bats before any proposed work commences. 2 No. wall-mounted woodcrete bat box (e.g. Harlech Woodstone bat box) will be provided prior to works commencing, to provide alternative roosts for the bats whilst the development work occurs. These will be fixed to the South external wall of the other agricultural barn located on the opposite side of the track, to the Northwest of the barn, at a height of 3m+ to avoid predation by cats.

The roof of this other agricultural barn has some gaps under ridge tiles and slates, which provides suitable habitat for roosting crevice-dwelling bat species, so will provide additional alternative roost opportunities (on the latest emergence survey, a Common Pipistrelle bat were observed emerging from the roof structure of this barn). The open ground floor doorway provides a 'fly-in' access to the upper level hayloft areas, which will provide a suitable night-time feeding perch/resting place/small day roost for the Brown Long-eared, Natterer's and Lesser Horseshoe bats also detected foraging in the vicinity. There is also roosting opportunities on the timber joists supporting the upper level floorboards. No work is planned for this other barn, so these additional potential roost sites will be retained intact.

Nesting birds

Provision for Swallows will be provided in the existing agricultural barn, located on the opposite side of the track, to the Northwest of the barn, by installing starter platforms in the form of 90mm x 90mm wooden battens fixed 450mm down from the roof apex. There is also nesting opportunities on the timber joists supporting the upper level floorboards.

4.3 Reasonable Avoidance Measures

General recommendations

Timing of the development works is crucial. The optimum time for work involving a summer roost (where bats are present but without dependable young) is 1st September – 1st May.

The amendments to the European Habitat Regulations came into force in August 2007, which means that the 'incidental result defence', which previously covered acts that were the incidental result of an otherwise lawful operation, such as a planning permission, has now been removed. Therefore, if any bats are encountered, work should stop immediately and not resume until advised by an ecologist. If any bats are discovered, Natural Resources Wales must be notified as to what bat species and numbers were encountered and what action has been taken.

Any proposed development works which may affect nesting birds should be carried out between October – March to avoid the nesting season.



4.0 MITIGATION (continued)

4.4 Lighting

No variation is planned to the existing lighting currently on site, so the dark corridors where the bat flight lines were observed, will be retained intact, with no impact from Artificial Light At Night.

If in the future it becomes apparent that additional lighting is essential, then subdued lighting will be used and the illumination will be directed downwards to where it is needed (upward light ratio 0%) and light spillage avoided. This will be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only.

LED luminaires should be used where possible, with a warm white spectrum (<2700Kelvin) to minimise blue light component. Luminaires should have peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. Alternatively, the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics. The use of motion sensor-triggered security lighting with short (1 min) timers, is preferable to permanent lighting. Roost access points and flightlines used for foraging/commuting (e.g. hedgerows, lines of trees) will not be illuminated.

As an ecologist I am not qualified to recommend specific makes/models of lights, so further advice should be obtained from a qualified lighting specialist, to ensure that the lighting conforms to the above BCT/ILE specification (www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/).

4.5 Roof Insulation

As bat-friendly features are to be retained in the structure of the existing slate roof, any new insulation (e.g. Kingspan sheets), should be fixed to a counter batten, attached to the underside of the rafters. Care must be taken to ensure that a 50mm airspace between the insulation and the slates/tiles is maintained for bat access.

4.6 Timber Treatment

Any timber treatment to protect against insects, fungal growth or weathering in areas with potential to be accessed by bats, should only be carried out utilising chemicals from the Natural Resources Wales approved list. A list of Approved Products is available at <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>, which provides links to Timber Treatment Table 1. If the product is not listed, check the active ingredients listed in Timber Treatment Tables 2-7.

You can't use chemical products in or near a known bat roost if there are bats present. The best time to apply treatments is usually between autumn and spring.



4.0 MITIGATION (continued)

4.6 Timber Treatment

Pre-treated timber products

Pre-treated timber products are not included in the tables mentioned above. You can use timber that's been pre-treated off-site, because the chemicals are injected deep into the timber leaving lower concentrations on the surface which isn't harmful to bats. However you shouldn't apply products used to pre-treat timber on-site, because the active ingredients will be more concentrated on the timber surface and may be harmful to bats.

Stains and preservatives

Decorative wood finishes, like stains or wood preservative, can be used around bat roosts as long as you only use them on external timber.

5.0 BIODIVERSITY ENHANCEMENT

5.1 Bats

Provision will be made for bats after the development work is completed, to provide a net benefit to biodiversity. 1 x woodcrete wall-mounted bat box (e.g. Harlech Woodstone bat box) will be installed on the South elevation of the barn and 1 x woodcrete wall-mounted bat box (e.g. Harlech Woodstone bat box) will be installed on the North elevation of the barn. The bat boxes will be installed just below the eaves, to avoid predation by cats.

The site already has a good range of existing mature trees and hedges, which provide good habitat for foraging bats and nesting birds. Some new trees have recently been planted adjacent to the access driveway, leading down to the farmhouse and barn. New native species hedgerows will be planted adjacent to both sides of the new access track across the field, to provide further suitable habitat for foraging bats and other wildlife. Additional trees will also be planted near the new hedgerows.

5.2 Birds

Provision will be made for nesting birds to provide a net benefit to biodiversity. 2 x bird nesting boxes [1 x NT woodstone 26mm diam. hole, 1 x Seville woodstone 32mm diam. hole], will be provided to benefit local bird populations. The bird boxes will be installed on the existing mature trees (1 No. box on each tree), located to the Southwest of the barn. The bird boxes will be installed at a height of between 2m and 4m, to avoid predation by cats. The bird boxes should be orientated between North and East, so the opening is not facing the predominant South-westerly winds and rain. Some additional new native species hedgerows and trees will be planted adjacent to the new access track across the field, to provide further suitable nesting habitat and food source for birds and other wildlife.

5.3 New Landscape Planting

Some new trees have recently been planted adjacent to the access drive down to the farmhouse. Additional new hedge and tree planting will be carried out to provide further biodiversity enhancement, by creating additional wildlife habitat. The hedges and trees will provide flight lines for bats. The new vegetation will support populations of invertebrates, which will provide a food-source for foraging bats and birds. The hedgerows will also help increase connectivity with the surrounding landscape and provide wildlife corridors for numerous species. The new trees and hedgerows will also help screen to avoid Artificial Lighting at Night, to maintain dark corridors for bat flightlines and foraging areas.



5.0 BIODIVERSITY ENHANCEMENT (continued)

5.3 New Landscape Planting

A native species hedge [Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*)], 40-60cm 1u1 or 1+1 barerooted stock, will be planted along both sides of the new access track across the field.

3 x standard barerooted stock trees [1 x Serviceberry (*Amelanchier lamarkii*), 1 x Rowan (*Sorbus aucuparia*), 1 x Autumn Flowering Cherry (*Prunus subhirtella* 'Autumnalis')] will be planted near the new hedgerow to the South of the new access track.

3 x standard barerooted stock trees [1 x Sessile Oak (*Quercus petraea*), 1 x Purple Beech (*Fagus sylvatica* f. *purpurea*), 1 x Scarlet Oak (*Quercus coccinea*)] will be planted near the new hedgerow to the North of the new access track.

6.0 HABITAT/SITE MANAGEMENT AND MAINTENANCE

The present landowners will be responsible for implementing the mitigation works and will remain responsible for the property and ongoing land management and maintenance. If ownership changes (e.g. new owners purchase the property), it is likely that a clause will be incorporated into the contract, to ensure that bat mitigation is retained and habitat management and maintenance is continued for perpetuity.

7.0 AUDIT REPORT AND MONITORING

7.1 Proposed timetable of works

As there are a number of factors that could impact on the proposed timetable of works (e.g. time taken to approve and discharge pre-commencement conditions, Covid-19, availability of building contractors and availability of building materials, weather etc.), the following timings are only an estimation.

- Install bat box as compensation – July-Aug 2023.
- Convert the barn to holiday accommodation – Aug 2023 – Aug 2024.

7.2 Supervision and audit process

Any works that could impact on bats will be directly supervised by the licenced ecologist.

- Prior to commencement of works, 2 x bat boxes will be installed as compensation, to provide alternative roosts for crevice-dwelling bat species.
- NRW will be notified of the start date prior to works commencing.
- Prior to commencement of work a Toolbox talk will be given to the building contractors.
- Prior to work commencing, *if* any repairs are required to the roof of the barn, an inspection of the building will be carried out by the licenced ecologist to check for bats.



7.0 AUDIT REPORT AND MONITORING (continued)

7.2 Supervision and audit process

- The licenced ecologist will directly supervise any work that may be required to strip any slates from the roofs, to ensure no harm comes to any potential bats that may still be present. The Method Statement submitted to NRW as part of the licence application will be followed. The details of the Method Statement are as follows: The individual slates will be carefully removed by hand and checked underneath for bats, to ensure no bats are injured. If any bats are discovered, work will stop and not resume until advised by an ecologist. If any bats are discovered that do not fly, they will be carefully taken by hand by the ecologist and released immediately at the site into the new bat box already installed. If this is not possible they will be rehabilitated at a suitable centre with later release at site. In the event of bats being discovered, NRW will be informed as to what species, numbers and what action was taken. In the event of a bat species being discovered that was not previously found on site, an application will be submitted to NRW to amend the licence.
- The ecologist will carry out an Ecological Compliance Audit process to check the appropriate mitigation has been implemented in the timescales specified.
- After completion of the proposed development, a post-construction monitoring and surveillance scheme will be implemented for a minimum 2 years (emergence surveys between May-Aug/Sept), to assess the success of the mitigation strategy.
- Dusk emergence surveys will start 15 minutes before sunset and continue for 1.5-2 hours after sunset. Dawn re-entry surveys will start 1.5-2 hours before sunrise and continue for 15 minutes after sunrise. The surveys should be carried out with at least 2 weeks between surveys, in order to obtain sufficient information over the bat active season.
- It is anticipated that up to 4 surveyors will be required per survey, in order to see all aspects of the building and the new bat boxes. The surveyors will visually monitor the building for emerging (or re-entering) bats, whilst recording bat calls on a digital bat detector (Anabat Walkabout/Scout).
- If the initial series of monitoring surveys only detect a low number of bats (due to possible disturbance by the construction work), further monitoring will be carried out during the following seasons, to assess if the mitigation has been successful.
- An *EPS licences: Bats compliance audit report, Licence return form* and a final audit/monitoring report will be submitted on completion of the development and monitoring, as a condition of the NRW Derogation licence.
- Records of the monitoring surveys will be submitted to Cofnod.



7.0 AUDIT REPORT AND MONITORING (continued)

7.3 Evidencing Compliance

Mechanism to show compliance as identified in the following auditing scheme showing performance indicators as follows:-

No.	Performance Indicator	Evidence required	Pass (Yes/No)
1	A copy of the License is to be made available for inspection by any police constable, or any employee of Natural Resources Wales.	A copy of the License is to be made available for inspection by any police constable, or any employee of Natural Resources Wales	
2	Before starting work the licensee will advise NRW Species Officer of the date the works will start.	Written or electronic documentation of notification of start of works.	
3	No agent of the licensee shall act under license unless they are in possession of a letter signed by the licensee appointing them by name as the duly accredited agent of the licensee for the purposes of this license, and shall carry with them the said letter and a copy of this license and shall produce them to any police constable or employee of the NRW or Wales or other authorised person on demand.	All relevant accredited agents have copies of license holder's letter of authorisation. License holder's letter is available for inspection.	
4	A suitably experienced licensed ecologist will be appointed and retained during the life time of this license to provide on-site advice.	Letter, contract or other document outlining the appointment of an Ecologist. Log (end of project) shows that Ecologist has been retained during lifetime of license.	
5	Prior to the start of any works on site, all site workers will be inducted by the Project Ecologist. This induction will cover the legal status of the species, the method of working, and action to be taken if protected species are encountered.	Copy of documents from ecological induction, showing content of induction List of induction attendees.	
6	Works affecting bat roosts will not commence until the Project Ecologist has inspected the area and confirmed that work can go ahead – as detailed in the NRW method statement.	Log and field observation show disturbance, capture and exclusion (as relevant) have been undertaken as detailed in the NRW method statement. Dates of action taken should be noted. Examples of actions to be included - - timing of observations and methods used to confirm if bats still present - details of exclusions or deterrent methods used	
7	Action taken if bats found during the course of work	Log detailing - number and species of bats found and location - actions undertaken if animals found	
8	Creation of new roosts (including bat houses and bat boxes) as detailed in the method statement	Log and field observation demonstrate construction and installation was in accordance with Method Statement including: - number, location and dimension of roost areas - construction materials (e.g. roofing membranes, roofing material) - number, design & location of entrances - number, design & location of roost crevices - number, location and design of bat boxes as specified (e.g. make & model number) - lighting scheme avoids illumination of roosts / entrances - replacement roost in good order and ready for occupation (or occupied) before old roost damaged or destroyed	

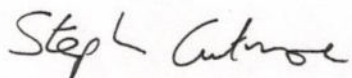


7.0 AUDIT REPORT AND MONITORING (continued)

7.3 Evidencing Compliance

No.	Performance Indicator	Evidence required	Pass (Yes/No)
9	<u>Retention &/or modification of existing and creation of new habitat</u> as detailed in the method statement	Log and field observation demonstrate retention, modification or creation was in accordance with NRW Method Statement including: - measures to ensure that existing bat habitat (e.g. vegetation features close to roosts and/or used as flightlines, foraging habitat) have been retained and not damaged during construction. for new or modified habitat: - design, habitat type, planting schemes & locations; - provenance of imported plants & biosecurity considerations	
10	Implementation of <u>population monitoring</u> as detailed in the method statement	If audit undertaken <u>during the development phase</u> : - monitoring plan demonstrates measures are in place to undertake bat population monitoring post-development. If audit undertaken <u>post-development</u> : - log or report demonstrate monitoring plan has been implemented - log or report demonstrate results passed to local record centre	

Plan written and compiled by



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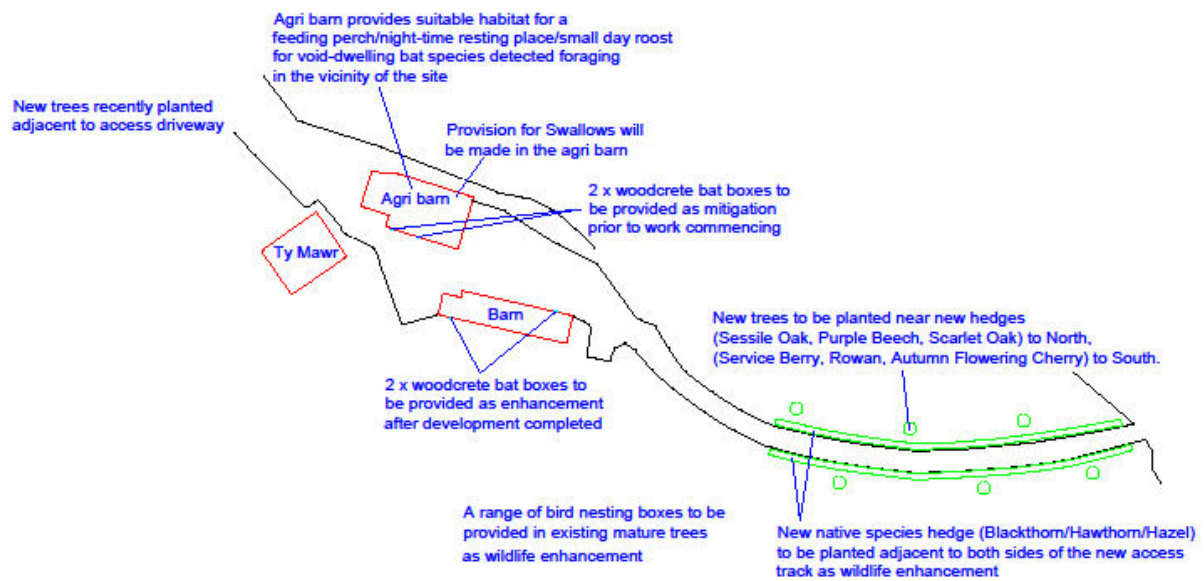
Client: ML Jones
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APPENDIX 1 – Site plan



APPENDIX 2 – Mitigation details



Figure 1: Harlech Woodcrete bat box



Figure 2: Seville woodstone nesting box 32mm hole.



Figure 3: NT woodstone nesting box 26mm hole.



APPENDIX 3: Bibliography

The following publications were referred to in preparing this report.

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