

Greenscape Environmental Ltd

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**PHASE 1
ENVIRONMENTAL APPRAISAL**

**CWM BACH
LLANARMON D C
LLANGOLLEN
LL20 7LH**

JANUARY 2016

1573 001R

Report by Ben Jones MSc

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	Name	Signature	Date
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The report should be read in its entirety.

Questions arising from the survey report should be directed to the author of this report who will be pleased to clarify any technical issues raised.

Whilst the surveyors make every reasonable effort, Greenscape Environmental Ltd cannot guarantee that all protected species have been identified and survey results are definitive.

Reports are considered valid for 2 years for planning purposes after which time further survey information may be required.

Greenscape Environmental Ltd can provide advice and support for recommendations and planning conditions.

Table of Contents

1	SUMMARY.....	4
1.1	PURPOSE OF THE REPORT	4
1.2	METHODOLOGY.....	4
1.3	KEY ISSUES.....	4
1.4	RECOMMENDATIONS	4
1.5	CONCLUSIONS.....	4
2	INTRODUCTION.....	5
2.1	PURPOSE OF THE REPORT	5
2.2	PLANNING POLICY AND LEGISLATION.....	5
2.3	PROJECT BACKGROUND	6
2.4	SITE CONTEXT AND LOCATION	6
3	METHODOLOGY	7
3.1	DESKTOP SURVEY	7
3.2	FIELD SURVEY- METHODOLOGY	7
3.2.1	Details of Surveyors.....	7
3.2.2	Location and Date of Survey	7
3.2.3	Condition on Survey Dates.....	7
3.3	HABITATS	8
3.4	SPECIES.....	8
3.4.1	Bats.....	8
3.4.2	Badgers.....	8
3.4.3	Birds.....	8
3.5	CONSTRAINTS OF THE SURVEY.....	8
4	SITE DESCRIPTION	9
4.1	DESKTOP SURVEY	9
4.1.1	Designated Sites	9
4.1.2	Open Water	9
4.1.3	Records.....	10
4.2	PHASE 1 DESCRIPTION AND OBSERVATIONS	11
4.2.1	Building.....	12
4.2.2	Barn	14
4.2.3	Surrounds.....	14
5	EVALUATION OF RESULTS	16
5.1	POTENTIAL IMPACTS ON HABITATS	16
5.1.1	Designated Areas	16
5.1.2	Habitats on Site.....	16
5.1.3	Habitats	16
5.2	ECOLOGICALLY IMPORTANT SPECIES	17
5.3	CONSIDERATION OF INDIVIDUAL SPECIES/HABITATS	17
5.3.1	Bats.....	17
5.3.2	Badgers.....	18
5.3.3	Birds.....	18
6	RECOMMENDATIONS	19
6.1	LANDSCAPING	19
6.2	BATS	20
6.3	BIRDS.....	22
6.3.1	Reasonable Avoidance Measures.....	22
6.3.2	Enhancements for Birds.....	22
7	CONCLUDING REMARKS	23
	APPENDICES	24
A	ORDNANCE SURVEY MAP ABSTRACT.....	
B	SITE PLAN	
C	BIBLIOGRAPHY	

1 Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by Mr R Dunn to conduct a survey to determine the presence of protected species and potential for the damage or destruction of habitats of ecological value as part of the planning application for the extension of the property – Cwm Bach.

This document outlines the potential impacts as ascertained from the preliminary ecological assessment, and recommends measures to avoid, reduce or manage negative effects.

The project involves the demolition of a singly storey section of a pre-existing house, which is then to be lowered and rebuilt as a double storey to match the height of the rest of the property. There is also an attached barn at one end that is to be demolished and rebuilt with more robust materials.

1.2 Methodology

The appraisal of the site included a desktop survey of the area, and a phase 1 environmental appraisal.

The phase 1 ecological appraisal was undertaken at the site, OS grid reference SJ 1311 3470 on 27th January 2016 by B Jones.

1.3 Key Issues

Three designated sites were found within 1km of the site. No impact is expected from this development, however a method statement outlining reasonable avoidance measures for the River will be recommended. It will be ensured that there is no external lighting illuminating the River corridor.

A data search was conducted from Cofnod. Within 1km, species include Otter, Atlantic salmon, Brown/Sea Trout, Eel and hen harrier. No bat species have been recorded which is probably indicative of a lack of records and reporting.

The site was surveyed for potential for bird and bat species in particular. The single storey extension is considered to be of low ecological value as the roof is well fit with few gaps. The stone and metal barn has low potential for bat roosts and no hibernating bats were recorded. No evidence of protected species was recorded in the vicinity of the site.

1.4 Recommendations

The site is to be enhanced for bat and bird species through the inclusion of bat and bird boxes around the site. Method statements for working around both species are included.

1.5 Conclusions

Phase 2 surveys for bats are not considered necessary as the area to be demolished offers little potential for bat roosts.

It is considered the development can proceed without the loss of habitat of significant value and without the loss of favourable conservation status of any protected species. As there is no evidence of protected species within and around the development site, there is no requirement to address the three tests under Regulation 53 of the Conservation of Habitats and Species Regulations 2010).

2 Introduction

This report has been compiled by Ben Jones BSc (hons) MSc who has 1 years' experience conducting ecological surveys. It has been reviewed by the principal ecologist in line with Greenscape's Quality Management System.

Greenscape Environmental Ltd was commissioned by Mr Robert Dunn to conduct a survey to determine the presence of protected species and potential for the damage or destruction of habitats of ecological value, as part of the planning application for the development of the property – Cwm Bach.

2.1 Purpose of the Report

The aim of this type of survey is to locate and describe, as far as reasonably practicable, evidence of wildlife, including all protected and BAP species, which may be disturbed or lost in the event of development.

The purpose of the report is to:

1. Identify the key ecological constraints to the proposed development
2. Inform planning to allow significant ecological effects to be minimised or avoided wherever possible
3. Allow any necessary mitigation or compensation measures to be developed

Due to the proposed works, the potential for the buildings to support bat species was of primary concern.

2.2 Planning Policy and Legislation

The relevant planning policy and legislation to the current development is:

The Wildlife and Countryside Act 1981(as amended) – as listed in:

- Schedule 1. Birds protected by special penalties at all times
- Schedule 5. Protected animals
- Schedule 8. Protected plants

The Conservation of Habitats and Species (Amendment) Regulations 2010 – as listed in:

- Schedule 2. European protected species of animals
- Schedule 5. European protected species of plants

Countryside and Rights of Way Act (2000)

Hedgerow Regulations 1997

The Protection of Badgers Act 1992

Natural Environment and Rural Communities Act 2006 (NERC 2006)

Technical Advice Note 5, Nature Conservation and Planning (2009)

2.3 Project Background

The project involves the demolition of the single storey section of the dwelling. This area will be lowered by approximately 600mm and rebuilt into a two storey area, matching the roof level of the rest of the property. Attached to the east of the existing house is a barn area used for storage, this will also be demolished and rebuilt with more robust materials.

2.4 Site Context and Location

The site is located in the Ceiriog Valley. The property is on the side of a steep hill with a water course at the bottom. It is set in a rural environment surrounded by mountainside acid grassland with bracken to the north, and arable fields to the south. There is moderate connectivity to the surrounding countryside via the treeline heading down to the water course at the base of the hill. Entrance to the site is currently gained from the unclassified road heading east-west.



Figure 1. A map of the site (centre, highlighted) on an OS base. Scale 1:1,250. Map courtesy of Magic Maps

3 Methodology

3.1 Desktop Survey

The appraisal of the site included a desktop survey which took place in January 2016.

Data was collected from Cofnod – The North Wales Environmental Information Service in order to ascertain the protected species that have formerly been recorded in the area.

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. The map is presented in Appendix A.

3.2 Field Survey- Methodology

3.2.1 Details of Surveyors

Name	Membership of associations/ experience	Licenses
Peta Marshall BSc (hons)MA	MCIEEM AIEMA 10 years' experience surveying for protected species. Peta has a degree in Applied Biology and has been working in commercial environmental assessment for 10 years. She has considerable experience working as a volunteer and in the education sector.	Holder of survey licences for bats and newts in England and Wales Registered Consultant for Low Impact Class Licence for Bats
Ben Jones BSc (hons) MSc	Assistant surveyor 1 years' experience Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has been assisting with bat and newt surveys in England and Wales throughout the survey season of 2015 and is working toward a survey licence.	

3.2.2 Location and Date of Survey

A detailed environmental survey was undertaken at the site, OS grid reference SJ 1311 34710 on 27th January 2016 by B Jones BSc (hons) MSc.

3.2.3 Condition on Survey Dates

Date	Time	Temp °C	Sunset / Sunrise	Condition
27/01/16	09:30	9	n/a	100% overcast, drizzle with showers, slight breeze.

3.3 Habitats

An assessment of habitats was conducted using guidance from the JNCC Handbook for Phase 1 Surveys 2010. Target notes were used to identify potential for protected or notable species or habitats, and to give more detailed site descriptions.

3.4 Species

3.4.1 Bats

The buildings were assessed for potential for bat roosts, foraging and commuting.

Daytime surveys were conducted with the aid of a strong torch. Bat species may leave little evidence of their presence.

Evidence for the presence of bats includes:

- Holes, cracks and rot holes used as roosts, marked by streaks of urine and faeces.
- Smoothed, darkened edges where bats have rubbed and left natural body oils when entering and exiting a space.
- Faeces under a roof access point, a well-used feeding point or a resting spot.
- Feeding signs such as discarded insect wings under a feeding point.
- Lack of cobwebs around eaves, roof spaces, beams or ceilings where routes are kept clear by bats.
- Presence of roosting or dead bats in or behind any object.

Methodology used is in accordance with recommendations by BCT, Good Practice Guidelines Hundt (2012).

3.4.2 Badgers

Surveys were conducted using guidance from Scottish Natural Heritage commissioned Report No 096 (2003).

Daytime surveys for badgers involved looking for

- Scrapings where badgers have dug for food or used as latrines.
- Signs of a sett, including signs of use such as presence of badger hair
- Tracks and prints.

3.4.3 Birds

Evidence of nesting birds, including barn owls using a building, hedge or tree involved looking for:

- Presence of nests
- Collections of droppings and/or feathers
- Highly distinctive droppings or splats under roosting points.
- Presence of owl pellets/feathers

3.5 Constraints of the Survey

All areas were accessible for this survey. It was conducted at an optimal time of the year for the assessment of flora and for the hibernation of bats. It was not conducted at an optimal time for surveying for maternity roosts for bats. Standard techniques were followed. No specific constraints have been identified.

4 Site Description

4.1 Desktop Survey

4.1.1 Designated Sites

The map from Natural England presented in Appendix A indicates that the site is in the vicinity of three designated areas.

The nearest SSSI is approximately 550m east of the site. This is the Afon Dyfrdwy - River Dee SSSI. The River Dee contains several different river types from mesotrophic to eutrophic. Notable species in the river include Atlantic salmon (*Salmo salar*), otter (*Lutra lutra*), club-tailed dragonfly (*Gomphus vulgatissimus*) and several aquatic vegetation species.

The other two designated sites in the region are both 740m away to the northwest, and are the Berwyn and South Clwyd Mountains SAC and Berwyn Mountain Range SSSI.

4.1.2 Open Water

Scrutiny of the OS map (Appendix A) and a walk around the locality showed there are not any significant areas of still water in the vicinity of the site. The water course at the base of the hill is considered to be flowing too quickly to be suitable for newt species. No further survey with respect to great crested newts is considered necessary.

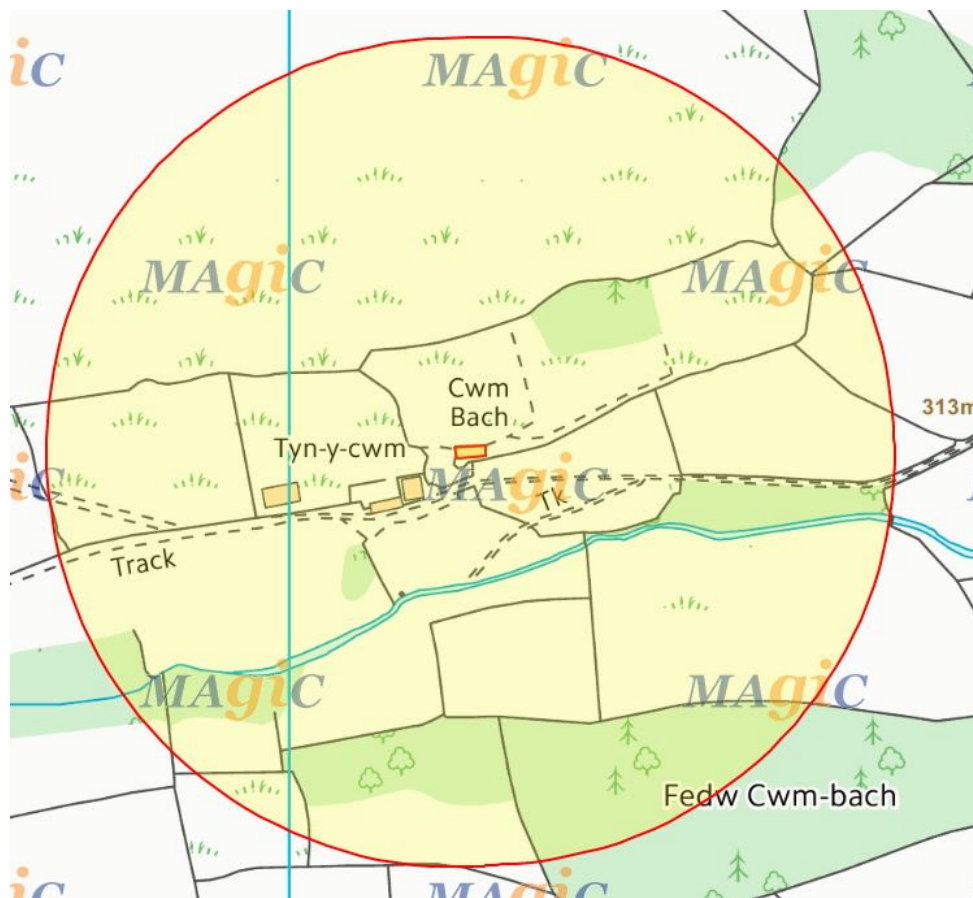


Figure 2. Highlighting the site and showing the 250m zone of influence with respect to great crested newts. Showing the lack of standing water in this area

4.1.3 Records

A database search from Cofnod was conducted and species within 2km recorded. These include Otter (*Lutra lutra*), Atlantic salmon (*Salmo salar*), Brown/Sea Trout (*Salmo trutta*), Eel (*Anguilla anguilla*) and hen harrier (*Circus cyaneus*).

The Ceriog Valley is known to support commuting lesser horseshoe bats. (P Marshall personal records).

4.2 Phase 1 Description and Observations

The site comprises a border longhouse – typically slate roof, one room wide, with a barn attached at one end. The westernmost part of the house is painted brick with slate roof – this section is to be retained. The next section of the building is also brick built with slate roof – this is to be demolished and rebuilt. The barn at the end is stone walled with a corrugated metal roof – this is also to be demolished and replaced. The building sits on, and is surrounded by, an area of crushed stone hardstanding. The building is sited in a cut-out of the mountainside, which is acid grassland with bracken.

The habitats on and around the site can be summarised as follows:

	Habitat	JNCC code
i.	Scattered trees	A3
ii.	Acid grassland	B1
iii.	Buildings	J3.6
iv.	Hardstanding/bare ground	J4



Figure 3. Showing the JNCC phase 1 habitat classification codes for the site

4.2.1 Building

The dwelling is split into two parts, a two storey and a single storey section. The main building is constructed of red bricks (painted) and stone with no cavity wall. It has no roof void with the bedrooms extending into the ceilings. The double storey section is at the westernmost end and is to be retained.



Figure 4. The double storey section to be retained, viewed from the south

The single storey section that is to be demolished and rebuilt to match the height of the two storey section is attached to the east of the main house. This is constructed of brick and block with a cavity wall. Attached to the east of this section is the stone walled barn with a corrugated metal roof that is to be demolished and replaced.



Figure 5. Showing the sections to be demolished, the rear of the section seen in Figure 4 is on the far right of this picture

The roof of the section to be removed is bitumen hessian lined. It was examined with a strong torch. The lining was seen to be in good condition, as were the slates and ridge on the outside. It is thought the building had been relatively recently re-roofed with new timbers. Cobwebs could be seen under the central ridge and no bat droppings were seen in these. The eaves of the building were carefully examined. There were no potential opportunities observed for bats to gain entrance. No droppings were observed on items stored in the roof void.



Figure 6. Inside the attic space of the single storey section of the dwelling

No evidence of bats was found in this loft space, all droppings found were rodent droppings, as identified by the solidity and size.



Figure 7. The droppings found in the loft space, all were rodent droppings

The verge of the two storey house was examined with a strong torch. The verge is less than 1m from the roof of the single storey extension finished with a barge board on each side of a chimney. It was seen to be in good condition with no potential bat roost entrances. Vents were observed on the ridge. These have sometimes been added to a building to encourage bat roosting, but these were seen to have large openings which may not be suitable for bats.

No evidence of nesting birds such as house martins was seen on the outside of the building.

4.2.2 Barn

The wall of the barn was seen to be constructed of stone with some crevices. No evidence of bats were seen in these and the crevices not considered deep enough for bats. There was little potential for the wall plate to be used by bats.

The corrugated metal roof of the barn was seen to be unlined, and the timbers had no potential roost features for bats, and no evidence of bat activity was found. No hibernating bats were observed and it is considered unlikely that they would be in this area.



Figure 8. Inside the roof of the barn

No evidence of nesting birds was seen inside or outside the building.

4.2.3 Surrounds

The house stands within a cut-out section of the hillside, and sits on an area of shingle and crushed stone hardstanding.



Figure 9. Showing the rear of the property, and the stone cut-out of the hillside on the left

The hill to the north of the property is an acid grassland containing sparse small trees and shrubs, with a dominance of bracken (*Pteridium* sp).



Figure 10. The acid grassland to the north

To the south of the property is a steep sloped grassland area, at the base of which is the aforementioned watercourse. There is a line of trees heading almost directly from the property to be developed, down the slope to the water's edge.



Figure 11. Looking down into the base of the valley to the south

The areas surrounding the site were searched for signs of badgers. No trackways, latrines, hairs or prints were observed. No records exist for badgers in this area.

5 Evaluation of Results

5.1 Potential Impacts on Habitats

5.1.1 Designated Areas

The nearest SSSI is approximately 550m east of the site. This is the Afon Dyfrdwy - River Dee SSSI. The River Dee contains several different river types from mesotrophic to eutrophic. Notable species in the river include Atlantic salmon (*Salmo salar*), otter (*Lutra lutra*), club-tailed dragonfly (*Gomphus vulgatissimus*) and several aquatic vegetation species.

The other two designated sites in the region are both 740m away to the northwest, and are the Berwyn and South Clwyd Mountains SAC and Berwyn Mountain Range SSSI.

No impact on any of these designated sites is expected from this development. The close proximity of the watercourse in the valley which joins onto the Afon Dyfrdwy SSSI to the east raises some concerns. If any substantial spillages or pollution such as dust and debris were to enter this water course, it could be detrimental to several important and notable species. Recommendations will be made including preventative measures for any potential impacts. Lighting will also be considered as this water course has potential to act as a corridor for commuting bats.

5.1.2 Habitats on Site

Habitat Type	Consideration / is the habitat capable of supporting protected species	Impact
Hardstanding	Shingle and crushed stone hardstanding around the site	No negative impact
Buildings	No evidence of bats or nesting birds within the roof spaces	Nil/low

5.1.3 Habitats

The site to be developed is considered to be of low ecological value with no BAP species present.

5.2 Ecologically Important Species

A database search from Cofnod was conducted and species within 2km recorded. These include Otter (*Lutra lutra*), Atlantic salmon (*Salmo salar*), Brown/Sea Trout (*Salmo trutta*), Eel (*Anguilla anguilla*) and hen harrier (*Circus cyaneus*). None of these are likely to be on the site as there is no aquatic habitat. The hen harrier was not recorded nesting on the site.

Species	Consideration	Impact
Mammals		
Bats	No evidence found on site and no local records	No negative impact expected
Badgers	No evidence found around site	Nil
Water vole	No suitable habitat on site	Nil
Hazel Dormouse	No suitable habitat on site	Nil
Otter	No suitable habitat on site	Nil
Birds		
Barn Owl	No evidence in trees or buildings on site	Nil
Nesting birds	No evidence in trees or buildings on site	Nil
Herpetofauna		
Reptiles	No evidence found around site	Nil
Great Crested Newts	No suitable habitat within 250m of site	Nil
Amphibian	No suitable habitat on site	Nil

5.3 Consideration of Individual Species / Habitats

5.3.1 Bats

All bat species are protected under the Conservation of Habitats and Species (Amendment) Regulations 2012 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- deliberately capture or kill any wild animal of a EPS;
- deliberately disturb any such animal;
- damage or destroy a breeding site or resting place of such a wild animal;
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a EPS, or any part of, or anything derived from such a wild animal or plant.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to a fine not exceeding level 5 (currently £5,000 per offence) on the standard scale, or to both.

To allow a development that might result an offence, a derogation licence can be sought via the implementation of a European Protected Species Licence. This is provided by Natural Resources Wales (NRW).

Work can be conducted under derogation licence from NRW providing suitable compensation and mitigation is provided and the “three tests” can be met. These are:

1. Regulation 53(2)(e) states: a licence can be granted for the purposes of “ preserving public health or public safety” or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

2. Regulation 53(9)(a) States: the appropriate authority(Natural England) shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”
3. Regulation 53(9)(b) states that the appropriate authority shall not grant a licence unless they are satisfied “ that the action licensed will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in its natural range.”

No evidence of bats; including droppings, scratches or greasing, were observed during the phase 1 survey.

The construction of the buildings is considered to not offer potential bat roost opportunities and an offence is considered unlikely to be committed. Phase 2 surveys are not considered necessary.

The client is keen to encourage bats into the area, and so recommendations will be made to accommodate for any bats that may venture into the area.

5.3.2 Badgers

Badgers and their setts are specifically protected under the Protection of Badgers Act 1992. The act was primarily brought into force to prevent the deliberate injury to or death of badgers: however some aspects of the act affect developers. It is important that developers are aware of any badger setts located on the land they intend to develop.

All personnel working on sites where there are badgers should be aware of the Protection of Badgers Act 1992. Under this legislation it is an offence to:

- Damage a badger sett or any part of it.
- Destroy a badger sett.
- Obstruct access to, or any entrance of a badger sett.
- Causing a dog to enter a badger sett.
- Disturbing a badger when it is occupying a badger sett.

A badger sett is defined by the Act as “any structure or place, which displays signs indicating current (within the last 12 months) use by a badger”.

No badgers or signs of badger activity were observed in the area. No further consideration with regard to this species needs to be made.

5.3.3 Birds

Birds, their nests and young are all protected from damage during the breeding season in particular, by the Wildlife and Countryside Act 1981 (as amended). The Act allows for fines or prison sentences for every bird, egg or nest destroyed.

No nests have been observed in the buildings. However, the area is likely to support several bird species and so a method statement outlining reasonable avoidance measures and enhancement for passerine birds will be outlined in this report.

6 Recommendations

In order to reduce or minimise negative impact on biodiversity, the following recommendations have been made.

6.1 Landscaping

1. It is understood that an area to the south of the house is to be converted into a terraced garden. It is recommended that this will include some hedging and tree planting to enhance the area for biodiversity.
2. Plants to use for landscaping will include locally sourced native species, especially fruiting trees.

Plant	Latin Name
Blackthorn	<i>Prunus spinosa</i>
Crab Apple	<i>Malus sylvestris</i>
Field Rose	<i>Rosa arvensis</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Spindle	<i>Euonymus europaeus</i>
Wild Cherry	<i>Prunus avium</i>
Wild pear	<i>Pyrus communis</i>
Wild Service Tree	<i>Sorbus torminalis</i>

6.2 Bats

6.2.1 Enhancements for Bats

1. The client has expressed keen interest about enhancing the area for bat species, and so the following recommendations will be considered.
2. It is recommended that provision will be made for roosting opportunities for bats with the erection at least one Schwegler 1FF bat box in the nearby trees or the side of the existing or new building. This will be erected at a height of 3-4m and in a southerly, westerly or easterly facing direction.



Figure 12. Schwegler 1FF bat box

6.2.2 Lighting

1. A lighting scheme will need to be drawn up. The following factors will be considered and implemented:

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Luminaire and light spill accessories

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Lighting column

The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. The acceptable level of lighting may vary dependent upon the surroundings and on the species of bat affected.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration.

From BCT (2009) Bats and Lighting in the UK.

2. There will be no direct illumination of hedgerows or other ecological corridors.
3. All lighting will be orientated towards the ground and be set on a short timer, controlled by PIR (Passive Infra-Red).

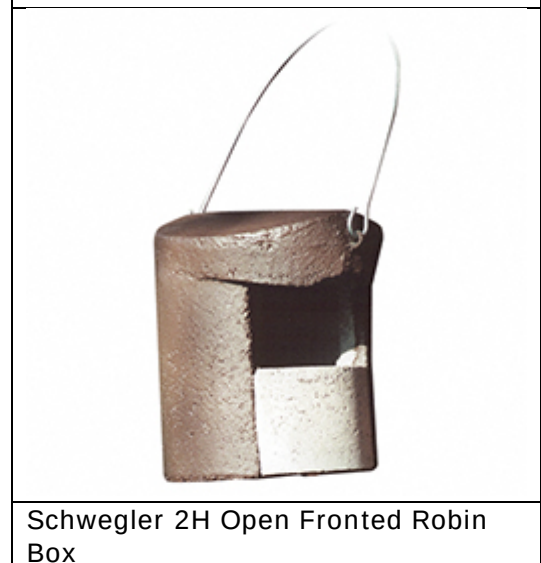
6.3 Birds

6.3.1 Reasonable Avoidance Measures

1. No evidence of former nests was observed. As a precaution, the demolition of the buildings will occur out of the bird nesting season, February to August inclusive, or a suitably experienced ecologist will conduct a check to ensure no nesting birds will be affected.
2. All nesting birds will be left undisturbed until young have fledged. A 4m buffer will be left.

6.3.2 Enhancements for Birds

3. It is recommended that a range of artificial woodcrete boxes are erected around the site to provide an enhancement for passerine birds. A selection of the following nest boxes is recommended.



7 Concluding Remarks

Phase 2 surveys for bats are not considered necessary as the area to be demolished offers little potential for bat roosts.

It is considered the development can proceed without the loss of habitat of significant value and without the loss of favourable conservation status of any protected species. As there is no evidence of protected species within and around the development site, there is no requirement to address the three tests under Regulation 53 of the Conservation of Habitats and Species Regulations 2010).

Appendices

A Ordnance Survey Map Abstract

Sheet(s): 2

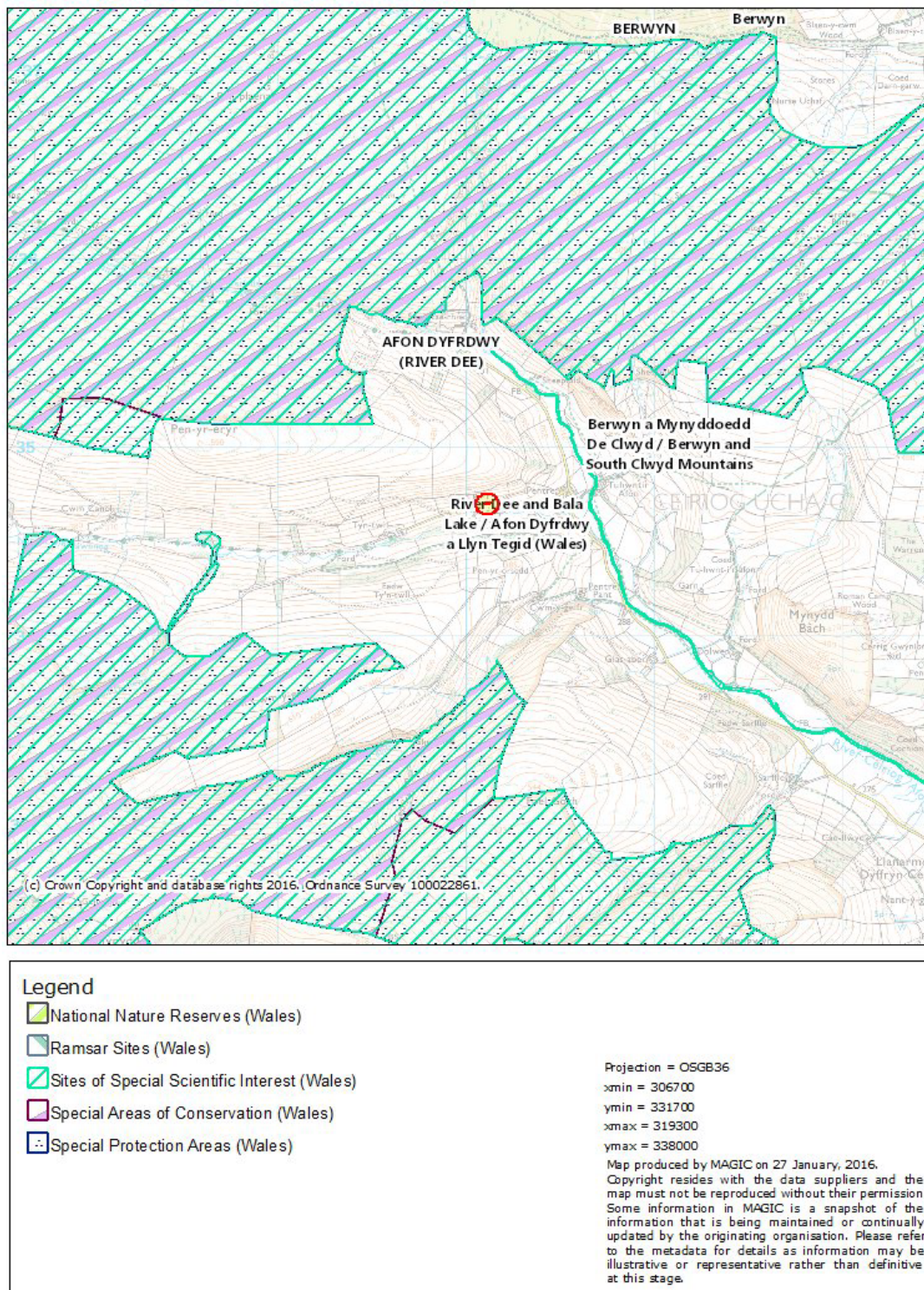
B Site Plan

Sheet(s): 1

C Bibliography

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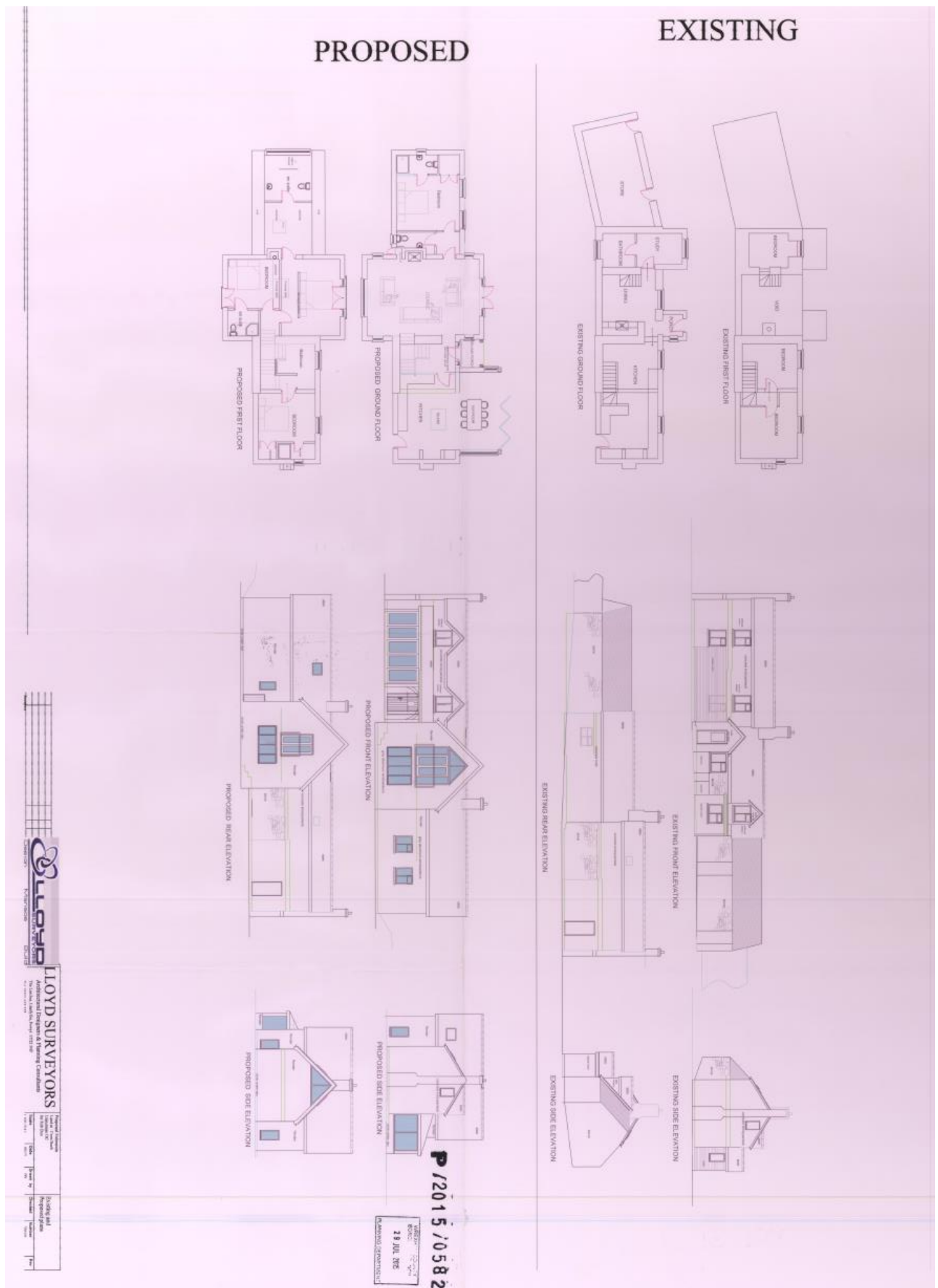
A Environmental Map



An Environmental map for Cwm Bach taken from - Nature on the Map - Magic Maps

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B Site Plans



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