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Bat Method Statement

For

Former School Buildings
High Street
Brymbo
Wrexham
LL11 5BN

NGR SJ 295 540

For

Natural Resources Wales

Prepared for:	Natural Resources Wales
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Background and supporting information

A Executive summary

Wrexham County Borough Council have approved a planning application for the demolition of the former school buildings on High Street, Brymbo, and the construction of new housing on the same site, with planning reference P/2015/0372.

The building is situated in an area which presents good habitat for bats, with mature trees, and hedgerows, blocks of woodland and bodies of water in close proximity.

A bat scoping survey was carried out by United Environmental Services Ltd (UES) in April 2015, this was followed by further bat surveys in April, June and August (2015), with a follow up survey in August 2016. The surveys were designed to confirm bat presence / absence, confirm roost locations, assess the level of use of the building and record dispersal routes.

All surveys were carried out to recognised guidelines, timings and weather conditions with particular reference to Natural Resources Wales and Bat Conservation Trust publications.

The surveys have identified a bat roost in the building used by lesser horseshoe bats.

The roost is considered unlikely to be a maternity roost as only low numbers of individual bats have been recorded. The roost is considered more likely to be a satellite roost.

The number of bats using the building between the April and June surveys rose from five to eight. The August 2016 surveys recorded 14 individuals using the roost. The August 2016 surveys recorded 16 individuals using the roost.

The pattern of droppings observed suggests use by a low number of bats rather than a larger colony.

The building has features which are suitable for use by bats throughout the year, including during the hibernation period, and low numbers of bat droppings have been found in the underfloor areas.

The impacts of the development will be mitigated by; the provision of a purpose built bat roost prior to demolition, timing the demolition works to ensure minimum impacts, Prior inspection / survey of the building, supervision of contractors and the use of soft demolition techniques.

The mitigation roost will be designed with features specifically suited to lesser horseshoe bats, with features also suitable for other species of bats which occur locally.

B Introduction

B.1 Background to activity / development

The applicant owns the former school building on High Street, Brymbo. The former school buildings on the High Street, Brymbo have been un-occupied and un-used for a number of years. Our client has planning permission to demolish the buildings and build housing on the site.

The development will provide employment locally during the development works and, the completed development will contribute towards local housing targets.

B.2 Full details of proposed works on site that are to be covered by the licence

The former school building will be demolished, in order to facilitate the development of the site for housing. The boundary areas on site will be landscaped. Replacement roosting opportunities will be created on site, within a purpose built bat roost, landscaping and lighting design will aim to promote the use of the site by bats.

The demolition works and methods, the creation of a purpose built bat roost building, and monitoring of the site will be covered by the licence.

The destruction of the roost and subsequent demolition of the building will be carried out on receipt of the licence, preferably in October. Depending on the timing of licence issue the work may be carried out in early November if temperatures are suitable, and bats are still active above ground. Destructive works will not be carried out during the hibernation period.

B.3 Actions requiring licensing

Actions requiring a licence include disturbance and destruction of a bat roost, through soft demolition. The construction of the compensation roost, and population monitoring on site will also be covered under the licence.

C Survey and site assessment

C.1 Existing information on the bat species at the survey site

Prior to the 2015 surveys carried out by United Environmental Services, no bat surveys had been carried out on site.

The lesser horseshoe bat is rare in the British Isles and is confined to Wales, western England and western Ireland. The current UK population estimate is 50,00 individuals with an estimated 28,000 in Wales.

The UK population of lesser horseshoe bats has shown increases over the last 15 years according to data from the NBN roost and hibernation surveys. The rise in population is attributed to mild winter conditions enhancing winter survival rates and beneficial conservation projects.

C.2 Statutory sites notified for the species (SSSIs or SACs) within 10km

There are 14 statutorily designated sites within 10km of the application site.

The Lesser horseshoe bat is listed on the citation of one of these sites;

- Ruabon / Llanysilio mountains and Minera SSSI

The site is approximately 4km to the south west of the supplication site and it is considered unlikely that the proposed development works would affect the SSSI.

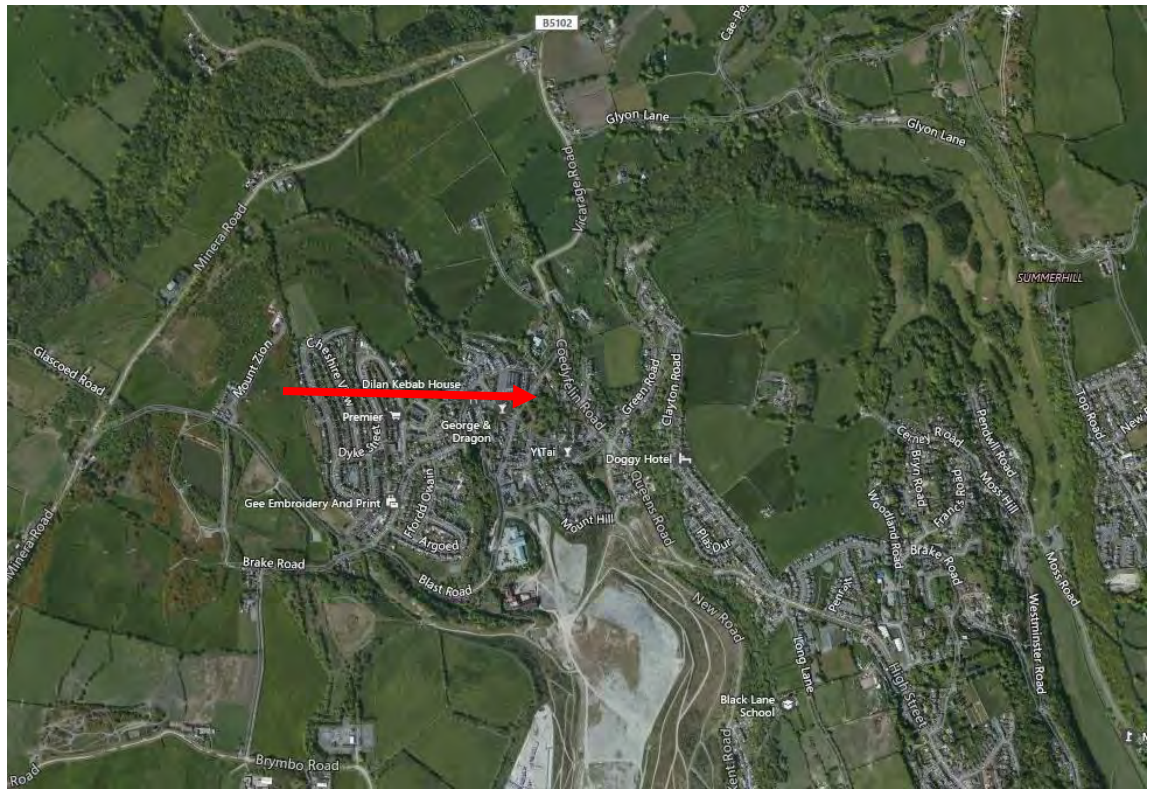
C.3 Objectives of the survey

The 2015 Surveys were conducted to determine presence / absence of bats, and to assess the level of use of the building site and record dispersal routes.

C.4 Scaled plan / map of survey area



C.4a – 1:25000 scale map of the site and surrounding area.



C.4b – Aerial photograph of the site and surrounding area.

C.5 *Site / habitat description*

The habitat immediately surrounding the buildings (<50m) includes mature and semi mature trees and scrub, buildings and hardstanding. Habitats within 500m of the site include mature deciduous woodlands, hedgerows, grazed pastures, rough grassland, heathland, watercourses and ponds.

The site and surrounding areas provide good opportunities for foraging, roosting and commuting bats and the habitat is considered to be of high quality with few negative factors.



C.5a – Looking west across the site with the main roost entrance shown.



C.5b – Looking towards the roost entrance (a perished flat roof) from ground level.

The survey area consisted of the former school building and all land within the site boundary.

C.5.1 Building inspection

External inspection

The former school buildings have been empty and un-used for around 25 years and the windows have been secured with steel security panels.

The building has a pitched, slate tiled roof with ceramic ridge tiles and wooden barge boards. The roof has gable ends and multiple pitches facing north, south, east and west with leaded valleys where the pitches meet. The building is situated on a hill and the building is higher at the southern end.

The roof of the building is damaged in a number of areas giving direct fly-in access to the building for bats.

The walls of the building are solid with no wall cavity and are built from sandstone blocks. The blockwork has suffered from serious erosion in a number of areas, (mostly below internal floor level) leaving prominent gaps between blocks which give direct access to the inside of the building, and the crevices between blocks.

External features which could be used by roosting bats include;

- Gaps between missing and damaged roof tiles
- Gaps beneath ridge tiles
- Gaps beneath lead work
- Vent holes in the walls
- Gaps between sandstone blocks
- Gaps behind bargeboards
- Gaps behind steel window panels

No field signs of use by bats were found on the outside of the building.

Internal inspection

Internally the building can be divided (loosely) into three sections North, Central and South. The building is dark and has very little natural light as the windows are boarded. (See C5.1a below)

The building consists of a number of large open rooms, which were formerly classrooms. The building has also been used as a home appliances shop and a number of stock items are still present. The ceilings are partially vaulted, and there are a number of roof spaces present.

The roof space above the southern section of the building was inspected as safe access was possible. The roof space can be accessed through a loft hatch which is permanently open, or through a hatch in the adjacent room. The roof has a traditional wooden kingpost roof structure, and is internally lined with

bitumen felt. The roof is insulated with a granular material between the ceiling joists.

Bat droppings were found on the loft hatch in the southern section of the building approximately 500 droppings were present. Smaller accumulations (5-10) and single droppings were found in other areas of the loft.

A maximum of four lesser horseshoe bats were seen together above the loft hatch during the May surveys. Only single bats were seen in the roof space during subsequent survey visits.

The Northern section of the building has a large open room with wooden floors and painted brick internal walls. There is a small store room on the east side of the building with a separate roof void, and a prominent hole in a flat roof above a former loading bay.

The wooden floor has partially collapsed under the weight of materials stored in the building. There is no access door or hatch into the area below the floor, however there are some holes in the floor which (potentially) give access into the void (for bats).

The central section of the building is a large open room of a similar size to the northern section. It has a small store room on the east side and a wooden floor. There is a cellar beneath the central section which is accessed through a door in the north section. The cellar has stone walls and the underside of the floor boards and its supporting beams are exposed.

The southern section of the building consists of three separate rooms. This section of the building has concrete floors with no cellar.

Bat droppings were found scattered in all areas of the building (in low numbers). The droppings appear to be from Lesser Horseshoe bats *Rhinolophus hipposideros*. The droppings are a variety of ages suggesting use over more than one season.

A concentration of droppings was found in the southern section of the building, beneath an area of the ceiling where paint and plasterwork has fallen away from the wooden lathes.

A single lesser horseshoe bat was found roosting in the southern section of the building during the initial inspection. Further droppings were found on subsequent surveys.



C.5.1a Building sections

C.6 *Field survey(s)*

C6.1 General

All surveys were carried out to recognised guidelines, timings and weather conditions with particular reference to Natural Resources Wales and Bat Conservation Trust publications.

C6.2 Building survey methodology

The aim of the survey was to assess the site for the presence of bat roosts and bat activity within the structure of the building.

Buildings on site were searched both externally and internally for bat presence and features associated with bat activity, as detailed in Bat Conservation Trust guidance (2016).

External inspection

The external inspections of the buildings were carried out from ground level using binoculars, and also using ladders and an endoscope to investigate suitable gaps. The objective of the survey was to find and record any signs of bat use, for example:

- Bat droppings
- Feeding remains
- Grease staining/urine marks
- Corpses or skeletons
- Potential access points to internal roosts

The bat signs listed above are visible from the outside of a building. The following areas were searched:

- Window sills
- Soffits and fascia boards
- Any cracks/holes in woodwork
- Chimney breasts
- Out buildings
- Air bricks
- Grills
- Vents

Internal inspection

The internal building survey covered all of the accessible rooms and roof spaces within the building. Bats regularly utilise specific areas within roof spaces (see below), which were searched as a priority for any field signs of bats using high-powered torches and an endoscope.

- Dividing walls/chimney breasts.

- Underneath ridge beams.
- Beneath hip joins and junctions.
- Timber/wall joints.
- Staining above/around gaps.
- Staining, droppings around ridge tile gaps.

C6.3 Bat emergence & return to roost survey methodology

Likely emergence points within the buildings were identified during the building surveys. These points were covered by an observer during the emergence and return roost periods.

To aid identification; flight and habitat characteristics were also noted (where possible) in order to determine the species.

C6.4 Equipment usage and methodology

Anabat SD1 and SD2 frequency division bat detectors with a frequency range of 10 – 200 KHz were used in conjunction with HP IPAQ HX2490 PDAs running Anapocket software. This allowed the observers to hear the bat calls and also see the sonograms in real time, aiding identification. All registrations were automatically recorded onto a compact flash card and time/date stamped.

A Batbox Duet bat detector was also used to identify echolocation calls from bats. The calls were recorded into Wave format using a 24 bit Edirol digital recorder. The frequency range from 20 kHz to 120 kHz was systematically scanned incorporating the differing frequencies of bat calls, and maximising detection for all species. All bat sightings were noted, including species, time recorded, frequency, flight pathways and direction as well as habit, to further aid identification.

A Wildlife Acoustics SM2BAT+ full spectrum recording device was left on site during the survey period and throughout the night between survey visits. The device is triggered and records automatically allowing recordings to be analysed at a later date. The recordings are individually time and date stamped producing high quality time expansion files and sonograms if required.

A Petterson D500x bat detector and recorder with a full spectrum ultrasound range was also used.

All bat sightings were noted, including species, time recorded, frequency, flight pathways and direction as well as habit, to further aid identification.

C6.5 Survey limitations

The building has a number of roof spaces, it was not possible to safely access all of the roof spaces of the building during the surveys as a result of the poor and potentially dangerous condition of the building. Only the roof space in the Southern section of the building was considered safe enough to access.

C6.6 Surveyors

- Toby Hart BSc MCIEEM and UES Managing Director. Toby Hart is licensed to disturb, take and handle all species of bats in all counties of England and Wales under licence number 2015-10757-CLS-CLS and 63433:OTH:CSAB:2015 respectively.
- Kathryn James BSc MRes ACIEEM, Assistant Ecologist at UES. Kathryn James is licensed to disturb, take and handle all species of bats in all counties of England and Wales under licence numbers 2015:10264-CLS-CLS (C17- C18) and 63098:OTH:CSAB:2015 respectively
- Stewart Bradshaw, Assistant Ecologist at UES. Stewart Bradshaw is licensed to disturb, take and handle all species of bats in all counties of England under licence numbers 2015:8782-CLS-CLS (C17- C18)
- Suzie Hine BSc MSc and UES Graduate Ecologist.
- Declan Ghee BSc Grad CIEEM and UES Graduate Ecologist

C6.7 Timings and weather conditions

Table 1 - Weather conditions					
Survey date	Survey type	Survey timing	Sunset / sunrise	Temp	Weather
17/04/15	Building inspection	N/A	N/A	N/A	N/A
05/05/15	Emergence	19:30 – 22:15	20:45	14.5°C	Intermittent rain, rain earlier in the day, light breeze, 100% cloud cover
06/05/15	Return roost	04:30 – 05:30	05:30	12.5°C	Dry, still, 100% cloud cover
03/06/15	Emergence	20:30 – 22:00	21:30	17°C	Dry, still, 10% cloud cover
04/06/15	Return roost	03:50 – 04:50	04:50	14°C	Dry, still, 30% cloud cover
03/08/15	Emergence	20:30 – 22:40	21:03	20°C	Dry, still, clear
04/08/15	Return roost	04:30 – 05:33	05:33	13°C	Dry, still, 70% cloud cover
22/08/16	Emergence	20:00 – 22:20	20:20	20°C	Dry, Still, 100%cc
23/08/16	Return roost	04:08 – 06:25	06:08	16°C	Dry, Still, 100%cc

C.7 Survey results

Survey date	Survey type	Species	Exit / entry point	Timings
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17/04/15	Building inspection	1x lesser horseshoe bat. Droppings also found scattered in different areas of the building.	Found roosting in room at the southern end of the building, hanging on ceiling batten.	N/A
05/05/15	Emergence	No bats seen to emerge from building.	N/A	N/A
06/05/15	Return Roost	4x lesser horseshoe bats seen inside roof space at southern end of the building after survey. 1x further lesser horseshoe returned to the building after sunrise at 05:40.	Through hole in flat roof above loading bay at the northern end of the building (at the rear).	05:40
03/06/15	Emergence	7x lesser horseshoe bats seen emerging during the survey.	6 emerged from hole in flat roof at north of building. 1 emerged through hole in roof in central section of the building.	22:06 – 22:34
04/06/15	Return Roost	7x lesser horseshoe bats seen returning to roost in loft at southern end of building. 1x lesser horseshoe bat seen returning to roost in loft in the central section of the building.	7 Bats entered the building through the hole in the flat roof of the loading bay, and 1 through the hole in the roof of the central section of the building.	04:08 – 04:26
03/08/15	Emergence	11 lesser horseshoe bats were recorded emerging from the building during the survey. 1 was still present inside the northern section of the building at the end of the emergence period.	11 emerged from hole in flat roof at north of building. 1 still present in roost at the end of the survey period.	21:23 – 22:38
04/08/15	Return Roost	14 lesser horseshoe bats were recorded returning to roost during the survey.	Through hole in loading bay roof at north of building.	04:45-05:08
22/08/16	Emergence	16 lesser horseshoe bats emerged from the building, using the entrance at the north of the building. Single bat in flight prior to sunset.	Through hole in loading bay roof at north of building.	19:30 – 22:01
23/08/16	Return roost	16 lesser horseshoe bats returned to the building, using the entrance at the north of the building, and a hole in the roof of the central section.	Through hole in loading bay roof at north of building, and a hole in the roof of the central section.	04:17 – 05:53

See Annex J.1 – Bat survey for mapped survey results.

C.8 Interpretation / evaluation of survey results

The building is situated in an area which presents good habitat for bats, with mature trees, and hedgerows, blocks of woodland and bodies of water in close proximity. The building has features which are suitable for use by roosting bats and are considered to have high potential for use.

The external features which could be used by roosting bats include gaps leading into the walls, behind barge boards, roof tiles and ridge tiles and beneath lead work.

Internally the building has features which could be used by roosting bats including roof spaces, cellars and smaller crevices between layers of materials.

The building has the potential to be used by bats, both during the active season, and for hibernation, and droppings have been found in the cellar beneath the central section of the building. The cellar and underfloor areas are thought to be more suitable for use by crevice dwelling species than horseshoe bats.

A single lesser horseshoe bat was found roosting in the building during the initial building inspection in April, a maximum of four LHS were observed together in the southern roof space during subsequent surveys.

The emergence and return roost surveys of the building confirmed up to 14 bats roosting in the loft spaces of the building in 2015 and 16 bats during 2016.

Lesser horseshoe bats have been observed roosting in loft spaces in all sections of the building.

A maximum of 7 individual bats were recorded returning to roost in the loft space in the southern end of the building.

Bat droppings also thought to be from lesser horseshoe bats were found in all areas of the building, in low numbers.

The number of bats found roosting in the building, together with the pattern of droppings found in the loft space and in other areas of the building suggest that the building is not used as a maternity roost. No juvenile bats were observed during the surveys. The building is more likely to be in use as a satellite roost.

The cellar and areas below floor level are potentially suitable for use by hibernating bats. Hibernation is considered more likely for crevice dwelling species than lesser horseshoe bats.

The roosting features in the building could be used by a number of different bat species and it is possible that crevice dwelling species such as pipistrelles could use the building to roost.

Trees on site which will be cleared to facilitate the development of the site are not suitable for use by roosting bats. The trees are used by foraging bats, and as a connectivity feature used by bats to access wider areas of habitat. Trees on the boundary will be retained to ensure connectivity.

D Impact assessment

In the absence of mitigation, the potential short term impacts on the roost in the building would include direct harm, disturbance, damage and loss of a lesser horseshoe bat, satellite roost which had a maximum count of 16 lesser horseshoe bats during the 2016 surveys.

Without mitigation there would be a major negative impact at site level.

D.1 Short-term impacts: disturbance

The short term impacts of the development in the absence of mitigation include:

- Disturbance and direct harm to bats throughout the demolition.
- Loss of a lesser horseshoe bat satellite roost.
- Disturbance through increased light, noise and activity.

Without mitigation the impact on bats locally would potentially be high.

D.2 Long-term impacts: roost modification

The existing roosting site will be lost to the proposed scheme; there will be no roost modification on the site.

The provision of a purpose built bat roost close to the original roost site will provide an improved roosting resource for bats in the longer term, and no overall loss of habitat quality is predicted.

D.3 Long-term impacts: roost loss

Without mitigation the loss of the lesser horseshoe bat satellite roost would constitute a major negative impact at a local level. The loss of the roost is considered to have a low / negligible potential for impact at regional and national level.

D.4 Long-term impacts: fragmentation and isolation

The retention of trees on the site boundaries together with appropriate lighting, landscape and planting design, and the control of light spill will ensure that there is no loss of connectivity, and no fragmentation as a result of the proposed development.

New planting proposed as part of the landscaping scheme will potentially enhance the biodiversity value of the site.

D.5 Post-development interference impacts

The site is adjacent to the High Street in Brymbo. While this is not a busy road it is well lit and subject to a level of disturbance from light and vehicle traffic.

The construction of housing will potentially introduce more light onto the site and bring an increase in the levels of disturbance above present levels.

The retention of trees and habitat features which form connectivity to the site, control of lighting and light-spill, and appropriate landscaping and planting design will mitigate the majority of the increase in disturbance.

There will be a buffer between the bat roost and adjacent housing / parking. The buffer will consist of a wooden fence which will provide screening from view and from lighting, and a planted (native species) hedgerow and trees which will provide a more substantial buffer screen / foraging resource once established.

D.6 Predicted scale of impact

The proposed development will destroy a lesser horseshoe bat satellite roost used by up to 16 individuals (2016 surveys).

The roost has been assessed to be of local importance, the above impacts would be expected to adversely affect the populations of the species at local level in the absence of mitigation.

Without mitigation the loss of the roost would cause a major negative impact at a local level. The loss of the roost is not considered to be significant at a county or regional level.

The roosting features provided, together with landscaping should provide an improved habitat for bats locally in the longer term

Delivery information – Mitigation, compensation and monitoring

E Works to be undertaken

E.1 Capture and exclusion (if applicable)

All contractors working on the site will be briefed by a licensed bat ecologist, prior to the start of any destructive works on site. The briefing will cover: bat ecology, the legislation which protects bats, the known locations of bats in the building, and features where bats may be encountered during the works. Individual responsibilities and what actions to take if a bat is discovered will also be discussed.

Bat boxes will be fitted to suitable trees on the site boundary by a licensed ecologist prior to the start of works. The boxes will be suitable for use by crevice

dwelling species of bats, and will be used in the event that crevice dwelling bats are found during the works.

The building will be fully inspected by the licensed ecologist, in detail, in order to record any recent field signs of bats in the building, and to locate any bats still present in the roost. The inspection will include the sub-floor areas, walls, and sealed roof voids.

Scaffolding will be constructed around the walls of the building in order to allow the roof to be safely stripped. The scaffolding will be fitted under supervision, ensuring that the roost entrances are not affected.

The roof of the building will be carefully stripped, by hand under the direct supervision of a licensed bat ecologist. The roof will be stripped one section at a time moving from south to north. The roost areas will be searched immediately prior to the start of roof stripping.

Once the roof has been fully stripped, the walls of the building will be re-inspected, and any holes present will be investigated using an endoscope. If field signs of bats are found in the walls then a one-way exclusion device will be fitted and left in situ for a period of five days, after which the hole will be re-inspected and the area will be dismantled by hand.

Once the building has been declared free of bats by the licensed bat ecologist, the building will be demolished by mechanical means.

E.2 Bat roosts and habitat

E.2.1 In-situ retention of roost(s)

No roosts will be retained.

E.2.2 Modification of existing roost(s)

The existing roost will not be retained.

E.2.3 New roost creation (including bat houses and bat boxes)

A purpose built bat roost building will be created prior to the start of any destructive works on site. The building will be constructed in the south east corner of the site adjacent to known dispersal routes.

The roost will be a single storey height building with a pitched, slate tiled roof and gable ends. The floor area of the building will be approximately 4m x 8m. The building will have a separate loft void and an insulated area on the ground floor suitable for use by hibernating bats.

The roof structure of the roost will be similar to that of the current building with roof timbers re-used where possible. The roof will have wooden rafters and

purlins and felt lining. The roof will be covered with slate roof tiles and ceramic ridge tiles.

The roost will have a gable ends and roof pitches facing north, west, south and east. Slate or stone roof tiles will be used rather than modern concrete tiles.

The roof will not be lined internally in order to increase temperatures inside the roost, and encourage summer use.

Areas of boarding will be created between roof timbers in order to provide suitable roosting areas. Other materials such as hessian sheeting will be used to encourage and enable roosting.

Original timbers will be re-used where possible. Where timbers cannot be re-used similar rough cut timbers should be used.

Access to the roost will be via direct fly-in access points on the eastern gable end of the building, which is adjacent to known flight lines and will be furthest away from any light / disturbance.

The features outlined above are designed to be primarily suitable for lesser horseshoe bats. The following features will be incorporated into the design in order to encourage use by crevice dwelling bats;

1. Schwegler bat boxes will be fitted in suitable trees on site or on the site boundary. The boxes will initially function as interim roost boxes while the works are carried out but will then be left in-situ on completion of the works. 1x Schwegler 1FF and 2x Schwegler FN will be fitted.
2. Wooden barge boards will be fitted to the building in order to create extra gaps and crevices which can be used by roosting bats.
3. Schwegler bat tubes (or similar) will be built into (or onto) the walls of the building in order to provide further roosting opportunities.
4. Extra battens will be fitted to the ceiling / roof timbers in order to create more gaps and crevices within the structure of the building.

E.2.4 Maintenance & / or modification of new and existing habitat

The maintenance and modification of the site is legally secured in the fourth schedule of the Section 106 agreement.

E.2.5 Scaled maps / plans

See Annex J.2 – Bat mitigation and compensation measures.

E.3 Mechanisms for ensuring delivery of mitigation and compensation measures

The creation of the bat roost, and all other mitigation / compensation measures have been agreed through the planning process and are secured under the Section 106 agreement.

At the time of writing work has already begun on the creation of the bat roost, in order to ensure that there is roosting provision on site prior to the start of destructive works.

A licenced bat ecologist will oversee the creation of the roost and fitting of other mitigation and compensation features.

E.4 Mitigation contingencies

United Environmental Services Ltd will remain on-call throughout the development in case any further advice is needed or bats are encountered.

E.5 Biosecurity risk assessment

The physical condition of any bats found will be assessed by a licenced ecologist. Any bats displaying signs of illness or injury will be taken to a wildlife hospital and advice will be sought. All bats will be handled using fresh gloves to ensure no spread of any diseases or parasites. Any materials, items and vehicles used to transfer bats off-site (if necessary) will be fully cleaned and disinfected.

F Post-development site safeguard

F.1 Habitat / site management and maintenance

The new bat roost will be maintained in perpetuity, as a roost for lesser horseshoe bats. We are currently seeking a 3rd party to manage the site. The commitment to manage the site is detailed in the fourth schedule of the Section 106 agreement.

F.2 Population monitoring, roost usage etc.

Annual monitoring is proposed for a period of two years (two full bat seasons) from the completion of the development works. Monitoring will focus on the occupation of the new bat roost and will comprise building inspections and activity surveys to assess the presence or absence of bats in the roosts, monitor the number of bats present and assess the type of use.

Monitoring surveys will be carried out in 2017 and 2018.

F.3 Post-development mitigation contingencies

Should population monitoring show an unfavourable result then the design of the roost and landscaping / lighting and screening will be reconsidered and changes will be made where necessary.

The commitment to maintain the site is detailed in the fourth schedule of the Section 106 agreement.

F.4 Mechanism for ensuring delivery of post-development works

The commitment to manage the site is detailed in the fourth schedule of the Section 106 agreement.

G Timetable of works

Activity	Timing	Comments
Construction of mitigation compensation roost.	September 2016.	Completed and inspected prior to the start of destructive works on site.
Pre-works inspection by a licenced bat ecologist	October - November 2016	Upon receipt of the EPS licence.
Fitting of bat boxes for crevice dwelling species.	October - November 2016	Upon receipt of the EPS licence. To be fitted in suitable location by the licensed ecologist.
Toolbox talk for all contractors working on the site.	October – November 2016	Upon receipt of the EPS licence. Briefing to be given by the licensed ecologist.
Removal of floorboards, to open up sub-floor areas	October - November 2016	Upon receipt of the EPS licence, under the supervision of the licensed ecologist.
Construction of scaffolding to enable roof stripping	October - November 2016	Upon receipt of the EPS licence, under the supervision of the licensed ecologist. Roost access to be maintained.
Hand stripping of the roof, under supervision.	October - November 2016	By hand by a licenced bat ecologist during the soft demolition of the roost (and other sensitive areas as deemed necessary by the licensed ecologist) Roof to be stripped in sections from south to north.
Walls to be inspected for any field signs of use by bats prior to mechanical demolition.	October - November 2016	On completion of roof stripping. Any gap with evidence of use by bats will be excluded using a 1-way valve type device, for 1 week before being dismantled by hand, under supervision.
Mechanical demolition of the	October - November 2016	Once declared free from bats by a licenced bat ecologist.

buildings		
Capture of bats	October – November 2016	Bats will be captured by hand using a static hand net, If necessary, and safe to do so. Captured bats will be placed inside the new roost building on site.
Construction works	December 2016 – December 2017	Construction to start once demolition is complete, and the work area is declared free of bats.

H Land ownership – Mitigation site

H.1 Mitigation site / compensation site ownership

All mitigation and compensation works will be undertaken on land within the ownership of the applicant.

H.2 Mitigation site / compensation ownership post construction

The bat roost and land immediately surrounding it will remain within the ownership of the applicant once completed. The site will be managed and maintained by a 3rd party as detailed in the Section 106 agreement.

I References

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Mitchell-Jones, A.J.& Mcleish, A.P. *The Bat Workers Manual*. 3rd ed. 2004. JNCC.

<http://www.jncc.gov.uk/page-2861>

J Annexes

J.1 Bat survey report

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BAT PRESENCE / ABSENCE SURVEY 2015 & 2016

At

Former School Buildings

High Street
Brymbo
Wrexham
LL1

NGR: 329531 354042

Prepared for:	Parry Davies Architects Ltd
Written by:	Suzie Hine, UES Graduate Ecologist
Approved by:	Toby Hart, UES Managing Director

A handwritten signature in black ink, appearing to read 'Toby Hart', is positioned below the 'Approved by:' line.

Date:	13 th September 2016
UES Reference:	UES01498/03

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EXECUTIVE SUMMARY

A bat scoping survey (UES01498/01) and presence / absence surveys (UES01498/02) of the former school buildings on High Street, Brymbo were undertaken United Environmental Services Ltd (UES) between April and August 2015, an additional presence / absence survey was carried out in August 2016.

The objective of the bat presence / absence survey was to establish whether or not bats are using the building on site to roost, and if so to assess the type and importance of roost in order to inform the planning process. The surveys were carried out to recognised guidelines, timings and weather conditions where possible with particular reference to Natural England and Bat Conservation Trust (BCT) publications. Planning permission has been granted for the demolition of the former school building and development of residential housing.

The 2015 and 2016 surveys have identified a lesser horseshoe bat (LHS) roost within the former school building. The roost is considered unlikely to be a maternity roost as only low numbers of individual bats have been recorded, and therefore considered more likely to be a satellite roost.

The number of LHS bats using the building between the April and August 2015 surveys increased from 4 to 14 individuals. The August 2016 surveys recorded 16 individuals using the roost.

The pattern of droppings observed also suggests use by a low number of bats rather than a larger colony. Scattered droppings were found within the building cellar however, no bats were recorded roosting within the cellar during the surveys.

The building has a number of features which are suitable for use by bats throughout the year, including the sub-floor areas, which could be used by crevice dwelling bats during the hibernation period.

As the building is being used by roosting bats the development will need to be completed under a European Protected Species Licence (EPSL) issued by Natural Resources Wales. The licence application will include mitigation and compensation measures to ensure that individual bats, and their habitats are protected during the development works, and into the longer term.

During the August 2015 survey visits a large badger latrine, day bed and hairs were present in the southern room of the building. The entrance point was through a ground level vent at the south east corner. The droppings contained a large number of cherry stones. The use of the building by badgers is thought to be seasonal, possibly as a result of a fallen cherry tree on the grounds of the adjacent war memorial.

The report should be read in conjunction with appendices 1 to 5, which give visual representation of the survey results.

1. INTRODUCTION

1.1 Author, surveyors and qualifications

This report is compiled and written by Suzie Hine BSc MSc, UES Graduate Ecologist.

Other 2016 surveyors include:

- Kathryn James BSc MRes ACIEEM, UES Senior Ecologist. Kathryn is licensed to disturb, take and handle all species of bats in all counties of England under licence number 2015-10264-CLS-CLS (level 2).
- Paul Cassidy, UES Ecologist.

Other 2015 surveyors include:

- Toby Hart BSc MCIEEM AIEMA, UES Managing Director. Toby is licensed to disturb, take and handle all species of bats in all counties of England under licence number 2015-15899-CLS-CLS (level 3 & 4). Toby is also a registered consultant of the bat low impact class licence (RC090).
- Stewart Bradshaw, UES Ecologist. Stewart is licensed by Natural England to disturb, take and handle all species of bats under licence number 2015-15615-CLS-CLS (level 2).
- Declan Ghee BSc Grad CIEEM and UES Graduate Ecologist
- Annabel Walker-Evans, UES Student Ecologist.

All surveyors have the knowledge, skills and experience identified within CIEEM's "Competencies for Species Survey: Bats" (2013), or were under the supervision of a surveyor with the required competencies.

1.2 Survey objectives

UES conducted a bat scoping survey (UES01498/01) and presence / absence surveys (UES01498/02) between April to August 2015, which concluded the development be completed under an EPSL. A further emergence / return roost survey was required in 2016 to update information for EPSL. Consequently, UES was commissioned to undertake the following activities:

- Conduct internal and external building inspections to look for bats or further field signs of bats
- Re confirm bat presence by conducting an emergence and re-entry survey of the building
- Re assess the type and importance of the roost(s), if still present
- Recommend appropriate mitigation and compensation

1.3 Proposed development

The proposed development includes the demolition of the former school buildings.

1.4 Structure of the report

This report sets out the methodology, results, and recommendations in relation to a specific bat survey. Recommendations are in line with statutory legislation and planning policy objectives.

The report should be read in conjunction with appendices 1 to 5, which give visual representation of the survey results.

2. METHODOLOGY

2.1 General

All surveys were carried out to recognised guidelines, timings and weather conditions, with particular reference to Natural England and BCT publications (see references for further information).

The habitats on site and in the surrounding area were assessed during a walkover survey and through studying aerial photographs, in order to gauge their suitability to support roosting, foraging and commuting bats.

2.2 Building inspections

The building on site was searched both externally and internally for bat presence and features associated with bat activity, as detailed in BCT guidance (Collins, 2016).

2.2.1 External inspection

The external inspections of the former school building were carried out from ground level using binoculars, and also using ladders and an endoscope to investigate suitable gaps. The objective of the survey was to find and record any signs of bat use, for example:

- Bat droppings
- Feeding remains
- Grease staining / urine marks
- Corpses or skeletons
- Potential access points to internal roosts

The bat signs listed above are visible from the outside of a building. The following areas were searched, where present:

- Roof tiles
- Boxed soffits
- Fascia and barge boards
- Window sills
- Vents

2.2.2 Internal inspection

The internal inspections covered all of the accessible rooms and roof spaces within the building.

Bats regularly utilise specific areas within roof spaces, which were searched for any field signs of bats using high-powered torches and an endoscope, where considered necessary by the licenced ecologist. The following features were searched, where present:

- Roof beams and junctions

- Dividing walls
- Chimney breasts
- Staining above / around gaps
- Staining / droppings around ridge tile gaps
- Floor or other surfaces on which droppings could accumulate

2.3 Emergence and re-entry surveys

Potential roost access points were identified during the building inspections. These points were covered by a surveyor during the dusk emergence and dawn re-entry periods.

Bat echolocation, flight and habitat characteristics were recorded where possible, in order to determine the species. The level and type of bat activity was also recorded to establish how bats are using the site.

Due to the initial surveys identifying the presence of roosting bats, a further survey was conducted in order to assess and characterise any identified roosts on site, as specified in BCT guidance (2016).

2.3.1 Equipment

An Anabat Walkabout bat detector was used during the surveys. This allowed the observer to hear bat echolocation calls and see the sonograms in real time, aiding identification. All registrations were automatically recorded onto a compact flash card and time/date stamped. The device can record and display both zero crossing and full spectrum bat echolocation calls and has a built-in GPS and mapping system.

Anabat SD1 and SD2 frequency division bat detectors with a frequency range of 10 – 200 KHz were used in conjunction with a HP IPAQ HX2490 PDA running Anapocket software. This allowed the observer to hear the bat echolocation calls and see the sonograms in real time, aiding identification. All registrations were automatically recorded onto a compact flash card and time/date stamped.

A BATLOGGER M bat detector and recorder was used during the survey. The device records bat echolocation calls across the full spectrum, with a sensitivity range of 10 – 150 kHz. The integrated heterodyne live monitoring also allows the observer to hear the echolocation calls in real time, with automatic tuning. The recordings are individually time/date, GPS and temperature stamped, and are of high enough quality to produce time expansion quality sonograms.

A Wildlife Acoustics SM2BAT+ full spectrum recording device was left on site overnight during the surveys. The device is triggered and records automatically allowing recordings to be analysed at a later date. The recordings are individually time/date stamped and of high enough quality to produce time expansion quality sonograms.

2.3.2 Weather conditions

Table 1 - Weather conditions and survey timings

2016

Date	Survey type	Timings	Sunset / sunrise	Temp.	Wind	Rain	Cloud cover
22/08/16	Emergence	20:00 – 22:20	20:20	20°C	Still	Dry	100%
23/08/16	Re-entry	04:08 – 06:25	06:08	16°C	Still	Dry	100%

2015

Date	Survey type	Timings	Sunset / sunrise	Temp.	Wind	Rain	Cloud cover
05/05/15	Emergence	19:30 – 22:15	20:45	14.5°C	Light	Intermittent	100%
06/05/15	Re-entry	04:30 – 05:30	05:30	12.5°C	Still	Dry	100%
03/06/15	Emergence	20:30 – 22:00	21:30	17°C	Still	Dry	10%
04/06/15	Re-entry	03:50 – 04:50	04:50	14°C	Still	Dry	30%
03/08/15	Emergence	20:30 – 22:40	21:03	20°C	Still	Dry	0%
04/08/15	Re-entry	04:30 – 05:33	05:33	13°C	Still	Dry	70%

2.4 Survey limitations

The building has a number of roof spaces, it was not possible to safely access all of the roof spaces of the building during the surveys as a result of the poor and potentially dangerous condition of the building. Only the roof space in the southern section of the building was considered safe enough to access.

3. RESULTS

3.1 Desk study

The bat scoping survey of the building was undertaken in April 2015 by UES. A single lesser horseshoe bat was recorded and droppings were found scattered throughout the building. A number of features suitable to support roosting bats were found during the external and internal building inspections.

3.2 Habitat assessment

The immediate surrounding habitat comprises mature and semi-mature trees and scrub, well-lit roads, housing and gardens.

The wider surrounding area comprises of a mosaic of grazed pasture, woodland blocks, hedgerows, ponds and watercourses, semi-rural buildings and tree-lined roads.

In summary, the immediate and surrounding area provides good quality habitat for feeding, roosting and commuting bats.

See Appendix 1 – Aerial photographs.

3.3 Building inspections

3.3.1 External building inspection

The former school building have been empty and un-used for around 25 years and the windows have been secured with steel security panels.

The building has a pitched, slate tiled roof with ceramic ridge tiles and wooden barge boards. The roof has gable ends and multiple pitches facing north, south, east and west with leaded valleys where the pitches meet. The building is situated on a hill and the building is higher at the southern end.

The roof of the building is damaged in a number of areas giving direct fly-in access to the building for bats.

The walls of the building are solid with no wall cavity and are built from sandstone blocks. The blockwork has suffered from serious erosion in a number of areas, (mostly below internal floor level) leaving prominent gaps between blocks which give direct access to the inside of the building, and the crevices between blocks.

External features which could be used by roosting bats include;

- Gaps between missing and damaged roof tiles
- Gaps beneath ridge tiles
- Gaps beneath lead work
- Vent holes in the walls
- Gaps between sandstone blocks

- Gaps behind bargeboards
- Gaps behind steel window panels

No field signs of use by bats were found on the outside of the building.

3.3.2 Internal building inspection

Internally the building can be divided (loosely) into three sections north, central and south. The building is dark and has very little natural light as the windows are boarded.

The building consists of a number of large open rooms, which were formerly classrooms. The building has also been used as a home appliances shop and a number of stock items are still present. The ceilings are partially vaulted, and there are a number of roof spaces present.

The roof space above the southern section of the building was inspected as safe access was possible. The roof space can be accessed through a loft hatch which is permanently open, or through a hatch in the adjacent room. The roof has a traditional wooden kingpost roof structure, and is internally lined with bitumen felt. The roof is insulated with a granular material between the ceiling joists.

During the 2015 surveys bat droppings were found on the loft hatch in the southern section of the building approximately 500 droppings were present (see photos). Smaller accumulations (5-10) and single droppings were found in other areas of the loft.

A maximum of four lesser horseshoe bats were seen together above the loft hatch during the May 2015 surveys. Only single bats were seen in the roof space during subsequent 2015 survey visits

The northern section of the building has a large open room with wooden floors and painted brick internal walls. There is a small store room on the east side of the building with a separate roof void, and a prominent hole in a flat roof above a former loading bay. A single lesser horseshoe bat was seen within the northern roof space before sunset during the 2016 survey.

The wooden floor has partially collapsed under the weight of materials stored in the building. There is no access door or hatch into the area below the floor, however there are some holes in the floor which (potentially) give access into the void (for bats).

The central section of the building is a large open room of a similar size to the northern section. It has a small store room on the east side and a wooden floor. There is a cellar beneath the central section which is accessed through a door in the north section. The cellar has stone walls and the underside of the floor boards and its supporting beams are exposed. A low number of scattered bat droppings were found within the cellar during the 2016 survey.

The southern section of the building consists of three separate rooms. This section of the building has concrete floors with no cellar beneath.

Bat droppings were found scattered in all areas of the building (in low numbers). The droppings appear to be from lesser horseshoe bats. The droppings are a variety of ages suggesting use over more than one season.

A concentration of droppings was found in the southern section of the building, beneath an area of the ceiling where paint and plasterwork has fallen away from the wooden lathes.

A single lesser horseshoe bat was found roosting in the southern section of the building during the initial 2015 inspection and further droppings were found on subsequent 2015 and 2016 surveys.

3.4 Emergence and re-entry surveys

Table 2 – Survey results

2016

Date	Survey type	Species seen using roost	Number of individuals	Roost location	Access point	Timings
22/08/16	Emergence	Lesser horseshoe	16	Emerging during sunset period.	Main roost entrance in the northern roof. Secondary roost entrance in the central roof.	20:08 – 22:01
23/08/16	Re-entry	Lesser horseshoe	16	Returning to roost during sunrise period.	Main roost entrance in the northern roof. Secondary roost entrance in the central roof.	04:17 – 05:53

2015

Date	Survey type	Species seen using roost	Number of individuals	Roost location	Access point	Timings
17/04/15	Scoping	Lesser horseshoe	1	Southern end of the building, hanging on ceiling batten.	Exact location unknown.	N/A
05/05/15	Emergence	N/A	0	N/A	N/A	N/A
06/05/15	Re-entry	Lesser horseshoe	4	Inside roof space at southern end.	Through hole in flat roof above loading bay at the northern end.	05:40
		Lesser	1	Return to		04:30

		horseshoe		building after sunrise.		
03/06/15	Emergence	Lesser horseshoe	7	Emerging during survey.	6 emerged from hole in flat roof at north of building. 1 emerged through hole in roof in central section of the building.	22:06 – 22:34
04/06/15	Re-entry	Lesser horseshoe	7	Southern end loft.	Through the hole in the flat roof of loading bay.	04:08 – 04:26
			1	Central section loft.	Through hole in the roof of the central section.	
03/08/15	Emergence	Lesser horseshoe	11	Emerging during survey.	11 from the hole in flat roof at north of building.	21:23 – 22:38
			1	Inside northern section.	1 still present in roost at the end of the survey period.	
04/08/15	Re-entry	Lesser horseshoe	14	Returning to roost.	Through hole in loading bay roof at north of building.	04:45 – 05:08

3.5 Activity summary

Table 3 – Bat activity summary

2016

Date	Survey type	Species	Notes
22/08/16	Emergence	Lesser horseshoe	A single bat was recorded flying in the north loft space at 19:30 approximately 50 minutes before sunset. Estimated 16 lesser horseshoe bats were seen exiting the building at the flat roof section to the north section and hole in the roof within the central section. A single bat was recorded flying within the cellar and scattered droppings found throughout.
		Soprano pipistrelle	Foraging activity was recorded around the surrounding vegetation to the rear of the building.
		Common pipistrelle	A single bat was recorded flying within the building during the emergence period. Constant foraging activity was recorded around the surrounding vegetation to the rear.

23/08/16	Re-entry	Common pipistrelle	Foraging to the rear of the building and within the loading bay area.
		Lesser horseshoe	A total of 16 bats were recorded returning to roost with the building. Bats were recorded entering the hole in the roof above the flat roof section to the north and hole in the roof above the central section.
			2 individual bats were recorded hanging in main section and south room before returning to roost.
		Myotis sp	A couple of myotis passes were recorded to the rear of the building.
		Brown long-eared	A single BLE was recorded flying within and around the building.

2015

Date	Survey type	Species	Notes
05/05/15	Emergence	Lesser horseshoe	A single bat was recorded foraging around southern end of the building and in tree cover to the south east of the building between 21:15 – 21:18.
		Soprano pipistrelle	A few foraging passes around the building during the emergence period.
		Common pipistrelle	The majority of foraging to the rear of the building throughout the emergence period.
		Brown long-eared	A single bat was recorded at the southern end of the building between 21:20 – 21:53.
06/05/15	Re-entry	Common pipistrelle	Bat activity was low with low numbers of bats recorded foraging singly to the south east of the building in scrub.
		Lesser horseshoe	04:59 LHS seen foraging around scrub to the rear of the building, before re-entering the building through the hole in the flat roof above the loading bay at 05:04. A loft inspection after the survey had finished found 4 x LHS in the loft space at the south of the building. 1 further LHS was seen to enter the building after sunrise at 05:40.
03/06/16	Emergence	Lesser horseshoe	Lesser horseshoe bats were recorded leaving the roost through the loft hatch in the southern room of the school, and then travelling through the building, before exiting through the hole in the flat roof at the northern end of the building. 6 LHS exited here. 1 further LHS exited through a hole in the roof in the central section of the building. LHS were observed in loft spaces (singly) in each section of the building during the emergence period.

		Soprano pipistrelle	Foraging to the rear of the site throughout the emergence period.
		Common pipistrelle	Foraging to the rear of the site throughout the emergence period.
		Myotis sp	A single myotis pass was also recorded towards the end of the survey.
04/06/15	Re-entry	Lesser horseshoe	7 x LHS were seen to enter the building through the hole in the loading bay roof, and 7 LHS were recorded entering the roost through the loft hatch at the southern end of the building. 1 x LHS was seen to enter the building through the hole in the roof of the central section of the building, and enter the loft in the central section of the building to roost.
		Soprano pipistrelle	Recorded foraging to the rear of the building throughout the survey.
		Common pipistrelle	Recorded foraging to the rear of the building throughout the survey.
03/08/15	Emergence	Lesser horseshoe	11x LHS were seen to exit the building through the hole in the loading bay roof. LHS were seen to exit the roost internally through loft hatches in the central and southern sections of the building, and were seen singly in the roof space above the northern section and adjacent to the loading bay exit point. 1x LHS was still present inside the northern section of the building after the emergence period had finished. LHS were recorded dispersing along the tree line to the south of the site, and foraging around the scrub in the same area.
		Common pipistrelle	Common pipistrelle bats were recorded throughout the survey, foraging to the rear of the building. The first was recorded at 21:18 15 minutes after sunset.
04/06/15	Re-entry	Lesser horseshoe	14 x LHS were seen to enter the building through the hole in the loading bay roof, and 8 LHS were recorded entering the roost in the southern section through the loft hatch at the southern end of the building. 2 LHS were seen to enter the central section through the loft hatch. 1 LHS was seen roosting in the roof space adjacent to the entrance.

4. EVALUATION AND RECOMMENDATIONS

4.1 Evaluation of results

The building is situated in an area which presents good habitat for bats, with mature trees, and hedgerows, blocks of woodland and bodies of water in close proximity. The building has features which are suitable for use by roosting bats and are considered to have high potential for use.

The building has a number of external features which could be used by roosting bats including gaps leading into the walls, behind barge boards, roof tiles and ridge tiles and beneath lead work. Internally the building has features which could be used by roosting bats including roof spaces, cellars and smaller crevices between layers of materials.

A single lesser horseshoe bat was found roosting in the building during the initial building inspection in April 2015, with a total of four LHS observed together in the southern roof space during the May 2015 surveys and a total of 7 individual bats were recorded returning to roost in the loft space during the June 2015. A maximum of 14 bats were recorded roosting within the loft spaces during the August 2015 emergence and return roost surveys.

The 2016 surveys confirmed the building was still in use by lesser horseshoe bats, with 16 bats recorded roosting, and using the building in the same capacity as the previous season. The lesser horseshoe bats have been observed roosting in loft spaces in all sections of the building. The main access points into/exiting the building are still the holes in the roof in the northern section and in the central section.

Bat droppings considered to be from lesser horseshoe bats were found in all areas of the building, in low numbers. This including scattered droppings in the cellar beneath the central section of the building.

Trees on site which may be cleared to facilitate the development of the site are not suitable for use by roosting bats. The trees are used by foraging bats, and as a connectivity feature used by bats to access wider areas of habitat.

4.2 Roost assessment

The number of bats found roosting in the building, together with the pattern of droppings found in the loft space and in other areas of the building suggest that the building is not used as a maternity roost. No juvenile bats were observed during the surveys. The building is more likely to be in use by single males or non-breeding females.

The sub-floor areas are suitable for use by hibernating bats and therefore the building could be used during the hibernation period by crevice dwelling bats. No bats were recorded roosting within the cellar during the 2015 and 2016 surveys.

The roosting features in the building could be used by a number of different bat species and it is possible that crevice dwelling species such as pipistrelles could use the building to roost. A single common pipistrelle and brown-long eared bat were recorded within the building during the 2016 surveys however, they were not found to be roosting internally.

4.3 Mitigation and compensation measures

Due to the presence of roosting bats within the building, the development will need to be completed under a European Protected Species Licence (EPSL) issued by Natural Resources Wales.

Detailed mitigation and compensation measures will need to be addressed as part of the licence application.

The method statement will focus on ensuring that bats are not directly harmed by the demolition works using the general mitigation measures listed below;

- Carry out demolition works at times when bats are least likely to be using the building in order to avoid direct harm to bats
- Provide alternate roosting opportunities locally while demolition work is carried out
- Brief contractors to ensure they are aware of the presence of protected species and their responsibilities
- Strip the roof by hand under the direct supervision of a licenced bat ecologist
- Plan lighting schemes which do not interrupt flight lines and avoid light spill
- Provide planting schemes and where possible improve feeding opportunities for bats

5. CONCLUSION

The results from the 2015 and 2016 surveys have concluded the former school building in Brymbo contains an active lesser horseshoe bat roost. The roost is considered unlikely to be a maternity roost as only low numbers of individual bats have been recorded, and no juveniles have been observed during the surveys. The building is considered more likely to be a satellite roost.

The number of bats using the building between the April and August 2015 surveys increased from 4 to 14, which would constitute a very small maternity colony for the species. The August 2016 survey recorded 16 bats roosting in the building, spread between all of the lofts. The pattern of droppings observed also suggests use by a low number of bats rather than a larger colony.

As the building is being used by roosting bats the development will need to be completed under a European Protected Species Licence (EPSL) issued by Natural Resources Wales. The licence application will include mitigation and compensation measures to ensure that individual bats, and their habitats are protected during the development works, and into the longer term.

6. REFERENCES

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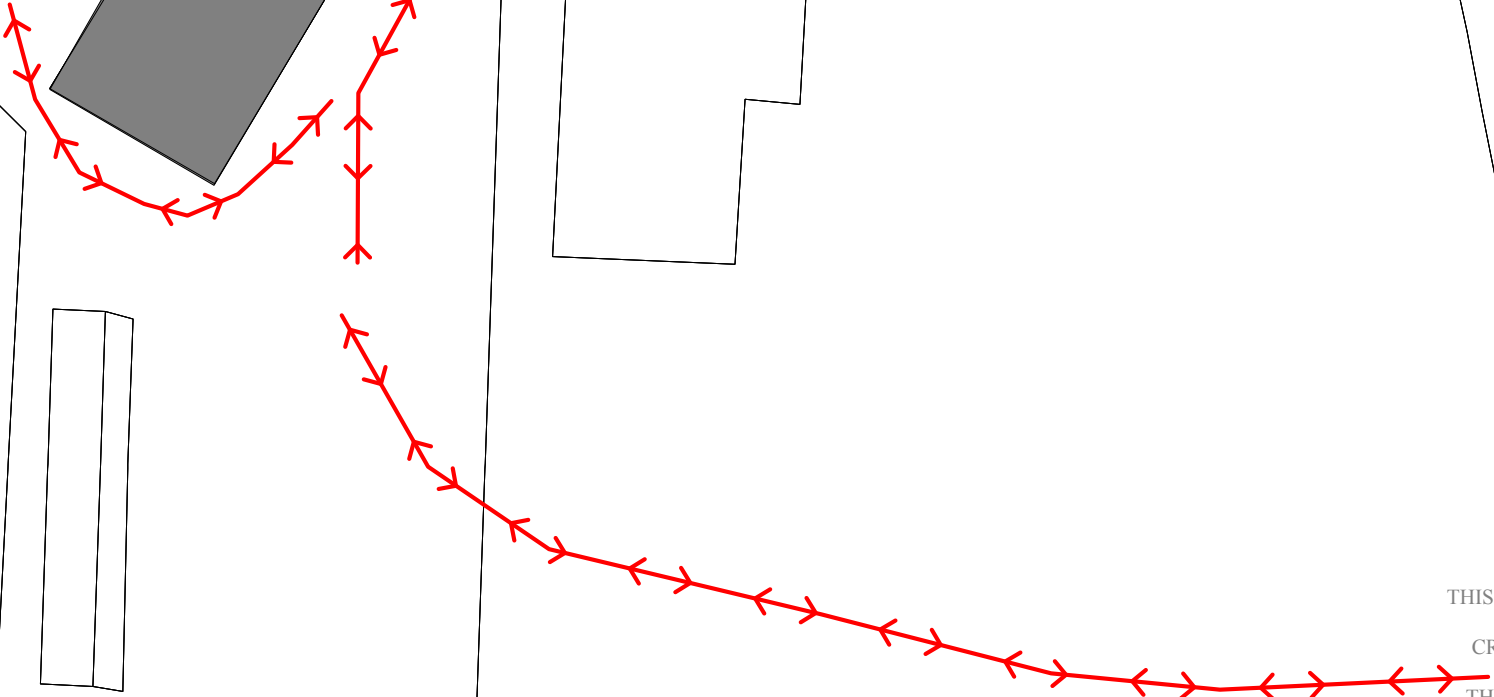
APPENDICES

Appendix 1 – Site plan

Oak Grove

Main roost entrance through hole in flat roof

Secondry roost entrance through hole in pitched roof



Appendix 2 – Aerial photographs



High Street, Prymbo
Close Aerial Photograph





High Street, Brymbo
Wide Aerial Photograph



Appendix 3 – Photographs

Photographs



1. Looking south along High Street towards the northern gable end of the school.



2. Looking north along High Street with the southern gable end of the school on the right.



3. Looking west towards the rear of the school building.



4. The stonework has eroded leaving numerous gaps between blocks.



5. There are gaps between roof and ridge tiles which could be used by roosting bats.



6. The hole in the roof of the central section where bats were seen to enter / exit.



7. The hole in the flat roof section (north) where bats were seen to enter / exit.



8. The interior of the northern section of the building.



9. The floor is collapsing in some sections of the building, here in the northern section.



10. There is a cellar beneath the central section of the building, scattered bat droppings were found.



11. The interior of the southern section of the building.



12. The interior of the part of the southern section where a lesser horseshoe bat was roosting during the scoping survey.



13. Lesser horseshoe bat roosting in the building.



14. An accumulation of droppings beneath a hole in the plasterwork of the roof space above.



15. Droppings on top of the loft hatch beneath the ridge beam on the south west side of the building.



16. An SM2 recorder was left in the loft space (2015) for the period between surveys and is pictured with fresh droppings and urine.



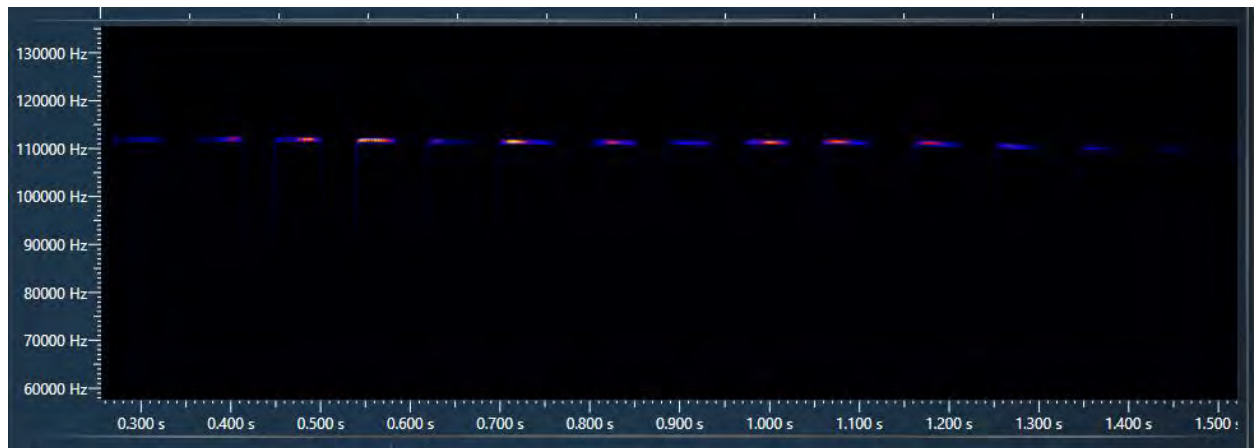
17. Part of the southern roof space.



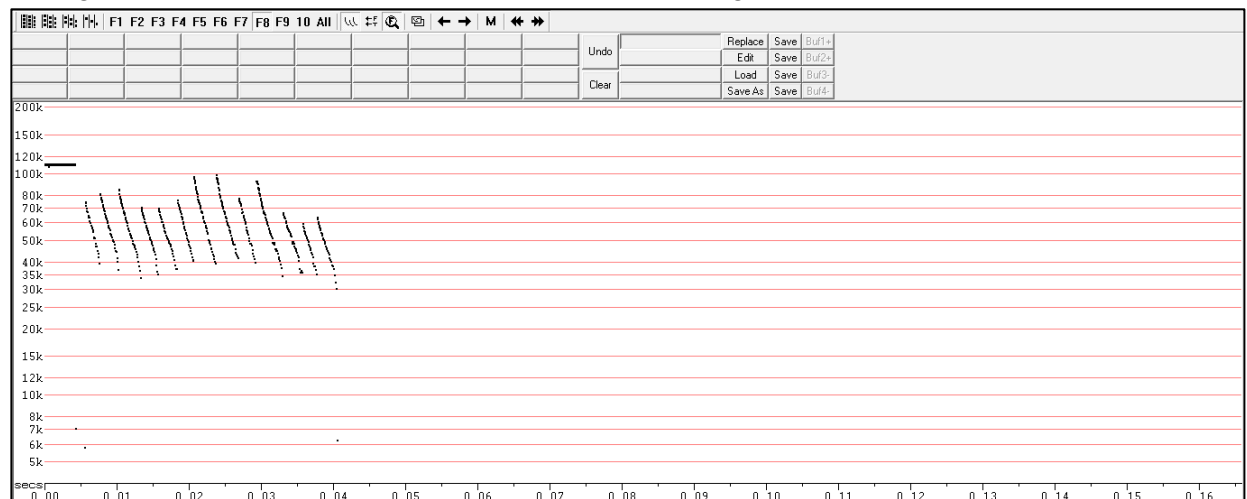
18. Wear marks on the ridge beam at above the loft hatch on the south west gable end.

Appendix 4 – Sonograms

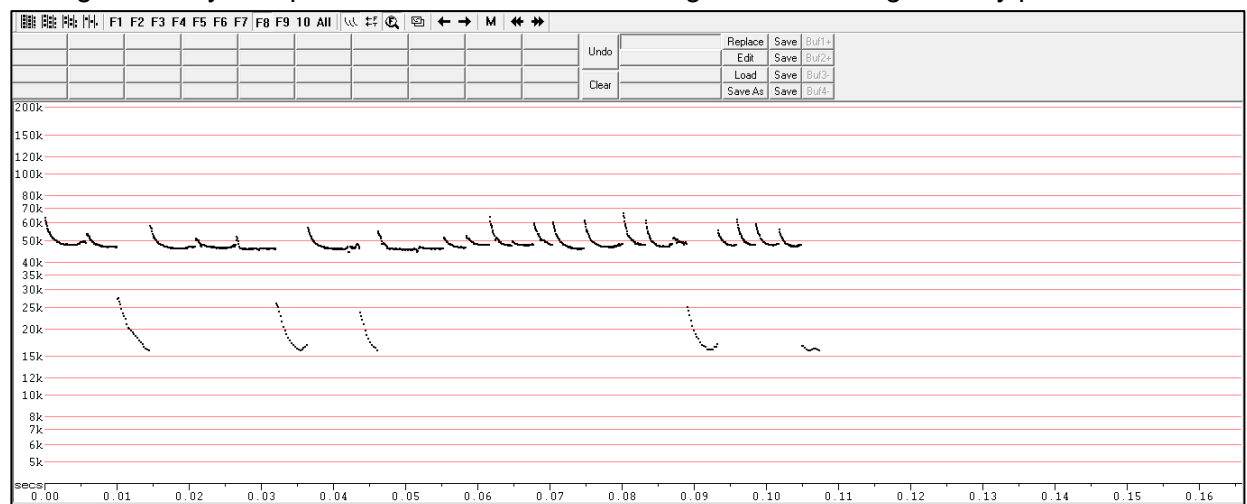
2016



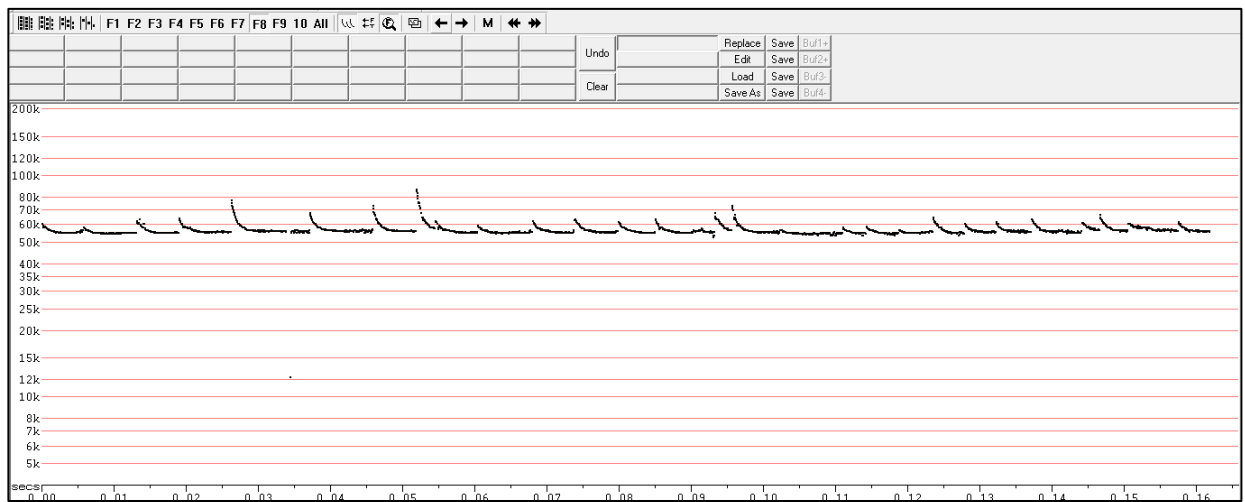
Sonogram 1. Lesser horseshoe recorded on the 22nd August 2016.



Sonogram 2. Myotis species recorded on the 23rd August 2016 during re-entry period.

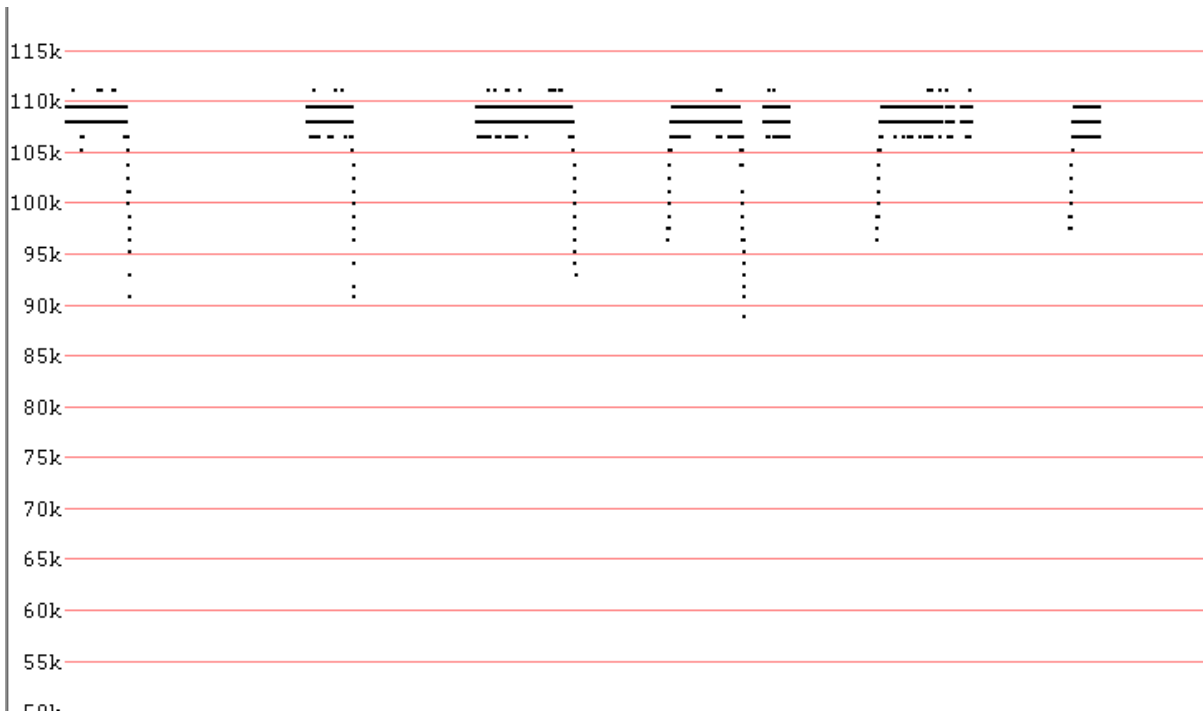


Sonogram 2. Common pipistrelle recorded on the 22nd August during the emergence period.

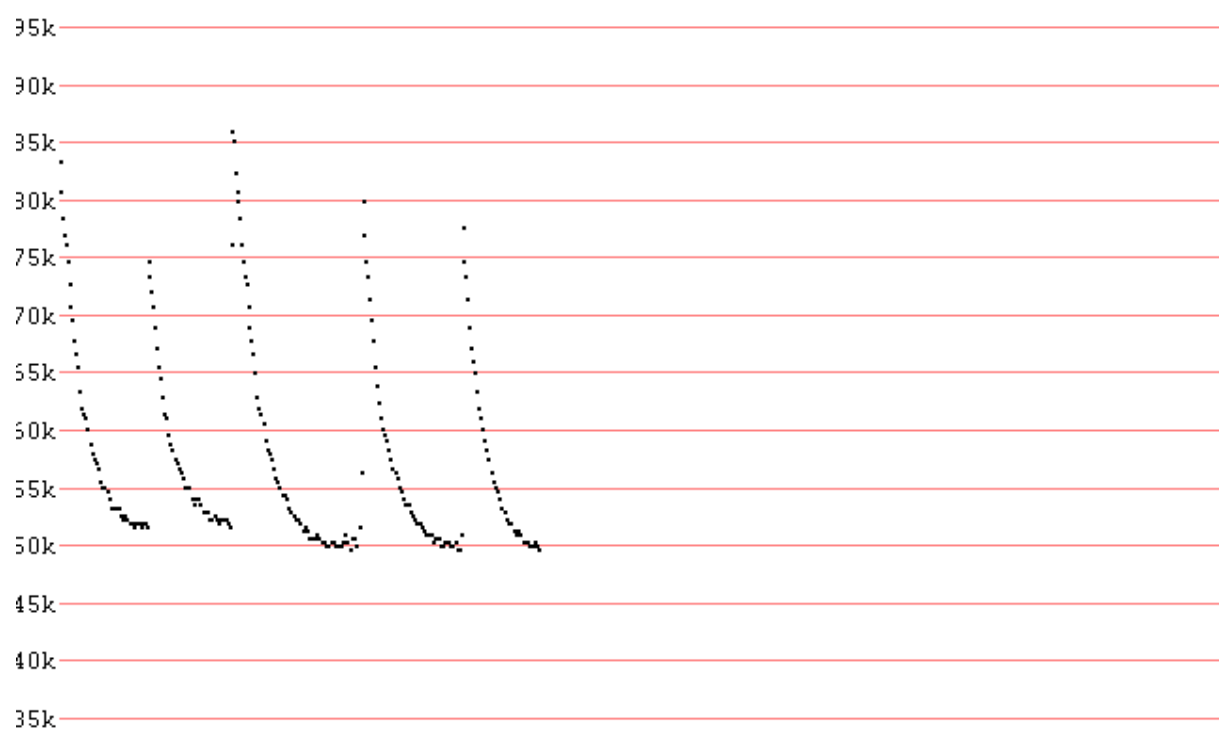


Sonogram 3. Soprano pipistrelle recorded on the 22nd August during the emergence period.

2015



Lesser horseshoe bat sonograms



Soprano pipistrelle sonograms

Appendix 5 – Statutory and planning context

Appendix 2

STATUTORY AND PLANNING CONTEXT

Ecological Assessments

Ecological assessments play an important part within the planning context; they include an initial assessment which highlights any specific interests of a site. From the initial site assessment, the surveyor assesses the suitability of habitats within the site to support protected species and makes recommendations for further survey works if required. The following paragraphs provide a brief interpretation of the legislative protection that is relevant to the findings of this report.

Bats

In the United Kingdom, all species of bat and their roosts are afforded full protection under the Conservation of Habitats and Species Regulations 2010, this makes it an offence to:

- intentionally or recklessly kill, injure or take a bat,
- intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection,
- intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (even if the bat is not present at the time)
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead bat or any part or anything derived from a bat.

If an activity is likely to result in any of the above offences, a licence can be applied for to derogate from the protection afforded. These licences must provide appropriate mitigation and are issued by CCW.

Great Crested Newts

Great Crested Newts and their habitat (aquatic and terrestrial) are afforded full protection by the Wildlife and Countryside Act 1981 (Section 9, Schedule 5). This Act is the domestic implementation of the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) and was amended by the Countryside and Rights of Way Act 2000.

In addition to the above protection, Great Crested Newts are listed on Annex II and Annex IV of the Conservation of Natural Habitats and Wild Fauna and Flora (the Habitats [and species] Directive). This is transposed into UK law by the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations)

If both national and international legislation are taken together, it is an offence to:

- Intentionally or deliberately kill, disturb, injure or take a Great Crested Newt
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a Great Crested Newt
- Intentionally/deliberately or recklessly damage or disturb a Great Crested Newt while it is occupying a structure or place which it uses for that purpose
- Possess or control any live or dead specimen or anything derived from a Great Crested Newt

- Deliberately take or destroy the eggs of a Great Crested Newt
- Damage or destroy a breeding site or resting place of a Great Crested Newt

Great Crested Newts are also protected by the Protection of Animals Act 1911, which prohibits cruelty and mistreatment. Releasing a Great Crested Newt in such a way as to cause undue suffering may be an offence under the Abandonment of Animals Act 1960. In addition to the above, there are various statutory provisions relating to the transport of animals, designed to ensure their welfare.

It is important to identify the presence of Great Crested Newt individuals and also to identify suitable habitat on sites in order that legal obligations regarding this species can be observed.

If the survey identifies the presence of Great Crested Newts on the site, a mitigation scheme would need to be developed in liaison with the local CCW team, which minimise direct threats to newts and compensates for loss of habitat. A licence issued by CCW is required for the legal implementation of a mitigation scheme.

A CCW mitigation licence application requires a Mitigation Method Statement and a Reasoned Statement of Application. The Mitigation Method Statement contains details of the proposed mitigation works. The Reasoned Statement needs to provide a rational and reasoned justification as to why the proposed development meets the requirements of the Conservation (National Habitats & c.) regulations 1994, namely Regulations 44(2)(e), (f) or (g), and 44(3)a).

Other Amphibians

The more common British Amphibians, i.e. common frog (*Rana temporaria*), common toad (*Bufo bufo*), smooth newt (*Triturus vulgaris*) and palmate newt (*Triturus helveticus*) are protected only by Section 9(5) of the Wildlife and Countryside Act 1981. This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy and is not relevant to this situation.

The above named species are also listed as UK Species of Conservation Concern. Due to general declines in most British Amphibian species in recent years, many local authorities require Amphibian surveys as a planning condition, or as part of environmental information submitted as part of a planning application, even where the presence of Great Crested Newts is ruled out.

Water bodies that support all five species of British Amphibian, in high numbers, may be afforded protection in local plans, as Sites of Importance for Nature Conservation (SINC), or a similar equivalent, for sites of local importance. A site may require statutory protection as a Site of Special Scientific Interest (SSSI).

Birds

Wildlife and Countryside Act (WCA) 1981, states that all wild birds are protected. Under the WCA, it is an offence to kill, injure or take any wild bird, to take damage or destroy the nest of any wild bird, or to take or destroy the egg of any wild bird. A special penalty is levied to any of the above offences being committed in conjunction with a bird listed on Schedule 1 of the WCA. It is also an offence if a person disturbs any bird listed on Schedule 1 while it is building a nest, is on or near a nest containing young, or disturbs dependent young of such a bird.

The recent Countryside and Rights of Way Act 2000, has made it an offence to intentionally or recklessly disturb Schedule 1 species as above, and also an offence to intentionally or recklessly take, damage or destroy the nest of any wild bird or its eggs or dependent young.

BAP (Biodiversity Action Plan) species. These are bird species of conservation concern (see below for definitions), which are selected as priority species under one or more of the following criteria: species which are globally threatened and species which are rapidly declining in the UK, i.e. by more than 50% in the last 25 years.

An action plan for each of these species has been developed to set specific, measurable, achievable, realistic and time-bounded targets for the species concerned. Each plan has been costed and then finalised by consensus across the full range of statutory and non-statutory organisations represented on the UK Biodiversity Group. The BAP identifies the work that is necessary to improve the adverse status of these species.

Birds of conservation concern: 2002 - 2007: The leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of the birds that are regularly found here. Three lists have been produced that comprise the following.

Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and have not shown a substantial recovery.

Amber list species are those with an unfavourable conservation status in Europe; whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders and those with internationally important or localised populations.

Green list species are species that fulfil none of the above criteria. These species are not included in the evaluation.

The lists update earlier assessments, Birds of conservation concern and Birds of conservation importance, which were published in 1996. The population status of birds is reviewed every five years to keep track of changes in abundance and range. The new lists are based on the most up-to-date information available.

Hedgerows

The Hedgerow Regulations are made under Section 97 of the Environment Act 1995 and came into operation on 1st of June 1997. They aim to protect important hedgerows in the countryside by controlling their removal through a system of notification to the Local Planning Authority.

A hedgerow can only be considered for classification as “important” if it, or the hedgerow of which the section belongs to is over 20m in length (or which meets a hedgerow at either end) and has existed for 30 years or more.

Invasive Plant Species

Japanese knotweed and Giant hogweed are listed under the Wildlife and Countryside Act 1981 (as amended) as an invasive non-native species (part 1, Section 14). The Act makes it an offence to spread or to cause to spread these alien plants. These provisions are necessary to prevent the establishment of non-native species which may be detrimental to our native wildlife.

Japanese knotweed has an extensive root system and new plants can regenerate rapidly from the smallest fragments of rhizome. Material containing this species is classed as controlled waste under the *Environmental Protection Act (Duty of Care) Regulations 1991*. The disposal of such waste requires that all parties follow a strict code of practice and maintain adequate records regarding their conduct.

Planning Policy

Planning Policy Wales (PPW) (2002) sets out the land use planning policies of the Welsh Assembly Government (the Assembly Government). It is supplemented by a series of Technical Advice Notes (TANS). Procedural advice is given in National Assembly for Wales/Welsh Office circulars. PPW, Ministerial Interim Planning Policy Statements (MIPPS), The TANS and circulars together comprise national planning policy to which local planning authorities in Wales must have regard in the preparation of development plans. They may be material to decisions on individual planning applications and will be taken into account by the Assembly Government and Planning Inspectors in the determination of called-in planning applications and appeals. Detailed advice on the preparation of unitary development plans (UDPs) is contained in *Unitary Development Plans Wales, 2001*. Detailed advice on the preparation of Local Development Plans (LDPs) under the Planning and Compulsory Purchase Act 2004 is given in *Local Development Plans Wales, 2005*.

Technical Advice Note 5 - Nature Conservation and Planning brings together advice on sources of legislation relevant to various nature conservation topics which may be encountered by local planning authorities. Chapter 2 sets out the key principles of planning for nature conservation. Chapter 3 provides advice about the preparation and review of development plans, including relevant statutory requirements. Chapter 4 addresses nature conservation in development control procedures. Chapter 5 deals with the conservation of internationally and nationally designated sites and habitats and also covers local sites. Chapter 6 deals with the conservation of protected and priority species.

Biodiversity Action Plans

Biodiversity Action Plans (BAPs) are a series of documents setting out targets and actions for species of conservation concern. BAPs are divided into three main categories: National Habitats, National Species and Local Plans. The UK Biodiversity Action Plan (UKBAP) is a set of national strategies for the conservation of biological diversity and the sustainable use of biological resources. The UKBAP contains action plans for 382 'UK Priority Species' and 45 'UK Priority Habitats', considered of national conservation concern.

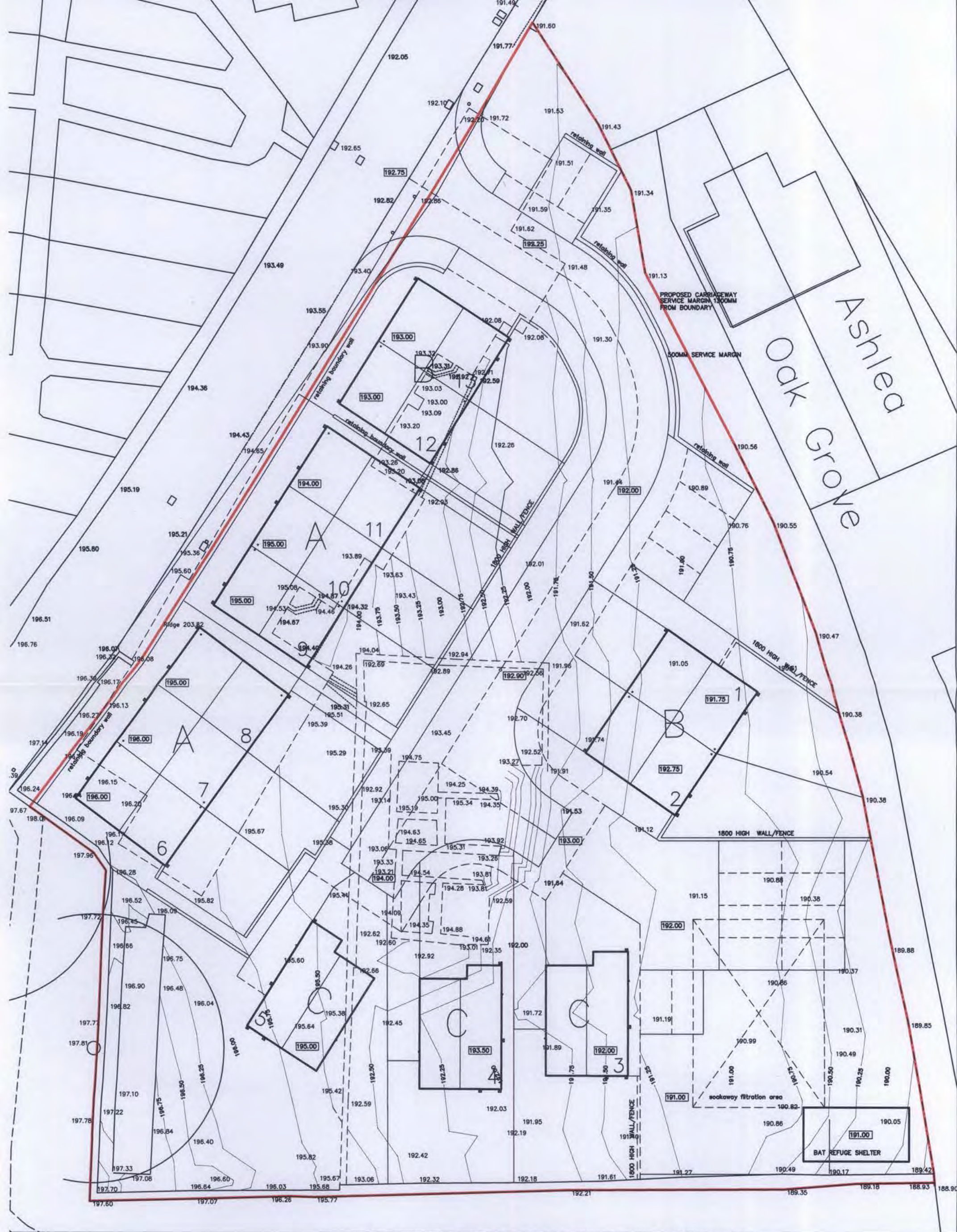
'UK Priority Species' are defined in the 'UK Biodiversity Group Tranche 2 Action Plans' (HMSO, 1998) as either globally threatened or rapidly declining in the UK, i.e. by more than 50% in the last 25 years. Some of the UK Priority species are statutorily protected, while others receive partial or no protection.

The listing of a species or habitat in the UKBAP does not necessarily provide it with any statutory or planning policy protection. However, the client is advised that many planning authorities have policies that provide protection to UKBAP species and habitats, in line with Planning Policy Statement 9.

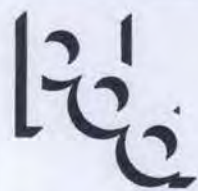
In addition to the national BAP, many Local Authorities have prepared Local Biodiversity Action Plans (LBAP). These LBAPs highlight species and habitat types that are of national concern (UKBAP species and habitats) and may also include non-UKBAP species that are of local concern. LBAPs will be prepared for these species and habitats. As with the UKBAP, listing of a habitat type, a site or a species in a LBAP does not confer any new statutory or planning policy protection. However, impacts upon sites, habitats or species prioritised in LBAPs may be a material consideration in a planning application.

The above sections provide an overview upon current planning policy and legislation relating to species and habitats that could be located within the survey area.

J.2 Bat mitigation and compensation measures



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Parry Davies Architects.

Chartered Architects.

PROJECT TITLE
LAND OFF HIGH STREET BRYMBO

DATE
MARCH 2015

SCALE
1:250@A3

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RSG

CHK

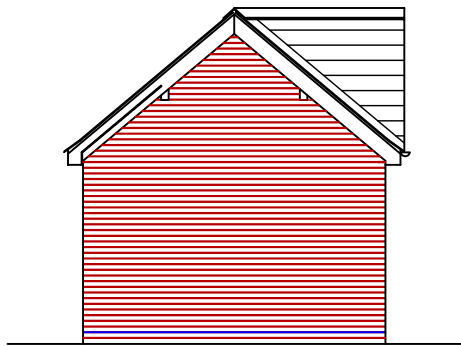
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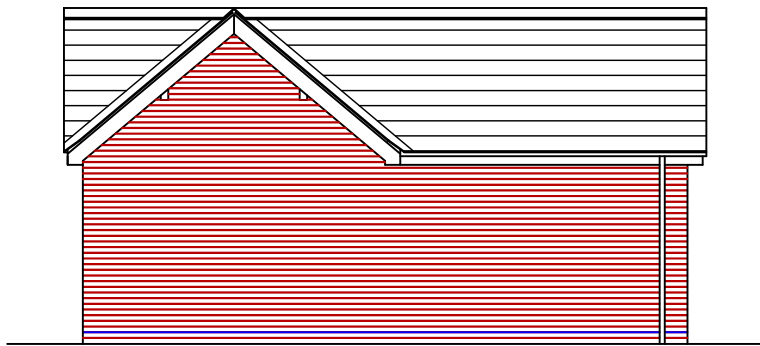
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Studio 55:20 North Wales Business Park Abergele LL18 7LJ

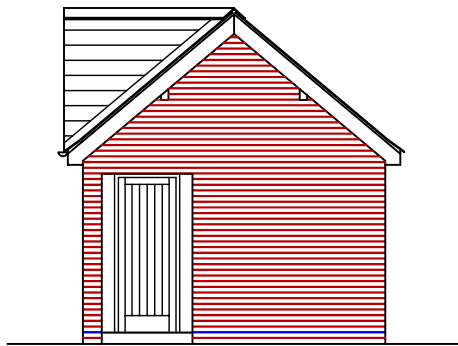
Tel: 01745 585517 E-mail: PDPArchitects@aol.com



western elevation



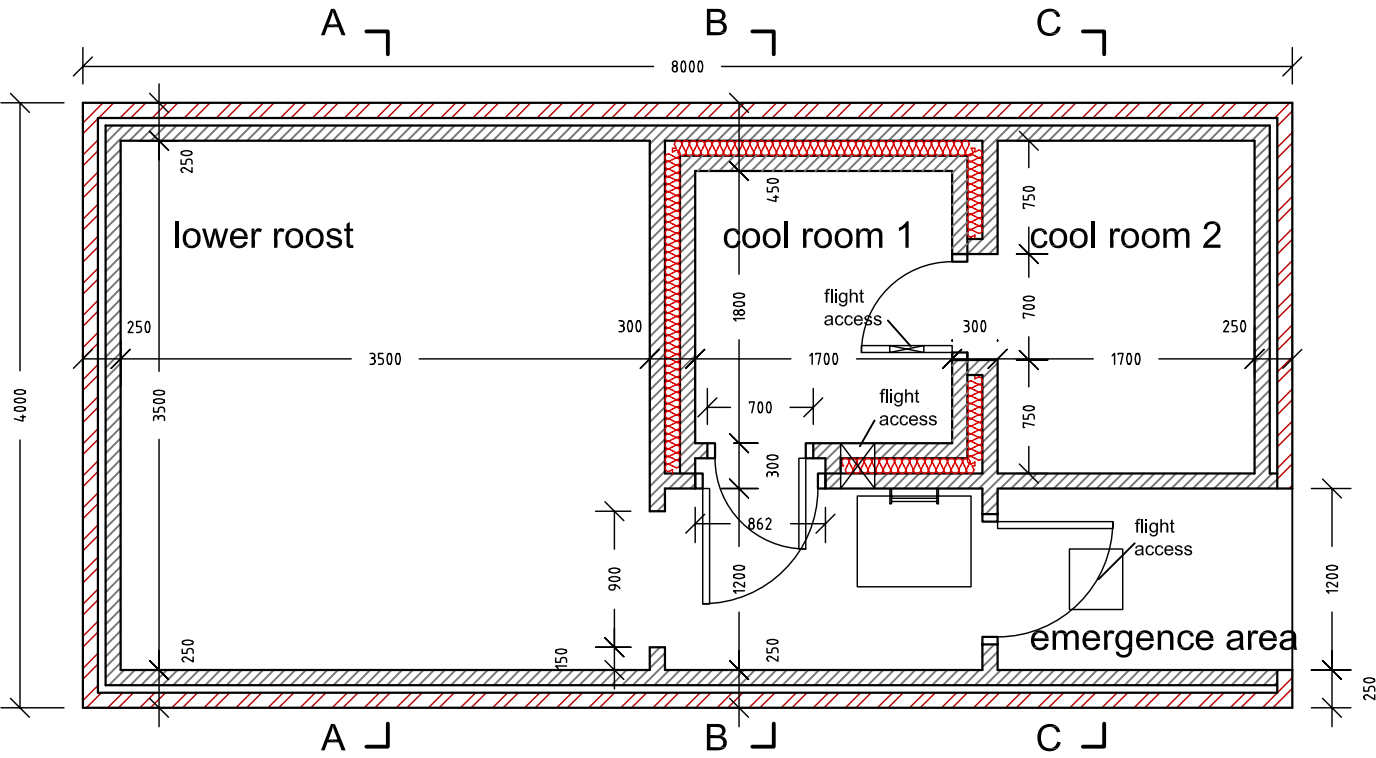
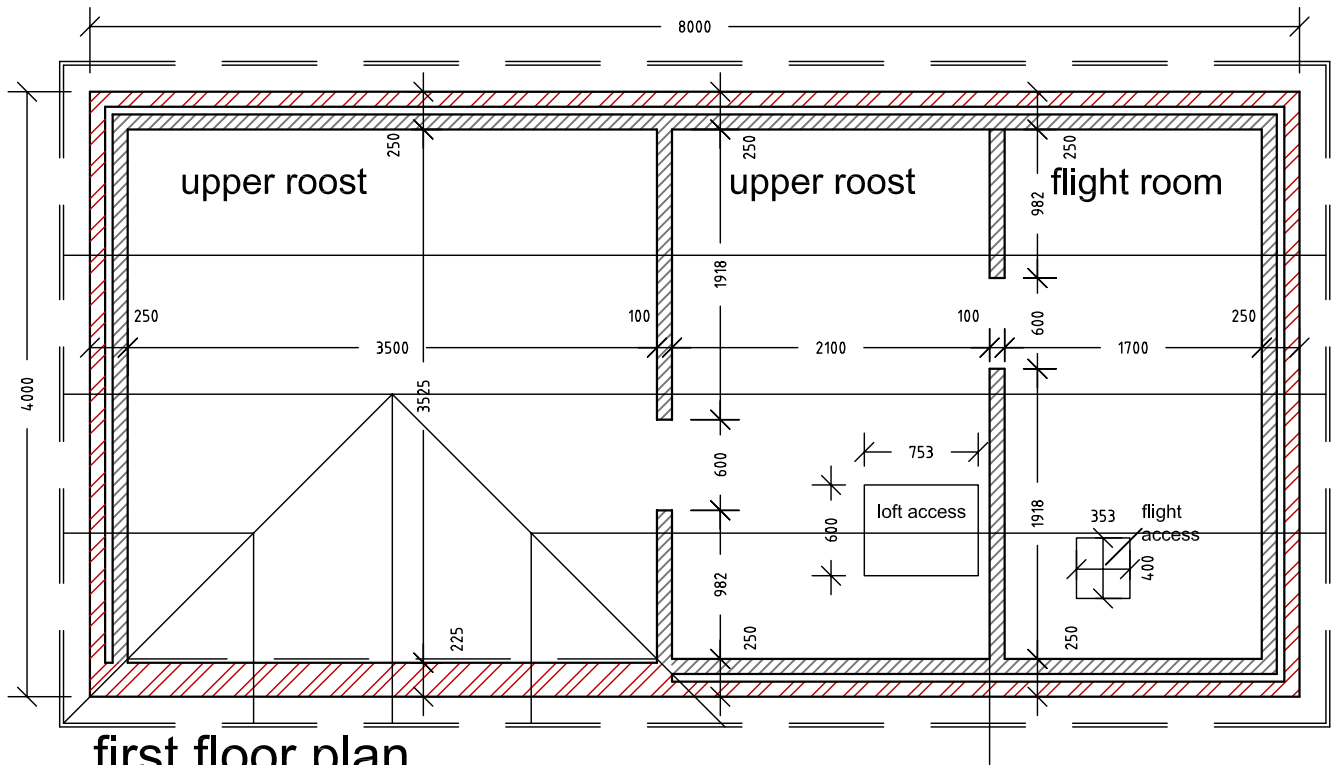
southern elevation



eastern elevation



northern elevation



NOTES:
To be read in conjunction with Engineers, Services drawings etc. All dimensions to be checked prior to construction on site. All works to be carried out to the satisfaction of LA and relevant B.S. All discrepancies to be reported immediately.

FOUNDATIONS:
Trial hole to be dug to ascertain existing ground conditions - assumed to be clay for the purposes of the tender.
Foundations to external walls forming the hibernaculum to be 730 x 200mm thick strip foundations, elsewhere to be built of floor slab edge thickening as Detail 2.
Internal walls built off reinforced floor slab.
All concrete strip foundations to be Gen1/ST2 mix concrete to BS 5328 in accordance with building regulations at 1000mm min. below existing ground levels. Foundations to be laid on level base.

NEW CONCRETE GROUND FLOOR SLAB:
Floor slab to be 100mm thick C35 mix to BS.5238 concrete slab finished fine, laid on a continuous DPM (1200 gauge Visqueen) turned up at perimeter up to ground level, on bed of 50mm fine sand blinding over 150mm min. well compacted and levelled hardcore base.

FIRST FLOOR CONSTRUCTION (C16 grade timber)
Provide 18 mm CDX plywood boarding on 47 x 170 mm C16 floor joists at 400mm max. c/c's. 40 x 6mm galv'd m.s. straps at 2000mm max c/c's over 3no min. joists parallel to external wall with s.w. noggin under and to full length of straps (noggings to be 47x170mm min.). Joists to be built-in min. 100mm or supported by proprietary joist hangers. Floor to receive full fill mineral wool insulation over cool room 1 with a 12 mm cdx plywood ceiling with 38 x 19 battens on counter battens to soffit, battens to be untreated. All boards to be cut tight to wall abutments, to prevent air transfer from ground to upper floor areas. Allow for loft accesses and flight access holes as set out on plans.

EXTERNAL WALL CONSTRUCTION - Brick
103 mm facing brick to l.a. approval outer skin with 100mm solid block internal skin, 250mm cavity brickwork to main external walls, southern gable to be 225mm solid wall above first floor height. Outer leaf brick to be tied to inner leaf block with stainless steel wall ties at 900 mm horizontal and 450 mm vertical c/c's, staggered and doubled at all openings.
Lintels over door and window opening as drawing, min. 150 mm end bearings. Lintels to be Catnic CN71 type in brickwork. 100mm thick fairfaced inner leaf blockwork. Hyload DPC's to all walls to be min. of 150mm above ext. ground level. DPC to be stepped adjacent ground level less than 150mm below internal floor level - to maintain 150 mm vert. clearance. Solid block below DPC level. min 6 courses engineering brick on external leaf below concrete slab and DPC. All internal finishes to be fairfaced.

INTERNAL WALL CONSTRUCTION
Internal non-loadbearing block walls from 100mm thick solid dense concrete blockwork off DPC on floor slab. Junction of internal walls and external wall to be secured with crocodile type wall fixings to full vertical height. All internal finishes to be fairfaced. Extra skin of 100mm thick solid dense concrete block work to inner face of cool room 1 with 100 mm cavity and full fill mineral wool insulation. Insulation to butt to floor insulation in this area.

ROOF CONSTRUCTION: (C16 grade timbers)
Roof coverings as approved, slate or concrete Tiles. Coverings to BS. 5534 Part 1 (40 deg Pitch) - onto 50 x 25 mm battens on untearable roofing felt to BS 747 (f1 type bitumen) draped over 47 x 100 mm s.w. rafters at 400mm max. c/c's. (See Ridge Detail). Rafters on 100x75mm s.w. wall plate at eaves, onto 50 x 225 mm s.w. ridge board over and supported mid span by 100 x 225 mm s.w. purlins. Valley rafters to be 225 x 50 SW. SW wall plates strapped to inner leaf of blockwork at 1350mm c/c's max by galvanised mild steel straps 1m min length, bedded on. Gable wall straps of 40 x 6 x 900 mm galv'd m.s. straps at 2000 mm max c/c's along rafters, rafters nogged beneath and to full length of straps. 200 x 25 mm thick Cedar facias and barge boards. Verge formed with supalux undercloak tiles bedded on lime mortar and pointed with sand cement mortar. Verge to oversail barge board by min. 50mm. Soffits to be 10 mm WBP plywood unfinished and untreated, set flush with fascia offset from walls by 22mm

EXTERNAL DOORS:
New external doors to be matchboard untreated and unfinished timber, with 12mm WBP plywood (untreated) screw fixed to back of doors. Door frame to be untreated and unfinished timber. Doors and frames to have site applied stain finish colour to be confirmed by CA (Contract Administrator)

INTERNAL DOORS:
New internal access doors to be 22 mm cdx back framed plywoo. Door frame to be untreated and unfinished timber. Doors and frames to be unfinished. Hinges to be galvanised steell 'T' hinges, closures to be pad bolts.

GENERAL:
1 - All dimensions to be checked on site.
2 - All timbers to be untreated. All external joinery to be untreated.
3 - All materials/products to be installed in strict accordance to manufacturers details and specifications.
4 - All materials/products to be "fit-for-purpose"
5 - Contractor to provide material samples for local planning authority approval prior to commencement of works - tiles, bricks and render.
6 - Contractor to ensure that all works are carried out in strict accordance to current building regulations and british standards.
7 - Main contractor to obtain calculations from Catnic Lintels to prove adequacy of proposed lintels and furnish to CA (Contract Administrator) for approval prior to installation of lintels.
8 - Main contractor to obtain calculations from preferred precast concrete lintel supplier to prove adequacy of proposed lintels and furnish to CA (Contract Administrator) for approval prior to installation of lintels.

client
United Environmental Services
1 Booths Park
Chelford Road
Knutsford
Cheshire
WA16 8QZ

project title

Old School Buildings - Brymbo
Bat Mitigation

drw. title

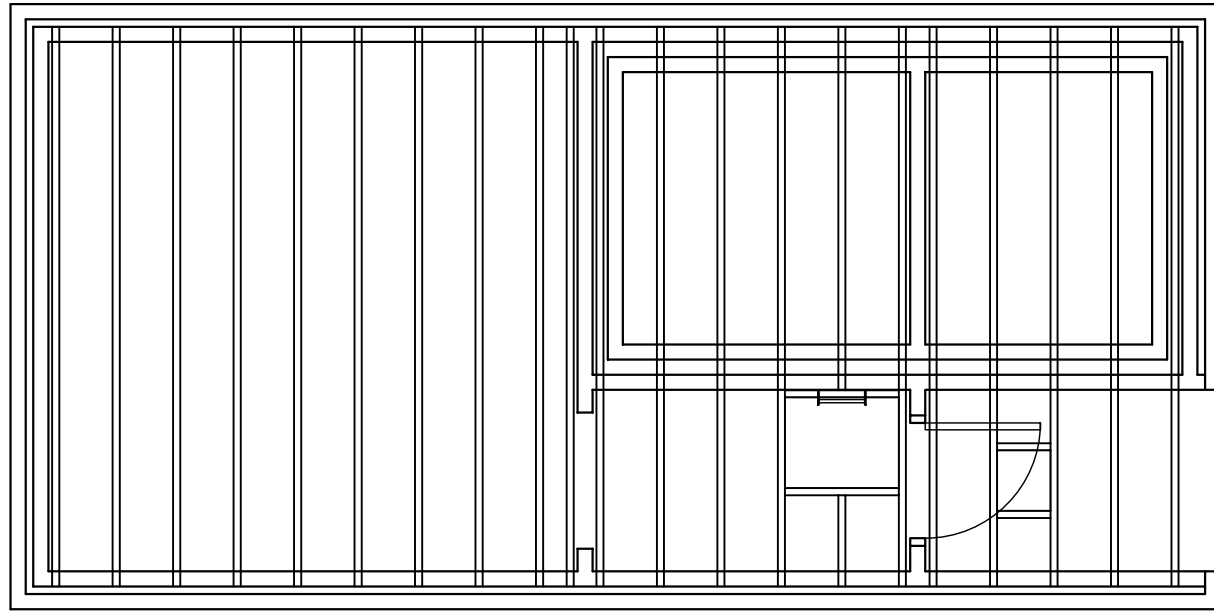
Plans and Elevations

scale	date	drawn
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rev.	chkd.	

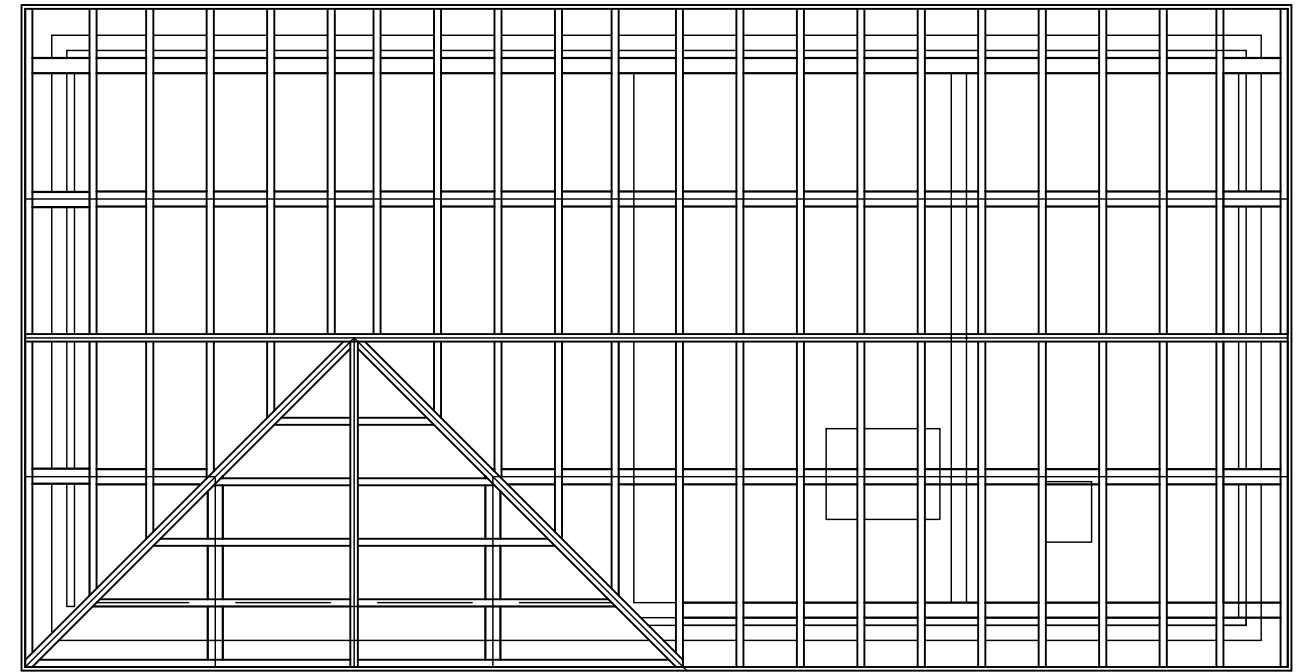
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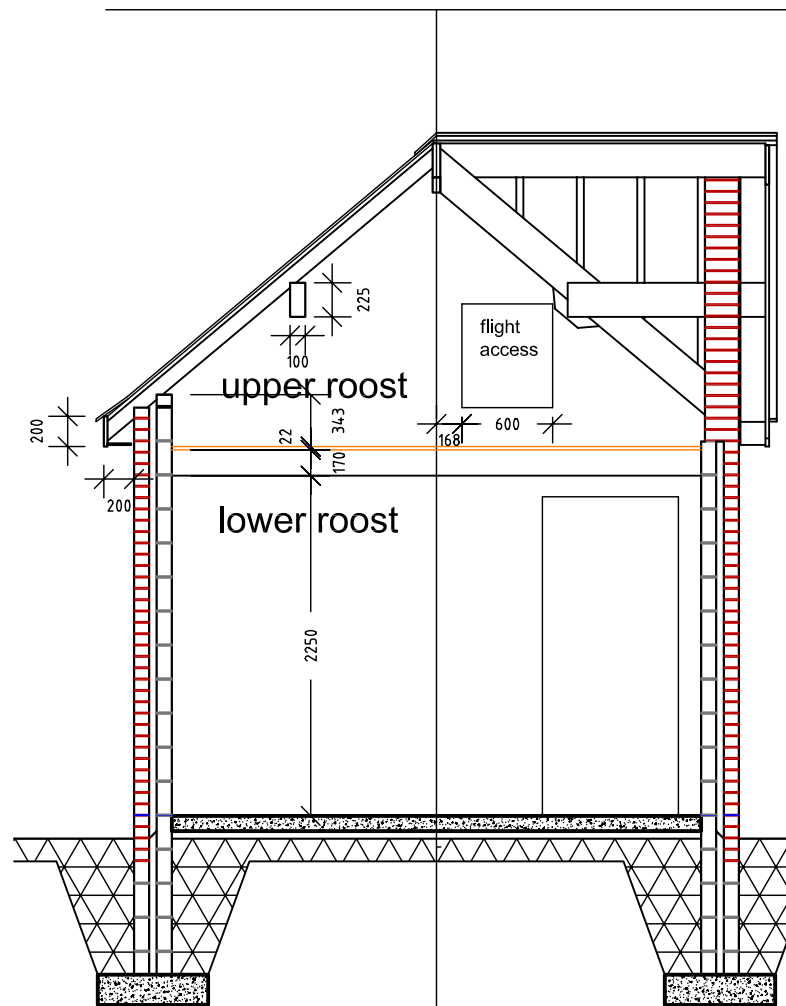




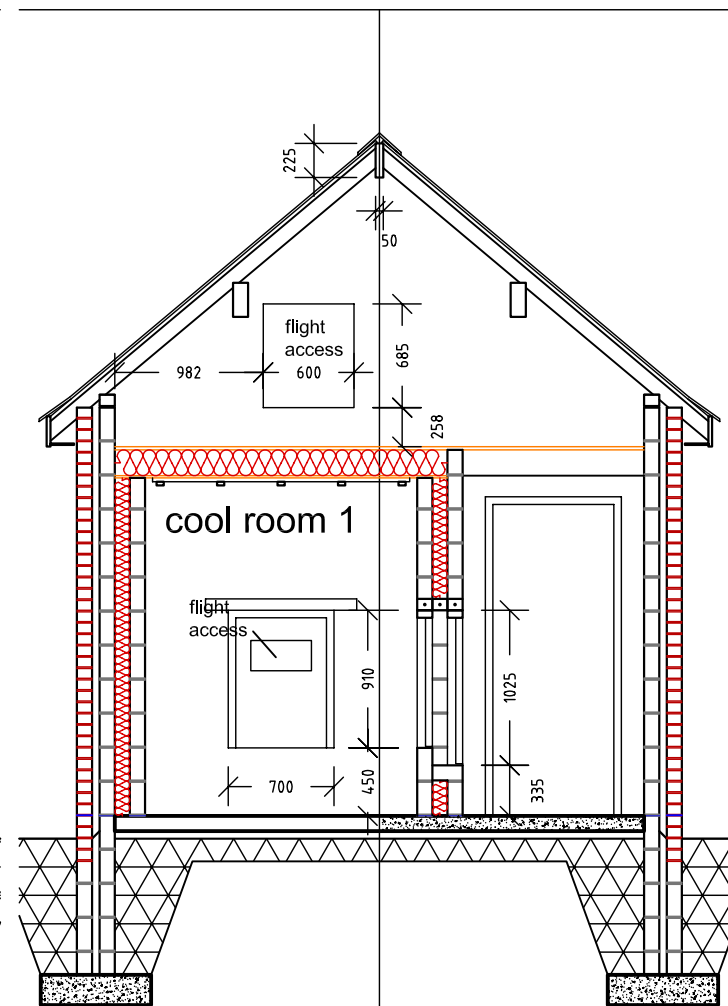
first floor plan



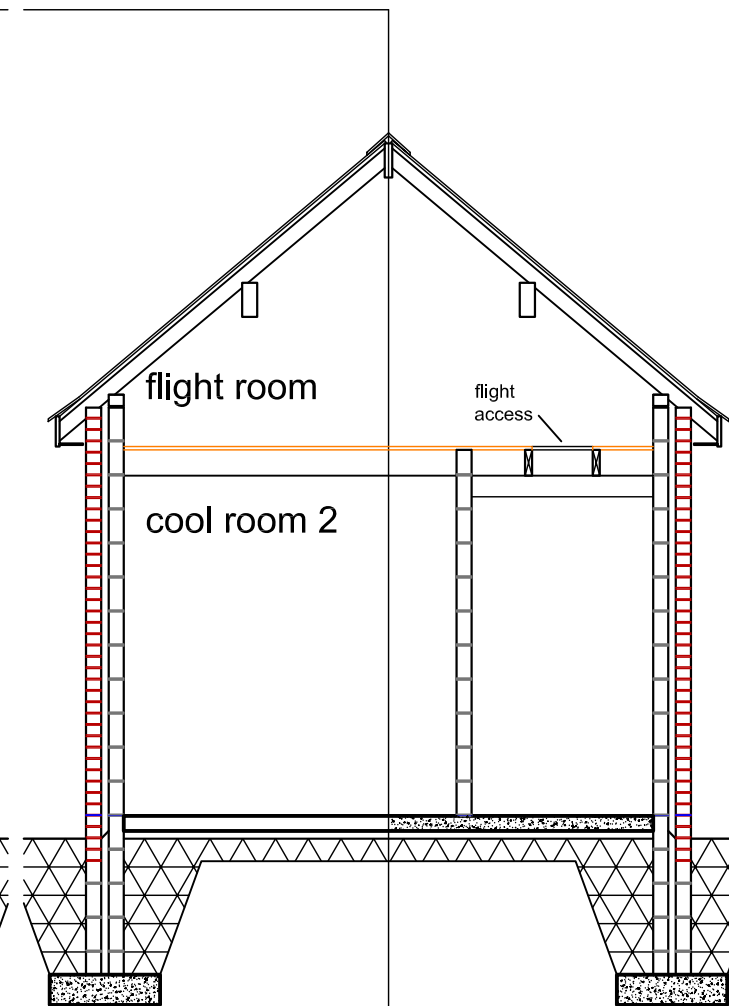
roof floor plan



section A-A



section B-B



section C-C

client
United Environmental Services
 1 Booths Park
 Chelford Road
 Knutsford
 Cheshire
 WA16 8QZ
 project title

**Old School Buildings - Brymbo
 Bat Mitigation**

drw. title
Plans and Sections

scale
 1:50 & 1:100 @ A3
 rev.
 date
 JULY '16
 chkd.
 drawn
 TJH

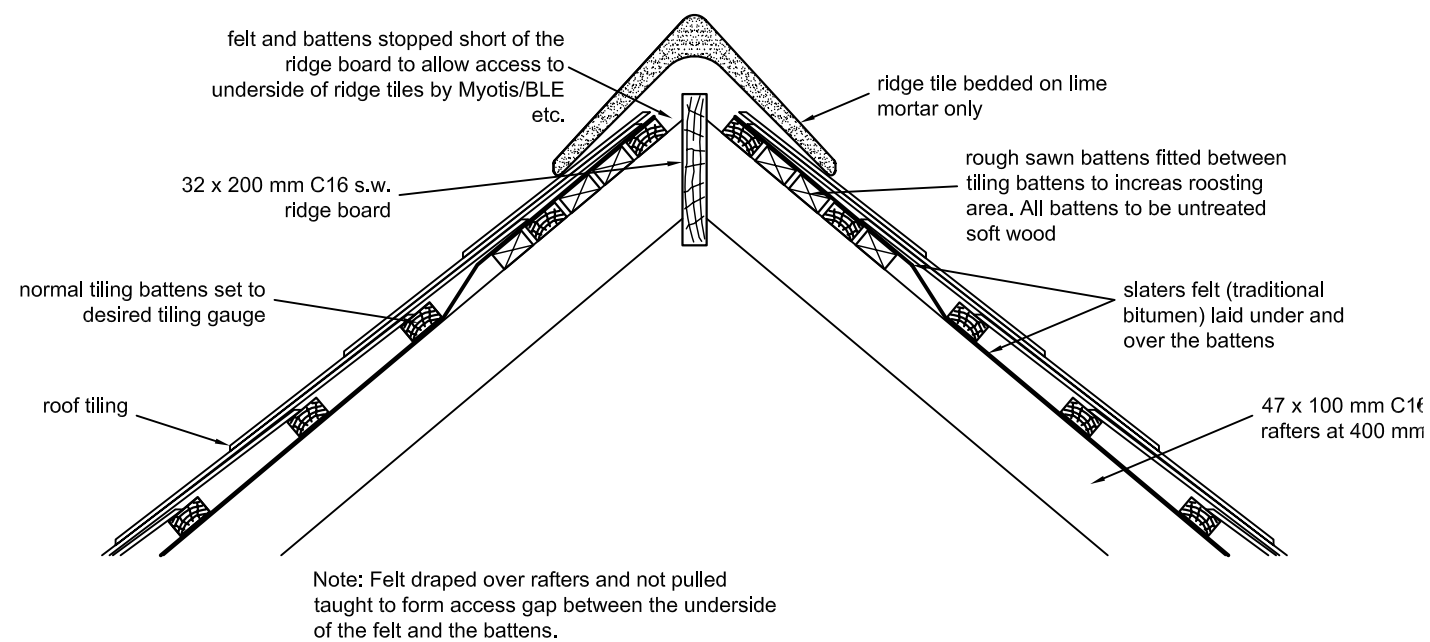
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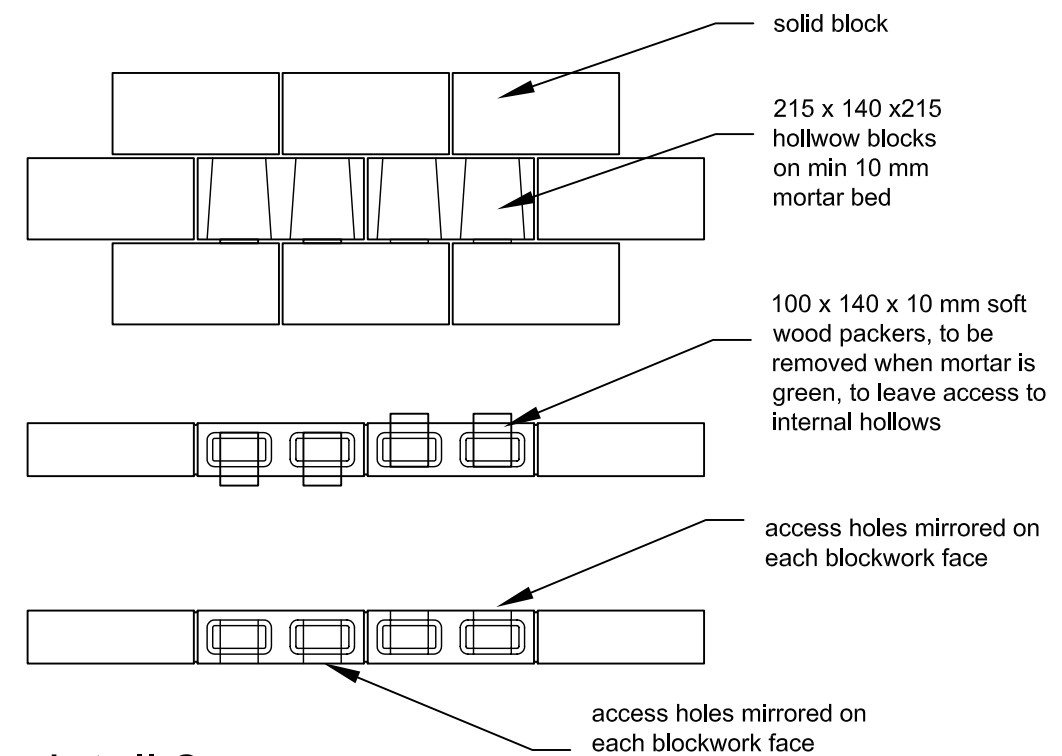
ecological design consultants

NOTES:
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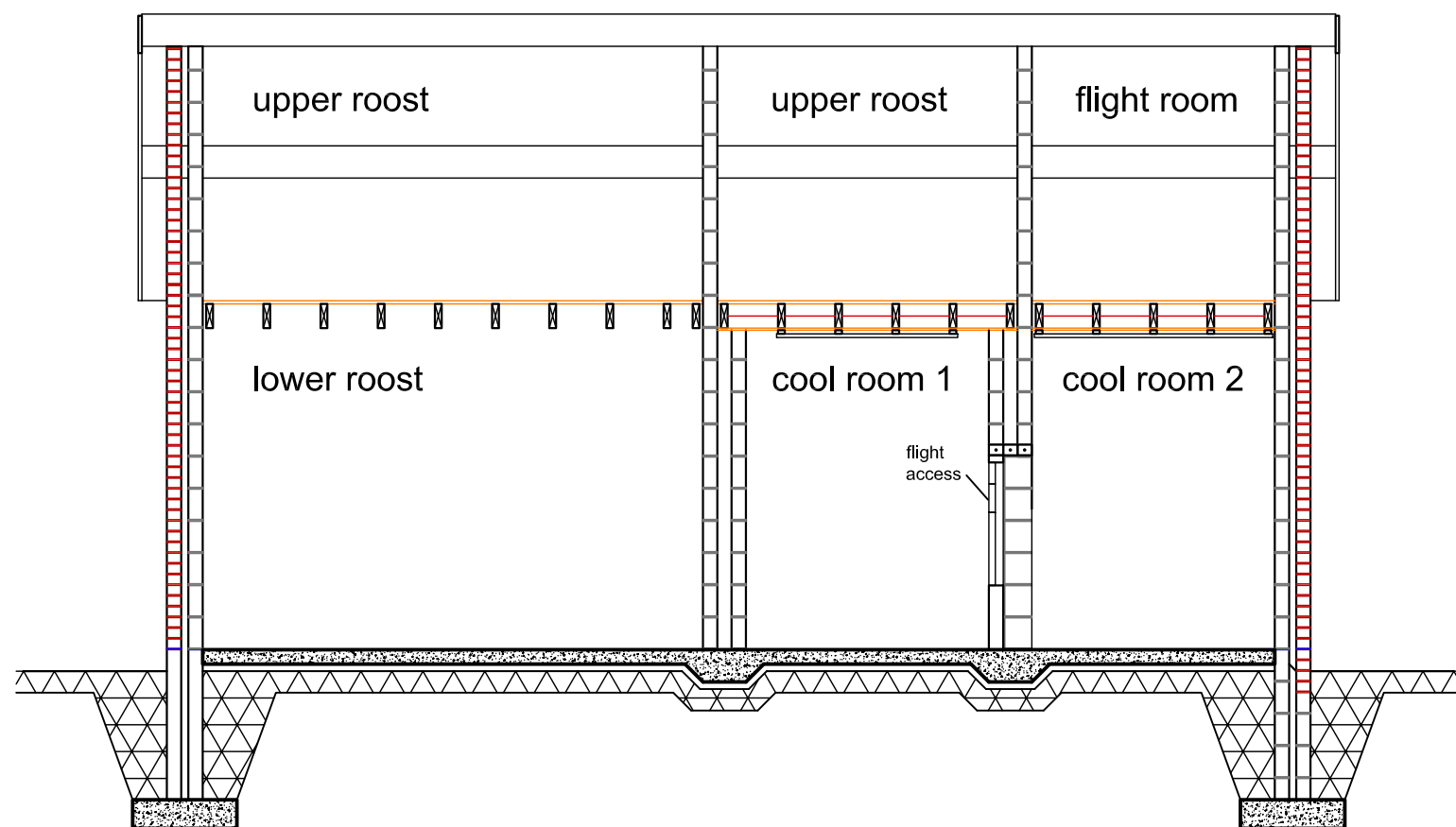
the cottage bodrhyddan hall ■ rhuallan denbighshire ■ 18 5sb tel:01745 591208 mo:07778 134930 e-mail:badcuk@ukgateway.net



detail 1
ridge detail scale 1:10



detail 2
block roosts detail scale 1:20



longitudinal section

NOTES:
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1 Booths Park
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project title

**Old School Buildings - Brymbo
Bat Mitigation**

drw. title
Details and Sections

scale	date	drawn
1:10, 1:20 & 1:100 @ A3	JULY '16	TJH
rev.	chkd.	

project ref.	drawing no.
0926	MIT-03



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