Surrey Wildlife Trust
Ecology Services

Management Plan 2025-2035

Studio's Walk

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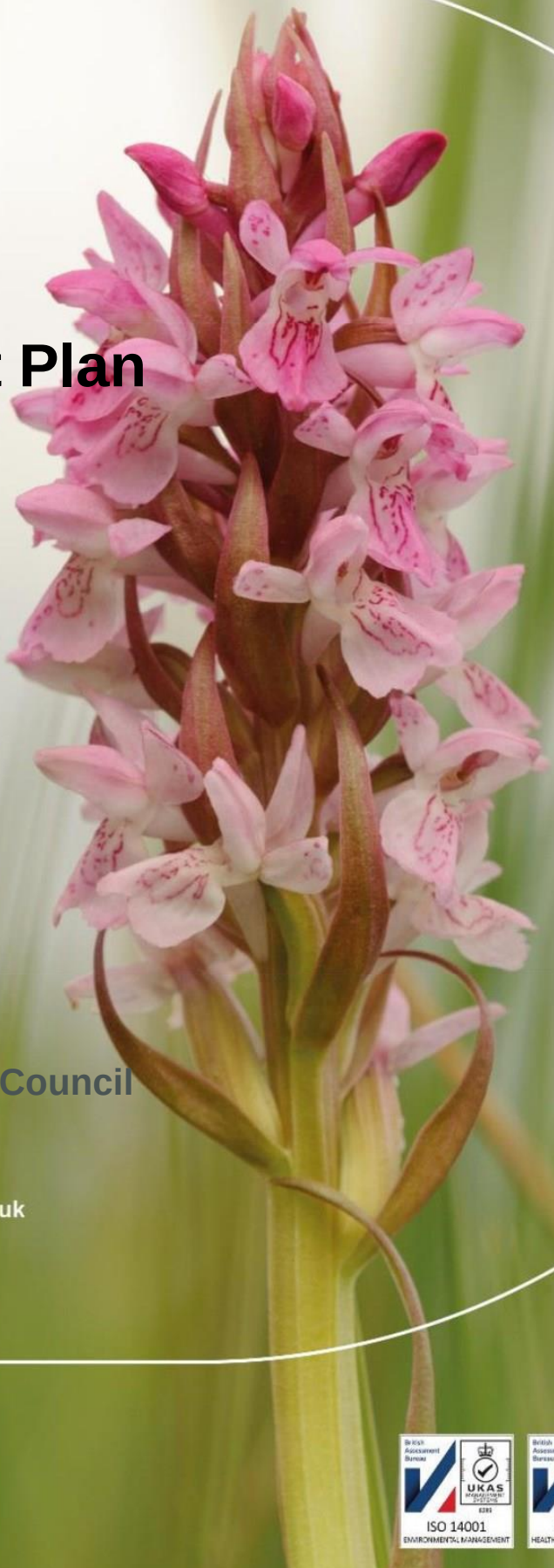

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The contents of this report were correct at the time of the site visit. The report is provided for the sole use of the named client and is confidential.

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Acronyms

Acronym	Definition
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
BOAs	Biodiversity Opportunity Areas
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
DEFRA	Department for Environment, Food and Rural Affairs
HPI	Habitats of Principal Importance
ILP	Institute for Lighting Professionals
INNS	Invasive Non-Native Species
IRZs	Impact Risk Zones
LNR	Local Nature Reserve
NERC	Natural Environment and Rural Communities
PGLTA	Preliminary Ground Level Trees Assessment
RCA	River Condition Assessment
SAC	Special Areas of Conservation
SNCI	Site of Nature Conservation Interest
SNP	Surrey Nature Partnership
SPA	Special Protection Areas
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest

1 Vision statement

1.1.1 Studio's walk, referred here as 'the site', will continue to support lowland mixed deciduous woodland (HPI) with ecotonal scrub and grassland habitats along the woodland edges, patches of wet woodland, the river Ash with its marginal vegetation and scattered reedbed as well as areas of grassland, through the successful implementation of this management plan. Wet woodland and reedbeds are important habitats and their restoration is also part of the objectives of the TV04: Thorpe & Shepperton BOA, where the site is located. The site is of local importance for wildlife and for the residents, and it will continue to be managed by SBC to enhance biodiversity and to bring the woodland (which is the most important and largest feature for the site) into a more favourable condition.

1.1.2 The positive biodiversity woodland management will particularly focus on the removal of non-native and invasive species, and on creating greater structure within the woodland to support micro habitats which can be utilised by a diversity of flora and fauna. It will also aim to enhance grassland, scrub and riparian habitats to create connectivity and to provide suitable opportunity for protected species. The plan promotes the involvement of the local community as well through volunteering work for the conservation of the habitats.

2 Summary

2.1.1 Surrey Wildlife Trust (SWT) Ecology Services was commissioned on 10 April 2024 by Spelthorne Borough Council to prepare a management plan at Studio's walk to cover the years 2025-2035.

2.1.2 The aim of the management plan is to assess the significance of the biodiversity on the site and determine suitable management in order to enhance biodiversity.

2.1.3 The following significant ecological features were identified on the site which have the potential to support locally, nationally and internationally important wildlife:

- Woodland (HPI)
- Scrub
- Grassland
- Riverine habitat

2.1.4 Other important focus points considered when producing this plan include:

- Volunteers' engagement
- Legal and other obligations (including statutory site obligations and agri-environment scheme requirements)
- Public access / amenity value
- Monitor and review

2.1.5 Figure 1 presents the baseline of the recorded habitats. The works and monitoring programme is detailed in Table 2 below.

2.1.6 This plan will be adaptive and will be regularly reviewed and updated in line with the monitoring results. This will help to ensure the management measures deliver the desired outcome..

2.1.7 An overview of the project is presented in Table 1, and a summary of the management plan in Table 2 and the monitoring plan in Table 3.

Table 1: Project overview

Project type	Onsite
Site name	Woodland at Studio's Walk, Shepperton TW17 0JZ
Landowner	Spelthorne Borough Council
Land manager	Spelthorne Borough Council
Responsible person/organisation for creating or enhancing the habitat	Spelthorne Borough Council
Period covered by this management plan	2025-2035
Central OS grid reference	TQ 0659 6853
Are any irreplaceable habitats present onsite	Yes
Required consents and licences	A bat GLAT is required before felling any trees.
Funding mechanism	SBC

Site restrictions	None
Legal agreement	Section 106

Table 2: Summary of management plan

Habitat type	Compartment (Figure 3)	Target UK habitat code and classification	Habitat intervention	Summary of management measures	Management timescale												Management Frequency (per year)
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Woodland	WF1-WF5	w1f – Lowland Mixed Deciduous Woodland (HPI)	Enhance	INNS removal. Remove Virginia-creeper, cherry laurel, bamboo and any residual stand of Japanese knotweed and giant hogweed if still present	■	■								■	■	■	Year 1 and as required.
				Thinning (only if necessary) of sycamore saplings. Prior to works, undertake a walkover to assess for bat suitability, and undertake works outside bird nesting season	■	■								■	■	■	Year 1 and as required.
				Management (only if necessary) of other introduced species such as Norway maple, Leyland cypress and other cypress species, Norway spruce and Douglas fir. Aiming to reach a minimum 10% cover. Prior to works, undertake a walkover to assess for bat suitability, and undertake works outside bird nesting season	■	■								■	■	■	Year 1 and as required and on rotation.
				Management of small clearings and rides to allow for woodland regeneration to continue, this will be shown through the presence of sapling and young trees from a range of native woodland species	■	■								■	■	■	Year 3 and 8 (if required).
				Management to encourage the number of veteran trees (2 per hectare), this could be through creation clearings around already mature or over-mature trees to give space for greater growth	■	■								■	■	■	As required year 1-10
				Management of common nettle and bramble within the woodland as required to encourage access and avoid overshading ground flora. This can encourage the establishment of wet woodland	■	■								■	■	■	As required year 1-10
				Within the woodland edge. Manage and maintain a woodland edge by thinning the dense common nettle and thick bramble and encouraging mixed scrub species diversity and a transition to tall grasses. However, retain some stands of dense common nettle area valuable for wildlife as they provide good habitat to invertebrates such as odonatan	■	■								■	■	■	As required year 1-10
				Install six bat boxes (at least)	■	■	■	■	■	■	■	■	■	■	■	■	Year 2
				Install 15 hazel dormouse boxes (at least)	■	■	■	■	■	■	■	■	■	■	■	■	Year 2
				Install six bird boxes (at least)	■	■	■	■	■	■	■	■	■	■	■	■	Year 2
				Create 4 (at least) hibernacula using the logs and wood following the woodland management	■	■								■	■	■	Year 1 As required following woodland management works.
				Maintenance of bat boxes at the same time as the monitoring (by licenced ecologist/local bat group)					■	■	■		■				Years 3, 5, 7 and 10
				Maintenance of bird nest boxes, can be done outside the breeding season or during the monitoring by an ecologist or local bird conservation group	■	■								■	■	■	Years 3, 5, 7 and 10
				Maintenance of dormouse boxes at the same time as the monitoring (by licenced ecologist/local dormouse group)					■	■			■	■			Years 3, 5, 7 and 10
Scrub	HS1	h3h – Mixed scrub	Enhance	Cutting back dense bramble to create some open glades.									■	■			As required year 1-10
				Plug planting of at least five different UK shrub species, where needed and in the cleared areas	■	■								■	■	■	As required year 1-10

Habitat type	Compartment (Figure 3)	Target UK habitat code and classification	Habitat intervention	Summary of management measures	Management timescale												Management Frequency (per year)
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
				Manage the scrub edge by removing overgrowing common nettle and allow progression towards tall grasses along the paths									■	■			As required year 1-10
Watercourses	WC1, WC2	r1e - canals and ditches, river	Enhance	Removal of Schedule 9 invasive species if any stands are still present. Remove cherry laurel.	■	■								■	■	■	Year 1 and as required.
				Implement rotational pollarding and thinning of preferentially sycamore trees along river (where accessible) to reduce overshading. A bat suitability assessment is required prior felling or pollarding. Caution while felling trees in winter due to dormouse suitability, if works are happening in winter and a hibernation dormouse nest is found stop works and seek ecological advice.	■	■								■	■	■	Year 1 and as required.
				Creation of four dead wood/log piles and encourage standing dead wood habitat. This will create habitat for various invertebrates and amphibians	■	■								■	■	■	Year 1 or as required.
				Areas of marginal/aquatic vegetation that support reeds along the river, around the islands or in shallow areas of the river will be retained and maintained by removing thick scrub and leaf litter and maintain a varied mosaic of reed heights and densities. If feasible keep or create connectivity to different patches of reeds allowing movement of species around the reedbed	■	■								■	■	■	As required
Grassland (low and medium distinctiveness)	G1	g3c – other neutral grassland	Enhance	The grassland compartment will be cut to 500mm with arisings removed. One to two metres of habitat edges will be left uncut on a three-year rotation							■		■	■			Annual. Year 1-10
	G2, G3			Other neutral grassland will be managed with an annual cut to be undertaken in late summer to early autumn (e.g. late August to September), mown to varied heights and at varied frequencies this maximises seed setting of the grassland plants. Ideally cut and collect. Or cuttings can be placed on habitat boundaries								■	■	■			Annual. Year 1-10
	G1-G3			First cut to 15 cm then second cut after 24 hours to ground level to avoid impacting reptiles.							■	■	■	■			Annual. Year 1-10
Urban	U1	u1c - Artificial Unvegetated; Unsealed surface u1b5 - Buildings	Retain														
Legal actions				Liaise with Spelthorne Borough Council	■	■	■	■	■	■	■	■	■	■	■	■	Once every 6 months. As required
				Ensure an up-to-date RAMS is in place for any work being undertaken	■	■	■	■	■	■	■	■	■	■	■	■	As required
Public access and engagement			Training sessions will be provided on a regular basis (including work methods, techniques, biodiversity on site, INNS ID, H&S)	Twice a year (if feasible/required). Any time of year	■	■	■	■	■	■	■	■	■	■	■	■	Year 1-10. As required
	WF1-WF5 And where required	w1f - Lowland Mixed Deciduous Woodland	Assist with conservation work, habitat management under supervision and support from the council. Removal of INNS.	As required, following timing and methods recommendations in this report.	■	■								■	■	■	Years 1-10 As required, following timing and methods recommendations in this report.

Habitat type	Compartment (Figure 3)	Target UK habitat code and classification	Habitat intervention	Summary of management measures	Management timescale												Management Frequency (per year)
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	HS1	h3h – Mixed Scrub	Assist with conservation work, habitat management under supervision and support from the council. Scrub management	As required, following timing and methods recommendations in this report.													Years 1-10 As required, following timing and methods recommendations in this report.
	HS1	h3h – Mixed Scrub	Assist with conservation work, habitat management under supervision and support from the council. Planting UK native shrubs in mixed scrub.	As required, following timing and methods recommendations in this report.													Years 1-10 As required, following timing and methods recommendations in this report.
	U1	u1c - Artificial Unvegetated; Unsealed surface	Maintenance of pathways and fencing	Winter. As required													Years 1-10 As required
	U1	u1c - Artificial Unvegetated; Unsealed surface	Maintenance of site furniture	Any time of year. Years 1-10													Years 1-10 As required
	WF1- WF5	w1f - Lowland Mixed Deciduous Woodland	Creation of log/brash piles. Creation of hibernacula following the recommendations in appendix 8. Provide maintenance of the features overtime.	Any time of year													Years 1-30 As required
	All compartments		Update and repair of the interpretation board	Any time of year													Years 1-10 As required
	All compartments		Walkovers to patrol the site to: - check for presence of invasive species - to spot any broken/damaged enhancement feature such as bat boxes, bird nesting boxes, dormouse boxes, hibernacula, log/habitat piles - Check the site for any sign of pollution in the river and other habitats	Any time of year													Years 1-10 As required
	All compartments		Litter-picking.	Any time of year													Years 1-10 As required

Table 3: Summary of monitoring plan

Compartment	Summary of monitoring measures	Monitoring timescale												Monitoring Frequency (per year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
All habitats	Habitat survey within the optimal survey period. Signs of ash dieback in woodland areas should also be checked.													Years 3, 5 and 10
All habitat compartments	Monitor annually for the presence of Schedule 9 non-native invasive plant species and other non-native species. If found create an action plan for their control.													Years 1 – 10
All habitat compartments	Review progress towards achieving objectives and targets.													Years 3, 5 and 10
G1-G3, HS1, woodland edge (WF1-WF5)	Species monitoring surveys for reptiles													Years 3, 5 and 10 (frequency depending on funding)
All habitat compartments	Species monitoring surveys for bats (activity)													Years 3, 5 and 10 (frequency depending on funding)

Compartment	Summary of monitoring measures	Monitoring timescale												Monitoring Frequency (per year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
WF1-WF5	Species monitoring surveys for bats (bat box checks) – to be undertaken by licenced people (ecologists or local conservation group)													Years 3, 5 and 10 (frequency depending on funding)
WF1-WF5	Species monitoring surveys for hazel dormouse - to be undertaken by licenced people (ecologists or local conservation group)													Years 3, 5 and 10 (frequency depending on funding)
WF1-WF5	Bird box checks - to be undertaken by licenced people (ecologists or local conservation group)													Years 3, 5 and 10 (frequency depending on funding)
All habitat compartments	Species monitoring surveys for breeding birds.													Years 3, 5 and 10.
All habitat compartments	Staff and visitor wildlife recording scheme.													Ongoing. Year 1-10
WC1. WC2	RCA assessment by a licenced ecologist and water quality testing													year 2, 5 and 10 (frequency depending on funding)
WC1, WC2	Aquatic invertebrate surveys by an entomologist													year 3, 5 and 10 (frequency depending on funding)

Secondary Codes (Compartment Number)

32: Scattered Trees (G1)
201: Yound Trees Planted (G2)
81: Ruderal or ephermal (G2)
147: Fallen dead wood abundant (WC1/2)
10: Scattered Scrub (WF1-5)
159: Standing dead wood abundant (WF1-5)
1160: Introduced Shrub (WF1-5)

Key

Site Boundary
Target Notes

Baseline Linear Features

r2b - Other Rivers and Streams (WC1-2)

Baseline Area Features

g3c - Other Neutral Grassland (G1-3)
u1c - Artificial Unvegetated; Unsealed surface (U1)
u1b5 - Buildings
w1f - Lowland Mixed Decidous Woodland (WF1-5)
h3h - Mixed Scrub (HS1)

N

Scale: 1:2,000

Maxar, Microsoft

Produced by: Surrey Wildlife Trust Ecology Services

Created By:JW

6225, October 2025

Figure 1:
Studio's walk,
Shepperton Habitat

Surrey Wildlife Trust
Ecology Services

Baseline Plan

3 Introduction

3.1 Background

3.1.1 Surrey Wildlife Trust (SWT) Ecology Services was commissioned on 10 April 2024 by Spelthorne Borough Council to prepare an update management plan at Studio's walk to cover the years 2025-2034.

3.1.2 This is an update to a previous management plan prepared by Surrey Wildlife Trust and implemented from 2008 to 2012 (Surrey Wildlife Trust, 2008).

3.2 Scope of work

3.2.1 The scope of work included:

- A review of existing information for the site including past management plans (Surrey Wildlife Trust, 2008), agri-environment schemes and past survey and monitoring data.
- A habitat survey following UK habitat classification methods.
- An assessment of the likelihood of the site to support rare and/or protected species.
- Site visit and meeting with relevant staff.
- Identification of important features of the site and setting of objectives and targets.
- Description of management measures required to meet objectives and targets including a monitoring strategy.
- Ten-year work plan and associated mapping.

3.2.2 The information and data provided have been prepared in accordance with current best-practice guidance (CIEEM, 2022b), (CIEEM, 2021), (BSI, 2013) and (BSI, 2021). Our ecologists are bound by CIEEM's 'Code of Conduct' (CIEEM, 2022a).

4 Legislative and planning policy framework

4.1.1 Certain designated sites, habitats and species are protected under UK legislation and planning policies. These have been taken into account when writing this plan and it is important that this is taken into account when carrying out management of the site or when planning any future development on the site. Section 14 considers legal and other obligations relevant to the management plan. Relevant legislation and planning policies are detailed in Appendix 5.

5 The site

5.1.1 The site, presented in Figure 1, covers a total of approximately 7 ha. It is located at a central grid reference TQ 0659 6853, in a residential area and is bounded by the Shepperton Studios and the village of Littleton to the north and east, Squire's Bridge Road to the east, Shepperton Studios South to the south and west, and fields to the west and northwest. The River Ash runs through the centre of the site on an east-west axis and continues to the east and west of the wider landscape. Shepperton Green village is to the south. The site is in Spelthorne Borough Council and they own and manage the site.

5.1.2 Further information on the site, along with historical information collected is detailed in Appendix 3.

6 Baseline conditions

6.1 Designated sites

6.1.1 No designated sites are present within the site itself.

6.2 Site within the wider area

6.2.1 Three statutory designated site was recorded within 2 km of the survey area, including one SSSI and two LNR.

6.2.2 One non-statutory designated sites, comprising South-West London Waterbodies, was recorded within 300 m north of the survey area.

6.2.3 The distance of the designated sites from the site boundary is presented in Table 4.

6.2.4 The site is within London Green Belt area.

Biodiversity Opportunity Areas

6.2.5 A number of Biodiversity Opportunity Areas (BOAs) have been identified within Surrey. These areas are described by the Surrey Nature Partnership as **"**extensive areas where improved habitat management, as well as efforts to restore and re-create Priority habitats will be most effective in enhancing connectivity to benefit recovery of Priority species in a fragmented landscape. They are therefore the basis for achieving Sir John Lawton's vision of a "coherent and resilient ecological network" in Surrey.

6.2.6 The site is located within the TV04: Thorpe & Shepperton BOA.

6.2.7 The following habitats have been identified as important in the area statements for this BOA: floodplain grazing-marsh, meadows, acid grassland, standing open water, reedbeds, wet woodland, hedgerows. The main objectives for the BOA that are relevant to this site and management plan include the restoration (or creation) of priority habitats such as wet woodland and reedbeds and the stabilisation (or recovery) of priority species such as the marsh stitchwort, greater water-parsnip and water vole.

Table 4: Statutory and non-statutory designated sites desk study results

Site name	Brief description	Distance from survey area (m)
Statutory designated sites		
Ash Link LNR	Contains a variety of wildlife as well as mixed woodland, wildflower glades, ponds, and the River Ash.	*970 m east*
Chertsey Meads LNR	A remnant floodplain meadow habitat with rich floral lime-loving assemblages. Over 400 species of plants have been recorded, including flowers, grasses and sedges. 108 species of bird have been recorded including lesser whitethroat *Sylvia curruca,* reed bunting *Emberiza schoeniclus*, sedge warbler *Acrocephalus schoenobaenus* and reed warbler *Acrocephalus scirpaceus*. Some of the flowering plant species found in the grassland are unusual due to calcium carbonate that has been deposited onto the site when the Thames has flooded. These unusual plants, which are usually found in chalk grassland include meadow crane's-bill *Geranium pratense.* The boundary of Dumsey Meadow SSSI encompasses this LNR.	*1720 m southwest*
Dumsey Meadow SSSI	Dumsey Meadow is an unimproved, cattle and pony-grazed riverside pasture situated on the flood-plain of the River Thames close to Chertsey Bridge. The site consists mainly of crested dog's-tail *Cynosurus cristatus* - common knapweed *Centaurea nigra*, grassland, a plant community now rare in Surrey. Marshy depressions and semi-natural vegetation along the riverbank contribute to the species diversity of the site. The site is within the IRZ of this SSSI	*1750 m southwest*
Non statutory designated sites		
South-West London Waterbodies	Queen Mary Reservoir an Important Bird Areas (GB).	300 m north

6.3 Recent management (past achievements)

6.3.1 A previous management plan was implemented from 2008 to 2012 (Surrey Wildlife Trust, 2008) to enhance woodland, scrub, grassland and aquatic habitats. It was mainly focused on the eradication of non-native invasive species such as the Japanese knotweed, giant hogweed, bamboo and cherry laurel, improving the habitat conditions for biodiversity and involving the local volunteers in conservation work. The previous report (Surrey Wildlife Trust, 2008) mentioned that sycamore should be managed as considered non-native, but on review and based on assessment, sycamore now to be considered as an introduced naturalised tree species, removal is not as necessary but will provide recommendations in the woodland section below on how to thin where necessary.

6.3.2 However, since 2012, the lack of targeted management work has contributed to the spread of non-native species and the degradation of all habitats on site that now require up-to-date management.

6.4 Habitats

Desk study

Waterbodies

6.4.1 One waterbody was recorded within the site. River Ash flows east to west across the woodland at Studio's walk, central grid reference is TQ0649 6869. The river then splits, into two channels, with approximate central grid reference TQ0651 6854. Both sections of the river are shown in Figure 1.

6.4.2 In addition, four waterbodies were recorded within 500 m of the survey area. These and their distance from the survey area red line boundary are listed below:

- Queen Mary Reservoir is at 300 m to the north (grid reference TQ0664 6912)
- A canal at 340 m east (grid reference TQ0595 6900).
- A pond at 430 m southwest (grid reference TQ0606 6832).
- A lake (part of the sailing club) at 350 m to the south (grid reference TQ0661 6803).

6.4.3 Other small garden waterbodies may be present, but do not show up on maps.

Ancient woodland and veteran trees

6.4.4 No parcels of ancient woodland were identified within the site.

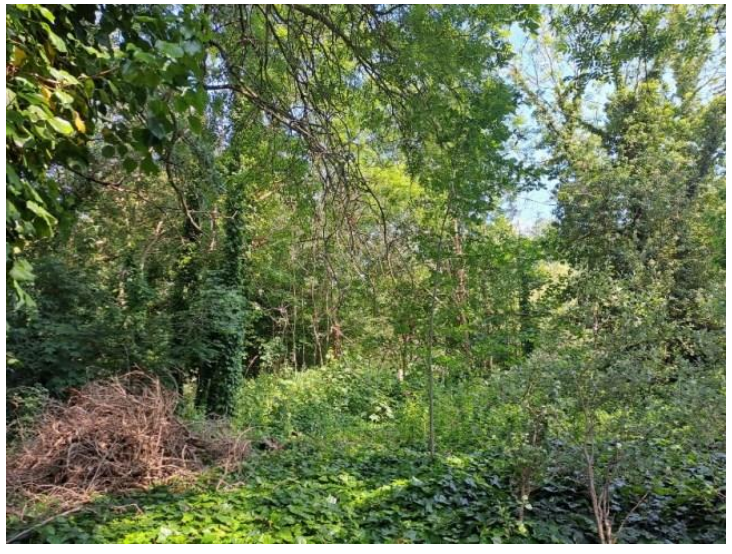
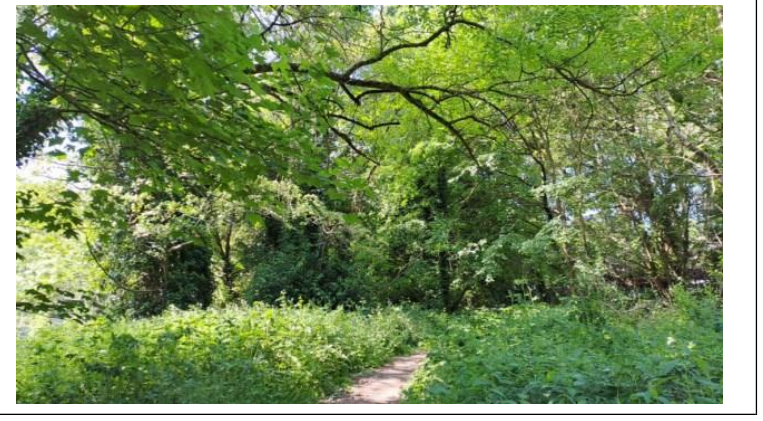
6.4.5 One parcel of ancient woodland was identified within 1 km of the site, at a distance of approximately 450 m to the northwest of site; it is approximately 1.6 ha in size.

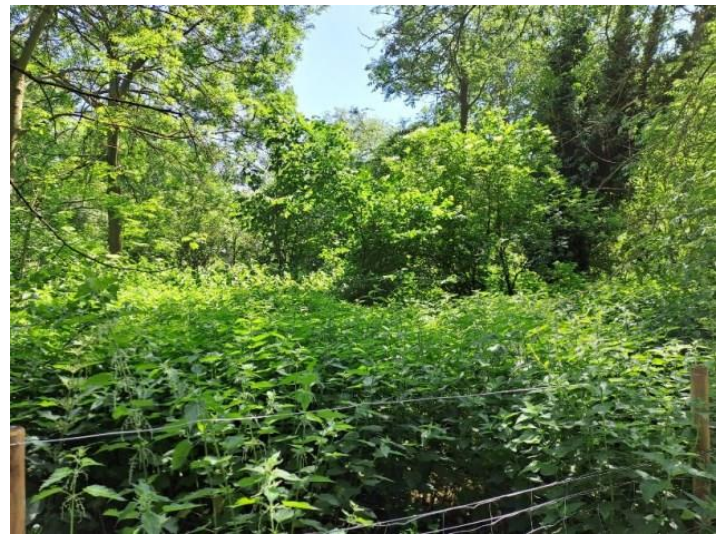
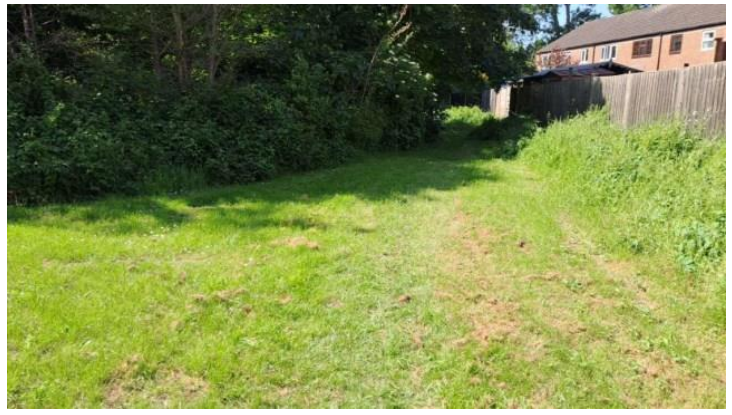
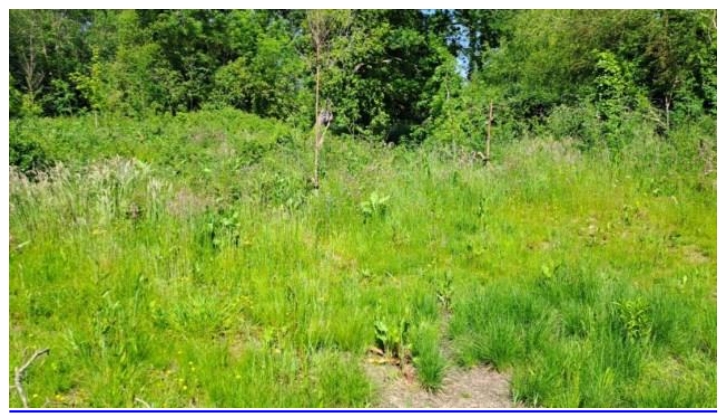
6.4.6 Three veteran trees were recorded in 2008 and described in the management plan and maps (Surrey Wildlife Trust, 2008). Although information on where they were was not provided in the arb report, and they were not recorded during the latest survey, it is assumed that they are still present.

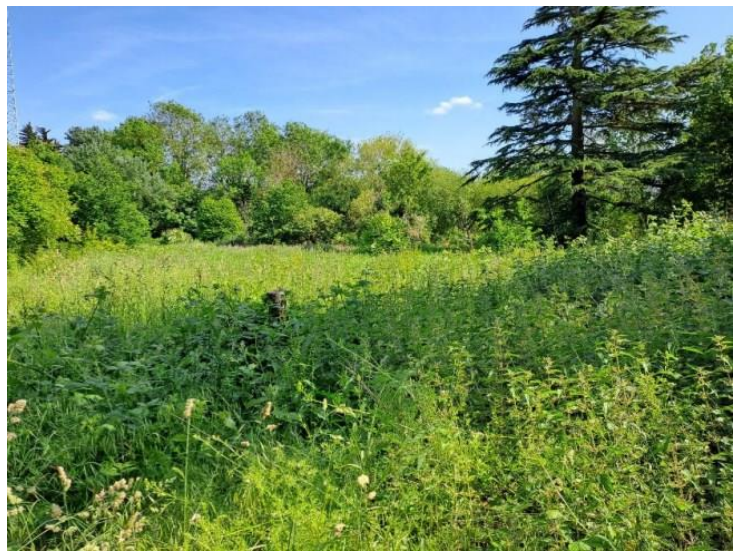
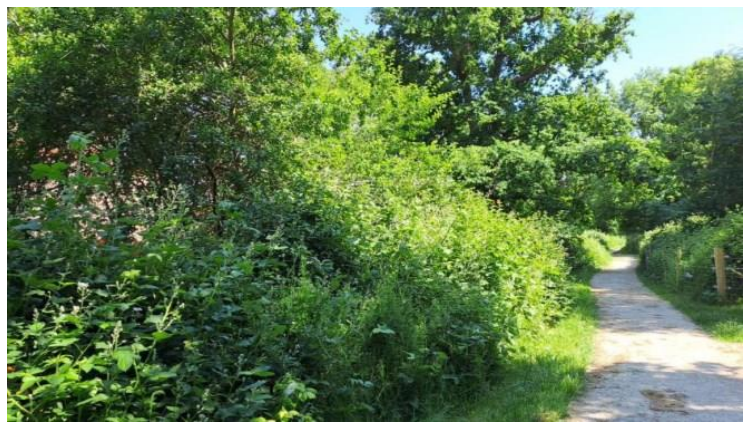
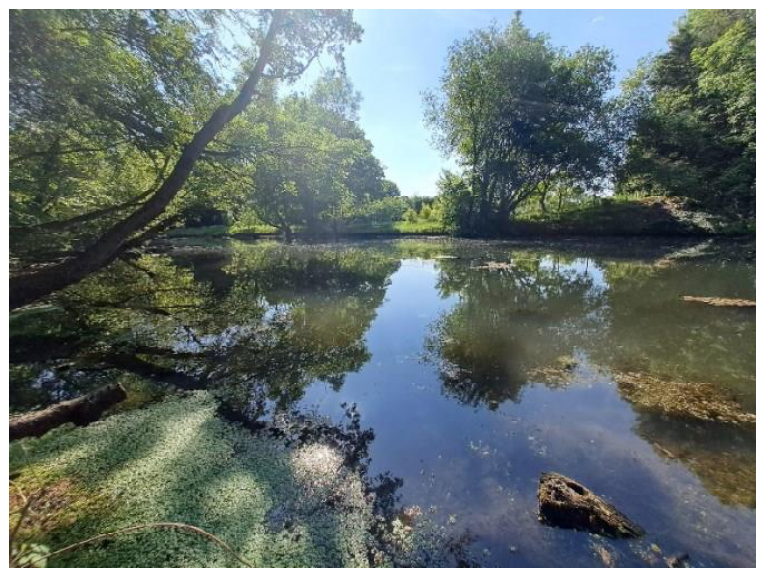
Habitat survey results

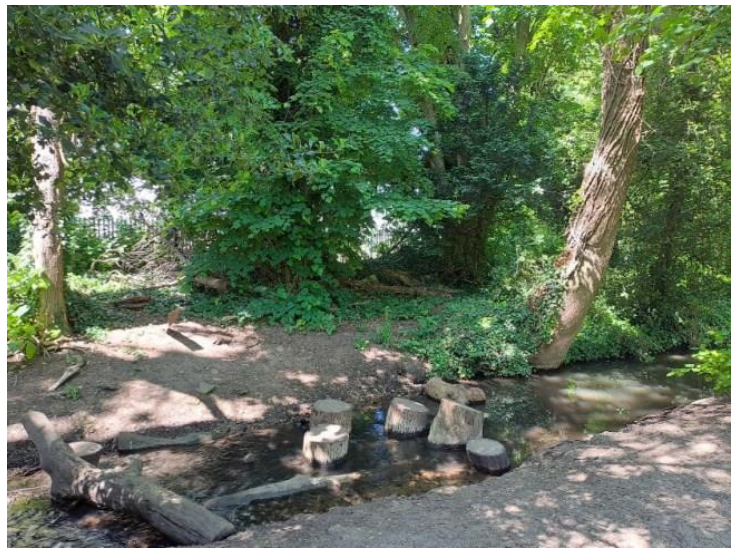
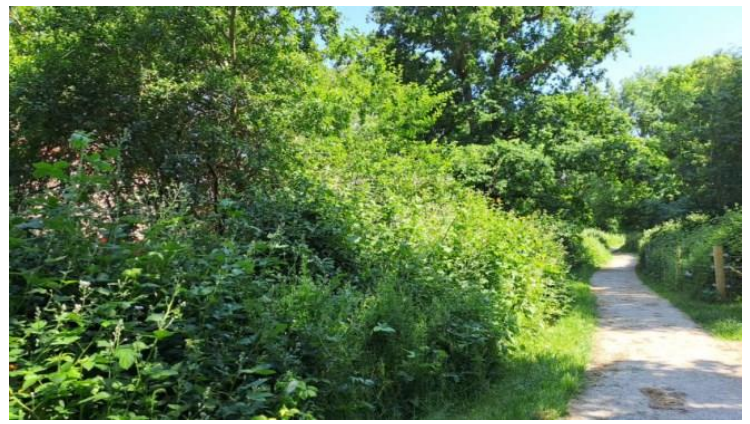
6.4.7 Six types of habitats were recorded during the UK Habs survey. The location of these is presented in Figure 1. A summary of each habitat is provided in Table 5.

Table 5: Habitat survey results

Habitat and code	Compartment number	Description	HPI	Photograph
w1f – Lowland Mixed Deciduous Woodland (HPI) secondary codes: 10 - Scattered scrub 159 - Standing dead wood abundant 1160 - Introduced shrub	WF1	This is an HPI deciduous woodland dominated by mature oak, ash, field maple, aspen, sycamore and horse chestnut with abundant elder and holly, common nettle, garlic mustard and cow parsley. This woodland includes small patches of wet woodland along the riverside, with wet soil and that are dominated by alder and willow species with a ground flora of common nettle, yellow iris, pendulous sedge, cuckooflower, and other species adapted to seasonally wet soils. Glades and areas of tall grasses and ruderal habitat are present, mainly due to past management along the footpaths. Stands of non-native invasive species such as cherry laurel (TN20) and bamboo (TN1) are present while some densely shaded areas present an overgrown ground cover of a dense ivy layer. Abundant deadwood and standing deadwood present. Butterfly-bush, lesser periwinkle, snowberry and a big stand of Virginia creeper are present in the parcel. The woodland edges along footpaths support bramble scrub, dense common nettle stands and mixed scrub progressing to tall grasses. The parcel suitable for nesting birds, roosting (a PGLTA was not undertaken at this stage), foraging and commuting bats, badger, dormouse, small mammals, invertebrate, common UK amphibian species and reptiles such as grass snake and slow-worm.	Yes	
w1f – Lowland Mixed Deciduous Woodland (HPI) secondary codes: 10 - Scattered scrub 159 - Standing dead wood abundant 1160 - Introduced shrub	WF2	This is an HPI deciduous woodland similar in species composition to WF1, oak, ash, horse chestnut, lime, sycamore, English elm, hawthorn, field maple. It includes small wet woodland areas supporting poplar, alder and willow species such as grey willow, goat willow and presenting a ground flora that transitions to the marginal vegetation of the river with sedges, common nettle, yellow iris, horsetail. Deadwood is abundant. Historical records of Japanese knotweed were recorded in 2008 however, these stands were not found as some areas were not fully accessible due of dense scrub. Likely the invasive species was controlled during the last management but possibly still present in pockets surrounded by bramble or not accessible during the survey. Snowberry (a non-native invasive species) was recorded in this parcel. The woodland edges along footpaths support bramble scrub, common nettle and mixed scrub progressing to tall grasses. Parcel suitable for nesting birds, roosting (a PGLTA was not undertaken at this stage), foraging and commuting bats, badger, dormouse, small mammals, invertebrate, common UK amphibian species and reptiles such as grass snake and slow-worm.	Yes	
w1f – Lowland Mixed Deciduous Woodland (HPI) secondary codes: 10 - Scattered scrub 159 - Standing dead wood abundant 1160 - Introduced shrub	WF3 and WF5	These parcels of HPI woodland are surrounded by WC2 (a channel) to the east, south and west and the river (WC1) to the north, supports mainly ash, sycamore, horse chestnut, willow and poplar species. Elder, holly and hawthorn scrub present. Ground flora includes areas of ivy carpets, and areas with a more diverse flora with common nettle, bramble, grasses, dog’ s mercury. Signs of littering in areas more accessible to the public and abundant deadwood present. Historical records of Japanese knotweed, however the species was not found during the survey. The species might be still presents in pockets that were surrounded by bramble or not accessible during the survey. Woodland edges along the footpaths support bramble scrub and mixed scrub progressing to tall grasses. Parcel suitable for nesting birds, roosting (a PGLTA was not undertaken at this stage), foraging and commuting bats, badger (TN10 is a potential suitable badger hole), dormouse, small mammals, invertebrate, common UK amphibian species and reptiles such as grass snake and slow-worm.	Yes	

Habitat and code	Compartment number	Description	HPI	Photograph
w1f – Lowland Mixed Deciduous Woodland (HPI) secondary codes: 10 - Scattered scrub 159 - Standing dead wood abundant 1160 - Introduced shrub	WF4	Dense parcel of deciduous woodland (HPI) bounded by the river Ash and the channel. Abundant alder, ash and riparian vegetation on the riverbanks. Spelthorne Borough Council informed that Japanese knotweed is present near the boundary, but the stand was not seen during the survey possibly due to dense vegetation impeding access. Cherry laurel is currently present within the parcel. Two big stands of Virginia creeper are present in the parcel (TN13, TN14). willow species with patches of wet woodland alongside the water's edge, with woodland transitioning to the Signs of previous management and area with dead planted saplings.	Yes	
g3c – other neutral grassland	G1	Woodland edges along the footpaths support bramble scrub and mixed scrub progressing to tall grasses. Parcel suitable for nesting birds, roosting (a PGLTA was not undertaken at this stage), foraging and commuting bats, badger, dormouse, small mammals, invertebrate, common UK amphibian species and reptiles such as grass snake and slow-worm. Grassland to the north-west of the site within an area surrounding the footpath. At the time of the grassland was mowed very short with sections of taller grassland around the edges of the footpath.	No	
secondary codes: 32 – scattered trees	G2	Grassland species included perennial rye-grass, creeping buttercup, meadow buttercup, creeping bent, common sorrel, creeping thistle. It provides suitability for small mammals, invertebrates, reptiles, amphibians, foraging bats and birds.	No	
g3c – other neutral grassland secondary codes: 201 - Young trees planted. 81 – Ruderal or ephemeral		Wide glade in woodland, along the footpath and the river. The space is open and grassland where some saplings have been recently planted (ash, elder and hawthorn) and with many ruderal species are now overgrowing. Species include various grasses such as crested dog's tail, barren brome, wall barley, perennial rye-grass and Yorkshire-fog, as well as forbs species including oxeye daisy, black medick, meadow buttercup, ribwort plantain, bristly oxtongue, red campion, creeping buttercup, together with spear and creeping thistle and dock species, hemlock, hop, common ragwort and the non-native butterfly-bush. Suitability for small mammals, invertebrates, reptiles, amphibians, foraging bats and birds.		

Habitat and code	Compartment number	Description	HPI	Photograph
g3c – other neutral grassland secondary codes: 81 – Ruderal or ephemeral	G3	Area with other neutral grassland with a structure illustrative of it being managed on rotation, with tall sward at the time of the survey. Patches of common nettle and bramble across the field and a variety of grass species such as Yorkshire-fog, false oat-grass, cock’s-foot, Soft brome, barren brome, common bent and rough meadow grass. Herb species present include meadow buttercup, red clover, cleavers, wood-avens, cut leaved crane’s-bill and sparse stands of common nettle, bramble and creeping thistle, hogweed and curled dock. Suitability for badger, small mammals, invertebrates, reptiles, amphibians, foraging bats, foraging birds. Few species of *odonata* were recorded during the survey such as the banded demoiselle and the common blue damselfly.	No	
h3d – Bramble scrub	HS1	Scrub mainly dominated by bramble and abundant common nettle. This habitat is growing to the north along the boundary with Shepperton Studios. Suitable for foraging commuting bats, nesting birds, reptile and amphibians, invertebrate, dormouse, small mammals, badger.	No	
r1e - canals and ditches, river secondary code: 147 - Fallen dead wood abundant	WC1	River Ash with marginal vegetation including greater pond-sedge, brooklime, cuckoo-flower, water forget-me-not and trees such as aspen, alder and willow. Few small islands are present that support terrestrial vegetation including willow and alder. Areas around the islands and along the river supporting vegetation such as common reed, reed sweet- grass, yellow iris, hemlock water-dropwort and gipsywort were distributed and scattered along the river. Aquatic vegetation included starwort sp. and duckweed sp. Wide overshaded areas are present supporting bare ground or limited vegetation. Carpets of ivy and winter heliotrope often cover the riverbanks. Abundant deadwood within the water and presence of vegetated islands (mainly supporting willow, sycamore, common reed and yellow iris) and patches of reedbed habitat along the banks and forming islands of vegetation within the river. Banks are shallow and muddy; water appears deep at the centre of the riverbed and a good flow is present. Some areas are vegetated, and banks stabilised by the grasses, sedges, reeds and other riparian plants, areas that are unvegetated due to overshading and some areas that have artificial embankments near the bridges. Marginal vegetation suitable for birds such as kingfisher (recorded during the survey) and breeding waterfowl. Moorhen, mallards and coots with chicks were recorded during the survey. Suitability for aquatic and terrestrial invertebrates, small mammals, foraging and commuting bats. *Odonata* species and various *coleoptera* recorded.	No	

Habitat and code	Compartment number	Description	HPI	Photograph
r1e - Canals and ditches, river secondary code: 147 - Fallen dead wood abundant	WC2	Section of the river Ash channelled around an island supporting woodland (W3 and W5). Publicly accessible, presenting small areas with some littering. Overgrowing common nettle and scrub. Big amount of deadwood, felled trees and brash within the water and obstructing some footpaths. Water very shallow, slow or not perceivable flow. Water margins not steep and often lacking established aquatic and marginal vegetation. Banks often covered by overgrown ivy or winter heliotrope, or bare soil due to overshading from tree canopy. Some areas also include patches of yellow iris, common nettle, bramble, water dock. the non-native and invasive lesser periwinkle was found in this compartment. Marginal vegetation suitable for birds, aquatic and terrestrial invertebrates, small mammals, foraging and commuting bats.	No	
u1c - Artificial Unvegetated; Unsealed surface	U1	Paths within woodland, connecting the various woodland and grassland parcels. Mainly bounded by rail and post fences and scrub ecotonal habitat at the edge of the woodland. This habitat includes also the bridge located to the northern boundary of Studio’ s walk woods. Regularly used by the public for recreation, outdoors activities and commuting.	No	
u1b5 - Buildings	U2	Not surveyed, not accessible.	No	-

6.5 Species

Desk study

6.5.1 Below is a summary of known species information for the site gathered from past surveys and other documents relating to the site. It includes the results of an online desk study undertaken consulting MAGIC website (DEFRA, n.d.) on the 11/09/2024 and which lists any mitigation licenses for protected species returns within 1 km of the site. The below also included a review of the ecology surveys and desk study undertaken on 2008 (Surrey Wildlife Trust, 2008).

Fauna

Invertebrates

6.5.2 The survey area supports woodland habitat which is ideal for saproxylic insects such as the stag beetle, in particular within the deadwood, the mature and veteran trees but also in the woodland edge with scrub. In 2008, stag beetle was recorded during the invertebrate survey. The grassland and scrub offer suitable habitat for pollinators and the river supports various species of aquatic invertebrates such as dragonflies and damselflies.

6.5.3 No records of invertebrate species returned from the desk study. However, three common species were recorded on site during the survey in 2024, black-headed cardinal beetle, banded demoiselle and common blue damselfly.

6.5.4 A terrestrial invertebrate survey was undertaken in 2008 (Surrey Wildlife Trust, 2008) where a total of 226 species were recorded, of which 11 were rare or notable species including the stag beetle which is a BAP species.

Amphibians

6.5.5 The survey area supports aquatic habitat suitable for common UK amphibian species including common toad and common frog. Terrestrial amphibian habitat also exists within woodland, woodland edge, scrub, grassland. Suitable terrestrial habitat within the site is present in woodland, scrub, woodland edge and grassland. Great crested newt and other newt species usually prefers standing water with no flow, and it is unlikely that the species' are present in the river, however suitable aquatic habitat is in the river channel with a slow flow and shallow waters and potentially the four waterbodies that have been identified within 500 m of the site. It is therefore possible that newt species are using the suitable terrestrial and aquatic habitats in the site and wider area.

6.5.6 The desk study returned with no records of amphibian species within the site or any mitigation license within 2 km from the site.

6.5.7 No amphibians were recorded during the survey.

6.5.8 Great crested newt and common toad are Species of Principal Importance (SPIs).

Reptiles

6.5.9 The survey area supports suitable habitat for slow-worm, grass snake and common lizard, including semi-improved grassland, dense scrub, scattered scrub, woodland edge.

6.5.10 The desk study returned no records of reptile species within the site and no reptiles were recorded during the survey.

6.5.11 All UK reptile species are SPI.

Birds

6.5.12 The site supports suitable foraging and nesting bird habitat within the areas of woodland, dense scrub, scattered scrub, longer grassland. The river and adjacent riparian habitat provide additional foraging habitat, as well as nesting habitat for waterflow and wader species.

6.5.13 The desk study returned no records of the notable bird species within the site. However, the site is at around 300m from Queen Mary Reservoir part of the Important Bird Areas (GB).

6.5.14 Numerous bird nest boxes installed on trees were observed mainly along the foot paths. Most of the present boxes were damaged and not functional. Some boxes were erected on now diseased ash trees, some boxes are damaged and should be replaced or fixed.

6.5.15 The following bird species were recorded during the survey: song thrush, blackcap, wren, great tit, breeding blue tit (TN25), chiffchaff, woodpigeon, robin, kingfisher, breeding mallard, breeding moorhen and breeding coot.

6.5.16 The song thrush is a BAP priority species, it is also classified as well as the moorhen and wood pigeon in the UK as Amber under the Birds of Conservation Concern 5: the Red List for Birds (2021).

6.5.17 Kingfisher is a Schedule 1 species of the Wildlife and Countryside Act 1981.

6.5.18 Ring-necked parakeets were recorded on site during the survey, this is an invasive species included in Schedule 9 of the Wildlife and Countryside Act 1981.

6.5.19 A breeding bird survey was undertaken in 2008 (DWS Ecology, 2008) and results included thirty-eight species, of these four were BAP priority species, dunnock, song thrush, starling, and house sparrow. Three species were red-listed and six amber-listed (Surrey Wildlife Trust, 2008). Eleven species confirmed as breeding, mallard, moorhen, wren, blue tit, great tit, magpie, carrion crow, chiffchaff, blackbird, coot and robin. While stock dove, woodpigeon, collared dove, rosed ringed parakeet, song thrush, black cap, goldcrest, chaffinch, goldfinch and greenfinch as probably breeding.

6.5.20 Numerous bird boxes previously installed on trees were observed mainly along the foot paths. Some boxes were erected on now diseased ash trees, some boxes are damaged and should be replaced or fixed.

Mammals

Badger

6.5.21 The survey area supports suitable badger habitat within woodland, scrub and grassland.

6.5.22 Signs of badger activity including one suitable hole (TN10) within an area of dense winter heliotrope within WF3.

6.5.23 The desk study does not include badger records, and the local Badger Group was not consulted as part of the desk study. Historical records could therefore be held by the local badger group.

Bats

6.5.24 The following six habitats were recorded as being suitable for foraging and commuting bats. Details of these are provided in Table 6.

Table 6: Habitats in the survey area suitable for use by bats

Habitat	Suitable use for bats
Lowland mixed deciduous woodland	Commuting, foraging and roosting
Other neutral grassland	Foraging, commuting
River	Foraging, commuting
Scrub	Foraging
Mature and veteran trees	Roosting, foraging and commuting
Bat boxes	Roosting

6.5.25 Numerous bat boxes installed on trees were observed mainly along the foot paths. Some boxes were erected on now diseased ash trees, some boxes are damaged and should be replaced or fixed.

6.5.26 One granted mitigation licence record was found within 2 km of distance from the site:

- The licence (2020-50356-EPS-MIT) was granted from 2021 to 2026, for a common pipistrelle, soprano pipistrelle and brown long-eared resting place at grid reference TQ0519 6769, located at 1550 m to the southwest.

6.5.27 Bat presence / likely, species assemblage and activity surveys using a variety of different survey methods (acoustic analysis and trapping) were undertaken in 2008 (AEWC Ltd., 2008). Results show records of a minimum of seven species including common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Daubenton's bat, whiskered bats, noctule and Leisler's bat.

6.5.28 As a result of the 2008 surveys, the site was considered important for whiskered bat, given the higher density of bats of this species in relation to the overall scarcity within the whole UK. It was also highlighted the local significance of the aquatic habitat for foraging Daubenton's bat, Nathusius' and soprano pipistrelles.

6.5.29 In addition, the presence of a possible soprano pipistrelle maternity roost within the woodland was identified in 2008, though the location not confirmed (Surrey Wildlife Trust, 2008).

6.5.30 Noctule, brown long-eared and soprano pipistrelle are SPIs.

Hazel dormouse

6.5.31 The survey area supports suitable hazel dormouse habitat in the form of woodland and scrub. There is wide variety of plants that provide resource during the year and areas of dense scrub and understorey that create good commuting and nesting habitat as well as mature tree canopy. This makes the site suitable for summer and winter nests. However, the areas near the river where wet woodland is present are not suitable for

hibernation and not ideal for summer activity either. The HPI deciduous woodland is well connected to a parcel of ancient woodland to the north-east of the site through woods and hedgerows. As such, although it is unknown whether hazel dormouse is using the habitats on site, given the aforementioned factors, the site can be considered suitable for the species. Signs of hazel dormouse activity were not recorded during the survey.

6.5.32 The desk study did not return records of hazel dormouse within the site or within 1km of the site.

6.5.33 Hazel dormouse is a SPI.

Otter

6.5.34 The site supports suitable otter habitat in the form of river and channel.

6.5.35 Historical records of otter were not returned as part of the desk study.

6.5.36 Signs of otter activity were not recorded during the survey.

6.5.37 Given the high levels of anthropic disturbance such as public access and surrounding urban area it is unlikely the species is present on site.

6.5.38 Otter is a SPI.

Water vole

6.5.39 The survey area supports suitable water vole habitat in the form of river and channel, areas where the watercourse banks have marginal vegetation and areas of grassland. Some areas of the river and channel are slow-flowing and have a soft bankside substrate for burrowing. Water voles are herbivores and feed on reeds, grasses, rushes, sedges and a wide range of wetland and aquatic plants that are present on site. It is possible the species could use the habitat on site; however, signs of water vole activity were not recorded during the survey.

6.5.40 Historical records of water vole were not returned as part of the desk study.

6.5.41 The site presents anthropic disturbance such as public access and surrounding urban area, however the riverbanks conserve areas that are suitable for borrowing and foraging, and it does extends west to fields where there could be presence of the species downstream .

6.5.42 Water vole is a SPI.

Other mammals

6.5.43 Suitable habitat occurs on the site for a range of mammal species including hedgehog, water shrew, common shrew, pygmy shrew, wood mouse, yellow-necked mouse, bank vole and field vole. The suitable habitat is within woodland, scrub, grassland, riparian habitat, log and brash piles.

6.5.44 During the habitat survey evidence of the presence of other mammal species was recorded such as mammal holes in the grassland habitat.

6.5.45 The desk study revealed no historical records of other mammal species on the site or within 1 km of the site.

6.5.46 Hedgehog is an SPI.

Flora

6.5.47 One hundred and one vascular plants were recorded during the survey. This is a typical number given the habitats present and the time of year. A list of vascular plant species recorded within each habitat type and their abundance is provided in Appendix 1.

Rare and notable species

6.5.48 The following habitats have the potential to support rare/notable plant species:

- Lowland mixed deciduous woodland (HPI), with pockets of wet woodland.
- Scrub
- River
- Other neutral grassland

6.5.49 The survey was undertaken just within the optimal survey season for woodland, which is April to May. May is also optimal for majority of habitats, as plant species are above ground and in flower.

6.5.50 In the woodland, one rare/notable species (bluebell) was recorded during the survey. Bluebells are also included in the Schedule 8 of the Wildlife & Countryside Act 1981. Not all areas of the woodland could be surveyed as not easily accessible due to thick vegetation and given that the woodland habitat is identified as HP, given also the presence of other ancient woodland indicator vascular plants, such as the above mentioned bluebell, the pendulous sedge, wood-sedge, remote sedge and bush vetch, it is likely that other ancient woodland indicator vascular species are present in the survey area.

Invasive and non-native plant species

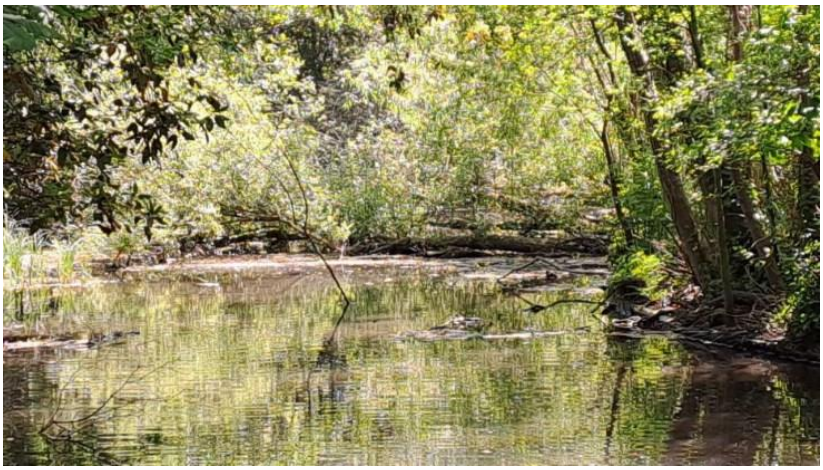
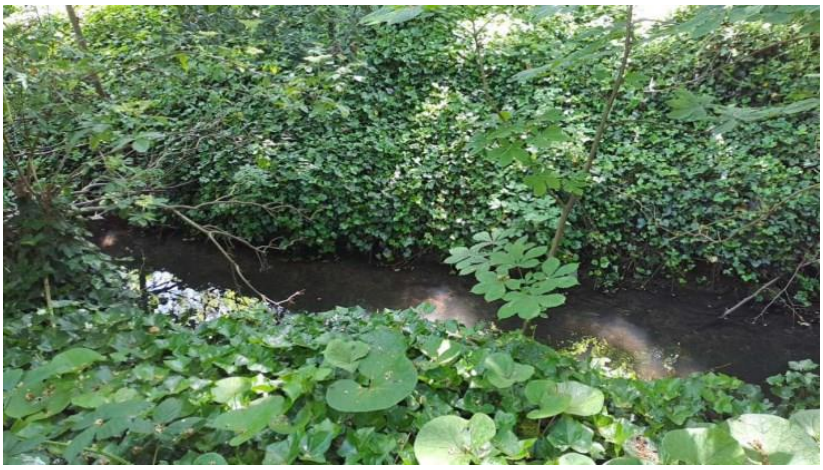
6.5.51 The following species listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended, were recorded during the survey:

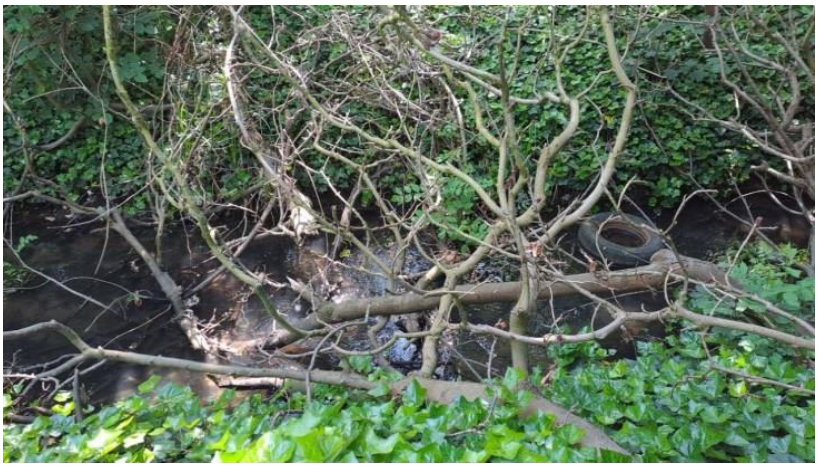
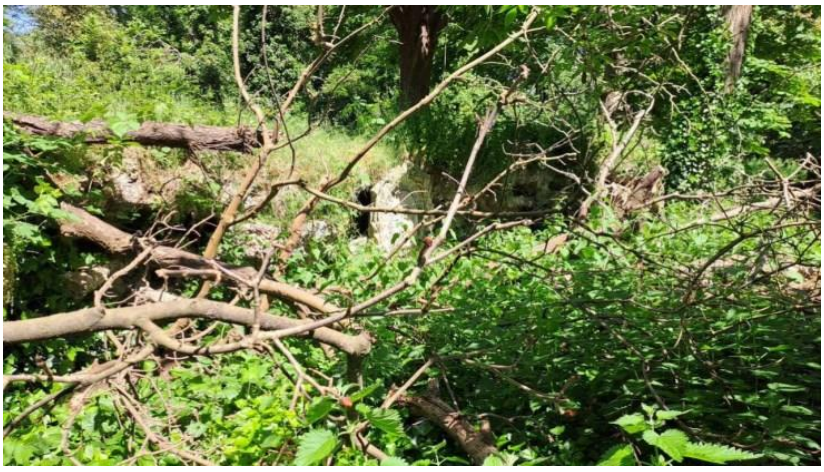
- Virginia Creeper (TN 21 and TN 22).
- An approximate location for a Japanese knotweed stand was provided by the client (TN 31), and survey results from 2008 show presence of Japanese knotweed and giant hogweed on site (Surrey Wildlife Trust, 2008), these were recorded in Figure 1 for reference at TN 28-30.
- Arrow bamboo (TN1).
- Furthermore, a stand of butterfly-bush, which is not listed on Schedule 9, but which is known to be non-native invasive species was recorded (TN 7).

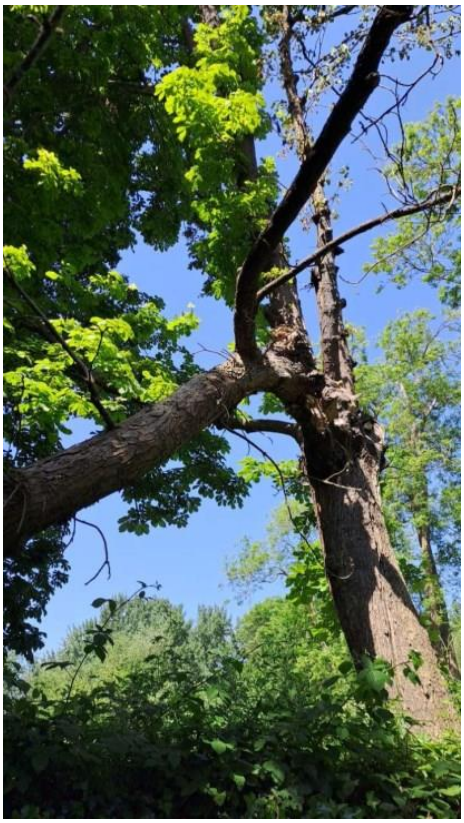
Target notes

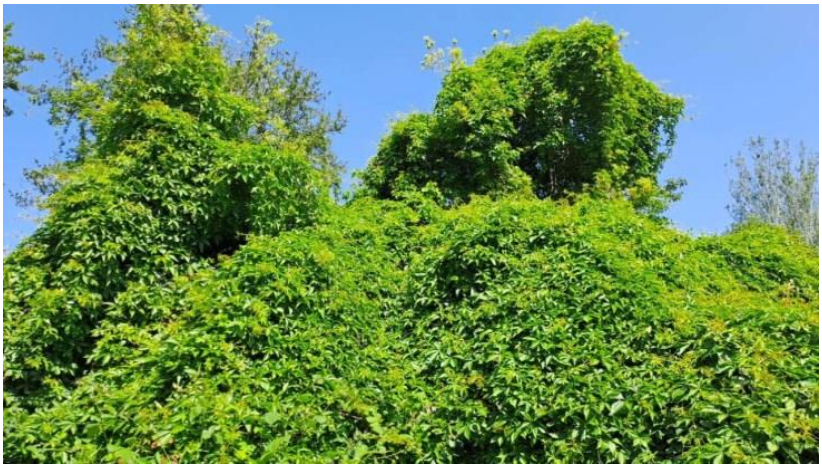
6.5.52 Details of target notes recorded during the survey are presented in the table below.

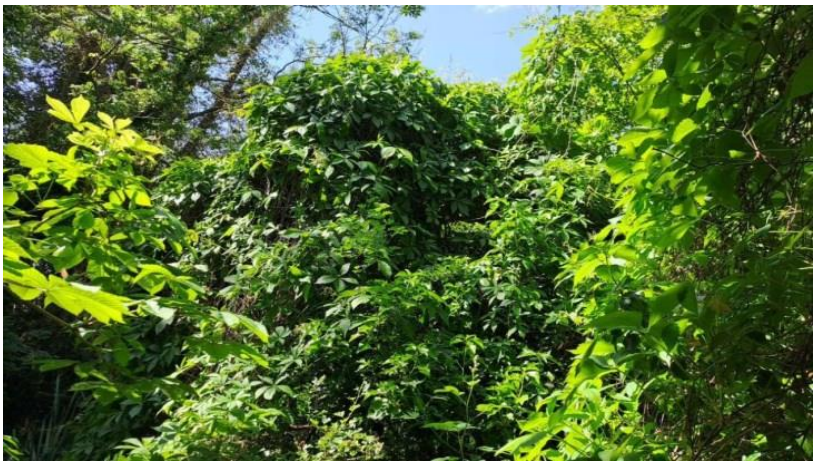
Table 7: Target notes

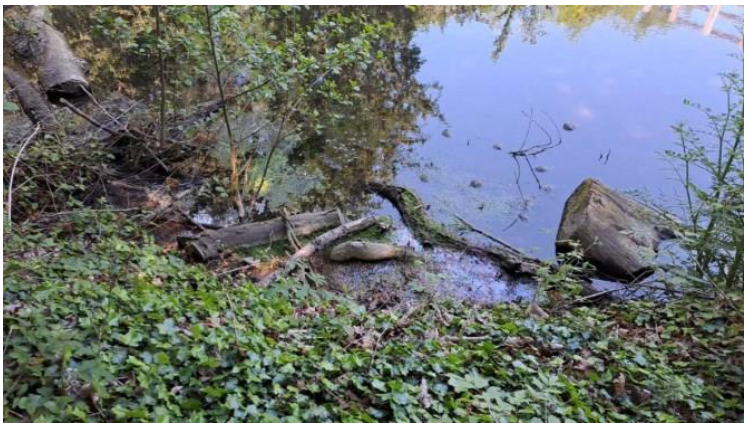
TN number	Description	Photograph
1	A stand of bamboo	
2	Deadwood within the river	
3	Carpet of ivy and winter heliotrope covering the ground	

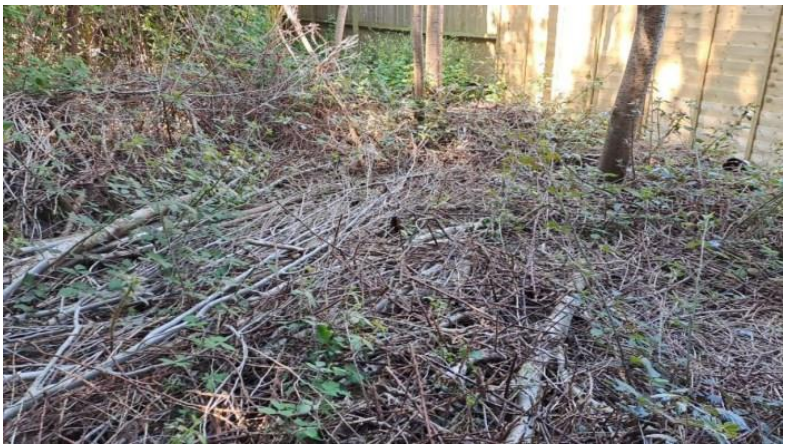
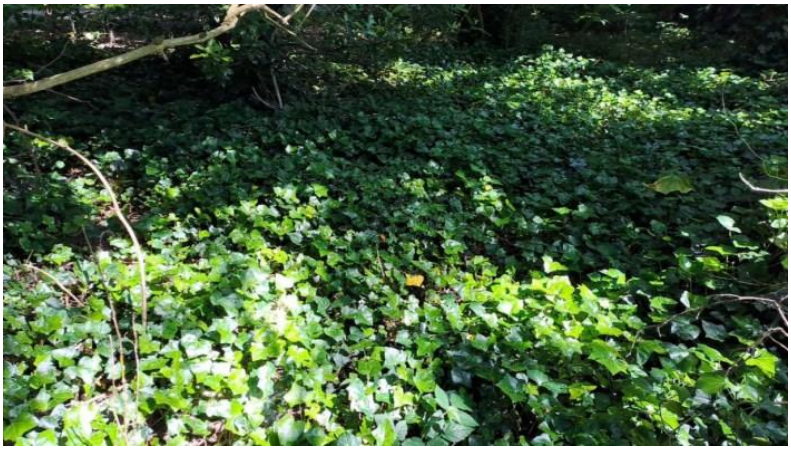
TN number	Description	Photograph
4	Deadwood and litter	
5	Deadwood	

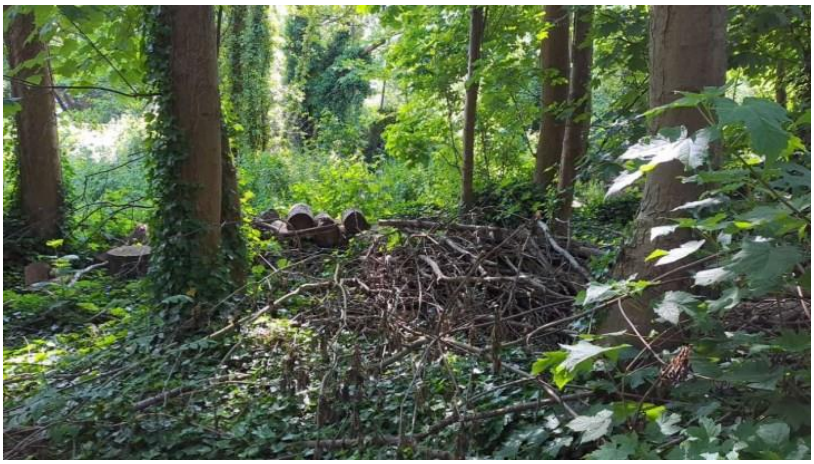
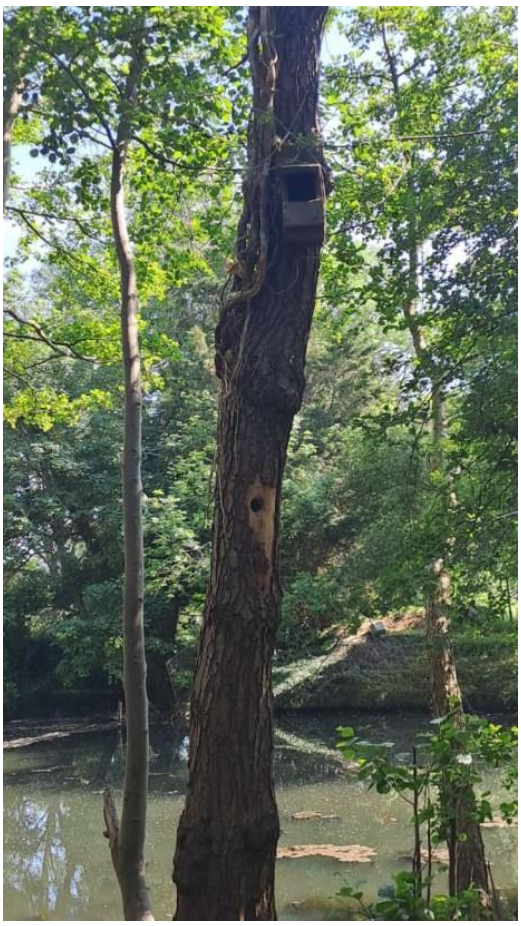
TN number	Description	Photograph
7	Horse-chestnut with fallen and standing deadwood	
8	Deadwood and stump	

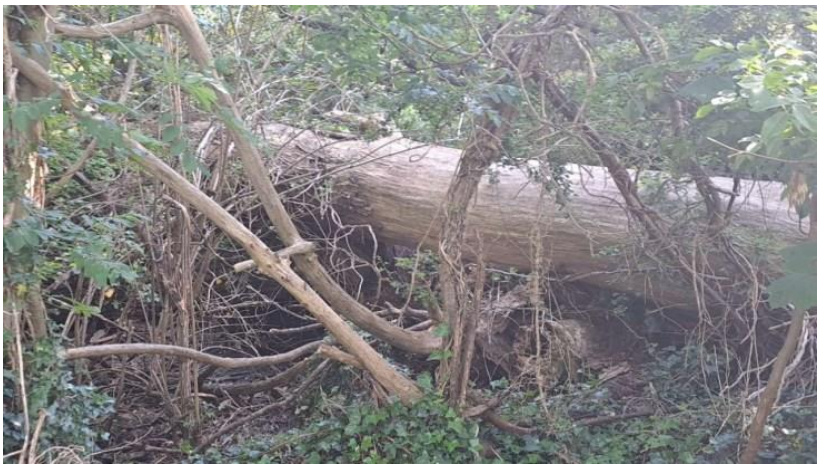
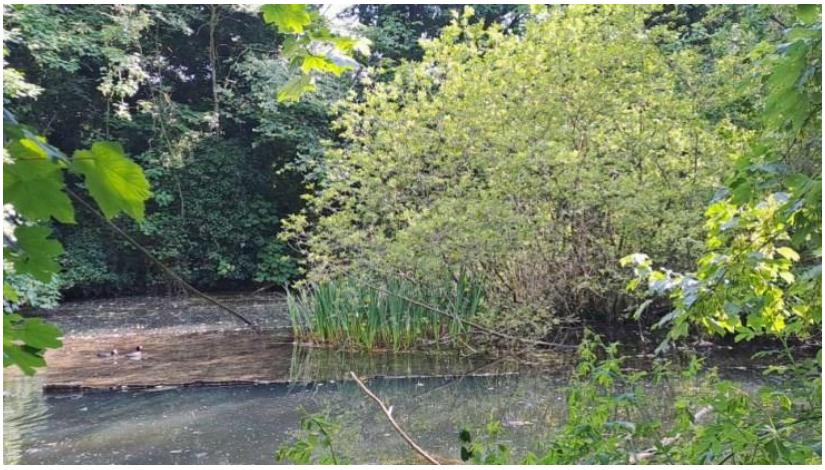
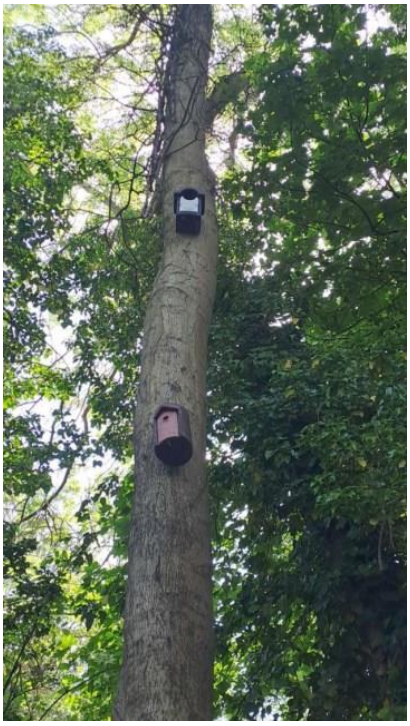
TN number	Description	Photograph
9	Deadwood, fallen tree, brash piles	
10	A mammal hole (suitable for badger in size)	
13	Big stand of Virginia creeper	

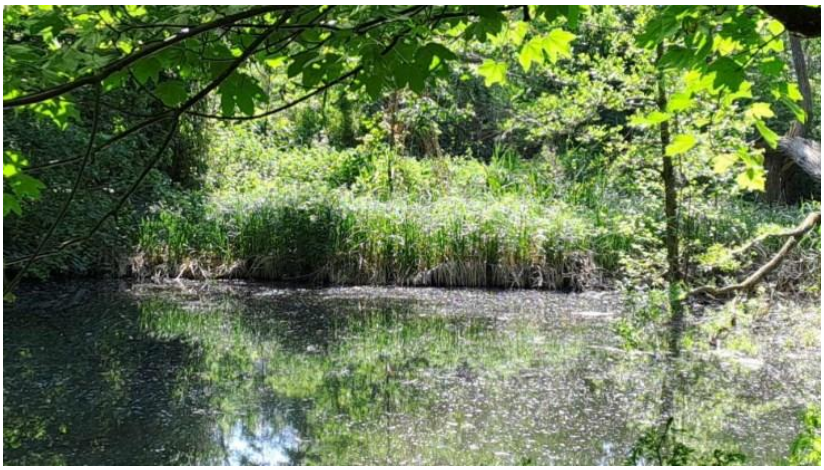
TN number	Description	Photograph
14	Big stand of Virginia creeper	
15	Log piles	

TN number	Description	Photograph
16	Re-shooting stump with big cavity, overgrowing ivy and fungi on main stem, with deadwood attached and on the grounds.	
17	Deadwood in the river	

TN number	Description	Photograph
18	Areas with cleared vegetation and cleared bramble scrub and garden waste.	
19	Dominant ivy ground cover.	
20	Cherry laurel (various plants overgrowing in woodland)	

TN number	Description	Photograph
21	Brash and log piles	
22	Standing deadwood with woodpecker hole and a damaged bird nest box.	

TN number	Description	Photograph
23	Felled tree/ deadwood	
24	Island with yellow iris, willow, sycamore	
25	Active bird nest blue tit in nest box on ash	

TN number	Description	Photograph
26	Area with reedbed (not accessible)	
27	Record for Japanese knotweed (info provided by Council but not found/recorded during the survey). Thick vegetation and not easily accessible	TQ064686
28, 29	Historical record for Japanese knotweed and giant hogweed (Management Plan 2008). Not found/recorded during the survey.	TQ 067823 68456 TQ 0662 6847

6.6 Public access/amenity value

6.6.1 The site is a public green space important for recreation, used by the public to exercise and walk their dogs.

6.6.2 It is accessible to the public from Squire Bridge Road to the east, and from various access points through the Studios residential area. There are no Public Rights of Way, but various footpaths are present through the woodland and along the northern edge of the site. Free street parking to the north and no visitor facilities. The nearest railway station is just over 1 km away at Shepperton.

7 Management plan features

7.1.1 Based on the assessment above, the following ecological features have been selected as the focus of this management plan. Any notable or rare flora or fauna present on the site are likely to benefit from the habitat recommendations.

- Feature 1 – Woodland
- Feature 2 – Scrub
- Feature 3 – River habitat
- Feature 4 – Grassland
- Feature 5 – Volunteers engagement in conservation

8 Feature 1 – Woodland

Assessment of significance

8.1.1 Enhancement measures will help improve the current condition of the woodland at Studio's walk to work towards supporting its suitability for notable plant species and notable invertebrate populations known to be on site, as well as SPIs such as bat. This woodland is an HPI and is important on a regional scale given the extent of habitat fragmentation in Surrey. It contributes to maintain habitat connectivity to the surrounding habitats, and more importantly it is connected to a small parcel of ancient woodland resistant to the pressure of development. This provides opportunity for many woodland species and its management has a crucial role in conserving those species.

Objective

8.1.2 To improve the woodlands current condition to provide more opportunities for wildlife, by managing well the native lowland broadleaved woodland and its species, by:

- Maintaining and creating glades (all compartments)
- Removing non-native invasive species (all compartments)
- Encouraging the retention, enhancement and formation of pockets of wet woodland along the river (compartments WF1, WF2, WF4 and as required).

Threats to habitat and associated species

8.1.3 Left unmanaged, woodland tends to deteriorate in terms of biodiversity value generally due the overgrowing tree canopy and the consequent loss of openings and glades. This causes the deterioration and loss of the ground flora and associated species such as butterflies, as well as a lack of tree regeneration.

8.1.4 Other threats to woodland include the spread of invasive and undesirable plant species. Within the site it was observed the presence of cherry laurel, arrow bamboo, butterfly bush and Virginia-creeper, with historical records of Japanese knotweed and giant hogweed. A potential stand of Japanese knotweed was found by the staff on site but not found during the survey due to inaccessible vegetation at TN 27. Also, abundant naturalised sycamore, occasional Norway maple and occasional conifer species (Leyland cypress and other non-native cypress, Norway spruce and Douglas fir) have been spreading within the woodland. Cherry laurel in particular can severely reduce the biodiversity of woodlands. If left unmanaged cherry laurel can easily spread and will subsequently become even more difficult to eradicate. The tendency of these

species to form dense stands prevents natural regeneration of the canopy, understorey and field layer severely degrading the biodiversity value of the site.

8.1.5 Dumping of waste vegetation within woodland areas can cause nutrient enrichment and the spread of non-native species.

8.1.6 Dog fouling can cause over changes on the pH, Nitrogen and Phosphorous levels of the soils leading to changes in the vegetation cover.

8.1.7 Overzealous removal of standing can remove the habitat for a number of protected and notable species that rely on this habitat.

8.1.8 Grazing animals such as deer and grey squirrel can cause significant browsing damage to trees.

8.1.9 Tree diseases such as ash dieback will cause the loss of some trees over the coming years, numerous ash trees are present within the woodland.

8.1.10 The effects of climate change over the next decade are likely to have significant impacts on the woodland habitat. The greatest threat to woodlands from climate change is likely to be an increase in the frequency and severity of summer drought. The impacts of both insect pests and diseases are likely to increase with climate change. Deer and grey squirrel are likely to benefit from climate change thus becoming a greater threat. In addition, the risk of wind-throw may increase if the UK experiences more storms (Natural England and RSPB, 2020).

Management measures and rationale

8.1.11 The management aim should be for encouraging native lowland broadleaved woodland species, representative of wet woodland and deciduous woodland.

8.1.12 This will create good species diversity, and maintain a mosaic of age class and a multi-storey canopy (English Nature , 2006), with all three age classes of tree species to be maintained (in all compartments), with at least five or more native tree or understory shrub species (in all compartments).

8.1.13 This will as a result, encourage the presence of native broadleaved woodland ground flora.

8.1.14 Encourage the establishment of woodland shrub and tree species (including species that prefer wet soils along wet areas) by removing the thick bramble, dense stands of common nettle, invasive species and selective removal of sycamore saplings to prevent this species becoming dominant. This will create opportunity for other sapling species, typical of wet woodland, such as alder, willow, birch (already present on site) to spread and would also encourage specialist ground flora including soft-rush, water mint, marsh marigold, yellow pimpernel, as well as various rushes, mosses, ferns and fungi. Removal of scrub will be outside the bird nesting season and reptile/amphibian hibernation period so will be done in September and October.

8.1.15 A high priority management action to take is the removal of invasive non-native species from the woodland including cherry laurel, Virginia-creeper, arrow bamboo, (and Japanese knotweed and giant hogweed if stands are still present).

8.1.16 Sycamore is an introduced naturalised species in the UK. Saplings of this species and other species such as non-native conifer trees should be thinned (using hand tools)

out in order to create glades in the woodland, aiming to reach in time a maximum of 10% open cover and leave space, light and resources for other young broad-leaved woodland species to establish and provide a varied age structure. Removing the saplings of the non-native trees will allow greater diversity and glade creation to achieve a greater age diversity amount the trees present, allowing for sapling up to mature. However, the careful removal if the naturalised (sycamore) and non-native vegetation would need to be sequential, rotational and selective to avoid loss of woodland or woodland structure. This therefore should be phased, and management of areas to be sequential on review on success of other managed areas establishing.

8.1.17 Decaying standing woodland and fallen decaying wood are vital for the health and longevity of woodland habitat. This valuable dead and decaying wood habitat come in many forms from twigs to large trunks. Some of the woody material left over from habitat management tasks can provide valuable decaying wood habitat and be placed along the edges of rides and glades as refuge and provide a food source and basking opportunities for many species, especially on south facing edges.

8.1.18 Before removing any trees, an assessment should be made regarding the wildlife value of the target tree and some of these may support features which are suitable for roosting bats and birds.

8.1.19 The open areas would then be left to colonise with typical woodland species.

8.1.20 A woodland edge is already present, this should be maintained as an ecotonal habitat supporting mixed scrub leaving space to tall grasses along the paths. This incorporates native shrub species that produce fruits in winter for foraging small mammals and birds, and herb and grasses that flower in spring and summer to attract pollinators and bats.

8.1.21 The woodland edge also includes thick patches of common nettle and overgrowing bramble, these will be maintained and managed where required to avoid overshading ground flora. Common nettle is very useful for invertebrates and some areas of common nettle can be left untouched. Bramble provides shelter, nesting and foraging opportunity to birds and small mammals. However, management of the common nettle and bramble can be done rotationally and can be achieved by cutting back some dense areas by an operator on foot using a brushcutter. Management will be done outside of the breeding bird season, September to February inclusive. Cut will be undertaken above ground only to avoid impacting on reptile and amphibian hibernating during winter. In case this is not achievable, works need to be take place under ecological supervision or in September-October only.

8.1.22 Where any active birds' nests are identified, then a suitable buffer zone will be established around the nest and works will avoid this area until the nest is no longer in use by breeding birds, including all chicks having fledged. If a dormouse nest is found, works will stop immediately and ecological advice sought.

8.1.23 Management to improve habitat for veteran trees through creating clearings around mature trees to give space for growth.

8.1.24 Install six new bird nest boxes, six new bat boxes and four hibernacula for amphibians and reptiles across the site. In addition, install 15 hazel dormouse nest boxes across the woodland.

8.1.25 Fix the existing nest boxes whether in need of maintenance and maintain all boxes throughout the lifetime of this plan.

8.1.26 Ideally all management work should avoid the most sensitive time of year for nesting birds (March to end of August), bats (as a soprano pipistrelle maternity roost may be present based on 2008 survey results; maternity season is May – August and hibernation is November to February) and hazel dormouse (May to mid-September). The preferred time for management works that would cause least impact to hazel dormouse, birds and bats, when coppicing in a small woodland holding is from mid-September until the end of October.

8.1.27 If works are happening during bird nesting season a check for bird nests of all habitats that are to be worked on should be completed by a suitability experienced and competent persons; where necessary, a rapid assessment of all trees to be felled can be undertaken prior felling however, a GLTA of targeted trees (notable trees with features, likely to be suitable) is required for bats (both during summer and winter). During winter, caution will be taken while felling trees in drier areas due to the chance of dormouse hibernation nests to be present, if any nest is found, works will stop to seek ecological advice.

8.1.28 If TN10 within WF5 is impacted or any newly found holes suitable for badger, then further surveys to monitor for activity are required and the approach will be reconsidered.

8.1.29 Using heavy machinery (especially in winter period) should be avoided, given the nature of the habitats and the presence of wet soils across areas of woodland. This to avoid impacting soils and the woodland ground flora. Even on dry soils, heavy machinery can impact areas where the hazel dormouse might nest in winter.

Targets and KPIs

8.1.30 The targets and KPIs are detailed in Table 8.

Table 8: Feature 1 targets and KPIs

Target type	Target number	Target	KPI
General enhancement	1	All non-native invasive species (cherry laurel, bamboo, Virginia-creeper and Japanese knotweed and giant hogweed if present) will have been removed from woodland.	Absence of non-native invasive species within woodland parcel
General enhancement	2	Two or more veteran trees will be present per hectare. Management to achieve this is a process that lasts for the whole duration of the management plan.	Presence of veteran trees
General enhancement	3	Over 50% of all plots will have standing deadwood, large dead branches/ stems and stumps.	Decaying wood abundance
General enhancement	4	Each compartment will have two log piles or brash piles (created as a result of management works) installed in a favourable location to be occupied by reptiles, amphibians, invertebrates and small mammals	Presence and abundance of habitat piles (log piles and brash piles)
General enhancement	5	Presence of nest boxes installed on site that have been used and an increase of breeding bird species in the woodland in comparison to the results form 2008.	Number of breeding species number of occupied nest boxes.

Target type	Target number	Target	KPI
General enhancement	6	Presence of bat boxes installed on site that have been used and an increase of bat species using the woodland on site in comparison to the results form 2008.	Number of bat species and bat roosts
General enhancement	7	The 15% increase in number of species recorded within 10 years' time, in comparison to the survey results form 2008 (where a total of 226 species were recorded, of which 11 were rare or notable species including the Stag Beetle which is a BAP species).	Number of species of invertebrate
General enhancement	8	Over the 80% of the vegetation should be native, with more than 5 species of native trees and 5 species of native shrubs in the woodland. Creating glades by removing undesired species and plug planting native suitable tree species. Achieved within the 10 years' period.	Number of native species of trees and shrubs

8.1.31 Table 9 presents a summary of the management measures.

Table 9: Feature 1 – Woodland - management measures

Map reference	Action	Timing
All woodland compartments	Management (only if necessary) Through a thinning of the saplings of sycamore .	Between October – February. Year 1 and as required and on rotation.
All woodland compartments	INNS removal. Remove Virginia creeper, cherry laurel, bamboo and any stand of Japanese knotweed and giant hogweed if present.	Between October – February. Year 1 and as required.
All woodland compartments	Thinning (on rotation and over the years) of other non-native species such Norway maple, Leyland cypress and other non-native cypress, Norway spruce, Douglas fir. Aiming to reach a minimum 10% cover. Prior works, undertake a bat PGLRAT for bat suitability, and undertake works outside bird nesting season.	Between October – February. As required. Year 1-10
All woodland compartments	Management of small clearings and rides to allow for woodland regeneration to continue, this will be shown through the presence of sapling and young trees from a diversified range of native woodland species.	Between October – February. Year 3 and 8 (if required).
All woodland compartments	Management to increase the number of veteran trees (2 per hectare), this could be through creation clearings around already old trees to give space for greater growth.	Between October – February. As required year 1-10
All woodland compartments	Management of common nettle and bramble within the woodland as required to guarantee access and avoid overshading ground flora.	Between September-February. As required year 1-10
All woodland compartments	Encourage the establishment of wet woodland habitat along wet areas by removing the thick bramble, dense stands of common nettle, invasive species and sapling of sycamore.	Between September and October. As required year 1-10
All woodland compartments	Manage and maintain a woodland edge by thinning the dense common nettle and thick bramble and encouraging mixed scrub species diversity and a transition to tall grasses	Between September and October. As required year 1-10

Map reference	Action	Timing
All woodland compartments	Install six bat boxes in total.	Any time of the year. Year 2.
All woodland compartments	Install 15 hazel dormouse boxes in total.	Any time of the year. Year 3.
All woodland compartments	Install six bird boxes in total.	Any time of the year. Year 2.
All woodland compartments	Create four hibernacula using the logs and wood following the woodland management	Between October – February. As required following woodland management works.
All woodland compartments	Maintain all hazel dormouse and bird nest boxes on site as well as all hibernacula and log/brash piles	Every two years in winter by a suitably experienced surveyor (if required).
All woodland compartments	Maintain bat boxes at the same time as checks are undertaken	May-July and September year 3, 5, 10

9 Feature 2 – Scrub

Assessment of significance

9.1.1 Scrub is an important niche ecological feature that can provide important habitat connectivity, foraging opportunity and shelter for multiple taxa. Compartment HS1 includes overgrown, dominant bramble scrub and overgrown common nettle beds that will be enhanced and maintained as a boundary feature, buffering the woodland from the housing and to provide safe accessibility to the public along the footpaths.

Objective

9.1.2 To improve the scrub current condition and provide more opportunities for wildlife, by encouraging a higher diversity of native scrub species and good site connectivity.

Threats to habitat and associated species

9.1.3 Managing scrub inappropriately, either through neglect, over management, over too large an area, at the wrong time of year, can result in a reduction of species and structural diversity and a direct impact of the resources and refuge areas required by invertebrates, reptile, amphibians, birds and small mammals. In addition, if scrub species are allowed to become overly mature, there will be a lack of fruiting from this species.

Management measures and rationale

9.1.4 Management of scrub is useful as it helps maintain structural diversity and a range of plant species, and age classes. Rotational cutting can help achieve this and help meet the management targets.

9.1.5 Cutting of dense bramble scrub habitat (HS1), as required, should be achieved by an operator on foot using a brushcutter. Management will be done outside of the breeding bird nesting season, September to February inclusive. Cut will be undertaken above ground only to avoid impacting on reptile and amphibian hibernating during winter. In

case this is not achievable, works need to be undertaken under ecological supervision or in September-October only.

9.1.6 Where any active birds' nests are identified, then a suitable buffer zone will be established around the nest and works will avoid this area until the nest is no longer in use by breeding birds, including chicks have fledged. If a dormouse nest is found works will stop immediately and ecological advice sought.

9.1.7 Strim back some of the bramble scrub to leave connecting pockets. The open areas would then be left to colonise with typical woodland species. There will be the need for repeat visits to re-strim the bramble scrub.

9.1.8 Planting UK native scrub species to increase diversity, aiming to have at least three native woody species (such as dog rose, blackthorn, hawthorn, elder, hazel, spindle, holly, rowan) and no single species comprising more than 75% of the cover. It is important to have a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat (footpath). And the scrub will present various size classes such as seedlings, saplings, young and mature shrubs.

Targets and KPIs

9.1.9 The targets and KPIs are detailed in Table 10.

Table 10: Feature 2 targets and KPIs

Target type	Target number	Target	KPI
General enhancement	1	The parcel represents a good example of its habitat type – the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). At least 80% of scrub is native, There are at least three native woody species, No single species comprising more than 75% of the cover	Percentage of native species and number of native woody species.
General enhancement	2	Seedlings, saplings, young shrubs and mature shrubs are all present.	Number of size classes present
General enhancement	4	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Presence of a well-developed edge and tall grassland or forbs present between scrub and adjacent habitat.
General enhancement	5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Presence of clearings, glades or rides.

9.1.10 Table 11 presents a summary of the management measures.

Table 11: Feature 2 – Scrub - management measures

Map reference	Action	Timing
HS1	INNS removal as required where present. Cut will be undertaken above ground only to avoid impacting on reptile and amphibian hibernating during winter. In case this is not achievable, works need to be undertaken under ecological supervision or in September-October only.	Between October – February. As required year 1-10
HS1	Cut back of the dense bramble creating glades. Cut above ground level or under ecological supervision.	Between September October. As required year 1-10
HS1	Planting of at least five different UK shrub species, where needed and in the cleared areas.	Between October – February. As required year 1-10
HS1	Manage the scrub edge by removing overgrowing common nettle and allow progression towards tall grasses along the paths.	Between September October. As required year 1-10

10 Feature 3 – River habitat

Assessment of significance

10.1.1 The River Ash and channel represent an important ecological feature within the landscape, and it is home to many aquatic species of plants and animals. The riparian vegetation supports biodiversity and has a role in absorbing and storing water from high flows and mitigating floods from the river, it controls the nutrient intake of the water and its temperature. The aquatic vegetation supports wildlife providing foraging, shelter and breeding opportunity, as well as preventing the erosion of the banks, sediment retention and controls the flows.

Objective

10.1.2 To enhance the condition of the River Ash by avoiding overshading and accumulation of leaf litter and silt.

10.1.3 To promote the establishment of a diverse community of marginal and aquatic species associated with the River Ash. To encourage the establishment of reedbeds within shallow waters.

10.1.4 To provide additional nesting opportunities for bird species.

10.1.5 To provide spawning sites for fish within the woodland.

Ecological trends, threats and constraints

10.1.6 Anthropogenic activities on the watercourse have an impact on its ecological value. The erosion of bank faces/berms/bars and movement of the sediment would lead to the watercourse becoming straight and as a result, key features for breeding, foraging and sheltering, such as berms/bars, will be lost. There would also be a reduction in vegetation within the stream.

10.1.7 Alternatively, climate change may also lead to more frequent periods of drought. This could have a number of effects through the lowering of the water level including a reduction in habitat for aquatic larvae for many pollinators (such as craneflies) as well as for *Odonata*, a reduction in water quality through a decrease in dissolved oxygen in

the water column and stagnation of the water, and less water for adult species to drink from.

10.1.8 Non-native invasive species on site such as cherry laurel can be a particular problem in streams and watercourses where they can quickly spread and outcompete native species. Native species such as blanket weed can also be a problem if allowed to become too dominant. The presence of cherry laurel would result in heavy shading on the stream, preventing emergent vegetation establishing itself.

10.1.9 Species like hemlock and hemlock water dropwort are poisonous and can grow rapidly taking over entire areas. The site is also subject to recreational activities and there is the chance that these plants can be picked and used by the public, creating a health hazard.

10.1.10 Without management, marginal vegetation can lose structural diversity, and succession can lead to invasion by scrub and trees. This would again overshade the stream preventing establishment of emergent vegetation.

Management measures rationale

10.1.11 To have a better knowledge of the current condition of the river, an RCA survey is recommended, the results can better inform the management actions for a more targeted approach. The RCA can then be repeated in time as recommended in the monitoring section to monitor the efficacy of the management recommendations and completion of the KPIs. General recommendations that are beneficial to a river ecosystem are provided in this report.

Bank top management – vegetation

10.1.12 The current riparian habitat presents areas that are overshaded and polluted mainly from fly tipping.

10.1.13 In some areas the adjacent trees heavily over-shade the stream and whilst the riparian habitat structure is currently good in some areas, it is likely that in time the trees would to an extent prevent the shrub and ground vegetation developing, eventually leading to increased bare ground/heavy leaf litter below the canopy. Therefore, following measures will be implemented, depending on funding availability and resources:

- Selective and rotational above-ground management of mature trees will be completed (maximum of 1/3 of trees managed at one time).
- The timings of the above-ground management of trees will be completed during the winter and outside the breeding bird period, which is March to August inclusive. However, bats can roost in trees over winter so given trees that need to be felled could present hibernation a rapid assessment of all trees will be undertaken prior felling and a PGLTA of trees with features likely to be suitable will be undertaken for assessing the bat roosting suitability prior felling. So, timing of works will depend on the results of bat PGLTA. If works are happening in winter caution will be taken to avoid impacting hibernating hazel dormouse, if a nest is found, works will stop to seek ecological advice.
- Create a log pile using the logs and brash from thinning and pollarding management actions.

- No new paths to be constructed but regular maintenance of the existing ones will be carried out

Invasive, non-native species

10.1.14 Any invasive species listed on Schedule 9 of the WCA (1981) will be removed. No Schedule 9 species were found during the survey but there were areas inaccessible due to thick vegetation and these may support stands of Schedule 9 species. If found, these plants will be managed following the management prescriptions for the removal of the invasive species works in relation to the woodland above. The same also applies to the systematic removal of cherry laurel whether present along the stream (as such included in all above removal measures of the species within the woodland). The presence of cherry laurel would result in heavy shading on the stream, preventing emergent vegetation establishing.

10.1.15 Other species such as sycamore or the non-native Norway maple, Leyland cypress and other non-native cypress, Norway spruce, Douglas fir can be removed in time and aiming to reach a minimum 10% cover, all saplings of these species will be removed.

Other management

10.1.16 Winter heliotrope and ivy create carpets covering wide areas of ground obliterating other ground flora. This is also due to the overshading. Winter heliotrope and ivy can be thinned selectively and in rotation, allowing other plants to establish.

10.1.17 Hemlock and hemlock water dropwort will be removed as required.

10.1.18 Bramble, whether present will be managed to avoid overshading ground flora where and as required.

10.1.19 Currently small and scattered areas of marginal/aquatic vegetation that support reeds are present along the river, mainly around the islands or in shallow areas of the river. These will be retained, maintained and the establishment of reedbed vegetation and a diverse invertebrate assemblage will be encouraged. This process can be promoted by removing thick scrub and leaf litter and maintain a varied mosaic of reed heights and densities. If feasible, keep or create connectivity to different patches of reeds allowing movement of species around the reedbed.

Targets and KPIs

10.1.20 The targets and KPIs are detailed in Table 12.

Table 12: Feature 3 targets and KPIs

Target type	Target number	Target	KPI
General enhancement	1	All invasive non-native species included in Schedule 9 are absent from the area. Japanese knotweed, giant hogweed and cherry laurel are absent.	Absence of invasive non-native species
General enhancement	2	Shade over the riparian vegetation is significantly reduced (about <30%) providing the opportunity for riparian species to proliferate. This is done through rotational pollarding and thinning of trees.	Shade cover of the riparian habitat

Target type	Target number	Target	KPI
General enhancement	3	Enhanced condition of the riparian and aquatic vegetation, with more species diversity and establishment of riparian and aquatic vegetation communities, attracting breeding birds and invertebrates. Aiming to a 20% increase of breeding bird pairs and a 20% in invertebrate species in comparison to the 2008 survey results.	Number of breeding bird pairs and number of invertebrate species
General enhancement	4	Preventing fly tipping using signs and information boards and removing all litter from the river habitat through volunteer engagement in cleaning and litter picking.	Absence of litter in the river habitat
General enhancement	5	Rotational and selective thinning of ivy and winter heliotrope form river habitat (in riparian zone) reaching maximum a 20% of ground cover.	Ground cover of winter heliotrope and ivy (in riparian zone)
General enhancement	6	Removal of poison hemlock and hemlock water drop wort will as be required.	Absence of the species
General enhancement	7	Water quality enhanced by the end of the management plan timeframe, and reaching a higher condition score (RCA) than year 1.	RCA score at year 10 and water quality score.

10.1.21 Table 13 presents a summary of the management measures.

Table 13: Feature 3 – River habitat - management measures

Map reference	Action	Timing
All woodland compartments	Removal of non-native invasive species including any stand of Japanese knotweed and cherry laurel if present.	Between October – February. Year 1 and as required.
Along river	implement rotational pollarding and thinning of trees along river to reduce overshading.	Between October – February. As required (and depending on results of bat assessment and PGLTA of notable trees. If works are happening in winter and a hibernation dormouse nest is found felling should stop to seek ecological advice)
Along river	Creation of four dead wood/log piles and encourage standing dead wood habitat. This will create habitat for various invertebrates and amphibians.	Between October – February. As required following woodland management works.
Along river	Planting native broadleaved species ideally produced locally, using species with light foliage are recommended such as alder, silver birch, willow, rowan, hazel, aspen, hawthorn, blackthorn, spindle, wild service or guelder rose and wild or bird cherry in areas along the river where the invasive species have been removed.	November – early December. Year one or as required.
Marginal/aquatic vegetation that supports reeds	Areas of marginal/aquatic vegetation that support reeds along the river, around the islands or in shallow areas of the river will	Between October – February. As required

Map reference	Action	Timing
	be retained and maintained by removing thick scrub and leaf litter and maintain a varied mosaic of reed heights and densities. If feasible keep or create connectivity to different patches of reeds allowing movement of species around the reedbed.	

11 Feature 4 – Grassland

Assessment of significance

11.1.1 The grassland feature within Studio's walk provides structural diversity to the habitats on site and supports many protected species such as invertebrates and reptiles. The feature includes areas of other neutral grassland that is currently managed for wildlife and patches of other neutral grassland mainly around the access footpaths to the woodlands adjacent to the residential housing that are maintained short and regularly mowed. Grassland habitats within urban settings provide important benefits and ecosystem services such as climate regulation, erosion control, water flow regulation, carbon storage and pollination.

Objective

11.1.2 To enhance the condition of the other neutral grassland (G1, G2, G3) on site by implementing a mowing regime, avoiding over-mowing to preserve species diversity.

11.1.3 To enrich the invertebrate community using the grassland on site.

Ecological trends, threats and constraints

11.1.4 Grassland requires active management to retain its conservation interest. Without management, or if the grassland is managed by cutting without removing the arisings, the nutrients in the soil can increase and a thatch of dead plant material will accumulate tall vigorous grasses will dominate, and dead plant matter will accumulate. This will suppress the less vigorous species, and the botanical diversity of the grassland will decrease. Eventually without management natural succession will cause grassland to become scrub and finally woodland.

11.1.5 Over-management or inappropriate management can be a threat, such as intensive mowing which can limit sward height and reduce species diversity present.

11.1.6 Ongoing airborne pollution will cause nitrogen deposition. This may give rise to changes in the vegetation communities.

11.1.7 The hotter, drier summers and wetter winters with more extreme events predicted as a result of climate change is likely to alter the composition of grassland habitats. For example, drier conditions will favour stress tolerant (e.g. deep-rooted) and ruderal species due to the increased gaps/bare ground in swards (Natural England and RSPB, 2020). The longer growing season may mean that more than one cut a year will be required to supress the grasses (Plantlife, 2019).

Management measures rationale

Mowing

11.1.8 In all grassland compartments (G1-G3), the status of reptiles on site is unknown, but considering suitable habitat is present, all mowing will use a two-phase approach: first to 15cm height, and then after a minimum 24-hour rest period, to a lower height (5-10cm). This will allow for reptiles to move away from the mowing area of their own accord prior to shorter cuts being made.

Other neutral grassland (G1)

11.1.9 One to two metres of habitat edges will be left uncut on a three-year rotation. For the remaining areas, the grassland will be cut using a two-phase approach with arisings removed. The edges will be curved to create varied, warm and sheltered areas.

Other neutral grassland (compartments G2, G3)

11.1.10 An annual cut will be undertaken in late summer to early autumn (e.g. August to September), as this maximises seed setting of the grassland plants. It is important to ensure that an overly uniform sward is not created. This can be avoided by rotating the timings of mowing so that all areas are not mown at once. A two-phase approach will be used.

11.1.11 Discrete piles of the cuttings will be placed on habitat boundaries to provide habitat for fauna such as grass snake and slow-worm with remaining cuttings disposed of offsite (cut and collect). This allows for the survival of any invertebrate larvae/pupae present in the stems of the cut grassland plants.

11.1.12 It is important to leave isolated areas of tussocky grassland, particularly towards the winter for hibernating reptiles.

11.1.13 One to two meters of habitat edges will be left uncut on a three-year rotation.

Key performance indicators for grassland

11.1.14 Key performance indicators and measures of success are detailed below.

Table 14: Feature 4 Grassland (G1, G2, G3) KPIs

Target type	Target number	Target	KPI	Habitat compartment
BNG criteria	1	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.	Representation of habitat type	All grassland compartments
BNG criteria	3	There are 10 or more vascular plant species per m2 present, including forbs that are	Number of vascular plant species per square meter	All grassland compartments

Target type	Target number	Target	KPI	Habitat compartment
		characteristic of the habitat type.		
BNG criteria	3	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	Diversity of sward height	All grassland compartments
BNG criteria	4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Percentage of physical damage	All grassland compartments
BNG criteria	5	Cover of bare ground between 1% and 5%, including localised areas (for example, a concentration of rabbit warrens.)	Percentage of bare ground	All grassland compartments
BNG criteria	6	Cover of bracken *Pteridium aquilinum* less than 20% and cover of scrub (including bramble) less than 5%.	Percentage of bracken	All grassland compartments
BNG criteria	7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA).	Number of invasive, non-native species	All grassland compartments

11.1.15 Table 15 presents a summary of the management measures.

Table 15: Feature 4 – Grassland - management measures

Map reference	Action	Timing
G1	The grassland compartment near the paths and access routes to the woodland will be cut using a two-phase approach with arising collected. One to two meters of habitat edges will be left uncut on a three-year rotation.	July and September/October, Annual. Year 1-10
G2, G3	The grassland will be managed with an annual cut will be undertaken in late summer to early autumn (e.g. August to September), mown to varied heights and at varied frequencies this maximises seed setting of the grassland plants, on rotation. Cuttings will be placed on habitat boundaries. One to two meters of habitat edges will be left uncut on a three-year rotation.	August to September, Annual. Year 1-10
G1 - G3	First to 15cm height, and then after a minimum 24-hour rest period, to a lower height (5-10cm).	At all times while mowing grassland

12 Other important focus points of the management plan

12.1.1 In addition to the habitat features above, the following features are also important focus points of this management plan;

- Legal and other obligations
- Public access and engagement
- Survey, monitor and review

12.2 Legal and other obligations

Objective

12.2.1 All legal and other obligations will be met. The following legislation is relevant to the site:

- Health and Safety at Work Act 1974
- Wildlife & Countryside Act 1981(as amended)
- Protection of Badgers Act 1992

12.2.2 In addition, all work will have regard to national and local Biodiversity Action Plans.

Management measures and rationale

12.2.3 In order to achieve this objective, liaison will take place with relevant authorities. A risk assessment will be in place for the site. Table 16 presents the management measures, supported by the rationale detailed in the sections below.

12.2.4 An assessment of the likelihood of protected species being present on the site can be found in section 6.5 above. Appendix 6 gives details of relevant legislation and other obligations. Below is an outline of action that will be taken to prevent committing an offence under the relevant legislation.

Reptiles

12.2.5 The survey area supports suitable habitat for slow-worm, grass snake, common lizard. As the status of reptiles on site is unknown, but considering suitable habitat is present,

all grassland mowing will use a two-phase approach: first to 15cm height, and then after a minimum 2-hour rest period, to a lower height (5-10cm). This will allow for reptiles to move away from the mowing area of their own accord prior to shorter cuts being made. Scrub clearance will avoid hibernation period (November-February) or be undertaken above ground level.

Amphibians

12.2.6 Terrestrial and aquatic habitat suitable for amphibians is present within the site.

12.2.7 Survey work or records generated for amphibians would be useful if undertaken early on so that any sensitive overwintering areas are identified before habitat management activities. This will avoid removing cover over hibernations sites and negatively impacting local populations.

12.2.8 Best-practice vegetation clearance methods should be implemented to reduce potential impacts to amphibians during the active season (April to September) and during hibernation season (November to February). Following a precautionary approach, and similar to the approach for reptiles, vegetation should be cut to 15 cm at least one day before the works commence so that amphibians can move away from the site of their own accord.

12.2.9 In the unlikely event that great crested newt, be identified during management works an ecologist should be contacted.

Breeding birds

12.2.10 The scrub, woodland, and grassland habitats have the potential to support nesting birds. Any management of trees and scrub will be undertaken outside the bird nesting season (which is typically 1st March to 31st August inclusive).

Bats

12.2.11 The survey area supports suitable bat habitat including roosting opportunities within the broadleaved woodland. Foraging and commuting opportunities for bats also exist over the grassland, river and scrub habitats.

12.2.12 Seven bat species were found on site following bat surveys in 2008.

12.2.13 As far as possible, all the mature trees on site will be retained, however if any works are planned for mature trees with holes, split limbs or ivy cladding a ground level tree assessment and/or survey will be undertaken prior to any work taking place.

12.2.14 The Forestry Commission and Natural England, with assistance from relevant conservation organisations, have produced guidance to help understand the legislation and to use good practice to operate within the law, avoid the need for licensing and benefit European protected species. Following the guidance will show that site managers have taken all reasonable steps to comply with the regulations (Forestry Commission, 2013).

Hazel dormouse

12.2.15 The survey area supports suitable hazel dormouse habitat in the form of Lowland mixed deciduous woodland and bramble scrub habitats.

12.2.16 When managing scrub habitat, coppice and young trees, a precautionary approach should be applied by using a fingertip search in the vegetation to be cut.

12.2.1 Should a hazel dormouse or nest be found during any management works, the works will need to cease immediately, and a licensed ecologist and Natural England representative will need to be contacted.

12.2.2 Natural England advice (NE & FC, 2007) should be followed to avoid harming the species. This advice recommends that woodland, scrub and hedgerow management is undertaken in late autumn or winter when any dormice are unlikely to be in the trees as they will be hibernating. Care should be taken to avoid damaging the ground where dormice may be hibernating. Should a dormouse be discovered during site works, Natural England or a qualified ecologist should be contacted for advice.

Badger

12.2.3 One hole was found on site (TN 10) with suitability for the species and the habitats present are also suitable for badger. The management work recommended within this plan is unlikely to impact badger, but a precautionary approach should be employed prior to any management work around TN 10 or any newly found setts or suitable badger holes and these need to be checked for any signs of recent badger activity prior any works. A precautionary approach also includes avoiding the destruction of holes/setts and avoid closing any existing holes, blocking the entrance with logs or any material. Whether works are impacting a badger sett or potential hole then further surveys are required.

Tree preservation orders

12.2.4 It is unknown whether any of the trees on the site are covered by Tree Preservation Orders. The Local Council will be consulted regarding this before work to any trees takes place.

Felling licence

12.2.5 It should be noted that felling or thinning trees may require a felling licence issued by the Forestry Commission and any tree management should be undertaken in the winter months between November and February (inclusive). In any calendar quarter you are allowed to fell up to 5 cubic metres (m^3) on your property without a felling licence (in fallen timber this would generally look like the amount it would take to fill a small car). You are also allowed to lop off branches without a felling licence and remove trees under around 10cm in diameter at breast height (think bean can width).

12.2.6 For woodland compartments where some thinning is recommended an exception to the 5 m^3 per calendar quarter applies to trees that have a diameter over bark of 10cm or less when measured 1.5m from ground level. For existing areas of coppice, the exception applies to trees with individual stems that have a diameter over bark of 15cm or less (Forestry Commission, 2020).

Table 16: Legal and other obligations - management measures

Action	Timing
Liaise within SBC	As required
Ensure an up-to-date RAMS is in place for any work being undertaken	As require, to be updated once every 6 months at minimum.

12.3 Public access and engagement

Objective

12.3.1 To maintain public access at the site for recreational and educational purposes.

12.3.2 To engage the local community through volunteering for the conservation of the habitats on site.

Assessment of significance

12.3.3 Volunteering work has an important role in conserving the habitats in local green spaces, contributing to educate the public and create a sense of community and protect habitats and wildlife form increasing challenges that urban greenspaces face.

12.3.4 The table below presents the management measures, supported by the rationale detailed in the sections below.

Management measures rationale

12.3.5 Volunteers will be well supported by providing a safe, diverse, and accessible programme.

12.3.6 Training sessions will be provided on a regular basis, twice a year as required for the whole period of validity of this management plan. This will make sure all volunteers understand the management actions and work techniques in their scope of works, a general overview of the biodiversity and how to avoid impacting the protected species on site as well as on health and safety.

12.3.7 Training on the identification of most common INNS (such as Japanese knotweed, Himalayan balsam, rhododendron) will be provided to all volunteers by a competent person.

12.3.8 Volunteers will be undertaking conservation work under supervision and assistance from SBC. This will include:

- Walkovers to check for presence of invasive species, identification and removal of the plants following the management recommendations in this plan.
- Management of the scrub habitat and planting of native shrubs (under guidance).
- Creation of log/brash piles. Creation of hibernacula following the recommendations in appendix 8.
- The maintenance of site furniture, pathways, repair or installation of interpretation boards.
- Walkovers to spot any broken/damaged enhancement feature such as bat boxes, bird nesting boxes, dormouse boxes, hibernacula, log/habitat piles. Maintenance of the hibernacula
- Check the site for any sign of pollution.

- Litter-picking.
- All vegetation clearance work on any of the habitat features above will be undertaken following the actions detailed in this plan.

Table 17: Public access and engagement - management measures

Action	Timing
Update and repair of the interpretation board	Any time of year
Maintenance of site furniture and fencing	Any time of year
Maintenance of pathways	Winter. As required
Assist with conservation work, habitat management under supervision and support from the council	As required, following timing and methods recommendations in this report.

12.4 Survey, monitor and review

Objective

12.4.1 This management plan will be monitored to ensure that the management remains effective and that the objectives and targets are achieved. Adequate survey data for the species and habitats should be used to inform management activities. The plan will be reviewed in its entirety in 2034.

12.4.2 In order to produce the best results, external funding opportunities should be sought. This could include agri-environment schemes, BNG offsite credits, cardon credit, fundraising or other means. This external funding will only be used where it is in line with SWT policy.

Management measures and rationale

12.4.3 It is important that adequate survey and monitoring takes place so that sufficient information is available to make the best management decisions. It will also enable the Key Performance Indicators to be reviewed and progress against targets assessed. This will highlight whether a change to management action is required. A summary of the survey and monitoring work to be carried out is given in the table below.

12.4.4 All habitats and the relevant progress on the KPIs will be monitored in years 3, 5 and 10, the results will be used to review all monitor and management measures as required.

12.4.5 Monitoring of the water quality and an RCA assessment will be undertaken in years 1, 3, 5 and 10 to compare the condition of the river overtime and the effectiveness of the management actions.

12.4.6 All habitats will be monitored for the presence of Schedule 9 invasive plant species, as well as other non-native invasive plant species, so that action can be taken promptly if they are found to be present.

12.4.7 Bird, dormouse and bat boxes will be monitored during the annual cleaning (where required) and maintenance to determine their level of use, this will be done by licenced and experienced persons. Licenced ecological consultants will be commissioned but the frequency of the monitoring will be depending on funding, consider also contacting the local conservation groups to involve in the monitoring process. A suggested list of boxes has been included below in Table 20.

12.4.8 Hibernacula and log piles will be checked annually and maintained for the whole duration of this management plan.

12.4.9 Consider undertake invertebrate surveys and bat activity surveys.

12.4.10 Progress towards achieving the actions within this management plan will be reviewed at years 3 and 5 with a more detailed review of progress towards achieving targets at year 10. The action plan will be amended as necessary to ensure that it remains realistic.

12.4.11 Outside funding opportunities should be explored, either formally through a Natural Capital Plan or informally. Any appropriate opportunities should be considered.

Table 18: Survey, monitor and review - management measures

Map reference	Action	Timing
All compartments	Habitat survey within the optimal survey period. Signs of ash dieback in woodland areas should also be checked.	Years 3, 5 and 10 March to September inclusive
All compartments	Monitor annually for the presence of Schedule 9 non-native invasive plant species and other non-native species. If found create an action plan for their control.	April-August Years 1 – 10.
All compartments	Review progress towards achieving objectives and targets.	All year long Years 3, 5 and 10
G1-G3, HS1, woodland edge (WF1-WF5)	Species monitoring surveys for reptiles	Between March and September. Years 3, 5 and 10 (frequency depending on funding)
All compartments	Species monitoring surveys for bats (activity)	May-September Years 3, 5 and 10 (frequency depending on funding)
WF1-WF5	Species monitoring surveys for bats (bat box checks) – to be undertaken by licenced people (ecologists or local conservation group)	May-July and September Years 3, 5 and 10 (frequency depending on funding)
WF1-WF5	Species monitoring surveys for hazel dormouse - to be undertaken by licenced people (ecologists or local conservation group)	May-June and September-October Years 3, 5 and 10 (frequency depending on funding)
WF1-WF5	Bird box checks - to be undertaken by licenced people (ecologists or local conservation group)	March-August Years 3, 5 and 10 (frequency depending on funding)
All habitats.	Species monitoring surveys for breeding birds.	March-August Years 3, 5 and 10.
All habitats.	Staff and visitor wildlife recording scheme.	All year long Year 1-10
WC1, WC2	RCA assessment by a licenced ecologist and monitoring of the water quality	March-June Year 1, 3, 5 and 10 (frequency depending on funding)
WC1, WC2	Aquatic invertebrate surveys by an entomologist	March-April and September-November Year 3, 5 and 10 (frequency depending on funding)

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Appendix 1: Site Background

Environmental conditions

13.1.1 Environmental conditions for the HMMP area are detailed in the tables below.

Table 19: Land tenure and public access

Land ownership	Spelthorne Borough Council
Land tenure	Spelthorne Borough Council
Land is currently publicly accessible	Yes
Land is proposed for public access	Yes
Impact on management measures	
None	

Table 20: Current climatic conditions

Nearest weather station details	Heathrow Location: 51.479, -0.452 Altitude: 24m above mean sea level Station type: Automatic
Days of ≥1 mm rain per year	111.66
Average annual rainfall mm	614.98
Average temperature °C	11.75
Highest temperature – Month and temperature °C	July, 23.89 °C
Lowest temperature – Month and temperature °C	February, 2.65 °C
Average annual hours of sunshine	1674.81
Sunniest month and average hours of sunshine	July, 217.81 hs
Average number of days with air frost	26.99
Frostiest month and number of days	December, 7.17
Impact on management measures	
None	

Table 21: Geology and topography

Geology	Bedrock geology: • Claygate Member - Sand, silt and clay. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period. Superficial deposits: • Langley Silt Member - Clay and silt. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period. • Alluvium - Clay, silt, sand and gravel. Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.
Topography	• Fourteen meters asl on average across the site.

Impact on management measures
None

Table 22: Agricultural land status

Agricultural land status	Not agricultural
Impact on management measures	
None	

Table 23: Soils and substrate

Relevant compartment ID	Soil texture	Soil pH	Nitrogen	Phosphorous	Potassium
All compartments	Medium to light (silty to heavy)	7.05	0.22 (concentration)	0.34%	1.22%
Impact on management measures					
None					

Table 24: Contaminated land status

Contaminated land status	Not contaminated
Impact on management measures	
None	

Table 25: Hydrology, flood risk and drainage land status

Summary of site hydrology and drainage
The River Ash is classified as Main River and the main flow contributors are catchment stormwater contributions, River Colne and the Ashford Water Treatment Works. Flows from the Colne and the Treatment Works are controlled.
Flood risk zone
Land within flood zone 3. High probability of flooding from rivers and the sea.
Impact on management measures
None

Table 26: Landscape character

Landscape character
RV3: ASH RIVER VALLEY FLOOR The Ash River Valley Floor is a small character area at the northern edge of the county, located either side of the Built-Up Area along the A244 road, to the north of Shepperton. The majority of the character area boundary follows the edges of the adjacent Built-Up Areas. Key Characteristics: • A level area underlain by Thames Group Clay, Silt, Sand and Gravel solid geology., on the northern edge of the Ash River floodplain. • Consists of rough pasture, some informal paddocks, a golf course, school playing fields and a mobile home park. • Forms rural setting and open areas around edges of settlement. • There are some small areas of woodland, tree lined roads, boundaries and lakes. • Individual mature trees, and hedgerows and hedgerow trees.

• There are some open views across rough ground to the nearest tree cover, but boundary vegetation limits views elsewhere and helps filter settlement edges. • Some gaps provide views to grassed embankments of adjacent reservoir (Area RS1) or more open river floodplain character areas (Areas RF2 and RF3). • The M3 motorway and the Shepperton branch railway line cross through the western portion of the character area. A3044 road cross north-south through the centre of the character area, and other busy roads border the character area to the north. • A public footpath passes roughly east-west through the character area. • There is a Site of Nature Conservation Interest located in the north-western part of the character area, with eutrophic lakes and trees • Tree cover filters views of built form and infrastructure to a degree, but there is heavy human influence in the form of Built-Up Areas, road and internal land uses, which prevents a sense of remoteness in this small character area.
Impact on management measures
None

Appendix 2: Methodology

Desk study

13.1.2 The desk study included a search of information already available for the site including past management plans, agri-environment scheme agreements, statutory and non-statutory site information, past surveys and monitoring for the site.

13.1.3 An assessment of the likelihood of species being present within the survey area was made by comparing their habitat requirements with habitats recorded in the survey area. Species that were unlikely to occur were scoped out of the assessment.

13.1.4 Waterbodies within 500m of the survey area boundary were identified using aerial photography and publicly available mapping.

13.1.5 Publicly available information on (DEFRA, n.d.) was also consulted.

Habitat survey

13.1.6 Habitats in the survey area were mapped using the UK habitat classification survey methodology (Butcher, P, R, Norton, & Treweek, 2020).

13.1.7 UK habitat classification survey is a comprehensive system for classifying and mapping habitats within the UK. The aim of the survey is to identify and map habitats using aerial imagery and ground-truthing the information in a consistent and unified way such that this can be used for ecological impact assessment and habitat metrics. The whole survey area was walked by an experienced ecologist and habitats identified, classified and mapped. Each habitat is coded in line with the survey methodology, using secondary codes to define specific features, such as management measures, land use and other specific features. Where these secondary codes are used in the report, the definitions are also provided.

13.1.8 Within each habitat type a record of the vascular plant species was made and an assessment of their abundance recorded. Abundances of each vascular plant species within each habitat type are based on the DAFOR scale, presented below.

- D – Dominant
- A – Abundant
- F – Frequent
- O – Occasional
- R – Rare

13.1.9 Nomenclature of vascular plants followed (Stace, 2019). Common names are presented in the text, with scientific names detailed in Appendix 3.

13.1.10 Fauna species mentioned in this report will be referred to by their common name. Scientific names for these species are detailed in Appendix 5.

13.1.11 The survey included an assessment of the habitats present to determine their suitability for protected species and species of conservation concern. A record was made of any signs of protected species, or species of conservation concern, such as runs, droppings and/or foraging remains.

13.1.12 A record was also made of any fauna that was incidentally recorded.

13.1.13 The presence of any non-native invasive species was noted, and their location and distribution mapped.

13.1.14 Notable observations were recorded during the survey as target notes.

13.1.15 The date and weather conditions are detailed in Table 4. The survey was undertaken by Hamdah Ismail BSc (Hons) MSc – Ecologist.

Table 27: Survey dates and weather conditions

Staff	Date of Survey	Survey time	Temp °C	Cloud (%)	Rain	Wind[1]
Hamdah Ismail	20/05/24	11:20	19	0%	No rain	1 - Light air

Limitations

Ecological surveys

13.1.16 Habitat surveys can be undertaken at any time of year, with the optimal season being between March and September, when most plant species are visible. Where feasible, all efforts were made to schedule the habitat survey in optimal weather conditions and time of year. Nevertheless, field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species, and short survey duration. Rare or cryptic species are often missed in short surveys.

13.1.17 Some areas of the woodland were not accessible due to thick vegetation. Presence of potential stands of invasive species could have been missed. However, monitoring of the non-native invasive species will be undertaken as part of the monitoring actions of this management plans. Once management actions are in place, following the thinning of the vegetation and glade creation within the woodland, access to all areas of the habitats will be facilitated and this will allow the individuation of any non-native invasive species stand.

13.1.18 Based on the above, a full appraisal of the plant species and habitats present could be undertaken at the time of the survey given the survey was conducted within the optimal timeframe.

13.1.19 As the primary purpose of the investigation was to assess the habitats present and their suitability to support protected species and species of conservation concern, the desk study, combined with the field survey, were sufficient to complete this aspect of the assessment.

[1] Beaufort scale

Appendix 3: Vascular plant species recorded on the 20/05/2024

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
Acacia sp.	Acacia tree	R	WF1	R
Acer campestre	Field maple	F	G2, WF1, WF2	O, F, F
Acer platanoides	Norway maple	R	WF1-WF5	O
Acer pseudoplatanus	Sycamore	F	WF1, WF3, WF2, WF4, WF5	F, A, O, O, O
Achillea millefolium	Yarrow	F	WF2	O
Aesculus hippocastanum	Horse-chestnut	F	WF1, WF2, WF3, WF5	F, F, F, F
Agrostis capillaris	Common bent	O	G1	F
Agrostis sp.	Bent sp.	O	WF2, G2	O, A
Agrostis stolonifera	Creeping bent	O	WF1, G1	O, F
Alliaria petiolata	Garlic mustard	F	WF1, WF2, HS1	F, O, O
Alnus glutinosa	Alder	F	WF1, WC1, WC2, WF2	F, O, O, O, O
Anisantha sterilis	Barren brome	O	WF2, HS1, G2, G3	O, F, F, A
Anthoxanthum odoratum	Sweet vernal-grass	F	WF1-WF5, G1-3	F, F
Arrhenatherum elatius	False oat-grass	F	G3	A
Arum maculatum	Lords-and-Ladies	O	WF1-WF5	O
Asplenium scolopendrium	Hart's-tongue	R	WF1, WF2	R, R
Bambusa sp.	A bamboo	R	WF1	O
Bellis perennis	Common daisy	O	G2, G1	O, O
Bromus hordeaceus	Soft-brome	O	G3	A
Buddleja davidii	Butterfly-bush	R	WF1, WF2, WF4	R, R, R
Callitriche stagnalis	Common water-starwort	O	WC1	O
Calystegia sepium	Hedge bindweed	O	G2, G1, HS1	R, R, F
Cardamine pratensis	Cuckoo-flower	R	WF4	R
Carex pendula	Pendulous sedge	O	WF1-WF5	O
Carex remota	Remote sedge	O	WC1, WF1-WF5	O, R
Carex riparia	Greater pond-sedge	O	WF1, WC1, WC2	O, F, O
Castanea sativa	Sweet chestnut	O	WF1, WF2	R, R
Chelidonium majus	Greater celandine	O	WF1-WF5	O
Cirsium arvense	Creeping thistle	O	G1-G3	O

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
Cirsium vulgare	Spear thistle	O	WF1, WF2	O, F
Conium maculatum	Hemlock	O	WC1, WF2, G2	O, O, O
Corylus avellana	Hazel	O	WF1-WF5	O
Crataegus monogyna	Hawthorn	O	WF2, WF3, WF5	O, O, O, O
Cynosurus cristatus	Crested dog's-tail	F	WF, WF2, G2, G3	F, F, A, O
Cupressus × leylandii	Leyland cypress	R	WF1-WF5	R
Cypress sp.	Cypress sp.	R	WF1	R, O
Dactylis glomerata	Cock's-foot	F	WF2, HS1, G1-G2, G3	O, F, A, A
Dryopteris filix-mas	Male fern	R	WF1, WF2	R
Fraxinus excelsior	Ash	F	WF1, WF2, WF3, WF4, WF5	F, O, F, F, F
Galium aparine	Cleavers	F	WF, WF2, G2, G3, G1	F, O, O, O, F
Geranium dissectum	Cut-leaved crane's-bill	O	G3, G2	O, O
Geranium robertianum	Herb-robert	F	WF1, WF2, HS1	O, O, O
Geum urbanum	Wood avens	F	WF1, HS1, G2	F, O, O
Glechoma hederacea	Ground-ivy	F	WF1-WF5	O
Hedera helix	Common ivy	A	WF1-5, WC1, WC2	A, A, A
Helminthotheca echioides	Bristly oxtongue	R	WF1, G2	O, O
Heracleum sphondylium	Hogweed	O	HS1, G2	O, O
Holcus lanatus	Yorkshire-fog	F	WF1, HS1, G3, G2, G1	F, F, A, F, O
Hordeum murinum	Wall barley	O	WF2	O
Humulus lupulus	Hop	R	WF2, G2	O, O
Hyacinthoides non-scripta	Bluebell	R	WF1	R
Ilex aquifolium	Holly	F	WF1-WF4	F
Iris pseudacorus	Yellow iris	O	WF1, WC1	O, F
Jacobaea vulgaris	Common ragwort	O	WF2, G2	O, O
Juncus inflexus	Hard rush	R	WC1	O
Lemna minor	Common duckweed	R	WC1	R, R
Leucanthemum vulgare	Oxeye daisy	R	G2	O

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
Ligustrum ovalifolium	Garden Privet	R	WF1	O
Ligustrum vulgare	Wild privet	R	WF1	O
Lolium perenne	Perennial rye-grass	F	WF2, G1	F, F
Lycopus europaeus	Gipsywort	O	WC1, WC2, WF1-WF5, G2	F, O, O, R
Matricaria discoidea	Pineappleweed	O	WF2, G1, G2	O, O, O
Medicago lupulina	Black medick	O	WF2, G2	O, O
Myosotis arvensis	Field forget-me-not	O	WF1-WF2	R
Myosotis scorpioides	Water forget-me-not	R	WC1	O
Oenanthe crocata	Hemlock water dropwort	O	WC1, WC2, WF1	O, R, O
Parthenocissus quinquefolia	Virginia-creeper	O	WF1, WF2	O, O
Pentaglottis sempervirens	Green alkanet	O	WF1 -WF5	O
Petasites fragrans	Winter heliotrope	O	WC1, WC2	O, A
Phragmites australis	Common reed	O	WC1	F
Picea abies	Norway spruce	R	WF1-WF5	R
Pinus sylvestris	Scots pine	O	WF1	R
Platanus × hispanica	London plane	O	WF1, WF2	F, F
Poa annua	Annual meadow-grass	O	G3	F
Populus alba	White poplar	O	WF1, WF2, WC1, WC2	O, O, O, O
Populus sp.	Poplar sp.	O	WF1, WF2, WC1,WC2	O,O,O,O
Populus tremula	Aspen	O	WF2, WF1, WC1, WC2	O, O, O, O
Prunus laurocerasus	Cherry laurel	O	WF1, WF2	O, R
Prunus spinosa	Blackthorn	O	WF1-WF5	O
Pseudotsuga menziesii	Douglas fir	R	WF1-WF5	R
Quercus robur	Pedunculate oak	F	WF1, WF2, WF3, WF4-WF5	F,O,O,O
Ranunculus acris	Meadow buttercup	O	WF2, G2, G3, G1	O, O, O, O
Ranunculus repens	Creeping buttercup	O	WF1- WF4, G1	O, F
Rosa sp.	Rose sp.	R	WF1	R
Rubus fruticosus agg.	Bramble	F	WF1, HS1, G2	A, D, F

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
Rumex acetosa	Common sorrel	R	G1-G3	O
Rumex crispus	Curled dock	O	G3, G2, G1	O, O, R
Rumex hydrolapathum	Water dock	O	WC1, WC2	O, O
Rumex obtusifolius	Broad-leaved dock	O	WF1, G2	F, R
Rumex sanguineus	Wood dock	O	WC1	O
Salix cinerea	Grey willow	O	WF1, WF2, WF4	O
Salix fragilis	Crack-willow	O	WF1, WF2, WF4	O
Salix sp.	Willow sp.	F	WF1, WF2, WF3, WF4, WF5	O, O, O, O, O
Sambucus nigra	Elder	F	WF1, WF2-WF4, HS1	F, O, O
Scutellaria galericulata	Skullcap	O	WC1, WC2	O, R
Silene dioica	Red Campion	O	WF2, G2	O, O
Stachys palustris	Marsh woundwort	O	WC2	F, R
Stellaria media	Common chickweed	O	G2, G1	O, O
Symphoricarpos albus	Snowberry	O	WF1, WF2	F, O
Taraxacum agg.	Dandelion	O	HS1	O
Taxus baccata	Yew	O	WF1	O
Tilia x europaea	Common lime	O	WF1, WF2	O, O
Trifolium pratense	Red clover	O	G2, G3	O
Ulmus procera	English elm	O	WF1, WF2,	O, O
Urtica dioica	Common nettle	A	WF1, WF2, WF3, WF4, HS1, G2, G3, G1	A, O, O, O, A, O, O, O
Veronica beccabunga	Brooklime	R	WC1	R
Vicia sativa	Common vetch	O	G2, G3	O
Vicia sepium	Bush vetch	R	WF1	O
Vinca minor	Lesser periwinkle	R	WF1, WC2	O, O

Appendix 4: Grassland quadrats

Quadrat number	Perennial rye-grass cover (%)	White clover cover (%)	Undesirables cover (%)	Grasses cover (%)	Herbs cover (%)	Bare ground cover (%)	Species list	Compartment
1	70%	0%	5%	85%	5%	10%	Perennial ryegrass A, creeping buttercup O, meadow buttercup R, creeping bent O, common sorrel O, creeping thistle O	G1
2	70%	5%	5%	75%	20%	5%	Common nettle O, perennial ryegrass A, creeping buttercup F, meadow buttercup O, creeping bent F, common sorrel R, creeping thistle O, common bent F, field bindweed F, cleavers O, white clover O.	G1
3	25%	0%	5%	80%	20%	0%	Perennial ryegrass O, creeping buttercup A, meadow buttercup R, creeping bent F, common sorrel O, creeping thistle F	G1
4	20%	0%	5%	85%	25%	10%	Perennial ryegrass O, creeping buttercup O, meadow buttercup O, creeping bent O, common sorrel R, creeping thistle O, common bent F, cleavers O, curled leaved dock F, daisy F, Yorkshire fog F, cock' s-foot F	G1
5	25%	0%	5%	85%	15%	5%	Perennial ryegrass O, creeping buttercup O, meadow buttercup O, creeping bent F, common sorrel O, creeping thistle O, common bent O, cleavers R, curled leaved dock O, daisy O, Yorkshire fog F, cock' s-foot F	G1
1	0%	0%	15%	65%	25%	20%	Curled dock C, oxeye daisy O, black medic A, Yorkshire fog F, meadow buttercup O, ribwort plantain O, cut-leaved crane' s-bill O, brickly oxtongue O, red campion O,	G2

Quadrat number	Perennial rye-grass cover (%)	White clover cover (%)	Undesirables cover (%)	Grasses cover (%)	Herbs cover (%)	Bare ground cover (%)	Species list	Compartment
2	5%	0%		80%	15%	0%	Perennial ryegrass O, Yorkshire-fog D, crested dog's tail A, common chickweed R, common ragwort O, poison hemlock O, curled dock C, oxeye daisy O, black medick A, meadow buttercup O, ribwort plantain O, cut-leaved crane's-bill O, brickly oxtongue O, red campion O.	G2
3	0%			80%	10%	10%	Yorkshire-fog D, crested dog's tail A, common chickweed R, common ragwort O, poison hemlock O, curled dock C, oxeye daisy O, black medick A, meadow buttercup O, ribwort plantain O, cut-leaved crane's-bill O, brickly oxtongue O, red campion O, *Vicia sp*. F, broad-leaved dock O,	G2
4	5%			85%	10%	10%	Common nettle A, barren brome A, Yorkshire-fog D, crested dog's tail A, common chickweed R, common ragwort O, poison hemlock O, curled dock C, black medick A, meadow buttercup O, ribwort plantain O, cut-leaved crane's-bill O, brickly oxtongue O, red campion O, *Vicia sp*. F, broad-leaved dock O, perennial ryegrass R.	G2
5	15%	0%	10%	85%	10%	15%	Common nettle A, perennial ryegrass O, barren brome A, Yorkshire-fog D, crested dog's tail A, common chickweed R, common ragwort O, poison hemlock O, curled dock C, black medick A, meadow buttercup O, ribwort plantain O, cut-leaved crane's-bill O, brickly oxtongue O, red campion O, *Vicia sp*. F, broad-leaved dock O.	G2

Quadrat number	Perennial rye-grass cover (%)	White clover cover (%)	Undesirables cover (%)	Grasses cover (%)	Herbs cover (%)	Bare ground cover (%)	Species list	Compartment
1	5%	0%	0%	90%	10%	0%	Cock' s-foot A, curled dock F, common nettle O,	G3
2	5%	0%	5%	90%	10%	0%	Soft brome O, cock' s-foot A, Yorkshire-fog A leaved crane' s-bill F, barren brome A, cleavers A, bramble F, barren brome F, common bent A, meadow buttercup O, hogweed O, red clover O, cleavers O, wood avens O, crested dog' s tail O, perennial Yorkshire-fog A, perennial ryegrass R.	G3
3	5%	0%	0%	90%	5%	0%	False oatgrass A, cock' s-foot A, wood avens O, barren brome A, cleavers O, annual meadow grass O, bramble R, perennial ryegrass R.	G3
4	5%	0%	0%	80%	25%	0%	Meadow buttercup O, cut-leaved crane' s-bill F, cock' s-foot A, common nettle F, barren brome F, Yorkshire-fog F, annual meadow grass O., perennial ryegrass R.	G3
5	0%	0%	0%	85%	10%	0%	Soft brome A, barren brome A, cock' s-foot A, cut-leaved crane' s-bill O, annual meadow grass O, Yorkshire-fog A	G3

Appendix 5: Scientific names of fauna species referred to in the report

Amphibians

- *Bufo bufo* – common toad
- *Pelophylax lessonae* – pool frog
- *Triturus cristatus* – great crested newt

Bats

- *Barbastella barbastellus* – western barbastelle
- *Myotis bechsteinii* – Bechstein's
- *Nyctalus noctula* – noctule
- *Pipistrellus pygmaeus* – soprano pipistrelle
- *Plecotus auritus* – brown long-eared
- *Rhinolophus ferrumequinum* – greater horseshoe
- *Rhinolophus hipposideros* – lesser horseshoe

Birds

- *Acanthis cabaret* – lesser redpoll
- *Acrocephalus paludicola* – aquatic warbler
- *Acrocephalus palustris* – marsh warbler
- *Alauda arvensis* – skylark
- *Anser albifrons* – white-fronted goose
- *Anthus trivialis* – tree pipit
- *Aythya marila* – scaup
- *Botarus stellaris* – bittern
- *Branta bernicla bernicla* – dark-bellied brent goose
- *Burhinus oedicnemus* – stone-curlew
- *Caprimulgus europaeus* – nightjar
- *Circus cyaneus* – hen harrier
- *Circus hudsonius* – northern harrier
- *Coccothraustes coccothraustes* – hawfinch
- *Crex crex* – corncrake
- *Cuculus canorus* – cuckoo
- *Cygnus columbianus bewickii* – Bewick's swan
- *Dryobates minor* – lesser spotted woodpecker
- *Emberiza calandra* – corn bunting
- *Emberiza cirlus* – cirl bunting
- *Emberiza citrinella* – yellowhammer
- *Emberiza schoeniclus* – reed bunting
- *Lagopus lagopus* – red grouse
- *Larus argentatus* – herring gull
- *Limosa limosa* – black-tailed godwit
- *Linaria cannabina* – linnet
- *Linaria flavirostris* – twite
- *Locustella luscinioides* – Savi's warbler
- *Locustella naevia* – grasshopper warbler
- *Lullula arborea* – woodlark
- *Lyurus tetrix* – black grouse
- *Melanitta nigra* – common scoter
- *Motacilla flava* – yellow wagtail
- *Muscicapa striata* – spotted flycatcher
- *Numenius arquata* – curlew
- *Passer domesitcus* – house sparrow
- *Passer montanus* – tree sparrow
- *Perdix perdix* – grey partridge
- *Phylloscopus sibilatrix* – wood warbler
- *Poecile montanus* – willow tit
- *Poecile palustris* – marsh tit
- *Prunella modularis* – dunnock
- *Puffinus mauretanicus* – Balearic shearwater
- *Pyrrhula pyrrhula* – bullfinch
- *Sterna dougallii* – roseate tern
- *Streptopelia turtur* – turtle dove
- *Sturnus vulgaris* – starling
- *Turdus philomelos* – song thrush
- *Turdus torquatus* – ring ouzel
- *Vanellus vanellus* – lapwing

Mammals (except bats)

- *Arvicola amphibius – European water vole*
- *Erinaceus europaeus – West European hedgehog*
- *Felis silvestris* – wildcat
- *Lepus europaeus – brown hare*
- *Lepus timidus – mountain hare*
- *Lutra lutra – European otter*
- *Martes martes* – pine marten
- *Meles meles* – Eurasian badger
- *Micromys minutus* – harvest mouse
- *Muscardinus avellanarius* – hazel dormouse
- *Sciurus vulgaris* – red squirrel

Reptiles

- *Anguis fragilis* – slow-worm
- *Coronella austriaca* – smooth snake
- *Lacerta agilis* – sand lizard
- *Natrix helvetica* – grass snake
- *Vipera berus* – adder
- *Zootoca vivipara* – common lizard

Appendix 6: Legislation

Legislation

Conservation of Habitats and Species Regulations 2017 (as amended)

Provides for the protection of Natura 2000 sites (SACs, SPAs and Ramsar sites), European Protected Species and habitats. European Protected Species are protected from:

- Deliberate capture, injury or killing.
- Deliberate disturbance of a European Protected Species, such that it impairs their ability to breed, reproduce or rear their young, hibernate or migrate or significantly affect their local distribution or abundance.
- Deliberately take or destroy effect.
- Damage or destroy a breeding site or resting place.
- Keep, transport, sell or exchange any live, dead or part of a European Protected Species.

European Protected Species include, but are not limited to:

- Great crested newt
- Natterjack toad
- Otter
- Smooth snake
- Sand lizard
- All bat species
- Hazel dormouse

The LPA will be aware of its legal duty under Regulation 9(3) of Conservation of Habitats and Species Regulations 2017, as amended, which states that "*a competent authority in exercising any of its functions, must have regard to the requirements of the Directives so far as they may be affected by the exercise of those function*".

Also, under Regulation 55 (9b) of the above regulations, the LPA must apply the following three tests when deciding whether to grant planning permission where a Protected Species (bats) may be harmed, in line with of the Conservation of Habitats and Species Regulations 2017, as amended.

- The activity must be for imperative reasons of overriding public interest or for public health and safety;
- There must be no satisfactory alternative;
- Favourable conservation status of the species must be maintained.

Natural England has stated that they would expect these three tests to be adequately considered by the LPA before planning permission is granted. Natural England will require evidence from the applicant that the LPA has considered the three tests and how they were met, before a mitigation licence can be issued. Where a mitigation licence is required to avoid breach of legislation, development cannot proceed even where a valid planning permission is granted.

Wildlife and Countryside Act 1981 (as amended)

Key piece of legislation consolidating existing wildlife legislation to incorporate the requirements of the Bern Convention and Birds Directive. It includes additional protection

measures for species listed under the Conservation of Habitats and Species Regulations 2017 (as amended) and includes a list of species protected under the Act. It also provides for the designation and protection of Sites of Special Scientific Interest (SSSI).

Development which would adversely affect a SSSI is not acceptable except only in special cases, where the importance of a development outweighs the impact on the SSSI when planning conditions or obligations would be used to mitigate the impact. Developments likely to impact on a SSSI will likely require an Environmental Impact Assessment (EIA).

The Impact Risk Zones (IRZs) dataset is a GIS tool which details zones around each SSSI according to the particular sensitivities of the features for which it is notified and specifies the types of development that have the potential to have adverse impacts. Natural England uses the IRZs to make an initial assessment of the likely risk of impacts on SSSIs and to quickly determine which consultations are unlikely to pose risks and which require more detailed consideration. Local Planning Authorities (LPAs) have a duty to consult Natural England before granting planning permission on any development that is in or likely to affect a SSSI.

Further information on specific legislation relating to species protected under the Wildlife and Countryside Act 1981 (as amended) is detailed below, under Protection of Protected Species and Habitats.

Environment Act (2021)

The Environment Act (2021) makes a provision for biodiversity net gain to be a condition of planning permission in England. Planning applications will need to demonstrate a 10% biodiversity net gain can be met. A biodiversity net gain plan must be submitted and must include:

(a) information about the steps taken or to be taken to minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat
(b) the pre-development biodiversity value of the onsite habitat,
(c) the post-development biodiversity value of the onsite habitat,
(d) any registered offsite biodiversity gain allocated to the development and the biodiversity value of that gain in relation to the development,
(e) any biodiversity credits purchased for the development,

Countryside and Right of Way Act 2000

Amends and strengthens the Wildlife and Countryside Act 1981 (as amended). It also details habitats and species for which conservation measures should be promoted.

Natural Environment and Rural Communities Act 2006

Section 40 of the Act places a duty on local planning authorities to conserve and enhance biodiversity in England whilst carrying out their normal functions. Section 41 comprises a list of Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) which should be considered.

The LPA will need to have particular regard to any relevant local nature recovery strategies, and any relevant species conservation strategy or protected site strategy prepared by Natural England.

Hedgerows Regulations 1997

Under these regulations it is an offence to intentionally or recklessly remove, or cause or permits another person to remove, a hedgerow. Important hedgerows are defined in Section

4 of the Regulations. This includes hedgerows that have existed for over 30 years or satisfies at least one criterion listed in Part II of Schedule 1.

Wild Mammals (Protection) Act 1996

Under this act wild mammals are protected from the intentional unnecessary suffering by crushing and asphyxiation.

ODPM Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (2005)

The Government's Office of the Deputy Prime Minister (ODPM) Circular 06/05 (ODPM 2005) presents the legal requirement for planning authorities with regard to statutory designated sites. Planning approval should not be granted where impacts to statutory designated sites that are not connected to the site maintenance for nature conservation or will have a significant effect on the site's conservation objectives and/or affect the site's integrity. Permission may be granted if the proposed development overrides public interest.

The presence of a protected species is a material planning consideration. The Circular clearly outlines that it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted. Otherwise, all relevant considerations may not have been addressed in making the decision.

Biodiversity Opportunity Areas (BOAs)

In order to assist in delivering the government's Biodiversity 2020 strategy, the Surrey Nature Partnership has identified seven BOAs where improved habitat management, habitat restoration and recreation of HPIs is the key focus to enhancing the connectivity of habitats for SPIs to deliver biodiversity objectives at a landscape scale. The location of these is presented in the South East Biodiversity Strategy's website. The project promotes a collaborative approach across a number of regional and local organisations.

Developments within or adjacent to BOAs should be designed in consideration of the BOA objectives, which are provided at:

- https://surreynaturepartnership.org.uk/our-work/

The BOAs include:

- Thames Basin Heaths comprising Chobham Common North & Wentworth Heaths, Chobham South Heaths, Colony Bog, Bagshot Heath & Deepcut Heaths, Ash, Brookwood & Whitmoor Heaths, Woking Heaths;
- Thames Basin Lowlands comprising Wanborough & Normandy, Woods & Meadows, Clandon to Bookham Parkland, Esher & Oxshott Commons, Ashtead & Epsom Wood Pasture, Princes Coverts & Horton Country Park;
- Thames Valley comprising Windsor Great Park, Runnymede Meadows & Slope, Staines Moor & Shortwood Common, Thorpe & Shepperton, Molesey & Hersham;
- North Downs comprising North Downs Scarp; The Hog's Back, North Downs Scarp and Dip; Guildford to the Mole Gap, North Downs Scarp; Mole Gap to Reigate, North Downs; Epsom Downs, North Downs; Banstead Wood & Chipstead Downs, North Downs Scarp; Caterham, North Downs Scarp; Woldingham,

- Wealden Greensands comprising Puttenham & Crooksbury, Farnham Heaths, Thursley, Hankley & Frensham Heaths, Devil's punch-bowl & Hindhead Heaths, Hascombe, Winkworth & Hydon's Heath and Woodland, Blackheath, Chilworth & Farley Heaths, Winterfold & Hurtwood Greensand Ridge, Leith Hill, Wotton, Abinger & Holmwood Greensand Ridge, Limpsfield Heaths, Reigate Heaths, Holmthorpe & Bay Pond
- Low Weald comprising Chiddingfold & West Weald Woodlands, Cranleigh Woodlands, Wallis Wood, Vann Lake & Ockley Woodland, Glover's Wood & Edolph's Copse, Newdigate Wood, Earlswood & Redhill Commons;
- River Valleys comprising Hogsmill, Eden Brook, River Blackwater, River Wey, River Mole, River Thames,

Protection of protected species and habitats

Amphibians

Natterjack toad, pool frog and great crested newt are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are also afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Natterjack toad, common toad, great crested newt and northern pool frog are also SPIs.

Reptiles

Smooth snake and sand lizard are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Adder, grass snake, common lizard and slow-worm are all protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended). All UK reptile species are SPIs.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). This includes damage and destruction of their nests whilst in use, or construction. Species listed under Schedule 1 of the Act, such as barn owl, are afforded protection from disturbance during the nesting season.

The following 50 bird species are SPIs: lesser redpoll, aquatic warbler, marsh warbler, skylark, white-fronted goose, tree pipit, scaup, bittern, dark-bellied brent goose, stone-curlew, nightjar, hen harrier, northern harrier, hawfinch, corncrake, cuckoo, Bewick's swan, lesser spotted woodpecker, corn bunting, cirl bunting, yellowhammer, reed bunting, red grouse, herring gull, black-tailed godwit, linnet, twite, Savi's warbler, grasshopper warbler, woodlark, common scoter, yellow wagtail, spotted flycatcher, curlew, house sparrow, tree sparrow, grey partridge, wood warbler, willow tit, marsh tit, dunnock, Balearic shearwater, bullfinch, roseate tern, turtle dove, starling, black grouse, song thrush, ring ouzel and lapwing.

Badger

Badger is protected under the Protection of Badgers Act 1992. Under this legislation it is an offence to kill or injure a badger; to damage, destroy or block access to a badger sett; or to disturb badger in its sett. The Act also states the conditions for the Protection of Badgers licence requirements.

Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as detailed above. Bats are further protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Deliberately or recklessly damage or destroy any structure or place which bat(s) use for shelter or protection.
- Disturb bat(s) while occupying a structure or place which it uses for shelter or protection.
- Obstruct access to any structure or place which they use for shelter or protection.

Furthermore, seven bat species are SPIs, covered under Section 41 of the NERC Act 2006. These include western barbastelle, Bechstein's, noctule, soprano pipistrelle, brown long-eared, lesser horseshoe and greater horseshoe.

Hazel dormouse

Hazel dormouse is protected under the Conservation of Habitats and Species Regulations 2017 (as amended). It is afforded additional protection under the Wildlife and Countryside Act 1981 (as amended), including obstruction to a place of shelter or rest.

Hazel dormouse is also a SPI.

Hedgerow

Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission from the LPA, which are also the enforcement body for offences created by the Regulations. LPA permission is normally required before removing hedges that are at least 20 m in length, more than 30 years old and contain certain plant species. The authority will assess the importance of the hedgerow using criteria set out in the regulations. The regulations **do not** apply to hedgerows within the curtilage of, or marking a boundary of the curtilage of, a dwelling house.

Hedgerow is a HPI.

Otter

Otter is protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and is afforded additional protection under the Wildlife and Countryside Act 1981 (as amended). Otter is also a SPI.

Water vole

Water vole is fully protected from capture, killing or injury; damage, destruction or blocking access to a place of shelter; disturbance whilst in a place of shelter or possessing, selling any part of a water vole, dead or alive under the Wildlife and Countryside Act 1981 (as amended).

Water vole is also a SPI.

Other mammals

West European hedgehog, brown hare, mountain hare, pine marten, harvest mouse, polecat and red squirrel are all SPIs.

The following mammals are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended): wildcat, brown hare (Schedule 5A), mountain hare (Schedule 5A), pine marten and red squirrel.

Invertebrates

Fifty-six terrestrial and freshwater invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These include Reddish buff, Norfolk hawker, Purple emperor, High brown fritillary, Northern brown argus, White-clawed crayfish, Pearl-bordered fritillary, DeFolin's lagoon snail, Chequered skipper, Fairy shrimp, Rainbow leaf beetle, New Forest cicada, Southern damselfly, Large heath, Small blue, Wartbiter, Fen raft spider, Ivell's sea anemone, Mountain ringlet, Ladybird spider, Marsh fritillary, Spangled diving beetle, Mole cricket, Field cricket, Duke of Burgundy, Silver-spotted skipper, Medicinal leech, Lesser silver water beetle, Moccas beetle, Wood white, Violet click beetle, Large copper, Freshwater pearl mussel, heath fritillary, Glanville fritillary, Glutinous snail, Starlet sea anemone, Large tortoiseshell, Brackish hydroid, Swallowtail, Bembridge beetle, Barberry carpet, Silver-studded blue, Adonis blue, Chalk hill blue, Fiery clearwing, Sandbowl snail, Black hairstreak, White-letter hairstreak, Black-veined moth, Sussex emerald, Brown hairstreak, Northern hatchet-shell, Lulworth skipper, Tadpole shrimp, New Forest burnet.

A total of 398 invertebrates are Species of Principal Importance. These include: beetles (including stag beetle), butterflies (high brown fritillary, large heath, small blue, white-letter hairstreak, brown hairstreak, damselflies (southern damselfly), moths (marsh moth), ants, bees etc. Impacts to SPI must be considered by the LPA when assessing planning applications.

Non-native invasive plant species

Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is a list of non-native plant species for which Section 14 of the Act applies. It is an offence to plant, or otherwise cause to grow in the wild species listed under Schedule 9 of the act. These include, but are not limited to:

- Himalayan balsam
- Cotoneaster sp.
- Japanese knotweed
- Giant hogweed

Habitats of Principal Importance

Section 41 of the NERC Act 2006 details 56 HPIs, of which the following could be present in south-east England: Lowland calcareous grassland, Lowland dry acid grassland, Lowland meadows, Lowland Heathland, Open Mosaic Habitats on Previously Developed Land, Lowland fens, Lowland raised bog, Reedbeds, Lowland beech and yew woodland, Lowland mixed deciduous woodland and Wet woodland.

Impacts to HPI are of material planning consideration.

Appendix 7: Timing of works to reduce impacts on protected species

This calendar presents the optimal season for undertaking works to minimise impact to protected species, or species of conservation concern. It will be used as guidance only and is based on current industry best-practice. Your ecologist will provide you with an indication of specific mitigation measures which are necessary to satisfy legal and planning requirements for your project. Mitigation for species including Schedule 1 bird species, badger, bats, hazel dormouse, otter, water vole and great crested newt can only be done once a mitigation licence has been issued by Natural England. This will also detail the timing of works to minimise impacts to these. For mitigation licences all activities must be undertaken under supervision of a suitably qualified and/or licensed ecologist and where mitigation licenses are in place, these may only be undertaken by the named ecologist or an accredited agent.

Species/species group	January	February	March	April	May	June	July	August	September	October	November	December
Birds			Can be undertaken under the supervision of an ecologist									
Badger	Construction of artificial setts						Sett closure					As Jan - Jun
Bat			Day, hibernation or night roost; low impact roosts									
			Maternity roost						Maternity roost			
Hazel dormouse	Above ground clearance				Stump and root clearance and translocation				All vegetation		As Jan - March	
Otter												
Water vole	Avoidance measures		Trapping and exclusion						Trapping and exclusion		Avoidance measures	
Great crested newt	Pond management		Translocation, hand search and destructive search								Pond management	
Reptiles	Above ground clearance		Capture and translocation, precautionary method of working for small areas of vegetation clearance								Above ground clearance	

	Optimal time to minimise impacts		Sub-optimal time to minimise impacts		Works impacting species will not occur

Appendix 8: Reptile/amphibian hibernacula

Hibernacula are underground chambers that amphibians and reptiles use through the winter to protect them from the cold.

Reptiles and amphibians will use a range of substrates for hibernacula including piles of rubble, rock, logs and earth banks (with plenty of mammal burrows and ground fissures).

Amphibians require humidity and an artificial hibernacula should ideally be located near to water, and definitely in sheltered habitat (e.g. in long grass or woodland edge vegetation). They should be free-draining and located in sheltered areas which are neither too dry nor prone to winter flooding or freezing.

To build the hibernacula, either create a mound or dig a hole containing a mixture of topsoil, rubble, and rough-cut logs. Dimensions of the hibernacula should generally be above 2m length x 1m width x 1m height. Lay bricks, stones, paving slabs or large pieces of concrete over the mound which will create gaps and allow amphibians to access the centre of the mound. A thin layer of soil and brash, can be laid over the top of this, as long as it does not block the hibernacula access points.

Encourage the growth of vegetation on the north side of the mound to provide extra shelter but prevent vegetation from encroaching onto the south facing side of the mound as sparse vegetation cover here will give animals a suitable location to bask. Periodic thinning of vegetation on the hibernacula will help prevent a thick root matt developing, which makes it hard for reptiles and insects to burrow into the surface.