



Removal of scrap yard use with demolition of associated building and erection of 15 residential dwellings

Report Title: Preliminary Ecological Appraisal with Dusk Survey Results (Bats)

Address: Former Legacy Scrapyard, Esclusham Mill, Llyneinion, Rhosllanerchrugog, Wrexham, LL14 4ET

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Former Legacy Scrapyard, Esclusham Mill, Llwyneinion, Rhosllanerchrugog, Wrexham, LL14 4ET
Preliminary Ecological Appraisal with Dusk Survey Results (Bats)

Document Title	Preliminary Ecological Appraisal with Dusk Survey Results (Bats)
Prepared for	Blueprint Architectural Services
Prepared by	Tyrer Ecological Consultants Ltd

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Executive Summary

As part of a planning application concerning the former Legacy scrapyard off Llwyn Einion Road, Rhosllanerchrugog, Wrexham, a Preliminary Ecological Appraisal (PEA) was carried out by Tyrer Ecological Consultants Ltd in March 2019, commissioned by Blueprint Architectural Services on behalf of the client Mr. G. Paletta. Proposals involve the redevelopment of the former scrap yard to accommodate 15 new residential dwellings, including the demolition of an associated building and creation of a wildlife area.

A 'large population' of Great Crested Newt (GCN) (*Triturus cristatus*) has been confirmed breeding within an acid tar lagoon to the south-west of the site (*email comms: Wrexham Borough Council Planning Ecologist, 2010; Pearce Environment Ltd, 2016 and 2017*) and are using the former scrapyard terrestrially. A separate report in respect to this species will accompany the PEA and cover all matters in respect to protected species (2019); as such no findings or recommendations in relation to GCN will be presented within this report.

Furthermore, an Ecological Management Plan (EMP) produced by Pearce Environment Ltd (2017), acknowledged by Natural Resources Wales in correspondence viewable on the Wrexham Planning Portal, addresses key material issues already established at the site, thus the documentation has been included as a relevant appendix in this report (see Appendix V).

In accordance with paragraph 6, point 6.4.21 Planning Policy Wales (PPG), local planning policy and *Biodiversity Net Gain: Good practice principles for development* (CIEEM *et al*, 2019), measures have been recommended within section 9.0 to ensure that the proposed development does not result in biodiversity net loss.

Vegetation: No individual species of conservation importance were located on the land at the former Legacy Scrapyard.

One species notified as 'invasive' under Schedule 9 (Part II) Wildlife and Countryside Act (WCA) (1981) was located on site in the form of Japanese Knotweed (*Fallopia japonica*) (TN5, Appendix IV). *It is recommended that Japanese Knotweed is eradicated and removed off site by a suitably qualified invasive species contractor. Following eradication, any spoil taken off site shall be treated as controlled waste and disposed of at a landfill authorised to accept such refuse.*

Areas of ancient woodland (AW) exist across southern and eastern compartments of the site, identified by numerous species indicative of such (see sections 8.1 - 8.2). All areas of AW within the survey boundary most closely approximate to W8 (*Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis*) woodland (Rodwell *et al*, 1991) and consequently fulfil the criteria provided for the Annex I (Habitats Regulations 1995) habitat '9180 Tilio-Acerion forests of slopes, screes and ravines'. Section 6.4.26 of Planning Policy Wales also makes the following reference to ancient woodlands: "Ancient woodland, semi-natural woodlands and individual ancient, veteran and heritage trees are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees and woodlands should be afforded protection from development which would result in their loss or deterioration..." *It is recommended that a minimum buffer of 15 metres is instated from all areas of Annex I ancient woodland as mapped. No development by way of path creation for example is recommended to commence through areas of ancient woodland.*

Bats: The building in the north of the site was categorised as possessing 'Moderate' bat roost potential in accordance with current BCT guidance due to containing potential roost features in an area of quality habitat and further surveys were undertaken in the 2019 active season of bats. *From the evidence gathered by the surveys the building in the north of the Former Legacy Scrapyard is host to a Common Pipistrelle 'day roost', being used by singular/small numbers of bats (maximum count of 3) roosting under the ridge tiles. The permanent destruction of a bat roost will need to be addressed from both a conservation and legal perspective along with the application of appropriate mitigation. A European Protected Species Mitigation Licence (EPSML) will be required, a method statement along with indicative mitigation is prepared in this document.*

Other Terrestrial Mammals: A precautionary approach is recommended in respect of West European Hedgehogs (*Erinaceus europaeus*) during clearance/dismantling of piled aggregates and digging of excavations. *If hedgehogs are encountered during site clearance works, they are to be manually handled and placed away from harm in like-for-like habitat.*

Breeding Birds: There are no implications in relation to Schedule 1 specially protected birds such as Barn owl (*Tyto alba*) and no recommendations are provided for this species, as favourable habitat exists in wider environs. Nesting platforms for other, common species of bird are present throughout the site, in the form of woodland and dense scrub. Historic nesting material was found in the roof void of the building, loosely attributed to wood pigeon (*Columba palambus*). *It is recommended that any building demolition and/or removal of any woody vegetation from site should be conducted outside of the breeding bird season (March – August). Provisions are recommended for breeding birds.*

Herptiles: In relation to common amphibians and reptiles, no further surveys are recommended. Existing implications and habitat creation strategies in existence and/or being devised in relation to Great Crested Newt (**see Appendix V**) will protect the interests of any incidental common amphibians/reptiles present during the various stages of the work schedule. There exists a risk of incidental presence for common species such as frogs and toads to be harmed by works in the absence of reasonable avoidance measures; *if the named common species are encountered during clearance works, similarly to Hedgehog, they are to be manually handled and placed away from site operations/harm's way in like-for-like habitat.*

Table of Contents

1.0	Introduction and Reasons for Survey
2.0	UK & EU Biodiversity Plans
3.0	Local Biodiversity Action Plans
4.0	Site-related Legislation
5.0	Survey Methodology
6.0	Constraints
7.0	Desk Study results
8.0	Field Survey results
8.1	Phase 1 Habitat Survey
8.2	Vegetation
8.3	Bats
8.4	Other Terrestrial Mammals
8.5	Breeding Birds
8.6	Herptiles
9.0	Daytime Conclusions & Recommendations
10.0	Dusk Survey Results (Bats)
11.0	Dusk Survey Conclusions & Recommendations (Bats)
12.0	Indicative Mitigation (Bats)
13.0	Bibliography

Appendix I: Site Photographs

Appendix II: Botanical Species List

Appendix III: Biodiversity Enhancement Strategy

Appendix IV: Phase 1 Habitat Map

Appendix V: Ecological Management Plan (EMP) - Pearce Environment Ltd (2017)

1.0 Introduction & Reasons for Survey

- 1.1 As part of a planning application concerning the former Legacy scrapyard off Llwyn Einion Road, Rhosllanerchrugog, Wrexham (Figure 1), a Preliminary Ecological Appraisal (PEA) was conducted by Tyrer Ecological Consultants Ltd in March 2019, in accordance with the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017). Proposals are understood to involve the redevelopment of the former scrap yard to accommodate 15 new residential dwellings, including the demolition of an associated building (Figure 2). Proposals also involve the creation of a new wildlife area to the south-east. Ecological surveys, particularly where a specially protected species is or may be present, are generally required as part of the Local Authority's Planning Policies. Blueprint Architectural Services commissioned the report on behalf of the client Mr. G. Paletta.



Figure 1 - Red line site boundary



Figure 2 - Proposed 15 dwellings

Background information

- 1.2 A 'large population' of Great Crested Newt (GCN) (*Triturus cristatus*) has previously been confirmed breeding within an acid tar lagoon to the south-west of the site (*email comms: Wrexham Borough Council Planning Ecologist, 2010; Pearce Environment Ltd, 2016 and 2017*) and are using the former scrapyard terrestrially. A separate report in respect to this species will accompany the PEA and cover all matters in respect to this protected species (2019); as such no findings or recommendations in relation to GCN will be presented within this report
- 1.3 An Ecological Management Plan (EMP) tailored to the site, produced by Pearce Environment Ltd (2017) and acknowledged by Natural Resources Wales as a "satisfactory management plan" (viewable on the Wrexham Planning Portal), addresses key material issues in relation to GCN, habitat management and other issues, thus, has been included as an relevant appendix in this report (see Appendix V).

Aims

- 1.4 The overarching aim of this PEA report was to ascertain the nature of the land, its respective features and the immediate surrounding area. Where possible, information would be obtained on any sensitive wildlife habitats or species that were present, or may be present, and if so determine if they will be impacted upon by future development.
- 1.5 The objectives of the ecological appraisal may be surmised as follows:
- Identify the presence of species with non-statutory conservation designations.
 - Identify the presence/potential presence of species protected under the Wildlife and Countryside Act (1981) (as amended) or the Conservation of Habitats and Species Regulations (2017).
 - Identify any species or habitats that require special consideration during future development.
 - Identify the presence of statutory or non-statutory designated sites in close proximity.
 - If the above are present assess any impacts that may occur as a result of development.
 - Outline opportunities to provide biodiversity net gain in accordance with relevant guidance.
- 1.6 In accordance with paragraph 6, point 6.4.21 of Planning Policy Wales (PPW), local planning policy and *Biodiversity Net Gain: Good practice principles for development* (CIEEM *et al*, 2019), enhancement opportunities have been recommended within the report to ensure that a "biodiversity net gain" is obtained as a key component of the development scheme.

2.0 UK & EU Biodiversity Plans

United Kingdom

- 2.1 The UK Biodiversity Action Plan (BAP) provided a statutory basis for lists of habitats and species of national conservation importance, now transposed under section 7 of the Environment Act 2016. Based upon the site visit, there is the potential for several priority species to be present / using the site; two were identified at the time of the survey given in **bold** (see Table 1).
- 2.2 Two priority habitats exist within the red line site boundary including “Lowland mixed deciduous woodland” and “Open mosaic habitats on previously developed land” (see sections 8.1-8.2).

EU Biodiversity Plans

- 2.3 Woodland in the south of the site has been identified as Ancient Semi-Natural Woodland (ASNW), due to the presence of various indicator species. The woodland at the southern and eastern site boundaries (which continue off site) is also appropriately described within Annex I of the European Habitats Directive (1992) (now transposed into the Conservation of Habitats and Species Regulations (2017) and is considered to be a priority habitat of significant conservation importance internationally; the habitat type this woodland approximates to is ‘*Tilio-Acerion*’ forests of slopes, screes and ravines’ (EU code 9180) (JNCC, 2018) (see section 8.1-8.2).

Table 1 – Section 7 species which are likely to be present within the extending locality

Amphibians	
Common Toad	<i>Bufo bufo</i>
Birds	
Kestrel	<i>Falco tinunculus</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
House Sparrow	<i>Passer domesticus</i>
Tree Sparrow	<i>Passer montanus</i>
Hedge Accentor (Dunnock)	<i>Prunella modularis</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Common Starling	<i>Sturnus vulgaris</i>
Song Thrush	<i>Turdus philomelos</i>
Invertebrates	
Garden Tiger	<i>Arctia caja</i>
Large Garden Bumblebee	<i>Bombus ruderatus</i>
The Cinnabar moth	<i>Tyria jacobaeae</i>
Mammals	
Bats (various)	<i>Chiroptera</i>
West European Hedgehog	<i>Erinaceus europaeus</i>
Brown Hare	<i>Lepus europaeus</i>
Reptiles	
Slow-worm	<i>Anguis fragilis</i>
Grass Snake	<i>Natrix natrix</i>
Common Lizard	<i>Zootoca vivipara</i>

3.0 Local Biodiversity Action Plan

- 3.1 Local Biodiversity Action Plans (LBAP's) are a way of encouraging people to work together and deliver a programme of continuing action for biodiversity at a local level. LBAPs also embrace the idea of 'local distinctiveness' and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance. They set out practical steps that aim to:

- Help protect biodiversity
- Enhance and improve biodiversity where possible, and
- Promote biodiversity at a local level

Sites of Local Biological Interest (SLBI) / Local Wildlife Sites (LWS)

- 3.2 Whilst there is no legal protection for Sites of Local Biological Interest (SLBI)/ Local Wildlife Sites (LWS) per se, their non-statutory designation recognizes their importance in a regional context in respect to biodiversity; the presence of a protected species within them would attract the usual protection(s) afforded to it/them.
- 3.3 The Wrexham Biodiversity Action Plan (WBAP) lists key local species/habitats considered to be rare or declining in the area. Some may be of national concern, while others may only be locally rare. Some are statutorily protected, although the great majority are not. Upon completing the desktop study for this report, no online resource made available the local (Wrexham) BAP; therefore, assessment of the site to support local BAP species/habitats is not possible for the purposes of this report.

4.0 Site-related Legislation

- 4.1 Relevant legislation considered for the purposes of this report includes the following:

- Conservation of Habitats and Species Regulations (2017)
- Countryside Rights of Way (CROW) Act (2000)
- Natural Environment and Rural Communities Act 2006 (NERC Act 2006)
- Protection of Badgers Act (1992)
- Wildlife and Countryside Act (1981) (as amended)

These acts entail relevance to both protected and invasive species. The degree of protection offered to taxa provided within existing UK and EU legislature often varies depending on species/group, for example, some species may purely be protected during one of its life stages (e.g. common species of breeding bird whilst nesting/with eggs/young); some species may receive full protection within the EU (e.g. otter), whereas others may be protected solely on a national basis (e.g. grass snake).

- 4.2 Table 2 contains legislature appropriate to each species/group respective to the former Legacy scrapyard and provides the relevance of said legislation.

Table 2 - Legislation in respect of the species considered prior to the site visit

Species Group/Species	Relevant Legislature	Level of Protection
Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/roost destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.
Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) e.g. Barn owls (<i>T. alba</i>) are afforded a greater level of protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended)	Species listed within Schedule 9 as invasive, including Japanese Knotweed (<i>Fallopia japonica</i>) and Indian Balsam (<i>Impatiens glandulifera</i>), for example, carry notoriety regarding development. The Act makes it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Wildlife and Countryside Act (1981) (as amended)	Common Lizard (<i>Zootoca vivipara</i>), Grass Snake (<i>Natrix natrix</i>) and Slow-worm (<i>Anguis fragilis</i>) are protected under Schedule 5 of The Act, it is an offence to intentionally kill, injure or take/possess these animals from the wild.

4.3 Up to 11 bat species have been recorded in Wrexham, most of which use built structures, notably occupied residential properties, for roosting. The most frequently encountered species is the Common Pipistrelle bat (*Pipistrellus pipistrellus*) and its abundant status in Wrexham is reflected throughout the UK. All British bats and their roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2017.

4.4 Barn owl (*Tyto alba*) are recorded in North Wales where there exists an agricultural matrix that includes suitable bank sides of vegetation, drainage ditches and rough grassland that will provide habitat for their main prey i.e. small mammals, whilst they typically may use barns/old buildings and tree hollows for nesting or roosting purposes. They are constantly under threat from loss of habitat and nest sites, which is a situation that is mirrored throughout most of the UK.

All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended). Some species such as those listed on Schedule 1, e.g. Barn owls are afforded a greater level of protection. Where nesting birds are present then work should be timed outside of the breeding/nesting season (March – August) so as to avoid disturbance.

4.5 Although many 'Invasive' species listed within Schedule 9 (Part II) of the Wildlife & Countryside Act (WCA) 1981 are local/rare/absent in Wrexham, species such as Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens glandulifera*) and Wall Cotoneaster (*Cotoneaster horizontalis*) are widespread; all species carry the same penalty for those who cause the plants to grow in the wild. DEFRA issue the following advice concerning invasive (plant) species:

'You must not plant in the wild or cause certain invasive and non-native plants (all species listed under Schedule 9 (Part II) WCA (1981) to grow in the wild. This can include moving contaminated soil or plant cuttings. You can be fined or sent to prison for up to 2 years.'

- 4.6 Common Lizard (*Zootoca vivipara*), Grass Snake (*Natrix helvetica*) and Slow-worm (*Anguis fragilis*) are protected under Schedule 5 of the Wildlife and Countryside Act (1981) (as amended); found throughout North Wales, it is an offence to intentionally kill, injure or take these animals from the wild.

Guidance for Local Authorities:

- 4.7 Extract from Office of the Deputy Prime Minister: Circular 06/2005:

"It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision."

- 4.8 Point 6.4.21 of Planning Policy Wales (PPW) stipulates the following:

"Planning authorities must follow a stepwise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible."

- 1. The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered*
- 2. Planning authorities should ensure that features and elements of biodiversity or green infrastructure value are retained on site, and enhanced or created where ever possible, by adopting best practice site design and green infrastructure principles. The provision of up to date ecological survey information will assist in this process. Where necessary, planning authorities should seek to modify the development proposal through discussion with the applicant at the earliest possible stage. Biodiversity and green infrastructure modifications should draw on the issues and opportunities identified through the Green Infrastructure Assessment.*
- 3. In some circumstances, it will be appropriate to attach planning conditions, obligations or advisory notes to a permission, to secure biodiversity outcomes. Planning authorities should take care to ensure that any conditions necessary to implement this policy are, relevant to planning, relevant to the development to be permitted, enforceable, precise, and reasonable in all other respects.*
- 4. When all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes, offsite compensation for unavoidable damage must be sought"*

5.0 Survey Methodology

Desk Study

- 5.1 Prior to a site visit a desktop study was conducted using online resources to obtain information pertaining to any sites afforded statutory (e.g. SSSI) and non-statutory (e.g. LWS) designations within 3km of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGIC – provided by Defra) was accessed to gather such information.
- 5.2 Satellite imagery was reviewed using sources such as Google Earth (© 2018/19) to determine the nature of adjoining and extending habitats; such information aids in the understanding of how the site might interact with its surroundings ecologically and its value in that context, and how the development may impact at a wider scale.
- 5.3 The client has been advised that an updated 2.0 kilometre data search obtained from Cofnod may be required to accompany an updated PEA, as per CIEEM's Guidelines on Preliminary Ecological Appraisal (CIEEM, 2017) and the UK Guidelines for Accessing and Using Biodiversity Data (CIEEM, 2016). As from the date of issue of this report, the client has made the decision not to proceed with a data search at this moment in time.
- 5.4 During the desktop study it is noted that the former Legacy Scrapyard has been subject to previous ecological surveys (Pearce Environment 2016); the findings of those surveys have been taken into consideration as part of the compilation of this report.

Field Survey

- 5.5 The ecological appraisal and phase 1 habitat survey was undertaken on 21st March 2019 in sunny, clear conditions temp 12°C by Mr. M. Pritchard, an ecologist and Qualifying CIEEM member, who additionally is an acting accredited agent on the Natural Resources Wales bat licence of Mr. S. Irwin (Licence no. 73156: OTH: CSAB: 2016).
- 5.6 The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series "Guidelines for Preliminary Ecological Appraisal 2nd Edition (CIEEM, 2017).
- 5.7 A 'site walkover' was conducted which included an assessment of all habitat features. The identification and evidence of all fauna would be documented, whilst in tandem the land was assessed for the potential to support the species and habitats described previously. The 'walkover' also aimed to identify any ephemeral pools or unmapped waterbodies.
- 5.8 Botanical assemblages were assessed, and the land was inspected for the presence of red-listed (Stroh *et al*, 2014), NERC s.41, and local BAP listed species.

Additional to attributing ecological value to red-listed/BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species may be recognised for their ecological notoriety on a geographical scale which is applied on a site-to-site basis (see Figure 3, below).

For the botanical species list, see **Appendix II**.

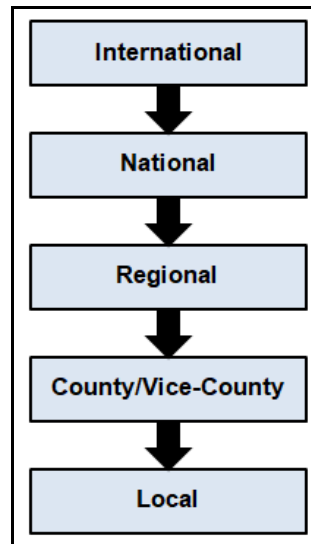


Figure 3 - *Geographic Frame of Reference entailing degrees of conservation importance (CIEEM)*

- 5.9 The land was inspected for invasive species listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended), this included areas within close proximity of the perimeter boundary.
- 5.10 A building was inspected for potential places that may be of value to bats or breeding birds, to determine if evidence of either group was present; no conventional lofts are present in the existing building which is found to the north-west near to the entrance, though a roof void exists. Where accessible, the roof void and the upper floor was investigated with the aid of high-powered torch for evidence of bat use, which mainly includes bat droppings, incidental presence, dead specimens and/or prey items - and investigated for evidence of breeding birds - which broadly involves a search for historic/recent nest materials or dead hatchlings/fledglings. The surrounding habitat was also considered in terms of general suitability for bats and breeding birds.

Trees were inspected from the ground with use of close-focussing binoculars and high-powered torch for features which could support bats for roosting such as holes, union points, extensive cracks, crevices, lifted bark or fissures.

Criteria for roost assessment are based upon the determinants given in the Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016): (Figure 4).

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.		
Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a 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 or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats 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 or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are 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 commuting 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 or tree 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 ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats 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.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Figure 4 - BCT guidelines extract

5.11 The site was assessed for suitability of use by reptiles, with particular attention paid to features that could be used as basking areas (e.g. south-facing slopes), for hibernation (e.g. banks, walls, piles of potential hibernacula) and opportunities for foraging/hunting (e.g. rough grassland and scrub).

- Common lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, including brownfield sites.
- Slow-worms (*Anguis fragilis*) use similar habitats to common lizards, and are often found in rank grassland, allotments, gardens and derelict land.
- Grass snakes (*Natrix natrix*) have broadly similar requirements to common lizards but with a greater reliance on ponds and wetlands, where their diet largely comprises amphibians and fish.

5.12 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of Mr. Pritchard.

5.13 Where more detailed surveys are recommended following a daytime assessment, then the Local Planning Authority, upon the advice of their ecological advisors, are unlikely to determine an application until such time that all relevant information is gathered, i.e. - until

all required survey work has been completed. This is in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2017.

6.0 Constraints

- 6.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on site. Species listed within Appendix III were noted from incidental observation at the time of the survey. Many plant species are only evident at certain times of the year and so some plant species may have gone undetected.
- 6.2 The survey was undertaken outside of the breeding season for bats when bats are, coming to the end of their hibernation season, however evidence of bats (i.e. - droppings) can still be found inside buildings/tree hollows where sheltered from the elements; exposed evidence is less likely to be found due to wind, rainfall. In respect of the building on site, the roof void could not be accessed, though this did not prevent an inspection/assessment as this was achievable from the upper floor due to damage in the ceiling/roof void floor.
- 6.3 No significant limitations were experienced that would prevent the gathering of ecological information on site on which to base sound conclusions and recommendations.

7.0 Desk Study Results

- 7.1 The former Legacy scrapyard is located in rural Llwyneinion, accessed from the quiet Llwyn Einion road. The immediate habitat includes grazed pastureland and mature broadleaf woods to the north, a small work site of hardstanding surrounded by scrub and scattered trees to the east, as well as the modest, fenced plot of 'Bush House' to the north-east. To the immediate west lies a former railway cutting bordered by plantation woodland whilst expansive woodland, including ancient semi-natural broadleaf woodland, is present to the south, south-west and west. An aforementioned 'acid tar lagoon' is located approximately 140m to the south-west; this area was inaccessible.
- 7.2 The extending landscape (Figures 5-6) is largely represented by arable farmland to the north, west and east whilst to the south the village of Johnstown is built-up urban. Ancient woodland sites, thickets, ditches, grasslands, tall herb/fern, hedgerows and open water habitats (including large reservoirs, tributaries and ponds) are amalgamated within a 2.0km circular buffer of the former Legacy scrapyard, and the area surrounding the site is considered to offer a diverse, highly favourable assemblage of connective habitats that permit dispersal and offer shelter to many of the species/groups for which the species was undertaken, including protected species such as bats, notably the Common Pipistrelle (*Pipistrellus pipistrellus*), which is the species most commonly associated with rural and urban habitats in North Wales.
- 7.3 There are no statutorily designated sites adjacent to the application site or found within 1.0km. Designated sites within 3.0km are as follows:
- Stryt Las a'r Hafod / Johnstown Newt Sites - SSSI and SAC - approximately 1.4km to the south-east
 - Berwyn and South Clwyd Mountains - SSSI and SAC - approximately 2.0km to the west

Notwithstanding the proximity to the named statutory designated sites, the proposals will not have an effect on any of them, or the habitats for which they have been designated.



Figures 5-6 - Location of the application site topographically (source: Google Earth top, OS Maps bottom)



- 7.4 The following protected species records are acknowledged within a 2.0km radius - Common Pipistrelle, Soprano Pipistrelle (*Pipistrellus pygmaeus*), Daubentons bat (*Myotis daubentonii*), Noctule (*Noctulus noctula*), Natterer's bat (*Myotis nattereri*) and Whiskered bat (*Myotis mystacinus*). Grass Snake records also feature within 1.0km.

- 7.5 A search of the biological record database held by Tyrer Ecological Consultants Ltd, previously submitted data to the LRC, revealed the following protected species records within a 3.0km radius of the application site.

- 1.6km to the south / 2016 / Common Pipistrelle - activity during a dusk survey

8.0 Field Survey results

Phase 1 Habitat Survey

- 8.1 See Table 3 below for habitat descriptions: refer to **Appendix IV - Phase 1 Habitat Map** for the location of target notes and all described habitats. All species nomenclature follows Stace, C. (2019) – definitive English names.

Table 3 - Phase 1 habitat types at the application site

Target Notes	1	Location of a corvid nest within the canopy of an Oak (<i>Quercus</i> sp.)
	2	Large piled aggregates = potential hibernacula/refugia
	3	Small ephemeral pools - standing freshwater
	4	Abandoned vehicles and other miscellaneous debris
	5	Established invasive species - Japanese Knotweed (<i>Fallopia japonica</i>)
	6	Recently felled semi-natural broadleaved woodland - future land use unclear
Habitat Code	Broad Habitat	Description
A1.1.1	Semi-natural woodland - broadleaf	Semi-natural woodland intersperses dense scrub at the southern boundary, continuing off site to the regional south. Geologically, the ground is inclined, sloping to the south and is dominated by ancient woodland indicator species including: Ramsons (<i>Allium ursinum</i>), Wood Anemone (<i>Anemone nemorosa</i>), Wood Speedwell (<i>Veronica montana</i>), Dogs Mercury (<i>Mercurialis perennis</i>), Soft shield-fern (<i>Polystichum setiferum</i>) and Bluebell (<i>Hyacinthoides non-scripta</i>) - these species are notable in the sense that they are significant regional indicators of ancient woodland (Styles, 2016; Rose, 1999). Dominant trees include Oaks (<i>Quercus</i> spp.), Cherry (<i>Prunus</i> sp.) and Ash (<i>Fraxinus excelsior</i>). A trickling, very shallow running water body is located approximately 60metres south of the site boundary, within the shaded canopy of the wood flowing east. Assessment of the woodland concludes that the NVC community most closely approximates to a W8 (<i>Fraxinus excelsior</i> – <i>Acer campestre</i> – <i>Mercurialis perennis</i> woodland) assemblage, in line with Rodwell <i>et al</i> (1991). Other areas of woodland exist along the north-east and eastern boundaries, which have been subjected to much increased ground disturbance, however they contain constant ancient woodland indicator species throughout the stand, including Dogs Mercury and Bluebell.
A1.1.2	Plantation broadleaf woodland	Woodland at the western boundary is indicative of broadleaf plantation woodland lining the banks of the former railway track, with Bramble (<i>Rubus fruticosus</i> agg.) and Atlantic Ivy (<i>Hedera hibernica</i>) typically forming the ground layer; dominant tree species include Lombardy Poplar (<i>Populus nigra 'italica'</i>), Sycamore (<i>Acer pseudoplatanus</i>) and Oak (<i>Quercus</i> sp.).

Former Legacy Scrapyard, Esclusham Mill, Llwyneinion, Rhosllanerchrugog, Wrexham, LL14 4ET
Preliminary Ecological Appraisal with Dusk Survey Results (Bats)

A2.1 - A2.2	Dense scrub and Scattered scrub	Mature Grey Willow (<i>Salix cinerea</i> ssp. <i>oleifolia</i>) dominates much of the site, particularly centrally and at areas of secondary woodland. Several areas in the west and south displays evidence of recent management activity as scrub has been cut down to ground level and many existing Willows are not damaged. Other areas of scrub exist with locally dominant Gorse (<i>Ulex europaeus</i>) and Bramble, though this is more appropriately categorised under scattered scrub contextually.
A4.1	Recently felled semi-natural broadleaf woodland	A small strip of semi-natural woodland (<0.5ha, Target Note 6) has been felled (perhaps inadvertently) though evidenced by fallen deadwood/limbs left in situ where the ground is cleared, and the growth of abundant Ramsons, Dogs Mercury, Bluebell and Scarlet Elf cups (<i>Sarcoscypha</i> sp.) in places – vascular plants comprise typical ancient woodland indicator species. Evidence of tree felling is frequent throughout the dense Willow scrub in the southern half of the site, where areas have been cleared to ground level (see above), perhaps in preparation for the newt mitigation area.
C1.2	Scattered Bracken	Located in the north of the site, Bracken (<i>Pteridium aquilinum</i>) dominates an area otherwise containing various ruderal and ephemeral growths.
C3.1	Other tall ruderal herbs	Typically present between woodland, scrub and ephemeral/short perennial ecotones, tall ruderal species are frequent and varied on the site including a mix of Rosebay Willowherb (<i>Chamerion angustifolium</i>), Oxe-eye Daisy (<i>Leucanthemum vulgare</i>), Wild Teasel (<i>Dipsacus fullonum</i>) and Lesser Burdock (<i>Arctium minus</i>) amongst several other species.
J1.3	Ephemeral/short perennial	The open north of the site meets the five criteria outlined within the UK BAP Priority Habitat Descriptions - 'Open Mosaic Habitats on Previously Developed Land'. The site used to be landfill and was covered by hardstanding to be used as a scrapyard, which has since naturally succeeded to support an open, varied ephemeral mosaic. The heterogeneity within the habitat mosaic reflects chemical and physical modification by former development and previous industrial processes including the exposure of underlying substrates and the tipping of wastes and spoils. Spoil mounds, ephemeral pools and the relicts of built structures provide topographical heterogeneity at the macro- and micro-scale to the benefit of invertebrates, which were in notable abundance during the sunny conditions but have not been described in the report. Sealed surfaces and compaction adds further variation and contribute to the modified hydrology resulting in areas of impeded and accelerated drainage. The community present includes the mosses <i>Kindbergia praelonga</i> , <i>Brachythecium rutabulum</i> alongside a wide variety of graminoides and forbs such as Perforate St. John's Wort (<i>Hypericum perforatum</i>), Mugwort (<i>Artemisia vulgaris</i>), Primrose (<i>Primula vulgaris</i>), Spear Thistle (<i>Cirsium vulgare</i>), Dandelion (<i>Taraxacum officinale</i> agg.), Colts-foot (<i>Tussilago farfara</i>), Hard Rush (<i>Juncus inflexus</i>), Common Nettle (<i>Urtica dioica</i>) and Ribwort Plantain (<i>Plantago lanceolata</i>).

J1.4	Introduced shrub	Japanese Knotweed (<i>Fallopia japonica</i>) is locally dominant in an area of otherwise dense Willow scrub near containers placed in the middle of the site (Target Note 5). New growth is also occurring at areas of recently cleared scrub, indicating the extent of JK may be wider than what is mapped, which is potentially disastrous given its proximity to semi-natural woodland. Cherry Laurel (<i>Prunus laurocerasus</i>) is located in the north by the entrance.
J3.6	Buildings	Only one true building exists on site, which is in the north-west by the entrance - described in detail section 8.3. All other mapped buildings are steel containers.
J4	Bare ground	Found around the entrance and cutting through the site, mapped where there is an absence of botanical growth.

Vegetation

- 8.2 There were no identified species of conservation importance throughout the confines of the application site. Notwithstanding an absence of individual plant species of conservation concern, several species were noted to grow abundantly throughout small areas of woodland to the south and east which are significant indicators of ancient woodland (AW) (see Table 3 above). Although areas of woodland assessed are not identified within the Ancient Woodland Inventory (AWI) for Wales (NRW, 2016), NRW gives that the minimum threshold for identified AW's contained within the AWI is 0.5ha and above. Areas of woodland identified as ancient on site equate to an area below this minimum threshold, accounting for apparent discrepancy. Furthermore, extensive areas of AW are identified in close proximity to the site boundary and across Llwyneinion more generally.

Ancient woodland is defined as woodland that has remained wooded since the end of the last ice age and is a rare and valuable biodiverse habitat within the British Isles; Natural Resources Wales (NRW) defines AW as follows:

- **Ancient Semi-Natural Woodland (ASNW)** – broadleaf woodlands comprising mainly native tree and shrub species which are believed to have been in existence for over 400 years
 - **Plantation on Ancient Woodland Sites (PAWS)** – sites which are believed to have been continuously wooded for over 400 years and currently have a canopy cover of more than 50 percent non-native conifer tree species
 - **Restored Ancient Woodland Sites (RAWS)** – woodlands which are predominately broadleaves now and are believed to have been continually wooded for over 400 years. These woodlands will have gone through a phase when canopy cover was more than 50% non-native conifer tree species and now have a canopy cover of more than 50 percent broadleaf
- [Please note** that information sources do not identify whether broadleaf trees are native to a specific site, therefore an assumption has been made that they are native. The phrase 'restored ancient woodland' describes woodland which appears, with the use of remote sensing techniques, to have returned to a more natural condition. The inventory designation does not mean that the woodland is fully restored or that it is in good ecological condition. Active restoration work may well be essential to consolidate improvements in condition.]
- **Ancient Woodland Site of Unknown Category (AWSU)** – woodlands which may be ASNW, RAWS or PAWS. These areas are predominantly in transition and existing tree cover is described as 'shrubs', 'young trees', 'felled' or 'ground prepared for planting'

Within the survey boundary, species indicative of such habitat grows in wooded areas. A search of the woodland within a 20metre buffer of the survey boundary to the south resulted in other ancient woodland indicator species being found including Wood Anemone (*Anemone nemorosa*), Soft Shield-fern and Yellow Archangel (*Lamium galeobdolon* ssp. *montanum*).

The assessment concludes all areas of woodland to the south most closely approximates to a W8 (*Fraxinus excelsior* – *Acer campestre* – *Mercurialis perennis* woodland) assemblage, as per Rodwell *et al* (1991). This habitat features as a European priority habitat within Annex I Habitats Directive (1992) (now transposed into the Conservation of Habitats and Species Regulations (2017)) in the form of '9180: *Tilio-Acerion* forests of slopes, screes and ravines' (EU code 9180) (JNCC, 2018); it should be noted that the provisions of the Habitats Directive require that member states maintain or restore European priority habitats (JNCC, 2018). The woodland and its associated ground flora, as identified, should be considered to be of significant material conservation importance that cannot be mitigated for, or replaced/compensated against.

Invasive species

One species listed as invasive under Schedule 9 of the Wildlife & Countryside Act (1981) was identified (see Phase 1 habitat map - Target Notes 5) in the form of Japanese Knotweed (*Fallopia japonica*), which is dominating an area locally by steel containers, but also growing in an area of recently cleared scrub nearby. It should be noted that Japanese Knotweed is growing within 40 metres of broadleaf semi-natural woodland, as described.

See **Appendix II** for the botanical species list.

Bats

- 8.3 The only true building on the site is found in the north and is visible from Llwyn Einion road at the site entrance; it is a brick-built two storey structure, with a pitched slate roof. On the day of the survey it is noted to be unoccupied and aesthetically appears to be in a reasonable condition structurally, however, is now redundant from any former use.

A loft space is absent, though a roof void is present to approximate dimensions 15.0 x 7.0 x 1.0 metres (length x width x void height); internal conditions are noted to be part-illuminated, draughty and spacious, thus, while not entirely suited to offer breeding potential, it can be considered suitable for occupancy by loft-dwelling species for other purposes, notably for Brown long-eared (*Plecotus auritus*) bats, as this is a species that favours dark, spacious lofts that permit unrestricted/free flight. Additionally, the immediate habitat is considered favourable for this species specific foraging and commuting requirements, however, no recent or historic evidence of this species was observed during the inspection.

A deteriorated lime & mortar application in combination with a traditional bitumen underfelt lines the roof; where present, roof linings (inclusive of bitumen felt) can provide favourable conditions for crevice dwelling species, such as the Pipistrelle bats, providing external opportunities exist that permit ingress. Other potential crevice opportunities exist on the upper floor in the form of degraded lath and plaster and holes/damage is present in the ceiling permitting access to the upper floor. Notwithstanding, no evidence of crevice dwelling bats was found, however this can frequently be attributed to preferences by these species for roosting within crevices.

NB: The breeding roosts of Pipistrelle bats are proportionally higher in occupied residential dwellings where the warm, dry conditions favour the requirements of a maternity colony but other structures are also used, especially for hibernation or by male bats which do not need the same conditions as a maternity colony.

The external inspection revealed potential roost features exist in the form of several loose / missing roof slates on the lower western elevation centrally, gaps at the ridge and roof verge on the south-facing elevation and minor gaps beneath timber fascia also on the western elevation. The building has been categorised as possessing 'Moderate' bat roost suitability in accordance with Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016); previous bat surveys have indicated Pipistrelle bats using the site for foraging.

None of the trees on site indicated any potential roost features (holes, splits, fissures, branched unions etc) that would warrant further investigation for bat presence. Notwithstanding an absence of roost suitability, all trees on site are considered valuable habitats in respect of bats foraging and commuting habits in the locale.

Other Terrestrial Mammals

- 8.4 No presence/evidence of West European Hedgehog (*Erinaceus europaeus*) was located during the appraisal, though Hedgehogs will hibernate in the winter months, typically waking around mid-March. Site suitability for this species is high, with many areas suitable in which hogs could forage and commute; the site further offers favourability in the form of features/areas that could support this species for hibernation/shelter, including areas beneath large steel containers, refugia piles, woodlands and other miscellaneous items found throughout.

Breeding Birds

- 8.5 In relation to birds (see Table 4 for species recorded on site) historic nesting was found inside the building roofing void (described in section 8.3) spilling out, nesting material was constructed of grasses/straw though very old, thus only loosely attributed to wood pigeon (*Columba palumbus*), a species which will nest in buildings on occasion. A second nest was observed near the crown of an Oak tree in the north-east of the site (Target Note 1) - suspected to be of corvid origin, it is unknown whether the nest is active or historic. Areas of scrub and trees on site act as a viable nesting platform for a multitude of common bird species and the presence of nesting birds within the breeding season (March-August inclusive) is considered to be highly likely.

In relation to specially protected species such as Barn owl (*Tyto alba*), the site offers favourable habitat for hunting but is absent of place they can nest/raise young. The building (described in section 8.3) contains no areas suitable for nesting purposes for this species, and all of the steel containers in the mid-south of the site boundary are open ground level access only, which would render any birds nesting within them wholly vulnerable to predatory terrestrial species, such as Red fox (*Vulpes vulpes*). No trees on the site were considered to offer suitable nesting capability for this species.

Table 4 - Birds recorded during the survey

Common name	Scientific name	Conservation Status
Blackbird	<i>Turdus merula</i>	-
Blue Tit	<i>Cyanistes caeruleus</i>	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	S.41, S7, BoCC 4 - Amber
Buzzard	<i>Buteo buteo</i>	-
Carrion Crow	<i>Corvus corone</i>	-
Chaffinch	<i>Fringilla coelebs</i>	-
Chiffchaff	<i>Phylloscopus collybita</i>	-
Coal Tit	<i>Parus ater</i>	-
Goldfinch	<i>Carduelis carduelis</i>	-
Great Spotted Woodpecker	<i>Dendrocopos major</i>	-
Great Tit	<i>Parus major</i>	-
Greenfinch	<i>Carduelis chloris</i>	-
Jackdaw	<i>Corvus monedula</i>	-
Jay	<i>Garrulus glandarius</i>	-
Long-tailed Tit	<i>Aegithalos caudatus</i>	-
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC 4 - Red
Nuthatch	<i>Sitta europaea</i>	-
Pheasant	<i>Phasianus colchicus</i>	-
Robin	<i>Erithacus rubecula</i>	-
Rook	<i>Corvus frugilegus</i>	-
Song Thrush	<i>Turdus philomelos</i>	S.41, S7, BoCC 4 - Red
Sparrowhawk	<i>Accipiter nisus</i>	-
Wood Pigeon	<i>Columba palumbus</i>	-
S.41 - a bird listed on section 41 of the Natural Environment Rural Communities Act 2006 (NERC Act) S7 - A bird listed on the Environment (Wales) Act 2016 BoCC 4 - a bird of conservation concern		

Herptiles

Amphibians

- 8.6 Two shallow ephemeral pools located centrally (Target Note 3) offer aquatic habitat albeit temporary. Notwithstanding, no evidence of common amphibians (spawn strings, tadpoles) was observed in either water body. Given the confirmed presence of permanent water bodies within 150m and beyond, the site could be accessed for commuting/terrestrial foraging by generalist common amphibians including Common Frog (*Rana temporaria*) and Common Toad (*Bufo bufo*), subject to their presence in the landscape.

A large population of great crested newts (*Triturus cristatus*) exists at the site which is subject to ongoing surveys and mitigation (see section 1.2 - 1.3); this is not detailed within this report.

Reptiles

- 8.7 The site contains areas of potential refugia, hunting and basking habitat which could be used by reptile's subject to their presence in the landscape; these features are restricted to the south of the site and are unaffected by the proposals. A visual search of all piled refugia surfaces (Target Notes 2), other assimilated objects on site and areas suitable for basking (such as slopes at side boundaries, earth bunds) yielded no evidence to suggest the presence of reptiles. Given the degree of suitability for reptiles such as slow-worm, the potential presence of them at the former Legacy scrapyard is determined to be possible. Existing implications and mitigation strategies being devised in relation to the creation of a wildlife area however will protect the interests of any incidental reptiles present at the site and no further surveys to detect reptiles will be recommended.

9.0 Conclusions & Recommendations

Vegetation & Habitats

- 9.1 No individual species of conservation importance were identified on site, however, one species listed as 'invasive' was located within the survey boundary in the form of Japanese Knotweed (*Fallopia japonica*); furthermore, the invasive species is growing within 40metres of broadleaf semi-natural woodland. It is recommended that this invasive species is eradicated from the site prior to the development of new housing and a wildlife area, as its spread on to neighbouring land will result in an offence being committed under the Wildlife & Countryside Act (1981) (as amended). Any spoil taken off site following treatment must be contained as controlled waste and disposed of at a suitably licenced landfill authorised to accept such contaminated refuse. The method of its control or removal (which is typically herbicide) should take into consideration the proximity of semi-natural woodland to the south and ensure no degradation or unit loss occurs.
- 9.2 An area of semi-natural woodland displayed evidence of felling to the south of the site, and it has been mapped as such on Appendix IV - Phase 1 Habitat Map, as the future land use is unclear. It is recommended that the felled area as mapped is retained and allowed to regenerate.
- 9.3 Areas of ancient woodland identified to the south fulfil the criteria for the Annex I habitat '9180: *Tilio-acerion forests of slopes, screes and ravines*' (JNCC, 2018). Ancient woodland is of both national and international significance; PPW gives the following in section 6.4.26 regarding ancient woods:

"Ancient woodland and semi-natural woodlands and individual ancient, veteran and heritage trees are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees and woodlands should be afforded protection from development which would result in their loss or deterioration..."

It is imperative that no areas of semi-natural woodland are developed upon. A buffer of at least 15 metres should be instated from any further disturbance / or new development.

- 9.4 The loss of the UK BAP listed habitat "Open mosaic habitats on previously developed land" is an unavoidable loss of notable habitat at site level to the detriment of local biodiversity short term. It is considered that the creation of a permanent wildlife area would adequately mitigate for areas of this BAP habitat, contributing towards a biodiversity net gain long term. The recommendations given in Appendix V - Ecological Management Plan (EMP) - Pearce Environment Ltd (2017) are seen as a satisfactory method to that end.

- 9.5 As a general recommendation towards achieving a biodiversity net gain, new landscaping within the proposals, particularly within the curtilage of new homes should feature indigenous woody plants, including species such as Blackthorn (*Prunus spinosa*), Rowan (*Sorbus aucuparia*), Pedunculate Oak (*Quercus robur*), Osier (*Salix viminalis*), Honeysuckle (*Lonicera periclymenum*) or Hawthorn (*Crataegus monogyna*). This is opposed to non-native species which do not feature favourably to a great deal of wildlife. Landscaping of any kind must not take place within the recommended buffer zone of semi-natural woodland; the prescribed method statement for the creation of an appropriate buffer zone should also present recommendations for ecologically sympathetic tree planting, appropriate to the adjacent woodland community as described.

Bats

- 9.6 The building in the north of the site has been categorised as possessing 'Moderate' bat roost suitability in accordance with Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016) (Figure 7). It is recommended that two dusk/dawn surveys are carried out within the main active season of bats (May - August) in order to establish if the building contains a bat roost(s), and, if so, identify the species, abundance, roost locations and flight lines on/off site following emergence/re-entry.

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).		
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

Figure 7 - Bat Conservation Trust extract

NB: Where more detailed bat surveys are recommended by the ecologist following an initial daytime investigation, then Local Authorities on the advice of their ecological advisors, may not determine the application until such time that all relevant information is gathered, i.e. by conducting dusk/dawn surveys. The advice that is provided by the ecological advisors is also in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2017. Therefore, it would be prudent to make enquiries to the relevant departmental Planning Officer before submitting a Planning Application that includes an ecological survey report that recommends more detailed surveys.

- 9.7 It should be noted that where bat/s or their roost/place of rest/shelter will be affected by the proposed works then to allow developmental works at the site to legally commence an application for a European Protected Species Mitigation Licence (EPSML) and subsequent granting of a licence will be required. Notwithstanding the granting of a licence, works that would affect a roost cannot take place if a maternity colony is in occupation. It should also be noted that before an EPSML can be applied for, all Planning issues, including Consent and any pre-commencement Planning Conditions relative to bats, should be resolved.

- 9.8 None of the trees within the site boundary were concluded to offer any bat roost potential, and no further surveys are required in relation to bats and trees. All woodland trees, particularly at the site boundaries, are of benefit to foraging and commuting bat species in the landscape, and any loss of trees to facilitate development should be sufficiently replaced in areas that are appropriate to both the scheme and the design of a new wildlife area.
- 9.9 The overall nature of the site boundaries, mostly inclusive of woodland and scrub features, are of good value habitat for foraging and commuting bats. Installation of lighting as part of any development that exceeds the current low levels may have a negative impact upon bats, particularly if increased light spillage occurs in areas that are currently free from illumination which includes the parameters of the site boundary. If inappropriate and ill designed lighting is implemented, then there is likely to be an adverse impact upon bats; see extract below from Bat Conservation Lighting Guidelines (2018).

Type of lamp (light source): The impact on bats can be minimised by the use of low-pressure sodium lamps or high-pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Lighting should be directed to where it is needed, and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Predicting where the light cone and light spill will occur: There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels: The light should be as low as guidelines permit. If lighting is not needed, don't light.

It is recommended that a lighting plan be implemented which follows the BCT guidance, in respect of lighting impacts on bats.

Other terrestrial mammals

- 9.10 No presence/evidence of Hedgehog was located during the appraisal, though Hedgehogs will hibernate in the winter months and the site features a wide variety of components offering shelter. Furthermore, there are areas in abundance that would support this species foraging and commuting niche requirements. It is recommended that when features, most especially the containers, piles of debris, abandoned vehicles etc, are to be removed that it is done so in a careful manner that considers the potential presence of small animals including Hedgehogs potentially being beneath. If Hedgehogs are encountered during clearance, they are to be manually handled and placed away from site operations/harm's way in like-for-like habitat, such as at site boundaries.

- 9.11 Where open vertical-sided trenches are excavated it should be ensured that they are not left open overnight to avoid Hedgehogs and other small animals falling into them becoming trapped. If trenches cannot be back filled after the working day planks of 150 mm wide should be placed in them, at an approximate 40 degree angle, to serve as a makeshift escape mechanism. Excavations should also be checked in the morning on a daily basis for the presence of any animals that may have fallen in during the night. Plastic netting, wire coils or similar hazardous ground contaminant features should not be left on the ground, to avoid entanglement. Aggregates/constructional materials should be stored on pallets as opposed to the storing on the ground.

Breeding Birds

- 9.12 Potential nesting platforms for birds are present throughout the site in the form of woodland and dense scrub. Though nesting material was observed in the roof void of the building, the nest matter was old/historic, loosely attributed to Woodpigeon. Any building demolition and/or removal of any woody vegetation from site should be conducted outside of the breeding bird season (March – August), unless it can be conclusively established by an ecologist immediately beforehand that breeding birds are absent from features independently beforehand.

NB: *All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended). It is a punishable offence to interfere in any way with active nest, including disturbance.*

Provisions for breeding birds may be incorporated into any development scheme in the form of integrated bird boxes, available from a wide variety of sources online.

- 9.13 There are no implications in relation to Schedule 1 specially protected birds such as Barn owl, though the general 'openness' of the site, with ruderal boundaries, offers potential areas for this species to hunt, as it currently exists. No recommendations are provided for this species, as favourable habitat exists in wider environs and no nest/roost sites are being lost.

Herptiles

- 9.14 In relation to common amphibians and reptiles, no further surveys are recommended. Existing implications and habitat creation strategies in relation to Great Crested Newt (see section 1.2, 1.3 and Appendix V) will protect the long term interests of any incidental common amphibians/reptiles during the various stages of the development scheme.
- 9.15 There exists a risk of incidental presence for common species such as frogs and toads to be harmed by works in the absence of reasonable avoidance measures; if the named common species are encountered during clearance works, similarly to Hedgehog, they are to be manually handled and placed away from site operations/harm's way in like-for-like habitat at site boundaries.

10.0 Dusk Survey Results (Bats)

10.1 Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016) edition states:-

“The guidelines do not aim to either override or replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. The guidance should be interpreted and adapted on a case-by-case basis according to site-specific factors and the professional judgement of an experienced ecologist. Where examples are used in the guidelines, they are descriptive rather than prescriptive.”

Relative to the above the dusk surveys protocol has been determined using the collective and long standing experience of Tyrer Ecological Consultants Ltd and the specific nature of the site.

The surveys have been completed within the main active season when maternity colonies have formed and bats are highly active.

10.2 Two surveys at dusk timing periods were carried out in August 2019 (see Table 5) which is within the active survey season of bats, and comprised a mix of four surveyors, with two deployed during any one survey. The number of surveys and surveyors were adequate relative to the roost potential that was initially identified i.e. 'Moderate'.

Table 5 - Surveyors from the two 2019 dusk surveys

Survey	Surveyor(s)	Surveyor Credentials
08/08/2019 Dusk 1	Mr. H. Green	Highly experienced bat surveyor whom has professional surveying experience spanning 10+ years with Tyrer Ecological Consultants Ltd.
	Mr. M. Smith	An experienced bat surveyor with Tyrer Ecological Consultants Ltd, 3+ years.
22/08/2019 Dusk 2	Mr. M. Pritchard	Multiple protected species licenced Ecologist and accredited agent on the Class 2 Natural Resources Wales bat licence of Mrs. K. Wilding (S086297/1). 4 years exp.
	Ms. A. Watson	Trainee Ecologist, in training with Tyrer Ecological Consultants Ltd.

10.3 **Survey Protocol:** When considering survey protocol the decisions about whether dusk or dawn surveys are selected are based on the extensive experience of Tyrer Ecological Consultants Ltd, the nature of the building, how complex a building is relative to observation points, and species that can be anticipated as being present either at the building or in the locality.

In this case, the bat roost potential that exists at the building in the north of the Former Legacy Scrapyard presents no problems for dusk observations; if a building is complex or observations were restricted or species that are difficult to detect at dusk are suspected, then dawn surveys would be conducted. At Former Legacy Scrapyard there is no evidence to suggest the presence of such species. It should also be noted that dawn temperatures

are usually lower than at dusk, consequently bat activity can, in some locations, be less frequent.

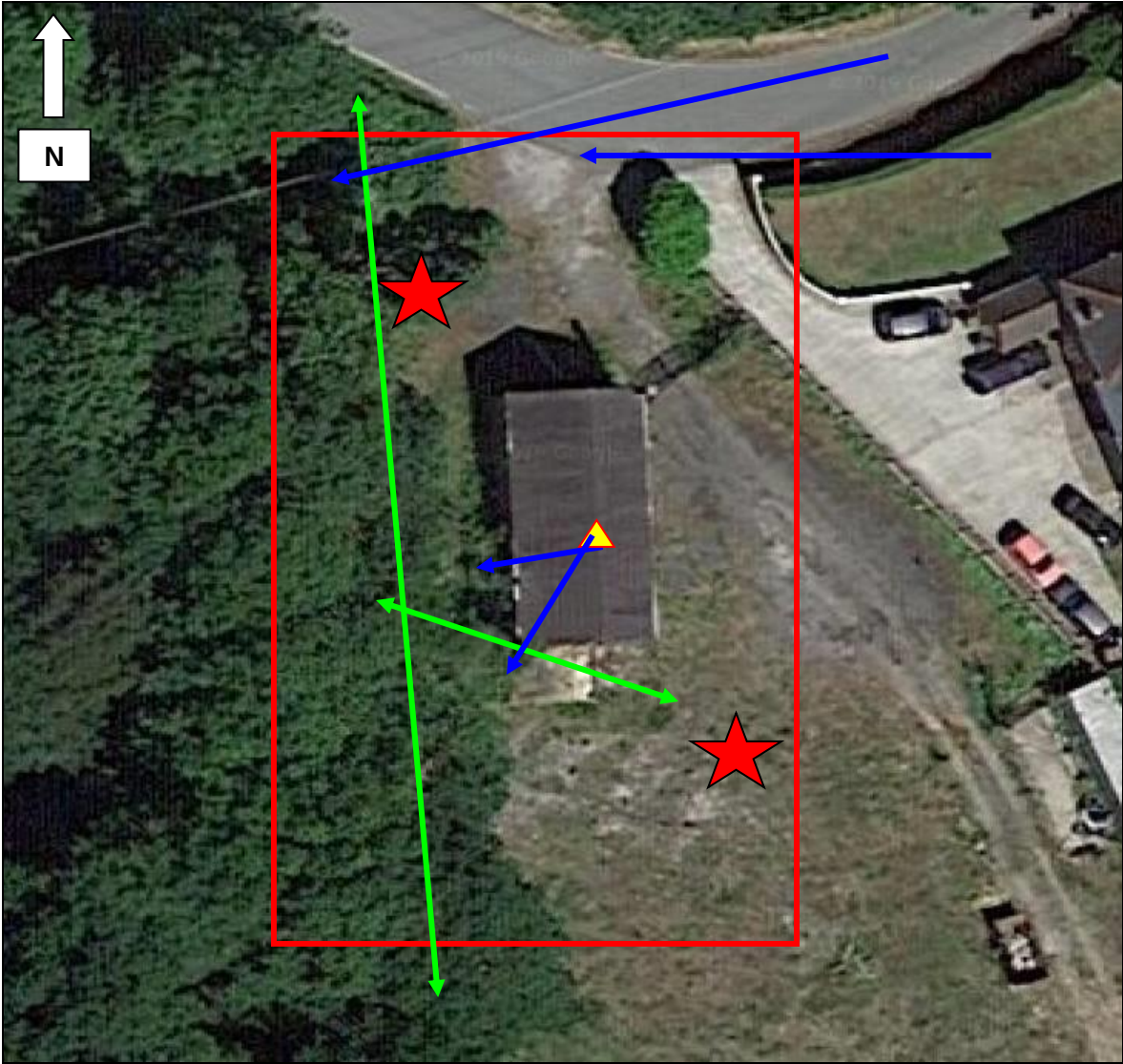
Survey protocol should not be determined by parties who are 1) not familiar with the site and 2) do not have a sufficient level of experience in relation to the undertaking of dusk/dawn bat surveys.

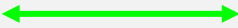
- 10.4 Surveyors were strategically positioned so that all elevations with bat roost potential, as described, could be observed without constraint. The surveys were aided with Anabat electronic bat detectors that enable the locating and recording of the high frequency calls that are emitted by bats; echolocation calls were then analysed with Analook computer software to verify field observations.

Times of Survey	Date	Weather Conditions
Dusk survey 2030 - 2230	8 th August 2019	Sunset: 2054: Dry, Light Air, 100% cloud Start temp: 21 ° C End temp: 19 ° C
Dusk survey 2005 - 2300	22 nd August 2019	Sunset: 2129: Dry, Moderate Breeze, 50% cloud cover Start temp: 18 ° C End temp: 17 ° C

Dusk Survey	Time	Activity
08/08/2019	2030 - 2230	Summary: Emergence of x3 Common Pipistrelle bats during the dusk observation period. 2100 hrs: x2 Common Pipistrelle bats commuted on to the site from the east with foraging noted along the treeline in the west. 2110 hrs: Common Noctule pass high overhead. 2125 - 2127 hrs: x3 Common Pipistrelle emerged from the ridge tiles of the building in sporadic succession and commuted through site to the south-west. 2139 hrs: Brown long-eared bat foraging aside the building close to the wooded canopy. 2140 hrs: Soprano Pipistrelle foraging near the treeline. General activity comprised of constant foraging throughout the survey period by approximately x4 bats at any one time.

22/08/2019	2005 - 2300	Summary: Emergence of x2 Common Pipistrelle bats during the dusk observation period. 2033 hrs: x1 Common Pipistrelle commuted past the sites northern boundary, after entering the survey area from the east. 2034 hrs: x1 Common Pipistrelle commuted past the sites northern boundary, after entering the survey area from the east. 2035 hrs: x1 Common Pipistrelle commuted past the sites northern boundary, after entering the survey area from the east. 2041 hrs: Common Noctule pass high overhead. 2053 - 2057 hrs: Common Pipistrelle displaying foraging behaviour around the building. 2058 hrs: Emergence of x2 Common Pipistrelle from the ridge tiles in succession, commuted south-west off site. 2103 hrs: Common Noctule pass high overhead. 2112 hrs: Soprano Pipistrelle commuted past the site, northern boundary east to west. General activity comprised of occasional foraging by two bats at any one time.
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Key			
	Site Boundary		Foraging activity
	Surveyor Positions		Commuting activity
	Bat emerge point		

11.0 Dusk Survey Conclusions & Recommendations (Bats)

- 11.1 From the evidence gathered by the surveys the building in the north of the Former Legacy Scrapyard is host to a Common Pipistrelle 'day roost', being used by singular/small numbers of bats (maximum count of 3) roosting under the ridge tiles.
- 11.2 Relative to classification, and to correctly inform the correct and most proportionate mitigation strategies going forward, the surveys focused on the building in the north of the Former Legacy Scrapyard have identified a Common Pipistrelle 'day roost' - a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer, as derived from the Bats – Method Statement template to support a licence application.
- 11.3 The permanent destruction of a bat roost(s) will need to be addressed from both a conservation and legal perspective along with the application of appropriate mitigation. A European Protected Species Mitigation Licence (EPSML) will be required to legally destroy a place that is used for breeding, rest or shelter (roost) by bats, in this case the roost identified at the building in the north of the Former Legacy Scrapyard.
- 11.4 In order that the LPA can implement its obligations under the Conservation of Habitats & Species Regulations 2017 appropriate and proportionate mitigation will need to accompany the planning application which will demonstrate that the "*favourable conservation*" of the species concerned can be maintained.

12.0 Indicative Mitigation (Bats)

- 12.1 From the evidence gained during the dusk surveys the use of the building by bats is considered to be of low-level significance relatable to Common Pipistrelle bats and their current status. The proposed mitigation is proportionate to that use, however if at any time that assessment is revised to a higher level, then the mitigation will also be accordingly revised.
- 12.2 The following procedures and mitigation recommendations are designed to allow the Local Planning Authority (LPA), in association with their ecological advisers, to determine a Planning Application where a European Protected Species has been identified and will be affected by the work for which the Planning Application seeks consent. In addition Local Planning Authorities in accordance with the obligations placed upon them by way of their duties under the Conservation of Habitats & Species Regulations 2017 have to take into consideration the presence of a European Protected species before determination of an application where it/they have been identified.
- 12.3 The LPA need to consider the mitigation in relation to the potential success of a Natural Resources Wales licence application and/or if in their opinion the mitigation is considered as being appropriate, or if it is over and above what is required; if they determine that the mitigation is appropriate then a Planning Condition should be attached requiring the roost provision to be implemented. If the LPA consider that the mitigation is over what is necessary but require "enhancement" as part of Local Biodiversity Policies this should be included in the terms of Consent. The acting bat ecologist deems the new roost creation as appropriate and not over and above what is required.

- 12.4 Notwithstanding that Planning Consent is granted or equally if the work is undertaken outside of the planning system, whereby projects that do not require planning consent may affect bats or their roost, including disturbance, it does not absolve the applicant, site owner, developer or any other party involved with the work from ensuring that an application is made for a Natural Resources Wales Development licence, to legally undertake work that will affect bat(s) or their roost/place of shelter. If work is undertaken without a licence and bat/s or their roost/s is/are affected then a breach of current wildlife legislation will occur for which penalties are high.
- 12.5 Under Regulation 53(1) and 56(3) (a) of the Conservation of Habitats & Species Regulations 2017, a licence is required prior to disturbing bats or destroying/damaging or obstructing any place that is used by bats as a breeding site or resting place. The licence is issued by Natural Resources Wales.

Summary of Mitigation

- 12.6 The redevelopment of the Former Legacy Scrapyard is a key component of the applicant's plans for the site however it is acknowledged that the presence of bats needs to be addressed from both a legal and conservation perspective. The mitigation proposals are seen to be the most productive way forward that will retain long term opportunities for bats.

Areas of woodland to the west of the building have been identified as good foraging habitat which will be retained but may be subject to some management as part of the proposals (pending). Habitat retention will mean the proposed new roost(s) will not be at any further distance from foraging areas.

To ensure that bats are not left without a roost during demolition of the building works a 2F receptor bat box (or equivalent, such as NHBS Kent Bat Box) will be erected on a suitable tree in the north-west of the site prior to the commencement of any works (see Figures 8-9). The installed bat box will act as a permanent receptor roost should any bats need to be handled and translocated to it under licence during the work schedule, and it will be retained following completion of works. No maintenance or management works are required at the receptor box which will be solely dedicated to roosting bats.

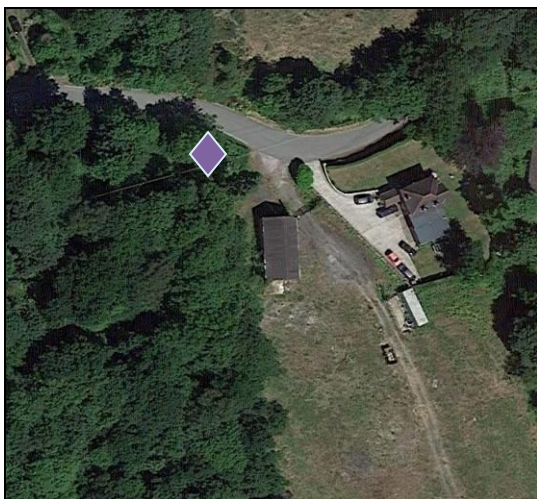


Figure 8 - Indicative location



Figure 9 - Schwegler 2F bat box

- 12.7 The Ecologist is to undertake an induction or 'toolbox talk' on possible bat presence and documents that form the license i.e. License, Method Statement and Work Schedule to be kept on site for the duration of the work.

Prior to any work being undertaken the presence/absence bats, as far as possible, will be established by the ecologist undertaking detailed investigation of the areas at which bats have been located roosting in the building, typically beneath the ridge tiles. Additionally, wherever opportunities for bats exist in other parts of the building the supervised dismantling will extend to these areas - such as the wall plate or roof verges which all feature viable gaps.

In the event of bat(s) being present, it/they will be removed, placed in a secure box with soft tissue and immediately transferred into the receptor bat box that will have previously been setup in the north-west of the site on a suitable tree as indicated previous. Once it has been established by the ecologist that bat(s) are absent from the building any demolition works will continue to completion.

Due to the various areas of bat roost potential, exclusion is considered to be unproductive.

All dismantling of confirmed and potential roost features will be undertaken during favourable weather conditions only. There are no seasonal constraints in relation to Common Pipistrelle bats and day roosts, though the applicant should be aware that breeding birds may use the building for nesting during the months of March-August (as previous nesting material was found).

New bat roost provision should be integrated into the re-development scheme at Former Legacy Scrapyard by way of ridge tile provision, installed upon a building in the north of the site, ideally the building in the same footprint of the current building to be demolished.

- Access to be created/reinstated at the ridge tiles of a new building during construction in the north of the site. Provision at the ridge by way of a gap will provide bat access to 1F bitumen underfelt - no breathable roofing membrane (BRM) is to be used at the building which will contain the ridge gap. BRM has been proven to be detrimental to the safety of bats which can become entangled in BRM leading to injury/death.

In the unlikely event that bats are found outside of supervised works, then as legal requirement and conditions of the licence work will immediately cease and the ecologist will be contacted for further advice; contractors must not touch, handle or in any way cause bats to move, which would constitute unlicensed disturbance.

New external lighting will be greater than what currently exists; where present new lighting is to be directed away from all newly created bat roosts/ access points, identified flight paths and foraging areas, notably at site edges. Lighting should not be directed at or close to roost areas nor should it affect nearby identified flight lines.

New roost(s) will be permanent and dedicated for bats; they cannot be used for any other purpose. Management requirements for the roost(s) are considered to be absent. No post-development monitoring is required in respect of 'day roosts' attributed to Common Pipistrelle bats. Mitigation proposed is subject to the approval of Natural Resources Wales.

Work undertaken by the Ecologist

- 12.8 **Capture/Exclusion:** Once an EPSML licence is in place the contractor will provide a safe means of access (such as erected scaffolding or cherry picker) to allow the Ecologist to investigate all of the bat roost potential and confirmed roost features at the building

Due to the various areas of bat roost potential, exclusion is considered to be unproductive. The ecologist will supervise careful and controlled dismantling of all potential bat roost area(s), as well as other possible opportunities for bats, supervision will extend to these areas. All dismantling of confirmed and potential roost features will be undertaken during favourable weather conditions only.

If bats are encountered during the supervised site works then it/they will be removed, placed in a secure box with soft tissue and immediately transferred into the receptor roost that will have previously been erected in the north-west of the site.

Once it has been established by the ecologist that bat(s) are absent from the building the demolition work will continue to completion. In the unlikely event that bats are found outside of ecological clerk of work (EcOW) duties, then as legal requirement and conditions of the licence work will immediately cease and the ecologist contacted for further advice; contractors must not touch, handle or in any way cause bats to move, which would constitute unlicensed disturbance.

Work undertaken by the Contractor

- 12.9 **New roost provision:** Replacement roosting provision will be a like-for-like substitute of the existing 'day roosts' and access points in accordance with the Bat Mitigation Guidelines (2004).

New bat roost provision should be integrated into the re-development scheme at Former Legacy Scrapyard by way of ridge tile provision, installed upon a building in the north of the site, ideally the building in the same footprint of the current building to be demolished.

- Access to be created/reinstated at the ridge tiles of a new building during construction in the north of the site. Provision at the ridge by way of a gap will provide bat access to 1F bitumen underfelt - no breathable roofing membrane (BRM) is to be used at the building which will contain the ridge gap. BRM has been proven to be detrimental to the safety of bats which can become entangled in BRM leading to injury/death.



Figure 10 - *Star indicates building location of the roost provision*

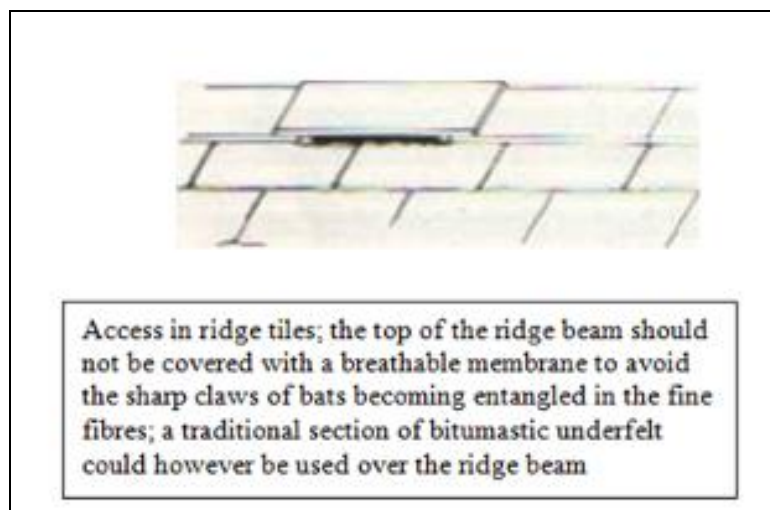


Figure 11 - *Gap in ridge tiles creation, indicative*

* 1F Bitumen felt to be used in conjunction with the gap in the ridge. No breathable roofing membranes (BRM) to be used. There are currently no 'bat safe' BRM's on the market.

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Appendix I: Site Photographs



Plate 1 - The regional north of the site, image taken at the south-facing gable of the building - note the nest in distant tree canopy (Target Note 1)



Plate 2 - The regional south, near ruderal dominant earth bunds by the rows of containers. Note the piled refugia present (Target Note 2) and ephemeral pools (Target Note 3)



Plates 3-5 - The building in the north of the site - moderate bat roost potential as according to current BCT guidance



Plates 6-7 - The building interior upper floor (top) and gap in roof void visible (bottom)



Plate 8 - Abandoned vehicles and other aggregates (Target Note 4).
Image taken from the south looking north.



Plates 9-10 - Japanese Knotweed growing in area of recently cleared scrub (see Target Note 5)



Plates 11-13 - Ancient woodland is present at the southern boundary and extending outside the site boundary south, described in depth, section 8.1 - 8.2.



Plates 14-16 - Ground contaminants and recently cleared woodland areas in the south of the site regenerating with semi-natural woodland ground indicator species (Target Note 6)

Appendix II: Botanical Species List

Each species recorded was given an abundance value according to the standard DAFOR scale, where:

D	=	Dominant
A	=	Abundant
F	=	Frequent
O	=	Occasional
R	=	Rare

*These values can be prefixed by the letter L (locally), to provide more subtle biogeographical data. P, meaning Present, is given where an abundance value has not been calculated.

	Common name	Scientific name	DAFOR
<u>Mosses & Liverworts</u> <u>(Bryopsida)</u>	Common Feather-moss	<i>Kindbergia praelonga</i>	A
	Common Haircap	<i>Polytrichum commune</i> var. <i>commune</i>	LO
	Cylindric Bead-moss	<i>Didymodon insulanus</i>	P
	Rough-stalked Feather-moss	<i>Brachythecium rutabulum</i>	F
	Springy turf-moss	<i>Rhytidiadelphus squarrosus</i>	O
<u>Ferns</u> <u>(Pteridopsida)</u>	Black Spleenwort	<i>Asplenium adiantum-nigrum</i>	R
	Bracken	<i>Pteridium aquilinum</i>	LA
	Broad Buckler-fern	<i>Dryopteris dilatata</i>	LO
	Harts tongue-fern	<i>Asplenium scolopendrium</i>	LF
	Male-fern	<i>Dryopteris filix-mas</i>	LF
	Soft Shield-fern	<i>Polystichum setiferum</i>	F
<u>Flowering Plants</u> <u>(Magnoliopsida)</u>		<i>Chamaecyparis</i> sp.	R
		<i>Epilobium</i> sp.	F
		<i>Populus</i> sp.	P
		<i>Salix</i> sp.	P
	Annual Meadow-grass	<i>Poa annua</i>	F
	Ash	<i>Fraxinus excelsior</i>	F
	Atlantic Ivy	<i>Hedera hibernica</i>	F
	Bramble	<i>Rubus fruticosus</i> agg.	R
	Broad-leaved Dock	<i>Rumex obtusifolius</i>	F
	Buddleja	<i>Buddleja davidii</i>	R
	Cherry	<i>Prunus</i> sp.	P
	Cherry Laurel	<i>Prunus laurocerasus</i>	LR
	Cleavers	<i>Galium aparine</i>	F
	Cock's-foot	<i>Dactylis glomerata</i>	F
	Colts-foot	<i>Tussilago farfara</i>	O
	Common Chickweed	<i>Stellaria media</i>	LF
	Common Couch	<i>Elytrigia repens</i>	R
	Common Daisy	<i>Bellis perrenis</i>	F
	Common Nettle	<i>Urtica dioica</i>	F
	Common Ragwort	<i>Jacobaea vulgaris</i>	F
	Common Whitlowgrass	<i>Erophila verna</i>	LF
	Cow Parsley	<i>Anthriscus sylvestris</i>	O
	Creeping Buttercup	<i>Ranunculus repens</i>	F
	Creeping Soft-grass	<i>Holcus lanatus</i>	O

Former Legacy Scrapyard, Esclusham Mill, Llwyneinion, Rhosllanerchrugog, Wrexham, LL14 4ET
Preliminary Ecological Appraisal with Dusk Survey Results (Bats)

Creeping Thistle	<i>Cirsium arvense</i>	A
Daffodil	<i>Narcissus sp.</i>	LR
Dandelion	<i>Taraxacum officinale</i> agg.	A
Dogs-mercury	<i>Mercurialis perennis</i>	LA
Doves-foot Cranesbill	<i>Geranium molle</i>	O
Downy Birch	<i>Betula pubescens</i>	P
Elder	<i>Sambucus nigra</i>	P
English Bluebell	<i>Hyacinthoides non-scripta</i>	LF
Garlic Mustard	<i>Alliaria petiolata</i>	F
Goat Willow	<i>Salix caprea</i>	LD
Gorse	<i>Ulex europaeus</i>	O
Grey Willow	<i>Salix cinerea</i> ssp. <i>oleifolia</i>	LD
Ground-elder	<i>Aegopodium podagraria</i>	R
Hairy Bitter-cress	<i>Cardamine hirsuta</i>	F
Hard-rush	<i>Juncus inflexus</i>	R
Hawthorn	<i>Crataegus monogyna</i>	A
Hazel	<i>Corylus avellana</i>	P
Hedge Woundwort	<i>Stachys sylvatica</i>	O
Herb-robert	<i>Geranium robertianum</i>	F
Hogweed	<i>Heracleum sphondylium</i>	O
Holly	<i>Ilex aquifolium</i>	P
Honeysuckle	<i>Lonicera periclymenum</i>	R
Japanese Knotweed	<i>Fallopia japonica</i>	LA
Lesser Burdock	<i>Arctium minus</i>	F
Lombardy-poplar	<i>Populus nigra</i> 'Italica'	P
Lords-and-Ladies	<i>Arum maculatum</i>	O
Meadow Buttercup	<i>Ranunculus acris</i>	O
Mugwort	<i>Artemisia vulgaris</i>	R
Nipplewort	<i>Lapsana communis</i>	F
Oxe-eye Daisy	<i>Leucanthemum vulgare</i>	F
Pedunculate Oak	<i>Quercus robur</i>	P
Pendulous Sedge	<i>Carex pendula</i>	R
Perennial Rye-grass	<i>Lolium perenne</i>	P
Perforate St. Johns-wort	<i>Hypericum perforatum</i>	O
Pineapple-weed	<i>Matricaria discoidea</i>	R
Prickly Sow-thistle	<i>Sonchus asper</i>	A
Primrose	<i>Primula vulgaris</i>	LA
Ramsons	<i>Allium ursinum</i>	LD
Red Clover	<i>Trifolium pratense</i>	O
Red Dead-nettle	<i>Lamium purpureum</i>	O
Reed Canary-grass	<i>Phalaris arundinacea</i>	R
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Rosebay willow-herb	<i>Chamerion angustifolium</i>	A
Silver Birch	<i>Betula pendula</i>	P
Silverweed	<i>Potentilla anserina</i>	R
Spear Thistle	<i>Cirsium vulgare</i>	F
Sticky Mouse-ear	<i>Cerastium glomeratum</i>	F
Sycamore	<i>Acer pseudoplatanus</i>	P
Tutsan	<i>Hypericum androsaemum</i>	R
Wall Barley	<i>Hordeum murinum</i>	F
Wavy hair-grass	<i>Deschampsia flexuosa</i>	LO
White Clover	<i>Trifolium repens</i>	O

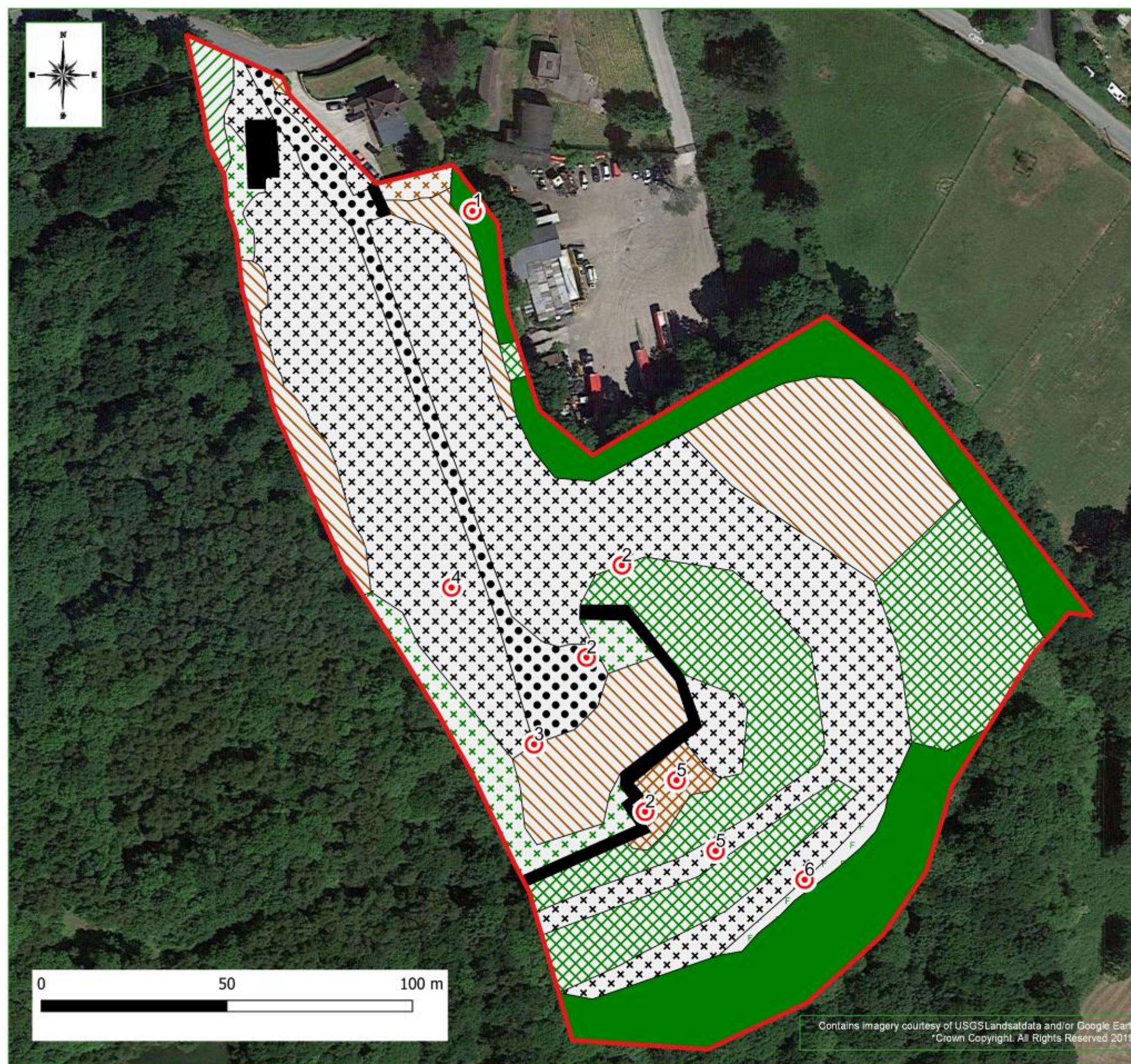
Former Legacy Scrapyard, Esclusham Mill, Llwyneinion, Rhosllanerchrugog, Wrexham, LL14 4ET
Preliminary Ecological Appraisal with Dusk Survey Results (Bats)

	White Dead-nettle	<i>Lamium album</i>	R
	Wild Teasel	<i>Dipsacus fullonum</i>	F
	Wood Speedwell	<i>Veronica montana</i>	LO
	Wood Anemone	<i>Anemone nemorosa</i>	LF
	Wood-avens	<i>Geum urbanum</i>	F
	Yellow Archangel	<i>Lamium galeobdolon ssp. montanum</i>	LR
	Yorkshire-fog	<i>Holcus lanatus</i>	F

Appendix III: Biodiversity Enhancement Strategy

Reader is referred to section 9 of this report and Appendix V.

Appendix IV: Phase 1 Habitat Map



Phase 1 Habitat Key

- Survey Site Boundary
- ⊙ Target Note
- A1.1.1 - Broadleaved woodland - semi-natural
- A1.1.2 - Broadleaved woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- A4.1 - Broadleaved woodland - recently felled
- C1.2 - Bracken - scattered
- C3.1 - Other tall herb and fern - ruderal
- J1.3 - Cultivated/disturbed land - ephemeral/short perennial
- J1.4 - Introduced shrub
- J3.6 - Buildings
- J4 - Bare ground

Former Legacy Scrapyard, Wrexham

Survey Date: 21/03/2019
 Drawn: MJP
 Date Drawn: 24/03/2019
 Checked & Approved: KW
 Size: A3
 To Approximate Scale

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Bringing Together Over 20 Years of
 Ecological Excellence

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Appendix V: Ecological Management Plan (EMP) - Pearce Environment Ltd (2017)