

Lower Trewern

Llandegley

Preliminary Ecological Appraisal Report

Version 1

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EXECUTIVE SUMMARY

Laura Cottrell MSc MCIEEM was employed to undertake a Preliminary Ecological Appraisal (PEA) to assess early stage potential for ecological impacts on land adjacent to Lower Trewern, Llandegley, identified for the construction of a three bedroom chalet with associated infrastructure.

The development is located on approximately 0.1 ha of land on the outskirts of Llandegley. An Extended Phase 1 Survey and desk study were completed to help inform the nature conservation status of the site.

The main area for development is on an area of semi-improved neutral grassland with scattered scrub. The grassland had a low species diversity at the time of survey (August).

A desk study to identify any statutory sites of the development was undertaken. There are two Sites of Special Scientific Interest (SSSI) and one Special Area of Conservation (SAC) within 2km of the site. The Mithil Brook is approximately 15m to the east of the site boundary. The brook is separated from the site by scrub consisting of hawthorn, rowan and willow trees, due to the nature of the proposed development, there are no obvious pathways between the construction area and the brook, as long as the recommendations within this report are adhered to.

Appropriate buffer and protection zones will be implemented around linear features, to ensure their continued health and survival.

The survey revealed no signs of badger or other mammals, measures will be put in place to ensure no effect will occur on these species.

Potential impacts upon bat species and otter are limited to disturbance from illumination and therefore mitigation will be required to reduce the effects of external lighting on site.

Ecological enhancement on site will be achieved with the following measures:

- A native species hedgerow will be planted at the west boundary of the plot
- Two bat boxes will be installed
- A native rich flower seed will be sown and managed.

Considering the habitats and plant species in their own right, there is unlikely to be a significant ecological loss. The opportunity to make the site more biodiverse, will provide longer term support for invertebrates, birds and small mammals.

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Introduction

Laura Cottrell MSc MCIEEM was commissioned to undertake an ecological survey of the land at Lower Trewern, Llandegley, Powys. The site is located at SO 14564 62106 which is approximately 1 km southeast of Llandegley. The site identified for the new dwelling is in the field immediately southwest of the existing farmhouse and agricultural buildings.

This report contains results from the ecology survey and the impact that this development is likely to have on biodiversity, with recommendations mitigation measures to reduce these impacts.

Proposed works

The proposed works are to build a three bedroom chalet for the purpose of agricultural diversification to tourism. This will include three parking places with a suitable turning area of 6 metres on land adjacent to the landowner's dwelling.

Policy and Legislation

National Planning Policy

Planning Policy Wales and Technical Advice Note 5 confirms that on some occasions due to environmental issues, planning permission may be refused. Local authorities should therefore consider whether these environmental issues can be adequately addressed by modifying development proposals or by appropriate planning conditions or obligations.

With regard to the development, there may be presence of notable, priority or protected habitats and species present. These may be considered as environmental issues that may cause the failure to achieve planning approval due to their nature conservation status. In this case, species and habitats are a material consideration in determining the planning application. Information relating to protected sites and species must be submitted with planning applications for determination of the whole application. Where existing planning permission is in place, information relating to protected sites and species must be submitted as required as per requirements of planning conditions or obligations.

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Habitats Directive)

The main aim of the 'Habitats Directive' is to promote the maintenance of biodiversity by requiring member states to introduce protection for these habitats and species of European importance. The mechanism for protection is through designation of Special Areas of Conservation (SACs), both for habitats and for certain species listed within Annex II. In addition, the Habitats Directive provides specific protection of certain species.

The Environment (Wales) Act 2016

This act makes provision in respect of biodiversity, pesticides harmful to wildlife, protection of birds and invasive non-native species in Wales. Section 6 of this act introduces the biodiversity and resilience of ecosystems duty for which all public authorities in exercise of their functions must Section 7 of this act includes a duty on public bodies to have regard to the purpose of conserving biodiversity in the exercise of their functions. The list of habitats included in Section 7 defines those that are of principal importance in Wales and should be considered when public bodies exercise their duty.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) (The WCA 1981) is the principal legislation by which most species are protected in Wales. In relation to birds, the WCA 1981 makes it an offence to intentionally kill, injure or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built. Schedule 1 of the WCA Act 1981 includes bird species for which addition the additional offence of disturbing these species at their nests or their dependent young.

Powys Local Development Plan

The adopted Powys Local Development Plan (2011-2026) details policies which relate to biodiversity by which all planning applications must comply. In this case, policy DM2: The Natural Environment is relevant, which details how development proposals must demonstrate how it will protect, positively manage and enhance biodiversity of the site. Policy DM13: Design and Resources is also relevant, which specifies that the 'needs of biodiversity should be considered through the incorporation of measures to encourage it, such as swift nesting bricks and bat and other wildlife access points in buildings'.

Objectives of the survey

The development will require the removal of existing habitats and features to facilitate the construction of the challet. It is therefore necessary to consider the potential effects on sensitive ecological receptors, i.e. those included in the various legislative documents as well as features such as Local Wildlife Sites and statutory protected sites.

To complete this process a formal Preliminary Ecological Appraisal (CIEEM, 2017) of the site was completed to confirm the presence of ecological receptors on site and immediate surrounds by:

- Reviewing aerial photography for surrounding habitats and ecological connectivity;
- Completing a desk study to identify statutory and non-statutory designated sites, within 2km of the development.
- Completing an Extended Phase 1 Habitat Survey by conducting a site walkover to map habitats and ecological constraints.
- Identifying potential positive and negative effects on ecological receptors as a result of development.
- Preparing mitigation and enhancement measures to assist in improving the design, construction and operation of the development.

Quality Assurance

This report is based upon evidence and data prepared, as far as practically possible, in accordance with best practice guidance. It has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Professional Conduct. The report has been prepared based on guidance from BS42020:2013 Biodiversity: Code of practice for planning and development (BSI, 2013). In preparing this report the opinions are expressed as true and professional bona fida opinions.

Methodology

Desk Study

A search for statutory designated sites was completed by reviewing The Multi-Agency Geographic Information for the Countryside (MAGIC) website alongside publicly available datasets provided by using Natural Resource Wales (NRW) for Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves (NNR)

and Local Nature Reserves (LNR). Each designation within 2km of the proposed site was mapped in a GIS to determine distance from the development and information from citations and web sources used to define the reason(s) for designation and/or features of nature conservation interest.

Field Survey

An Extended Phase 1 Habitat Survey (JNCC, 2010) was completed on the 2nd of August 2023 by Laura Cottrell MSc MCIEEM, who has over 15 years' experience in ecological survey and consultancy. Phase 1 Habitat Survey is a technique for classifying and mapping habitats. The term 'Extended' refers in this project to assessing habitat features that may support protected or priority species such as birds, bats, reptiles etc. Dominant plant species observed within each habitat type were recorded in accordance with plant species nomenclature in Stace (2010). Target Notes (TN) were used to identify potential for protected or priority species or habitats, and to provide more detailed site descriptions.

Limitations

The development site was visited over the period of a single day but within the optimal surveying season. It is considered given the results that the field survey provides an accurate representation of the habitats present and their potential to support priority and protected species.

Weather conditions during the survey were changeable with some overcast and bright sunny spells. It is therefore not considered that the weather conditions hindered the survey.

Results

Desk Study Results

Statutory Designated Sites

There are two SSSI's and one SAC located within 2km of the site boundary.

Mithil Brook and Cwm Blithus SSSI is located 1.7km to the southwest of the site (not shown on Figure 1). This site displays a nationally important sequence of rocks of early to mid-Ludlow (Gorstian) age, ranging from the Upper Llanbadarn Formation, through the Bailey Hill Formation and into the succeeding 'Striped Flags'.

The River Ithon SSSI which forms part of the River Wye/Afon Gwy SAC is located approximately 1.2km to the northwest. The Mithil brook that forms the eastern boundary to the site is hydrologically linked to the River Ithon SSSI.

River Wye/Afon Gwy SAC Annex I habitats and Annex II species that are a primary reason for selection of the site are Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River Lamprey *Lampetra fluviatilis*, Twaite shad *Alosa fallax*, Atlantic salmon *Salmo salar*, Bullhead *Cottus gobio*, European otter *Lutra lutra*, Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation, White-clawed crayfish *Austropotamobius pallipes*, Allis shad *Alosa alosa* and Quaking bogs and transition mires.

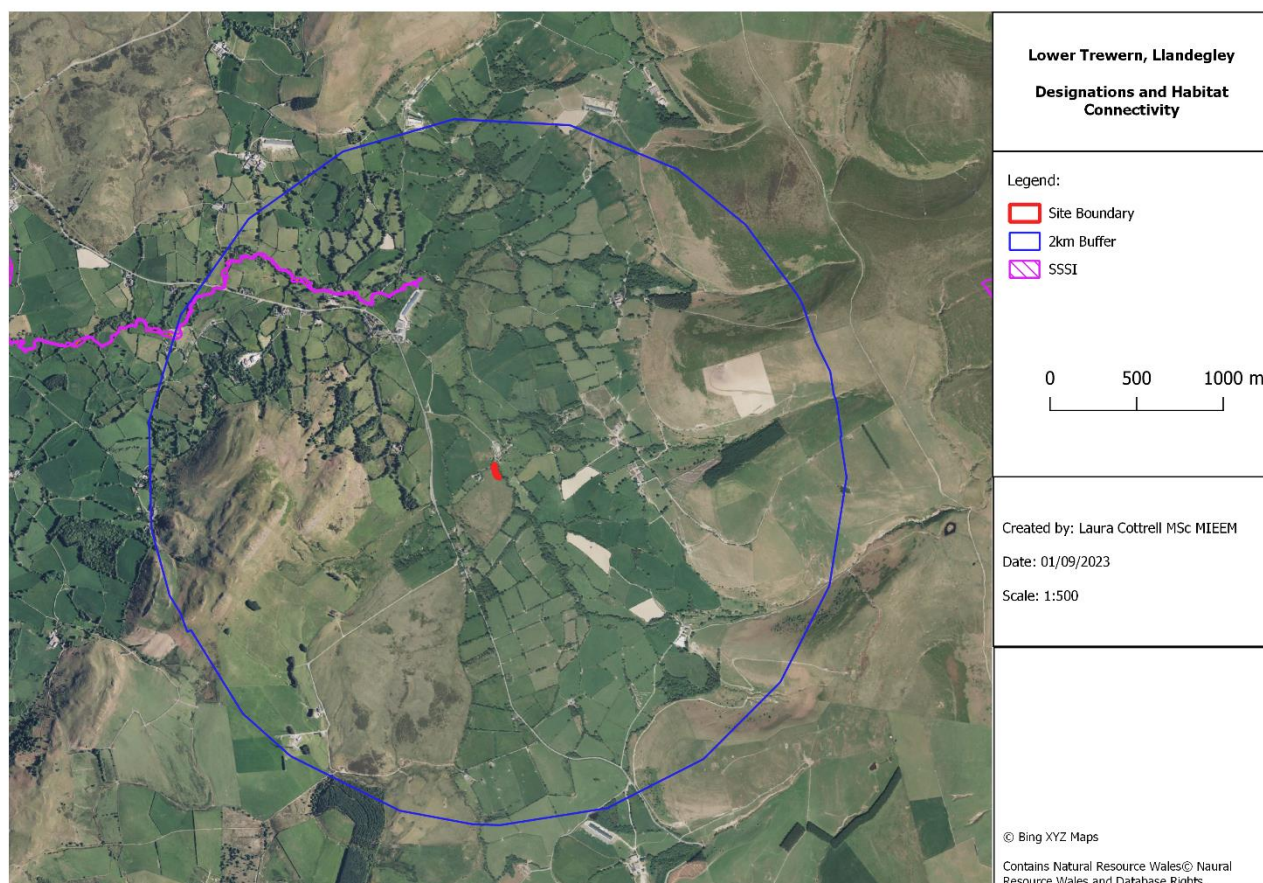


Figure 1: Designations

Field Survey results

Habitats

The site boundary contains two dominant habitats, semi-improved neutral grassland and scattered scrub.

Outside and immediately adjacent to the site boundary is a hedgerow to the northwest and a line of shrub to the west. There is also an ephemeral ditch running alongside the hedgerow to the northwest.

Semi-improved Neutral Grassland

The footprint of the new building is proposed in the field of semi-improved neutral grassland (Photo 1). Species diversity is low, the grassland is situated on a gently sloping hill that falls west to east, just outside of the site boundary to the east, the gradient steepens, leading down to the small brook. The grassland has a coarse sward with no single species consistently dominant. Tufted hairgrass *Deschampsia cespitosa* is constant throughout the sward along with other tussock forming grasses such as Yorkshire-fog *Holcus lanatus* and Cock's-foot *Dactylis glomerata*. In between the tussocks of tufted hairgrass there is perennial rye-grass *Lolium perene*, creeping bent *Agrostis stolonifera* and sweet vernal-grass *Anthoxanthum odoratum*. Dicotyledons found within the sward were yarrow *Achillea millefolium*, Bird's-foot trefoil *Lotus corniculatus*, Cuckooflower *Cardamine pratensis*, creeping buttercup *Ranunculus repens*, common dandelion *Taraxacum officinale*, ribwort plantain *Plantago lanceolata*, common mouse-ear *Cerastium fontanum*, common sorrel *Rumex acetosa*, curly dock *Rumex crispus*, white clover *Trifolium repens* and creeping thistle *Cirsium arvense*.



Figure 2: Phase 1 Habitat Map

Scattered scrub

To the east of the site boundary there is scattered scrub *Sorbus aucuparia* in the form of rowan and hawthorn. The banks that falls to the east and down to the small brook is scattered with scrub.

Linear features

There is a hedgerow to the northwest boundary, and a defunct, line of scrub to the west boundary, both of which are outside of the landowners boundary.



Figure 3: Looking south along the semi-improved neutral grassland



Figure 4: Looking north along the semi-improved neutral grassland, with line of scrub outside of the west boundary.



Figure 5: Facing north from the south, scattered scrub to the south of the site.



Figure 6: Prunus sp. tree outside of the site boundary, near to the entrance to the site.



Figure 7: Scrub and trees to the east of the site buffering the Mithil Brook from the site



Figure 8: Access into field, with hedgerow with small ephemeral ditch

Protected and Priority Species

Amphibians

There is one pond within 500m of the site, this was not able to be visited during the site visit, as access was unknown. No hibernacula were found on site during the extended Phase 1 Habitat Survey. No records of great crested newt (GCN) *Triturus cristatus* were returned from the desk study, the site is also located in part of the UK where GCN populations are not prevalent. However there is a record of common toad *Bufo bufo*, which is a Section 7 priority species under the Environment (Wales) Act 2016.

Bats

There are two trees outside of the boundary of the site. A sycamore *Acer pseudoplatanus* to the south and a species of apple *Prunus sp.* to the northwest were assessed for potential roost features. Neither of the trees will be impacted by the proposed development.

Birds

There is limited habitat within the site boundary that afford nesting opportunities for breeding birds. However the hedgerow that forms the northern boundary, and the scattered scrub on and adjacent to the site could provide opportunities for nesting birds. No nests or breeding bird behaviour was observed during the extended Phase 1 habitat survey.

Mammals

No signs of badger *Martes martes* or other small mammals were found during the extended Phase 1 habitat survey. However, badger are known to be common and widespread throughout Powys.

Otters *Lutra lutra* are an Annex II species that are a primary reason for selection for the River Wye SAC. Otters may use the Mithil brook to the east of the site and the surrounding area for foraging and to commute to other areas more suitable for resting (holts). No sign of otters were found along the riverbank or within the site. The mitigation for lighting described will alleviate any effect on otter.

Reptiles

There are no records of reptiles within the area, however it should be noted that reptile species such as slowworm *Anguis fragilis*, grass snake *Natrix natrix* and common lizard *Zootoca vivipara* are widespread and under recorded. The rough grassland on site may provide habitat for slow worm.

Discussion including Recommendations

Designated sites

The Mithil Brook located 15m to the east of the site and is hydrologically linked to the River Ithon SSSI and in turn, the River Wye SAC. The site elevates above the brook by at least 15m, with scrub separating the site from the brook. During the construction of the chalet, should ground excavations be stored on site, a silt fence should be erected around the stock pile to stop any silt pollution entering the Mithil Brook. Given the distance and elevation from the site, and the use of permeable surfaces and capturing of rain water from the roof of the chalet (architect drawing PL.04), and the mitigating working methods above, there will be a negligible effect on the Mithil Brook, and therefore the River Wye SAC.

The measures laid out in External Lighting and Mammals within this report, will ensure that no effects to otter (a designated species of the River Wye SAC) would occur.

Habitats and Land Take

The development area is restricted to an area of semi-improved neutral grassland of low ecological value. The access track to the field is via an existing track through existing field gates. No hedgerows will be breached or mature trees removed as a result of the construction of the chalet and carparking area.

Grassland compensation

Much of the development lies within the semi-improved neutral grassland, its closest National Vegetation Classification is that of MG9 grassland. This is a habitat which is of ecological value locally but of more limited ecological value regionally and nationally. It is of local value because many grassland pastures in the area have been converted to high production silage and for grazing high densities of livestock. The proposals will result in the loss of a corner of this field, therefore, it is recommended that around the cabin once it is constructed, the land is re-seeded with lowland meadow seed mix <https://germinalamenity.com/re2-lowland-meadow-mg9-grassland>.

Sow onto the surface of the prepared fine seedbed in August-September. A mixed grass and wildflower mix should be used at a rate of 10-15 kg/ha. If sowing the mix onto the existing grassland then use 1-1.5 kg/ha. The sown land should be rolled to ensure seed is fully in contact with the soil.

For the first few years the newly sown grassland will need management to allow the wildflowers to grow, flower and set seed. The following management is recommended:

Control weeds – tall weeds such as docks and thistles should be cut/topped several times a year for the first two years

The first year's growth – In the first year prevent seedlings from getting smothered by vigorous grass growth. When the new grassland grows to a height of 10-15 cm, it should be mown to a height of approximately 5 cm, and the grass cuttings removed. This may need to happen several times over the year.

The next few years – the sward should be allowed to 'fill-out', i.e. create a good coverage of wildflowers and grasses. The grassland should be cut once a year after it has flowered and the seed has dropped (late July – August).

Small ditch adjacent to the boundary

The works to create the access and the carpark on the site have the potential to cause pollution and affect the quality and quantity of the water that flows within the ditch downstream.

A culvert will be put in place prior to the new access being created. To avoid pollution from silt, a silt trap will also be installed. This could be in the form of haybales, due to the ephemeral nature of the ditch, during construction haybales could be placed to catch any run off silt and removed and disposed of once construction is completed.

Hedgerow protection

A gap of one metre will be left between the hedge, line of scrub and any construction work. This can be enforced by the use of iron rods and netted fencing. As the area of land to which the cabin will be built on will require levelling, the rods and netting should be implemented prior to any works commencing and retained throughout the development, this should protect the root stock and ensure limited damage to the shrubs and hedgerow along the boundary of the site.

Amphibians

The measure set out for reptiles will also be suitable for amphibians.

Bats

No trees will be affected by the development. Potential impacts are limited to disturbance from illumination and therefore mitigation will be required to reduce the effects of external lighting on site.

Providing that the External Lighting recommendations are adhered to, there will be limited disturbance to bats foraging within the area.

Birds

In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act, it is recommended that any initial ground works and associated vegetation removal take place outside of the bird breeding season (i.e. vegetation clearance between the months of September-February inclusive). If vegetation works are necessary during the breeding season, breeding birds and their nests will be protected by a watching brief. Potential nesting habitat would be hand-searched by a suitably experienced ecologist prior to works commencing. Only once the appointed ecologist is satisfied that site clearance works will not result in harm/disturbance to breeding birds may works proceed.

Reptiles

No refugia was identified on site, it is possible however, that the site is used by common reptiles, at least on occasion. If the works are to be carried out in the summer months when reptiles are active, the area proposed for development should be strimmed or brush cut to a short height (approximately 5cm) at least 48 hrs prior to works commencing. This should make the area unattractive to reptiles prior to development and thus encourage them to leave the area.

The land take for the development is minimal (<0.1ha), providing appropriate mitigation measures are implemented, the potential for reptiles being harmed during the works is very low. Providing the precautionary measures are implemented it is considered that there is no requirement to undertake further surveys for reptiles.

Mammals

Any ground excavations during the construction phase are to be covered overnight or fitted with a means of escape for mammals or other species that could become trapped i.e. via secure scaffolding boards or similar at no more than a 45° angle. All construction materials should be stored in secured compounds or raised off the ground.

Badger

The proposed works will result in small loss of foraging habitat. Given the nature of the site and its surrounds the wider habitat retains sufficient foraging resource. Therefore, measures to enhance habitat specifically for badgers are not recommended. However, as badgers are known to be wide spread in Powys and that badgers probably use the site for foraging and commuting, linear and edge habitats are to be maintained and enhanced to facilitate the ability of badgers to disperse and feed in the local area.

Otter

The measures set out above for mammals and within the External Lighting recommendation below will ensure no effect to otters during construction or following completion.

External Lighting

If any lighting is to be installed on the exterior, only a limited amount of lighting must be affixed and only to aid safe access to and from the new dwelling. Light fixtures will be directed downwards with additional canopy protection, and must be on a passive infrared (PIR) sensor, to allow lighting to come on only when required. Light fixtures must never directly illuminate any hedgerow, scrub, waterway or trees.

The sensitive lighting scheme must follow advice detailed in the Technical Guidance note 08/18 and generally comprise:

- luminaires are to be LED only, due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- luminaires should have a warm white spectrum (ideally <2700 Kelvins), reducing the blue light component and increasing the red-light component;
- luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- heights of fixtures should be carefully considered to minimise light spill;
- only luminaires with an upward light ratio of 0% and with good optical control should be used;
- luminaires must always be mounted on the horizontal, i.e. no upward tilt;
- any external security lighting should be set on motion-sensors and short (1min) timers;
- as a last resort, accessories such as baffles, hoods or louvres must also be used; and
- reduce light spill and direct it only to where it is needed. Lighting fixtures must be directed away from any natural features and must not encroach outside the site boundaries, particularly the surrounding trees, hedgerow and other vegetation in the landscape.

This form of lighting will also aid in adhering to the Powys LDP DM7 Dark Skies and External Lighting.

Biodiversity Enhancement

It is recommended that where post and wire stockproof fence is to the west boundary; a new native hedge is to be planted to enhance the field boundary habitat. The hedgerow should be planted along the stock proof wire fence running the length of the southwest boundary until it reaches the existing linear scrub habitat running along the boundary on the adjacent land, this will create a further 40 m of new hedgerow.

The new hedgerow will be formed using double staggered rows to provide a dense and well-structured hedgerow of value to wildlife. It is proposed that five plants be planted per linear metre of hedgerow. The hedgerows will contain five or more native woody species, this should include hazel *Corylus avellana*, blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, elder *Sambucus nigra* and wild rose *Rosa canina*. The undergrowth is to be seeded with the same ground flora mix as above. This will increase species richness and encourage use by a greater diversity of insects and birds. The undergrowth is to be cut once/twice a year and cuttings removed to maintain and encourage wild flowers for pollinators.

The exact timing of the hedgerow planting will be dependent on the ground conditions but planting will take place between the months of November and March inclusive. It is expected that ground conditions and climate will allow for earlier planting (i.e. before January), and this will allow the plants more time to establish a network of feeder roots before the onset of spring. Planting is to avoid freezing and water-logged conditions. Any hedgerow saplings or trees that fail to grow will be replaced.

It is also recommended that two general purpose bat boxes, suitable for crevice dwelling species should be installed, either on the gable end of the cabin or on a mature tree within the land owner's curtilage. No lighting should be installed in the vicinity of the boxes and they should be at least 3m from the ground, and face south or southwest.

Conclusion

Planning permission is sought for the erection of a cabin, formation of vehicular access and all associated works. The habitat to be impacted by the proposal is semi-improved neutral grassland, the loss of this habitat is of very little ecological consequence.

Suitable mitigation measures can be incorporated into the proposed application to avoid/ mitigate/ compensate any potential impacts to ecological features and to demonstrate 'no biodiversity net loss' in accordance with Planning Policy Wales and local planning policy. As such, no significant impact can be expected which would prevent determination of a planning application or development of this site.

Additionally, the enhancements can be incorporated to demonstrate a 'biodiversity net gain'.

References and Bibliography

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JNCC (2010) Handbook for Phase 1 Habitat Survey. Peterborough

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