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ECOLOGY • FORESTRY • LAND USE



PRELIMINARY ECOLOGICAL APPRAISAL

OAK LODGE

Project name: Oak Lodge, Corkscrew Lane, Ruabon, Wrexham,
LL14 6HG

Grid Reference: SJ31274706

Date: 22/05/2023

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of a replacement storage building and boundary fence at Oak Lodge, Corkscrew Lane.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation - Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

Oak Lodge is located along Corkscrew Lane, Ruabon opposite the Johnstown Newt Sites SAC. The landscape to the south west is therefore dominated by broadleaved woodland matrices. Land immediately surrounding the site itself appears to be improved grassland with the A483 at the north east boundary.

The proposals will include the construction of a new storage facility at the site and the installation of a boundary fence along Corkscrew Lane (part retrospective).

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were MagicMap, Data Map Wales and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 11/05/2023. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Badger
- Bats
- Breeding birds
- Great Crested Newt

The survey methodology was tailored to evaluate the area for these species in the following ways:

Badger

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,
- Tracks and footprints,

- Latrines,
- Snuffle holes.

Bats

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newt

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010).

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist. Natural Resources Wales bat licence number: S091037-1 and GCN licence number: S089109-1.

3.4 CONSTRAINTS

There were no constraints to the survey being carried out successfully.

4 SURVEY RESULTS

4.1 DESK STUDY

The desk study found that within 1km of the site there were the following designations:

Name	Designation	Distance from site
Stryt Las a'r Hafod	SSSI	0.01km
Johnstown Newt Sites	SAC	0.01km
The search included Ramsar, SSSI, SAC, SPA, LWS, NNR and LNR. ¹		

¹ **SSSI:** Site of Special Scientific Interest, **SAC:** Special Area of Conservation, **SPA:** Special Protection Area, **LWS:** Local Wildlife Site **NNR:** National Nature Reserve, **LNR:** Local Nature Reserve.

Results from the desk study revealed that within a 1km radius of the proposed development site the following protected species have been recorded:

Species	Distance	Protection
Mammals		
Brown long-eared	0.5km	European Protected Species, Wildlife and Countryside Act 1981.
Hedgehog	0.3km	Environment Act 2016
Birds		
Kestrel Redwing	0.3-1km	Wildlife and Countryside Act 1981.
Reptiles		
Grass snake*	0.9km	Wildlife and Countryside Act 1981.
Amphibians		
Great crested newt	0.01km	European Protected Species, Wildlife and Countryside Act 1981.
*Record originates from the far side of the main A483.		

4.2 HABITATS ON SITE

All habitats are classified using JNCC's Phase 1 Habitat Survey Handbook (JNCC, 2010).

Hardstanding

The site for the replacement storage building is a concrete yard with standard curbs positioned along the edges of the roadway. There are some stored materials positioned in the centre of the site, all on raised pallets. A small number of tonne bags with various contents are resting on the ground within the compound.

Fence

A solid timber fence has been installed along the south west boundary of the site. A narrow strip of ruderal vegetation remains on the roadside, including: creeping thistle, broad leaved dock and nettle. There are frequent patches of bare earth in front of the fences.

Based on aerial imagery and Google Street View it is possible to see that there was a seemingly poor quality native hedgerow along the south west boundary (left hand side of entrance), with several large gaps. Species included hazel, field elm, holly and hawthorn

with honeysuckle also visible. The hedgerow to the right hand side of the drive was possibly a *Cotoneaster sp.* hedgerow with a poor ground flora or structure.

4.3 ADJACENT HABITATS

Hedge

A *Leylandii* hedge is located along the northern edge of the compound area. The hedge is maintained at a height of around 1.5m, cut to a box profile.

Buildings

There are two brick buildings located adjacent to the site which are brick under slate.

4.4 PROTECTED SPECIES

Badgers

There are no historical records of badger at the site and no field signs were found within the search area. The site does not provide any suitable habitat for badger.

Bats

The site itself does not provide any suitable roosting or foraging opportunities. The adjacent broadleaved woodland provides excellent habitat for bat species.

Breeding birds

The hedgerow appears to have been removed during the winter of 2021/2022 and therefore it is highly unlikely that the work would have had any impact upon breeding birds.

The current compound provides no suitable nesting opportunities for breeding birds and no evidence of nesting was found on site.

Great Crested Newt

The site is located adjacent to Stryt Las a'r Hafod SSSI and Johnstown Newt Sites SAC, supporting a nationally significant population of GCN.

The concrete compound on site provides zero suitable habitat for GCN.

The hedgerows which were removed appeared to provide sub-optimal quality hedge habitat and it is unlikely that these features would have been used over high-quality existing habitat mosaics within the SSSI/SAC area.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

Hardstanding

The replacement storage building would be positioned on an area of existing concrete. The habitat on site provides no value in itself or to wildlife.

Hedge

Approximately 50m of poor-quality hedge was removed to accommodate the new boundary hedge. Habitat mitigation will be required.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

The proposals will have no impact upon badger and no further survey work is required.

Bats

The proposals will have no direct impact upon potential or known roosting sites. The new storage facility may result in an increased amount of artificial lighting on the site and mitigation for this will be required.

Breeding birds

The proposals will have no impact upon features which provide suitable nesting opportunities for breeding birds. Mitigation will not be required.

Great crested newt

Given that the only habitat present on the site is existing concrete and traditional curbs, the provision of one-way amphibian fencing is not thought to be necessary as long as a set of Reasonable Avoidance Measures are adopted on site.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

In order to provide habitat mitigation it is recommended that a new roadside hedge is planted along the verge between the road and the new fence. The hedge should include a mixture of native species with a minimum of 7 varieties of hedging plant.

Alternatively, these areas can be cultivated and seeded with a native wildflower mixture to provide a species-rich grassland assemblage along the roadside. This option should only be used if a hedgerow cannot be feasibly accommodated along the road.

6.2 PROTECTED SPECIES MITIGATION

Bats

The replacement storage facility and any associated lighting will be designed with the following measures taken into consideration:

- Hedgerows and key habitat features including mature trees on the site will not be illuminated in order to retain dark movement corridors for nocturnal wildlife.
- Any exterior security or decorative lights to be installed on the development site will be less than 3 m from the ground and fitted with hoods to direct the light below the horizontal plane, at an angle of less than seventy degrees from vertical, and shall not be fixed to, or directed at, bat boxes or gables or eaves.
- Security lighting will be set on motion sensors with short timers (<1 minute) and will be LED with a passive infrared trigger.
- Lighting must be less than 3 lux at ground level and there shall be no light splay exceeding 1 lux along buildings, eaves or roof or adjacent hedgerows or trees.
- External lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires will be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

Great crested newt

Induction of contractors

- A toolbox talk will be given to all site personnel in order to make them aware of the possible presence of GCN, how to identify this species and the avoidance measures to be used on site.
- A paper copy of the avoidance measures will be retained on site together with the contact details of the GCN licensed ecologist.

Timing & duration

- All works should take place during daylight hours when GCN are unlikely to be moving around the area.

Site clearance

- All stored materials already on the site will be removed between March and September. Any materials *not* on raised pallets will be removed by hand.

Site compound

- The site compound will be situated on an area of existing hard-standing to avoid creating GCN resting places beneath stored materials etc.
- All site materials will be stored on pallets or other raised objects to avoid creating resting places/refuges for GCN.
- Any toxic or poisonous materials should be safely stored within a locked container.

Construction methods and special precautions

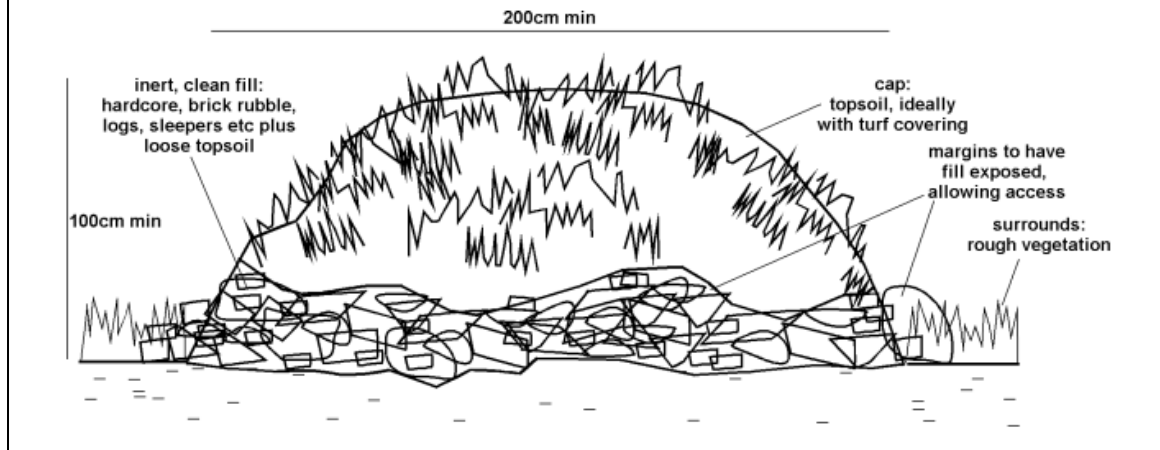
- All excavations on site will be covered at night or ramps will be provided to allow amphibians to exit excavations. All excavations will be checked for amphibians each morning prior to the re-commencement of works.
- All exposed new pipework and drains will be capped at night so as to avoid trapping amphibians.
- All excavated materials/waste will be stored in skips or similar and not on the ground where it could be used as a refuge/resting area by amphibians. Alternatively, all waste will be removed from site daily.
- All stored building materials that might be used as temporary resting places by amphibians will be stored off the ground on pallets or similar.
- If GCN are found at any point during the development or activities outlined above, works must stop and an appropriately qualified ecologist should be contacted for advice, as well as Natural Resources Wales. Contractors are prohibited from handling GCN.

Post construction

One amphibian hibernaculum will be created to the northwest of the buildings on site. The feature will closely resemble the recommended hibernaculum design provided in Figure 3 of the GCN Mitigation Guidelines.

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found overwintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



6.3 ECOLOGICAL ENHANCEMENT

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted as follows:

- Two Woodcrete general purpose bat boxes, suitable for crevice-dwelling species should be installed into mature trees elsewhere on site. No lighting should be installed in the vicinity of the boxes. They should be at least 3m from the ground and face south or south west.
- Two Woodcrete cavity nesting bird boxes with 28mm or 32mm access holes. These should be positioned within mature trees on the boundary of the site and the access should face away from the prevailing wind.
- Two hedgehog domes should be installed into the base of the hedge along the north boundary of the wider site.

7 SUMMARY

Planning permission will be sought for the construction of a replacement storage building and boundary fence at Oak Lodge, Corkscrew Lane.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

In order to provide habitat mitigation it is recommended that a new roadside hedge is planted along the verge between the road and the new fence. The hedge should include a mixture of native species with a minimum of 7 varieties of hedging plant.

Alternatively, these areas can be cultivated and seeded with a native wildflower mixture to provide a species-rich grassland assemblage along the roadside. This option should only be used if a hedgerow cannot be feasibly accommodated along the road.

The proposals will have no direct impact upon potential or known roosting sites. The new storage facility may result in an increased amount of artificial lighting on the site and mitigation for this will be required.

A Wildlife Sensitive Lighting Plan will be produced, based on guidance provided in Section 6.2 of this report.

Given that the only habitat present on the site is existing concrete and traditional curbs, the provision of one-way amphibian fencing is not thought to be necessary as long as a set of Reasonable Avoidance Measures are adopted on site.

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted as follows:

- Two Woodcrete general purpose bat boxes
- Two Woodcrete cavity nesting bird boxes
- Two hedgehog domes

8 REFERENCES

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FIGURE 1 LOCATION

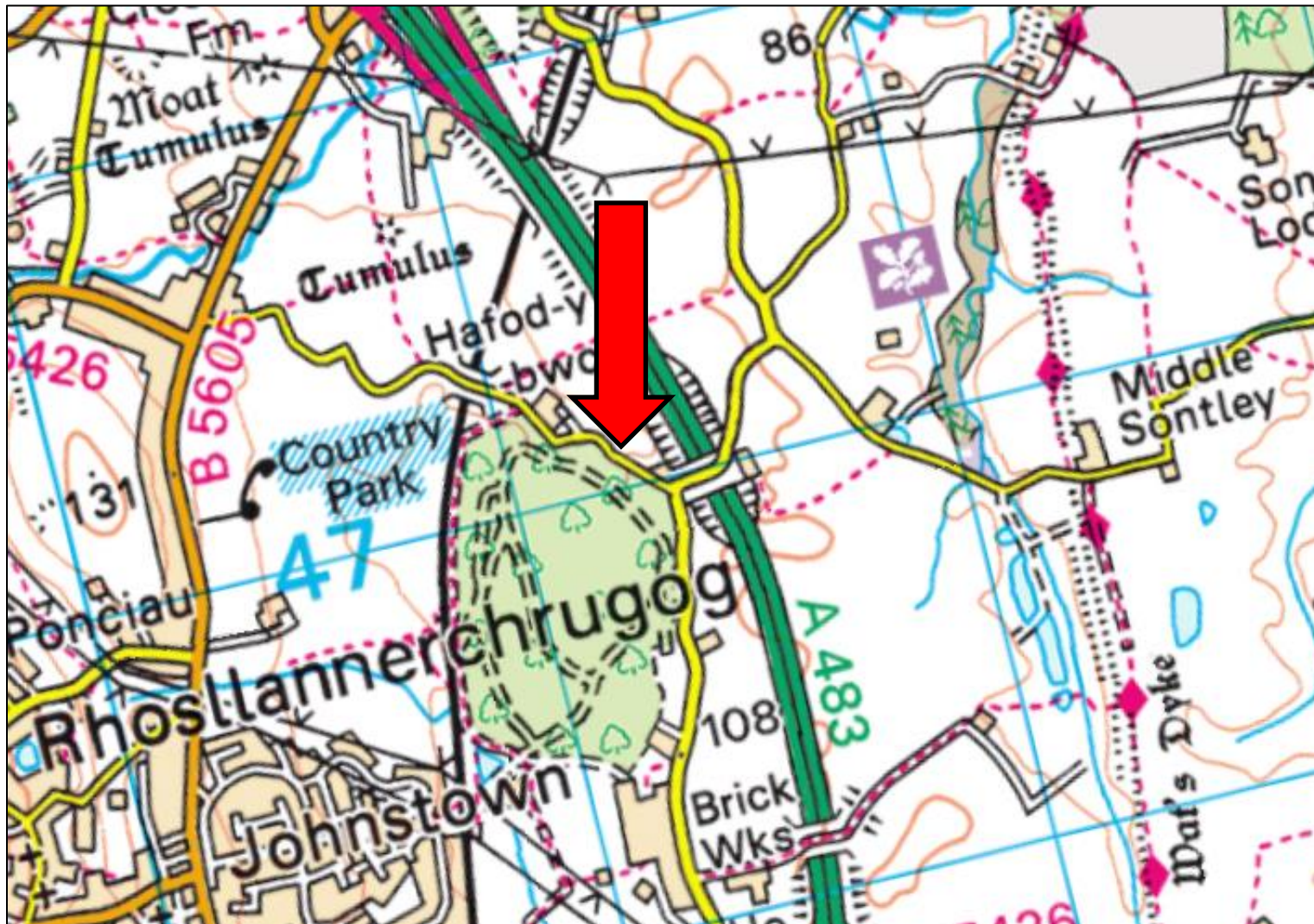
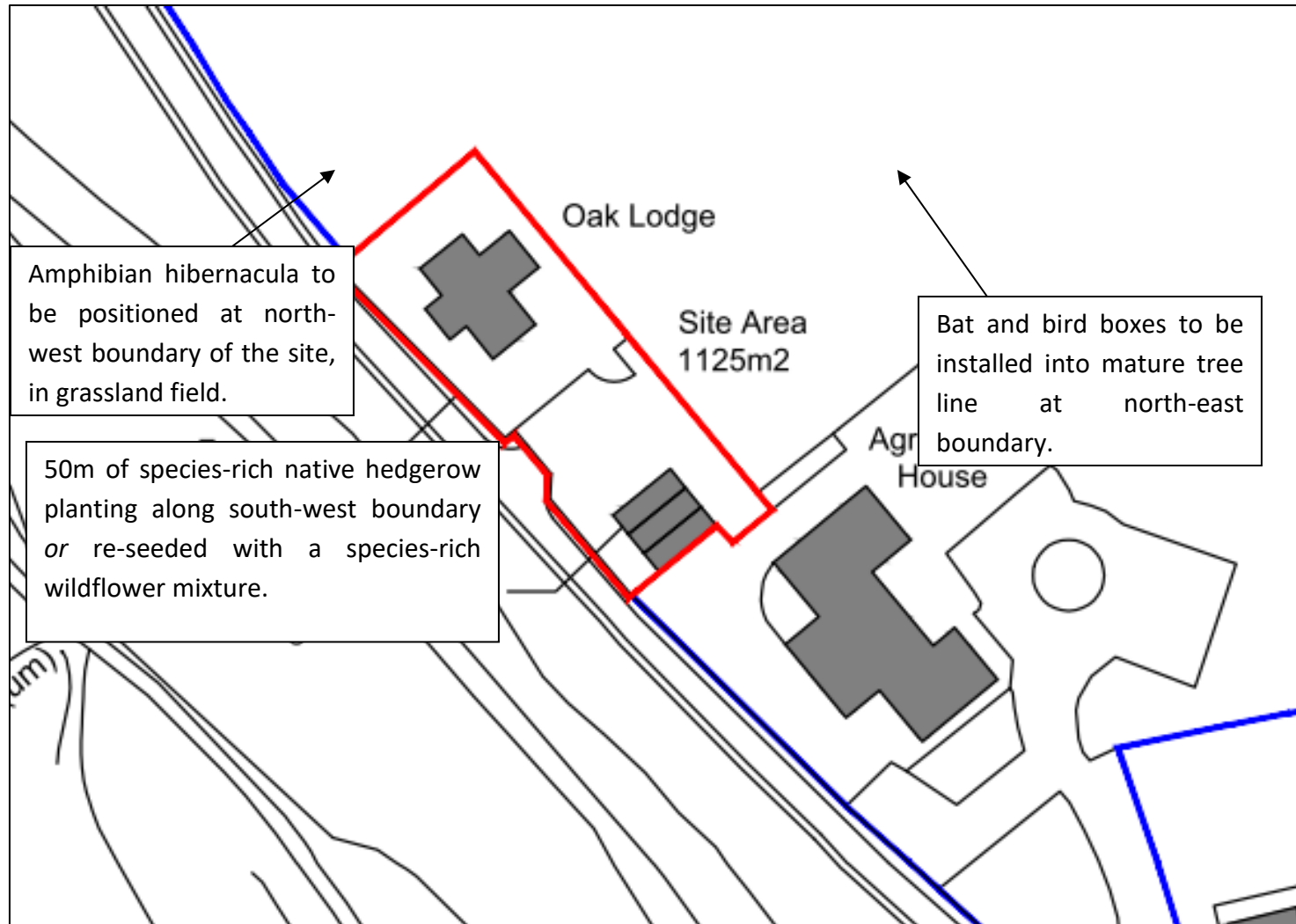


FIGURE 2 AERIAL PHOTOGRAPH



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FIGURE 3 PROPOSED MITIGATION/ENHANCEMENT



APPENDIX 1 PHOTOGRAPHS



The site.



Southern edge of compound fitted with curbs.



Roadside fence.



Roadside fence.



Leylandii hedge along north east boundary.



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