

Report for: Crown and Canopy

Phase 1 Ecological Survey (Extended).



Site: Gronwen Farm, Garth, Llangollen, LL20 7UY.

Contents

Summary Sheet	3
1. Introduction	4
1.1 Instructions and Objectives	4
2. Methodology	5
2.1 Study Area	5
2.2 Desk Top Study	5
2.3 Field Survey	5
2.4 Evaluation and Significance of Impacts	6
2.4.1 Limitations	6
3. Results	7
3.1 Site Location and Setting	7
3.2 Desk Study	8
3.2.1 Protected species	9
4. Survey	11
4.1 Site description	11
4.2 Protected Species	14
5. Site Evaluation	17
5.1 Habitat	17
5.2 Mammals	18
5.3 Birds	19
5.4 Amphibians	20
5.5 Reptiles	20
5.6 Invertebrates	20
Legislation	21
6. Policy	22
7. Conclusions	23
8. Recommendations	23
9. Biodiversity Enhancements	24
Appendices	29

Summary Sheet

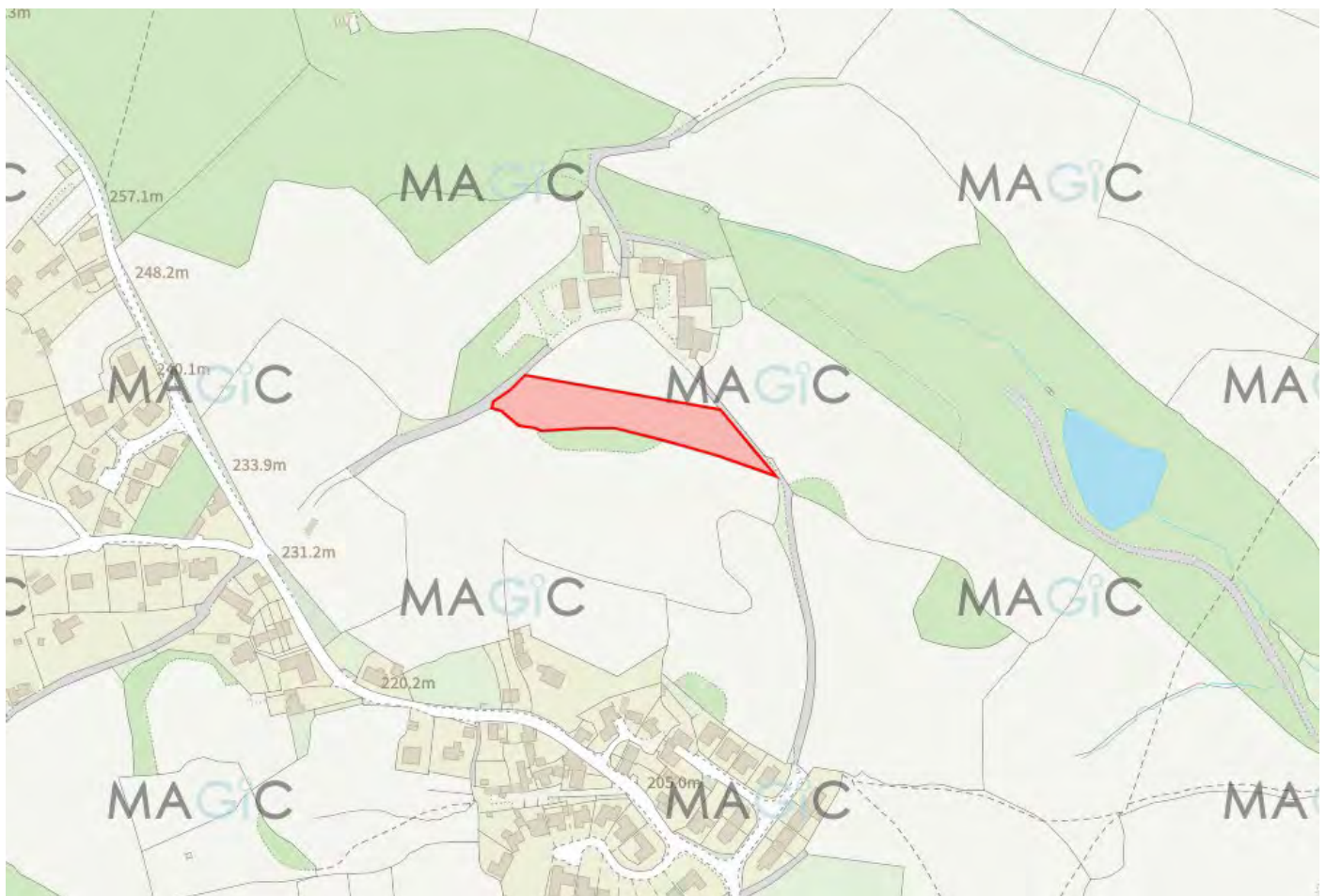
Date of Survey:	7 February 2024
OS Grid Reference:	SJ 257 430
Main Findings:	• The application area is generally of low ecological value & much of the site is ecologically poor as short grass used as a cattle ley. • The external boundary provides the most interesting habitat and Ecological corridor. • No structures are present within the application area that are capable of supporting bat roosting opportunities. • External hedgerow with trees will provide potential foraging/flight line corridors and terrestrial herpetological habitat. • Potential bird nesting within the hedgerow boundaries. • The wider region has designated sites and sensitive habitats present at margin of data search.
Conclusions:	• The site is dominated by a short cattle ley on a medium term cycle improved grassland, this is a common habitat at local regional and national levels, its affect upon the local species population is minimal. • Existing access point to be utilised minimising impact and disturbance to trees and hedges on site boundaries . • The proposal is small and will have minimal impact upon protected species and designated habitats within the wider region.
Recommendations for Mitigation & Enhancement:	• Bats – No external lighting, during construction and post construction of field boundary and internal site sensitive lighting design to be installed. • Bat boxes are to be installed upon mature trees on boundary at suitable height. • Badger walkover prior to construction to be carried out and site to operate under RAMs for Badgers and Construction. • Bird boxes are to be installed within margins • Hibernaculum's are to be constructed around boundaries along with enhancements for amphibians and insects. • Planting of new wild meadow will increase the biodiversity of the area and hedgerow re enforcements will improve terrestrial habitat and movement corridors. • Free access across site to be maintained for hedgehogs and hotel installed. • Trees at entrance to be protected with non-dig cellular confinement system to ensure no compaction and continuous gaseous exchange maintained.

1. Introduction

1.1 Instructions and Objectives

Heritage Environmental Contractors Ltd (HEC Ltd) was commissioned by Crown and Canopy on behalf of applicant to undertake a Phase 1 Habitat Survey in support of a planning application for the proposed erection of two cabins upon a field of improved grassland.

The desk study, field survey and evaluation are intended to provide information on the general habitat characteristics of the site and its surroundings including the likely presence of legally protected species and habitats encountered within the study area.



(c) Crown Copyright and database rights 2022. Ordnance Survey 100022861.

2. Methodology

2.1 Study Area

The site is situated near the village of Garth, on the applicants family farm and can be located by Ordnance Survey National Grid Reference (OSN GR) SJ 257 430 covers an area of approx. 0.4 ha and is currently used for grazing of cattle associated with farm.

2.2 Desk Top Study

A desk study was carried out to identify the presence of any statutory or non-statutory sites within 1km of the study area together with records of any known legally protected or rare species.

The site and land within the area was surveyed to the guidelines as in the Handbook for Phase 1 Habitat Survey (JNCC 2010).

Cofnod (North Wales Environmental Information Services) were consulted to provide data of legally protected species and locally rare species within 1km of the boundary of the study area. Details of any designated sites of importance for nature conservation were also requested.

MAGIC Maps was also referred to for the status of wider habitats in the area.

Google maps was used for aerial views to identify important landscape features around the site.

2.3 Field Survey

A walk-over ecological survey of the study area was undertaken following guidelines for baseline ecological assessment '95 and as per the Handbook for Phase 1 Habitat Survey (JNCC 2010). The site survey was carried out on 7 February January 2024 and the weather conditions were mild with high level cloud coverage and a temperature of 10°C. site conditions can be considered as suitable for purpose of report . Survey carried out by Mr J Fennessy BSc Hons. MEECW. M Arbor A. with over 25 years ecological surveying experience.

The Phase 1 habitat survey provides information on the habitats in the study area and assesses the potential for notable fauna to occur in the study area. Local Biodiversity BAP species and habitats potentially capable of supporting these species will be identified. Preliminary investigations were undertaken to determine whether the site is supporting legally protected species by:

- Searching for signs of bird nests and identifying suitable nesting sites with the recording of mature trees and hedgerows.
- Recording of all birds observed during study area visits.
- Searching for signs of badger activity.
- Searching for signs of otter activity.
- Searching for signs of potential roosting sites for bats.
- Searching for suitable habitats for breeding populations of great crested newts.
- Searching for suitable habitats for reptiles and general amphibians.
- Searching for other species and habitats.

2.4 Evaluation and Significance of Impacts

The assessment of the potential impacts of the proposed development needs to consider both on-site impacts as well as those which may occur to adjacent areas of ecological value. Impacts can be permanent or temporary, direct or indirect and can include:

- Direct loss of wildlife habitats;
- Fragmentation and isolation of habitats;
- Disturbance to species

2.4.1 Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year and behaviour, the ecological survey of this site has not produced a complete list of plants and animals. Specific fauna and flora have a narrow period for leaf, flower or fruiting evidence outside this period of their existence can be limited or non-existent. Surveys can also be affected by time of day and weather conditions.

Please note the absence of a past record does not necessarily mean the absence of a rare species and may be an example of under recording.

HEC Ltd findings are limited to the specific time of the survey, any changes to the site post survey will have a bearing on composition and may affect the site recommendations.

Legal Guidance

The information set out within this report in no way constitutes a legal opinion on the relevant legislation. The opinion of a legal professional should be sought if further advice is required.

3. Results

3.1 Site Location and Setting

The proposed site is situated along an existing road that services the farm with surrounding fields of similar use and coverage.

This type of land use and size is typical in this part of the county with mixed grassland and blocks of woodland dominating surrounding area.

Ref Google Earth 2000

Centre of application site



3.2 Desk Study

Data was provided for statutory and non-statutory designated sites and protected species within a 1km radius of the site from North Wales Environmental Information Services (Cofnod) and maps are to be found with document. From details provided the relevant ecological data has been reviewed.

Special Areas of Conservation records which are wholly or partially within 1km of site.

Berwtn and South Clwyd mountains

SSSI records which are wholly or partially within 1km of site.

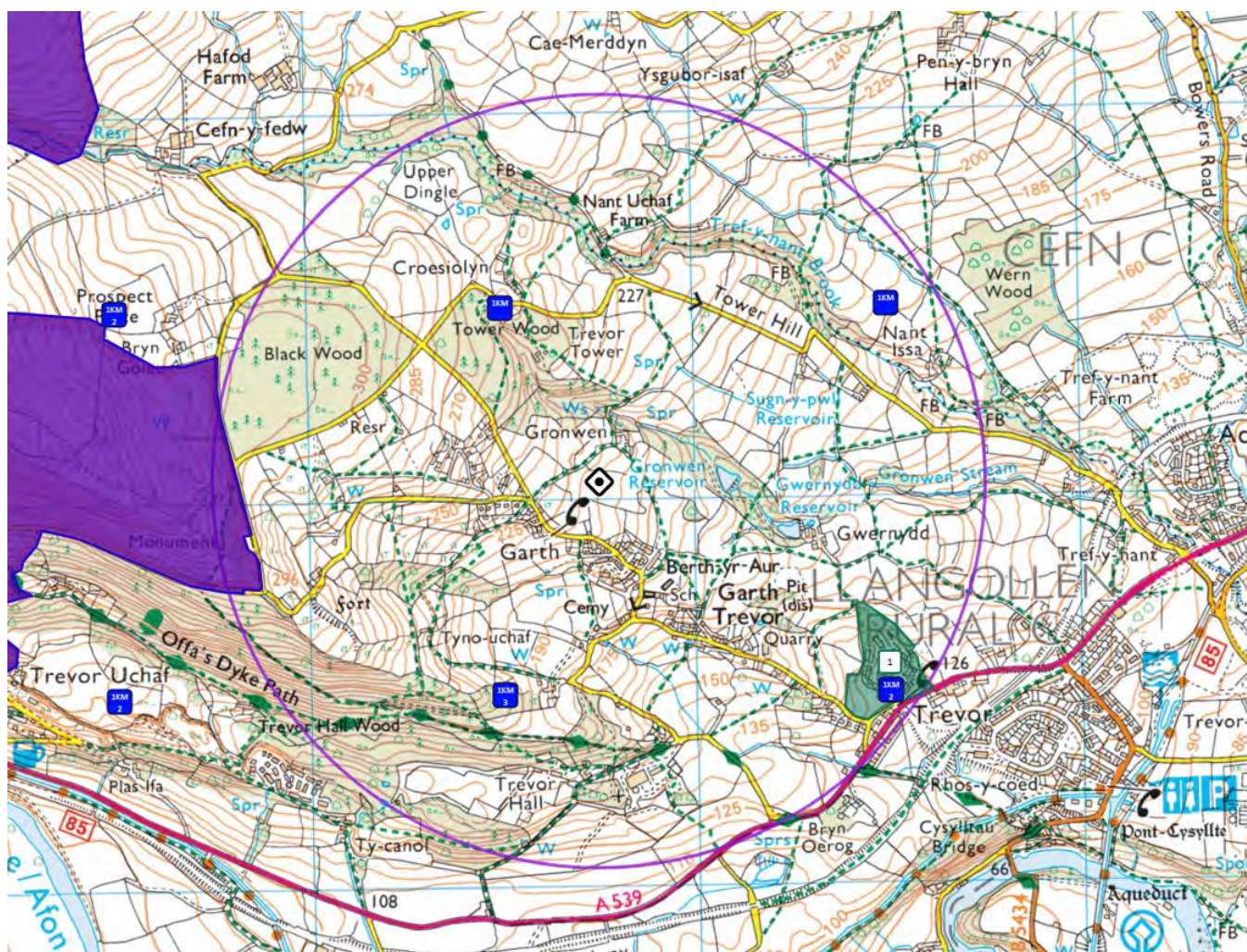
Llantysilio Mountains and Minera

Areas of Outstanding Natural Beauty

Clwydian Range and Dee Valley

Regionally Important Geodiversity Sites

Australia Quarry



SSSI /SAC (Wales)

3.2.1 Protected species

Several protected species have been recorded within 1km of the local area of the site. For species list please refer to North Wales Environmental Information Services (Cofnod) records and locations maps in rear appendix.

Bats – This species has been recorded within the 1km search multiple times with the closest record 100m from site for Chiroptera (Bat) in 1994. *Pipistrellus pipistrellus* (Common Pipistrelle) are recorded 224 m to the west in 1995 and within village 424m to south in 1993.

The most recent data is for roosting Natterer's Bat (*Myotis nattereri*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*) within a house gable in 2021, 611m to northeast of application area.

Badgers –

Brown hare (*Lepus europaeus*) This species has 5 entries, with most recent entry in 2023 over open farmland 883m to east.

Dormouse (*Muscardinus avellanarius*) – Not recorded

Hedgehogs (*Erinaceus europaeus*) – This species has been recorded within village 100m to south in 2011 and again near Garth Hill in 2013 930m away.

Otters (*Lutra Lutra*) – This species has been recorded at the River Dee 930m to south east in 1991.

Birds – Data for these species is extensive and well documented with a large number of Category 1 species, these include *Falco tinnunculus* (Kestrel), *Fringilla montifringilla* (Brambling), *Larus argentatus* (Herring Gull), *Loxia curvirostra* (Crossbill), *Muscicapa striata* (Spotted Flycatcher), *Passer domesticus* (House Sparrow), *Phylloscopus sibilatrix* (Wood Warbler), *Poecile palustris* (Marsh Tit), *Prunella modularis* (Dunnock), *Pyrrhula pyrrhula* (Bullfinch), *Sturnus vulgaris* (Starling), *Turdus iliacus* (Redwing), *Turdus philomelos* (Song Thrush), *Acanthis cabaret* (Lesser Redpoll), *Emberiza schoeniclus* (Reed Bunting), *Linaria cannabina* (Linnet), *Turdus pilaris* (Fieldfare), *Alauda arvensis* (Skylark), *Chroicocephalus ridibundus* (Black-headed Gull), *Clangula hyemalis* (Long-tailed Duck), *Emberiza citronella* (Yellowhammer), *Cuculus canorus* (Cuckoo), *Locustella naevia* (Grasshopper Warbler), *Lyrurus tetrix* (Black Grouse) and *Accipiter gentilis* (Goshawk). These are concentrated at 3 main sites associated woodland boundaries close to margins of data search.

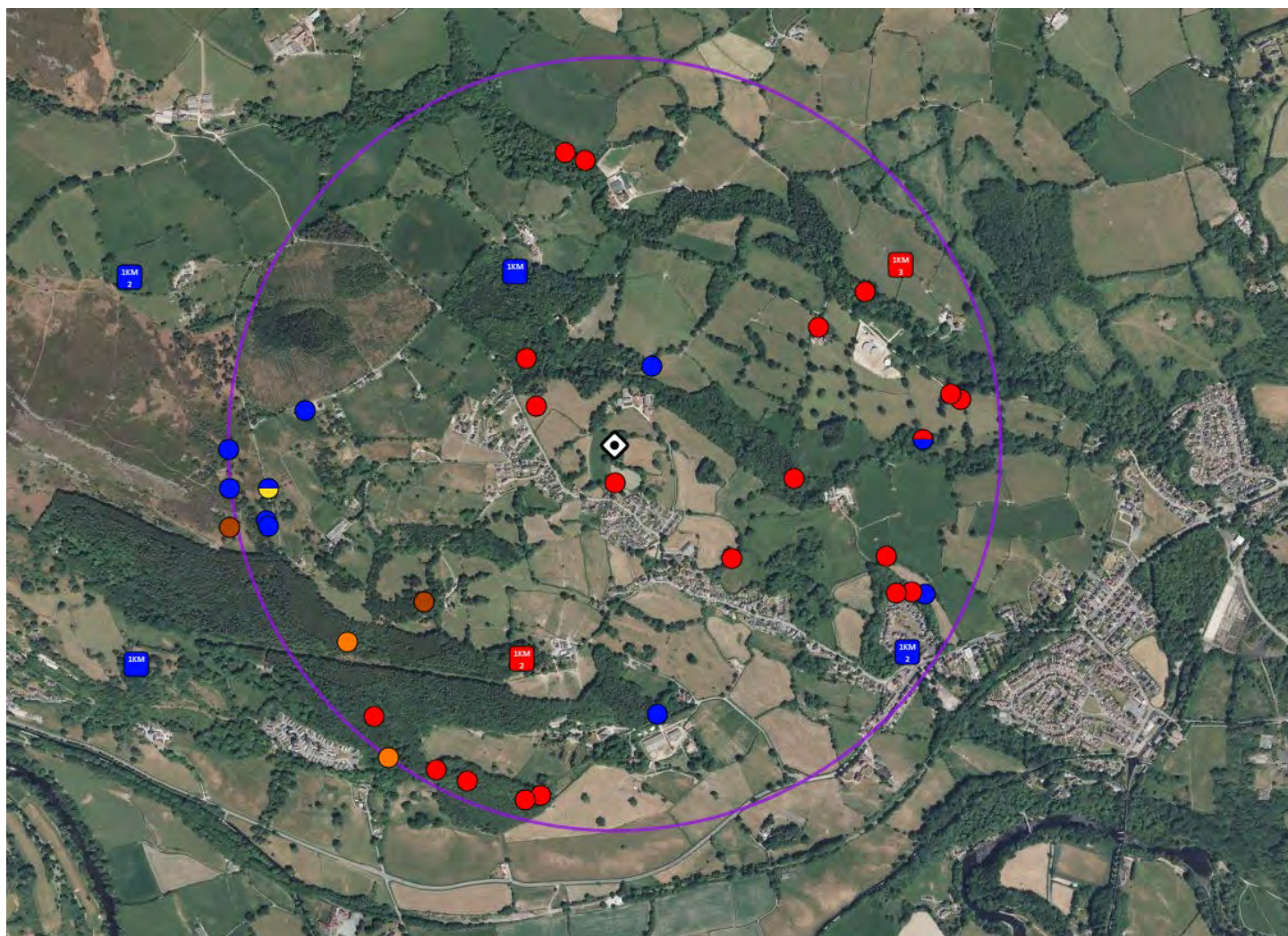
Barn owls (*Tyto alba*) – The species has been recorded at 2 locations within 1km from 2008 -2017 at a site 875m to northeast and twice 2018-2020 within woodland 640m to south.

Amphibians – Not Recorded.

Great Crested Newts - (*Triturus cristatus*) – Not Recorded.

Reptiles – *Natrix helvetica* (Grass snake) male and female adults have been recorded in 1986, 640m to south west in optimum habitat basking.

Zootoca vivipara (Common lizard) is recorded in heathland at edge of data search in 2008



4. Survey

4.1 Site description

Habitat

Improved grassland (B4)/ Arable (J1.1)

The application area is part of a larger field of the same use and is sloping towards the south. It has a commercial agricultural ley on a medium term resowing / oversowing cycle which is consistent with this type of land use and typically ploughed up every 4-6 years, indicating this field is due for relaying as part of its ongoing management cycle. Grass species were dominated by uniform *Lolium perenne* (Perennial ryegrass) with *Phleum pratense* (Timothy) and *Dactylis glomerata* (Cocksfoot) in low numbers and found around the external margins, all grass appears to be of a similar age with no dense tussocks and clear view of soil with some poaching which was higher at gate entrance and along wall, indicating some decline in vigour due to grazing pressure.

The color and appearance of the sward is a good indicator of ongoing and long-term fertilizer application which is typical of an agricultural ley.

The managed sward lacked forbes over the majority of the site with limited numbers around margins associated with wall and hedge, these areas can also be considered to be part of the hedgerow feature. Species included *Taraxacum officinale* (Common dandelion), *Rumex obtusifolius* (Broad-leaved dock), *Urtica dioica* (Nettle) and *Galium aparine* (Cleavers)



Hedgerow, Hedgerow trees (J2.3)

The margins of the field have mixed native hedges of various heights and management. The southern section has an associated natural stone wall, this hedgeline and wall are both broken in numerous places and are behind a post and wire fence including it within the adjacent field. This hedge line also has mature trees that have grown out of hedgerow stands forming multiple stools with a poor arboricultural category. These trees form a wider band within adjacent field, species include *Acer pseudoplatanus* (Sycamore), *Betula pendula* (Silver Birch), *Fraxinus excelsior* (Ash), *Quercus robur* (Oak), *Prunus avium* (Cherry). Hedge species are dominated by *Crataegus monogyna* (Hawthorn) with *Prunus spinosa* (Blackthorn), *Corylus avellana* and *Ilex aquifolium* (Holly).

Trees within the adjacent field can be considered to be part of this feature and include, due to the distance away from the proposal an on-site Arboricultural Survey was carried out and RPAs calculated, as the project was at the design stage this information was relayed to design team to ensure no effects



The roadside boundary with the access road is a young hedge planted within the past 20 years and completely dominated by *Crataegus monogyna* (Hawthorn). It is tightly flailed and shares a ground flora that is consistent with the field with higher diversity. Double access gate is present within this hedge.



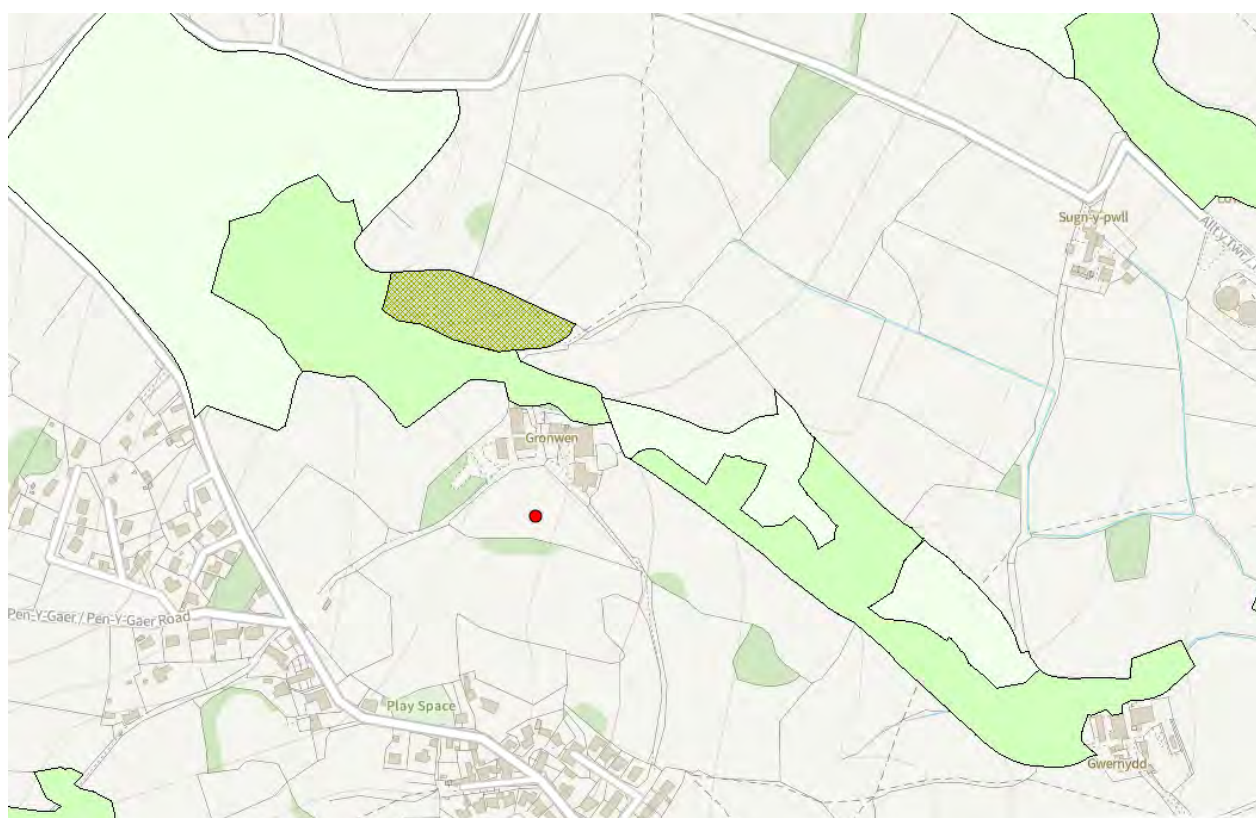
Adjacent habitats

The surrounding land is dominated by the remaining field the application area is part of, adjacent fields were walked and both have same grass coverage and land use associated with a cattle ley. The family farm is located to north and removed from application area to be affected.

The wider area has mixed woodland and generally broadleaved with some conifer and felled areas, Gwernydd Wood and Tower Wood are found to the rear of the farm with numerous small blocks of woodland located around the area. Two large reservoirs are found within the woodland to the east.



National Forest Inventory (GB) Magic map.



4.2 Protected Species

Badgers – No guard hairs, latrines, or setts were observed at time of survey within the field. Boundaries were walked over 30m and no evidence observed.

[REDACTED]

Bats - A full bat survey was not carried out. No trees or structures are present within the application area, trees on the margin are within the adjacent fields boundary hedgeline, these are generally early mature multistems and lacked potential for roosting. A mature pollarded oak is present near the western boundary of the field, this tree is of an age and maturity that it has the potential to support roosting bats, it is sufficiently removed from any of the structures to be effected and does not require further consideration. The hedge lines with trees represent an east west movement corridor, although it is broken in large sections.

No trees or hedges are effected by the proposal and this feature remains unchanged. Early in put at design stage has moved cabins and paths away from the trees in the boundary, further reducing any effect.

The grassland the application area is upon has no species diversity and is open and offers very little potential for foraging or feeding. Faeces produced by cattle is often used as a food source for prey insects, as the remaining field is to remain in its current form this food source will still be present.

Externally the farmyard and associated traditional buildings with large blocks of mixed woodland, heathland areas and watercourse corridors all provide mixed optimum habitat and are sufficiently removed to be effected by this small proposal.

A full bat survey was not conducted.

Southern boundary



oak in adjacent field



Dormouse – The mature hedge within the adjacent field is broken over large sections and would be unsuitable in current form. The roadside hedge is a young Hawthorn hedge and would provide suitable cover, however the presence of large field gates and lack of connectivity to optimum habitat reduces the value. The general area has large blocks of broadleaved woodland and can be considered to be optimum habitat. No evidence observed on site.

Hedgehogs - The site has potential suitable habitat for this species, the hedgerows on the external boundaries of application area will provide suitable cover, the wall on the southern boundary may act as a barrier to movement.

Otters - No evidence of otters using this site has been found at time of survey, this species is unlikely to use the site except on a casual infrequent basis as it does not join other suitable habitats.

Birds – The short cattle ley lacks any diversity within the sward, ongoing use means it is unsuitable for ground nesting species and provides little hunting opportunities for predatory birds. The hedgeline on the southern boundary is broken in large sections reducing the nesting potential. The roadside hawthorn hedge is tightly clipped offering nesting habitat, but the food source/berries is removed annually due to cutting late summer.

The general farm area has mixed opportunities including traditional buildings/barns, woodland, heathland and mixed grassland, these areas are all unaffected by proposal.

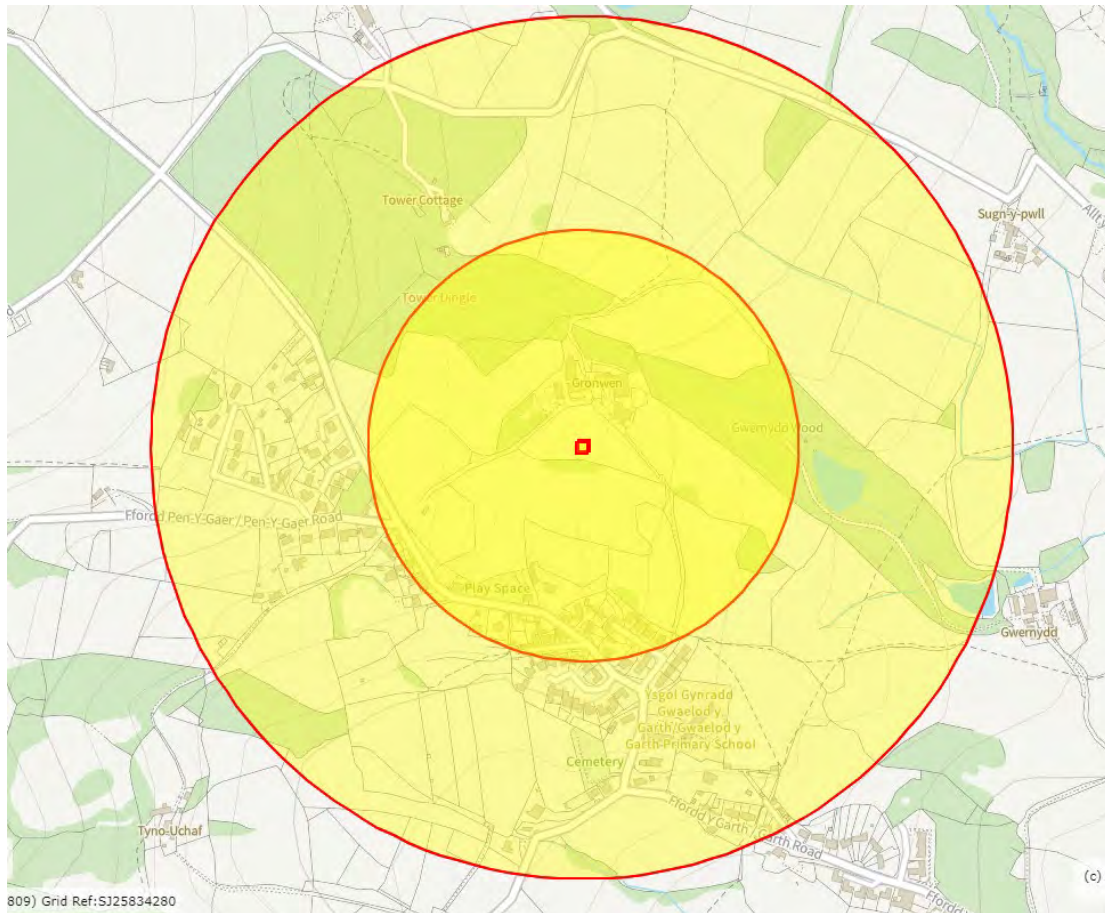
Birds recorded on the day were common and include Columba palumbus (Pigeon), Corvus corone (Crow) and Pica pica (Magpie).

Amphibians – Not observed. The short cattle ley sward offers no cover, suitable valuable cover is situated around the external margins associated with the broken stone wall and hedge line boundaries.

Great Crested Newts - Not observed on site, the application area has no ponds on or adjacent to site. The terrestrial habitat is poor and dominated by short grazed grass, providing sub optimal habitat for this species. The external margin associated with the wall and hedge will provide suitable terrestrial and hibernation habitat which is unaffected by proposal. The adjoining fields are of the same land use and offer minimal opportunities for this species.

No ponds are located within 250m and only 2 large waterbodies are present within 500m buffer within Gwernydd Wood and are unlikely to be used as a breeding location due to size and terrestrial habitat, smaller ponds may be present within domestic gardens, but these are generally unsuitable as a permeant breeding location due to various factors.

250m/500m buffer zone



(c) Crown Copyright and database rights 2022. Ordnance Survey 100022861.

Reptiles – Not observed, the site has limited suitable cover over the majority of the field, habitat potential is situated around the margins associated with hedges and broken wall.

Levels of vegetation and grazing makes area unsuitable for slow worms, grass snakes that have larger home ranges may visit the site from the wider region, but will be dependent upon levels of grass.

Invertebrates- The sites improved grassland has limited potential for invertebrates, the general field margins and wall offer higher habitat potential.

5. Site Evaluation

5.1 Habitat

The proposal is to erect two small units upon a field of Improved grass of limited ecological value, the proposal will utilise an existing double field gate for roadside access and so no hedgerows or trees are required to be removed. Arboricultural input at the design stage has resulted in negative effects to the trees around the external margins being designed out of the project. The existing entrance is highly trafficked and poached, the trees at the site entrance have developed with this ongoing use present, the removal of this pressure will be beneficial and the ground surface and RPAs will be protected by the use of a Non dig Geogrid system as specified by the in house Arboricultural consultant (full details can be found in rear) and will use cellular confinement systems that will ensure no compaction takes place and gaseous exchange is allowed to the root zones. Following good practice and arboricultural input at the design stage the cabins and footpaths have all been removed out of the root zones of the trees on the southern boundary ensuring this ecological feature is removed from potential effects associated with construction and ongoing pedestrian footfall. The mowing of specific paths within the grass will also direct potential effects away from these areas. The removal of dense cattle grazing and poaching of heavy ground during wet weather will be a direct benefit to the root zones of the hedges and trees on the external margins.

The field is dominated by a short term cattle ley that is regularly removed and reseeded, this process reduces the ecological value of the grass dramatically, the conversion of this area into a wildflower meadow will deliver a significant gain. The use of a recognised blend or the collection of green hay from a local source with local provenance will also be beneficial to match soil type and conditions.

The southern boundary has an external wall which is broken in large sections and the mixed hedge has large gaps, the planting and reinforcement of this external feature will provide an improved ecological movement corridor for multiple species. The planting of a new wildflower meadow with a large buffer zone in front of the wall of 3m will further enhance this corridor.

A small indirect impact upon protected species may result from the loss of some of this limited habitat, as no protected species rely upon this type of short grass habitat its effect will be minimal.

The discharge of water will be dealt with in the Foul and Surface Water Plan following best practice and sustainable drainage (SuDs).

The proposal is small and construction will take place over a short period of time and will not have a negative effect upon external designated sites as they are all sufficiently removed.

5.2 Mammals

Bats – The openness of the area makes usage limited over the central part of the site, the lack of cover and opportunities is a major factor. The southern external margin has a broken hedgeline with mature trees, these provide suitable flight lines and foraging opportunities. The reinforcement planting of the hedgeline will be beneficial as will the provision of species rich grassland that will provide habitat for bat prey insects and increase the food supply within the area.

External of application area traditional farm buildings and broadleaved woodlands are present and at a distance to be unaffected by this small proposal.

These external habitats and foraging corridors are to be protected by the use of a sensitive lighting plan and it will ensure no external lighting is to be used that will illuminate the boundaries and reduce any possible disturbance to flight lines.

The inclusion of additional bat boxes for roosting will be beneficial, these can be located upon the mature trees within the foraging corridor as the structures are isolated and unlikely to be used.

Protection of general nocturnal habitats

Sensitive positioning of lighting to avoid unnecessary spill onto hedgerows and general boundaries, with no external lighting except for the provision of a single LED down-lighter for each cabin, which is to be PIR sensor controlled with a maximum over-run time of 1 minute.

Angle of lighting: avoidance of direct lighting and light spill onto areas of habitat that are of importance as commuting pathways and/or foraging areas.

Type of lighting: studies have shown that light sources emitting higher amounts of UV light have a greater impact to wildlife. Use of narrow-spectrum bulbs that avoid white and blue wavelengths with a Corrected Colour Temperature not exceeding 2700K and brightness under 500 lumens is to be used.

Reduce the height of lighting columns to no higher than 2m above ground level to avoid unnecessary light spill.

The recorded local populations of this species are minimal and are likely due to under recordings, other established populations will be present within the general area and unlikely to be influenced by this small proposal.

Badgers –No evidence of badger use was observed within the site on day of survey, [REDACTED] close to woodland (location withheld). The general area has optimum woodland habitat and at a distance to be unaffected by this small proposal. Biological data has multiple records within this area and other woodland blocks around the search area.

The site has potential for this common transitory species and likely to only be used on a casual basis and generally passing through to other sites. A walk over should be carried out prior to any work commencing to establish that badgers have not colonised the site. All recommendations for badgers during construction should be followed as a precaution that should include the covering of trenches and pipes overnight.

Dormouse- The site does possess hedgerows which are to remain unaffected by proposal and no new openings are required, these are generally poor and broken or have no connectivity to suitable optimum habitat in the general region. The re enforcement planting of the hedge on the southern margin will be beneficial and provide additional habitat and connectivity, this species is not recorded locally and it is unlikely this species will be affected.

Hedgehogs - The site has suitable habitat for this species and is associated with the external margins, any new fencing that is required should have free access across the site, additional planting of new wildflower meadow and hedges will be beneficial and provision is to be made for a hedgehog hotel.

5.3 Birds

The majority of the site is dominated by short cattle ley sward which is not suitable for ground nesting birds and provides limited opportunities for predatory species. Birds recorded on the day were all common and likely to represent the general population of farm birds found in the area. Biological data is extensive with a large number of category 1 species present, this is a reflection of the wide variety of mixed optimum habitats found in the area. The loss of a small section of improved grassland is unlikely to affect any of these external populations. No trees or hedges are effected by proposal further reducing potential effects.

The provision of additional nesting boxes, hedgerow planting and the sowing of a species rich grassland will all be beneficial and provide a net gain for birds.

5.4 Amphibians

The field of improved grassland represents poor sub optimal habitat for amphibians and the conversion of a small section to a species rich meadow with associated sensitive management will be beneficial. The small broken wall and hedges on external margins are unaffected by proposal and are to be placed in to an ecological buffer zone creating additional opportunities and protection. The provision of 2 hibernaculum's will also be beneficial.

Great crested newts – The site has no ponds on or adjacent and the wider area does not have suitable ponds within the recognised boundaries for breeding ponds. The 250m rationale can be applied based on the Rapid Risk Assessment within the GCN licence application method statement document. The application area has little potential for terrestrial habitat within the short grazed sward and the conversion to a wildflower meadow will be beneficial. The protection of the external margins will ensure any potential hibernation locations are unaffected. This species is not recorded locally and unlikely to be effected by the small proposal.

5.5 Reptiles

Reptiles prefer a mixed mosaic “heathland” type habitat, with varied structure to flourish. Warmth is a key factor, as is shelter from predators. The application area does not provide enough opportunities for these species, the close grazing of the majority of the site prevents a resident population from establishing. The hedges and wall on the external margins may provide shelter and hibernation locations, these are unaffected by proposal and will be reinforced by additional hedge planting. The planting of a new wildflower meadow and construction of deadwood piles will deliver a significant gain for all Herpetological species on site.

5.6 Invertebrates

The sites improved grassland has very limited potential for invertebrates, the general field margins offer higher habitat potential and should be protected. Construction of habitat piles and sowing of species rich grass associated will be beneficial.

Legislation

Badgers

The Protection of Badgers Act 1992 makes it illegal to kill, injure or capture badgers or deliberately or recklessly interfere with a badger sett which includes damaging a sett, obstructing access to a sett, and disturbing a badger while it is occupying a sett.

Bats

All species of bats and their breeding sites or resting places are protected under the Conservation of Habitats and Species Regulation 2010 and the Wildlife and Countryside Protection act 1981(amended). The deliberate capture, disturbance, injury or killing of bats is prohibited as is damaging, destroying or obstructing access to any place used by bats for shelter or breeding, whether they are present or not. Reckless disturbance or obstruction of access to a roost are also a criminal offence.

Birds

The Wildlife and Countryside Protection act 1981(amended) provides the legal protection of wild birds. All nesting birds and their nests eggs and young are protected from killing, injury, taking or selling.

Dormice

The Dormouse is protected under the Wildlife and Countryside Protection act 1981 (amended) and the conservation of Habitats and species Regulations 2010. The deliberate capture, disturbance, injury or killing of Dormice is prohibited as is damaging, destroying any place used by Dormice for shelter or breeding, whether they are present or not. Reckless disturbance or obstruction of places used for shelter is also a criminal offence.

Great Crested Newts

The Great Crested Newt is protected under Schedule 5 of the Wildlife and Countryside Protection act 1981 (amended) and are protected under the Conservation of Habitats and Species Regulation 2010. They are protected from deliberate killing, injury or capture with their habitat, including breeding site, resting place or any structure or place used for shelter or protection also protected against damage or destruction, it is also illegal to disturb great Crested Newts and their eggs are protected from taking or destroying.

Reptiles

Common reptile species are protected under the Wildlife and Countryside Protection act 1981(amended). The deliberate capture, killing and injury or being sold. The habitat of these reptiles is not directly protected, however, disturbing or destroying their habitat whilst they are present may lead to an offence.

6. Policy

Planning Policy Wales \Feb 2021

Edition 11 requires that all new development must result in a net gain for biodiversity and so details such as bat and bird boxes should be included in the houses and any trees lost should be replaced by new planting.

The Conservation of Habitats and Species Regulations is the Welsh enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. Species to which these provisions apply are known as European Protected Species. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

Wrexham Local Development Plan 2 (LDP2) 2013 to 2028

Protected Species and Lighting (Dark Skies) (DEFRA-NPPF 2013/18)

- a) At no time shall any external lighting except in relation to safe use of the approved or existing buildings be installed or operated in association with the approved development and no permanently illuminated external lighting shall be operated at any time, without the written approval of this local planning authority.
- b) No external lighting should illuminate any biodiversity enhancement, boundary feature, highway corridors or adjacent habitats.

All lighting installed shall demonstrate compliance with latest best practice guidance relating to lighting and protected species-wildlife available from the Institution of Lighting Professionals.

7. Conclusions

An ecological assessment comprising of a desk study and site visit has been conducted at the above site SJ 257 430 Cofnod (North Wales Environmental Information Services) confirmed that there are legally protected species of conservation concern within the 1km search of the site.

Further to the assessment of the site and results as identified within this survey it is concluded that there is limited risk of disturbance to protected species and a small loss of sub optimal terrestrial habitat used by these species.

The planting of new hedgerows and wildflower meadow will improve the connectivity across the site for a wide range of species. The site will constitute a “Net gain” and the development of new fauna and flora will constitute enrichment for the area and as time passes it will continue to gain conservational value. The development will allow the creation of new wildlife habitats and will enhance the biodiversity of the site.

8. Recommendations

A badger walkover is to be carried out to ensure that there is no evidence of badgers upon the site and that no badger setts have been created along the boundaries, all badger setts whether in use or not are protected by law. Badgers passing through the site during construction may be at risk from trapping within deep excavations which are left open overnight (an offence under the Badger Act 1992), therefore, allowance should be made for these to be covered during nightfall.

External lighting should be designed and installed that it will not affect the foraging opportunities or flight lines for transitory bat species.

New bird and bat boxes should be placed on suitable locations/height around site margins

Works should be programmed to minimise the risk to breeding bird populations with a buffer zone initiated around margins

Hedgehog hotel and free access boundaries for this species will be used this will also benefit all herpetological movement across the site when present.

Construction of hibernacula and habitat piles should be made and the erection of bug hotels/insect boxes would also help increase the invertebrate population and increase food sources for other species.

The use of a non-dig cellular confinement system will protect trees at entrance from compaction and ensure no negative effects on sites take place.

9. Biodiversity Enhancements

Habitat Enhancement. See plan

Birds

2 x Schwegler 1B 32mm Nest box

The nest box can be attached to a tree using an aluminium nail or by hanging over a branch. Designed to attract Great, Blue, Marsh, Coal and Crested Tit, Redstart, Nuthatch, Collared and Pied Flycatcher, Wryneck, Tree and House Sparrow and bats.



Bats

2 x Improved Crevice Bat Box –

Suitable for the smaller British crevice-dwelling bats, to be situated on the south side of the mature trees on boundary



Insects

2xWoodstone insect block



Habitat Enhancements for General Site

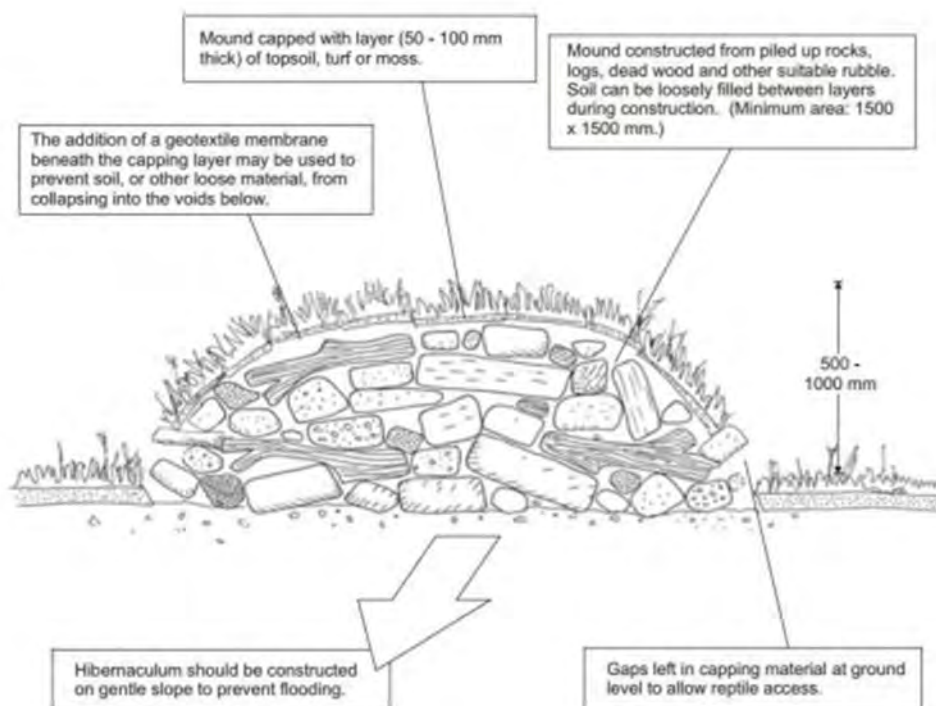
Hedgehog nest box

Position in a quiet area on floor and cover with leaves x 1



Hibernacula x 2

To be built on site by hand, location along external hedge lines, to be decided with the Ecological Clerk of the Works.



Hibernacula Design (Taken from DMRB Volume 10, Part 7 HA 116/05)

Landscape Planting

Planting of a New Grass Meadow

Currently the sward is species poor and best described as improved grassland cattle ley, current management has resulted in a sward that is dominated by perennial ryegrass. The existing surface is to be grazed/mowed short, overseeded and harrowed in, the seed mix is found below, this should be carried out in early spring or autumn and subsequent mowing regime for that season altered to manufactures guidelines.

Species Rich Meadow Grass - Neutral meadow mix.

Work to comply with BS 4428:1989.

Grass seed for wildflower meadows, supplier British Seed Houses, traditional mixture with an application rate of 5 g/m². Timing of sowing, April – May or August – September.

Wildflowers 20%

0.5	Achillea millefolium
0.2	Agrimonia eupatoria
0.3	Anthyllis vulneraria
0.8	Betonica officinalis
1.6	Centaurea nigra
1.2	Centaurea scabiosa
1.6	Daucus carota
0.5	Echium vulgare
0.3	Galium album - (Galium mollugo)
3	Galium verum
1.6	Geranium pratense
0.5	Knautia arvensis
0.3	Leontodon hispidus
2	Leucanthemum vulgare
0.3	Lotus corniculatus
0.5	Origanum vulgare
0.3	Pastinaca sativa
0.5	Plantago lanceolata
0.3	Primula veris
1.6	Prunella vulgaris
0.2	Rhinanthus minor
0.2	Rumex acetosa
0.2	Sanguisorba officinalis
0.2	Silaum silaus
0.2	Silene latifolia
0.3	Silene vulgaris
0.8	Vicia cracca

Grasses 80%

8	<i>Agrostis capillaris</i>
28	<i>Cynosurus cristatus</i>
24	<i>Festuca rubra</i>
4	<i>Phleum bertolonii</i>
16	<i>Poa pratensis</i>

Maintenance of meadow grass – cutting is to take place annually in August depending upon weather conditions, all arising's shall be collected and removed.

Planting of New Hedge and hedgerow re enforcement of existing hedges.

The reinforcement of poor broken hedgerows The new hedge will be used by amphibians, badgers, bats, birds, insects, hedgehogs and reptiles etc. when present. The planting of additional hedgerow trees will directly benefit bat flight corridors and provide safer movement from the site to the surrounding areas.

New native hedge planting

BS 3936 Nursery Stock

The mixed species native hedge will be planted in double rows 15cm apart, 30cm apart within the rows. 1 + 1 60/80cm transplants will be used with a standard 45cm spiral guards. A 1m weed free strip will be initiated and maintained throughout the establishment period, during this period a slow-release fertilizer will also be applied. Stock of local provenance should be used.

Species to include: -

<i>Corylus avellana</i>	600 – 800mm	BR 10%
<i>Cornus sanguinea</i>	600 – 800mm	BR 5%
<i>Crateagus monogyna</i>	600 – 800mm	BR 60%
<i>Ilex aquilifolium</i>	400 – 600mm	2L 5%
<i>Viburnum opulus</i>	600 – 800mm	BR 5%
<i>Ligustrum vulgare</i>	600 – 800mm	BR 5%
<i>Prunus spinosa</i>	600 – 800mm	BR 10%

Tree Planting within new Hedgeline

New Tree Planting – see plan

Quercus robur (Oak) 8-10cm standard RBr x 3 (3 per cabin)

900mm x 900mm x 600mm tree pits. Planting in accordance with BS 5845:2014 Trees; From Nursery to Independence. Backfilling with 10 litres of peat free compost and approved topsoil, 10g approved slow-release fertilizer, watering tubes, staking, and tying with 1 tall stake and clearly marked to avoid hedge cutting operations. Sides and bottoms to be scarified and broken up to a depth of 150mm.

Native Hedge Re-enforcement Planting

BS 3936 Nursery Stock /specifications for trees and shrubs.

Any gaps within the northern, southern, western and roadside hedge line will be planted up using the following species list.

The mixed species native hedge will be planted in double rows 15cm apart, 30cm apart within the rows. 1 + 1 60/80cm transplants will be used with a standard 45cm spiral guards. A 1m weed free strip will be initiated and maintained throughout the establishment period, during this period a slow-release fertilizer will also be applied.

Species to include: - As above

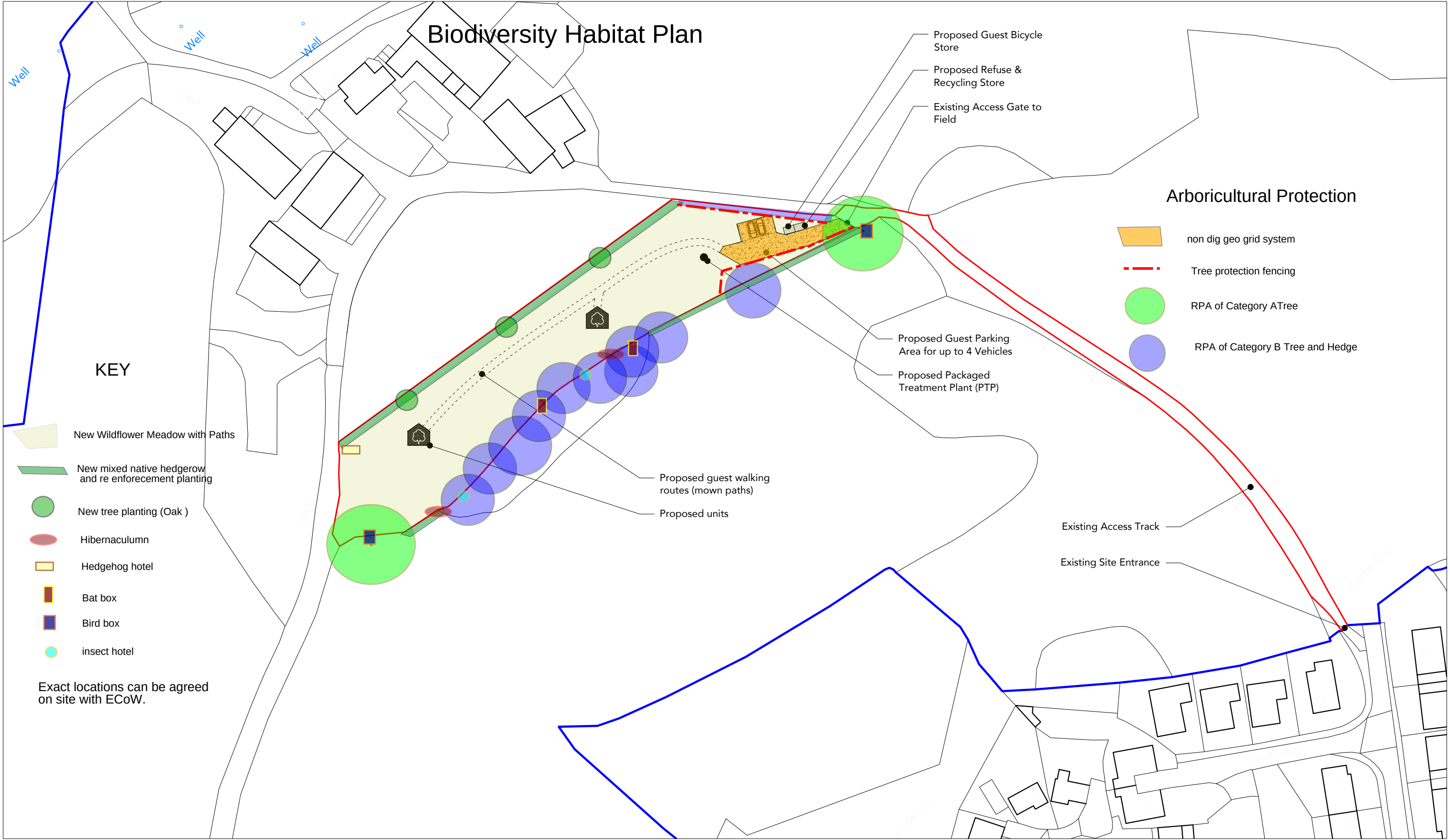
Appendices

Cofnod - North Wales Environmental Information

Confidential (available on request)

Biodiversity /Habitat Plan

Non dig system for access and parking

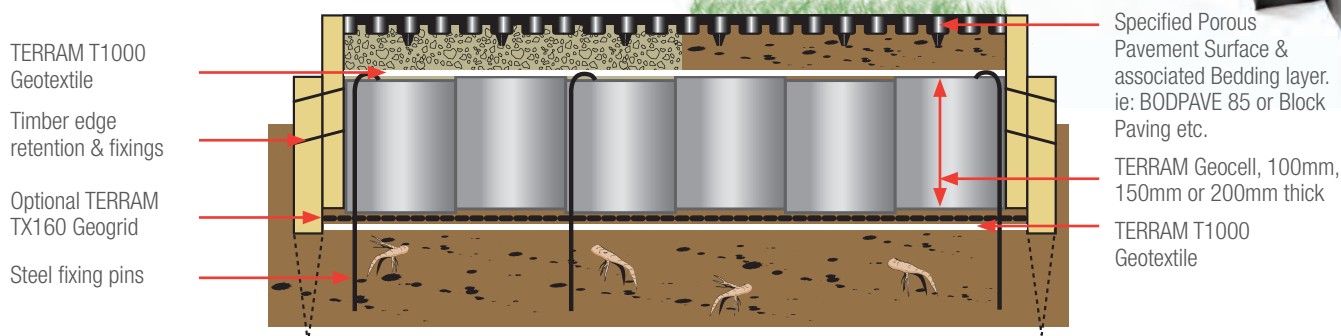


SPECIFICATION, DESIGN & INSTALLATION GUIDANCE

For Tree Root Protection (TRP)



Typical Construction Profile



Installation method for Geocells TRP for permanent access routes and car parks

1. Obtain the approval of the Local Planning Department and Arboricultural Officer for the method of construction proposed and any imposed limitations on the use of mechanical equipment.
2. Remove all debris and reduce surface levels to the allowable reduced dig whilst strictly avoiding soil compaction and tree root damage. Build-up directly on the existing surface levels may be necessary.
3. Ensure that the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile. Do not roll or consolidate the area.
4. Install tanalised timber edging boards or other approved edge retention to the perimeter of the construction zone as appropriate to the total layer profile thickness. Avoid damage to tree roots when placing fixing posts and pegs.
5. Install a layer of Terram T1000 geotextile across the site, over lapping adjacent rolls by a minimum of 150mm. Lightly pin the geotextile in place until the overlying layers are installed as required.
6. A layer of TERRAM TX160 geogrid may be required depending upon the site soil strength, traffic loading intensity/frequency and any restrictions on build-up depth. Place the geogrid layer over the T1000 geotextile layer and fix down using steel pins to hold flat. Overlap adjacent rolls by minimum 150mm. Avoid tree root damage and soil compaction.
7. Open out the TERRAM Geocell layer and pin in place using steel fixing pins or similar approved between the edging boards. The pins hold the cells in an open and fully expanded position during the filling process. Pin spacing will vary according to the site conditions, generally 1m – 2m centres on flat surfaces around the perimeter and where panels join. Drive the pins in so that they are just touching the top of the cells but do not compress the fabric and avoid tree root damage. Cut the TERRAM Geocell to suit using a sharp knife/scissors or alternatively fold up against the edgings.
8. Fill the TERRAM Geocell with a clean, open graded angular aggregate (5mm - 45mm) working towards the tree from the furthest point away and using the filled TERRAM Geocell as a platform. (Single sized, rounded aggregate or DoT Type 1 should not be used). Do not roll the surface, a light vibratory compaction plate may be permitted to settle the stone into the cells; seek advice from the specifier or Arboricultural Officer. Do not contaminate the filled cells with site debris, soil or mud.
9. Install the permeable surface layer such as TERRAM BODPAVE 85, TERRAM Truckpave, permeable concrete block paving or porous asphalt on top of the TERRAM Geocell according to the manufacturer's recommendations. The type of bedding layer will depend upon the specification of the porous surface, an additional layer of TERRAM T1000 geotextile may be required over the filled Geocell to prevent loss of the bedding layer material into the voids. Please refer to Specification, Design and Installation Guidance for BODPAVE 85 and TERRAM Truckpave, or refer to the specific manufacturers' guidance for other surfacing materials.