



THE
ENVIRONMENT
PARTNERSHIP



OLD EBISTOCK WREXHAM ECOLOGICAL ASSESSMENT

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CONTENTS	PAGE
Executive Summary	2
1.0 Introduction	3
2.0 Site Description	4
3.0 Methods	5
4.0 Results	8
5.0 Conclusions.....	15
6.0 Recommendations	17
References	18

TABLES	PAGE
Table 1: Ecological Information and Consultations	5
Table 2: Evaluation of potential suitability of trees, buildings and habitats for bats	6
Table 3 WCA1, S41 & Red/ Amber status (RSBP) bird records within search area.....	9

FIGURES	PAGE
Figure 1 Site Location Plan	4
Figure 2 Building 1	13
Figure 3 Building 2	13
Figure 4 Building 3 external.....	13
Figure 5 Building 3 internal.....	13
Figure 6 Tree with bat potential	14

APPENDICES

- APPENDIX A: Desktop Study
- APPENDIX B: Bat and bird box information

DRAWINGS

Drawing 1 – G7056.001 Habitat Map

Drawing 2 - D6936.002 Proposals Plan

Executive Summary

1. TEP was initially commissioned in January 2017 and May 2018 by Nigel Lloyd to carry out an ecological assessment of land at Old Hall, Erbistock, Wrexham. This assessment was conducted to inform planning application for demolition of a dwelling house and two outbuildings. A new dwelling (house) will be built on the footprint of the existing dwelling together with associated landscaping works.
2. TEP were subsequently commissioned in May 2017 to survey the site within the red line boundary set out at Phase 1 habitat survey drawing G7056.001.
3. An ecological assessment consisting of a desktop study, habitat survey and preliminary bat roost assessment was undertaken to inform demolition works to the three buildings on site. The survey included all areas located within the footprint of the development.
4. Implications for the development are set out below.
5. A JHeras fence will be placed at 30m from the potential badger hole. This fence will remain in place for the duration of the development to prevent encroachment into the area where the potential badger sett is located.
6. Prior to demolition of building 3 (the dwelling house) a licensed bat ecologist will inspect bat friendly features such as lifted lead flashing and gaps in brickwork on chimney stacks. In the unlikely event that bats are found then works will cease and advice be sought from Natural Resources Wales.
7. Reasonable Avoidance Measures will be undertaken during works to prevent harm to any amphibians such as common toad that may range into the area during works. This will include hand search and strimming of grassland prior to construction. Materials stored above ground. No trenches left open overnight. This will also provide protection for other species such as badger and hedgehog.
8. Any vegetation clearance required, including ornamental planting, should be conducted outside of the bird breeding season (March-August) in order to avoid potential disturbance to nesting birds. Where clearance is necessary during this period, a pre-clearance check should be made by an ecologist no more than 24 hours in advance, to ensure that the vegetation does not contain and active nests.

1.0 Introduction

- 1.1 TEP was initially commissioned in January 2017 and May 2018 by Nigel Lloyd to carry out an ecological assessment of land at Old Hall, Erbistock, Wrexham. This assessment was conducted to inform planning application for demolition of a dwelling house and two outbuildings. A new dwelling (house) will be built on the footprint of the existing dwelling together with associated landscaping works. This initial survey area is shown within the blue site boundary in the Phase 1 habitat survey drawing G7056.001.
- 1.2 TEP were subsequently commissioned in May 2018 to survey the site within the red line boundary set out at Phase 1 habitat survey drawing G7056.001.
- 1.3 This report assesses a parcel of land that is adjacent to the western boundary of the site surveyed in January 2017. This is indicated within the red line boundary set out at Phase 1 habitat survey drawing G7056.001.
- 1.4 The ecological assessment includes the following methods:
 - Desktop study;
 - Habitat walkover survey; and
 - Preliminary roost assessment for bat roost suitability.
- 1.5 The objectives of this report are to:
 - Describe the existing vegetation and give an overview of the habitats present on the site;
 - Identify whether there are any features of conservation value such as legally protected species or habitats of biodiversity importance;
 - Advise of further surveys or mitigation requirements that may be needed prior to development of the site; and
 - Outline opportunities to provide biodiversity enhancement within site proposals.

2.0 Site Description

- 2.1 The site is located along an access track off the A528 in Erbistock, Wrexham. The site comprises a paddock that is surrounded by trees and hedgerows. The former residential dwelling is adjacent on the eastern boundary of the site. The survey area is shown in figure 1. The approximate central grid reference is SJ 34809 43670.
- 2.2 The site is located within a rural location and is surrounded by agricultural land/pasture.

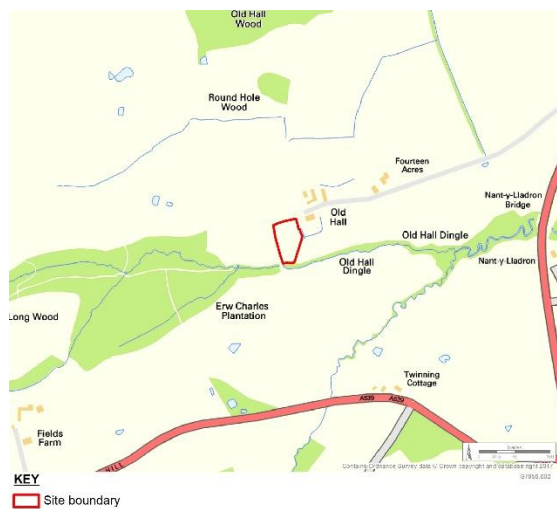


Figure 1 Site Location Plan

3.0 Methods

- 3.1 Information regarding historic species records and protected sites within a 1km radius of the site was requested/gathered from the sources listed in Table 1.

Table 1: Ecological Information and Consultations

Source of Information	Nature of Information
Where's the Path	Satellite & OS imagery
Multi-Agency Geographic Information for the Countryside (MAGIC) Map	Statutory protected sites and priority habitat inventory
Cofnod	Protected species records & Local Wildlife Sites (LWS)
Wrexham Unitary Development Plan (adopted February 2005) and supporting key	Land allocations and relevant policies
Google Maps	Satellite imagery
Section 41 Natural Environment and Rural Communities Act 2006 (S41)	Habitats and species of principal importance for the conservation of biodiversity.

Habitat Walkover Survey

- 3.2 A habitat assessment of the site was conducted by TEP ecologist John Crowder (MCIEEM) on 22nd May 2018. The survey was carried out using the methods outlined by JNCC (2010) and CIEEM's Guidelines for Preliminary Ecological Appraisal (2013), with habitat types and any incidental evidence of protected or invasive species noted.
- 3.3 During the survey, broad habitat was noted along with the site's potential to support species of conservation concern, particularly statutorily protected species or S41 species of principal importance.

Survey Limitations

- 3.4 No survey limitations were encountered during the survey.

Bat Roost Assessment

- 3.5 An updated daytime assessment of the three buildings within the adjacent blue lined site boundary, which are subject to the current planning application and will be demolished as part of development of the site, was also undertaken by licenced bat ecologist John Crowder (Natural Resources Wales licence reference: 73492:OTH:CSAB:2016). The assessment was undertaken on the three buildings which are subject to the current planning application. The assessment was carried out in accordance with the Bat Conservation Trust (BCT) Guidance (Collins, 2016).
- 3.6 The buildings were searched for any evidence of use by bats and classified according to the suitability for roosting bats in line with the criteria set out in table 2.

Table 2: Evaluation of potential suitability of trees, buildings and habitats for bats

	Roosting Habitats	Commuting/Foraging Habitats
Negligible Potential	Negligible potential roost features are present that are likely to be used by bats	Negligible features on site likely to be used by commuting or foraging bats. A general lack of linear features and low habitat, structural or floristic diversity.
Low Potential	A structure with one or more potential roost features that could be used by individual bats opportunistically, but which do not offer sufficient space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats.	Habitat that could be used by small numbers of commuting bats (e.g. a gappy hedgerow or an un-vegetated stream) or foraging bats (e.g. a lone tree or small patch of scrub) but which is isolated from the surrounding countryside.

	Roosting Habitats	Commuting/Foraging Habitats
Medium Potential	A structure with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but which is unlikely to support a roost of high conservation status (maternity or hibernation).	Continuous habitat connected to the wider landscape that could be used by bats for commuting (e.g. lines of trees or scrub or linked back gardens), or foraging bats (e.g. trees, scrub, water, grassland).
High Potential	A structure possessing one or more potential roost features that are suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time, due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high quality habitat that is strongly connected with the wider landscape that is likely to be used regularly by commuting bats (e.g. river valley, vegetated stream, woodland edge, hedgerows with trees) or foraging bats (e.g. broadleaved woodland, grazed parkland, tree-lined watercourses or ponds).

Survey Limitations

- 3.7 The residential property was derelict and could not be accessed internally due to health and safety issues. Most of the slates on the building have been removed. This has allowed rain to penetrate the internal of the building creating wet conditions internally. These conditions are unsuitable to support roosting bats. This was confirmed by looking through upper and low windows of the property.

4.0 Results

Desktop Study

- 4.1 A summary of the desktop results is set out below. Detailed results of desktop information is presented in Appendix A. An absence of records does not preclude the absence of protected species from the search area.

Designated Sites

- 4.2 The River Dee Special Area of Conservation (SAC) is 959m south east of the site.
- 4.3 Five Local Wildlife Sites (LWS) are within 1km of the site. The sites include; Long Wood and Grassland, Drurys Plantation, Salls Wood, Palla Wood and Eytonhall Wood. None of these sites are adjacent to or within the site itself. The nearest site is Long Wood which is adjacent on the south west boundary of the site.

Notable Habitats

- 4.4 Habitats of principal importance under Section 41 (S41) of the NERC Act (2006) and BAP Priority Habitats occur within the 1km search area. These S41 and BAP habitats are mixed conifer woodland and low density. None of these habitats are adjacent to or within the site.
- 4.5 There are seventeen ancient woodland sites within 1km of the site. The nearest is 48m from the site. None of these sites are adjacent to or within the site itself.

Notable species records

- 4.6 There are a number of records of notable species within 1km of the site boundary; species include those listed under the following:
- European Protected Species (EPS);
 - Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
 - Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
 - Schedule 9 of the Wildlife and Countryside Act 1981, as amended (WCA9);
 - Species of principal importance under Section 41 of the Natural Environment and Communities Act 2006 (S41);
 - Protection of Badgers Act 1992 (PBA);
 - Local Biodiversity Action Plan (LBAP); and
 - Red and Amber listed Birds of Conservation Concern (BoCC) (BRd [RSBP]/ BAm [RSBP]).

Amphibian

- 4.7 There are records of amphibian species within 1km of the site. Great crested newt *Triturus cristatus*, the precise location of the record is not known, however the record is 24 years old. Other amphibian species recorded within 1km of the site include common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*.

Terrestrial Mammals

4.8 There are a number of records of mammal species within 1km of the site. The notable mammal species are as follows:

- Common pipistrelle *Pipistrellus pipistrellus* (WCA5, LBAP),
- Eurasian badger *Meles meles* (PBA),
- European otter *Lutra lutra* (WAC5, S41),
- West European Hedgehog *Erinaceus europaeus* (S41),
- Brown Hare *Lepus europaeus* (S41),
- Water vole *Arvicola amphibius* (WAC5, S41).

Birds

4.9 There are a large number of bird species records within 1km of the site. Records of birds listed on either Schedule 1 of the Wildlife and Countryside Act (WCA1), Section 41 (S41) of the NERC Act or listed as a Bird of Conservation Concern (BoCC) (BRd [RSBP]/ BAm [RSBP]) have been identified and summarised within Table 3. All other bird records are displayed within Appendix A.

Table 3 WCA1, S41 & Red/ Amber status (RSBP) bird records within search area.

Bird Species	Scientific Name	Sch 1	S41	Red List BoCC	Amber List BoCC
House Martin	Delichon urbicum				BAm
Swallow	Hirundo rustica				BAm
Bullfinch	Pyrrhula pyrrhula				BAm
Grey Partridge	Perdix perdix		S41	BRd	
Goshawk	Accipiter gentilis	Sch 1			
Hen Harrier	Circus cyaneus	Sch 1	S41	BRd	
Swift	Apus apus				BAm
Red kite	Milvus milvus	Sch 1			
Woodcock	Scolopax rusticola			BRd	
Whitethroat	Sylvia communis				BAm

Bird Species	Scientific Name	Sch 1	S41	Red List BoCC	Amber List BoCC
Kestrel	Falco tinnunculus				BAm
Dunnock	Prunella modularis		S41		BAm
Yellowhammer	Emberiza citrinella		S41		
Skylark	Alauda arvensis		S41	BRd	
Meadow Pipit	Anthus pratensis				BAm
Barn Owl	Tyto alba	Sch1			BAm
House Sparrow	Passer domesticus		S41	BRd	
Curlew	Numenius arquata		S41		BAm

Other protected species

- 4.10 No other notable species were recorded within the 1km search area of the site.

Local Plan

- 4.11 On the Wrexham local plan the site is designated as special landscape area.

Habitats

- 4.12 The results of the habitat survey are illustrated in Drawing G7056.001.
- 4.13 The following habitats are present within the site and are listed in order of abundance:
- Buildings (on adjacent site but surveyed due to being demolished);
 - Broad-leaved trees;
 - Species poor hedgerow with trees;
 - Scattered scrub;
 - Wet ditch;
 - Semi-improved neutral grassland.

Buildings

- 4.14 Three buildings are sited within the grounds of the adjacent site (area within blue line on drawing G7056.001). A former residential property and three outbuildings, all buildings are derelict. These buildings are to be demolished as part of redevelopment of the site.

Broad-leaved trees

- 4.15 Numerous broad leaved trees are associated with the south east boundaries of the site and include species such as common ash *Fraxinus excelsior*, English oak *Quercus robur* and hazel *Corylus avellana*. A single ash tree is within the semi-improved neutral grassland. A full species list is provided at TEP Report Ref 6936.001.

Species poor hedgerow with trees

- 4.16 A species poor hedgerow with trees is on the Western and northern boundaries of the site. Species include hawthorn *Crataegus monogyna*, hazel, holly *Ilex aquifolium*, blackthorn *Prunus spinosa*, sycamore *Acer pseudoplatanus* and elder *Sambucus nigra*. The ground flora includes nettle, creeping thistle *Cirsium arvense*, cleavers *Gallium aparine* and red campion *Silene dioica*.

Scattered scrub

- 4.17 A single hawthorn tree is within the semi-improved grassland.

Wet Ditch

- 4.18 A ditch is on the south and east boundaries of the site. The ditch is largely dry with pools of water in some areas of the ditch. Bramble *Rubus fruticosus*, willowherb sp *Epilobium* sp and nettle *Urtica dioica* cover large parts of the ditch.

Semi-improved grassland

- 4.19 The majority of the site is semi-improved grassland. Species that are within the grassland include sweet vernal grass *Anthoxanthum odoratum*, Yorkshire fog *Holcus lanatus*, cocksfoot *Dactylis glomerata*, meadow foxtail *Alopecurus pratensis*, meadow buttercup *Ranunculus acris*, ribwort plantain *Plantago lanceolata*, vetch sp *Vicia* sp, dandelion sp *Taraxacum* sp and nettle.
- 4.20 No protected or invasive plant species were found on site.

Fauna

Amphibians

- 4.21 Desktop records reveal great crested newt within 1km of the site, this record is 24 years old and 624m north west of the site. There are two ponds within 250m of the site, one pond is 190m south west of the site and the other pond is 215m north west of the site. A wet ditch along the south and east boundaries of the site has only small pools of water that are not permanent and therefore unsuitable to support amphibians. The areas of grassland and hedgerows provide some sheltering and foraging habitat for amphibians.

Badger

- 4.22 Desktop records reveal badger within 1km of the site. A large hole the shape and size for badger was found under tree in the south west of the adjacent site (the adjacent site is indicated by blue line on drawing G7056.001). No other badger signs were found across the site.

Water vole and otter

- 4.23 Desktop records reveal water vole and otter within 1km of the site. A wet ditch is on the south and east boundaries of the site. The ditch contains only a few pools of water and is very overgrown with shallow banks for the most part. No evidence of water vole or otter was found. .

Reptiles

- 4.24 The foot print of the development site is very small. The areas of grassland provide limited sheltering and foraging habitat for reptiles.

Birds

- 4.25 Desktop reveal a number of bird species within 1km of the site, of these swift, swallow, house martin, dunnock, whitethroat, bullfinch and house sparrow are the most likely bird species to nest on site. The trees and hedgerows on site offer nesting potential to the local bird population. Birds identified during the habitat survey include common pigeon *Columba livia domestica* and blackbird *Turdus merula*.

Bats

- 4.26 Desktop records reveal common pipistrelle within 1km of the site. Desktop records do not state if it's a field or roost record. Three buildings on site are subject to demolition as part of the site proposals. Building locations are presented on drawing G7056.001 and are described as follows:
- Building 1 - A short brick-built former toilet that has fallen into a state of disrepair (Figure 2). The building has a pitched slate roof with many of the slates loose or missing. Internally the building is open to the roof with no loft voids. No evidence of bats was found during external and internal inspections of this building. Rainwater has penetrated many areas making the building unsuitable to support roosting bats. This building has been

- assessed as having negligible potential to support roosting bats Bat Conservation trust Guidelines 2016.
- Building 2 - A brick-built former barn that has a pitched asbestos roof and is open to the roof internally and unlined (Figure 3). Some parts of the roof are missing. The barn has wooden framed windows and all of the windows have had glass removed. No evidence of bats was found during external and internal inspections of this building. Rainwater has penetrated many areas making the building unsuitable to support roosting bats. This building has been assessed as having negligible potential to support roosting bats Bat Conservation trust Guidelines 2016
 - Building 3 - Is a double storey former dwelling house. Nearly all of the roof of the house has had its slates removed. The house has wooden framed windows, most of them have had the glass removed (Figure 4 and 5). The house could not be access internally due to health and safety reasons. The internal could be viewed through open windows on lower and upper levels suing ladders. Internally the house was wet through due to rainwater penetration making the house unsuitable to support roosting bats. A few minor gaps are associated with lead flashing around chimney and gaps in brickwork on chimney stacks. This building has been assessed as having negligible potential to support roosting bats Bat Conservation trust Guidelines 2016.
 - A tree on the west boundary of the site has a number of features suitable to support roosting bats (Figure 6). The features includes holes and lifted bark. This tree has been assessed as having high potential to support roosting bats Bat Conservation Trust 2016. This tree is referenced as tree T2 in the tree report TEP Ref 6212.001.



Figure 2 Building 1



Figure 3 Building 2



Figure 4 Building 3 external



Figure 5 Building 3 internal



Figure 6 Tree with bat potential

Other species

- 4.27 Desktop records reveal brown hare and hedgehog within 1km of the site.

5.0 Conclusions

- 5.1 This section concludes the potential impacts on the ecological receptors of the proposed scheme. The habitat map and desktop study encompasses the land and habitats that fall within the sites ownership boundary as illustrated by the red line.
- 5.2 The potential impacts will consider any ecological constraints within the ownership boundary but primarily focus on the receptors affected by the development proposals.

Site proposals

- 5.3 The proposals for the site include demolition of the three buildings on the adjacent site (blue boundary on Drawing G7056.001) and construction of a new residential dwelling within the site covered in this report (red line boundary on Drawing G7056.001).

Site and Habitat Designations

- 5.4 The river Dee SAC is 959m south east of the site and is designated for its flora and fauna. There are five Local Wildlife Sites within 1km of the site. The closest is Long Wood which is adjacent on the south west boundary of the site. Long Wood is designated for its flora. Due to the small scale nature of works on site there will be no impact upon these designated sites.
- 5.5 Ancient woodland is located 48m from the south west boundary of the site.
- 5.6 Under the local plan the site is designated as "Special landscape Area" which states that development will be required to conform to a high standard of design and landscaping and special attention paid to minimising visual impact.

Habitats

- 5.7 Habitats subject to the planning application, mainly comprise areas of species poor modified neutral grassland, scattered trees and species poor hedgerow along with three buildings. Further landscaping of these areas will not impact on the existing habitat and may also provide opportunities to increase provision of species favoured by invertebrates and birds.

Fauna

- 5.8 Works to demolish the buildings (blue line area on Drawing G7056.001) and build a single residential property (within the red line area on Drawing G7056.001) including landscaping of areas to which the planning application relates, will not impact upon the majority of faunal species found within the proposed development foot print. Adherence to the recommendations as presented below, will ensure that potential impacts on protected species are mitigated appropriately and opportunities to enhance biodiversity are implemented.

Amphibians

- 5.9 There are two ponds within 250m of the site, one pond is 190m south west of the site and the other pond is 215m north west of the site. Due to the small area of development and the habitats on site, it is not anticipated that there will be any impact upon amphibians. Reasonable Avoidance Measures will be put in place to prevent harm to any amphibians that may range into the area during construction works.

Bats

- 5.10 Prior to demolition of building 3 (former dwelling house) as best practice, measures must be taken to remove bat friendly features under the supervision of a licensed bat ecologist.
- 5.11 The tree assessed as having high bat potential (within the blue line area on Drawing G7056.001) is to be retained within the development proposals, if this changes then further survey of this tree will be required prior to felling.

Badger

- 5.12 The current proposals do not encroach within 30m of the potential badger hole. Measures must be put in place during the development to ensure that no works encroach within 30m of the potential badger hole.

Birds

- 5.13 The main impact predicted for birds using the site, is during any vegetation clearance and building demolition. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). If works take place during the nesting bird season March to August then a nesting bird check will be required prior to vegetation clearance or building demolition.

Other species

- 5.14 Desktop records reveal brown hare and hedgehog within 1km of the site. The site does not have potential to support brown hare due to the small nature of the site. The garden as part of the new build will habitat for hedgehog.

6.0 Recommendations

- 6.1 A fence will be placed at 30m from the potential badger hole. This fence will be left up for the duration of the development to prevent encroachment into the area where the potential badger sett is. Prior to works commencing an ecologist will visit the site to check that the fence has been put in place.
- 6.2 Prior to demolition of building 3 (the dwelling house) a licensed bat ecologist will inspect bat friendly features such as lifted lead flashing and gaps in brickwork on chimney stacks. In the unlikely event that bats are found then works will cease and advice be sought from Natural Resources Wales.
- 6.3 Reasonable Avoidance Measures will be undertaken during works to prevent harm to any amphibians such as common toad that may range into the area during works. This will include hand search and strimming of grassland prior to construction. Materials stored above ground. No trenches left open overnight. This will also provide protection for other species such as badger and hedgehog.
- 6.4 Any vegetation clearance required, including ornamental planting, should be conducted outside of the bird breeding season (March-August) in order to avoid potential disturbance to nesting birds. Where clearance is necessary during this period, a pre-clearance check should be made by an ecologist no more than 24 hours in advance, to ensure that the vegetation does not contain active nests.

Enhancement Opportunities

- 6.5 A range of bat boxes should also be installed on mature trees within the grounds to further increase roosting opportunities for bats. Examples of boxes for specific use on trees are given in Appendix B however as a guide, a minimum of four boxes such as the Schwegler 1FD or Schwegler 2F are recommended. An ecologist should advise on the precise siting/orientation of these boxes.
- 6.6 In addition to bat boxes, the installation of bird boxes would further enhance opportunities available to nesting birds and in particular should be aimed at supporting species such as house sparrow. A combination of boxes designed to support a range of bird species could be installed either in discrete locations on building exteriors or within trees around the grounds. An ecologist would advise of appropriate locations for installation.
- 6.7 The landscaping strategy should aim to include native species that are favoured in particular, by invertebrates such as bees and butterflies. Planting should also include berry bearing species that may act as an additional food resource for birds.

References

GUNNELL K et al (2012) Landscape and urban design for bats and biodiversity, Bat Conservation Trust

COLLINS, J.(ed.) (2016) Bat surveys for professional ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust.

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APPENDIX A: Desktop Study

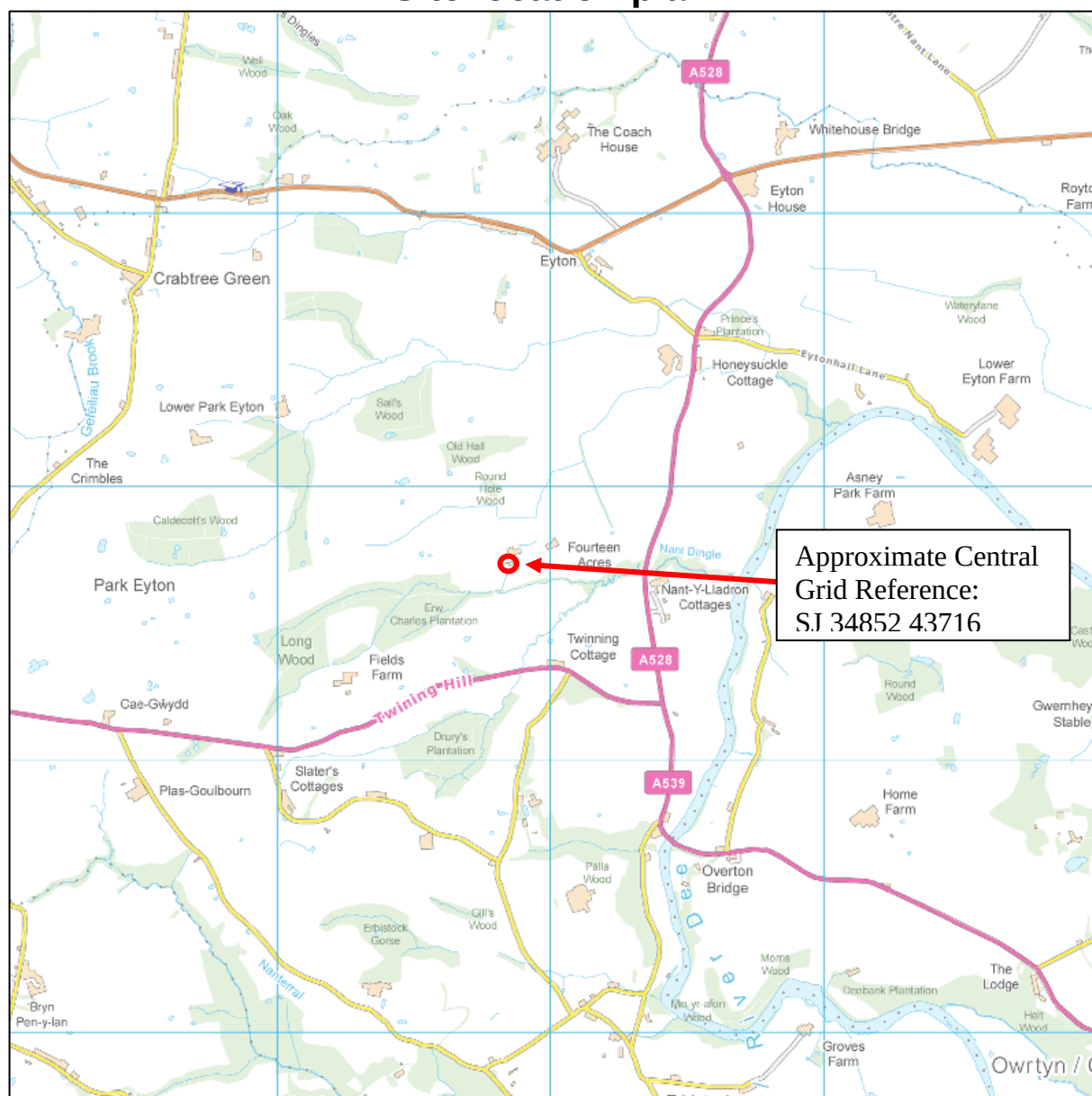
Desk Based Ecology Assessment Old Hall, Wrexham

Approximate Central Grid Reference: SJ 34809 43670

Contents

- **Site location plan**
- **Extract from local plan**
- **Extracts of relevant planning policies**
- **Local site designations**
- **Local species records**
- **National site designations**
- **Habitat inventory records**
- **Wildlife Site Citations**

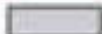
Site location plan



Contains Ordnance Survey data © Crown copyright and database right 2016

Extract of Wrexham Unitary Development Plan (adopted February 2005) and supporting key



Notation / Nodiadau	
	County Boundary / Ffin y Sir
	Inset / Mewnsoeddiad
	Green Barrier / Ffin Gwyrdd - EC1
	Special Landscape Area / Ardal Tirlun Arbennig - EC8
	Biodiversity Conservation / Cadwraeth Bioamrywiath - EC8
	Land Reclamation / Adfer Tir - EC18
	Development & Flood Risk / Datblygiad a Perygl Llif - EC12
	Walking/Cycling Route / Lwybr Cerdded/Beicio - T10
	Protection of Mineral Resources / Diogelu Adnoddau Mwynau - MW9
	Minerals Buffer Zone / Cyrchfeydd Rhagof Mwynau - MW11

Extracts of relevant planning policies and supplementary planning guidance

Part 1: Strategic Policies

THE BROAD LOCATION OF DEVELOPMENT

Policy PS2 Development must not materially detrimentally affect countryside, landscape/townscape character, open space, or the quality of the natural environment.

BIODIVERSITY

Policy PS11 Encouragement will be given to proposals which improve the biodiversity value of sites and to the establishment of local nature reserves where the nature conservation and landscape interest of the land will be protected and enhanced.

5. Environment and Conservation

Green Barriers

Policy EC1 Within Green Barriers, development will only be granted planning permission if it is for agriculture, forestry, essential facilities for outdoor sport and recreation, cemeteries and other uses of land which maintain the openness of the Green Barrier and do not conflict with the purpose of including land within it.

Hedgerows, Trees and Woodland

Policy EC4 Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted.

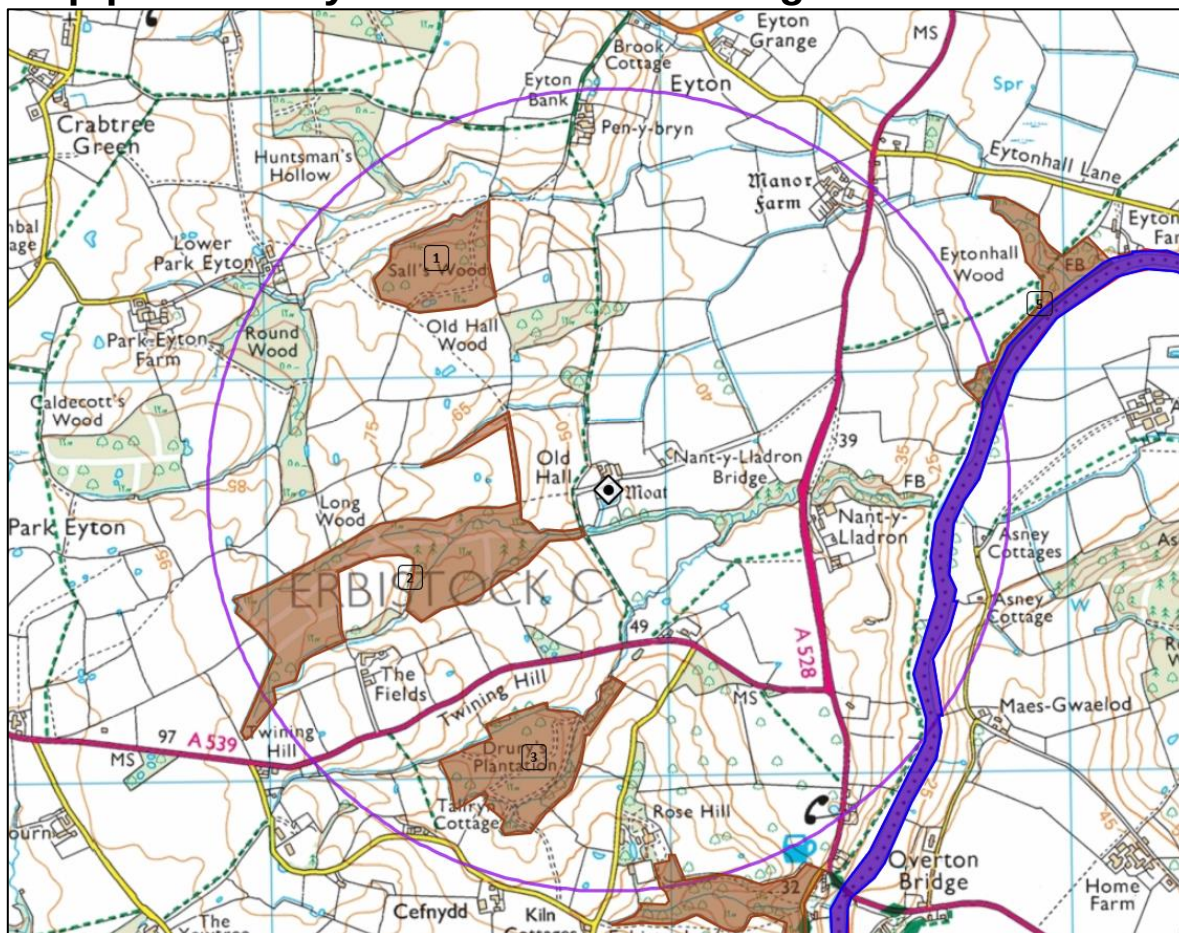
Special Landscape Areas

Policy EC5 Within Special Landscape Areas, priority will be given to the conservation and enhancement of the landscape. Development, other than for agriculture, small-scale farm-based and other rural enterprises, and essential operational development by utility service providers, will be strictly controlled. Development will be required to conform to a high standard of design and landscaping, and special attention will be paid to minimising its visual impact both from nearby and distant viewpoints.

Biodiversity Conservation

Policy EC6 Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported.

Map provided by COFNOD of site designations within 1km

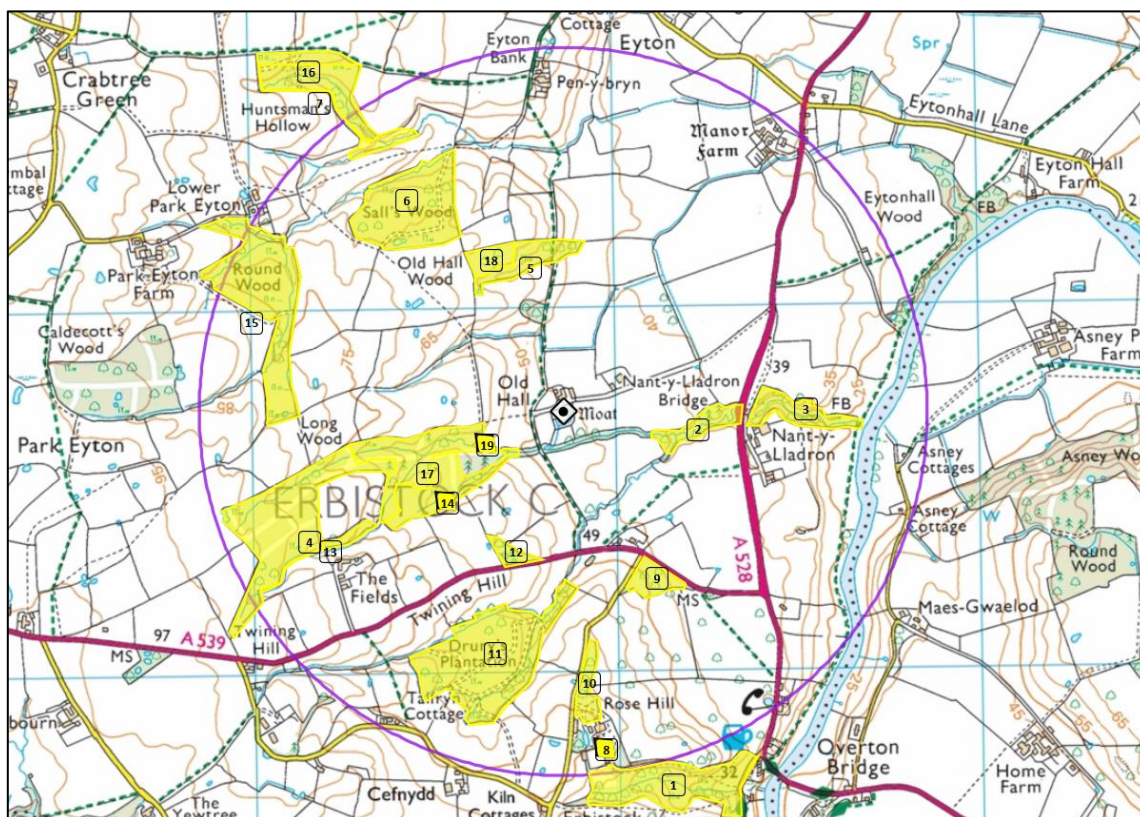


- Sites of Special Scientific Interest 
- ☒ 1: 2554: Afon Dyfrdwy (River Dee) 
- Special Areas of Conservation 
- ☒ 1: UK0030252: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) 
- Wildlife Sites 
- ☒ 1: W339: Sall's Wood 
 - ☒ 2: W342: Long Wood and Grassland, Erbistock 
 - ☒ 3: W343: Drury's Plantation 
 - ☒ 4: W348: Palla Wood 
 - ☒ 5: W321: Eyton Hall Wood 

Sites

Site Type ▲	Distance ▲	Site Name ⚙	Link ⚙	Sites Features ⚙
Sites of Special Scientific Interest	819m	2554: Afon Dyfrdwy (River Dee)	More Information	Features: Geology, Grassland, Watercourse, Woodland Species: Baris lepidii, Bupleurum tenuissimum, Cottus gobio, Gomphus vulgatissimus, Hordeum marinum, Isogenus nubecula, Lampetra fluviatilis, Lampetra planeri, Luronium natans, Lutra lutra, Osmerus eperlanus, Petromyzon marinus, Salmo salar
Special Areas of Conservation	819m	UK0030252: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	More Information	Features: Watercourse Species: Cottus gobio, Lampetra fluviatilis, Lampetra planeri, Luronium natans, Lutra lutra, Petromyzon marinus, Salmo salar
Wildlife Sites	115m	W342: Long Wood and Grassland, Erbistock	More Information	
Wildlife Sites	463m	W343: Drury's Plantation	More Information	
Wildlife Sites	556m	W339: Sall's Wood	More Information	
Wildlife Sites	922m	W348: Palla Wood	More Information	
Wildlife Sites	926m	W321: Eyton Hall Wood	More Information	

Map provided by COFNOD of Ancient Woodland sites within 1km



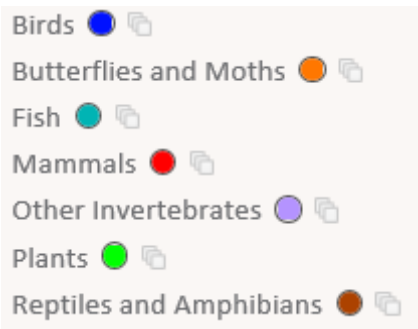
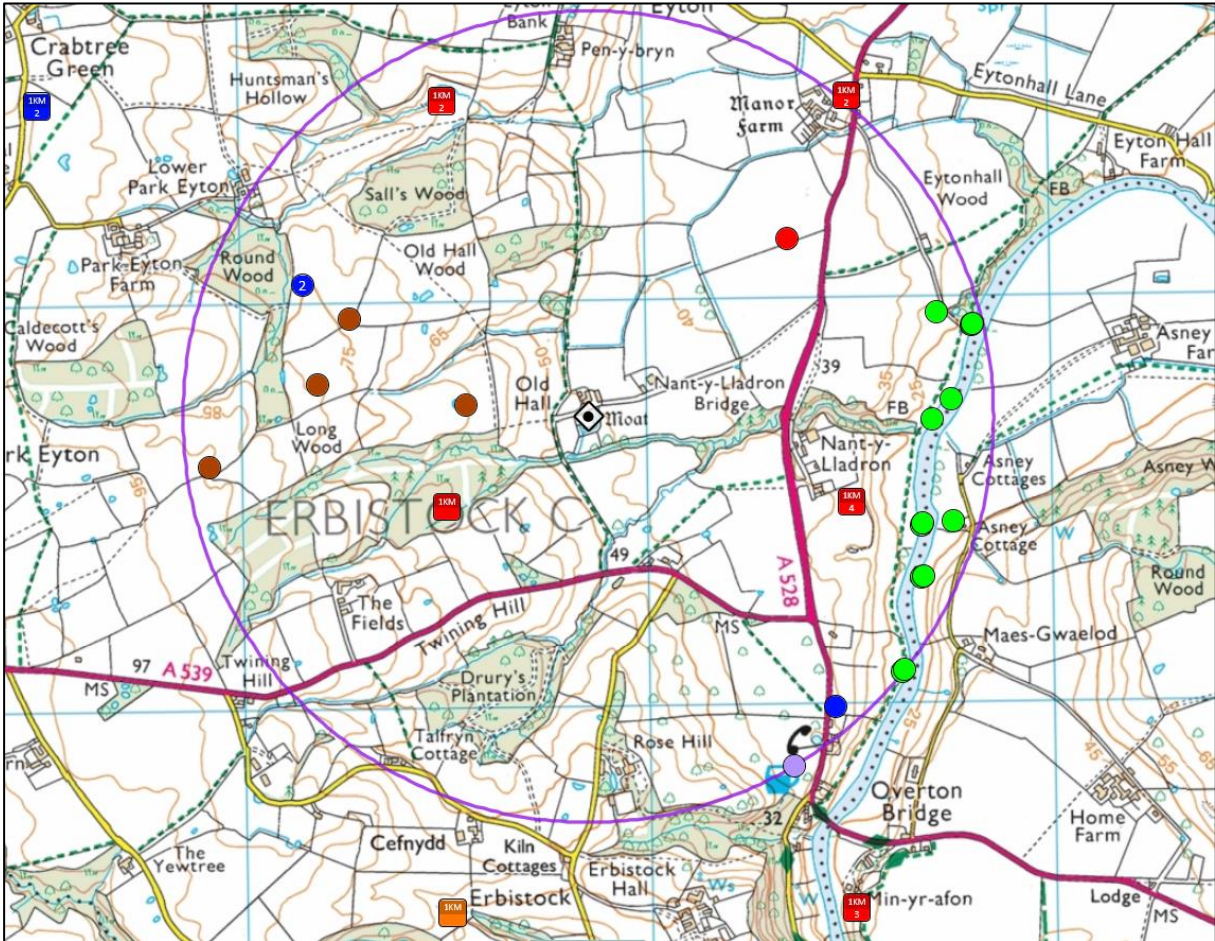
Ancient Woodland Sites

- ☒ 1: 28930: Ancient Semi Natural Woodland
- ☒ 2: 28931: Ancient Semi Natural Woodland
- ☒ 3: 28932: Ancient Semi Natural Woodland
- ☒ 4: 30605: Restored Ancient Woodland Site
- ☒ 5: 30607: Restored Ancient Woodland Site
- ☒ 6: 30608: Restored Ancient Woodland Site
- ☒ 7: 30609: Restored Ancient Woodland Site
- ☒ 8: 33280: Ancient Semi Natural Woodland
- ☒ 9: 33283: Ancient Semi Natural Woodland
- ☒ 10: 37094: Restored Ancient Woodland Site
- ☒ 11: 37097: Restored Ancient Woodland Site
- ☒ 12: 37099: Restored Ancient Woodland Site
- ☒ 13: 37100: Restored Ancient Woodland Site
- ☒ 14: 37101: Restored Ancient Woodland Site
- ☒ 15: 37103: Restored Ancient Woodland Site
- ☒ 16: 37104: Restored Ancient Woodland Site
- ☒ 17: 45362: Plantation on Ancient Woodland Site
- ☒ 18: 45363: Plantation on Ancient Woodland Site
- ☒ 19: 47126: Plantation on Ancient Woodland Site

Sites

Site Type	Distance	Site Name	Link	Sites Features
Ancient Woodland Sites	160m	30605: Restored Ancient Woodland Site		
Ancient Woodland Sites	172m	37101: Restored Ancient Woodland Site		
Ancient Woodland Sites	201m	45362: Plantation on Ancient Woodland Site		
Ancient Woodland Sites	205m	47126: Plantation on Ancient Woodland Site		
Ancient Woodland Sites	249m	28931: Ancient Semi Natural Woodland		
Ancient Woodland Sites	389m	30607: Restored Ancient Woodland Site		
Ancient Woodland Sites	389m	37099: Restored Ancient Woodland Site		
Ancient Woodland Sites	424m	45363: Plantation on Ancient Woodland Site		
Ancient Woodland Sites	455m	33283: Ancient Semi Natural Woodland		
Ancient Woodland Sites	462m	37097: Restored Ancient		
Ancient Woodland Sites	507m	28932: Ancient Semi Natural Woodland		
Ancient Woodland Sites	557m	30608: Restored Ancient Woodland Site		
Ancient Woodland Sites	599m	37100: Restored Ancient Woodland Site		
Ancient Woodland Sites	630m	37094: Restored Ancient Woodland Site		
Ancient Woodland Sites	724m	37103: Restored Ancient Woodland Site		
Ancient Woodland Sites	856m	37104: Restored Ancient Woodland Site		
Ancient Woodland Sites	894m	33280: Ancient Semi Natural Woodland		
Ancient Woodland Sites	908m	30609: Restored Ancient Woodland Site		
Ancient Woodland Sites	979m	28930: Ancient Semi Natural Woodland		

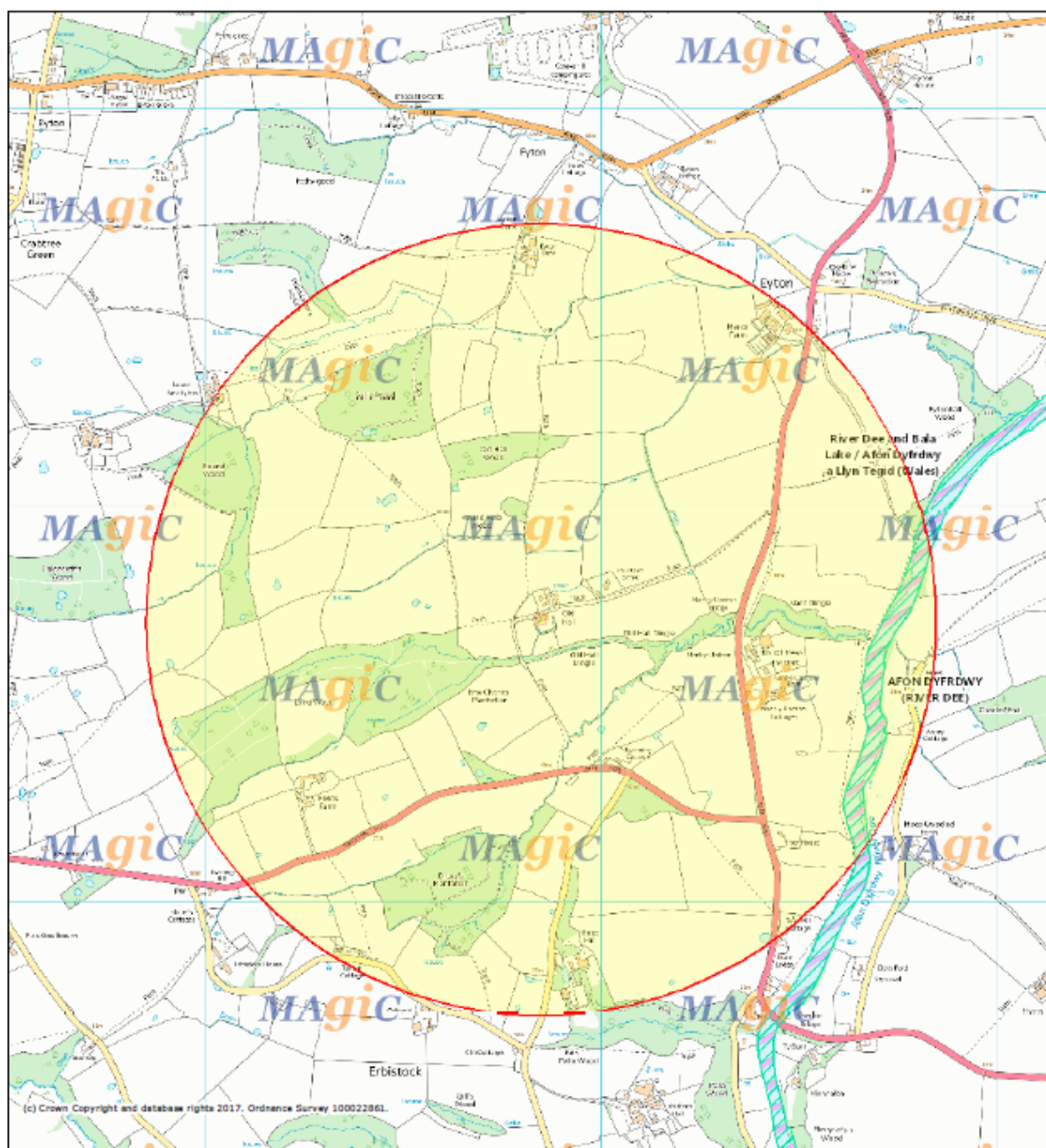
Map and Extracts of species data provided by COFNOD within 1km



Species Group	Scientific Name	English Name	Earliest Year	Latest Year	Total Records
Birds	Tyto alba	Barn Owl	2005	2012	8
Birds	Pyrrhula pyrrhula	Bullfinch	2008	2008	2
Birds	Numenius arquata	Curlew	2005	2005	1
Birds	Prunella modularis	Dunnoek	2010	2010	1
Birds	Sylvia borin	Garden Warbler	2010	2010	1

Birds	<i>Regulus regulus</i>	Goldcrest	2010	2010	1
Birds	<i>Accipiter gentilis</i>	Goshawk	2005	2005	1
Birds	<i>Perdix perdix</i>	Grey Partridge	2005	2005	1
Birds	<i>Circus cyaneus</i>	Hen Harrier	2005	2005	1
Birds	<i>Delichon urbicum</i>	House Martin	2015	2015	1
Birds	<i>Passer domesticus</i>	House Sparrow	2010	2010	1
Birds	<i>Falco tinnunculus</i>	Kestrel	2016	2016	1
Birds	<i>Aegithalos caudatus</i>	Long-tailed Tit	2010	2010	2
Birds	<i>Anthus pratensis</i>	Meadow Pipit	2008	2008	2
Birds	<i>Milvus milvus</i>	Red Kite	2015	2015	1
Birds	<i>Alauda arvensis</i>	Skylark	2005	2005	1
Birds	<i>Hirundo rustica</i>	Swallow	2015	2015	1
Birds	<i>Apus apus</i>	Swift	2010	2010	1
Birds	<i>Sylvia communis</i>	Whitethroat	2010	2010	1
Birds	<i>Scolopax rusticola</i>	Woodcock	2005	2005	1
Birds	<i>Emberiza citrinella</i>	Yellowhammer	2008	2008	1
Butterflies and Moths	<i>Hipparchia semele</i>	Grayling	1995	1995	1
Fish	<i>Petromyzon marinus</i>	Sea Lamprey	2009	2009	1
Mammals	<i>Neovison vison</i>	American Mink	2005	2005	1
Mammals	<i>Meles meles</i>	Badger	2003	2003	8
Mammals	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	1988	1988	1
Mammals	<i>Lepus europaeus</i>	Hare	2005	2005	2
Mammals	<i>Erinaceus europaeus</i>	Hedgehog	2012	2012	1
Mammals	<i>Lutra lutra</i>	Otter	1998	2005	3
Mammals	Chiroptera	Unknown Bat	1987	2005	5
Mammals	<i>Arvicola amphibius</i>	Water Vole	2005	2005	1
Other Invertebrates	<i>Margaritifera (Margaritifera) margaritifera</i>	Freshwater Pearl Mussel	1985	1985	2
Other Invertebrates	<i>Tabanus cordiger</i>	Plain-eyed Grey Horsefly	2002	2002	1
Plants	<i>Rhododendron ponticum</i>		2012	2012	1
Plants	<i>Hyacinthoides non-scripta</i>	Bluebell	2014	2014	1
Plants	<i>Hyacinthoides non-scripta</i> x <i>hispanica</i> = <i>H. x massartiana</i>	Bluebell	2014	2014	3
Plants	<i>Prunus laurocerasus</i>	Cherry Laurel	2014	2014	1
Plants	<i>Impatiens glandulifera</i>	Himalayan Balsam	1994	2014	13
Plants	<i>Fallopia japonica</i>	Japanese Knotweed	1994	2014	8
Plants	<i>Lemna minuta</i>	Least Duckweed	2014	2014	2
Plants	<i>Mimulus guttatus</i>	Monkeyflower	2014	2014	2
Reptiles and Amphibians	<i>Rana temporaria</i>	Common Frog	2001	2001	1
Reptiles and Amphibians	<i>Triturus cristatus</i>	Great Crested Newt	1993	1993	6
Reptiles and Amphibians	<i>Lissotriton vulgaris</i>	Smooth Newt	2001	2001	1

MAGIC Map 1km search zone for designated wildlife sites - Map



Legend

- National Nature Reserves (Wales)
- Ramsar Sites (Wales)
- Sites of Special Scientific Interest (Wales)
- Special Areas of Conservation (Wales)
- Special Protection Areas (Wales)
- Biosphere Reserves (Wales)

Projection = OSGB36

xmin = 332600

ymax = 342700

xmax = 337000

ymax = 344900

Map produced by MAGIC on 10 February, 2017.
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MAGIC Map 1km search zone for designated wildlife sites - Report

Sites of Special Scientific Interest (Wales)

Name

AFON DYFRDWY (RIVER DEE)

SSSI Code

31WDW

First Notified

30/11/1995

Last Notified

02/05/2002

Confirmation Date

24/01/2003

Eastings

306401

Northings

342641

Cartesian Area (Ha)

1491.421792

Special Areas of Conservation (Wales)

Name

River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)

Reference

UK0030252

Marine

n

Date Notified

01/04/2005

Cartesian Area (Ha)

1146.137827

National Nature Reserves (Wales)

No Features found

Ramsar Sites (Wales)

No Features found

Special Protection Areas (Wales)

No Features found

Biosphere Reserves (Wales)

No Features found

MAGIC Map search for SSSI Impact Risk Zones for site only

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

All Planning Applications

Infrastructure

Airports, helipads and other aviation proposals.

Wind & Solar Energy

Minerals, Oil & Gas

Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

Rural Non Residential

Residential

Rural Residential

Air Pollution

Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, pig & poultry units, slurry lagoons > 750m³ & manure stores > 3500t).

Combustion

General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

Waste**Composting****Discharges****Water Supply****GUIDANCE – How to use the Impact Risk Zones**

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

All Planning Applications**Infrastructure**

Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.

Wind & Solar Energy**Minerals, Oil & Gas**

Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

Rural Non Residential**Residential****Rural Residential****Air Pollution**

Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, pig & poultry units, slurry lagoons > 200m³ & manure stores > 250t).

Combustion

General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

Waste

Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.

Composting

Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.

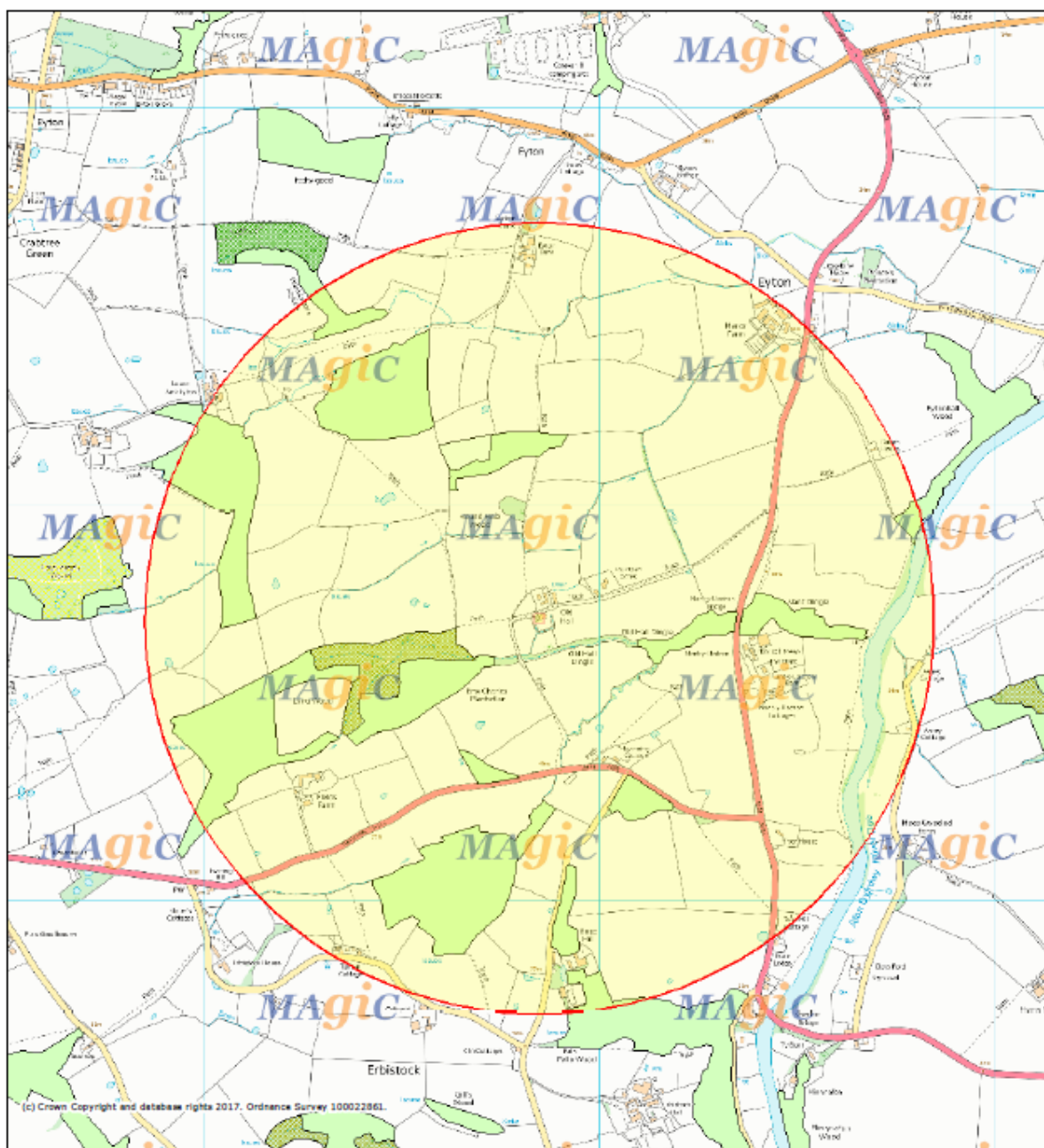
Discharges**Water Supply**

Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.

GUIDANCE – How to use the Impact Risk Zones

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

MAGIC Map 1km search zone for habitat inventory data



Legend

National Forest Inventory (GB)

Low density	Mixed mainly broadleaved
Assumed woodland	Mixed mainly conifer
Broadleaved	Shrub
Cloud / shadow	Uncertain
Conifer	Windthrow
Coppice	Young trees
Coppice with standards	
Felled	
Felled	
Ground prep	

Projection = OSGB36
xmin = 332800
ymin = 342700
xmax = 337000
ymax = 344900

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Wildlife Site Citations

CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

GWYNEDD/DENBIGHSHIRE/
WREXHAM/FLINTSHIRE

AFON DYFRDWY (RIVER DEE)

Date of Notification: 1995, 2002

National Grid Reference: SH 930351 – SJ 311695

O.S. Maps

1:50,000 Sheet number:	Outdoor Leisure map 18 Explorer maps 255, 256, 257 & 266
1:10,000 Sheet number:	SH83 NE; SH84 SE; SH93 NW & NE; SH94 SW; SJ03 NW; SJ04 SW & SE; SJ13 NE, NW, SE & SW; SJ14 SW & SE; SJ23 NW & NE; SJ24 SW & SE; SJ26 NE SJ27 SE; SJ33 NW; SJ34 SW, SE & NE; SJ35 NE; SJ36 NE & NW; SJ44 NW; SJ45 SW & NW

Site area: 1,489.5 ha

Description:

Afon Dyfrdwy (River Dee) is of special interest for its fluvial geomorphology, Carboniferous geology, range of river habitat types, saltmarsh transition habitats, populations of floating water plantain *Luronium natans*, slender hare's-ear *Bupleurum tenuissimum*, sea barley *Hordeum marinum*, hard-grass *Parapholis strigosa*, otter *Lutra lutra*, salmon *Salmo salar*, bullhead *Cottus gobio*, brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, club-tailed dragonfly *Gomphus vulgatissimus* and other aquatic invertebrates.

The main channel of the River Dee lies within both Wales and England, and is notified as two separate SSSIs – the Afon Dyfrdwy (River Dee) SSSI in Wales and the River Dee (England) SSSI in England. The features for which the SSSIs are notified, in particular migratory fish, depend upon the whole river ecosystem. Salmon, otter, club-tailed dragonfly, and fluvial geomorphology are of special interest in both Wales and England.

The site extends from the outflow of Llyn Tegid SSSI downstream to where it flows into the Dee Estuary SSSI. In its swifter upper reaches it flows through the broad valley near Corwen, and the spectacular Vale of Llangollen before entering the Cheshire plain at Erbistock and meandering northwards through the Cheshire plain to its tidal limit at Farndon. In its slower, more mature reaches the river is characteristic of a floodplain river with meanders, oxbows and other river-formed landscape features. The River Dee is heavily regulated, with its flow controlled by the reservoirs of Tegid, Celyn and Brenig. The site includes the Ceiriog, Meloch, Tryweryn, and Mynach tributaries.

The source of the River Dee lies within the Snowdonia National Park and its catchment contains a wide spectrum of landscapes from high mountains around Bala, rugged peaks near Llangollen, steep-sided wooded valleys, and the plains of Cheshire and north Shropshire through to the vast mudflats of the estuary. There is a tidal influence as far upstream as Farndon and high tides regularly exceed the Chester weir crest level.

The course and topography of the River Dee and its tributaries were strongly influenced and modified during the last Ice Age. The underlying geology of the Dee ranges from impermeable Cambrian and Ordovician shales in the west, through Silurian to Carboniferous Limestone outcrop at Llangollen to Coal Measures and thick boulder clay overlying the Triassic sandstones of the Lower Dee valley.

GEOLOGY/GEOMORPHOLOGY

Three separate Geological Conservation Review (GCR) Sites are located within the Afon Dyfrdwy (River Dee) SSSI. The River Dee (Rhewl Section) and River Dee (Holt to Worthenbury) GCR sites were selected for their fluvial geomorphological importance and had previously been notified as individual SSSI. The rocks exposed at Dee Bridge are important for their Upper Carboniferous stratigraphy.

Dee Bridge (Upper Carboniferous)

Dee Bridge is important for its Upper Carboniferous stratigraphy. It encompasses the type locality for the Dee Bridge Formation. Adjacent to the river is a sequence of shales, sandstones and mudstones deposited under fluvio-deltaic conditions between the Kinderscoutian and Langsettian stages. Along with a correlative site 20 km to the north (Ruby Brickworks), it comprises the most complete documented sequence of upper Namurian strata in North Wales, illustrating the variation of marginal facies along the northern margin of the Wales-Brabant massif. The site is unique in Wales in showing the progressive, increased influence of more northerly-derived sediments over those derived from the northern margin of the Wales-Brabant massif.

River Dee (Holt to Worthenbury) (fluvial geomorphology)

This site comprises a meandering reach of the River Dee between Holt in the north and Worthenbury in the south. It includes land in Wrexham (Wales) and Cheshire (England) and consists of some of the most spectacular and intricately developed river bends or meanders seen anywhere in Britain. The site is important for studies of fluvial geomorphology.

The GCR site was selected for: 1) the present river channel and its intricate pattern of meanders; 2) the main areas of floodplain either side of the river, for the full length of the selected reach; 3) all the visible palaeochannels (abandoned channels) located on the floodplain adjacent to the present channel; 4) the gravel and sand bars located within the modern channel and the other evidence of modern-day river processes contained within the channel; and 5) the most impressive of the remnants of ancient river cliffs located towards the north-east and south-west margins of the site.

The pattern and scale of the meanders are exceptional on a British scale: the range of forms from simple curves to double-headed forms, and the intricacy of the pattern developed over the whole reach is outstanding. The total landform assemblage, including the remnants of ancient river cliffs, the floodplain areas, and the present and abandoned channels, provides the basis for

reconstructing the development of the river since the end of the last glaciation. The abandoned channels and old meander loops (some of which were once oxbow lakes) are exceptional landforms in their own right; their pattern, location and contained sediments provide significant potential for reconstructing some of the geologically recent changes in the course of the River Dee in its long evolution during Holocene times, namely the last 11,500 years. The gravel and sand bars distributed along the course of the modern channel, and the changing form of its banks and bed, bear witness to a range of important modern-day fluvial processes.

Although this part of the course of the River Dee has changed in position markedly during the Holocene, the last few hundred years have been characterised by relative channel stability. It seems likely that the banks and bed of the modern channel are now evolving in response to changing flow and sediment regimes induced by upstream regulation and other human modification to the fluvial system. The significance of the site for studying modern-day river processes is enhanced by the tidally-influenced downstream reach. This renders the site potentially significant for investigating the effects of possible future sea-level rise on the development of the river channel, particularly in view of the long history of tidal influences and stage records (river level) at downstream locations.

This reach of the Dee is a valuable part of the heritage of Great Britain, due to its outstanding combination of landform, sedimentary and process evidence. Most large British rivers have been significantly channelised or straightened in their lower reaches. The Dee is exceptional in maintaining an extremely sinuous platform across the sensitive fluvial-tidal transition zone.

River Dee (Rhewl Section) (fluvial geomorphology)

This reach of the River Dee provides a particularly good example of ingrown incised meanders. Their formation has involved lateral erosion as well as vertical erosion, so that the valley is asymmetrical in cross-profile and indicates that rejuvenation was progressive. In this respect the Dee meanders provide a geomorphological contrast to the entrenched meanders of the River Wye.

FLORA

The River Dee below Llyn Tegid is a predominantly mesotrophic river with a diversity of vegetation types reflecting its geology and geographical location. Near the outflow of Llyn Tegid, the community is typical of a sandstone, mudstone and hard limestone river type intergrading with a mesotrophic river type dominated by gravels, pebbles and cobbles. Species such as hemlock water-dropwort *Oenanthe crocata*, alternate water-milfoil *Myriophyllum alterniflorum*, intermediate water-starwort *Callitriche hamulata*, water mosses *Fontinalis antipyretica* and *F. squamosa*, and reed canary-grass *Phalaris arundinacea* are present. In spite of the large size of the river, the moderate gradient allows pond water-crowfoot *Ranunculus peltatus* to dominate. The nationally and internationally rare floating water-plantain *Luronium natans* also occurs here.

Below Corwen the river increases in gradient such that the community changes to an oligo-mesotrophic river type comprised of numerous bryophytes including *Brachythecium rivulare*, *Conocephalum conicum*, *Eurynchium praelongum*, *Philonotis fontana* and *Rhyncostegium riparioides*, interspersed with patches of *Fontinalis* spp. and sparse milfoil and crowfoot.

Between Llangollen and Bangor-on-Dee, sandstone, mudstone and hard limestone river type

vegetation again predominates, this time with the unusual hybrid crowfoot *Ranunculus x bachii* (*R. fluitans x aquatilis*) occurring in large stands. The Dee is one of only two known UK localities for this hybrid. In this section the river shows signs of nutrient enrichment with the introduced Canadian waterweed *Elodea canadensis* becoming more prevalent.

Below Bangor-on-Dee the River Dee flows into the Cheshire plains and displays typical characteristics of lowland river types with shallow gradients flowing over nutrient rich soils, with pondweeds such as curled pondweed *Potamogeton crispus*, perfoliate pondweed *Potamogeton perfoliatus* and small pondweed *Potamogeton berchtoldii* occurring frequently. Tripartite bur-marigold *Bidens tripartita* and lesser pondweed *Potamogeton pusillus*, both rare along Welsh rivers, are found in this section. This section is a lowland, clay-dominated river type but due to overgrazing of the margins and eutrophication this vegetation component is threatened and frequently species-poor. Fennel pondweed *Potamogeton pectinatus* also occurs here and in the more eutrophic sections may be the only submerged species.

There is good tree cover along the banks of the River Dee and the tributaries, with the Ceiriog being tree lined on both banks along much of its length. The dominant species are alder *Alnus glutinosa* and willow *Salix spp.*, with occasional ash *Fraxinus excelsior* and oak *Quercus spp.*. Where sections of the riverbank have been fenced off the vegetation tends to be dominated by bramble *Rubus fruticosus*, nettles *Urtica dioica* and other tall ruderals. Indian (also known as Himalayan) balsam *Impatiens glandulifera* and Japanese knotweed *Fallopia japonica* are increasing throughout the site.

Downstream of Chester along the canalised section of the river towards the estuary saltmarsh transition habitats have developed. These comprise upper and middle saltmarsh, annual high marsh and wet neutral grassland. These habitats support such rarities as the following species of special interest: slender hare's-ear, sea barley and hard-grass.

MAMMALS

The otter is of special interest and is found throughout the site, especially where appropriate bank side cover exists to provide secure holts and lying up areas. Water vole *Arvicola terrestris* have been recorded on the middle and lower reaches of the River Dee.

FISH

The River Dee is of special interest for Atlantic salmon for which it is one of the Environment Agency's index rivers. The Mynach, Meloch and Ceiriog tributaries are the most important salmon spawning tributaries in the Dee catchment and are included within this SSSI. Other migratory fish utilising the system include river lamprey, sea lamprey, sea trout *Salmo trutta trutta*, and eel *Anguilla anguilla*. Smelt *Osmerus eperlanus* and Twaite shad *Alosa fallax* have been recorded in the section between Chester and the estuary, but are not thought to have breeding populations.

The Dee also supports populations of non-migratory fish including bullhead and brook lamprey which are species of special interest, as well as brown trout *Salmo trutta*. The river is noted for its grayling *Thymallus thymallus*. The middle and lower reaches of the Dee support a diverse coarse fish population including, roach *Rutilus rutilus*, dace *Leuciscus leuciscus*, bream *Abramis brama* and perch *Perca fluviatilis*, although low water temperatures and poor riparian habitat

limit spawning success. Several coarse fish species including Barbel *Barbus barbus*, ruffe *Gymnocephalus cernua*, chub *Leuciscus cephalus*, and silver bream *Blicca bjoerkna* have been introduced to the system.

INVERTEBRATES

The lower reaches of the River Dee support Britain's only known population of the stonefly *Isogemus nubecula*. Club-tailed dragonfly *Gomphus vulgatissimus* is nationally scarce and present along the lower Dee, particularly where the river is slow flowing and there is adjacent woodland habitat or bankside tree cover available for adults. The nationally scarce weevil *Baris lepidii* has been recorded at its only Welsh site on sandy riverbanks along the lower Dee. All three species are of special interest.

Other aquatic invertebrates present include the nationally scarce freshwater pearl mussel *Margaritifera margaritifera* which is recorded from only nine Welsh rivers, and the water beetle *Bidessus minutissimus*, which inhabits reaches of the middle Dee, where it prefers fine gravel substrates in shallow, slow flowing side-waters.

Remarks:

The section of the Dee that flows through England is notified as a separate SSSI under the name of River Dee (England), ensuring that the whole of the river is safeguarded.

Part of the SSSI lies within the Snowdonia National Park.

The Afon Dyfrdwy (River Dee) SSSI supports the following habitats and species listed in the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora):

- Rivers with floating vegetation often dominated by water crowfoot - Annex I
- Otter – Annex II & IV
- Sea lamprey – Annex II
- River lamprey – Annex II & V
- Brook lamprey – Annex II
- Atlantic salmon – Annex II & V
- Bullhead – Annex II
- Freshwater pearl mussel – Annex II & V
- Grayling – Annex V

The otter and the freshwater pearl mussel are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

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River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid

Site details

Country	England/Wales
Unitary Authority	Cheshire, East Wales, Shropshire and Staffordshire, West Wales and The Valleys
Centroid*	SJ423503
Latitude	53.04722222
Longitude	-2.861111111
SAC EU code	UK0030252
Status	Designated Special Area of Conservation (SAC)
Area (ha)	1271.32

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.



Location of River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC/SCI/cSAC

General site character

Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) (4%)
Salt marshes, Salt pastures, Salt steppes (2%)
Inland water bodies (Standing water, Running water) (90%)
Improved grassland (2%)
Broad-leaved deciduous woodland (2%)

[Boundary map](#) and associated biodiversity information on the NBN Gateway.

[Natura 2000 standard data form](#) for this site as submitted to Europe (PDF, < 100kb).

Note:

When undertaking an appropriate assessment of impacts at a site, all features of European importance (both primary and non-primary) need to be considered.

Annex I habitats that are a primary reason for selection of this site

3260 [Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation](#)

Habitat occurrence description not yet available.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

Not applicable.

Annex II species that are a primary reason for selection of this site

1106 [Atlantic salmon](#) *Salmo salar*

Species occurrence description not yet available.

1831 [Floating water-plantain](#) *Luronium natans*

Species occurrence description not yet available.

Annex II species present as a qualifying feature, but not a primary reason for site selection

1095 [Sea lamprey](#) *Petromyzon marinus*

1096 [Brook lamprey](#) *Lampetra planeri*

1099 [River lamprey](#) *Lampetra fluviatilis*

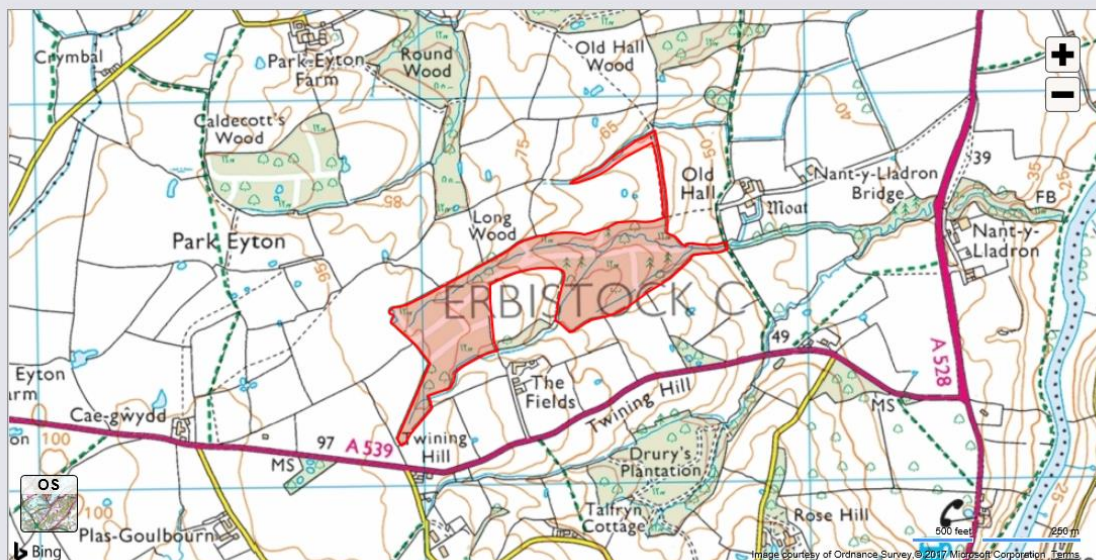
1163 [Bullhead](#) *Cottus gobio*

1355 [Otter](#) *Lutra lutra*

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

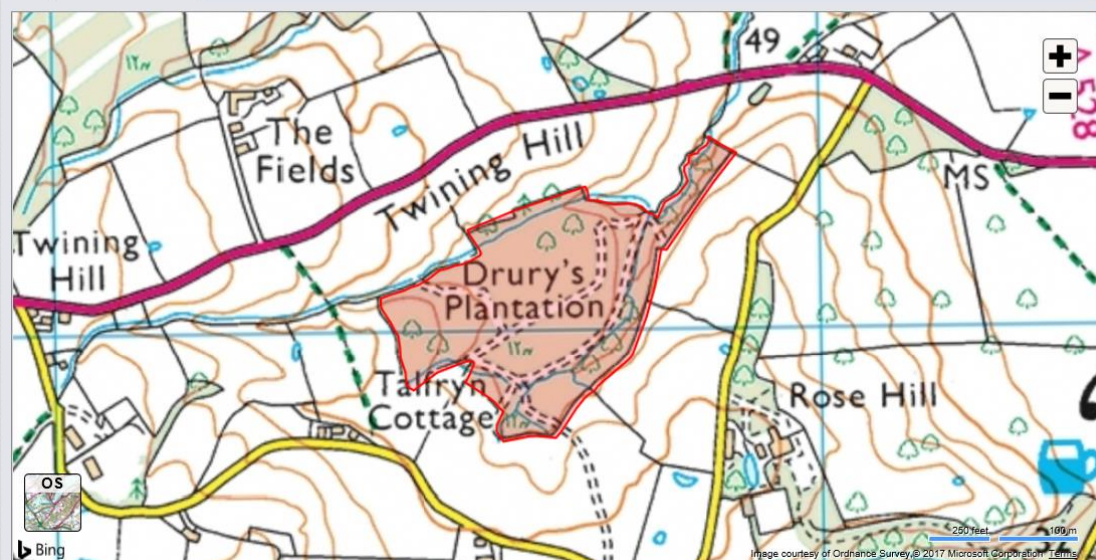
W342: Long Wood and Grassland, Erbistock

Location:	Wrexham
Centroid Grid Reference:	SJ343435
Area:	14.4 ha
Site Description:	An ancient broad-leaved woodland. It is of one of only two ash/wych elm woods in North Wales. Other canopy species are sessile oak, beech, sycamore and conifers. The understorey includes hazel, hawthorn, holly, field maple and wild privet. The ground flora is rich in diversity. Areas of damp soil support species such as pendulous sedge, meadowsweet, angelica and thin-spiked wood sedge. The dryer ground species include wood millet, hairy brome, hart's tongue fern, common spotted orchid and broad-leaved helleborine. To the north is a strip of unimproved grassland on a slope. Species present here include sneezewort, yellow-wort, agrimony, oxeye daisy, purging flax, toad rush and dyer's greenweed.
Habitats:	
Designation Reason:	



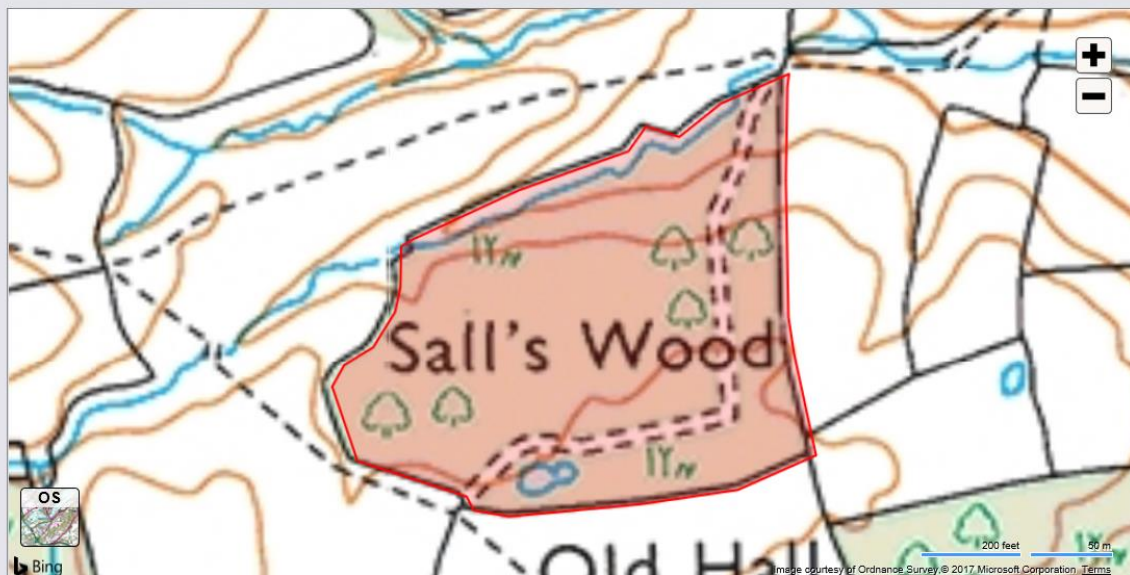
W343: Drury's Plantation

Location:	Wrexham
Centroid Grid Reference:	SJ346430
Area:	7.8 ha
Site Description:	One of only two ash/wych elm woodlands in North Wales. Other tree species present are sessile oak, sycamore, wild cherry, horse chestnut, alder and poplars. The structure is poor with areas of dense understorey. This includes hazel, hawthorn, blackthorn and wild privet. The ground flora is diverse and has abundant bramble and dog's mercury with some tufted hair-grass, wood millet, pendulous edge, angelica and thin-spiked wood sedge.
Habitats:	
Designation Reason:	



W339: Sall's Wood

Location:	Wrexham
Centroid Grid Reference:	SJ344442
Area:	5.5 ha
Site Description:	An estate woodland which has a mixed canopy composition. The wood is ancient with a good broad-leaved content. Several ancient woodland species remain in the ground flora including false oxslip.
Habitats:	
Designation Reason:	



W348: Palla Wood

Location:	Wrexham
Centroid Grid Reference:	SJ352425
Area:	7.7 ha
Site Description:	A diverse woodland situated along the bank of the River Dee and a small tributary of the Dee. The canopy is mainly sycamore and ash, with alders on the damper ground and some planted beech. There is a hazel and elder understorey with frequent wych elm. Much of the soil is damp and this supports an excellent field layer; pendulous sedge, enchanter's nightshade, stinging-nettle and opposite-leaved golden saxifrage are all common, whilst there is occasional large bitter-cress and thin-spiked wood sedge. The dryer slopes have much ivy, bramble and dog's-mercury, but there is also sanicle, wild garlic, wood sedge and hart's-tongue fern.
Habitats:	Semi-natural broad-leaved woodland
Designation Reason:	



W321: Eyton Hall Wood

Location:	Wrexham
Centroid Grid Reference:	SJ359442
Area:	3.7 ha
Site Description:	An L-shaped woodland along a brook leading to the River Dee and then southwards along the river. The canopy is mainly ash with some oak, sycamore and wild cherry. The understorey has much wych elm and some hazel, elder and wild privet. The field layer is good, although there are large amounts of nettle and bramble, other common species are yellow archangel, dog's mercury, ivy, bluebell and false brome. Additional plants present are hartstongue fern, pendulous sedge, opposite-leaved golden saxifrage and wood millet.
Habitats:	Fraxinus - Acer - Mercurialis woodland, Semi-natural broad-leaved woodland
Designation Reason:	



APPENDIX B: Bat and bird box information

APPENDIX D

Examples of habitat enhancement measures for bats and birds

BAT BOXES TO INSTALL INTO OR ON TO BUILDINGS & BUILT STRUCTURES

These bat boxes are designed to be built into buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. They are particularly useful for incorporating into new buildings or bridges to attract bats or to provide new roost sites where existing buildings with bats are being renovated.

Schwegler N27

This box should be cemented into a wall. It contains a single internal wooden panel which simulates a crevice. The removable front panel allows for easy cleaning. *No painting is required, but if it is necessary, a natural breathable paint should be used*

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width 18cm, Height 29cm, Depth 23.5cm



Schwegler 1FR Bat Tube

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom, allowing for self-cleaning. No painting required, but if painting is necessary a natural breathable paint should be used

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width 20cm, Height 47.5cm, Depth 12.5cm

Entrance width 15cm, Entrance depth 2cm



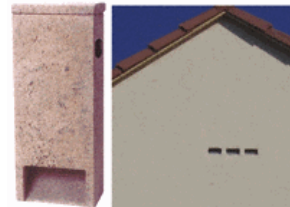
Schwegler 2FR Bat Tube

The same design as the 1FR but with holes in the sides. This allows multiple tubes to be placed next to each other to form a much larger bat roost. These boxes are maintenance-free as the entrance slit is at the bottom. No painting required, but if painting is necessary a natural breathable paint should be used.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 20cm, Height: 47cm, Depth: 12.5cm, Weight: 13kg

Entrance Width: 15cm, Entrance Depth: 2cm



Ibstock - Enclosed Bat Box B

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work

215mm x 215mm or 215mm x 290mm

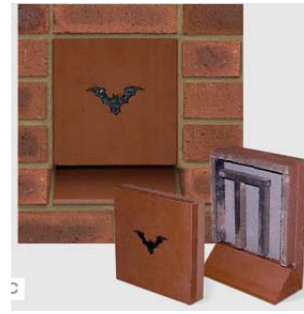
F2 S2 Fully frost resistant



lbstock - Bat Box with Engraved Motif C

- Attractive motive
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work

215mm x 215mm or 215mm x 290mm
F2 S2 Fully frost resistant



Schwegler Bat Access Panel

This is a maintenance free access panel, designed to allow bats entry through exterior walls. The rear of the panel is left open so bats can pass through into existing bat roosts. The bat panel is particularly useful when renovation or conversion work is taking place in buildings containing bat roosts, where continued access to established bat roosts is desirable. No painting is required, but if painting is necessary a natural breathable paint should be used.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 30cm, Height: 30cm, Depth: 8cm, Weight: 7.8kg



Back Plate for 1FE Bat Panel

If access to an existing nesting site is not required, the 1FE can be fitted with an optional Back Plate, which includes an attached wooden panel to create a cavity wall inside the box. The roughened surfaces of the Plate, and the inside of the 1FE itself, are very attractive to bats. Installation of the complete box is easy. For example, it can be screwed to a wall or fixed within insulation.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)
Weight: 2.2kg



Schwegler 1FQ Bat Box

An attractive box designed specifically to be fitted on the external wall of a house, barn or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside as well as a roughened front panel to enable the bats to land securely. Access into the box is via a step-like recess.

Inside the box, rough pieces of wood are incorporated into the back of the box which are good insulators and are used by the bats as perches. The internal layout offers three different areas with varying degrees of brightness and temperature.

This durable box is easy to attach to most walls, requires no maintenance or cleaning and will last for decades. Please note that this box is designed to be fitted to a wall. Due to the weight it is unsuitable for fences or sheds.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height 565mm; Width 350mm, Depth 85mm, Weight 13kg



BAT BOXES FOR SITING ON TREES

Schwegler 2F Bat Box

A popular general purpose box attractive to the smaller British bats. A simple design with a narrow entrance slit on the front.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm



Schwegler 2F-DFP Bat Box

A general purpose box attractive to the smaller British bats, with a roughened wooden panel inside the box which simulates a crevice.

This box is favoured by Daubenton's bat and Nathusius' pipistrelle.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm



Schwegler 2FN Bat Box

A larger box with both a wide access slit at the base and an access hole on the underside. Suitable for the larger British bat species. Particularly successful in attracting noctule and Bechstein's bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 36cm



Schwegler 1FD Bat Box

A large general purpose bat box, with two roughened wood panels inside the box which simulate crevices.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm, Height 36cm



Schwegler 1FW Hibernation Box

This large box is designed to provide a protected environment, particularly through the cold winter months when bats hibernate. It has three internal wooden panels imitating crevices. *Supplied with special fixing brackets. It is important to fit this heavy box very securely if mounting above the ground, and to site it well away from public areas.*

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 38cm, Height 50cm, Weight 30kg



Schwegler 1FS Bat Box

Schwegler woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are extremely long lasting and rot- and predator-proof. The 1FS is a larger capacity general purpose bat box with more insulation than most boxes for a more stable temperature in the winter.

Wooden block hanger and 'tree-friendly' aluminium nails included.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter: 28cm Height: 44cm Weight: 10kg



BIRD BOX SPECIFICATIONS

BOXES TO FIT ON/IN BUILDINGS

Sparrow Terrace, Stone Colour

House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. Stone colour.

No maintenance required.

Dimensions 245 x 430 x 200 mm.

Weight 13kg. Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box).

A02085 Sparrow Terrace, Stone Colour (also available in brown)



Schwegler 9A House Martin Double Nest

These woodcrete nests are durable and ready for immediate use when birds return each summer. Easily fixed under the eaves on the outside walls of buildings, at least 2 metres from the ground. The backing board may be painted to match the building. Model 9A is a double unit with two nests mounted side by side on a backing board, as shown. Model 9B is similar to the 9A above but with one single nest

A02018 Schwegler 9A House Martin Double Nest

A02019 Schwegler 9B Single House Martin Nest



Schwegler No 10 Swallow Box

This box should be located inside buildings such as barns, stables, sheds or outhouses, ensuring there is always access for the birds through a window or opening.

A02020 Schwegler No 10 Swallow Box



Droppings Board

To avoid problems with bird droppings from house martin or swallow nests, this board can be installed where necessary, for example over a window or door.

A02021 Droppings Board



Schwegler No 16 IMF Swift Box, Double Chamber

The design of this box mimics bell tower louvres. It has two removable panels for easy inspection of the two nest chambers.

Designed for fixing on or within walls (not suitable for fences or sheds).

Dimensions 460mm h x 430mm w x 225mm d

A02088 Schwegler No 16 IMF Swift Box, Double Chamber



Schwegler No 16 Swift Box, Single Chamber

Similar to the box above but with a single chamber and single front panel.

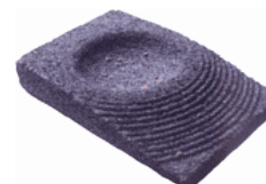
Dimensions 240mm h x 430mm w x 225mm d.

A02087 Schwegler No 16 Swift Box, Single Chamber

Nest Mould for No 16 Swift Boxes

This nest mould fits inside the nest chamber of the No16 or No16 IMF boxes above, to encourage nesting. Research shows that the birds are more likely to nest if a nest mould is used.

A02089 Nest Mould for No 16 Swift Boxes



Schwegler No 17 Swift Box

This box is constructed from plant-fibre based material. It should be sited 6-7m above the ground, near the roof of a building or on a steep rock face.

Interior dimensions 14 x 14 cm. Outer length 34cm

A02041 Schwegler No 17 Swift Box



Schwegler No 18 Swift Box

This nest box is suitable for fixing high under the eaves or under the guttering of a building.

Woodcrete on board backing.

Interior dimensions 14 x 34 x 15 cm.

Exterior dimensions 19 x 50 x 22 cm

A02041A Schwegler No 18 Swift Box

**Schwegler N24 Nest Brick**

Designed for installation into the fabric of a building, this box is suitable for tits and redstart etc. Woodcrete.

Weight 7.3kg

Entrance hole 32mm Dimensions 180w x 180d x 240h mm

A02043 Schwegler N24 Nest Brick

**Schwegler N25 Nest Brick**

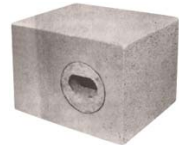
Designed for installation into the fabric of a building, this box is suitable for swifts.

Woodcrete

Weight 8.8kg

Entrance hole 55x33mm. Dimensions 260w x 220d x 180h mm

A02044 Schwegler N25 Nest Brick

**Schwegler N26 Nest Brick**

Designed for installation into the fabric of a building, this box is suitable for pied wagtail, spotted flycatcher and black redstart etc. Woodcrete.

Weight 5.4kg

Entrance hole 110mm Dimensions 180w x 180d x 200h mm

A02045 Schwegler N26 Nest Brick

**BOXES TO FIT FENCES, WALLS AND TREES****Schwegler 1B Bird Box, natural brown**

The 1B appeals to a wide range of species, and is the official nest box of National Nest Box Week. The box can be nailed to the trunk of a tree, or hung from a branch. Schwegler boxes can be expected to last 25 years or more without maintenance.

Woodcrete, 23cm high x 16cm diameter.

With standard 32mm diameter entrance hole

**Schwegler 2H Open Fronted Nest Box**

This box is attractive to this box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts. Best sited on the walls of buildings with the entrance on one side. Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

A02015 Schwegler 2H Open Fronted Nest Box

**Schwegler Roundhouse Wren Box 1ZA - Autumn Red**

Well insulated and mimics natural nest sites

This nest box provides the enclosed, round space preferred by wrens for nesting. They will line the nest with moss, feathers and fur. The 1ZA is made from long-lasting, breathable Schwegler Woodcrete and provides excellent protection from nest predators. It not only houses wrens when bringing up their young but also provides a sheltered place where they can roost in the winter. Strong hanging cable included to site the nest amongst shrubbery.

Code: 002096D



Gable Nest Box

A substantial wooden bird box with a gable roof and 28mm entrance hole. Made of 15mm thick softwood, external dimensions 14.5cm x 14.5cm x 26cm high (to top of gable). Suitable for the smaller garden birds.
A03008 Gable Nest Box

**Wooden Bird Box**

A simple wooden bird box with sloping roof, suitable for the smaller garden birds. Made from substantial 2cm thick softwood. 14cm w x 18cm d x 26cm h (backplate 33.5cm h). The standard model has a 32mm diameter entrance hole attractive to a wide range of smaller garden birds.
A03004 Wooden Bird Box

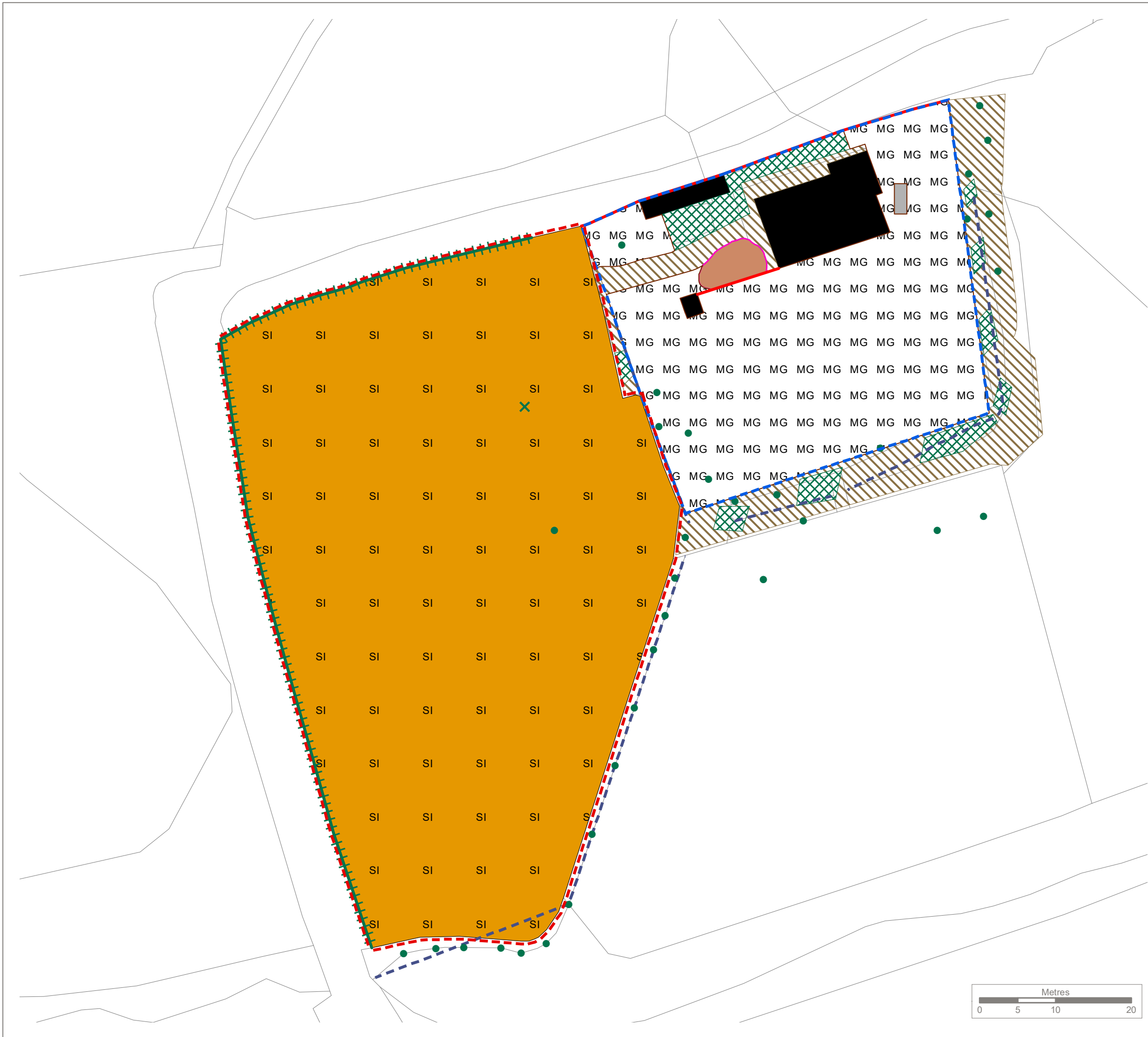
**Roosting Pockets.**

These attractive roosting/nest pockets can be used by wild birds in autumn, winter and spring. The birds can save energy during the colder months by roosting in a sheltered place. These pockets also provide a warm nesting place in the spring for smaller birds such as wrens. Made from natural materials. The pockets have a wire at the back to fix onto a branch, or they can be stapled or nailed to a fence or trellis with plant cover. Pack of 3 assorted roost pockets (styles may vary).
A02090 Roosting Pockets



DRAWINGS

Drawing 1 – G7056.001 Habitat Map
Drawing 2 – D6936.002 Proposals Plan



KEY

- Additional Survey Boundary 2018
- Previous Survey Boundary
- Scattered Scrub
- Scattered Broad-leaved Trees
- Species-poor Hedge and Trees
- Wall
- Dry Ditch
- Dense/Continuous Scrub
- Semi-improved Neutral Grassland
- Species-poor Modified Neutral Grassland
- Tall Ruderal
- Buildings
- Hardstanding
- Rubbile Pile

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Site Map

1:4,000

Rev	Description	Drawn	Approved	Date



THE ENVIRONMENT PARTNERSHIP

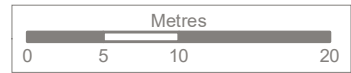
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Old Hall, Erbistock

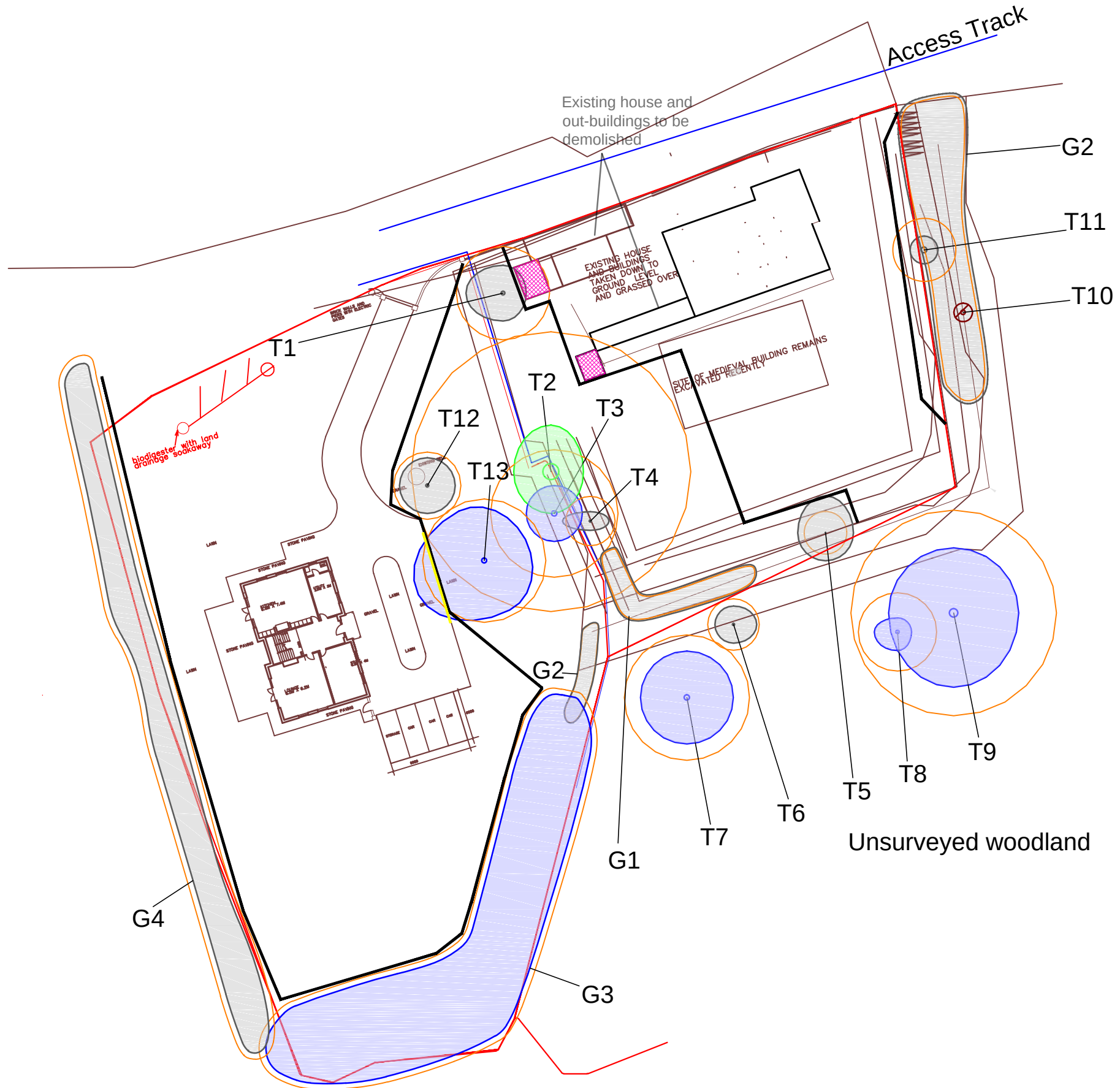
Title
Phase 1 Habitat Survey 2018

Drawing Number
G7056.001

Drawn	Checked	Approved	Scale	Date
JS	JC	JC	1:500 @ A3	25/05/2018



A528 →



KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- Root Protection Area (RPA)
- Survey Boundary
- Tree Protection Fencing (c. 273m or 78 Heras panels)
(Must be installed prior to works commencement)
- Area of controlled demolition
(See Sections 7.10 - 7.17 of the AIA)
- Alignment of hand-dig and root pruning
(See Sections 7.18 - 7.24 of the AIA)

Trees to be retained

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Trees with existing or potential conservation value)

Trees to be removed

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)

NOTE: Tree quality assessment based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations.

NOTE: This drawing should be read in conjunction with the respective Arboricultural Data Sheets (Appendix A).

NOTE: All tree and group locations have been approximated using a combination of on-site observations and aerial imagery



Rev	Description	Drawn	Approved	Date



Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Old Hall, Erbistock
Arboricultural Impact Assessment
Title
Drawing 2: Tree Removal and Protection Plan [PROPOSED]

Drawing Number
D6936.002

Drawn	Checked	Approved	Scale	Date
ML	RMG	JGS	1:500 @ A3	20/03/2018



HEAD OFFICE

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