



Surrey Wildlife Trust
Ecology Services

Ecology Report

St. John's Lye

Woking Environment Action



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Consultancies



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Validity of report (Chartered Institute of Ecology and Environmental Management, 2019)	In most cases, this report will be valid for 12 months. Where habitat management has not been altered and new features have not formed, it is possible the report remains valid for between 12 and 18 months, however it is advised an updated site visit is undertaken to confirm this. Where more than 18 months have elapsed an ecologist should review the information to confirm whether the information in this report can be relied upon. Reports more than three years old are unlikely to remain valid.		

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Acronyms

Acronym	Definition
BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
BOA	Biodiversity Opportunity Areas
BSI	British Standard Institute
CIEEM	Chartered Institute of Ecology and Environmental Management
DAFOR	Dominant, Abundant, Frequent, Occasional, Rare
DEFRA	Department for Environment, Food and Rural Affairs
ERL	England Red List
GBRL	GB Red List
GLTA	Ground Level Tree Assessment
HPI	Habitats of Principal Importance
ILP	Institute for Lighting Professionals
INNS	Invasive, non-native species
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographic Information for the Countryside
MCIEEM	Full member of CIEEM
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
SAC	Special Areas of Conservation
SAX	Surrey Axiophyte
SBS	Surrey Botanical Society
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Areas
SPI	Species of Principal Importance
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest
SWT	Surrey Wildlife Trust
TPO	Tree Protection Order

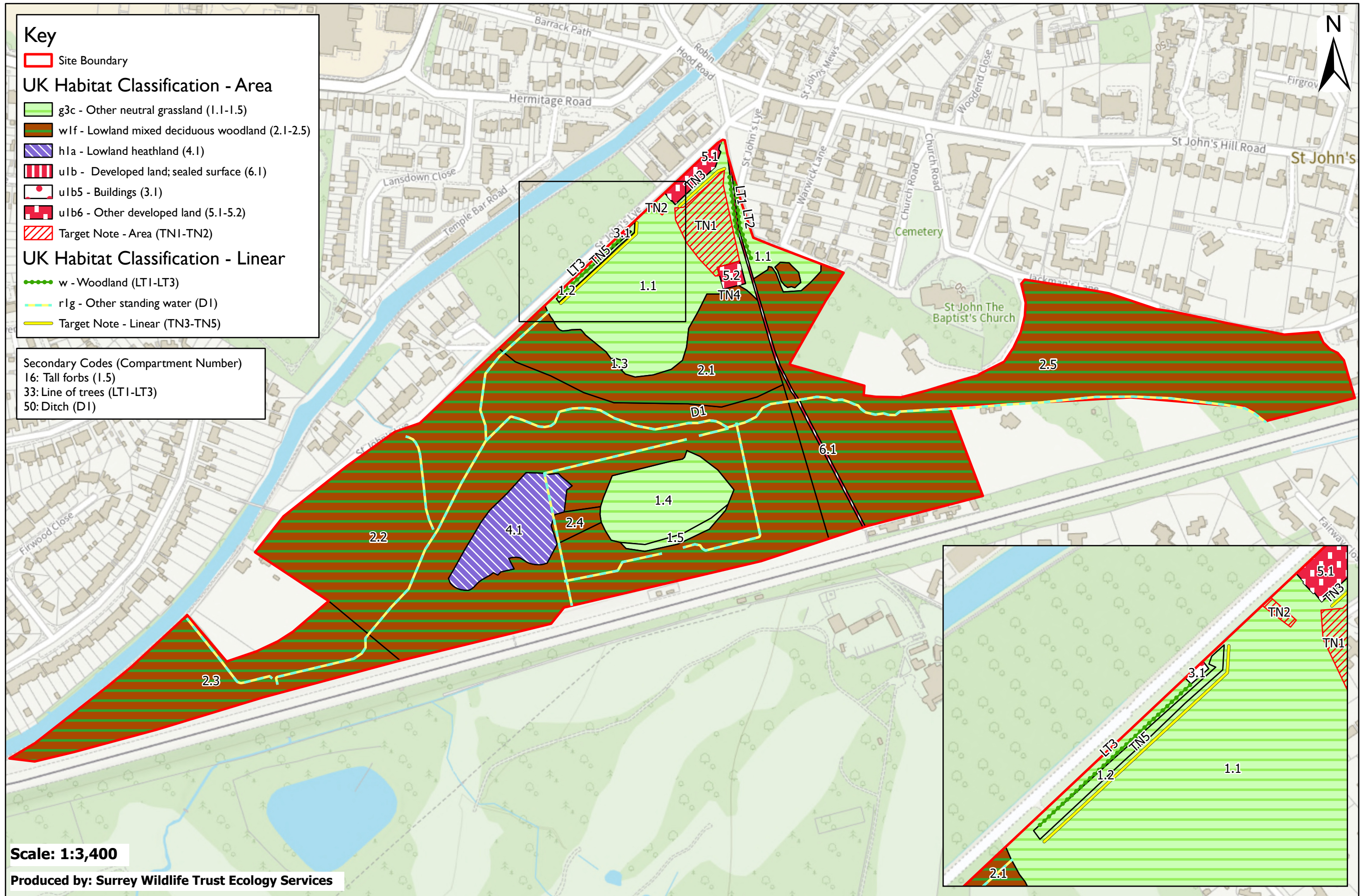
1 Summary

- 1.1.1 SWT Ecology Services was commissioned on 23 July 2024 by Woking Environment Action to undertake a habitat walkover survey to provide robust management recommendations to enhance the biodiversity for the survey area, shown on Figure 1. In particular, advice on climate change resilience and advice on the removal and disposal of Cherry Laurel is sought.
- 1.1.2 In conservation terms, St. John's Lye is locally important for several plant populations with conservation status including Chamomile. As well as supporting habitats of principal importance (HPI), those being lowland mixed deciduous woodland and lowland heathland. Overall, St. John's Lye is a site of value in the local landscape, reflected by its being selected as a Site of Nature Conservation Importance (SNCI).
- 1.1.3 Whilst the woodland is in moderate to good condition, the heathland is gradually being crowded out by the woodland and is considered to be declining in condition as well. Several plants of conservation status have not been recorded for some time from this important heathland habitat. Therefore, one of the main aims for future management will be to continue to enhance the quality and increase the area of heathland on the site. This will be done, in part, by continuing to use the dedicated volunteers that assist in the practical management of the site. The volunteers are helping with the retained quality of heathland and pushing back the scrub woodland edge. Although in order to further push this back, it is likely that contractors will be required. Some localised soil disturbance and scrape creation will also help to diversify the heathland structure, the hope being that some of the species not seen in years may still be in the seedbank and could be encouraged to re-germinate such as heath-grass, sheep's-bit and devil's-bit scabious.
- 1.1.4 In addition, with the continued appropriate grassland management such as cut and collect this would enhance the open grassland and encourage grassland indicators and a more varied sward and species richness.

Table 1: Baseline summary

Aim of the report	• Provide an updated habitat survey with detailed plant species list. • Provide a summary on how the site habitat and plant composition has changed since the last botanical survey. • Map the habitats present and highlight any key findings. • Provide a short report which will provide management advice			
Project area	St John's Lye, see Figure 1 for boundary of the survey area.			
Current land management practices	The past management of the site is not known in detail. What can be seen from past maps is that the area would have been an open common up until the mid-1900's, when the management relaxed and allowed trees to encroach, and it became more densely wooded. Sympathetic habitat management in the heathland area over several decades has helped to retain some of the heathland habitat, however it is in decline due to encroachment.			
Local planning authority	Woking Borough Council			
Survey information	The survey was undertaken on the 1 st August 2024: Isobel Girvan BSc (Hons) MCIEEM FLS – Principal Ecologist			
Habitats recorded and suitability for protected species	Habitat	HPI	Suitability for protected species	Enhancement opportunity
	Other neutral grassland (gc3)	No	Invertebrates, amphibians, basking reptiles, foraging and commuting bats, other mammals and vascular plants.	Yes
	Lowland mixed deciduous woodland (w1f)	Yes	Invertebrates, roosting, foraging and commuting bats, nesting birds and other mammals.	Yes
	Line of trees (w1g-33)	No		Yes
	Lowland heathland (h1a)	Yes	Invertebrates, amphibians, basking reptiles, foraging and commuting bats, nesting birds, other mammals and vascular plants.	Yes
	Ditches (r1g-50)	No	Invertebrates, amphibians, small mammals and vascular plants.	Yes
	Buildings (u1b5)	No	None.	Yes
	Other developed land (u1b6-804 & 823 car park & playground)	No	None.	No

Ecological considerations during management measures	• Invertebrates – unknown assemblage, potential for rare/notable invertebrate species and those of conservation concern especially in the heathland, scrub edges and woodland. Past dragonfly and damselfly records suggest important site locally for this group in the waterbodies, although the main pond has now dried up. As part of the reason for selection as SNCI it was noted that it is an important invertebrate site. The current status is unknown. • Amphibians – suitable habitat present in the form of waterbodies; ditches are generally shaded but could be suitable. The main pond has now dried up. As part of the reason for selection as SNCI it was noted that it is an important amphibian site. The current status is unknown. • Reptiles – suitable habitat present in the heathland, scrub edges and grassland. Common lizard seen on site visit. Populations are unknown, although grass snake and slow-worm recorded in 2016. • Breeding birds – several habitats suitable for a variety of breeding birds, status unknown. • Bats – suitable trees in woodland present with potential roosting features, roost status unknown. Bats will be foraging and commuting through the site using the edge of the woodland and ditches as site lines. • Vascular plants – GB and England Red Data Listed plants and other plants of conservation concern present, see 5.1.3, species lists and Table 8 for more information. • Invasive non-native species – Species on the Schedule 9 invasive species list (Wildlife and Countryside Act 1981 as amended Schedule 9) have been found in the past. Other known invasive species were recorded during the site visit including are cherry laurel and bridewort. See species lists and 5.1.15 for more information. • Scheduled vegetation removal and other forms of management should be scheduled between September and early February to avoid breeding bird season. • Adopt precautionary method of working during vegetation removal to minimise impacts to reptiles and amphibians; works to be scheduled during the active season (April to October). • Areas where birds, amphibians and reptiles are likely work should be timed for September to October. • Should any trees require, branch removal or felling, they will need to be checked for bat roosting potential prior to works (Ground Level Tree Assessment (GLTA)). • Establish baseline of fauna population through species surveys in order to understand specific management requirements to ensure protection of fauna and enhanced management of their niche habitat.
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2 Introduction

2.1 Survey area

- 2.1.1 The survey area is presented in Figure 1. It is approximately 22ha, located in St John's, Woking (grid reference: SU979576).
- 2.1.2 St John's Lye is an area of common land lying between Woking and Brookwood. A railway line forms the southern boundary with a golf course further south. Areas of housing are present to the north with the Basingstoke Canal forming the boundary in the north-west corner.
- 2.1.3 The site is well used by the public and includes areas of grassland, recreation grassland and play area with benches. The rest of the site supports woodland, a small heathland and waterbodies (drainage ditch).
- 2.1.4 The site is selected as Site of Nature Conservation Importance (SNCI), known as St John's Lye and Ponds SNCI. The site was selected for the following reasons *'woodland, heathland, acid grassland, scrub and ponds. There is a relict heathland with potential for heathland restoration and the site supports a Nationally Scarce plant species – Chamomile. It is also an important invertebrate and amphibian site.'*

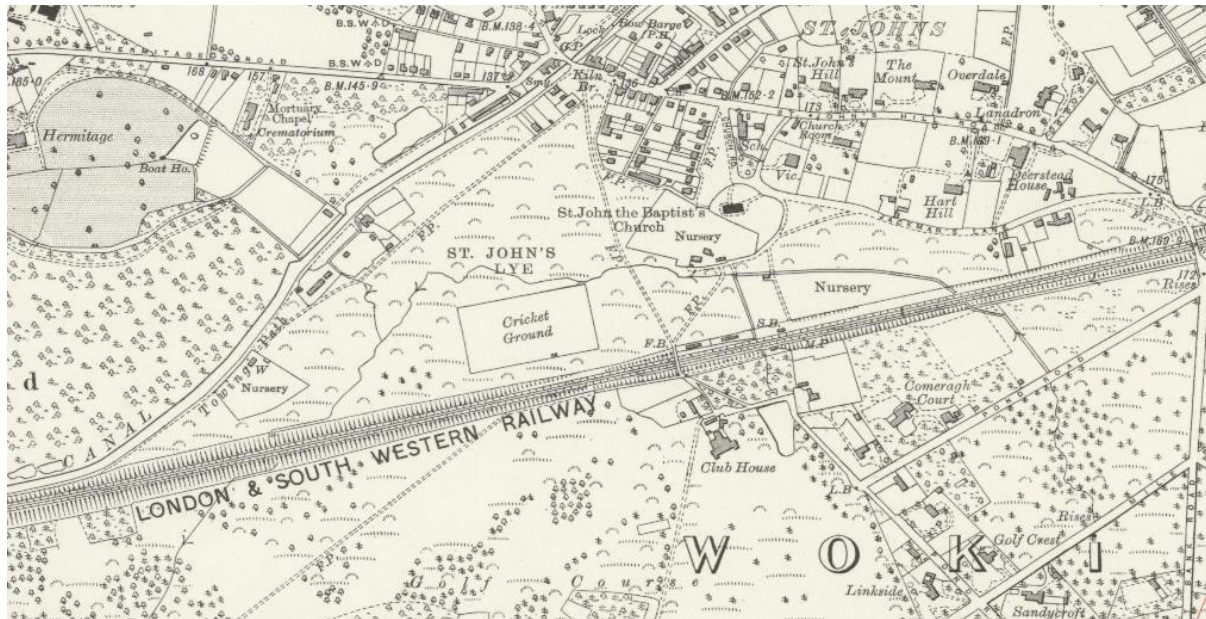
2.2 Past surveys

- 2.2.1 There is a history of botanical recording and surveys being undertaken at this site:
- SWT (1996) St John's Lye, Woking SNCI survey.
 - SWT (2003) St John's Lye, Woking SNCI survey.
 - SWT (2012) St John's Lye, Woking Ecological Appraisal.

2.3 Past & current management

- 2.3.1 The past management of the site is not known in detail. It would have been an open common (including heathland) up until the mid-1900's, when the management allowed trees to encroach, and it became more densely wooded. Sympathetic habitat management in the heathland area over several decades has helped to retain some of the heathland habitat, however it is in decline due to encroachment.
- 2.3.2 The map below, Figure 2, illustrates how the whole area of St. John's Lye was open in the early 1900's (Ordnance Survey, 1913) .

Figure 2: St. John's Lye 1900's map



3 Methodology

3.1 Desk study

3.1.1 The desk study comprised:

- Purchase of the following data from Surrey Biodiversity Information Centre received on 20/08/2024:
 - Records of protected species and those of conservation concern within 1 km of the survey area
 - Statutory designated sites, non-statutory designated sites, parcels of Habitats of Principal Importance, parcels of ancient woodland and Biodiversity Opportunity Areas within 2 km of the survey area.
- A review of waterbodies and watercourses within 250 m of the survey area using aerial imagery and publicly available information.
- DEFRA mapping (Department for Environment, Food and Rural Affairs, 2024) specifically looking at:
 - Mitigation licences that have been issued within 2 km of the survey area
 - Parcels of ancient woodland
 - Parcels of Habitats of Principal Importance
 - Impact Risk Zones for SSSI statutory designated sites
 - Important Bird Areas

3.2 Habitat survey

3.2.1 Habitats on the site were mapped using the UKHab survey methodology Version 2.

3.2.2 UKHab 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 site was walked by an experienced ecologist and habitats identified, classified and mapped. Each

habitat is coded in line with the UKHab survey methodology using primary codes. Then secondary codes can be used to define specific features, such as management measures, land use and other specific features.

- 3.2.3 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 (Dominant, Abundant, Frequent, Occasional and Rare), presented in Appendix 1, Table 6 for the 2024 plant species list. Species names now follow the online Plant Atlas 2020 (plantatlas2020.org).
- 3.2.4 The presence of any non-native invasive species was recorded.
- 3.2.5 The date and weather conditions during the survey are detailed in Table 2.

Table 2: Survey dates and weather conditions

Survey dates	Surveyor name/s	Times	Temperature	Wind (Beaufort)	Rain	Cloud cover
01/08/2024	Isobel Girvan BSc (Hons) MCIEEM FLS	08.30-17.00	20°C	0-Calm	0	20%

3.3 Limitations

Habitat survey

- 3.3.1 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.
- 3.3.2 The survey was undertaken in August 2024 during the optimal season. Although, as expected during a short one-off site visit, some early flowering plants may have been missed particularly from the woodland and dry grassland. Given that there are several years' worth of past botanical and habitat data available, and the main focus was to provide management recommendations the survey effort was sufficient to complete the assessment and this was not seen as a significant limitation.

4 Results

4.1 Desk study

4.1.1 A summary of the desk study is provided in Table 3 below. A summary of the data search is provided in Table 9 in Appendix 3.

Table 3: Results of desk study

Sites	Statutory designated sites	Two statutory designated sites within 2 km of the site. The closest is Basingstoke Canal SSSI 1170m to the west. The second is Smarts and Prey Heaths SSSI 1653 m to the south.
	Non-statutory designated sites	There are eight SNCIs within 2km of the site: - St John's Lye and Ponds SNCI (WO020) located within the site covering 20.2 ha at SU977576. - Basingstoke Canal SNCI (WO001) located to the west of the site covering 6.9 km at SU9666574. - Hook Heath Golf Course Pond SNCI (WO027) located to the south of the site covering 1.3 ha at SU984569. - West Hill Golf Course SNCI (WO029) located to the south-west of the site covering 55.1 ha at SU965567. - Brookwood Lye SNCI (WO019) located to the west of the site covering 13.6 ha at SU965574. - Blackhorse Road Woods and Meadows SNCI (WO022) located to the south of the site covering 7.4 ha at SU976562. - Horsell Birch SNCI (WO014) located to the north of the site covering 8.9 ha at SU985596 - Brookwood Cemetery South SNCI (WO011) located to the south-east of the site covering 70.1 ha at SU957564.
	BOA	The site is within a BOA: TBH03 Thames Basin Heaths BOA. In addition, one other BOA was found within 2 km of the site, R04 River Wey and tributaries.
	NCA	NCA 129 Thames Basin Heaths, a variety of habitats are characteristic and include neutral grassland, woodland and wetlands.
	Local policy	The area is within a key target policy area being a SNCI and within a BOA. Part of the site, the recreation grassland is part of the St John's Conservation Area.
Habitats	Ancient woodland	Five parcels of ancient woodland were identified within 1km of the site. The nearest being 560m to the southwest in a golf course.
	TPO	The site does not have any TPOs.
	HPI	There are several parcels of deciduous woodland mapped as HPI in Natural England's Priority Habitat Inventory on St Johns Lye site and within 1 km. Several areas of lowland heathland are mapped as HPI in the Priority Habitat Inventory, including St John's Lye, Hook Heath and other areas to the south of the site.
	Waterbodies and watercourses within 500m of the site	There is a former pond, and a network of ditches present on the site. Basingstoke Canal lies to the north and north west (parallel to St John's Lye (road)). There are a further three waterbodies (ponds) within 250 m of the site, located to the south in Woking Golf Course. In the nearby residential areas, there may be garden ponds that do not show up on publicly accessible maps.
Species	Protected species mitigation licences	No bat mitigation licences have been issued within 1 km. No other protected species licences were identified.
Access	Public rights of way/other site access	There is access via St John's Lye (road) and car park situated in the north corner of the site. There are two public footpaths and several informal paths through the grassland, woodland and heathland.

4.2 UK habitat classification habitat survey results

4.2.1 Seven habitat types were recorded during the habitat survey:

- Other neutral grassland (g3c)
- Lowland mixed deciduous woodland (w1f)
- Lowland Heathland (h1a)
- Other standing water (ditch) (r1g-50)
- Buildings (u1b5)
- Developed land; sealed surface (u1b6)
- Other broadleaved woodland (line of trees) (w1g-33)

4.2.2 The location of these is presented in Figure 1. The UKHab survey and habitat condition assessment results are detailed in Table 4.

Table 4: UK habitat classification survey results

Habitat and code	Compartment number	Description	HPI	Photograph
g3c Other neutral grassland	1.1	Other neutral grassland located around the northeast corner of the site and south of the car park. This shortly mown grassland used for recreation and in the past as a cricket ground in the north of the grassland. Some clippings have been left. Species recorded here include: Common bent F, perennial rye-grass O, Yorkshire-fog F and rough meadow-grass O grasses with a few herbs that can withstand trampling and regular mowing including cat's-ear O, ribwort plantain O, buck's-horn plantain R. The inclusion of some of these species (common bent, cat's-ear and buck's-horn plantain) suggest that this would have been of more acidic nature in the past and nutrient levels have increased. Of interest and importance is the presence of chamomile (a rare and declining species), which has been recorded many times here in the past. During this survey there were multiple patches recorded between the car park and the playground, see TN1 on Figure 1.	No	
g3c Other neutral grassland	1.2	Other neutral grassland to the north between a dry ditch and the northern boundary and another parcel south of Warwick Lane is not cut as often and less herbs are present. Species include: Yorkshire-fog A, common bent F, perennial rye-grass O and herbs such as ribwort plantain O, common bird's-foot trefoil O and dandelion agg R. This dry narrow and deep drainage ditch is located along the northern edge of the site. At the time of the site visit it was not holding water. It is likely that it holds water during the winter and when the area is in flood, but for less than 4 months of the year and as such does not qualify as a wetland feature. Given its dryness during most of the season, the resulting vegetation is grassy with young bramble and willow.	No	

Habitat and code	Compartment number	Description	HPI	Photograph
g3c Other neutral grassland	1.3	Other neutral grassland located on the south west edge of 1.1, where it is seasonally damp. This could indicate a slight change in soil or a slight hollow where water collects more easily. Species here include: Marsh foxtail LF, creeping buttercup F and brooklime O.	No	
g3c Other neutral grassland	1.4	Other neutral grassland located in the south east part of the site, this is a former recreational grassland, that is now left uncut during the growing season. Species include: Common bent F, perennial rye-grass O, Yorkshire-fog F, sweet vernal-grass LF, rough meadow-grass O, cock's-foot R, Timothy, R. As well as slender rush R (in damp areas and paths), hairy sedge LF, common bird's-foot trefoil O. The eastern part of this grassland is generally shorter with finer grasses such as the common bent and sweet vernal-grass and presents as being more acidic in nature.	No	

Habitat and code	Compartment number	Description	HPI	Photograph
g3c, 16 Other neutral grassland, tall forbs,	1.5	On the southern boundary of 1.4 grassland, it has been left long with a variety of tall forbs growing including greater willowherb, common fleabane, wild teasel and tall grasses such as false-oat grass.	No	
w1f Lowland mixed deciduous woodland	2.1	Dry oak woodland with a canopy of pedunculate oak F, sycamore O, sweet chestnut R, understory of silver birch O and a shrub layer including holly LF, aspen LF and rowan R. There is an underscrub layer of bramble F to LA and bracken LA with raspberry R. The field layer comprises enchanter's nightshade O, wood avens O and rough meadow-grass O. Along the edge of 1.1 mature pedunculate oak trees reside with scrub layer of rusty willow and bramble, this is likely a good flight line for foraging bats.	Yes	

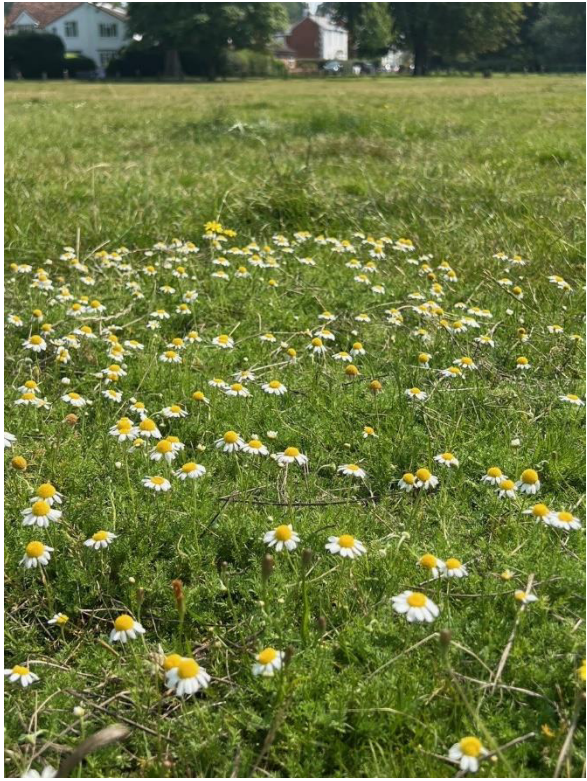
Habitat and code	Compartment number	Description	HPI	Photograph
w1f Lowland mixed deciduous woodland	2.2	Damp woodland is shown by the mix of occasional alder O, rusty willow O and downy birch O with locally frequent purple-moor grass LF, creeping bent LF, compact rush O, creeping buttercup R and tormentil R. It likely indicates where the woodland has encroached over heathland in the past and associated with drainage ditches.	Yes	
w1f Lowland mixed deciduous woodland	2.3	Dry oak woodland similar to 2.1 in canopy (pedunculate oak F and silver birch F with beech O and sycamore R) and understory (rusty willow F, rowan R, hawthorn R and alder buckthorn R with locally frequent holly and hazel). Cherry laurel has been managed and is now rare. There is an underscrub layer co-dominated by bramble LD and bracken LD. There is a local path through the woodland where non-native (garden escaped) bridewort sp. LF is plentiful, suckering along the path edge over 20-30 m. Other field layer species include common ivy O, male fern O and pendulous sedge LF.	Yes	No photograph

Habitat and code	Compartment number	Description	HPI	Photograph
w1f Lowland mixed deciduous woodland	2.4	A small section of woodland that may have been more open in the past with gorse LF scrub (still present) and now with a canopy including: Pedunculate oak F, silver birch O, downy birch R, alder R and rowan R. With bracken and bramble underneath.	Yes	
w1f Lowland mixed deciduous woodland	2.5	The woodland to the east of the site is an oak/hazel woodland with pedunculate oak F and silver birch F with beech O and sycamore R in the canopy. The understory supports rusty willow O, hawthorn O with locally frequent holly and hazel LF. Cherry laurel is being managed. There is any underscrub layer of bracken and bramble LF. It would appear that the hazel was traditionally coppiced but now overstood. The field layer is sparse.	Yes	No photograph
w1g, 33,50 Other lowland mixed deciduous woodland, line of trees	LT3	Line of trees along the edge of the ditch (northern edge) there are a line of rusty willow and pedunculate oak trees.	No	No photograph

Habitat and code	Compartment number	Description	HPI	Photograph
w1g, 33 Other lowland mixed deciduous woodland, line of trees	LT1 and LT2	Line of trees along the eastern edge of the site (either side of a wide path south from the car park) are maturing horse-chestnuts as well as pedunculate oak and willow.	No	
u1b5 Buildings	3.1	Toilet block & shed.	No	

Habitat and code	Compartment number	Description	HPI	Photograph
h1a Lowland heathland	4.1	The main body of the remnant heathland is located at approximately ///certified.curving.washed. Here there is an open grassy heathland mosaic with just over 25% dwarf shrub cover including species such as: Purple-moor grass A, Yorkshire-fog F, jointed rush O, aspen saplings R, soft rush O, slender rush (on path edges) LF, rough meadow grass O, sharp-flowered rush, LF, compact rush LF, cross-leaved heath, ling LF, dwarf gorse and tormentil O. There are occasional sapling trees including pedunculate oak O, silver birch O and aspen O and bracken LF is patchy. Of importance here are the England Red List Near Threatened plants tormentil, ling, bell heather and cross-leaved heath.	Yes	 
u1b6, 804 Other developed land car park	5.1	Car park – Hard standing rectangular parking area for visitors located in the northern part of the site with capacity for approximately 40 cars plus disabled parking.	No	See photograph from compartment 1.1

Habitat and code	Compartment number	Description	HPI	Photograph
u1b6, 823 Other developed land playground	5.2	Recreational play area fenced off, with swings etc.	No	
u1b Developed land;sealed surface	6.1	Hard standing path.	No	No photograph
r1g, 50 Other standing water, ditch	D1	There are several connecting drainage ditches across the site some are damp, others holding water. They are a mix of heavily shaded, shaded and occasionally open or with dappled shade. Where plants are able to survive, they are a variety of ferns and sedges, such as male fern, lady fern, pendulous sedge and remote sedge as well as a liverwort (likely a <i>Pellia</i> species).	No	No photograph

Habitat and code	Compartment number	Description	HPI	Photograph
Target note	TN1	Indicative boundary of Chamomile population.	No	
Target note	TN2	Old sand pit.	No	No photographs
Target note	TN3	Along the southern edge of the car park are young planted sycamore.	No	
Target note	TN4	Pond to the south of 1.1, near the playground, once a prominent feature, has is now dried out.	No	
Target note	TN5	Dry grassy ditch on edge of grassland compartment 1.1	No	

5 Species

5.1 Flora

Botanical heat map

- 5.1.1 According to the botanical heat map (Natural England, 2021) St. John's Lye is considered high with regards to the Priority Habitat Positive Indicator (PHPI) species (see Table 5). This takes into account the presence of rare, scarce and threatened plant species including axiophytes, positive indicators from Common Standard Monitoring lists and ancient woodland indicators. The aim being to ensure that areas of high conservation value are presented in the landscape to help inform management of important botanical sites.
- 5.1.2 A compilation of available plant data from the current and historical surveys (where available) have been included in Table 7, Appendix 1.
- Two hundred and fifty-three vascular plants have been recorded historically across the site. This is a high number and reflects the different type of habitats, the size of the survey area and recording effort over the years.
 - One hundred fifty-one plants were recorded in 1996.
 - One hundred and eight plants were recorded in 2003.
 - One hundred sixty-two plants were recorded in 2012.
 - One hundred and nine were recorded in in 2024.

Rare and notable species

- 5.1.3 Ninety-seven vascular plants with plant indicator/conservation status have been recorded across the site of which 55 were recorded in 2024, the summary of which is presented in Table 5. This shows that there is a high number and good variety of rare and notable species across the site. The presence of these species will need to be considered when undertaking any management practices. However, please note that some of the historical species will have likely been lost from the site due to change in habitat conditions or management.

Table 5: Summary of plant indicators/conservation status

Conservation status or habitat indicator type	Number recorded overall	Recorded in 2024
Grassland indicators ^{GI}	36	12
Acid Grassland Indicators ^{HAGI}	13	8
Surrey axiophytes ^{SAX}	69	25
Ancient woodland indicators ^{AWI}	24	8
Surrey rare plant register ^{VC17}	11 (1 declining, 1 local, 9 not scarce)	5 (1 declining, 4 not scarce)
England Red List ^{ERL}	11 (2 vulnerable, 9 near threatened)	5 (1 vulnerable, 4 near threatened)
GB Red List ^{GBRL}	1 (vulnerable)	1 (vulnerable)
BAP	1	1

¹ **GI** Grassland indicators of conservation interest (Gibbs, 2008), **HAGI** Hampshire acid grassland indicators (Norton, 2019) **SAX** Axiophytes 'worthy plants' (SBS, 2024 draft), **AWI** Ancient woodland indicators (Rose, 1999), **VC17** Surrey Rare Plant Register (SBS, 2024 unpub.) & **GBRL/ERL** Threatened on GB and England Red Data List (ERL (Strohl et al, 2014)).

Surrey grassland indicators

- 5.1.4 This indicator list is taken from the list of '*Species typical of grassland of conservation interest in Surrey*' taken from the '*Guidance for the Selection of Sites of Nature Conservation Importance in Surrey*' (Gibbs, 2008). To put this into context a grassland site that is worthy of being selected at SNCI will usually have 15 or more grassland indicator species.
- 5.1.5 Given that 12 were recorded across the site in 2024, this is a good number although not as high as recommended for the SNCI qualification and were generally species that were not found in large abundance across the site, indicating that the grassland as surveyed was not of great quality.

Acid grassland indicators

- 5.1.6 Acid grassland indicators are a useful tool when monitoring acid grassland. Thirteen species have been recorded across the site with eight in 2024. The list of indicators is largely based on experience and a proposed vascular plant indicator list for lowland dry acid grassland (Norton, 2019) (Norton, 2024), therefore some adjustments may be necessary to account for the change in County, variety of geology and other factors.
- 5.1.7 In using the list for recording and evaluation purposes it should of course be borne in mind that many of the species are annuals, and several have flowering periods very early in the year. Therefore, one-off surveys or surveys out of season are likely to underestimate the true number of acid grassland indicator species on a site. Ideally, at least three visits spread throughout early spring to late summer would be required to produce an adequate list for an acid grassland site. Many species also vary in germination rates and hence abundance and detectability from year to year (Norton, 2019). Therefore, the species table is a work in progress but does provide a useful indicator.

- 5.1.8 If 20 or more species are recorded, then this is a good indication of good quality acid grassland. St John's Lye falls short of that. With further survey work, continued management of the grassland areas (especially 1.4) and the heathland areas, there is likely to be an increase in acid grassland indicators over the years.

Axiophytes

- 5.1.9 Axiophytes are plants that are considered 'worthy plants' and indicators of habitats that are considered important for conservation and are not themselves necessarily rare plants. Table 5 states that 69 Surrey Axiophytes have been recorded overall and 25 in 2024, suggesting that the site is important for conservation.

Ancient woodland indicators

- 5.1.10 Ancient woodland indicators are those plants that are strongly associated with ancient woodlands, i.e. those being over 400 years old. Twenty-four ancient woodland indicators have been recorded across the site, and eight ancient woodland indicators were recorded during the 2024 survey.
- 5.1.11 There are several areas of woodland, comprising a mix of secondary woodland. Despite the relatively high number of ancient woodland indicators over the years, no ancient woodland is present and is likely due to the woodland having been relatively long established and connected into the wider landscape of woodland.

Surrey rare plants

- 5.1.12 Overall, eleven Surrey rare plants have been recorded across the site, of which nine are County Scarce, one County Local and one is County Declining. Five were recorded during 2024.

GB and England Red List for Vascular Plants

- 5.1.13 One plant has been recorded from the GB Red List for plants and eleven plants from the England Red List. Of which two are Vulnerable and nine are Near Threatened (one is both in the GB and England list as Vulnerable). Near Threatened means that they are close to qualifying for (or likely to qualify for) a threatened category in the future (BSBI, 2014).

Plant of site importance

- 5.1.14 Chamomile was recorded at the site. This plant is on the GB Red List (GBRL) and England Red List (ERL) as Vulnerable, it is a British Scarce species, Biodiversity Action Plan (BAP) species as a Species of Principal Importance for the purpose of conserving biodiversity under section 41 (England) of the NERC Act 2006 and VC17 Declining in Surrey.

Invasive and non-native species

- 5.1.15 The following species on the Schedule 9 invasive species list (Wildlife and Countryside Act 1981 (as amended)) have been found in the past, but their current status is unknown:
- Montbretia
 - Japanese knotweed
 - Variegated yellow-archangel
 - Parrot's-feather.

5.1.16 Other known invasive species that were recorded during the site visit in 2024 are:

- Cherry laurel
- Bridewort.

5.1.17 In the past Ground-elder, Goat's-rue and snowberry, current status unknown.

5.1.18 Due to the current management the site supports only small amounts of invasive and non-native species.

Conclusions

5.1.19 St John's Lye continues to be an important site locally and it still worthy of its SNCI (Surrey) status as it would likely still qualify on habitats and plant species with conservation status.

5.1.20 It also is important within the wider landscape and its connections to other habitats.

5.1.21 The heathland and woodland parcels are HPI. These are habitats know as a focus for conservation action. They also connect into the wider landscape. Heathland in particular is a resource of considerable nature conservation value.

5.1.22 The site is known for its range of rare and threatened plant species. As described in the report, the site is known for its population of chamomile. It is also important for several other rare and threatened species that are still present on-site including ling, bell heather, cross-leaved heath, tormentil, devil's-bit scabious and mat-grass in the heathland and grassy areas (although the latter two were not recorded in 2024).

5.1.23 It is hoped that further co-ordinated botanical surveying in 2025 will also help to capture some more data and if conducted over several visits during the late spring through to late summer may pick up some of the species not recorded in 2024. Further survey work should be in May, June and July if possible, to catch as many species as possible for a good comparison with historical records.

6 Management recommendations

6.1 Area habitats

Grassland

6.1.1 Appropriate management of the grassland using the following criteria would achieve good condition:

- The grassland represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.
- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
- Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.
- Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.
- Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging

levels of access, or any other damaging management activities) accounts for less than 5% of total area.

- No invasive non-native plant species (as listed on Schedule 9 of WCA) are present.
- There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type of other neutral grassland. If acid grassland could be achieved in 1.4, then this criterion would not need to be passed.

Compartment 1.1

- 6.1.2 Chamomile does not need to flower and set seed to colonise. It can reproduce by spreading vegetatively through their roots from the node of creeping stems (and can grow 10-15cm per year). The soil needs to be seasonally, winter wet and fairly nutrient poor. It is for this reason that the use of fertilisers or broad-spectrum herbicides should not be used. Whilst there is little that can be done with the weather, the collection of arisings will help to keep the soils relatively nutrient poor. Current mowing regime is good for Chamomile. In general, a cut and collect method is optimal, but may not be practicable. If so, volunteers could rake around the Chamomile area to collect arisings.
- 6.1.3 The clonal growth form of Chamomile means that individual plants cannot be counted. However, the area occupied by the mat form of the plant can be mapped and assigned a measure of abundance or percentage cover. Depending on the scale of the population, this can be achieved using grid squares at an appropriate resolution. Alternatively, a list of what three words can be used to map out the mats.
- 6.1.4 In the past other acid grassland indicator plants have been recorded in compartment 1.1 including devil's-bit scabious and autumn hawkbit. They were not seen in 2024, but as the grass was short, they could still be present. Devil's-bit scabious is a late flowering herb and if some of the grassland around the edge of the site were to be left for an autumn cut in October to November, it may allow them to flower. For example, a buffer zone of long uncut grassland of 1-2m on the western edge of the grassland by the woodland could be left uncut until spring the following year. This depends on who cuts the grassland and if they are able to have the time and budget to change the grass cutting programme to accommodate this.
- 6.1.5 No new tree planting should be allowed on the compartment 1.1, especially on and around the Chamomile population.
- 6.1.6 Litter and rubbish should be regularly removed.

Compartment 1.2 and 1.3

- 6.1.7 No additional recommendations.

Compartment 1.4

- 6.1.8 This area of grassland is now left long during the summer and the change from a modified football pitch grassland with trample and cut resistant species such as perennial rye-grass has changed to a mix of common bent, sweet vernal-grass and other grasses. The number of herbs remains low, but this will change over time. Another advantage of this grassland is that it is quiet, with relatively few dog walkers, therefore there is less nutrient enrichment. Again, a cut and collect regime would be optimal here, in the late summer. There could also be a spring cut in March or April to help further remove nutrients. However, this will be budget dependant.

Compartment 1.5

6.1.9 On the southern edge of 1.4 there is a buffer strip of longer tall forbs such as willowherbs and wild teasel. The nectar here will be useful on a local scale for a variety of invertebrates. The dead stems left over winter will also be used by overwintering invertebrates. Half of this buffer strip can be strimmed back every other year, so as to keep the zone open and not scrub up.

Woodland/scrub edge

6.1.10 These are the criteria for achieving good condition of other lowland mixed deciduous woodland:

- No invasive plant species in woodland habitats.
- All three classes present in woodland; trees 4-7cm diameter at breast height (DBH), saplings and seedlings or advanced coppice regrowth.
- Recognisable National Vegetation Community (NVC) plant community present, strongly characterised by ancient woodland flora specialists.
- 10 - 20% of woodland has areas of temporary open space. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted.
- Two or more veteran trees per hectare.
- Three tree age classes present within woodland parcel.
- No significant browsing damage evident in woodland.
- Five or more native tree or shrub species present within parcel.
- >80% canopy trees and >80% understorey shrubs are native.
- Tree mortality <10%, no pests or diseases, no crown dieback.
- Three or more storeys across all survey plots, or a complex woodland.
- High abundance of deadwood (50% of all survey plots within the woodland parcel have deadwood)
- No nutrient enrichment or damaged ground evident.

Compartments 2.1 – 2.5

6.1.11 In general, there is a policy of non-intervention. On a site as big as this with limited resources, this is an acceptable management regime. However, there are a few small-scale management recommendations that could be operated across the woodland.

6.1.12 There is a hard edge of woodland into grassland without there being a good scrub edge. Let some woodland grow out and allow longer grassland vegetation next to it to be left uncut. For example, on the western edge of the compartment 1.1, as well as on the west, north or east edges of the compartment 1.4.

6.1.13 Where there are aspen stands encourage their growth by preferentially thinning back other species. Young aspen is good for a variety of invertebrates.

6.1.14 Halo (preferentially thin) around some of the good specimen examples of pedunculate oak. They represent a time when the site was a lot more open and heathier. For example at [///mason.glory.eating](#), there are several other example in the nearby area and around the heath.

6.1.15 Keep removing the cherry laurel, see separate section below.

6.1.16 Woodland compartment 2.3 area has a lot of the non-native bridewort that is currently spreading along a local path. This should be removed, and regrowth monitored.

Heathland

6.1.17 These are the criteria for achieving good condition of other neutral grassland:

- The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description, with vascular and non-vascular characteristic indicator species consistently present.
- There are at least two dwarf shrub species Frequent, and cover of dwarf shrubs is between 25-75% for lowland heathland, 50-75% for upland dry heath, or >20% for upland wet heath.
- All heather *Calluna vulgaris* age-classes (pioneer, degenerate and mature) present with at least 10% pioneer heather in the lowlands or at least 10% degenerate or mature in the uplands.
- Unshaded bare ground is between 1-10%.
- There is an absence of invasive non-native plant species listed on Schedule 9 of WCA and shallon *Gaultheria shallon*.
- No signs of disturbance of sensitive areas, including managed burns.
- No more than 33% of heather shoots have been recently grazed, or flowering heather plants are at least Frequent in autumn.
- The canopy cover of scattered trees and or scrub (not including gorse *Ulex* spp.) is:
 - less than 20% for upland heaths.
 - less than 15% for lowland dry heaths; and
 - less than 10% for lowland wet heaths.
- Total gorse cover is less than 50%, with common gorse *Ulex europaeus* less than 25%.
- The cover of bracken *Pteridium aquilinum* is less than 5%.
- No signs of any damaging activities or contamination to the habitat such as: artificial drains, peat extraction, silt, leachate or eutrophication.

Cherry laurel and other scrub

6.1.18 Really good work is being undertaken by the volunteers to keep this heathland open with cutting back of young trees and removal of scrub. As discussed on the site there is a struggle with removing vegetation and either piling it as brash piles or taking it off site or burning on site. If cut material is left to lie directly on the ground, it can take root and sprout new growth. Digging the roots out would be a difficult option to undertake and any cherry laurel left in the soil will produce more suckers. Herbicide is not ideal where near or in the heathy areas given the quality and conservation importance of this habitat. However, it may be necessary. Another alternative would be to use a trefor winch for medium to small patches.

6.1.19 On a small scale if you are lopping off and cutting back other native scrub and young tree species to lay this brash on the ground on the edge of woodland covering 2 x 2 m² (approximately) and then laying the cherry laurel on top, such that it does not touch the ground and is less likely to take root. This will rot down gradually over 2-3 years but will look unsightly.

6.1.20 In order to make significant enhancement of the heathland area it may be that contractors should be used to remove the woodland edge and attempt to recreate a wider open heathland as shown on the 1996 SNCI maps, see also 1913 map below. However, this area is not easily accessed and therefore is less disturbed. This will need to be weighed against using contractors as they will need use access paths. The contractors will cut down trees and scrub edge as close to the ground as possible. Any cherry laurel stumps greater than 100mm diameter can be painted with a herbicide within 48 hours of cutting and in dry frost free weather. Or they may suggest stem injection of herbicide, where the stem is drilled and the herbicide is poured in. The brash should be removed from the site. Careful monitoring of any subsequent growth should be undertaken.

Other heathland management suggestions

6.1.21 Scrape back grassy vegetation next to heather patches to create bare soil for germination and help provide a range of heather ages.

6.1.22 Cut and collect some of the heathers in the autumn and use as 'green hay' on the scrapes.

6.1.23 Random cutting/strimming around the edge of the heathland will help to create a varied structure and remove young tree saplings.

6.1.24 In addition, open up around gorse patches and encourage a good age range. They are favoured by several bird species especially when it is dense.

Ditches

6.1.25 These are the criteria for achieving good condition for ditches:

- The ditch is of good water quality, with clear water indicating no obvious signs of pollution.
- A range of emergent, submerged and floating-leaved plants are present. As a guide more than 10 species in a 20m ditch length.
- There is less than 10% cover of filamentous algae and or duck weed as they are sign of eutrophication.
- A fringe of aquatic marginal vegetation is present along more than 75% of the ditch.
- Physical damage is evident along less than 5% of the ditch, with examples of damage including excessive poaching, damage from machinery use or stage, or any other damaging management activities.
- Sufficient water levels are maintained, as a guide a minimum summer depths of approximately 50cm in minor ditches and 1, in main drains.
- Less than 10% of the ditch is heavily shaded.
- There is an absence of non-native plant and animal species.

6.1.26 Keep damp woodland ditch in dappled shade to retain the damp conditions for the ditch community and neither too shaded nor too open.

Urban

6.1.27 For the urban parcels across the site there are not habitat condition criteria.

6.1.28 In general, the urban areas do not require specific habitat management recommendations. They should be free of litter. Dog waste pick up should be encouraged.

6.1.29 The car park edges are likely to encourage ruderal species as there is less competition, and this brings in species variety as they would be less likely to grow in the fields, for example mugwort, fleabane species and green alkanet. As long as they do not become dominant, they can be left to grow.

6.2 Additional enhancement measures to consider

6.2.1 The following measures to benefit specific species are additionally recommended:

- Installation of stag beetle loggeries in shady locations (e.g. within woodland and on woodland edge).
- When wooden fences are used, small discrete holes can be drilled in that may encourage solitary bees and wasps to lay eggs.
- Installation of solitary bee hotels on buildings, particularly where these are situated by nectar-rich vegetated areas.
- Large insect hotels could be created in order to provide additional refuge for any invertebrates using these steppingstone habitats. It is preferable to use varied material collected on site such as brash, logs, rubble and arisings, as opposed to commercially produced hotels.
- Amphibian and reptile hibernacula could be installed on woodland edge, particularly where south-facing and free from flooding, and near to standing water or ditches.
- Stone/rubble piles additionally provide refugia for amphibians such as toads, and these can be placed close to standing water or ditches.

6.3 Climate change

6.3.1 Climate change could have a variety of negative impacts to the site including

- Loss in biodiversity.
- Increased invasive non-native species.
- Change in habitat structure and composition, affecting its suitability for some species currently adapted to the habitat, therefore reducing its suitability for these.
- Significant changes to weather patterns including increased drought, flooding, fire risk, erosion, impacting the suitability for habitats for some more specialised species.

6.3.2 In successfully and ambitiously managing St John's Lye this will continue to help prevent nature's decline and reduce the threats by being part of the nature recovery network. The site can help with:

- Sequestering climate gases, by trapping carbon safely.
- Providing healthy open habitats with clean air, that regulates temperature.
- Connecting people with nature for the benefit of their health, wellbeing and enjoyment of life.
- Providing a thriving ecosystem with plenty of pollinators.

6.3.3 Future considerations will include:

- Understanding of specific tree diseases.
- Adaptation in species selection when planting up trees to build up future resilience.

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Appendix 1: Vascular plant species recorded during the survey

Results

- The table below presents the flora species recorded during the survey in 2024. The habitats are represented by a W for woodland, G for grassland and H for heathland.

Table 6: Vascular plant species recorded during the survey

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Acer platanoides</i>	Norway maple	R	W	R
<i>Acer pseudoplatanus</i>	Sycamore	O	W	LF
<i>Achillea millefolium</i>	Yarrow	R	G	LF
<i>Aesculus hippocastanum</i>	Horse-chestnut	R	W	R
<i>Agrostis canina</i>	Velvet bent	R	W H	R R
<i>Agrostis capillaris</i>	Common bent	O	G	F
<i>Agrostis stolonifera</i>	Creeping bent	O	G W D	LF LF R
<i>Alnus glutinosa</i>	Alder	R	W	LF
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	R	G	LF
<i>Arrhenatherum elatius</i>	False oat-grass	R	G	R
<i>Bellis perennis</i>	Daisy	R	G	R
<i>Betula pendula</i>	Silver birch	O	W	LF
<i>Betula pubescens</i>	Downy birch	O	W	LA
<i>Bromopsis ramosa</i>	Hairy brome	R	W	R
<i>Bromus hordeaceus</i>	Soft brome	R	G	R
<i>Calluna vulgaris</i>	Ling	R	H	LF
<i>Calystegia sepium</i>	Hedge bindweed	R	G W	R R
<i>Carex hirta</i>	Hairy sedge	R	G	LF
<i>Carex pendula</i>	Pendulous sedge	R	W	LF
<i>Carex remota</i>	Remote sedge	R	W D	LF LF
<i>Carex spicata</i>	Spiked sedge	R	G	R
<i>Carpinus betulus</i>	Hornbeam	R	W	R
<i>Castanea sativa</i>	Sweet chestnut	R	W	R

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Chamaemelum nobile</i>	Chamomile	R	G	LF
<i>Circaea lutetiana</i>	Enchanter's nightshade	R	W	LF
<i>Cirsium arvense</i>	Creeping thistle	R	G	R
<i>Corylus avellana</i>	Hazel	O	W	LA
<i>Crataegus monogyna</i>	Hawthorn	O	W	LF
<i>Crepis capillaris</i>	Smooth hawk's-beard	R	G	LF
<i>Cytisus scoparius</i>	Broom	R	H	R
<i>Dactylis glomerata</i>	Cock's-foot	R	G W	O R
<i>Deschampsia caespitosa</i>	Tufted hair-grass	R	W H	LF R
<i>Digitalis purpurea</i>	Foxglove	R	W	R
<i>Dipsacus fullonum</i>	Wild teasel	R	G	R
<i>Dryopteris dilatata</i>	Broad Buckler	R	W D	LF LA
<i>Dryopteris filix-mas</i>	Male fern	R	W D	LF LF
<i>Epilobium hirsutum</i>	Great willowherb	R	G	R
<i>Epilobium montanum</i>	Broad-leaved willowherb	R	G	R
<i>Erica cinerea</i>	Bell heather	R	H	LA
<i>Erica tetralix</i>	Cross-leaved heath	R	H	R
<i>Fagus sylvatica</i>	Beech	R	W	R
<i>Festuca filiformis</i>	Fine-leaved fescue	R	H	R
<i>Festuca rubra</i>	Red fescue	R	G H	LF R
<i>Frangula alnus</i>	Alder buckthorn	R	W H	LF R
<i>Geranium molle</i>	Dove's-foot crane's-bill	R	G	R
<i>Geranium robertianum</i>	Herb-Robert	R	W	R
<i>Geum urbanum</i>	Wood avens	R	W	R
<i>Glechoma hederacea</i>	Ground-ivy	R	W	LF
<i>Hedera helix ssp. helix</i>	Common ivy	O	W	LF

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Holcus lanatus</i>	Yorkshire-fog	O	G W	F O
<i>Hordeum murinum</i>	Wall barley	R	G	R
<i>Hypochaeris radicata</i>	Cat's-ear	R	G	LF
<i>Ilex aquifolium</i>	Holly	O	W	LA
<i>Iris pseudacorus</i>	Yellow iris	R	G	R
<i>Jacobaea vulgaris</i>	Common ragwort	R	G H	R R
<i>Juncus acutiflorus</i>	Sharp-flowered rush	R	H	R
<i>Juncus articulatus</i>	Jointed rush	R	H	R
<i>Juncus bufonis</i>	Toad rush	R	G	LF
<i>Juncus conglomeratus</i>	Compact rush	R	H	R
<i>Juncus effusus</i>	Soft rush	R	W H	R R
<i>Juncus tenuis</i>	Slender rush	R	G	R
<i>Lapsana communis</i>	Nipplewort	R	W	R
<i>Lolium perenne</i>	Perennial rye-grass	R	G	R
<i>Lonicera periclymenum</i>	Honeysuckle	R	W	R
<i>Lotus corniculatus</i>	Common bird's-foot trefoil	R	G	R
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil	R	G	R
<i>Molinea caerulea</i>	Purple moor-grass	LF	W H	LF LA
<i>Phalaris arundinacea</i>	Reed Canary-grass	R	G	R
<i>Phleum pratensi</i>	Timothy	R	G	LF
<i>Pinus sylvestris</i>	Scots pine	R	W	R
<i>Plantago coronopus</i>	Buck's-horn plantain	R	G	LF
<i>Plantago lanceolata</i>	Ribwort plantain	R	G	R
<i>Plantago major</i>	Greater Plantain	R	G	R
<i>Poa annua</i>	Annual meadow-grass	R	G	LF
<i>Poa pratensis</i>	Smooth Meadow-grass	R	G	R
<i>Poa trivialis</i>	Rough Annual-grass	O	G W	F LF

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Polygonum aviculare</i>	Knotgrass	R	G	R
<i>Populus tremula</i>	Aspen	R	W	LF
<i>Potentilla erecta</i>	Tormentil	R	H	LF
<i>Potentilla reptans</i>	Creeping cinquefoil	R	G	R
<i>Prunella vulgaris</i>	Self-heal	R	G	R
<i>Prunus laurocerasus</i>	Cherry laurel	R	W	R
<i>Prunus spinosa</i>	Blackthorn	R	W	LF
<i>Pteridium aquilinum</i>	Bracken	R	W H	R R
<i>Pulicaria dysenterica</i>	Common fleabane	R	G	LF
<i>Quercus robur</i>	Pedunculate oak	F	W H	F LF
<i>Ranunculus repens</i>	Creeping buttercup	R	G	R
<i>Rosa canina</i> agg.	Dog rose	R	W	LF
<i>Rubus fruticosus</i> agg.	Bramble	O	W	LA
<i>Rubus idaeus</i>	Raspberry	R	W	R
<i>Rumex obtusifolius</i>	Broad-leaved dock	R	G W	R R
<i>Rumex sanguineus</i> var. <i>viridis</i>	Wood dock	R	W	R
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	Rusty willow	O	G W D	R LF LF
<i>Sambucus nigra</i>	Elder	R	W	R
<i>Scrophularia nodosa</i>	Common figwort	R	G	R
<i>Sorbus aucuparia</i>	Rowan	R	W H	O R
<i>Spiraea</i>	Bridewort sp.	R	W	LA
<i>Stachys sylvatica</i>	Hedge woundwort	R	W	R
<i>Taraxacum</i> agg.	Dandelion	R	G	R
<i>Taxus baccata</i>	Yew	R	W	R
<i>Trifolium pratense</i>	Red clover	R	G	R
<i>Trifolium repens</i>	White clover	R	G	LF

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Ulex europaeus</i>	Gorse	R	W H	R R
<i>Ulex minor</i>	Dwarf gorse	R	H	LF
<i>Urtica dioica</i>	Common nettle	R	G W D	R R R
<i>Veronica beccabunga</i>	Brooklime	R	G	R
<i>Veronica chamedrys</i>	Germander speedwell	R	G	LF
<i>Viburnum opulus</i>	Guelder-rose	R	W	R

Table 7: Vascular plant species recorded 1996-2024

Scientific name	Common name	2024	2012	2003	1996
<i>Acer campestre</i>	Field maple		✓		
<i>Acer platanoides</i>	Norway maple	✓	✓	✓	✓
<i>Acer pseudoplatanus</i>	Sycamore	✓	✓	✓	✓
<i>Achillea millefolium</i>	Yarrow	✓	✓		
<i>Aegopodium podagraria</i>	Ground-elder		✓	✓	✓
<i>Aesculus hippocastanum</i>	Horse-chestnut	✓	✓	✓	✓
<i>Agrostis canina</i>	Velvet bent	✓			✓
<i>Agrostis capillaris</i>	Common bent	✓	✓	✓	✓
<i>Agrostis stolonifera</i>	Creeping bent	✓	✓	✓	✓
<i>Agrostis vinealis</i>	Brown bent			✓	
<i>Alchemilla vulgaris</i>	Lady's-mantle			✓	
<i>Alisma plantago-aquatica</i>	Common water-plantain			✓	
<i>Alliaria petiolate</i>	Garlic mustard		✓	✓	✓
<i>Allium ursinum</i>	Ramsons		✓		
<i>Alnus glutinosa</i>	Alder	✓	✓	✓	✓
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	✓	✓		
<i>Anthriscus sylvestris</i>	Cow parsley		✓		

Scientific name	Common name	2024	2012	2003	1996
<i>Arrhenatherum elatius</i>	False oat-grass	✓	✓		✓
<i>Artemisia vulgaris</i>	Mugwort		✓		✓
<i>Arum maculatum</i>	Lords-and-ladies		✓		✓
<i>Athyrium filix-femina</i>	Lady fern			✓	✓
<i>Bellis perennis</i>	Daisy	✓	✓		
<i>Betula pendula</i>	Silver birch	✓	✓	✓	✓
<i>Betula pubescens</i>	Downy birch	✓		✓	✓
<i>Blechnum spicant</i>	Hard fern				✓
<i>Brachypodium sylvaticum</i>	False wood-brome		✓		
<i>Bromopsis ramosa</i>	Hairy brome	✓			
<i>Bromus hordeaceus</i>	Soft brome	✓			
<i>Bryonia dioica</i>	White bryony				✓
<i>Callitriche stagnalis</i>	Common water-starwort				✓
<i>Calluna vulgaris</i>	Ling	✓	✓	✓	✓
<i>Calystegia sepium</i>	Hedge bindweed	✓	✓	✓	✓
<i>Capella bursa-pastoris</i>	Shepherd's-purse		✓		✓
<i>Cardamine flexuosa</i>	Wavy bitter-cress		✓	✓	✓
<i>Cardamine pratensis</i>	Cuckooflower		✓		✓
<i>Carex flacca</i>	Glaucous sedge			✓	
<i>Carex hirta</i>	Hairy sedge	✓			
<i>Carex otrubae</i>	False fox-sedge		✓		
<i>Carex paniculata</i>	Greater tussock-sedge				✓
<i>Carex pendula</i>	Pendulous sedge	✓	✓	✓	✓
<i>Carex remota</i>	Remote sedge	✓	✓	✓	✓
<i>Carex spicata</i>	Spiked sedge	✓			
<i>Carpinus betulus</i>	Hornbeam	✓	✓	✓	✓
<i>Castanea sativa</i>	Sweet chestnut	✓		✓	✓
<i>Centaurea nigra</i>	Common knapweed		✓		✓
<i>Cerastium fontanum</i>	Common mouse-ear		✓		

Scientific name	Common name	2024	2012	2003	1996
<i>Chamaemelum nobile</i>	Chamomile	✓		✓	✓
<i>Chamaenerion angustifolium</i>	Rosebay willowherb		✓		✓
<i>Chenopodium album</i>	Fat-hen				✓
<i>Circaea lutetiana</i>	Enchanter's nightshade	✓	✓	✓	
<i>Cirsium arvense</i>	Creeping thistle	✓	✓		✓
<i>Cirsium palustre</i>	Marsh thistle				✓
<i>Cirsium vulgare</i>	Spear thistle		✓		✓
<i>Conium maculatum</i>	Hemlock				✓
<i>Cornus sanguinea</i>	Dogwood		✓		
<i>Corylus avellana</i>	Hazel	✓	✓	✓	✓
<i>Crataegus monogyna</i>	Hawthorn	✓	✓	✓	✓
<i>Crepis capillaris</i>	Smooth hawk's-beard	✓			
<i>Crocsmia x crocosmiiflora</i>	Montbretia			✓	
<i>Cytisus scoparius</i>	Broom	✓	✓	✓	✓
<i>Dactylis glomerata</i>	Cock's-foot	✓	✓	✓	✓
<i>Danthonia decumbens</i>	Heath-grass				✓
<i>Deschampsia caespitosa</i>	Tufted hair-grass	✓	✓	✓	✓
<i>Deschampsia flexuosa</i>	Wavy hair-grass		✓	✓	✓
<i>Digitalis purpurea</i>	Foxglove	✓	✓		
<i>Dipsacus fullonum</i>	Wild teasel	✓	✓		
<i>Dryopteris carthusiana</i>	Narrow buckler-fern		✓		
<i>Dryopteris dilatata</i>	Broad buckler-fern	✓	✓	✓	✓
<i>Dryopteris filix-mas</i>	Male fern	✓		✓	✓
<i>Elytrigia repens</i>	Common couch				✓
<i>Epilobium hirsutum</i>	Great willowherb	✓	✓		
<i>Epilobium montanum</i>	Broad-leaved willowherb	✓	✓	✓	✓
<i>Epilobium parviflorum</i>	Hoary willowherb		✓		

Scientific name	Common name	2024	2012	2003	1996
<i>Epilobium tetragonum</i>	Square-stalked willowherb		✓		
<i>Epipactis helleborine</i>	Broad-leaved helleborine				✓
<i>Equisetum arvense</i>	Field horsetail				✓
<i>Erica cinerea</i>	Bell heather	✓	✓	✓	✓
<i>Erica tetralix</i>	Cross-leaved heath	✓		✓	✓
<i>Euphorbia peplus</i>	Petty spurge			✓	
<i>Fagus sylvatica</i>	Beech	✓	✓	✓	✓
<i>Fallopian japonica</i>	Japanese knotweed			✓	✓
<i>Festuca filiformis</i>	Fine-leaved fescue	✓	✓		✓
<i>Festuca rubra</i>	Red fescue	✓	✓		
<i>Filipendula ulmaria</i>	Meadowsweet		✓		✓
<i>Fragaria vesca</i>	Wild strawberry			✓	✓
<i>Frangula alnus</i>	Alder buckthorn	✓	✓	✓	✓
<i>Fraxinus excelsior</i>	Ash		✓	✓	✓
<i>Galega officinalis</i>	Goat's-rue		✓		
<i>Galeopsis tetrahit</i> agg.	Common hemp-nettle				✓
<i>Galium aparine</i>	Cleavers		✓		
<i>Gallium palustre</i>	Common marsh bedstraw				✓
<i>Geranium dissectum</i>	Cut-leaved crane's-bill		✓		
<i>Geranium endressii</i>	French crane's-bill				✓
<i>Geranium molle</i>	Dove's-foot crane's-bill	✓	✓		✓
<i>Geranium robertianum</i>	Herb-Robert	✓	✓	✓	✓
<i>Geum urbanum</i>	Wood avens	✓	✓	✓	✓
<i>Glechoma hederacea</i>	Ground-ivy	✓	✓	✓	✓
<i>Glyceria fluitans</i>	Floating sweet-grass		✓	✓	✓
<i>Glyceria maxima</i>	Reed sweet-grass			✓	✓
<i>Hedera helix</i> ssp. <i>helix</i>	Common ivy	✓	✓	✓	✓

Scientific name	Common name	2024	2012	2003	1996
<i>Heracleum sphondylium</i>	Hogweed			✓	✓
<i>Hieracium sp.</i>	A hawkweed				✓
<i>Hirschfeldia incana</i>	Hoary mustard				✓
<i>Holcus lanatus</i>	Yorkshire-fog	✓	✓	✓	✓
<i>Holcus mollis</i>	Creeping soft-grass			✓	
<i>Hordeum murinum</i>	Wall barley	✓	✓	✓	✓
<i>Humulus lupulus</i>	Hop				✓
<i>Hyacinthoides hispanica x non-scripta</i>	Hybrid bluebell		✓		
<i>Hyacinthoides non-scripta</i>	Bluebell		✓		
<i>Hypericum perforatum</i>	Perforate St. John's-wort		✓		
<i>Hypericum pulchrum</i>	Slender St. John's-wort				✓
<i>Hypochaeris radicata</i>	Cat's-ear	✓	✓	✓	
<i>Ilex aquifolium</i>	Holly	✓	✓	✓	✓
<i>Iris pseudacorus</i>	Yellow iris	✓	✓	✓	
<i>Jacobaea vulgaris</i>	Common ragwort	✓	✓	✓	
<i>Juncus acutiflorus</i>	Sharp-flowered rush	✓		✓	
<i>Juncus articulatus</i>	Jointed rush	✓			
<i>Juncus bufonis</i>	Toad rush	✓	✓		
<i>Juncus conglomeratus</i>	Compact rush	✓	✓	✓	✓
<i>Juncus effusus</i>	Soft rush	✓	✓	✓	✓
<i>Juncus inflexus</i>	Hard rush		✓	✓	
<i>Juncus squarrosus</i>	Heath rush		✓	✓	✓
<i>Juncus tenuis</i>	Slender rush	✓			✓
<i>Lamiastrum galeobdolon ssp. argentatum</i>	Variegated yellow archangel		✓	✓	
<i>Lapsana communis</i>	Nipplewort	✓	✓		
<i>Lemna minor</i>	Common duckweed			✓	
<i>Lemna minuta</i>	Least duckweed		✓		

Scientific name	Common name	2024	2012	2003	1996
<i>Leontodon autumnalis</i>	Autumnal hawkbit			✓	
<i>Lepidium didymium</i>	Lesser swine-cress				✓
<i>Leucanthemum vulgare</i>	Oxeye daisy		✓		
<i>Ligustrum ovalifolium</i>	Garden privet		✓	✓	✓
<i>Ligustrum vulgare</i>	Wild privet				✓
<i>Lolium perenne</i>	Perennial rye-grass	✓	✓	✓	✓
<i>Lonicera periclymenum</i>	Honeysuckle	✓	✓	✓	✓
<i>Lotus corniculatus</i>	Common bird's-foot trefoil	✓	✓	✓	✓
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil	✓	✓		
<i>Luzula multiflora</i>	Heath wood-rush		✓		✓
<i>Lycopus europaeus</i>	Gipsywort				✓
<i>Lysimachia nummularia</i>	Creeping-Jenny			✓	
<i>Lysimachia vulgaris</i>	Yellow loosestrife		✓		
<i>Lythrum salicaria</i>	Purple loosestrife			✓	
<i>Malus sp.</i>	A apple		✓		✓
<i>Malva sylvestris</i>	Common mallow				✓
<i>Medicago arabica</i>	Spotted medick		✓		
<i>Medicago lupulina</i>	Black medick		✓		✓
<i>Melilotus officinalis</i>	Ribbed melilot		✓		
<i>Molinia caerulea</i>	Purple moor-grass	✓	✓	✓	✓
<i>Mycelis muralis</i>	Wall lettuce		✓		
<i>Myosotis arvensis</i>	Field forget-me-not		✓		
<i>Myriophyllum aquaticum</i>	Parrot's-feather			✓	
<i>Narcissus agg.</i>	A daffodil		✓		
<i>Nardus stricta</i>	Mat-grass				✓
<i>Nymphaea alba</i>	White water-lily			✓	
<i>Oenanthe crocata</i>	Hemlock water-dropwort				✓
<i>Oxalis acetosella</i>	Wood-sorrel			✓	✓

Scientific name	Common name	2024	2012	2003	1996
<i>Papaver rhoeas</i>	Common poppy				✓
<i>Pedicularis sylvatica</i>	Common lousewort				✓
<i>Pentaglottis sempervirens</i>	Green alkanet		✓		
<i>Persicaria maculosa</i>	Redshank			✓	✓
<i>Phalaris arundinacea</i>	Reed Canary-grass	✓		✓	✓
<i>Phleum bertolonii</i>	Smaller cat's-tail		✓		
<i>Phleum pratensi</i>	Timothy	✓		✓	
<i>Picea abies</i>	Norway spruce		✓		
<i>Picris echinoides</i>	Bristly oxtongue				✓
<i>Pinus sylvestris</i>	Scots pine	✓	✓	✓	✓
<i>Plantago coronopus</i>	Buck's-horn plantain	✓			
<i>Plantago lanceolata</i>	Ribwort plantain	✓	✓	✓	✓
<i>Plantago major</i>	Greater Plantain	✓	✓	✓	✓
<i>Poa annua</i>	Annual meadow-grass	✓	✓	✓	✓
<i>Poa pratensis</i>	Smooth Meadow-grass	✓			
<i>Poa trivialis</i>	Rough Annual-grass	✓	✓		
<i>Polygonatum multiflorum x odoratum</i>	Garden solomon's-seal				
<i>Polygonum aviculare</i>	Knotgrass	✓	✓		✓
<i>Polystichum setiferum</i>	Soft shield-fern		✓	✓	
<i>Populus tremula</i>	Aspen	✓	✓	✓	✓
<i>Potentilla erecta</i>	Tormentil	✓	✓	✓	✓
<i>Potentilla reptans</i>	Creeping cinquefoil	✓	✓		
<i>Primula vulgaris</i>	Primrose		✓		
<i>Prunella vulgaris</i>	Self-heal	✓	✓		
<i>Prunus avium</i>	Wild cherry		✓		✓
<i>Prunus laurocerasus</i>	Cherry laurel	✓	✓	✓	✓
<i>Prunus lusitanica</i>	Portugal laurel		✓		
<i>Prunus spinosa</i>	Blackthorn	✓			✓
<i>Pteridium aquilinum</i>	Bracken	✓	✓	✓	✓

Scientific name	Common name	2024	2012	2003	1996
<i>Pulicaria dysenterica</i>	Common fleabane	✓	✓		
<i>Pyrus communis</i>	Pear		✓		
<i>Quercus robur</i>	Pedunculate oak	✓	✓	✓	✓
<i>Ranunculus acris</i>	Meadow buttercup			✓	
<i>Ranunculus repens</i>	Creeping buttercup	✓	✓	✓	
<i>Ribes rubrum</i>	Red currant			✓	✓
<i>Rosa canina</i> agg.	Dog rose	✓	✓		✓
<i>Rubus fruticosus</i> agg.	Bramble	✓	✓	✓	✓
<i>Rubus idaeus</i>	Raspberry	✓	✓		
<i>Rumex acetosa</i>	Common sorrel			✓	✓
<i>Rumex crispus</i>	Curled dock		✓		
<i>Rumex obtusifolius</i>	Broad-leaved dock	✓	✓	✓	✓
<i>Rumex sanguineus</i> var. <i>viridus</i>	Wood dock	✓	✓	✓	✓
<i>Sagina apetala</i>	Annual pearlwort		✓		
<i>Sagina procumbens</i>	Procumbent pearlwort		✓		
<i>Salix caprea</i>	Goat willow		✓	✓	✓
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	Rusty willow	✓	✓	✓	✓
<i>Salix fragilis</i>	Crack willow		✓	✓	✓
<i>Salix x sepulcralis</i>	Weeping willow				✓
<i>Sambucus nigra</i>	Elder	✓	✓	✓	✓
<i>Sasa</i> sp.	A bamboo		✓	✓	
<i>Scrophularia nodosa</i>	Common figwort	✓	✓		✓
<i>Scutellaria galericulata</i>	Skullcap				✓
<i>Senecio vulgaris</i>	Groundsel				✓
<i>Serratula tinctoria</i>	Saw-wort				✓
<i>Silene dioica</i>	Red campion		✓		
<i>Silene latifolia</i>	White campion		✓		
<i>Solanum dulcamara</i>	Bittersweet			✓	
<i>Solanum nigrum</i>	Black nightshade				✓
<i>Solidago virgaurea</i>	Goldenrod				✓

Scientific name	Common name	2024	2012	2003	1996
<i>Sonchus asper</i>	Prickly sow-thistle		✓		
<i>Sonchus oleraceus</i>	Smooth sow-thistle		✓		✓
<i>Sorbus aucuparia</i>	Rowan	✓	✓	✓	✓
<i>Sparganium erectum</i>	Branched bur-reed			✓	✓
<i>Spiraea</i>	Bridewort sp.	✓		✓	✓
<i>Stachys palustris</i>	Marsh woundwort			✓	
<i>Stachys sylvatica</i>	Hedge woundwort	✓	✓	✓	✓
<i>Stellaria graminea</i>	Lesser stitchwort		✓		✓
<i>Stellaria holostea</i>	Greater stitchwort		✓		✓
<i>Stellaria media</i>	Common chickweed		✓		✓
<i>Stellaria uliginosa</i>	Bog stitchwort				✓
<i>Succisa pratensis</i>	Devil's-bit scabious			✓	✓
<i>Symphoricarpos albus</i>	Snowberry		✓	✓	✓
<i>Taraxacum agg.</i>	Dandelion	✓	✓	✓	✓
<i>Taxus baccata</i>	Yew	✓	✓	✓	✓
<i>Teucrium scorodonia</i>	Wood sage				✓
<i>Thuja picata</i>	Western red cedar		✓		
<i>Tilia platyphyllos</i>	Large-leaved lime				✓
<i>Trichophorum cespitosum</i>	Deergrass				✓
<i>Trifolium pratense</i>	Red clover	✓	✓		✓
<i>Trifolium repens</i>	White clover	✓	✓	✓	✓
<i>Tripleurospermum inodorum</i>	Scentless mayweed				✓
<i>Typha latifolia</i>	Reedmace		✓	✓	✓
<i>Ulex europaeus</i>	Gorse	✓	✓	✓	✓
<i>Ulex minor</i>	Dwarf gorse	✓	✓	✓	✓
<i>Ulmus procera</i>	English elm		✓	✓	✓
<i>Urtica dioica</i>	Common nettle	✓	✓	✓	✓
<i>Veronica agrestis</i>	Green field speedwell		✓		
<i>Veronica beccabunga</i>	Brooklime	✓			✓
<i>Veronica chamedrys</i>	Germander speedwell	✓	✓	✓	✓

Scientific name	Common name	2024	2012	2003	1996
<i>Veronica persica</i>	Common field speedwell		✓		
<i>Veronica serpyllifolia</i>	Thyme-leaved speedwell		✓		
<i>Viburnum opulus</i>	Guelder-rose	✓			✓
<i>Vicia cracca</i>	Tufted vetch		✓	✓	✓
<i>Vicia sativa</i>	Common vetch		✓		✓
<i>Vicia sepium</i>	Bush vetch		✓		
<i>Viola sp.</i>	A violet			✓	✓

Table 8: Vascular plant species with conservation status

Common name	Grassland indicator	Acid grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
A hawkweed	✓		✓				
Alder buckthorn			✓	✓			
Aspen			✓	✓			
Bell heather	✓		✓		Not scarce	Near threatened	
Bluebell			✓	✓			
Bog stitchwort			✓				
Branched bur-reed			✓				
Broad-leaved helleborine			✓	✓			
Brooklime			✓				
Brown bent		✓	✓				
Buck's-horn plantain	✓	✓	✓				
Bush vetch			✓	✓			
Cat's-ear		✓	✓				
Chamomile	✓	✓	✓		Declining	Vulnerable & BAP	
Common bird's-foot trefoil		✓					

Common name	Grassland indicator	Acid grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Common lousewort	✓		✓		Local	Vulnerable	
Common marsh bedstraw	✓		✓				
Common sorrel	✓		✓				
Common water-plantain	✓		✓				
Compact rush	✓		✓				
Creeping soft-grass			✓	✓			
Creeping-Jenny	✓		✓				
Cross-leaved heath			✓		Not scarce	Near threatened	
Cuckooflower	✓		✓				
Daisy		✓					
Deergrass			✓				
Devil's-bit scabious	✓		✓		Not scarce	Near threatened	
Dove's-foot crane's-bill		✓					
Dwarf gorse			✓				
False fox-sedge	✓		✓				
Field maple			✓	✓			
Fine-leaved fescue	✓	✓	✓				
Glaucous sedge	✓		✓				
Goldenrod	✓		✓	✓	Not scarce	Near threatened	
Greater bird's-foot trefoil	✓		✓				
Green field speedwell			✓				
Guelder-rose			✓	✓			

Common name	Grassland indicator	Acid grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Hairy brome			✓	✓			
Hard fern			✓	✓			
Heath rush	✓		✓				
Heath wood-rush	✓	✓	✓				
Heath-grass	✓	✓	✓				
Holly			✓	✓			
Hornbeam			✓	✓			
Jointed rush	✓		✓				
Lady fern			✓				
Lesser stitchwort	✓		✓				
Ling	✓		✓		Not scarce	Near threatened	
Marsh woundwort	✓		✓				
Mat-grass	✓		✓		Not scarce	Near threatened	
Meadowsweet	✓		✓				
Narrow buckler-fern			✓	✓			
Pendulous sedge			✓	✓			
Primrose	✓		✓	✓			
Ramsons			✓	✓			
Red currant			✓	✓			
Remote sedge			✓	✓			
Saw-wort	✓		✓	✓			
Sharp-flowered rush	✓		✓				
Skullcap	✓		✓				
Slender St. John's-wort		✓	✓	✓			

Common name	Grassland indicator	Acid grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Smooth Meadow-grass	✓		✓				
Soft shield-fern			✓	✓			
Spiked sedge	✓		✓				
Sweet vernal-grass	✓		✓				
Tormentil	✓	✓	✓		Not scarce	Near threatened	
Velvet bent			✓				
Wild cherry			✓	✓			
Wild strawberry	✓		✓		Not scarce	Near threatened	
Wood sage		✓					
Wood-sorrel			✓	✓	Not scarce	Near threatened	
Yellow iris			✓				
Yellow loosestrife	✓		✓				
TOTAL	36	13	69	24	11	11	1

Appendix 2: Legislation and planning policy

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. Species listed under Schedule 2 are protected from:

- Deliberate capture, injury or killing.
- Deliberate disturbance [...], such that it impairs their ability to breed, reproduce or rear their young, hibernate or migrate or significantly affect their local distribution or abundance.
- Deliberate taking or destroy effect.
- Damage or destroying a breeding site or resting place.
- Keeping, transporting, selling or exchanging any live, dead or part.

Species listed under Schedule 2 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 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 Impact Risk Zones 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.

Section 41 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.

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 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.

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, Ashted & 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.

Greater horseshoe, lesser horseshoe, Bechstein's and barbastelle are Annex II species for which Special Areas of Conservation have been designated.

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.

Beaver

Beaver is provided under Conservation of habitats and Species Regulations 20217 (as amended). Beaver is also afforded additional protection under the Wildlife and Countryside Act 1981, as amended.

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.

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-seven terrestrial and freshwater invertebrate species (excluding molluscs) are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These include Reddish buff, Norfolk hawk, 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, Ivel'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 294 (excluding molluscs) 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.

Higher and lower plants (rare/notable species)

Creeping marshwort, Lady's-slipper orchid, Early gentian, Fen orchid, Floating water-plantain, Slender naiad, Shore dock and Yellow marsh-saxifrage are listed under Schedule 5 of the Conservation of Habitats and Species Regulations 2017 (as amended) making it illegal to be in position or control, transport, sell or exchange or offer to sell or exchange any live or dead plant, or part of a plant.

105 higher plant species are listed under Schedule 8 of the Wildlife and Countryside Act 1981, as amended which makes it illegal for a person to intentionally pick, uproot or destroy any wild plant listed under Schedule 8.

145 higher plant species are listed as Species of Principal Importance.

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

Planning policy

National Planning Policy Framework (2023)

Details the Government's planning policies for England and how these should be applied, particularly to contribute to the Government's commitment to halt the decline of biodiversity. When assessing planning applications, LPAs should have regard to conserving and enhancing biodiversity by applying a number of principals, including:

- Avoiding impacts to biodiversity through appropriate site selection.
- Mitigating residual impacts.
- Encouraging the preservation and enhancement of biodiversity.
- Preventing the development of protected sites, such as SSSIs.
- Refusing permission where habitats that cannot be recreated, such as ancient woodland, would be lost.
- Encouraging good design that limits light pollution.

Relevant paragraphs in the NPPF (2023) are detailed below.

Paragraph number	Detail
180	Planning policies and decisions should contribute to and enhance the natural and local environment by: (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; (c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
183	“When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development 64 other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: (a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; (b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and (c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.”

Paragraph number	Detail
186	"When determining planning applications, local planning authorities should apply the following principles: (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons 67 and a suitable compensation strategy exists; and (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."
187	"The following should be given the same protection as habitats sites: (a) potential Special Protection Areas and possible Special Areas of Conservation; (b) listed or proposed Ramsar sites 68 ; and (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."
188	"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

Local planning policy

Woking Borough Council		
(Woking Borough Council, 2012)	CS6	To ensure the Green Belt continues to serve its fundamental aim and purpose, and maintains its essential characteristics, it will be protected from harmful development. Within its boundaries strict control will continue to apply over inappropriate development, as defined by Government policy currently outlined in the NPPF.
	CS7	The Council is committed to conserving and protecting existing biodiversity assets within the Borough. It will require development proposals to contribute to the enhancement of existing biodiversity and geodiversity features and also explore opportunities to create and manage new ones where it is appropriate. This will include those habitats and species listed in the Surrey Biodiversity Action Plan (BAP). Any development that will be anticipated to have a potentially harmful effect or lead to a loss of features of interest for biodiversity will be refused. The Council will pay particular consideration to the following hierarchy of important sites and habitats in the Borough. 1. Special Protection Areas (SPA) and Special Areas of Conservation (SAC) (European). 2. Sites of Special Scientific Interest (SSSI) and National Nature Reserves (National). 3. Sites of Nature Conservation Importance (SNCI), Local Nature Reserves (LNR), and other Ancient Woodland not identified in 1 and 2 above (Local). These sites are identified on the Proposals Map. Within locally designated sites development will not be permitted unless it is necessary for appropriate on-site management measures and can demonstrate no adverse impacts to the integrity of the nature conservation interest. Development adjacent to locally designated sites will not be permitted where it has an adverse impact on the integrity of the nature conservation interest that cannot be mitigated. The Council will encourage new development to make positive contribution to biodiversity through the creation of green spaces, where appropriate, and the creation of linkages between sites to create a local and regional biodiversity network of wildlife corridors and green infrastructure. It will seek to retain and encourage the enhancement of significant features of nature conservation value on development sites. Any development with potential impact on the SPA or the SAC will be subject to a Habitats Regulations Assessment to determine the need for Appropriate Assessment.
	CS8	New residential development beyond 400m threshold but within 5 kilometres of the Special Protection Areas (SPA) boundary will be required to make an appropriate contribution towards the provision of Suitable Alternative Natural Greenspace (SANG) and the Strategic Access Management and Monitoring (SAMM).
	CS9	All development, particularly on brownfield land, should seek to remediate contaminated land to ensure that risk to water quality as a result of development is minimised.
	CS17	All proposals for new residential development will be required to contribute towards the provision of open space and green infrastructure. Protect river corridors by creating undeveloped buffer zones, which will serve as green infrastructure as well as habitats of biodiversity value.
	CS22	All development is encouraged to make biodiversity enhancements such as green roofs and bird and bat boxes.
(Woking Borough Council, 2016)	DM1	New green infrastructure assets required to support development and the general community will be expected to be designed and located to maximize the range of green infrastructure functions and benefits. (i) where new features will be located and, where relevant, how they may be accessed. A map should be provided of the existing and proposed green infrastructure on relevant sites; and (ii) the function of green infrastructure assets, what benefits they will bring (e.g. social, environmental, economic) and how proposals will contribute or integrate with the existing and/or proposed green infrastructure network; and (iii) management and maintenance arrangements that will be put in place to ensure the sustainable longterm care for the asset; and (iv) that the provision of any Suitable Alternative Natural Greenspace will not compromise the biodiversity value of Sites of Nature Conservation Interest. There are various ways in which GI could be incorporated into proposals, for example, through the incorporation of the following connected features: • trees and other vegetation such as hedgerows • green walls and green roofs • sustainable drainage systems (SuDS) • open space and recreation areas.
	DM3	The development will not cause harm to a site of nature conservation, landscape or historic value that cannot be satisfactorily mitigated Opportunities are taken to connect to and enhance the surrounding Green Infrastructure Network.
	DM4	Basingstoke Canal is designated as SSSI for much of its length with only short sections within Woking and Runnymede Boroughs being designated Site of Nature Conservation Interest (SNCI). It is the most biodiverse freshwater body for aquatic plants within England and Wales. Developments which introduce significant shading of the water, which is generally considered harmful to the health of the aquatic botany - whether by built structures or inappropriate landscaping, will generally not be considered acceptable.
(West Byfleet Neighbourhood Forum, 2017)	Section 3.2.4	To enhance and protect all existing green spaces, including roadside verges, within the neighbourhood to ensure that they remain for the benefit of the community. To protect and enhance wildlife corridors, plant habitats and SSSI's within The Area.

Appendix 3: Desk study

Table 9: Protected or notable species

These are protected or notable species that were recorded in the desk study and for which suitable habitat occurs in the survey area

Species group	Species
Invertebrate	A tachinid fly
	A tumbling beetle
	Brilliant emerald
	Brown tree ant
	Grayling
	Stag beetle
Amphibian	Common frog
	Great crested newt
	Smooth newt
Reptiles	Adder
	Grass snake
	Slow worm
Birds	Collard dove
	Dunnock
	Kingfisher
	Mallard
	Mistle thrush
	Red kite
	Song thrush
	Sparrow hawk
	Willow warbler
	Woodcock
	Wood pigeon
	Wren
Mammals	Badger
	Bats
	Hazel dormouse
	Otter
	Water vole
	Hedgehog
	Other mammals
Higher and lower plants	Bell heather
	Bitter-vetch
	Bluebell
	Chamomile
	Common cudweed
	Common valerian
	Corn spurrey
	Cross leaved heath
	Devils bit scabious
	Fringed water lily
	Frog bit
	Harebell
	Heath speedwell
	Heather
	Large leaved lime

Species group	Species
	Lesser spearwort
	Maidenhair fern
	Mat-grass
	Opposite leaved pond weed
	Red pond weed
	Stinking hellebore
	Tormentil
	Wild strawberry
	Wood sorrel

Appendix 4: Survey calendar

This survey calendar should be used as guidance only and is based on current industry best-practice.

Survey type		January	February	March	April	May	June	July	August	September	October	November	December	
Habitat					UK habitat classification survey and National Vegetation Classification (habitat dependant for specific survey months)									
					Habitat condition assessment (habitat specific suitable month)									
Invertebrate														
Amphibian (including great crested newt)		Habitat suitability index												
						eDNA presence/absence								
				Presence/absence and population size class assessment										
Reptiles														
Birds		Wintering birds		Migratory/br eeding birds	Breeding birds						Migratory birds		Wintering birds	
Badger			Bait marking and sett search							Bait marking and sett search				
Bats		Preliminary Roost Assessment (all year); Preliminary Ground Level Tree Roost Assessment (optimal between November and March)												
		Winter roost presence/likely absence				Presence/likely absence summer survey and activity survey						Winter roost presence/likely absence		
Hazel Dormouse					Nest tube (nut search from September to December)								Nut search	
Otter				Preferable survey season										
Water Vole														
Rare/notable plant or invasive species														
	Survey sub-optimal		Survey optimal					Survey outside acceptable season						