The Greenway Sewer Diversion – Ecology Report

May 2021

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Introduction

This Ecology Report has been developed using information from a number of assessments and surveys undertaken for the Thames Water Greenway Sewer Diversion scheme. For this report the focus will be on the southern site and the ecological elements associated with the area located south of the railway. However, there may be reference where necessary to the entire scheme and area of impact for species and habitats with connectivity and wider dispersal characteristics.

Statutory / Non-Statutory Designations

There are no statutory designations located within 500m of the proposed works. However, the proposed scheme type falls within a relevant Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ). The nearby SSSIs are Ruislip Woods SSSI 1.5km northeast at the closest point and Denham Lock SSSI 1.9km west. However, no impacts are foreseen on these designated sites due to the intervening distance and absence of hydrological pathways for effects between these and the site.

Non-statutory designations are located within 500m of the proposed works. West Ruislip Golf Course and Old Priory Meadows Site of Nature Conservation Interest (SNCI) and Site of Borough Importance Grade I (SBI.I) are located adjacent to (approx. <25m east of the haul road leading up to Compound 1 and 25m north of Compound 1). There are no pathways for effects upon designated sites with embedded best practice methods of construction; however, temporary dewatering pipes will need to be laid across a designated site in the northern site in order to discharge to the River Pinn (main river).

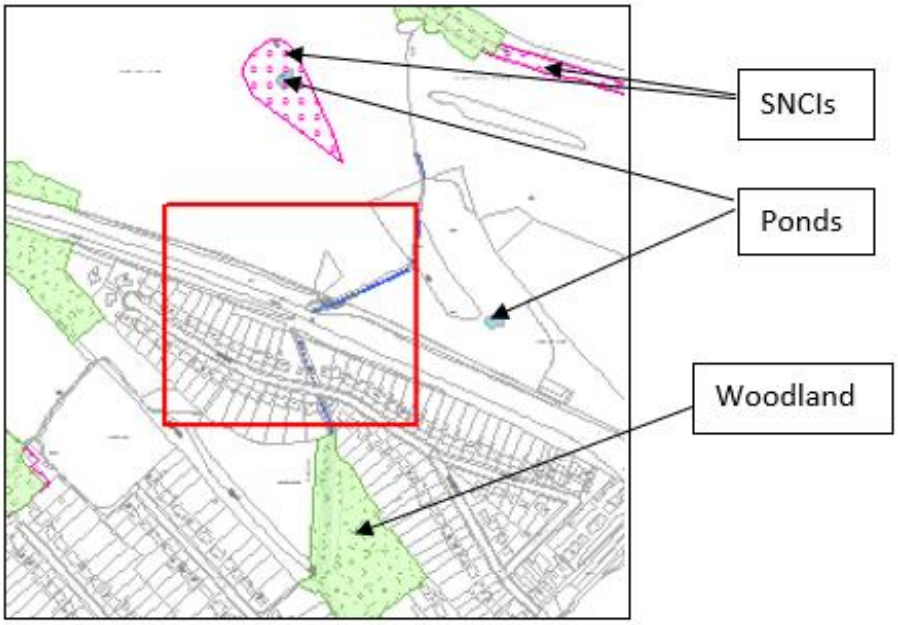


Figure 1 - ArcGIS Ecology Designations

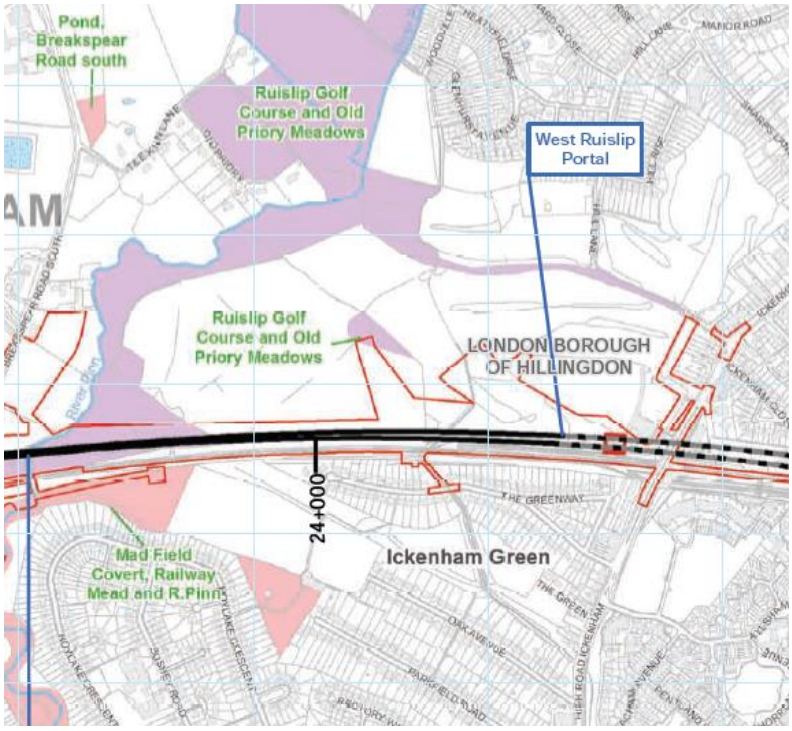


Figure 2 - HS2 Designated Sites Plan

Habitats

The area to the south of the railway line is characterised by the allotment gardens and deciduous woodland (priority habitat). Both of these will be directly impacted by the proposed works. A nearby playing field/amenity grass area is to be required for a site compound.

A **Preliminary Ecological Appraisal** (PEA) was undertaken by a Suitably Qualified Ecologist (SQE) (Gareth Lavery, SMB Ecologist, on behalf of Thames Water) on 27th June 2018 and 27th October 2018. A summary of the survey areas for each visit is provided below:

- The area of works within Ruislip Golf Course and south of the railway into The Greenway residential road on 27th June 2018; and
- The area of works within the allotment, adjacent woodland and cricket pitch on 25th October 2018.

The survey assessed the ecological value of the site, and recorded any protected habitats and evidence of, or potential for, any protected or notable species on-site or within the relevant surrounding area. The survey followed standard methodology published by the joint Nature Conservation Committee (JNCC).

The **Phase 1 Habitat Survey Maps** are shown overleaf.

Details of the HS2 (CSjv) survey work can be found in the Preliminary Environmental and Third-Party Appraisal (PE3PA) while the SMB Ecologist's recommendations (on behalf of Thames Water) are provided below with species specific details given throughout this report.

SMB Ecologist (on behalf of Thames Water) Site Survey Recommendations

- Consultation with Greenspace Information for Greater London (GiGL – who are the custodians of London SINCs) and London Borough of Hillingdon will be required for works within proximity of the non-statutory designated sites.
- Best practice construction methods should be implemented as part of a CEMP in order to avoid construction activities resulting in potential indirect effect on the non-statutory designated sites e.g. Dust deposition, noise or construction lighting.

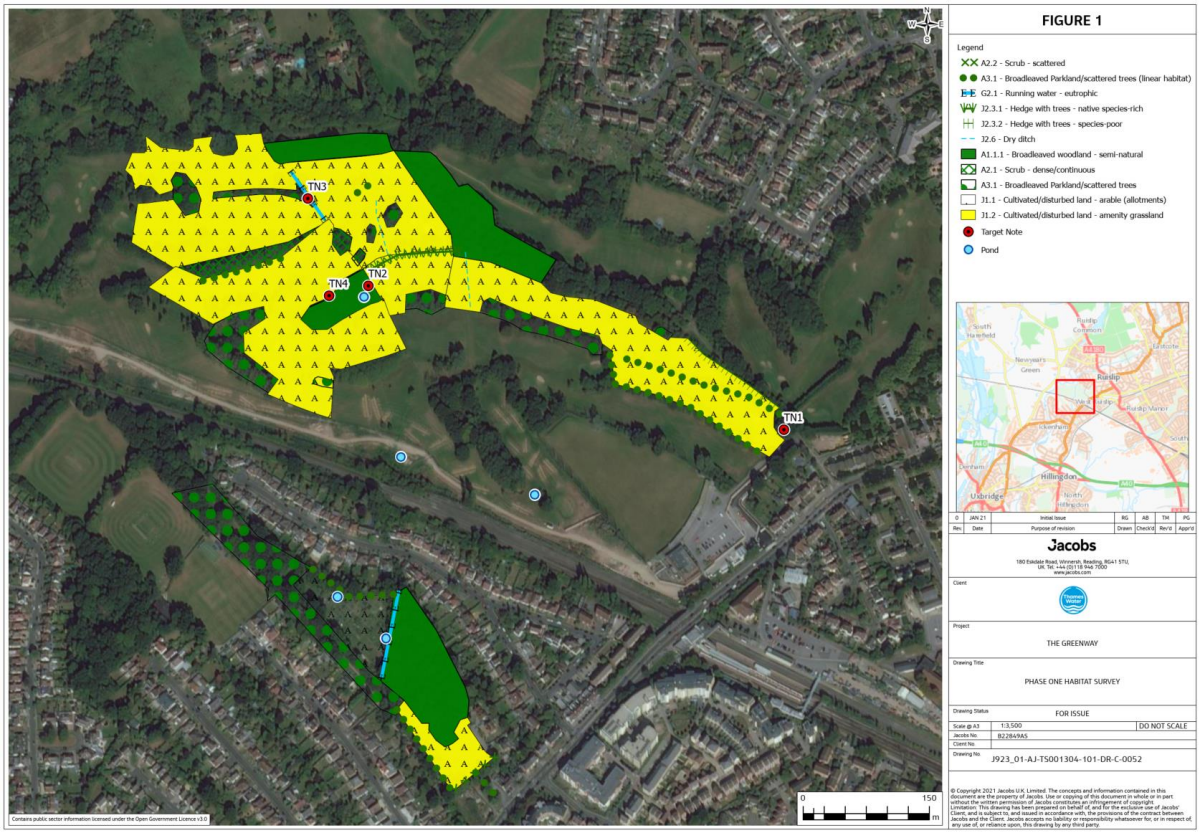
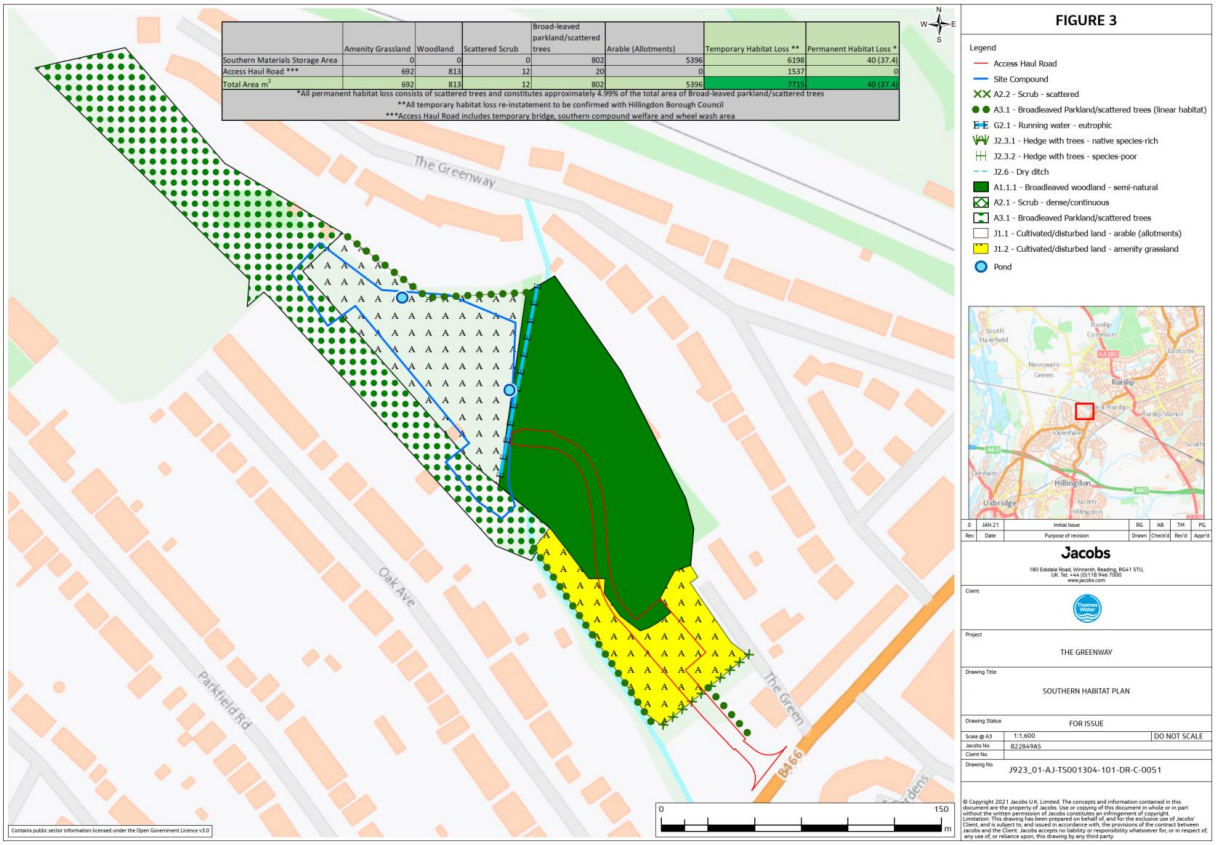


Figure 3 - Phase 1 Habitat Survey Map (Jan 2021)



	Amenity Grassland	Woodland	Scattered Scrub	Broad-leaved parkland/scattered trees	Arable (Allotments)	Temporary Habitat Loss **	Permanent Habitat Loss *
Southern Materials Storage Area	0	0	0	802	5396	6198	40 (37.4)
Access Haul Road ***	692	813	12	20	0	1537	0
Total Area m²	692	813	12	802	5396	7735	40 (37.4)

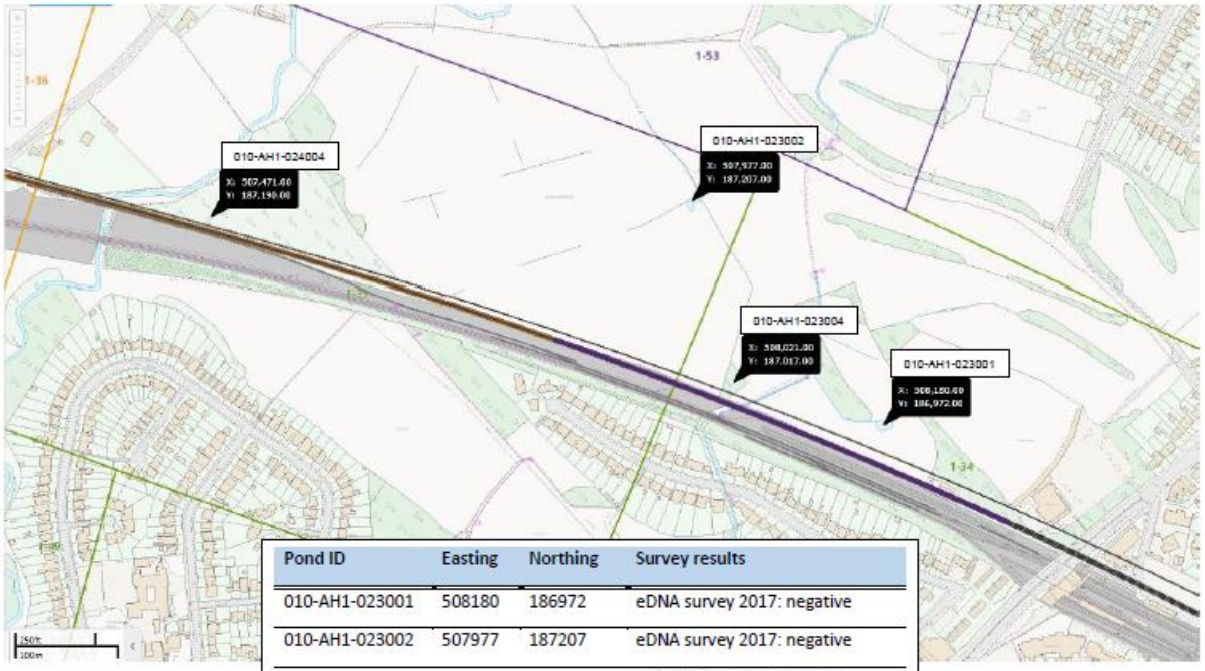
*All permanent habitat loss consists of scattered trees and constitutes approximately 4.99% of the total area of Broad-leaved parkland/scattered trees
**All temporary habitat loss re-instatement to be confirmed with Hillingdon Borough Council
***Access Haul Road includes temporary bridge, southern compound welfare and wheel wash area

Figure 4 - Phase 1 Habitat Survey Map – Southern Section - allotments and woodland including ponds (Jan 2021) – note that the site compound boundary shown is now superseded (see drawing J923_01-AJ-TS001304-101-DR-C-0030)

Great Crested Newts

Four ponds are located within to the north of the railway corridor (Ruislip Golf Course) approx. 25m, 45m, 90m, and 375mm from the proposed works. To the south of the railway corridor, two ponds were also identified within the allotments during the ecology survey by the SMB ecologist (on behalf of Thames Water).

Figure 5 - Pond Map ArcGIS



Pond ID	Easting	Northing	Survey results
010-AH1-023001	508180	186972	eDNA survey 2017: negative
010-AH1-023002	507977	187207	eDNA survey 2017: negative
010-AH1-023004	508021	187017	Pond found to be dry when checked in 2017 and 2018
010-AH1-024004	507471	187190	eDNA survey 2018: positive

Figure 6 - CSjv GCN Survey Results 2017 - 2018

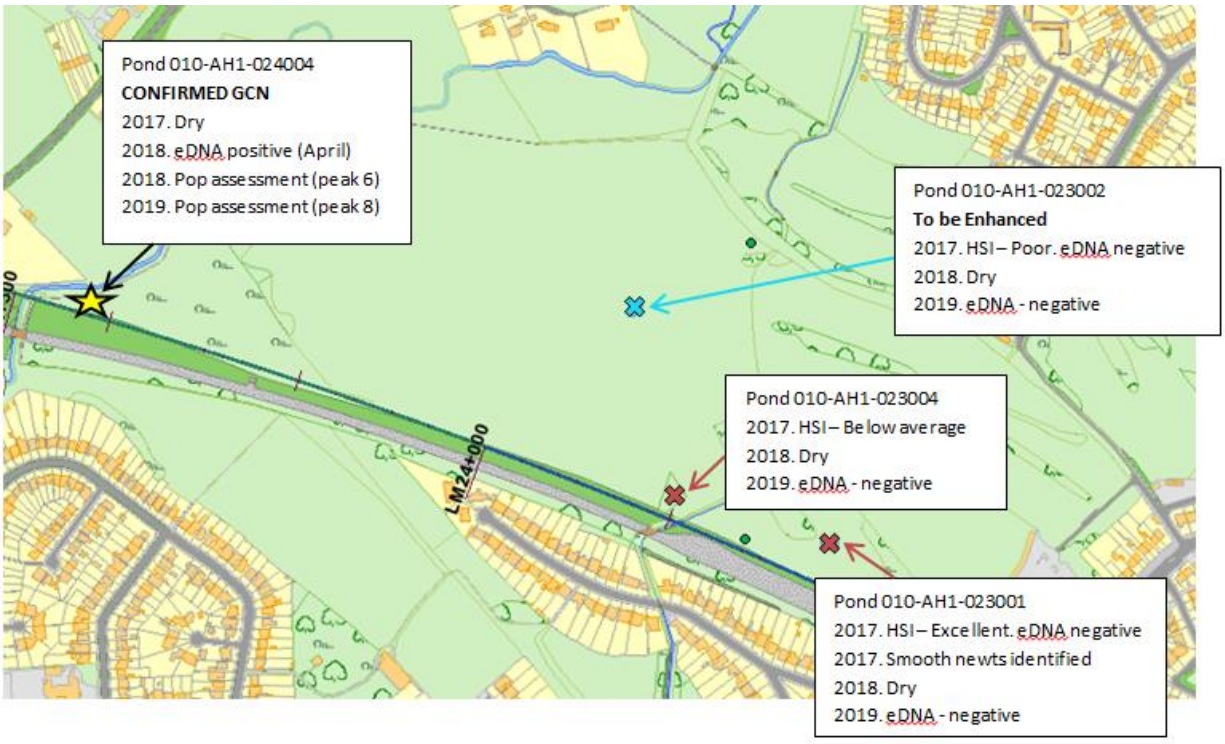


Figure 7 - CSjv GCN Survey Results 2017 – 2019

- A manhole / shaft is required just to the north of the railway line. This falls just outside the 500m buffer zone of the pond supporting a population of GCN identified by HS2 to the west of the golf course. However, during the drain down of this pond for CSjv and SCS enabling works, 94 GCN were identified and translocated to an enhanced pond

within the Ruislip Golf Course (Feb/March 2020). This enhanced pond is 45m from the haul road, 60m from site Compound 1, 100m from Compound 2 and 45m from the working areas. Appropriate mitigation is to be agreed with HS2, CSjv and SCS for the Thames Water main works. GCN are protected under the Conservation of Habitats and Species Regulations (2017) as amended and under WCA (1981).

- No further GCN were required to be translocated to this pond as a result of further survey work by SCS in May 2020.
- Access is also required to the manhole south of the enhanced pond during decommissioning so this can be filled with concrete (which will be delivered via a hose from an appropriate vehicle). This area falls within the HS2 boundary and has therefore assumed to already have been cleared.
- eDNA surveys of the two small ponds within the allotments were conducted during April 2019. One pond came back as negative for the presence of GCN, the other as indeterminate. As both ponds are located so close to each other it is considered that GCN are absent from both ponds.

Recommendations

- The works for the northern site will require a European Protected Species Mitigation Licence (EPSML) however HS2 have a Protected Species Organisational Licence (PSOL) to cover this and therefore Thames Water ecologists may be able to use this licence to complete any licensable works.
- As there was no evidence of GCN on the southern site or surrounding area and the understanding that the railway is a substantial barrier to their movement, no further mitigation is required for this species for works on the southern site.
- If GCN are discovered during construction not covered by the PSOL, the works should cease immediately, and an ecologist contacted.

Reptiles

The habitat character of the areas to the north and south of the railway corridor are considered suitable for reptiles. Surveys conducted in support of HS2 identified a small population of slow worm resident within the golf course and a small population of common lizard *Zootoca vivipara*, slow worm *Anguis fragilis* and grass snake *Natrix helvetica* along the adjacent railway habitat. Reptiles are protected from killing and injury under the WCA (1981).

The allotments to the south of the railway corridor contain features such as log piles and compost heaps that may be used for hibernation or refuge. Reptile surveys were conducted at the allotments during May 2019. A maximum count of one adult slow worm (a low population) was recorded during the course of the 2019 surveys. However, it should be noted it is difficult to apply population estimation models to slow worm due to their irregular behaviour and fossorial nature.

Recommendations

- Vegetation clearance will be undertaken through the woodland adjacent to the allotments prior to site set up, and on the southern boundary of the allotments in areas where trees are required to be removed and where amenity grassland has grown tall also requires removal.
- Vegetation clearance should be completed in a methodological manner when reptiles are active and can readily disperse (generally between April and September) to displace reptiles into nearby suitable areas of retained habitats. All features considered to act as hibernacula or refugia should be dismantled by hand during the same time period.

Bats

The habitat character of the areas to the north and south of the railway corridor are considered suitable for bat foraging and commuting. The scattered trees and woodland areas may also support roosting opportunities for bats. All bats are protected under the Conservation of Habitats and Species Regulations (2017) as amended and under WCA (1981).

A Preliminary Bat Roost Assessment (PBRA) of the trees was completed on 18th March 2020 which identified trees with moderate bat roost potential requiring further surveys. An additional PBRA was conducted on the small structures and sheds within the allotment 26th February 2021 with recommendations for appropriate mitigation given.

The main results are shown below.

- Four trees within the woodland to the south-east of the allotments through which the access road will be constructed:
    - A mature English oak adjacent to the allotment fence with heavy ivy cover, and a fallen limb which suggests there may be concealed potential roost features (PRFs) within the upper canopy of the tree. The tree was provisionally assigned as having moderate bat roost potential as a precaution (subject to a climbing inspection and potential emergence / re-entry surveys).
    - A mature Willow *Salix* sp tree is present within the woodland; at least two woodpecker holes were visible from the footpath, further PRFs may be present.
    - A mature Willow sp tree is present within the woodland; no features could be seen from the footpath, however, only the west aspect could be viewed.
    - A mature English oak to the south east of the woodland with heavy ivy cover creating PRFs and potentially concealing others.
- Some of the trees within the woodland area to the south-east of the allotments could not be accessed due to dense scrub and therefore there may be a requirement for more trees to be surveyed unless impact to them can be avoided.

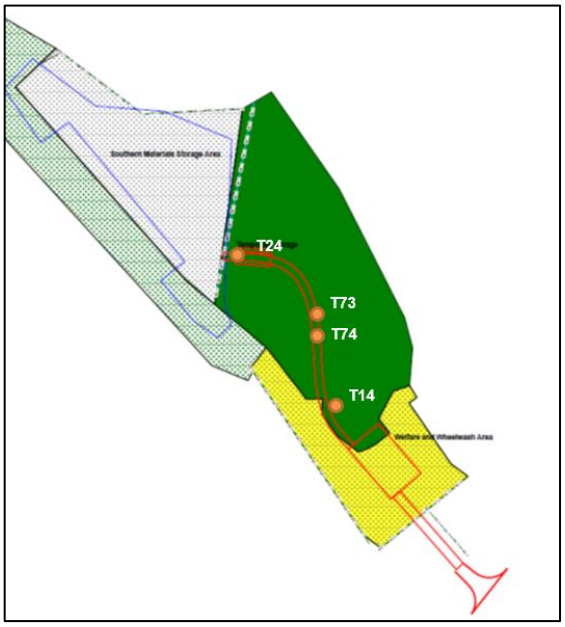


Figure 8 - Location of trees with moderate bat roost potential in the woodland to south-east of allotments. Note that the site compound boundary shown is now superseded (see drawing J923_01-AJ-TS001304-101-DR-C-0030)

- A total of seventeen outbuildings located at Ickenham Green Allotments were assessed.
- A systematic search of the interior and exterior of outbuilding 1 and the exterior of outbuilding 2-17 was made from the ground with the aid of binoculars and a high-powered torch.
- Four outbuildings are considered to have low suitability for roosting bats. A limited number of small gaps were found on the exterior of these outbuildings, which have the potential to support small numbers of crevice-dwelling bats. The other thirteen outbuildings are considered as having negligible suitability for roosting bats.
- No evidence of roosting bats was recorded during the PRA and no outbuildings were considered to provide habitat suitable for hibernating bats.

Recommendations

- The removal of trees, should it be necessary, may be undertaken in the absence of a licensed bat ecologist, although precautionary measures may be required to soft fell those of low potential.
- The survey results are valid for a period of one year. Updated emergence surveys and aerial inspection (to check for new bat roosting features which may naturally develop over time) may be required after one year (September 2021) depending on the proximity of the tree / tree group to the works and potential impact.
- For the four outbuildings considered to have low suitability for roosting bats, in order to determine the presence or absence of bat roosts on site, a bat emergence/re-entry survey or endoscope inspection survey is recommended to be carried out between May and September in the same year of the demolition works.
- Works should avoid night working and the use of artificial lighting. Where this cannot be reasonably avoided, works will adhere to best practice in order to restrict lighting emissions.

Badgers

Recommendations

- The habitat character of the site, largely defined by the golf course to the north (grassland bisected by scrub, hedgerows and woodland) and the allotments and woodland to the south, is considered suitable for badger foraging and sett excavation. Badgers are protected under the Protection of Badgers Act 1992.
- During the initial 2018 and 2019 walkover surveys, no signs of badger were observed within the scheme footprint. However, previous surveys conducted in support of HS2 confirmed presence in the surrounding area, with badger activity recorded along the railway corridor to the immediate south of the golf course (northern site).
- Due to the time that has elapsed since the last survey, it is recommended that prior to works commencing an ecologist carry out an updated check to confirm the continued absence of badger setts from, and within proximity of, the proposed scheme.
- During construction works, it is also recommended ground excavations are filled in prior to the end of the working day, or alternatively left with a plank leaning up from the base of the excavation to the surface so as to provide means of escape for any trapped animals.

Birds

Recommendations

- The habitats associated with the golf course to the north and allotments and woodland to the south provide suitable habitat for priority species such as yellowhammer *Emberiza citronella* (Red list of the Birds of Conservation Concern [BoCC])[1], linnet *Linaria cannabina* (Red list), house sparrow *Passer domesticus* (Red), starling *Sturnus vulgaris* (Red list), song thrush *Turdus philomelos* (Red list), and mistle thrush *Turdus viscivorus* (Red List).
- All birds are protected under the Wildlife and Countryside Act [WCA] (1981) as amended. Schedule 1 species are afforded additional protection in that it is an offence to intentionally or recklessly disturb these species at, on or near an active nest site.
- In order to avoid nesting birds, vegetation clearance should take place outside of the nesting bird season (March to August inclusive), or if timed in that period, only after a survey has shown no active nests are present.

[1] The Birds of Conservation Concern list details the population status of birds in the UK, accordingly, each species is categorised into the Green, Amber or Red list, indicating an increasing level of conservation concern.

Water Vole

Surveys in support of HS2 determined the likely absence of water vole from Ickenham stream (which runs north-south through the golf course and continues southwards underneath the railway corridor) and from a series of smaller ditches within the golf course based on the habitat character (i.e. bank profile, bank substrate, water depth, shading, in channel and bankside vegetation, and management) of these features. No further survey or mitigation for water vole is therefore required.

Invasive Species

Himalayan balsam *Impatiens glandulifera* was recorded along a number of water courses that bisect the golf course during the previous survey (see the Phase 1 Habitat Survey Map for confirmed locations). However, the species was not recorded within the footprint of the scheme at the time of survey. No other invasive species were recorded across the scheme (including the allotment and woodland south of the railway corridor during the survey).

Recommendations

- It is recommended that exclusion zones and appropriate signage is put in place where possible in order to prevent the spread of this species. Additionally, it is recommended that a check for invasive plant species is conducted prior to works commencing to identify any further possible stands of this species. If stands are identified appropriate control measures as recommended in current guidance should be implemented.

Summary of Recommendations

Prior to Construction

- Consultation with GiGL and London Borough of Hillingdon will be required for works in proximity to the non-statutory designated sites.
- Best practice construction methods should be implemented as part of a CEMP in order to avoid construction activities resulting in potential indirect effect on the nearby non-statutory designated sites and priority habitats e.g. Dust deposition, noise or construction lighting.
- A bat roost potential survey was completed in Spring 2019 for trees which could be impacted south of The Greenway. Trees of moderate / high potential which were required to be removed or pruned were then assessed by a tree climbing survey and emergence surveys in September 2020. Detailed climbing and dusk emergence surveys of trees inspected from ground-level in March 2020 with moderate bat roost suitability were all downgraded to low or negligible suitability. In line with this assessment, the removal of trees, should it be necessary, may be undertaken in the absence of a licensed bat ecologist although precautionary measures may still be required to soft fell those of low potential. A supplementary bat survey will be undertaken in 2021 to further confirm the absence of bats within the trees that are likely to be affected by the works.
- For the four outbuildings in the allotments identified as having low potential to support roosting bats it is recommended further survey effort is undertaken to determine the use of these structures by bats if present. The survey effort should consist of a single external and internal endoscope inspection of all potential roost features associated with each outbuilding, or a single emergence/re-entry survey for each outbuilding carried out by a suitably qualified ecologist between May and September 2021. If no bats or bat roosts are identified during the surveys then no further surveys are required, and the structures can be removed.
- In order to avoid nesting birds, vegetation clearance should be completed outside the nesting bird season (nominally taken as between March to August inclusive). Any works within the nesting bird season will require a check prior to works commencing to assess whether the birds are nesting in the features that will be disturbed during the works. If breeding birds are found, then works must cease until the young have fledged the nest.
- It is recommended that prior to works commencing an ecologist conduct a check to confirm the absence of badger setts and invasive species from the works footprint (including access and site compound areas) and immediate environs. Where present appropriate mitigation measures / controls are to be put in place by the ecologist and may include a PMW.

During Site Set up, Trial Hole Surveys and Main Construction

- Vegetation clearance should be completed outside the nesting bird season (nominally taken as between March to August inclusive). Any works within the nesting bird season will require a check prior to works commencing to assess whether the birds are nesting in the features that will be disturbed during the works. If breeding birds are found, then works must cease until the young have fledged the nest.
- Vegetation clearance should also be mindful of potential reptile presence at ground level. Where required, this should be completed in a methodological manner when reptiles are active and can readily disperse (generally between April and September) to displace reptiles into nearby suitable areas of retained habitat. All features

considered to act as hibernacula or refugia should be dismantled by hand during the same time period.

- Access to working areas and the working footprint should avoid other stands of tall vegetation. This will ensure reptiles are not harmed during the works.
- It is recommended that exclusion zones and appropriate signage is put in place around invasive species (sp. Himalayan Balsam) where possible in order to prevent the spread of this species.
- Any site lighting should be avoided in order to reduce the potential impact on the local bat population. If lighting is required this should be downward facing only, reducing light spill from the working areas. (Refer to 'Institute of Lighting Professionals (2020) *Guidance Notes for the Reduction of Obtrusive Light*. Available at https://theilp.org.uk/' and 'Institute of Lighting Professionals (2018) *Bats and artificial lighting in the UK*. Available at https://theilp.org.uk/').
- In the event that GCN are discovered during the works not covered by the PSOL or other mitigation, works will stop immediately, and an ecologist contacted. Consultation with Natural England may be required.