# Hollands Mill Hydroelectric Power Scheme

## Environmental Report

## Document Control

| Version | Date of Issue | Author(s) |
|---|---|---|
| 01 | December 2024 | Madeleine Brown |
| 02 | February 2025 | Madeleine Brown |

# Contents



## 1 Introduction

This document accompanies the water resources abstraction licence application and hydroelectric power scheme application for the proposed hydroelectric power (HEP) scheme located at Hollands Mill, Clifton Upon Teme, Worcester.

An overshot waterwheel system is proposed for installation just downstream of the property on the site. The maximum abstraction proposed for the scheme is 1.3 times $Q_{mean}$, in line with Table B of 'Guidance for run-of-river hydropower development'. Key parameters that allow higher levels of abstraction and departure from table A are listed below with supporting information included in the subsequent sections of this report.

1. Not prevent Water Framework Directive objectives from being achieved.
2. Maintain or improve fisheries, fish passage and fish migration.

3. Not have unacceptable impacts (effects) on protected sites or species.
4. Not have unacceptable impacts on the rights of other water users, including anglers.

## 2 Site details

### 2.1 Site description

Figure 1 to Figure 3 show photos of the current area around the installation location and impounded area. There is a failed weir in the watercourse, and around 30 m downstream from this there is a portion of river bed with a steep gradient. The base of the riverbed is predominantly made up from large rock slabs.

The difference in water levels across the site has been measured at 2 metres.

*Figure 1. Looking upstream. The original mill is behind the buildings in the centre of the photograph*

*Figure 2. The failed weir.*

*Figure 3. Steep gradient of the riverbed, approximately 30 m downstream of the failed weir.*

## 3 Hydrological data

The nearest EA gauging station is on the Teme at Knightsford Bridge, approximately 8 km downstream. The flow rates were also checked against a catchment model input to LowFlows 2 software. The average of the scaled gauge data and LowFlows 2 output is used to derive a flow duration curve for Hollands Mill, primarily to capture flows from the springs feeding Sapey Brook. The catchment area for the site is approximately 8.86 km$^2$.

*Table 1. Flow exceedance at the proposed hydropower system location.*

| Flow Exceedance % | Gross Flowrate $m^3/s$ |
|---|---|
| $Q_{10}$ | 0.175 |
| $Q_{20}$ | 0.101 |
| $Q_{30}$ | 0.068 |
| $Q_{40}$ | 0.049 |
| $Q_{50}$ | 0.037 |
| $Q_{60}$ | 0.027 |
| $Q_{70}$ | 0.020 |
| $Q_{80}$ | 0.014 |
| $Q_{90}$ | 0.010 |
| $Q_{95}$ | 0.008 |
| Qmean | 0.096 |

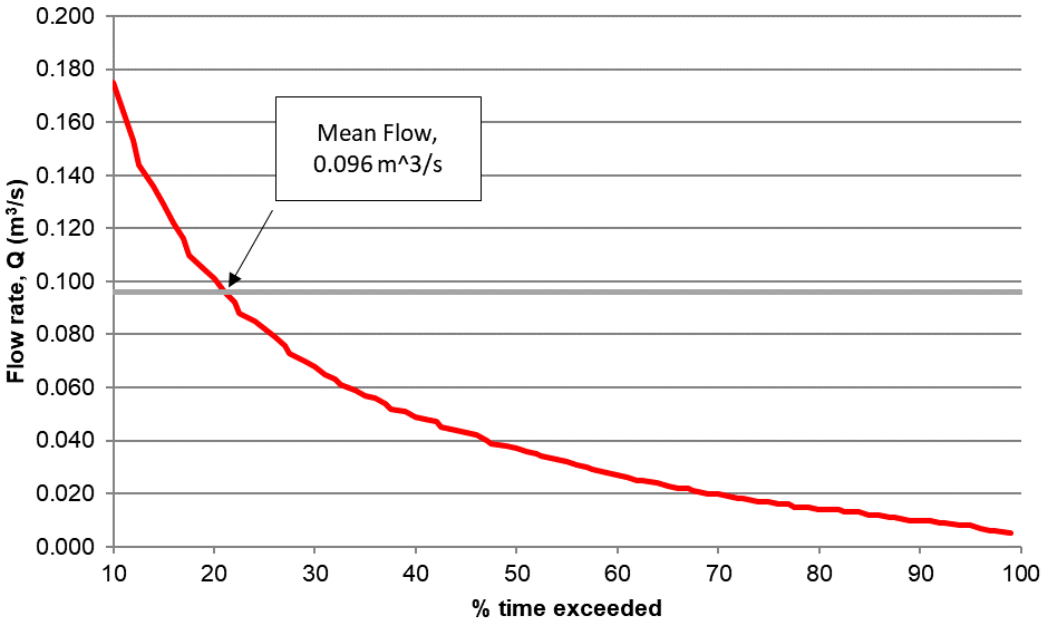


*Figure 4 Flow distribution curve.*

# 4 Proposal

## 4.1 Proposal summary

The hydroelectric power system will consist of a single overshot waterwheel installed downstream of the Hollands Mill site. The overshot waterwheel will be co-located with the weir so that there is effectively no depleted reach. The failed historic weir will be replaced by a stepped weir to provide the 2 metres of head required for the waterwheel. The intake to the waterwheel will be immediately adjacent to the upper step of the weir. The outfall will be immediately adjacent to the lowest step of the weir. The scheme is expected to generate a peak electrical power output of 1.5 kW.

## 4.2 Summary of hydrology information

It is proposed that the HEP scheme flow is 1.3 times $Q_{mean}$. A hands-off-flow of$Q_{95}$ (8 l/s) will flow through the notches in the stepped weir. Once the flow rate in the watercourse goes above 125 l/s, all of the additional flow will flow through the notches in and over the stepped weir.

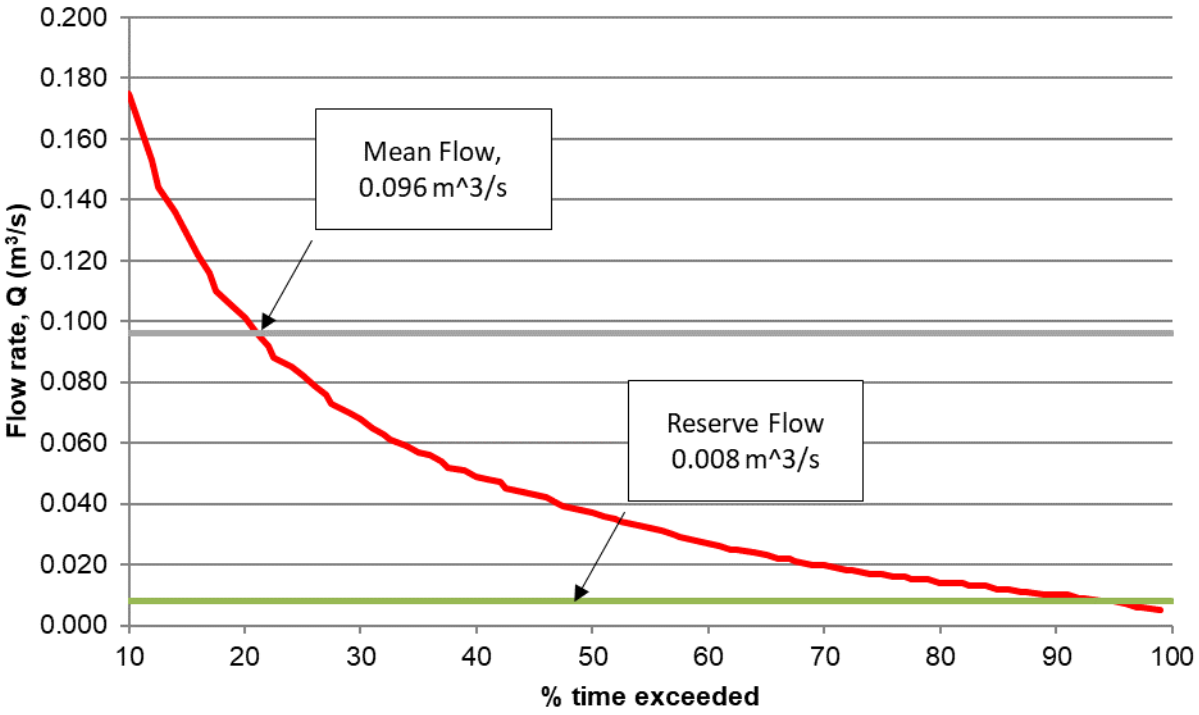


*Figure 9: flow duration curve with turbine flow.*

Table 2 outlines the key hydrological information for the proposed HEP system.

| | |
|---|---|
| Turbine intake location | SO 69755 61378 |
| Outfall location | SO 69750 61372 |
| Depleted reach | 0 m |
| Turbine type | Overshot waterwheel |
| Waterwheel diameter | 1.75 m |
| Waterwheel rated flow | 0.125 $m^3/s$ |
| Hands-off-flow | 0.008 $m^3/s$ |
| Rated system head | 2.00 m |
| Maximum hourly abstraction | 450 $m^3$ |
| Maximum daily abstraction | 10,800 $m^3$ |
| Maximum annual abstraction | 1,979,479 $m^3$ |

*Table 2: key hydrological information for the HEP system.*

### 4.3 Layout

Refer to the site layout drawing (HOLLM P01), the layout plan view drawing (HOLLM P02) and sections of the system layout (HOLLM S01).

## 5 Ecology

### 5.1 Designations

A Preliminary Ecological Appraisal and a Biodiversity Net Gain have been completed by Wildwood Ecology. These studies have found no evidence that the works to be completed should pose any issues with local ecology or designations once in operation. Possible impacts that could happen during construction shall be mitigated. For example, precautionary working methods will be followed to prevent impacts on badger, hedgehog, otter and reptiles (if present) that may be moving through the site. These include capping pipes, covering up trenches overnight, or leaving a plank within trenches to prevent animals from becoming trapped.
To improve the habitats locally some additions will be made. Brash and woodpiles will be added to increase habitats for reptiles. An insect box will be installed within the retained woodlands to improve the site for invertebrates and their predators. Bird nesting and bat roosting boxes shall be placed under direction from an ecologist.
The Biodiversity Net Gain Assessment found that a +3.67% net gain would be achievable on site with the planting of native species and the improvements outlined above. A quote has been received for the purchase of the additional required 6.33% from the Environment Bank. These will be purchased to achieve the required 10% net gain overall.

### 5.2 Fish and aquatic habitats

There are documents detailing a rich aquatic life including trout, in this section of the Sapey Brook, from 1964. It is the hope, that by deepening this stretch, that the restoration of these habitats could be achieved in the future.

An overshot waterwheel is to be used. This technology poses little risk to fish, so only a 100 mm trash screen on the intake will be used.
The PEA does not detail the presence of any migratory fish species, but the catchment area did return results of common fish and European eels. The intention is that by creating the short stretch of impounded water will provide a valuable habitat in the stream that can otherwise diminish to a trickle

during drought periods. There are historic references from sale documents in 1964 that refer to ‘excellent sport for trout’ (see below), which would have been in the impounded area of water from the collapsed weir.

| | |
|---|---|
| **Fishing** | All sporting rights are included in the sale. Sapey Brook is capable of providing excellent sport for trout and extends to about 360 yards single bank and 300 yards double bank fishing. |

To further reduce the impact on fisheries the new weir has been designed as a stepped structure that could be navigated by fish during higher flow periods.

## 6 Geomorphology

Effects on the geomorphology of the river caused by the new impoundment will be isolated and minimal. This is evidenced by the lack of any visible effect a previous impoundment upstream had on siltation and deposition. The rocky nature of the riverbed transfers relatively little material. There will be no depleted reach created and the flow variability through the site will be unchanged. Sediment transfer during higher flows events would be similar to what it is now, some deposition may occur upstream of the impoundment, but this will have a positive ecological effect, providing habitat.

Due to the rocky nature of the site, bank and bed erosion would be unchanged under any flow conditions within the Sapey Brook.

## 7 Water Framework Directive

The WFD objectives for the Sapey Brook have been assessed.
https://environment.data.gov.uk/catchment-planning/WaterBody/GB109054044390?cycle=3
The proposed installation will have no impact on these objectives.

## 8 Flood Risk

Flood risk from surface water runoff is high. The EA flood map shows the main surface water risk follows the riverbank.

Flood risk from the brook is low.

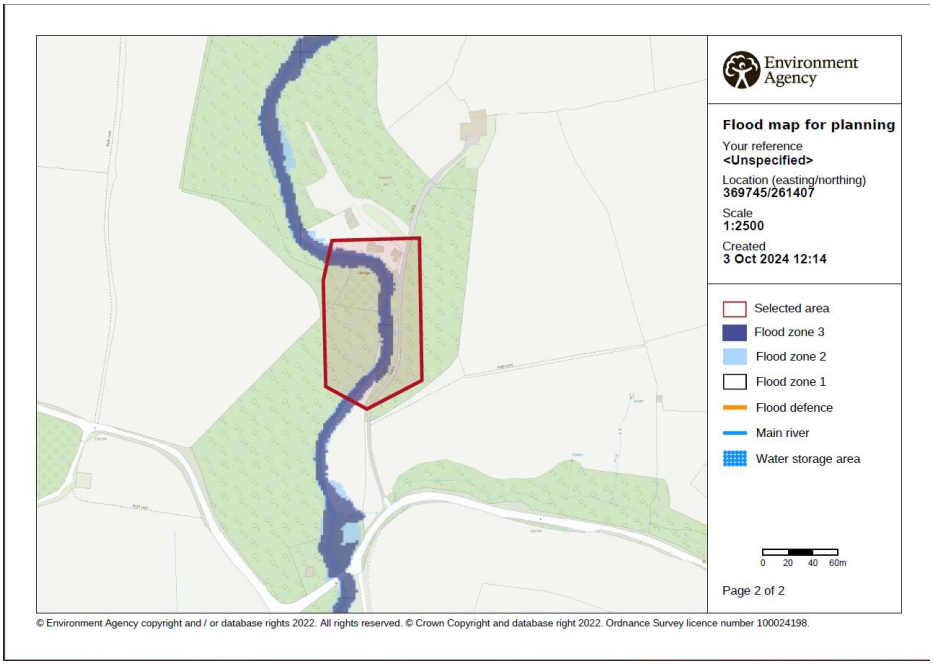


*Figure 5 Flood Map showing the flood zone for Hollands Mill site.*

It can be seen in the appended Layout document that the water level by the bridge at the top of the site will remain the same, but the water downstream will increase in depth. However, due to the steep banks of the river at this point, even during extreme flows it is unlikely to overflow anywhere outside of the bank. From site topography it can be seen that at least 10 m increase in elevation can be seen within the site boundary, this includes a wide flat section just upstream of the proposed impoundment which would flood before anything further upstream would be affected.

All of the equipment located within the river will be flood resilient with the exception of the generator. It is not practical to locate the generator above the 1% AEP with climate change allowance level of 85%. However, it is possible to locate it above the 1% AEP. If the flood level were to exceed this, the generator would be replaced as it is a low-cost item.

## 9 Summary Assessment of Impact

The water level upstream of the proposed impoundment will be increased. This can be seen in the provided Layout drawing. The new impoundment will re-create the previous conditions produced by the failed weir, found upstream of the site. The overall effects will be the same with the exception of the short stretch between the failed weir and new proposed location. The banks found in this stretch are steep and largely made of rock, meaning no adverse effects on flora or fauna due to the new raised water level. The PEA report shows no flora or fauna that could be affected within the reach.

## 10 Human impacts

### 10.1 Navigation

The watercourse is not used for navigation, so the scheme will have no impact.

## 10.2 Recreational use

The site is privately owned and any flows or water levels downstream or upstream will be unchanged. Angling will therefore be unaffected by the proposal.

## 10.3 Heritage

There are no scheduled monuments or world heritage sites, the closest listed building is 480m away and is a class II.

## 10.4 Landscape and visual

There is no proposal to landscape the area around the proposed installation as the majority of the installed equipment is within the river below the bank level.

# Hollands Mill Hydroelectric Power Scheme

## Requested Information Response

## Document Control

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|---|---|---|
| 01 | February 25 | Madeleine Brown |

# Eel Pass Specifications

The eel pass will remain within the water channel following the waterwheel side retaining wall. The pass will follow above the axle of the waterwheel. The exit of the eel pass can be found below the first notch in the tallest weir crest, meaning that water will flow through the eel pass before wetting the weir crest. An open-type eel pass shall be used with a total length of 4.427 m. Therefore, no rest pool is required. The pass has a gradient (below the recommended maximum of 30 $^{O}$) of 26.33$^{O}$ and will contain Flex Split Eel Brushes.

The flexible brush substrate is 100 mm in width and can be used with 20 mm or 30 mm spacing. The brush tufts are 4 mm in diameter. The substrate being used can be found: https://cottambrush.com/product/flex-split-eel-brush-width-100mm-20mm-and-30mm-spacings/. The spacing selection will be left to the Environment Agency's preference.

An estimated 1 l/s will pass through the eel pass.

*Table 1 Volume of water to flow through eel pass.*

| **Eel Pass flow time scale** | **Value** |
|---|---|
| **Maximum volume per second ($m^3$)** | 0.001 |
| **Maximum volume per hour ($m^3$)** | 3.6 |
| **Maximum volume per day ($m^3$)** | 86.4 |
| **Maximum volume per year ($m^3$)** | 31536 |

## Failed Weir Removal

The image below displays the failed weir upstream of the proposed development site. The removal of the failed weir is to improve habitat by decreasing the number of man-made encroachments on the brook.

*Figure 1 Image displaying the failed weir on the Hollands Mill site.*

The failed weir consists of concrete blocks and kerb stones and will be removed by hand with a lump hammer and crowbar. Dewatering of the brook will not be required, and heavy machinery will not be required in the removal process. No-to-minimal debris and silt will be added to the brook during the process.

The Preliminary Ecological Appraisal found no negative effects on current flora or fauna would be made once the brook level is increased by the proposed impoundment. This is also substantiated by the fact that the new impoundment will re-create the pervious conditions of the failed weir.

No important habitats would be disturbed by the increased water level. Page 10 of the PEA outlines that a kingfisher's burrow was identified 10 m from the proposed development, but that direct impacts on the burrow are not expected. The effects on different species are also outlined in the report, concluding that the proposed development would be unlikely to cause adverse impacts on any species present.

## Hands-off Flow

The notches in the weir are 0.6 m wide and 0.0464 m deep and have been designed to discharge 9 l/s when the design flow rate through the waterwheel of 125 l/s is achieved.

However, the annual average flow of the brook is only 96 l/s, and is often dry in the summer months, the evidence suggests that brown trout and salmon do not use the brook. Sapey Brook is a very small tributary of the River Teme and during periods of low flows there would be insufficient water to allow migration.

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# PEA REPORT

# HOLLANDS MILL, CLIFTON-UPON-TEME, WORCESTER, WR6 6HJ

## RENEWABLES FIRST

Document Ref: WWE24066 | 30/08/2024

| | |
|---|---|
| Client: | Renewables First |
| Site/Job: | Hollands Mill, Clifton-upon-Teme, Worcester, WR6 6HJ |
| Report title: | PEA report |
| Report reference: | WWE24066 |

| | |
|---|---|
| Grid Reference: | SO 69756 61449 |
| Survey date(s): | 23/04/2024 |
| Surveyed by: | Peter Hacker and David Withington |
| Architect/Agent: | N/A |

**VERSIONING AND QUALITY ASSURANCE**

| Status | Date | Author | Reviewed by | Approved by |
|---|---|---|---|---|
| Final | 30/08/2024 | Peter Hacker ACIEEM<br>Senior Ecologist | Ivi Szaboova MCIEEM<br>Director of Ecology | Ivi Szaboova MCIEEM<br>Director of Ecology |

## DISCLAIMER

This document has been prepared by Wildwood Ecology Limited for Renewables First solely as a PEA report. Wildwood Ecology Limited accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

The evidence which we have prepared and provided is true and has been prepared and provided in accordance with the guidance of The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

| Purpose |
| --- |
| Wildwood Ecology was commissioned by Renewables First (the client) to undertake a Preliminary Ecological Appraisal (PEA) at Hollands Mill, Clifton-upon-Teme, Worcester, WR6 6HJ.<br><br>The site is subject to a full planning application for the creation of a new hydro-electric facility, with a supporting weir. The proposals will also result in the creation of new aquatic habitat. |
| **Work undertaken** |
| A PEA was undertaken, consisting of a desk study and an extended Phase 1 Habitat Survey, carried out in April 2024 following the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal (2017) guidelines and using UK Habitat Classification Version 2.0 codes (UK Hab, 2023). |
| **Key Constraints** |
| Due the proposed works, it is likely that in the absence of mitigation there may be effects on the following designated sites, habitats, and species:<br>• River Teme Site of Special Scientific Interest (SSSI): The site does not lie within the Impact Risk Zone of the SSSI, however impacts on the SSSI cannot be ruled out due to aquatic connectivity.<br>• approximately 100m of non-priority river habitat will be modified (a section of Sapey Brook);<br>• approximately 100m of riparian habitat on each side of Sapey Brook, consisting of a mixture of grassland and woodland, will be replaced with new aquatic habitat;<br>• badger;<br>• nesting birds (including a potential kingfisher burrow onsite);<br>• fish and other aquatic species (if present);<br>• hedgehog;<br>• otter (if present);<br>• reptiles; and<br>• water vole (if present). |
| **Recommendations** |
| Designated sites in the vicinity of the site require further consideration as follows:<br>• a Construction and Environmental Management Plan (CEMP) should be prepared prior to the site works commencement; and<br>• consultation with Natural England should be undertaken to ensure that all potential impacts on the River Teme SSSI can be scoped out.<br><br>Further surveys are required as follows to determine the presence or likely absence of protected, priority, and notable species: |

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

- to avoid impacts on protected species that may have moved onto the site between the survey and the start of development, a badger, hedgehog, otter, and water vole walkover survey will be required immediately prior to works, to determine whether the species are using the site or the adjacent areas; and
- as the potential kingfisher burrow located at the south of the site will be retained, and the works area is 10m from the nest site, direct impacts are not anticipated as a result of the proposed works. Kingfisher is a Schedule 1 species, and therefore protected from disturbance during nesting.

Mitigation measures during the construction phase of the proposed development are required as follows:

- precautionary working methods should be followed to prevent impacts on badger, hedgehog, otter and reptiles (if present) that may be moving through the site. These include capping pipes, covering up trenches overnight, or leaving a plank within trenches to prevent animals from becoming trapped;
- all works should be restricted to daylight hours, to avoid disturbance of nocturnal fauna;
- works should take place outside of the fish spawning season (February – July, inclusive) to ensure that common fish populations are not adversely impacted and to reduce the likelihood of fish injury/killing; and
- Consultation with the Environment Agency should be undertaken to minimise the impacts on the new weir on local fish species.

Mitigation measures during the operational phase of the proposed development are required as follows:

- An eel pass should be installed as part of the proposed works. This would enable eels to migrate upstream during the spawning season and prevent them from entering the hydroelectric power system.

Conclusions

The full ecological impacts of the proposed development cannot be fully assessed following the PEA survey alone as further survey work is required.

This report will remain valid for a maximum period of 18 months from the date of the last survey[1] - i.e. until 31/10/2025. In the case of certain exceptions, data may only be valid for 12 months, examples include:

- where a site may support existing or new features which could be used by mobile species, such as bats, birds, badger, otter and fish within a short timeframe;
- where bats and birds are present onsite or in the wider area, and can create new features of relevance to the assessment; and
- where country-specific or species-specific guidance dictates otherwise.

Further surveys may be required to update the site information if planning is not obtained, or works do not commence within this time period.

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

# 1 INTRODUCTION

1.1 Wildwood Ecology was commissioned by Renewables First (the client) to undertake a Preliminary Ecological Appraisal (PEA) at Hollands Mill, Clifton-upon-Teme, Worcester, WR6 6HJ (the site), centred at grid reference: SO 69756 61449.

1.2 This report has been written in cognisance of the CIEEM Guidelines on: Ecological Report Writing and Preliminary Ecological Appraisal, with full survey methodology provided in the appendices.

Site description

1.3 The aerial image of the site (Figure 1) showed the site to consist of an approximately 90m long section of Sapey Brook, a watercourse that ran north – south through the site. Adjacent to the site was an ongoing residential development as well as an access road to the development to the east of the site. The surrounding landscape was primarily comprised of residential garden and pastureland, with some small areas of woodland located north and south of the site.


**Figure 1 - Aerial image of the site. Red line shows the site boundary. Image used under licence (@2023 Google). Figure created: 12/06/2024.**

Proposed development

1.4 The site is subject to a full planning application for the creation of a new hydro-electric facility, with a supporting weir. The proposals will also result in the creation of new aquatic habitat.

Data collected

1.5 The data informing this report was collected from field survey and desk study. Desk study data was collected from the following sources on 20/05/2024:

- Local Records Centre and
- Multi-Agency Geographic Information for the Countryside (MAGIC).

1.6 Full information about the data sets used and the search buffers can be found in the appendices.

Purpose of this report

1.7 The purpose of this report is to provide sufficient information for the local planning authority to fully assess the ecological impacts of the proposed development, or to identify what further information is required before a full assessment can be made in the form of an Ecological Impact Assessment (EcIA).

1.8 The key objectives of this PEA are to:

- identify the likely ecological constraints associated with the proposed development;
- identify mitigation measures likely to be required, following the 'Mitigation Hierarchy';
- identify additional surveys that may be required to inform an EcIA; and
- identify the opportunities for the proposed development to deliver ecological enhancement.

1.9 This PEA can be used as a scoping report, but unless it can be determined that the project would have no significant ecological effects, no mitigation is required and no further surveys are necessary, the PRA will need to be superseded by an EcIA report prior to submission.

Limitations and assumptions

1.10 No limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

## 2 RESULTS

Links to the surrounding landscape

2.1 The site had excellent connectivity to the surrounding landscape via Sapey Brook, as well as tree lines to the north and south of the site, which connected to nearby areas of woodland. Sapey Brook was a tributary of the River Teme, which the brook connected to approximately 6km south of the site.

2.2 The wider landscape was comprised of a mixture of pastureland and arable land, along with tree lines and small areas of woodland. The village of Clifton upon Teme was situated 1.4km to the east of the site.

Desk study

*Designated sites*

2.3 There were two statutory international designated sites requiring special consideration (Special Areas of Conservation (SAC), Special Protections Areas (SPA), and RAMSAR) within 20km.

2.4 There were no statutory national designated sites (Site of Special Scientific Interest (SSSI), National Nature Reserves (NNR), and Local Nature Reserves (LNR)) within 2km. However, the site has aquatic connectivity to the River Teme SSSI, which is located approximately 6km south-east of the site.

2.5 There were two non-statutory sites (Local Wildlife Sites (LWS)) within 1km of the site. The site lies within the 'Woodland along the Sapey Brook' LWS.

*MAGIC map results*

2.6 A search for granted European Protected Species licence (EPSL) within 5km of the site returned 10 bat licences. Two of these licences allowed the damage or destruction of a breeding site. The closest licence was located 610m from site.

2.7 The search for granted EPSL within 2km of the site returned three licences for great crested newt. One of these licences allowed the damage or destruction of a breeding site. The closest licence was located 1.3km from site.

2.8 One great crested newt licence return with confirmed presence of the species has been returned within 2km of the site. This was located 1.4km from site.

2.9 One great crested newt pond survey was undertaken between 2017 and 2019 within 2km of the site, however this survey did not return a positive result for presence of the species.

2.10 The search for granted EPSL within 2km of the site returned no licences for dormouse or other protected species.

*Light pollution*

2.11 The site was in a rural area with low levels of light pollution (VIIRS Data Base (2022)).

*Habitat Regulations Assessment (HRA) Screening*

2.12 The site was not situated within the zone of influence (ZoI) of any international designated sites. Therefore, due to the distance of the development from the

international designated sites and lack of identified impact pathways, a Habitat Regulations Assessment was considered unlikely to be required.

*Priority and protected species*

2.13 Priority and protected species records were returned from Worcestershire Biological Records Centre (WBRC) for species located within 2km of the site. Key species records can be found below, with the full data set available on request.

- Ten records for badger were returned within the vicinity of the site, although none of the records returned were for an active sett.
- Three records of great crested newt were returned in the vicinity of the site.
- Two records of hazel dormouse were returned, although it is noted that these were recorded over 20 years ago.
- A single otter record for a dead female was returned, located just outside of the nearby village of Clifton upon Teme.
- A maternity roost of common pipistrelle was recorded in Clifton upon Teme.

Field survey – PEA

2.14 A PEA survey was undertaken at the site on 23/04/2024, led by Peter Hacker ACIEEM Senior Ecologist. Survey details can be found in Table 1.

**Table 1 - Field survey timings and conditions.**

| Date | Weather conditions | | | |
|---|---|---|---|---|
| | Temp [°C] | Cloud cover [Oktas] | Wind speed [Beaufort scale] | Rain |
| 23/04/2024 | 16 | 6/8 | 1/1 | Nil |

2.15 Table 2 sets out descriptions of the habitats present within the site using UK habitat Classification Version 2.0 codes, along with a list of species present.

2.16 The distribution and extent of habitat parcels at the site, along with the locations of any target notes, are included within a habitat plan in the appendices, alongside an accompanying full species list.

**Table 2 - Habitats and linear features present within the site.**

| Habitat | Habitat description | Species present |
|---|---|---|
| g4 - Modified grassland<br>Secondary codes:<br>106 (Mown)<br>113 (stone-faced bank) | At the north section of the site, the western bank of the brook was comprised of managed grassland. Certain areas of the grassland were more heavily managed and supported a lower species diversity. The bank of the brook was primarily comprised of an artificial stone-faced bank. | Alder (coppiced), annual meadow grass, bluebells, broadleaf plantain, creeping buttercup, daffodils, dandelion, dog's mercury, dock, lesser celandine, meadow cranesbill, meadow vetch, mouse ear, nettle, pendulous sedge, perennial rye grass, red fescue, rosebay willow herb, smooth meadow grass, sorrel, white clover, Yorkshire fog. |
| w1g - Other broadleaved woodland<br>Secondary code:<br>33 (line of trees) | At the south section of the site, the riverbanks were comprised of a line of mature broadleaved trees, on both sides of the brook. | Black cap, bramble, cuckoo flower, dog violet, hornbeam, lesser celandine, midland's hawthorn, oak, rosebay willowherb, skunk cabbage, wild garlic, wood anemone |
| r2b - Other rivers and streams<br>Secondary code:<br>47 (Natural) | Sapey Brook runs through the centre of the site. The brook is natural, however artificial banks have been created at the north of the site. A defunct weir is present at the south of the site. | Alder, bramble, common cleavers, cuckoo flower, curly leaf dock, forget-me-not, garlic mustard, goat willow, hart's tongue, herb robert, hogweed, holly, ivy, nettle, poppy, primrose, rosebay willowherb, soft rush, speedwell, st. john's wort, wild garlic, wood avens, Yorkshire fog. |

Priority habitats

2.17 At the point where Sapey Brook ran through the site, the brook was more than 2.5km from its headwater. Additionally, the brook did not meet any of the other criteria to be classified as a priority river. No priority habitats were present onsite or adjacent to the site.

2.18 The site lies within the 'Woodland along the Sapey Brook' LWS, however the brook is primarily focused on broadleaved woodland, including ancient woodland, around Sapey Brook, rather than the brook itself.

Priority, protected, and notable species

2.19 The suitability of the site habitats for protected species, the connectivity of the site, and any evidence identified can be found in Table 3.

**Table 3 - Protected species onsite.**

| Species or group | Habitat suitability | Site connectivity | Presence confirmed? |
|---|---|---|---|
| Amphibians, including great crested newt | Poor | Good | No incidental evidence identified but the site is well connected to suitable habitat offsite |
| Badger | Poor | Excellent/direct | No incidental evidence identified but the site is well connected to suitable habitat offsite |
| Bats: foraging and commuting | Excellent | Excellent/direct | No incidental evidence but the site contains highly suitable habitat and well connected to offsite habitat |
| Birds | Excellent | Excellent/direct | No incidental evidence but the site contains highly suitable habitat and well connected to offsite habitat |
| Fish | Good | Excellent/direct | No incidental evidence but the site contains highly suitable habitat and well connected to offsite habitat |
| Fungi | Good | N/A | N/A |
| Hazel dormouse | Poor | Poor | N/A |
| Hedgehog | Good | Excellent/direct | No incidental evidence but the site contains highly suitable habitat and well connected to offsite habitat |
| Invertebrates | Excellent | Excellent/direct | No incidental evidence but the site contains highly suitable habitat and well connected to offsite habitat |
| Otter | Good | Excellent/direct | No incidental evidence but the site contains highly suitable habitat |

| | | | |
|---|---|---|---|
| | | | and well connected to offsite habitat |
| Reptiles | Poor | Good | No incidental evidence identified but the site is well connected to suitable habitat offsite |
| Water vole | Poor | Excellent/direct | No incidental evidence identified but the site is well connected to suitable habitat offsite |

*Key findings*

2.20 At the southern end of the site, on the eastern bank, a potential kingfisher burrow was identified.

2.21 No other incidental evidence of protected species was identified along the surveyed banks of the brook.

*Invasive species*

2.22 No species listed on Schedule 9 of the Wildlife and Countryside Act 1981 were present onsite.

# 3 IMPACTS

3.1 The following discussion and assessment is provided to ensure compliance with legislation and planning policy (see Appendices).

Impacts of the proposed development

*3.2* The proposed development will result in the creation of a hydroelectric facility, with a supporting weir. The proposals will also result in the creation of new aquatic habitat.

3.3 Due the proposed works, it is possible that in the absence of mitigation there may be adverse effects on the following designated sites, habitats, and species:

- approximately 100m of non-priority river habitat will be modified (a section of Sapey Brook);
- approximately 100m of riparian habitat on each side of the brook, consisting of a mixture of grassland and woodland, will be replaced with new aquatic habitat;
- badger (if present);
- nesting birds;
- fish and other aquatic species (if present);
- hedgehog (if present);
- otter (if present);
- reptiles (if present); and
- water vole (if present).

*Designated sites*

3.4 Sapey Brook connected to the River Teme SSSI approximately 6km south of the site. Despite the distance of the site from the SSSI, it is possible that, in the absence of mitigation that prevents soil run-off, water pollution caused by the proposed works could move downstream and impact the water quality of the designated site, causing adverse effects on protected species associated with the SSSI.

*Priority, protected, and notable habitats*

3.5 Priority habitats were not present onsite. Common and widespread habitats which were of limited ecological importance are not discussed further as they will be compensated by native and wildlife-friendly planting and general landscaping across the site. However, the following habitats will require further consideration:

- other rivers and streams.

3.6 The proposal will result in the modification of approximately 100m of Sapey Brook, with the depth of the brook increasing by up to 1m along this stretch. It is not anticipated that the inclusion of the hydro-electric facility will impact the flow or nature of the rest of the brook.

3.7 The site lies within the 'Woodland along the Sapey Brook' LWS, which is primarily focused on broadleaved woodland habitat, including ancient woodland. The

proposed development will not impact upon the woodland habitat surrounding the brook and it is not considered likely to negatively impact any features of the LWS.

*Amphibians (including great crested newt)*

3.8 Desk study data confirmed that amphibians, including great crested newt, were present in the surrounding landscape. Furthermore, there were three waterbodies within 1km of the site, with the nearest waterbody located 550m from site to the northwest. The core and intermediate terrestrial habitat (50m and 250m, respectively) in the vicinity of the offsite pond was excellent. This means that great crested newt would be less likely to commute to other waterbodies via the site.

3.9 Onsite habitats (grassland/woodland) were suitable to support great crested newt in its terrestrial phase. Additionally, connectivity between the onsite habitats and nearby ponds was good.

3.10 No ponds, ditches or other aquatic habitat are being impacted by the proposed development. There will be no impact on aquatic habitats suitable for great crested newt as a result of the proposed development.

*3.11* In total, 100m$^2$ of suitable terrestrial habitat will be lost as a result of the proposed development. However, given the distance from the nearest pond, and the core/ intermediate quality of the terrestrial habitat adjacent to the nearest waterbody, it is considered unlikely that great crested newt would be present onsite. Therefore, in the absence of mitigation during works, there is unlikely to be an adverse impact on great crested newt or common amphibians due to impacts on existing onsite habitats.

*Badger*

3.12 No incidental badger evidence (latrines, tracks, hair, snuffle holes or setts) was observed during the habitat survey.

3.13 The proposed development will not impact potential badger foraging habitat.

3.14 Badger is a very mobile species and readily digs new setts; therefore, impacts during the construction stage cannot be ruled out. If badger setts or commuting badger are present during works and would be affected by the proposals, legislation would be triggered due to killing/ injury and sett destruction. It is anticipated that any impacts on badger (if present) would occur during the construction phase of the development, from badger moving into the construction area, rather than during the operation phase of the development.

3.15 Areas of suitable foraging habitat will remain onsite post-completion of the development and suitable foraging habitat is adjacent to the site and is a common resource locally. It is therefore not considered likely that the proposed development will adversely impact the ability of local badger populations to forage.

*Bats: foraging and commuting*

3.16 The suitability of onsite habitats to be used as potential flight-paths and/or foraging habitat was high.

3.17 Therefore, these habitats must remain unfragmented in order to prevent potential impacts on bats, and in particular light-averse bat species. Fragmentation can occur by physical removal of the habitat/feature, but also through artificial light spilling onto them.

3.18 Current proposals indicate that there will not be new external and internal lighting included in the proposed development and therefore an increase in light spill is not anticipated.

*Birds*

3.19 A potential kingfisher burrow was identified at the south of the site, on the eastern bank of Sapey Brook. The burrow is located approximately 10m away from the location of the proposed works and no direct impacts are anticipated as a result of the proposed development. Additionally, foraging habitat for this species will remain once the hydroelectric facility is operational.

3.20 It is considered likely that birds use the woodland at the south of the site for nesting. No changes to the woodland are anticipated as a result of the proposed works.

3.21 Due to the proposed hydroelectric facility being created over 10m from the site of the potential kingfisher burrow, direct impacts on the kingfisher are not anticipated.

3.22 If nesting birds are present during works and would be affected by the proposals, legislation would be triggered due to active nest destruction.

*Fish*

3.23 The onsite Sapey Brook was a tributary to the River Teme and had suitable habitat to support a variety of fish species including protected species such as twaite shad, as well as river lamprey, and sea lamprey. It also had the potential to act as a European eel migration route.

3.24 There were no barriers onsite that may impact the movement of fish species upstream and it is considered likely that the onsite brook can support all species that are found in the River Teme, including diadromous fish which rely on migration to freshwater habitats for reproduction.

3.25 However, no fish were observed incidentally whilst onsite and one record of fish (bullhead) was returned within the search radius by Worcestershire Biological Records Centre (WBRC). The Environment Agency Ecology and Fish Data Explorer returned results of European eels within the lower Teme catchment but only common fish species were otherwise returned. Therefore, it is likely that only common fish species would be present onsite.

3.26 The flow and sediment transfers within the brook will be modified, as the increase in water depth and the size of the brook will likely reduce flow rates upstream of the facility and increase flow rates several meters downstream of the facility. Therefore, there will be alternations to approximately 100m of aquatic habitat itself that may adversely impact fish populations as a result of the proposed works.

3.27 The installation of a hydro-electric wheel may cause injury/killing of fish species and provide a barrier to migration opportunities for certain fish species. However, the design will include the creation of an impounding weir created in a series of 5 steps of 440 mm high, in accordance with the Environment Agency's guidance for 'pool and weir' fish pass design.

3.28 In the absence of mitigation, there **may be an adverse impact on European eel** during the construction phase, due to killing/injury but it is considered **unlikely that there will be an adverse impact on any other protected fish species**.

*Hazel dormouse*

3.29 No incidental observations of old and/or active dormouse nests were made at the site during the PEA.

3.30 The onsite habitat suitable for dormouse, including the tree line at the south of the site, provided poor vegetation structure and would be unlikely provide a foraging and shelter resource if dormouse was present onsite.

3.31 Taken together, in the absence of mitigation during onsite works there is unlikely to be be an adverse impact on hazel dormouse as a result of the proposed development.

*Hedgehog*

3.32 Onsite habitats are suitable to support hedgehog and it is considered likely that this species uses the site for commuting and foraging.

3.33 If suitable habitats are cleared without mitigation, there would be a negative impact on hedgehog as a result of the proposed development due to killing/ injury (if present), triggering legislation that protects the species.

*3.34* It is considered that adverse impacts on the local hedgehog populations are unlikely as the onsite habitats will remain once works are complete and the habitats are a common local resource and available in the surrounding landscape.

Invertebrates

3.35 It is considered likely that common invertebrate species are present within the woodland and grassland habitats at the site. These habitats are abundant in the surrounding landscape and thus it is not considered likely that the proposed development will adversely impact on local invertebrate populations.

*Otter*

3.36 The site contained habitat suitable to support commuting/foraging otter, with Sapey Brook running through the site. The brook connected to the River Teme approximately 6km south of the site, with the Teme known to support otter along its entire length. Otter is a highly mobile species with a large home range. Despite the distance between the site and the River Teme, Sapey Brook was considered likely to be navigable by otter and it is considered likely that otter move through the site, despite the lack of evidence found during the PEA. Furthermore, terrestrial habitat between the River Teme and Sapey Brook (such as blocks of woodland and scrub) was considered suitable for otter shelter, therefore the onsite brook could be used by otter during commuting to other offsite aquatic and terrestrial habitat.

3.37 Given the size of the proposed development, it is considered likely that otter will be adversely affected by the proposed development due to habitat damage and potential killing/injury during construction works, triggering legislation that protects otter. However, the operational phase of the development will not impact the ability of otter to commute across the surrounding landscape.

3.38 Impacts on the local otter population (if present) are likely during the construction phase of the development.

*Reptiles*

3.39 Suitable onsite habitat consisted of mown grassland, woodland, and freshwater. Onsite habitats were considered good for reptile basking, commuting, and foraging.

3.40 Features suitable to provide shelter and hibernation opportunities for reptiles were not present onsite.

3.41 The surrounding landscape and associated features were considered suitable reptile habitat and it is likely that the site supported common reptile species (slow worm and common lizard) only.

3.42 In the absence of mitigation, there may be a negative impact on reptiles as a result of the proposed development during the construction phase due to killing/ injury (if present), triggering legislation that protects reptiles.

*Water vole*

3.43 Sapey Brook, which ran through the site, contained habitats suitable for water vole, although no incidental evidence of water vole was identified during the PEA. The onsite banks of the brook were steep and artificially reinforced in places, however areas of the bank could be used by water vole to create burrows.

3.44 Given the above and the proximity of the site to suitable habitats, the likelihood of water vole being present on or adjacent to the site is high.

3.45 In the absence of mitigation there may be an adverse effect on water vole as a result of the proposed development due to killing/ injury during the construction phase (if new burrows are present), triggering legislation, and during the operational phase due to impacts on foraging habitat supporting local water vole populations and potential impacts on new burrows if water vole colonise the site.

# 4 RECOMMENDATIONS

Designated sites

4.1 The proposed works were situated within catchment area of the River Teme SSSI, within the 'Woodland along the Sapey Brook' LWS and therefore consultation with Natural England and the Malvern Hills District Council will be required.

4.2 A Construction and Environmental Management Plan (CEMP) should be prepared prior to the commencement of the works at the site, detailing how works will be undertaken to avoid soil run off and water pollution, which would not only negatively impact the onsite aquatic habitat but could move downstream to impact the River Teme SSSI.

Priority, protected, and notable species

*Amphibians (including great crested newt)*

4.3 Due to the lack of likely impact on great crested newt, no survey work is recommended and a licence will not be required for the works to proceed.

*Badger*

4.4 Precautionary working methods should be followed to prevent impacts on badger that may be moving through the site. These include capping pipes, covering up trenches overnight, or leaving a plank within trenches to prevent animals from becoming trapped.

4.5 All works will be restricted to daylight hours, to avoid disturbance to commuting or foraging badger, as they are largely nocturnal.

*Bats: foraging and commuting*

4.6 Onsite light levels were low and overall site radiance was low. It is therefore considered likely that the site would be used by foraging and commuting bats, including light-averse bat species. Bat presence onsite is assumed based on the habitats present and the nearby records. As trees are not proposed to be removed, and new lighting is not proposed for the operational phase, bat activity surveys are not recommended.

4.7 During the construction phase, as a precaution to avoid adverse effects on light-averse bats commuting/ foraging onsite, the works should be undertaken during daytime to avoid the use of artificial lighting. Daytime is taken to mean works commencing no earlier than 30 minutes after sunrise and finishing no later than 30 minutes prior to sunset.

4.8 No new lighting is proposed for the operational phase. However, if new lighting were to be introduced, the increased disturbance and potential fragmentation as a result of light spill is likely to be high and would have an adverse effect on the favourable conservation status of the local bat populations. If new lighting is proposed, a sensitive lighting strategy will be required to show how the current dark zones will be protected to avoid impacts on bats.

*Birds*

4.1 The potential kingfisher burrow located at the south of the site (10m from the works area) will be retained, with direct impacts not anticipated as a result of the

proposed works. Kingfisher is a Schedule 1 species, strictly protected from disturbance during nesting. If the burrow cannot be retained, or if it would be affected by disturbance during the works, a replacement artificial kingfisher tunnel should be installed at a suitable location, as advised by the ecologist, to ensure nesting opportunities remain onsite.

4.2 Site clearance works should commence outside of the bird nesting season or, if work has to carried out during the nesting season (generally from 1st March until 31st August, although birds are known to nest outside of these dates in suitable conditions), a nesting bird check will be required and must be carried out by a suitably qualified ecologist. Active nests should be protected by a suitable buffer, as instructed by the ecologist, until the young have fledged, as confirmed by the ecologist. Where a Schedule 1 species (as defined in the Wildlife and Countryside Act) is confirmed to be present, compensation for impacts, e.g., loss of nesting sites, should be devised and implemented.

*Hedgehog*

4.3 The vegetation removal should be carried out in the active season (i.e. March – November, inclusive) in order to avoid the risk of impacting hedgehogs during hibernation season. If works cannot be undertaken in the active season, the removal of brash piles or areas of thick vegetation must be supervised by a suitably qualified ecologist following a finger-tip search of the area.

4.4 As a precaution, trenches should be covered overnight during the works (or a plank provided as a means of escape) and pipes should be capped.

*Invertebrates*

4.5 By way on compensation for loss of shelter habitat, an insect box should be installed within retained woodland, as directed by the ecologist. Enhancements are recommended below to improve the site for invertebrates (and in turn for other species by increasing prey availability at the site) by planting native plants or plants with known biodiversity value.

*Otter*

4.6 An otter walkover survey should be undertaken immediately prior to works to determine whether otter are currently using the site. The survey will be undertaken by a suitably qualified ecologist to confirm/refute otter presence onsite or along waterbodies close to the site. If otter holt/ place of shelter is observed, a mitigation licence will be required to undertake the works.

*Reptiles*

4.7 The proposed development will result in the loss of small areas of habitat considered suitable to support common reptile species. Avoidance and mitigation measures must therefore be undertaken to avoid the possibility of killing and injuring reptiles.

4.8 A Precautionary Working Method Statement (PWMS) will be created detailing how impacts on reptiles can be avoided during clearance and construction activities.

4.9 Vegetation removal will not be carried temperatures below 7°C in order to avoid the risk of impacting protected species while hibernating when they are most vulnerable.

4.10 As a precaution, trenches will be covered overnight during the works (or a plank provided as a means of escape) and pipes will be capped.

4.11 To compensate for the loss of suitable habitat, brash and wood piles will be created in discrete locations, as directed by the ecologist.

*Water vole*

4.12 A water vole walkover survey of waterbodies onsite or around the site boundary will be required immediately prior to the beginning of works. The survey will be undertaken by a suitably qualified ecologist to confirm/refute water vole presence onsite or along waterbodies close to the site and ensure water vole have not colonised the site since the PEA survey.

4.13 If signs of water vole are observed during surveys, a water vole mitigation licence will be required to undertake the works.

*Fish*

*4.14* An impounding weir will be installed as part of the proposed works. This would enable fish species to migrate upstream during the spawning season and prevent them from entering the hydroelectric power system.

*4.15* As only common fish species are expected onsite, and due to the design of the hydro-electric facility to include an impounding weir that allows fish migration, an additional fish pass is not recommended. However, as the works will be impacting on a waterway, consultation with the Environment Agency is recommended.

*4.16* Works should take place outside of the fish spawning season (February – July, inclusive) to ensure that common fish populations are not adversely impacted and to reduce the likelihood of fish injury/killing.

4.17 As Sapey Brook runs through the site, impacts on local fish populations from pollution that would arise from the proposed development must be considered. Therefore, a Construction Environmental Management Plan (CEMP) should be prepared prior to the works commencement. The CEMP should include details about how pollution of the brook will be avoided. Methods stated in the CEMP should include the provision of silt fencing to prevent soil run off and the creation of a dedicated chemical storage/ refuelling area located at least 5m away from the riverbank.

*Timing of works*

4.18 Due to the various timing constraints resulting from the protected species that may be using the site, table 4 provides clarity on when works can proceed.

**Table 4 - timing constraints on works. Red – works cannot proceed. Amber – nesting bird check or fingertip search required. Green – works can proceed with requiring additional checks.**

| January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

*Biodiversity enhancement*

4.19 Local authorities have a duty to seek to maintain **and enhance** biodiversity in the exercise of their functions.

4.20 Where possible, the existing onsite habitat of ecological importance should be retained to ensure that habitats and species that rely on them are not adversely affected by the development. Native species of local provenance (and grown in the UK) or ornamental plants with known wildlife value should be used for new onsite planting.

4.21 Bird nesting boxes and bat roosting boxes (in addition to any recommended as part of mitigation and compensation measures) should be incorporated at boundary features. A range of box types should be used to provide opportunities for a number of species. The following designs are recommended (or similar, if they are not available):

- bats - *small crevice dwelling species, such as pipistrelle* - Schwegler 2F, Eco Kent, Beaumaris Bat Box; and
- birds - general purpose, small bird species (Schwegler 1B, Schwegler 2M, Woodstone Nest Box - 32mm / 28mm).

# 5 BIODIVERSITY NET GAIN ASSESSMENT

5.1 The onsite river was assessed using the Statutory Biodiversity Metric Calculation tool and in line with the MoRPH river condition assessment survey tool. As the site does not extend beyond 10m past the 10m riparian zone around the river bank, only the water course assessment was used, as bank top and riparian habitats are assessed within the MoRPH river condition assessment.

5.2 The onsite river was divided into 5 MoRPH modules, along which a single MoRPH survey was conducted for each module. The onsite river condition for the MoRPH modules scored from fairly poor to moderate, thus an overall score of moderate was used within the biodiversity net gain metric. Full details on the river condition assessment undertaken at the site are available upon request.

5.3 The baseline onsite watercourse data required for the biodiversity metric calculation for the site can be found in Table 5.

**Table 5 - Summary of the onsite baseline watercourses (within the red line boundary).**

| Pre-development habitat | Length (km) | Condition | Extent of encroachment (watercourse) | Extent of encroachment for both banks | Biodiversity units | Units lost | Units retained |
|---|---|---|---|---|---|---|---|
| Other rivers and streams | 0.01 | Fairly poor | Major | Major/Minor | 0.04 | 0 | 0.01 |
| Other rivers and streams | 0.02 | Fairly poor | Minor | Major/Minor | 0.14 | 0 | |
| Other rivers and streams | 0.02 | Fairly poor | Minor | Major/no encroachment | 0.14 | 0 | |
| Other rivers and streams | 0.02 | Fairly poor | No encroachment | Major/no encroachment | 0.18 | 0 | |
| Other rivers and streams | 0.02 | Moderate | No encroachment | Major/no encroachment | 0.24 | 0.12 | 0.01 |

5.4 The creation of the hydro-electric facility will result in the degradation of approximately 10m of watercourse habitat to poor condition. The details of this habitat creation can be found in table 6.

**Table 6 - Onsite watercourse creation**

| Post-development habitats | Length (km) | Condition | Extent of encroachment (watercourse) | Extent of encroachment for both banks | Habitat units delivered |
|---|---|---|---|---|---|
| Other rivers and streams | 0.01 | Poor | Major | Major/Minor | 0.01 |

5.5 As the onsite watercourse is being impacted as a result of the proposed development, enhancement of the watercourse once the hydro-electric facility is

in place will be required, in order for the development to result in an overall net gain.

5.6 Watercourse enhancement was based on the proposed site plan (Appendix III); the proposed onsite watercourse enhancement and creation can be found in Table 7.

**Table 7 - Summary of the onsite watercourse enhancement (within the redline boundary)**

| Proposed habitat | Length (km) | Condition | Extent of encroachment (watercourse) | Extent of encroachment for both banks | Biodiversity units delivered |
|---|---|---|---|---|---|
| Other rivers and streams | 0.02 | Moderate | Minor | Major/minor | 0.17 |
| Other rivers and streams | 0.02 | Moderate | No encroachment | Major/no encroachment | 0.22 |
| Other rivers and streams | 0.02 | Moderate | No encroachment | Major/no encroachment | 0.22 |

5.7 The biodiversity net gain metric demonstrates an increase in watercourse biodiversity onsite as a result of the proposed development, with a total net increase of 0.03 watercourse units, resulting in a +3.67% net change. The above watercourse enhancement also meets the required "trading rules" for watercourse enhancement. Additional offsite enhancement or the purchase of additional units will therefore be required to meet the statutory 10% net gain.

# APPENDIX I: SURVEY METHODS

Extended Phase 1 Habitat Survey

A field survey was undertaken on 23/04/2024.

All habitats present within the site with the suitability to support rare, protected, or otherwise notable species of flora or fauna (together with direct signs) were noted.

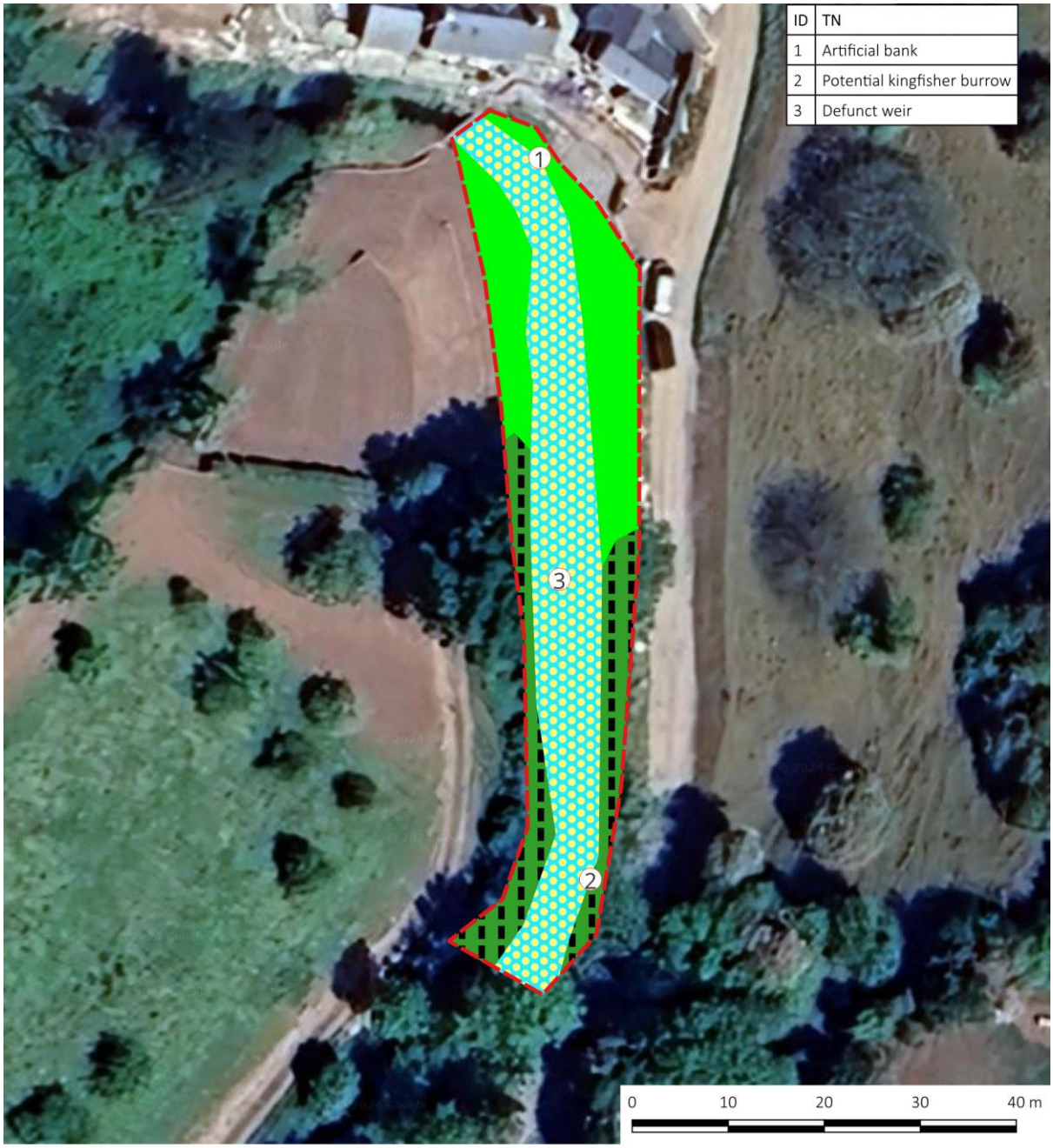
In the context of this report, rare, protected, or otherwise notable species of flora or fauna were those considered to meet any of the following criteria:

- species protected by legislation (see Appendix VII);
- UK Post-2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species;
- nationally rare or nationally scarce species; and
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red Lists).

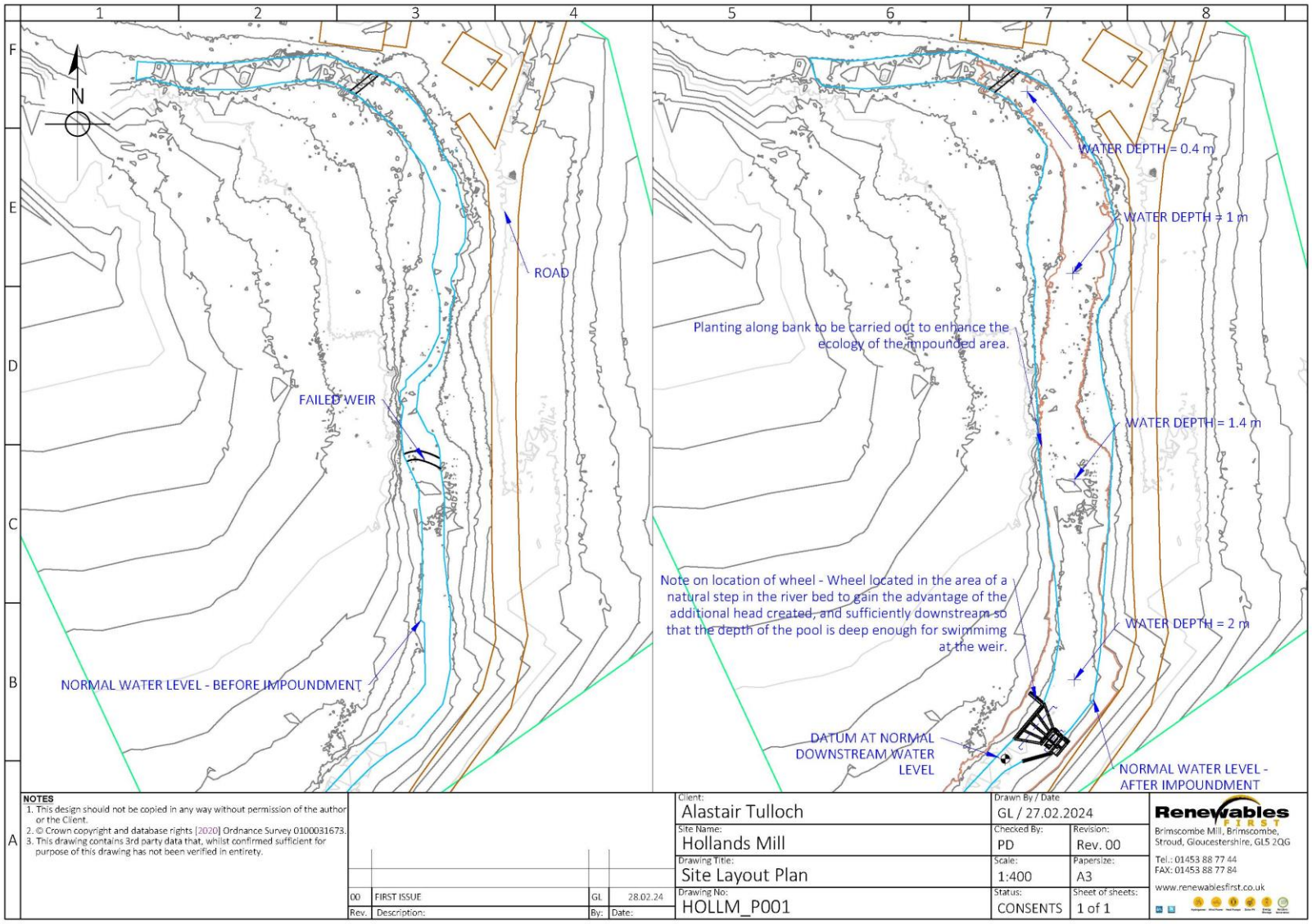
The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during the survey. However, many invasive species can be cryptic and therefore this survey does not provide a guarantee that an invasive species is not present and shouldn't be relied on to rule out absence of an invasive species.

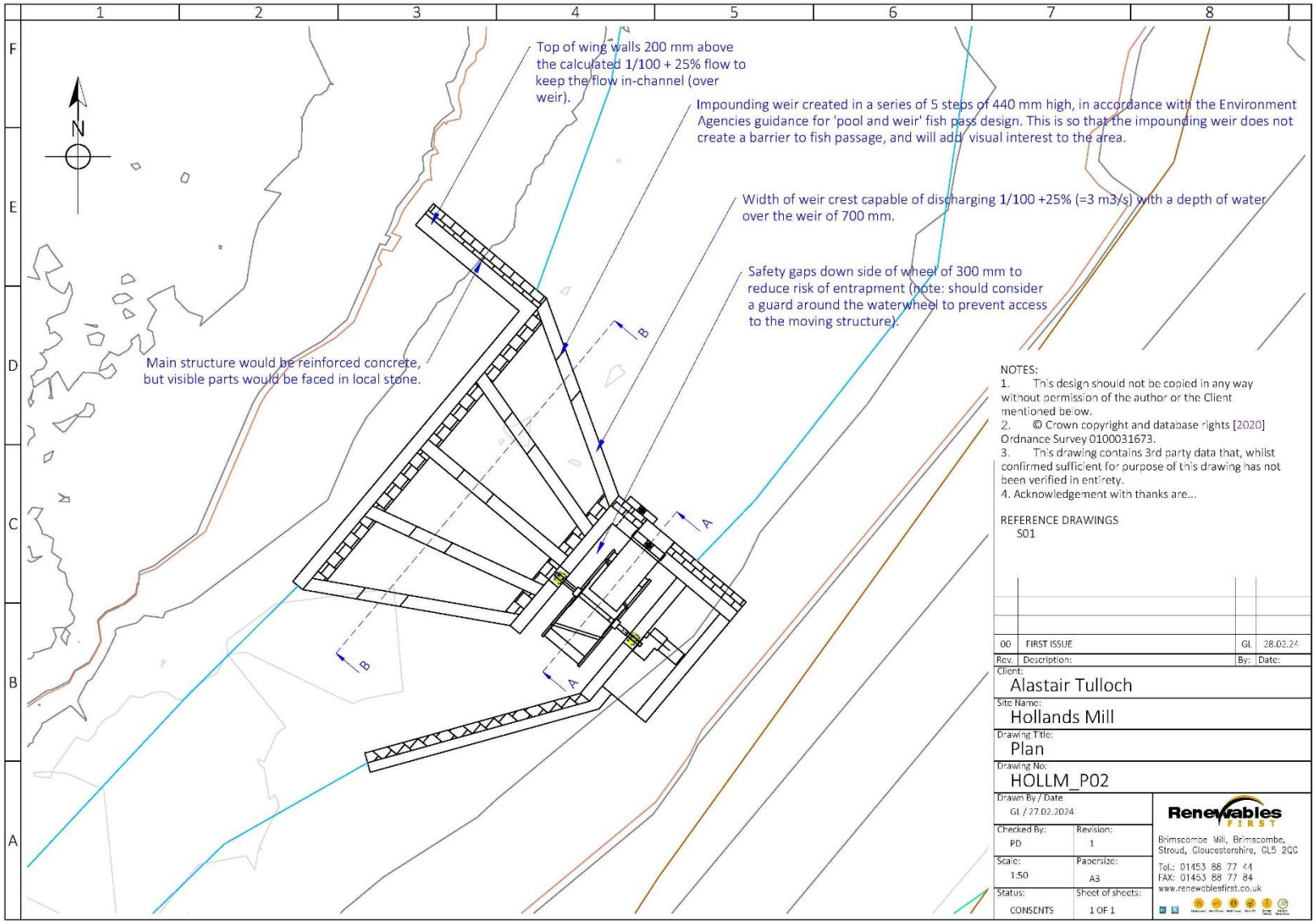
An extended Phase 1 Habitat Plan was produced in QGIS, incorporating Target Notes used to highlight features of ecological interest (see Appendix II).

# APPENDIX II: HABITAT PLAN



# APPENDIX III: PROPOSED DEVELOPMENT PLAN




Top of wing walls 200 mm above the calculated 1/100 + 25% flow to keep the flow in-channel (over weir).
Impounding weir created in a series of 5 steps of 440 mm high, in accordance with the Environment Agencies guidance for 'pool and weir' fish pass design. This is so that the impounding weir does not create a barrier to fish passage, and will add visual interest to the area.
Width of weir crest capable of discharging 1/100 +25% (=3 m3/s) with a depth of water over the weir of 700 mm.
Safety gaps down side of wheel of 300 mm to reduce risk of entrapment (note: should consider a guard around the waterwheel to prevent access to the moving structure).
Main structure would be reinforced concrete, but visible parts would be faced in local stone.
N
A
B
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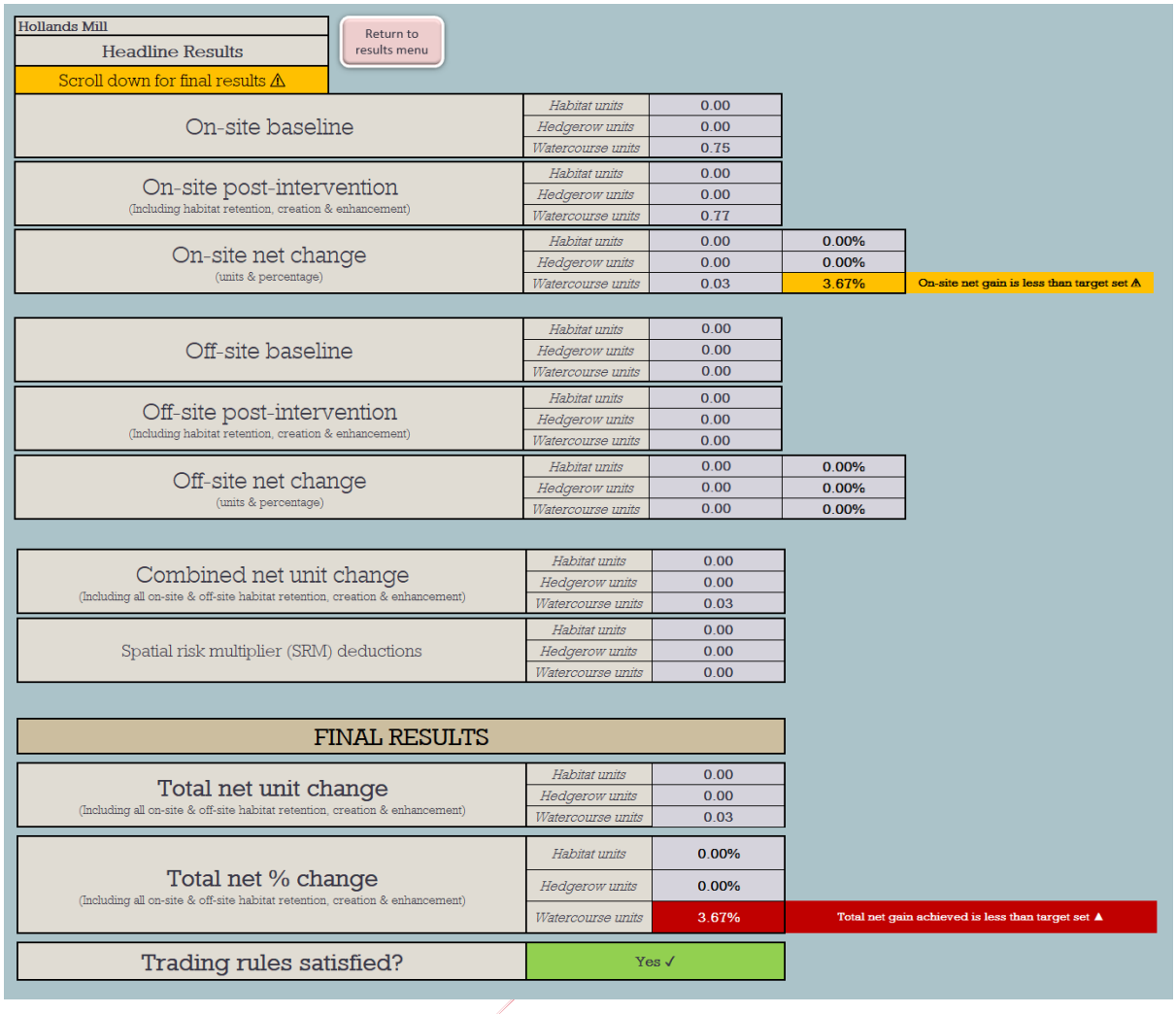
# APPENDIX IV: BIODIVERSITY NET GAIN RESULTS PAGE



Hollands Mill

Headline Results

Scroll down for final results ⚠

Return to results menu

| | | | | |
|---|---|---|---|---|
| On-site baseline | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.75 | | |
| On-site post-intervention (Including habitat retention, creation & enhancement) | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.77 | | |
| On-site net change (units & percentage) | *Habitat units* | 0.00 | 0.00% | |
| | *Hedgerow units* | 0.00 | 0.00% | |
| | *Watercourse units* | 0.03 | 3.67% | On-site net gain is less than target set ⚠ |
| Off-site baseline | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.00 | | |
| Off-site post-intervention (Including habitat retention, creation & enhancement) | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.00 | | |
| Off-site net change (units & percentage) | *Habitat units* | 0.00 | 0.00% | |
| | *Hedgerow units* | 0.00 | 0.00% | |
| | *Watercourse units* | 0.00 | 0.00% | |
| Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.03 | | |
| Spatial risk multiplier (SRM) deductions | *Habitat units* | 0.00 | | |
| | *Hedgerow units* | 0.00 | | |
| | *Watercourse units* | 0.00 | | |

**FINAL RESULTS**

| | | | |
|---|---|---|---|
| Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 0.00 | |
| | *Hedgerow units* | 0.00 | |
| | *Watercourse units* | 0.03 | |
| Total net % change (Including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 0.00% | |
| | *Hedgerow units* | 0.00% | |
| | *Watercourse units* | 3.67% | Total net gain achieved is less than target set ▲ |
| Trading rules satisfied? | Yes ✓ | | |

# APPENDIX V: BNG MORPH RIVER CONDITION ASSESSMENT SCORES

In total, 5 condition assessments were undertaken over the 90m stretch, combined to give the final condition score for the watercourse. The sections were assessed from north – south along the watercourse.

**Section 1**

| | Section | Score |
|---|---|---|
| Group B | Bank top vegetation structure | 2 |
| | Bank top tree feature richness | 0 |
| | Bank top water-related features | 0 |
| | Bank top NNIPS cover | 0 |
| | Bank top managed ground cover | -2 |
| Group C | Bank face riparian vegetation structure | 1 |
| | Bank face tree feature richness | 0 |
| | Bank face natural bank profile extent | 0 |
| | Bank face natural bank profile richness | 1 |
| | Bank face natural bank material richness | 2 |
| | Bank face bare (unvegetated) sediment extent | 1 |
| | Bank face artificial bank profile extent | -4 |
| | Bank face reinforcement extent | -2 |
| | Bank face reinforcement material severity | -1 |
| | Bank face NNIPS cover | 0 |
| Group D | Channel margin aquatic vegetation extent | 0 |
| | Channel margin aquatic morphotype richness | 0 |
| | Channel margin physical feature extent | 1 |
| | Channel margin physical feature richness | 0 |
| | Channel margin artificial features | 0 |
| Group E | Channel aquatic morphotype richness | 0 |
| | Channel bed tree feature richness | 1 |
| | Channel bed hydraulic feature richness | 2 |
| | Channel bed natural physical features extent | 2 |
| | Channel bed natural physical feature richness | 1 |
| | Channel bed material richness | 3 |
| | Channel bed siltation | 0 |
| | Channel bed reinforcement extent | 0 |
| | Channel bed reinforcement materials severity | 0 |
| | Channel bed artificial features severity | 0 |
| | Channel bed NNIPS cover | 0 |
| | Channel bed filamentous algae cover | -3 |
| | | |
| Positive values | | 1.545454545 |
| Negative values | | -2.4 |
| Final Score | | -0.854545455 |

**Section 2**

| | Section | Score |
|---|---|---|
| Group B | Bank top vegetation structure | 2 |
| | Bank top tree feature richness | 0 |
| | Bank top water-related features | 0 |
| | Bank top NNIPS cover | 0 |
| | Bank top managed ground cover | -2 |
| Group C | Bank face riparian vegetation structure | 1 |
| | Bank face tree feature richness | 0 |
| | Bank face natural bank profile extent | 1 |
| | Bank face natural bank profile richness | 1 |
| | Bank face natural bank material richness | 2 |
| | Bank face bare (unvegetated) sediment extent | 1 |
| | Bank face artificial bank profile extent | -4 |
| | Bank face reinforcement extent | -2 |
| | Bank face reinforcement material severity | -1 |
| | Bank face NNIPS cover | 0 |
| Group D | Channel margin aquatic vegetation extent | 0 |
| | Channel margin aquatic morphotype richness | 0 |
| | Channel margin physical feature extent | 0 |
| | Channel margin physical feature richness | 0 |
| | Channel margin artificial features | 0 |
| Group E | Channel aquatic morphotype richness | 0 |
| | Channel bed tree feature richness | 1 |
| | Channel bed hydraulic feature richness | 2 |
| | Channel bed natural physical features extent | 2 |
| | Channel bed natural physical feature richness | 1 |
| | Channel bed material richness | 3 |
| | Channel bed siltation | 0 |
| | Channel bed reinforcement extent | 0 |
| | Channel bed reinforcement materials severity | 0 |
| | Channel bed artificial features severity | 0 |
| | Channel bed NNIPS cover | 0 |
| | Channel bed filamentous algae cover | -3 |
| | | |
| Positive values | | 1.545454545 |
| Negative values | | -2.4 |
| Final Score | | -0.854545455 |

**Section 3**

| | Section | Score |
|---|---|---|
| Group B | Bank top vegetation structure | 1 |
| | Bank top tree feature richness | 0 |
| | Bank top water-related features | 0 |
| | Bank top NNIPS cover | 0 |
| | Bank top managed ground cover | -2 |
| Group C | Bank face riparian vegetation structure | 1 |
| | Bank face tree feature richness | 0 |
| | Bank face natural bank profile extent | 1 |
| | Bank face natural bank profile richness | 2 |
| | Bank face natural bank material richness | 3 |
| | Bank face bare (unvegetated) sediment extent | 4 |
| | Bank face artificial bank profile extent | 0 |
| | Bank face reinforcement extent | 0 |
| | Bank face reinforcement material severity | 0 |
| | Bank face NNIPS cover | 0 |
| Group D | Channel margin aquatic vegetation extent | 0 |
| | Channel margin aquatic morphotype richness | 0 |
| | Channel margin physical feature extent | 1 |
| | Channel margin physical feature richness | 1 |
| | Channel margin artificial features | 0 |
| Group E | Channel aquatic morphotype richness | 0 |
| | Channel bed tree feature richness | 1 |
| | Channel bed hydraulic feature richness | 1 |
| | Channel bed natural physical features extent | 1 |
| | Channel bed natural physical feature richness | 1 |
| | Channel bed material richness | 2 |
| | Channel bed siltation | 0 |
| | Channel bed reinforcement extent | 0 |
| | Channel bed reinforcement materials severity | 0 |
| | Channel bed artificial features severity | 0 |
| | Channel bed NNIPS cover | 0 |
| | Channel bed filamentous algae cover | -1 |
| | | |
| Positive values | | 1.538461538 |
| Negative values | | -1.5 |
| Final Score | | 0.038461538 |

**Section 4**

| | Section | Score |
|---|---|---|
| Group B | Bank top vegetation structure | 1 |
| | Bank top tree feature richness | 0 |
| | Bank top water-related features | 0 |
| | Bank top NNIPS cover | 0 |
| | Bank top managed ground cover | -2 |
| Group C | Bank face riparian vegetation structure | 2 |
| | Bank face tree feature richness | 1 |
| | Bank face natural bank profile extent | 1 |
| | Bank face natural bank profile richness | 2 |
| | Bank face natural bank material richness | 3 |
| | Bank face bare (unvegetated) sediment extent | 2 |
| | Bank face artificial bank profile extent | 0 |
| | Bank face reinforcement extent | 0 |
| | Bank face reinforcement material severity | 0 |
| | Bank face NNIPS cover | 0 |
| Group D | Channel margin aquatic vegetation extent | 0 |
| | Channel margin aquatic morphotype richness | 0 |
| | Channel margin physical feature extent | 1 |
| | Channel margin physical feature richness | 1 |
| | Channel margin artificial features | 0 |
| Group E | Channel aquatic morphotype richness | 0 |
| | Channel bed tree feature richness | 1 |
| | Channel bed hydraulic feature richness | 1 |
| | Channel bed natural physical features extent | 2 |
| | Channel bed natural physical feature richness | 1 |
| | Channel bed material richness | 2 |
| | Channel bed siltation | -1 |
| | Channel bed reinforcement extent | 0 |
| | Channel bed reinforcement materials severity | 0 |
| | Channel bed artificial features severity | 1 |
| | Channel bed NNIPS cover | 0 |
| | Channel bed filamentous algae cover | -1 |
| | | |
| Positive values | | 1.466666667 |
| Negative values | | -1.333333333 |
| Final Score | | 0.133333333 |

**Section 5**

| | Section | Score |
|---|---|---|
| Group B | Bank top vegetation structure | 4 |
| | Bank top tree feature richness | 0 |
| | Bank top water-related features | 0 |
| | Bank top NNIPS cover | 0 |
| | Bank top managed ground cover | -2 |
| Group C | Bank face riparian vegetation structure | 0 |
| | Bank face tree feature richness | 0 |
| | Bank face natural bank profile extent | 1 |
| | Bank face natural bank profile richness | 1 |
| | Bank face natural bank material richness | 3 |
| | Bank face bare (unvegetated) sediment extent | 4 |
| | Bank face artificial bank profile extent | 0 |
| | Bank face reinforcement extent | 0 |
| | Bank face reinforcement material severity | 0 |
| | Bank face NNIPS cover | 0 |
| Group D | Channel margin aquatic vegetation extent | 0 |
| | Channel margin aquatic morphotype richness | 0 |
| | Channel margin physical feature extent | 1 |
| | Channel margin physical feature richness | 1 |
| | Channel margin artificial features | 0 |
| Group E | Channel aquatic morphotype richness | 0 |
| | Channel bed tree feature richness | 2 |
| | Channel bed hydraulic feature richness | 0 |
| | Channel bed natural physical features extent | 2 |
| | Channel bed natural physical feature richness | 2 |
| | Channel bed material richness | 3 |
| | Channel bed siltation | 0 |
| | Channel bed reinforcement extent | 0 |
| | Channel bed reinforcement materials severity | 0 |
| | Channel bed artificial features severity | 0 |
| | Channel bed NNIPS cover | 0 |
| | Channel bed filamentous algae cover | -1 |
| | | |
| Positive values | | 2.181818182 |
| Negative values | | -1.5 |
| Final Score | | 0.681818182 |

# APPENDIX IV: SURVEY IMAGES

**Figure 2 – Northern section of the site.**

**Figure 3 – Mid-section of the site and eastern bank.**

**Figure 4 – Southern section of the site.**

**Figure 5 – Western bank at the south of the site.**

**Figure 6 – Eastern bank at the south of the site.**

**Figure 7 – Section of eroding cliff on the western bank and defunct weir.**

# APPENDIX V: SPECIES LIST

**The site name:** Hollands Mill, Clifton-upon-Teme, Worcester, WR6 6HJ
**Provided by:** Wildwood Ecology
**Grid reference:** SO 69756 61449
**Verified by:** Peter Hacker

| Common name | Scientific name (if known) | Number | Comment |
|---|---|---|---|
| Alder | *Alnus glutinosa* | | |
| American Skunk-cabbage | *Lysichiton americanus* | 1 | Non-Schedule 9 invasive |
| Annual meadow grass | *Poa annua* | | |
| Black cap | *Sylvia atricapilla* | | |
| Bluebell | *Hyacinthoides non-scripta* | | |
| Bramble | *Rubus fruticosus* agg. | | |
| Cleavers | *Galium aparine* | | |
| Common dog-violet | *Viola riviniana* | | |
| Common poppy | *Papaver rhoeas* | | |
| Creeping buttercup | *Ranunculus repens* | | |
| Cuckoo flower | *Cardamine pratensis* | | |
| Curled dock | *Rumex crispus* | | |
| Daffodil | *Narcissus pseudonarcissus subsp. pseudonarcissus* | | |
| Dandelion | *Taraxacum officinale* agg. | | |
| Dock | *Rumex* spp. | | |
| Dog's mercury | *Mercurialis perennis* | | |
| Field forget-me-not | *Myosotis arvensis* | | |
| Field mouse-ear | *Cerastium arvense* | | |
| Garlic mustard | *Alliaria petiolata* | | |
| Germander speedwell | *Veronica chamaedrys* | | |
| Goat willow | *Salix caprea* | | |
| Greater plantain | *Plantago major* | | |
| Hairy St John's-wort | *Hypericum hirsutum* | | |
| Hart's tongue | *Phyllitis scolopendrium* | | |
| Herb Robert | *Geranium robertianum* | | |
| Hogweed | *Heracleum sphondylium* | | |
| Holly | *Ilex aquifolium* | | |
| Hornbeam | *Carpinus betulus* | | |
| Ivy | *Hedera helix* | | |
| Lesser celandine | *Ranunculus ficaria* | | |
| Meadow cranesbill | *Geranium pratense* | | |
| Meadow vetchling | *Lathyrus pratensis* | | |

| | | | |
|---|---|---|---|
| Midland hawthorn | *Crataegus laevigata* | | |
| Nettle | *Urtica dioica* | | |
| Oak | *Quercus* spp. | | |
| Pendulous sedge | *Carex pendula* | | |
| Perennial rye grass | *Lolium perenne* | | |
| Primrose | *Primula vulgaris* | | |
| Ramsons | *Allium ursinum* | | |
| Red fescue | *Festuca rubra* | | |
| Rosebay willowherb | *Chamerion angustifolium* | | |
| Sedge | *Carex* spp. | | |
| Smooth meadow grass | *Poa pratensis* | | |
| Soft rush | *Juncus effusus* | | |
| White clover | *Trifolium repens* | | |
| Willowherb | *Epilobium spp.* | | |
| Wood anemone | *Anemone nemorosa* | | |
| Wood avens | *Geum urbanum* | | |
| Wood sorrel | *Oxalis acetosella* | | |
| Yorkshire fog | *Holcus lanatus* | | |

# APPENDIX VI: FULL METHODOLOGY

This report has been informed by the following, with detailed methodology provided in Appendix I:

- desk study and records search; and
- Preliminary Ecological Appraisal.

This report has been written in cognisance of the CIEEM Guidelines on: Ecological Report Writing and Preliminary Ecological Appraisal.

A desk study was undertaken in relation to the site. The sources consulted and the type of information obtained are summarised below.

| Source | Information and data sets | Search buffer from the site centre/boundary |
|---|---|---|
| Choose an item. | • Protected and priority species.<br>• Non-statutory designations | • (2km)<br>• (1km) |
| Multi-Agency Geographic Information for the Countryside (MAGIC) | • International statutory designations<br>• National statutory designations<br>• Granted EPSL returns, GCN pond surveys and class licence returns<br>• Bat consultation zones/core + juvenile sustenance zones | • (25km)<br>• (2km)<br>• (5km (bats) 2km other species)<br>• (10km) |

The search buffers are sufficient to cover the Zone of Influence (ZoI) of the proposed development in relation to Protected and Priority species and designated sites.

The impact of the proposed development on the biological integrity of nearby designated protected sites has been fully considered.

Assessing ecological importance

The assessment of the importance of sites, habitats and species are made with reference to CIEEMs guidelines for EcIA, where possible. These guidelines provide consistency in the approach to evaluating the importance of the ecological features within a site and the effects or impacts a proposed development will have on them.

Firstly, the sites, habitats and species are assessed using a framework which assigns a level of geographical importance to ecological features. This framework incorporates a wide range of legislation and governmental guidance in assessing each feature's importance.

Next, the effects/likely effects of the proposed development are predicted, considering different stages and activities within the development process. These effects/likely effects are then assessed for their significance, based upon the importance of the site, habitat or species being assessed. The assessment of effects/likely effects significance is considered before and after the proposed mitigation to give an overall indication of significance.

The importance of specific ecological receptors (sites, habitats or species) is assigned according to their level of importance using the following terms:

- International Importance;
- UK Importance;
- National Importance (i.e. England/Northern Ireland/Scotland/Wales);
- Regional Importance;
- County Importance;
- District Importance (or Unitary Authority, City, or Borough);
- Local or Parish Importance; and
- Of Importance within the site (the zone of influence or a larger defined area).

*Contributor information*

The PEA was undertaken by Peter Hacker ACIEEM Senior Ecologist. The report was written by Peter Hacker ACIEEM Senior Ecologist. The report was reviewed by Ivi Szaboova MCIEEM Director of Ecology and approved by Ivi Szaboova MCIEEM Director of Ecology.

# APPENDIX VIII - BIBLIOGRAPHY

Andrews H. (2018). Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-care and Ecology professionals: Bat Tree Habitat Key. Pelagic Publishing, Exeter.

CIEEM (2015). Guidelines on Ecological Report Writing. Chartered Institute for Ecology and Environmental Management, Winchester.

CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. 2nd Edition. Chartered Institute for Ecology and Environmental Management, Winchester.

Defra (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd Edition. Department for Environment, Food and Rural Affairs, London.

MAGIC England and Wales online at: https://magic.defra.gov.uk/home.htm.

UKHab Ltd (2023). *UK Habitat Classification Version 2.0 (at https://www.ukhab.org).*

(VIIRS Data Base (2021) Online, accessed 11/06/2024 available at https://www.lightpollutionmap.info)

# APPENDIX IX: PLANNING POLICY AND LEGISLATION

The following planning policy and legislation relating to nature conservation and biodiversity status are considered of relevance to the current proposal.

Planning and biodiversity (England)

Local Authorities have a requirement to consider biodiversity and geological conservation issues when determining planning applications under the following planning policies.

*National Planning Policy Framework (2023)*

The National Planning Policy Framework (NPPF) was updated in December 2023 and sets out the Government's planning policies for England and how these should be applied. It replaces the National Planning Policy Framework published in July 2021.

Paragraph 11 states that: "Plans and decisions should apply a presumption in favour of sustainable development. "Section 15 of the NPPF (paragraphs 180 to 188) considers the conservation and enhancement of the natural environment including habitats and biodiversity (paragraphs 185-188).

Paragraph 180 states that planning and decisions should contribute to and enhance the natural and local environment by: "Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; maintaining the character of the undeveloped coast, while improving public access to it where appropriate; Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

Paragraph 181 states that plans should distinguish between the hierarchy of international, national, and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Paragraph 185 states that in order to protect and enhance biodiversity and geodiversity, plans should: "Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

"When determining planning applications, paragraph 186 states that local planning authorities should aim to conserve and enhance biodiversity by applying the following principles: "If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."

As stated in paragraph 187 the following should be given the same protection as habitats sites: "Potential Special Protection Areas and possible Special Areas of Conservation; Listed or proposed Ramsar sites; and Sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

"Paragraph 188 states that the presumption in favour of sustainable development does not apply where the planned project is likely to have a significant effect on a habitat site (alone or in combination with other plans or projects) unless an appropriate assessment has concluded the plan or project will not adversely affect the integrity of the habitats site

Legislation and biodiversity

Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside

Act 1981 (as amended) or are named as European Protected Species (EPS) in the Conservation of Habitats and Species Regulations 2017 (as amended). These two main pieces of legislation have been consulted when writing this report and are therefore described in detail within this section.

Other relevant legislation and policy documents that have been consulted include –The Countryside and Rights of Way Act 2000; The Hedgerow Regulations 1997; Biodiversity Action Plans, both UK-wide (UKBAP) and Local plans (LBAPs), and The National Planning Policy Framework (NPPF).

There is also legislation that legally protects certain animals - for example, the Protection of Badgers Act (1992) protects badgers and their setts, and the Deer Act (1991) places restrictions on actions that can be taken against deer species.

*Wildlife & Countryside Act 1981 (as amended)*

The Wildlife & Countryside Act 1981 (as amended) [WCA] is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part I within the Act deals with the protection of wildlife.

Most European Protected Species offences are now covered under the Conservation of Habitats and Species Regulations (see below), but some 'intentional' acts are still covered under the WCA, such as obstructing access to a bat roost.

The WCA prohibits the release to the wild of non-native animal species listed on Schedule 9 (e.g. signal crayfish and American mink). It also prohibits planting in the wild of plants listed in Schedule 9 (e.g. Japanese Knotweed and *Rhododendron ponticum*) or otherwise deliberately causing them to grow in the wild. This is to prevent the release of invasive non-native species that could threaten our native wildlife.

The provisions relating to animals in the Act only apply to 'wild animals'; these are defined as those that are living wild or were living wild before being captured or killed. It does not apply to captive bred animals being held in captivity.

There are 'defences' provided by the WCA. These are cases where acts that would otherwise be prohibited by the legislation are permitted, such as the incidental result of a lawful operation which could not be reasonable avoided, or actions within the living areas of a dwelling house.

Licensing: certain prohibited actions under the Wildlife and Countryside Act may be undertaken under licence by the proper authority. For example, scientific study that requires capturing or disturbing protected animals can be allowed by obtaining a licence – e.g. bat surveys.

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

The Conservation of Habitats and Species Regulations 2017 (as amended) (which are the principal means by which the EC Habitats Directive is transposed in England and Wales)

update the legislation and consolidate all the many amendments which have been made to the Regulations since they were first made in 1994.

These regulations provide for the:

- protection of European Protected Species [EPS] (animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain) including bats, dormice, great crested newts, and otters;
- designation and protection of domestic and European Sites - e.g. Site of Special Scientific Interest [SSSI] and Special Area of Conservation [SAC]; and
- adaptation of planning controls for the protection of such sites and species.

Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in exercising their function – i.e. when determining a planning application.

There is no defence that an act was the incidental and unavoidable result of a lawful activity.

Licensing: it is possible for actions which would otherwise be an offence under the Regulations to be undertaken under licence issued by the proper authority. For example, where a European Protected Species has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required.

Species protection

The following protected species information is relevant to this report. Legislation is only discussed in relation to planning and development; other offences may exist.

### Amphibians

Common frog, common toad, common newt, and palmate newt receive limited protection under the Wildlife and Countryside Act 1981 (as amended), making it illegal to sell or trade them.

Great crested newt and natterjack toad are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) as European Protected Species. It is illegal to:

- deliberately capture, injure, kill, or disturb either species;
- intentionally or recklessly obstruct access to any structure/place used for shelter or protection; or
- damage or destroy a breeding site or resting place.

If proposed development work is likely to kill/injure great crested newt or destroy a known breeding site, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard amphibians.

Badger

Badger are protected in the UK under the Protection of Badgers Act 1992. Under the act it is an offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat[1] a Badger, or attempt to do so; and
- to intentionally or recklessly interfere with a sett[2] (this includes disturbing badger whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is common over most of Britain; it is not intended to prevent properly authorised development.

Bats

All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately kill, injure or capture a bat;
- deliberately disturb bats; and
- damage or destroy a breeding site or resting place of a bat.

In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- obstruct access to any structure or place which any bat uses for shelter or protection; or
- disturb any bat while occupying a structure or place which it uses for that purpose.

If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard bats.

Birds

In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended). All wild birds, their nests and eggs are protected it an offence to:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any such bird whilst it is in use or being built; or

[1] The intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting "cruel ill treatment" of a Badger

[2] A sett is defined as "any structure or place which displays signs indicating current use by a Badger". Advice issued by Natural England (June 2009) is that a sett is protected as long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger.

- take or destroying an egg of any such wild bird.

The law covers all species of wild birds including common, pest or opportunistic species.

Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

Hazel dormouse

The hazel dormouse is classed as a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately capture, injure, or kill a dormouse;
- deliberately disturb dormouse; and
- damage or destroy a breeding site or resting place of a dormouse.

In addition, dormouse is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- obstruct access to any structure or place which a dormouse uses for shelter or protection; or
- disturb a dormouse while occupying a structure or place which it uses for that shelter or protection.

Otter

Otter is a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately capture, injure or kill any wild otter;
- deliberately disturb wild otters; and
- damage or destroy a breeding site or resting place of an otter.

In addition, otter is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- disturb an otter while it is occupying a structure or place which it uses for shelter or protection; or
- obstruct access to such a place.

If proposed development work is likely to destroy or disturb otter or their resting places, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard otter.

Reptiles

Adder, slow worm, grass snake and common lizard are protected against killing and injuring under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it illegal to intentionally kill or injure a common reptile. As a result,

reptiles must be removed from areas of development and relocated onto suitable release sites before site works can commence.

Smooth snake and sand lizard are European Protected Species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). This makes it illegal to carry out the following activities:

- deliberately or recklessly disturb, capture or kill these animals;
- deliberately or recklessly take or destroy eggs of these animals; and
- damage or destroy a breeding site or resting place of such a wild animal; or
- keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from such a wild animal.

Water vole

Water vole is a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately capture, injure or kill any wild water vole;
- deliberately disturb wild water voles; and
- damage or destroy a breeding site or resting place of an water vole.

In addition, water vole is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- disturb a water vole while it is occupying a structure or place which it uses for shelter or protection; or
- obstruct access to such a place.

If proposed development work is likely to destroy or disturb water vole or their resting places, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard water vole.