



## **Ecological Impact Assessment (EcIA)**



Thames Young Mariners  
Riverside Drive  
Ham  
Richmond  
TW10 7RX  
Grid Ref: TQ 16390 72355  
June 2024



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<b>Preliminary Ecological Appraisal</b>	
Grid Reference	TQ 16390 72355
Client	Surrey Outdoor Learning & Development (SOLD)
Architect/Planning Consultant	James North - Land & Water Services
Date of Survey	Initial: 02/06/2023 Most Recent: 05/06/2024
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## **Declaration of Compliance**

### **BS 420202013**

This study has been undertaken in accordance with British Standard 420202013 Biodiversity, Code of practice for planning and development, unless specifically stated otherwise.

## **Code of Professional Conduct**

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

## **Validity of Survey Data and Report**

The findings of this report are valid for 12 months from the date of survey, unless the site has been maintained in exactly the same condition, in which case the report can be considered valid for 24 months once verified by the acting ecologist. Please be aware that some Local Planning Authorities (LPAs) require an update once 12 months has elapsed. If work has not commenced within this period, an updated survey by a suitably qualified ecologist may be required.

## **Legal and Moral Constraints and Responsibilities Summary**

An overview of relevant legislation and responsibility is given within the Appendices Planning Policy and Legislation. Constraints exist for development where specific habitats or species are, or are potentially, within or adjoining a site proposed for development.

It is the responsibility of the client and those in receipt of this report to ensure ALL personnel or associated peoples likely to be involved in ANY management or works to this site - including but not limited to the seasonal flailing of hedgerows or cutting of grassland/scrub - are fully informed of any restrictions in force regarding the possible presence of protected species on this site as outlined in this report. If there is any doubt as to what works or management of habitats may legally occur, consultation with the acting ecologist is essential. Avoidance, mitigation, compensation and enhancement are site specific and apply as herein. In all instances where Mitigation is given, also refer to:

- Any further survey work for protected species (Phase 2 Surveys) recommended, or their results.
- General Good Practice during Construction Stage.
- Law and Legislation pertaining to specific species (plants and animals)
- Prevention of the spread of native and non-native invasive plants and animals.
- Avoidance of Wildlife Crime <http://www.nwcu.police.uk/>

Further advice if species are found onsite during development may be sought from Ecological Surveys Ltd (Tel 01503 240846 or 07736 458609) or Natural England.



### **Report Update (July 2024)**

This report has been updated following slight changes to the site boundary and plans. An updated BNG calculation has been carried out alongside and is provided within a separate document. It should be noted that surveys and assessments are based on up to date guidelines at the time of most recent survey (June 2024).



# 1 INTRODUCTION

## 1.1 Executive Summary

Table 1

<b>Purpose of the report</b>	To present the results of the Extended Phase 1 Habitat Survey undertaken at the named site; assess the impacts of the proposed development on the important ecological features identified and detail applicable compensation, mitigation measures and biodiversity enhancements as appropriate.
<b>Project Details</b>	It is understood the proposal is for the installation of piling along part of the edge of the lake on site.
<b>Summary of onsite habitats</b>	The site, as demarked by the red line boundary, is composed of a mixture of mown modified grassland and hardstanding, with scattered scrub and tall ruderals on the steep banks of the lake.
<b>Summary of Impact</b>	Works will result in the loss of habitat along the banks of the lake. This could result in impacts to protected species and consequently, mitigation is required. Advisories are also given regarding the presence of invasive non-native species on site.
<b>Report sufficiency</b>	This report is considered sufficient for the size and scale of predicted impacts as a result of the proposal.
<b>Habitat/Species Mitigation</b>	Required: - <ul style="list-style-type: none"> <li>• Precautionary Nesting Bird / Dormouse Mitigation</li> <li>• Precautionary Reptile / Amphibian Mitigation</li> <li>• Fox Exclusion Strategy</li> <li>• Impact Avoidance During the Construction Phase</li> <li>• Artificial Lighting Strategy</li> <li>• Zebra Mussel Advice</li> </ul>
<b>Habitat/Species Enhancement</b>	Required: - <ul style="list-style-type: none"> <li>• Replacement SINC Habitat (combined Mitigation and Enhancement)</li> </ul>
<b>Designated sites</b>	The site itself is within the Ham Lands Site of (Metropolitan) Importance for Nature Conservation (SINC). Potential impacts to this site are further discussed within this report.
<b>Summary Figures Net Gain</b>	It is understood that the London Borough of Richmond upon Thames require a biodiversity net gain to be evidenced through the latest version of the DEFRA metric. This is outlined within a separate BNG calculation document.
The LPA should ensure that any mitigation and compensation measures identified in this report, together with enhancement recommendations are 'conditioned' where appropriate.	



## 1.2 Requirement for Ecological Survey/Assessment

Ecological Surveys Ltd were commissioned to undertake an Ecological Impact Assessment (EcIA) to include the potential for legally protected and notable species of the Site, and to assess the potential impact of the development on the biodiversity of the Site and its immediate environs. Ecological Surveys Ltd has not been informed of any previous surveys undertaken on this site that need to inform this report.

All ecological data and information gained through both the desktop survey and the survey work were evaluated. The important ecological features were then identified and evaluated against the potential impacts/effects that the proposed development may have on the ecology of the Site and surrounding area.

The biodiversity importance of each designated site, habitat and species is evaluated on a geographic scale: international, national, county and local.

Evaluation of designated sites considers their designation; their ecological and landscape relationship with the proposed site; and the species and/or habitat types for which the site was designated.

Evaluation of habitats considers their designation; their area, quality and viability; diversity and connectivity to the wider landscape; and structural diversity and species-richness.

Evaluation of species considers their designation, including legal protection and rarity.

When assessing the impact of the development and changes to the baseline conditions on site, predictions will be made which focus solely on the zone of influence whilst taking into consideration the lifespan of the development and the significant impacts as identified from the proposed work operations throughout the lifespan of the development.

The proposed development aims to firstly avoid and then mitigate against any potential effects/impacts on the local ecology/biodiversity, ensuring compliance with nature conservation legislation. It aims to achieve this by applying the mitigation hierarchy (as mentioned in Paragraph 118 of the National Planning Policy Framework and detailed in Paragraph: 018 Reference ID: 8-018-20140306 of National Planning Practice Guidance) as follows:

**Avoidance** – Significant harm to wildlife species and habitats should be avoided through design.

**Mitigation** – where significant harm cannot be wholly or partially avoided, it should be minimised by design, or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations.

**Compensation** – where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, this should be properly compensated for by measures to provide for an equivalent value of biodiversity.

Appropriate measures to avoid and/or minimise the significant negative effects on the important ecological features have been identified. These mitigation measures aim firstly to





avoid the overall effect/impact, or for those that cannot be avoided, reduce their overall effect value. It is not always possible to fully mitigate an adverse effect to neutral levels.

Under the National Planning Policy Framework, NPPF, (HM Government, 2019) local planning policies and decisions should 'contribute to and enhance the natural and local environment by:

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

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 170, p49]

Thus, the mitigation hierarchy should be applied when considering the impacts of developments and local planning decisions on the natural environment, with the protection of important wildlife sites, habitats, species and ecosystem services; the avoidance of impacts, mitigating these impacts where appropriate, and then achieving biodiversity net gain through enhancements.

Section 15 of the NPPF 2019 goes on to state that 'when determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits



of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 175, p50]

The aim of development should be to deliver biodiversity net gain on site as well as limiting damage to important ecological features. Using the information gained during the desktop survey and the extended Phase 1 habitat survey, and the ecological requirements of habitats, species and local environmental conditions, biodiversity enhancements for the Site have been considered, providing opportunities to increase the diversity of habitats and species on site.

### **1.3 Limitations to Report**

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The current survey was carried out in June. This is an optimal time for undertaking ecological field surveys for most, but not all species/groups. The ecological survey has not produced a definitive list of plant and animal species present on site and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, the results of field- and desk-based surveys are considered to have been sufficient to evaluate ecological features within the predicted zone of influence to a high degree of confidence and to enable an initial assessment of potential impacts likely to require mitigating actions.

It should be noted that habitats, and the species they may support, change over time due to natural processes and because of human influence. In line with current guidelines, the survey on which this report is based is only valid for two years, after which time it will need updating. It being accepted that some LPA's now expect a survey to be updated after twelve months.



## 2 METHODS

### 2.1 Desk Based Assessment

An initial desk-based assessment was carried out by Ecological Surveys Ltd collating data relating to the site itself and up to a 2km radius or greater depending upon the import of information gathered and includes:

- Statutory and non-statutory wildlife and earth science sites
- BAP Priority Inventory Habitats
- Legally protected and nationally notable species
- Sites primarily utilised included MAGIC, National Biodiversity Network and a Greenspace Information for Greater London CIC (GIGL) data search.

The data gathered is considered sufficient along with the field survey to reach appropriate conclusions for the mitigation and enhancement of this site.

### 2.2 Phase 1 Field-based Assessment

The field survey included carrying out an Extended Phase 1 Habitat Survey, consisting of a walkover assessment of the Site using Phase 1 Habitat Survey methodology (JNCC, 2010, as amended by the Institute of Environmental Assessment (IEA, 1995)). This is a standard technique for classifying and mapping British habitats. All areas within the Site were surveyed, the main plant species recorded, and habitat type mapped. Indicators of ecological value were also noted, including the presence or signs of any legally protected or rare species.

A search was also made to identify the presence of any invasive non-native species (particularly those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)), including Japanese knotweed (*Reynoutria japonica*) and Himalyan balsam (*Impatiens glandulifera*).

#### 2.2.1 Vegetation

All broad habitat types were identified, and a list was compiled of characteristic plant species within each habitat type. Where necessary, habitat types of particular botanical interest are subject to more detailed survey using methods developed for the National Vegetation Classification (NVC) (Rodwell, 1992). The vegetation recorded on site during this Extended Phase 1 Ecological Survey is described here with reference to Joint Nature Conservation Committee Phase 1 habitat terminology.

**Table 2 Protected Species Grading Criteria**

<b>Grading Criteria</b>	<b>Justification</b>
<b>Confirmed Presence</b>	Species confirmed on site through direct sighting, presence of unambiguous field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
<b>High Potential</b>	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.



<b>Moderate Potential</b>	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
<b>Low Potential</b>	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
<b>Negligible Potential</b>	Site is entirely unsuitable for species. Presence of species highly unlikely.

## 2.2.2 Buildings

### Protected Species – Built Structures

All built structures were assessed for their potential to support protected species. All external and internal areas were inspected for the presence of suitable access, egress nesting or roosting features. Such features include open access for entry or free flight, missing, slipped, broken or bowed roof materials; gaps within soffits; gaps behind fascia; gaps/holes within brickwork; louvers; lifted lead flashing and gaps around window and door casements. Features were inspected using binoculars/close range monocular and the surveyor was equipped with a high-powered torch. All accessible internal void spaces were inspected for actual evidence (field signs) of protected presence (living or dead) nesting material, droppings, fur and urine staining.

### 2.2.3 Badger

The surveyed area and adjacent habitats were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs.

### 2.2.4 Bats – Trees

Trees within and immediately adjacent to the surveyed area were subject to detailed visual inspection from ground level using binoculars in order to identify potential roost features (PRF) which may offer suitable opportunities for bats. These features include dense ivy cladding; woodpecker holes; rot holes; limb stubs; cavities; flaking bark; cracks and splits. Each tree has been graded for its suitability for supporting bats based on criteria within 'Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition' (Collins, 2016). These criteria are detailed in Table 3.

**Table 3 Bat Roost Tree Grading Criteria**

<b>Grading Criteria</b>	<b>Reason</b>
<b>Confirmed Bat Roost</b>	Unambiguous evidence of roost bats seen emerging/entering, bats audible, droppings/urine-/fur- staining visible or known roost based on desk-based assessment.
<b>1* - High Suitability</b>	Trees with obviously suitable PRFs which are considered capable of supporting larger,



	established roosts of high conservation significance.
<b>1 - Moderate Suitability</b>	Trees with potentially suitable PRFs but which are not likely to support roosts of high conservation status.
<b>2 - Low Suitability</b>	Trees of sufficient size/age to exhibit PRFs but nonvisible from ground-level or features seen appear to offer limited potential.
<b>3 - Negligible Suitability</b>	Trees with no /negligible potential to support bats.

### 2.2.5 Bats – Foraging and Commuting Habitat

An assessment was made of the suitability of the surveyed area and the surrounding landscape to support foraging and/or commuting bats. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland and open water, which are highly attractive to bat species. Of importance, is the presence of unlit semi-natural vegetation and habitat linkage between the site and the surrounding landscape such that the site may form an integral part of landscape-scale habitat for bats.

The quality of bat foraging and commuting habitat has been assessed using the criteria detailed in Table 4.

**Table 4 Bat Foraging and Commuting Habitat Grading Criteria**

<b>Grading Criteria</b>	<b>Reason</b>
<b>Optimal Quality</b>	Presence of optimal habitat features such as unlit woodland, scrub, hedgerows, grassland and open water with excellent linkage to similar habitats within the wider landscape. Presence of high potential buildings/trees and/or known roosts within immediate landscape. Sites are generally rural in character.
<b>Moderate Quality</b>	Presence of optimal habitat features such as woodland, scrub, hedgerows, grassland and open water with reasonable linkage to similar habitats within the wider landscape. Limiting factors may include size of site.
<b>Low Quality</b>	Presence of some limited habitat features such as scrub or hedgerows, with minimal linkage to suitable habitats within the wider landscape.
<b>Poor Quality</b>	No suitable habitat present or, if present, highly degraded/fragmented. Minimal unlit areas with no linkage to suitable habitat beyond site. Generally urban in character.

### 2.2.6 Hazel dormouse

An assessment was made of the suitability of habitat within the site to support hazel dormice *Muscardinus avellenarius*. Key habitats are woodland, scrub and hedgerows, particularly where dense vegetation within which to nest/hibernate is offered along with key resources



such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) and honeysuckle (for nesting material). Of importance is the presence of landscape-scale habitat linkages such as hedgerows, and where the site is linked to such habitat this will raise the potential for the species to occur.

### **2.2.7 Birds**

An assessment was made of the site's suitability to support breeding and wintering bird species. Birds will utilise a broad range of habitats, including built structures; trees; scrub; isolated shrubs; dense herbaceous vegetation (terrestrial and aquatic) and open grassland among others. All bird species observed on site were recorded.

### **2.2.8 Reptiles**

An assessment was made of the site's suitability to support reptile populations. Key habitat features include tussocky/patchy grassland; scrub edge; linear watercourses; ponds; compost heaps; brush piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within otherwise-unsuitable areas.

### **2.2.9 Amphibians**

An assessment was made of all waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality freshwater, diverse macrophyte cover and an absence of fish.

For the European-protected great crested newt *Triturus cristatus*, each waterbody was, where considered necessary, assessed using the Habitat Suitability Index (HSI) system (Oldham et al., 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).

### **2.2.10 Invertebrates**

The presence of important invertebrate species or assemblages is generally dependent upon distinct micro-habitats such as dead wood (standing, fallen, of all decay stages), sap runs, damp/wet soils, mixed sun/shade, bare/friable soils (e.g. exposed sand/soil banks) and a diversity of plant species.

For aquatic invertebrates, important species/assemblages will generally be associated with high-quality aquatic habitats such as ponds, rivers, streams and ditches where water quality is good, and vegetation is diverse. Other key factors will include substrate and waterbody morphology. An assessment of the site's potential to support a diverse invertebrate assemblage and/or specialist species is based loosely on the presence of habitat features described in Kirby (2001). Where possible, a list of all invertebrate species encountered has been made.



### 3 PROJECT DETAILS

Ecological Survey Ltd were commissioned by the clients to undertake an Ecological Impact Assessment (EcIA) of this site in relation to the installation of piling along the bank of the lake.

#### 3.1 Site Location Description

The site is located as indicated: -

**Figure 1 Site Location**



**Figure 2: Surveyed Area**





### **3.2 Illustrated Proposal**

No illustrated proposal has been provided for inclusion within this report. It is understood this will be for the installation of piling along the bank of the lake in the locations detailed above.





## 4 RESULTS

### 4.1 Introduction

This section provides details of the results of the Extended Phase 1 Ecological Survey of the named site. A biological records search was commissioned from eCountability using data from Greenspace Information for Greater London CIC (GIGL) and where appropriate details are included within this report.

### 4.2 Desk-based Assessment

#### 4.2.1 Internationally and Nationally Designated Sites

**Table 5:** Internationally and Nationally designated sites located within 2km of the site.

Special Area of Conservation (SAC):	Richmond Park
Special Protection Area (SPA):	None found
RAMSAR:	None found
Site of Special Scientific Interest (SSSI):	Bushy Park and Home Park; Richmond Park
Areas of Outstanding Natural Beauty:	None found
National Nature Reserve (NNR):	Richmond Park
Local Nature Reserve (LNR):	Ham Common; Ham Lands

#### 4.2.2 Locally Designated Sites

**Table 6:** Non-statutory designated sites located within 2km of the site.

Sites of Importance for Nature Conservation (SINCs)	River Thames and tidal tributaries; Crane Corridor; Richmond Park and associated areas; Ham Lands; Bushy Park and Home Park; Fulwell and Twickenham Golf Courses; Duke of Northumberland's River south of Kneller Road; Strawberry Hill Golf Course; Petersham Meadows; The Copse, Holly Hedge Field and Ham Avenues; Petersham Lodge Wood and Ham House Meadows; River Crane at St Margaret's (Richmond side); Royal Park Gate Open Space; Marble Hill Park and Orleans House Gardens; Cassel Hospital; Twickenham Junction Rough; Ham Common west;
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	<p>Churchyard of St Mary with St Alban, Teddington;          Teddington Cemetery;          Moor Mead Recreation Ground;</p>
<p>Proposed Sites of Importance for Nature Conservation (pSINCs)</p>	<p>River Thames and tidal tributaries;          Crane Corridor;          Richmond Park and Associated Areas;          Ham Lands;          Bushy Park and Home Park;          Fulwell and Twickenham Golf Courses;          Duke of Northumberland’s River south of Kneller Road;          Strawberry Hill Golf Course;          Petersham Meadows;          Petersham Lodge Wood and Ham House Meadows;          The Copse, Holly Hedge Field and Ham Avenues;          River Crane at St Margarets;          Ham Common west;          Cassel Hospital;          Trowlock Avenue riverside land, Teddington;          Twickenham Junction Rough;          Teddington Cemetery;          Udney Park Playing Fields, Teddington;          Royal Park Gate Open Space;          Marble Hill Park and Orleans House Gardens;          Churchyard of St Mary with St Alban, Teddington;          Moormead Recreation Ground;          St Andrews Churchyard;</p>

**4.2.3 Priority Habitats**

**Table 7:** UK BAP Priority Habitat Inventory habitats within 2km of the site.

<p>Good quality semi-improved grassland; Lowland meadows; Intertidal Substrate Foreshore; Deciduous Woodland; Traditional Orchards; Woodpasture and Parkland; Open Mosaic Habitat</p>
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**4.2.4 Protected Species****Table 8:** Records of protected and notable species within 2km of the site.

<b>Bats:</b>	Serotine Daubenton's Bat Natterer's Bat Lesser Noctule Noctule Bat Nathusius's Pipistrelle Common Pipistrelle Soprano Pipistrelle Brown Long-eared Bat
<b>Other mammals:</b>	Minke Whale Grey Seal Harbour Seal European Water Vole West European Hedgehog Hazel Dormouse
<b>Birds:</b>	Lesser Redpoll Common Redpoll Common Sandpiper Skylark Kingfisher White-fronted Goose Tree Pipit Swift Short-eared Owl Pochard Scaup Bittern Barnacle Goose Goldeneye Purple Sandpiper Greenfinch Cuckoo Lesser Whitethroat House Martin Lesser Spotted Woodpecker Little Egret Reed Bunting Pied Flycatcher Brambling Shag



Little Gull  
Mediterranean Gull  
Herring Gull  
A Bird  
Lesser Black-backed Gull  
Baltic Gull  
Linnet  
Crossbill  
Nightingale  
Gadwall  
Smew  
Red Kite  
Grey Wagtail  
Yellow Wagtail  
Spotted Flycatcher  
Curlew  
Osprey  
House Sparrow  
Tree Sparrow  
Grey Partridge  
Honey-buzzard  
Golden Plover  
Slavonian Grebe  
Marsh Tit  
Dunnock  
Firecrest  
Sand Martin  
Whinchat  
Woodcock  
Common Tern  
Turtle Dove  
Tawny Owl  
Starling  
Ruddy Shelduck  
Shelduck  
Sandwich Tern  
Redwing  
Song Thrush  
Fieldfare  
Ring Ouzel  
Mistle Thrush  
Lapwing



<b>Reptiles:</b>	Slow-worm Common Lizard
<b>Amphibians:</b>	Common Toad Common Frog
<b>Invertebrates:</b>	Large Black Slug <i>Ephemera lineata</i> Common Darter <i>Asiraca clavicornis</i> <i>Edwardsiana ishidai</i> Alder Leaf Beetle <i>Cossonus linearis</i> <i>Enicmus rugosus</i> <i>Liparus coronatus</i> Stag Beetle <i>Phytoecia cylindrica</i> <i>Polydrusus formosus</i> <i>Sphindus dubius</i> <i>Psychomyia fragilis</i> Purple Emperor Small Heath Small Heath Wall White Admiral Small Copper A Butterfly Small Copper Large Skipper White-letter Hairstreak Brown Hairstreak Essex Skipper Small Skipper Knot Grass Garden Tiger Jersey Tiger Shoulder-striped Wainscot White Ermine Cinnabar <i>Mintho rufiventris</i> Red-girdled Mining Bee Four-banded Flower Bee <i>Dolichovespula media</i> Brown Tree Ant



<b>Flora:</b>	Bearded Tooth Garden Angelica Box Cornflower Bluebell Henbane Round-fruited Rush Yellow Vetchling Hairy Vetchling Dittander Grape-hyacinth Sainfoin Tasteless Water-pepper Hoary Cinquefoil Butcher's-broom Corn Spurrey Large-leaved Lime <i>Trifolium fragiferum subsp. bonannii</i> Wild Pansy
<b>Fish:</b>	European Eel Sea Trout
<b>Schedule 9 non-native invasive plants:</b>	Ring-necked Parakeet Chinese Muntjac American Mink Water Fern Tree-of-heaven Three-cornered Garlic Butterfly-bush <i>Cotoneaster</i> <i>Cotoneaster acuminatus</i> New Zealand Pigmyweed Montbretia Canadian Waterweed Japanese Knotweed <i>Fallopia japonica x sachalinensis = F. x bohemica</i> Goat's-rue Gallant Soldier Shaggy Soldier Spanish Bluebell Kashmir Balsam Orange Balsam Himalayan Balsam



	Least Duckweed Parrot's-feather Green Alkanet Cherry Laurel Turkey Oak Evergreen Oak <i>Rhododendron ponticum</i> False-acacia Snowberry Zebra Mussel Chinese Mitten Crab <i>Hemimysis anomala</i> Signal Crayfish
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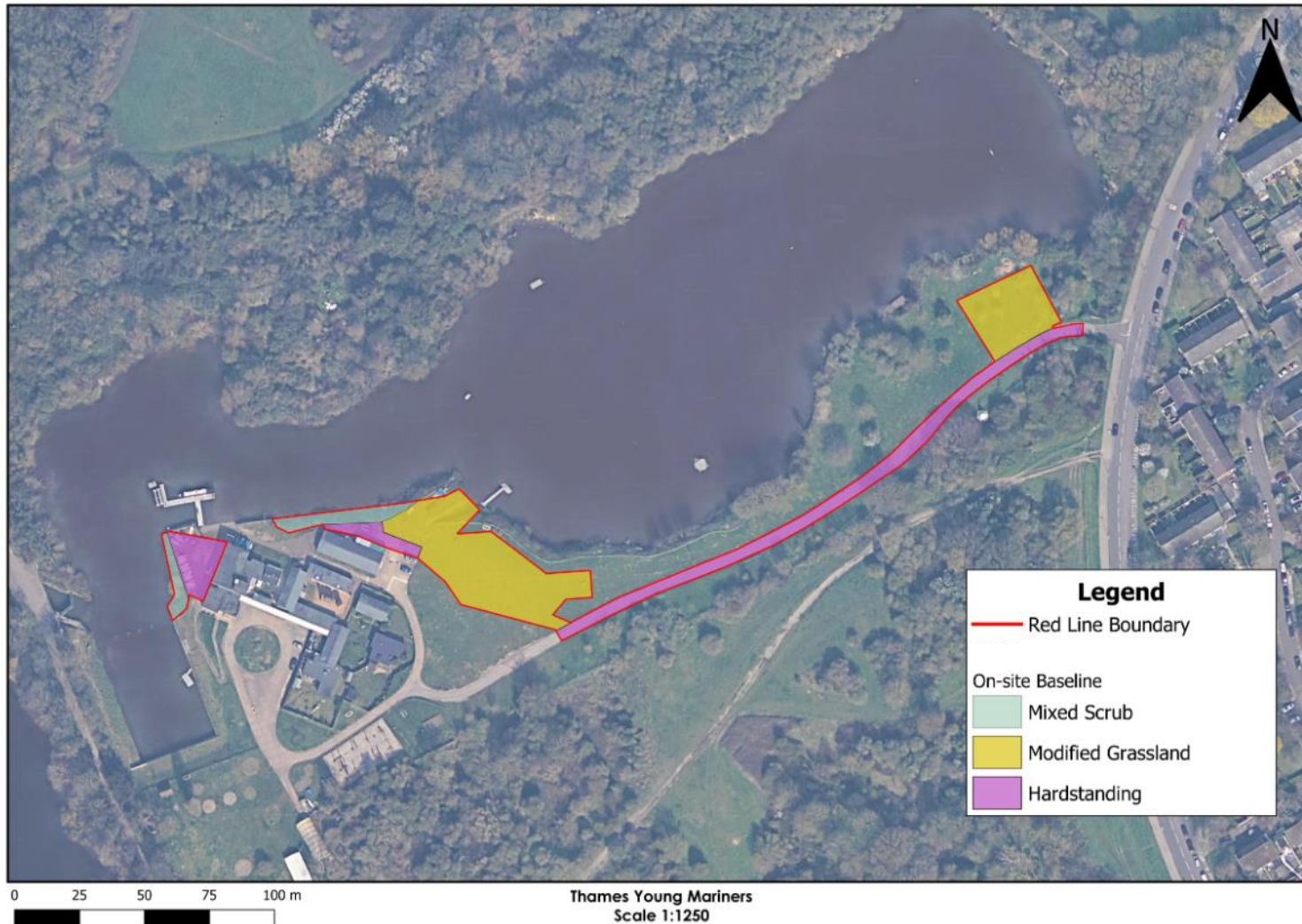


### 4.3 Field Survey

The broad distribution of each habitat and its general composition is described below. The location of each surveyed area is shown in Figure 3 Habitat Map.

#### Habitat Map

Figure 3 Habitats Map







## 4.4 Habitats

### 4.4.1 Modified Grassland



*Mown grassland on site.*

Much of the flat area on the bank top is composed of grassland managed for amenity purposes. Species present include Yorkshire fog, false oat grass, common bent, fescue sp., ribwort plantain, common daisy, yarrow, black medick, small-flowered crane's-bill, white clover, birdsfoot trefoil, and meadow buttercup, although these are spread relatively thinly with no more than 8 species per m<sup>2</sup>. This area is regularly used for recreational activities which has resulted in some damage to the sward, with patches of bare ground in places.

### 4.4.2 Mixed Scrub





*Scattered scrub on the far eastern (above) and western (below) ends of the proposed works areas.*

The bank sides are predominantly composed of scattered mixed scrub. The woody component of this is comprised of predominantly sycamore, willow and elder. Areas of bramble and tall ruderals exist between shrubs on the steep bank. Species present include cleavers, ground ivy, geranium sp., daisy, hoary cress, speedwell sp., spear thistle, green alkanet, lesser burdock, bristly oxtongue, old man's beard, teasel, and tansy. A number of Japanese Knotweed plants were also noted, with a large amount present across the lake to the north. Being on a steep bank this habitat has been left relatively unmanaged allowing a dense 3D structure to develop. When combined with its relatively diverse mixture of non-woody flora, this habitat does have value for a range of wildlife, particularly invertebrates. Connectivity to high value habitats in the immediate vicinity exists but is somewhat limited by the adjacent lake and amenity grassland habitat. It is nonetheless possible that protected species, including bats, birds, dormice, and reptiles, could be present on site, at least on occasion. A fox den was recorded in the bank during investigative scrub clearance.

#### **4.4.3 Lake (offsite)**



*Thames Young Mariners boating lake, offsite to the north.*

A lake exists immediately adjacent to the site. This is used for recreational activities by the Thames Young Mariners centre. This regularly results in a considerable level of disturbance, somewhat reducing its value for wildlife. This lake is understood to be directly connected to the



river Thames through sluiced gates in the west and as a result the lake is somewhat tidal and salty in nature. This has also allowed invasive non-native species to colonise the lake, specifically large quantities of Zebra Mussels. It is also understood the lake is stocked with fish, evidenced by a dead fish present on one of the beaches. It is nonetheless likely that protected species, such as foraging bats, utilise this habitat.

## **4.5 Protected Species**

### **4.5.1 Bats**

The site has value for foraging and commuting bats. Bats are likely to forage and navigate throughout the site. Good connectivity exists to higher value habitat in the surrounding landscape, including the larger Ham Lands LNR. At least 9 species of bat have been recorded within 2km.

### **4.5.2 Badger**

The surveyed area and adjacent habitats were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs. No evidence of badger was recorded.

### **4.5.3 Birds**

Scattered scrub habitat on site has the capacity to support nesting birds. Whilst no bird nests were recorded at either the time of survey or during clearance works, it is possible for nests to be created in future nesting seasons. 67 species of protected or notable birds have been recorded with 2km of the site. Whilst it is possible that some of these species could be present on site, at least on occasion, the habitats on site are of limited value for most.

### **4.5.4 Hazel Dormouse**

It is likely dormice are present in the immediate vicinity of the site, at least on occasion. Scrub and woodland within the surrounding landscape are known to support dormice, as shown by local data records. The site itself, being dominated by scattered scrub, also provides suitable habitat. The potential of the site is somewhat limited, however, by the lack of suitable habitat between the site and surrounding suitable habitat, as well as the regularly high levels of disturbance. Nonetheless, it is possible that dormice could be present on site, at least on occasion for foraging.

### **4.5.5 Reptiles**

The site has potential to support protected reptile species, such as slow worms and common lizards. The steep banks of the lake have been left relatively unmanaged, allowing it to become rough with a dense 3D structure. This offers sufficient cover to support a population of reptiles. The potential of the site to support reptiles is somewhat limited by the surrounding amenity grassland reducing connectivity of suitable habitat sections. Nonetheless, it is likely that reptiles are present on site, at least on occasion. Slow worms and common lizards have been recorded within 2km of the site.



#### 4.5.6 Amphibians

The site is considered to offer sufficient habitat to support protected widespread amphibian species. As with reptiles the rough vegetation of the banks of the lake offers sufficient cover and foraging habitat for terrestrial amphibians. The potential for common and widespread amphibians such as frogs is significantly limited by the presence of fish, wildfowl, and likely salinity, being connected to the tidal Thames. An HSI carried out on the lake found it to be of 'poor' quality for great crested newts, even when disregarding the likely salinity.

#### 4.5.7 Fox



*Fox recorded using mammal hole at the bottom of the bank of site.*

A mammal burrow was found at the base of the bank during the supervised vegetation clearance. A camera was erected to ascertain the species present. This revealed the occupant to be a fox which appears to be accessing it along the mud/sand revealed at low tide.

#### 4.5.8 Other Mammals – Otters & Water Voles

The surveyed area and adjacent habitats were inspected for field signs of otter and water vole activity. This includes holts, burrows, feeding sites, or dung piles. No evidence of otters or water voles was recorded.



## **5 IMPACTS**

### **5.1 Introduction**

This section is supported by the results of the Extended Phase 1 ecological survey and presents the likely impacts, *in the absence of any mitigating actions*, on protected and notable habitats and species associated with the proposed works. Only those features confirmed as present on site or considered to have from low to high potential occurrence on site have been taken forward for further assessment.

### **5.2 Designated Sites: SSSI/SPA/SAC/RAMSAR**

The Site lies within a SSSI Impact Risk Zone, but the type of works proposed does not require Natural England to be consulted.

A '**Habitats Regulation Assessment**' (HRA) is unlikely to be required on this site.

#### **5.2.1 Ham Lands SINC**

The Ham Lands SINC of 'Metropolitan' importance covers an area which includes the site proposed for works. Consequently, proposed works will result in the removal of habitat within a SINC. Due to the circumstances, contact was made with Tasha Hunter, the Ecology Policy and Planning Officer at London Borough of Richmond upon Thames council as to suitable compensation habitat creation. After discussion it was agreed that rather than replacement scrub planting, an area of grassland on site would be managed for wildlife. This is due to an excess of scrub and woodland regeneration within the wider Ham Lands SINC and adjacent LNR and therefore enhancement of existing grassland would be of superior value for wildlife locally and the protected site itself. This will tie in with the habitat creation required to achieve a biodiversity net gain on site.

### **5.3 Habitats**

#### **5.3.1 Scattered Scrub**

It is understood the current proposal will result in the loss of all of the scattered scrub habitat, initially for the installation of piling, but then in the longer term replaced by amenity grassland to minimise damage to the installed piling. As this habitat has ecological value in itself as well as potential to support protected species, mitigation will be required. Specifically, Precautionary Nesting Bird / Dormouse Mitigation, Precautionary Reptile / Amphibian Mitigation, Fox Exclusion Strategy, and an Artificial Lighting Strategy. This will ensure that no protected species are impacted as a result of proposed works and that the fox identified will not be cruelly killed/injured.

On this occasion, replacement scrub habitat is not desirable. As such, replacement habitat will involve the enhancement of grass elsewhere in land near, within ownership. In order to achieve a biodiversity net gain though the DEFRA metric, this replacement habitat will be managed as a low-density Traditional Orchard.

A more detailed plan for the removal of Japanese Knotweed will be required, although this is beyond the scope of this report.



### **5.3.2 Lake (offsite)**

It is understood that the lake adjacent to the proposed works area will be retained with no direct impacts proposed. Indirect impacts through temporary increased artificial lighting and spreading of invasive species are possible. Consequently, Zebra Mussel Advice and an Artificial Lighting Strategy are required. This will minimise impacts to protected species, minimise the risk of spreading invasive species, and prevent degradation of the lake during the works phase.

## **5.4 Protected Species**

### **5.4.1 Bats**

The site has been assessed as capable of supporting foraging and navigating bats. To ensure no negative impacts to bats, mitigation is required. Specifically, an Artificial Lighting Strategy should be put in place during the works phase to minimise disturbance.

### **5.4.2 Birds**

Scattered scrub habitat has been assessed as having potential to support nesting birds. To ensure no negative impacts to birds, mitigation is required. Specifically, Precautionary Nesting Bird / Dormouse Mitigation will ensure that no active bird nests are accidentally destroyed by proposed clearance works.

### **5.4.3 Hazel Dormouse**

The site has been assessed as having value for dormice, at least on occasion for foraging. Consequently, mitigation will be required. Precautionary Nesting Bird / Dormouse Mitigation will ensure that no nesting / foraging / hibernating dormice are impacted by proposed works.

### **5.4.4 Reptiles**

Reptiles could be present within tall ruderal vegetation between the scattered shrubs on the bank. Proposed works would likely result in the injury or death of any reptiles present. Precautionary Reptile / Amphibian Mitigation is therefore required. This will involve the gradual phased degrading of habitat on site to encourage reptiles to leave the proposed works area. Replacement SINC Habitat will also provide replacement habitat for reptiles on site.

### **5.4.5 Amphibians**

As with reptiles, it is possible that amphibians could be present on site during works and would then be at risk of injury or death. Precautionary Reptile / Amphibian Mitigation to encourage amphibians to leave the proposed works area will minimise the risk of such impacts, with Replacement SINC Habitat also providing replacement habitat for amphibians on site.



#### **5.4.6 Invasive Non-Native Species**

Japanese Knotweed and Zebra Mussels are known to be present on site and immediately adjacent. Consequently, works may result in the accidental spread of schedule 9 invasive species either through movement of soil or contamination of equipment used in the water. This would constitute a criminal offence and therefore mitigation is required. The control of either species noted is beyond the scope of this report, but Zebra Mussel Advice for minimising contamination of any equipment / clothing is detailed within this report. Specific advice regarding Japanese Knotweed removal should be sought.

#### **5.4.7 Fox**

Foxes are not afforded legal protection, nor are their resting places. However, in order to avoid a cruel death through asphyxiation or being crushed, a one-way gate should be erected on the identified den prior to works commencing. The erection of this gate must be carried out at a time which no kits are likely to be present. This will ensure that no foxes are present.



## 6 FURTHER SURVEYS, MITIGATION & ENHANCEMENT

### 6.1 Introduction

This section provides details of recommendations considered necessary in order to ensure that ecological issues are considered fully. This includes recommendations for further ecological surveys to inform the assessment of impacts as well as mitigation, compensation or enhancement measures to avoid, lessen or offset the identified impacts to ecological features arising from the proposed works.

### 6.2 Mitigation

This section provides general recommendations for mitigation and enhancement measures. The Ecological Constraints and Opportunities map (ECOPS) should be consulted for locations and area.

#### 6.2.1 Precautionary Nesting Bird / Dormouse Mitigation

An acting licenced ecologist must be engaged for this procedure. Fingertip searches followed by ecological supervision of cutting back of hedgerow habitat must be carried out. The process is outlined below.

Stage 1. Initial vegetation removal. Time constraint: November – May inclusive	Removal of tops of vegetation are to be carried out by hand during the winter months. Remove height of vegetation to 1ft. One week later remove growth to ground. Roots must be left untouched for at least 2 weeks following this period.
Stage 2. Removal of roots. Time constraint: May.	After the two week delay period, (and not before May) the roots can be removed subject to a fingertip search by a licenced ecologist with no evidence of dormice found.

Once vegetation and roots have been removed as per the mitigation schedule given above, the proposed hedgerow section can be declared free of dormice. However, if dormice are found, all development must cease and a European Protected Species Licence (EPSL) for dormice will be required.





### 6.2.2 Precautionary Reptile / Amphibian Mitigation

<p><b>Stage 1.</b> Phased Grassland Reduction.</p>	<p><b>From March and no later than October begin a phased reduction of the tall ruderals within the proposed works area.</b></p> <p><u>Phase 1:</u> Cut from west to east, towards further suitable habitat along the bank of the lake. Cut no less than 150mm in height on the first phase.</p> <p><u>Phase 2.</u> Two days later, cut the ruderals again to no less than 50mm towards the east.</p> <p>Reptiles/Amphibians will therefore no longer inhabit this cut area as it will no longer be suitable. They will have moved into the area off site, leaving the the site available for the works phase.</p>
<p><b>Stage 2.</b> Maintenance of works area.</p>	<p>Habitat within the works zone should be managed to ensure it remains unappealing for habitation by reptiles/amphibians. Maintain the vegetation at a short length within this area at no more than 50mm.</p>

### 6.2.3 Fox Exclusion Strategy

A one-way gate, similar to the strategy used to exclude badgers under a licence to destroy a sett, is required on the identified fox den. This will need to be erected when kits are not dependant so as to prevent them becoming trapped, should any be present. Wire mesh will be positioned around the gates to prevent foxes digging back in. This should be undertaken at least three weeks before planned works and monitored regularly to ensure that they have not dug back in.

### 6.2.4 Impact Avoidance During the Construction Phase

All activities on site should bear in mind the potential for wildlife or the environment being harmed through the process of development from inception to end, with a proactive approach occurring for lawful protection of wildlife and the environment regarding use of materials, machines, chemicals, and human activity on site.

- Contractors must ensure that no harm can come to wildlife by maintaining the site efficiently, clearing away any material such as wire in which animals can become entangled and preventing access to toxic substances.
- Trenches or large excavations should be covered overnight to prevent wildlife such as badgers or hedgehogs falling in and failing to escape. If this is not possible then a strategically placed plank may provide a means of escape.
- If there is a substantial delay before development commences, the site should be maintained in a way that would prevent wildlife colonising it and causing constraints in



the future. Such management should include mowing grassland at least twice a year and preventing scrub encroachment.

- Piles of brush wood and or log piles should be carefully inspected for signs of wildlife prior to their removal.

### **6.2.5 Artificial Lighting Strategy**

Wherever possible, no external artificial lighting should be introduced to the site during the works phases of the development. Light ONLY when and where it is needed for health and safety. When external lighting is needed for safety reasons, dynamic lighting schemes that are switched on only when needed should be considered. Dynamic lighting schemes are usually triggered via motion sensors. Prevent light-spill and spread. Eliminate bare bulbs, upward pointing lights, keep light near to or below the horizontal. E.g. flat cut-off lanterns. Such light should be positioned to only illuminate the required areas, limiting light spill, both horizontally and vertically. Additionally, hoods, cowls, louvers and/or shields may be utilised to further direct any lighting.

### **6.2.6 Zebra Mussel Advice**

Regarding Zebra Mussels the following should apply –

1. No artificial lighting onsite.
2. All equipment used in watercourses / water ways must be kept clean to reduce the risk of spreading invasive species. This can be achieved by using the Check-Clean-Dry procedure or by disinfecting equipment prior to entering the watercourse. The first step is always to remove all mud and plant matter from boots, tools etc, in situ, and then by sun drying; dry your equipment thoroughly in sunlight. This is the safest and most effective method for control
3. Make sure that you air-dry all the surfaces of the equipment, buckets or traps and that these are completely dry.
4. Chemical iodophors can be used to disinfect equipment, boots, hand tools, machinery and storage areas in vehicles. These can be sprayed according to the manufacturer's instructions and left to dry for 15 minutes before carrying out work in another water body.
5. Do not move between catchments without disinfecting or drying out completely any equipment.



## 6.3 Enhancement

### 6.3.1 Replacement SINC Habitat (combined Mitigation and Enhancement)

Both to replace lost SINC habitat as well as to achieve a biodiversity net gain through the DEFRA metric, replacement habitat is required. As excess scrub is present within the wider Ham Lands SINC, following discussion with the local council ecologist, it was decided that the most suitable way to offset lost wildlife habitat would be through the creation of a low density Traditional Orchard. The focus of management for this would be on the grass, rather than the fruit trees. Grassland must be managed in a way sympathetic to nature, allowing grasses and wildflowers within the grassland area to go to flower and set seed.

For management of the orchard, a number of Natural England Technical Information Notes have been created regarding planting and managing Traditional orchards which should be followed with regards to the trees -

- [TIN012 Traditional orchards - a summary](#)
- [TIN013 Traditional orchards: site and tree selection](#)
- [TIN014 Traditional orchards: planting and establishing fruit trees](#)
- [TIN015 Traditional orchards: an introduction to pruning](#)
- [TIN016 Traditional orchards: formative pruning of young trees](#)
- [TIN017 Traditional orchards: maintenance pruning](#)
- [TIN018 Traditional orchards: restoration and management of mature and neglected orchards](#)
- [TIN019 Traditional orchards: fruit tree health](#)
- [TIN020 Traditional orchards: orchards and wildlife](#)

Grassland areas within this habitat should be managed for wildlife. The following should be followed to maximise the value of the grassland for wildlife –

1. Meadow grassland must not be cut or grazed from spring through to late July/August to give species an opportunity to flower.
2. After flowering in July or August take a 'hay cut': cut back with a scythe, petrol strimmer or tractor mower to c 50mm.
  - a. Where possible leave areas to remain tussocky and suitable for overwintering invertebrates and reptiles.
3. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.
4. Mow the re-growth through to late autumn/winter to c 50mm and again in early spring if needed.
5. Paths can be cut shorter through this area if wanted (this is ideal even, to give a variety of sward heights), but leave most to go to flower.



## 7 CONCLUSIONS

The Extended Phase 1 Habitat Survey undertaken along with the data search is considered to have collected enough information about the ecological condition of the site to have been able to adequately assess the impact of the proposed development. Further survey work is therefore not required.

A calculation has been made of the habitat value on site using the DEFRA Biodiversity Net Gain Metric. This is outlined within a separate document.

A strategy of 'Avoidance' must be employed to significant harm to wildlife species and habitats is avoided through the design of the Site.

Where significant harm cannot be wholly or partially avoided, Mitigation measures have been set out to avoid and reduce the effects/impacts of the development on the important ecological features and the local environment as a whole. All measures should be included as a planning condition for the proposed development.

Ecological enhancement measures are required to improve the ecological condition of the development site (or an alternative site) after the development is complete. Ecological enhancement measures must, therefore, be over and above any avoidance, mitigation and compensation measures required to neutralise the impacts of the development on wildlife. These enhancements should result in a net ecological gain for the site and should be included as a planning condition for the proposed development.

Providing the recommendations within this report are adhered to, with the mitigation measures and enhancements agreed, there would appear to be no ecological constraints to prevent this development.

The local planning authority (LPA) should ensure that the mitigation measures, together with enhancement recommendations, are either 'conditioned' where appropriate, or that full permission is withheld pending the agreement of mitigation, compensation (where necessary) and enhancement measures.

It is the responsibility of all those involved with the proposed development works at this site to ensure that wildlife protection and nature conservation legislation is complied with throughout the lifespan of the development, at every stage. Although no current evidence of protected species was found on site it cannot be assumed that they are not present when the development work commences. Care should therefore be taken during all stages of the development and if any protected are discovered they must not be handled; works must stop immediately, and advice sought from a licensed ecologist.



### 8 MAP OF ECOLOGICAL CONSTRAINTS & OPPORTUNITIES

PR/AM – Two-Phase Cut Direction		Precautionary Nesting Bird / Dormouse Mitigation	
Fox Exclusion Strategy		Replacement SINC Habitat (combined Mitigation and Enhancement)	

This plan is approximate and not to scale.



Further Mitigation/Enhancement is required but could not be easily mapped including: - Impact Avoidance During the Construction Phase; Artificial Lighting Strategy; Zebra Mussel Advice.

Refer to the report throughout for the full details of the mitigation/enhancement.



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