

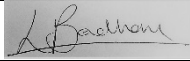
DAVID CLEMENTS ECOLOGY LTD

ROCKFIELD ROAD NORTH, MONMOUTH

ECOLOGICAL ASSESSMENT

November 2019

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SUMMARY

This report has been prepared by David Clements Ecology Ltd (DCE) on the instruction of Asbri Planning Ltd. It refers to a site at Rockfield Road in Monmouth, in the county of Monmouthshire, South Wales. The site measures approximately 1.4ha and is in a semi-rural setting, surrounded by agricultural pasturelands to the north and east, and separated from a residential area to the west by further pastureland. The site lies to the west of the historic settlement of Monmouth, and immediately east of Rockfield Road, within the floodplain of the River Monnow, which lies 0.5km to the east. A caravan site is situated to the east, separated from the site by an access road called Watery Lane. A small park, known as Drybridge Recreational Area, lies to the south of the site, which contains mature trees and a small pond. The site lies at the Ordnance Survey grid reference SO 50165 13001 at around 21m AOD.

Asbri Planning Ltd. are in the planning phase, of assessing the suitability of the site, for the conversion of two disused poultry units into two B1 business units, and the construction of associated infrastructure. Proposed plans for the site indicate retention of the mature tree line, except for an individual silver maple situated to the west of the site, and retention of the hedgerows which constitute the western, northern and eastern site boundaries. The development will likely result in the loss of areas of tall ruderal vegetation, a small area of semi-improved neutral grassland, and areas of short perennial / ephemeral vegetation.

The site is located approximately 900m from the River Wye SAC & SSSI, and only 300m from a tributary of this river - The River Monnow. A drainage ditch in the field adjacent to the eastern boundary drains directly into the River Monnow. The site is separated from the field by a hedgerow and the physical barrier of Watery Lane. It is considered unlikely that development within the site will have any significant impacts on this designated site; however, mitigation measures are recommended to ensure there is no impact on such sites, including the SAC & SSSI, via the implementation of pollution control measures during construction.

The two hedgerows found on site are assessed as having High Local Value to wildlife, whereas the tree-line, semi-improved neutral grassland, tall ruderal vegetation and short perennial/ephemeral vegetation are assessed as being of Local Value to wildlife. The disused poultry units have been described and assessed on three previous occasions (DCE 2017; DCE 2015; Acer 2013), full accounts of which can be found within the cited reports.

An extended Phase 1 habitat survey was completed followed by a number of protected species Phase 2 surveys. Phase 2 endoscopy surveys were conducted on trees assessed as having bat roosting potential. Tree 1, a silver maple proposed for felling (for health and safety reasons), supports a high potential roosting feature; however, no actual signs of bats were seen. Phase 2 reptile and terrestrial GCN surveys were undertaken but no terrestrial GCN were observed. Low numbers of slow-worm were observed on one survey visit. Dormouse nest tube surveys and nut searches were carried out over the 2019 survey period however no evidence of dormouse was observed during any of the surveys.

Although there will be some negative impacts as a result of the proposed development upon common and widespread species, these are not considered to be of more than local significance. Likely impacts can be mitigated and or compensated for through the implementation of various mitigation measures during the construction and development phases. Mitigation measures will be required for common reptiles, nesting birds, potentially roosting bats and badger. Appropriate mitigation and enhancement measures are recommended.

1.0 INTRODUCTION

- 1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instruction of Asbri Planning Ltd. It refers to a site at Rockfield Road in Monmouth, in the county of Monmouthshire, South Wales. The site location and context is shown at Plan 1.
- 1.2 The site measures approximately 1.4ha and is in a semi-rural setting, surrounded by agricultural pasturelands to the north and east, and separated from a residential area to the west by further pastureland. The site lies to the west of the historic settlement of Monmouth, and immediately east of Rockfield Road, within the floodplain of the River Monnow, which lies 0.5km to the east. A caravan site is situated to the east, separated from the site by an access road called Watery Lane. A small park, known as Drybridge Recreational Area, lies to the south of the site, which contains mature trees and a small pond. The site lies at the Ordnance Survey grid reference SO 50165 13001 at around 21m AOD.
- 1.3 Asbri Planning Ltd. are in the planning phase, of assessing the suitability of the site, for the conversion of two disused poultry units into two B1 business units and the construction of associated infrastructure.
- 1.4 Proposed plans for the site indicate retention of the mature tree line, except for an individual silver maple situated to the west of the site, and retention of the hedgerows which constitute the western, northern and eastern site boundaries. The development will likely result in the loss of areas of tall ruderal vegetation, a small area of semi-improved neutral grassland, and areas of bare ground with short perennial / ephemeral vegetation.
- 1.5 The remainder of this report sets out the results of an ecological survey and assessment of the site. It also assesses the likely impact of the development and makes recommendations regarding the mitigation of any potentially adverse biodiversity impacts.

1.6 Designated Sites of Biodiversity Interest

Statutory Sites

- 1.6.1 The site does not contain or lie immediately adjacent to any statutory sites of nature conservation interest such as Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). However, the following statutory sites lie within 2km; their approximate distance away from the centre of the site, and statutory designations, are given respectively:
- River Wye (Lower Wye) SAC and SSSI, 960m south-east: of special interest for its associated plant and animal communities.

Non-Statutory Sites

1.6.2 The site does not contain, or lie immediately adjacent to, any non-statutory sites of nature conservation interest such as Sites of Importance for Nature Conservation (SINCs). Designation information, for the following sites, was not available at the time of writing. The following SINCs lie within 2km (all distances are approximate):

- River Monnow, 400m south-east
- Wonastow Field, 870m south-west.
- St Dials and Holywell Road, 1.1km south
- River Trothy, 1.4km south-east
- Croft-y-Bwla, 1.5km west
- Sergeants Wood and Sergeants Grove, 1.6km west
- Little Anchrehill Wood, 1.7km north-west
- Newbolds Farm Orchard (2), 1.8km north-west
- Orchard Cottage (Rockfield) Orchard, 1.8km north-west
- Molly Brook Valley, 1.9km north-east
- Newbolds Farm Orchard (1), 2km north-west
- Part of Ash Wood, 2km west

1.6.3 Sites of Importance for Nature Conservation (SINCs) are one of a class of non-statutory nature conservation designations which are recognised throughout the UK under a wide range of titles. Such 'Wildlife Sites' are so-called 'third tier' sites, generally ranked below sites which are of international or national biodiversity significance, but which are considered to have substantive nature conservation value in the sub-national (ie regional or district) context. They are usually designated at the county or county borough level by the relevant local planning authority, and are recognised as a planning constraint in the relevant statutory development plan. The framework for the identification and designation of 'Wildlife Sites' is set out in various Government documents, and is referred to in *Planning Policy Wales* (2017, 9th Edition) and *Technical Advice Note (Wales) 5: Nature Conservation & Planning*, 2009.

2.0 APPROACH AND METHODS

2.1 Survey Methodology

2.1.1 The site was surveyed on 5th March 2019 in good weather and was subject to an Extended Phase 1 Survey/Preliminary Ecological Appraisal in accordance with the guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM 2013). This was based on the Phase 1 vegetation classification methodology developed by the former Nature Conservancy Council (current version: JNCC 2007), a nationally-accepted and standard method for the rapid survey and appraisal of ecological habitats which is based primarily on the recording of vegetation and its classification into defined habitat categories. Dominant and conspicuous flora species were recorded and ‘Target Notes’ were prepared for any features of particular interest.

2.1.2 The methodology also requires the recording of conspicuous fauna species such as birds, herptiles (i.e. amphibians and reptiles), mammals and invertebrates such as butterflies and dragonflies, paying particular attention to the presence (or possible presence) of any rare or protected species.

Bats

2.1.3 Large standard trees were subject to a preliminary (Phase 1) survey to assess their potential suitability for use by roosting bats. This survey was carried out from ground-level, using close-focusing binoculars, with particular attention being given to the presence of ‘potential roosting features’ (PRFs; Target Note 1) such as those described by Andrews (2018). The trees were individually searched for features which are likely to be attractive to roosting bats such as cavities and rot-holes, splits and cracks, rugose or delaminating bark and dense ivy cover etc, and any such features were recorded together with the average diameter at breast-height (dbh) in centimetres (cm). In addition, a search was made for obvious signs of occupation by bats including droppings, urine stains and scratching around cavity entrances etc. The inspected trees were then categorised as follows:

1A	Occupied by bats	Bats are known to occupy features of the tree, or there is direct evidence of such occupation.	Further detailed survey by bat ecologist required. NRW licence required before any tree works.
1B	High probability of bat use	Tree has features which appear to be of high suitability for use by bats. Usually large old trees with numerous and/or well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) ‘high roost suitability’. NRW licence will be required if any bats are found.
2A	Moderate probability of bat use	Tree has features which appear moderately suitable for use by bats. Usually large and/or old trees with at least some well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) ‘moderate roost suitability’. NRW licence will be required if any bats are found.
2B	Low probability of bat use	Tree has overall low roosting suitability, although some features of low or marginal roosting potential may be present.	Inspection by arborist and/or bat ecologist immediately prior to and during tree works. ‘Soft-felling’ may be advised.

3	Negligible probability of bat use	Usually young and/or small trees, lacking any obvious features suitable for use by bats.	No further survey required. No constraint to tree works.
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Endoscope Surveys

- 2.1.4 An endoscope survey of several trees preliminarily assessed as having bat potential were subject to further endoscope surveys on the 22nd of August 2019 by a licensed bat ecologist. The assessment was made in clear, dry weather conditions. The survey was carried out using a Ridgid Seesnake micro CA-350 endoscope. The structures were inspected for any bats present or evidence of bats, including droppings, staining, audible squeaking, feeding remains etc.

Dormouse Survey

- 2.1.5 The hedgerows of the site were subject to a nest-tube survey for dormouse in accordance with the survey advice set out by Bright *et al* (2006). Thirty-six tubes were set out in suitable, accessible locations on 22 May 2019. The tubes were then subsequently revisited and checked at intervals between the months of June and October, and any evidence of dormouse was recorded. Any hazelnuts which were found were also checked for evidence of handling by this species.

Reptile and Amphibian Refugia Survey

- 2.1.6 The site was surveyed for reptiles using the methodology recommended by Froglife (1999). A total of 33 60x60cm sections of roofing felt, used as artificial refugia, were placed out along the hedge bases and other areas around the site in locations considered suitable for the detection of terrestrial activity by common reptiles and amphibians. The refugia were initially set out on 22nd May 2019 and left in place for approximately 2 weeks to 'bed in' and were then subsequently checked on 7 occasions up until 22 October 2019. Any evidence of reptile and/or amphibian species was recorded in addition to other species such as voles which were also found during the survey.

Previous Surveys

- 2.1.7 The disused poultry units, have been subject to previous surveys for bats, on three separate occasions, for which full accounts and descriptions can be found within the following reports: DCE (2015 & 2017) and Acer (2013).

2.2 Survey Constraints

- 2.2.1 The optimal time period to carry out an Extended Phase 1/ Preliminary Ecological Appraisal is between April and August. Although the initial survey was carried out at a sub-optimal time of year, the assessment of the site was not thought to be compromised due to the limited quality and extent of vegetated habitats found within the site boundary. Furthermore, multiple visits to the site have been made throughout the year, with no further botanical interests arising over the course of the survey period.

2.3 **Data Trawl**

- 2.3.1 In addition to original survey, a data trawl was carried out with the South East Wales Biodiversity Record Centre (SEWBrEC) in order to obtain access to any existing ecological information or records from the site. SEWBrEC is the main repository for biodiversity and wildlife records in the south-east Wales region. Relevant records are referred to in the descriptive text.

3.0 SURVEY RESULTS

3.1 Habitats & Vegetation

- 3.1.1 The results of the vegetation and habitats survey are shown at Plan 2 of this report and are described briefly below. Lists of the species recorded are given at Appendix 1, and representative photographs are included at the end of the report.

Notable Plants

- 3.1.2 No notable species were recorded during the present survey.

Notable Habitats

- 3.1.3 The site contains hedgerows which is a priority habitat listed as being of biodiversity conservation importance under Section 7 of the Environment (Wales) Act 2016.

Hedgerow 1 (H1)

- 3.1.3 Forming the easternmost boundary lies a hedgerow, with the following woody species forming the structural component: hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), and blackthorn (*Prunus spinosa*). Two mature trees were situated along the hedgerow, which included an oak (*Quercus* sp.) and a large leaved lime (*Tilia platyphyllos*). Intermingled among the foliage, vigorous bramble (*Rubus fruticosus* agg.) and ivy (*Hedera helix*) growth is frequent. Species among the ground flora includes cleavers (*Galium aparine*), common nettle (*Urtica dioica*), cuckoopint (*Arum maculatum*), lesser celandine (*Ficaria verna*), and herb-Robert (*Geranium robertianum*).

Hedgerow 2 (H2)

- 3.1.4 Forming the northern and western boundary lies a ‘gappy’ hedgerow, with the following woody species forming the structural component: hazel, holly (*Ilex aquifolium*), elder (*Sambucus nigra*), hawthorn, blackthorn, crab apple (*Malus sylvestris*), bramble and ivy. Ground flora species included: lesser celandine, cuckoopint, common field speedwell (*Veronica persica*) and cleavers, with occasional willow herb (*Epilobium* sp.).

Brash Piles

- 3.1.5 Adjacent to hedgerow 2 lie two prominent brash piles (Target Note 2).

Tree Line

- 3.1.6 Situated adjacent to Hedgerow 2, along the western site boundary, lies a tree line composed of the following species: sycamore (*Acer pseudo-platanus*), Norway maple (*Acer platanoides*), silver maple (*Acer saccharinum*), and London plane (*Platanus x acerifolia*). The ground flora was relatively species poor, with occasional forbs being found, which included: lesser celandine, cuckoopint, willow herb, nettle, and cleavers.

Semi-improved Neutral Grassland

- 3.1.7 Situated along the southern site boundary, lies an area of semi-improved neutral grassland, with the following graminoids within the community: red fescue (*Festuca rubra*), sheep's fescue (*Festuca ovina*), false-oat grass (*Arrhenatherum elatius*), crested dog's tail (*Cynosurus cristatus*), perennial rye grass (*Lolium perenne*), common bent (*Agrostis capillaris*) and creeping bent (*Agrostis stolonifera*). Forb diversity was low, with only occasional ruderal species found within the sward, which included spear thistle (*Cirsium vulgare*) and willow herb.

Tall Ruderal Vegetation

- 3.1.8 The most dominant vegetation type present on site was tall ruderal vegetation, with extensive areas being found throughout the site. Species members of this community included: willow herb, rose-bay willow herb (*Chamerion angustifolium*), broad-leaved dock (*Rumex obtusifolius*), spear thistle, and creeping thistle (*Cirsium arvense*).

Ephemeral / Short Perennial

- 3.1.9 Situated along the eastern boundary, adjacent to hedgerow 1, was an area of ephemeral / short perennial vegetation predominated by lesser celandine. Other species, which were occasionally found, included: cuckoopint, hogweed (*Heracleum sphondylium*), creeping cinquefoil (*Potentilla repens*), creeping buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), dove's-foot crane's bill (*Geranium molle*), dandelion (*Taraxacum officinalis* agg.) and ribwort plantain (*Plantago lanceolata*). Situated in the south-east of the site lies a depression which lies adjacent to a small slope; this has facilitated the collection of water into ephemeral pools, most likely formed over a period of inclement weather. These are not likely to persist for long periods of time.

Bare Ground

- 3.1.10 Within the northern section of the site, immediately adjacent to hedgerow 1, lies an area of bare ground composed of bare earth. This area is relatively species poor, with occasional ruderal-colonisers patchily distributed across the surface of the substrate. A prominent pile of ballast stone is situated here, with an average stone size of 5cm; no obvious holes or gaps were observed within this pile, rendering the structure unsuitable for animals seeking concealment / refuge.

Hardstanding

- 3.1.11 Situated within the centremost portion of the site, and around the periphery of the poultry units, lie areas of hardstanding in the form of gravel and concrete.

Disused Poultry Units

- 3.1.12 Situated within the centre of the site lie two large disused poultry units. Previous surveys by DCE (2017) found that the structures supported roosting bats and nesting birds, full accounts of which can be found within the cited document.

3.2 **Fauna**

Bats

- 3.2.1 All species of bat and their roosting sites are protected under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the 'Habitats Directive'), implemented in the UK via the Conservation of Habitats & Species Regulations 2017 (the 'Habitats Regulations'). The roosting places used by bats are also protected against unauthorised disturbance or obstruction under the amended Wildlife & Countryside Act 1981. Several bat species, including common and soprano pipistrelle, are listed as priorities for conservation in Wales under Section 7 of the Environment (Wales) Act 2016 (see WBP 2016b).
- 3.2.2 The closest record of a bat roost, pertaining to brown long-eared bats, is approximately 150m away. Many other roosts, belonging to different species, have been recorded within the local area. The closest roost records, for each species, are as follows (all distances are approximate): Common pipistrelle – 460m; Daubenton's bat – 530m; greater horseshoe bat – 910m; lesser horseshoe bat – 590m; soprano pipistrelle – 800m; and whiskered bat – 780m. Many records exist within the local area for various species commuting and foraging, the nearest of which include: Brown long-eared bat – 1120m; common pipistrelle – 480m; Daubenton's bat – 600m; greater horseshoe bat – 1110m; lesser horseshoe bat – 600m; Nathusius' pipistrelle – 1060m; noctule – 460m; serotine – 1110m; soprano pipistrelle – 600m; and whiskered/Brandt's bat – 690m (SEWBRcC Ref: 0189-633).
- 3.2.3 A mature tree line, containing trees which are afforded protection from a Tree Protection Order (Order Ref: TPO MCC 60/G1), is situated along the western site boundary. Two other mature trees (a large leaved lime and oak), are situated among Hedgerow 1, along the eastern boundary. These trees were subject to a ground-based assessment for potential roosting features (PRFs) for bats.
- 3.2.4 The trees on site had been subject to a previous tree survey in November 2018 and each were assigned individual identification numbers, which are referred to in this report for cross referencing purposes.

Endoscope Survey Results

- 3.2.5 The results of the further endoscope surveys of trees preliminarily assessed as exhibiting bat roosting potential is found in Table 1 below. Locations of trees with bat roosting potential (Target Note 1).

Tree	Bat roosting potential	Recommendations
1 Silver Maple	50cm deep cavity in stem from tear out with old bird nesting material and woodlice present, with two entrances High potential	This tree is proposed for felling for health and safety reasons. No evidence of bat usage has been found to date. Therefore, it is recommended that a pre-felling check of the suitable feature is made immediately prior to felling procedures by a bat licenced ecologist. If any evidence of bats is found, tree works must cease and a licence must be obtained from NRW before works can recommence. It is additionally recommended that the tree is soft felled and that a replacement feature such as bat and bird boxes are installed on one of the retained trees on site.
22 Silver Maple	Small knot holes within tree canopy, too high to inspect further. Moderate potential	Current development plans indicate that this tree is not currently proposed for removal / maintenance. If tree is proposed for felling / tree works in the future, the specimen would need to be subject to further survey.
29 London Plane	Shallow knot hole that goes back approximately 10cm. Feature is dirty with woodlice present Low potential	Current development plans indicate that this tree is not currently proposed for removal / maintenance. If tree is proposed for felling / tree works in the future, the specimen would need to be subject to further survey.
32 London Plane	PRF1 – Tear out of stem with a muddy base within the cavity. Some small crevices filled with slugs Low potential PRF2 – Transverse snap approximately 1m in	Current development plans indicate that this tree is not currently proposed for removal / maintenance. If tree is proposed for felling / tree works in the future, the specimen would need to be subject to further survey.

	length. Spiders and old nesting material present.	
	High potential	

3.2.6 Previous building inspections of the disused poultry units, searching for evidence of bats, have been conducted on three separate occasions prior to the current survey; full accounts of which can be found within the following reports by DCE (2015 & 2017), and Acer (2013).

3.2.7 DCE (2017) found evidence of roosting bats, pertaining to three separate species, comprising soprano pipistrelle, brown long-eared bat and Brandt's bat. Previous surveys by DCE (2015) and Acer (2013) found evidence of roosting by common pipistrelle, lesser horseshoe and/or greater horseshoe bat. It was concluded that the current roosting status of the building comprised day-time roosting by bats during the summer active period. No evidence was found to indicate the poultry units supported nursery roosts, or large numbers of bats. The poultry units did, however, support in the recent past, lesser horseshoe and/or greater horseshoe bats (Acer 2013) night-feeding perches. Evidence was also found to indicate the structures were used as temporary night-perches and feeding roosts for brown long-eared bats.

Dormouse

3.2.8 Dormouse is also a 'European protected species' afforded legal protection which is similar to that of bats (see above). It is also a Section 7 listed species.

3.2.9 Many records exist for dormouse within 2km, with a total of six existing within 1km, the nearest of which is 885m away (SEWBRc Ref: 0189-633). Habitat on site is suboptimal for dormouse; however, the hedgerows are dominated by hazel - a favoured food-source – while a broad range of broad-leaved species are present within the hedgerows, allowing for a succession of transitional food sources throughout the active season. A mature tree line, with many potential holes providing concealment opportunities for nest building, is present along the western boundary. However, the hedgerows have occasional small breaches, and are not particularly thick nor wide. The site is not completely contiguous with other suitable habitat close by, with connectivity only being offered by meagre, defunct and relatively distant hedgerows in adjacent pasturelands to the north-east, and residential areas to the south. In conclusion, habitat found on site is considered to be suitable, although sub-optimal, for dormouse.

Nest-tube Survey Results

3.2.10 The nest-tube survey results are set out in Table 2 below. No dormice were found. No hazelnuts with evidence of dormouse handling were observed during any of the survey visits.

Table 2: Dormouse survey results

Survey Date	Results
06/06/2019	No mice or nests/nuts found
26/06/2019	No mice or nests/nuts found
25/07/2019	No mice or nests/nuts found
22/08/2019	No mice or nests/nuts found
17/09/2019	No mice or nests/nuts found
22/10/2019	No mice or nests/nuts found

Otter

- 3.2.11 Otter is also a ‘European protected species’ afforded legal protection which is similar to that of bats (see above). It is also a Section 7 listed species.
- 3.2.12 Otter are present in many of the main river systems in Wales, having now recovered much of its former range following its sharp decline in the 1970s and 1980s, although numbers often remain at lower levels than was previously the case.
- 3.2.13 The closest record of an otter is situated approximately 320m away, where spraint was found by a garden pond (SEWBRc Ref: 0189-633). The site does not lie immediately adjacent to a watercourse, the nearest being the River Monnow situated 0.5km away. Pastureland, residential areas and roads form significant barriers between the site and this watercourse; therefore, it is considered unlikely that otter utilise the site.

Badger

- 3.2.14 Badger is fully protected in the UK under the terms of the Protection of Badgers Act 1992. Protection applies both to the animal itself, which may not be intentionally killed, injured or captured, and to its nesting burrows (setts), which may not be intentionally destroyed, damaged or disturbed except under certain specified and/or licensed conditions. Current interpretation of the Act also infers a degree of protection to areas which are of key significance to foraging badgers.
- 3.2.15 There are no records of badger within 1km (SEWBRc Ref: 0189-633), and no evidence of badger was found during the initial survey visit. A badger latrine (Target Note 3), and signs of foraging by this species, was first observed on the 22nd August 2019 along the eastern site boundary. No signs of sett construction were seen, however. It is most likely that badger within the local vicinity adventitiously commute to the site to forage on hazelnuts, which are present in high abundance. The habitats found on site, i.e. the hedgerows, grassland, and ruderal vegetation provide some commuting and foraging resource for badger. No evidence of sett building was observed on any site visit and it is not considered likely badger setts would occur on site.

Other Mammals

- 3.2.16 Eight records returned for hedgehog within 2km, the nearest of which is situated approximately 540m away (SEWBRc Ref: 0189-633). It is considered likely that this species may use the site; the hedgerows and prominent brash piles (Target Note 2) provide ideal concealment opportunities, while the semi-improved neutral grassland and tall ruderal vegetation provide ideal foraging opportunities.
- 3.2.17 A single historical record for water vole returned from the data trawl, approximately 1.4km away (SEWBRc Ref: 0189-633). As the site does not lie immediately adjacent to, or contain, suitable densely vegetated watercourse habitat, the likelihood of this species being present within the site is considered negligible.
- 3.2.18 Two records returned for brown hare, the nearest of which is situated 1422m away (SEWBRc Ref: 0189-633). The habitats found within the site boundary are not suitable to support brown hare, as the species prefers an open-mosaic of farmland and woodland habitats. Suitable habitat is found in the wider environment, north-east of the site; therefore, it is possible that brown hare may venture on to the site occasionally.
- 3.2.19 It is likely that a range of common mammal species will occur. These could include, for example, resident synanthropic species such as house mouse and brown rat, as well as open country species such as bank vole, or mole etc, and casual visitors such as fox.

Birds

- 3.2.20 Nearly all species of bird are protected as individuals under the amended Wildlife & Countryside Act 1981, and this protection extends to their nests, eggs and young. A number of especially rare species listed on Schedule 1 of the Act are also subject to enhanced protection against disturbance whilst nesting.
- 3.2.21 During the Phase 1 habitat survey, ten bird species were recorded: Wood pigeon, blackbird, wren, carrion crow, robin, house sparrow, blue tit, dunnock, great tit and magpie, many of which may utilise the hedgerows and trees for nesting.
- 3.2.22 The following species of conservation concern, which are listed under schedule 1 Part 1 (WCA1.1), of the Wildlife and Countryside Act 1981, returned records within 2km of the site; their distances away are also given respectively: Barn owl – 894m; fieldfare – 602m; goshawk – 602m; hobby – 602m; peregrine – 602m; red kite – 602m and redwing – 602m (SEWBRc Ref: 0189-633). It is considered unlikely that any of the species listed above nest within the site.
- 3.2.23 Other species of conservation concern, which are listed under Section 7 of the Environment Act (Wales), returned records within 2km of the site, and are as follows: black headed gull – 602m; bullfinch – 598m; dunnock – 602m; house sparrow – 545m; kestrel – 602; lapwing – 600m; lesser redpoll – 602m; linnet – 830m; marsh tit - 602; reed bunting – 557m; song thrush – 545m; starling – 602m; tree sparrow – 600m; willow tit – 602m; and yellowhammer – 598m (SEWBRc Ref: 0189-633). Species such as black-headed gull, lapwing, and reed bunting are highly unlikely to nest within the site. It is possible that bullfinch, dunnock, song thrush, house and tree sparrow, may utilise the hedgerows as nesting sites.

- 3.2.24 Previous surveys by DCE (2015) have confirmed that the poultry units are used by nesting birds including swallow, blue tit, great tit and possibly blackbird.

Reptiles

- 3.2.25 Four native reptile species occur in South Wales, comprising common lizard, slow-worm, adder and grass snake. These four species are all afforded so-called 'partial protection' under the amended Wildlife & Countryside Act 1981, which prohibits the deliberate killing or injury of individuals. However, there is no direct protection extended to the habitats which support these species. All four common reptiles are listed as 'Section 7' species in Wales.
- 3.2.26 Records for slow-worm and grass snake returned from the data trawl within 1km (SEWBRc Ref: 0189-633) of the site. Reptiles are notoriously difficult to detect in the field as their life habits are elusive. It is considered likely that small numbers of common reptiles, such as slow-worm, may exist within the site. The grassland, ruderal vegetation, brash piles (Target Note 2) and hedgerows, provide ideal foraging and concealment opportunities.
- 3.2.27 Previous surveys conducted by DCE (2015), of a site immediately adjacent to the southern boundary, which involved an element of overlap between the two sites, were conducted specifically searching for the presence of reptiles. Results indicated that a small population of both slow-worm and grass snake were present. It was decided that the current site was a suitable receptor area for any arising reptiles found during subsequent clearance works of the adjacent site; a single slow-worm was uncovered during the clearance works, and thus translocated to the current site.

Refugia Survey Results

- 3.2.28 The only reptile species found during the refugia surveys was slow-worm. This species was only seen on one occasion over the entire survey period. Juvenile slow-worm were observed underneath a refugium along the eastern boundary. It is considered possible that a low population of slow-worm is present within the site. The presence of juveniles may indicate that this species breeds within the site in low numbers. Results of the reptile refugia survey can be found in Table 3 below.

Table 3: Reptile Refugia Results

Life-stage / Sex	6th Jun	26th Jun	25th Jul	22nd Aug	13th Sep	17th Sep	22nd Oct
Adult	-	-	-	-	-	-	-
Juvenile	-	2 x SW	-	-	-	-	-
Total	-	2 x SW	-	-	-	-	-
Other Species	-	-	-	-	-	-	1 x V 1 x CT
Start time of survey	14:00	11:00	8:00	13:00	13:00	12:00	13:00

Weather and temp	18°, Dry Sunny Calm.	16°, Dry. Cloudy. Calm.	19°, Dry. Sunny Calm	19°, Dry. Cloudy. Calm.	17°, Dry. Sunny. Calm	16°, Dry. Partly cloudy. Calm.	15°, Dry. Sunny. Calm.
Key	SW – Slow-worm CT – Common toad V – Vole						

Amphibians

- 3.2.29 Five native amphibian species occur in South Wales, comprising common frog, common toad, smooth newt, palmate newt and great crested newt. The latter species is a nationally rare and declining afforded full protection under both UK and European legislation (see under bats, above), which also extends to the habitats which support it. The other four species are not afforded any direct statutory protection, other than with respect to trade, but common toad is listed as a ‘Section 7 species’ in Wales.
- 3.2.30 Records for common frog, common toad, and smooth newt returned within 1km of the site (SEWBRcC Ref: 0189-633). No substantial water bodies exist within, or directly adjacent to the site boundary; however, small ephemeral pools were situated in the east of the site. Small numbers of common amphibians may use the hedgerows and brash piles (See Plan 2, Target Note 2) for foraging and taking refuge. There are several records for the rare and specially protected great crested newt (GCN), the nearest being approximately 320m away. It is possible that terrestrial GCN utilise the site habitats, however, no individuals were found during the current surveys. The hedgerows and brash piles (Target Note 2) provide ideal foraging and concealment opportunities, while the semi-improved neutral grassland, tall ruderal vegetation and short perennial / ephemeral vegetation may provide ideal foraging opportunities. The closest nearby pond is situated approximately 260m south-east of the site. A caravan park, and a tributary of the River Monmouth form barriers between this pond and the site. Two smaller ponds are situated to the north-east, approximately 350m away, situated in the grounds of a territorial army centre. With the presence of suitable terrestrial habitat on site, combined with close records nearby, it is possible, albeit unlikely, that GCN may occasionally venture on to the site during their terrestrial phase.
- 3.2.31 Previous refugium surveys conducted by DCE (2015), of an immediately adjacent site, specifically targeting reptiles, had the potential to detect the presence of GCN during their terrestrial phase; however, no evidence was found during these surveys.

Invertebrates

- 3.2.32 Upwards of 30,000 species of terrestrial and freshwater invertebrates are recorded in Britain, including some 27,000 insect species, occurring in every available habitat. About 40 invertebrate species are afforded full statutory protection in the UK under either European or British legislation, and many other species are accorded varying levels of conservation importance.
- 3.2.33 The data search returned historical records of invertebrates within 1km of the site for high brown fritillary (1932), large tortoiseshell (1890) and pearl bordered fritillary

(1889-1890) (SEWBRcC Ref: 0189-633). A recent record also returned for long horned bee approximately 600m away. The site is assessed as being likely to support a range of common and ubiquitous invertebrate species.

4.0 ECOLOGICAL EVALUATION

4.1 There is currently no nationally accepted system for the categorising of sites or features of biodiversity significance below the level of national value, criteria for which are set out by the former Nature Conservancy Council (1989, as amended). However, guidance for the identification of non-statutory sites of county significance (ie SINC's) is available in this instance (WBP 2008).

4.2 For the purposes of this study the habitats and features of the site have therefore been provisionally evaluated and graded in accordance with the categories set out in Appendix 2. The ecological assessment of the site is shown at Plan 3.

International, National, County Value & District Value

4.3 No parts of the site are considered to fall into any of these categories.

High Local Value

4.4 Hedgerows are classified as priority habitat for Wales under Section 7 of the Environment Wales Act (2016) and therefore are of at least High Local Value to wildlife.

Local Value

4.5 The disused poultry units have been described and assessed on three previous occasions (DCE 2017; DCE 2015; Acer 2013) as being of Local Value to wildlife, full accounts of which can be found within the cited reports. The tree line, semi-improved neutral grassland, tall ruderal vegetation, and short perennial / ephemeral vegetation are considered to be of Local Value to wildlife and are thought to support a range of common and widespread species, such as common reptiles and amphibians, foraging birds, commuting, foraging and potentially roosting bats, common invertebrates, and hedgehog. Some of the species are known to be of conservation importance but only in the local context, and none are of notable significance or exceptional rarity.

Negligible Value

4.6 The areas of bare ground and hardstanding are considered to be of Negligible Value to wildlife.

5.0 ASSESSMENT OF DEVELOPMENT IMPACTS

- 5.1 Asbri Planning Ltd. are in the planning phase of assessing the suitability of the site for the conversion of the two disused poultry units into two B1 business units and associated infrastructure. The proposed development intends on retaining the tree line and hedgerows, while the semi-improved neutral grassland, tall ruderal vegetation, and short perennial / ephemeral vegetation are likely to be cleared.
- 5.2 The present survey has evaluated the hedgerows as being of High Local Value to wildlife, whilst the tree line, semi-improved neutral grassland, tall ruderal vegetation and short perennial / ephemeral vegetation as being of Local Value to wildlife.
- 5.3 The use of the site by several protected species is confirmed: Bats are known to use the disused poultry sheds, slow-worm and common toad occur on site and evidence of badger using the site has been confirmed through further survey. Targeted surveys have found no evidence of GCN using the site and dormouse surveys have confirmed the likely absence of the species from the site. The trees on site support features likely to support roosting and foraging bats and habitats in the site likely support other protected species such as nesting birds and hedgehog.
- 5.4 The site is located approximately 900m from the River Wye SAC & SSSI, and only 300m from a tributary of this river - The River Monnow. A drainage ditch in the field adjacent to the eastern boundary drains directly into the River Monnow. The site is separated from the field by a hedgerow and the physical barrier of Watery Lane. It is considered unlikely that development within the site will have any significant impacts on this designated site; however, mitigation measures are recommended to ensure there is no impact on adjacent sites, including the SAC & SSSI, via the implementation of pollution control measures during construction.
- 5.6 On the basis of the evidence currently available, it is considered that the development of the site would not be unacceptably constrained by biodiversity issues, provided that adequate mitigation measures are put in place.

6.0 RECOMMENDATIONS

6.1 Statutory Obligations

6.1.1 The following are mandatory requirements under current legislation:

1. In the event that any specially protected species, such as bats, dormouse or GCN are discovered anywhere on the site at any point prior to or during clearance or construction, all work in the immediate area must cease immediately and appropriate expert advice sought.
2. Clearance and construction must not cause disturbance or harm to any birds which are nesting on the site at the time. In the event that any nesting birds are discovered immediately prior to or during any works, all work in the immediate area must cease immediately and appropriate expert advice sought.
3. Clearance and construction must be preceded by appropriate and adequate measures to minimise the risk that common reptiles are killed or injured.

6.1.2 In 1-2 above, the 'immediate area' should include any occupied tree/ shrub in its entirety, and any other habitats for an area of at least 5m radius around the find-site. The affected area should be clearly demarcated on the ground (e.g. by means of striped bunting) and made off-limits to all site personnel until inspected by an appointed expert. Appropriate measures to rectify the situation in accordance with statutory obligations and responsibilities should be determined at the time by the appointed expert, and may include consultations with the statutory agencies and the seeking of derogation licences etc.

6.1.3 Current proposals suggest only one tree is to be felled for health and safety reasons (Tree 1, a silver maple). It is recommended that a close inspection endoscope survey of Tree 1 is carried out immediately prior to any felling procedures by an appropriately licensed and qualified bat ecologist. Following confirmation that no bats or evidence of bats is present, by the ecologist, the tree is to be soft felled and bat and bird box provisions to be installed on retained trees within the site to compensate the loss of the feature. In the event that roosting bats are found to be present in trees at any time it will be necessary to obtain a derogation licence from Natural Resources Wales (NRW) and to formulate an appropriate plan of mitigation to their satisfaction before proceeding with any further works. Should any further tree works be required to any other trees of the site further surveys will likely be required prior to any works.

6.1.4 Clearance works affecting the above-ground parts of trees and shrubs, including bramble scrub, should avoid the main bird-nesting season which runs approximately from March to August inclusive. If works must be carried out during this period, they must be preceded by a nesting bird survey. If nesting birds are found to be present, the nest and immediate area, as described above, should be protected until the young have fledged. This restriction also applies to any other habitats which are found to support nesting birds, including any ground-nesting species.

- 6.1.5 Where the clearance of potential bird-nesting habitats is projected to occur at some unknown point in the future, the above-ground vegetation should ideally be cut down (e.g. coppiced) to approximately 200mm height over the winter period in order to render it unattractive to nesting birds, and then maintained in this condition by regular re-cutting until the start of site clearance operations.
- 6.1.6 Recommendations with regards to the disused poultry units have been made during a previous assessment of the site, full details of which can be found within the following report (DCE 2017).

Badger

- 6.1.7 Signs of foraging activity, and a latrine (Target Note 3), were observed during a survey visit. A preconstruction survey within 48 hours of any works commencing will be carried out to check, albeit unlikely, if badger have taken up residence within the site. A precautionary approach should be followed during any clearance works around the site periphery. In the event that any evidence of badger setts is found, all vegetation clearance work in the vicinity must cease immediately and further advice sought as a matter of urgency.
- 6.1.8 It is recommended that no night working take place and that any excavations are covered or suitably fenced off at night to prevent badger and other wildlife from falling and becoming trapped.

Common Reptiles & GCN

- 6.1.9 No GCN were found during the recent refugia survey, although it remains possible, albeit unlikely, that this species is present terrestrially in very low numbers. In the event that GCN are found to be present at any time it will be necessary to obtain a derogation licence from Natural Resources Wales (NRW) and to formulate an appropriate plan of mitigation to their satisfaction before proceeding with any further works.
- 6.1.10 Small numbers of slow-worm were observed during the refugia surveys on only one occasion. Current NRW guidance with respect to reptiles is attached at Appendix 3, and an appropriate reptile mitigation strategy should be agreed with the Local Authority ecologist prior to site clearance, based on this guidance. Mitigation for common reptiles should concentrate primarily on minimising the potential for causing the death and injury of individuals during any site clearance and construction operations, which is a statutory requirement.
- 6.1.11 In this case it is considered likely that this may be addressed by ‘species deterrence’ measures immediately prior to site clearance, with some initial precautionary supervision by an ecologist during any vegetation clearance or tree-root removal operations. An appropriate receptor site will need to be found to receive any reptiles which may be removed from the site.
- 6.1.12 It should be noted that clearance operations for reptiles and amphibians are seasonally constrained, and cannot be carried out during the hibernation period which extends approximately from November to February inclusive. Work outside of this period considerably reduces the probability of vulnerable torpid and/or immobile hibernating

individuals being encountered and potentially harmed.

6.2 Non-Statutory Recommendations

- 6.2.1 Contractors should be provided with a 'toolbox talk' at the outset of site clearance and construction works setting out the known and possible habitat and species constraints, and the mitigation measures which are required. The toolbox talk should also set out procedures to be followed in the event that there are unexpected encounters with protected species etc. All contractors carrying out dense scrub or tree clearance works (if appropriate), should be warned of the possible presence of nesting birds, common reptiles, etc and informed of their protected status. It should be clearly understood that in the event of any being found during works, all works should cease in the affected area until appropriate expert advice has been sought.
- 6.2.2 The trees within the site boundary should be treated in accordance with British Standard BS5837 (2012) *Guidance for the Treatment of Trees in Relation to Construction*.
- 6.2.3 Any retained habitats should be securely fenced off with appropriate temporary fencing (eg 'Heras' fencing) at the start of construction work to prevent access and incidental damage by site vehicles, equipment and personnel.
- 6.2.4 It is recommended that the hedgerows bordering the site are retained as they are listed as being of biodiversity conservation importance under Section 7 of the Environment (Wales) Act 2016. If this is not possible, these will need to be replaced and/or compensated for on site, or at an appropriate off-site locality.
- 6.2.5 Building compounds and storage areas should be suitably fenced and bunded where they stand adjacent to semi-natural habitats. Similarly, no equipment, machinery or materials should be brought into the retained areas, or stored under retained tree canopies, or ground levels altered within these clearly demarcated zones of protection.
- 6.2.6 Careful consideration should be given to the use of lighting within the developed site, as this can adversely affect activity by a variety of fauna, particularly foraging bats, nesting birds and invertebrates. See BCT (2018) for further guidance.
- 6.2.7 It is recommended that the new landscaping incorporates native species which are indigenous to the region, and from stock which is of local (or at least UK) provenance and also contain a good range of wildlife friendly plants (see Appendix 4 for example species).
- 6.2.8 Consideration should be given to the erection of bat roosting boxes in suitable locations around the site as well as bird nesting boxes – these could be erected on trees and/ or on new dwellings built within the site. These should be sited in such a manner that predators such as cats cannot reach them and be at least 4m (preferably 5m) above ground level. The entrances to bat boxes should not be illuminated at night. Bat boxes should ideally be of 'woodcrete' construction (such as those manufactured by Schwegler Ltd), since these are much more robust and longer-lived than traditional wooden boxes and require less after-maintenance. Further advice is given at Appendix 5.

- 6.2.9 A 5-year Biodiversity Management Plan should also ideally be drawn up to guide the long-term management of any retained semi natural habitats, within the ownership boundary, and its implementation funded by the developer.
- 6.2.10 A pollution prevention scheme should be produced for the site to ensure there is no impact on adjacent sites, including the SAC & SSSI, via the implementation of pollution control measures during construction.
- 6.2.11 A Wildlife Protection Plan (WPP) should be drawn up for the site clearance and construction stages, setting out detailed measures to ensure that the identified interests, potential interests and statutory obligations etc are appropriately treated, and identify the individuals who will be responsible for ensuring that the ecological mitigation requirements are met. The WPP should be agreed in advance by the Local Authority Ecologist, with responsibility for its implementation assigned to an appropriately qualified and/or experienced member of the development team who would act as an 'Ecological Clerk of Works'.
- 6.2.12 The services of an appropriately qualified and licensed ecologist should be available on an 'on-call' basis throughout the development in order to deal promptly with any protected species or other ecological matters which may arise during the clearance and construction works.

7.0 REFERENCES

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Wales Biodiversity Partnership (WBP 2016b) *Section 7: List of the Living Organisms of Principal Importance for the Purpose of Maintaining and Enhancing Biodiversity in Wales (Interim)*. Wales Biodiversity Partnership/ Welsh Government.

APPENDIX 1: SPECIES RECORDED

All species recorded by DCE 2019, unless otherwise indicated

		W	NG	CG	AG	MG	PIL
<i>Acer platanoides</i>	Norway maple						
<i>Acer pseudoplatanus</i>	sycamore						
<i>Acer saccharinum</i>	silver maple						
<i>Corylus avellana</i>	hazel						
<i>Crataegus monogyna</i>	hawthorn						
<i>Ilex aquifolium</i>	holly						
<i>Malus sylvestris</i>	crab apple	W					
<i>Platanus x acerifolia</i>	London plane						
<i>Prunus spinosa</i>	blackthorn						
<i>Quercus</i> sp.	oak						
<i>Sambucus nigra</i>	elder						
<i>Agrostis capillaris</i>	common bent						
<i>Agrostis stolonifera</i>	creeping bent						
<i>Arrhenatherum elatius</i>	false oat-grass						
<i>Arum maculatum</i>	cuckoopint						
<i>Chamerion angustifolium</i>	rosebay willowherb						
<i>Cirsium arvense</i>	creeping thistle						
<i>Cirsium vulgare</i>	spear thistle						
<i>Cynosurus cristatus</i>	crested dog's-tail						
<i>Epilobium</i> sp	willowherb species						
<i>Festuca ovina</i>	sheep's fescue			CG	AG		PIL
<i>Festuca rubra</i>	red fescue						
<i>Ficaria verna</i>	lesser celandine						
<i>Galium aparine</i>	cleavers						
<i>Geranium robertianum</i>	herb Robert						
<i>Hedera helix</i>	ivy						
<i>Heracleum sphondylium</i>	hogweed						
<i>Lolium perenne</i>	perennial rye-grass						
<i>Plantago lanceolata</i>	ribwort plantain						
<i>Potentilla reptans</i>	creeping cinquefoil						
<i>Ranunculus repens</i>	creeping buttercup						
<i>Rubus fruticosus</i> agg.	bramble						
<i>Rumex obtusifolius</i>	broad-leaved dock						
<i>Taraxacum officinalis</i> agg	dandelion						
<i>Trifolium repens</i>	white clover						
<i>Urtica dioica</i>	common nettle						
<i>Veronica persica</i>	common field speedwell						
	Total	1	0	1	1	0	1

Key

Indicator Species

W - Woodland, NG - Neutral Grassland, CG - Calcareous Grassland, AG - Acid Grassland, MG - Marshy Grassland, PIL - Post Industrial Landscape

APPENDIX 2: DEFINITIONS OF SITE VALUE

International Value

Site carrying an internationally recognised designation such as Ramsar Site, World Heritage Site, Special Protection Area, Special Area of Conservation, Biosphere Reserve or Biogenetic Reserve, or:

Habitats: site supporting nationally significant areas of habitats of defined international community interest.

Species: site supporting nationally significant populations of species of defined international community interest.

National Value

Site meeting published Site of Special Scientific Interest (SSSI) designation criteria (NCC 1989), whether so designated or not.

Habitats: site supporting nationally significant areas of habitats of defined national rarity or interest.

Species: site supporting nationally significant populations or communities of UK Red Data Book, Nationally Notable or protected species (other than badger).

County Value

Site identified as a County Wildlife Site (CWS), Site of Importance to Nature Conservation (SINC) or similar at the county level (ie greater than district, borough or city level); meeting published CWS designation criteria (where these exist), but falling short of SSSI designation criteria, whether designated as a CWS or not.

Habitats: site supporting good examples of nationally threatened habitats, or extensive areas of habitats which are rare or unique in the county.

Species: site supporting large or strong populations or communities of nationally rare or protected species (other than badger), or of species which are rare in the county and uncommon nationally.

District Value

Sites failing to meet County Value criteria, but nevertheless supporting habitats, species or communities which appreciably enrich the ecological resource of the county, especially by virtue of their size or extent.

Habitats: sites supporting habitats uncommon in the county, small but unmodified fragments of nationally threatened habitats, or comprising extensive areas or systems of semi-natural habitats.

Species: sites supporting nationally rare species, or strong populations or communities of regionally uncommon species, which would not otherwise be present (ie they are critically dependant on the site characteristics).

Local Value

Habitats which fail to meet District Value criteria, but which appreciably enrich the ecological resource of the locality. This category can be further divided into:

- **High Local Value:** just failing to meet District Value Criteria; supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area.
- **Local Value:** sites which are of ecological value only in the context of their immediate surroundings. Rare or uncommon species may occur but are not restricted to the site or critically dependant upon it for their survival in the area.

Sites failing to meet any of the above can be considered as being of 'Negligible' ecological value.

APPENDIX 3: REPTILE MITIGATION MEASURES – NRW GUIDANCE (CCW Draft Feb 2005)

For any development site which supports reptiles, or which contains habitats with the potential to support reptiles, NRW recommends detailed survey at an early stage. Where suitable survey information is unavailable, however, or where there is insufficient time to carry out the necessary surveys, it should be assumed that any habitats on the site which are suitable for reptiles do indeed support reptiles, and mitigate accordingly.

Legislation

The four most common British reptiles (comprising grass snake, adder, slow-worm and common lizard) are afforded so-called ‘partial protection’ under the Wildlife and Countryside Act 1981 (as amended). This protects individuals of all species from ‘intentional’ or ‘reckless’ killing and injury, but does not confer any direct protection to the habitats which support them.

Where it can reasonably be predicted that reptiles could potentially be killed or injured by activities such as site clearance, earthworks or construction operations etc, to carry out such activities in the absence of appropriate mitigation could legally constitute intentional or reckless killing or injuring, and could result in prosecution.

Where reptiles (other than sand lizard, smooth snake and turtles, all of which are subject to additional restrictions under the law) are present, or potentially present, on a development site, the developer should consider the need for mitigation at an early stage in the development programme. The presence of reptiles on a development site will not necessarily prevent the development from taking place, but it means that ‘reasonable’ mitigation measures must be put in place to prevent, as far as possible, the killing or injuring of any reptiles.

It is not necessary to obtain a licence to carry out works which affect reptiles, but it is always advisable to seek guidance in any case where a development could potentially cause impacts to reptiles, and to obtain advice regarding what would constitute ‘reasonable’ mitigation, although it is ultimately up to the developer to decide what is ‘reasonable’ (and to accept any consequences which may ensue). In most cases, the services of an appropriately qualified and experienced reptile consultant will be required.

The remainder of this document sets out the main elements of a typical reptile clearance strategy. It is recognised, however, that not all of the elements listed below will be necessary or appropriate in all cases, and that individual strategies will vary from site to site.

Reptile Clearance Methodology

If reptiles are confirmed as being present (or are assumed to be present, for example from habitat assessment) then measures should be put in place to avoid or minimise the killing and injuring of reptiles as a result of development operations. Ideally, a ‘Reptile Mitigation Strategy’ should be drawn up for the site by a suitably qualified person, and agreed in advance with either the NRW or the relevant Local Authority Ecologist.

Wherever possible, reptiles should be accommodated within the site, or on one or more adjacent or nearby site. The translocation of reptiles to a different site which lies at a distance from the development site should only be undertaken as a last resort. Where reptiles cannot be accommodated within the site, a suitable receptor site should be identified in advance and surveyed for suitability. If a reptile population already exists on the receptor site, then advance enhancement works to increase the ‘carrying capacity’ of the receptor site may be necessary. Adequate time should be allowed in the development programme for the safe clearance of reptiles ahead of any potentially harmful works using suitable means, which may vary from site to site.

It should be noted that the clearance of reptiles from a site can only be undertaken when the reptiles are active (ie, during the spring, summer and autumn months) and should never be attempted during the winter hibernation period (which runs approximately from November to March inclusive). This constraint may lead to conflict with other issues – the presence of nesting birds, for example, all species of which are protected against disturbance – which will also need to be taken into account and mitigated for accordingly¹.

¹ Hedgerow translocations or clearance of habitats such as trees, scrub, bramble or reedbed etc can lead to direct conflicts, which may require phased clearance or other mitigation measures to overcome.

Mitigation measures should apply to all areas of the site which will be subject to potentially harmful impacts, including the laying of haul routes, siting of contractors' compounds and the bulk storage of materials and soils etc. It should be remembered that reptiles may be present beneath the soil at depths of up to 250mm or more, as well as in locations such as amongst tree roots or buried rubble and brick waste etc.

Typical Mitigation Procedure

1. Where there are suitable receptor sites adjacent to the development site, mitigation should commence with the removal of tall vegetation from all areas affected by development to make them less attractive to reptiles, and to encourage them to move away voluntarily into adjacent habitats. Vegetation should initially be cut to a height of about 200mm, starting furthest away from the adjacent habitats and working towards them, so as to drive any reptiles which may be present towards the receptor habitats. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mowers, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

After a maximum of two days, the vegetation of the site should be cut again in a similar pattern to a height of about 50mm, taking great care to avoid injuring any reptiles which may be present and with all arisings again being removed from the site. The vegetation of the site should then be maintained in this short condition for a minimum of two further days before proceeding to Step 2.

In some rare situations this staged cutting, coupled with the careful removal of any structures which may be used by sheltering reptiles (eg rubble piles, timber piles, drystone walls etc – see Step 3 below) may be sufficient to achieve 'clearance' of the site by rendering it so unsuitable for reptiles that no further measures are required. In these circumstances, the site should then be maintained in this unsuitable condition until the commencement of development works, which should then be preceded by 'destructive searching' (see Step 8 below). These situations are likely to be very unusual, however, and will require careful assessment in advance by an appropriately qualified person.

Where there are no suitable habitats in the surrounding area for reptiles to relocate to (for example if the site is surrounded by roads or hard standings, or is hemmed in by other developments) then this step should be ignored.

2. Reptile-proof fencing should be erected around the perimeter of the affected areas of the site. These should be erected in accordance with published specifications such as that contained in the Highways Agency's *Design Manual for Road & Bridges* (Vol 10(4) (7) HA116/05 *Nature Conservation Advice in Relation to Reptiles and Roads* or the forthcoming *Reptile Mitigation Guidelines* (English Nature). The fencing will normally be required to extend below ground level for a depth of about 250mm, and both the installation and fabrication process may require careful supervision by a suitably qualified reptile handler to ensure that no reptiles are accidentally injured in the process. On large sites it may be useful, and will probably speed up the process, if the site is subdivided into smaller parcels.

Reptile-proof fences may be either vertical 'no-pass' fences or sloping 'one-way' fences. The former will prevent the movement of reptiles in either direction, whilst the latter can be erected in areas where the site lies immediately adjacent to a suitable receptor sites, and will allow reptiles to leave the development area voluntarily.

3. Within the enclosed parcels, any rubble piles, drystone walls, tree roots, buried rubble and timber piles etc should be dismantled by hand to prevent reptiles from using them to shelter in. All arisings should be removed from the site. As far as possible, these operations should be carried out by hand, with the minimum tracking by any vehicles or machinery across the site. Complex or large structures may need to be carefully dismantled under the supervision of a reptile handler who can halt the works and rescue any reptiles which may be found sheltering in them.
4. Following the clearance of sheltering places, the vegetation of the enclosed parcel should be cut, if it has not already been so. Cutting should initially be to a height of about 200mm, starting at the centre of the parcel and working outwards towards the edges. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mower, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

Note that for a linear site, such as a cycle-path or verge, strimming should be undertaken from the path working ahead and outwards at the same time, effectively cutting a 'V'-shape.

5. After cutting, the site should be strewn with 'refugia'. These should comprise a combination of suitable materials such as sheet metal, timber (eg chipboard), roofing felt and carpet tiles. These will be used by reptiles for sheltering

beneath, or for basking on, where they can be found and caught more easily. If the vegetation is already shorter than 200mm, refugia may be laid out straight away without cutting the vegetation. Refugia should be spread evenly around the site at a high density (ie about 100 per hectare).

6. Depending on the site, visits should be made to the site by a reptile handler over at least the next two days to check beneath the refugia, collect any reptiles which may be beneath them and remove them to the receptor habitats. In practice, it will usually take at least a week for the refugia to 'bed in', and daily reptile collection visits may need to take place over a period of several weeks. Reptile collecting visits must be undertaken in suitable weather conditions, ie in dry, still conditions with air temperatures in excess of 10°C.
7. Daily or near-daily reptile collection and removal visits should continue until reptile numbers under the refugia begin to decline noticeably, at which point the vegetation of the site can be cut again, using the same methodology as at Step 4, but this time to a height of 100mm. Daily reptile collection and removal visits should continue for a further minimum of three days, in suitable weather conditions.
8. When reptile numbers are again detected to be declining, a final cut can be made to achieve very short, close-cropped vegetation of about 40-50mm height, again using the same methodology as at Step 4. This staged removal of the vegetation is likely to drive reptiles to make greater and greater use of the refugia, by removing alternative sheltering places and rendering the rest of the site unattractive to reptiles.

Depending on the individual circumstances of the site, it may be advisable to review the spread and location of refugia, and to begin to cluster these towards the edges of the site or in selected locations, although if this is done then the areas where refugia are no longer present must be kept in a highly unattractive state for reptiles. The manipulation of refugia numbers and locations may be used to reduce the amount of time needed for a reptile handler to check for reptiles. On a small site, however, there is probably no point in moving the refugia, and moving refugia may reduce capture efficiency². This is a matter which will require expert assessment.

It is essential that the integrity of the reptile-proof fences is maintained throughout the trapping period. These should be checked on every visit, and any breaks repaired within 24 hours, otherwise reptiles could re-enter the trapping area from outside. An advantage of subdividing the trapping areas into compartments is that any breaks in the perimeter fence which do occur, and which go undetected for any length of time, will only affect the compartment it lies alongside, and not the whole trapping area.

On sites where vandalism is a significant problem, it may be necessary to institute security measures to ensure that the reptile-proof fences remain intact throughout the trapping period. The measures necessary will vary from site to site, but could include the use of 'Heras' fencing and/or the presence of site security personnel in extreme cases.

9. Daily or near-daily reptile collection visits should carry on until 10 successive nil-returns have been achieved, in suitable weather conditions, following the last vegetation cut. Following a final inspection by a suitably qualified person (the final inspection can be done at the same time as the last check of the refugia). At this point, the trapping records should be summarised and sent to the relevant Species Officer at the NRW. Although there is no obligation to do this, it will assist in maintaining a clear position with the statutory body and will encourage a cooperative dialogue. This may be useful in establishing that there has been full and reasonable compliance with the legal requirements in the event of a challenge arising.

Note that there is no need to have 10 successive nil-returns between the vegetation cuts, but that these cuts should be at least 2 days apart and the numbers should be showing a decline (the exact time taken should be determined by the reptile handler in charge, and will vary from site to site).

10. NRW will then write to the developer to "release" the site to the developer or site engineers. Again, there is no obligation to obtain written consent from the NRW, but it will further demonstrate that there has been best-practice compliance to the satisfaction of the statutory body.
11. The area cleared of reptiles should then ideally be immediately stripped of all vegetation and the topsoil removed, leaving bare subsoil. This final stripping may be done with machinery (ideally using a bucket with tines)³. In some cases it may be desirable that the site is 'destructively searched' prior to development, especially if the trapping

² Reptiles usually take a while to find refugia (hence the 'bedding in'), and once they do they tend to use them habitually. Moving refugia may simply confuse the animals and be counterproductive.

³ It is worth noting that there can be a conflict on sites where there is also an archaeological watching brief: archaeologists usually specify a bladed bucket to produce smearing in which archaeological layers can be seen. A tined bucket makes this much more difficult.

out has not gone absolutely to plan (eg vandalism problems etc). This means that the topsoil layer to a depth of about 250mm is removed from the site in strips or sections, working sequentially across the site, using a digger with a tined bucket, under the supervision of a reptile handler who is able to check for the presence of any reptiles remaining in the soil. Where such reptiles are found, the reptile handler will stop the works, rescue the animal and release it to the receptor area.

12. The edges of the cleared area should be marked with high-visibility temporary fencing to prevent accidental trafficking of vehicles on the uncleared parts of the site (if any).
13. If there is any delay between the end of the reptile clearance operation and the commencement of development, measures must be taken to prevent the recolonisation of the site by reptiles from adjacent habitats, unless there is no such habitat adjacent to the site. To prevent reptiles re-entering the cleared area, the developer must therefore either:
 - a) Keep the area in the cleared condition obtained at Step 9 - bare earth with no vegetation. To keep the area bare, the developer could consider using an approved herbicide. Or:
 - b) Retain the reptile-proof fencing until development works are underway in the area concerned. If this option is chosen, the integrity of the reptile-proof fences will need to be checked regularly throughout the intervening period (ie daily or near-daily), and any breaks repaired within 24 hours. If undetected breaks occur for any length of time, the affected area (or compartment) will need to be trapped out again by repeating Steps 5-9 above.

Maintenance of the site in a cleared and reptile-proof condition is really only critical during the reptiles' active period, since recolonisation is not likely to occur during the winter months. Therefore if a site has been cleared of reptiles in summer prior to development in winter, the reptile-proof fences can be removed (or allowed to deteriorate) once the hibernation period has begun (ie after about the end of October). If the start of development is subsequently delayed beyond the end of the hibernation period, however, (ie after about the end of March) it may be necessary to reinstall the fences, or even re-trap the site.

The site can be re-opened to reptiles by removing the fencing after all construction works are complete.

Catching Methods

The use of refugia at high densities (100/ha) can be very effective for collecting slow-worms. However, other species are less readily found under refugia, and can be much more difficult to catch. 'Noosing' of common lizards whilst sunning on refugia can be effective, but requires skill and is very time-consuming. Snake catching is also a specialised skill, and carries health and safety implications. However, both snakes and common lizards tend to be more mobile than slow-worms, and are therefore more likely to reslake to the vegetation clearance and remove themselves from the trapping area where one-way fences make this possible.

Keeping Records

For trapping records, we recommend logging the date, time, weather conditions, temperature, minimum night temp (night before), species caught and location caught (a rough map would suffice, eg area A, B or C) and, if possible, the sex and age of the animals, and if gravid. Ideally a report of the trapping operation, in which all of the capture records are summarised and evaluated, should be prepared at the end of the operation and submitted to the NRW and/or the local authority ecologist. There is no obligation to do so, but the keeping of clear and unambiguous records may be essential in establishing that there was full and reasonable compliance with the law in the event of there being any challenge to the methods used.

When to Trap

Ideally clearance should begin as early as 1 April, with the aim of the site being cleared by the end of July. Clearance operations are less desirable later in the summer, since after about June there is the chance that juvenile animals will also be present, which as well as being extremely difficult to see and catch, may also significantly increase the number of animals on the site.

Post-development Monitoring

In addition to the above, we would encourage the developer to put in place a scheme to monitor the effects of the development on the reptiles and to see if the mitigation has been successful. The design of any monitoring exercises should be discussed in advance with the NRW.

APPENDIX 4: LANDSCAPING SPECIES

Trees and shrubs

All planting stock should be of native species which are indigenous to the region and will be of Welsh or at least UK, provenance.

Trees/shrubs

<i>Quercus robur</i> and/ or	Pedunculate oak
<i>Quercus petraea</i>	Sessile oak
<i>Fraxinus excelsior</i>	Ash
<i>Acer campestre</i>	Field maple
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Common hawthorn
<i>Betula pendula</i>	Silver birch
<i>Cornus sanguinea</i>	Dog wood
<i>Ilex aquifolium</i>	Holly
<i>Malus sylvestris</i>	Crab apple
<i>Prunus avium</i>	Wild cherry
<i>Prunus spinosa</i>	Blackthorn
<i>Rosa canina</i>	Common dog-rose
<i>Sorbus aucuparia</i>	Rowan
<i>Taxus baccata</i>	Yew
<i>Viburnum opulus</i>	Guelder rose
<i>Euonymus europaeus</i>	Spindle
<i>Sambucus nigra</i>	Elder

Planting should be carried out using 600mm bare-rooted transplants in spiral plastic guards (rabbit/vole protection) where appropriate. Standard tree aftercare should be applied.

Climbers

<i>Clematis vitalba</i>	Traveller's-joy
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Solanum dulcamara</i>	Bittersweet
<i>Tamus communis</i>	Black bryony

Wildlife friendly plants for formal landscaping

The species listed below are primarily non-native species, which are commonly found in gardens and formal landscape areas. Those native species included are aesthetically pleasing and suitable for formal planting schemes.

Woody Species

Bodnant viburnum (<i>Viburnum x bodnantense</i>)	Lilac (<i>Syringa vulgaris</i>)
Californian lilac (<i>Ceanothus spp.</i>)	Mahonia (<i>Mahonia spp.</i>)
Firethorn (<i>Pyracantha spp.</i>)	Mock orange (<i>Philadelphus spp.</i>)
Laurustinus (<i>Viburnum tinus</i>)	Serviceberry (<i>Amelanchier canadensis</i>)
Japanese quince (<i>Chaenomeles japonica</i>)	White jasmine (<i>Jasminum officinale</i>)

Herbs

Alpine rock-cress (<i>Arabis alpina</i>)	Orpine (<i>Sedum telephium</i>)
Angelica (<i>Angelica archangelica</i>)	Perennial cornflower (<i>Centaurea montana</i>)
Annual honesty (<i>Lunaria annua</i>)	Perennial honesty (<i>Lunaria rediviva</i>)
Aubretia (<i>Aubretia deltoidea</i>)	Perennial sunflower (<i>Helianthus decapetalus</i>)
Autumn Stonecrop (<i>Sedum 'Purple Emperor'</i>)	Phlox (<i>Phlox paniculata</i>)
Borage (<i>Borago officinalis</i>)	Poached-egg plant (<i>Limnanthes douglasii</i>)
California poppy (<i>Eschscholtzia californica</i>)	Purple coneflower (<i>Echinacea purpurea</i>)
Canadian Fleabane (<i>Erigeron canadensis</i>)	Purple-top vervain (<i>Verbena bonariensis</i>)

Candytuft (<i>Iberis sempervirens</i>)	Red campion (<i>Silene dioica</i>)
Christmas rose (<i>Helleborus niger</i>)	Red valerian (<i>Centranthus ruber</i>)
Common mallow (<i>Malva sylvestris</i>)	Rosemary (<i>Rosmarinus officinalis</i>)
Common poppy (<i>Papaver rhoeas</i>)	Sage (<i>Salvia officinalis</i>)
Cosmos (<i>Cosmos bipinnatus</i>)	Shrubby Veronica (<i>Hebe recurva</i>)
Evening primrose (<i>Oenothera biennis</i>)	Snapdragon (<i>Antirrhinum majus</i>)
Wood forget-me-not (<i>Myosotis sylvatica</i>)	Soapwort (<i>Saponaria officinalis</i>)
French marigold (<i>Tagetes spp.</i>)	Spear mint (<i>Mentha spicata</i>)
Globe thistle (<i>Echinops ritro</i>)	Spring crocus (<i>Crocus chrysanthus</i>)
Great mullein (<i>Verbascum thapsus</i>)	Sunflower (<i>Helianthus annuus</i>)
Grecian windflower (<i>Anemone blanda</i>)	Sweet alyssum (<i>Lobularia maritime</i>)
Heart-Leaf Ice-plant (<i>Aptenia cordifolia</i>)	Sweet bergamot (<i>Monarda didyma</i>)
Hollyhock (<i>Althaea rosea</i>)	Sweet rocket (<i>Hesperis matronalis</i>)
Hyssop (<i>Hyssopus officinalis</i>)	Sweet William (<i>Dianthus barbatus</i>)
Ice plant (<i>Sedum spectabile</i>)	Tickseed (<i>Coreopsis spp</i>)
Lacy phacelia (<i>Phacelia tanacetifolia</i>)	Tobacco plant (<i>Nicotiana affinis</i>)
Late Michaelmas-daisy (<i>Aster x versicolor</i>)	Wallflower (<i>Cheiranthus cheiri</i>)
Lavender (<i>Lavandula angustifolia.</i>)	Winter aconite (<i>Eranthis hyemalis</i>)
Lenten rose (<i>Helleborus orientalis</i>)	Yellow alyssum (<i>Alyssum saxatile</i>)
Ox-eye daisy (<i>Leucanthemum vulgare</i>)	Yellow loose-strife (<i>Lysimachia vulgaris</i>)
Marjoram (<i>Origanum vulgare</i>)	

Sources: *Plants for wildlife friendly Gardens* (Natural England), *Planting Gardens for Birds* (RSPB), *Gardening for Bats* (Bat Conservation Trust) and *Starting a Butterfly Garden* (School Garden Company).

APPENDIX 5: EXAMPLES OF SUITABLE BIRD AND BAT BOX DESIGNS

EXAMPLES OF SURFACE-MOUNTED BAT BOXES

Tree-mounted boxes



Schwegler 2F General Box



Schwegler 1FD Nursery Box



Schwegler 1FS Nursery Box (Large)



Schwegler 1FW Winter Box
(Very large box)



Schwegler 2FN
Noctule Box



Schwegler 2F DFP
Daubenton's Bat Box



Miramar General Box

Tree or building-mounted boxes



Schwegler 1FF General Box



Schwegler 1FQ Decorative Box



Schwegler 1FFH General Box



Vivara Woodstone Low Profile Box



NHBS Cavity Box
(Brown Long-Eared Bat Box)



NHBS Crevice Box

EXAMPLES OF NON-INTEGRATED BIRD BOXES FOR TREES AND BUILDINGS

Suspended Designs



Schwegler 1B
General box



Schwegler 2H open-front
'robin' box



Schwegler 5
'large owl' box



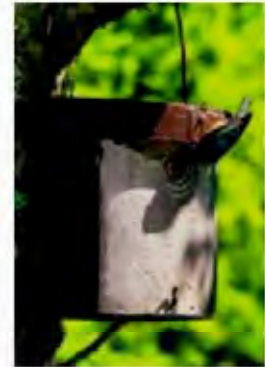
Schwegler 1CGA
'small owl' box



Schwegler 20
'starling' box



Schwegler 28 'kestrel' box



Schwegler 5KL 'nuthatch' box

Surface-mounted Designs



Schwegler 1MR general box



Vivara Pro open-front
'robin' box



Vivara Pro ova open-front
'robin' box



Vivara Pro 'starling' box



Vivara Pro 28/32mm
general box



Vivara Pro 28/32mm
oval general box

PHOTOGRAPHS OF SITE (March 2019)



Overview from north-west corner of site facing south.



North-west corner of the site, highlighting bare ground adjacent to tall ruderal vegetation.



Area of short perennial / ephemeral vegetation, dominated by lesser celandine, adjacent to hedgerow 1.



Ephemeral pools, most likely formed over a period of inclement weather, situated along east of site.



South-east corner of the site highlighting transition of short perennial vegetation into neutral grassland



Semi-improved neutral grassland adjacent to southern site boundary.



Knot holes present on eastern aspect of tree 32 (silver maple).



Limb / stem loss on tree 32 (silver maple) with large decay column within main stem.



Knot holes present on western aspect of tree 29 (London plane).



Limb / stem loss of tree 1 (silver maple) revealing decay column within main stem



Knot hole present on southern aspect of tree 46 (oak sp.).



Overview of tree 1 and hedgerow 2 – facing south-west.



Tall ruderal vegetation adjacent to areas of hardstanding within centremost portion of the site – facing north.



Tall ruderal vegetation adjacent to areas of hardstanding within centremost portion of the site – facing south.

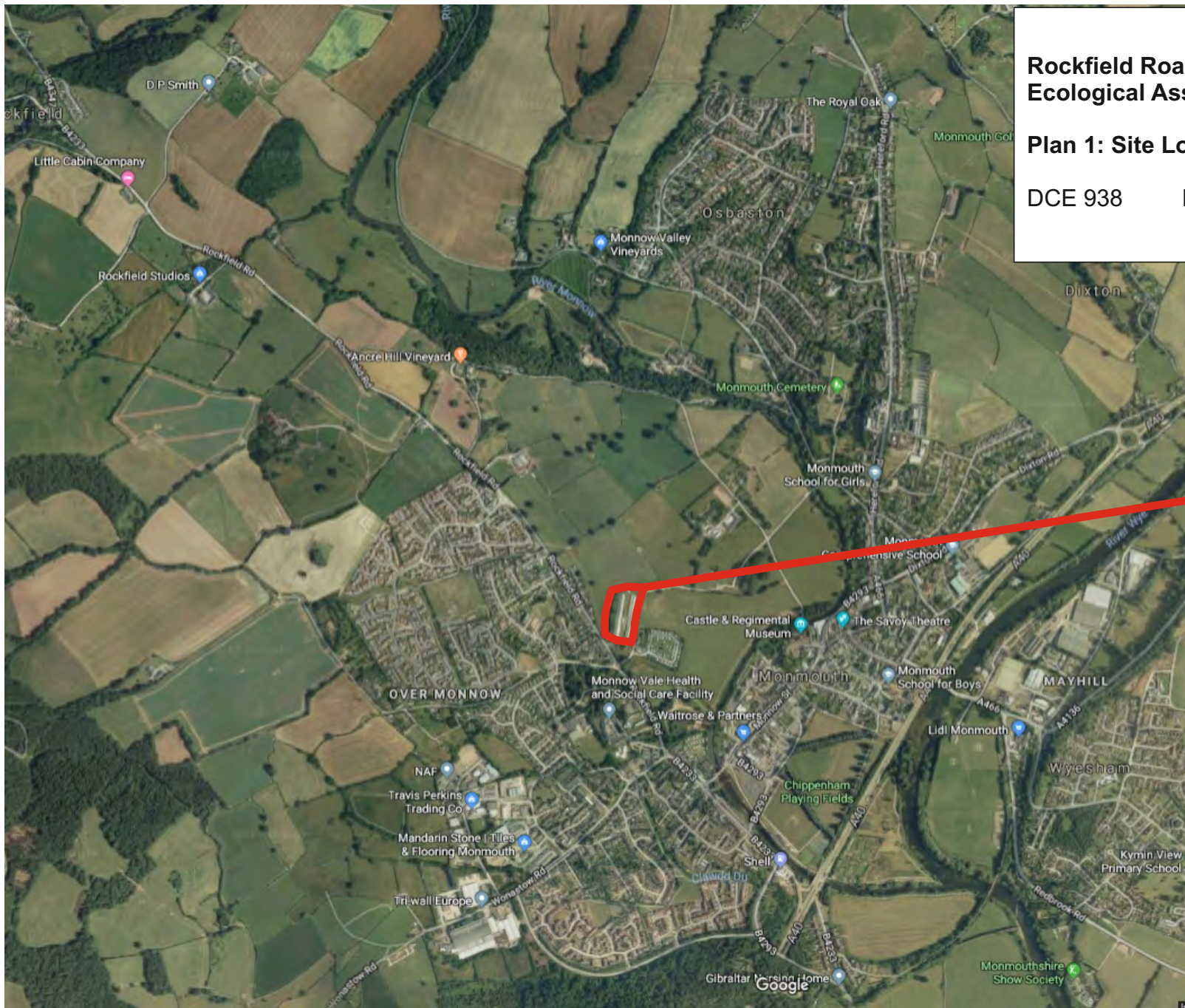
Rockfield Road North, Monmouth Ecological Assessment

Plan 1: Site Location & Context

DCE 938

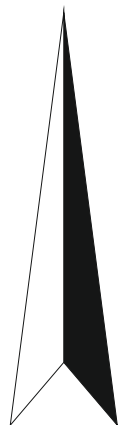
NTS

November 2019



Site Boundary

N



Courtesy of Google Maps

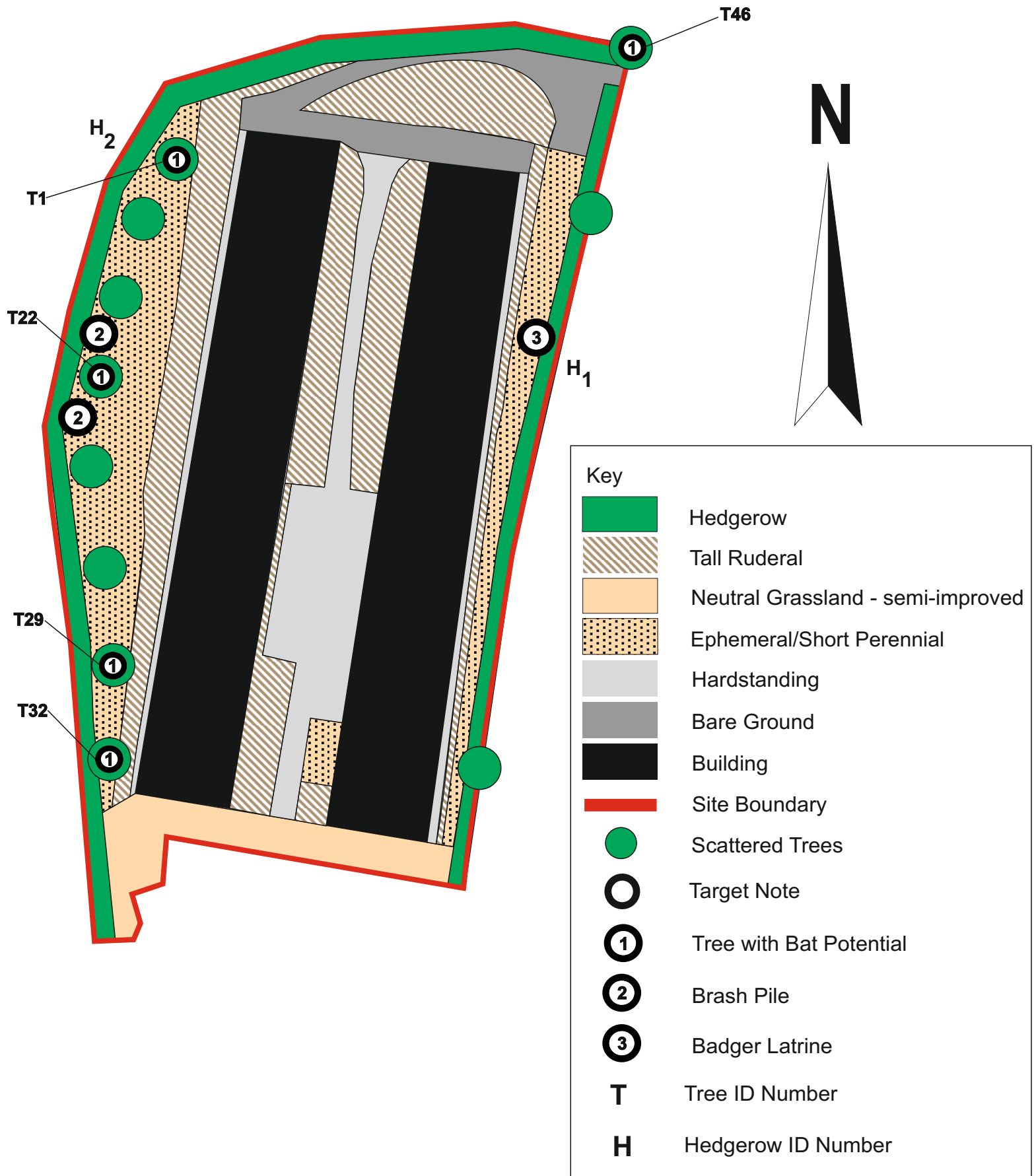
Rockfield Road North, Monmouth Ecological Assessment

Plan 2: Habitats & Vegetation

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November 2019



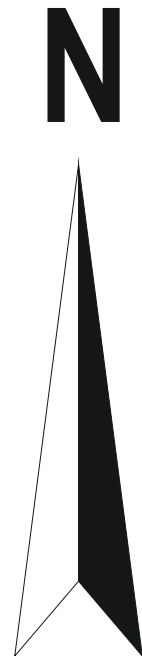
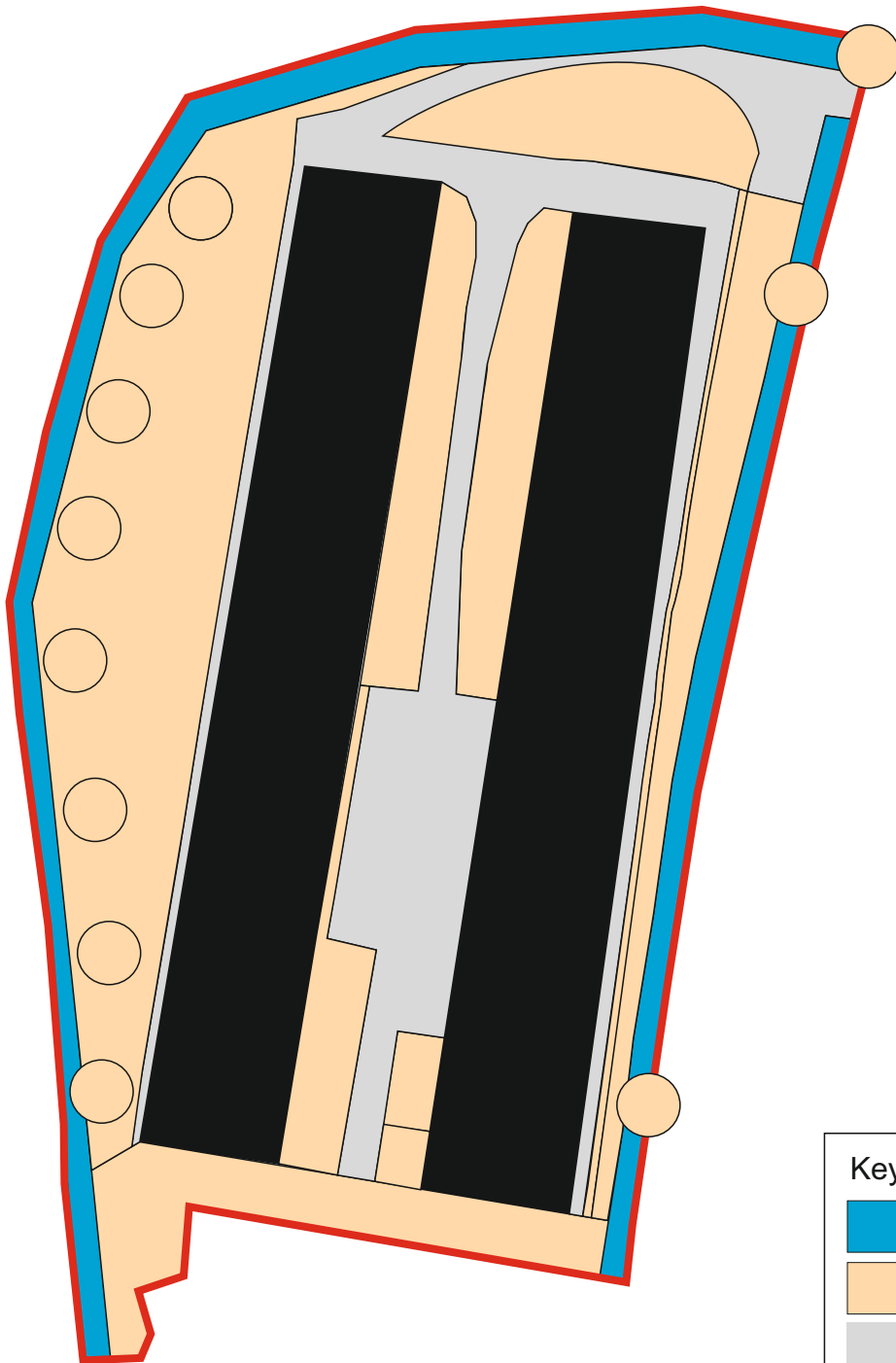
**Rockfield Road North, Monmouth
Ecological Assessment**

Plan 3: Ecological Evaluation

DCE 938

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November 2019



Key

-  High Local Value
-  Local Value
-  Negligible Value
-  Poultry Units
-  Site Boundary