



PRELIMINARY ECOLOGICAL APPRAISAL REPORT PHASE 1A

SITE LOCATION

Bersham Colliery, Rhostyllen, Wrexham, LL14 4EJ

ISSUE DATE

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CLIENT

Bersham (Glenside) Ltd

ARBORICULTURAL CONSULTANCY

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EXECUTIVE SUMMARY

Site Address	Bersham Colliery, Rhostyllen, Wrexham, LL14 4DR (nearest)
Grid Reference	SJ 31237 47916
Approximate Site Area	0.4 ha (Phase 1A only)
Current Site Use	The site forms one section of the disused Bersham Colliery which is currently utilised for recreational purposes such as dog walking.
Designated Sites within Zone of Influence	Several statutory designated sites are in close proximity to the site including Johnstown Newt Sites SAC and Stryt Las a'r Hafod SSS, located approximately 900m southwest from the site boundary. The population of great crested newts (<i>Triturus cristatus</i>) is one of the largest known in Great Britain. There is not anticipated to be a negative impact upon the designated sites through working on Phase 1A.
Notable Habitat Features	Woodland and scrub are present within the site.
Notable species applicable to this assessment	• Flora • Invertebrates • Common amphibians and great crested newts • Reptiles • Bats (foraging and commuting) • Breeding birds • Hedgehog • Non-native invasive flora
Mitigation Recommendations	• Reasonable Avoidance Measures (RAMs) relating to the potential presence of great crested newts, common amphibians, and reptiles. • A nesting bird check if vegetation clearance is to occur within nesting bird season (March to September inclusive). • Lighting mitigation for bats. • If any trees are to be removed, they must be subject to a Ground Level Tree Assessment (GLTA) to check potential for roosting bats.

	• Precautionary Working Methods (PWMs) relating to the presence of badgers. These PWMs will help to protect brown hare and hedgehog. • Appropriate eradication of any non-native invasive flora species (if necessary).
Recommended further surveys	• No further surveys are necessary to proceed with the proposed development on Phase 1A.

Contents

1. Introduction.....	2
2. Methodology.....	4
3. Survey Results	7
4. Mitigation Recommendations.....	13
5. Further Surveys & Conclusion	19
6. Bibliography.....	20

Appendices

Appendix 1 Site Photographs

Appendix 2 UK Habitat Plan

1. Introduction

Scope & Purpose

- 1.1.1. Seed Arboriculture Ltd were commissioned by Bersham (Glenside) Ltd to undertake a Preliminary Ecological Appraisal (PEA) at Bersham Colliery, Rhostyllen, Wrexham, LL14 4DR. This report has been prepared to discharge Condition 16 of a decision notice relating to the reclamation of colliery spoil together with associated works including the siting of temporary structures and the installation of rail freight sidings at Bersham bank Colliery tip.
- 1.1.2. The author of this report is Caitlin O'Connor, Ecological Project Manager, and the report is being overseen by Olivia Collington BSc (Hons), MEnvSc, CEnv. Olivia is highly experienced managing schemes and has produced many ecological reports to inform planning management plans.
- 1.1.3. This report has been written to discharge Condition 16 of the decision notice which states:
"Notwithstanding previous surveys, prior to the commencement of each phase of development, a comprehensive ecological survey shall be undertaken. The report of the survey, including details of any mitigation measures required, shall be submitted to and approved in writing by the Minerals Planning Authority before that phase of development is commenced. Any mitigation measures required shall be carried out as approved".
- 1.1.4. **This report focusses on Phase 1A of the development,** as shown in Figure 1.1.1.
- 1.1.5. Please refer to Figure 1.1.1 for the site location. The site is in Wrexham, a city, and the administrative centre of Wrexham County Borough in Wales.



Figure 1.1.1 - Site Location Plan (Phase 1A)

Objectives

1.1.6. The objectives of the Preliminary Ecological Appraisal are as follows:

- Identify the major habitats present.
- Ascertain the presence or potential presence of any legally protected or notable species or habitats.
- Identify any mitigation required and opportunities for strategic wildlife enhancements.

2. Methodology

Desk Study

- 2.1.1. An initial desk-based assessment of the site was undertaken to collate baseline data. The desk study included:
- Local data search of up to 1km from the site, obtained by Confod obtained on 02/11/2023.
 - Review of Nature Resources Wales website for details of any designated sites, notable habitats and presence of European Protected Species Licences.
 - Review of aerial and OS maps for habitat information, as well as determining locations of potential waterbodies to be considered in the assessment.
 - Review of potential habitat links on and off site, to determine the potential zone of influence of the proposed development.
 - On site consultation with the landowner which provided valuable information regarding historic land use and known species and habitats present within the site.

Vegetation & Habitat Assessment

- 2.1.2. An Ecological Appraisal of the site was undertaken by Olivia Collington and Caitlin O'Connor. The survey was undertaken on the 8th November 2023. The weather was overcast (6/8 oktas), with no precipitation, wind speed 4 and a temperature of approximately 10°C.
- 2.1.3. The walkover survey was undertaken broadly in line with standard UK HAB Methodology (2023). The assessment is undertaken with consideration of methodology as per "Preliminary Ecological Appraisal" (CIEEM, 2018).
- 2.1.4. A UK HAB Plan has been produced and is presented in the Appendix of this report. Standard methodology has been used, though adjustments have been made based on judgement to demonstrate habitats in a clearer manner, or where standard guidance does not fit the conditions found on site.

Protected & Notable Species Assessment

- 2.1.5. A search for signs of protected and notable species of fauna was undertaken during the site walkover. This included both field signs of species, as well as potential for species to be present based on habitat availability.
- 2.1.6. The searches broadly included the following:
- Assessment of waterbodies on site and within 250m of the site boundary, and terrestrial habitats for suitability to support notable amphibians.
 - Searches for field signs of, and habitat suitability for bats.
 - Suitability of habitats to support reptiles, and searches for incidental field signs.
 - Searches for field signs of badger (*Meles meles*), including setts, mammal paths, snuffle holes, badger hair and latrines to indicate activity.



- Assessment of the suitability of the site to support notable bird species and recording any field sightings of birds during the walkover.
- Assessment of the sites ability to support notable invertebrates and flora.
- Searches for non-native invasive species.

Bat Roosting and Activity Assessment

- 2.1.7. The Preliminary Bat Roost Assessment (PRA) of the site was undertaken by Caitlin O'Connor and Olivia Collington who holds a Class 1 Bat Survey Licence from Natural England (Reference 2020–46960-CLS–CLS).
- 2.1.8. The survey was undertaken following guidance set out in Collins (2023). This includes undertaking a detailed internal and external inspection of any features to compile information on potential and actual bat entry/ exit points, roosting locations and evidence of bats.
- 2.1.9. Any buildings/structures were assessed as per categories listed in Table 4.1 (Collins, 2023).
- 2.1.10. The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 4th edition (Collins, 2023). The categorisation within this report is based on that set out in Table 4.1 (Collins, 2023), which is used as a basis for determining the requirement for further surveys and/or mitigation.

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Survey Limitations

- 2.1.11. This survey does not constitute a full botanical survey. Key species for each habitat type have been identified to give a broad representation of habitats present within the site.
- 2.1.12. It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment. This survey does not constitute a full botanical survey. Plant species may have been under-recorded, unidentifiable, or not visible due to a number of factors including the time of year the survey was carried out.
- 2.1.13. November is a suboptimal time for carrying out a UK Habitat Surveys due to being outside of the optimal plant growing season. Therefore, it is likely that some plants are present on the site but were not evident at the time of the survey and were not recorded. This is not considered to be a significant constraint with regards to the general UK Habitat Survey results due to the size and location of the site and limited extent of the habitats, it is considered very unlikely that any rare or priority plant species were missed.
- 2.1.14. The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. This is based on the suitability of the habitat, known distribution of the species in the local area (provided by data searches) and any direct evidence within the survey area.
- 2.1.15. The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

3. Survey Results

Site Context

- 3.1.1. The site is located within Wrexham, a city and the administrative centre of Wrexham County Borough in Wales. The site is surrounded by the wider site of Bersham Colliery comprising expanses of woodland and scrub. The wider site is connected to ecologically valuable habitats in the wider area by a railway running along the southern aspect of the site and underneath the A483. The wider area comprises expanses of agricultural field which can benefit certain fauna species such as brown hare and barbastelle bat. Woodland blocks and a network of ponds/streams are anticipated to provide high value for amphibians, reptiles, bats, badgers, and hedgehogs.

Designated Sites

- 3.1.2. The following Special Areas of Conservation (SAC) were found within 5km from the site boundary:
- Johnstown Newt Sites SAC is located approximately 900m southwest from the site boundary. This site lies near to Wrexham in north-east Wales and is composed of two post-industrial sites where coal and clay have been extracted. The population of great crested newts (*Triturus cristatus*) is one of the largest known in Great Britain and has been the focus of much conservation management over the last few years. Breeding sites are provided in part by a mining subsidence pool, and natural water-filled hollows on clay, whilst other ponds have been created as part of nature conservation management. Terrestrial habitat varies from marshy grassland, grazed farmland, and swamp through to scrub and broad-leaved woodland. Good populations of the widespread amphibian species are also present. The SAC is connected to the wider site via a railway line which will act as a linear commuting feature facilitating movement into wider site.
 - Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SSSI is located approximately 4.5km west from the site boundary at the closest point. The site is designated for possessing a range of priority habitats including blanket bog, base-rich scree, dry heaths, dry calcareous grasslands, and transition mires.
- 3.1.3. The following Sites of Special Scientific Interest (SSSI) were found within 5km from the site boundary:
- Stryt Las a'r Hafod SSSI is located approximately 900m southwest from the site boundary. Stryt Las a Hafod is a composite site located close to the village of Johnstown, southwest of Wrexham, at an altitude of 130m. It is of special interest for its amphibians. Of particular interest is the population of the great crested newt. This species has suffered a marked decline throughout Great Britain and Continental Europe because of habitat loss. Great Britain is one of the strongholds for this species in western Europe. The SAC is connected to the wider site via a railway line which will act as a linear commuting feature facilitating movement into wider site.
 - Sontley Marsh SSSI is located approximately 2.5km east from the site boundary and is designated for botanical interest. The site is one of the best wetland examples in Clwyd of the “southern mesotrophic mire” type more characteristic of south-west Wales and, in North Wales, largely restricted to Ynys Môn, Dwyfor and Clwyd.
 - Gatewen Marsh SSSI is located approximately 3.3km north from the site boundary and is one of only three significant examples in the former county of Clwyd of the “southern mesotrophic mires” wetland type. The site occupies the flat valley bottom of a tributary of the River Gwenfro, the stream

running through the eastern side of the marsh. At its northern end the marsh is bounded by the spoil banks of the former Gatewen Colliery, and mining subsidence, following closure of the colliery, has been a major factor in creating suitable conditions for the development of wetland vegetation.

- Ruabon / Llantysilio Mountains and Minera SSSI is located approximately 4.km west from the site boundary at the closest point. The site is notified firstly on biological grounds, for its heather moor, limestone and neutral grassland habitats and for its species interest comprising a range of upland breeding birds, rare and uncommon plants and the use of mines and caves by bats. The site is also notified on geological grounds as it contains three sites of special interest within its boundaries.
- 3.1.4. The data search returned one Wildlife Site located approximately 750m southeast from the site relating to Erddig Estate which comprises a National Trust estate with woodlands, semi-improved neutral grasslands, and marshes.

Habitats

- 3.1.5. Please refer to **Appendix 2** for the UK Habitat Map for the site, and photographs are located within **Appendix 1**.

Bare ground

- 3.1.6. Bare ground footpaths are located throughout the site, evidently used regularly by walkers.

Self-Set Broadleaved Woodland

- 3.1.7. The vast majority of the site comprises self-set woodland and scrub in various successional stages. Most of the tree species comprised silver birch (*Betula pendula*) as well as hawthorn (*Crataegus monogyna*), willow (*Salix spp.*), rowan (*Sorbus aucuparia*), cherry (*Prunus spp.*), and oak (*Quercus robur*). Other flora species within the understorey included dogrose (*Rosa canina*), bramble (*Rubus fruticosus*), teasel (*Dipsacus fullonum*), broadleaved dock (*Rumex obtusifolius*), creeping buttercup (*Ranunculus repens*), bracken (*Pteridium aquilinum*), wild strawberry (*Fragaria vesca*), lesser knapweed (*Centaurea nigra*), ragwort (*Jacobaea vulgaris*), cock's foot (*Dactylus glomerata*), common foxglove (*Digitalis purpurea*), gorse (*Ulex europaeus*) and wood avens (*Geum urbanum*).

Species

Flora

- 3.1.8. The data search returned records of notable flora within 1km from the site including bluebell (*Hyacinthoides non-scripta*), cowbane (*Cicuta virosa*), crosswort (*Cruciata laevipes*), small pondweed (*Potamogeton berchtoldii*), wood millet (*Milium effusum*), water mint (*Mentha aquatica*), yellow rattle (*Rhinanthus minor*), and thread-leaved water-crowfoot (*Ranunculus trichophyllus*). All flora records were over 900 m from the site and most related to Erddig Country Park and Stryt Las a'r Hafod SSSI.
- 3.1.9. No notable flora was observed during the survey; however, it is possible that some may have been missed due to the survey being conducted in November – a suboptimal time of the year. The site is left unmanaged has therefore a range of species have colonised. The site has the capacity to support notable flora should it remain unmanaged.

Invertebrates

- 3.1.10. The data search returned a total of 31 records of notable invertebrates within the local area, particularly within the disused colliery adjacent to the northern aspect of the site. Species included; cinnabar (*Tyria jacobaeae*), small garden bumblebee (*Bombus hortorum*), red-tailed bumblebee (*Bombus lapidaries*), white-tailed bumblebee (*Bombus lucorum*), common carder bee (*Bombus pascuorum*), golden-ringed dragonfly (*Cordulegaster boltonii*), brown hawker (*Aeshna grandis*), azure damselfly (*Coenagrion puella*), and common darter (*Sympetrum striolatum*).
- 3.1.11. The data search returned an Important Invertebrate Area for Northeast Wales located approximately 900m southwest from the site boundary overlapping with Stryt Las a'r Hafod SSSI and Johnstown Newt sites SAC.
- 3.1.12. The woodland in various successional stages on site will be of high value for sheltering invertebrates. Furthermore, the site provides ample foraging opportunities with various flora species providing food resources.
- 3.1.13. Sloping southern faces of bare ground are also anticipated to provide value for burrowing solitary invertebrates such as bumblebees, as returned in adjacent Phases of the quarry in the data search. The southern direction will provide additional heat throughout the day which is favourable for many species.
- 3.1.14. Seasonal areas of water and temporary pools within the site provide some opportunities for breeding invertebrates in their aquatic lifecycles.
- 3.1.15. Overall, notable invertebrates are anticipated to be present on site.

Amphibians

- 3.1.16. The data search returned multiple records of great crested newt (*Triturus cristatus*) within 1km from the site – many of which relating to Johnstown SAC.
- 3.1.17. The closest record is located approximately 80m from the site adjacent to A483 which details 14 adult great crested newts in 2019. The pond is immediately isolated from the site by the intervening motorway, however a treeline and railway would allow newt dispersal towards the site, though the distance for this route is over 500m, outside of the typical range of 250m for great crested newts.
- 3.1.18. Other common amphibian species such as common toad (*Bufo bufo*) and common frog (*Rana temporaria*) were also recorded.
- 3.1.19. There were no ponds within 250m from the development site. Great crested newts' upper dispersal limit is generally considered to be up to 250m from a waterbody (though occurrence of greater distances does exist – particularly surrounding breeding ponds). A network of ponds in the wider area – particularly relating to Johnstown SAC may facilitate the movement of terrestrial newts onto the wider site.
- 3.1.20. The woodland and scrub habitats on site provide suitable foraging resources and cover for both great crested newts and common amphibians such as common toads which are recognised as being of principal importance for the conservation of biodiversity under Section 42 of the NERC Act 2006.
- 3.1.21. The temporary pools and wet areas of habitats may provide suitable breeding habitats for common amphibians.
- 3.1.22. Overall, it is anticipated that there is a small risk of great crested newt being present terrestrially and common amphibians may be present terrestrially on site.

Reptiles

- 3.1.23. The data search returned four records of grass snake (*Natrix helvetica*) within 1km from the site boundary with the closest approximately 700 m from the site.
- 3.1.24. The woodland and scrub habitats on site could provide suitable foraging resources and cover for common reptiles in the local area such as slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake. The southern facing slopes also provide suitable opportunities for basking during the day.
- 3.1.25. Overall, it is anticipated that common reptile species will be present on site in unknown abundances.

Birds

- 3.1.26. A total of 265 records of birds were returned during the 1km data search. Records included (not limited to); yellowhammer (*Emberiza citrinella*), swift (*Apus apus*), willow warbler (*Phylloscopus trochilus*), dunnock (*Prunella modularis*), hobby (*Falco subbuteo*), herring gull (*Larus argentatus*), redwing (*Turdus iliacus*), hawfinch (*Coccothraustes coccothraustes*), kestrel (*Falco tinnunculus*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), lesser spotted woodpecker (*Dryobates minor*), spotted flycatcher (*Muscicapa striata*), brambling (*Fringilla montifringilla*), dipper (*Cinclus cinclus*), goldcrest (*Regulus regulus*), greenfinch (*Chloris chloris*), treecreeper (*Certhia familiaris*), siskin (*Spinus spinus*), and song thrush (*Turdus philomelos*).
- 3.1.27. The site provides potential breeding habitats for a variety of birds in association with the trees and scrub habitats. The scrub will be used by a range of small birds for nesting, sheltering and foraging.
- 3.1.28. Ground nesting birds may be present in more secluded areas of habitats away from the bare ground footpaths. The site's recreational use by dogwalkers may deter them in areas of scrub close to areas of high footfall.
- 3.1.29. Overall, a range of bird species are anticipated to utilise the site for nesting, foraging, and sheltering.

Bats

- 3.1.30. A total of 92 records of bats were returned within 1 km of the site boundary. Species included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), unidentified pipistrelle (*Pipistrellus spp.*), myotis (*Myotis spp.*), noctule (*Nyctalus noctula*), Daubenton's bat (*Myotis daubentonii*), natterer's bat (*Myotis nattereri*), brown long-eared bat (*Plecotus auritus*), Brandt's bat (*Myotis brandtii*), and whiskered bat (*Myotis mystacinus*). Many of the records relate to the site itself relating to transect surveys conducted in 2019.
- 3.1.31. No buildings were present on site and no trees were assessed as having bat roosting potential. Many of the trees were self-set and immature – lacking ecological niches such as loose bark and knotholes that may be exploited by roosting bats.
- 3.1.32. The unmanaged mosaic of habitats is anticipated to be of high ecological value for a range of invertebrate prey and therefore providing ample foraging opportunities for local bats. The railway along the southern aspect of the wider site may also act as a suitable linear commuting feature for bats. The railway connects the wider site to other valuable habitats in the wider area such as ponds and woodlands in Stryt Las a'r Hafod SSSI and Johnstown Newt Sites SAC.
- 3.1.33. The habitats on site have been assessed as being '**High**' value for foraging and commuting bats and '**Low**' for roosting bats. A range of species have already been confirmed to have used the site during

transect surveys in 2019 including myotis, brown long-eared bat, noctule, and pipistrelle species as detailed in the data search.

Badger

- 3.1.34. [REDACTED]
[REDACTED]
- 3.1.35. [REDACTED]
[REDACTED]
- 3.1.36. [REDACTED]

Other Terrestrial Mammals

- 3.1.37. No records of west European hedgehog (*Erinaceus europaeus*) were located within the 1km search area. Given the habitats present within the site, it is anticipated that hedgehog could be present within the site.
- 3.1.38. Two records of brown hare (*Lepus europaeus*) were returned in the data search. The site is surrounded by expanses of agricultural fields which are the preferred habitat for the species. It is anticipated that brown hare may be present commuting through the site.

Non-Native Invasive Species

- 3.1.39. Multiple records of non-native invasive fauna were located within the 1km search area. Species included American mink (*Neovison vison*), Mandarin duck (*Aix galericulata*), and Canada goose (*Branta canadensis*).
- 3.1.40. Multiple records of non-native invasive flora species were located within the 1km search area including within the existing colliery north of Phase 1. Japanese knotweed (*Fallopia japonica*) was located east of the spoil heap. Other invasive flora included Himalayan balsam (*Impatiens glandulifera*), *Rhododendron ponticum*, and curly waterweed (*Lagarosiphon major*).
- 3.1.41. Japanese knotweed was identified within similar habitat just outside of the site boundary. Although none identified onsite, it is reasonable to assume that the species is present within the scrub/woodland habitats.

Species discounted from Assessment

- 3.1.42. Water vole (*Arvicola amphibius*), otter (*Lutra lutra*), and white-clawed crayfish (*Austropotamobius pallipes*) have been discounted from assessment as no suitable aquatic habitats are located on site or within proximity.
- 3.1.43. Hazel Dormouse (*Muscardinus avellanarius*) mainly occur in southern counties, especially in Devon, Somerset, Sussex and Kent. There are few recorded localities north of the Midlands, though they are present in parts of the Lake District and in scattered Welsh localities (Matthews et al, 2018). The species are not generally known to be present within the Wrexham area (Wembridge et al., 2016.) As such, the species are reasonably discounted from site.
- 3.1.44. Red squirrel (*Sciurus vulgaris*) has been discounted from the assessment. Red squirrel populations are limited to small areas of northern England and are not known to be present in the Wrexham area; with no previous records returned in the data search. It is anticipated that high abundances of grey

squirrel are present within this region (Shuttleworth/RSST n.d.). This species will displace red squirrel through competition as well as cause increased red squirrel mortality through the spread of squirrel pox (The Mammal Society, 2020).

4. Mitigation Recommendations

Designated Sites

- 4.1.1. Several statutory designated sites are present within 5km from the site boundary with the closest relating to Johnstown Newt Sites SAC and Stryt Las a'r Hafod SSSI located approximately 900m southwest from the site boundary. The designated sites are connected to the wider site via a railway line which is anticipated to act as a linear commuting feature for a range of fauna – particularly great crested newts. However, Phase 1A is not directly connected to the designated sites and comprises a small working area, unlikely to have any detrimental impact upon the SAC and SSSI through construction.
- 4.1.2. Other SSSIs and non-statutory wildlife sites within 5km from the site are sufficiently separated from the site by anthropogenic barriers such as residential areas that no negative impact is anticipated to occur.

Habitats

Woodland and Scrub

- 4.1.3. Much of the site comprises self-set semi-mature trees forming a young woodland. Much of this habitat is to be lost through development. However, it is to be reinstated through the approved restoration scheme (Richards, Moorhead & Laing Ltd, 2008).
- 4.1.4. It is recommended that the planting comprises native species and species known to be of value for the attraction of wildlife. This will include fruiting and flowering species.
- 4.1.5. The current restoration scheme does not include areas of scrub. This habitat was found within Phase 1 and is anticipated to be of value for notable invertebrates and birds present locally. It is recommended that where possible, scrub including gorse is incorporated the scheme.

Species

- 4.1.6. Due to the small scale of Phase 1A, it is deemed appropriate that a species of precautionary working methods can be implemented in place of further surveys. Please see Figure 4.1.1 for the proposed working area.

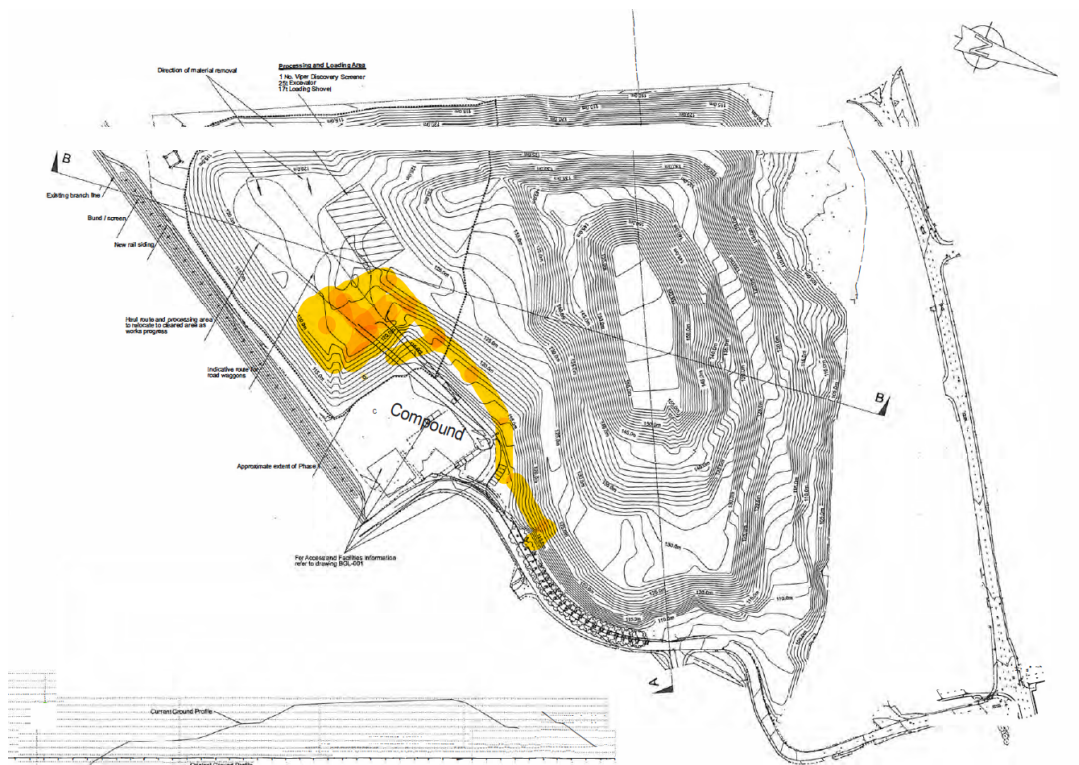


Figure 4.1.1 Proposed Working Area for Phase 1A

Amphibians

- 4.1.7. It is recommended that the following Reasonable Avoidance Measures (RAMs) must be adhered to in order to minimise the risk of injuring or killing amphibians on site.
- 4.1.8. The following RAMs are to be undertaken under the supervision of a licenced great crested newt ecologist. Pre-commencement works are as follows:
- All site contractors are to be inducted through a Toolbox Talk (please see appendices) hosted by a suitably qualified ecologist on the presence of great crested newts and their legal protection. All contractors are to sign the Toolbox Talk and agree to the proposed RAMs;
 - A designated working area will be maintained to minimise total working area, which will be marked out by the ecologist (where necessary). A fence and/or sign will be situated to mark the working areas to ensure no contractors and vehicles do not enter areas which have not been checked for great crested newts.
 - Any vegetation on site to be cleared should first be strimmed to approximately 15 cm and left overnight, allowing any animals the chance to naturally disperse from site. A fingertip search of any vegetated areas should then be undertaken to check for the presence of great crested newts.
 - Once the ecologist has declared all areas of potential for great crested newts have been checked, the proposed works can continue unsupervised.
 - Storage of materials is to be in line with site operations procedures but must not be left in piles on site that would allow amphibians to colonise. Storage of materials is recommended on areas of hard standing or tarmac and not on vegetation.

- All working areas are to be maintained as bareground or hardstanding throughout the construction phase.
 - All open pits and pipes are to be covered during the night, with a check for presence of amphibians conducted prior to covering.
 - If excavations are exposed and/or created, a slope will be positioned within the excavation to allow amphibians and mammals to escape should they fall in.
 - Under no circumstances should site contractors attempt to handle great crested newt.
 - Ecologist to undertake a site visit upon completion of works to confirm that the works have been undertaken using the above risk avoidance measures and that habitats have been restored.
 - In the unlikely chance, a great crested newt is located during the PWM's, all works must cease immediately, and Natural Resources Wales contacted for advice. No great crested newt is to be handled and the refugia is to be placed back to provide suitable cover.
- 4.1.9. The recommended RAMs will also protect common amphibian species such as common toad and common frog. Any common amphibians located moved carefully, by hand, to outside of the impacted area.
- 4.1.10. If hand searching areas is not deemed feasible due to the scale or terrain, GCN Detection Dogs can be utilised to ensure the species are absent prior to works proceeding.

Reptiles

- 4.1.11. It is recommended that the following RAMs are implemented:
- An experienced Ecological Clerk of Works (ECoW) shall be appointed to ensure RAM's are enforced.
 - A copy of this method statement must be kept on site (we suggest having a laminated copy in the site office/ compound);.
 - A walkover of the area should be undertaken by the ECoW to determine any change in status of the habitats/structures on site prior to the initiation of any works.
 - A toolbox talk by the appointed ECoW will be given to the site manager and all contractors working on site with respect to the surrounding habitats and potential for protected/notable species. A copy of species factsheets relating to reptiles and breeding birds will be provided for display within the site office.
 - Suitable vegetation is to be strimmed under ECoW to approximately 15cm in a northern to southern direction. It is to be checked by the ECoW following strimming to identify individuals. If discovered, they will be removed from the working area and covered. Once the areas are deemed reptile free, they are to be strimmed to ground level and maintained at this length for the remaining works.
 - Any excavations will be backfilled on the same day as excavation or checked by the ECoW immediately prior to backfilling. This also considers avoiding temporary water bodies which may be attractive to amphibians. If it is not possible to backfill on the same day, a ramp, will be provided in all excavations or alternatively, all excavations should be well-covered with plywood.

- All loose spoil will be stored on isolated areas of hardstanding to reduce the risk of colonisation by reptiles.
- In the event reptiles are discovered, works will halt immediately and the ECoW will be contacted for advice. Contractors are not to handle reptiles unless informed to do so by the ECoW.
- The precautionary destructive search work will be undertaken during the summer at a time of year when reptiles are active. The ecologist will be present during the strimming works. Any reptiles found during the destructive search will be relocated to the retained grassland to the south of the site.

Breeding Birds

- 4.1.12. Nesting birds are anticipated to utilise the woodland and scrub habitats.
- 4.1.13. Any vegetation removal (including grassland) should be undertaken outside of the breeding bird season (March to August, inclusive). If this is not possible, a suitably qualified ecologist should undertake a nesting bird check no more than 48 hours prior to removal. If nesting activity is observed, the nest(s) should be left in situ until the young have fledged. A suitable buffer will be maintained and determined by the ecologist.

Bats

- 4.1.14. The habitats on site have been assessed as having ‘**High**’ value for foraging and commuting bats due to a mosaic of unmanaged habitats attracting invertebrate prey and suitable linear commuting features connecting the site to valuable habitats in the wider area.
- 4.1.15. Slow-flying species such as brown long-eared bat, which are known to be in the local area and on site, are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.
- 4.1.16. Any proposed lighting/existing lighting should follow the guidance outlined in the Institute for Lighting Engineers document “Guidance for the Reduction of Obtrusive Lighting” (2005) and BCT’s “Bats and Artificial Lighting at Night” (2023).
- 4.1.17. An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:
- Keep site lighting to minimum levels.
 - Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
 - Lighting should feature peak wavelengths greater than 550nm.
 - Light placement should be downward facing to prevent excess horizontal or vertical light spill.
 - The use of integrated fittings such as cowls, shields, louvres and hoods, that effectively contain light spill from unintended areas.
 - Avoid illuminating habitats of value (i.e. pond, hedgerows and trees).

- ## ***Badgers***

~~Within the local area~~ The following Precautionary Working Methods (PWMs) will be adhered to during the construction phase to ensure that no badgers are impacted by the proposed development (Badger Trust, 2023):

- PRELIMINARY ECOLOGICAL APPRAISAL – [Bersham Colliery – Phase 1A]**

- Badger paths must not be blocked to ensure access to foraging areas is maintained.

Other Terrestrial Mammals

- 4.1.20. European Hedgehog are anticipated to be present within the site and are a Species of Principal Importance. During habitat management, any areas of dense vegetation should first be carefully hand searched to check for the species. If identified during management, should be relocated carefully by hand to a location away from the working area. If any injured either species are located, they should be taken to a local vet.
- 4.1.21. Brown hare may be present on site. The PWMs outlined for badger will protect brown hare. They are also likely to naturally disperse once works commence, reducing the likelihood of injuring or killing individuals because of development.

Non-Native Invasive Species

- 4.1.22. Japanese knotweed was identified just outside of the site boundary, making it likely that it is also present within the self-set woodland across the extent of the site. Any non-native invasive flora should be appropriately eradicated by a suitably qualified contractor.

5. Further Surveys & Conclusion

Further Surveys

- 5.1.1. No further surveys are required to commence works on Phase 1A of the development.

Other Mitigation Measures

- 5.1.2. A series of mitigation measures have been outlined to minimise the risk of injuring or killing species on site as well as compensate for the loss of suitable habitats:
- RAMs relating to the potential presence of great crested newts and common amphibians. If a great crested newt is found on site, all works must cease and Natural Resources Wales contacted for advice.
 - RAMS relating to the presence of reptiles.
 - A nesting bird check if vegetation clearance is to occur within nesting bird season (March to September inclusive).
 - Lighting mitigation for bats.
 - PWMs relating to the presence of badgers. These PWMs will help to protect brown hare and hedgehog.
 - Appropriate eradication of any non-native invasive flora species.
 - GLTA of trees to be removed.

Conclusion

- 5.1.3. The site was found to comprise predominantly self-set woodland and scrub habitats with bare ground footpaths. The site was found to have ecological value for a range of fauna species including amphibians, bats, birds, reptiles, invertebrates, and other terrestrial mammals. Mitigation measures have been outlined to protect other species which may be present such as great crested newt, common amphibians, badgers, birds, and reptiles.

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Appendix 1 – Site Photographs

Feature	Photograph
Self-set woodland throughout the site.	
Bare ground tracks interspersed throughout the site.	
Mixed and gorse scrub within the site.	

Japanese knotweed outside out the site.			
Railway along the southern aspect of the wider site.			

Appendix 2 – UK Habitat Map





Drawing Title: Phase 1A Habitat Map
Date: 10/01/2024

Key:

-  Site Boundary
-  Bare Ground
-  Broadleaved Woodland and Scrub

Scale: 1:2000
Drawn By: CO
Checked By: OC
Approved By: OC



Client: Bersham (Glenside) Ltd
Site: Bersham Colliery
Project Number: 1650-PEA-V1-B
SEED Arboriculture 2024