



ADDENDUM TO BAT SURVEY REPORT
Bat Mitigation and Enhancement
January 2018

Bryn y Groes
Gresford
Wrexham
LL12 8TN

A Report for SG Estates

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QUALITY ASSURANCE

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DECLARATION

This report has been produced in accordance with BS42020:2013 by Penny Lewns and Elinor Parry of Protected Species Ecology Ltd. The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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5.3 MITIGATION, COMPENSATION & ENHANCEMENT MEASURES

The mitigation strategy for Brynygroes is outlined in Protected Species Ecology Ltd.'s Bat Survey Report, dated October 2017 (V2 issued 24/11/17). The loss of bat roosts will be compensated by provide replacement roosts to suit all the bat species present on the site, including a bat roost building on the southern edge of the site and Schwegler bat boxes erected on mature trees in the POS on the southern and eastern boundaries.

There will be no adoptable street lighting, so that a dark corridor will be maintained along the southern and eastern boundaries of the site, to ensure bats can continue to move to and from the site. Where external security lighting on houses is required, these will be cowled and fitted with a timer, to ensure that there is no light spill from the houses onto the southern and eastern boundaries, or onto the mature trees in the central POS. If path lighting is deemed necessary for public safety, it will be low level, direction lighting, to minimise light levels within the POS.

The Hall and Stables will be demolished in early spring (March), at a time when bats are unlikely to be present, but that if they were present, they would be unlikely to be hibernating. This is a time when birds may have begun to nest, but are unlikely to have progressed far, and so there would be opportunities for those birds to re-start a breeding attempt.

5.3.1 Bat roost building

The bat building will provide replacement roosting opportunities for lesser horseshoe, common/soprano pipistrelle, whiskered and brown long-eared bat, and would be suitable for summer, transitional and late transitional/winter use.

The bat building will be single storey gable ended structure, approx. **5.5 m long by 4 m** wide, with brick/block cavity walls and a pitched roof. It will be located **adjacent** to the pumping station on the southern edge of the site [see **Figure 5.1**]. The building will be maintenance free, relying on solar gain to heat the loft during summer. It will be

completed within **1 month of the demolition of the Hall (before mid-April)** and will incorporate the following features [see **Figure 5.2** and **5.3**]:

- Traditional slate or clay-tiles with overlapping clay ridges tiles, with external gaps for crevice dwelling bats,
- Timber cladding to the northern and southern gables to create additional external roosting opportunities
- The roof will be lined with bitumastic-type 1F felt, supported on a cut and pitch timber roof or by a trussed roof that lacks any central cross timbers (such as would be employed for a loft conversion),
- There will be an insulated ceiling, to create an enclosed loft of no less than 1.75 m height and an open hatch into the loft
- **There will be an internal full height division in the loft, to create a warmer area the southernmost quarter**
- **There will be a single skin breeze block internal wall, to minimise light ingress and help maintain stable internal temperatures throughout**
- **Exposed timber joists, false purlins, timber ridge board and rafters, and bitumastic felt edges will provide opportunities for lesser horseshoe bat to roost, and where necessary, battens or plastic mesh will be added to these for additional purchase,**
- In the northernmost corner, there will be a cool tower constructed of single skin breeze block walls, to create a cooler area for transitional use.
- Sterling board baffles will be attached to the walls for brown long-eared bat,
- To maintain a high humidity, the ground floor will include a bare earth floor,
- Access for bats will be via a metal grilled opening on **the south-eastern elevation.**
- **The south-eastern elevation will be enclosed by a hit and miss fence to screen the bat exit from the public and create a sheltered area for bat flight prior to emergence.**

5.3.2 Bat boxes

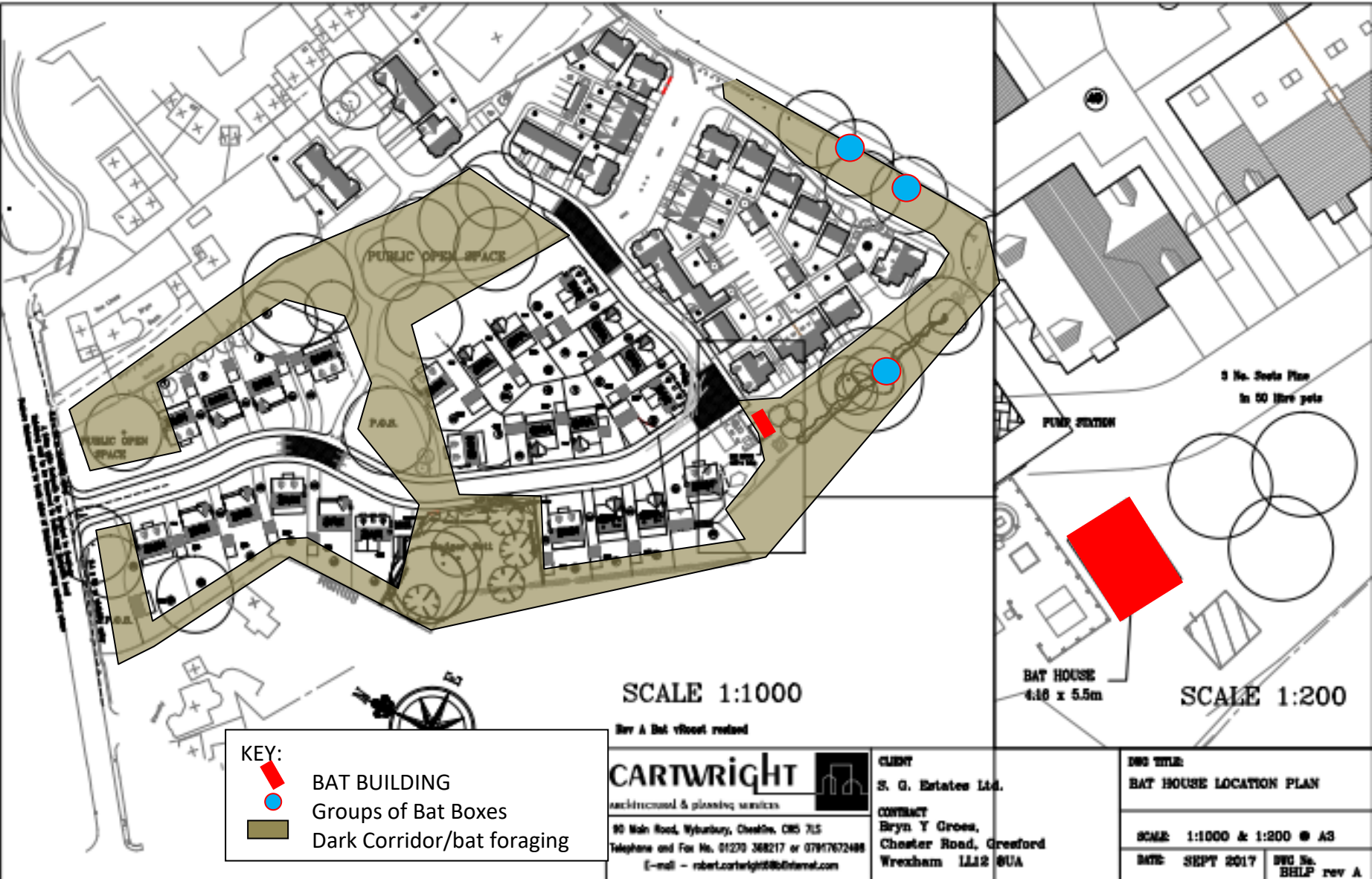
Nine bat Schwegler or similar woodcrete bat boxes will be installed in three groups of three boxes on mature trees in the POS and on the southern and eastern boundaries [see **Figure 5.1**]. These will include a 1FS type maternity box and two 2F boxes for pipistrelle bats, three 1FF boxes for noctules and three 1FN or 3FN boxes for brown long-eared bat. The boxes will be erected prior to demolition of the Hall and Stable, under the supervision of an ecologist. The boxes will be installed above 3 m height and on different aspects to maximise the suitability for bats.

5.3.3 Sequence of work during demolition of the Hall and Stables

1. The demolition will take place in March, following the issue of an EPS licence.
2. The named ecologist will give a Toolbox Talk to the contractor at the start of work, covering bat ecology legislation and site-specific information.
3. Prior to the demolition, if safe to do so, the named ecologist will carry out an internal inspection of the building and cellar to look for bats. The ecologist will also inspect any areas of vegetation for breeding birds.
4. The named ecologist will supervise the demolition of the building, and check for bats as the demolition progresses, if safe to do so.
5. If bats are present and, if it is possible to do so safely, they will be captured by hand or using a hand net.
6. Bats that are captured will be given a health check and transferred to carrying boxes. Provided the bat is healthy without visible injury, it will be given a feed of live meal worms and will be released after sunset on the same day (provided the weather and temperature are suitable).
7. Bats that are unfit for release, but which are likely to recover, will be taken to a local bat carer for treatment and rehabilitation. Any bats that are injured beyond recovery will be euthanised, following the procedure outlined in the Bat Workers Manual, 1999.



Figure 5.1 Showing location of bat mitigation for Phase 2



SECTION

Side Elevation

Front Elevation

Rear Elevation

PLAN

SECTION

Notes:

- END GABLES TO BE FINISHED WITH SW BATTENS SUPPORTING HORIZONTAL BOARDING. Concrete Blockwork To Gable PILES ONLY
- LOFT AREA TO REMAIN CLEAR
- 12mm external quality plywood ceiling
- MS Straps at 1.8 cts
- 5502
- 2850
- 900
- DPC
- Bare exposed earth
- 4163
- 5502
- 440
- 330
- Metal door with grill
- Longitudinal bracing
- Diagonal ceiling bracing
- Diagonal ceiling bracing
- Longitudinal bracing

Roof Construction:

See Spec above for the end wall details on 25 x 38mm sw timber battens

Roof timbers to be 200 x 50 ceiling joists at 600 cts

150 x 50 mm rafters at 600 cts

100 x 15 mm wall plates, 200 x 25 mm ridge board

Rainwater Goods:

None

EXTERNAL WALL CONSTRUCTION:

102 MM FACING BRICK WITH 100MM BLOCKWORK INTERNALLY

GARAGE FLOOR

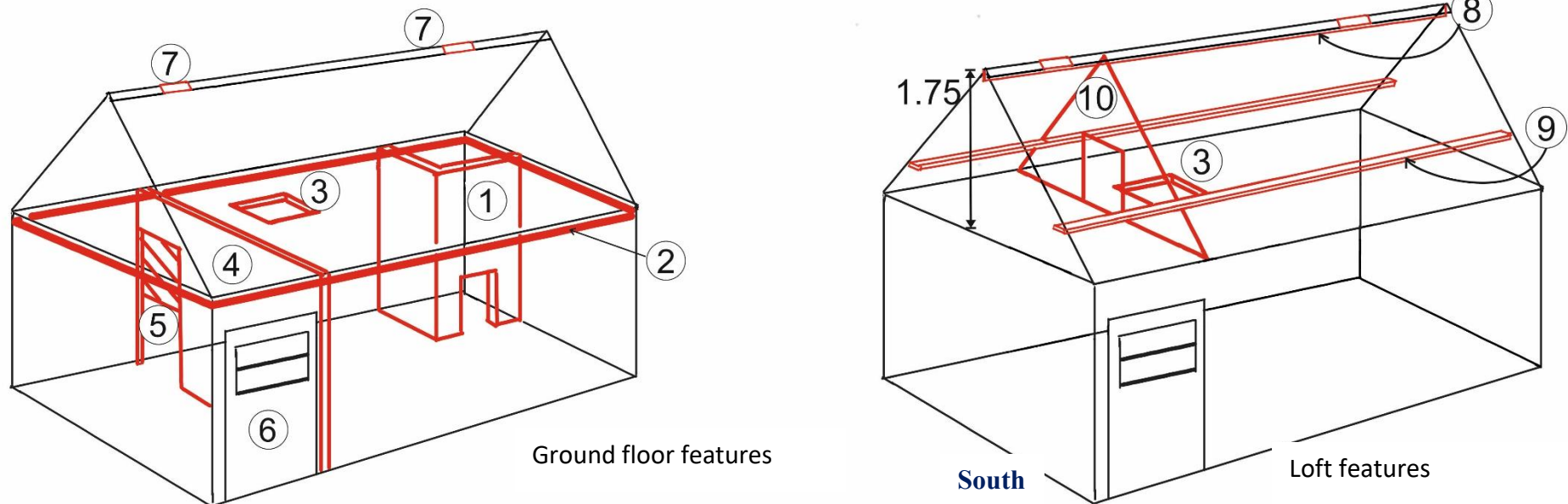
100 THICK CONCRETE ON 1250G POLYTHENE DPM ON 50 THICK SAND BLINDING ON 125 THICK WELL COMPACTED hardcore OR SELECTED FILL (SULPHATE FREE)

FOUNDATIONS

Standard 400 x 175mm concrete strip foundations 900 deep



Figure 5.3 Sketch showing bat mitigation features in proposed bat building



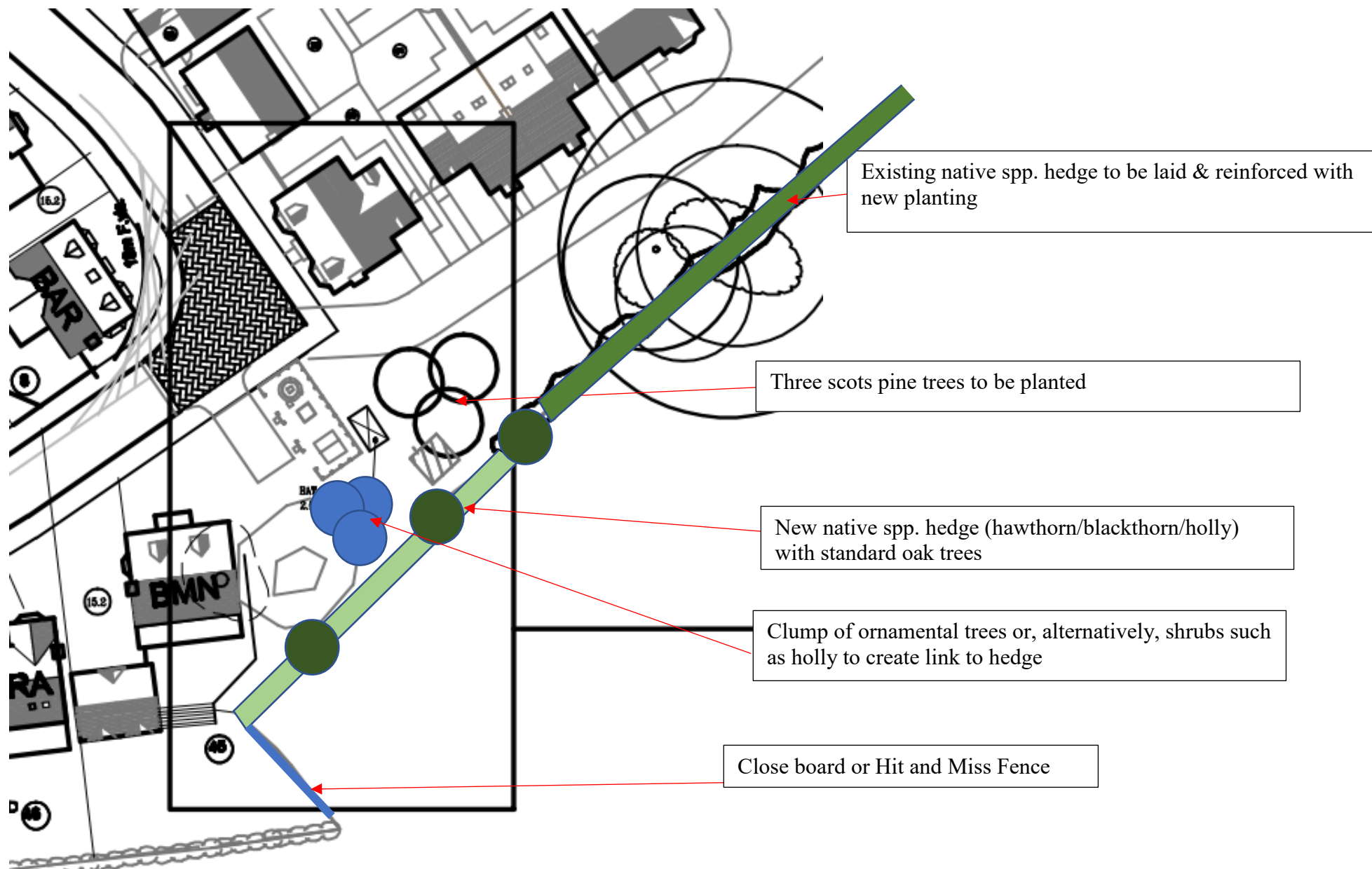
EXTERNAL WALLS -102mm facing brick with 100mm block internally.

Upper section of gables to be clad in horizontal overlapping timbers, attached to vertical lathes to give external roosting feature.

ROOF – Traditional slate or clay with overlapping clay ridges, bitumastic felt lined (type 1F)

1. Single skin breeze block tower 1100mm by 1100mm with a 600mm high by 500mm wide opening at the base. Ply boarding sheet to seal the top with longitudinal roofing battens (rough timber) attached to the underside at 300 mm centres
2. Ply sheet ceiling resting on joists with Kingspan or similar insulation attached to underside, between joists
3. Loft hatch (no door) allowing access into loft hatch for bats & surveyors [min. 500mm by 500mm]
4. Single skin breeze block from floor to ceiling creating corridor from doorway
5. Doorway at far end of corridor (approx. 700 mm wide) with half door with hinges & latch hung in top half of doorway
6. Lockable metal access door at southern end of eastern elevation, with bat access incorporated in top 1/3 comprising a metal grill with single span horizontal bar with 150 mm high by 500 mm width air space between bar & door frame.
7. Overlapping traditional clay ridge tiles with gaps below.
8. Full length rough timber ridge board 200mm by 25mm tight to ridgeline & bitumastic felt. Minimum height to ridge from ceiling to be 1075mm. Cut & pitch design preferred to maximise flying space.
9. Purlins to be set minimum 600mm above loft floor
10. A ply or sterling board full height/width division (ridge to loft floor) creating a warm section at southern end, with opening 600mm wide by 500 mm high at floor level.

Figure 5.4 Landscaping/habitat creation adjacent to the bat building



5.4 POST-DEVELOPMENT SITE SAFEGUARD

5.4.1 Habitat/site management and maintenance

The bat building and its environs will be maintained by a Management Company, who will be responsible for all Public Open Space on the site.

Landscaping adjacent to the building will be managed to ensure uncluttered flight paths to and from the building, with no shading of the roof, but at the same time, with sufficient cover close by, and connectivity to the wider environment [see **Figure 5.4**]. The existing native species hedge linking the bat building to the Old Wrexham Road will be layered and any gaps infilled with new planting; this will include three new standard trees on the section to the south-west of the bat building. Three Scots pine trees will be planted to the northeast of the building, and further new planting (of ornamental trees or shrubs) will occur south west of the building, to create a link to the hedge. This will take place as soon as possible once the building is constructed.

The building will have a padlocked external door and hit and miss fence to the eastern elevation, with a locked gate. Keys to the bat building and gate will be kept by the Named Ecologist (on the EPS derogation licence) and the Management Company.

The bat roost building will rely on passive mechanisms (solar gain orientation and humidity from bare earth floor) to maintain the correct environmental conditions for bats. Therefore, maintenance of the building will be limited to an annual inspection in April, to ensure the building is in good repair. Since the building may have year-round bat occupation, any internal inspection and any repair work will be undertaken under the supervision of a licensed bat worker [see below]. Any alterations must be agreed with Natural Resources Wales (NRW), prior to being completed.

During, the first 5 years of the life of the building, any repairs, adjustments/alterations will be undertaken under the direction of the Named Ecologist, working under the EPS licence. Once the licence expires, this role will be taken over by an organisation

appointed by the Management Company. Any bat boxes that fail during the first 5 years will be replaced.

5.4.2 Population monitoring, roost usage etc.

Post-completion monitoring will be undertaken to determine the success of the mitigation and compensation measures. It will be undertaken by the Named Ecologist or their Accredited Agent, twice per year, in Years 1, 3 and 5, following completion of the demolition of the Hall.

During each monitoring period, the bat boxes and the bat building will be inspected for evidence of bat use (such as droppings or bats), and a bat activity survey of the building will be completed.

The bat activity survey will comprise an evening emergence or dawn re-entry survey, together with 5 nights' passive monitoring inside the building (ground floor and loft). The emergence surveys will be completed by two ecologists (one per gable) following best practice guidelines (Collins 2016). The ecologists use Elekon BatloggerM or similar specification detectors, and will observe the building to determine if bats are present, the number of individuals using the roost(s) and the species present.

5.4.3 Post-development mitigation contingencies

If there has been no uptake of the bat boxes by Year 3, consideration will be given to repositioning the boxes. This will be done under the direction of the Named Ecologist.

5.4.4 Mechanism for ensuring delivery of post-development works

Compliance monitoring will be undertaken by the Named Ecologist or Accredited Agent. A compliance report will be submitted to Natural Resources Wales and the Local Planning Authority:

1. On completion of the building and mitigation works
2. On completion of Year 1 monitoring surveys
3. On completion of Year 3 monitoring surveys, and
4. On completion of Year 5 monitoring surveys,