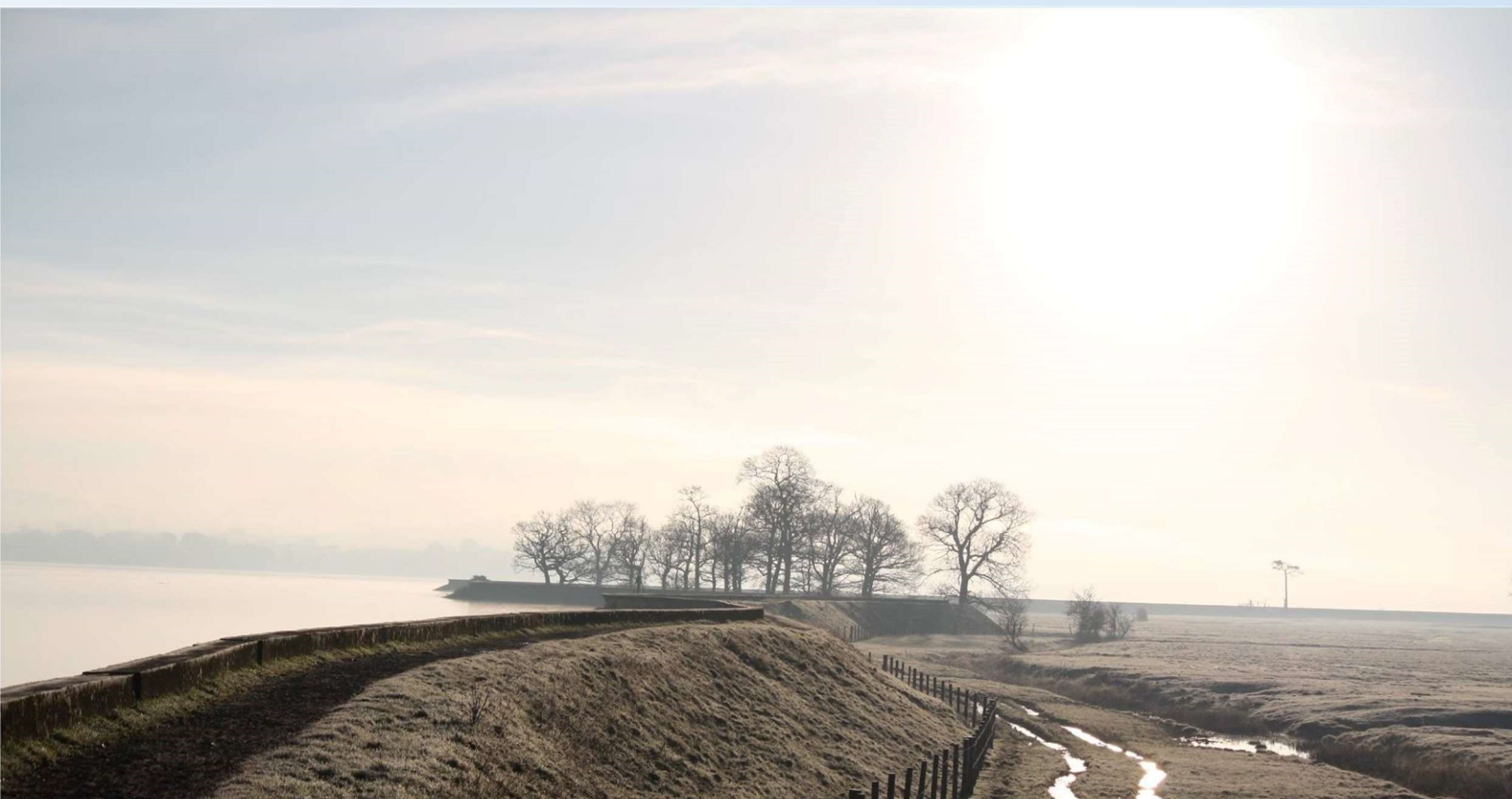




Bersham (Glenside) Ltd

BERSHAM COLLIERY TIP (ENERGY PLAN - RECLAMATION SCHEME)

Preliminary Ecological Appraisal





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Preliminary Ecological Appraisal

WSP

1 Capital Quarter

Tyndall Street

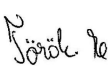
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EXECUTIVE SUMMARY

Bersham (Glenside) Ltd commissioned WSP in July 2019 to undertake a Preliminary Ecological Appraisal (PEA) of the habitats within Bersham Bank Colliery Tip, Rhostyllen, Wrexham, hereafter referred to as the 'Site' (as shown on Figure 1).

The Proposed Development is for a new circa 30MW energy plant on the existing, disused colliery site.

The aim of the PEA was to identify the habitats on Site and to assess their potential for supporting protected and / or notable species. The appraisal was completed using a desk study and a site visit which incorporates a ground level assessment of trees and structures for bats.

Four European sites were identified within 10 km of the Site with one site, the Johnstown Newt Sites Special Area of Conservation (SAC), located 516 m south of the Site. The desk study also identified one statutory designated site of national importance Stryt Las A'r Hafod and one non-statutory designated site Erddig Estate within 2 km of the Site. The desk study returned several records of protected and / or notable species within 2 km of the Site including badger *Meles meles*, hedgehog *Erinaceus europaeus*, several bat species, birds, amphibians, and invasive non-native species.

The site visit recorded a number of habitats present, including semi-improved grassland, a grassland/scrub mosaic, semi-natural broadleaved woodland (dominated by silver birch *Betula pendula*) and tall ruderal and ephemeral habitats on a gravelly substrate. These habitats have the potential to support badger, hedgehog, bats, birds, reptiles, invertebrates, and common amphibian species. Stands of Japanese knotweed *Reynoutria japonica* were also recorded present.

For the Proposed Development to comply with relevant legislation and planning policy, the following further surveys, assessments, avoidance and mitigation measures are proposed:

- Habitats Regulation Screening Assessment for Likely Significant Effects with respect to European statutory designated sites up to 10km. This assessment should be produced and reviewed in agreement with the Local Planning Authority (LPA) and Natural Resources Wales (NRW).
- Protection and retention of semi-natural broad-leaved woodland habitat and semi-improved grassland where possible;
- Further targeted surveys for badger, bats, and reptiles in suitable habitat;
- Treatment and control of invasive non-native species, namely Japanese knotweed;
- Ecological supervision during habitat clearance; and

Implementation of an Ecological Management Plan (EcMP) and Construction Environmental Management Plan (CEMP).

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 PROJECT BACKGROUND

- 1.1.2 WSP UK Limited (hereafter referred to as 'WSP') was commissioned by Bersham (Glenside) Ltd (hereafter referred to as 'BG') to undertake a Preliminary Ecological Appraisal (PEA) of the habitats at Bersham Bank Colliery Tip, Rhostyllen, Wrexham, located immediately south of Rhostyllen (National Grid Reference SJ 31220 47971); hereafter referred to as the 'Site', see Figure 1.
- 1.1.3 The Site currently comprises semi-improved grassland, a grassland/scrub mosaic, semi-natural broadleaved woodland (dominated by silver birch *Betula pendula*) s, and tall ruderal and ephemeral habitats on a gravelly substrate.
- 1.1.4 It is understood that BG is seeking to inform a planning application for the construction of a new circa 30MW energy plant to be located on the existing disused colliery site, hereafter referred to as the Proposed Scheme.

1.2 SCOPE OF REPORT

- 1.2.1 BG commissioned WSP to complete a Preliminary Ecological Appraisal (PEA) of the Site in July 2019. The brief was to:
- Provide baseline ecological information about the Site with particular reference to whether legally protected and/or notable sites, species or habitats are present or likely to be present;
 - Provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and
 - If necessary, identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

1.3 RELEVANT LEGISLATION AND POLICY

- 1.3.1 The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in Wales. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in Appendix A.
- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations);
 - The Wildlife and Countryside Act 1981 (as amended) (WCA);
 - Countryside Rights of Way Act 2000;
 - The Environment (Wales) Act 2016;
 - The Protection of Badgers Act 1992;
 - The Hedgerow Regulations 1997;
 - The Wild Mammals (Protection) Act 1996;
 - The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);



- UK Biodiversity Action Plan (UKBAP)¹;
- The National Planning Policy Framework (NPPF) 2019 (Ministry of Housing Communities & Local Government, February 2019);
- Planning Policy Wales (PPW) (Edition 10) 2018;
- The Well-being of Future Generations (Wales) Act 2015;
- Technical Advice Note 5; Nature Conservation and Planning 2009;
- Wrexham County Borough Council Local Development Plan 2 (LDP2) 2013 to 2028; and
- Wrexham County Borough Council Local Biodiversity Action Plan (2011).

¹ The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2 METHODS

2.1 OVERVIEW

- 2.1.1 This appraisal has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2016), and Joint Nature Conservation Committee (JNCC, 2010); and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013 (British Standards Institute 2013).
- 2.1.2 This PEA is based on the following data sources:
- An ecological desk study;
 - A habitat survey; and
 - A protected/notable species assessment.
- 2.1.3 All trees on Site were subject to preliminary ground level roost assessments to assess their suitability to support roosting bats. These assessments were made in line with good practice guidelines (Collins, 2016).

2.2 DESK STUDY

- 2.2.1 The desk study was undertaken in August 2019 to review existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. For the purpose of the desk study exercise, records were collated within various radii around the Site. This approach is consistent with current good practice guidance published by the CIEEM, 2013 and 2015. To provide the baseline data for the ecological desk study, the following information was requested from COFNOD (North Wales Environmental Information Service):
- Records of legally protected and notable species within 2 km of the Site;
 - Records of statutory sites designated for nature conservation value within 2 km of the Site and 10 km for Natura 2000 Sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) of European Importance and Internationally designated Ramsar sites;
 - Records of non-statutory sites designated for nature conservation value within 2 km of the Site; and
 - Woodland listed on the Ancient Woodland Inventory within 1 km.
- 2.2.2 In addition, open source 1:25,000 Ordnance Survey mapping was used to identify any mapped water bodies and watercourses within 500 m of the Site.
- 2.2.3 The findings of the desk study have been incorporated within Section 3 and Appendix B of this report.
- 2.2.4 The ecological desk study was carried out by a member of CIEEM, who has completed numerous ecological desk studies.

2.3 HABITAT SURVEY

- 2.3.1 A Phase 1 habitat survey of the Site was carried out on the 14th and 15th August 2019. The survey covered the entire Site including boundary features. The Phase 1 habitat survey was completed by a full member of CIEEM, with extensive experience of completing PEAs of sites containing similar habitat types.

- 2.3.2 Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species were recorded and habitats are classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as a Habitat of Principal Importance following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008).
- 2.3.3 Habitats were marked on a mobile mapping computer and were subsequently digitised using a Geographical Information System (GIS).
- 2.3.4 Target notes were made to provide information on specific features of ecological interest (e.g. a badger *Meles meles* sett) or habitat features too small to be mapped. These are included in Appendix C.
- 2.3.5 Any invasive non-native plant species listed on Schedule 9 of the WCA 1981 (as amended) which were evident during the Phase 1 habitat survey were also target noted. Detailed mapping of such species; or a full survey of the Site for all invasive plant species is beyond the scope of this commission.
- 2.3.6 Data collected as part of this Phase 1 Habitat survey is suitable for use in retrospective biodiversity unit calculations, if required.

2.4 PRELIMINARY GROUND LEVEL ROOST ASSESSMENT OF TREES AND STRUCTURES FOR BATS

- 2.4.1 All trees and structures were inspected from the ground to enable an assessment of their suitability to support roosting bats.
- 2.4.2 A visual inspection of was completed to search for features which may provide potential roosting opportunities for bats. Where suitable features were noted, their location and a brief description of their character was recorded. Additionally, where possible, features were visually inspected for evidence indicating use by roosting bats such as droppings, urine staining, noises and odours from bats and staining around a hole that may be caused by natural oils in bat fur.
- 2.4.3 Trees were categorised in line with the descriptions in Table 1 below (adapted from Collins, 2016).

Table 1 - Bat Roost Suitability Categorisation

Roost Suitability	Description
High	A tree with one or more potential roost sites that are suitable for supporting large roosts on a regular basis/for longer periods of time because of their size, shelter, protection, conditions and suitable surrounding habitat.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.

Low	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features that only offer limited roosting opportunities.
Negligible	Tree with no potential opportunities for roosting bats, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable. e.g. isolated from suitable foraging or commuting habitats.

2.5 PROTECTED SPECIES ASSESSMENT

2.5.1 The potential for the Site to support legally protected and notable species was assessed using the desk study results and combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: birds (Gilbert et al, 1998 and Bibby et al, 2000), great crested newt (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2016 and Mitchell-Jones, 2004); badger (Harris et al, 1991 and Roper, 2010); hazel dormouse (English Nature, 2006); otter (Chanin, 2003); water vole (Dean et al, 2016) and invertebrates (Drake et al, 2007 and Kirby, P, 2001).

2.6 NOTES AND LIMITATIONS

- 2.6.1 Every effort has been made to provide a comprehensive description of the Site; however, the following specific limitations apply to this assessment:
- Ecological survey data is typically valid for two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management;
 - Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage; and
 - The Phase 1 Habitat survey was carried out over the period of two days, as such only a selection of all species that occur within the Survey Area will have been recorded. However, through use of desk study information to supplement site survey data, it is considered that an accurate assessment of the potential for the Site to support protected species or those of conservation concern was possible.

3 RESULTS

3.1 DESIGNATED SITES

3.1.1 STATUTORY SITES

3.1.2 The desk study identified four statutory designated sites of European or international importance within 10 km of the centre. A description of the sites is detailed in Table 2 below and shown on Figure 2. Four sites of national importance were identified within 10km of the Site, listed in Table 3 and shown on Figure 2

Table 2 - Statutory designated sites of European or international importance

Site Name	Designation	Size (ha)	Approximate Distance (m) and orientation from Site	Description
Johnstown Newt Sites	SAC	69.3	516 south	Post-industrial site presenting one of the largest great crested newts <i>Triturus cristatus</i> populations of Great Britain.
Berwyn and South Clwyd Mountains	SAC	27,209	4,197 south-west	A complex of heath, scrubs, bogs, marshes, inland water bodies, grasslands.
Midland Meres & Mosses - Phase 2 Ramsar	Ramsar	1588	7,343 north-east	Wetland of International Importance. Lowland open water and peatland sit
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid	SAC	1271.32	7,530 east	Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation

Table 3 - Statutory designated sites of national importance

Site Name	Designation	Size (ha)	Approximate Distance (m) and orientation from Site	Description

Stryt Las A'r Hafod	SSSI	69.4	916 south	Water bodies supporting one of the largest great crested newts populations of Great Britain.
Sontley Marsh	SSSI	13	2,548 east	Mesotrophic wetland with alder carr and tall fen vegetation. Marshy grassland is present as well.
Gatewen Marsh	SSSI	4.5	3,064 north	Mesotrophic marsh with unique botanical composition.
Ruabon/Llantysilio Mountains and Minera	SSSI	4,795	4,197 west	Notable for moors, neutral grasslands, upland breeding birds, rare plants, and mines and caves used by bats.

- 3.1.3 The desk study identified five non-statutory nature conservation sites within 2 km of the Site. A description of these sites is detailed in Table 4 below and shown on Figure 3. Due to the highly mobile nature of the species it supports (bats), an additional sixth site has been included in the list, located further than 2 km from the Site.

Table 4 - Non-statutory designated sites

Site Name	Designation	Size (ha)	Distance (m) from Site	Description
Erddig Estate	LWS	191.6	911	Woodlands, semi-improved neutral grasslands and marshes.
Crematorium	LWS	11.5	1,003	Two hay meadows are an herb-rich semi-improved neutral grassland.
Big Wood	LWS	32.6	1,349	Mixed woodland developing along a river corridor.
Legacy Substation	LWS	7.3	1,637	Electricity substation surrounded by embankment with semi-improved grasslands and scrub.

Nant Mill - Grasslands	LWS	5.9	1,901	Grassland adjacent woodlands.
Nant Mill Bat Sites	LWS	<0.1	2,968	Bat roosting site within Nant Mill Country Park

OTHER HABITATS OF CONSERVATION IMPORTANCE

3.1.4 Two Ancient Woodland Sites (AWS) were present within 498 m and 839 m of the Site.

3.2 HABITAT SURVEY

3.2.1 OVERVIEW

3.2.2 The following account summarises the findings of the Phase 1 habitat survey. Nine Phase 1 habitat types were identified in the Site. They are mapped on Figure 4 and are listed in Table 5 along with areas in hectares (or length for linear features). A description of the dominant and notable species, the composition and management of each habitat is provided below. Target notes are provided in Appendix C and photographs in Appendix D. Alpha-numeric codes used in this section cross-refer to the JNCC Phase 1 habitat survey classification (JNCC, 2010). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance.

Table 5 - Phase 1 habitats

Phase 1 Habitat Type	Area (ha)	Length (m)	% of Site Area
A1.1.1 Semi Natural Broad-Leaved Woodland	6.35	-	46.29
A2.1 Scrub – dense / continuous	2.45	-	17.90
B2.2 Semi-Improved Grassland	0.36	-	2.65
B6 Poor Semi-Improved Grassland	0.26	-	1.87
C1.1 Bracken - continuous	0.05	-	0.36
C3.1 Tall Ruderal	0.40	-	2.93
J1.3 Cultivated / Disturbed Land - Ephemeral / Short Perennial	1.38	-	10.09

J3.6 Built-up Areas - Buildings	0.01	-	0.05
J5 Other Habitat	0.11	-	0.79
Hardstanding (no alphanumeric code)	2.34	-	17.07
TOTAL	13.71	-	100

SEMI-NATURAL BROADLEAVED WOODLAND - A1.1.1

3.2.3 Semi-natural broad-leaved woodland was recorded within the northern half of the Site and along the western boundary of the Site where it formed a screen between the Site and the A483. This habitat was not designated as Ancient Woodland and did not meet the criteria to be a Habitat of Principal Importance due to its relatively species poor ground flora and its young age.

3.2.4 Most sections of woodland were dominated by secondary silver birch with very little scrub understory. Hawthorn *Crataegus monogyna* and sycamore *Acer pseudoplatanus* were abundant, with occasional wych elm *Ulmus glabra*, pedunculate oak *Quercus robur*, goat willow *Salix caprea*, with rosebay willowherb *Chamaenerion angustifolium* and dog rose *Rosa canina* in the understorey. Some parcels of woodland were also dominated by bramble *Rubus fruticosus* agg.

3.2.5 SCRUB – DENSE / CONTINUOUS - A2.1

3.2.6 Numerous parcels of dense / continuous scrub were recorded throughout the Site, all of which appeared to be largely unmanaged. The majority of the scrub parcels were present along the western boundary and southern half of the Site.

3.2.7 The dense and continuous scrub habitat comprised , dominante silver birch with abundant pedunculate oak, goat willow and common gorse *Ulex europaeus*. Some parcels of dense scrub were also dominated by bramble, with abundant common nettle *Urtica dioica*, and occasional hawthorn, common knapweed *Centaurea nigra*, rosebay willowherb and perforate St John's-wort *Hypericum perforatum*.

3.2.8 SCRUB – SCATTERED - A2.2 / POOR SEMI-IMPROVED GRASSLAND – B6

3.2.9 There is a mosaic of poor semi-improved grassland and scattered scrub habitats within the Site. These parcels were dominated by common knapweed, with abundant cock's foot *Dactylus glomerata*, tormentil *Potentilla erecta*, creeping cinquefoil *Potentilla reptans*, creeping thistle *Cirsium arvense* and lesser trefoil *Trifolium dubium*,. The mosaic also comprised occasional dog rose, yarrow *Achillea millefolium*, scarlet pimpernel *Anagallis arvensis*, scentless mayweed *Matricaria recutita*, bramble, silver birch, hawthorn, common knotgrass *Polygonum aviculare*, with rare ash *Fraxinus excelsior*, greater plantain *Plantago major*, nipplewort *Lapsana communis*, ivy leaved speedwell *Veronica hederifolia*, cut leaved cranesbill *Geranium dissectum*, common birds foot-trefoil *Lotus corniculatus*, foxglove *Digitalis purpurea*, common cats ear *Hypochaeris radicata*, common nettle, curled dock *Rumex crispus*, silver birch, ribwort plantain *Plantago lanceolata*, and pedunculate oak.

3.2.10 NEUTRAL GRASSLAND, SEMI-IMPROVED - B2.2

- 3.2.11 There were five small parcels of semi-improved grassland located predominately in the southern half of the Site. A varied sward height was recorded with the habitat comprising dominant Yorkshire fog *Holcus lanatus*, and abundant common bent *Agrostis capillaris*, perforate St John's-wort, common knapweed, yarrow, creeping cinquefoil, black medic *Medicago lupulina*, with occasional ribwort plantain, tormentil, creeping thistle, oxeye daisy *Leucanthemum vulgare*, tufted vetch *Vicia cracca*, red bartsia *Odontites vernus*, teasel *Dipsacus fullonum*, dog rose, curled dock, coltsfoot *Tussilago farfara*, common birds-foot trefoil with rare rough hawkbit *Leontodon hispidus* and lesser centaury *Centaureum pulchellum*.

3.2.12 CONTINUOUS BRACKEN – C1.1

- 3.2.13 A small parcel of continuous bracken *Pteridium aquilinum* was located to the western end of the Site. Occasional hawthorn and rare pedunculate oak were present within this habitat.

3.2.14 TALL RUDERAL – C3.1

- 3.2.15 Two parcels of tall ruderal vegetation were recorded within the south-west corner of the Site. They were dominated by silver birch, ragwort *Jacobaea* spp., and common knapweed with abundant rosebay willowherb, creeping thistle and occasional foxglove, oxeye daisy, common cats ear, false oat-grass *Arrhenatherum elatius*, hawthorn, yarrow, and rare prickly sow-thistle *Sonchus asper*, and common birds-foot trefoil. Occasional bramble, sycamore, pedunculate oak, rowan *Sorbus aucuparia*, dog rose and rare crab apple *Malus sylvestris* and wild cherry *Prunus avium* were scattered amongst the tall ruderal.

3.2.16 EPHEMERAL/SHORT PERENNIAL – J1.3

- 3.2.17 Multiple small areas of ephemeral / short perennial habitat were noted within the Site. Dominant plant species present included scented mayweed *Matricaria chamomilla* and creeping soft-grass *Holcus mollis*. Abundant species were false oat grass *Arrhenatherum elatius*, common knotgrass, redshank *Persicaria maculosa*, sticky groundsel *Senecio viscosus*, with occasional creeping thistle, creeping buttercup *Ranunculus repens*, perforate St John's-wort, prickly sow-thistle, greater plantain, spear thistle *Cirsium vulgare*, bramble, foxglove, with rare common vetch *Vicia sativa*, tufted vetch, selfheal *Prunella vulgaris*, and bristly ox-tongue *Helminthotheca echioides*.

3.2.18 BUILDINGS – J3.6

- 3.2.19 A small red brick generator building with a flat roof was located in the south-east corner of the Site.

3.2.20 HARDSTANDING

- 3.2.21 Large areas of gravel substrate and hardstanding were mapped within the Site particularly in the central and southern sections. The hard-standing areas within the south-eastern part of Site shows signs of continuous anthropogenic disturbance from trucks collecting skips and containers which are stored on Site.

3.3 PROTECTED AND NOTABLE SPECIES ASSESSMENT

- 3.3.1 The potential for the Site to support legally protected species and notable species has been assessed using the results of the desk study and observations made during the site survey of habitats within and immediately surrounding the Site. A summary of desk study information is included within Appendix B. Desk study records have only been considered below if they are recent

(from the last 10 years) and/or if they relate to species that may be supported by habitats at the Site. Habitats present within the Site are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Site:

- Badger;
- Hazel dormouse *Muscardinus avellanaria*;
- Hedgehog *Erinaceus europaeus*;
- Bats;
- Reptiles;
- Amphibians;
- Breeding birds; and
- Invasive plant species.

3.3.2 The Site does not provide suitable habitat for other protected or notable species and other species, beyond those listed above, will not be considered further in this PEA.

BADGER

3.3.3 The desk study returned eleven records of badger within 2 km of the Site, with the closest record being approximately 391 m west of the Site. However, older records, from 1998, do exist of a badger sett within the Site.

3.3.4 No signs of badger activity were recorded on Site during the Phase 1 habitat survey however, habitat in the form of woodland provides suitable areas for sett creation and the grasslands on Site provide suitable foraging and commuting habitat for badger.

HAZEL DORMOUSE

3.3.5 No results of hazel dormouse were returned from the desk study.

3.3.6 Sub-optimal habitat for nesting and foraging dormouse was identified on Site in the form of woodland and scrub. The woodland was dominated by silver birch with very little scrub understory, with restricted food availability and nesting suitability.

HEDGEHOG

3.3.7 Twelve records of hedgehog were identified within 2 km of the Site, the nearest being approximately 419 m west of the Site.

3.3.8 The areas of semi-natural broad-leaved woodland, grassland and scrub identified on Site were considered suitable to support hedgehog. Avoidance measures are set out in Table 5 to minimise impacts on hedgehog.

BATS

3.3.9 A total of two records of bats were returned as part of the desk study within 2 km of the Site. Two of these records were of a brown long-eared bat *Plecotus auritus* and a pipistrelle *Pipistrellus sp.* bat species. The closest record was for pipistrelle bat species, approximately 895 m west of the Site.

3.3.10 One building was present on site (a generator building) which was assessed as having negligible bat roosting suitability. All trees were assessed as having negligible suitability to support roosting bats. The Site provided moderate suitability for foraging and commuting bats as per Collins, 2016.

REPTILES

- 3.3.11 Five records of grass snake *Natrix helvetica* and two records of adder *Vipera berus* were returned from the desk study within 2 km of the Site. The closest record for grass snake was 1.65 km to the east and for adder was 1.6 km to the north-east.
- 3.3.12 Habitats identified on Site during the Phase 1 habitat survey, particularly the areas of dense scrub and semi-improved neutral grassland, in addition to the topography of the Site, were considered suitable to support reptile species.

AMPHIBIANS

- 3.3.13 118 records of amphibian were identified during the desk study. These included great crested newt, palmate newt *Lissotriton helvetica*, smooth newt *Lissotriton vulgaris*, common toad *Bufo bufo* and common frog *Rana temporaria*. The closest record identified during the desk study was of a great crested newt, 738 m south-west from the Site.
- 3.3.14 Suitable terrestrial habitat for amphibians was recorded on Site such as tall ruderal, semi-improved grassland and scrub. No waterbodies (excluding one ephemeral waterbody) were noted during the Phase 1 habitat survey therefore no breeding habitat was present. All waterbodies recorded on site were small scrapes or depressions in the ground with collected rain water.
- 3.3.15 A search for waterbodies up to 500m from the Site was carried out. No waterbodies were identified. The A483 road provides a barrier to movement between the Johnston Newt Sites SAC and the Site.

BREEDING BIRDS

- 3.3.16 The desk study returned records of 49 protected and/or notable bird species within 2 km of the Site. A total of four species were identified as Schedule 1 birds as listed on the Wildlife and Countryside Act 1981. These were hobby *Falco subbuteo*, redwing *Turdus iliacus*, fieldfare *Turdus pilaris* and kingfisher *Alcedo atthis*. Of these species, habitat is suitable for redwing and fieldfare. See Appendix B for a list of protected and notable bird species identified during the desk study.
- 3.3.17 Much of the habitat on Site was suitable for nesting birds, including the trees, scrub, and grassland. The Site also provides a wide variety of foraging opportunities.

NON-NATIVE INVASIVE PLANT SPECIES

- 3.3.18 The desk study identified six records of non-native invasive plant species within 2 km of the Site. These were giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed, New Zealand pigmyweed *Crassula helmsii*, *Rhododendron ponticum*, and wall cotoneaster *Cotoneaster horizontalis*.
- 3.3.19 Several stands of Japanese knotweed were identified on Site during the Phase 1 habitat survey. They are shown on Figure 4 as target Notes TN02, TN04 and TN07 in Appendix C.

4 DISCUSSION AND RECOMMENDATIONS

- 4.1.1 This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the Proposed Development. Where further surveys or detailed assessment of potential effects are required in order to design suitable mitigation this is identified.

4.2 STATUTORY DESIGNATED SITES

- 4.2.1 Four statutory sites of European or international importance and four statutory sites of national importance were identified within 10 km of the Site.
- 4.2.2 The Johnstown Newt Sites SAC is located 516 m south of the Site and is a post-industrial site presenting one of the largest great crested newt populations of Great Britain. Whilst suitable terrestrial habitat for supporting amphibians was recorded within the Site, no waterbodies with breeding suitability were recorded therefore amphibian breeding habitat is not considered present. This combined with the fact the Site is separated from the SAC by the A483, a large dual carriageway, it is considered unlikely that the Proposed Development will have any 'direct' impacts upon the Annex II species for which the SAC is designated.
- 4.2.3 Changes in air quality could result from the Proposed Development during the operation phase of the energy plant which requires further consideration.
- 4.2.4 The Habitats Regulations provide strict protection to sites of European and/or international importance. This includes requiring projects or plans to be screened for likely significant effects upon SPA, SAC and candidate SACs (cSACs). Therefore, the due to the nature of the Proposed Development and proximity of European sites, Stage 1: Screening of a Habitats Regulations Assessment should be undertaken by the competent authority (Wrexham Borough County Council) to determine whether significant effects are likely to result. If the local authority is unable to conclude that significant effects are not likely, the Proposed Development must be subject to additional assessment in accordance with the Habitats Regulations. Further assessment is recommended within Table 5.
- 4.2.5 Stryt Las A'r Hafod SSSI is designated for GCN populations and located 516 m south of the Site. SSSIs are subject to strict protection under the Wildlife and Countryside Act 1981 (as amended). This requires landowners to maintain these sites in favourable condition and works within these sites are managed by the appropriate national statutory body via the consent process. Certain operations within SSSIs require consent; these are specific to each SSSI.
- 4.2.6 The Proposed Development does not lie within the Stryt Las A'r Hafod SSSI identified within the desk study. Due to the lack of great crested newt breeding habitat within the Site and connectivity to the designated site it is considered unlikely that the Proposed Development will result in any direct impacts upon individual animals or GCN populations. However, there is a risk that changes with air quality during the operation phase of the energy plant may impact upon the designated site. Further assessment is recommended within Table 5.

4.3 NON-STATUTORY DESIGNATED SITES

- 4.3.1 The desk study identified five non-statutory nature conservation sites within 2 km of the Site; the closest of which is Erddig Estate LWS which is 911 m from the Site. No negative impacts are

envisaged on any non-statutory designated sites due to the nature of the Proposed Development and distance from the Site.

4.4 HABITATS

- 4.4.1 No Priority Habitats as listed under Section 7 of the Environment Wales Act 2016 were identified on the Site. The parcels of semi-natural broad-leaved woodland and semi-improved grassland were not considered to be Habitats of Principal Importance but were deemed to be of some ecological importance. Recommendations to ensure these habitats continue to be of ecological importance are included in Table 6.

4.5 PROTECTED AND NOTABLE SPECIES

- 4.5.1 The results of the desk study, Phase 1 habitat survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Site, or within the immediate surroundings of the Site. These include badger, hedgehog, bats, reptiles, amphibians, breeding birds and invertebrates. The legal protection afforded to these species is outlined below and, where appropriate, the requirement for further survey and / or mitigation measures is identified.

4.5.2 BADGER

- 4.5.3 The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural Resources Wales for certain purposes.
- 4.5.4 No signs of badgers were identified on Site however, habitat in the form of woodland provides suitable areas for sett creation and the grasslands on Site provide suitable foraging and commuting habitat for badger. Further surveys and mitigation measures are recommended, as set out in Table 6.

4.5.5 DORMOUSE

- 4.5.6 Hazel dormice are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural Resources Wales for certain purposes.
- 4.5.7 Hazel dormice are also listed as Priority Species for the conservation of biodiversity in Wales in accordance with Section 7 of the Environment (Wales) Act 2016. Section 7 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including Priority Species) when discharging their duties (including determining planning applications).
- 4.5.8 No results of hazel dormouse were returned from the desk study and sub-optimal woodland habitat for nesting and foraging hazel dormouse was identified on Site with very little scrub understory, restricting food availability and nesting suitability. Furthermore, the Site is currently outside of the known distribution range of hazel dormouse in the UK. Therefore, hazel dormouse is not considered further in this report.

4.5.9 HEDGEHOG

- 4.5.10 Hedgehog are protected under Schedule 6 of the Wildlife and Countryside Act from killing and capturing using certain methods, including: trap, snare or net; electrical device for killing or stunning; poisonous, poisoned or stupefying substances or any gas or smoke.
- 4.5.11 Hedgehog are also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016.
- 4.5.12 Suitable habitat (woodland and scrub) for use by hedgehog was identified within the Site. Hedgehog are known to utilise a range of urban habitats and it's considered that the species is likely to be present within the Site. Measures to minimise impact on hedgehog are set out in Table 6.

BATS

- 4.5.13 All species of bats recorded within the UK are protected from killing, injury and disturbance² and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural Resources Wales for certain purposes.
- 4.5.14 Barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*, noctule bat *Nyctalus noctula*, brown long eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* bat are also listed as Priority Species for the conservation of biodiversity in Wales in accordance with Section 7 of the Environment (Wales) Act 2016. Section 7 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including Priority Species) when discharging their duties (including determining planning applications).
- 4.5.15 Suitable habitat for foraging and commuting bats were identified within the Site therefore further surveys to assess bat usage of the Site are recommended in accordance with good practice guidelines, as set out in Table 6. The Site has been assessed as having moderate suitability for commuting and foraging bats.

4.5.16 REPTILES

- 4.5.17 Native widespread reptile species (common or viviparous lizard *Zootoca vivipara*, adder, grass snake and slow worm *Anguis fragilis*) are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.
- 4.5.18 All reptile species are also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016.

² Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

- 4.5.19 Suitable habitat to support reptiles was identified within the Site which is likely to be lost as part of the Proposed Development. Further surveys and mitigation measures are recommended, as set out in Table 6.

4.5.20 AMPHIBIANS

- 4.5.21 Great crested newts are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural Resources Wales for certain purposes.
- 4.5.22 The common toad is listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016.
- 4.5.23 It is considered that there is a low likelihood of great crested newts in their terrestrial stage to be present within the Site. The A483 dual carriageway running to the southwest of the Site provides a large barrier to movement. Furthermore, there is no suitable breeding habitat on Site and there no suitable waterbodies within 500 m. Targeted presence / likely absence surveys are therefore not considered necessary however avoidance measures are set out within Table 6.
- 4.5.24 Low numbers of common amphibians in their terrestrial life stage are likely to be present within the Site due their widespread distribution. Targeted presence / likely absence surveys are not considered necessary however avoidance measures are set out within Table 6 to minimise impact on amphibians.

BIRDS

- 4.5.25 The Habitat Regulations 2017 Part 1 Regulation 10(2) & (3) state that local authorities '*must take such steps in the exercise of their functions as they consider appropriate to contribute to...the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...*'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.
- 4.5.26 Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.
- 4.5.27 Various bird species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016.
- 4.5.28 The Site contained a range of habitats with suitability for supporting breeding birds and a wide range of foraging opportunities.
- 4.5.29 Full details of further surveys and mitigation measures recommended are set out in Table 5.

INVERTEBRATES

- 4.5.30 No species listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016) were identified within the desk study.



- 4.5.31 Common and widespread habitats within the Site (grassland and scrub) were considered suitable to support common invertebrate species. Targeted presence / likely absence surveys are not considered necessary however enhancement measures to ensure the Site remains suitable for invertebrates are included in Table 6.

INVASIVE NON-NATIVE SPECIES

- 4.5.32 Japanese knotweed was identified on Site during the Phase 1 habitat survey, which is listed under Schedule 9 of the Wildlife and Countryside Act. It is an offence to plant or otherwise cause this species to grow in the wild.
- 4.5.33 Mitigation measures for the control and removal of this plant species are set out in Table 6.

FURTHER SURVEY REQUIREMENTS

- 4.5.34 Potential ecological constraints for which further surveys and / or assessment are required are listed in Table 6.

Table 6 - Key Ecological Constraints and Further Survey Requirements

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Designated Sites	Habitat degradation and alteration resulting from increased nitrogen deposition	A Habitats Regulation Screening Assessment (HRA), is recommended to assess impacts on Johnstown Newt Sites SAC as a result of the Proposed Development. This assessment should be produced and reviewed in agreement with the LPA and Natural Resources Wales (NRW). Further consideration of the Proposed Development's impact on the Stryt Las A'r Hafod SSSI will be required including consultation with NRW on the findings.	Not applicable
Habitats: semi-natural broad-leaved woodland and semi-improved neutral grassland	Loss of habitats	Where possible, these habitats should be retained and protected within the Proposed Development. Incorporation into the landscape design of semi-improved neutral grassland areas and / or areas of wildflower mix with native species of local provenance. Retention and re-use of top soil of semi-improved neutral grassland if cleared, to retain current seed source. Consideration given for loss of woodland to be replaced on a 1:1 basis.	Not applicable

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Hedgehog	Killing / injury of hedgehog through vegetation clearance / construction works.	Clearance of suitable terrestrial habitat should be checked in advance by a suitably qualified ecologist to minimise the risk of disturbance and injury / killing. Avoidance of vegetation clearance during the hibernation season. This should be carried out in autumn months (September and October) Specific mitigation measures will require safeguarding by the implementation of an Ecological Management Plan (EcMP) throughout the development.	Not applicable
Bats – commuting and foraging habitat	Loss of moderate suitability commuting and foraging habitat	Advanced bat survey techniques (trapping surveys) and/or bat activity and static detector surveys are required to be undertaken	Activity surveys should be carried out once per season (spring-April/May, summer – June/July/August, autumn – September/October) in accordance with good practice guidelines for habitats of low suitability.
Reptiles	Killing / injury of reptiles through vegetation clearance / construction works.	Targeted reptile survey is recommended within the Site. A reptile survey should comprise seven visits to check deployed artificial reptile refugia, during these checks a visual search should also be carried out. Should reptiles be found present, suitable mitigation measures will be required. This may include off-site translocation if insufficient habitat is retained within the Site.	Reptiles are active between March and October. Reptile surveys are best carried out during April, May and September, periods when reptiles are most visible. Seven survey visits are typically required.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Amphibian	Killing / injury of amphibians through vegetation clearance / construction works.	Low numbers of common amphibian species within their terrestrial life stages are assumed to be present within the Site. Clearance of suitable terrestrial habitat should be checked in advance by a suitably qualified ecologist and a two-stage cut implemented to minimise the risk of disturbance and injury / killing. Potential refugia / hibernacula should be dismantled during the active season with no clearance of refuges or hibernacula during October to March. Specific mitigation measures will require safeguarding by the implementation of an EcMP throughout the development.	Hibernacula should be dismantled in the active season (April to September)
Birds	Destruction of nests through vegetation clearance. Loss of disturbance of potential breeding, commuting and foraging bird habitat.	Precautionary Method of Working. This should include a detailed strategy for avoidance of vegetation clearance during the breeding bird season. If works must occur within the breeding bird season then all vegetation must be hand-searched by a suitably qualified ecologist prior to removal. If an active nest is discovered, an appropriate exclusion zone must be set up and no works are to occur within it until the chicks have fledged	The breeding bird season is considered to be March to September inclusive.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Invertebrates	Loss and disturbance of habitat used by invertebrates	Where possible, the area of semi-improved grassland should be retained during the Proposed Development. Retained habitats (and habitat creation where possible) should be managed accordingly for invertebrate activity, with pollen and nectar flower mixes favoured and rotational cutting of grasslands. Retention and re-use of top soil of semi-improved neutral grassland if cleared, to retain current seed source. Specific mitigation measures will require safeguarding by the implementation of an EcMP throughout the development.	Not applicable
Invasive non-native species	Spread of Schedule 9 Wildlife and Countryside Act 1981 (as amended) species	Implementation of a CEMP and avoidance of areas where invasive plant species are recorded present. If avoidance is not possible, the invasive plants should be treated and removed by suitably certified contractors. A management plan should be written and implemented on Site, including biosecurity measures to control the spread of invasive non-native species.	Not applicable

4.6 PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION ENVIRONMENTAL BEST PRACTICE

4.6.1 In addition, general environmental protection measures must be implemented during the construction phase of the proposed scheme. Such measures include best environmental practice guidance outlined in the Environment Agency's Pollution Prevention Advice and Guidance (Environment Agency, 2007) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015). The following minimum standards must be adhered to prevent ecological impacts beyond the Site boundary and should be documented in a Construction Environmental Management Plan:

- Measures must be taken to prevent dust and other emissions from construction affecting land beyond the Site;
- Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available;
- Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the Site is closed (e.g. overnight) to prevent entrapment of animals.
- Retained trees must be protected in accordance with BS5837;
- Noise and vibration must be controlled and kept to the minimum necessary; and
- Lighting used for construction must be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

4.7 ECOLOGICAL ENHANCEMENT OPPORTUNITIES

4.7.1 Planning Policy Wales (2018) states that development plans should 'provide for the conservation of and where appropriate, enhancement of biodiversity...identifying opportunities to conserve important local habitats and species...'.

4.7.2 To encourage compliance with planning policy the following measures are recommended for inclusion within the Proposed Development; where possible:

- Sensitive/low UV lighting so as to keep visual disturbance of bats to a minimum;
- Planting of a variety of native species as part of landscaping to encourage invertebrates;
- Creation of hedgerows using native species of local provenance;
- Installation of bird and bat boxes in trees and integral boxes / bricks within new structures to provide additional refuge sites for these species groups;
- The incorporation of wildflower areas to provide additional habitat;
- Invertebrate hotels and habitat piles to provide refuge for reptiles, amphibians and hedgehog;
- Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners and favouring native plants of local provenance in landscaping; and
- Avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in the planting.

5 CONCLUSIONS

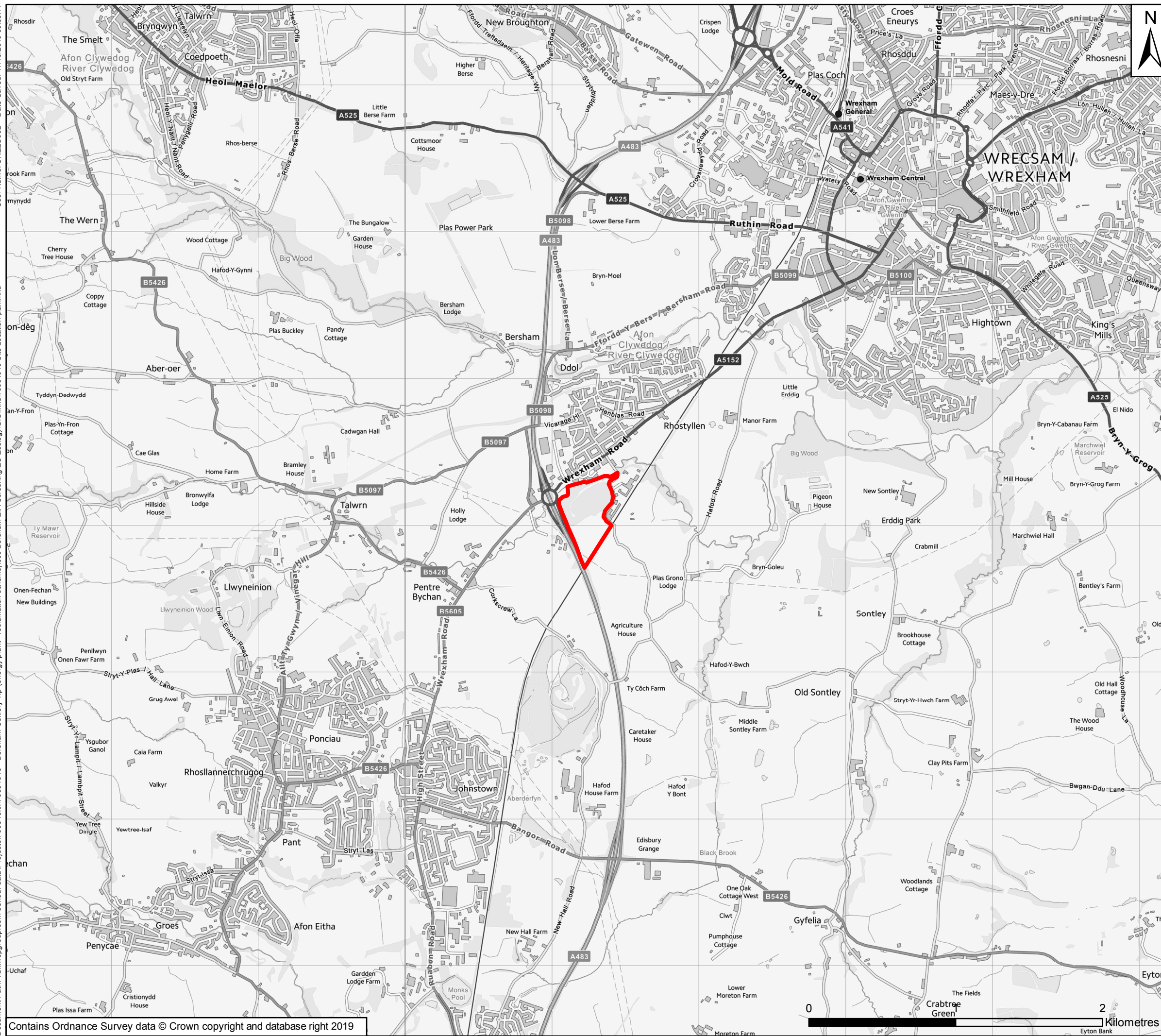
- 5.1.1 The Site currently comprises semi-improved grassland, a grassland/scrub mosaic, semi-natural broadleaved woodland (dominated by silver birch) and a combination of tall ruderal and short perennial vegetation.
- 5.1.2 A designated site of European importance; Johnstown Newt Sites SAC, and a designated site of national importance; Stryt Las A'r Hafod SSSI, was located approximately 516 m south of the Site. The operational phase of the Proposed Development may impact on the sites' qualifying features through changes to air quality and consequently a Habitats Regulation Screening Assessment is recommended to assess the LSE resulting from the Proposed Development. This includes all statutory sites of European importance within 10 km.
- 5.1.3 Further surveys are required to determine the presence / likely absence of badger, bats and reptiles and to inform an ecological impact assessment for the Proposed Development.
- 5.1.4 Avoidance and / or precautionary methods of working to minimise negative impact has also been recommended for: habitats (semi-natural broad-leaved woodland and semi improved neutral grassland), hedgehog, amphibians, invertebrates, and invasive non-native plant species.
- 5.1.5 Ecological enhancements are also recommended, such as incorporation of a sensitive lighting scheme, retention / creation of habitats e.g. species-diverse grassland and bird and box installation to increase the value of the Site for biodiversity.

6 REFERENCES

- Amphibian and Reptile Groups of the United Kingdom (2010) ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK
- The Bat Conservation Trust (BCT) (2012a) Encouraging Bat – A Guide for Bat-friendly Gardening and Living. BCT, London.
- BCT (2014b) Artificial Lighting and Wildlife – Interim Guidance: Recommendations to help minimise the impact of artificial lighting. BCT, London.
- British Standards Institution (2012) BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. BSI, London.
- BSI (2013) Biodiversity code of practice for planning and development: BS42020. BSI, London.
- BSI (2015) Surveying for bats in trees and woodland – Guide: BS8596:2015. BSI, London.
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2013). Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.
- CIEEM (2015). Guidelines for Ecological Report Writing. CIEEM, Winchester.
- CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.
- CIRIA (2015) Environmental good practice on site (fourth edition) (C741) Charles, P., Edwards, P (eds). CIRIA, London.
- Collins J. (ed.) (2016) Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.
- Department for Communities and Local Government (DCLG) (2012). The National Planning Policy Framework. DCLG, London.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746. [Available online: britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf]
- English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.
- Environment Agency (2014) Pollution Prevention Guidance. Available online: <https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg> [accessed July 2014].
- Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10. Froglife, Halesworth
- Gent, A. and Gibson, S. (2003). Herpetofauna Workers Manual. JNCC. Peterborough
- Harris S, Cresswell P and Jefferies D (1991) (Report) Surveying Badgers. The Mammal. Society, Bristol.
- Highways Agency (1997) Design Manual for Roads and Bridges, Volume 10, Section 4, Part 7: Nature Conservation Advice in Relation to Reptiles and Roads.
- Highways Agency (1997) Design Manual for Roads and Bridges, Volume 10, Part 5, Mitigating against effects on badgers.
- HMSO (Her Majesty's Stationary Office) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000). HMSO, Norwich.
- HMSO (1992) The Badgers Act.
- HMSO (1996) The Wild Mammals (Protection) Act. HMSO, London.
- HMSO (2006) Natural Environment and Rural Communities Act. HMSO, Norwich.

- HMSO (2010). The Conservation of Habitats and Species Regulations 2017 (the Habitat Regulations)
- Joint Nature Conservation Committee (JNCC) (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough.
- JNCC Biodiversity Reporting and Information Group (2008). UK Biodiversity Action Plan
- JNCC and DEFRA (2012) UK Post 2010 Biodiversity Framework. Available online: <http://jncc.defra.gov.uk/page-6189>. [Accessed July 2014].
- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). Great Crested Newt Conservation Handbook, Froglife, Halesworth
- Mitchell- Jones, A.J (2004) Bat Mitigation Guidelines. English Nature.
- Office of the Deputy Prime Minister (ODPM) (2005). Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System.
- Oldham R.S., Keeble J., Swan M.J.S., and Jeffcote M. (2000) Evaluating the suitability of habitat for the great crested newt. Herpetological Journal 10: 143-155
- Roper, T.J. (2010). Badger. Harper Collins.

FIGURES



Key

 Site Boundary



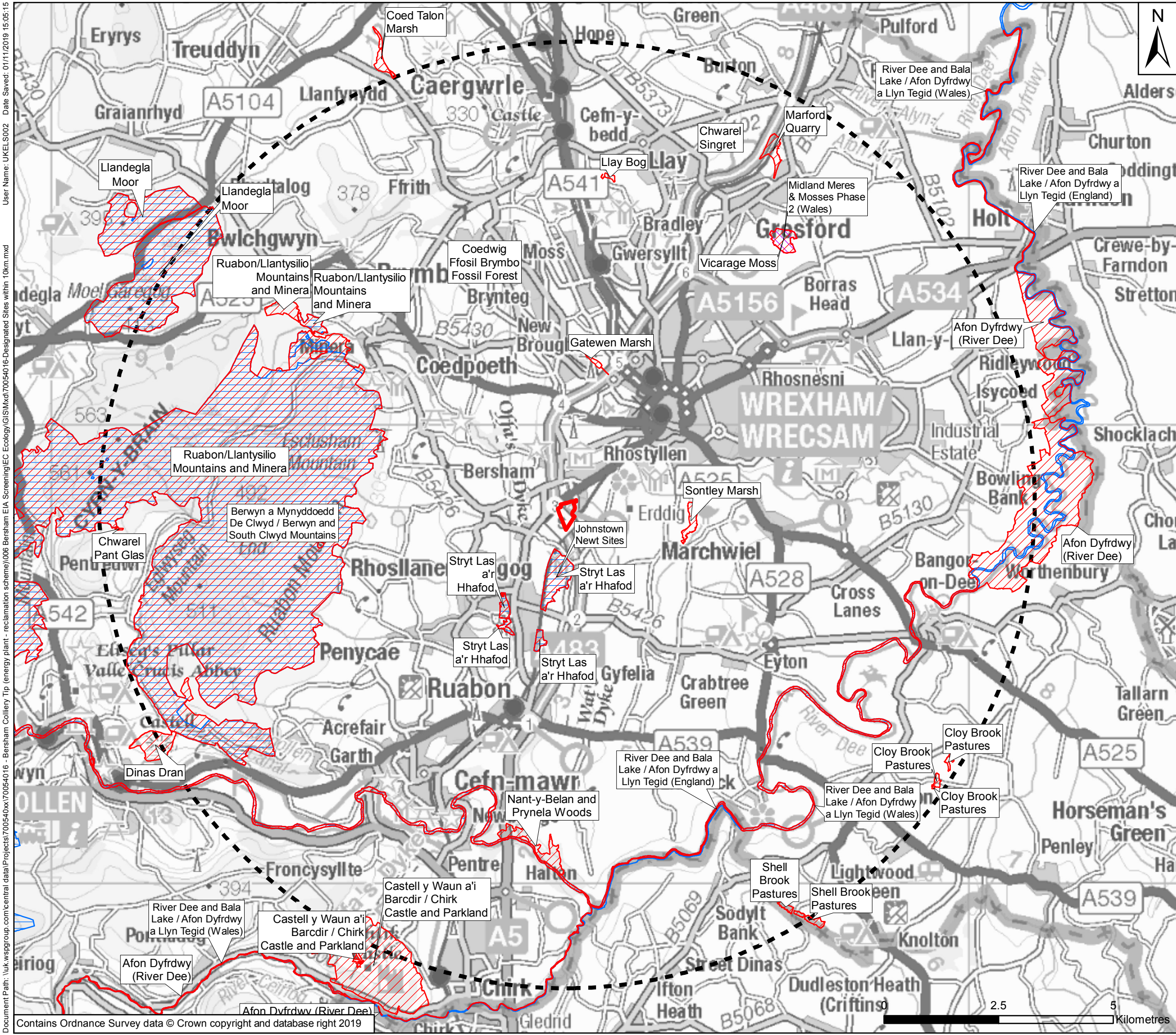
Client: **BERSHAM (GLENSIDE)
LIMITED**

Project: **BERSHAM COLLIERY TIP**

SITE LOCATION PLAN

Drawing No: **FIGURE 1**
Date: **01/11/2019**
Scale: **25,000 @ A3**

Drawn: JSdS
Checked: LR
Approved: GH



Key

- Site Boundary
- 10km Study Area
- Site of Special Scientific Interest (Wal)
- Special Area of Conservation
- Ramsar Site - Wetland of International Importance

wsp

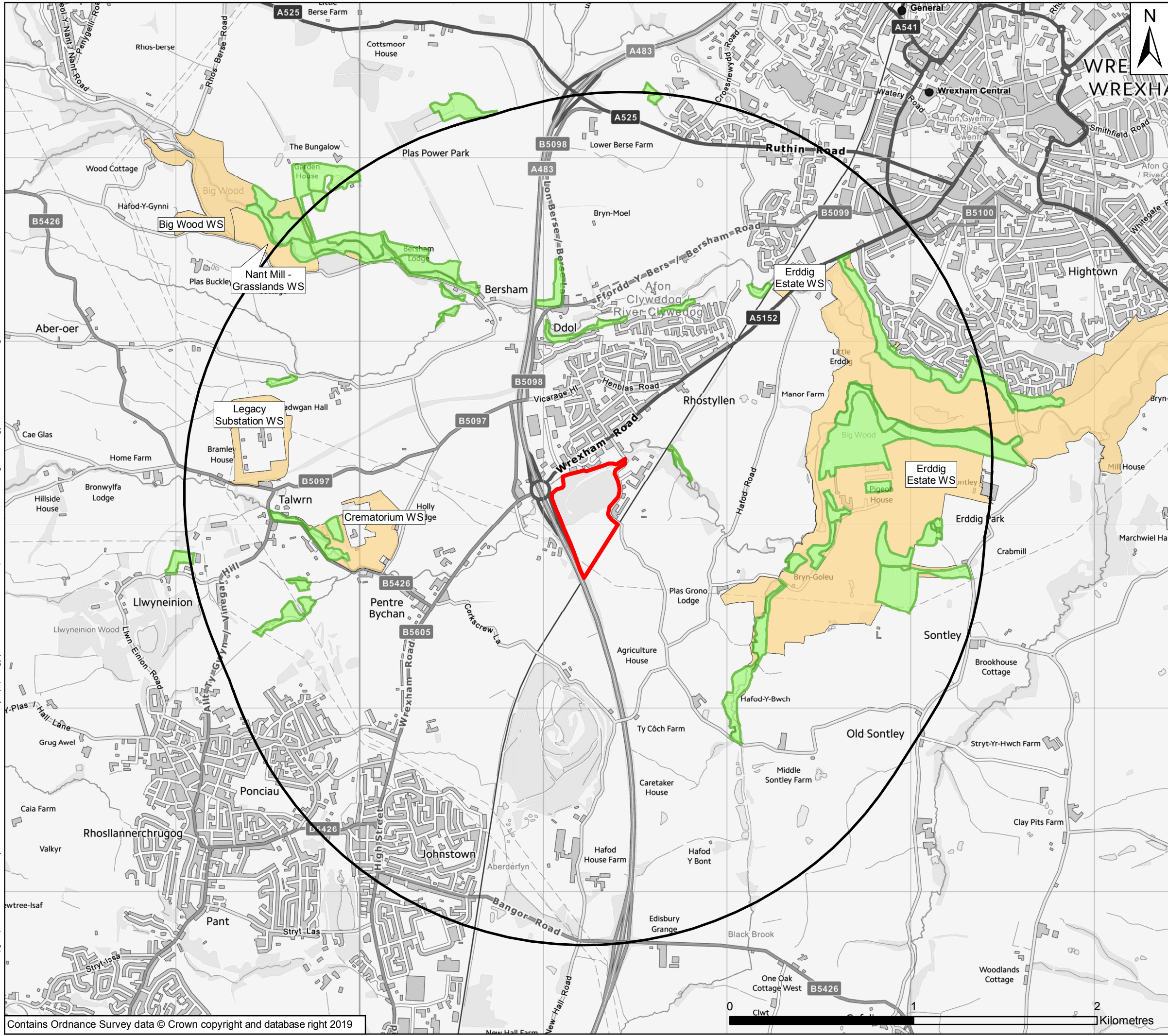
Client: **BERSHAM (GLENSIDE) LIMITED**

Project: **BERSHAM COLLIERY TIP**

Title: **STATUTORY DESIGNATED SITES OF EUROPEAN AND NATIONAL IMPORTANCE WITHIN 10KM**

Drawing No: **FIGURE 2**
Date: **01/11/2019**
Scale: **80,000 @ A3**

Drawn: **JSdS**
Checked: **LR**
Approved: **GH**



Key

- Site Boundary
- 2km Study Area
- Ancient Woodland
- Local Wildlife Sites



Client:	BERSHAM (GLENSIDE) LIMITED		
Project:	BERSHAM COLLIERY TIP		
Title:	NON-STATUTORY DESIGNATED SITES AND ACIENT WOODLAND WITHIN 2KM		
Drawing No:	FIGURE 3	Drawn:	JSdS
Date:	01/11/2019	Checked:	LR
Scale:	20,000 @ A3	Approved:	GH





N

Key

Site boundary

Broadleaved woodland - semi-natural

Scrub - dense/continuous

SI

Neutral grassland - semi-improved

Poor semi-improved grassland

Bracken - continuous

Other tall herb and fern - ruderal

Hard standing

x

Cultivated/disturbed land - ephemeral/short perennial

Buildings

Other habitat

Target Note

wsp

Client:

BERSHAM (GLENSIDE) LIMITED

Project:

BERSHAM COLLIERY TIP

Title:

PHASE 1 HABITAT MAP

Drawing No:

Figure 4

Date:

01/11/2019

Scale:

2,539 @ A3

Drawn:

ES

Checked:

LR

Approved:

GH

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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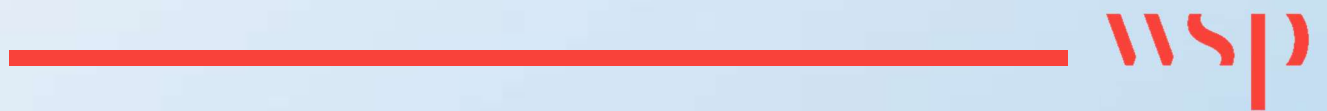
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Appendix A

RELEVANT LEGISLATION AND PLANNING POLICY



ENGLAND & WALES LEGISLATION AND POLICY CONTEXT

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species group or species receives summarised in Table 1.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 and 9 respectively of the WCA, a description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- Take or destroy an egg of any wild bird.
- Damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

Schedule 1

Birds listed under Schedule 1 of the WCA³ are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;
- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Countryside Rights of Way Act 2000 (CRoW Act)

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

³ To view the current list of Schedule 1 listed birds visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/1> [Accessed 14/10/2019].

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales, and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Environment (Wales) Act 2016

The Environment (Wales) Act 2016 (<http://www.legislation.gov.uk/anaw/2016/3/contents/enacted>) puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and cohesive way. Section 7 replaces the duty in Section 42 of the NERC Act 2006 and it places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitats which they consider are of key significance to sustain and improve biodiversity in Wales. The species and habitat lists are identical to those in Section 42 but it should be noted it is currently under review (23.03.2017).

The Protection of Badgers Act (1992)

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England (NE) takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009⁴).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)

This Framework lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Framework, 2012⁵).

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30th November 2017, and extend to England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters). In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations it is unlawful to:

- Deliberately kill, capture or disturb;
- Deliberately take or destroy the eggs of; and
- Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or Natural Resources Wales (NRW). Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

⁴ Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on 'Current Use' in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

⁵ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf [Accessed 14/10/2019].

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I⁶ of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

Table A:1: Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Badger							☐	
Bats		☐ ⁷ (part)			☐ ⁸	☐ ⁹		☐ ¹⁰
Hazel Dormouse		☐ 5(part)			☐	☐		☐
Otter		☐ 5(part)			☐	☐		☐
Water vole		☐				☐		☐

⁶ To view birds listed under Annex I visit: http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm [accessed 14/10/2019]

⁷ These species are partially protected under section 9(4)(b), (4)(c) and (5).

⁸ Only Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed on Annex II of the Habitats Directive.

⁹ Greater horseshoe bat, lesser horseshoe bat, Bechstein's bat, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*) and barbastelle are listed as Species of Principal Importance in England with the addition of common pipistrelle (*Pipistrellus pipistrellus*) in Wales listed under

Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

¹⁰ Barbastelle bat, Bechstein's bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat are listed as UK BAP species of bat.

		¹¹ (full)						
Birds	☐			☐ ¹²		☐ ¹³		☐ ¹⁴
Reptiles		☐ ¹⁵ (part) ☐		☐ ⁹	☐ ¹⁶	☐ ¹⁷		☐ ¹⁸
Amphibians		☐ ¹⁹ (part)		☐ ²⁰	☐ ^{21, 22}	☐ ²³		
White-clawed Crayfish		☐ ²⁴ (partial)			☐ ²⁵	☐		☐

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- ¹¹ Class Licences are available to Registered Consultants to intentionally disturb, damage or destroy water vole burrows or to displace water voles from their burrows in relation to a development proposal where the licensed action provides a conservation benefit for water voles. Certain displacement operations may be carried out under a Class licence by a registered person in England, however in Wales all displacement operations must be carried out under a site specific licence.
- ¹² To view plants and animals listed on Schedule 9 Part 1 visit <http://www.legislation.gov.uk/ukpga/1981/69/schedule/9> [accessed 6 April 2017]
- ¹³ There are 49 species of birds listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and 51 species in Wales under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.
- ¹⁴ To view the current list of UK BAP priority birds visit: <http://jncc.defra.gov.uk/page-5163> [Accessed 14/10/2019].
- ¹⁵ The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).
- ¹⁶ Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*) are the only reptiles to be designated as European Protected Species.
- ¹⁷ All 6 reptile species are listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 5 species, excluding smooth snake, listed under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.
- ¹⁸ To view the current list of UK BAP priority herptile species visit: <http://jncc.defra.gov.uk/page-5166> [Accessed 14/10/2019].
- ¹⁹ The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).
- ²⁰ Common frog (*Rana temporaria*), Common toad (*Bufo bufo*), Smooth newt (*Lissotriton vulgaris*) and Palmate newt (*Lissotriton helveticus*) are offered partial protection under section 9(5). Great crested newt (*Triturus cristatus*) and Natterjack toad (*Epidalea calamita*) are offered partial protection under section 9(4)(b) and (c) and (5). Pool frog (*Pelophylax lessonae*) is offered partial protection under section 9(4)(b) and (c)(1) only and with respect to England only.
- ²¹ Great crested newt, Natterjack toad and Pool frog are the only amphibians to be designated European Protected Species.
- ²² Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.
- ²³ Great crested newt, Natterjack toad and Common toad are listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.
- ²⁴ Under the Wildlife and Countryside Act it is illegal to take or sell white clawed crayfish under the WCA. A licence is required to survey (hand net or trap) for the species. To undertake work within WCC inhabited rivers a Class Licence maybe issued by the relevant authority to move WCC away from harm prior to works. Although WCC are not protected from killing or injury Natural England state in their Class licence that due to declining numbers all efforts should be made to conserve the species.
- ²⁵ White clawed crayfish are listed under Annex II and V of the Habitats Directive.

Invertebrates		☐ 26(full/part)		☐	☐ 27, 28	☐ 29		☐ 30
Fish		☐ 31 (full/part)		☐ 9	☐ 32, 33	☐ 34		☐ 35
Plants			☐ 36	☐ 9	☐ 37, 38	☐ 39		☐ 40

²⁶ To view the current list of invertebrates that are protected under this Act either in part or full visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 14/10/2019].

²⁷ The Large blue butterfly (*Maculinea arion*), Fisher's estuarine moth (*Gortyna borelii lunata*) and Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) are the only invertebrates to be designated European Protected Species.

²⁸ There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austropotamobius pallipes*), Southern damselfly (**Coenagrion mercuriale**), Marsh fritillary butterfly (**Eurodryas aurinia**), Violet click beetle (**Limoniscus violaceus**), Stag beetle (**Lucanus cervus**), Freshwater pearl mussel (**Margaritifera margaritifera**), Narrow-mouthed whorl snail (**Vertigo angustior**), Round-mouthed whorl snail (**Vertigo genesii**), Geyer's whorl snail (**Vertigo geyeri**), Desmoulin's whorl snail (**Vertigo moulinsiana**), Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) and Fisher's estuarine moth (*Gortyna borelii lunata*).

²⁹ There are currently 379 invertebrate species (not including marine species) listed as Species of Principal Importance in England http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwivvu7J9trSAhXiCsAKHX4TBGcQFggvMAM&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F6518755878240256&usg=AFQjCNEpiUWYuOqhVcfSDvi_3iK2TJytfQ and 188 species in Wales http://www.eryri-npa.gov.uk/_data/assets/pdf_file/0003/486156/SpeciesList.pdf listed under Section 41 of the NERC Act 2006 and listed under Section 7 of the of the Environment (Wales) Act 2016. [Accessed 14/10/2019]

³⁰ To view the current list of UK BAP priority invertebrates visit: <http://jncc.defra.gov.uk/page-5169> [Accessed 14/10/2019].

³¹ To view the current list of fish either part or fully protected under the Act visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 14/10/2019].

³² Sturgeon (*Acipenser sturio*) is the only fish to be designated a European Protected Species.

³³ There are eight fish species listed on Annex II of the Habitats Directive. To view the current list visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 14/10/2019].

³⁴ There are 35 species of fish listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 10 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.

³⁵ To view the current list of UK BAP priority fish visit: <http://jncc.defra.gov.uk/page-5164> [Accessed 14/10/2019].

³⁶ To view the current list of Schedule 8 listed plants visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/8> [Accessed 14/10/2019].

³⁷ There are nine plant species designated as European Protected Species. To view the current list visit: <http://www.legislation.gov.uk/ukxi/2010/490/schedule/5/made> [Accessed 14/10/2019].

³⁸ To view the current list of plant species on Annex II of the Habitats Directive visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 14/10/2019].

³⁹ There are currently 152 vascular plants listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 77 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.³¹ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 14/10/2019].

⁴⁰ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 14/10/2019].

Appendix B

SUMMARY OF ECOLOGICAL DESK STUDY DATA

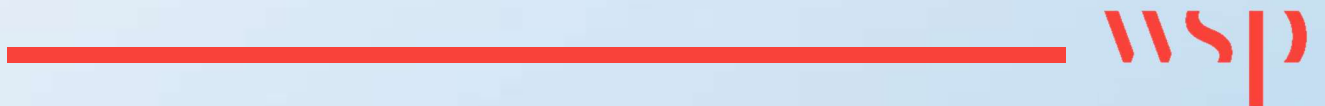


Table B-1 - Protected and notable species (excluding birds) for which records have been identified within 2km

Species	Species Scientific name	No. of records	Distance and orientation from Site	Legal / Conservation Status 41
Adder	<i>Vipera berus</i>	1	1,344m, NE	Bern, S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
American mink	<i>Neovison vison</i>	1	743m, SW	INNS, WCA9
Badger	<i>Meles meles</i>	16	882m, W	Bern, PBA, LBAP (CON, DEN, FLI, WRE)
Brown long-eared bat	<i>Plecotus auritus</i>	1	529m, S	Bern, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Brown/Sea trout	<i>Salmo trutta</i>	1	1,364m, NE	S7, LBAP (CON, GWY)
Common frog	<i>Rana temporaria</i>	112*	793m, S	Bern, HDir, WCA5, LBAP (ANG, CON, FLI)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	13 passes	1,732m, NE	Bern, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Common toad	<i>Bufo bufo</i>	1,133 (1,000 larvae) *	774m, S	Bern, S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY)
Eel	<i>Anguilla anguilla</i>	1	1,314m, S	RD1(UK)CR, S7, LBAP (CON, GWY)

Grass snake	<i>Natrix helvetica</i>	20	1,343m, S	Bern, S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Great crested newt	<i>Triturus cristatus</i>	3,914*	289m, S	Bern, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, CON, DEN, FLI, SNP, WRE)
Hare	<i>Lepus europaeus</i>	2	1,028m, SE	S7, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Hedgehog	<i>Erinaceus europaeus</i>	28*	152m, W	Bern, S7, LBAP (ANG, CON, FLI, GWY)
Myotis bat	<i>Myotis sp.</i>	2 passes	1,732m, NE	Bern, EPS, HDir, S7, WCA5, LBAP (ANG, DEN, FLI, SNP)
Noctule bat	<i>Nyctalus noctula</i>	4 passes	1,732m, NE	Bern, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Otter	<i>Lutra lutra</i>	2	7m, W	Bern, CITES, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, CON, DEN, FLI, GWY, SNP, WRE)
Palmate newt	<i>Lissotriton helveticus</i>	475*	1,120m, E	Bern, WCA5, LBAP (ANG, CON, DEN, FLI)
Pipistrelle bat	<i>Pipistrellus sp.</i>	>100 droppings	698m, SW	EPS, WCA5, LBAP (ANG, DEN, FLI, SNP)
Polecat	<i>Mustela putorius</i>	8	67m, W	Bern, HDir, RD2(UK), S7, LBAP (CON, FLI, GWY, SNP)
Smooth newt	<i>Lissotriton vulgaris</i>	2,485*	1,167m, S	Bern, WCA5, LBAP (CON, DEN, FLI)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	7 passes	1,732, NE	Bern, EPS, HDir, RD2(UK), S7, WCA5, LBAP (ANG, DEN, FLI, GWY, SNP)
Stoat	<i>Mustela erminea</i>	2	918m, W	Bern, NRW, LBAP (ANG, CON, FLI)

Table B-2 - Protected and notable birds species for which records have been identified within 2km

Common Name	Species Scientific name	No. of records	Legal / Conservation Status 42
Barn Owl	<i>Tyto alba</i>	10*	Bern, CITES, WBA, WCA1.1, WCA9, LBAP (ANG, CON, DEN, FLI, GWY, SNP, WRE)
Black-headed gull	<i>Chroicocephalus ridibundus</i>	98* + >200	BDir2.2, S7, UKBA, WBR, LBAP (GWY)
Bullfinch	<i>Pyrrhula pyrrhula</i>	3	S7, UKBA, WBR, LBAP (CON, DEN, FLI, GWY)
Canada goose	<i>Branta canadensis</i>	4	BDir2.1, INNS, WCA9
Coal tit	<i>Periparus ater</i>	21*	Bern, WBA, LBAP (CON)
Common gull	<i>Larus canus</i>	1	BDir2.2, UKBA, WBR
Cormorant	<i>Phalacrocorax carbo</i>	1	WBA, LBAP (CON, GWY)
Cuckoo	<i>Cuculus canorus</i>	1	S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)
Dipper	<i>Cinclus cinclus</i>	17	Bern, UKBA, WBA, LBAP (CON)
Dunnock	<i>Prunella modularis</i>	28*	Bern, S7, UKBA, LBAP (CON)
Fieldfare	<i>Turdus pilaris</i>	>220	BDir2.2, UKBR, WBA, WCA1.1, LBAP (CON)

Garden warbler	<i>Sylvia borin</i>	1	WBA, LBAP (CON)
Goldcrest	<i>Regulus regulus</i>	21*	Bern, WBA, LBAP(CON)
Grasshopper warbler	<i>Locustella naevia</i>	1	S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)
Green woodpecker	<i>Picus viridis</i>	21*	Bern, WBA, LBAP (CON, DEN, FLI, GWY, SNP)
Hawfinch	<i>Coccothraustes coccothraustes</i>	~12	Bern, S7, UKBR, WBA, LBAP (CON, DEN, FLI, GEY)
Herring gull	<i>Larus argentatus</i>	29*	BDir2.2, S7, UKBR, WBR, LBAP (CON, GWY)
Hobby	<i>Falco subbuteo</i>	3	Bern, CITES, WBA, WCA1.1., LBAP (CON, GWY)
House martin	<i>Delichon urbicum</i>	27 + >20	Bern, UKBA, WBA, LBAP (CON)
House sparrow	<i>Passer domesticus</i>	78*	S7, UKBR, WBA, LBAP (CON, FLI, GWY)
Kestrel	<i>Falco tinnunculus</i>	3	Bern, CITES, WBA, WCA1.1, LBAP (CON, GWY)
Kingfisher	<i>Alcedo atthis</i>	2	BDir1, Bern, UKBA, WBA, WCA1.1, LBAP (CON, DEN, FLI, GWY)
Lapwing	<i>Vanellus vanellus</i>	2,541*	BDir2.2, S7, UKBAP, WBR, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Lesser black-backed gull	<i>Larus fuscus</i>	7	BDir2.2, UKBR, WBA, LBAP (CON, GWY, SNP)
Lesser spotted woodpecker	<i>Dendrocopos minor</i>	6	Bern, S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)

Linnet	<i>Linaria cannabina</i>	2	Bern, S7, UKBR, WBR, LBAP (ANG, CON, DEN, FLI, GWY)
Long-tailed tit	<i>Aegithalos caudatus</i>	70* + >5	WBA
Mallard	<i>Anas platyrhynchos</i>	47* + >1 between 2007 and 2016	Bdir2.1, UKBA, WBA, LBAP (CON, GWY)
Marsh tit	<i>Poecile palustris</i>	4*	Bern, S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)
Meadow pipit	<i>Anthus pratensis</i>	100	Bern, UKBA, WBA, LBAP (CON)
Mute swan	<i>Cygnus olor</i>	14*	BDir2.2, UKBA, WBA, LBAP (CON)
Pied flycatcher	<i>Ficedula hypoleuca</i>	2	S7, UKBR, WBR, LBAP (CON, GWY, SNP)
Red kite	<i>Milvus milvus</i>	1	BDir1, CITES, WBA, WCA1.1, WCA9, LBAP (CON, GWY)
Redwing	<i>Turdus iliacus</i>	11 + >335	BDir2.2, UKBR, WBA, WCA1.1, LBAP (CON)
Reed bunting	<i>Emberiza schoeniclus</i>	4	Bern, CITES, S7, UKBA, WBR, LBAP (CON, DEN, FLI, GWY)
Sand martin	<i>Riparia riparia</i>	1	Bern, WBA, LBAP (CON, DEN, FLI, GWY)
Shoveler	<i>Anas clypeata</i>	1	BDir2.1, CITES, UKBA, WBA, LBAP (ANG, CON, GWY)
Skylark	<i>Alauda arvensis</i>	2	BDir2.2, S7, UKBR, WBA, LBAP (ANG, CON, DEN, FLI, GWY, SNP)
Snipe	<i>Gallinago gallinago</i>	2	BDir2.1, UKBA, WBA, LBAP (ANG, CON, DEN, FLI, GWY)

Song thrush	<i>Turdus philomelos</i>	32*	BDir2.2, Bern, S7, UKBR, WBA, LBAP (ANG, CON, DEN, FLI, GWY, SNP, WRE)
Spotted flycatcher	<i>Muscicapa striata</i>	1	Bern, S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)
Starling	<i>Sturnus vulgaris</i>	10* + >200	BDir2.2, Bern, S7, UKBR, WBR, LBAP (CON, FLI, GWY)
Swallow	<i>Hirundo rustica</i>	94 + >1	Bern, WBA, LBAP (ANG, CON, GWY)
Swift	<i>Apus apus</i>	103*	UKBA, WBA
Tufted duck	<i>Aythya fuligula</i>	18*	BDir2.1, WBA, LBAP (CON)
Whitethroat	<i>Sylvia communis</i>	5	WBA, LBAP (CON)
Willow tit	<i>Poecile montana</i>	3	Bern, S7, UKBR, WBR, LBAP (CON, DEN, FLI, GWY)
Willow warbler	<i>Phylloscopus trochilus</i>	16*	UKBA, WBR, LBAP (CON)
Woodcock	<i>Scolopax rusticola</i>	2	BDir2.1, UKBR, WBA, LBAP (CON, DEN, FLI, GWY)
Yellowhammer	<i>Emberiza citrinella</i>	3	Bern, S7, UKBR, WBR, LBAP (ANG, CON, DEN, FLI, GWY, SNP)

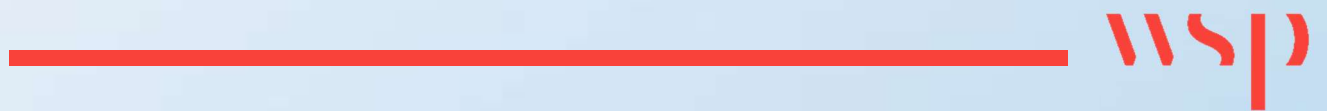
Table B-3 - Protected and notable invertebrates for which records have been identified within

Species Common Name	Species Latin Name	No. of records	Legal / Conservation Status 43
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Alder signal	<i>Stathmopoda pedella</i>	1	RD2(UK)NB
Buff ermine	<i>Spilosoma lutea</i>	2	S7, LBAP (GWY)
Ctenophora pectinicornis	<i>Ctenophora pectinicornis</i>	2	RD2(UK)N
Emerald damselfly	<i>Lestes sponsa</i>	10	LBAP[SNP], LI[VC50]
Geophilus osquidatum	<i>Geophilus osquidatum</i>	1	RD2(UK)S
Harlequin ladybird	<i>Harmonia axyridis</i>	488	INNS
Ischnomera sanguinicollis	<i>Ischnomera sanguinicollis</i>	1	RD2(UK)NB, RD2(UK)S
Scydmorephes helvolus	<i>Scydmorephes helvolus</i>	1	RD2(UK)N
Shaded broad-bar	<i>Scotopteryx chenopodiata</i>	2	S7, LBAP[GWY]
Tinodes unicolor	<i>Tinodes unicolor</i>	1	RD2(UK)N
Tychius parallelus	<i>Tychius parallelus</i>	>10	RD2(UK)NA
Wall	<i>Lasiommata megera</i>	3	RD1(UK)NT, S7, LBAP (GWY)

Appendix C

TARGET NOTES



Target Notes

Target Note Number	Target Note Description
TN1	Large stand of Japanese knotweed see photo 5 (Appendix D)
TN2	Accumulation of containers and skips. In continuous use. See Photo 2 (Appendix D).
TN3	Brash pile, suitable reptile hibernacula
TN4	Small collection of water

Appendix D

PHOTOGRAPHS

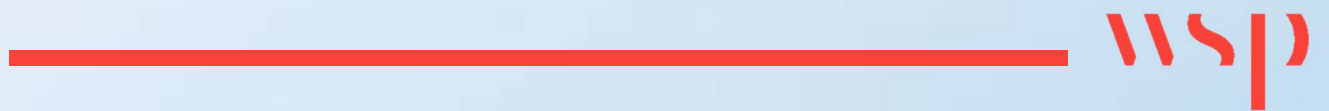


Table 4 - Photographs



Photo 1 – Birch woodland



Photo 2 – TN2



Photo 3 – TN7 Ephemeral waterbody / puddle



Photo 4 – Dense bracken



Photo 5 – Stands of Japanese knotweed (TN5) either side of hardstanding to south east of Site



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