ECOLOGICAL IMPACT ASSESSMENT REPORT

at

The Old Stone Yard
Near Bank
Huddersfield
West Yorkshire
HD8 8LU

Client:
Abacus Stone Sales Limited

Client Address:
Hagg Wood Quarry
Huddersfield
HD9 6PW

JCA Ref:
15775/AR

Date of Report:
6th February 2020

Quality Assurance

Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
	Date	Name	Date	Name	Date	Name	Date	Name
2	20/01/2020	Amy Reddick	23/01/2020	Amy Reddick	06/02/2020	Amy Reddick	05/02/2020	Charis Russell-Smith

This report has been prepared and provided in accordance with the British Standard 42020: Biodiversity – Code of Practice for Planning and Development 2013 and the Chartered Institute of Ecology & Environmental Management's Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine 2018.

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

JCA Ltd have been instructed by Abacus Stone Sales Ltd to undertake an Ecological Impact Assessment (EcIA) of **The Old Stone Yard, Near Bank** in relation to an application for planning. The development proposed is to infill the old shallow water collection areas and convert the site into a storage area for a stone yard.

Following a thorough assessment, the habitats on site are considered to be of **site** ecological value consisting of scrub, poor semi-improved grassland and bare ground.

The site is adjacent to Shepley Dike, part of the **Kirklees Wildlife Habitat Network** (KWHN). The dike provides suitable habitat for foraging and commuting bat species, foraging otter *Lutra lutra* and aquatic invertebrates. To prevent any ecological impacts to the dike it is recommended a 3m buffer zone is maintained throughout the construction and operational phase and preventative measures taken to avoid pollution or disturbance of the watercourse. Provided these mitigative measures are implemented it is not anticipated that there will be significant ecological impacts to Shepley Dike. *Please see **Section 5: Recommendations, 5.2 Avoidance of Ecological Impacts During Construction Phase –** for mitigative measures to be implemented.*

There are two man-made shallow water collection areas on the site which were previously used within textile manufacture at the adjacent Barncliffe Mill and then as fishing ponds by a local fishing club. The collection areas had since been drained due to safety concerns in the past year, the remaining water appeared polluted, and numerous deceased swan mussels *Anodonta cygnea* were observed within both collection areas. The collection areas were assessed and found to have **poor** suitability for great crested newts *Triturus cristatus* due to their small size and poor water quality therefore, it is **not** anticipated that their removal will have significant impacts on any protected species or on the ecological value of the site and surrounding area.

A single tree adjacent to the site was considered to have **low** potential for roosting bats due to dense ivy on the main stem. Shepley Dike and the adjacent scattered trees are also considered to have **moderate** potential for foraging and commuting bats. To avoid impacts to bats (or other nocturnal species such as otter), **no lighting** will be directed onto the adjacent dike or trees. Recommendations for wildlife friendly lighting to be incorporated in the rest of the development are provided. *Pease see **Section 5: Recommendations, 5.3 Avoidance of Ecological Impacts During Operational Phase** for further information on wildlife lighting.*

The trees, felled tree arisings, scrub and reeds within the drained shallow water collection areas on site provide suitable habitat for nesting birds and any vegetation removal has potential to disturb nesting birds if undertaken during nesting bird season (considered March – August). Therefore, vegetation removal will be undertaken outside of nesting bird season (i.e. between September-February) unless a nesting bird survey has been undertaken by a Suitably Qualified Ecologist (SQE). *Please see* ***Section 5: Recommendations, 5.2 Avoidance of Ecological Impacts During Construction Phase*** *for further information on survey effort and timings.*

Water vole *Arvicola amphibious* have been recorded 80m northwest of the site on Shepley Dike. The habitats adjacent to the dike on the site are considered to have **low** potential for water vole due to a lack of vegetative cover and collapsing soil banks. No evidence of water voles was observed on the site and, as no work is to be carried out on the dike, it is considered **unlikely** that water voles will be directly affected by the development. However, mitigative measures to prevent pollution of the dike and increased water levels are provided to prevent any indirect impacts to water voles due to the development.

In accordance with the **National Planning Policy Framework** (NPPF) in order to enhance the ecological value of the site, faunal boxes and native soft planting are to be incorporated into the development. It is anticipated this will create additional opportunities for protected and notable species including enhancing the habitats available to water vole on the site. *Please see* ***Section 5: Recommendations, 5.4 Ecological Enhancement*** *for further information on recommended faunal boxes, native species to plant, monitoring and aftercare.*

Contents

1. Introduction and Terms of Reference

1.1 Terms of Reference

1.1.1 JCA Ltd were instructed by **Abacus Stone Sales Ltd** to undertake an Ecological Impact Assessment (EcIA) at **The Old Stone Yard, Near Bank**.

1.1.2 For this purpose, JCA Ltd have been supplied with a site map (drawing: OS_MasterMap_Colour_PDF_Location_Plan_542596_721749), and brief details of the proposal.

1.2 Scope of the Report

1.2.1 This survey was carried out in accordance with the Joint Nature Conservation Committee's (JNCC's) *Handbook for Phase 1 habitat survey - A Technique for Environmental Audit* (JNCC, 2010).

1.2.2 The EcIA was carried out in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM's) *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

1.2.3 This report is compiled in accordance with the *Guidelines for Ecological Report Writing* and to the British Standard Institution's *Biodiversity – Code of Practice for Planning and Development* (CIEEM, 2018).

1.2.4 The results and recommendations contained within this report are considered to be valid for a period of between 18 and 24 months. After this period, an update to the report and re-assessment of the site may be required.. If the proposed development changes significantly or land use alter substantially, updates may be required in advance of the expiry period of the report.

1.3 Purpose of the Report

1.3.1 The purpose of an EcIA is to assess the impacts of a development proposal on ecological features, clearly identifying any significant effects and impacts on any designated sites or protected species; and details both the mitigation measures required and how these will be secured.

1.4 Details of Proposed Development

1.4.1 The development proposed is to infill the old water collection areas and convert the site into a storage area for the stone yard.

1.5 Site Description

1.5.1 **The Old Stone Yard, Near Bank** is situated 8.8km southeast of Huddersfield, at grid reference: SE 20813 10649.

1.5.2 The site consists of two old shallow water collection areas, previously utilised by the adjacent mill and then home to a fishing club, situated within an industrial estate.

1.5.3 The site is surrounded by industrial and commercial properties, with the wider context being predominantly agricultural land. Shepley Dike runs adjacent to the south and west of the site. A map of the site in relation to surrounding habitats can be seen in **Figure 1** below.

Figure 1: Google Maps image of **The Old Stone Yard, Near Bank** showing the survey site in relation to the surrounding landscape and habitats. Red line indicates site boundary.

Google map image © 2020

2. Methodology

2.1 Desktop Study Methodology

2.1.1 A desktop study was undertaken on 20th January 2020 in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. For this information, the local ecological records centre was contacted: West Yorkshire Ecology Services (WYES).

2.1.2 The search buffer of 2km from the central site grid reference is considered to be sufficient in order to cover the potential zone of influence of the proposed development.

2.1.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Site Assessment Methodology

Phase 1 Survey

2.2.1 A thorough site assessment was undertaken on 23rd January 2020 by Amy Reddick *BSc (Hons) MSc ACIEEM*, an ecological consultant with a Class 2 Licence to survey bats (2018-37680-CLS-CLS). Survey conditions are summarised in **Table 1**.

Table 1: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
23/01/2020	Amy Reddick	6°C	98%	7mph	West-east	20%	0%

2.2.2 The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. Habitats were categorised in accordance with the *Joint Nature Conservation Committee (JNCC) Phase 1 survey methodology* (JNCC, 2010) and a Phase 1 map produced (**Appendix 1**).

2.2.3 The habitats present were then assessed for their potential to support protected and/or notable species following the Chartered Institute of Ecology and Environmental Management guidance (CIEEM, 2018). Any signs of protected or notable fauna were noted as target notes on the site,

which can be seen in **Appendix 1,** and photographic evidence taken (**Appendix 2**).

2.2.4 In the context of this report, rare, protected or notable species are those listed under the following: UK or European legislation, UK Biodiversity Framework Priority Species (including, but not limited to Local Biodiversity Action Plan species), nationally rare or scare flora/fauna/habitats, Species of Conservation Concern (JNCC Red List, RSPB/BTO Amber Lists). Such protected species include, but are not limited to, Badgers, Bats, Dormice, Great Crested Newts, Nesting Birds, Otters, Reptiles, Water Voles, White-Clawed Crayfish (please see **Appendix 4**).

2.2.5 Any invasive species, as listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), have been noted and mapped where present on or adjacent to the site.

2.2.6 Limitations: The survey was conducted during the sub-optimal time for botanical surveys. Therefore, many of the plant species encountered were either not in flower/leaf or were dead.

2.2.7 This limitation made floral identification difficult, meaning this report will not represent a comprehensive indication of the sites biodiversity. However, this constraint will not affect the overall conclusion of the report, as habitat types can still be classified and the potential for protected species can still be accurately assessed.

HSI Methodology

2.2.8 The Habitat Suitability Index (HSI) is a system that was developed by Oldham *et al.* (2000) for assessing a water body's potential to support Great Crested Newts (GCN). The HSI is a numerical system that scores a pond between 0 and 1 (**Table 2**) depending on 10 quantifiable factors: geographical location, pond area, permanence, water quality, shade, waterfowl, fish, pond count, terrestrial habitat and macrophytes.

Table 2: The Habitat Suitability Index (HSI)

HSI	Pond Suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Limitations: The HSI for great crested newts is a measure of habitat suitability and therefore does not substitute great crested newt surveys. The general trend is ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not accurate enough to conclude that ponds with a high score will support great crested newts, or that any pond with a low score will not support great crested newts.

Bat Scoping Survey

2.2.9 Potential roost sites and features deemed to be of value to bats were categorised in accordance with BCT guidelines (Collins, 2016), as shown in **Table 3** below.

Table 3: Categorisation for Assessing a Sites' Potential to Support Roosting, Foraging and Commuting Bats *(taken from the BCT: Bat Surveys for Professional Ecologists, Good Practice Guidelines; 3rd Edition (Collins, 2016))*

Bat Roost Potential	Description	
	Roosting Habitat	**Commuting and Foraging Habitat**
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 are not located near to suitable surrounding habitat and do not have the sufficient space, shelter, protection and/or appropriate conditions to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	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 with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and location within suitable habitat; but are unlikely to support a roost of high conservation status.	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.

Bat Roost Potential	Description	
	Roosting Habitat	**Commuting and Foraging Habitat**
High	A structure with one or more potential roost sites features that are obviously suitable for use by large numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and location within surrounding suitable habitat.	Continuous, high-quality habitat that is well connected to the wider landscape and 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.

2.2.10 The survey was conducted by an experienced ecologist using the following equipment to ensure an accurate assessment: a printed site map; camera; 1 million candlepower clu-lite; LED head torch; binoculars; and ladders.

2.2.11 Signs that bats have previously, or are currently using, a potential roost site include:

- Scratch marks, urine and oil stains around holes in buildings.
- Droppings, carcasses and/or food remains found around the site.
- Bats observed flying in/out of a hole in a building.
- Bats heard 'chattering' within a potential roost site, especially on warm summer days.

2.2.12 It must be highlighted that the absence of any of these signs is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on a buildings' exterior. Many bat species will have several roost sites which they regularly move between; therefore, absence during a survey visit does not exclude their presence at a later date.

2.3 Ecological Impact Assessment Methodology

2.3.1 The criteria for assessing the Ecological Impact of the proposed development follows guidance provided by CIEEM: *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2018).* Valuation of habitat and potential to support species is also informed by the Local Planning Authority

Biodiversity Action Plan Species (LBAPS) and alert zone maps.

2.3.2 Ecological features were classed on a scale of importance as follows; International, National, County, District, Local or Site which was based on several influencing characteristics.

2.3.3 Impacts of the proposed development are assessed using the afore mentioned guidance and the surveyor's professional opinion. Impacts are assessed on a site by site basis, according to the extent of the proposed development and likely overall impacts on local flora and fauna. Where possible avoidance methods are advised. Where avoidance is an impossible measure, to minimise impact, mitigation and enhancements are given.

2.3.4 Solutions are aiming to be practical for the client and to satisfy the requirements of the Local Planning Authority. The EcIA will aim to highlight wildlife/species/habitat constraints and present information on how to avoid damage, loss or disturbance; mitigate; enhance; and monitor the site in order to limit the overall damage and disturbance as a result of the proposed development on local features of ecological interest.

2.3.5 All ecological mitigation and enhancements to be installed on the site can be seen within the Ecological Enhancement plan (**Appendix 3**).

3. Results

3.1 Desktop Study Results

3.1.1 Local Data Centre Records: West Yorkshire Ecology Services (WYES) has been commissioned to provide the records held for protected and notable species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area. Please see **Table 4** below for a summary of the protected and priority species records obtained from WYES.

Table 4: Priority and protected species records obtained from WYES within a 2km radius of the site boundary.

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Amphibians	Common Frog	*Rana temporaria*	×	×	×	✓	Six records between 2012 – 2014. Closest record is a count of four individuals located 1.28km from the site.
	Common Toad	*Bufo bufo*	×	×	×	✓	Kirklees BAP. Five records between 2012 – 2014. Closest record is a count of five juveniles located 1.28km from the site.
	Great Crested Newt	*Triturus cristatus*	×	×	×	✓	Schedule 5 Species, Kirklees BAP. Nine records between 2012 – 2017. Closest record is two males and four females observed via torching located 1.37km from the site.
	Smooth Newt	*Lissotriton vulgaris*	×	×	×	✓	Three records between 2012 – 2014. Closest record was of one male and one female located 1.16km from the site.
Bats	Common Pipistrelle	*Pipistrellus pipistrellus*	×	×	✓	✓	Schedule 5 Species, Kirklees BAP. Numerous records between 2010 – 2018. Closest record a field record of a foraging bat located 694m from the site.
	Brown Long-eared	*Plecotus auritus*	×	×	✓	✓	Schedule 5 Species, Kirklees BAP. One field record from 2011 located 754m from the site.
	Noctule	*Nyctalus noctula*	×	✓	✓	✓	Schedule 5 Species, Kirklees BAP. Two records from 2012 and 2018. Closest record a field record of a single individual located 55m from the site.
Other Mammals	Water Vole	*Arvicola amphibius*	×	✓	✓	✓	Schedule 5 Species, Kirklees BAP. Single field record from 2012

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
							located 80m from the site on Shepley Dike.
	Badger	*Meles meles*	×	×	×	✓	Closest record of a badger sett located 1.18km from the site.
Birds (Schedule 1)	Hobby	*Falco Subbuteo*	×	×	✓	✓	One field record from 2010 located 773m from the site.
	Redwing	*Turdus iliacus*	×	×	✓	✓	Three records from 2010 located 773m from the site.
	Fieldfare	*Turdus pilaris*	×	×	✓	✓	Two records from 2010 located 773m from the site.
Birds (Other)	Skylark	*Alauda arvensis*	×	×	✓	✓	Kirklees BAP. Two records from 2010 located 773m from the site.
	Mallard	*Anas platyrhynchos*	×	×	×	✓	Two records from 2014 and 2015. Closest record located 1.4km from the site.
	Pink-footed goose	*Anser brachyhyncus*	×	×	✓	✓	Two records from 2010 located 773m from the site.
	Meadow pipit	*Anthus pratensis*	×	×	✓	✓	One field record from 2010 located 773m from the site.
	Swift	*Apus apus*	×	×	✓	✓	Kirklees BAP. Two records from 2010 located 773m from the site.
	Lesser redpoll	*Carduelis cabaret*	×	×	✓	✓	Kirklees BAP. Two records from 2010 located 773m from the site.
	Linnet	*Carduelis cannabina*	×	×	✓	✓	Kirklees BAP. Two records from 2010 located 773m from the site.
	Goldfinch	*Carduelis carduelis*	×	×	×	✓	Kirklees BAP. One field record from 2013 located 1.5km from the site.
	Redpoll	*Carduelis flammea*	×	×	✓	✓	One field record from 2010 located 773m from the site.
	Cuckoo	*Cuculus canorus*	×	×	✓	✓	Three auditory records from 2010 located 773m from the site.
	House martin	*Delichon urbica*	×	×	✓	✓	Three records from 2010 located 773m from the site.
	Lesser spotted woodpecker	*Dendrocopos minor*	×	×	✓	✓	Single record from 2010 located 773m from the site.
	Yellowhammer	*Emberiza citrinella*	×	×	✓	✓	Three records between 2010 and 2013. Closest record 773m from the site.
	Kestrel	*Falco tinnunculus*	×	×	✓	✓	Kirklees BAP. One field record from 2010 located 773m from the site.
	Swallow	*Hirundo rustica*	×	×	✓	✓	Kirklees BAP. Two records from 2010 located 773m from the site.
	Common gull	*Larus canus*	×	×	✓	✓	One field record from 2010 located 773m from the site.

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
	Lesser black - backed gull	*Larus fuscus*	×	×	✓	✓	One field record from 2010 located 773m from the site.
	Grey wagtail	*Motacilla cinereal*	×	×	✓	✓	Two records from 2010 located 773m from the site.
	Yellow wagtail	*Motacilla flava*	×	×	✓	✓	Kirklees BAP. One field record from 2010 located 773m from the site.
	Willow tit	*Parus montanus*	×	×	✓	✓	Kirklees BAP. Kirklees BAP. One field record from 2010 located 773m from the site.
	House sparrow	*Passer domesticus*	×	×	✓	✓	Kirklees BAP. Three records between 2010 and 2016. Closest record located 636m from the site.
	Tree sparrow	*Passer montanus*	×	×	✓	✓	Kirklees BAP. One field record from 2010 located 773m from the site.
	Willow warbler	*Phylloscopus trochilus*	×	×	✓	✓	One field record from 2010 located 773m from the site.
	Bullfinch	*Pyrrhula pyrrhula*	×	×	✓	✓	Kirklees BAP. Two records between 2010 – 2013. Closest record located 773m from the site.
	Tawny owl	*Strix aluco*	×	×	×	✓	One auditory record from 2010 located 773m from the site.
	Whitethroat	*Sylvia communis*	×	×	✓	✓	Three records between 2010 and 2013. Closest record located 773m from the site.
	Song thrush	*Turdus philomelos*	×	×	✓	✓	Kirklees BAP. Three records between 2010 and 2013. Closest record located 773m from the site.
	Mistle thrush	*Turdus viscivorus*	×	×	✓	✓	One field record from 2010 located 773m from the site.
Reptiles	Grass snake	*Natrix natrix*	×	×	×	✓	Kirklees BAP. Two records of one individual from 2014. Closest record located 1.28km from the site.
Invertebrates	Wall butterfly	*Lasiommata megera*	×	×	✓	✓	Numerous field records from 2010. Closest record 521m from the site.
	White letter hairstreak	*Satyrium w-album*	×	×	✓	✓	Single record from 2010 located 773 from the site.
Plants (Schedule 9)	Himalayan Balsam	*Impatiens glandulifera*	×	×	✓	✓	Numerous records from 2015. Closest located 917m from the site.
	New Zealand Pigmyweed	*Crassula helmsii*	×	×	×	✓	Single record from 2012 located 1.37km.
	Parrots feather	*Myriophyllum aquaticum*					Single record from 2012 located 1.16km from the site.

3.2 Nature Conservation Designations

3.2.1 Nature designations are split into two types; those that confer some form of statutory protection, and other designations. There were **seven** non-statutory designated sites identified within 2km of the site, which are summarised in **Table 5** below.

Table 5: Designated sites with 2km of the site.

Name	Designation	Description	Distance from Site
Allen Wood	Local Wildlife Site (LWS)	An ancient semi-natural woodland with a reasonably species rich ground flora and a *Quercus/Betula* canopy. Tree species include frequent *Quercus petraea, Betula pubescens* and occasional *Corylus avellane, Ulmus glabra* and *Crataegus monogyna.*	1.8km northwest
Gelder Wood	LWS	An ancient replanted woodland with abundant *Fagus sylvatica,* frequent *Acer pseudoplatanus, Ulmus glabra* and occasional *Quercus robur.*	1.0km west
Lower Jane Well	LWS	Two small field located close to the A635. The fields contain MG5 grassland consisting of *Festuca rubra, Holcus lanatus, Dactylis glomerata, Poa pratensis, Anthoxanthum odoratum, Agrostis capillaris, Centaurea nigra, Anthriscus sylvestris* and *Rumex acetosa.*	1.8km south
Shelley Wood	LWS	An ancient semi-natural woodland with *Quercus robur, Q. petraea* and *Fagus sylvatica* in the canopy, with occasional *Betula pubescens* and *Sorbus aucuparia.* There is a pond to the eastern edge which is fed by a local stream.	1.5km northwest
Shepley Mill Wood	LWS	An ancient replanted woodland with abundant *Quercus petraea,* frequent *Fagus sylvatica*, occasional *Acer pseudoplatanus* and rarely occurring *Betula spp.* in the canopy.	1.5km west
Upper and Lower Stone Woods	Local Geographical Site (LGS), LWS	A large ancient semi-natural woodland separated by a railway line. Species include abundant *Quercus petraea* and occasional *Betula pubescens*, *Acer pseudoplatanus* and *Fagus sylvatica* in the canopy. The understorey has frequent *Fagus sylvatica* and *Ilex aquifolium* and occasional *Sorbus aucuparia.* The ground flora has abundant *Holcus mollis*, frequent *Rubus fruticosus agg.* and *Hyacinthoides non-scripta* and occasional *Hedera helix, Pteridium aquilinum, Lonicera periclymenum, Dryopteris dilatata* and *Carex remota.*	2.0km west

Name	Designation	Description	Distance from Site
Yew Tree Wood	LWS	An acid woodland surrounded by improved grassland and cereal crop fields. including: frequent *Quercus x rosacea*, occasional *Q. petraea* and *Betula pubescens* in the canopy, with occasional *Ilex aquifolium* and *Corylus avellana* in the ground flora, frequent *Rubus fruticosus* and *Hyacinthoides non-scripta* and occasional *Lonicera periclymenum, Carex remota, Oxalis acetosella, Dryopteris dilatata* and *Deschampsia cespitosa* in the ground flora.	1.0km southwest

3.2.1 Shepley Dike is located adjacent to the west of the site and is included within the Kirklees Wildlife Habitat Network (KWHN), which is designed to prevent fragmentation of ecological resources and facilitate the movement of wildlife between designated sites.

3.3 Site Assessment Results

Habitats

3.3.1 The site comprises two former water collection areas, which were formerly utilised within the textile industry by the adjacent Barncliffe Mill and then as fishing ponds by a local fishing club. These are now disused and had been drained in 2019 due to safety concerns. The site had been de-vegetated and there was abundant bare ground and loose earth around the shallow water collection areas. Felled shrubs and trees were piled in the far collection area. Shepley Dike runs adjacent to the south and west of the site beneath a culvert in the south. A small stream runs adjacent to the north before feeding into Shepley Dike to the northwest.

3.3.2 The following habitat types are present at **The Old Stone Yard, Near Bank**: bare ground, scattered trees, scrub, semi-improved grassland, running water and standing water. Please see **Table 6** below for detailed descriptions of each habitat present on site and the species recorded at the time of the survey.

Table 6: Habitats present on site (classified in accordance with the JNCC guidelines)

JNCC Habitat/Code	Species Present	Other Observations	Target Notes
A1.3 Scattered trees	Silver birch *Betula pendula*, ash *Fraxinus excelsior,* crack willow *Salix fragilis,* Leyland cypress *Cupressus* × *leylandii* and sycamore *Acer psuedoplatanus.*	Located to the west and north of the site, predominantly around Shepley Dike. Several trees had been felled from the centre and south of the site and piled within the shallow water collection area and adjacent to Shepley Dike.	1. Felled trees 2. Trees with ivy on stem adjacent to south

JNCC Habitat/Code	Species Present	Other Observations	Target Notes
A2 Scrub	Frequent common bramble *Rubus fruticosus agg,* dogwood *Cornus sanguinea* and common ivy *Hedera helix.*	Small areas beneath scattered trees and on the banks of Shepley Dike.	
B4 Poor semi-improved grassland	Common bent *Agrostis capillaris,* perennial ryegrass *Lolium perenne,* cocks' foot *Dactylis glomerata,* ribwort plantain *Plantago lancelota,* groundsel *Senecio vulgaris,* hogweed *Heracleum sphondylium* and rosebay willowherb *Chamaenerion angustifolium.*	Small areas to the west adjacent to the banks of Shepley Dike where vegetation clearance had not been undertaken.	3. Collapsed mammal burrow
G1 Standing water	Predominantly soft rushes *Juncus effuses* with frequent great reedmace *Typha latifoli* and great willowherb *Epilobium hirsutum,* occasional watercress *Nasturtium officinale* and chickweed *Stellaria media.*	Two man-made shallow water collection areas with red brick walls, located at the centre of the site. Both had been drained prior to May 2019 (Google earth, 2020) and were predominantly dry with a covering of rushes. Some small areas of standing water remained which had an oil-like sheen possibly caused by pollution or bacteria. Numerous deceased swan mussels *Anodonta cygnea* were observed within both collection areas.	4. Deceased swan mussels 5. Fox kill evidence
G2 Running water	Soft rushes, common hogweed, great willowherb and watercress. Along the banks of Shepley Dike were trees and scrub including ash, sycamore, sessile oak *Quercus petraea,* common bramble, ivy and hawthorn.	Shepley Dike runs adjacent to the south and west of the site, passing beneath a culvert to the south. The banks had been largely devegetated on the site and were steep bare earth or concrete. Beyond the site the habitat improved with sloping banks and dense vegetation. A small stream runs to the north, joining Shepley Dike to the northwest. The stream is culverted to the east off-site.	
J3.6 Buildings	n/a	A small single-storey concrete building located to the entrance of the site to the south.	6. Building
J4 Bare ground	Predominantly bare with some ephemeral species such as groundsel, perennial ryegrass, ribwort plantain and bryophyte species.	The majority of the site around the shallow water collection areas and Shepley Dike.	

Amphibians

3.3.3 There are two shallow water collection areas located on the site (Shallow water collection area 1 and 2). A search of aerial imagery (Google Earth, 2020) identified a pond (Pond 1) within 250m of the site. Pond 1 was located 130m east of the site within a timber yard, outside of the curtilage of the development site.

3.3.4 A Habitat Suitability Index (HSI) was performed on the shallow water collection areas (1 and 2) to assess their suitability for great crested newts.. Although these were undertaken outside of the optimal period it was determined due to the characteristics of the waterbodies and the surrounding habitat, that the value could still be accurately assessed. Due to being situated offsite, on private land, assessment of Pond 1 was not carried out. The HSI scores for Shallow Water collection areas 1 and 2 are below 0.5 and thus considered to provide poor habitat for great crested newts. The results of the HSI can be viewed in **Table 7,** below.

Table 7: Habitats present on site (classified in accordance with the JNCC guidelines)

	Pond Name:	Shallow Water Collection Area 1	Shallow Water Collection Area 2
	Grid Ref:	SE 20801 10676	SE 20803 10668
SI No	**SI Description**	**SI Value**	**SI Value**
1	Geographic location	0.5	0.5
2	Pond area	0.1	0.05
3	Pond permanence	1	1
4	Water quality	0.01	0.01
5	Shade	1	1
6	Water fowl effect	0.67	0.67
7	Fish presence	1	1
8	Pond Density	0.5	0.5
9	Terrestrial habitat	0.01	0.01
10	Macropyhyte cover	0.8	0.8
HSI Score		**0.26**	**0.24**
Pond suitability (see below)		Poor	Poor

3.3.5 As the collection areas had been drained, the water appeared to be of poor quality (due to the presence of deceased mussels and an oily film on the water) and the previous usage was that of fishing ponds, it is not considered that they provide suitable habitat for amphibians.

3.3.6 The site consisted predominantly of bare ground, which provides poor terrestrial habitat for amphibians. There were some areas of grassland and scrub adjacent to Shepley Dike and the stream to the north which may provide suitable habitat for amphibians. There were no features on site which provide suitable hibernation refugia for amphibians.

Bats

3.3.7 There was a small single-storey building on the site (**Photo 2, TN 6)** which consisted of a small concrete outhouse with a flat roof. This was open with no separate roof void. The roof was lined with plywood and the roof beams were constructed of modern treated timber. The door to the south was open and there were gaps observed beneath the eastern eaves. No features suitable for roosting bats were observed on the exterior or interior of the building and it was determined to have **negligible** potential for roosting bats.

3.3.8 A mature sycamore tree adjacent to the southwest of the site (**Photo 6, TN 2**) had dense ivy covering the stem. Although ivy can be considered a roosting feature itself, there are few records of bats roosting within ivy (Bat Tree Habitat Key, 2018). These are primarily related to barbastelle *Barbastella barbastellus* roosting within dense ivy with a large stem diameter. As barbastelle do not occur within West Yorkshire and the ivy on the adjacent tree was of small diameter it is not anticipated that bats are roosting within the ivy. However, as the ivy may be obscuring further potential roost features it is considered that the tree has low potential for roosting bats.

3.3.9 The site is adjacent to Shepley Dike which is included within the Kirklees Wildlife Habitat Network. Shepley Dike is suitable commuting and foraging habitat for bats, particularly those with an affinity to water such as soprano pipistrelle *Pipisrellus pygmaeus* and Daubenton's *Myotis daubentonii* bats.

Birds

3.3.10 Several bird species were recorded utilsing the trees adjacent to the site, the felled trees and the reeds within the shallow water collection areas during the survey including; wren *Troglodytes troglodytes*, great tit *Parus major*, blue tit *Cyanistes caeruleus*, black bird *Turdus merula* and song thrush *Turdus philomelos.*

3.3.11 The scattered trees, tree arisings, areas of scrub and reeds within the shallow water collection areas provide potential nesting opportunities for breeding birds on the site.

Other mammals

3.3.12 No evidence of water vole *Arvicola amphibious* was observed on the site. The shallow water collection areas on site were man-made with red brick sides, which offered no opportunities for burrow creation. The banks of Shepley Dike were unvegetated and loose (with collapsed earth in several areas) also offering limited opportunities for water vole. The

habitats to the northwest off site had potential to support water vole with steeply sloping densely vegetated banks, although no evidence of water vole was observed.

3.3.13 No evidence of otter was recorded on the site during the survey and the unvegetated banks on the site reduces the potential for otter holt creation or lay-ups. The Shepley Dike offers suitable commuting and foraging habitat for otter.

3.3.14 A collapsed mammal burrow was observed to the north east of the site (**Photo 17, TN3).** The scent of fox *Vulpes vulpes* was evident at the entrance to the site and the feeding remains of fox were observed on site (**TN4**).

3.3.15 No evidence or signs of any other protected or notable mammal species were observed on site.

Reptiles

3.3.16 The habitats on site were considered unsuitable for reptiles consisting predominantly of standing water and bare ground. The site was constrained by Shepley Dike to the west and a stream to the north.

Invertebrates

3.3.17 The habitats on site offer sub-optimal pollination opportunities for generalist invertebrate species consisting predominantly of bare ground

3.3.18 The shallow water collection area on site previously provided suitable habitat for aquatic invertebrates including swan mussels *Anodonta cygnea* however, due to drainage and possible pollution of the water, the collection areas are now considered poor quality.

3.3.19 The adjacent Shepley Dike offers suitable habitat for a wide diversity of aquatic invertebrates however, there was evidence of ochreous deposits on the riverbed (**Photo 15**) which may smother diversity. A full invertebrate assessment was not undertaken as part of this survey.

4. Discussion and Interpretation of Results

4.1 Nature Conservation Designations

4.1.1 For the purpose of this report, the zone of influence has been determined as within 200m of the site boundary. The proposed development is a small scale, low ecological impact development with a minimal on-site development footprint proposed.

4.1.2 The adjacent Shepley Dike is included within the **Kirklees Wildlife Habitat Network** (KWHN). The site is not included within this designation however there is potential for indirect impacts to the KWHN via pollution or lighting due to the development. As Shepley Dike and the adjacent trees are to be to be retained post-development, it is anticipated that with mitigative measures there will be no significant ecological impacts on the KWHN.

4.1.3 There are **seven** non-statutorily designated sites within 2km of the site. **All** of these were situated over 200m from the site therefore due to the isolation of the site and the small scale of the development it is anticipated there will not be any ecological impacts on these sites.

4.2 Priority and Protected Habitats

4.2.1 The adjacent dike and scattered trees are included within the KWHN and are considered to be of **district** ecological value, these will be retained post development. The terrestrial habitats due to be removed during the development consist of bare ground and poor semi-improved grassland which are both considered to be of **site** ecological value. It is not anticipated that the removal of these habitats will have any significant ecological impacts on the site or the surrounding landscape.

4.2.2 Although ponds and standing water are considered a **Kirklees BAP habitat**, the standing water within the shallow water collection areas on site is poor quality and possibly polluted, it is not anticipated that their removal will result in a loss of ecological value on the site or in the surrounding area. However, there is potential for pollution if water from the collection areas is permitted to discharge into the adjacent watercourses. Although it is not anticipated that the collection areas provided substantial water storage based on the findings of the Flood Risk Assessment (Carter, 2019), if an impervious surface is created on the site this could cause increased water run-off into the adjacent watercourse.

4.3 Priority and Protected Species

Amphibians

4.3.1 There are no records of any amphibian species within 1km of the site, the closest record was of a smooth newt located 1.16km from the site.

4.3.2 Two shallow water collection areas are located on the site (Shallow water collection areas 1 and 2). Based on the HSI assessment, both collection areas are determined to provide poor habitat for great crested newts. A pond (Pond 1) is located 130m to the west of the site, as Pond 1 is situated on private land a HSI was not carried on the pond. Therefore, in order to assess the impacts on great crested newts should they be present within Pond 1, the rapid risk assessment (RRA) tool (Natural England, 2017) was used. Taking into account the small area of the site (0.4ha), of which only a small area is to be altered, and the distance of the site from Pond 1, it is considered **highly unlikely** an offence relating to great crested newts would be committed due to the development, see output of the RRA in **Figure 2** below.

Figure 2: Output of the Rapid Risk Assessment tool (Natural England, 2017) for Pond 1

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	**Notional offence probability**
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.1
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

4.3.3 The site is predominantly **sub-optimal** for amphibians consisting of bare ground, small areas of poor semi-improved grassland and poor-quality standing water. Therefore, it is **not** anticipated that the site supports a significant population of amphibians that will be impacted by the development.

Bats

4.3.4 The data search revealed records of common widespread bat species within 2km of the site.

4.3.5 There are no artificial structures on the site with potential for roosting bats. One sycamore tree adjacent to the southeast of the site is covered

by dense ivy on the main stem. As the ivy may be obscuring further potential roost features it is considered that the tree has **low** potential for roosting bats.

4.3.6 The adjacent dike and scattered trees on the site are considered to provide **moderate** habitat for commuting and foraging bats.

4.3.7 The tree with potential for roosting bats is to be retained post-development therefore direct impacts to bats are not anticipated however if any lighting is directed onto Shepley Dike or the scattered trees due to the new development this may have **negative** impacts up on bats.

Birds

4.3.8 Thirty-one species of birds have been recorded within 2km of the site and several common bird species were observed utilising the site during the survey.

4.3.9 The scattered trees, felled tree arisings, scrub and reeds within the shallow water collection areas provide **suitable** habitat for nesting bird species. If vegetation removal is carried out during nesting bird season (1st March – 31st August inclusive) this has potential to disturb nesting birds and kill or injure their young.

Other mammals

4.3.10 Water vole have been recorded 80m from the site on the adjacent Shepley Dike. Water voles generally prefer channels with slow flowing water and steep sided banks, ideally around 45-60 degrees, to enable successful burrow creation. Watercourses with swards of dense vegetation along the banks and within the channel are also preferred, to provide both refuge and food (Dean *et al,* 2016). The habitats on the site and along the dike adjacent to the site do **not** provide suitable cover or burrowing opportunities for water vole, due to a lack of vegetative cover exposing water vole to a high risk of predation. However, the habitat upstream to the northwest of the site is considered **suitable** for water vole. Therefore, although it is **not** anticipated that there will not be any direct impacts to water vole on the site, indirect effects due to the work such as pollution of the dike or significant changes to the water levels could have **negative** impacts on water vole.

4.3.11 Otters require vegetation along bank sides, and prefer tree lined/wooded bank areas (Chanin, 2003), due to the unvegetated dike banking it is not anticipated that the site provides opportunity for otter holt or layup creation. However, the adjacent dike provides **suitable** habitat for foraging otters and any lighting used in the proposed development directed onto the canal may have **negative** impacts on otter. As otter are

highly mobile, it is possible they may commute through the site therefore, any excavations left open during the construction phase have potential to trap or injure individuals.

4.3.12 A collapsed mammal burrow was recorded on the north of the site boundary, due to a lack of suitable habitat for badger *Meles meles* and the presence of a fox kill on the site, it was determined that this was previously utilised by fox. As the burrow is collapsed, no impacts to foxes due to work on the site are anticipated.

4.3.13 No records, evidence of or potential for any other protected or notable mammal species was identified on the site. Therefore, **no** further impacts to mammals are anticipated due to the proposed development.

Reptiles

4.3.14 The habitats on the site are considered sub-optimal for reptiles and the site is constrained by adjacent water courses and industrial buildings. Therefore, **no** impacts to reptiles are anticipated due to the developments.

Invertebrates

4.3.15 The site currently provides limited opportunities for pollinating invertebrates therefore, it is **not** anticipated that there will be any significant impacts to pollinating invertebrates in the local area due to the development.

4.3.16 The adjacent dike provides suitable habitat for aquatic invertebrates including white clawed crayfish. If any materials damaging to aquatic life were to be discharged into the watercourse this could cause pollution and have **negative** impacts upon aquatic life.

*The absence of any signs of or features considered valuable for supporting protected species can **not** be considered evidence that these species are absent from a site, or that these species will not occupy the site in the future. It must therefore always be recommended that work be conducted with care and vigilance. Should any protected species be encountered during work (please see **Appendix 5**), work should stop immediately and JCA or Natural England contacted.*

5. Recommendations

5.1 Further Surveys

5.1.1 The site is been considered to have a low potential for supporting water vole, as no evidence of their presence was found and the habitats on site are sub-optimal. As no work is required to Shepley Dike, direct impacts to water vole are not anticipated and therefore a **European Protected Species (EPS) Licence** is **not** required. However, the work should be carried out with care and vigilance. If any work is required directly to or within **3m** of Shepley Dike, additional water vole surveys **will** be required.

5.1.2 Should any water vole be seen during any stage of the development, all work must **stop** immediately, and **Natural England** must be contacted. Natural England will provide advice on the best course of action. It must be stated that this is a legal requirement, and that water vole may only be handled and their shelter disturbed by an experienced ecologist holding an appropriate licence.

5.1.3 **No** further protected species surveys are recommended for this site at this time.

5.2 Avoidance of Ecological Impacts During Construction Phase

5.2.1 To mitigate effects on biodiversity on and adjacent to the site during the construction of the development the following measures are to be included:

Vegetation removal

5.2.2 The removal of any trees, felled tree arisings, scrub or emergent vegetation within the shallow water collection areas on the site should be undertaken outside of nesting bird season (1st March – 31st August inclusive). If this is unfeasible, then a nesting bird survey will be carried out by a suitably qualified ecologist (SQE) a maximum of **48 hours** prior to work commencing. Any nesting birds will be identified, and a buffer zone implemented to prevent disturbance until all chicks have fledged.

Construction work and vehicle movements

5.2.3 To prevent negative impacts to nocturnal light sensitive species such as foraging bats and otter, no additional lighting will be used during the construction phase of the development. Construction works will only take place during the hours of daylight. All construction works are to cease before sunset and are not to begin until after sunrise.

5.2.4 Where possible only light machinery will be used as part of the proposed

development to prevent over compaction of the ground. Construction vehicles are not to damage adjacent habitats or habitats that are to be retained post construction phase. No heavy tracked vehicles are to be driven within **5m** of Shepley Dike.

5.2.5 To prevent trapping and injuring any terrestrial wildlife during construction work on the site, all excavations are to be covered when left overnight and on weekends. Where this is not possible a ramp, such as a scaffold plank, is to be installed at a 45° angle to allow the safe escape of any trapped wildlife. All excavations are to be checked prior to work commencing every morning.

Pollution/damage of watercourses

5.2.6 To prevent impacts to adjacent Shepley Dike and stream, which is included within **Kirklees Wildlife Habitat Network** (KWHN), no works are to be carried out within **3m** of the toe of the bank of any watercourse. A buffer zone is to be created using either heras fencing or coloured boundary tape to mark out the exclusion areas to contractors.

5.2.7 The use of toxic chemicals on site is to be avoided where possible. If avoidance is impossible then all chemicals are to be stored in leak proof, sealed containers, at least **5m** away from the watercourses.

5.2.8 Toxic herbicides are not to be used on site to remove vegetation or manage habitats. Environmentally friendly products are to be used, and where possible herbicides in general are to be avoided. Manual management should occur instead.

5.2.9 To avoid pollution of watercourses from diesel tanks, refueling of machinery will be carried out at least **5m** from the watercourses. Machinery must be parked a minimum of **10m** from watercourses to reduce the risk of accidental pollution incidents occurring.

5.2.10 A spill kit with sand or alternative products approved for use with the chemicals to be utilised on site will be stored on site.

5.2.11 To prevent additional surface run off into the adjacent watercourses, hard surfaces are only to be installed where necessary. Where possible natural materials such as stone/gravel or wood are to be used, which allow free drainage of water. If hard surfaces such as tarmac are to be used, then adequate drainage must be installed to ensure minimal pollution associated with surface run off.

5.2.12 Where run off water is contaminated (with excess silt or chemicals such as concrete) during construction or during drainage of the shallow water collection areas on site, this water must not be allowed to discharge into

the adjacent watercourses. Water to be discharged from the site will be tested for pollutants prior to removal. If pollutants such as fuel or oil are identified it may be necessary to discharge water to a nearby public sewer or, if this is not possible, tanker contaminated water off site for authorised disposal.

Removal/storage of waste

5.2.13 All waste material should be stored in a secure area on the site, piling waste materials is to be avoided to discourage wildlife seeking shelter beneath.

5.2.14 If waste materials on site are to be disposed of, these may require burning, which pollutes the environment and may reduce biodiversity temporarily, this is particularly likely to impact on mammals and birds, species that are sensitive to smoke. Waste is to be taken off site and burned. No waste materials are to be burned on site. Fires on site are not permitted.

5.3 Avoidance of Ecological Impacts During Operational Phase

5.3.1 To mitigate effects on biodiversity on and adjacent to the site during the operational phase, the following measures are to be included:

Ecological Buffer Zone:

5.3.2 In order to prevent negative impacts to Shepley Dike during the operational phase, a **3m** buffer zone should be permanently created between the dike and the active area of the site. A permanent fence, of either palisade, welded mesh or similar equivalent, should be installed in order to achieve this.

5.3.3 To stabilise the currently devegetated banking and reduce surface water run off that may discharge into the adjacent water courses from the site, further planting will be incorporated into the development. Native species of foraging value to water vole will be selected in order to enhance the ecological value of the site to water vole. Shrub and herb species planted will be of native providence, of benefit to UK wildlife and not listed as invasive by Schedule 9 of the Wildlife and Countryside Act 1981. Native species to be planted are listed in **Table 8** below.

Table 8: Native shrubs and herbs for soft planting on the site

Shrub Species		**Herb Species**	
Dogwood	*Cornus sanguinea*	Meadowsweet	*Filipendula ulmaria*
Elder	*Sambucus nigra*	Lesser reedmace	*Typha angustifolia*
Field maple	*Acer campestre*	Purple loosestrife	*Lythrum salicaria*

Crack willow	*Salix fragilis*	Yellow flag iris	*Iris pseudacorus*

5.3.4 In the interests of biosecurity all shrubs will be sourced from a UK based nursery. To ensure the best chance of establishment shrubs will be in 5 to 10 litre pots and will be selected with the aid of an arboriculturist and/or landscape architect to ensure all specimens planted are of good quality.

5.3.5 Planting density of herb species will be a minimum of **five** plants per m^2 and herbs will be planted in groups of 3 to 5 specimens to provide stability and visual interest.

5.3.6 Annual after care of planted shrubs and herbs will be required to ensure survival, this will include weekly watering during dry spells, the removal of weeds within a 1m radius and the re-application of mulch.

5.3.7 Once planted the aftercare and maintenance of planted areas will be the responsibility of the landowner.

5.3.8 Areas to be planted are indicated within the Ecological Enhancement Plan (**Appendix 3**)

Lighting plan and design:

5.3.9 To prevent impacts to nocturnal species foraging along Shepley Dike and to the tree with roosting bat potential, no lighting is to be directed onto Shepley Dike. In addition to this, wildlife friendly lighting will be used within the development. The guidance prepared below is in line with the information provided by the Institute of Lighting Professionals (ILP, 2018) and includes:

- Dark buffer zones.
- Screening in the form of vegetation, fences and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements.
- LED luminaries with a sharp cut-off, low intensity and good rendition.
- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%.
- Lower light columns to limit light spill.
- Recessed internal light fixtures.

5.4 Ecological Enhancement

Provision of faunal boxes

5.4.1 In accordance with the National Planning Policy Framework (NPPF) to enhance the ecological value of the site, provisions for nesting birds are

to be included within the development.

5.4.2 **Two** bird boxes are to be positioned on the newly installed fence adjacent to Shepley Dike. Boxes should face west and be situated at least 1.5 in height. Boxes should be of type 1MR Schwegler Avianex (or similar).

5.4.3 Bird boxes will be checked by a suitable qualified ecologist annually for a period of three years after installation. If boxes are unsuccessful, relocation or additional boxes may be recommended.

5.4.4 Approximate locations for bird boxes are indicated within the Enhancement and Mitigation Plan (**Appendix 3**)

5.5 Decommissioning Phase

5.5.1 The site must be returned to the state pre-development should the structures be removed or decommissioned. Any waste/rubble/sewage must be removed from the site and not left to pollute the local environment or watercourses. Any perceived hazards to wildlife, such as open holes, chemicals or machinery must be removed if the site should be decommissioned.

6. Conclusions

5.5.2 Following a thorough site assessment and detailed desktop study of **The Old Stone Yard** it was considered that the habitats on site were of **Site** ecological value consisting of poor semi-improved grassland, bare ground and standing water.

5.5.3 Shepley Dike, which is part of Kirklees Wildlife Habitat Network (KWHN) is located adjacent to the site and considered to be of **District** ecological importance. As the adjacent dike is not directly affected by the development proposals and the habitats of value to the KWHN are to be retained post development, it is concluded that the development will not have significant ecological impacts provided the mitigative measures above are implemented during the construction and operational phase.

5.5.4 As ecological enhancement is to be incorporated in the development in the form of wildlife friendly lighting, faunal boxes and native planting it is anticipated this will create additional opportunities for protected and notable species on the site and enhance the KWHN.

7. References

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Google Maps. **<**http://maps.google.co.uk/**>**
Multiple-Agency Geographic Information for the Countryside (MAGIC). <http://www.magic.gov.uk/>
Natural England. < http://www.naturalengland.org.uk/>

Relevant Legislation:

Countryside and Rights of Way Act 2000
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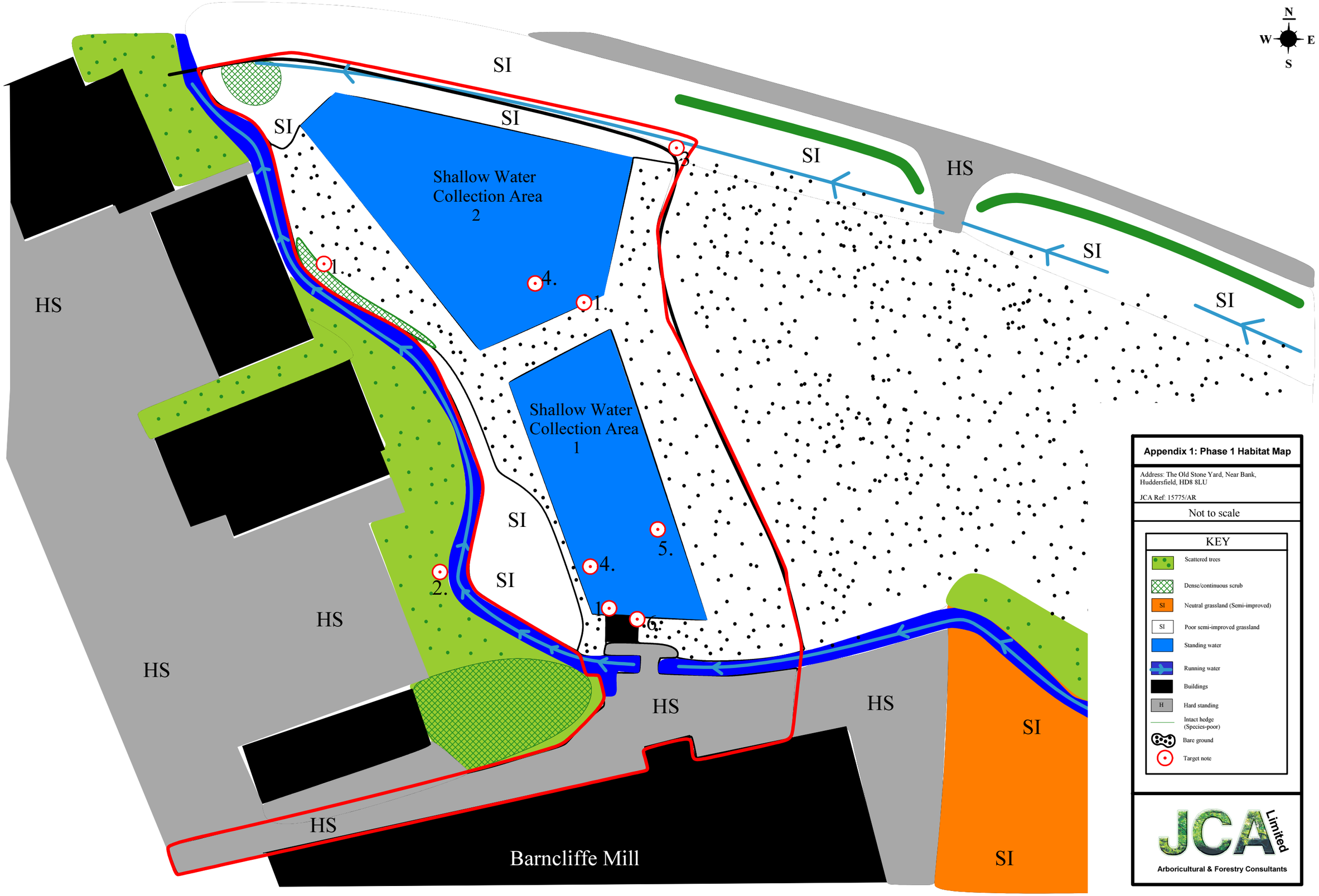
< http://www.legislation.gov.uk/ukdsi/2019/9780111176573>

Wildlife and Countryside Act 1981 <http://jncc.defra.gov.uk/page-3614>

Appendices

Appendix 1: Phase 1 Habitat Map


N
W
E
S
SI
SI
SI
SI
HS
SI
SI
SI
Shallow Water Collection Area 2
Shallow Water Collection Area 1
1.
2.
3.
4.
1.
4.
5.
1.
6.
HS
HS
HS
HS
HS
HS
SI
SI
Barncliffe Mill
Appendix 1: Phase 1 Habitat Map
Address: The Old Stone Yard, Near Bank, Huddersfield, HD8 8LU
JCA Ref: 15775/AR
Not to scale
KEY
Scattered trees
Dense/continuous scrub
SI
Neutral grassland (Semi-improved)
SI
Poor semi-improved grassland
Standing water
Running water
Buildings
H
Hard standing
Intact hedge (Species-poor)
Bare ground
Target note
JCA Limited
Arboricultural & Forestry Consultants

Appendix 2: Photographic Evidence

Photo 1: Overview of the site from south entrance

Photo 2: Building on site

Photo 3: Interior of building on site

Photo 4: South of Shepley Dike

Photo 5: Poor semi-improved grassland on site

Photo 6: Tree with dense ivy adjacent to site

Photo 7: Barge ground on site

Photo 8: Bare ground on site

Photo 9: Shallow water collection area 1 with jetty

Photo 10: Shallow water collection area 1

Photo 11: Deceased mussels within Shallow water collection area 1

Photo 12: Shallow water collection area 1

Photo 13: Standing water within Shallow water collection area 2

Photo 14: Shallow water collection area 2

Photo 15: Ochreous deposits on the riverbed of Shepley Dike

Photo 16: Adjacent site of bare ground

Photo 17: Collapsed mammal burrow to north of site

Appendix 3: Enhancement and Mitigation Plan

N

W E

S

FB

Barncliffe

Appendix 3: Enhancement and Mitigation Plan

Address: The Old Stone Yard, Near Bank, Huddersfield, HD8 8LU

JCA Ref: 15775/AR

Not to scale

KEY

- Soft planting/ecological buffer zone
- New fence to be installed
- Site boundary
- 2x Bird boxes

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Appendix 4: Protected Species Information

The following species are protected under EU law, such as the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. :

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.
In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981:

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore, under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders

Bats and the Law

All bat species and their roosts in the UK are protected under European and UK law. The main piece of legislation protecting UK bats is the Conservation of Habitats and Species Regulations 2017.

In addition to this, bats and their roosts are also protected in England and Wales under the Wildlife and Countryside Act 1981 and The Countryside and Rights of Way Act 2000.

Under these legislations, it is an offense to:

- Deliberately capture, injure or kill a bat.
- Deliberately disturb a bat in a way that would affect its ability to survive, breed or rear young (or hibernate or migrate in England, Wales and Northern Ireland) or (Significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an 'absolute' offence).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.
- Intentionally or recklessly disturb a bat at a roost.
- Intentionally or recklessly obstruct access to a roost.

If it is discovered that development may impact upon bat roosts (thus leading to an offence being committed) a **Mitigation Plan** should be devised and a **Bat Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, such as the bat species present, roost type, roost size and its local/regional/national importance.

Birds and the Law

In the UK **all** breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended). Under this piece of legislation all birds, their nests and eggs are legally protected meaning it is an offence to recklessly or intentionally:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while in use or being built;
- Take or destroy the egg of any wild bird.
- Possess or control and wild bird or egg unless obtained legally

This legal protection only applies whilst the nest is in use. Therefore to avoid an offence being committed it is recommended that development is undertaken outside of the nesting bird season (nesting bird season being beginning of March to the end of October).

Within the Wildlife and Countryside Act 1981 (as amended), birds listed in Schedule 1 are afforded special protection at all times. This additional protection means it is illegal to intentionally or recklessly disturb any schedule 1 bird while it is nesting or to disturb any of its young.

Birds listed on the IUCN's Red and Amber list are species of conservational concern and any impact, as a result of development, must be considered carefully and appropriate mitigation provided. A similar attitude should be employed when species listed on the Local Biodiversity Action Plan (LBAP) are found to be using or are periodically present within a site.

All UK birds are also offered legal protection against cruelty under the Protection of Animals Act 1911.

Otter and Water Vole and the Law

Otters and their holts in the UK are protected under European and UK law. The main piece of legislation protecting otters in the UK is Schedule 2 of the Conservation of Habitats and Species Regulations 2010. In addition to this, otters are also protected in England and Wales under Schedule 5 and 6 of the Wildlife and Countryside Act 1981 (as amended).

Under these legislations, it is an offense to:

- Intentionally or deliberately capture, injure or kill an otter.
- Damage or destroy a breeding or resting place of an otter, or intentionally or recklessly damage or destroy any structure or place used for shelter or protection.
- Intentionally or recklessly disturb an otter in a place used for shelter or protection, or deliberately disturb otters in such a way as to be likely to significantly affect (i) the ability of any significant group of otters to survive, breed, rear or nurture their young, or (ii) the local distribution or abundance.
- Intentionally or recklessly obstruct access to a place used for shelter or protection.
- Possess an otter (alive or dead), or any part of an otter.

Water Vole in the UK are protected under UK law. The main piece of legislation protecting water vole in England and Wales is Schedule 5 of the Wildlife and Countryside Act 1981. This protection was extended in April 2008 so that Water Voles are fully protected under Section 9 (offences under Section 9 carry a maximum penalty of a fine not exceeding Level 5 on the standard scale, currently £5,000, imprisonment for up to six months, or both. In addition, the courts may order the forfeiture of any vehicle or other thing that was used to commit the offence).

Under these legislations, it is an offense to:

- Intentionally kill, injure or take (capture) a water vole
- Possess or control a live or dead water vole, or any part of a water vole
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place
- Sell, offer for sale or advertise for sale live or dead water voles.

If it is discovered that development may impact upon otter and/or water vole (thus leading to an offence being committed) a **mitigation plan** should be devised and a **European Protected Species Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, including population abundance, its habitat use and local/regional/national importance.

Appendix 6: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking
F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.
Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years' experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites
BSc (Hons), HND (Arboriculture).
Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Ecology

Amy Reddick, Ecological Consultant
MSc Conservation Biology & Associate CIEEM member
Amy joined JCA's ecology department in 2020 after working for an ecological consultancy in Yorkshire for the past 4 years. She possesses a Natural England Class II Bat Licence to handle bats and has experience undertaking surveys for various protected species including badgers, great crested newts, barn owls and otters. She is confident in identifying a range of botanical species and habitats in order to produce robust Preliminary Ecological Assessments. During her time as a consultant Amy has developed in depth knowledge of UK wildlife and habitat legislation and their relevance when assessing the impacts of development proposals. Amy has a CSCS card and a Wilderness first aid certificate.

Charis Russell-Smith, Ecological Consultant
BSc Wildlife Conservation (Hons) & GradCIEEM.
Charis joined JCA in 2019, bringing with her 5 years' experience in ecological consultancy and two Natural England protected species class licences (Great Crested Newt Class I and Bat Class II). Her professional specialism is in bats and their ecology, having extensive experience of bat surveys, mitigation and call analysis. She is also competent at conducting preliminary ecological appraisals and phase II protected species surveys. Charis is an experienced ecologist who is able to collate accurate fieldwork data and deliver robust ecological evaluations, assessments and reports.

Amanda Beck, Ecological Officer
er*Cert/He in Field Ecology, Diploma Field and Conservation Ecology, CIEEM member.*
Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and as a trainee Ecologist in South Wales. She has a background surveying for botanical, amphibians, birds, terrestrial and marine mammals along with small mammal trapping and invertebrate research work on SSSI sites. She has practical experience in habitat management and creation while working as a volunteer for North Wales Wildlife Trust and currently volunteers with Yorkshire Wildlife Trust. She is a member of the Butterfly Conservation Trust, Bat Conservation Trust, Clwyd Bat Group and the British Hedgehog Preservation Society. Amanda is DBS checked and holds a Natural England level 1 bat licence.

Joe Earnshaw, Trainee Ecologist
BSc (Hons), MSc Biodiversity and Conservation.
Joe joined the ecology department of JCA in 2018 after taking part in JCA's student training programme. He initially obtained a bachelor's degree in animal management from Askham Bryan College, York. He has since furthered his education and brings to the company an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification and control.

The information which we have prepared and provided is true, and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed

.....

Amy Reddick *BSc (hons), Wildlife Biology, MSc Conservation Biology, ACIEEM*
5th February 2020

Proofread by

.....

Charis Russell-Smith *BSc (Hons) Wildlife Conservation, GradCIEEM*
5th February 2020

For and on behalf of ***JCA Ltd***

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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

JCA Limited

Arboricultural & Ecological Consultants

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