



envirotech

Ecological Consultants
Environmental and Rural Chartered Surveyors

Ecological Appraisal

Cross Lanes Hotel Wrexham



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PROFESSIONAL RESPONSIBILITY

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management. (www.cieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

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1. EXECUTIVE SUMMARY

- 1.1.1 Envirotech NW Ltd was commissioned in March 2016 by Robinwood Activity Centre Ltd. to carry out an ecological appraisal of land at Cross Lanes Hotel, Wrexham. It is proposed that several out buildings are demolished and re built, a giant wing and zip wire are installed on site and a new lake is created.
- 1.1.2 A data search and desk study of the site and an area within 2km of the site were undertaken to establish the presence of protected species and notable habitats.
- 1.1.3 The site was then visited by Envirotech NW Ltd on six occasions between the 21st April and 9th June 2016. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of protected species at the site or in proximity such that they may be affected by the proposed development.
- 1.1.4 Great crested newts are known to occur on site and a full suite of presence/ absence surveys has been undertaken. A Natural Resources Wales European Protected Species License for this species will be required prior to works being undertaken. A programme of mitigation has been prepared and should be followed to ensure disturbance to this species is minimised.
- 1.1.5 A badger sett is present on site. The sett was recorded as active and a disturbance to badgers occupying a sett is likely to occur as a result of the proposals. A Natural Resources Wales License for the disturbance of badgers will be required prior to works being undertaken. Badgers can maintain use of the site throughout and post development. Mitigation proposed will ensure that disturbance to badgers is minimised.
- 1.1.6 None of the hedgerows around the site perimeter were considered important under the Hedgerow Regulations.
- 1.1.7 Low numbers of common bat species were recorded foraging over the site. No bats were recorded roosting in the buildings or trees to be affected by the current proposals. Habitats of value to bats on site will be retained and new high potential bat habitat will be created.
- 1.1.8 Birds are likely to utilise woodland on site for nesting between March and September. Any vegetation clearance should therefore be undertaken outside of this period.

2. INTRODUCTION

2.1 Background

- 2.1.1 In March 2016 Envirotech NW Ltd were commissioned by Robinwood Activity Centre Ltd. to carry out an Ecological Appraisal at Cross Lanes Hotel, Wrexham, central grid reference SJ 37380 46884 (Figure 1). A site investigation was undertaken and a report compiled which includes recommendations for any future actions and or mitigation required.
- 2.1.2 The survey was requested in connection with proposed alterations to the hotel grounds to include demolition of some existing out buildings, creation of a new lake and installation of a zip wire and giant swing.

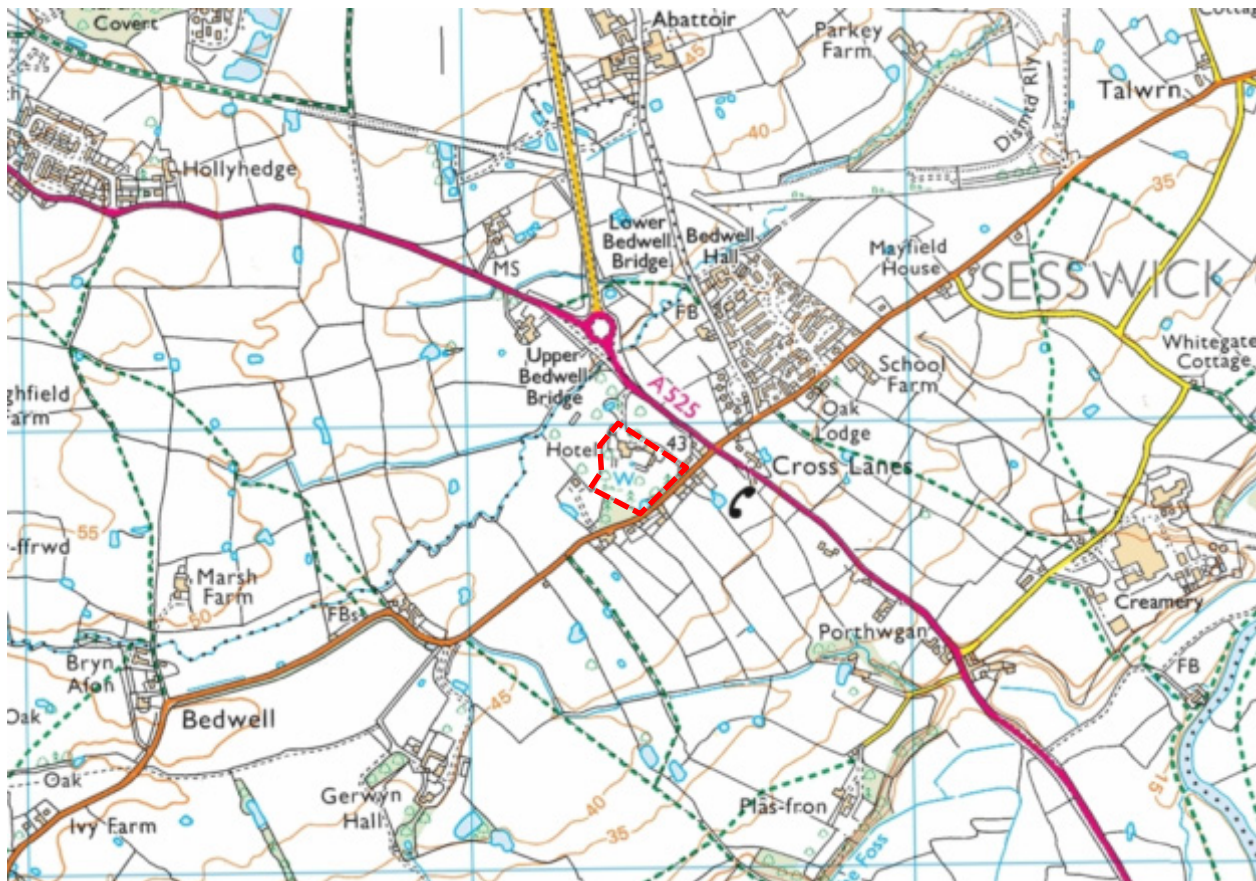


Figure 1 Site location at SJ 37380 46884 circled red.

2.2 Objectives

2.2.1 The main objectives of the study were:

- The completion of a Phase 1 Habitat Survey including the preparation of a vegetation and habitat map of the site and the immediate surrounding area.
- The survey and assessment of all habitats for statutorily protected species.
- An evaluation of the ecological significance of the site.
- The identification of any potential development constraints and the specification of the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy and other relevant guidance, and;
- The identification of any further surveys or precautionary assessments that may be required prior to the commencement of any development activities.

3. METHODOLOGY AND SOURCES OF INFORMATION

3.1 Data Search

- 3.1.1 The North Wales Environmental Information Service (Cofnod) and the Multi-Agency Geographic Information for the Countryside (MAGIC) were searched to establish the presence of any records of statutorily protected, notable or rare species, and any designated sites of international, national, regional or local importance within a 2km radius of the site boundary.
- 3.1.2 Google Earth and Google Street View were consulted to establish the presence of any features of ecological importance within the local area.

3.2 Vegetation and Habitats

- 3.2.1 A vegetation and habitat map was produced for the site and the immediate surrounding area. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC 2003).
- 3.2.2 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the Wildlife and Countryside Act (1981) and indicators of important and uncommon plant communities. All plant nomenclature follows Stace (1991).
- 3.2.3 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act (1981), namely Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) on terrestrial habitat and aquatic species such as floating pennywort (*Hydrocotyle ranunculoides*), water hyacinth (*Eichhornia crassipes*) and New Zealand pygmyweed (*Crassula helmsii*).

3.3 Timing and Personnel

- 3.3.1 The site and surrounding land was visited on the 21st and 29th April 2016, 5th, 19th and 26th May 2016 and 9th June 2016.
- 3.3.2 During the visits, weather conditions were suitable for the survey types undertaken.
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Natural England Bat Class Licence (Level 2)
Natural England Barn Owl Licence
Natural England Great Crested Newt Licence (Level 1)
Natural Resources Wales Great Crested Newt Licence
Natural Resources Wales Bat Licence
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Natural Resources Wales Great Crested Newt Licence (Agent)
Natural Resources Wales Bat Licence (Agent)
- (EW) Miss Emma Wainwright BSc (Hons), Grad CIEEM
Natural England Great Crested Newt Licence (Level 1)
Unlicensed surveyor with three years bat scoping and emergence survey experience
Accredited Agent on Natural England Bat Class Licence (Level 2)
Natural Resources Wales Great Crested Newt Licence (Agent)
Natural Resources Wales Bat Licence (Agent)

4. SPECIES SURVEY METHODOLOGY

4.1 *Amphibian*

- 4.1.1 Great crested newts (*Triturus cristatus*) are listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats) Regulations (2010) and Schedule 5 of the Wildlife & Countryside Act (1981).
- 4.1.2 Water-bodies located within or adjacent to the study area were identified and where access was possible were assessed for their potential to support great crested newts. The criteria used in the assessment are based on those contained in the Herpetofauna Workers Manual and Oldham et al, 2000, and in applying these criteria a precautionary approach was adopted. The pond assessment was undertaken in order to determine which water-bodies, based on their potential to support great crested newts, should be subject to presence/absence surveys.
- 4.1.3 Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with great crested newts and forming part of Natural England's EPS Licensing process was used to determine the suitability of ponds for great crested newts. The HSI was developed as a tool to aid fieldworkers to give ponds and their surrounding habitat a numerical score in terms of their suitability for great crested newts.
- 4.1.4 A detailed report into surveys undertaken for this species is included in Appendix 2.

4.2 *Badger*

- 4.2.1 Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992). This legislation arises from animal welfare issues (rather than on the basis of nature conservation grounds) and protects badgers from being killed, injured or disturbed whilst occupying a sett. There is the potential disturbance of badgers in their setts as a result of construction operations. Natural England advisory notes suggest that the use of heavy machinery in proximity of a sett entrance should be avoided, with a 'disturbance free-zone' being established. The degree of disturbance attributed to construction activity is a function of the background level of activity badgers are accustomed to and that which will be attributed to a proposed activity. The "disturbance free zone" is therefore site specific. This guidance is also applicable to wales.
- 4.2.2 The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) for indications of use by badgers.
- 4.2.3 Signs of badgers which were searched for included:
- Setts - 'D' shaped entrances at least 25cms wide and wider than they are high with large spoil mounds
 - Discarded bedding at sett entrances (this includes grass and leaves)
 - Scratching posts on shrubs and trees close to a sett entrance

- The presence of badger hairs which are coarse, up to 100mm long with a long black section and a white tip
- Dung pit latrines and footprints
- Habitual runs through vegetation and beneath fences
- Hedgehog carcasses
- Surveys were also undertaken at night, during the bat surveys, by scanning the study area with a torch and via camera traps.

4.3 Bats

- 4.3.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981), and are included on Schedule 2 of the Conservation (of Natural Habitats) Regulations (2010), as European Protected Species. Taken together, these pieces of legislation make it an offence to:
- Intentionally or recklessly kill, injure or capture bats;
 - Deliberately or recklessly disturb bats (whether in a roost or not);
 - Damage, destroy or obstruct access to bat roosts.
- 4.3.2 The Bat Conservation Trust (Hundt (2012)) and Collins, J. (ed) (2016) issued guidelines on bat survey methodology, a key feature of their recommendation is for the undertaking of a pre-survey assessment - an initial desk-study and a walkover assessment of the survey area and its surrounding area to identify the relative value of the habitats present for bats and likely commuting routes. This is to be followed by a survey program that is appropriate to the likely level of bat activity within the survey area to be determined by and based on the experience of the surveyor.
- 4.3.3 The potential value of the survey area for foraging bats was assessed through consideration of two main factors: professional knowledge of bat ecology and foraging behaviour in combination with the geographical location, topography and habitats present within the survey area and surrounds. This resulted in the production of a map showing habitat quality both on and adjacent to the site.
- 4.3.4 As a result of the potential suitability of the habitat within the site for foraging bats but the low potential for use of the buildings concerned in the proposal for roosting bats. Two activity surveys with two surveyors were undertaken to focus on buildings on site to view any use of them by roosting bats. A further two bat activity surveys were undertaken around the grounds. These comprised a transect route which was walked in order to cover all on-site habitats from sunset until light levels dropped to the extent that bat flight heights could not be determined and walking over the site in the dark was judged to be unsafe.
- 4.3.5 The survey was based upon standard guidelines Hundt (2012), Collins, J. (ed) (2016) and NCC (1987) and Mitchell-Jones (2004) and was undertaken in suitable weather conditions by suitably qualified and experienced personnel.

4.3.6 In addition to the activity survey, trees and structures on and within the survey area boundary were assessed for their potential to support roosting or hibernating bats. This comprised a close inspection of all trees and buildings to be affected by the proposal to allow an assessment of their potential to be used by bats to be made.

4.3.7 Trees were all assessed in accordance with Collins, J. (ed) (2016).

4.4 Birds

4.4.1 All breeding birds, other than pest species, are protected under the Wildlife and Countryside Act of 1981 when building a nest, rearing young or sitting on eggs. Some bird species, such as barn owl (*Tyto alba*), are protected when near an active nest site. Several birds are listed as UK and or County BAP species.

4.4.2 Bird species and behaviour was noted during the other field surveys. All areas are covered equally, in order to avoid the subjective survey of better quality 'bird habitat'. All birds displaying breeding behaviour were recorded.

4.5 Brown Hare

4.5.1 The brown hare (*Lepus europaeus*) is a UK BAP species.

4.5.2 The survey method involved walking boundaries and surveying with binoculars. The survey was conducted at a suitable distance to ensure that the hares were not disturbed. Generally, surveys were undertaken throughout the early afternoon and evening when hares are thought to be most active and feeding.

4.5.3 There present the number of brown hares in each field or hedgerow was recorded, together with the nature and use of the field, climatic conditions and time of day. The presence of forms and faeces where present were also recorded.

4.6 Invertebrates

4.6.1 A general assessment was made of the study area's suitability for supporting invertebrates during the phase 1 survey.

4.6.2 The presence of invertebrates was noted during the other surveys which were undertaken. The extent of sampling was limited in that it could be confirmed that no priority or BAP species would be likely to be affected by the proposal.

4.7 Reptiles

4.7.1 All native reptiles are protected in Britain under the Wildlife and Countryside Act of 1981. It is an offence to intentionally kill, injure, sell or advertise to sell any of the six native species.

4.7.2 The survey for these species was based on assessing the habitat type and suitability of the site. This comprised an assessment of satellite imagery for the site and surrounding area as well as comparison of the results from the records searches with habitat types.

The general habitat at the site was evaluated in terms of its suitability to reptiles for foraging or breeding.

- 4.7.3 Reptile surveys comprising visual encounter surveys were undertaken. Habitat at the site was not considered sufficiently suitable for a full presence/ absence survey to be warranted.

4.8 *Survey limitations*

- 4.8.1 The surveys were undertaken throughout the spring. At this time of year most plant species are easily identified although the activity of some species is reduced.
- 4.8.2 Due to the habitats present on site there were no significant constraints in respect of identifying the botanical interest of the site. Bats were active at the time of the survey.
- 4.8.3 The duration, extent and scope of the surveys were considered sufficient to plan appropriate mitigation and recommend additional precautionary survey work required prior to the commencement of work.
- 4.8.4 No significant survey limitations were encountered.

5. RESULTS

5.1 Data Search

- 5.1.1 Cofnod hold records of great crested newts occurring within a pond in the North of the site. They do not hold any further records of protected or notable species for the site. There are however records of protected or notable species within 2km (Figure 2). These are discussed in the relevant sections below.
- 5.1.2 The nearest non-statutory designated site is Hopyards wood c.1km to the South of the site (Figure 3). There are a further two non-statutory designated sites within 2km of the site, all of which are sufficiently isolated from the site that there will be no direct or indirect effects on them.
- 5.1.3 The nearest statutory protected site is the River Dee Site of Special Scientific Interest (SSSI) c.1km South east of the site (Figure 4). The nearest point of the river is isolated from the site by the A525 and an expanse of open and exposed pasture fields. The habitats within the site are not representative of those within the SSSI.

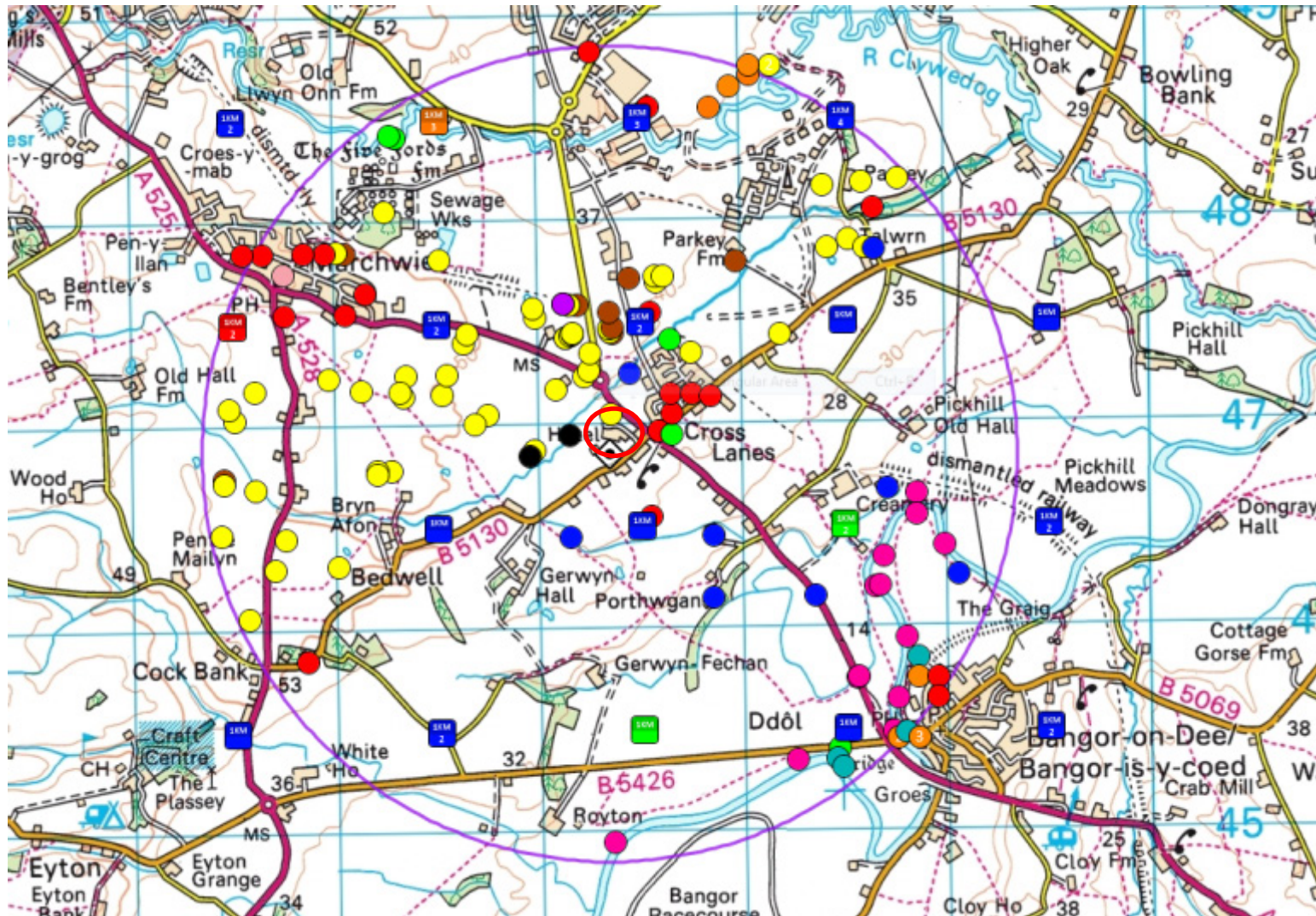


Figure 2 Notable species records where blue indicates birds, red- bats, orange - invertebrates, yellow - great crested newt, brown- other amphibians, green - badger, pink - otter, purple - reptiles and black indicates otter . The site location is circled red.



Figure 3 Non-statutory sites shown yellow with a 2km buffer, site location circled red.

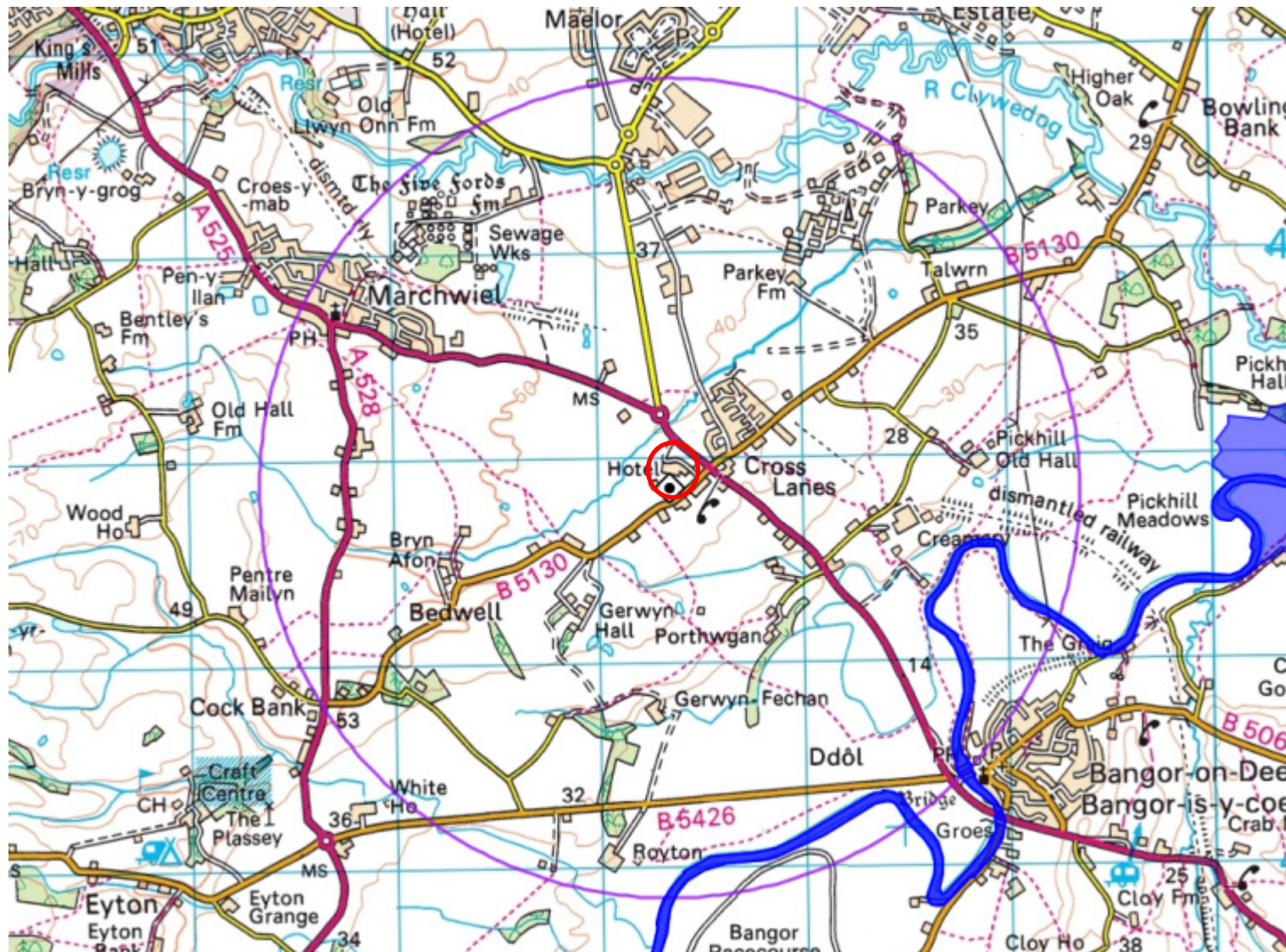


Figure 4 Statutory designated sites shown blue with a 2km buffer, site location circled red.

6. PHASE 1 SURVEY RESULTS

6.1 *Habitat Results*

- 6.1.1 The site comprises hotel grounds containing amenity grassland, mixed woodland, hardstanding and semi-improved grassland. Poor semi-improved grassland is the frequent habitat locally with residential houses and gardens to the South and East of the site.
- 6.1.2 See Figure 5 for the Phase 1 Habitat Plan and Table 1 for the descriptive Botanical and Faunal Target Notes, hereafter referred to as BTN and FTN.

Target Note	Description	Comment
BTN1	Cultivated/ disturbed land - amenity grassland	Pockets of amenity grassland are frequent within the hotel grounds and adjoining habitats. This habitat is frequently mown and as such the sward is usually short it is also subject to high levels of disturbance. Species present within the sward are commonly occurring and indicative of these high disturbance levels. Species present include Yorkshire fog (<i>Holcus lanatus</i>), annual meadow grass (<i>Poa annua</i>), common daisy (<i>Bellis perennis</i>), creeping buttercup (<i>Ranunculus repens</i>), common dandelion (<i>Taraxacum officinale</i>), white clover (<i>Trifolium repens</i>), broadleaved plantain (<i>Plantago major</i>), field speedwell (<i>Veronica persica</i>) and selfheal (<i>Prunella vulgaris</i>). Small yew (<i>Taxus baccata</i>) hedges cut through amenity grassland in the West.
BTN2	Semi-improved grassland	Semi-improved grassland occurs in the East of the site. The sward is tall in this habitat and grassland appears to have had reduced management for a number of years. Species present within the grassland are meadow foxtail (<i>Alopecurus pratensis</i>), sweet vernal grass (<i>Anthoxanthum odoratum</i>), Yorkshire fog, rough meadow grass (<i>Poa trivialis</i>), cinquefoil (<i>Potentilla reptans</i>), common knapweed (<i>Centaurea nigra</i>), ribwort plantain (<i>Plantago lanceolata</i>), ragwort (<i>Senecio</i> sp), devils-bit-scabious (<i>Succisa pratensis</i>), forget-me-not (<i>Myosotis</i> sp.), wood avens (<i>Geum urbanum</i>), creeping thistle (<i>Cirsium arvense</i>), nettle (<i>Urtica dioica</i>), broadleaved dock (<i>Rumex obtusifolius</i>), white clover, red clover (<i>Trifolium pratense</i>), silverweed (<i>Argentina anserina</i>) and bramble (<i>Rubus fruticosus</i> agg.). A small parcel of semi-improved grassland to the South of the hotel, which had been left unmown at the time of the surveys, also contained large numbers of ornamental daffodil (<i>Narcissus</i> spp.).
BTN3	Hardstanding and buildings	Vegetation over buildings and hardstanding is limited to occasional introduced and ornamental species and ephemeral short perennials.
BTN4	Standing water and semi-natural woodland	Standing water is present on site in the form of two ponds, one in the North west of the site and the other the South. There is limited vegetative diversity within either pond. The second being entirely covered by duck weed (Lemnoideae) and the first entirely shaded. Woodland around the pond in the North contains sycamore (<i>Acer pseudoplatanus</i>), goat willow (<i>Salix capraea</i>), horse chestnut (<i>Aesculus hippocastanum</i>), common oak (<i>Quercus robur</i>), <i>Rhododendron</i> sp., nettle, bramble and some introduced ornamentals.

BTN5	Mixed woodland	Woodland in the South of the ground is mixed broadleaf and coniferous and is listed as restored ancient woodland. Species within the ground flora are not however indicative of this history with dog's mercury (<i>Mercurialis perennis</i>) the only ancient woodland indicator within the ground flora. Bluebells are present but by their appearance these were judged to be non-native (<i>Hyacinthoides hispanica</i>). Woody species are common lime (<i>Tilia × europaea</i>), ash, cherry, oak, beech (<i>Fagus sylvatica</i>), holly (<i>Ilex aquifolium</i>), <i>Rhododendron</i> sp., yew, western red cedar (<i>Thuja plicata</i>) hazel and laurel (<i>Prunus laurocerasus</i>). Additional species within the ground flora are wood avens, curled dock (<i>Rumex crispus</i>), herb-Robert (<i>Geranium robertianum</i>), primrose (<i>Primula vulgaris</i>) and nettle.
BTN6	Giant Hogweed	A section of giant hogweed (<i>Heracleum mantegazzianum</i>) grows in the woodland to the South and is shown as tall herb vegetation on the Phase one habitat map. This species is a schedule 9 non-native invasive species. Giant hogweed can also cause severe burns if touched and should be removed from the site.
BTN7	Scattered broadleaf trees	Broadleaved trees are scattered around the site, along boundaries and access tracks. Species present are oak (<i>Quercus</i> sp.), cherry (<i>Prunus avium</i>), apple, black pine (<i>Pinus nigra</i>), ash (<i>Faxinus excelsior</i>) and sycamore.
BTN8	Intact hedge - species poor	An intact species poor hedge bounds the site to the North. Woody species within the hedge are hawthorn (<i>Crataegus monogyna</i>), hazel (<i>Corylus avellana</i>) and elder (<i>Sambucus nigra</i>). There are no notable species listed on the hedgerow regulations assessment growing in the ground flora of this hedge.
BTN9	Other habitat	Residential houses and associated gardens are scattered in the local area.
BTN10	Poor semi-improved grassland	Poor semi-improved grassland is a frequent habitat locally which is species poor and subject to high levels of disturbance.
FTN1	Badgers	A badger sett has been identified within woodland on site. Further surveys identified the sett as containing four active entrances.
FTN2	Bats	Trees and structures on site were assessed for their potential to be used by roosting or hibernating bats. No evidence of bats roosting in the structures concerned with this report was found during the surveys. Bats were recorded foraging over the site.
FTN3	Nesting birds	Birds may nest within woodland on site and the hedgerow to the North. Standing water on site also offers potential for nesting wildfowl. No actively nesting birds were however recorded during the surveys.

FTN4	Amphibians	Great crested newts are known to occur locally and have been recorded on site. Full presence/ absence surveys were undertaken. The full report for this species is appended.
Table 1 <i>Details of Botanical and Faunal Target Notes.</i>		



*Habitats outside the site boundary are indicative only and have been mapped from within the site boundary or from publicly accessible land



Amenity grassland in the North of the site. This habitat is frequently mown (BTN1).



An intact species spoor hedge which bounds the North of the site (BTN 8).



Buildings on site include a wooden former stable block. No evidence of use of this building by bats was found. Evidence of past use by nesting birds was present but no nests were seen to be active at the time of the survey.



The main hotel building is not the subject of this report, no further external alterations will be undertaken additional to the already approved extension.



Semi-improved grassland with daffodils and fruit trees to the South of the hotel (BTN2).



Giant hogweed in woodland to the South (BTN6).



An active badger sett is present on site (FTN1).



A degraded Dutch barn with negligible potential for use by bats to be removed.



Semi-improved grassland in the West of the site (BTN2).

Table 2 Photographs

6.2 Vegetation

- 6.2.1 Details of the plant species found on site are included in the target notes. Species recorded are all commonly occurring and undoubtedly occur elsewhere in similar habitats in the local area.
- 6.2.2 The amenity grassland has a very low species diversity and ecological value. Whilst the assemblage of species within it is higher than improved pasture, the species are all indicative of regular cutting and disturbance, this habitat does not constitute a BAP habitat.
- 6.2.3 The intact hedge bounding the site to the North is species poor and contains a low diversity of woody plant species but all hedgerows are a UK BAP habitat. It should be retained in any proposed scheme and where lengths need to be lost, they should be transplanted or new hedges planted as compensation.
- 6.2.4 The woodland on site, despite being listed as restored ancient woodland, has a species poor ground flora. Trees to be removed from this habitat comprise a small group of common lime with no notable ground flora species at their base. Loss of these individuals can be compensated for via new tree planting. Where a new building is proposed in the North east of the woodland, this will not require the removal of any trees.
- 6.2.5 Semi-improved grassland in the East of the site will be lost as the result of deposition of spoil in this area. Although not unimproved grassland, this habitat contains a good diversity of species and its loss should be compensated for.
- 6.2.6 None of the hedgerows are classified as important under the Hedgerow Regulations (1997) (See Appendix 1).
- 6.2.7 Scattered trees around the site do not form woodland but mature and veteran trees should be retained in any proposed scheme and or where they are removed new tree planting should be undertaken. Cut wood from felled trees should be stacked on the site boundaries where it can decay naturally and provide habitat for invertebrates.
- 6.2.8 Giant hogweed is a non-native invasive weed species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended) identified within the site or adjacent land. This species should be removed from the site.

6.3 Amphibian

- 6.3.1 There are records for amphibians within 2km of the site. Records include records for great crested newt (*Triturus cristatus*).
- 6.3.2 Full great crested newt presence/ absence surveys have been undertaken. The separate report in relation to this species is appended.

6.5 Bats

- 6.5.1 There are eight records of at least two species of bat within 2km of the site. Species recorded are common pipistrelle (*Pipistrellus pipistrellus*), whiskered bat (*Myotis mystacinus*) and unidentified bats.
- 6.5.2 Habitat at the site offers a high potential for use by foraging bats. The woodland in the South provides shelter and, along with the standing water, will attract a range of invertebrates suitable for bats to forage.
- 6.5.3 The site is connected with surrounding habitats via tree lines hedgerows and fragmented woodland locally (Figure 6).
- 6.5.4 There are seven buildings on site which are to be affected by the current proposals. These buildings and their potential to be used by bats and nesting birds is summarised in Table 3 and shown on Figure 7.

Building number	Construction description	Potential for use by bats and birds
Building 1 - Former Stables	A timber stable block under corrugate sheet roofing. Timber boards fit tight together. Ventilation grilles are present on gables but are frequently blocked by vegetation growth. The roof is well sealed. Gaps present due to the corrugate nature of the construction material are large and draughty.	The stables offer low potential for use by bats. The building has a covering of moss which creates sub optimal damp and cold roosting conditions. No evidence of use by bats found. Several old swallow nests were visible in the building. None were seen to be active at the time of the survey. All sections of the stable block had a thick covering of cobwebs and suggested nothing had been flying within them.
Buildings 2 & 3 - brick outbuildings	Two red brick buildings with well sealed walls and small wooden barge boards. Both buildings under corrugate sheet roofs.	The buildings offer negligible potential for use by roosting or hibernating bats. Walls are entirely sealed and roofs are draughty and lack any thermoregulatory properties. No evidence of use by bats found. Birds may access the smaller outbuildings through open doors but no birds were found to be actively nesting in the building at the time of the survey.

Building 4 - Dutch barn	A dilapidated Dutch barn with metal frame, open on all elevations. Roofed with metal sheeting which has degraded.	The Dutch barn offers negligible potential for use by bats being entirely open and exposed. There are no suitable roost sites. There is also low potential for use of the building by nesting birds. Although birds could create nests on the metal frame the building provides no shelter.
Buildings 5, 6 and 7 - summer house/ storage buildings	Three small wooden buildings roofed with felt tiles. Wood panels fit tight together as do decorative fascias. The roofs range in condition and large gaps are created in some areas.	These buildings have entirely sealed walls which offer negligible potential for use by bats. Where gaps are present in the roofs, construction materials do not however provide optimal roosting opportunities. No evidence of use by bats was found. Birds can not access buildings internally. There was no evidence of actively nesting birds utilising the externals of the building.
Table 3 Summary of buildings affected by proposals		

- 6.5.5 Young or Semi-mature or Mature or Veteran or all trees around the site perimeter were also assessed in accordance with Collins ed. (2016) and assigned a risk category. Trees on site ranged in risk level from Category 1 (moderate potential) to Category 3 (negligible potential) (Figure 7). All of the trees could be adequately inspected. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 8.
- 6.5.6 Four bat activity surveys were undertaken at the site. The results of these activity surveys (Figure 9) confirm our assessment of the potential for the habitat, trees and buildings at the site to support bats.
- 6.5.7 During the bat activity surveys, no bats were seen to emerge from or re-enter the buildings to be affected by the current proposals.
- 6.5.8 During transect surveys, small numbers (2-3) common and soprano pipistrelles were seen commuting and foraging around the site. Most notable, several individuals were seen to commute into the site from the South west and continued to forage around woodland edges in the South of the site. Brown long-eared bats were seen to emerge from the main hotel building which will not be affected via the current proposals, and commuted across the site.
- 6.5.9 It is not considered there would be significant degradation of foraging habitat as a result of the proposal so long as the woodland and hedgerows are retained and or their loss is compensated for in any landscaping scheme.

- 6.5.10 We consider bat species are highly unlikely to rely on the buildings concerned in the current proposals for roosting. Bats are known to forage on site but there will be no net loss of suitable habitat as a result of the proposals.
- 6.5.11 Precautionary mitigation would be appropriate in respect of ensuring the foraging habitat on site is at least improved for use by bats during development.



Figure 6
Results* of Extended
Bat Habitat Survey

SCALE: NTS

REV 01

*Habitats outside the site boundary are indicative only
and have been mapped from within the site boundary or from publicly accessible land



Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. <i>A consultant ecologist is required</i>	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures ³ such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. <i>A consultant ecologist required</i>	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. <i>A consultant ecologist is unlikely to be required</i>	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. <i>A consultant ecologist is not required unless new evidence is found</i>	None.	No mitigation for bats required.

Figure 8 Tree risk categories from Hundt (2012).



6.7 Birds

- 6.7.1 There are numerous records of birds within 2km of the site.
- 6.7.2 The intact hedgerow to the North and woodland to the South of the site offer potential habitat for feeding and nesting birds. Birds which rely on buildings to nest may also occur on site.
- 6.7.3 The amenity grassland has a low potential for use by nesting birds as the grassland is mown and as such is usually short. Disturbance levels are also very high within this area of the site.
- 6.7.4 There were no rot holes or cracks in the trees within the site boundary which would support tree hole dwelling species such as woodpeckers.
- 6.7.5 The habitat on site will support a range of nesting and feeding bird species. Small passerines may nest in the woodland, wildfowl on the ponds and hirundines in the buildings, amongst others. Mitigation will therefore be required in order to ensure that there is not disturbance to any actively nesting birds as a result of the proposal. Habitat retention and creation should also ensure that there is a net increase in potential bird nesting and foraging habitat post development.

6.8 Brown Hare

- 6.8.1 Brown hare are a UK BAP priority species. There is one record of common hare occurring c.2km to the North east of the site.
- 6.8.2 No indication of brown hares was recorded on the site.
- 6.8.3 Habitats on site are not ideal for use by this species which prefer open grassland and arable field to forage and create forms.
- 6.8.4 A risk assessment of the site in respect of its future potential for and value to brown hares could be adequately made. We consider the risk to brown hares is very low.

6.9 Invertebrates

- 6.9.1 Notable invertebrates have been recorded within 2km of the site. Records are held along both the River Clywedog and River Dee, both a significant distance from the site.
- 6.9.2 The plant species assemblages found on site will attract a range of invertebrates but are not considered to be of local significance.
- 6.9.3 Impacts on the species are considered likely to be negligible, woodland will be retained on site and new aquatic habitat will be created. Loss of grassland will be compensated for. Habitats on site post development will maintain if not improve potential for use by invertebrates.

6.10 Reptiles

- 6.10.1 There is one record of slow worm (*Anguis fragillis*) occurring within 2km of the site. No further records of reptiles occur within this search range on the datasets searched.
- 6.10.2 The majority of the site has a very low value to reptilesthere are no areas suitable for reptiles to bask in proximity to the woodland which may be suitable for reptiles commuting or seeking refuge. .
- 6.10.3 No indication of reptiles was recorded at the site.
- 6.10.4 As a consequence, precautionary mitigation would be appropriate in respect of construction activities so as to ensure reasonable avoidance measures are taken to avoid the killing or injury of these species.

6.11 Other

- 6.11.1 Hedgehogs (*Erinaceus europaeus*) are known to occur in the local area. Habitats on site would be suitable for use by this species. Such habitats should be maintained on site.
- 6.11.2 The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) which are known to occur locally.
- 6.11.3 The woodland may provides suitable habitat for small mammals such as field vole (*Microtus agrestis*) this habitat will be retained on site.

6.12 Statutory and Non-Statutory Sites

Direct Impacts:

- 6.12.1 There are no statutory or non-statutory sites which are connected to the site such that site development would directly affect the dispersal of species between them or directly impact upon their integrity.
- 6.12.2 The habitats on site do not represent or are linked to those found in any of the statutory or non-statutory sites locally.

Indirect Impacts:

- 6.12.3 There are no statutory or non-statutory sites which are connected to the site such that site development would indirectly affect the dispersal of species between them or indirectly impact upon their integrity.

7. MITIGATION/RECOMMENDATIONS

7.1 *Compensatory planting and habitat enhancement*

- 7.1.1 The roots of trees on the site and its boundaries should be adequately protected during work in accordance with industry standards. All trees should as far as possible be retained in the scheme.
- 7.1.2 Disturbance to woodland ground flora should be limited by fencing off paths through woodland to prevent visitors causing disturbance to large areas. This will allow ground flora to continue to develop and become more diverse over time.
- 7.1.3 Where semi-improved grassland will be lost, spoil built up should be sown with wildflower seed to encourage new species rich grassland to develop. The landscaping scheme should also utilise plants which are native and wildlife friendly. In particular night flowering species would be beneficial to bats.
- 7.1.4 Hedgerows around the site should be retained or improved where possible. Any lengths of intact hedgerow to be removed to facilitate development should be transplanted and or replanted in order that there is no net negative impact on this BAP habitat due to development. The roots of hedgerow plants/trees should be adequately protected during development from compaction/ground disturbance.
- 7.1.5 Native marginal species such as common reed (*Phragmites australis*) and yellow flag iris (*Iris pseudacorus*) should be planted around the newly created lake.
- 7.1.6 The non-native invasive species giant hogweed should be removed from the site as this species also poses potential health problems for visitors and staff.

7.2 *Amphibians*

- 7.2.1 A mitigation strategy in relation to these species is included in a separate report in Appendix 2. The installation of temporary amphibian fencing around the site followed by 30 days of trapping is required to ensure any disturbance to great crested newts is minimised.
- 7.2.2 The creation of a new lake and woodland management will result in net benefits to this species.

7.3 *Badger*

- 7.3.1 A badger sett is known to occur on site. It is concluded that a significant disturbance to badgers occupying this sett is likely to occur as a result of the proposals. A Natural Resources Wales license for disturbance will therefore be required.
- 7.3.2 It is not considered that closure of the sett would be necessary, this is likely to create a greater disturbance to the sett than as a result of the proposed works.

- 7.3.3 Avoidance measures should be followed including keeping heavy machinery away from the sett, felling trees so they fall away from sett entrances and clearing felled trees away from runs.
- 7.3.4 Badger runs should be retained. Access for badgers through Temporary Amphibian Fencing (TAF) will be required. Gaps should be created in fencing where habitually used badger runs cross them. Once badgers have become habituated to the fencing, badger gates can be installed and the gaps in TAF closed. Amphibian trapping can then begin.
- 7.3.5 Further mitigation which should be followed in order to reduce disturbance to badgers are:
- All work must take place during daylight hours as badgers are more likely to be commuting over the site at night and this will ensure the risk to any badgers passing through the site will be minimised.
 - Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure badgers are not trapped during work.
 - All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.
 - Boundary fences/walls should incorporate gaps at their base to facilitate the passage of badgers across the site.

7.4 Bats

- 7.4.1 Work at night should be restricted, new planting within the site should enhance structural diversity and light spill onto the woodland should be minimised.
- 7.4.2 Buildings on site to be effected by the current proposals were not found to be used by roosting bats. New roosting provision for crevice dwelling bats could however be incorporated into the buildings on site or bat boxes could be erected in retained trees. These potential roost sites would be an improvement on current site conditions.
- 7.4.3 Creation of a lake in the North of the site will provide an additional high potential habitat for bats to forage.
- 7.4.4 Any category 1 trees to be felled should be re-inspected for bats to confirm they remain absent.
- 7.4.5 Illumination of the woodland at night should be minimised. Lighting within the grounds should be directed downwards.

- 7.4.6 Overall it is considered there is more than sufficient scope for mitigation and compensation at the site such that there will be no adverse impact on the favourable conservation status of bats affected by the proposal.

7.5 Birds

- 7.5.1 Nesting by birds within the development area is considered likely to occur. Birds may nest within buildings, woodland and hedgerows on site.
- 7.5.2 Any vegetation to be trimmed or cleared should be checked for nesting birds before it is removed. Ideally this should occur outside the bird nesting period March-September. If vegetation clearance is to occur in the March-September period a check for nesting birds should be conducted first by a suitably qualified individual.
- 7.5.3 Woodland should as far as possible be retained. Where trees are removed new tree and shrub planting should be undertaken. This will maintain the ecological functionality of the site for breeding birds.
- 7.5.4 Artificial bird nesting sites for swallow should be incorporated into the new buildings under the eaves in suitable locations. This will compensate for the loss of potential nest sites in outbuildings.
- 7.5.5 Planting of reed around the new lake will provide a valuable habitat for a range of feeding and nesting birds including wildfowl.
- 7.5.6 If nesting birds are found at the site all site works shall cease and further ecological advice shall be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6 Brown Hares

- 7.6.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any brown hare activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 7.6.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for badgers are also applicable to this species.

7.7 Invertebrates

- 7.7.1 Landscaping should include native or wildlife friendly species including night flowering plants.
- 7.7.2 Contaminants should not be allowed to enter substrates or water bodies during work. To effect this, spill kits should be provided on site. Re-fuelling of all plant and machinery should be undertaken away from open drains and water courses. Drip trays should be used under static machinery.

- 7.7.3 Sowing of wildflower seed on land in the East of the site will maintain a habitat attractive to invertebrates in this area.

7.8 Reptiles

- 7.8.1 There is no requirement for specific mitigation for these species. However, as a precautionary measure, in the unlikely event that any signs of any reptile activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 7.8.2 The points in respect of not leaving open trenches without means of escape detailed for badgers are also applicable to these species.

8. CONCLUSION

- 8.1.1 Ecological surveys, site appraisals and impact assessments were carried out with respect to the grounds of Cross Lanes Hotel, Wrexham. Habitats within the grounds include amenity grassland, mixed woodland and semi-improved grassland. It is proposed that several outbuildings are demolished and re-built, a zip wire and tower is installed and a lake created.
- 8.1.2 Amphibians, bats, badgers, and birds are known to occur on site. Invertebrates, brown hare, hedgehog and reptiles have also been recorded locally. Mitigation has been proposed, following which there will be no negative effect on protected species. A license for a disturbance to badgers and a great crested newt EPS license will be required prior to works being undertaken.
- 8.1.3 The creation of a lake, sowing of wildflower seed, new tree and shrub planting and retention of woodland will encourage a wider variety of wildlife to use the site than already occurs. The trees to be cleared are of low significance within the site and surrounding area.
- 8.1.4 Contractors will be observant for protected species and all nesting birds. Should any species be found during construction, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 8.1.5 I certify this report has been compiled in accordance with the code of professional conduct for the Chartered Institute of Ecology and Environmental Management and The Royal Institute of Chartered Surveyors and reflects my objective opinion of the facts found in relation to the instruction received and information available based upon the methodology, assumptions and constraints detailed within this report.

8 REFERENCES

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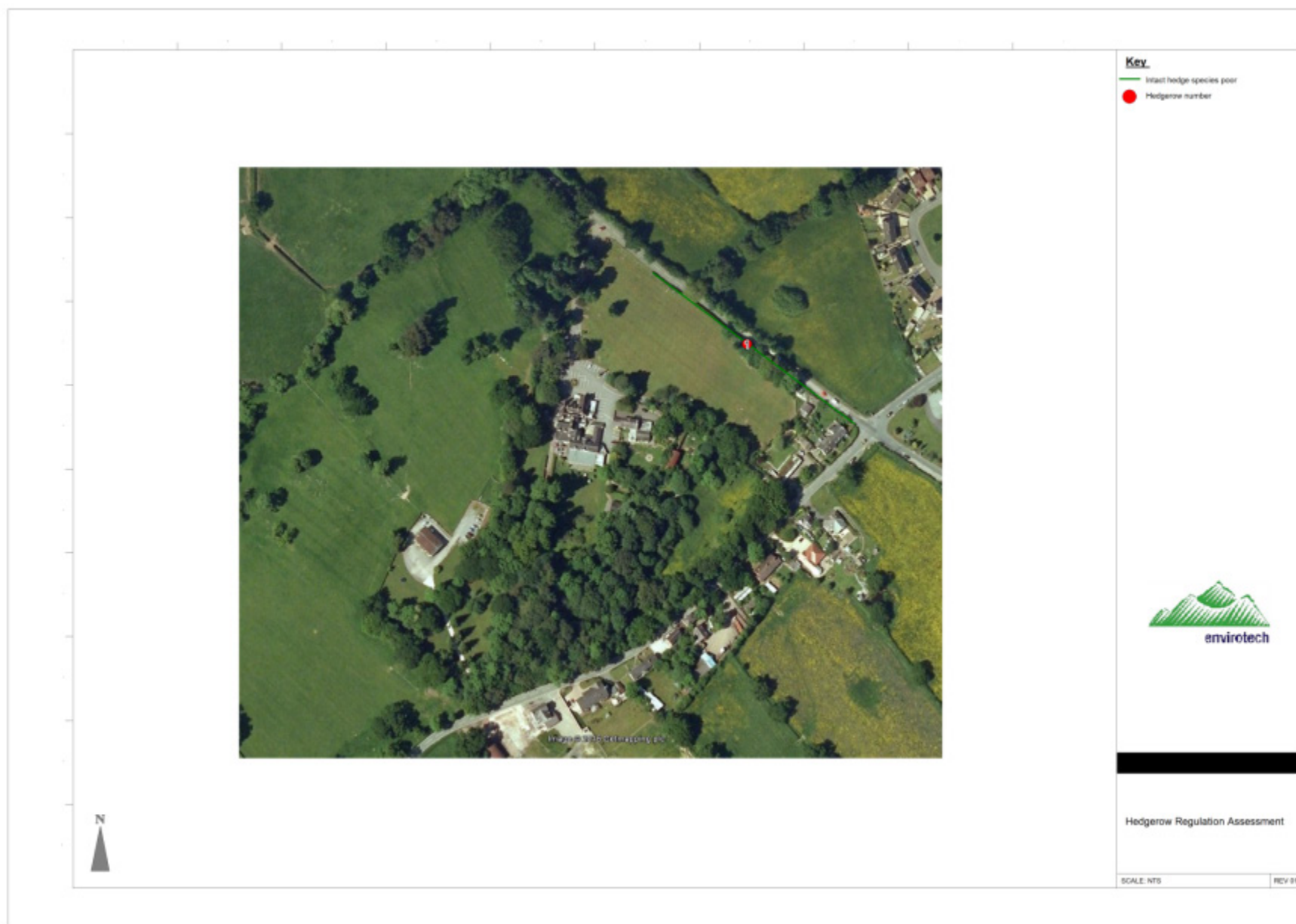
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9 APPENDIX 1



1	Hedge	Feature
No = Automatic failure	Yes	Length 20m +
	No	Hedge is not bounding the curtilage of dwelling
	Yes	Hedge established more than 30years
	No	Hedge boundary of protected or common land or land used for agriculture or forestry
	ARCHAEOLOGY AND HISTORY	
Yes = Automatic pass		Archaeological feature which is included in the schedule of monuments
		Situated wholly or partly within an archaeological site
		Boundary of a pre-1600 AD estate
		Integral part of a field system
		Protected species records
FEATURES		
7 woody species or 6 woody species + 3 features or 5 woody species + 4 features or highway + 4 woody species and 2 features		Bank or wall
		Gaps less than 10%
		Standard trees
		Ditch
		Parallel hedge
		Footpath/ Bridleway
		Connection points
		Woody species
		Average ground flora species
	HEDGE CLASSIFIED AS IMPORTANT	AS

* Historic and archaeological records have not been checked for this site.

10 APPENDIX 2



envirotech

**Ecological Consultants
Environmental and Rural Chartered Surveyors**

Great Crested Newt Survey at

**Cross Lanes Hotel
Wrexham**



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Professional responsibility

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Institute of Ecology and Environmental Management. (www.ieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

Accuracy of report

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible Great Crested Newts are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and or in their interaction with Great Crested Newts. If Great Crested Newts are found during a work programme and continuing the work programme could result in their disturbance, injury or death either directly or indirectly an offence may be committed.

Great Crested Newts may only be disturbed, injured or killed under license.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

This report has been printed on recycled paper as part of our commitment to achieving both the ISO 9001 Quality Assurance and ISO 14001 Environmental Assurance standards. Envirotech has been awarded the gold standard by the Cumbria Business Environmental Network for its Environmental management systems.

Signed



Andrew Gardner BSc (Hons), MSc, MCIEEM, MRICS, CEnv, Dip NDEA
Director

Author	Emma Wainwright	Date	16/06/2016
Checked by	Andrew Gardner	Date	24/06/2016
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1. EXECUTIVE SUMMARY

1.1 Background

It is understood that Cross Lanes Hotel, Wrexham will be renovated. Developments within the hotel grounds are to include the creation of a lake, demolition of some out buildings and installation of a zip wire and giant swing.

Great crested newts (GCN) were found to be present in three ponds near the site. Further survey work indicated that a 'small' population of GCN was present in. At a few sites where complete censuses are available to compare with survey data, they indicate that surveys may reveal around 2% to 30% of the population (English Nature, 2001). Working with this rationale, a peak count of 7 GCN may mean a true population size of between 23 and 350 adults.

1.2 Development Licence

The site will require a GCN development licence which will be granted following the submission and approval of a Method Statement, application form and Reasoned Statement to Natural Resources Wales. The method statement will detail appropriate mitigation for the site and may include a trapping and exclusion programme of at least 30 days, avoidance measures, compensation and enhancement measures.

It is likely that an on site translocation of GCN can be undertaken. The boundary of the development site is suitable as a receptor.

The proposed development site covers approximately 3.43ha. Not all of this area is subject to development.

2. INTRODUCTION

2.1 Site Description

The site lies in a semi-rural location on the outskirts of Wrexham. It is proposed that an existing outbuilding is extended, several outbuildings will be demolished, a lake will be created and a zip wire installed within the hotel grounds. There is woodland, amenity grassland and standing water on site which centres at SJ 37380 46884, Figure 1 and 2.

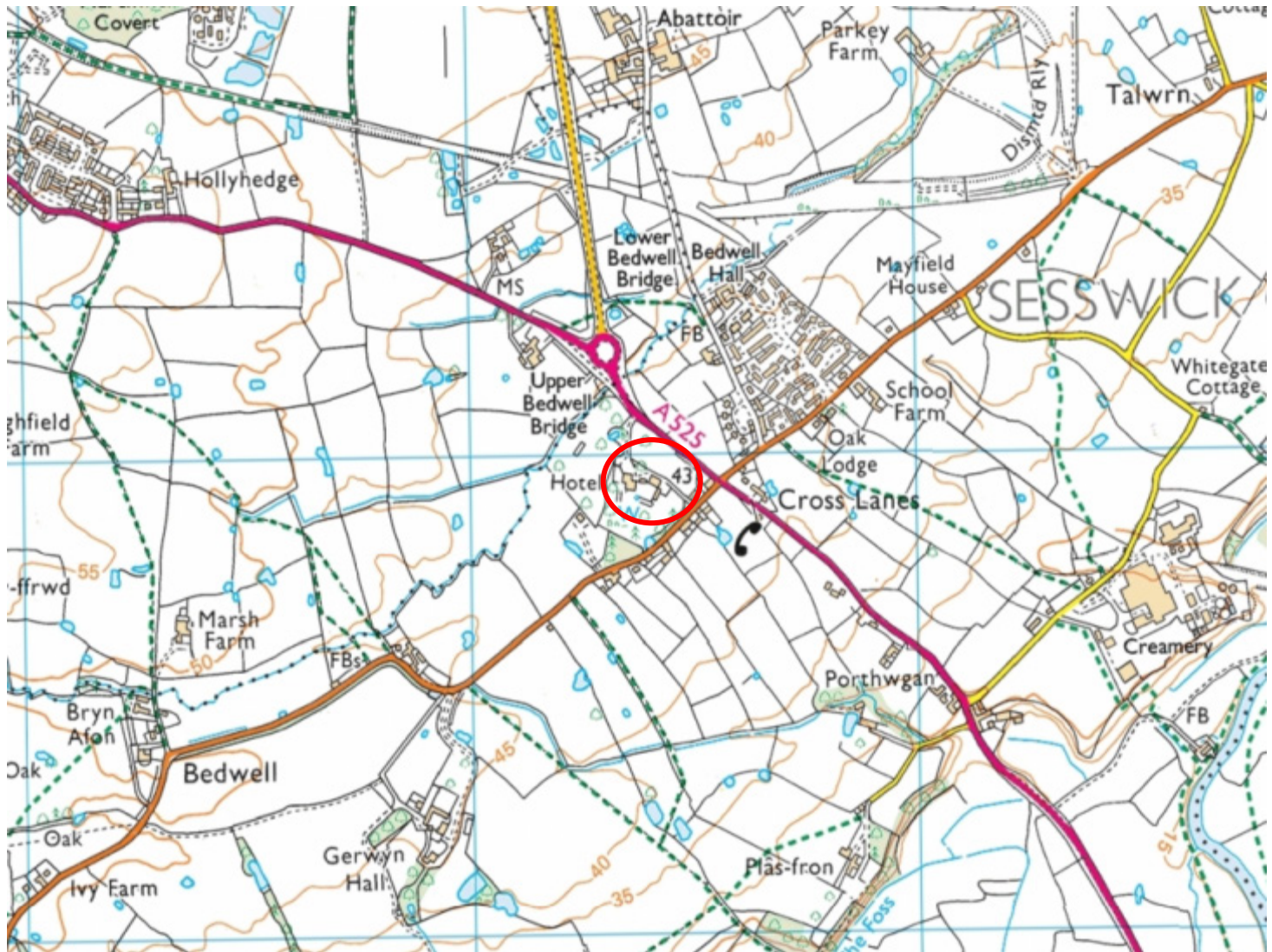


Figure 1 Ordnance Survey map of site location (circled in red)



2.2 Aims of Study

To ensure that the proposed development does not affect any Great Crested Newts that are listed under the Conservation (Natural Habitats, &c) Regulations 2010 and or the Wildlife and Countryside Act 1981 (as amended) the survey will:-

- Ascertain the number of ponds within a 500m radius of the development boundary, which do not have significant barriers to newt dispersal.
- Undertake a Habitat Suitability Index (HSI) assessment on such ponds. The HSI assessment predicts the likelihood of GCN being present.
- Further to the HSI assessment, presence/ absence surveys for GCN will be undertaken.
- Where GCN are present, assess the population class size in accordance with Natural England guidelines.

Based on the results of this work, potential ecological constraints and opportunities relating to future development of the site will be identified and recommendations for further work made as appropriate.

2.3 Timing and Personnel

The site and surrounding land was visited on 21st and 29th April 2016, 5th, 19th and 26th May 2016 and 9th June 2016. Survey work was undertaken by:

Mr Andrew Gardner BSc (Hons), MSc, MCIEEM, MRICS, CEnv
Natural England Great Crested Newt Licence (Level 1)
Natural Resources Wales Great Crested Newt Licence

Mr Chris Arthur BSc (Hons), MSc, Grad CIEEM
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Natural England Great Crested Newt Licence (Level 1)
Natural Resources Wales Great Crested Newt Licence (Agent)

Miss Emma Wainwright BSc (Hons) Grad CIEEM
Natural England Great Crested Newt Licence (Level 1)
Natural Resources Wales Great Crested Newt Licence (Agent)

3. METHODOLOGY

3.1 Desk study

A review of internet-based Ordnance Survey mapping and aerial photography was undertaken to establish the number of ponds without significant barriers to GCN dispersal within 500m of the development site. A records search was undertaken via the county records centre (Cofnod).

3.2 Habitat Suitability Index (HSI) assessment

The Habitat suitability Index (HSI) calculation relies upon ten separate indices, all of which are factors thought to affect great crested newts. Each factor is rated on a numerical index, between 0 and 1. Zero indicates unsuitable habitat, 1 represents optimal habitat. The HSI is not a substitute for a full survey, but does give a good indication of the likelihood of encountering GCN in a given pond. In addition, Natural

England requires HSI data in any subsequent development licence application. We consider HSI assessment is also applicable to a NRW application. The HSI assessment can be made year-round, however, for robustness the macrophyte (aquatic plants) coverage index assessment must be undertaken between March and May. For further information regarding HSI assessment please see Oldham *et al.* (2000).

3.3 GCN survey

The GCN survey was undertaken in accordance with the Natural England guidelines (formerly English Nature).

3.3.1 GCN Presence/ absence survey

In order to demonstrate presence or likely absence of GCN, a minimum of three techniques including egg searching, bottle trapping, torch survey and netting must be used on each of four pond survey visits. These visits should be undertaken between mid-March until mid-June. Two of these visits must be undertaken between mid-April and mid-May.

3.3.2 GCN Population Size Class estimation

Where GCN are found to be present, an additional two survey visits are required to estimate the population size class, meaning six survey visits in total. Three of these visits must be undertaken between mid-April and mid-May (peak breeding activity) to enable a robust population size class estimate. Natural England has a simple system for categorising GCN population size classes from survey data where the largest count by any single method is taken as follows: 1-10 'small'; 11-100 'medium'; and 100+ 'large'.

Population size class assessment surveys must be undertaken by torch surveys or bottle trapping or both.

Bottle trapping is potentially dangerous to GCN and adequate care must be taken in the setting up, taking down and deployment of these traps.

4. Results and Evaluation

4.1 Desk study

Nine ponds were found within 500m the development site and not isolated from it by running water or major roads (Figure 2 and 3).

Pond 1 is within the North of the site boundary and is encompassed by a small parcel of woodland. The hotel grounds including access track and amenity grassland extend to the South and East, Poor semi-improved grassland extends to the West. The pond was found to have good water quality but was lacking any substantial macrophytic vegetation or suitable vegetation for egg laying.

Pond 2 is also within the site boundary to the South and in proximity to woodland on site. Kiln Lane runs to the South of this pond. Covered entirely with duck weed the pond was extremely shallow and water was turbid.

Pond 3 is c.71m to the South west of the site, within a garden and bound to the West by a dense hedgerow. Similarly to Pond 2, Pond 3 was entirely covered by duck weed and <20cm in depth.

Pond 4 is c. 90m to the East of the nearest point of the site boundary. Bound to its South west by an intact hedgerow, tall grassland extends to its East. This pond is entirely covered by duck weed and also has a good cover of macrophytic vegetation.

Pond 5 is c.150m to the South of the nearest point of the site boundary. A hedgerow runs through the centre of this pond and there is a good covering of macrophytic vegetation suitable for newts to egg lay.

Pond 6 is c.238m to the South of the site on the boundary of a semi-improved grassland field. It is isolated from the site by the B5130 Kiln Lane but this was not judged to be a significant barrier to the dispersal of newts. There is limited macrophytic vegetation in the pond.

Pond 7 is c.383m to the South west of the nearest point on the site boundary. The largest of the surveyed ponds, it is in the centre of a pasture field and is poached by cattle. The centre of the pond is vegetated by reed mace and Canada geese are known to nest on it.

Pond 8 is c. 262m to the South west of the nearest point of the site boundary. Entirely encompassed by pasture field and vegetated with a matt of marshy vegetation there is very little open water within Pond 8.

Several ponds were located within 500m of the site which were excluded from assessment (Figure 3).

Pond A, B, C and D are on the opposite side of a stream/ brook to the development area. Strong flow of water was noted in it.

Pond E, F G and H are on the opposite side of the A525 which is a busy road with vertical kerb stones to its edge.

Pond I, J are not apparent on the ground.

Pond K and L were considered too remote from the development area and access to them was not sought. They do not appear on Google earth imagery and may not occur on the ground.

Pond M was considered too remote from the development area and access to it was not sought.

Given the number of ponds which were assessed in proximity to the site, it is considered reasonable that the population size class assessment for the site (small) is robust.



4.2 Habitat Suitability Index (HSI) assessment

Access to all of these ponds was possible and HSI scores were calculated in relation to their suitability for use by great crested newts (Table 1).

Pond ref	Pond 1	Pond 2	Pond 3	Pond 3a	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8
SI1 - Location	1	1	1	1	1	1	1	1	1
SI2 - Pond area	0.7	0.4	0.8	0.2	0.4	0.4	1	1	0.2
SI3 - Pond drying	1	0.1	0.5	0.9	1	0.9	0.5	0.01	0.5
SI4 - Water quality	0.67	0.33	0.33	0.67	0.67	0.67	0.33	0.33	0.67
SI4 - Shade	0.2	0.5	0.2	1	1	1	0.2	0.8	1
SI6 - Fowl	0.67	0.67	0.67	1	0.67	1	0.67	0.67	1
SI7 - Fish	1	1	1	1	1	1	1	1	1
SI8 - Ponds	1	1	1	1	1	1	1	1	1
SI9 - Terrestrial habitat	0.67	0.67	0.33	0.33	0.67	0.33	0.01	0.01	0.01
SI10 - Macrophyte cover	0.35	0.5	0.35	0.4	0.7	0.7	0.55	1	0.8
HSI	0.66	0.52	0.54	0.66	0.78	0.75	0.41	0.33	0.47

Table 1- Pond HSI values

HSI	Pond suitability
<0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Table 2 – Categorisation of HSI scores

4.3 GCN survey results

4.3.1 Records

There are numerous records of Great Crested newt within 2km of the development site. All of the records are to the North of the B5130.

Pond 1, has records of a maximum count of 6 GCN in 2000.

Records are included in the Appendix.

It is apparent from these records that the majority of ponds across the wider landscape have a small number of GCN within them.

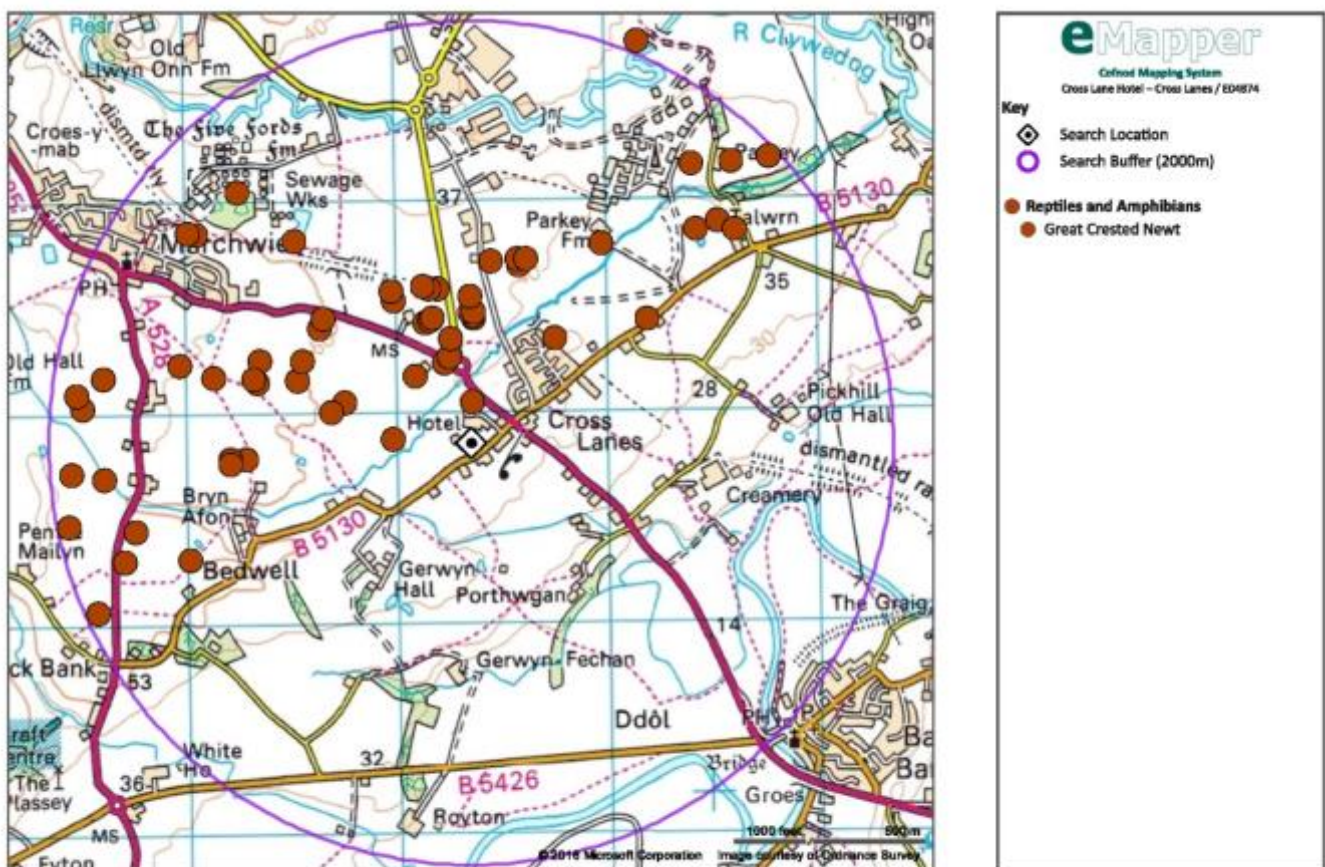


Figure 4- GCN records within 2km

4.3.2 Presence/ absence survey

GCN presence was established on the first visit to Pond 5 through identification of one male and one female adult great crested newts whilst torch surveying. GCN eggs were later identified in Pond 5. Adult great crested newts were also identified in subsequent visits via torching and or bottle trapping in Pond 1 and Pond 7.

Pond 2 and Pond 3 could not be surveyed further than to calculate their HSI values and egg search. This was due to a complete covering of duck weed making torching unsuitable, low water levels making bottle trapping and netting unsafe and unsuitable. Egg searching did not result in any great crested newt eggs being identified.

GCN were not recorded in Ponds 3a, 4, 6 or 8. Egg laying was recorded in Pond 8 although this was not identified as great crested newt.

Smooth newts were recorded in Ponds 1, 7 and 8. Palmate newts were recorded in Pond 1 and common frog (*Rana temporaria*) were recorded in Pond 8.

Full details of the results are appended in Table 4 to Table 10.

4.3.3 Population Size Class

A maximum count of 7 adult GCN was recorded on the 5th May 2016 in Pond 5.

This comprised of 4 male and 3 females respectively. Therefore the population size class can be determined to be 'small'.

4.3.4 Incidental observations

Small numbers of common frog were recorded along with 10s of smooth newts.

Canada Geese (*Branta canadensis*) were seen to be nesting on Pond 7 during the surveys.

5. Summary of Results

The survey revealed that a small GCN population is present at the site and in surrounding ponds. Eggs were identified in Pond 5 which is therefore judged to be a breeding pond. The Natural England rapid risk assessment indicates an offence is likely (Table 3) therefore any development of the site will need to be undertaken under a Natural Resources Wales GCN Development Licence.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.3
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
Maximum:		0.3
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

Table 3- Risk Assessment

It is likely that an on site translocation of great crested newts can be undertaken in this case.

Before a licence is granted, NRW must be satisfied that the development meets their three test criteria as follows:

1. The consented operation must be for “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”;
2. There must be “no satisfactory alternative”; and
3. The action authorised “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their range”.

Purely from an ecological perspective, test 3 is the most relevant and in order to satisfy this test NRW will expect to see appropriate mitigation, compensation and habitat management plans and assurances. All of these should be detailed in a method statement and application form submitted to NRW for assessment. An outline mitigation/ methods statement has been prepared. This will need to be refined once the full timing of work is known and planning permission has been approved.

Given the population size class is small and impacts on ponds are low, no post development monitoring is required.

6. Mitigation/ Compensation

6.1 Mitigation Key Points

Key mitigation points are included below to assist in the decision making process with respect to GCN and the development site. The following are taken from Natural England's Standing Advice Species Sheet: Great crested newt (February 2011) and are points for consideration with respect to the development. A plan showing mitigation and compensation is included as figure 4.

6.2 Impacts on breeding sites or resting places

1. Can the impacts be avoided through careful design of the scheme? Can breeding sites and/or terrestrial habitats be avoided, thereby securing them and avoiding direct impacts?

Breeding sites will not be impacted. Terrestrial habitat loss will occur but the terrestrial habitat to be lost comprises amenity grassland which is of low potential value to amphibians. Higher quality terrestrial habitats on site will be retained. Ponds on site will be retained and remain unaffected by the proposals. Creation of a new water body will provide a gain in habitats for great crested newts post development.

2. Could the direct impacts be reduced? Can the works be carried out at a time to avoid direct impacts upon newts? For example, pond enhancement works should generally be undertaken during the winter months when newts are unlikely to be within the waterbodies.

Terrestrial habitat will be impacted by this scheme. The least damaging period when works can be undertaken is February-October when GCN are active and can be effectively trapped clear on the site. If Pond 2 is to be improved as a potential habitat for great crested newts, this work should be undertaken between November and January when amphibians are in terrestrial refuges.

3. If there are still residual impacts after undertaking avoidance and minimisation measures, have suitable mitigation and compensation measures been proposed? For example, if a minor impact is unavoidable, mitigation on-site, or in the immediate surrounding area, should be provided, entailing small scale relocation and exclusion of newts combined with suitable habitat creation.

In this instance mitigation in respect of habitat improvement work adjacent to the site boundary can be undertaken. The boundaries of the development area can be improved with the construction of GCN hibernacula, log/ rubble piles and maintaining a woodland and scrub habitats on site.

6.3 Use of Temporary Amphibian Fencing (TAF)

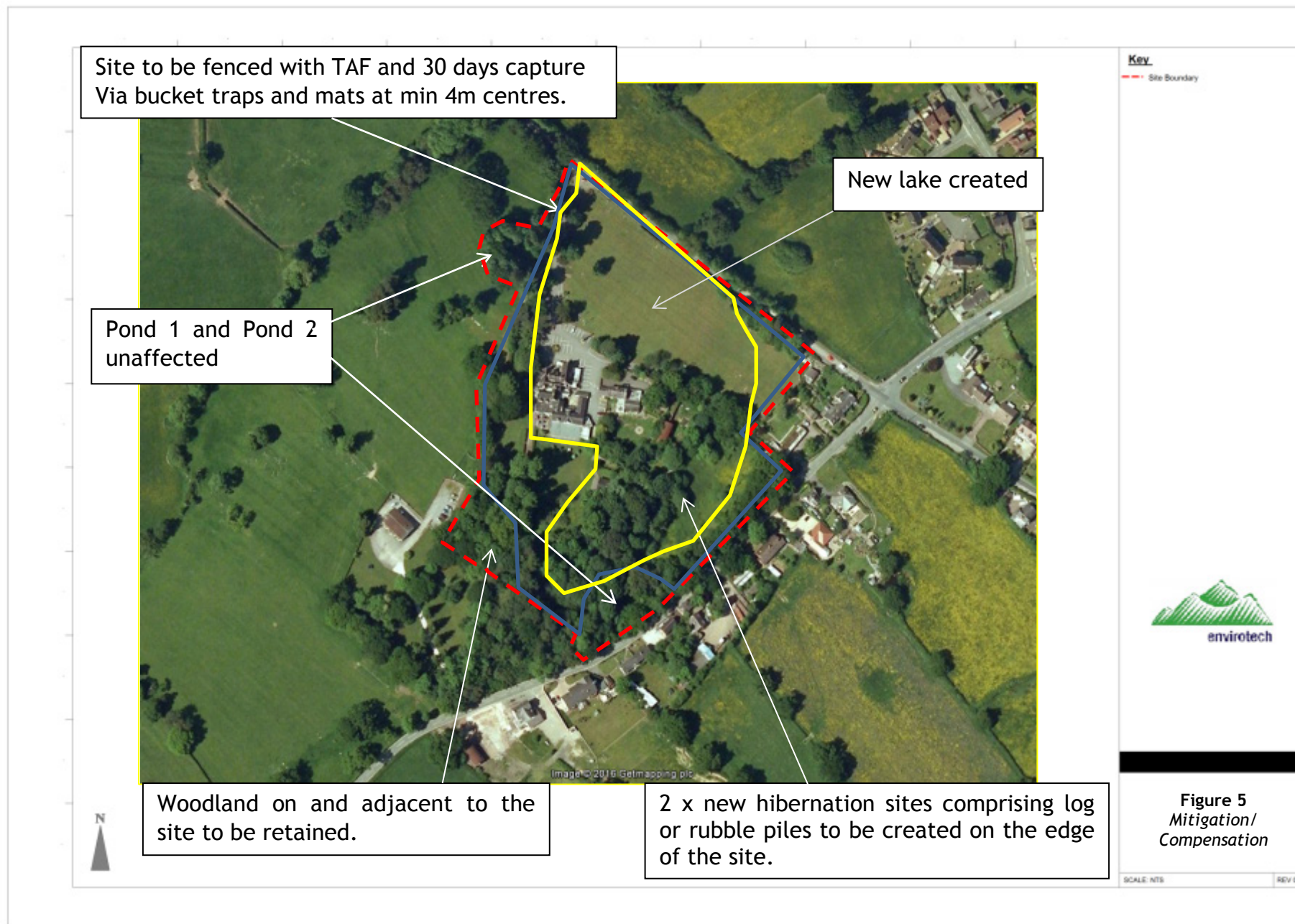
In the majority of cases, a mitigation licence is required to install TAF, as the fencing acts as a barrier to movements of great crested newts in their terrestrial phase. If the TAF obstructs access to places used for shelter or protection, this would be deemed an offence without an appropriate licence. Fencing is usually used in conjunction with pitfall traps in order to clear a site of GCN. The following trapping effort is expected with respect to the three population classes:

1. Small population – 30 days
2. Medium population – 60 days
3. Large population – 90 days

Exclusion and trapping of newts will be required from the development area. A small population of great crested newts has been recorded on site and in surrounding ponds. A minimum of 30 days trapping must therefor be undertaken.

Trapping and exclusion exercises may only be undertaken during the active season from February until the end of October. It is unacceptable to capture newts once they have begun to hibernate; typically this occurs as temperatures tend towards zero before the first frosts.

Pitfall traps and carpet tile refuges will be used at 4m centres.



7. References

English Nature. (2001) *Great crested newt mitigation guidelines*. Peterborough

Government Circular (ODPM Circular 06/2005 / Defra Circular 01/2005): *Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System*. 6 August 2005.

Office of the Deputy Prime Minister (ODPM). (2005) *Planning Policy Statement 9: Biodiversity and Geological Conservation*. August 2005. HMSO.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143- 155.

Natural England. (2011) *Standing Advice Sheet: Great crested newt* (available on line).

8. Appendix 1

Pond reference (e.g. "Pond 1") - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 1					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			10							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	2	3	Adult totals:	0			0			0			no	
(2) Date:	Air temp	Veg cover	Turbidity												
29/04/2016	6	2	2	Adult totals:	0			0			0			no	
(3) Date:	Air temp	Veg cover	Turbidity												
05/05/2016	12	1	1	Adult totals:	0			0			0			no	
(4) Date:	Air temp	Veg cover	Turbidity					0	2						
19/05/2016	15	2	1	Adult totals:	0			2			0			no	
(5) Date:	Air temp	Veg cover	Turbidity		1	0									
26/05/2016	11	2	1	Adult totals:	0			0			0			no	
(6) Date:	Air temp	Veg cover	Turbidity					1	0						
09/06/2016	15	2	1	Adult totals:	0			1			0			no	
				Adult totals:											
Peak adult count for this pond in any one visit (by torch, trap or net):								2							

Table 4 – GCN records Pond 1

Pond reference (e.g. "Pond 1") - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 3a					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			8							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	4	0	Adult totals:	0			0			0			no	
(2) Date:	Air temp	Veg cover	Turbidity												
29/04/2016	6	4	0	Adult totals:	0			0			0			No	
(3) Date:	Air temp	Veg cover	Turbidity												
05/05/2016	12	4	0	Adult totals:	0			0			0			No	
(4) Date:	Air temp	Veg cover	Turbidity												
19/05/2016	15	4	0	Adult totals:	0			0			0			No	
(5) Date:	Air temp	Veg cover	Turbidity												
26/05/2016	11	4	0	Adult totals:	0			0			0			No	
(6) Date:	Air temp	Veg cover	Turbidity												
09/06/2016	15	4	0	Adult totals:	0			0			0			No	
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Table 5 – GCN records Pond 3a

Peak adult count for this pond in any one visit (by torch, trap or net):				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 4					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			6							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	4	1	Adult totals:	0			0			0			No	
(2) Date:		Veg cover	Turbidity												
29/04/2016	6	4	1	Adult totals:	0			0			0			No	
(3) Date:	Air temp	Veg cover	Turbidity												
05/05/2016	12	4	1	Adult totals:	0			0			0			No	
(4) Date:	Air temp	Veg cover	Turbidity												
19/05/2016	15	4	0	Adult totals:	0			0			0			No	
(5) Date:	Air temp	Veg cover	Turbidity												
26/05/2016	11	4	0	Adult totals:	0			0			0			No	
(6) Date:	Air temp	Veg cover	Turbidity												
09/06/2016	15	4	1	Adult totals:	0			0			0			No	
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Table 6 – GCN records Pond 4

Pond reference (e.g. "Pond 1") - enter in box below:					Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 5						Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6				1,000,000			10							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.			
(1) Date:	Air temp	Veg cover	Turbidity		1	1								no		
21/04/2016	8	3	1	Adult totals:	2			0			0					
(2) Date:		Veg cover	Turbidity											no		
29/04/2016	6	3	1	Adult totals:	0			0			0					
(3) Date:	Air temp	Veg cover	Turbidity		4	1		4	3					no		
05/05/2016	12	3	1	Adult totals:	5			7			0					
(4) Date:	Air temp	Veg cover	Turbidity					0	2					no		
19/05/2016	15	3	1	Adult totals:	0			2			0					
(5) Date:	Air temp	Veg cover	Turbidity		0	1		0	3					yes		
26/05/2016	11	3	1	Adult totals:	1			3			0					
(6) Date:	Air temp	Veg cover	Turbidity					0	1					yes		
09/06/2016	15	3	1	Adult totals:	0			1			0					
Peak adult count for this pond in any one visit (by torch, trap or net):								7								

Table 7– GCN records Pond 5

Pond reference (e.g. "Pond 1") - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 6					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			10							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	3	2	Adult totals:	0			0			0				
(2) Date:		Veg cover	Turbidity												
29/04/2016	6	3	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
05/05/2016	12	3	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity												
19/05/2016	15	2	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
26/05/2016	11	2	2	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
09/06/2016	15	2	2	Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Table 8– GCN records Pond 6

Pond reference (e.g. "Pond 1") - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 7					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			9							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	3	4	Adult totals:	0				0			0			
(2) Date:		Veg cover	Turbidity												
29/04/2016	6	3	4	Adult totals:	0				0			0			
(3) Date:	Air temp	Veg cover	Turbidity		4	0		0	3						
05/05/2016	12	4	3	Adult totals:	4				3			0			
(4) Date:	Air temp	Veg cover	Turbidity												
19/05/2016	15			Adult totals:	0				0			0			
(5) Date:	Air temp	Veg cover	Turbidity					1							
26/05/2016	11			Adult totals:	0				1			0			
(6) Date:	Air temp	Veg cover	Turbidity												
09/06/2016	15			Adult totals:	0				0			0			
Peak adult count for this pond in any one visit (by torch, trap or net):								4							

Table 9– GCN records Pond 7

Pond reference (e.g. "Pond 1") - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Pond 8					Torch power:			No. of traps used in pond:						eggs found?	larvae found? (any method)
No. of survey visits to this pond:		6			1,000,000			5							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity												
21/04/2016	8	3	1	Adult totals:	0			0			0				
(2) Date:		Veg cover	Turbidity												
29/04/2016	6	4	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
05/05/2016	12	4	1	Adult totals:	0			0			0			no	no
(4) Date:	Air temp	Veg cover	Turbidity												
19/05/2016	15	4	1	Adult totals:	0			0			0			no	
(5) Date:	Air temp	Veg cover	Turbidity												
26/05/2016	11	4	1	Adult totals:	0			0			0			no	no
(6) Date:	Air temp	Veg cover	Turbidity												
09/06/2016	15	4	1	Adult totals:	0			0			0			no	
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Table 10– GCN records Pond 8

					Anon - Herpetofauna Consultants International				
1608m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ38604785	Talurn Farm	2 records, between 1992 and 25/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D1122/001/01	3
1628m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ362480	Oth:sa:11:2001	24/04/2002	Miss E. Stevens			D1317/001/02	3
1640m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ360478	Wrexham; Marchwiell Marsh Nature Reserve	2 records, between 09/05/2005 and 11/05/2005	Jude Greenwood, R. Greenwood	+; 2 Male; 4 Female	Torch survey. Ponds 1 & 3	D1310/001/01	1
1649m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ357464	Pond at Pool House	30/06/2011	Gerry Longley	1 larva		D1462/001/01	1
1675m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ3601047855	Marchweil Nature Reserve	07/06/2005	Jude Greenwood	19 L, 1JF		D1118/011/03	1
1686m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ38404816	Pickhill Bridge farm	2 records, between 1992 and 25/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D1122/001/01	3
1742m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ35694630		2 records, between 1992 and 16/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01; D0137/001/01	3
1752m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ35604669	Pont y Ffrwd	1992	Anon	Present		D1118/011/03	1
1775m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ35604717		2 records, between 1992 and 05/05/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01; D0137/001/01	3
1818m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ38594817	Parkey Lodge	2 records, between 1992 and 03/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D1122/001/01	3
1854m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ35504703		2 records, between 1992 and 08/06/1992	Anon - Herpetofauna Consultants International; Anon	Present		D1122/001/01; D1118/011/03	3

1077m	Great Crested Newt (<i>Triturus cristatus</i>)	SI363472	Highfield Farm	03/04/2000	Anon	6 (Exact)		D1118/011/03	1
1082m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36314716	Highfield farm	2 records, between 1992 and 12/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01 ; D1122/001/01	3
1133m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37974779		2 records, between 1992 and 07/07/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01 ; D0137/001/01	3
1147m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36204678		12/06/1992	Anon - Herpetofauna Consultants International			D1122/001/01	3
1148m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36204676	Highfield farm	1992	Anon - CCW	Present		D0137/001/01	3
1267m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36124717		2 records, between 1992 and 12/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01 ; D0137/001/01	3
1276m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36514781	Five Fords, Marchwiel; Sewage Treatment Works Lagoon	24/04/2002	Emma Stevens	2 Adult	Bottle trap	D1310/001/01	1
1438m	Great Crested Newt (<i>Triturus cristatus</i>)	SI35964723		12/06/1992	Anon - Herpetofauna Consultants International		Probable record (supplied by local resident)	D1122/001/01	3
1447m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36004631		2 records, between 1992 and 16/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01 ; D0137/001/01	3
1472m	Great Crested Newt (<i>Triturus cristatus</i>)	SI38424785		25/06/1992	Anon - Herpetofauna Consultants International			D1122/001/01	3
1572m	Great Crested Newt (<i>Triturus cristatus</i>)	SI38524789		25/06/1992				D1122/001/01	3

816m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ36974757		2 records, between 07/07/1992 and 13/04/2000	Anon - Herpetofauna Consultants International; Anon - CCW	2 (Exact)	D1122/001/01; D0137/001/01	3
870m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ37444771		2 records, between 02/07/1992 and 27/04/2000	Anon - Herpetofauna Consultants International; Anon - CCW	18 (Exact)	D1122/001/01; D0137/001/01	3
877m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ3757947696	Maelor Abbatoir	Before 29/08/2003	EAC	4 Male & 5 Female (200)	D1118/011/03	1
880m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ36524715	Highfield farm	2 records, between 1992 and 12/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present	D0137/001/01; D1122/001/01	3
894m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ365472	Highfield Farm	15/04/2000	Anon	14 (Exact)	D1118/011/03	1
902m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ3757447723	Maelor Abbatoir	Before 23/03/2007	EAC		D1118/011/03	1
906m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ3663147401	Hollyhedge	13/04/2000	EAC	5 (Exact)	D1118/011/03	1
914m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ37614772		27/04/2000	Anon - CCW	2 (Exact)	D0137/001/01	3
922m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ366474		13/04/2000	Anon - CCW	5 (Exact)	D0137/001/01	3
1020m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ38184743	Parkway Farm	2 records, between 1992 and 07/07/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present	D0137/001/01; D1122/001/01	3
1057m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ36334714		2 records, between 1992 and 12/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present	D1122/001/01; D0137/001/01	3
1077m	Great Crested Newt (<i>Triturus cristatus</i>)	SJ36274678		2 records, between 1992 and 12/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present	D1122/001/01; D0137/001/01	3

617m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37154743		16/06/1992	Anon - Herpetofauna Consultants International			D1122/001/01	3
621m	Great Crested Newt (<i>Triturus cristatus</i>)	SI3734547470	Maelor Abbatoir	27/04/2000	NWES	Ova & efts		D1118/011/03	1
623m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37164744		16/06/1992	Anon - Herpetofauna Consultants International		Probable record (supplied by local resident)	D1122/001/01	3
625m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37364747		2 records, between 1992 and 07/07/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present	Probable record (supplied by local resident)	D1122/001/01; D0137/001/01	3
626m	Great Crested Newt (<i>Triturus cristatus</i>)	SI3716647448	The Hollies	Before 23/03/2007	EAC			D1118/011/03	1
632m	Great Crested Newt (<i>Triturus cristatus</i>)	SI367470		15/04/2000	Anon - CCW	8 (Exact)		D0137/001/01	3
640m	Great Crested Newt (<i>Triturus cristatus</i>)	SI377473		1976	Whiteley, D.			D1076/001/02	3
683m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36684700	Gwrych Teg Farm	2 records, between 1992 and 02/07/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D1122/001/01	3
700m	Great Crested Newt (<i>Triturus cristatus</i>)	SI373475	Agricultural field west of Bedwell Road, Wrexham	4 records, between 21/10/2011 and 09/11/2011	Anon - Elm	Adult male; Juvenile; Adult female	Record Type: Pitfall Trap	D1431/001/01	1
751m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37194758		07/07/1992	Anon - Herpetofauna Consultants International			D1122/001/01	3
760m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37154758	Maelor Abbatoir	1992	Anon - CCW	Present		D0137/001/01	3
771m	Great Crested Newt (<i>Triturus cristatus</i>)	SI3698247527	The Hollies	Before 29/08/2003	EAC	6 Male, 6 Female (2001)		D1118/011/03	1
778m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37124759	Maelor Abbatoir	2 records, between 1992 and 07/07/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D1122/001/01	3

Species Records

Distance	Species Name	Grid Reference	Site Name	Date	Recorders	Abundance	Comments	Dataset ID	QA
200m	Great Crested Newt (<i>Triturus cristatus</i>)	SI373470	Cross Lanes Hotel	15/04/2000	Anon	6 (Exact)		D0118/011/03	1
376m	Great Crested Newt (<i>Triturus cristatus</i>)	SI36974687		2 records, between 02/07/1992 and 15/04/2000	Anon - Herpetofauna Consultants International	11 (Exact)		D0122/001/01; D0118/011/03	3
405m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37224723		1991	Anon - CCW	Present		D0137/001/01	3
419m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37084717		2 records, between 1992 and 02/07/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D0122/001/01; D0137/001/01	3
428m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37244726		02/07/1992	Anon - Herpetofauna Consultants International		Probable record (supplied by local resident)	D0122/001/01	3
510m	Great Crested Newt (<i>Triturus cristatus</i>)	SI372473	Chetwynd Grove	13/04/2000	Anon	4 (Exact)		D0118/011/03	1
595m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37364744	Maelor Abbatoir	2 records, between 1992 and 07/07/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01; D0122/001/01	3
605m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37354745		27/04/2000	Anon - CCW	9 (Exact)		D0137/001/01	3
614m	Great Crested Newt (<i>Triturus cristatus</i>)	SI37134742	The Hollies	2 records, between 16/06/1992 and 13/04/2000	Anon - CCW; Anon - Herpetofauna Consultants International	7 (Exact)	Probable record (supplied by local resident)	D0137/001/01; D0122/001/01	3
615m	Great Crested Newt (<i>Triturus cristatus</i>)	SI3715747434	The Hollies	13/04/2000	Anon - Herpetofauna Consultants International	Ova		D0118/011/03	1
616m	Great Crested Newt (<i>Triturus cristatus</i>)	SI3713247426	The Hollies	Before 29/08/2003	EAC		Last Surveyed 2001	D0118/011/03	1

1891m	Great Crested Newt (<i>Triturus cristatus</i>)	SI35474709	Old Hall Farm	2 records, between 1992 and 08/06/1992	Anon; Anon - Herpetofauna Consultants International	Present	Probable record (supplied by local resident)	D1118/011/03 ; D1122/001/01	1
1909m	Great Crested Newt (<i>Triturus cristatus</i>)	SI35444672	South Pond	1977	NT		?1977	D1118/011/03	1
1950m	Great Crested Newt (<i>Triturus cristatus</i>)	SI35564606		2 records, between 1992 and 10/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01 ; D0137/001/01	3
1951m	Great Crested Newt (<i>Triturus cristatus</i>)	SI35434647	Pont-frwd	2 records, between 1992 and 10/06/1992	Anon - CCW; Anon - Herpetofauna Consultants International	Present		D0137/001/01 ; D1122/001/01	3
1960m	Great Crested Newt (<i>Triturus cristatus</i>)	SI38774819		2 records, between 1992 and 09/06/1992	Anon - Herpetofauna Consultants International; Anon - CCW	Present		D1122/001/01 ; D0137/001/01	3
2062m	Great Crested Newt (<i>Triturus cristatus</i>)	SI381487	Wrexham Industrial Estate - Water Treatment Pond	16/05/1998	Dylan Lloyd	1 (Exact)		D1118/011/03	1

Sites

Site Type	Distance	Site Name	Sites Features
Sites of Special Scientific Interest	1374m	2554: Afon Dyfrdwy (River Dee)	Features: Geology, Grassland, Watercourse, Woodland Species: <i>Baris lepidii</i> , <i>Bupleurum tenuissimum</i> , <i>Cottus gobio</i> , <i>Gomphus vulgatissimus</i> , <i>Hordeum marinum</i> , <i>Isogenus nubecula</i> , <i>Lampetra fluviatilis</i> , <i>Lampetra planeri</i> , <i>Luronium natans</i> , <i>Lutra lutra</i> , <i>Osmerus eperlanus</i> , <i>Petromyzon marinus</i> , <i>Salmo salar</i>
Special Areas of Conservation	1374m	UK0030252: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	Features: Watercourse Species: <i>Cottus gobio</i> , <i>Lampetra fluviatilis</i> , <i>Lampetra planeri</i> , <i>Luronium natans</i> , <i>Lutra lutra</i> , <i>Petromyzon marinus</i> , <i>Salmo salar</i>
Ancient Woodland Sites	19m	37157: Restored Ancient Woodland Site	
Ancient Woodland Sites	541m	37156: Restored Ancient Woodland Site	
Ancient Woodland Sites	766m	33387: Ancient Semi Natural Woodland	