



Wildwood Ecology Ltd

APPLICATION FOR A LICENCE – BATS

This document follows the standard headings and structure of the Natural Resources Wales template.

PEN Y BRYN, LLANMAES, LLANTWIT MAJOR, VALE OF GLAMORGAN

METHOD STATEMENT

15 JANUARY 2015

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Site/Job:	Pen Y Bryn, Llanmaes, Llantwit Major, Vale of Glamorgan
Report title:	Method Statement
Report reference:	WWE110510/MS/NRW

VERSIONING

V	Status	Changes	Author	Position	Date
1	Draft	-	Richard Dodd	Principal ecologist	10/12/2014
2	Final	Changes to timing of works	Richard Dodd	Principal ecologist	15/01/2015

	Name	Position	Date
Reviewed by:	Bob Firmin, MCIEEM	Senior Ecologist	15/12/2014
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Issued to client:			

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BACKGROUND AND SUPPORTING INFORMATION

A EXECUTIVE SUMMARY

A series of agricultural buildings (A-G) at Pen y Bryn, Llanmaes, Llantwit Major, Vale of Glamorgan are subject to plans for conversion into residential dwellings. A survey for protected species was undertaken in 2005 by David Clements Ecology (DCE). The survey confirmed the presence of a small number of common pipistrelle bats and possibly other species (either long-eared or Natterer's). Wildwood Ecology Limited was contracted to update the DCE report and undertake daytime baseline and supplementary activity surveys of the buildings for bats and nesting birds. The objective of the survey was to establish the potential of the building in supporting bats, presence/absence of bats and the impact of the proposed works on protected species if present.

A series of bat surveys identified roosts for a small number of brown long-eared, common pipistrelle and whiskered bats within buildings C, D and E, all of which will be damaged (through conversion) as a result of the development.

In the absence of mitigation the proposed conversion to residential dwellings of Pen Y Bryn is anticipated to have a high impact on individual bats, but a low impact on the local bat populations. The works will result in the loss of roosts important at the local (common pipistrelle) and county (brown long-eared and whiskered) level.

A mitigation strategy has been developed to ensure that brown long-eared, common pipistrelle and whiskered bat populations are maintained at a favourable conservation state and that the continued ecological functionality of the roosts are ensured.

B INTRODUCTION

B.1 Background to activity/development

Planning permission has been granted by Vale of Glamorgan Council for the "*conversion of 2 existing barns into two dwellings*" at Pen y Bryn, Llanmaes, Llantwit Major.

Ecological surveys found non-maternity roosts (i.e. resting places) for brown long-eared, common pipistrelle and whiskered bats within the buildings C, D & E scheduled for conversion.

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

- Conversion of existing barns into two dwellings
- Provision of bat mitigation measures within newly converted dwellings

The site has received full planning permission from Vale of Glamorgan Council (2012/00941/FUL) for the "*conversion of 2 existing barns into two dwellings*" at Pen y Bryn, Llanmaes, Llantwit Major.

No other consents are required.

No designated sites will be affected by the works.

B.3 Actions requiring licensing

Disturbance of bats – during soft roof strip of bat roosting areas

Handling of bats – during soft roof strip of bat roosting areas

Loss of bat roosts – conversion of buildings C, D & E to two residential dwellings

C SURVEY AND SITE ASSESSMENT

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

A survey for protected species was undertaken in 2005 by David Clements Ecology (DCE) who consulted with Vale of Glamorgan Council, Wildlife Trust of South and West Wales, Countryside Council for Wales and the Glamorgan and Bridgend Bat Groups. The survey confirmed the presence of a small number of common pipistrelle bats and possibly other species (either long-eared or Natterer's).

There is a known bat roost (brown long-eared and pipistrelle) within the main farmhouse at Pen y Bryn (Mr Stephens, pers. comm.); further afield are important bat roosts including greater horseshoe, lesser horseshoe, serotine, brown long-eared, *Myotis* and *Pipistrellus* bat species.

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

No statutory protected sites for bats are present within 10km of the site.

C.3 Objectives of the survey

The scoping survey aimed to establish baseline data on the presence/absence of any bat species at the site, and to assess the potential of the buildings to support any bat species.

The bat activity surveys aimed to ascertain if the buildings contained any bat roosts and if so to:

- determine the species, number, and status of the roosts (i.e. maternity, hibernation, night roosts; foraging, commuting, swarming sites);
- identify roost locations and access points; and
- gather sufficient information for planning permission, listed building consent and EPS licence applications.

The outcome of the surveys has been used to establish the need for and extent of mitigation and compensation measures required as part of the proposed works.

C.4 Scaled plan/map of survey area

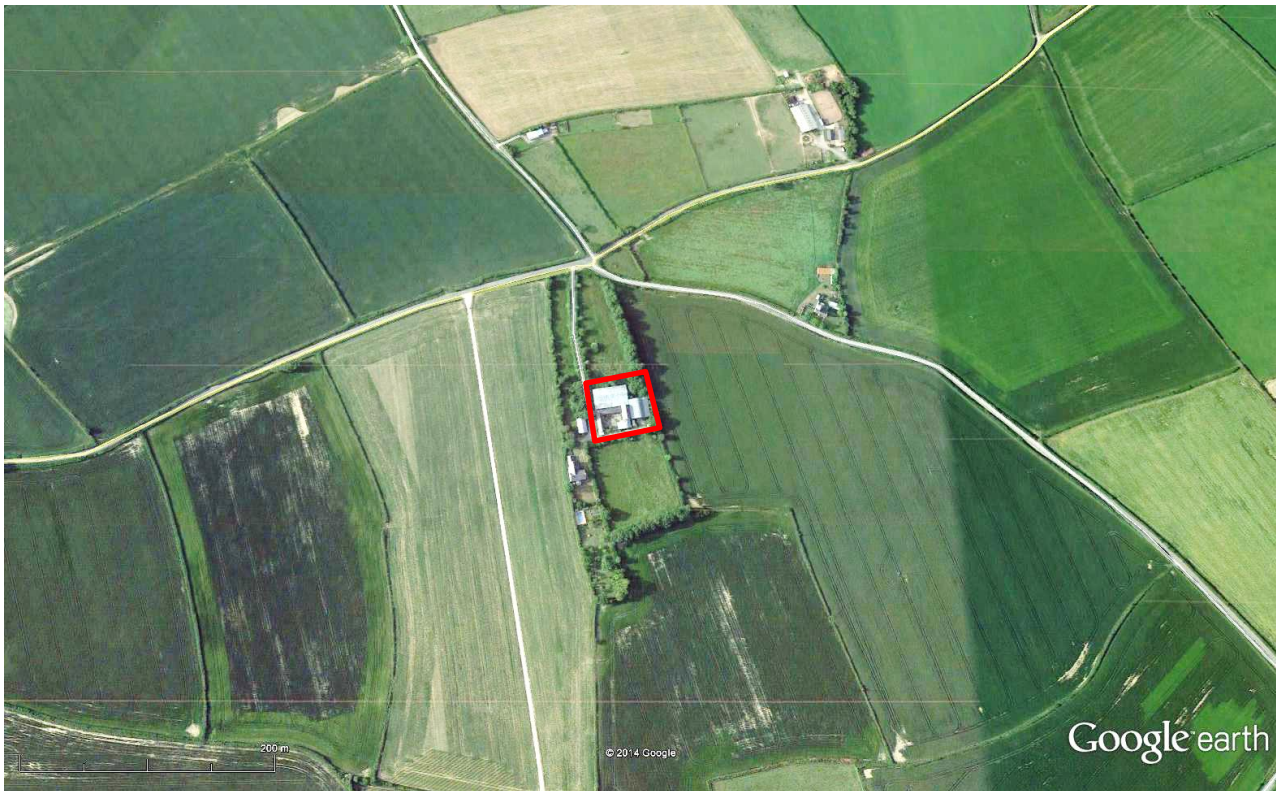


Figure 1 - aerial image of the Site (1:200), with extent shown by red line boundary. [Image dated 12/07/2013, used under licence © 2014 Google]

C.5 Site/habitat description

The agricultural buildings A-G at Pen y Bryn are set within an agricultural landscape and surrounded by fields (arable and improved grassland) with hedgerow boundaries and other agricultural buildings or rural settlements.

The site is considered to be set in an ecologically high value landscape suitable to support breeding sites and resting places for numerous commoner and rarer bat species.

C.6 Field surveys

C.6.1 Methodology

Survey methodology followed the latest best practice guidelines (Hundt, 2012) wherever possible.

Table 1 - survey methodologies

Survey type	Methodology
Scoping	The buildings were externally inspected during daytime for bats with the aid of high-powered lamps and close focussing binoculars by a licensed and experienced bat ecologist. The potential of each building to accommodate bats was assessed, along with a search for signs of bats (for example droppings, moth wings, scratch marks, staining, etc.) or actual bats that were present.
Dusk emergence surveys	Dusk emergence, dawn re-entry, and activity surveys were undertaken. Multiple surveyors were in position around the buildings approximately 15 minutes before sunrise to at least 1.5hrs after sunset for dusk surveys. Note was made of all bat activity recorded including (where appropriate) roost access points, species, time of emergence/entry, direction of flight, behaviour (foraging or commuting) and use of landscape features. Minimal lighting was used during the dusk and dawn surveys as this can alter the behaviour of the bats emerging from or entering a roost, or foraging or commuting over a site.

C.6.2 Schedule and conditions

Table 2 - summary of survey timing and conditions. * = NRW licensed bat ecologist

Date	Type	Timing	Conditions	Personnel
16/05/2011	Scoping	-	Access available to all areas	Richard Dodd* Rob Corcoran
01/06/2011	Dusk	Sunset 21:21 Survey 21:00 – 23:00	Conditions prior to the survey were dry with a slight breeze with 100% cloud cover and a start temperature of 13C.	Richard Dodd* Rob Corcoran Bob Firmin* Matt Davies
22/06/2011	Dusk	Sunset 21:34 Survey 21:15 – 23:00	Conditions prior to the survey were dry and breezy with 100% cloud cover and a start temperature of 14C.	Richard Dodd* Bob Firmin* Mark Barber Richard Crompton*

C.6.3 Personnel

Table 3 - summary of personnel

Surveyor	NRW bat licence	Ecological experience
Richard Dodd B.Sc. (Hons.), MCIEEM	Y	Project management experience across the public, private and voluntary sectors since 2000. An experienced and licensed bat ecologist and holds additional licences for dormouse and great crested newt surveying and mitigation.
Richard Crompton B.Sc. (Hons.), CEnv, MCIEEM	Y	Richard Crompton is a Chartered Environmentalist specialising in bat conservation and training and has been undertaking professional surveys since 1998. He started studying bats over twenty years ago and is licensed to work with bats in England and Wales. He is also an active licence trainer, co-tutor of the Bat Licence Training Course, and former trustee of the Bat Conservation Trust. Has held licences to work on ALL bat species known to breed in Wales including large roosts of horseshoe bats.

Surveyor	NRW bat licence	Ecological experience
Bob Firmin B.Sc. (Hons.), MCIEEM	Y	Involved with bat work and research since 2004, and agent on numerous Habitats Regulations development licences. Designed and undertaken bat surveys for a wide range of small and large sites. Experienced at sound analysis including teaching of others on workshops.
Matt Davies ACIEEM	N	Survey assistants.
Rob Corcoran	N	
Mark Barber ACIEEM	N	

C.6.4 Equipment

All surveyors were equipped with broad band bat detectors (Ciel Electronique CBD-301 or BatBox Duet). Handheld heterodyne/frequency division detectors were also carried to aid species identification (Magenta 5).

In addition, prior to the commencement of the dusk emergence surveys three static bat recording units (Titley Scientific Anabat SD1/SD2) were deployed within buildings B, C and the upper floor of building E on 16 May and retrieved on 17 May 2011.

Data from Anabat detectors was downloaded using CFCread version 4.4n. Anabat detectors were running the corresponding latest versions of firmware.

Bat calls were identified using AnalookW version 3.9c, to genus or species where possible, using a range of filters and the comparison of call sequences to known call metrics and calls from a library of known calls.

C.7 Survey Results

C.7.1 Scoping

All buildings were considered to provide some roosting potential for a range of bat species, although limited with regards to buildings A, F and G.

A small number of droppings, both fresh and old, and urine staining were observed on top of a car within building C; two discarded Lepidoptera (moth and butterfly) wings were also observed within building C.

A large number of discarded Lepidoptera wings were observed on the eastern internal wall of building D.

A large number of discarded Lepidoptera wings were observed within the log storage area on the lower floor of building E and also in areas within the upper floor of building E. Two Long-eared bats were observed within the upper section of building E at opposite ends, behind the central ridge beam;

C.7.2 Activity

Table 4 - summary of bat roosts and general activity on site. SS+xx refers to time after sunset in minutes; SR-xx refers to time before sunrise in minutes.

Survey	Roosts	General activity
01/06/2011 Dusk	<ul style="list-style-type: none"> • 3x brown long-eared bats emerged from building D at SS+18 • 1x common pipistrelle bat entered Building D at SS+26 	<ul style="list-style-type: none"> • Commuting pass by noctule in an off-site position. • Common pipistrelle (occasional passes) observed foraging and commuting across and around the site. • Brown long-eared exiting but returning to Building D throughout the survey.
22/06/2011 Dusk	<ul style="list-style-type: none"> • 1x brown long-eared observed perching on a ridge beam in building C prior to commencement of survey. • 1 x common pipistrelle entered a gap in masonry wall within building D • Static monitoring recorded brown long-eared, common pipistrelle and Myotis (characteristic of Whiskered) in building E 	<ul style="list-style-type: none"> • Commuting pass by noctule in an off-site position. • Low number of common pipistrelle (occasional passes) observed foraging and commuting across and around the site. • Single brown long-eared exiting but returning to Building D throughout the survey. • Occasional passes by Myotis bats (low number).

C.7.3 Images



Figure 2 – buildings C and D as viewed from the south;



Figure 3 – building E as viewed from the west;



Figure 4 – internal view of building B;



Figure 5 – internal view of building C;



Figure 6 – internal view of building D;

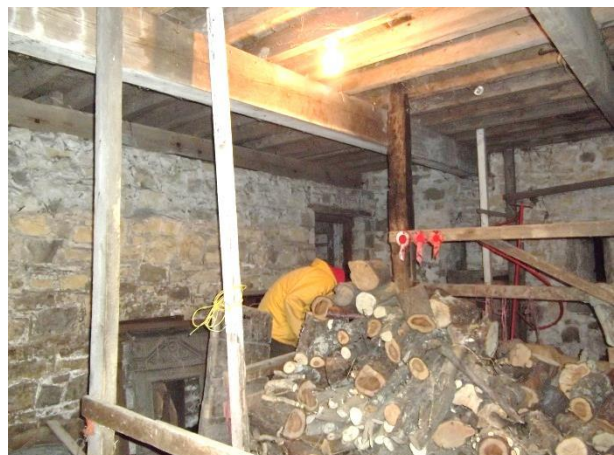


Figure 7 – internal view of lower floor within building E;



Figure 8 – internal view of upper floor within building E;



Figure 9 – internal view of upper floor within building E showing discarded Lepidoptera wings;

C.8 Interpretation/evaluation of survey results

Following a daytime scoping survey, dusk emergence surveys and static monitoring, buildings at Pen y Bryn, Llanmaes were found to contain bat roosts for three species of bats. Brown long-eared bats were visually confirmed presence within buildings C, D and E; the presence of a single common pipistrelle bat within building D was observed entering and exiting during one of the dusk emergence surveys; finally, Myotis (likely to be Whiskered bat) was confirmed present within building C after sonogram analysis of the Anabat unit.

Collectively, the buildings presents a range of roosting opportunities for bats, with varying conditions due to the aspects available, and the sizes of roost spaces available within the barns themselves and also within masonry gaps found in the walls.

Buildings C, D & E are therefore considered to provide a range of roosting opportunities to crevice-dwelling and free-hanging bat species, likely restricted to brown long-eared, common pipistrelle and smaller myotis (i.e. Whiskered bat) species. No evidence of maternity use was found. The roosts are therefore used by small numbers or individual male bats or non-breeding females, likely up to 5 of each species. The site is considered to not provide significant features suitable for hibernation.

Table 5 - summary of bat species, numbers, roost type and status

Species	Number	Roost Status	Roost type
Brown long-eared	3	Non-maternity, individual bats	Free-hanging & crevice
Common pipistrelle	2	Non-maternity, individual bats	Crevice
Whiskered	1	Non-maternity, individual bats	Crevice

C.8.1 Limitations

All bat surveys can only ever present a ‘snap-shot’ of bat activity at a site. The two manual activity surveys undertaken by multiple surveyors (totalling 8-person surveys), and the use of additional static detectors have therefore presented a fuller picture of bat activity at the site than a single survey alone.

D IMPACT ASSESSMENT IN ABSENCE OF MITIGATION

See Bat Mitigation Guidelines (section 6.2) and Wray et al (2010) ¹

Type & complexity of linear features	Absent
Foraging habitat characteristics	Rural areas / intensive arable land

				Geographic frame of reference [score]		
Species on site	Roost type	# of bats	Roosts/potential roosts nearby	Roost	Commuting	Foraging
Brown long-eared	Individual bats	Individual	Moderate/unknown	Local	Local [12]	Local [13]
Common pipistrelle	Individual bats	Individual	Moderate/unknown	Local	Local [12]	Local [13]
Whiskered bat	Individual bats	Individual	Moderate/unknown	County	County [30]	Regional [31]

D.1 Short-term impacts: disturbance

Bats will be disturbed during the works. Works will cause noise and vibration in the vicinity of the roosts, and the removal of materials immediately around the roosts will directly disturb and bats roosting behind them. Works may result in the obstruction of access to roosts by virtue of scaffolding.

As non-breeding roosts are present, disturbance would have a low impact on the species present.

D.2 Long-term impacts: roost modification

All the roosts within buildings C, D & E will be significantly modified as a result of the works. The modification of non-breeding roosts for individual common pipistrelle bats will be significant at a local (Llantwit Major) scale, and the loss of a non-breeding roost for individual brown long-eared and Whiskered bats will be significant at a county (South Glamorgan) scale due to the scarcity of known roosts for these species.

Overall whilst the impact will be significant for the individual bats present, the impact at a population level on both species is considered to be low.

D.3 Long-term impacts: roost loss

All existing roosts will be modified as a result of the works, therefore there will be no long-term impacts from roost loss.

D.4 Long-term impacts: fragmentation and isolation

No key flight lines will be lost and only minor loss of vegetation around the buildings will be removed. No lighting is anticipated to the north or east of the site.

Given the small number of bats observed this is anticipated to have a negligible impact on the populations at a local level.

D.5 Post-development interference impacts

The new development will not be subject to increased street or domestic lighting other than the use of PIR sensors within the courtyard areas. With low and sensitive light levels and placement anticipated, the post-development interference is anticipated to be low.

¹ Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010) Valuing bats in ecological impact assessment. In Practice, No 70, Institute of Ecology and Environmental Management

D.6 Predicted scale of impact

Table 6 - summary of impacts

Roost	Roost status (Wray et al, 2010)	Disturbance	Roost modification	Roost loss	Fragmentation and isolation	Post-development interference
Brown long-eared	Non-breeding roost for individual bats, important a local level	High	Low	N/A	Low	Low
Common pipistrelle	Non-breeding roost for individual bats, important a local level	High	Low	N/A	Low	Low
Whiskered	Non-breeding roost for individual bats, important a county level	High	Low	N/A	Low	Low

In the absence of mitigation the proposed conversion of the buildings to two residential dwellings at Pen Y Bryn, Llanmaes is anticipated to have a high impact on individual bats, but a low impact on the local and county bat populations.

DELIVERY INFORMATION – MITIGATION, COMPENSATION, AND MONITORING

E WORKS TO BE UNDERTAKEN

E.1 Ecological support

The developer will appoint an ecologist to be retained throughout the works program, to provide toolbox talks, ecological clerk of works duties during high risk activities, monitoring, and advice. The developer or their contractor will contact the ecologist giving at least 48 hours' notice of works commencing.

Prior to works commencing, a licensed bat ecologist from Wildwood Ecology Ltd. will deliver a 'toolbox talk' to all site personnel, to outline the status of the buildings, conditions of the licence and Method Statement, including working methods, 'no-go' areas, and action to be taken if bats are encountered during works (i.e. stop works, seek advice, act upon advice given.)

An ecological watching brief will be conducted by a licensed bat ecologist during the initial high risk works, including the removal of ridge and roof tiles on buildings B, C, D and E.

A compliance check will be made by the licensed bat worker once all mitigation works on buildings D and E have been installed in order to approve works or provide advice on modification to ensure continued ecological functionality (CEF) of the roosts for each species and that the favourable conservation status (FCS) of the population of the species concerned is maintained. Only once mitigation has been confirmed as viable will the main development stage commence.

The licensed bat worker will be retained on an 'on-call' basis throughout the remainder of the works to give advice in case bats are encountered or other issues are raised. If bats are encountered at any time when the retained ecologist is not present on site, the developer will stop all works in that area, contact the retained ecologist for advice, and act upon that advice.

E.2 Capture and exclusion

No capture or exclusion of bats is considered necessary or appropriate. Any bats encountered during the works will be allowed to fly away of their own accord. If unable to do so they will be captured by hand, species/sex/condition/health assessed, and either released that evening if conditions are suitable, or cared for until appropriate for release. If appropriate, bats will be moved to the new roosts – see E.3.3 below.

E.3 Bat roosts and habitat

E.3.1 In-situ retention of roosts

No existing roosts will be retained in the long-term.

E.3.2 Modification of existing roosts

Two new bat lofts will be provided for brown long-eared bats above building E with internal dimensions measuring 1.5 m (h) x 3.5 m (w) x 4 m (l), with a cubic volume of 10.5m³. Access to the new bat lofts will be via modified ridge and roof tiles with access slots of dimensions 20 mm (h) x 50 mm (w). These access points and their immediate environ flight-lines (i.e. within 20 m of the roost access point across the eastern elevation hedgerow) will not be illuminated. Within the new bat loft, tanalised wooden battens and plywood boards measuring 300 mm (w) x 500 mm (l) with a

narrowing gap from 30 mm to 5 mm will be installed, suitable for use by crevice dwelling bats such as *Myotis* (i.e. Whiskered bats).

As conditioned within the approved planning permission issued by the Vale of Glamorgan Council (2012/00941/FUL), the roof of Block E will be lined with traditional bitumastic Type 1F (BS747) felt only. Adequate ventilation will be achievable through a doubling of the number of overlaps within this roof system (i.e. by cutting the roll of felt in half) and/or use of ventilation systems at eaves.

In addition to the new bat roosts within building E, building D will be modified as a double garage with open access allowing free-flying bats access as a night roost and/or feeding perch. Two slim line wooden bat boxes will be installed within building D on the internal northern wall suitable for use by crevice dwelling bats (i.e. *Pipistrelle*).

E.3.3 New roost creation

In addition to the above, an 'intermediate' bat roost will be provided on site by way of a tree-mounted bat box to be installed prior to any works on site. If bats are encountered during other works then they will be safely relocated to the box.

- A pair (No. 2) of Schwegler 2F bat boxes (<http://www.nhbs.com/title/158629/2f-schwegler-bat-box-general-purpose>) will be installed on a tree on the eastern boundary (east of building E) of the site, approximately 3m above ground level, on the south-west and south-east sides of the main trunk. The exact tree will be decided on site by the ecologist.

E.3.4 Maintenance and/or modification of new and existing habitat

The hedgerow habitats adjacent to and across the application site are used by commuting and foraging bats. No lighting is currently planned that would illuminate these areas.

E.3.5 Scaled maps/plans

Figure 10 - replacement bat roost access/egress roof plan;

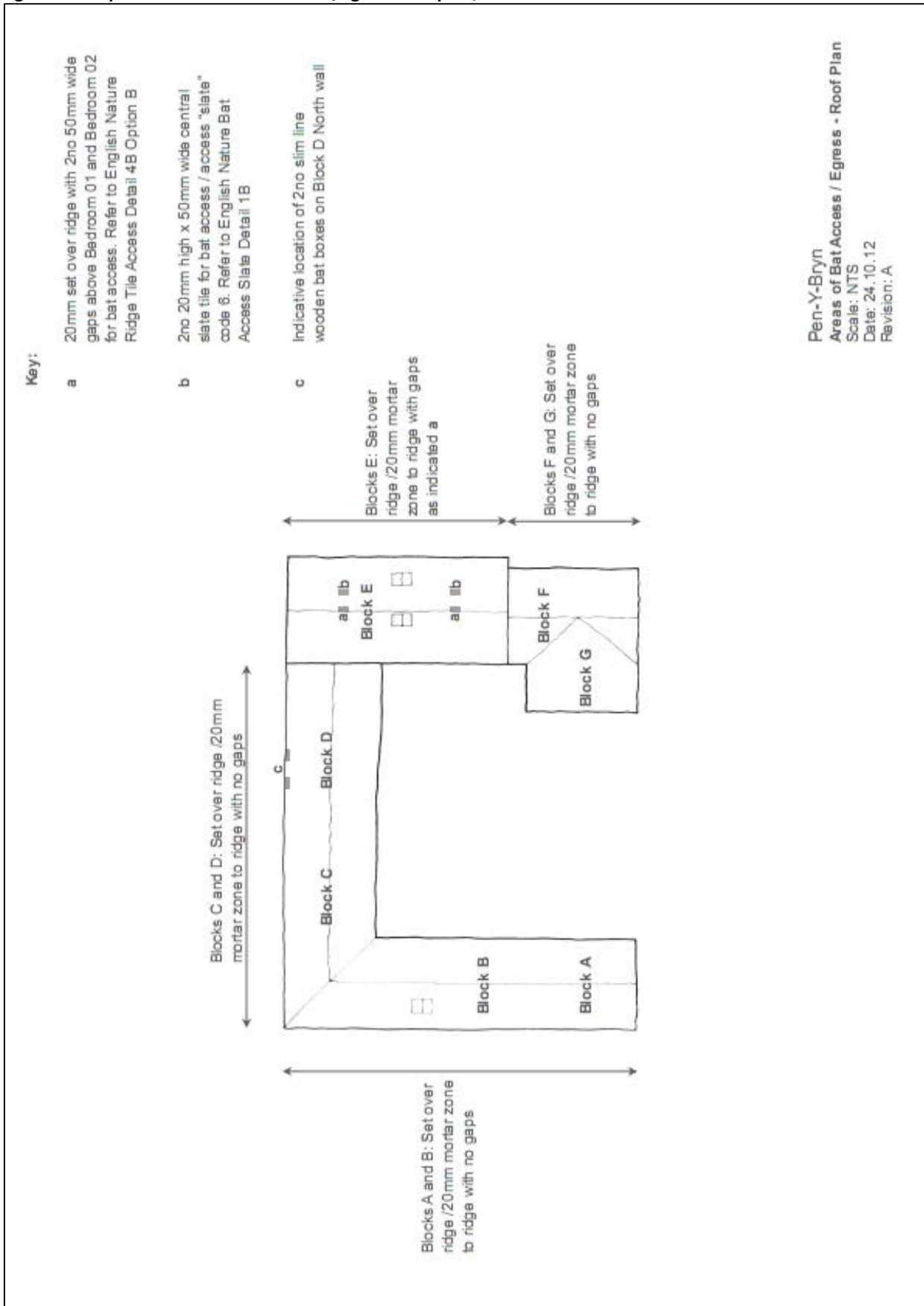
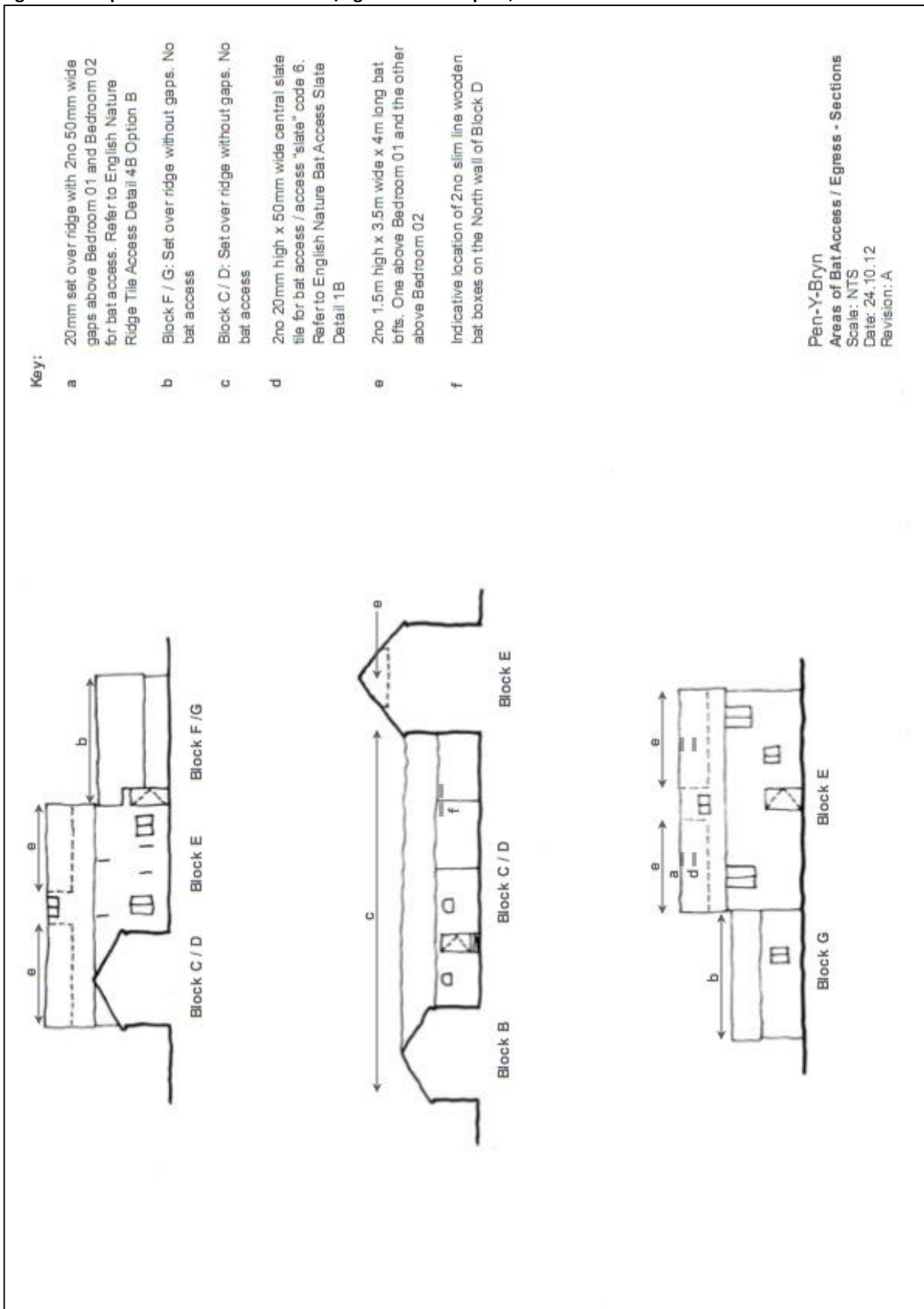


Figure 11 - replacement bat roost access/egress sections plan;



E.4 Mechanisms for ensuring delivery of mitigation and compensation measures

Installation of mitigation measures will be supervised by a licensed bat ecologist and reported back to Natural Resources Wales.

Provision of the measures will be enforced by the terms of the licence under The Conservation of Habitats and Species Regulations 2010 (as amended) and under the planning permission as granted and will be the ultimate responsibility of the licence holder.

The permitted development granted by the Vale of Glamorgan Council (2012/00941/FUL) is also subject to the following planning conditions relating to protected species and biodiversity. Conditions include #3, #4 and 6 (to ensure the conservation of European Protected Species at the site and to ensure compliance with Policies ENV16 and ENV27 of the Unitary Development Plan), #5 (to prevent bats becoming entangled in the fibres to ensure the conservation of European Protected Species at the site and to ensure compliance with Policies ENV16 and ENV27 of the Unitary Development Plan), #7 and #12 (to ensure compliance with the Wildlife and Countryside Act 1981, where it is an offence to take, damage or destroy the nest of any wild bird while that nest is in use or being built and to ensure compliance with Strategic Policy 1 of the Unitary Development Plan) and #8 (to enhance biodiversity opportunities at the site in line with the Councils adopted Supplementary Planning Guidance on Biodiversity).

The permitted development granted by the Vale of Glamorgan Council (2012/00941/FUL) is also subject to Note #1 where it states *"In connection with Condition 6, any future owners/developers of the site shall be made aware that bat mitigation for the site is only being provided within Plot Two. As such Plot One would not be able to be developed in isolation, due to the inability to obtain the relevant Welsh Government licence, if mitigation within Plot Two has not been provided"* and Note #2 where it states *"Where any species listed under Schedules 2 or 5 of the Conservation of Habitats and Species Regulations 2010 is present on the site, or other identified area, in respect of which this permission is hereby granted, no works of site clearance, demolition or construction shall take place unless a licence to disturb any such species has been granted by the Welsh Assembly Government in accordance with the aforementioned Regulations."*

E.5 Mitigation contingencies

Given the small numbers of bats being licenced and providing that modified and new roosts are successfully created/installed within the agreed timetable or works (Section G) there should be no need for contingency proposals.

A licenced bat ecologist will be retained until full completion of the development, which is anticipated as March 2016. Should bats be encountered in Stage 3 of the development (see Section G), or larger numbers of bats be identified, or additional species encountered, then works will cease until advice has been sought from the species protection team within Natural Resources Wales.

E.6 Biosecurity risk assessment

No non-native species were found on site nor will be affected by the conversion works.

If bats are encountered during the works they will only be handled by rabies-vaccinated bat ecologists wearing clean and appropriate gloves for handling bats. Hands will be washed after handling. Any bats captured will be inspected for signs of injury and placed into a holding box until release and the correct animal welfare guidance (as issued by the Bat Conservation Trust) will be followed at all times. No bats will be transported or released away from the site. No handling of

bats will be permitted by any individual other than the licensed bat ecologist unless otherwise instructed. Any handling will follow current guidelines issued by BCT on 'Basic Bat Care' (<http://www.bats.org.uk/pages/containingabat.html>).

Bat will not be handled by other contractors unless absolutely necessary to prevent injury – in such instance bats will only be briefly handled by an individual wearing heavy duty gloves, hands thoroughly washed with soap and dried afterwards.

It is considered that there is a very low risk of any biosecurity issues being encountered during the works.

F POST-DEVELOPMENT SITE SAFEGUARD

F.1 Habitat/site management and maintenance

The hedgerow habitats adjacent to and across the application site are used by commuting and foraging bats. No lighting is currently planned that would illuminate these areas.

In connection with Condition #6 of the granted development issued by the Vale of Glamorgan Council (2012/00941/FUL), *“any future owners/developers of the site shall be made aware that bat mitigation for the site is only being provided within Plot Two. As such Plot One would not be able to be developed in isolation, due to the inability to obtain the relevant Welsh Government licence, if mitigation within Plot Two has not been provided.”*

F.2 Population monitoring, roost usage etc.

A post-development monitoring scheme of the mitigation, to ensure the mitigation measures are effective, will be submitted to and be approved in writing by Vale of Glamorgan Council. This will consist of an internal and external inspection, and at least one activity survey (evening emergence or dawn swarming) to be undertaken between mid-May and mid-August. It will be undertaken for 2 years following the implementation of the mitigation measures by a suitably licensed ecologist, and at the end of each seasons' monitoring a report summarising the results shall be submitted to the Vale of Glamorgan Council (and copied to Natural Resources Wales).

F.3 Post-development mitigation contingencies

The developer and ecologist will liaise with Natural Resources Wales and Vale of Glamorgan Council as to how improvements can be made, if required. No post-development mitigation contingencies are anticipated.

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

Provision of the measures will be enforced by the terms of the licence under The Conservation of Habitats and Species Regulations 2010 (as amended) and will be the ultimate responsibility of the licence holder.

The permitted development granted by the Vale of Glamorgan Council (2012/00941/FUL) is also subject to the following planning conditions relating to protected species and biodiversity and monitoring. Conditions include #4 (to ensure the conservation of European Protected Species at the site and to ensure compliance with Policies ENV16 and ENV27 of the Unitary Development Plan).

The permitted development granted by the Vale of Glamorgan Council (2012/00941/FUL) is also subject to Note #1 where it states *“In connection with Condition 6, any future owners/developers*

of the site shall be made aware that bat mitigation for the site is only being provided within Plot Two. As such Plot One would not be able to be developed in isolation, due to the inability to obtain the relevant Welsh Government licence, if mitigation within Plot Two has not been provided”.

G TIMETABLE OF WORKS

Table 7 - timetable of works

Stage	Phase	Timing	Works
1	Pre-construction	Upon receipt of licence up to 18 March 2015	<ul style="list-style-type: none"> Briefing to applicant and contractors on the likely presence of bats and action to be taken if discovered
2	Construction	Upon receipt of licence up to 30 April 2015	<ul style="list-style-type: none"> Supervision of roof and eaves removal on buildings B, C, D & E, including the provision of all mitigation measures for bats as outlined in Section E; Compliance check of mitigation measures to ensure CEF followed by report to NRW;
3		Between 1 May 2015 and 31 March 2016	<ul style="list-style-type: none"> Commencement of all other development works Ecologist retained and called if bats encountered during construction works;
4	Operation	Build completion +1yr May – August 2017 & 2018	<ul style="list-style-type: none"> 2 years of monitoring once operational. Daytime internal and external inspection and one activity survey (evening emergence or dawn swarming)

H LAND OWNERSHIP – MITIGATION SITE

H.1 Mitigation Site/Compensation Site ownership

All compensation measures will be provided on land owned by the applicant at the time of construction.

H.2 Mitigation Site/Compensation Ownership post construction

The permitted development granted by the Vale of Glamorgan Council (2012/00941/FUL) is also subject to Note #1 where it states *“In connection with Condition 6, any future owners/developers of the site shall be made aware that bat mitigation for the site is only being provided within Plot Two. As such Plot One would not be able to be developed in isolation, due to the inability to obtain the relevant Welsh Government licence, if mitigation within Plot Two has not been provided”.*

Legal agreements in the form of covenants or other appropriate device will be entered into with each new owner where applicable, to ensure that the new roosts will be maintained in the long-term.

I REFERENCES

- Hundt, L. (2012) *Bat Surveys: Good Practice Guidelines, 2nd edition*. Bat Conservation Trust, London.
- Joint Nature Conservation Committee (2007) *Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006*. Peterborough, JNCC. Available from: www.jncc.gov.uk/article17
- Mitchell-Jones, A.J, & McLeish, A.P. Ed., (2004) *3rd Edition Bat Workers' Manual*. Joint Nature Conservation Committee, Peterborough.
- Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. Natural England, Peterborough.
- Waring S.D., Essah E.A., Gunnell K., Bonser R.H.C. (2013) *Double Jeopardy: The Potential for Problems when Bats Interact with Breathable Roofing Membranes in the United Kingdom*. *Architecture & Environment* 2013, 1(1):1-13.
- Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010) *Valuing bats in ecological impact assessment*. In Practice, No 70, Institute of Ecology and Environmental Management

J ANNEXES

J.1 Pre-existing survey reports

David Clements Ecology (2005). Penybryn Farm, Llanmaes, Glamorgan – Survey for protected species. Document ref: 312; Dated July 2005.

Wildwood Ecology (2012) Pen Y Bryn, Llanmaes, Vale of Glamorgan – Bat Scoping and Activity Survey Report; Document ref. WWE110510/R01. Wildwood Ecology, Cardiff.

J.2 Raw survey data

Contained within survey reports or available on request.