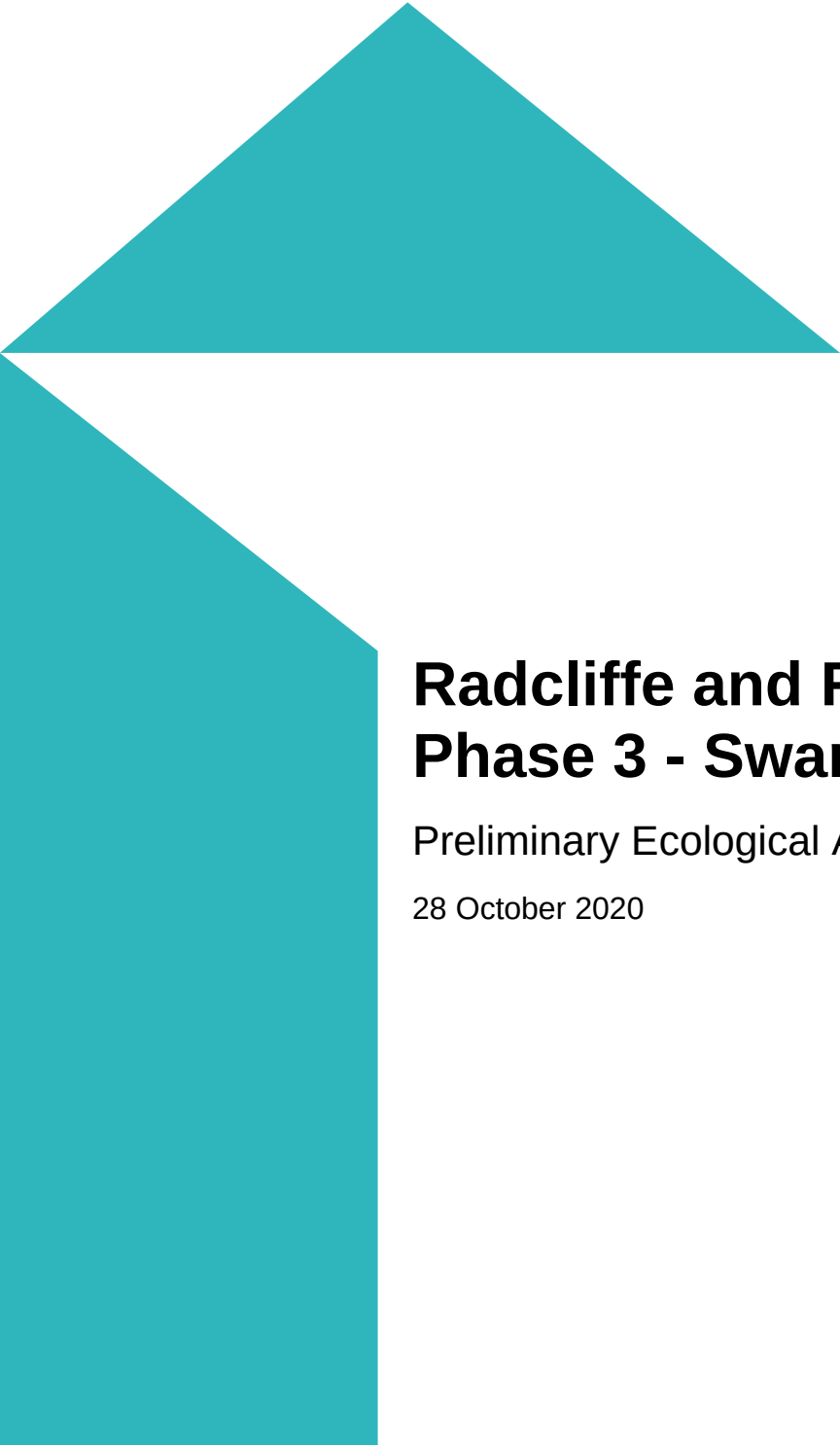




# **Radcliffe and Redvales FRMS Phase 3 - Swan Lodge**

Preliminary Ecological Appraisal Report

28 October 2020



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# Executive summary

Mott MacDonald Limited has been commissioned to undertake a Preliminary Ecological Appraisal (PEA) for the Radcliffe and Redvales Flood Risk Management Scheme (FRMS) Phase 3 (the "Scheme"). This PEA is an addendum to the original scheme-wide PEA that was completed in October 2017 for Phase 1 of the Radcliffe and Redvales FRMS and to the PEA's completed in April 2020 and July 2020 for additional aspects of the Phase 2 works at Bury Grammar School, York Street (PIN) and Lower Hinds. The objective of the Scheme, that this PEA covers, is to create raised defences and improve flow conveyance. This will be undertaken through the creation of an offline flow balancing pond at Swan Lodge. The balancing pond will be fed by the existing Hutchinson's Goit channel, which would be brought back into functional use and modified to provide the appropriate flow conveyance capacity into the balancing pond.

This PEA report (PEAR) comprises a desk study and extended Phase 1 Habitat Survey completed by suitably qualified ecologists on 7th September 2020. The aims of this report are to identify ecological features present in the survey area, any potential ecological constraints for the Scheme, recommend further ecological surveys and provide details of high level mitigation and enhancements likely to be required.

One local designated site, Hollins Vale Local Nature Reserve (LNR) has been identified 1.6km east of the Scheme footprint. Due to the localised nature of the works and distance from the Scheme footprint to the LNR, no adverse effects on the designated site are anticipated.

Fourteen non-statutory designed sites, all of which are Sites of Biological Importance (SBI), were identified within 2.0km of the Scheme footprint. Swan Lodge SBI is located within the Scheme footprint, it is likely that this SBI will receive both direct impacts (habitat removal/damage) and indirect impacts (noise, light and air pollution) due to the proposed works.

The survey area (the Scheme footprint) comprises a variety of habitats which include broadleaved woodland, plantation woodland, dense scrub, tall ruderal, semi-improved grassland, marshy grassland and scattered trees. Extensive coverage of invasive non-native flora species, giant hogweed *Heracleum mantegazzianum*, Indian balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica* and wall cotoneaster *Cotoneaster horizontalis* were noted within the survey area.

Species records indicate that birds, bats, otter *Lutra lutra*, badger *Meles meles*, west European hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, great crested newt *Triturus cristatus*, common toad *Bufo bufo*, common lizard *Zootoca vivipara*, brown trout *Salmo trutta* and notable invertebrates are located within 2.0km of the Scheme footprint. The habitats identified within the survey area were assessed as having potential to support birds, bats, badger, otter, water vole, brown hare, west European hedgehog, great crested newt, common toad, bony fish, reptiles and invertebrates.

In the absence of mitigation, the proposed works could impact these habitats and species if they are present. Recommendations are detailed within this report in the form of construction safeguards and, where necessary, further species and habitat specific surveys, to inform further assessment and mitigation design. It should be noted that construction works are outlined to commence in Spring 2021 and last for a duration of 6 months. Due to seasonal survey windows not all surveys will be complete by this date.

# 1 Introduction

## 1.1 Project Background

BMMJV (a joint venture between BAM Nuttall and Mott MacDonald) has been commissioned under Lot 4 of the Water and Environmental Management (WEM) framework to deliver Phase 2 of the Radcliffe and Redvales Flood Risk Management Scheme (FRMS) on behalf of the Environment Agency. To supplement this scheme and provide some additional offline storage to reduce peak flows downstream, there is a potential need for a Phase 3 element comprising an attenuation storage pond and inlet and outlet flow channels.

**Figure 1.1: Proposed Scheme footprint**



Source: OS data © Crown Copyright and database right 2019

## 1.2 Site Description

The survey area is situated on the southern outskirts of Bury, a built up, urban area approximately 20km north of Manchester. Surrounding land use comprises industrial units and residential estates to the north and south.

## 1.3 Proposed Development

The proposed Phase 3 works at Swan Lodge will create an earth embankment reservoir structure to act as an offline storage area for floodwaters. This will be undertaken through the creation of a new balancing pond area adjacent to the existing Swan Lodge lake. The balancing pond will be fed by the existing Hutchinson's Goit to provide the appropriate flow conveyance capacity into the balancing pond.

Construction works are outlined to start in Spring 2021 and last for a duration of 6 months, however pending the outcome of further modelling to confirm the need for construction.

## 1.4 Aims and Objectives of this Report

The aim of this report is to provide a Preliminary Ecological Appraisal of the protected and/or notable habitats and species which occur or have the potential to occur on or near the Scheme footprint and may be impacted by the proposed works. The report follows the 'Guidelines for Preliminary Ecological Appraisal' 2nd Edition (Chartered Institute for Ecology and Environmental Management (CIEEM), 2017). The objectives are to:

- Identify any designated sites for nature conservation and habitats on, near and adjacent to the Scheme;
- Identify any notable and/or protected plant or animal species of conservation value, which may occur on or near the Scheme;
- Provide a habitat map with target notes of ecological features as identified above;
- Undertake a preliminary assessment of the potential impacts on any ecological receptors of conservation value identified on, near or adjacent to the Scheme; and
- Recommend further surveys, mitigation and enhancement measures as appropriate.

## 1.5 Legislative Policy and Framework

The key legislation regarding nature conservation in England is the Wildlife and Countryside act 1981 (as amended) (WCA). The WCA implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Bird Directive). The WCA is complemented by the Conservation of Habitats and Species Regulations 2017 (as amended) (CHSR), which consolidates and updates the Conservation (Natural Habitats etc.) Regulations 1994 and transposes the Council Directive 92/43/EEC (Habitats Directive) into UK law. The Habitat Regulations provide designation and protection to international protected habitats (Special Area of Conservation) and species (listed in Annex I and II of the Habitats Directive respectively). Additionally, the regulations require the designation and maintenance of Special Protection Areas (SPA) classified under the Bird Directive. Together, the WCA and CHSR form the precedent for species and habitat protection in England and Wales. For specific species legislation refer to Appendix A.

In England, the WCA is supplemented by the Countryside Rights of Way Act 2000 (CRoW) and the Natural Environment and Rural Communities Act 2006 (NERC), which enhance the protection to certain habitats and species and places a duty on governments and public bodies/authorities to have regard for nature conservation. The NERC Act 2006 requires public bodies, including local authorities, 'to have regard to the conservation of biodiversity in England' when carrying out their normal functions. Also, under Section 41 of this Act a list of species and habitats of 'principal importance for the purpose of conserving biodiversity' (also known as Section 41 or priority habitats and species) was drawn up which acts as an aid to guide public bodies in implementing their duty. In addition to legislation, national planning policy puts responsibility on planning authorities to ensure developers assess and mitigate ecological impacts during the planning process. Specifically, in this context, Section 15 of the National Planning Policy Framework 2019 entitled 'Conserving and enhancing the natural environment' which sets out various obligations including protection of habitats and targets for biodiversity enhancement.

In 2019 the Government produced the Environment Bill Policy Statement which will legally require developers to ensure habitats for wildlife are enhanced, with a 10% increase in habitat for wildlife compared with the pre-development baseline. This means Councils across England

will have a duty to ensure that any plans or projects provide biodiversity net gains, as opposed to 'no net loss'. The bill has not yet had Royal Assent but is expected to do so soon..

The Environment Agency has now approved its National Flood and Coastal Erosion Risk Management Strategy for England (FCERM) 2020. It has three long-term ambitions, underpinned by evidence about future risk and investment needs. They are:

- Climate resilient places;
- Today's growth and infrastructure resilient in tomorrow's climate;
- A nation ready to respond and adapt to flooding and coastal change.

In addition to the above, the strategy advocates leaving the environment in a better state by contributing to environmental net gain for new development proposals.

## 1.6 National Planning Policy

The planning policy and biodiversity strategies which are most relevant to the site are the National Planning Policy Framework (NPPF, 2019); Biodiversity 2020 and Bury Council's Topic Paper 7 Natural Environment. At a local level, habitats and species of value are identified in the Greater Manchester Biodiversity Action Plan (GM BAP).

UK Biodiversity Action Plans have been succeeded by the UK Post-2010 Biodiversity Framework (Joint Nature Conservation Committee (JNCC) and Department for Farming and Rural Affairs (DEFRA), 2012). The framework sets out how the UK would meet the Biodiversity Strategy. The species and habitats on the UK BAP list were used to draw up the Section 41 species and habitats of the NERC Act (2006).

Biodiversity 2020 (DEFRA, 2011) is a national strategy which sets out the Government's ambition to "halt overall biodiversity loss by 2020, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people." Rather than individual species and habitats, the strategy focusses on whole natural systems and habitat conservation on a larger scale, to enable habitats to support more species.

## 1.7 Quality Assurance

All staff involved in the production of this report are members of Chartered Institute of Ecology and Environmental Management (CIEEM) and are bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in 'BS 42020:2013 Biodiversity: Code of practice for planning and development'.

## 2 Methods

### 2.1 Zone of Influence

The current guidelines on ecological impact assessment (EcIA) (CIEEM, 2018) defines the 'Zone of Influence' (ZoI) as the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. The extent of the ZoI is determined by the nature of the development and the ecological features present. The ZoI includes:

- Areas directly within the land take for the proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The ZoI is variable depending on the ecological receptors affected. Table 2.1 below sets out the ZoIs applied for this PEA.

**Table 2.1 Zone of Influence for this Assessment**

| Ecological Feature                  | Zone of Influence                       |
|-------------------------------------|-----------------------------------------|
| Designated sites                    | The Scheme footprint and a 2.0km buffer |
| Protected species records           | The Scheme footprint and a 2.0km buffer |
| Identification of ponds and ditches | The Scheme footprint and a 500m buffer  |
| Priority habitats                   | The Scheme footprint                    |
| Extended phase 1 habitat survey     | The Scheme footprint                    |
| Protected species evidence          | The Scheme footprint                    |

Source: Mott MacDonald, 2020

### 2.2 Desk Study

A desk study was undertaken in accordance with current guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) to determine the presence of any designated nature conservation sites and protected or notable species within the ZoI of the Scheme. International designated sites including: Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Sites were searched for within a 2.0km radius of the Scheme. Data, excluding species data obtained 10 years prior to the site visit (with the exception of bat roosts, where all records have been assessed), was obtained from Greater Manchester Ecological Unit (GMEU)/Greater Manchester Local Record Centre (GMLRC), as well as relevant publications, reports, and online databases. These included the Multi-Agency Geographic Information for the Countryside (MAGIC), Joint Nature Conservation Committee (JNCC) and Greater Manchester BAP (GM BAP).

### 2.3 Field Survey

A field survey in the form of an extended Phase 1 Habitat Survey of the Scheme was undertaken by Mott MacDonald ecologists on 7th September 2020. All habitats within the survey areas, where accessible, were identified and mapped in compliance with the Handbook for

Phase 1 Habitat Survey: A technique for environmental audit (JNCC, 2010), noting dominant flora, habitat structure and management with target notes made to describe features of interest. Presence/potential presence of legally protected and/or species of importance within the ZOI was assessed based upon the habitat suitability of those habitats recorded. Species specific surveys were not undertaken; rather the potential for the survey area to support each species was assessed. Such preliminary assessments followed methodologies within published guidance, such as the Bat Surveys for Professional Ecologists (Collins, 2016), though no full habitat assessments were carried out at this stage. Additionally, where qualified to do so, features that would likely support protected species were all examined during the survey for evidence of species known to utilise these areas, with any field signs or sightings of such species recorded.

## 2.4 Limitations

Biological records obtained from third parties and presented in the desk study do not represent a full and complete species list for the area. They are mostly given by individuals on an *ad hoc* basis, often meaning there are areas of deficiency in the data. Ecological surveys are limited to factors which affect the presence of plants and animals, such as time of year, migration patterns and behaviour. With a single site visit it is possible that certain species may have been overlooked or under-recorded during the assessment as optimal survey periods vary from species to species. This PEAR therefore cannot be considered to provide a wholly comprehensive account of the ecological interest of the Scheme area and it should be noted that this report does not constitute an Ecological Impact Assessment. The survey does, however, provide a “snapshot” of the ecological interest present on the day of the survey visit.

Direct access to the banks of Hutchinsons Goit was not possible due to dense vegetation and the steep gradient of the banks.

## 3 Desk Study Results

### 3.1 Introduction

All relevant ecological data received from the desk study exercise has been reviewed, the results of which are summarised below in Sections 3.2, 3.3 and 3.4. Data older than ten years (with the exception of bat roosts, where all records obtained from GMEU/GMLRC have been assessed), has been omitted due to lack of relevance.

### 3.2 Designated Sites

#### 3.2.1 Statutory Designated Sites

##### 3.2.1.1 International Designated Sites

Reference to the MAGIC website (<http://magic.defra.gov.uk/>) indicates that there are no international designated sites within 2.0km of the Scheme footprint.

##### 3.2.1.2 National and Local Designated Sites

Reference to the MAGIC website (<http://magic.defra.gov.uk/>) indicates that there are no national designated sites within 2.0km of the Scheme footprint. However, there is one local designated site, Hollins Vale Local Nature Reserve (LNR), located approximately 1.6km east of the Scheme. Details can be found below in Table 3.1.

**Table 3.1: Local designated sites within 2.0km of the Scheme footprint**

| Site Name    | Designation          | Distance and direction from Scheme footprint (km) | Details                                                                                                 |
|--------------|----------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Hollins Vale | Local Nature Reserve | 1.6km east of the Scheme footprint                | Hollins Vale is a farmland reserve with areas of woodland and wetland adding to its wildlife diversity. |

Source: MAGIC, 2020

#### 3.2.2 Non-Statutory Designated Sites

Reference to GMEU/GMLRC data indicates that there are 14 non-statutory designated sites within 2.0km of the Scheme footprint. Table 3.2 below details the sites and distance to the Scheme footprint.

**Table 3.2: Non-Statutory Designated Sites within 2.0km of the Scheme footprint**

| Site Name  | Designation                         | Distance and direction from Scheme footprint (m) | Details                                                             |
|------------|-------------------------------------|--------------------------------------------------|---------------------------------------------------------------------|
| Swan Lodge | Site of Biological Importance (SBI) | Within the Scheme footprint                      | Designated for open water, running water and aquatic invertebrates. |

| Site Name                                | Designation | Distance and direction from Scheme footprint (m) | Details                                                                                                                                      |
|------------------------------------------|-------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Manchester, Bolton and Bury Canal (East) | SBI         | 100m west                                        | Designated for ponds and canal features.                                                                                                     |
| Elton Goyt                               | SBI         | 200m west                                        | Designated for grasslands and bird assemblages.                                                                                              |
| Lower Hinds                              | SBI         | 400m north                                       | Designated for calcareous grassland.                                                                                                         |
| Elton Reservoir                          | SBI         | 400m west                                        | Designated for grasslands and bird assemblages.                                                                                              |
| Daisyfield                               | SBI         | 600m north west                                  | Designated for reedbed, swamp, ponds and small lodges. Additionally, the designation includes grassland, aquatic invertebrates and woodland. |
| Withins Reservoir                        | SBI         | 700m west                                        | Designated for open water and grasslands.                                                                                                    |
| Wetland near Radcliffe                   | SBI         | 900m south west                                  | Designated for ponds and small lodges                                                                                                        |
| Marl Pits at Black Lane                  | SBI         | 1100m west                                       | Designated for ponds, small lodges, habitat mosaics and aquatic invertebrates.                                                               |
| Sailors Brow and Springwater Park        | SBI         | 1200m south                                      | Designated for ponds and small lodges, habitat mosaics and aquatic invertebrates                                                             |
| Townside                                 | SBI         | 1400m north east                                 | Designated for ponds, small lodges and amphibians.                                                                                           |
| Barracks Lodge                           | SBI         | 1500m north west                                 | Designated for pond and small lodges, aquatic invertebrates and amphibians                                                                   |
| Hollins Vale                             | SBI         | 1600m east                                       | Designated grassland, ponds and small lodges                                                                                                 |
| Parr Brook                               | SBI         | 1900m south east                                 | Designated for grassland habitats                                                                                                            |

Source: GMEU/GMLRC, 2020.

### 3.3 Habitats

Using OS and aerial mapping three ponds and two ditches, Hutchinson's and Bealey's Goit, have been identified within the Scheme footprint.

A search of MAGIC indicates that the following priority habitats listed on Section 41 (S41) of the NERC Act 2006 as being of principal importance for the purpose of conserving biodiversity are present within the Scheme footprint:

- Lowland fens; and
- Lowland deciduous woodland.

### 3.4 Protected and Notable Species

The information below contains a summary of protected and notable species records found within 2.0km of the Scheme footprints.

#### 3.4.1 Birds

Records of protected and notable birds returned from within 2.0km of the Scheme footprint can be found in Table 3.4 below:

**Table 1.3: Records of protected/notable birds within 2.0km of the Scheme footprint**

| Species              | No. of Records | Most Recent Record | Schedule 1 of WCA | NERC Section 41 | Bird of Conservation Concern |
|----------------------|----------------|--------------------|-------------------|-----------------|------------------------------|
| Barn Owl             | 29             | 2017               | ✓                 |                 |                              |
| Bittern              | 3              | 2017               | ✓                 | ✓               | Amber                        |
| Black Redstart       | 4              | 2012               | ✓                 |                 | Red                          |
| Black-tailed Godwit  | 8              | 2017               | ✓                 | ✓               | Red                          |
| Bullfinch            | 172            | 2017               |                   | ✓               | Amber                        |
| Common Scoter        | 61             | 2017               | ✓                 | ✓               | Red                          |
| Cuckoo               | 5              | 2015               |                   | ✓               | Red                          |
| Curlew               | 127            | 2017               |                   | ✓               | Red                          |
| Duncock              | 59             | 2017               |                   | ✓               | Amber                        |
| Grasshopper Warbler  | 65             | 2017               |                   | ✓               | Red                          |
| Hawfinch             | 1              | 2017               |                   | ✓               | Red                          |
| Herring Gull         | 68             | 2017               |                   | ✓               | Red                          |
| Hobby                | 30             | 2019               | ✓                 |                 |                              |
| House Sparrow        | 106            | 2018               |                   | ✓               | Red                          |
| Kingfisher           | 145            | 2018               | ✓                 |                 | Amber                        |
| Lapwing              | 299            | 2018               |                   | ✓               | Red                          |
| Lesser Redpoll       | 55             | 2017               |                   | ✓               | Red                          |
| Linnet               | 113            | 2017               |                   | ✓               | Red                          |
| Little Ringed Plover | 244            | 2017               | ✓                 |                 |                              |
| Peregrine            | 115            | 2017               | ✓                 |                 |                              |
| Reed Bunting         | 179            | 2017               |                   | ✓               | Amber                        |
| Ring Ouzel           | 1              | 2016               |                   | ✓               | Red                          |
| Scaup                | 44             | 2017               | ✓                 | ✓               | Red                          |
| Skylark              | 143            | 2017               |                   | ✓               | Red                          |
| Song Thrush          | 124            | 2017               |                   | ✓               | Red                          |
| Spotted Flycatcher   | 112            | 2017               |                   | ✓               | Red                          |
| Starling             | 127            | 2017               |                   | ✓               | Red                          |

| Species        | No. of Records | Most Recent Record | Schedule 1 of WCA | NERC Section 41 | Bird of Conservation Concern |
|----------------|----------------|--------------------|-------------------|-----------------|------------------------------|
| Tree Pipit     | 14             | 2017               |                   | ✓               | Red                          |
| Tree Sparrow   | 5              | 2017               |                   | ✓               | Red                          |
| Twite          | 1              | 2010               |                   | ✓               | Red                          |
| Willow Tit     | 96             | 2017               |                   | ✓               | Red                          |
| Wood Warbler   | 2              | 2017               |                   | ✓               | Red                          |
| Yellow Wagtail | 76             | 2017               |                   | ✓               | Red                          |

Source: GMEU/GMLRC

### 3.4.2 Bats

There are a total of 233 records of bat signs and 98 roosts within 2.0km of the Scheme footprint. The closest bat evidence is of a Brandt's bat *Myotis brandti* approximately 90m south west of the Scheme footprint recorded in 2018. The closest bat roost (*Pipistrelle sp.*) was recorded in 2008, approximately 215m east, of the Scheme footprint.

Species recorded within 2.0km of the Scheme footprint comprise:

- Brandt's bat *Myotis brandti*;
- Brown long-eared bat *Plecotus auritus*;
- Common pipistrelle *Pipistrellus pipistrellus*;
- Daubenton's bat *Myotis daubentonii*;
- Myotis sp. *Myotis Myotis*;
- Nathusius' pipistrelle *Pipistrellus nathusii*;
- Noctule *Nyctalus noctula*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Whiskered bat *Myotis mystacinus*;

### 3.4.3 Otter

There are two records of otter *Lutra lutra* recorded within 2.0km of the Scheme footprint. The closest is approximately 1.4km north, recorded in 2014

### 3.4.4 Water Vole

There are no records of water vole *Arvicola amphibious* within 2.0km of the Scheme footprint.

### 3.4.5 Badger

There are six badger *Meles meles* records within 2.0km of the Scheme footprint. The closest record is approximately 750m east, recorded in 2016.

### 3.4.6 Other Mammals

There are 32 records of brown hare *Lepus europaeus* within 2.0km of the Scheme footprint. The closest record is located 270m east of the Scheme footprint and was recorded in 2011.

There are seven records of west European hedgehog within 2.0km of the Scheme footprint. The closet record is approximately 340m south west of the Scheme footprint, recorded in 2011.

### 3.4.7 Great Crested Newt

There are 24 records of great crested newt (GCN) within 2.0km of the Scheme footprint. The closest record is approximately 850m west of the Scheme footprint and was recorded in 2012.

### 3.4.8 Other Amphibians

There are 17 records of common toad *Bufo bufo* within 2.0km of the Scheme footprint. The closest record is approximately 180m north west of the Scheme footprint recorded in 2017.

### 3.4.9 Reptiles

There is one record of common lizard *Zootoca vivipara* within 2.0km of the Scheme footprint. The record is approximately 1.6km south of the Scheme footprint and was recorded in 2012.

### 3.4.10 Bony Fish

There are three records of brown trout *Salmo trutta* within 2.0km of the Scheme footprint. The closest record, recorded in 2013, is situated on the River Roch approximately 1.0km south east of the Scheme footprint.

### 3.4.11 White Clawed Crayfish

No records of white clawed crayfish *Austropotamobius pallipes* were returned from within 2.0km of the Scheme footprint.

### 3.4.12 Invertebrates

The following notable invertebrates have been recorded within 2.0km of the Scheme footprint in the past 10 years:

- Cinnabar *Tyria jacobaeae*;
- Common carpet *Epirrhoe alternata*;
- Knot grass *Acronicta rumicis*; and
- Wall *Lasiommata megera*.

## 4 Extended Phase 1 Habitat Survey Results

### 4.1 Site Visit

The Phase 1 Habitat plan with an indication of the extent of the field survey is provided in Appendix B with associated Target Notes in Appendix C. Target Notes are referred to as TN1, TN2 etc. on the Phase 1 Habitat plan.

### 4.2 Habitats

The following habitat types, listed below in order of their JNCC Phase 1 Habitat codes, were noted within the Scheme footprint during the extended Phase 1 Habitat Survey.

#### 4.2.1 Broadleaved Woodland – Semi-natural (A1.1)

Broadleaved semi-natural woodland is present to the north of the Scheme footprint. The canopy comprises pedunculate oak *Quercus robur*, silver birch *Betula pendula*, goat willow *Salix caprea*, sycamore *Acer pseudoplatanus* and ash *Fraxinus excelsior*. The understorey is sparse and comprises rare hawthorn *Crataegus monogyna*. Ground flora species included bramble *Rubus fruticosus* agg., sycamore saplings and Japanese knotweed *Fallopia japonica* was noted.

**Figure 4.1: Broadleaved woodland situated in northern extent of Scheme footprint**



Source: Mott MacDonald, 2020

#### 4.2.2 Broadleaved Woodland – Plantation (A1.1.2)

Broadleaved plantation woodland was identified bordering and surrounding pond 1 (TN1) and pond 2 (TN2). The canopy comprises pedunculate oak, silver birch, rowan *Sorbus aucuparia*, ash, goat willow and crack-willow *Salix fragilis*. The understorey was sparse with rare hawthorn. Ground flora species include creeping bent *Agrostis stolonifera*, annual meadow-grass *Poa annua*, common nettle *Urtica dioica*, false-brome *Brachypodium sylvaticum*, common feather-moss *Eurhynchium striatum*, bramble, oak saplings and silver birch saplings.

**Figure 4.2: Plantation woodland within southern extent of Scheme footprint**



Source: Mott MacDonald, 2020

#### 4.2.3 Dense Scrub (A2.1)

Patches of dense scrub were noted at the northern extent of the Scheme footprint. Species include bramble, wall cotoneaster *Cotoneaster horizontalis* and creeping thistle *Cirsium arvense*.

**Figure 4.3: Example of patch of dense scrub within the Scheme footprint**



Source: Mott MacDonald, 2020

#### **4.2.4 Scattered Scrub (A2.2)**

Scattered scrub was noted throughout the area of grassland to the north of the Scheme footprint. Species include bramble and hawthorn.

**Figure 4.4: Patches of scattered scrub within northern extent of Scheme footprint**



#### **4.2.5 Scattered Trees (A3.1)**

Scattered trees were noted throughout the area of grassland to the north and south of the Scheme footprint. Species includes goat willow, silver birch and ash.

**Figure 4.5: Example of scattered trees within Scheme footprint**



Source: Mott MacDonald, 2020

#### **4.2.6 Semi-improved Grassland (B2.2)**

The majority of the Scheme footprint is comprised of semi-improved grassland with pockets of tall ruderal and scattered trees. The grassland is homogenous and thatched, species include Yorkshire fog *Holcus lanatus*, creeping bent *Agrostis stolonifera*, creeping thistle, field horsetail *Equisetum arvense*, false oat-grass *Arrhenatherum elatius*, common nettle, ribwort plantain *Plantago lanceolata*, common ragwort *Senecio jacobaea*, hogweed *Heracleum sphondylium*, common sorrel *Rumex acetosa subsp. acetosa*, creeping buttercup *Ranunculus repens*, red fescue *Festuca rubra*, reed canary grass *Phalaris arundinacea*, white clover *Trifolium repens*, red clover *Trifolium pratense*, perennial rye-grass *Lolium perenne* and red bartsia *Odontites vernus*.

**Figure 4.6: Example of semi-improved grassland to south of Scheme footprint**



Source: Mott MacDonald, 2020

#### 4.2.7 Marshy Grassland (B5)

Within the northern extent of the Scheme footprint areas of marshy grassland were noted, these areas comprise hard rush *Juncus inflexus*, soft-rush *Juncus effusus* and sedge species *Carex* sp.

**Figure 4.7: Marshy grassland within Scheme footprint**



Source: Mott MacDonald, 2020

#### 4.2.8 Tall Ruderal (C3.1)

Tall ruderal was noted along the margins of Hutchinson's Goit, the banks were densely vegetated with Indian balsam, reed canary-grass and rosebay willowherb *Chamerion angustifolium*. Patches of tall ruderal were also identified on the margins of Pond 2.

**Figure 4.8: Tall ruderal along banks of Hutchinson's Goit**



Source: Mott MacDonald, 2020

#### 4.2.9 Standing Water (G1)

Three bodies of standing water were identified from OS and aerial mapping, two of these waterbodies were identified during the field survey. Dense vegetation inhibited locating the third waterbody (TN3)

- Pond 1 (TN1)

At the time of survey this waterbody was recorded as drying out. The waterbody is dominated by soft-rush. Scattered trees; goat willow and silver birch were also noted within the waterbody.

**Figure 4.9: Pond 1 (TN1)**



Source: Mott MacDonald, 2020.

● Pond 2 (TN2)

The waterbody is surrounded by plantation woodland with tall ruderal dominating the margins. Emergent vegetation; bulrush *Typha latifolia* was also noted.

**Figure 4.10: Pond 2 (TN2)**



Source: Mott MacDonald, 2020

#### 4.2.10 Running Water (G2)

Two ditches were identified within the Scheme footprint.

- Hutchinson's Goit (TN4)

Situated along the western extent of the Scheme footprint, Hutchinson's Goit is approximately 3m wide containing shallow water. The banks of the goit are steep and densely vegetated with Indian balsam, reed canary-grass, rosebay willowherb and fern sp. *Polypodiopsida* sp. Scattered trees, comprising ash, oak and goat willow are also situated along the banks. Macrophytes identified within the watercourse comprise water plantain *Alisma plantago-aquatica* and water forget-me-not *Myosotis scorpioides*.

**Figure 4.11: Hutchinson's Goit**



Source: Mott MacDonald, 2020.

The Scheme footprint also extends to encompass Hutchinson's Goit to the east of Bury Road, adjacent to the River Irwell. In this location the banks of the goit are densely vegetated with tall ruderal comprising Indian balsam. The goit is culverted under Bury road (TN6)

**Figure 4.12: Hutchinson's Goit east of Bury Road and adjacent River Irwell**



Source: Mott MacDonald, 2020

- Bealey's Goit (TN5)

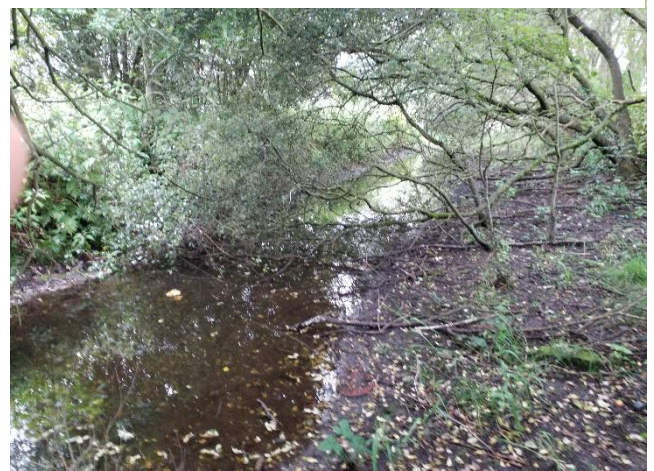
Situated along the eastern extent of the Scheme footprint, Bealey's Goit is approximately 3m wide. The most northern extent of the goit appeared to have recently undergone vegetation clearance and bank reprofiling. In this location the goit was recorded as dry at the time of survey. Further south the goit was holding low levels of water, no macrophyte cover was recorded. To the south of York Street Bealey's Goit became densely vegetated.

**Figure 4.13: Bealey's Goit at northern extent of Scheme footprint**



Source: Mott MacDonald, 2020

**Figure 4.14: Bealey's Goit adjacent to Pond 2**



Source: Mott MacDonald, 2020

**Figure 4.14: Bealey's Goit south of York Street**



Source: Mott MacDonald, 2020

## 4.3 Protected and Notable Species

### 4.3.1 Birds

Bird species recorded during the field survey:

- Grey heron;
- Mallard; and
- Mute swan.

Woodland, waterbodies, scattered trees, scrub and grassland within the Scheme footprint, provide nesting and foraging opportunities for numerous bird species throughout the year. Species records indicate that Schedule 1, Section 41 and Birds of Conservation Concern have been recorded within 2.0km of the Scheme footprints. Further recommendations for birds are given.

### 4.3.2 Bats

Woodland, scrub, culvert (TN6) and scattered trees within the Scheme footprint have been assessed as having roosting, foraging and commuting potential for bats. In addition to this, pond 2 (TN2) and semi-improved grassland have been assessed as having foraging potential. Further recommendations for bats are given.

### 4.3.3 Otter

No evidence of otter was identified during the field survey, however, ponds 1, 2, 3 (TN1, 2 and 3) and the goits (TN4 and TN5) have the potential to support foraging and commuting otter. The woodland has been assessed as having potential to support otter holt and couch creation. Further recommendations for otter are given.

### 4.3.4 Water Vole

No evidence of water vole was identified during the field survey, however, the banks of the goits have the potential to provide suitable habitat for water vole and support water vole burrows. Further recommendations for water vole are given.

### 4.3.5 Badger

No evidence of badger was identified during the field survey. The woodland has potential to support badger sett creation and the semi-improved grassland has potential to be used by badgers for foraging. Further recommendations for badger are given.

### 4.3.6 Other Mammals

No evidence or signs of brown hare or west European hedgehog were recorded during the field survey, however, grassland and scrub within the Scheme footprint have potential to provide suitable habitat for these species' groups. Further recommendations are given.

### 4.3.7 Great Crested Newt

Three ponds and two ditches have been identified during the field survey and using OS and aerial mapping, directly within the Scheme footprint. Additionally, habitats within the Scheme footprint have potential to provide suitable terrestrial habitat for GCN. Further recommendations for GCN are given.

#### 4.3.8 Other Amphibians

Waterbodies, dense scrub and scattered scrub across the Scheme footprint have the potential to provide suitable habitat for common toad. Further recommendations for common toad are given.

#### 4.3.9 Reptiles

No evidence of reptiles were recorded during the field survey, however, semi-improved grassland and scrub present within the Scheme footprint have potential to support reptiles. Further recommendations are given.

#### 4.3.10 Bony Fish

Pond 2 (TN2) has been assessed as suitable to support bony fish. Further recommendations for this species group are given.

#### 4.3.11 White Clawed Crayfish

The aquatic habitat within Hutchinson's Goit appears to be suitable for white clawed crayfish. However, given that white clawed crayfish are severely restricted in distribution and unlikely to be present in the Goit, given its location, its proximity to the River Irwell (where there are records of signal crayfish), it is unlikely that white clawed crayfish are present in Hutchinson's Goit. No further recommendations for white clawed crayfish are given.

#### 4.3.12 Invertebrates

Areas of wetland, semi-improved grassland, scrub and scattered trees have been assessed as having potential to support terrestrial and aquatic invertebrates. Further recommendations are given.

#### 4.3.13 Invasive Non-native Flora

Invasive non-native flora species; giant hogweed, Japanese knotweed, Indian balsam and wall cotoneaster are present within the Scheme footprint. Further recommendations for invasive non-native flora species are given.

## 5 Assessment and Recommendations

### 5.1 Designated Sites

#### 5.1.1 Statutory Designated Sites

Hollins Vale Local Nature Reserve (LNR) is designated for its habitats and flora. The Site is situated approximately 1.6km east of the Scheme footprint. Due to the localised nature of the works and the distance from the Scheme footprint to the LNR it has been assessed as very unlikely that the LNR will be adversely impacted by the Scheme. No further recommendations are given.

#### 5.1.2 Non-Statutory Designated Sites

There are 14 Sites of Biological Importance (SBI) within 2.0km of the Scheme footprint. The proposed works are located directly within the Swan Lodge SBI. It is likely that this SBI will be subject to both direct impacts (habitat removal/damage) and indirect impacts (noise, light and air pollution) due to the proposed works during the construction phase. Consultation with stakeholders and the local authority is recommended.

The Scheme footprint is within close proximity to Elton Reservoir SBI. Elton Reservoir SBI is designated for bird assemblages, this indicates that the Scheme footprint and surrounding area provide a habitat network for multiple common and notable bird species. Therefore, further consultation with the local authority and stakeholders is recommended.

Due to the localised nature of the works and distance from the Scheme footprint to the remaining 12 SBI's within 2.0km, no further recommendations are given.

### 5.2 Habitats

Adverse effects on habitats should be avoided and minimised through Scheme design. Where permanent loss cannot be avoided, mitigation will be required including compensatory planting, habitat enhancement and/or habitat creation offsite.

The ecological importance of the habitats present on site were assessed against their presence on the Local Biodiversity Action Plans (LBAPs) and on Section 41 of the NERC Act and their ability to support protected or notable species. Should habitats meeting any of these criteria be present and considered likely to be impacted by the proposals, recommendations would be given.

The following list of habitats, which are priority habitats/may qualify as priority habitats listed on Section 41 of the NERC Act (for ease of identification indicated in bold) and Greater Manchester BAP, have been identified within the Scheme footprints during the desk study and field survey.

- **Lowland fen;**
- **Lowland mixed deciduous woodland;**
- Marshy grassland;
- Acid grassland; and
- Ponds and lodges.

## 5.3 Protected/Notable Species

### 5.3.1 Birds

The Scheme footprint contains habitat to support this species group. Construction works will result in disturbance, the temporary loss of nesting and supporting habitat for common and notable bird species.

The Scheme footprint is located within Swan Lodge SBI and within close proximity to Elton Reservoir SBI. Elton Reservoir SBI is designated for bird assemblages which indicates the Scheme footprint and surrounding area provide a habitat network for multiple bird species. Therefore, consultation with the local authority and stakeholders is recommended on the requirement for over-wintering and breeding bird surveys.

In order to minimise the impacts on birds during construction the following general recommendations are made:

- Avoid and minimise as much as possible clearance of semi-natural habitat that has potential to support numerous bird species for foraging and nesting.
- All clearance works should be undertaken outside of nesting season. This is considered to be from March to August inclusive; however can vary depending on the species and/or seasonal conditions;
- Where vegetation cannot be removed outside of nesting season, pre-clearance checks (not more than 48 hours before clearance) must be undertaken by an experienced ecologist to identify if any birds are nesting within or close to the vegetation due to be removed. If a bird nest is found, it must be left in-situ and protected from works; no works can be undertaken in that area until the young birds have fledged from the nest site. This may take up to 6 weeks depending on the species;
- All construction related lighting should be designed and fitted to minimise any adverse impacts on the retained vegetation. Such measures include the use of hoods/cowls and directing lighting away from features such as trees and scrub; and
- All construction works should be restricted where possible to daylight hours to prevent any adverse impacts on roosting birds at dusk and dawn.

### 5.3.2 Bats

The woodland, scrub, grassland and waterbodies are likely to be used by foraging and commuting bats. The proposed Scheme may impact the habitat for foraging and commuting. It is therefore recommended that the Scheme should seek to retain semi-natural habitat and/or seek to incorporate landscaping of value for foraging and commuting bats within the final design.

If significant areas of habitat are to be removed, this could adversely impact local bat populations and therefore in this case bat activity surveys are recommended. These surveys will determine how bats are using the Scheme footprint and inform specific mitigation required.

Trees and structures within the Scheme ZoI may have the potential to support bat roosts. It is therefore recommended that trees for removal and culverts requiring modification within the Scheme ZoI are assessed for their potential to support bat roosts. Further surveys in the form of tree climbing, dusk emergence and dawn re-entry surveys may be required following these assessments. Further surveys will inform specific mitigation required.

### 5.3.3 Otter

Works will directly impact ditches and waterbodies therefore, dedicated otter presence/likely absence surveys are recommended to identify any use by otters. Disturbance to the banks could adversely affect this species and individuals could be affected during construction should they stray onto the site. Species specific surveys will inform mitigation that can be incorporated into the design and construction phase mitigation. If an otter holt is found on site, and the works are likely to result in significant disturbance to otters, then a Natural England licence will be required.

### 5.3.4 Water Vole

Works will directly impact ditches and waterbodies, therefore dedicated water vole presence/likely absence surveys are recommended to identify any use by water vole. Species specific surveys will inform mitigation that can be incorporated into the design and construction phase mitigation. If water vole are present the design should incorporate enhancements for water vole. If water vole presence is found on site, and the works will disturb water vole within their burrows, or damage burrows then a Natural England licence will be required.

### 5.3.5 Badger

Due to the isolated location of the Scheme footprint there is low potential for badgers, however, if present the works may adversely impact a localised badger population. The Scheme footprint contains suitable habitat for badger sett creation and foraging. Any removal of woodland, scrub, excavations or construction activities may impact this species. It is recommended that a badger survey is undertaken to determine whether the Scheme footprint is being used by badgers for sett creation and/or foraging.

In addition to the badger survey, a pre-works badger check is to be undertaken in any areas which require the removal of vegetation and will experience increased levels of water, due to the works, to ensure that no new setts have been excavated within or adjacent to the Scheme footprint. Extensive vegetation clearance, excavation works or changes in water level in the vicinity of a badger sett may require a Natural England licence, usually requiring the sett to be closed before works commence. Licences are usually only granted between July and November inclusive. Further mitigation may be required dependant on the results of the pre-works badger check.

### 5.3.6 Other Mammals

Habitats within the Scheme footprint are suitable to support brown hare and west European hedgehog. Given that the habitat within the site is surrounded by urban areas, with limited connectivity to extensive grassland or woodland, it is unlikely brown hare are present. Excavations or construction activities required may affect west European hedgehog (and brown hare should they be present) whilst the loss of grassland, scrub and woodland may impact the habitat available for use by such species.

The following general construction safeguards should be followed to ensure mammals are not affected during construction works:

- Excavations should be fenced off and/or covered to avoid animals becoming trapped. A mammal ladder should be erected to allow any animals that may become trapped to escape; and
- Any waste from construction activities such as netting should be kept off the ground to avoid entanglement.

The following general construction safeguards should be followed to ensure west European hedgehog are not affected during construction works:

- Scrub clearance during the hibernation period, November to March, should be avoided;
- Two-phased vegetation clearance;
- Excavations should be fenced off and/or covered to avoid animals becoming trapped. A mammal ladder should be erected to allow any animals that may become trapped to escape; and
- Any waste from construction activities such as netting should be kept off the ground to avoid entanglement.

#### 5.3.7 Great Crested Newt

Three ponds and two ditches have been identified within the ZOI for GCN. In addition to this, habitats within the Scheme footprint provide suitable terrestrial habitat for GCN. It is recommended that habitat suitability index surveys (HSI) for GCN are undertaken on the waterbodies within the ZOI. If the waterbodies are deemed suitable for GCN, following the HSI surveys, further recommendations will be given.

#### 5.3.8 Other Amphibians

Waterbodies and dense scrub within the Scheme footprint has potential to provide suitable habitat for common toad. It is recommended that removal of dense scrub is avoided and minimised. If removal of dense scrub is required, this should be undertaken using a two-phased vegetation clearance methodology.

#### 5.3.9 Reptiles

Suitable habitat for reptiles was identified within the Scheme footprint. Due to the limited suitable habitat for reptiles within the surrounding areas, if reptiles are present within the Scheme footprint depending on the extent of works, this may result in the displacement of a large and localised population. In this case, presence/likely absence surveys are recommended.

#### 5.3.10 Bony Fish

Works will directly impact two goits and a large waterbody, these features have potential to support bony fish species. It is recommended that a fish survey is undertaken to identify species that may be present within the Scheme footprint. In addition to this, if any draining of goits and waterbodies is required a fish rescue and consultation with the Environment Agency will be required.

#### 5.3.11 Invertebrates

Suitable habitat for terrestrial and aquatic invertebrates was identified within the Scheme footprint. It is recommended that as much as possible, wetland, grassland, vegetation/scrub clearance is avoided/minimised to safeguard invertebrates. The existing mosaic of habitats within the Scheme footprint should be retained where possible and/or reinstated upon completion of works. Consultation with the local authority and stakeholders is recommended on the protections for invertebrates within the SBI.

#### 5.3.12 Invasive Non-native Flora

Extensive coverage of invasive non-native flora was identified within the Scheme footprint. To prevent the spread of these invasive non-native species and to provide opportunities for

ecological enhancement a Landscape reinstatement plan should be produced and implemented during the works.

## 6 Conclusion

### 6.1 Conclusion

A Preliminary Ecological Appraisal was undertaken to assess the potential impact of the creation of raised defences and improve flow conveyance at Swan Lodge. The works will be undertaken through the creation of an offline flow balancing pond. The balancing pond will be fed by the existing Hutchinson's Goit channel, which would be brought back into functional use and modified to provide the appropriate flow conveyance capacity into the balancing pond.

The scope of this report is to identify constraints and provide recommendations for further survey, along with high-level mitigation measures based on the current information known about the Scheme. On this basis, Table 6.1 below sets out recommendations considered appropriate for this Scheme.

| Ecological Feature               | Location                                                                                     | Relevant Legislation/Policy                                                               | Recommendation(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Statutory Designated Sites       | Swan Lodge SBI                                                                               |                                                                                           | <ul style="list-style-type: none"> <li>Consultation with statutory consultees and the Local Authority</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Statutory Designated Sites       | Elton Reservoir SBI                                                                          |                                                                                           | <ul style="list-style-type: none"> <li>Consultation with statutory consultees and the Local Authority</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Habitats                         | Throughout Scheme footprint                                                                  | Section 41 NERC Act 2006 and GM BAP                                                       | <ul style="list-style-type: none"> <li>Avoid and minimise as much as possible grassland, vegetation/scrub and tree clearance for the Scheme. Where permanent loss cannot be avoided, mitigation will be required including compensatory planting, habitat enhancement and/or habitat creation offsite.</li> </ul>                                                                                                                                                                                                                                                                                                                                        |
| Priority Habitats                | Lowland deciduous woodland, lowland fen, marshy grassland, acid grassland, ponds and lodges. | Section 41 NERC Act 2006 and GM BAP                                                       | <ul style="list-style-type: none"> <li>Avoid and minimise as much as possible direct impacts upon these habitats</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Protected/Notable Species</b> |                                                                                              |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Birds                            |                                                                                              | All breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended) | <ul style="list-style-type: none"> <li>Consultation with statutory consultees and the Local Authority on requirement for over-wintering and breeding bird surveys.</li> <li>Avoid and minimise as much as possible clearance of semi-natural habitat that has potential to support numerous bird species for foraging and nesting.</li> </ul> <p>General recommendations for vegetation clearance during the construction period are provided below:</p> <ul style="list-style-type: none"> <li>All clearance works should be undertaken outside of nesting season. This is considered to be from March to August inclusive; however can vary</li> </ul> |

|      |                                           |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|-------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                           |                                                                                                          | <p>depending on the species and/or seasonal conditions;</p> <ul style="list-style-type: none"> <li>Where vegetation cannot be removed outside of nesting season, pre-clearance checks (not more than 48 hours before clearance) must be undertaken by an experienced ecologist to identify if any birds are nesting within or close to the vegetation due to be removed. If a bird nest is found, it must be left in-situ and protected from works; no works can be undertaken in that area until the young birds have fledged from the nest site. This may take up to 6 weeks depending on the species;</li> <li>All construction related lighting should be designed and fitted to minimise any adverse impacts on the retained vegetation. Such measures include the use of hoods/cowls and directing lighting away from features such as trees and scrub; and</li> <li>All construction works should be restricted where possible to daylight hours to prevent any adverse impacts on roosting birds at dusk and dawn.</li> </ul>                                                                                                                                                                                                             |
| Bats | Woodland, scattered trees and waterbodies | Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2017 | <ul style="list-style-type: none"> <li>Retain as much semi-natural habitat as possible;</li> <li>If works to trees is required a preliminary roost assessment (PRA) for bats should be undertaken in line with the BCT guidelines (Collins, 2016) to establish the risk of bat roosts being present; additional emergence surveys may be required depending on the results of this survey.</li> <li>If large areas of habitat are to be removed Bat Activity Surveys should be undertaken, in the form of automated detector surveys and/or transect surveys, to ascertain use and importance of the Scheme footprint by foraging and commuting bats. These surveys can only be undertaken between April – September.</li> <li>Mitigation requirements will be informed by the results of these surveys. However, it is recommended that scrub and tree planting is replaced. Consideration should also be given to incorporating enhancements such as bat boxes into the Scheme.<br/>General recommendations for lighting during construction are advised:</li> <li>During construction, if night work is essential this should avoid unnecessary disturbance by ensuring that the height of lighting columns are as low as possible;</li> </ul> |

|            |                                 |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                                 |                                                                                                                                 | <ul style="list-style-type: none"> <li>• Lighting hoods/cowls and shields should be utilised to focus light into the working areas and away from the surrounding environment (particularly any linear features); and</li> <li>• Consideration should be given to timing of lighting and specifications of lighting during construction the Scheme to reduce potential effects (in line with best practice guidance from Bat Conservation Trust and the Institute for Lighting Professionals, 2018).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Otter      | Woodland, goits and waterbodies | Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017 | <ul style="list-style-type: none"> <li>• Dedicated presence/likely absence survey for otter.</li> <li>• If otter are present the design should incorporate enhancements for otter.</li> <li>• If an otter holt is found on site, and the works are likely to result in significant disturbance to otters, than a Natural England licence will be required.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Water Vole | Banks of goits and waterbodies  | Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017 | <ul style="list-style-type: none"> <li>• Dedicated presence/likely absence survey for water vole.</li> <li>• If water vole are present the design should incorporate enhancements for water vole.</li> <li>• If water vole presence is found on site, and the works will disturb water vole within their burrows, or damage burrows then a Natural England licence will be required.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Badger     | Woodland and scrub              | Badger Act 1992                                                                                                                 | <ul style="list-style-type: none"> <li>• Dedicated badger survey</li> <li>• Pre-works badger check is to be undertaken in any areas which require the removal of vegetation to ensure that no new setts have been excavated within or adjacent to the Scheme footprints. Extensive vegetation clearance, or excavation works in the vicinity of a badger sett may require a Natural England licence, usually requiring the sett to be closed before works commence. Licences are usually only granted between July and November inclusive. Further mitigation may be required dependant on the results of the pre-works badger check.<br/>The following general construction safeguards should be followed to ensure badgers are not affected during construction works, in the event that they are present:</li> <li>• Excavations should be fenced off and/or covered to avoid animals becoming trapped. A mammal ladder should be erected to allow any animals that may become trapped to escape;</li> <li>• All excavations should be checked each morning to ensure no badgers or</li> </ul> |

|                                            |                                                                  |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            |                                                                  |                                                                                                             | <p>other animals have become trapped overnight; and</p> <ul style="list-style-type: none"> <li>• If a badger is found within an excavation, then a qualified ecologist should be contacted immediately to advise;</li> <li>• Soil storage – consideration should be given to where spoil is stored, if likely to be stored for a long period of time then consideration for badger proof fencing should be taken; and</li> <li>• No equipment should be stored within suitable badger habitats.</li> </ul>                                                                                                               |
| West European hedgehog (and other mammals) | Woodland, grassland and scrub                                    | Section 41 NERC Act                                                                                         | <ul style="list-style-type: none"> <li>• Scrub clearance during the hibernation period, November to March, should be avoided. If clearance of scrub cannot be avoided between November and March a check by an ecologist should be undertaken;</li> <li>• Two-phased vegetation clearance;</li> <li>• Excavations should be fenced off and/or covered to avoid animals becoming trapped. A mammal ladder should be erected to allow any animals that may become trapped to escape; and</li> <li>• Any waste from construction activities such as netting should be kept off the ground to avoid entanglement.</li> </ul> |
| Great crested newt                         | Goits and waterbodies within Scheme footprint                    | Conservation of Habitat and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended) | <ul style="list-style-type: none"> <li>• HSI surveys for GCN are to be undertaken on the waterbodies within the Zol. If the waterbodies are deemed suitable for GCN, following the HSI surveys, further recommendations will be given.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |
| Common toad                                | Scrub                                                            | Section 41 NERC Act 2006                                                                                    | <ul style="list-style-type: none"> <li>• Avoid and minimise as much as possible scrub clearance for the Scheme</li> <li>• Vegetation clearance is to be undertaken using a two-phased methodology</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reptiles                                   | Semi-improved grassland, scrub and scattered trees               | S41 NERC Act 2006 Wildlife and Countryside Act 1981 (as amended)                                            | <ul style="list-style-type: none"> <li>• Dedicated presence/likely absence survey for reptiles</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Bony fish                                  | Waterbodies                                                      | Section 41 NERC Act 2006                                                                                    | <ul style="list-style-type: none"> <li>• Dedicated fish survey</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Invertebrates                              | Wetland, poor semi-improved grassland, scrub and scattered trees | Section 41 NERC Act 2006                                                                                    | <ul style="list-style-type: none"> <li>• Vegetation/scrub clearance is avoided/minimised to safeguard invertebrates. Where possible retain existing mosaic of habitats within Scheme footprint and/or reinstate upon completion of works. Consultation with the local authority and stakeholders is recommended on the protections for invertebrates within the SBI.</li> </ul>                                                                                                                                                                                                                                          |

|                           |                                     |                                                                                                                                                      |                                                                                                                                                                                                                             |
|---------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Invasive non-native flora | Throughout extents Scheme footprint | Schedule 9 of the Wildlife and Countryside Act as amended(1981) and Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 | <ul style="list-style-type: none"> <li>To prevent the spread of invasive non-native flora and provide opportunities for ecological enhancement a Landscape reinstatement plan should be prepared for the Scheme.</li> </ul> |
|---------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 6.2 Validity of Survey Data and Assessment

In line with CIEEM (2019) guidance on the lifespan of ecological surveys, the Phase 1 Habitat survey results are considered valid for up to 18 months. Following this, the survey data should be reviewed and, if appropriate, updated to ensure any assessment and recommendations remain valid.

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Wildlife and Countryside Act 1981 (as amended) Available URL:  
<https://www.legislation.gov.uk/ukpga/1981/69/contents> Last accessed September 2020

## A. Species Specific Legislation

### A.1 Birds

**Breeding Birds** All breeding birds are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended) which prohibits the intentional killing, injuring or taking of any wild bird (and) the taking, damaging or destroying eggs or of the nest (whilst being built or in use). Schedule 1 bird species are afforded greater protection under the WCA. It is an offence to disturb Schedule 1 birds or the dependants in the vicinity of their nest site.

### A.2 Bats

All bat species are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulations 2017 (as amended). This means it is illegal to intentionally or deliberately kill, injure, disturb or capture these species or damage, destroy or obstruct access to any structure, breeding or resting place used by them.

### A.3 Otter

Otter are a European Protected species and are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Intentionally or deliberately kill;
- Injure or take an otter;
- Intentionally or deliberately damage;
- Destroy or obstruct access to any structure or place used for shelter or protection by an otter; and,
- To intentionally or deliberately disturb an otter while it is occupying a structure or place which it uses for that purpose.

### A.4 Water Vole

Water vole are a European Protected species and are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Intentionally capture, kill or injure water voles;
- Damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Disturb them in a place of shelter or protection (on purpose or by not taking enough care); and,
- Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

### A.5 Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992. This makes it an offence to:

- Directly or indirectly kill, injure or take badgers;
- Cruelly ill-treat a badger;
- Dig for badger;
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- Cause a dog to enter a badger sett; and,
- Disturb a badger when it is occupying a sett.

## A.6 Other Mammals

West European hedgehog and brown hare are species of principal importance under Section 41 of the NERC Act 2006.

## A.7 Great Crested Newt

GCN are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulations 2017 (as amended). This means that is an offence to intentionally or recklessly kill, injure or take GCN. In addition, the following are also in breach of the legislation:

- To possess or control any live or dead specimen or anything derived from a GCN; to intentionally or recklessly damage, destroy or obstruct access to any structure or place used as shelter or protection by a GCN;
- To intentionally or recklessly disturb a GCN while it is occupying a structure or place, which it uses for that purpose. The legislation applies to all life stages of great crested newts.

## A.8 Other Amphibians

Common toad is listed as species of principal importance under Section 41 of the NERC Act 2006.

## A.9 Reptiles

Reptiles have varying degrees of protection under the Wildlife and Countryside Act 1981 (as amended). The four wide spread species of reptiles that are protected under Schedule 5 are common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*). This means it is prohibited to intentionally kill, injure or trade these species.

## A.10 Bony Fish

Several species of bony fish, including brown trout, are listed as species of principal importance under Section 41 of the NERC Act 2006.

## A.11 Invertebrates

Several species of invertebrates are listed as species of principal importance under Section 41 of the NERC Act 2006.

## A.12 Invasive non-native species

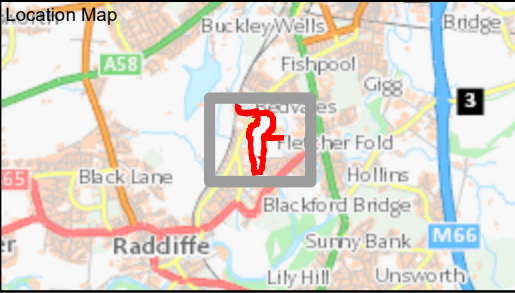
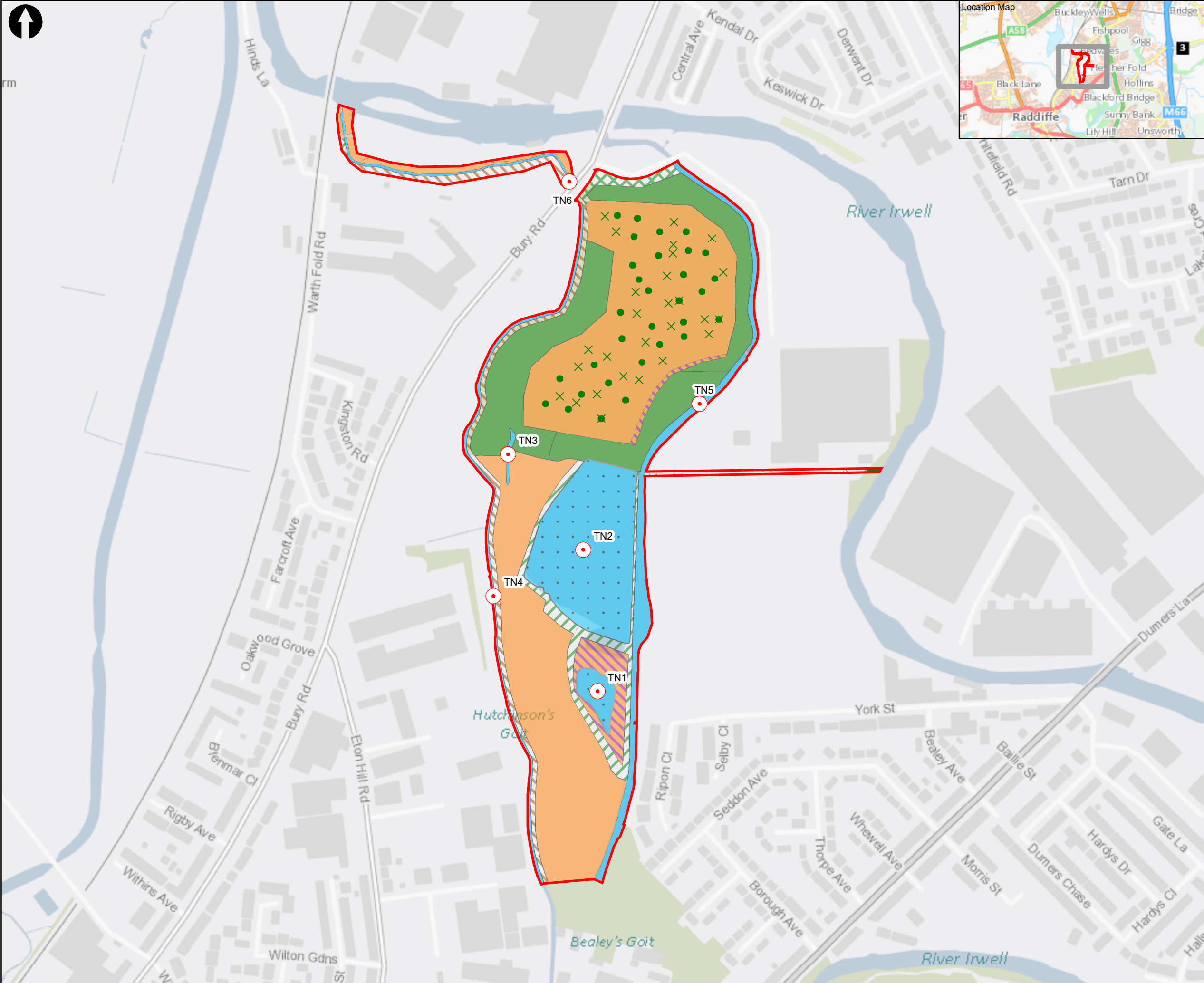
Schedule 9, Section 14 of the Wildlife and Countryside Act (1981, as amended) prohibits the introduction into the wild of any species that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or any species of the 69 plants listed on Schedule 9.

Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 aims to prevent and manage the introduction and spread of invasive alien species.

The frequently encountered invasive species within proposed development sites include Japanese knotweed *Fallopia japonica*; Giant hogweed *Heracleum mantegazzianum*; Indian balsam *Impatiens glandulifera*; Floating pennywort *Hydrocotyle ranunculoides*; New Zealand pygmyweed *Crassula helmsii*; Rhododendron *Rhododendron ponticum*; and certain hybrids of the above, some species may be native yet are listed for conservation purposes.

Plant or soil material contaminated by Japanese knotweed that is to be discarded is considered to be a 'controlled waste' under the Environmental Protection Act 1990 (EPA 1990). It is an offence to deposit, treat, keep, or dispose of controlled waste without a licence. Furthermore, knotweed that has been cut down and removed must be received by an authorised person to be disposed of correctly. A licence can be obtained from the Environment Agency (EA). The release or planting of a listed species in the wild can be permitted under a licence granted by the relevant statutory body.

## B. Phase 1 Habitat Map



- Key to Symbols
- Scheme footprint
  - Target note
  - A2.2 - Scrub - scattered
  - A3.1 - Broadleaved parkland/scattered trees
  - A1.1.1 - Broadleaved woodland - semi-natural
  - A1.1.2 - Broadleaved woodland - plantation
  - A2.1 - Scrub - dense/continuous
  - B2.2 - Neutral grassland - semi-improved
  - B5 - Marsh/marshy grassland
  - C3.1 - Other tall herb and fern - ruderal
  - G1 - Standing water
  - G2 - Running water
  - J1.3 - Cultivated/disturbed land - ephemeral/short perennial
  - J4 - Bare ground
  - J5 - Hardstanding

Notes

1. Phase 1 data; Mott MacDonald, 2020.  
2. Scheme boundary (indicative only) based on design information obtained September 2020.  
2. Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

|     |          |       |                 |        |       |
|-----|----------|-------|-----------------|--------|-------|
| P1  | 15/09/20 | BG    | For information | AW     | RP    |
| Rev | Date     | Drawn | Description     | Ch'k'd | App'd |



Spring Bank House  
33 Stamford Street  
Altrincham  
WA14 1ES  
T +44 (0)161 9264000  
W mottmac.com



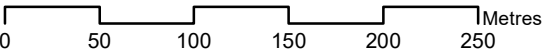
Richard Fairclough House  
Knutsford Road  
Warrington  
WA4 1HT

Title

Swan Lodge  
Phase 1 Habitat Survey Map

|             |             |        |              |           |     |
|-------------|-------------|--------|--------------|-----------|-----|
| Designed    | B Gray      | BG     | Check        | A Weston  | AW  |
| Drawn       | B Gray      | BG     | Coordination | L Bagshaw | LB  |
| GIS Check   | G O'Donovan | GO     | Approved     | R Purslow | RP  |
| Scale at A3 | 1:4,000     | Status | INF          | Rev       | P1  |
|             |             |        |              | Security  | STD |

Drawing Number  
ENV0000389C-BMM-DZ-4ZZ-DR-EN-0301062



# C. Target Notes

| Target Note ID | Description         |
|----------------|---------------------|
| TN1            | Pond 1              |
| TN2            | Pond 2 (Swan Lodge) |
| TN3            | Pond 3              |
| TN4            | Hutchinson's Goit   |
| TN5            | Bealey's Goit       |
| TN6            | Culvert             |

