



Llwyn Onn Water Treatment Works Baseline Ecology Report

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LLWYN ONN WATER TREATMENT WORKS BASELINE ECOLOGY REPORT

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LLWYN ONN WATER TREATMENT WORKS – BASELINE ECOLOGY REPORT

1. INTRODUCTION

1.1 Background to the Site

Llwyn Onn reservoir and water treatment works (WTW) was constructed in 1940 to supply water to a munitions factory located on what is now Wrexham Industrial Estate. The site has since undergone a series of modifications to become Dee Valley Water's main water treatment works, supplying the majority of water for Wrexham and a population of approximately 105,000. The existing water treatment works has a capacity of 48ML/d and treats water from river and upland sources. It is proposed that the existing treatment works will be replaced by a new works of similar function and capacity. A plan of the existing site layout is shown in Figure 1 (see Appendix A).

1.2 Requirement for the Scheme

The existing works is ageing and the concrete structures have exceeded their design life. A series of leaks and failures give cause for concern that the works may suddenly and completely fail. In view of the condition of the works and the risk their failure poses to Dee Valley Water and its customers, the rebuilding of the works is included in Dee Valley Water's capital expenditure plan for 2010 to 2015.

1.3 Purpose of this Report

Black & Veatch Ltd (B&V) have been commissioned by Dee Valley Water to undertake an Extended Phase I Habitat Survey and targeted protected species surveys of the proposed application area at Llwyn Onn WTW to identify potential ecological constraints associated with the proposed development. The report is therefore intended to inform the design development and subsequent planning application in regard of the site's biodiversity and ecological interest.

2. PROJECT DESCRIPTION

The new works will be built within the existing site boundary and will replace the existing treatment works building with like for like facilities. Full details of the scheme were not available at the time of writing. However, the replacement works is anticipated to be similar in size to the existing treatment works building, and is anticipated to be located within the southwest corner of the site. A new temporary access track is planned for the construction works which will run to the north side of the existing site entrance, through the rough grassland and a small section of plantation woodland. There will be the requirement to demolish the two wooden sheds adjacent to the plantation woodland to make way for the proposed access track.

The location of the proposed new treatment works and new temporary construction access track are shown within Figure 1.1.

On completion of the commissioning of the replacement works, the old water treatment buildings may be demolished. No change in the amount of water abstraction is proposed.

3. LEGISLATION AND PLANNING

3.1 Relevant Local Planning Policies

The following local biodiversity planning policies are particularly relevant to this site or scheme, under the UDP:

- UDP Section 3.2 – Countryside, landscape and biodiversity (this refers to Wrexham CBC's Biodiversity Action Plan (BAP));
- PS2 – Development in the countryside;
- PS11 – Biodiversity improvement;
- EC4 – Tree, hedges and woodland (Note: currently no TPO's in the vicinity of the site); and
- EC6 – Biodiversity conservation;

3.2 Other Relevant Supplementary Planning Guidance

Other relevant supplementary guidance includes:

- Wrexham Tree and Woodland Strategy (2005);
- BAP – Wrexham CBC's Biodiversity Action Plan;
- LPG17 – Trees and Development; and
- LPG29 – Wrexham Industrial Estate, Employment, Development and Nature Conservation.

3.3 Legislative Context

Certain sites of international or national importance for nature conservation, as well as many species of animal and plant, are afforded some degree of legal protection. These are outlined below, along with non-statutory designations relating to the conservation of biodiversity.

Statutory Sites

The Countryside Council for Wales (CCW) notifies sites in Wales that are of international or national importance for nature conservation as Sites of Special Scientific Interest (SSSIs). The UK Government has a duty to notify such sites under the Wildlife and Countryside Act 1981 (*as amended*) (WCA), and the protection afforded such areas was strengthened by the Countryside and Rights of Way Act 2000 (CRoW Act) and Section 42 (S42) of the Natural Environment and Rural Communities (NERC) Act 2006.

Internationally important sites may also be designated as:

- Special Areas of Conservation (SACs): the legal requirements relating to the designation and management of SACs in the UK are set out in The Conservation of Habitats and Species Regulations 2010¹;
- Special Protection Areas (SPAs): strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive;
- Ramsar sites: wetlands of international importance designated under the Ramsar Convention, to which the UK is a signatory.

¹ The Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 1 ("the 1994 Regulations").

Other statutory site designations relating to nature conservation are:

- National Nature Reserves (NNRs): these represent examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in the country, and are declared in Wales by CCW under the National Parks and Access to the Countryside Act 1949 and the WCA;
- Local Nature Reserves (LNRs): under the National Parks and Access to the Countryside Act 1949, LNRs in Wales may be declared by local authorities after consultation with CCW. LNRs are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.

Non-statutory Nature Conservation Sites

- These sites are designated alongside the statutorily protected areas, as they constitute the most important sites for wildlife in each county. In Wrexham these are called Wildlife Sites (WS).

Legally protected species

Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to:

- species included on Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (*as amended*);
- species included on Schedules 2 and 4 of The Conservation of Habitats and Species Regulations 2010; and
- badgers, which are protected under the Protection of Badgers Act 1992.

Other notable habitat/species categories

- Biodiversity Action Plan (BAP) species: those targeted in local (Wrexham) or national BAPs as being of particular conservation concern (priority species).
- Habitats and species of principal importance for the conservation of biological diversity in Wales. These are defined in Section 42 of the NERC Act. In practice these are included within the UK BAP priority habitats and species.
- Red List plant species: those listed as Critically Endangered, Endangered, Vulnerable or Near Threatened in Cheffings, C. and Farrell, L. (eds.) (2005).
- Red and Amber List birds: those listed as being of high or medium conservation concern respectively in Gregory R.D., et al (2009).
- Other UK Red Data Book species and Nationally/Regionally/Locally Notable species.

4. METHODOLOGY

4.1 Desk Study

The first stage of the environmental component of works has entailed B&V undertaking a Preliminary Environmental Assessment (PEA) of the proposed works. This has been undertaken in accordance with best practice to ensure that the proposed scheme causes minimal environmental impact. The PEA is a high level environmental assessment undertaken early in the feasibility stage of the scheme. The aim of the appraisal is to identify and highlight the key ecological and environmental constraints that will need to be addressed and have the potential to affect the design of the preferred option and the programme of construction. The collection of a comprehensive suite of environmental data is outside the scope of such a high level appraisal and the need for further investigation and survey is highlighted where appropriate.

The PEA entailed site visits and the collection of baseline data from a range of sources including the site's biodiversity and ecological interest.

To ensure that ecological issues were fully considered in this preliminary assessment, information was obtained on the baseline environment within 1km of the proposed site with regards to protected species and local Wildlife Sites and 2km for statutory designated sites, where possible.

The following information sources have been utilised in the desk based study:

- Ordnance Survey mapping data (including historic maps provided by Dee Valley Water);
- North Wales Environmental Records Centre (Cofnod);
- MAGIC Interactive Government website;
- Wrexham CBC Local Biodiversity Action Plan; and
- Landmap online resources.

4.2 Consultation with Key Stakeholders

Consultation has been initiated with a number of key stakeholders in relation to the proposed scheme. The stakeholders and consultation responses are summarised in Table 1 below, and provided in full within Appendix B.

Table 1: Consultation Responses

Stakeholder Organisation	Response	Date
Wrexham County Borough Council (Wrexham CBC)	Confirmed that planning permission and an EIA screening request will be required.	12/05/2010
Countryside Council for Wales (CCW)	Provided protected species and statutory site data.	11/5/2010
Environment Agency Wales (EA Wales)	Utilise sustainable drainage systems (SuDS) to control surface water runoff. Ensure due consideration of potential impacts on biodiversity of Afon Clywedog.	10/05/2010

4.3 Extended Phase I Habitat Survey

A Black & Veatch Senior Ecologist carried out an extended Phase I Habitat survey of the site on 23rd April 2010. The survey area included all land within the site boundary and adjacent areas where accessible. The survey technique was based on the standard Phase I Habitat Survey method (JNCC 2010). This involved mapping by hand the habitats on and adjacent to the site at an appropriate scale using standard colour codes and/or acronyms and according to standard habitat definitions. Numbered 'Target Notes' were added to the

map to record the location of, and describe, any features/habitats within the site that are likely to be of nature conservation value, could impose a constraint on the development of the site or require further surveys.

4.4 Protected and Notable Species

As the standard Phase I Habitat survey methodology is largely concerned with botanical communities only, the survey was 'extended' to identify the presence/ potential presence of other nature conservation features such as legally protected species and is consequently referred to as an 'Extended' Phase 1 Habitat Survey. The methodologies used to establish the presence or potential presence of species and species groups are summarised below.

Amphibians

The proposed development area was screened against the quality of on site habitat (inside the development site boundary) to be temporarily or permanently taken and the proximity, quality and accessibility of ponds and surrounding terrestrial habitats within 250m.

Ordinarily where ponds or lagoons within 500m of a development site are present and accessible, these are inspected and their potential as great crested newt breeding sites is assessed. However, in this instance it was considered that a distance of 250m be applied as the site is isolated from the populations of GCN located at Marchwiell Marsh and the Five Fords Wastewater Treatment Works to the south by the River Clywedog and partially isolated by the busy Cefn road to the north. No ponds occur within 250m of the site, in addition the site is a working site dominated by hard standing.

A pond may have reduced potential to support a breeding population of great crested newts if:

- it supports a very large fish or wildfowl population;
- it does not hold sufficient water to support a breeding population of the species;
- it appears to be of very poor quality.

These principles are usually applied cautiously with professional judgement on the understanding that they do not necessarily preclude great crested newts being present in a water body. In addition, the likelihood of great crested newts (if they occur in ponds within 500m of the site) accessing or utilising a site's terrestrial habitat is usually also assessed; the significance of ponds to the development proposals might be reduced where:

- there are no suitable habitats, or habitat corridors (such as hedgerows or ditches), linking the potential breeding pond to the development site, such that the site is effectively isolated by sub optimal great crested newt habitat;
- there are major boundaries to dispersal between the breeding habitat/ waterbodies and the site, such as roads with long stretches of kerb, urban or extensively developed areas or major railway lines (main line routes with no culverts);
- habitat linkages between the pond(s) and the site are poor (e.g. long gaps in hedgerows) and the pond occurs more than 250m from the site ;
- the pond is more than 250m from the site and there are areas of suitable terrestrial habitat nearer the pond that are likely to be used preferentially over habitats on or near the development site.

Badger (*Meles meles*)

The proposed development site and surrounding land was searched for evidence of badger activity including setts, badger paths, foraging marks, dung pits and hair, wherever access was permitted and possible on the 23rd April and again on the 19th July 2010.

Bats (All Species)

During the Extended Phase I Habitat Survey trees and buildings were assessed for their potential to support roosting or hibernating bats. This assessment primarily focused on a non-intrusive visual inspection of the exterior of structures such as trees and buildings for features deemed to be suitable as bat roosts, such as older trees with cavities, splits, cracks, holes or loose bark, trees or buildings with a dense covering of ivy (*Hedera helix*), buildings with significant cracks in brick work or gaps in soffit or fascia boards potentially allowing access to a place of refuge. Trees and buildings were inspected using close focus binoculars and the exterior of any accessible crevices were examined for evidence of bat activity (e.g. scratch marks, droppings and staining). Potential bat foraging habitat was also noted.

As a result of the Extended Phase I Habitat Survey, two structures were identified as requiring internal inspections, these are the two wooden storage sheds located to the north of the site (Target Note 7, Appendix A). These structures were accessed for survey by a B&V licensed bat worker (licence number 22638:OTH:CSAB:2010) on the 19th July 2010 and categorised in the following manner:

- ‘Opportunistic’/ ‘Low’ potential indicates where features may be used on an ad hoc basis or for limited, discrete periods of time only by individual or several roosting bats during the active season (e.g. under loose bark in relatively exposed locations or under a light covering of ivy, under fascia, bargeboards);
- ‘Moderate’ potential indicates that features could possibly be used by low to moderate numbers of roosting bats for extended periods throughout the year (e.g. the presence of small protected cavities, cracks and holes in buildings or trees; or the presence of a well-lignified layer of dense ivy); although in these instances it may not have been possible to identify evidence of bat activity, such as scratch marks or staining. Structures with moderate potential would require further ecological survey/ investigation before any destructive works proceed;
- ‘High’ potential indicates that features could potentially be used by a significantly sized breeding or hibernating population of bats. Structures with high potential would include (but are not limited to); cracks or gaps in buildings that are highly likely to lead to a significantly sized roof void, or chamber, significantly sized holes in trees with evidence of bat activity, or mineshaft openings. Structures with high potential will usually have evidence of bat activity and would require further ecological survey/ investigation before any destructive works proceed.

The inspection was aided by the use of ladders, a powerful hand lamp, binoculars and inspection mirror and involved inspecting internal and external features of the buildings that may support roosting bats.

In addition to the internal inspection, back to back dusk and dawn activity surveys were carried out on the 16-17th August 2010 by a B&V licensed bat worker and senior ecologist. The surveys were carried out using an Anabat II and Batbox Duet Frequency Division bat detector, all activity was recorded for later analysis with Analook and Batsound.

Our surveyors monitored the sheds from 20:40 for 1hr then walked a transect route around the site stopping at intervals for between 2-5 minutes. The survey was finished at 22:05. The Anabat was left in position directed towards the east end of the sheds whilst the surveyors walked the transect route. The dawn survey focused on the eastern end of two wooden sheds as this was where bat activity was noted during the dusk emergence survey. Our surveyors monitored the sheds from 03:54 until sunrise (total 2hrs). The locations of the surveyors and noted bat activity are shown on Figure 4.

All surveys were conducted following guidelines presented within Bat Surveys Good Practice Guidelines (2007).

Nesting Birds

The habitats on the proposed development site and the surrounding land were assessed for their suitability for nesting birds, particularly conservation notable species or birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). Schedule 1 birds are generally uncommon or behaviourally vulnerable species that receive additional protection over that afforded to all nesting birds.

Otter and Water Vole

The site was assessed for its potential to support water voles (*Arvicola amphibius*) and otter (*Lutra lutra*) with consideration to the site's proximity to the Afon Clywedog and associated ditches.

Reptiles

The application area's potential to support reptiles was assessed during the Extended Phase I and is highlighted on the Phase I Habitat Plan as Target Notes (Figure 2 Appendix A).

Thirty Artificial Cover Objects (ACOs – roofing tins and felt) were put in place on the 19th July and left in place for one month. The locations of these are shown on Figure 3.

Seven direct observation surveys for basking reptiles were undertaken between the 6th August and 6th September. Close focus binoculars were used to observe reptiles upon approach to the ACO and the refugia was carefully lifted. Any reptiles were noted and released. Potential natural and artificial refugia already present on site were also examined.

All surveys followed guidelines provided by Froglife Advice Sheet 10.

Other Fauna

The site was searched generally for evidence of other conservation notable species. For example, the site was assessed for its potential to support UK and local BAP species.

Invasive Species

The application area was searched for non-native invasive plant species such as Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and Indian (or Himalayan) balsam (*Impatiens glandulifera*) during the initial Extended Phase I Habitat survey and again on the 19th July.

4.5 Survey Constraints

It was not possible to survey all areas of the small roof void of the southern wooden shed. Also there was an active wasps nest to the west end of this shed therefore this area was avoided.

The timing of the reptile surveys was targeted on those days when the weather conditions were suitable (i.e. temp between 9-18 Deg C). However, the temperature exceeded this on two occasions.

5. RESULTS

5.1 Desk Study

(a) Designated Nature Conservation Areas

There is one statutory Nature Conservation Site within 2km of the site. This is Sontley Marsh Site of Special Scientific Interest (SSSI) which is located 1.8km due south west and is noted for its botanical interest.

There is a single Local Wildlife Site within 1km; Marchwiell Marsh, approximately 995m south of the site. This is a local nature reserve and is managed by Marchwiell Environmental Group. The site comprises 1.4 ha of semi-natural habitat including primarily a network of self-sustaining ponds which support a population of great crested newts (GCN) and a diverse floral community. Five Fords Wastewater Treatment Works (WwTW) is located immediately adjacent to the Marchwiell Marsh Local Wildlife Site and is also known to support a population of GCN.

Mill Wood ancient woodland (Target note 3, Figure 2) runs along the western and south western boundaries between the site and the Afon Clywedog.

Afon Clywedog flows into the River Dee, which is part of the River Dee and Bala Lake Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC), approximately 5.2km east of the site.

(b) Protected Species and Habitats

Records from Cofnod

The following protected species and habitats are recorded at/within 1km of the site, the public version of the records check is provided in Appendix E:

- Badgers known to be in the 1km grid squares surrounding and including the site.
- Great crested newt (GCN) records 900m to the north and east. Both on far side of main road.
- Brown long eared bat record 600m to the north and common pipistrelle 800m to the south.
- Small heath butterfly in 1km grid square to the east.

Records from CCW

- Frequent GCN records to south and east of Marchweil. Also one record approximately 1km to the east of Llwyn Onn.
- Bat record to the north of the site at Pentre Gwyn.
- Water vole records in the wider Wrexham area to the west of the site.

National Biodiversity Network (NBN) Records

The following protected species and habitats are recorded at/within the vicinity of the site:

- *Amphibians*; numerous recent GCN records 2km south and east of the site. All on the far side of a barrier, either the river or the road. Palmate and smooth newt records 8km to the west.
- *Birds*; numerous bird species recorded within the 10km grid including linnet, redpoll, siskin, treecreeper, goldcrest, marsh tit and redwing.
- *Otter*; records on the River Dee, approximately 5km to the south and east.
- *Bats*; various records of pipistrelle sp. within 2km of the site.
- *Reptiles*; none found.

Local Biodiversity Action Plan (LBAP) Details

The following species and habitats of potential relevance to the site are listed within the LBAP:

- *Habitats*; Derelict & Industrial Land, Lowland Bog, Pond, River/Stream/Canal, Upland Moorland, Veteran Tree/Wood Pasture and Woodland.
- *Species*; badger, barn owl, black poplar, GCN, lesser horseshoe bat, otter and song thrush.

5.2 Phase 1 Habitat Survey

A total of 16 habitats were recorded on or immediately adjacent to, the site during the walkover survey. These were as follows:

- Semi-natural broadleaved woodland (LBAP)
- Plantation broadleaved woodland
- Plantation mixed woodland
- Scattered broadleaved trees
- Species-poor hedgerow with trees (native)
- Species-poor hedgerow with trees (non-native)
- Dense/continuous scrub
- Amenity grassland
- Improved grassland
- Semi-improved neutral grassland
- Tall ruderal
- Standing water
- Running water
- Bare ground
- Buildings
- Fence-line

These habitats are characteristic of those habitats one might expect to find on an active water treatment site, with a mix of disturbed areas, managed amenity grassland and bordering landscaped habitats. Figure 2 (Appendix A) maps these habitats and associated Target Notes are found in Appendix B.

This diverse habitat mix is located at the approximate boundary of suburban Wrexham and the wider arable landscape. The survey area is bounded by the Afon Clywedog to the southwest and by a main road to the northeast. Whilst none of the habitats on site are of any particular local importance on their own, the habitat mix and the location of the site mean these habitats are of some intrinsic local value.

5.3 Protected and Notable Species

The following were noted in relation to protected species during the site walkover conducted on the 23rd April and the Phase II protected species surveys for bats and reptiles.

Amphibians

There are a number of artificial waterbodies on the WTW all of which are used in the water treatment process.

- Pond 1 'washwater tanks' (east of Target Notes 12 & 13) comprises two rectangular concrete structures used to store water from backwashing of the filters. Water within these structures was of poor water quality, with a surface scum and no aquatic vegetation.

- Pond 2 'settlement pond' (Target Note 12) is a rectangular pond used to hold water and allow it to 'settle' before it is passed through Pond 3 which is located below it. Pond 2 is surrounded by dense scrub on one side and improved grassland on the other. The water quality was again poor although there were some marginal species around the grassland edge.
- Pond 3 'half moon settlement pond' (Target Note 13) is a system of three concrete structures allowing water to flow sequentially between ponds and allowing suspended solids to settle out of the water column. Again, water quality appeared to be poor and due to the concrete banks no vegetation was present.
- Pond 4 'disused settlement pond' (Target Note 18) is a large sludge lagoon, used to allow sediment taken from the previous ponds to dry out. The lagoon is approximately 20m x 10m, over which sludge is spread, and at the time of survey this entire area was dry and covered in desiccated sludge material. Target Note 18 marks the area of the lagoon that was still wet, but with no more than 1cm of standing water.

The aquatic habitats are considered to be poor in terms of their suitability to support a breeding GCN population, due to their lack of egg laying vegetation. There are no other ponds within 250m of the scheme. Further survey work for GCN is not recommended.

Terrestrial habitat on site is varied in suitability for GCN and amphibians in general. Large areas of the site are open or bare ground, or hard-surfaces which are of no value to amphibians and cause potential barriers to movement. There are however a number of stands of dense scrub beside Ponds 2 and 3 which offer suitable refugia and shelter, together with boundary habitats to the north and south of the site. Generally, the connectivity of these wider habitats to the ponds is poor.

Badgers

Two old and disused setts were found within the plantation woodland block to the north of the operational site boundary during the Extended Phase I Habitat survey. One sett was a single hole outlier located near to the woodland edge (Target Note 20) and the other was a two hole sett further west into this woodland block (Target Note 21), likely to have been a subsidiary to a nearby main sett. No signs of badgers using the operational site were found, with the boundary fence generally being in good condition. No obvious and therefore current badger pathways were seen through the woodland or adjacent grassland.

During the site visit conducted on the 19th July these setts were re-inspected to determine the current use by badgers. The sett located at Target Note 21 did not show any evidence of recent activity. The sett at Target Note 20 could not be located during the site visit, possibly due to it being covered with large amounts of spoil from a nearby excavation (the nearby excavation is noted to be an illegal dig and was not undertaken by Dee Valley Water). No other evidence of badgers were noted therefore it is considered that badgers are currently absent from the site.

Bats

The site is considered to provide a number of habitats or features of potential value to bats. Firstly, the open waterbodies on site are likely to attract and support various invertebrates that would be prey items for foraging bats. The site is also bound by an intact semi-natural corridor of vegetation (hedgerows, scattered trees, etc) which makes commuting across and around the site straightforward for bats. In addition, the site is connected to the adjacent ancient Mill Wood, with significant potential to support roosting bats, which lines part of the Afon Clywedog, a likely commuting corridor for bats.

The only structures on site with the potential to support roosting bats are the two wooden storage sheds located along the northern boundary of the operational site (Target Note 7). These are simple structures made entirely of wooden panels and in a state of some disrepair. The loose panels, possible roof space, roof felting and various access points into the structure make it a potential roost site.

(a) Internal and External Inspection

An internal and external inspection of these wooden sheds was made on the 19th July 2010. The sheds were constructed circa 1940 with a height of approximately 2 metres. The two stand side by side with one located to the south and the other to the north. They have a large number of windows (some of which are broken) with steel frames. Bitumen roofing felt covers the lower half of the wooden slats, some of which is coming away, the roof and also the back of the sheds. Both structures have louvered openings to the front and back, however with the exception of the one located in the west end of the north shed, all are covered with wire mesh.

Inside both structures the walls are covered with ply wood. Only the southern shed has a 'void' which is a small enclosed roof space (approximately 0.5m in height) which runs the length of the shed and is contained with ply wood. The only access into this void appears to be via the louvered windows located at the roof apex, however these are covered with mesh. The roof 'void' area consists of wooden trusses. The northern shed is completely open with no roof void.

Photos of the structures are shown in Appendix D.

No evidence of bats was noted during the internal and external inspection. The structures are considered to have **opportunistic / low potential** for bats and would only really be suitable for crevice dwelling bats which may use gaps between the wooden slats and ply board.

None of the other buildings on site are considered to be suitable for roosting bats due to their metallic construction or flat roofs. There were no mature trees within the boundary of the site suitable for roosting bats.

(b) Activity Surveys

The results of the bat activity surveys and weather variables are shown in Tables 2 – 5 below and on Figure 4, Appendix A.

Dusk and Transect Surveys

Table 2 – Weather Conditions Dusk and Transect Survey

Sunset Time:	20:40	Survey Start	20:15	Survey Finish	22:05
Temp Start:	15.7 deg c	Cloud Cover	40%	Wind Speed	Calm
Temp Finish:	14.5 deg c	Rain 0 / light	0		

Table 3 – Noted Activity Dusk and Transect Survey

Time 24hr	Species	Note
20:49	Sp unknown (likely to be pipistrelle)	One bat appeared to emerge/drop from the eastern end of the north shed. Bat turned sharp left and flew north between shed & adjacent woodland. No registration on bat box duet – surveyor location B.
20:54	Soprano pipistrelle	One pass seen flying over the east end of the north shed. No registration on duet – surveyor location B, faint call on anabat.
21:02	Sp unknown (likely to be pipistrelle)	One pass flew over east end of north shed, very quick in flight. Registration on the duet was very rapid but with apparent feeding buzzes. Bat flew around surveyor and then east along tree line away from sheds – surveyor location B.
21:09	Soprano pipistrelle	One pass at the east end of the sheds – surveyor location B.
21:12	Soprano pipistrelle	One pass at the east end of the sheds – surveyor location B.
21:22	Common pipistrelle	Two faint passes no visual – survey location A.
21:26	Soprano pipistrelle	Faint, no visual, two passes – survey location A.
21:29	Soprano pipistrelle	1 pass, no visual – survey location A.
21:30	Possible noctule	1 pass on Anabat.
21:34	Pipistrelle sp.	Briefly heard, feeding buzzes – survey location B.
21:37	Common pipistrelle	1 pass, no visual – survey location B.
21:43	Common pipistrelle	1 pass on Anabat.
21:39	Start of Transect Route	
21:40	Common and soprano pipistrelles	2 passes, 2 bats foraging along tree line to the east boundary of the site.
21:47	Common and Soprano pipistrelle	No visual, located to the south east corner of the site.
21:50	Soprano pipistrelle	1 pass, no visual.
21:54	Myotis – poss natterers	1 pass, near to settlement ponds located to the south of the site.
21:59	Common and Soprano pipistrelle	2 passes foraging along the tree line to the west boundary.
22:04	Common and soprano pipistrelles	2 passes, no visual, surveyors located near to wooden sheds.

No bats were heard at surveyor location A (south west corner of buildings) for over 30mins after sunset. The first bat at this monitoring point was heard at 21:22.

At monitoring point B a bat was detected soon after dusk at 20:49 and flew north between the shed and adjacent woodland. It is not known as to whether it emerged from the shed

itself. The common and soprano pipistrelle were responsible for the majority of the activity occurring on site with activity associated with the site boundaries, especially along the tree line adjacent to the north east and west boundaries.

Dawn Survey

Table 4 – Weather Conditions Dawn Survey

Sunrise Time:	05:51	Survey Start	03:54	Survey Finish	05:54
Temp Start:	14 deg c	Cloud Cover	100%	Wind Speed	Calm
Temp Finish:	13.8 deg c	Rain 0 / light	0 (rained during the night)		

Table 5 – Noted Activity Dawn Survey

Time 24hr	Species	Note
04:06	Pipistrelle	1 quick pass, no visual – surveyor location B.
04:19	Common pipistrelle	1 quick pass adjacent to the south side of the sheds heading due west from east.
04:35	Pipistrelle sp.	1 quick pass no visual.
05:15	Pipistrelle sp.	1 quick pass no visual.
05:29	Soprano pipistrelle	Two passes in front of surveyors and the east end of the sheds then went behind the shed adjacent to the tree line heading due west.
05:39	Soprano pipistrelle	Few passes in front of the east end of the shed and appeared to be flying up to the corner of the south shed near the barge board at the gable end where it meets the guttering. The bat was not seen entering the shed.
05:40	Soprano pipistrelle	One pass heading due north over the sheds towards the plantation woodland.
05:41	Soprano pipistrelle	One pass seen flying due east behind the adjacent building/shed towards the office block and pumping station.

There was very limited activity from survey start until 05:29 when a soprano pipistrelle was seen circling in front of the east end of the sheds, flying off towards the plantation and then back again. It appeared to show some interest in the shed but was not seen entering. However, due to the time the bat was seen, close to sunrise and when it was fairly light, it is likely to be roosting close by.

Nesting birds

Habitats on site suitable for nesting birds include dense scrub, woodland blocks and potentially any buildings on site where there are loose gutters or access into roof spaces or ridge tiles. Bird species identified on site during the walkover were generally common garden birds but also included buzzard (displaying adjacent to the site), chiffchaff and a male peacock.

During the bat activity surveys a kestrel was observed flying into the large green metallic building beside the east end of the sheds (Target Note 22). The kestrel appeared to fly into the building via the horizontal girder which runs into the roof of the building. There was also extensive evidence of dropping underneath the girder and it was noted flying along the east boundary of the site. It is, therefore, likely that the site forms part of its territory

and it could possibly be nesting within the structure. It should be noted that this building will not be removed or altered as part of the scheme.

Otter and Water Voles

The site is between 150 and 200m from the Afon Clywedog. Although there are no records of otters on this river their presence should not be ruled out as they have been recorded on the River Dee into which the Clywedog flows. It is unlikely, however, that the species would travel this distance to use the WTW as a place of shelter as the connecting habitat of ancient woodland is likely to be significantly more suitable for this purpose. The WTW is relatively open throughout and lacking in any ideal locations for holt or natal sites as a result. Otters are therefore considered to be absent from the site. Likewise, there are no suitable water-courses or waterbodies on site for water voles.

Reptiles

The mosaic of scrub, ruderal, woodland edge and grassland (of differing management regimes) makes the site suitable for reptiles in terms of the habitats provided. The grassland adjacent to the north of the operational site (Target Note 4) is ideal for reptiles as it has a good balance between open and tussocky grassland, scrub patches and suitable refugia, providing opportunities for basking, hunting and refuging. The operational site offers habitat of a lesser quality, in part due to the regular disturbance from operational activities. However, the boundary habitats of this part of the site offer habitat of comparable quality as the northern grassland, consisting of a diverse vegetation structure of scrub, woodland edge and rough grassland. In addition, the various material left littered around the boundary of the site (tyres, wooded boards/planks, stockpiles of earth and pipes) offer ideal refugia and basking sites for reptiles such as common lizard or slow worm.

The results of the reptile surveys are shown in Appendix C. In summary, only 1 individual was noted, this was a grass snake (*Natrix natrix*) thought to be a male which was found under ACO 12 on the third visit (25th August). No other species or individuals were noted although a family of short-tailed field voles were noted under ACO 3 and numerous burrows and feeding stations were also noted under a number of the refugia (ACOs).

Other fauna

The semi-improved grassland adjacent to the operational site (Target Note 4) was noted as being of value to various invertebrate species, including butterflies (peacock and common blue), a number of ground spiders and various different bee species. A number of small mammal holes were also noted (field vole/shrew) and as such this area provides a good foraging habitat for birds of prey.

Invasive species

Giant hogweed was identified in the southern section of the northern grassland (around Target Note 4). During the site visit on the 19th July, the spoil heaps and imported material (Target Note 9) were inspected for the presence of invasive plant species; no evidence was noted.

6. POTENTIAL ECOLOGICAL CONSTRAINTS AND BENEFITS

The potential impacts have been identified using a Leopold Matrix (as shown in Table 6). The Leopold Matrix is a systematic consideration of the potential project actions against the environmental baseline. The Matrix analysis indicated several key environmental constraints and benefits resulting from the project actions.

This is a preliminary assessment carried out before any details of the scheme development are available. Further assessment may therefore be required when the outline design is available.

Table 6 – Summary of potential impacts, further assessment and proposed mitigation measures

Receptor	Potential impact from construction	Further Assessment and Mitigation Measures
Natural Environment		
Statutory and Non-Statutory Nature Conservation Sites	There is one SSSI located 1.8km due south west and a single Local Wildlife Site within 1km; Marchwiell Marsh, approximately 995m south of the site. Mill Wood ancient woodland runs along the western and south western boundaries between the site and the Afon Clywedog.	Due to the distance of the designated sites from the site itself, no impacts are envisaged thus no mitigation measures or further assessment are required at this stage. The works will not encroach upon the designated ancient woodland.
Protected Species	Potential disturbance to badgers during construction.	The setts identified are at least 1 year old and currently disused. Badgers are considered to be absent from the site therefore no impacts should result from the works. Monitoring of the site should be undertaken during appraisal / construction period to ensure no new setts become established.
	Loss of a small amount of foraging and potential commuting habitat for bats and potential day and/or night roost.	No trees were deemed as suitable for providing bat roosts. However, they are utilised by small number of bats for foraging and possibly commuting as bats were noted along the adjacent woodland to the north. A small section of this woodland is likely to be removed for access purposes. It is considered that this would not pose a significant impact on bats as no trees suitable as potential bat roosts were identified within the plantation woodland. The majority of the tree line will remain intact which will retain connectivity to the ancient woodland and Afon Clywedog river corridor located to the west. Bat activity was noted in front of the northern shed soon after dusk and also interest was shown by a soprano pipistrelle at sunrise but no bats were noted entering or leaving the sheds. It is considered that due to the type of structure that if used by bats it would only be suitable as a day or night roost used by individual bats and not as a significant roost site for a number of bats. As there is the potential for the sheds to be used by bats then it is recommended that Reasonable Avoidance Measures (RAMs) are put in place and a dawn survey and pre-construction check is carried out prior to the removal of the sheds. Alternative roosting areas (for example a bat box) should be considered for instalment at a suitable location on site. It is advised that a licence will not be required.

Receptor	Potential impact from construction	Further Assessment and Mitigation Measures
	Potential disturbance of breeding birds. Loss of a small quantity of foraging/nesting habitat.	Vegetation should be cleared outside the breeding bird season. The breeding bird season is between March-September inclusive although this can be earlier or later depending on species and weather conditions. If this is not possible, surveys of vegetation to be removed should be undertaken by qualified ecologists prior to construction. If birds are found to be nesting, construction in these areas must cease until chicks are fledged. No disturbance is envisaged to the structure where the kestrel was noted. It is recommended that any vegetation lost is replaced to ensure no net loss of breeding habitat.
	Potential disturbance of reptiles during construction. Loss of habitat.	During the survey one grass snake was noted at the north boundary adjacent to the rough grassland areas. It is likely that this grass snake was a 'stray' from the adjacent rough grassland habitats and in general the adjacent areas are considered more suitable for reptiles. As a grass snake is known to occur on site and there is the potential for encountering other reptiles, albeit in small numbers, it is recommended that an ecologist is on site to undertake a search of areas prior to any strimming or site clearance, in particular to those rough grassland areas to the north of the site. It is also advised that no potential reptile refugia is disturbed during their hibernation period (typically mid October – mid March depending on weather conditions).
Trees	Removal / lopping of trees during construction.	Removal / lopping of trees should be minimised as far as possible. A tree survey has been undertaken of affected areas which includes recommendations for adequate root protection zones. This is provided separately. Any trees lost should be replaced within land owned by Dee Valley Water.
Invasive Plants	Potential for working in vicinity to and of spreading giant hogweed on site. (Giant hogweed is present on site and is a health and safety issue as well as a controlled invasive plant species).	Treatment and removal of giant hogweed from affected areas, under required licences. Work in affected areas should be in accordance with best practice guidance. Site workers should utilise adequate protection to avoid skin contact with plant sap. Machinery should be adequately cleaned to ensure plant is not spread further on and off site. Re-survey prior to construction to ensure no further spread of giant hogweed and to ensure no additional invasive species e.g. Himalayan balsam. No other invasive species besides giant hogweed were noted occurring within those areas to be impacted during the site inspection carried out on the 19 th July 2010.

7. CONCLUSION

With respect to ecology it is considered that all relevant surveys have been undertaken to an adequate level to inform the planning application.

The key ecological constraints resulting from the surveys are as follows:

- Loss of a small amount of foraging habitat for bats and potential day/night roost/commuting route.
- Loss of a small amount of nesting and foraging bird habitat.
- Potential disturbance to and loss of habitat used by reptiles (grass snake).
- Adjacent grassland is of local value (reptiles, invertebrates & probably birds).
- Giant hogweed (invasive species under the Wildlife and Countryside Act) is present on site and is a health and safety issue.

At this stage, the following are recommended with regards to the protection of species/habitats occurring on site:

- Pre-construction check for badgers.
- Pre-construction check/surveys for bats within the wooden sheds to be demolished to be conducted between March – September (depending on current climatic conditions). Internal inspection only if works are before the bats active season.
- The provision of batboxes at a suitable location within the site should be considered. It is recommended that three bat boxes should be provided. These should be erected under the supervision of an ecologist.
- Breeding bird surveys if site clearance works are to occur within the breeding bird season (March-September inclusive depending upon current climatic conditions). No vegetation/scrub removal to be conducted within the breeding bird season unless checked by an ecologist prior to removal.
- Best practice methodologies for the removal of trees.
- Site supervision and checks for reptiles prior to vegetation clearance. Avoid disturbing any potential hibernacula during the species overwintering period (November to February depending on temperatures).
- Best practice methodologies for the removal/disposal and/or control of any invasive species found on site.
- Incorporation of some planting into the scheme design to provide replacement habitat (as detailed within the separate Landscape and Visual Impact Assessment).

In addition to the above, the scheme proposals should seek to include provisions for the enhancement of biodiversity on site and to provide mitigation for the loss of any habitats. Best practice construction methodologies should be followed to ensure the protection of ecological features of interest targeted for retention.

8. REFERENCES

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- Mark A. Eaton, Andy F. Brown, David G. Noble, Andy J. Musgrove, Richard D. Hearn, Nicholas J. Aebischer, David W. Gibbons, Andy Evans and Richard D. Gregory (2009) *Bird of Conservation Concern 3: The population status of birds in the United Kingdom, Channel Islands and Isle of Man* British Trust for Ornithology.
- HMSO: *Wildlife and Countryside Act 1981* (as amended).
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- HMSO: *Countryside & Rights of Way Act* (2000).
- HMSO: *Natural Environmental and Rural Communities Act* (2006).
- HMSO: *The Conservation of Habitats and Species Regulations* (2010).
- JNCC (2010). *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*, First published 1990; reprinted in 1993; reprinted in 2003 with limited revisions & additions; reprinted in 2004; reprinted in 2007 with minor additions; reprinted in 2010.

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APPENDICES

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APPENDIX A: FIGURES

A.1 Figure 1: Site Layout Plan

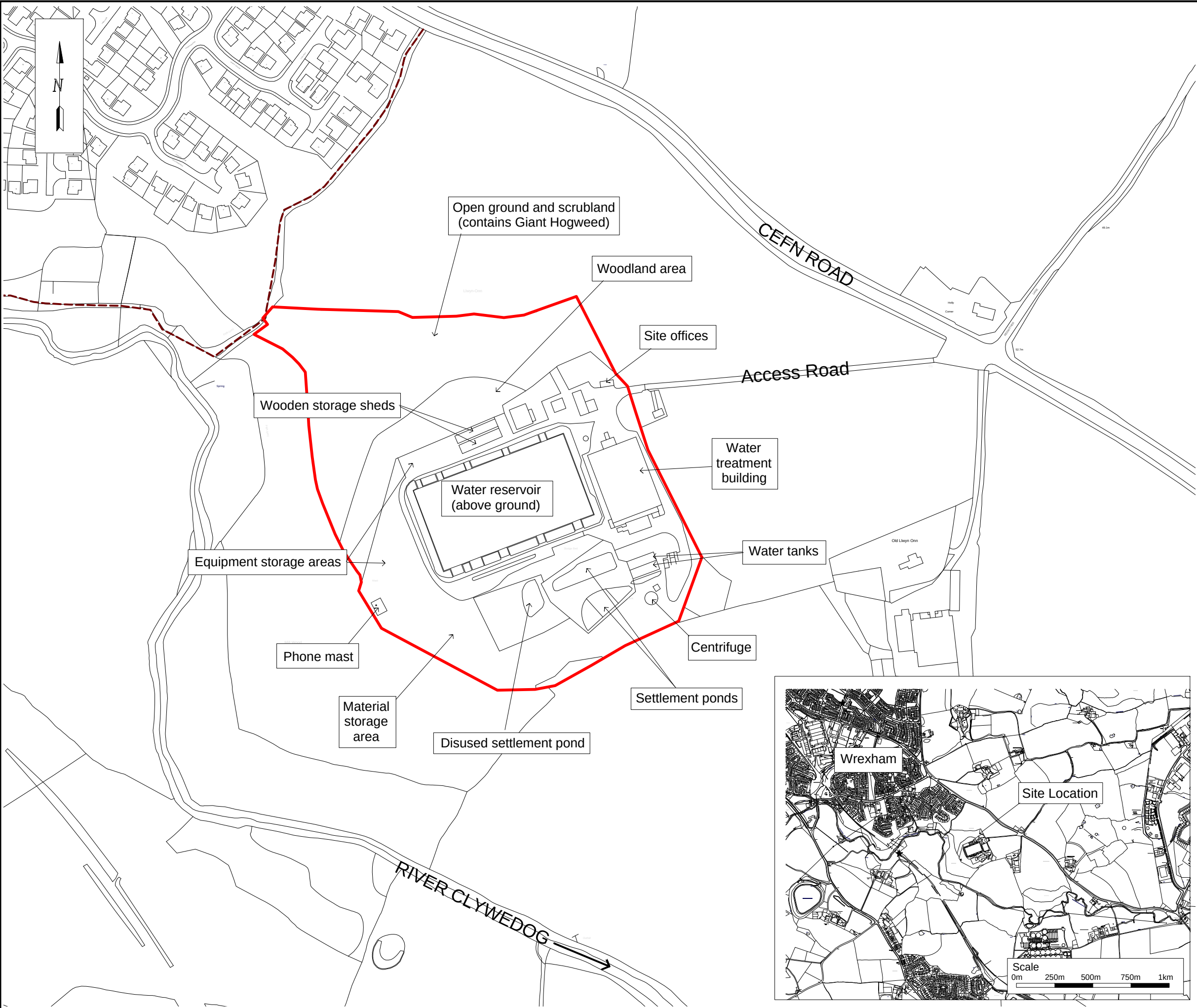
A.2 Figure 1.1: Proposed Construction Layout Plan

A.3 Figure 2: Habitat Survey Plan

A.4 Figure 3: Reptile Refugia

A.5 Figure 4: Bat Surveys

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Designed		HB		Date: May 10	
Checked				Date:	
Drawn		JP		Date: May 10	
Checked		HB		Date: May 10	
Reviewed		ES		Date: May 10	
Rev.	Nature of Revision	Drawn	Chkd.	Rwtd.	Appd.

Key

- Site Boundary
- - - Public Right of Way Footpath

LLWYN ONN
WATER TREATMENT WORKS

Site Layout Plan



Contract no.
121620

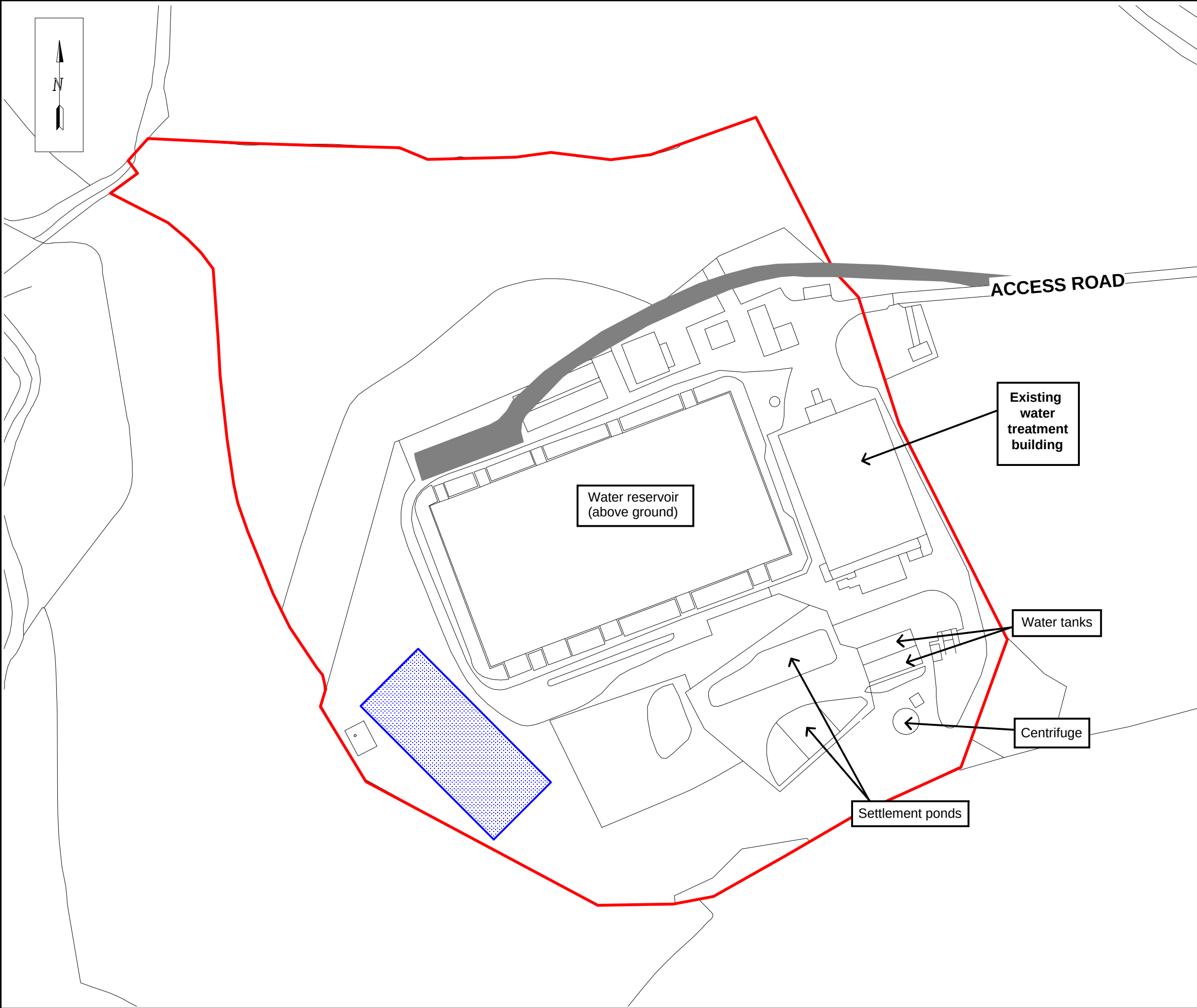
Approved:
ES

Date:
May 10


BLACK & VEATCH

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Figure 1

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		Drawn NG		Date: Oct 10		
		Checked HB		Date: Oct 10		
		Reviewed ES		Date: Oct 10		
Rev.	Nature of Revision	Drawn	Chkd.	Rvwd.	Appd.	Date

Key

- Site Boundary
- Proposed Construction Access Track
- Proposed Replacement Water Treatment Building

Scale

0m 50m

1:30,000 (at A3)

**LLWYN ONN
WATER TREATMENT WORKS**

**Proposed Construction
Layout Plan**

**Dee Valley
WATER**

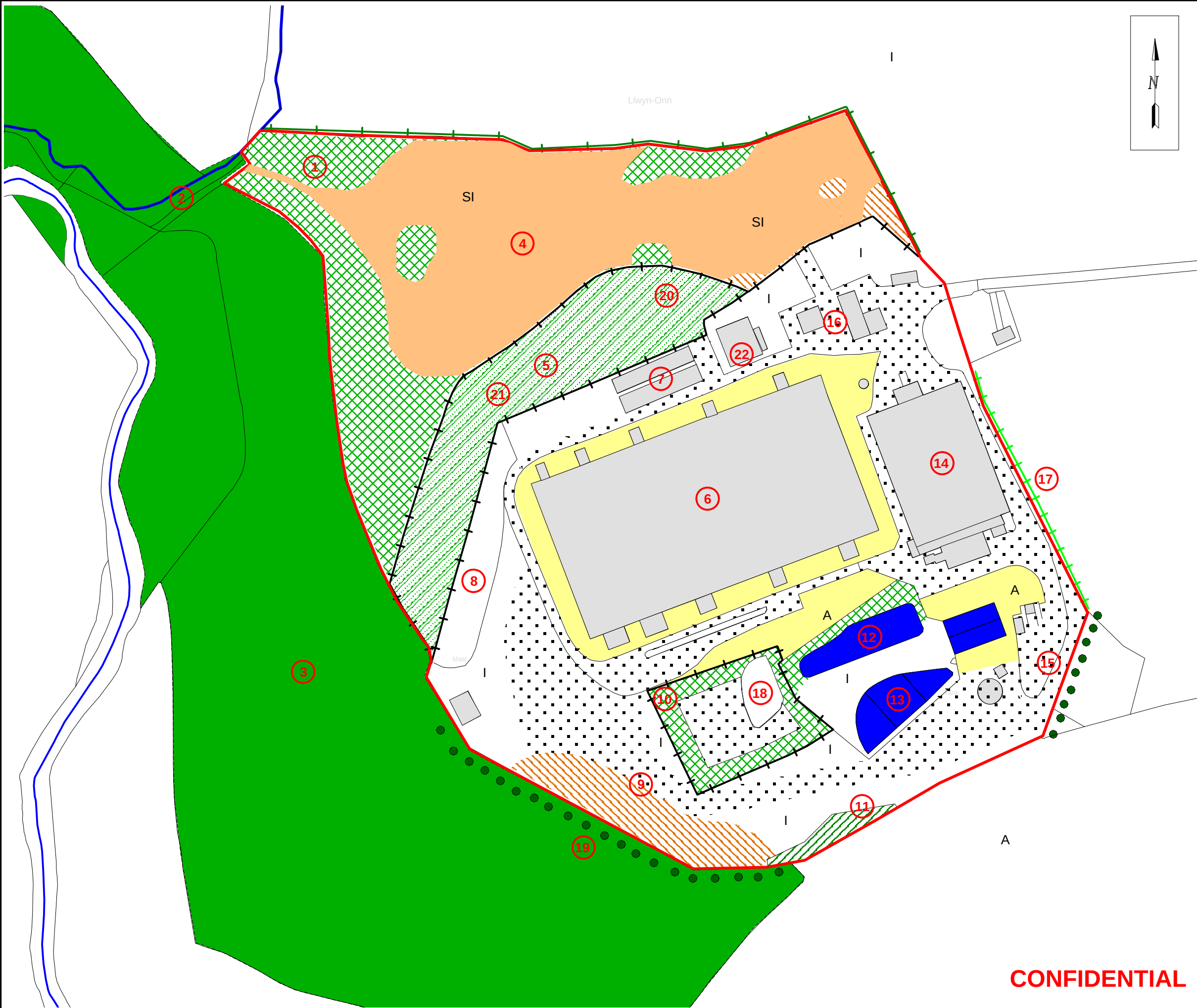
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		Reviewed ES		Date: May 10		
Rev.	Nature of Revision	Drawn	Chkd.	Rvwd.	Appd.	Date

Key

Species poor hedge and trees (native)

Species poor hedge and trees (non-native)

A

SI

I

A

11

CONFIDENTIAL

This figure contains sensitive information relating to badger sett locations and should not be made publicly available.

LLWYN ONN
WATER TREATMENT WORKS

Habitat Survey Plan

Contract no.
121620

Approved:
ES

Date:
May 10

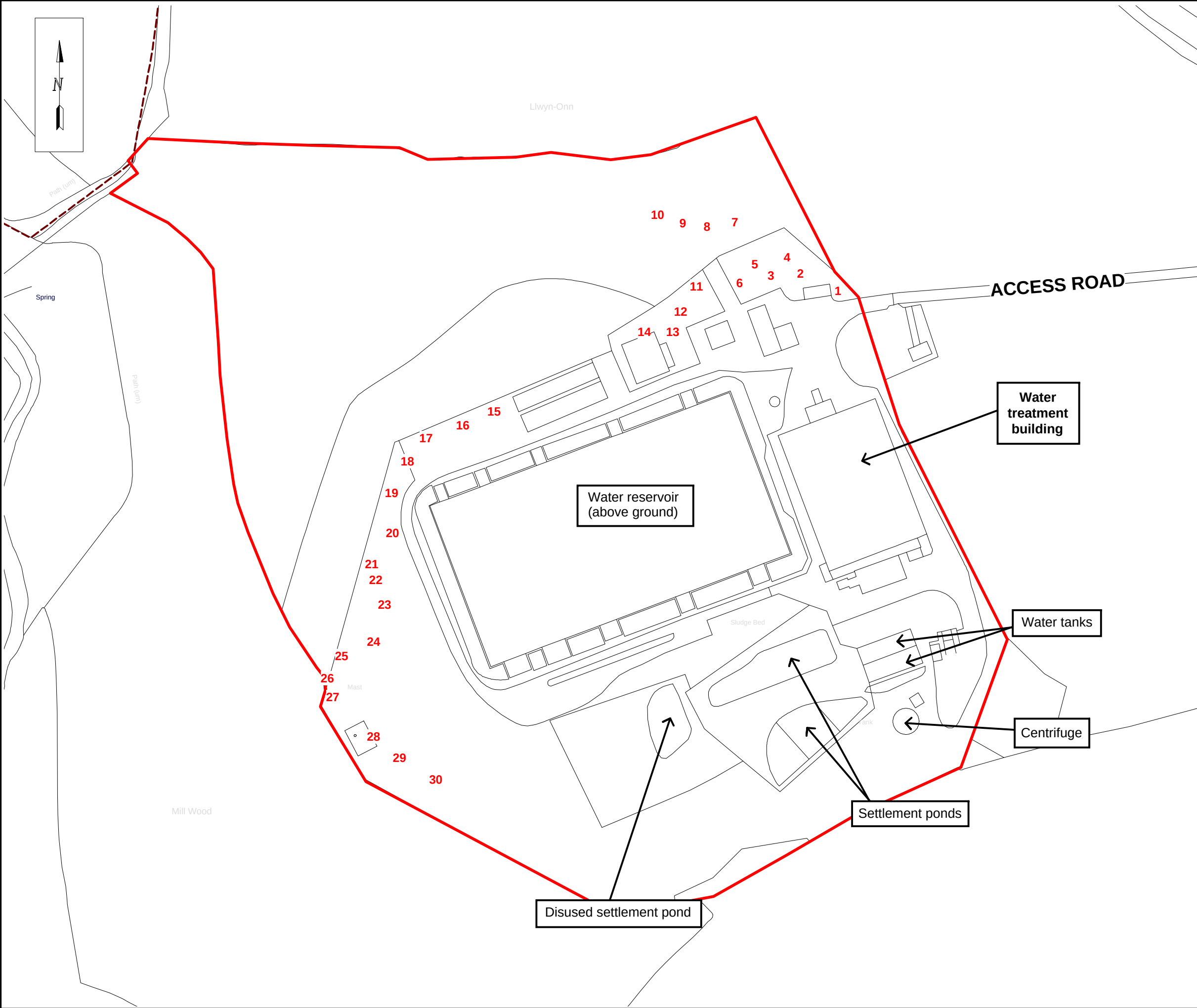
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			Checked DW		Date: Oct 10		
			Reviewed ES		Date: Oct 10		
Rev.	Nature of Revision		Drawn	Chkd.	Rvwd.	Appd.	Date

Key

- Site Boundary
- 4 Reptile Refugia

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WREXHAM

MARCHWIEL

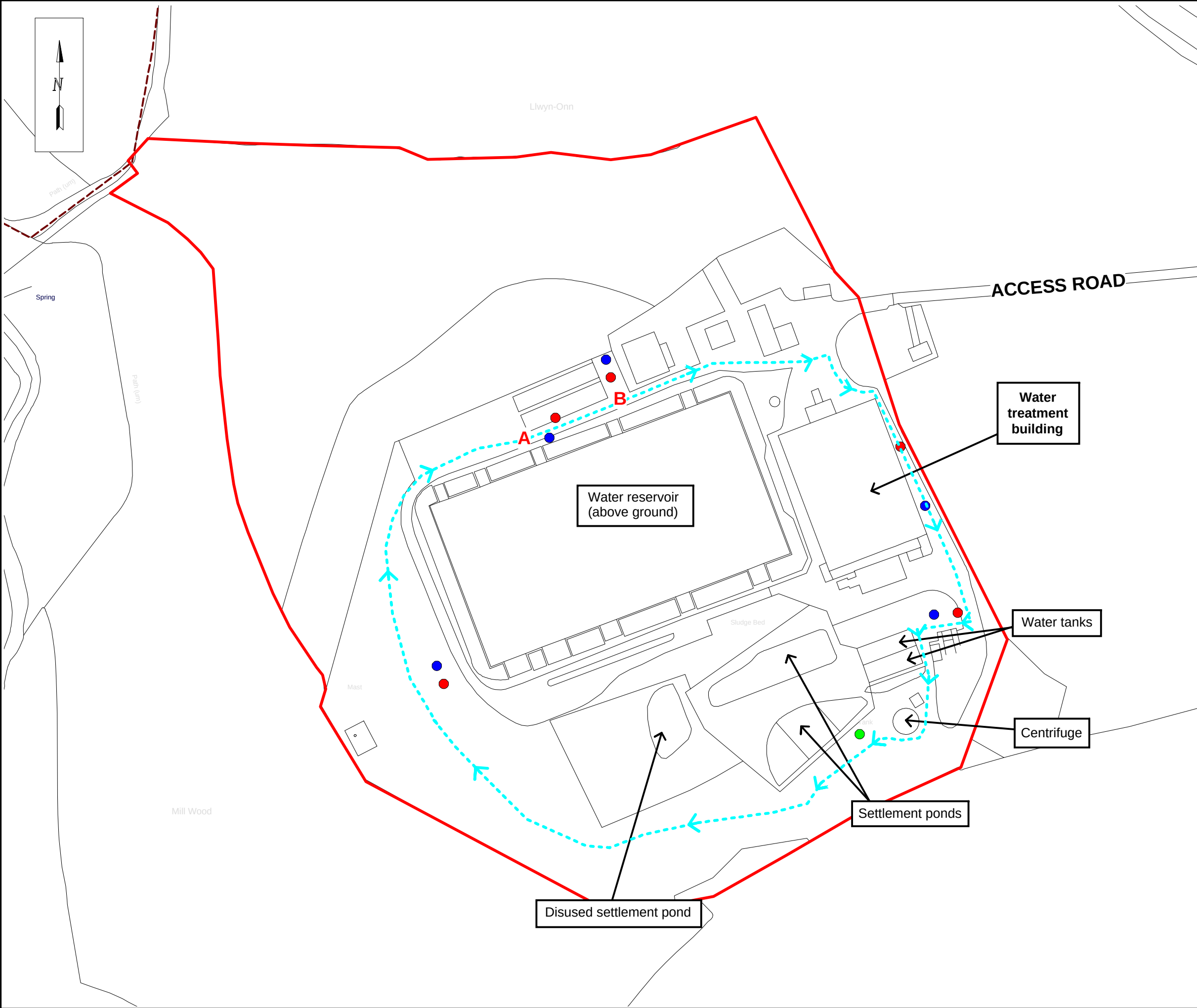
**LLWYN ONN
WATER TREATMENT WORKS**

Reptile Refugia

Contract no. 121620	Approved: ES	Date: Oct 10
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		Drawn	NG	Date:	Oct 10	
		Checked	DW	Date:	Oct 10	
		Reviewed	ES	Date:	Oct 10	
Rev.	Nature of Revision	Drawn	Chkd.	Rvwd.	Appd.	Date

Key

- Site Boundary
- Surveyor Position
- Transect Route
- Common Pipistrelle
- Soprano Pipistrelle
- Myotis Sp. (Natterers)

1:30,000 (at A3)

WREXHAM

MARCHWIEL

**LLWYN ONN
WATER TREATMENT WORKS**

Bat Survey

Contract no. 121620	Approved: ES	Date: Oct 10
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APPENDIX B: HABITAT SURVEY TARGET NOTES

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Habitat Survey Target Notes

Target No.	Note
1	Dense thicket of buckthorn.
2	Ephemeral ditch running through broadleaved woodland and alongside a public right of way.
3	Mill Wood Ancient broadleaved woodland running adjacent to the WTW and alongside the Afon Clywedog.
4	Semi-improved neutral grassland to the north of the WTW site and development area. Comprises rank grasses, scattered patches of dense bramble scrub and a good habitat structure and mosaic.
5	Mixed plantation woodland, created as a visual screen to the original extension of the site. Comprises hawthorn, Scots pine and beech, and a couple of disused badger setts.
6	Above ground reservoir, with a metalled roof structure, concrete footings and amenity grassland.
7	Two elongated wooden sheds used for general storage. The sheds appear on first inspection to be in a state of disrepair and have been rarely used for some time, but subsequent site visits confirms that they are in regular use.
8	Rows of old pipe-work and tyres, stored on site. These have become overgrown by brambles and ruderal vegetation.
9	Tall ruderal vegetation colonising an area of mounded earth, predominantly thistle and willowherb. Potential for invasive species such as Himalayan balsam to be present here within the seedbank. None found to date.
10	Dense bramble scrub surrounding the settlement lagoon.
11	Narrow block of plantation broadleaved woodland comprising cherry and oak.
12	Pond 2.
13	Pond 3.
14	Water process building: The building is 15 years old and is a steel framed and steel clad building, built to house the original concrete water treatment works (WTW).
15	Bare and disturbed ground to the rear of the process building, with a centrifuge and various storage tanks and sludge lagoons, linked by a stone surfaced track.
16	Site Offices. Brick buildings with flat roofs.
17	Eastern site boundary comprising a mature <i>leylandii</i> hedgerow.
18	Sludge drying bed, with only a small area of water at the time of survey.
19	Scattered broadleaved trees along the southwest corner of the site, including ash, oak and beech.
20	Single hole outlier badger sett. Disused. (confidential)
21	Two hole badger sett. Disused. (confidential)
22	Kestrel noted on steel girder, possibly nesting within structure.

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APPENDIX C: REPTILE SURVEY RESULTS

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Reptile Survey Results

Visit number	1			
Date	16/08/2010			
Surveyor	Donna Warren			
Weather	Dry, warm, sunny			
Temperature	22 deg c			
Cloud cover (%)	30			
Time of survey	16:00hrs			
Findings	Slow worm	Common lizard	Adder	Grass snake
Mat / area where found (number of individuals)	0	0	0	0
Total number of each species	0	0	0	0
Other notes	Short tailed field voles noted under ACO 3 and feeding site under ACO 7.			
Visit number	2			
Date	23/08/2010			
Surveyor	Donna Warren			
Weather	light rain			
Temperature	18.2 deg C			
Cloud cover (%)	100			
Time of survey	09:00			
Findings	Slow worm	Common lizard	Adder	Grass snake
Mat / area where found (number of individuals)	0	0	0	0
Total number of each species	0	0	0	0
Other notes	short tailed field vole			

Visit number	3				
Date	25/08/2010				
Surveyor	Russell Grey				
Weather	warm, sunny, dew on ground				
Temperature	15 deg C				
Cloud cover (%)	15%				
Time of survey	09:00				
Findings					
Mat / area where found (number of individuals)		Slow worm	Common lizard	Adder	Grass snake
	12	0	0	0	1
Total number of each species	0	0	0	0	1
Other notes					
Visit number	4				
Date	27/08/2010				
Surveyor	Russell Grey				
Weather	warm, occasional rain showers during afternoon with sunny spells				
Temperature	18 deg C				
Cloud cover (%)	50%				
Time of survey	16.30				
Findings					
Mat / area where found (number of individuals)		Slow worm	Common lizard	Adder	Grass snake
	12	0	0	0	Sloughed skin
Total number of each species	0	0	0	0	0
Other notes					

Visit number	5				
Date	01/09/2010				
Surveyor	Donna Bigsby				
Weather	warm, dry, sunny				
Temperature	21				
Cloud cover (%)					
Time of survey	13:30				
Findings	Slow worm	Common lizard	Adder	Grass snake	
Mat / area where found (number of individuals)	0	0	0	0	
Total number of each species	0	0	0	0	
Other notes	feeding remain and burrows of field voles				
Visit number	6				
Date	03/09/2010				
Surveyor	Caroline Jewell				
Weather	Misty, dry and warm				
Temperature	13 deg C				
Cloud cover (%)	100%				
Time of survey	10.00				
Findings	Slow worm	Common lizard	Adder	Grass snake	
Mat / area where found (number of individuals)	0	0	0	0	
Total number of each species	0	0	0	0	
Other notes					

Visit number	7			
Date	06/09/2010			
Surveyor	Donna Warren			
Weather	dry, calm, hazy, 80% cloud.			
Temperature	16 deg C.			
Cloud cover (%)	80%			
Time of survey	09:00			
Findings				
Mat / area where found (number of individuals)	Slow worm	Common lizard	Adder	Grass snake
	0	0	0	0
Total number of each species	0	0	0	0
Other notes	grass snake skin under matt 12.			

At A Glance – Total Reptiles Found to Date				
SLOW WORM	COMMON LIZARD	ADDER	GRASS SNAKE	
0	0	0	1	
At A Glance – Peak Counts				
SLOW WORM	COMMON LIZARD	ADDER	GRASS SNAKE	
0	0	0	1	

APPENDIX D: PHOTOGRAPHIC PLATES

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Plate 1 – View of east end of sheds



Plate 2 – View of south face of sheds.



Plate 3: Internal view of southern most shed.



Plate 4 – Internal view of northern most shed.

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APPENDIX E: COFNOD DATA SEARCH

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Cofnod Environmental Information Search

Please read **Important Issues** and **Notes** before interpreting the following information.

Our Ref.	Client Name	Date Run	Your Ref.
E01487	Black & Veatch Ltd	27/04/2010	Llwyn Onn WTW

Site Name	Grid Reference
Llwyn Onn	SJ357488

Category 1 Species (Species with European and UK Legal Protection, Section 42 [NERC] Species & UK BAP Priority Species) within 1000m - 17 records

Taxon Name	Grid Reference	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	Lists	V
Plecotus auritus (Brown Long-eared Bat/Ystlum Hirglust)	SJ3549 (Estimated from Map)	11/11/1991	Anon			Site Name Withheld		D1049/001/02 (684053)	Bern, Bonn, EPS, HDir, S42, UKBAP, WCA5, LBAP[ANG,CON,DEN,FLI,GWY]	3
Chiroptera (A Terrestrial Mammal)	SJ3449 (Est. (Additional Site Name GR))	09/09/2004	Anon		Bat Roost	Site Name Withheld	Comments Withheld	D1306/001/01 (1997963)	WCA5	1
Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	SJ35724973	03/06/1992	Anon - Herpetofauna Consultants International	P		Cefn Palmer		D1125/001/03 (1857318)	Bern, EPS, HDir, S42, UKBAP, WCA5, LBAP[ANG,CON,DEN,FLI,SNP,WRE]	3
Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	SJ366489	Before 01/04/2007	EAC	3 M, 2 F, (2001)		Little Llwyn Onn		D1125/001/03 (1857800)	Bern, EPS, HDir, S42, UKBAP, WCA5, LBAP[ANG,CON,DEN,FLI,SNP,WRE]	3
Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	SJ362480	24/04/2002	Miss E. Stevens			OTH:SA:11:2001		D1317/001/01 (1856328)	Bern, EPS, HDir, S42, UKBAP, WCA5, LBAP[ANG,CON,DEN,FLI,SNP,WRE]	3
Meles meles (Eurasian Badger/Mochyn Daeear)	SJ3548	2 records, on 02/01/2003 and 10/01/2003	Clwyd Badger Group (CBG)		Badger Sett		CBG Ref: B44.0. Please contact CBG for more details.; CBG Ref: B55.0	D0059/001/01	BA, LBAP[CON,DEN,FLI,WRE]	3
Coenonympha pamphilus (Small Heath/Gweirlyŷn Bach y Waun)	SJ3648 (Centroid)	1995	Bryan Formstone	1	Field record / observation	SJ3648		D0127/001/02 (521740)	S42, UKBAP, LBAP[GWY]	3
Meles meles (Eurasian Badger/Mochyn Daeear)	SJ3648	2 records, both on 10/01/2003	Clwyd Badger Group (CBG)		Badger Sett		CBG Ref: B49.0. Please contact CBG for more details.; CBG Ref: B49.1	D0059/001/01	BA, LBAP[CON,DEN,FLI,WRE]	3
Meles meles (Eurasian Badger/Mochyn Daeear)	SJ3649	19/12/2003	Clwyd Badger Group (CBG)		Badger Sett		CBG Ref: B38.0. Please contact CBG for more details..	D0059/001/01 (804430)	BA, LBAP[CON,DEN,FLI,WRE]	3
Meles meles (Eurasian Badger/Mochyn Daeear)	SJ3448	3 records, all on 28/12/2002	Clwyd Badger Group (CBG)		Badger Sett		CBG Ref: B81.0. Please contact CBG for more details.; CBG Ref: B81.1; CBG Ref: B48.0	D0059/001/01	BA, LBAP[CON,DEN,FLI,WRE]	3
Pipistrellus pipistrellus (Common Pipistrelle/Ystlum Lleiaf)	SJ3547	1985	Anon					D1072/001/01 (408445)	Bern, Bonn, EPS, HDir, S42, WCA5, LBAP[ANG,CON,DEN,FLI,GWY,SNP]	3
Meles meles (Eurasian Badger/Mochyn Daeear)	SJ3647	2 records, on 02/01/2003 and 25/02/2003	Clwyd Badger Group (CBG)		Badger Sett		CBG Ref: B11.0. Please contact CBG for more details.; CBG Ref: B11.1	D0059/001/01	BA, LBAP[CON,DEN,FLI,WRE]	3

Category 2 Species (Global Red List, British Red Data Book, Nationally Rare & Scarce, Welsh Red and Amber Birds & Welsh Vascular Plant Red Data List, where these are not identified in Category 1) within 1000m - 0 records

Category 3 Species (LBAP Species not identified under Categories 1 & 2, Locally Important species as specified by local experts) within 1000m - 0 records

Statutory Sites intersecting 1000m buffer	None
Wildlife Sites within 1000m (C=Candidate)	Marchwiel Marsh (994m)
NWWT Reserves within 1000m	None
RSPB Reserves within 1000m	None
RIGS within 1000m	None
Habitat type at application grid reference	Buildings
Habitat type(s) within 1000m	Amenity Grassland, Arable, Buildings, Dense Scrub, Ephemeral/Short Perennial, Gardens, Improved Grassland, Marshy Grassland, Not Accessed Land, Running Water, Semi-improved Neutral Grassland, Standing Water, Tall Ruderal Herb
Ancient Woodland within 1000m	Ancient and Semi Natural Woodland

Important Issues

1. Usage of the above information is governed by Cofnod's **Terms and Conditions of Data Release** (available from Cofnod on request).
2. Records shown in bold typeface are sensitive species records. In this public version of the original report, the resolution of sensitive species grid references have been reduced and site names and comments have been removed.
3. Past records of presence of a habitat or species do not guarantee continued occurrence; absence of records does not imply absence of a species, merely that no records are held at Cofnod; Cofnod cannot guarantee the accuracy of supplied data; copyright of records remains with the original recorder.

Notes

This report should be used in conjunction with any relevant maps, where these are supplied.

Cofnod uses a search system which reports all priority or protected species within a specified search radius or buffer. Where required a search will also include high priority 'Mobile Species', such as bats, otters, amphibians and certain invertebrates, which lie outside the specified search radius. These species are highlighted on the report with an **asterisk**. They have been selected as 'Mobile Species' as their territory (possibly due to foraging activity or life cycle) could intersect with the search radius.

Records with 4 figure grid references are displayed as 1km squares on any relevant maps. They are listed separately in reports and highlighted in grey *italic* script.

Please note that while we hold Wales Raptor Study Group data for North East Wales we are only permitted to release it to a limited number of trusted partners. We can provide contact details if you would like to contact the Raptor Study Group directly to request species information.

Sites - Designated Sites and non-designated Wildlife Sites within 50m of the grid reference are highlighted in red. Wildlife Sites which remain unconfirmed by the relevant Local Authority are given 'Candidate' status and are displayed with the (c) suffix. The following reasons for candidate status apply: 1. Anglesey and Flintshire Wildlife Sites were identified by survey but have not been formally confirmed. 2. Conwy and Gwynedd Wildlife Sites were identified by survey and air photos and remain candidate until evaluated using selection criteria.

Dataset ID - All species records within the reports include Dataset ID codes, which can be used to find the relevant Metadata, using the **Data We Hold** page on the Cofnod website (www.cofnod.org.uk/DataWeHold.aspx). The number below the Dataset ID is the individual record ID. Please quote this if you need more information on a specific record.

'V' column - Record Verification Level. The following abbreviations apply: **1**: Unassessed, **2**: Unconfirmed, **3**: Considered Correct by Cofnod, **4**: Considered Correct by Expert. Dataset Categories and Record Verification Levels are explained in more detail within Cofnod's policy on Data Quality, available from our website.

Lists

BA - Protection of Badgers Act, **BDir** - EU Birds Directive, **Bern** - The Bern Convention on the Conservation of European Wildlife and Natural Habitats, **Bonn** - The Bonn Convention on the Conservation of Migratory Species of Wild Animals, **CCWP** - CCW Priority Species List, **CITES** - Convention on International Trade in Endangered Species, **EPS** - European Protected Species, **HDir** - EU Habitats Directive, **LBAP** - Local Biodiversity Action Plan, **RD1** - Red Data Book listing based on IUCN guidelines, **RD2** - Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce), **S42** - Natural Environment and Rural Communities Act 2006 (Section 42), **UKBAP** - UK Biodiversity Action Plan Priority Species, **WBAm[RSPB]** - Birds of Conservation Concern 2002-07 - Welsh Amber listed birds (not based on IUCN criteria), **WBR[RSPB]** - Birds of Conservation Concern 2002-07 - Welsh Red listed birds (not based on IUCN criteria), **WCA1** - Wildlife & Countryside Act 1981 Schedule 1, **WCA5** - Wildlife & Countryside Act 1981 Schedule 5, **WCA8** - Wildlife & Countryside Act 1981 Schedule 8, **WVP** - IUCN Threat Listing of Welsh Vascular Plants

Abbreviations

ANG - Isle of Anglesey, **CON** - Conwy, **DEN** - Denbighshire, **FLI** - Flintshire, **GWY** - Gwynedd, **SNP** - Snowdonia National Park, **WRE** - Wrexham, **LBAP** - Local Biodiversity Action Plan, **NWWT** - North Wales Wildlife Trust, **RSPB** - Royal Society for the Protection of Birds, **RIGS** - Regionally Important Geodiversity Sites, **WS** - Wildlife Site

Contact Us

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