



Hampshire
County Council

Ecological Appraisal of advanced vegetation clearance

Botley Bypass Phase 3

For
Hampshire County Council
Engineering Consultancy

Version 3: October 2024

Hampshire County Council Ecology Team

Hampshire County Council, Elizabeth II Court, 1st Floor West, Winchester, Hampshire SO23 8UD

ecology.group@hants.gov.uk

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<i>Written by</i>	Tristan Norton	<i>Date</i>	V1: November 2022
	Tristan Norton		V2: March 2023
	Simon Mason		V3: October 2024
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<i>Authorised by</i>	Maral Miri	<i>Date</i>	V1: November 2022
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	V3 Adam Eggesfield		V3: October 2024
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Hampshire County Council Ecology Team

Hampshire County Council, Elizabeth II Court, 1st Floor West, Winchester, Hampshire SO23 8UD

ecology.group@hants.gov.uk

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Summary

This report comprises an ecological assessment of proposed advanced vegetation clearance works along the route of the Botley Bypass Phase 3. Following detailed habitat and species surveys carried out between 2015-17, updating field-based assessments were carried out in 2021, 2022 and 2024 of vegetation communities and various protected and notable species.

The full Botley Bypass scheme extends from the Woodhouse Lane/A334 Maypole roundabout junction located to the west of Hedge End, Hampshire to the A334/Pinkmead junction to the north-east of Botley. Planning permission was granted by Hampshire County Council (CS/17/81226) in November 2017. Phases 1 and 2 of the Bypass are now complete. This document relates to Phase 3, located between Winchester Street and the A334/Pinkmead junction.

Vegetation clearance works are necessary in order to remove dense woody habitat in advance of the main construction commencing in late spring/early summer 2025. Habitats within the bypass route that are likely to support protected and notable species such as nesting birds require removal prior to construction. This vegetation removal relates to above-ground woody vegetation such as hedgerows, trees, woodland, scrub and shrubs.

The key habitat to be cleared is part of Botley Mill Woodland Site of Importance for Nature Conservation (SINC), a locally designated area of Alder-dominated riparian woodland on the western bank of the River Hamble. Other habitats include riparian trees and boundary hedgerows to the east of the Hamble within/adjacent to Sherecroft Farm Meadow SINC, typical field boundary hedgerows, dense scrub, and individual trees.

All trees, shrubs and hedgerow sections within the proposed scheme footprint will be reduced to approximately ground level during the period January 2025 - February 2025, prior to the main bird nesting season. Some trees which support suitable bat roost features which cannot be safely or fully inspected immediately prior to felling during the winter will be felled in April/May 2025 when pre-felling emergence surveys can be undertaken. These trees will also be subject to pre-felling nesting bird checks.

Identified impacts are as follows:

- Loss of habitat within Botley Mill Woodland SINC.
- Loss of habitat within Sherecroft Farm Meadow SINC.
- Mobilisation of sediments into River Hamble.
- Waterborne pollution.
- Loss of bat roosting, foraging and commuting habitat.
- Potential disturbance of Otter.
- Loss of nesting/foraging bird habitat.
- Spread of Invasive Non-native Species (INNS).

A mitigation strategy is provided, detailing measures to avoid/minimise identified impacts:

- Ecological Clerk of Works (EcOW) support including pre-clearance checks and supervision of works.
- Implementation of a Construction Environment Management Plan (CEMP) to ensure impacts are avoided/minimised.
- Phased removal of trees.
- Trees with confirmed/suspected bat roosts removed under European Protected Species licence.
- Pre-felling bat inspections of trees with roost potential or confirmed roosts immediately prior to felling for all trees which can be safely and fully inspected (either through climbed inspection or mobile elevated work platform access).
- Trees with confirmed roosts or potential roost features which cannot be safely or fully inspected subject to pre-felling emergence surveys immediately prior to felling during April/May 2025.
- Avoidance of vegetation removal within bird nesting season (with exception of trees with bat roost potential which cannot be safely inspected during winter).
- Implementation of Biosecurity Plan to avoid spread of INNS.

Compensation and enhancement measures will be delivered following the completion of the main construction works. In summary, this will entail extensive native planting of trees and shrub, as well as appropriate wildflower seeding, within the new verge

estate along the entire bypass route. Full details of these measures are to be provided within the main works planning submission.

1. Introduction

Objectives

- 1.1. Hampshire County Council Ecology Team (HCCET) has been commissioned by Hampshire County Council Engineering Consultancy to prepare an ecological appraisal for advanced vegetation clearance works for Phase 3 of the Botley Bypass.
- 1.2. To enable the main bypass construction works to commence in Spring/Summer 2025, it is necessary to remove vegetation outside the bird nesting season. In discussions with Hampshire County Council (HCC) Planning and Planning Ecologists from both Eastleigh Borough Council and Winchester City Council (on 10 October 2022), it was agreed that an Advanced Works proposal could be submitted to permit the partial discharge of planning conditions related to ecology.
- 1.3. The purpose of this appraisal is to assess the ecological impacts of the proposed advanced vegetation clearance, to take place between January 2025 and February 2025.
- 1.4. A suite of detailed ecological surveys was carried out between 2015-17 in relation to the whole Botley Bypass scheme. The Bypass received full planning permission in 2017. The planning application was accompanied by an Environmental Impact Assessment (HCC, July 2017), Chapter 8 of which addresses ecology.
- 1.5. During 2021/22 and in 2024, ecological assessments were updated as necessary to inform the construction of Phase 3, including surveys for habitats, Badger, Bats, Hazel Dormouse, Otter, Water Vole, breeding birds and reptiles.

Site Description

- 1.6. Phase 3 of the bypass route is located between Winchester Street in the south-west and the A334/Pinkmead junction in the north-east. The route can be divided into two halves, lying east and west of the River Hamble. The western section forms part of the HCC-owned Uplands Farm characterised by extensive fields of improved grassland. To the east of the river lies Sherecroft Farm, containing areas of improved and semi-improved grassland with boundary trees and hedgerows.

1.7. The central section of the route contains the River Hamble. The river is fringed by wet woodland and fen vegetation.

1.8. A location plan and aerial photos of the site showing the site boundary and its setting are shown in Appendix 1. Appendix 2 includes photographs of the site.

Proposed Works

1.9. The proposed works will entail the removal to ground level of all woody vegetation within the Bypass Phase 3 scheme area. In summary, this comprises the following areas, moving west to east across the scheme area. The locations of these areas are shown in Appendix 1.

- **Area A** - Removal of c.100m length (two 50m lengths) of intact species-poor hedgerow north of Uplands Farmyard.
- **Area B** - Removal of c.10m length of defunct species-poor hedgerow/Bramble north-east of Uplands Farmyard.
- **Area C** – Removal of c.0.25 hectares of wet woodland habitat within Botley Mill Woodland SINC.
- **Area D** – Removal of c.100m of species-rich hedgerow with trees at Sherecroft Farm.
- **Area E** - Removal of c.120m of species-poor intact hedgerow in Sherecroft Farm south-west of Bottings Industrial Estate.
- **Area F** - Removal of c.0.2 hectares of mixed scrub/trees on northern edge of A334/Pinkmead junction.
- **Area G** – Removal of c.140m length of species-rich hedgerow on northern side of A3051.

Limitations

1.10. All areas of the site were fully accessible and visible during the 2021, 2022 and 2024 field survey visits. Any limitations with specific survey methodologies are discussed within the relevant sections throughout this report.

2. Methods

Desk-based assessment

2.1. An initial desk-based assessment was carried out by HCCET in March 2016 and was updated in October 2022 and again in September 2024. This comprised the following elements:

Zone of influence (Zol)

2.2. The scheme layout was reviewed to establish the likely extent of impacts at which potential ecological receptors might be affected. This was based on established criteria (such as Natural England's Impact Zones for Sites of Special Scientific Interest (SSSI)) or published impact zones around certain European Sites. Where established criteria are not present, the Zol was based on the ecologist's professional judgement. Where necessary, the Zol for relevant receptors are discussed in the following sections.

Scoping

2.3. An initial review of the site and the scheme layout were carried out to consider the likelihood of particular ecological receptors being present at the site or nearby (within relevant Zol). Where this scoping confidently concluded that a particular receptor is likely absent, these are not considered in detail in the report.

Data search

2.4. Geographical Information Systems (GIS) mapping was used in order to identify statutory and non-statutory designated sites, Priority Habitats and protected and notable species within a 1km radius of the site. Hampshire Biodiversity Information Centre (HBIC) data were accessed for records of designated sites, Priority Habitats and protected and notable species within the 1km search radius. Where necessary, the search radius was extended to accommodate wide-ranging species such as bats.

2.5. HCCET has full access to the extensive datasets maintained by the Hampshire Biodiversity Information Centre. These datasets cover designated sites, priority habitats and over 8 million species records, and *'whilst every reasonable effort is made to validate information supplied to and by the Hampshire Biodiversity*

Information Centre, owing to the dynamic and judgmental nature of information relating to wildlife, HBIC disclaims any responsibility for the accuracy or comprehensiveness of the information supplied, and accepts no liability for any indirect, consequential, or incidental damages or losses arising from use of the information' (Paragraph 4 of the HBIC Data Users Declaration).

2.6. The findings of the desk-based assessment, in terms of establishing the local and wider ecological context of the site, has also been used where relevant to inform recommendations for ecological mitigation, compensation and enhancement, as set out in Section 5.

Field survey

Extended Phase 1 Habitat Survey

2.7. An updated assessment of habitats was undertaken on several occasions during 2021 and 2022. The survey entailed a single surveyor, Tristan Norton (Senior HCCET Ecologist), undertaking a methodical investigation of all areas of the site in order to identify and map vegetation communities. Concurrent with these visits, and assessment was made of the potential for various protected and notable faunal species to occur. A further updating habitat assessment was undertaken by Simon Mason (Senior HCCET Ecologist) in summer 2024 to assess whether any notable changes in habitats had occurred since the 2021/22 surveys. A brief description of the survey methods used is provided below.

2.8. Habitat assessment followed the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee (JNCC, 2010) and the Institute of Environmental Assessment (IEA, 1995). Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. It should be noted that the habitat categories used by the Phase 1 Habitat Survey Methodology do not directly mirror the habitat types considered to be conservation priorities. Where relevant and necessary, this is discussed further in Section 4.

Badger

2.9. The site was inspected for field signs of Badger *Meles meles* such as setts, latrine sites, well-used trails, prints, foraging activity, and hairs. Evidence of Badger

activity was looked for during regular survey visits to the scheme area throughout 2021, 2022 and in 2024. The survey covered all areas within the red line boundary and extended up to 30m from the scheme boundary where suitable and accessible habitat was present.

Bats

Activity Surveys

2.10. Updating bat activity surveys were carried out by ADAS on behalf of HCC during 2021 and 2022. Full details of all bat survey works undertaken in 2021 and 2022 are included in Appendix 5. Bat survey works entailed walked transect surveys, ground-level tree assessments, climbed tree assessments, static detector surveys and emergence/re-entry roost surveys on trees.

2.11. Walked transect surveys covering the entire Phase 3 scheme area were carried out in 2021 and 2022. The surveys were split into East and West sections, covering land east and west of the River Hamble. Survey details are shown in Table 1.

Table 1: Bat Survey Walked Transect Details

Survey date	Location	Timings
22 June 2021	East	21:43 - 23:09
27 July 2021	East	21:24 - 22:53
24 August 2021	East	20:13 - 21:51
28 September 2021	East	05:13 - 06:49
18 May 2022	East	20:57 - 23:09
1 June 2022	East	02:56 - 04:48
22 July 2021	West	21:34 – 23:00
29 July 2021	West	20:56 – 23:10
18 August 2021	West	20:20 – 22:48
29 September 2021	West	05:01 – 06:23
12 May 2022	West	20:32 – 22:24
14 June 2022	West	02:43 – 04:30

2.12. The transects covered a distance of 2.5km to the east and a 3km route to the west, with twelve stopping points along each of the routes. Each transect was

carried out by two surveyors. Surveyors walked five minutes to a stopping point, stayed at the point for five minutes, and repeated the process, recording all bat activity observed along the transect route. Dusk transect surveys commenced at sunset and continued for two hours, while dawn transect surveys commenced two hours before sunrise and finished fifteen minutes after sunrise.

Roost Surveys

Ground Level Tree Assessment

2.13. All trees within the site likely to be impacted were subject to detailed visual inspection as part of a Ground Level Tree Assessment (GLTA) to identify Potential Roost Features (PRFs) which may offer suitable bat roosting opportunities. These features include dense ivy cladding, woodpecker holes, rot holes, limb stubs, cavities; flaking bark, cracks, and splits. Surveys were undertaken by ADAS in May and June 2022. The methods used were those described within the Bat Conservation Trusts Bat Survey Guidelines (Collins 2016).

2.14. Updating GLTA assessments were then undertaken by HCCET between June and July 2024. These updating assessments used the revised 4th edition of the Bat Survey Guidelines (Collins 2023). The surveys focused on the areas impacted by the revised 2024 scheme design and areas of tree loss in accordance with the 2024 Arboricultural Impact Assessment.

2.15. Each tree was graded for its potential to support bats based initially on criteria within Collins (2016) and then subsequently updated during the 2024 surveys to the updated criteria within Collins (2023).

Climb and Inspect Surveys

2.16. During summer 2022, tree climbing surveys were undertaken by ADAS as part of a follow-up PRF inspection survey based on the results of the GLTA survey. This survey included using harnesses and ropes or ladders to carry out a detailed internal inspection of PRFs using torches and endoscopes to search for evidence of bats. ADAS tree climbing surveys were completed by James Pattenden (Class 2 licence number 2015-106-CLS-CLS and Bat Low Impact Class Licence RC162, Annex B and D) who is qualified in tree climbing and aerial rescue. The aim of the

survey was to reclassify PRFs and determine the presence or absence of bats at the time of the survey and the need for further surveys.

2.17. In November 2022, following discussions with the appointed scheme contractor, further trees within the scheme area were identified as requiring removal. A GLTA survey was carried out in November 2022 by HCCET and identified five trees with PRFs which were now impacted by the scheme. These trees were subject to climbed assessment by HCCET on 16 November 2022. Surveys were led by Simon Mason (Class 2 Licence number 2015-16600-CLS-CLS and qualified in tree climbing and aerial rescue). Details of these additional trees, including the results of GLTA and PRF surveys, are provided in Appendix 6.

2.18. Between July and September 2024 updating climb and inspect surveys were undertaken. Updating surveys were undertaken on trees impacted by the updated 2024 scheme and previously assessed as having PRF's of low moderate or high suitability or where 2024 updating ground level tree assessments identified additional PRF's. The 2024 surveys classified trees in accordance with the updated 2023 BCT guidelines:

- PRF-I: PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
- PRF-M: PRF is suitable for multiple bats and may therefore be used as a maternity colony.

2.19. Where features were assessed as PRF-M, in accordance with the 4th edition of the Bat Survey Guidelines (Collins 2023) repeat climbs were then undertaken where safe to do so and where features could be fully inspected. Repeat climbing surveys were undertaken at least three weeks apart. Surveys were led by Simon Mason (Class 2 Licence number 2015-16600-CLS-CLS and qualified in tree climbing and aerial rescue). Dates of climbing surveys are provided in Appendix 7.

2.20. Where PRF's were not safe to climb they were subject to emergence surveys as detailed below.

Emergence Surveys

- 2.21. During 2022, trees that could not safely be climbed, and trees exhibiting PRFs offering moderate or high bat roosting potential following the initial climbing surveys, were subject to further assessment using emergence/re-entry surveys aided by the use of night vision equipment. Seventeen trees were assessed using this method. Full details of the assessment are provided within the ADAS bat report in Appendix 5.
- 2.22. Surveyors were equipped with Canon XA11/XA15 HD camcorders and Canon XA45/XA40 camcorders to assist in the detection of emergences. Cameras were set up to film individual PRFs on each tree. The footage was analysed after the survey using the programme MotionMeerkat (Weinstein 2015) and by watching the footage in real-time. Approximately 10% of the total footage recorded was analysed with MotionMeerkat and the remaining footage was watched in real time. With footage analysed with MotionMeerkat 10% of all footage watched through MotionMeerkat was also watched in real-time for quality control.
- 2.23. Surveyors were also equipped with full-spectrum Echo Meter Touch 2 detectors or Batlogger M detectors to assist with the detection of roosts. All bat data was analysed to confirm the species of bats present. Where required, recordings were analysed using Kaleidoscope and/or Analook software. Bat sightings and behaviours were recorded, along with time, species and whether they emerged from the trees.
- 2.24. Updating 2024 emergence surveys were undertaken by HCCET on impacted trees identified as supporting PRF's which were not safe to climb or could not be fully inspected. Infrared and thermal imaging cameras were used to assist in the detection of emergences as required by the 2023 BCT survey guidelines. Cameras were set up to provide coverage of all PRF's and surveyors were equipped with Elekon Batlogger M or M2 full spectrum bat detectors which record bat calls directly onto an integral SD card. Infra-red and thermal recordings were reviewed manually following the survey to confirm whether any bats emerged or entered the trees. Bat calls were analysed using Bat Explorer software. Analysis of bat calls was carried out with reference to standard texts and call reference libraries (Russ, 2021 and Middleton et al, 2022).

2.25. Bat sightings and behaviours were recorded, along with time, species and whether they emerged from the trees. Emergence surveys started 15 minutes before sunset and finished at least 1.5 hours after sunset.

2.26. Details of 2024 emergence survey dates, equipment and weather conditions are provided in Table 2.

Table 2 Survey timings and equipment

Date	Trees Covered	Type	Duration	Weather Conditions	Sunset
23 July 2024	T155 – dead Alder monolith T142 – Crack Willow T153 – Alder	Dusk emergence	20:50 – 22:33	Start: 20°C, 4/8 Cloud, Wind B1, no rain End: 19°C, 7/8 Cloud, Wind B1, no rain.	21:03
		Surveyors / Equipment:	4 surveyors 5 Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 1 Sony FDR AX53/AX55 camcorder 2 Guide TK612 Thermal Monocular Camera – 640x480, 12µ m lens, 50Hz		
07 August 2024	T174 – Alder Dead Oak	Dusk emergence	20:25 – 22:40	Start: 18°C, 3/8 Cloud, B2-3 wind, no rain. End: 17°C, 4/8 Wind, B1 Wind, no rain	20:40
		Surveyors / Equipment:	4 surveyors 7 Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 1 Sony FDR AX53/AX55 camcorder 2 Guide TK612 Thermal Monocular Camera – 640x480, 12µ m lens, 50Hz		
13 August 2024	T155 – dead Alder monolith T166 – dead Ash T142 – Crack Willow T152 – Ash T153 - Alder	Dusk emergence	20:14 – 21:59	Start: 19°C, 2/8 Cloud, B1 Wind, No rain. End: 18°C, 2/8 Cloud, B1, No rain.	20:29

		Surveyors / Equipment:	4 surveyors 4 No Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 1 Sony FDR AX53/AX55 camcorder with supplementary IR floodlights 2 Guide TK612 Thermal Monocular Camera – 640x480, 12µ m lens, 50Hz		
27 August 2024	T174 – Alder T152 – Ash Dead Oak	Dusk emergence	19:40 – 21:30	Start: 19°C, 1/8 Cloud, B1 Wind, No rain End: 17°C, 0/8 Cloud, B1 Wind, No Rain	20:00
		Surveyors / Equipment:	5 surveyors 6 Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 1 Sony FDR AX53/AX55 camcorder 2 Guide TK612 Thermal Monocular Camera – 640x480, 12µ m lens, 50Hz		
11 September 2024	T155 – dead Alder monolith T166 – dead Ash T142 – Crack Willow T153 - Alder	Dusk emergence	19:12 – 20:57	Start: 11°C, 2/8 Cloud, B1 Wind, No rain End: 11°C, 0/8 Cloud, B1 Wind, No rain	19:27
		Surveyors / Equipment:	4 surveyors 5 Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 1 Sony FDR AX53/AX55 camcorder 2 Guide TK612 Thermal Monocular Camera – 640x480, 12µ m lens, 50Hz		
17 September 2024	T174 – Alder T152 – Ash Dead Oak	Dusk emergence	18:57 – 20:43	Start: 18°C, 0/8 Cloud, B1 Wind, No rain End: 15°C , 0/8 Cloud, B1 Wind, No rain	19:13
		Surveyors / Equipment:	5 surveyors 5 Batlogger M/M2 bat detectors 2 Nightfox Whisker IR camera 3 Sony FDR AX53/AX55 camcorder with supplementary IR floodlights		

			2 Guide TK612 Thermal Monocular Camera – 640x480, 12μ m lens, 50Hz
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Limitations

2.27. Repeat endoscope inspection surveys of Tree T163 were less than three weeks apart. This tree, a mature Alder originally assessed as Moderate potential in 2022 and changed to PRF-M in accordance with updated guidelines, has a basal cavity extending partially into the trunk. During initial 2024 surveys the feature was not identified due to dense vegetation obscuring the feature. On the site visit on 22 August the feature was found by clearing the vegetation which obstructed the feature. This is not considered a significant constraint as prior to the clearance of vegetation the feature would not have been accessible to bats.

2.28. One of the repeat emergence surveys on tree T152 was two weeks apart rather than the three weeks apart recommended in the 2023 BCT survey guidelines. This was due to difficulties in locating the tree within the woodland during the initial emergence survey visit. Whilst this is a slight deviation from current guidelines this is not considered a significant constraint. Since commencing the updating surveys in 2024 this tree has now been identified for retention and will no longer be directly impacted.

Hazel Dormouse

2.29. A Hazel Dormouse presence/absence survey was undertaken in 2021 and 2022. This entailed the use of one hundred Dormouse nest tubes distributed within suitable hedgerow and scrub habitat across the Phase 3 scheme area. The location of tubes is shown in Appendix 1.

2.30. During March 2022 a total of eleven tubes were removed to prevent damage or had already been destroyed during hedgerow removal during the preceding winter months, related to Phase 2 of the Bypass scheme: therefore 89 nest tubes were present for the 2022 survey period. Nest tubes were checked on a monthly basis between August and November 2021 and May and September 2022. Table 3 shows the dates of Dormouse nest tube checks.

Table 3: Hazel Dormouse Survey details

Survey date	Details
28/29 July 2021	Tubes installed
31 August 2021	Check
29 September 2021	Check
25 October 2021	Check
25 November 2021	Check
31 March 2022	Tube maintenance
16 May 2022	Check
20 June 2022	Check
2 August 2022	Check
30 September 2022	Check and tube collection

2.31. Table 4 shows the index of probability of detecting presence of Dormice based on the Dormouse Conservation Handbook guidelines (2006). In accordance with the guidelines a score of 20 points is required to confirm likely absence. Based on the distribution of tubes to the east of the Hamble and to the West of the Hamble, due to the fragmentation caused by the Hamble corridor, the survey effort to the east of the Hamble achieves 25 points and the survey effort to the west of the Hamble achieves 39 points, both in excess of the number of points required to confirm likely absence.

Table 4: Hazel Dormouse Survey Points

Month	Index of Probability (50 tubes)	East (33 tubes)	West (61 tubes 2021, 50 tubes 2022)
Aug-21	5	3.3	5
Sep-21	7	4.62	7
Oct-21	2	1.32	2
Nov-21	2	1.32	2
Apr-22	1	0.66	1
May-22	4	2.64	4
Jun-22	2	1.32	2
Jul-22	2	1.32	2
Aug-22	5	3.3	5
Sep-22	7	4.62	7
Oct-22	2	1.32	2
Total		25.74	39

2.32. During 2024 a habitat walkover was undertaken to assess whether there had been any significant habitat changes on site, of which none were recorded. Due to negative Dormouse surveys during 2015 and in 2021/22 as well as negative surveys for the Sherecroft Farm development in 2016 which covered the same habitats east of the Hamble, it was assessed that it was unlikely that the site would become populated by Dormouse since the last updating survey and therefore further surveys were not undertaken.

Otter and Water Vole

2.33. Updating Otter and Water Vole presence/absence surveys were carried out in September 2021, July 2022, May 2023 and August 2024. Surveys were undertaken during the day in suitable weather conditions with no periods of high rainfall prior to the surveys which could have raised water levels and obscured or washed away field signs.

2.34. Water Vole surveys entailed a careful visual inspection of the channel, banks and riparian zone of the River Hamble, the small fish bypass channel to the east,

and associated riparian habitats within the works areas and areas up and downstream, covering a distance of approximately 400m, to look for signs of Water Vole presence such as droppings/latrine sites, feeding remains, burrow entrances and prints.

2.35. Otter surveys involved a careful visual inspection of the channel, banks and riparian zone of the River Hamble, the small fish bypass channel to the east, and associated riparian habitats within the scheme area and areas up and downstream, covering a distance of approximately 400m, to look for signs of Otter presence such as tracks, spraints, anal jelly, feeding remains, resting places and holt. Particular attention was given to examinations of typical Otter sprainting sites such as in-channel and bankside logs and rocks, as well as searches of bankside mud to identify tracks. An old Mink raft on the River Hamble was also inspected for evidence of Otter spraints.

Breeding Birds

2.36. A breeding bird survey was carried out in 2022. This entailed a total of six survey visits between early April and late June 2022. Survey dates are shown in Table 3.

2.37. The surveys entailed the use of Common Bird Census (CBC) methodology developed by the British Trust for Ornithology (BTO). The CBC is based on territory mapping and is designed to assess the breeding bird community by mapping the number of active territories of each species present within a site over the main breeding period. The CBC is based on a series of survey visits spread across the main breeding bird season (generally between April and July). At this site, a total of six visits between early April and late June 2022 were considered adequate to assess the breeding bird assemblage within the site. Full details of CBC survey methodology can be found in Bibby *et al.* (2000) and Gilbert *et al.* (2012).

2.38. Each CBC survey visit involved a single surveyor walking a predetermined transect route through the site, ensuring that all habitat types were visited and that each of these received a proportionate amount of survey time. Surveys were undertaken between first light and mid-late morning (generally between 06:00 and 10:00) in order to cover the key period of bird activity (i.e. bird song and flight).

Surveys were undertaken in appropriate weather conditions i.e. without strong winds, heavy rainfall etc. The CBC is not normally suitable for surveying nocturnal/crepuscular species such as owls: specific survey methods are required for nocturnal species (see Gilbert *et al.* 2011) although given the size and character of the site it is not considered that any significant nocturnal/crepuscular species would breed and therefore nocturnal surveys were not conducted.

2.39. The location of each bird seen or heard was recorded on field maps using standard CBC symbols and species codes. The most important information is to record birds of the same species singing simultaneously (this allows an estimation of territory numbers and boundaries) as well as any unambiguous evidence of breeding and/or territory holding such as an occupied nest, eggshells, recently fledged young, agitated behaviour/alarm calling within suitable habitat, antagonistic encounters between two or more birds and adult birds collecting and/or carrying food, nest material or faecal sacs.

2.40. Analysis of the survey maps provides an estimation of the number of territories based on clusters of territorial activity (e.g. a singing bird observed at the same location over two or more survey dates is assumed to indicate a territorial centre). Table 5 provides details of each survey visit.

Table 5: Breeding Bird Survey details

Survey date	Timing	Weather conditions
1 April 2022	0700-1100	0/8 cloud, 4°C, bright, Force 3(5) N
5 May 2022	0700-1100	4/8 cloud, 10°C, bright, Force 1(2) S
18 May 2022	0700-1100	6/8 cloud, 11°C, still, rain overnight
27 May 2022	0630-1100	3/8 cloud, 12°C, bright, Force 2(3) SW
10 June 2022	0630-1100	3/8 cloud, 12°C, bright, Force 3(4) SW
29 June 2022	0600-1030	5/8 cloud, 11°C, still, rain overnight

2.41. During 2024 an updating habitat walkover was undertaken to determine whether there had been any significant habitat changes on site and in the absence of any significant habitat changes, updating breeding bird surveys were not undertaken.

Reptiles

- 2.42. An updating reptile presence/likely absence survey was carried out in 2021 across the scheme area. A series of 100 50cm² sheets of bitumen roofing felt were distributed in July 2021 within suitable habitat. These were inspected on seven occasions during August and September 2021. The locations of reptile survey sheets are shown in Appendix 1.
- 2.43. The bitumen sheets warm more rapidly than the surrounding environment and reptiles rest on or beneath them in order to thermo-regulate. Inspection of refugia was undertaken during suitable weather conditions with temperatures between 10°C and 19°C and avoided periods of continuous rainfall.
- 2.44. Further updating reptile surveys were undertaken in 2024 to assess whether there had been any changes to the reptile population since the most recent updating surveys which were undertaken in 2021. The survey methods were the same as the 2021 surveys and locations covered similar areas, as shown in Appendix 1. The main change from the 2021 surveys was that part of Sherecroft Farm is currently under construction for a housing development and so areas that were previously surveyed within the southern part of Sherecroft Farm were not surveyed in 2024. A total of 80 mats were set up on 24 June and 9 August 2024.
- 2.45. Dates of the 2021 and 2024 surveys are provided in Table 6.

Table 6: Reptile Survey dates

Survey Visit Number	2021 Survey Date	2024 Survey Date
1	31 August 2021	27 August 2024
2	2 September 2021	30 August 2024
3	6 September 2021	2 September 2024
4	17 September 2021	6 September 2024
5	21 September 2021	10 September 2024
6	23 September 2021	13 September 2024
7	29 September 2021	18 September 2024
8	-	19 September 2024

Limitations

- 2.46. During the 2024 surveys a number of reptile tiles were found to have been damaged within the survey area in the west of the site on visit 5 and visit 7 with approximately 30 tiles damaged. The far west of the site was also not accessible during survey visit 6. An additional survey visit was undertaken on the 19 September to check the area that could not be accessed during survey visit 6 and to also to undertake an additional check of the areas where tiles had been damaged. This is not considered a significant limitation as an additional check was undertaken.

3. Results

Desk-based assessment

Designated sites

3.1. Appendix 3 shows the location of the site and its surrounding relevant designated statutory and non-statutory sites.

3.2. There are no international or national designated sites within the scheme area. The nearest international and national designated sites are located c.650m to the south of the scheme. The upper reaches of the River Hamble to the south of Botley village are within the Solent Maritime Special Area of Conservation (SAC), the Solent & Southampton Water Special Protection Area (SPA) and Ramsar site, and the underlying Upper Hamble Estuary & Woods Site of Special Scientific Interest (SSSI). Table 7 provides details of these statutory designated sites.

Table 7: Statutory designated sites and qualifying features

Designated site	Details of Site Qualifying Features
Solent Maritime SAC	▪ H1110. Sandbanks which are slightly covered by sea water all the time ▪ H1130. Estuaries ▪ H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats ▪ H1150. Coastal lagoons ▪ H1210. Annual vegetation of drift lines ▪ H1220. Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves ▪ H1310. <i>Salicornia</i> and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand ▪ H1320. <i>Spartina</i> swards (<i>Spartinion maritimae</i>); Cord-grass swards ▪ H1330. Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) ▪ H2120. Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes"); Shifting dunes with Marram

Designated site	Details of Site Qualifying Features
	▪ S1016. <i>Vertigo moulinsiana</i>; Desmoulin's Whorl Snail
Solent & Southampton Water SPA	▪ A046a <i>Branta bernicla bernicla</i>; Dark-bellied Brent Goose (Non-breeding) ▪ A052 <i>Anas crecca</i>; Eurasian Teal (Non-breeding) ▪ A137 <i>Charadrius hiaticula</i>; Ringed Plover (Non-breeding) ▪ A156 <i>Limosa limosa islandica</i>; Black-tailed Godwit (Non-breeding) ▪ A176 <i>Larus melanocephalus</i>; Mediterranean Gull (Breeding) ▪ A191 <i>Thalasseus sandvicensis</i>; Sandwich Tern (Breeding) ▪ A192 <i>Sterna dougallii</i>; Roseate Tern (Breeding) ▪ A193 <i>Sterna hirundo</i>; Common Tern (Breeding) ▪ A195 <i>Sternula albifrons</i>; Little Tern (Breeding) In addition, the following species are included within the qualifying bird species assemblage for the site: Over winter, the area regularly supports: Gadwall <i>Anas strepera</i>, Teal, Ringed Plover, Black-tailed Godwit, Little Grebe <i>Tachybaptus ruficollis</i>, Great Crested Grebe <i>Podiceps cristatus</i>, Great Cormorant <i>Phalacrocorax carbo</i>, Dark-bellied Brent Goose, Wigeon <i>Mareca penelope</i>, Redshank <i>Tringa totanus</i>, Pintail <i>Anas acuta</i>, Shoveler <i>Anas clypeata</i>, Red-breasted Merganser <i>Mergus serrator</i>, Grey Plover <i>Pluvialis squatarola</i>, Lapwing <i>Vanellus vanellus</i>, Dunlin <i>Calidris alpina alpina</i>, Curlew <i>Numenius arquata</i>, Shelduck <i>Tadorna tadorna</i>.
Solent & Southampton Water Ramsar	<u>Ramsar criterion 1</u> The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. <u>Ramsar criterion 2</u>

Designated site	Details of Site Qualifying Features
	The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. <u>Ramsar criterion 5</u> Assemblages of international importance: Species with peak counts in winter: 51343 waterfowl (5 year peak mean 1998/99-2002/2003) <u>Ramsar criterion 6</u> Species/populations occurring at levels of international importance: <i>Spring/Autumn</i> A137 Ringed Plover <i>Winter</i> A046a Dark-bellied Brent Goose A052 Eurasian Teal A156 Black-tailed Godwit
Upper Hamble Estuary & Woods SSSI	Upper Hamble Estuary and Woods Site of Special Scientific Interest comprises the uppermost section of the estuary of the River Hamble and its flanking zones of saltmarsh, reed swamp and ancient semi-natural woodland. The estuary penetrates the Tertiary strata of the Hampshire Basin and within the SSSI, London Clay, valley gravels, Bagshot Sands and Bracklesham Beds are successively exposed, proceeding up-river, each of which supports woodlands of differing types. Twelve types of ancient broad-leaved woodland occur in the SSSI and collectively comprise one of the most ecologically diverse woodland areas in central southern England and an exceptionally species-rich ground flora.

3.3. Two local designated Sites of Importance for Nature Conservation (SINC) are situated within the scheme area. Botley Mill Woodland SINC is located on the western edge of the Hamble and Sherecroft Farm Meadow SINC is located on the eastern edge of the river. Table 8 provides details of these local designated sites.

Table 8: Non-statutory designated sites and features

Designated site	Details of Site Interest Features
Botley Mill Woodland SINC	Botley Mill Woodland is a small block of grazed wet woodland habitat, situated on the western bank of the River Hamble, to the immediate south of the Botley viaduct. The structure of the wood is suggestive of a site which is not ancient woodland, but originally a more open fen/swamp/riverine woodland complex, which has recently developed a more complete wet woodland type canopy. Today the wood is regularly grazed by a small number of cattle, a practice which may (very) closely resemble the site's traditional management regime. The invasive non-native species Indian Balsam <i>Impatiens glandulifera</i> is locally abundant in the river margins.
Sherecroft Farm Meadow SINC	Sherecroft Farm Meadow is a small relic fen meadow, situated on the eastern banks of the River Hamble, between Botley Mill and the Botley Viaduct, Sherecroft Farm, Botley. The meadow has clearly been left unmanaged for some time and is mostly quite densely overgrown by swamp and tall fen vegetation. The meadow, despite being quite overgrown, is structurally varied and retains a good variety of flowering herbs. The Nationally Near Threatened Crosswort <i>Cruciata laevipes</i> and the Nationally Near Threatened Ragged-robin <i>Silene flos-cuculi</i> are present. The invasive non-native species Indian Balsam, which is common along the River Hamble, is abundant.

Priority Habitats

3.4. A number of parcels of Priority Habitat are located within the scheme area. These habitats are shown in Appendix 3.

3.5. Priority Habitats are predominantly clustered around the River Hamble corridor, with areas of Wet Woodland, Purple Moor Grass and Rush Pastures and Coastal

& Floodplain Grazing Marsh present within Botley Mill Woodland and Sherecroft Farm Meadow SINCs.

3.6. Several areas of Lowland Mixed Deciduous Woodland are located in proximity to the A334/Pinkmead junction at the eastern end of the scheme area. These comprise narrow swathes of woodland habitat adjacent to Pinkmead Farm and highway verges.

3.7. Otherwise, Priority Habitats lying outside the scheme area are predominantly located to the north of the railway line, clustered around the River Hamble corridor within Newhouse Farm and Lower Wangfield Farm landholdings. These areas support Lowland Mixed Deciduous Woodland and Coastal & Floodplain Grazing Marsh.

Protected and notable species

3.8. The HBIC data search contains relatively few records of protected and notable species within the scheme area. These records are shown in Appendix 3.

3.9. The bulk of records are from within the River Hamble corridor and comprise several records of Otter from the river (sightings and spraints), records of various bat species including Western Barbastelle *Barbastella barbastellus*, and a selection of notable plant species associated with HBIC surveys of the two SINCs. There are records of Badger activity from just north of the scheme area to the north/north-east of the proposed river crossing.

3.10. There is a record of a single roosting Common Pipistrelle *Pipistrellus pipistrellus* from within Uplands Farmhouse just south of the scheme area, and a record of Oak-leaved Goosefoot *Oxybasis glauca* from Uplands Farm, within the proposed scheme footprint (see 3.42 below).

Fieldwork scoping / Zone of influence

3.11. The scheme zone of influence is considered to be the location of proposed vegetation clearance works as shown in Appendix 1, plus a buffer around the works to account for general disturbance.

3.12. The likely zone of influence for the proposed development is therefore considered to be the areas directly affected by physical disturbance e.g.

groundworks/vegetation clearance as well as the indirect impacts from works e.g. noise/visual disturbance. Within this ZoI habitats will be removed/disturbed and there is potential for direct impacts to protected and notable species.

- 3.13. Indirect impacts associated with vegetation removal include noise and visual disturbance, and mobilisation of sediments into the water environment. Given the nature of the River Hamble corridor, potential impacts necessitate that the ZoI extends to areas connected hydrologically to the site.

Field Survey

Habitats

- 3.14. Habitats across the whole Bypass Phase 3 scheme area are described below and are shown in the Phase 1 habitat maps in Appendix 4. Photographs of described habitats are presented in Appendix 2.

Wet woodland

- 3.15. The western edge of the River Hamble contains an area of wet woodland, known as Botley Mill Woodland SINCC. The woodland is dominated by dense Alder *Alnus glutinosa* and is grazed lightly by a small number of cattle (no grazing noted in 2024). The Alder woodland contains trees of varying ages, with examples of mature multi-stemmed coppiced specimens as well as younger individuals. Occasional dead/decayed specimens are present. The site was subject to detailed botanical assessment by HBIC in 2014 and was considered to be a former fen habitat that had subsequently been colonised by trees: the habitat has not changed in any measurable way since that previous assessment.

- 3.16. Other tree species found sparingly throughout include Sycamore *Acer pseudoplatanus*, Silver Birch *Betula pendula* and Ash *Fraxinus excelsior*. The western edge of the woodland is on drier ground and several mature Pedunculate Oak *Quercus robur* are present. The western edge of the woodland is abrupt and abuts improved grassland within Uplands Farm.

- 3.17. There is essentially no shrub layer due to the presence of low-density grazing over many years, although some individual shrubs of Hawthorn *Crataegus monogyna* are present alongside patches of dense Bramble *Rubus fruticosus*. The woodland is classified as W7 *Alnus glutinosa* - *Fraxinus excelsior* - *Lysimachia*

nemorum woodland. The bulk of the woodland is over very boggy ground, poached by grazing cattle, and contains a fen-like vegetation (described below in 3.39) with frequent to locally abundant Himalayan Balsam *Impatiens glandulifera*.

Trees and other woodland

3.18. The single largest block of trees outside the River Hamble corridor is situated immediately north of the A334/Pinkmead junction (Area F, Appendix 1). This comprises a crescent-shaped section of overgrown scrub with trees containing Field Maple *Acer campestre*, Pedunculate Oak, Scots Pine *Pinus sylvestris*, Ash, Norway Maple *Acer platanoides*, Hawthorn and Cherry Plum *Prunus cerasifera*. This area is clearly of planted origin and unmanaged.

3.19. On the southern side of the A334/Pinkmead junction is a line of mature trees situated on an overgrown highways drainage ditch. Species present are Pedunculate Oak, Ash, Yew *Taxus baccata*, Hornbeam *Carpinus betula*, Field Maple, Bird Cherry *Prunus padus* and Elm *Ulmus procera*.

3.20. Further mature trees are situated on the southern edge of the A3051 to the east of Pinkmead Farm. These are all large, mature Pedunculate Oaks set within improved pasture with species-poor managed hedgerows.

Hedgerow

3.21. Various boundaries within the scheme area comprise hedgerows of varying quality. The majority of hedgerows are species-poor and dominated by Hawthorn with frequent Bramble.

3.22. Immediately north of Uplands Farm (Area A in Appendix 1), the farm track is bordered on both sides by well-managed species-poor hedgerows dominated by Hawthorn with occasional Elder *Sambucus nigra*.

3.23. To the east of Uplands Farm (Area B, Appendix 1) is a farm track and public footpath which is fringed in some areas by a defunct, species-poor hedgerow comprising Bramble scrub: this was potentially a continuous hedgerow at one stage but has degraded into a single patch of remnant vegetation.

3.24. To the east of the River Hamble, within Sherecroft Farm (Area D, Appendix 1) is a stretch of species-rich hedgerow with trees. To the west of this is a line of

trees, shrubs and Bramble patches fringing the fish bypass channel adjacent to Sherecroft Farm Meadow SINCC. This line of vegetation contains a single large dead Pedunculate Oak, Crack Willow, Alder and Hawthorn.

3.25. A tall, dense species-poor hedgerow is located adjacent to a public footpath within Sherecroft Farm, fringing Bottings Industrial Estate (Area E, Appendix 1). This hedge is dominated by Hawthorn, with occasional Elder, Blackthorn *Prunus spinosa*, Bramble and Dog Rose *Rosa canina*. The 2024 updating survey found that the northern end of this hedgerow had been removed as part of the Sherecroft Farm development.

3.26. On the eastern side of the A334, just north of the Pinkmead junction (Area G, Appendix 1), there is an intact species-rich managed hedgerow. This contains frequent Elm *Ulmus procera*, Hawthorn, Ash and Bramble.

3.27. Additional species-poor managed hedgerows, both defunct and intact sections, are present on the northern and southern sides of the A3051, east of the Pinkmead junction. These are well-managed and dominated by Hawthorn.

Scrub

3.28. Scrub habitat is located just outside the scheme footprint, along the embankments of the railway line to the north of the site. The embankment is characterised by dense, tall Bramble with patches of thick Hawthorn and Blackthorn and abundant Traveller's Joy *Clematis vitalba*. Small trees are regular, with Field Maple and Sycamore being most frequent.

Improved Grassland

3.29. The dominant habitat type across the site is improved grassland. The bulk of the land within Uplands Farm to the west of the Hamble, and Sherecroft Farm to the east contains species-poor, improved grassland. The sward is dominated by lush Rye-grass *Lolium* and Fescue *Festuca* with occasional Cock's-foot *Dactylis glomerata* and contains few herbaceous species. Herb species present included Daisy *Bellis perennis*, Creeping Buttercup *Ranunculus repens*, Common Mouse-ear *Cerastium fontanum*, Ribwort Plantain *Plantago lanceolata*, White Dead-nettle *Lamium album*, Red Dead-nettle *Lamium purpureum*, Spear Thistle *Cirsium*

vulgare, Broad-leaved Dock *Rumex obtusifolius* and White Clover *Trifolium repens*.

- 3.30. Based on the plant species recorded, the bulk of grassland within the site is assessed as being closest to the NVC habitat MG6 *Lolium perenne*-*Cynosurus cristatus* grassland, a very common and widespread species-poor improved grassland type across lowland England.

Semi-improved Grassland

- 3.31. Small areas of species-poor semi-improved grassland are present within road verge habitats within the eastern section of the scheme, surrounding the A334/Pinkmead junction. These areas are typical highways verge habitat, comprising sown grassland that has been managed by regular mowing and whilst very species-poor, can be categorised as semi-improved due to an assumed absence of artificial improvement and slightly greater herb content compared to the extensive agriculturally improved grassland elsewhere. Herbaceous species present include the common and widespread Daisy, Yarrow *Achillea millefolium*, Common Mouse-ear, Common Chickweed *Stellaria media*, Dandelion *Taraxacum officinale* spp., Self-heal *Prunella vulgaris*, White Clover, Red Clover *Trifolium pratense*, Common Ragwort *Jacobaea vulgaris* and Red Dead-nettle. Despite the slightly higher herb content, these areas are best described as MG7 *Lolium perenne* – *Plantago major* grassland.

- 3.32. To the east of the river, within Sherecroft Farm, are three large fields of poor semi-improved grassland formerly grazed by horses. Grazing ceased in late spring 2022, after which the grassland has been unmanaged. The cessation of grazing allowed vegetation to develop and species recorded here included Sweet Vernal Grass *Anthoxanthum odoratum*, Soft Brome *Bromus hordeaceus*, Toad Rush *Juncus bufonius*, Meadow Buttercup *Ranunculus acris*, Thyme-leaved Speedwell *Veronica serpyllifolia*, Black Medick *Medicago lupulina*, White Clover, Red Clover, Creeping Thistle *Cirsium arvense*, Common Mouse-ear, Common Knotgrass and Burnet Saxifrage *Pimpinella saxifraga*. Several plants of Jersey Cudweed *Laphangium luteoalbum* were recorded here in October 2022.

- 3.33. These pastures were surveyed in detail in 2014 by HBIC (as Sherecroft Farm Pastures) and described as species-poor improved grassland conforming to MG7

Lolium perenne – *Plantago major* grassland with local patches of MG6. A small patch of damp ground adjacent to the river floodplain is described as MG10 *Holcus lanatus* – *Juncus effusus* rush pasture and contains Yorkshire-fog *Holcus lanatus*, Soft Rush *Juncus effusus*, Sharp-flowered Rush *Juncus acutiformis*, Floating Sweet-grass *Glyceria fluitans*, Water Mint *Mentha aquatica*, Marsh Ragwort *Jacobaea aquatica*, Creeping Buttercup *Ranunculus repens* and Brooklime *Veronica beccabunga*. This small area of rush pasture is located outside of the scheme boundary.

Fen Meadow/Swamp

- 3.34. To the east of the River Hamble is an area of relic fen meadow habitat. The northern end of this area is within the scheme footprint. The area was subject to detailed botanical survey by HBIC in 2014, as Sherecroft Farm Meadow. Update walkover surveys were carried out in 2022 and 2024.
- 3.35. The area contains a complex mix of fen-like vegetation, considered to conform to the NVC communities (from north to south): S6 *Carex riparia* swamp, M23 *Juncus acutiformis* – *Galium palustre* fen meadow, and M27 *Filipendula ulmaria* – *Angelica sylvestris* mire.
- 3.36. The default vegetation to the north (and therefore closest to the proposed works) is a mix of sedge-dominated swamp with Greater/Lesser Pond-sedge *Carex riparia/acutiformis* and various tall herbaceous species such as Meadowsweet *Filipendula ulmaria*, Wild Angelica *Angelica sylvestris*, Hemp-agrimony *Eupatorium cannabinum*, Water Mint *Mentha aquatica*, Common Fleabane *Pulicaria dysenterica* and Marsh Thistle *Cirsium palustre*. The general absence of management is resulting in dense stands of Common Nettle and Hemlock Water-dropwort *Oenanthe crocata*. The invasive Himalayan Balsam *Impatiens glandulifera* is present at low density throughout and the area is somewhat overgrown.
- 3.37. Further to the south, and outside the scheme footprint, the vegetation grades to a more open, grass/sedge dominated fen meadow habitat, presumably kept more open by regular grazing by cattle (although no livestock were observed in this area throughout 2021/22 or 2024). Species recorded here include Creeping Bent *Agrostis capillaris*, Yorkshire-fog, Sweet Vernal-grass, Meadow Foxtail

Alopecurus pratensis, Cock's-foot, Soft Rush, Sharp-flowered Rush, Black Knapweed *Centaurea nigra*, Common Fleabane, Corky-fruited Water-dropwort *Oenanthe pimpinelloides*, Wild Angelica, Common Sorrel *Rumex acetosa*, Marsh Thistle, Water Mint, Creeping Buttercup, Ragged-robin *Silene flos-cuculi*, Crosswort *Cruciata laevipes*, Marsh Horsetail *Equisetum palustre* and Hairy Sedge *Carex hirta*.

3.38. Further south still, the vegetation is more overgrown and comprises an unmanaged and degraded fen meadow. Species recorded here include Wild Angelica, Meadowsweet, Soft Rush, Himalayan Balsam, Marsh Thistle, Water Mint, Common Fleabane, Hemlock Water-dropwort, Yorkshire-fog, Creeping Bent, Cock's-foot and Hairy Sedge.

3.39. The ground-level vegetation within Botley Mill Woodland to the west of the river is similar and is classified as poached fen-like vegetation, with local variation. The western edge of the woodland contains an improved, drier sward best classified as MG7 *Lolium perenne* – *Plantago major* improved grassland.

3.40. Within the central parts of the woodland the ground conditions are boggy, and species present include Remote Sedge *Carex remota*, Common Nettle, Pendulous Sedge *Carex pendula*, Ivy *Hedera helix*, Water-pepper *Persicaria hydropiper*, Wood False-brome *Brachypodium sylvaticum*, Wood Speedwell *Veronica montana*, Opposite-leaved Golden-saxifrage *Chrysosplenium oppositifolium*, Brooklime, Broad Buckler-fern *Dryopteris dilatata*, Wood Avens *Geum urbanum*, Water Mint, Creeping Buttercup, Meadowsweet, Cuckoo-flower *Cardamine pratensis*, Marsh Bedstraw *Galium palustre*, Common Fleabane, Water forget-me-not *Myosotis scorpioides*, Hemp Agrimony *Eupatorium cannabinum*, Water Figwort *Scrophularia auriculata*, Common Valerian *Valeriana officinalis* and Himalayan Balsam.

3.41. A strip along the eastern edge of the woodland, abutting the river, is classified as S5 Reed Sweet-grass *Glyceria maxima* swamp. Species recorded include Remote Sedge, Pendulous Sedge, Marsh Bedstraw, Water-pepper, Greater Water-dock *Rumex hydrolapathum*, Water Mint, Trifid Bur-marigold *Bidens tripartita*, Common Nettle, Cuckoo-flower, Water Forget-me-not, Brooklime, Fool's Watercress *Apium nodiflorum*, Himalayan Balsam, Meadowsweet and Redshank

Persicaria maculosa. The invasive Himalayan Balsam is frequent to locally abundant within the woodland and western margins of the River Hamble.

Other vegetation

3.42. Some areas within and surrounding the Uplands Farm yard comprise highly disturbed soils and slurry with a flora characteristic of highly enriched soils. The flora is dominated by members of the Goosefoot family *Chenopodiaceae*. Species recorded are abundant Red Goosefoot *Oxybasis rubra*, locally common Oak-leaved Goosefoot, abundant Fig-leaved Goosefoot *Chenopodium ficifolium* and abundant Fat-hen *Chenopodium album*. Common Knotgrass *Polygonum aviculare* is abundant, as is Common Nettle locally. This habitat type is not easily categorised but is likely to fall within the NVC community OV24 (*Urtica dioica* - *Galium aparine* community).

3.43. Areas within the Uplands Farm buildings complex/farmyard comprise sparse ruderal/short perennial vegetation. Typical species found in these areas are Common Nettle, Broad-leaved Dock and Common Knotgrass.

Standing Water

3.44. The only areas of standing water are two slurry pits situated within Uplands Farm and lying outside the scheme footprint. These were not safely accessible but appeared to contain some open water and expanses of exposed hardened slurry/silt. The highly enriched conditions support dense marginal vegetation comprising vigorous species such as Common Nettle *Urtica dioica*, Broad-leaved Dock and the aforementioned Goosefoots.

Running Water

3.45. The River Hamble runs in a southerly direction through the central section of the scheme area. The river exhibits a sinuous, low energy canal-like flow downstream to Botley Mill. The channel exhibits a silt substrate with a relatively consistent water depth of approximately 0.4 m. Overall channel shading is <25% with in-channel vegetation increasing to 50% with dense patches of emergent vegetation at the margins (see 3.46 below). The only submerged aquatic plant species noted within the channel is Shining Pondweed *Potamogeton lucens*.

- 3.46. The channel margins contain lush marginal and emergent vegetation, with Yellow Flag *Iris pseudacorus*, Hemlock Water-dropwort, Pendulous Sedge, Greater/Lesser Pond-sedge, Reed Sweetgrass, Water Dock, Meadowsweet, Common Nettle and Water Mint all frequent. Himalayan Balsam is present scattered throughout the immediate channel marginal zone, with some areas of dense growth scattered throughout the adjacent floodplain.
- 3.47. Approximately 25m east of the river channel is a smaller channel created as a fish pass in 2009. The channel was created to aid fish passage around Botley Mill: a weir at the Mill is impassable to fish moving upstream. The channel is narrow, c.2m in width, and exhibits sections of fast, active flow to the north and sections of slower flow as the channel gradient flattens out further south. At the northernmost section of the pass a series of engineered rock ‘tombstones’ have been placed within the channel and at the bank sides to ensure suitable flow regimes for migrating fish.
- 3.48. As with the main river channel, the riparian vegetation is generally lush and contains a typical range of marginal species as detailed above. The smaller channel is fringed by areas of dense woody growth, comprising Grey Willow *Salix cinerea*, Crack Willow and Alder which creates a shaded channel throughout much of its length.

Status of Himalayan Balsam

- 3.49. The invasive Himalayan Balsam is present throughout the floodplain habitats to the east and west of the River Hamble. The species is now widespread within all main river systems within Hampshire, especially within the upper reaches, and is present within all riparian habitats including wet woodland and fens.
- 3.50. From observations within the scheme area between 2016 and 2024, the species is a persistent component of the local flora. During 2022 Himalayan Balsam was described as locally frequent throughout the entire area with no dense uniform stands. During 2024, Himalayan Balsam was frequent to locally abundant within the wet woodland to the west of the Hamble and appears to be becoming more widespread within this area.

Badger

3.51. No obvious Badger activity was noted within the scheme area in 2021 or 2022 with no obvious trails noted, and no latrines were identified within the surveyed area. The 2024 surveys identified a well-worn mammal path, likely Badger, from the edge of the scrub to the west of the Hamble and into the improved pasture to the northwest, approximately 70m south of the scheme boundary as well as potential evidence of foraging in the form of a couple of snuffle pits within the woodland to the west of the Hamble. In addition to the setts recorded during the original 2015-17 assessment (as detailed in the original Confidential Badger Report which accompanied the original ES in 2017) an additional disused outlier sett was recorded in 2024, outside of the red line boundary. This sett comprised a two-hole outlier, with both holes covered with vegetation and showing no signs of recent use when the sett was identified in September 2024.

3.52. The scheme area is generally suitable for Badgers, with good foraging opportunities and, outside the scheme area within the railway embankment, good opportunities for sett construction. Badgers are present locally, but there is no sett construction within or immediately adjacent to the scheme footprint which could be impacted by the advanced vegetation clearance works.

Bats – Roosts

3.53. The 2021/2022 bat surveys identified a small number of suspected bat roosts within trees as detailed in Appendix 5. A total of four trees were suspected as supporting bat roosts. There were no confirmed emergences but infrared camera footage indicated a number of potential emergences:

- Tree T26 - located south of the A334/Pinkmead junction: Potential Pipistrelle emergence 15/08/2022
- Tree T91 - located to the east of River Hamble: Potential Pipistrelle emergence 17/08/2022
- Tree T155 - located west of the River Hamble: Potential Pipistrelle emergence x 2 14/06/2022
- Tree T157 - located west of the River Hamble: Potential Pipistrelle emergence 15/06/2022

3.54. Table 9 below provides details of the recorded/suspected bat roosts within the four trees, extracted from the bat report included at Appendix 5.

3.55. As detailed within the bat report, a total of five individual bats were suspected to have emerged from the four trees. All bats are considered to have been *Pipistrellus* species, either Common Pipistrelle *Pipistrellus pipistrellus* or Soprano Pipistrelle *P. pygmaeus*. Given the number of bats recorded these are considered to be small day roosts (i.e. non-breeding roosts).

3.56. No evidence of roosting bats was found during any of the 2022 climbing surveys.

3.57. The 2021/2022 roost survey results are in accordance with previous surveys from 2016, when a single day roosting Common Pipistrelle was recorded from Tree T152 within Botley Mill Woodland to the west of the River Hamble. The 2022 surveys did not record and roosting activity from T152.

Table 9. Recorded bat roosts from 2022 surveys

Survey	Tree Number and Tree tag	Survey findings (summary)	No. bats emerging/re-entering roost	Conclusion
14.06.22	T155,2085	24 Myotis calls were recorded between 21:37 and 22:48. 1 Leisleri call and 22:45 3 Noctule calls were recorded at 21:44. 142 Common Pipistrelle calls were recorded between 21:31 and 22:49. There were 378 Soprano Pipistrelle between 21:29 and 22:09	2 bats was seen potentially emerging on IR Footage	Roost activity recorded
15.06.22	T157, 66	4 Barbastelle calls were recorded between 21:55 and 22:24. 31 Myotis calls were recorded between 21:48 and 22:50. 2 Noctule calls were recorded at 22:04 and 22:49. 218 Common Pipistrelle calls were recorded between 21:36 and 22:50. There were 125 Soprano Pipistrelle between 21:22 and 22:48	1 bat was seen potentially emerging on IR Footage	Roost activity recorded
15.08.22	T26, 2072	2 Noctule calls were recorded at 21:28 and 21:33. 139 Common Pipistrelle calls were recorded between 20:58 and 22:10. There was 30 Soprano Pipistrelle between 21:05 and 22:03.	1 bat was seen potentially emerging	Roost activity recorded
17.08.22	T91, 45	2 Noctule calls were recorded at 21:28 and 21:33. 23 Common Pipistrelle calls were recorded between 21:31 and 21:48. There were 120 Soprano Pipistrelle between 20:56 and 22:03. 3 Myotis calls were recorded between 21:05 and 21:56.	1 bat was seen potentially emerging on IR Footage	Roost activity recorded

3.58. Updating surveys in 2024 included repeat climb and inspect surveys (or ground level endoscope surveys where features were accessible from the ground) for trees which could be safely inspected, and emergence surveys of trees with roost potential which were not safe to climb and inspect. Details of survey dates and results are presented in Appendix 7.

3.59. Updating Ground Level Tree Assessments found the condition and suitability of trees to be largely similar to the previous assessments, last undertaken in 2022. A large dead oak tree to the east of the fish pass was not previously noted as supporting suitable roost features. The updating survey in July 2024 found that the tree supported a number of Potential Roost Features (PRFs) including splits in dead limbs and gaps under plates of flaking bark. As this tree was not safe to climb it was subject to three emergence surveys during the 2024 season.

3.60. No evidence of roosting bats was found during the climb and inspect surveys. The updating climb and inspect surveys found features to be largely similar in suitability to previous surveys undertaken in 2022. The following changes were noted:

- T25, T26 and T28. All three trees had been reduced to large standing monoliths since the 2022 surveys, removing PRF's from these trees.
- T36. Downgraded from low to negligible. Feature is open and upwards facing at the top, tapering down to tight crevice at base which is upward facing and subject to regular expansion and contraction as split limbs sway creating a risk of being crushed.
- T96. Upgraded from negligible in 2022 to PRF-I in 2024 as feature could now support individual bats.
- T97. Downgraded from moderate in 2022 to PRF-I in 2024. The dead ivy covered stem previously assessed as moderate potential has since fallen from the tree.
- T157. Recorded as having a potential Pipistrelle emergence in 2022. The wound on this tree described as a 'crease' in 2022 and a 'branch drop wound' in 2024 and was found to have very little roosting opportunities for bats during the 2024 survey. A small gap was present at the top of the wound which could support a single bat but the long sections of bark either side of the wound were tight and largely unsuitable. It is likely that the

wound has partially healed over since the 2022 surveys, reducing the suitability of the feature. Whilst assessed as PRF-I in 2024, three endoscope inspections were undertaken given that bats had potentially emerged from this feature in 2022.

- T160. Downgraded from moderate to negligible. Two features identified as moderate in 2022 no longer present and likely to have fallen from tree as limbs present on ground.
- T161. Downgraded from moderate to negligible. Shallow knot hole which does not extend into suitable cavity.
- T169. Downgraded from low to negligible. Callus roll identified previously appears to have healed over and is no longer suitable.
- T192. Upgraded from negligible to PRF-I. Supports knot holes which extend back into small dry cavities.
- T222. Downgraded from moderate to negligible. Split limb identified previously is now fully open and exposed.

3.61. A summary of the 2024 emergence survey results is provided below. A drawing showing surveyor and night vision locations is provided in Appendix 7 and photos showing infrared and thermal images from the surveys is provided in Appendix 7.

3.62. A total of six species of bat were recorded during the emergence surveys with a total of 4,204 bat passes recorded throughout all of the surveys. The majority of passes were from Soprano Pipistrelle with 3,506 passes, 83% of the total passes. Common Pipistrelle were the next most frequently recorded species with 578 passes (14%). There were 84 Myotis species passes (2%), 14 Serotine *Eptesicus serotinus* bat passes (0.3%), 13 Long-eared species passes (0.3%) and 9 Noctule passes (0.2%).

3.63. No bats were recorded emerging during the 2024 surveys. However, bats were recorded early (close to typical emergence times for species) during a number of the surveys, indicating the likely close proximity of roosts, including potentially within the wider Botley Mill Woodland. This included bats recorded around typical emergence times for Soprano Pipistrelle, Common Pipistrelle, Noctule, Myotis species and Long-eared species.

3.64. During the first survey on 23 July 2024 the first bat recorded was a Soprano Pipistrelle two minutes before sunset, with Soprano Pipistrelle then recorded frequently throughout the survey. This early emergence time indicates the likely close proximity of a roost. Common Pipistrelle were occasionally recorded, with the first pass 13 minutes after sunset, within the typical emergence times for this species. A small number of Myotis passes were recorded with the first pass 40 minutes after sunset. Due to the later emerging times of Myotis species, this could indicate the presence of a roost nearby. A long-eared bat pass was recorded 45 minutes after sunset and due to the late typical emergence times of this species this again may indicate the presence of a roost nearby. Two Serotine passes were recorded towards the end of the survey.

3.65. Activity was similar during the second survey on 13 August 2024 with early activity from Soprano Pipistrelle with the first bat recorded one and a half minutes after sunset. Two Myotis species passes were recorded, with the first at 34 minutes after sunset, which is early based on the typical emergence survey time range for Myotis species. A small number of Common Pipistrelle passes were also recorded.

3.66. During the third survey, activity levels were similar with the majority of activity from Soprano Pipistrelle and a small number of Common Pipistrelle and Myotis species passes. The first bat recorded was a Soprano Pipistrelle 10 minutes after sunset, slightly later than the previous surveys but still within the typical emergence times for this species. The first Common Pipistrelle was 33 minutes after sunset and the first Myotis species pass was recorded 47 minutes after sunset.

T152

3.67. During the survey on 13 August 2024 the first bat recorded was a Soprano Pipistrelle one minute after sunset, with Soprano Pipistrelle then recorded frequently throughout the survey. This early emergence time indicates the likely close proximity of a roost. Common Pipistrelle were occasionally recorded, with the first pass 15 minutes after sunset. A total of three Myotis passes were recorded with the first pass 52 minutes after sunset.

3.68. During the second survey on 27 August 2024 the first bat recorded was a Noctule which was recorded at sunset. The early time this bat was recorded indicates the likely presence of a roost nearby. The first Soprano Pipistrelle was recorded six minutes after sunset with this species then recorded frequently throughout the survey. The early time of the first pass indicates the likely presence of a roost nearby. The first Common Pipistrelle was recorded 17 minutes after sunset with a small number of passes throughout the survey. A single Serotine pass was recorded 44 minutes after sunset. A single Myotis pass was recorded 48 minutes after sunset with one further pass later in the survey and a Long-eared bat was recorded 49 minutes after sunset with two further passes later in the survey.

3.69. During the third survey on 17 September 2024 activity levels were similar with Soprano Pipistrelle recorded from 11 minutes after sunset with frequent passes throughout the survey. Common Pipistrelle were recorded 29 minutes after sunset with a small number of passes then recorded. A single Myotis was recorded 1 hour 16 minutes after sunset.

T153

3.70. During the survey on 23 July 2024 the first bat recorded was a Soprano Pipistrelle 10 minutes after sunset, quickly followed by a Common Pipistrelle also 10 minutes after sunset. The times these bats were recorded indicates the potential presence of a roost nearby. Soprano Pipistrelle were then frequently recorded throughout the survey with Common Pipistrelle occasionally recorded. A single Serotine pass was recorded towards the end of the survey with no other species recorded.

3.71. During the second survey on 13 August 2024 activity was largely dominated by Soprano Pipistrelle with the first bat recorded seven minutes after sunset and then frequent passes throughout the survey. A Common Pipistrelle was recorded 16 minutes after sunset with a single further pass recorded. Two Myotis passes were recorded with the first 35 minutes after sunset, indicating potential presence of a roost nearby.

- 3.72. During the survey on 11 September 2024 activity was again dominated by Soprano Pipistrelle with the first bat recorded nine minutes after sunset. Common Pipistrelle were recorded 32 minutes after sunset with rare passes throughout the survey. Three Myotis passes were recorded with the first one hour and one minute after sunset.

T155 and T156

- 3.73. The description of bat activity at these two trees is combined as the trees are adjacent to each other. During the first survey on 23 July 2024 the first bat recorded was a Common Pipistrelle three minutes before sunset. The early time of this bat indicates the likely presence of a roost nearby. Soprano Pipistrelle were then recorded one minute after sunset, again indicating the likely presence of a nearby roost. Soprano Pipistrelle were then recorded frequently throughout the survey with occasional Common Pipistrelle passes. Myotis were recorded 40 minutes after sunset with a further 19 passes then recorded until the end of the survey. A Long-eared bat pass was recorded 45 minutes after sunset. The relatively early times that Myotis and Long-eared bats were recorded indicates the potential presence of nearby roosts for these species. Three Serotine passes were then recorded towards the end of the survey.

- 3.74. During the second survey on 13 August 2024 activity was similar with Soprano Pipistrelle activity throughout the survey with the first bat recorded one minute after sunset. There was occasional Common Pipistrelle activity with the first bat recorded 16 minutes after sunset. Two Myotis passes were recorded with the first 52 minutes after sunset.

- 3.75. During the third survey on 11 September 2024 Soprano Pipistrelle again dominated activity with the first bat recorded 10 minutes after sunset. Occasional Common Pipistrelle activity was recorded with the first pass 33 minutes after sunset. A single Myotis was recorded 47 minutes after sunset.

T174

- 3.76. During the first survey on 7 August 2024 the first bat recorded was a Soprano Pipistrelle just before sunset. Common Pipistrelle were then recorded five minutes after sunset. The early times these bats were recorded indicates the potential

presence of nearby roosts. Soprano Pipistrelle and Common Pipistrelle were then frequently recorded throughout the survey. No other species were recorded.

3.77. During the second survey on 27 August 2024 the first bat recorded was a Noctule just before sunset. Soprano Pipistrelle were then recorded frequently throughout the survey from five minutes after sunset. The early times these bats were recorded indicates the potential presence of nearby roosts. Common Pipistrelle were recorded occasionally, with the first bat 15 minutes after sunset. A small number of Myotis passes were recorded with the first 43 minutes after sunset. A small number of Long-eared passes were also recorded with the first 46 minutes after sunset. The relatively early times the Myotis and Long-eared bats were recorded indicates the potential presence of nearby roosts.

3.78. During the third survey on 17 September 2024, Soprano Pipistrelle dominated the activity with the first bat recorded 12 minutes after sunset with frequent passes throughout the survey. A small number of Common Pipistrelle passes were recorded with the first 20 minutes after sunset. Three Myotis species passes were recorded with the first 51 minutes after sunset.

Dead Oak

3.79. During the survey on 7 August 2024 the first bat recorded was a Soprano Pipistrelle 14 minutes after sunset. After a small number of passes no further Soprano Pipistrelle activity was recorded. Two Noctule passes were recorded 26 minutes after sunset. Common Pipistrelle were recorded 49 minutes after sunset with occasional passes until the end of the survey. A single Serotine pass was recorded 1 hour and 3 minutes after sunset and three Myotis passes around 1 hour 14 minutes after sunset.

3.80. During the second survey on 27 August 2024 there was occasional Soprano and Common Pipistrelle activity with the first bats recorded 29 minutes after sunset. A single Long-eared pass was recorded 50 minutes after sunset.

3.81. During the third survey on 17 September there was occasional Soprano and Common Pipistrelle activity with the first bat, a Common Pipistrelle recorded 13 minutes after sunset and the first Soprano Pipistrelle 46 minutes after sunset. Two Serotine passes were also recorded, with the first 52 minutes after sunset.

3.82. Overall bat activity at the Dead Oak tree located to the east of the Hamble was much lower compared to the other trees which were located to the west of the Hamble.

Bats – Foraging and Commuting

3.83. The site is dominated by improved grassland with areas of woodland, the River Hamble and associated floodplain habitats, and hedgerows. The mosaic of habitats provides optimal bat foraging/commuting/social opportunities, and the entire landscape is considered to provide good quality bat habitat.

3.84. The 2021 and 2022 bat activity surveys recorded at least six bat species: Common and Soprano Pipistrelle, Noctule *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri*, Western barbastelle *Barbastella barbastellus*, and Mouse-eared Bat *Myotis* species.

3.85. The previous bat activity surveys carried out between 2014 and 2016 recorded at least nine species comprising Common Pipistrelle, Soprano Pipistrelle, Mouse-eared bats sp. Daubenton's Bat *Myotis daubentonii*, Whiskered/Brandt's Bat *M. mystacinus/brandtii*, Noctule, Serotine and Long-eared Bats *Plecotus auritus*, recorded foraging within the vicinity of Uplands Farm and the River Hamble. In addition, the rare Bechstein's Bat *Myotis bechsteinii* was suspected from a call recorded on one occasion within the Sherecroft Farm area in May 2017.

3.86. Key areas of bat activity (as observed during walked transect surveys) in both phases of survey work are the River Hamble corridor and the boundary habitats across Uplands Farm. The Hamble corridor provides an optimum resource for bat species, with unlit vegetation such as woodland, trees and hedgerows in association with open water and wetland habitats.

3.87. The habitats within the Hamble corridor are assessed as being of County importance for bat species, whereas the improved grassland dominated habitats within Uplands Farm and Sherecroft Farm are of District/Local/Parish importance.

Hazel Dormouse

3.88. The site is dominated by extensive areas of improved grassland, with potentially suitable habitat for Hazel Dormouse restricted to boundary scrub and hedgerows.

The wet woodland next to the River Hamble has a sparse understorey with a canopy dominated by Alder with occasional other species and provides lower suitability habitat.

3.89. Nest tube surveys were carried out in 2015 across the entire Botley Bypass scheme area and nest tube surveys were carried out within the Phase 3 scheme area in 2021 and 2022. A review of planning applications also identified that surveys were also undertaken in 2016 within the land to the east of the Hamble as part of the Sherecroft Farm development.

3.90. No evidence of Hazel Dormouse presence was noted during any of the surveys, and it is therefore assumed that this species is absent.

Water Vole

3.91. The River Hamble provides good quality habitat for Water Vole with a diverse mix of emergent and bankside vegetation providing abundant foraging resource for water vole. The western bank of the Hamble in the vicinity of Botley Mill woodland is partially shaded but still supports lush growth of emergent and bankside vegetation. To the north of the existing railway viaduct there is denser shading from bankside woodland and a lower suitability for Water Vole but marginal vegetation still provides some suitability. South of the scheme boundary there are less bankside trees and lush growth of a diverse mix of emergent and bankside species providing good quality habitat.

3.92. The Fish Pass channel is largely overgrown and shaded by bankside trees and scrub with limited emergent and marginal vegetation except within occasional more open areas and is of lower suitability for Water Vole within the survey area.

3.93. Surveys for the original planning application in 2016 and 2017 recorded no evidence of Water Vole. Updating surveys in 2021, 2022, 2023 and 2024 recorded no evidence of Water Vole and this species is assessed to be likely absent from the site.

Otter

3.94. The River Hamble and the Fish Pass channel provide good quality habitat for Otter with the channels providing suitable foraging habitat and the riparian habitats either side providing suitable habitat for lying up sites as well as potential for holts

within bankside and woodland trees, although no potential holt sites or lying up sites were recorded during any of the surveys.

3.95. The surveys that supported the ES identified two spraints, one on the banks of the main Hamble channel and one on the fish pass channel. Updating surveys in 2021 identified fresh Otter spraint on an old Mink raft on the edge of the River Hamble Channel. The survey in 2022 again found fresh spraint on the Mink raft in the channel of the River Hamble. During the 2023 survey, two spraint locations were identified, one fresh spraint was located along the fish pass channel and one old and one fresh spraint located together where the fish pass joins the main channel. No evidence of Otter was found during the 2024 survey.

3.96. The ES concluded that the site was unlikely to support breeding or resting sites for Otter, however, watercourses within the scheme area are used as a dispersal route and will form part of an otter territory. The evidence recorded during the updating surveys supports this conclusion.

Birds

3.97. The bulk of the site, comprising improved grassland, is mostly suboptimal for bird species other than as foraging habitat. The grassland habitats were utilised by foraging corvid species such as Carrion Crow *Corvus corone*, Rook *C. frugilegus*, Jackdaw *C. monedula* and Magpie *Pica pica*. Two Ravens *C. corax* were noted on a pylon within Uplands Farm in November 2022.

3.98. Moving from west to east, the bypass scheme area supports the following bird species. Maps showing the estimated territorial centres in key areas are provided in Appendix 7.

3.99. A roving flock of c.30 Starlings *Sturnus vulgaris* is present across Uplands Farm, with foraging birds noted within grassland well to the south of the scheme area. It is likely that this species nests locally within residential dwellings around Botley.

3.100. Within the Uplands Farm section of the site, confirmed territorial activity was restricted to a few common and widespread species within areas of hedgerow habitat or trees. Wren *Troglodytes troglodytes* was the commonest species, with

several territories noted within hedgerows and at Uplands Farm itself. Robin *Erithacus rubecula* was also present in several locations.

- 3.101. Other species observed within and around the Uplands Farm area, with no persistent evidence of territorial activity but considered highly likely to breed locally, were Blackbird *Turdus merula*, Song Thrush *T. philomelos*, Dunnock *Prunella modularis*, Chaffinch *Fringilla coelebs*, Greenfinch *Chloris chloris*, Goldfinch *Carduelis carduelis*, and Linnet *Linaria cannabina*. The Uplands Farm buildings support a colony of nesting House Sparrow *Passer domesticus*, with birds from here occasionally observed within the wider farm holding.
- 3.102. The dense railway embankment scrub to the north of Uplands Farm supported at least one Whitethroat *Curruca communis* territory, as well as at least one Chiffchaff *Phylloscopus collybita* territory. Robins were noted on several occasions and are highly likely to breed, but with no confirmed territorial activity. Other species observed within this habitat were Blackbird, Song Thrush and Dunnock.
- 3.103. The habitats in the eastern section of the scheme, especially those surrounding the A334/Pinkmead junction were largely devoid of singing bird species. These habitats are immediately adjacent to near-constant traffic flow, and it is concluded that traffic noise levels are such that territorial activity such as singing is suppressed. Several bird species – Robin, Blackcap *Sylvia atricapilla*, Chaffinch – were observed in these areas but only on a single occasion, with no evidence of territorial behaviour.
- 3.104. A House Sparrow colony is evidently present within the Bottings Industrial Estate adjacent to Sherecroft Farm, with birds occasionally seen within the dense hedgerow between the two areas.
- 3.105. The key habitat to be impacted by the advanced vegetation clearance is Botley Mill Woodland SINC and the riparian woodland and adjacent hedgerows and trees on the eastern side of the Hamble. This area supports a typical assemblage of breeding bird species associated with woodland and scrub habitats. Of note is the presence of a territorial Cetti's Warbler *Cettia cetti*, recorded singing on all survey occasions within habitat on both banks of the Hamble within the scheme area.

Only one bird was observed so it is unclear whether breeding definitely occurred, but territorial activity was confirmed.

3.106. Other species noted as exhibiting territorial activity (i.e. with two or more noted instances of territorial behaviour) within woodland/scrub adjacent to the river are Robin, Wren, Dunnock, Blackcap, Whitethroat, Chiffchaff, Goldcrest *Regulus regulus*, Blue Tit *Cyanistes caeruleus*, Great Tit *Parus major*, Great Spotted Woodpecker *Dendrocopos major*, Nuthatch *Sitta europaea* and Stock Dove *Columba oenas*. The only confirmed breeding sites were a single tree-hole nest of Starling within Botley Mill Woodland and a Treecreeper *Certhia familiaris* nest within a small Elder shrub cavity, situated adjacent to Tree T100 on the eastern bank of the Hamble.

3.107. Within the area to be directly affected by the proposed vegetation clearance works, the following bird territories are considered likely to be affected directly. The estimated territories in key areas are shown in Appendix 8 and summarised in Table 10.

Table 10 Estimated bird territories within proposed works area

Species	Conservation Status ¹	Estimated No. of Territories
Starling	Red	1
Great Spotted Woodpecker	Green	1
Nuthatch	Green	1
Treecreeper	Green	1
Stock Dove	Amber	1
Robin	Green	3-4
Wren	Amber	3+
Dunnock	Amber	2
Great Tit	Green	1
Blue Tit	Green	1

¹ Birds of Conservation Concern 5. https://britishbirds.co.uk/sites/default/files/BB_Dec21-BoCC5-IUCN2.pdf

Species	Conservation Status ¹	Estimated No. of Territories
Cetti's' Warbler	Green	1
Blackcap	Green	2
Whitethroat	Amber	1
Chiffchaff	Green	2
Goldcrest	Green	1

Reptiles

3.108. The bulk of habitat within the site is generally unsuitable for reptile species, comprising species-poor and structurally uniform improved grassland. Surveys were carried out in 2015, 2016 and 2017 to support the planning application, and were updated in 2021 and 2024.

3.109. The previous surveys between 2015 and 2017 recorded peak counts of three adult Slow-worms within rough grassland at c. SU515136 (public footpath east of Uplands Farm); three adult Slow-worms and a single juvenile Grass Snake *Natrix helvetica* close to the railway embankment at the northern end of the eastern riverbank; and two adult female, two adult male and three juvenile Slow-worms and two juvenile Grass Snakes within boundary areas of Sherecroft Farm.

3.110. The reptile presence/absence survey carried out in 2021 recorded a maximum of four individual Slow-worms *Anguis fragilis*, comprising two adult females and two adult males. These animals were recorded at two locations: at SU516131, outside the scheme area at the south-western edge of the former horse-grazed pasture at Sherecroft Farm; and at SU515136, in rough grass at the edge of the public footpath to the east of Uplands Farm, just outside the scheme area.

3.111. The 2024 updating surveys recorded similar numbers, with a maximum during any one visit of two adult Slow Worm, comprising two females. No Grass Snake were recorded during 2024. During 2024 a total across all surveys of five Slow Worms (all adult female) were recorded to the east of the Hamble within the margins of the field to the south of the railway embankment (SU517134); one Slow Worm (juvenile) in the southeast corner of field to west of Uplands Farm track

(SU510136); and, one Slow Worm (adult female) along northern boundary of the fields west of the Hamble (SU514137). Locations of 2024 survey results are shown in Appendix 1.

3.112. The reptile surveys undertaken demonstrate that the scheme area supports a small but persistent breeding population of Slow Worm within suitable unmanaged peripheral vegetation and occasional Grass Snake within the wetter habitats associated with the River Hamble.

Survey results summary

3.113. In summary, it is considered that the site supports the following ecological features/receptors within the area to be directly affected by proposed vegetation clearance:

- SINC woodland and associated riparian habitats
- SINC fen habitat with associated trees/shrubs
- A number of trees with potential roost features, some of which have previously had potential day roosts for Pipistrelle bats
- Good quality bat foraging/commuting habitat
- Presence of Otter on the River Hamble and Fish Pass
- Nesting and foraging bird species
- Low populations of widespread reptile species including Slow Worm and Grass Snake
- Invasive Non-native Plant Species including Himalayan Balsam

3.114. The following section considers the nature and scale of impacts to these in the absence of mitigation measures.

4. Impact Assessment

Planning policy and legislation

Planning Policy

4.1. Paragraph 186 of the National Planning Policy Framework (NPPF) (DLUHC, 2023) requires that when determining planning applications, 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.

4.2. The Bypass Phase 3 route is within the Eastleigh Borough Council and Winchester City Council planning areas: land west of the Hamble is within Eastleigh and land to the east within Winchester.

4.3. Strategic Policy DM 11 'Nature Conservation' of the Eastleigh Borough Local Plan 2016 - 2036 states that:

'The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:

1) a. protect, conserve and enhance all:

i. international, national and local nature conservation designations; and

ii. networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character; and facilitate their adaptation to climate change wherever possible

b. assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);

c. seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation

interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils; and

d. contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure including green routes, ecological networks and biodiversity enhancements (see strategic policy S9).

2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.

3. The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include: a. implementing: i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance; b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent; c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and d. seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

4. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that: a. there are no alternative solutions; b. the adverse effects are unavoidable; c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects; d. there is an overall biodiversity net gain; and e. if there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.

5. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on priority habitats, protected or priority species, or on the local ecological network unless it can be demonstrated that: a. there are no alternative solutions; b. the adverse effects are unavoidable; c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects; d. there is an overall biodiversity net gain; and e. if there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.

6. Development will not be permitted if it results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.

7. Buffers free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.

8. Development will not be permitted unless it can be demonstrated that: a. there have been thorough habitat and species surveys; b. the great crested

newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and c. the strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.

4.4. It is noted that the Botley Bypass scheme received planning permission in 2017, at which time the relevant policy provisions were set out within the 2011-2029 Local Plan.

4.5. The Winchester Local Plan Part 1: Joint Core Strategy (Adopted 2013) includes Policy CP16 – Biodiversity which states:

4.6. *'The Local Planning Authority will support development which maintains, protects and enhances biodiversity across the District, delivering a net gain in biodiversity, and has regard to the following:*

- i. protecting sites of international, European, and national importance, and local nature conservation sites, from inappropriate development.*
- ii. supporting habitats that are important to maintain the integrity of European sites.*
- iii. new development will be required to show how biodiversity can be retained, protected and enhanced through its design and implementation, for example by designing for wildlife, delivering BAP targets and enhancing Biodiversity Opportunity Areas.*
- iv. new development will be required to avoid adverse impacts, or if unavoidable ensure that impacts are appropriately mitigated, with compensation measures used only as a last resort. Development proposals will only be supported if the benefits of the development clearly outweigh the harm to the habitat and/or species.*
- v. maintaining a District wide network of local wildlife sites and corridors to support the integrity of the biodiversity network, prevent fragmentation, and enable biodiversity to respond and adapt to the impacts of climate change.*
- vi. supporting and contributing to the targets set out in the District's Biodiversity Action Plan (BAP) for priority habitats and species. Planning proposals that have the potential to affect priority habitats and/or species*

or sites of geological importance will be required to take account of evidence and relevant assessments or surveys’.

4.7. Winchester City Council’s emerging Local Plan 2020-2040 contains Strategic Policy NE1 ‘Protecting and enhancing Biodiversity and the Natural Environment’, which states:

4.8. *‘Development will only be permitted where it demonstrates that it will protect and enhance the natural environment and biodiversity including the natural beauty of the landscape, all natural resources, habitats and species; and*

- i. Avoids significant harm to the natural environment, biodiversity and geodiversity or can adequately mitigate any harm arising and can clearly demonstrate that there will be no adverse impact on the conservation status of key species, internationally protected sites, nationally protected designated sties, or locally designated sites and there will be no net loss or deterioration of a key habitat type including irreplaceable habitats and the integrity of linkages between designated sites and key habitats;*
- ii. Safeguards features of the natural environment and nature conservation interest and makes nature based solutions part of the plans to tackle the climate emergency. These should include measures to retain, conserve and enhance habitats, including, internationally, nationally and locally designated sites, priority habitats, networks of ecological interest, ancient woodland, water features, hedgerows and wetland pastures as corridors and stepping- stones for wildlife;*
- iii. Does not harm/degrade the Ecological Network or result in its fragmentation;*
- iv. Development which would result in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, will only be permitted in exceptional circumstances where the public benefit would clearly outweigh the loss or deterioration and where a suitable compensation strategy exists;*
- v. Normally any mitigation, compensation and enhancement measures are required to be delivered on-site, unless special circumstances dictate that off-site mitigation or compensation is more appropriate. A financial contribution - in lieu of on-site mitigation - will only be considered in limited*

circumstances and where it is demonstrated that the proposed mitigation is deliverable and effective; and

- i. Protects, conserves and enhances ecology and the air and water environments in the district’.*

Legislation

4.9. Many species of plant and animal are legally protected under both domestic or international law (the Wildlife and Countryside Act 1981 (as amended)² and the Conservation of Habitats and Species Regulations 2017³ respectively). Badgers and their setts are protected under the Badgers Act 1992⁴.

4.10. All bat species, Hazel Dormice, Great Crested Newts, and certain other plant and animal species are European Protected Species (EPS) as determined by the Habitats Regulations 2017. This legislation makes it an offence to pick, kill, injure or disturb them, or to destroy or damage their habitat, breeding sites and resting places (even when the species are not present). For such work to legally proceed, Natural England (the Government’s statutory nature conservation agency) will issue a licence for the work to be able to proceed legally, subject to the proposals meeting certain criteria.

4.11. The following sections consider the potential impacts on any identified ecological features and whether the development as proposed would be in accordance with policy and legislation.

4.12. The current development proposals are shown in Appendix 1.

² <http://www.legislation.gov.uk/ukpga/1981/69>

³ <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

⁴ <http://www.legislation.gov.uk/ukpga/1992/51/contents>

Potential impacts on sites, habitats and species

International and national designated sites

4.13. The site is not within close proximity to any international or national designated sites. The nearest such sites are located c.0.6km from parts of the Solent Maritime SAC, Solent & Southampton Water SPA/Ramsar and Upper Hamble Estuary & Woods SSSI.

4.14. Whilst there will be no direct impacts to these sites, there remains potential for indirect impacts arising from hydrological linkages between the scheme area and the designated sites on the lower reaches of the River Hamble.

4.15. Key impacts to these international and national designated sites would include:

- pollution from fuels, oils, coolants or lubricants
- sediment mobilisation from soil disturbance

4.16. The proposed advanced vegetation clearance works are relatively small-scale and will not result in widespread disturbance of ground-level vegetation or soils: the works will remove above-ground woody vegetation in specific areas and do not entail ground excavation. Root masses will not be removed. There may be some localised poaching in the wetter habitats within the River Hamble corridor, although it is not envisaged that this would be to the extent to result in significant areas of exposed/disturbed soils.

4.17. The presence of arboricultural machinery and plant raises potential for the spillage of inorganic substances into the natural environment. Substances such as fuels, oils, coolants or lubricants are harmful to organisms and can persist within the environment. The wet character of the River Hamble corridor could result in the mobilisation of pollutants into the local and wider hydrological system. The release and mobilisation of sediments can have profound effects for aquatic organisms and habitats, resulting in smothering, reduction in visibility (affecting intra-/inter-species interactions, animal movements) and exposure to toxic/harmful substances which can accumulate within aquatic ecosystems.

Local designated sites

4.18. The scheme will result in the direct and permanent loss of trees and other woody vegetation within parts of two SINC: Botley Mill Woodland and Sherecroft Farm Meadow. Key impacts will be:

- direct loss of habitat
- damage to ground flora
- noise and visual disturbance
- pollution from fuels, oils, coolants or lubricants

4.19. The removal of trees within the River Hamble corridor will result in the loss of c.0.25ha of woodland, trees and shrubs within Botley Mill Woodland and Sherecroft Farm Meadows SINC. This represents a direct and permanent loss of SINC habitat within the proposed bypass footprint.

Vegetation and habitats

Woodland

4.20. The bulk of vegetation removal will occur within Botley Mill Woodland SINC on the western side of the Hamble, and within similar floodplain woodland located on the eastern bank within/adjacent to Sherecroft Farm Meadow SINC. In these areas a significant number of trees will be removed, resulting a loss of c.0.25ha of woodland overall.

4.21. The loss of trees within Botley Mill Woodland is permanent and will ultimately facilitate the construction of the bypass and result in the severance of riparian woodland.

Hedgerow

4.22. Hedgerow losses will occur in several locations across the scheme area, totalling c.470m. These losses are permanent and primarily of species-poor, well-managed hedgerows within the farmed landscape. One section of hedgerow within Sherecroft Farm (Area D, Appendix 1) is species-rich and contains trees and is therefore of greater ecological value. A second stretch to the north of the A3051/Pinkmead junction (Area G, Appendix 1) is also species-rich.

4.23. The losses will result in the fragmentation/severance of existing hedgerows, particularly those within Uplands Farm and Sherecroft Farm. This will, following the construction of the bypass, be a permanent loss and severance of hedgerow habitat.

Fen

4.24. Whilst the proposed works do not entail the removal of fen habitat within the River Hamble corridor, there is high potential for physical disturbance/damage of fen habitat as a result of works: contractor access and the need to drag and remove cut timber from the site is likely to result in localised poaching and compaction and damage to vegetation within a c.0.25ha area. Ultimately, this vegetation will be lost to the scheme area.

Badgers

4.25. The scheme area contains no evidence of Badger occupancy. However, Badgers are present locally and likely to occur on occasion within the scheme area.

4.26. The proposed vegetation clearance works are not considered likely to impact Badgers: there will be no excavation and the affected land affected is not suitable for sett construction. The potential for impacts arises from temporary disturbance from noise/activity as well as the overall net reduction in habitat, although the bulk of habitat removal is within wet woodland and is not optimal Badger habitat.

Bats – Roosts

4.27. The proposed removal of trees will result in the loss of three trees with confirmed/suspected roosts (T91, T155, T157) as well as a number of trees containing potential roost features (14 x PRF-M and 12 x PRF-I). The works will result in a net loss of bat roosting habitat including the loss of around 0.25ha of woodland habitat. Given the frequent roost switching behaviour of tree roosting bats it is probable that even where repeat surveys have not identified any evidence of roosting activity that these features have potential to be used by roosting bats in the future. The results of the emergence surveys indicate the likely presence nearby of bat roosts.

- 4.28. Should any roosting bats be present at the time of works there is a potential for disturbance from noise and vibration and potential for killing or injury of individual bats as well as the damage and destruction of roosts.

Bats – Foraging and commuting

- 4.29. The loss of c.0.25ha of wet woodland, c.0.2ha of scrub and c.470m of hedgerow will result in a net loss of bat foraging/commuting habitat. This loss will be permanent.

- 4.30. The proposed works will occur within daylight hours and therefore no lighting will be used and there will be no disturbance associated with temporary artificial lighting.

Bats – Foraging and commuting

- 4.31. The loss of c.0.25ha of wet woodland, c.0.2ha of scrub and c.470m of hedgerow will result in a net loss of bat foraging/commuting habitat. This loss will be permanent.

Water Vole

- 4.32. Water vole are likely absent from the scheme footprint and adjacent habitats and therefore there will be no impacts to this species.

Otter

- 4.33. Otters are present on the River Hamble and Fish Pass. There was no evidence of holt sites or lying up areas and whilst the site is part of an Otter territory, it is considered that Otter pass through the area and likely forage along the watercourses. Areas of dense marginal vegetation do however provide suitable areas for temporary lying up sites.

- 4.34. Otters are primarily active at night and around dusk and dawn. The proposed vegetation clearance will be undertaken during daylight hours and therefore the risk of disturbing Otters or disrupting movement of Otter along the watercourses will be minimal.

- 4.35. Should an Otter be resting within an area of dense bankside vegetation during the proposed tree and shrub clearance there is a risk of disturbance from noise, vibration and visual disturbance during the site clearance activities. This risk is

assessed to be low as no evidence of lying up sites has been identified during surveys to date and at the time of year when the vegetation clearance works will be undertaken, much of the dense bankside vegetation will have died back. Any disturbance would be short term and result in a temporary non-significant impact.

- 4.36. During vegetation clearance works there is an increased risk of pollution of the watercourses which could degrade habitats and impact on the quality of foraging habitat for Otter.

Breeding birds

- 4.37. The loss of c.0.25ha of wet woodland, c.0.2ha of scrub and c.470m of hedgerow will result in a net loss of bird habitat, and the losses will be permanent. Based on the breeding bird surveys conducted during 2022 this loss will affect a relatively small number of territories. Of the species recorded within the proposed works area (see Results section), several are of conservation significance.

- 4.38. Starling is currently Red-listed in the UK due to a significant and sustained decline in the UK breeding population in recent decades. Research suggest that the population declines are not a result of poor breeding success but rather causes related to wintering areas. The works will result in the loss of one Starling nest site.

- 4.39. Stock Dove (one territory), Wren (3+ territories), Dunnock (two territories) and Whitethroat (one territory) are all Amber-listed, due to long-term moderate declines in breeding populations.

- 4.40. Whilst not of conservation concern, and described as a moderately common resident along main river valleys in Hampshire (HOS, 2022), Cetti's Warbler is listed on Schedule 1 of the Wildlife & Countryside Act. Inclusion on Schedule 1 means that it is illegal to disturb this species within the breeding season. The works will result in the loss of/impacts to a single Cetti's Warbler territory.

Reptiles

- 4.41. The wider scheme area supports a small population of Slow-worms and Grass Snakes, within the relatively limited areas of scrub edge, rough grassland, and tall herb vegetation.

4.42. The proposed vegetation clearance works are not likely to result in direct impacts to reptiles or reptile habitat: works are predominantly confined to the wet woodland within the Hamble corridor and specific areas of hedgerow habitat within the farmed landscape and will not result in the removal of ground-level vegetation or disturbance of potential reptile hibernacula. Reptile species are considered unlikely to be inhabiting wet/flooded riparian habitats during winter and therefore potential impacts to reptile species during the advanced vegetation clearance works are assessed to be minimal.

Impact assessment summary

4.43. In summary, in the absence of measures to avoid, mitigate, or compensate for impacts, it is concluded that the development would have the potential for the following impacts:

- Direct loss of SINC woodland.
- Net loss of vegetation and habitats.
- Habitat network fragmentation.
- Loss of potential roost features including features previously identified as potential pipistrelle day roosts and overall reduction in suitable roosting habitat.
- Impacts to foraging/commuting bat habitat.
- Potential disturbance of Otter and risk of pollution impacts to watercourses used by Otter.
- Loss of bird nesting and breeding habitat.
- Invasive non-native species spread.

4.44. The following section sets out a strategy to address these impacts.

5. Recommendations for Mitigation, Compensation and Enhancement

Introduction

5.1. This section provides details of recommendations to ensure that potential ecological constraints are considered fully during the proposed advanced vegetation clearance works. This includes mitigation measures to avoid or lessen the identified impacts to ecological features or compensation measures to offset impacts which cannot be mitigated.

Mitigation and compensation

Designated Sites

5.2. Impacts to Botley Mill Woodland SINC and Sherecroft Farm Meadow SINC are unavoidable and will result in a net reduction in tree cover in both areas.

5.3. No compensatory or enhancement works are proposed for the advanced vegetation works: all such measures will form part of the main construction works mitigation, compensation and enhancement package. In summary, this will be delivered through post-construction landscaping works across the whole Botley Bypass scheme area (Phases 1, 2 and 3) and will include:

- Extensive native species woody plantings and wildflower seeding within new bypass verge estate.
- Native species woody plantings and wildflower seeding within new noise bunds.
- Re-use/translocation of fen vegetation to new flood alleviation basins within River Hamble corridor and adjacent areas.
- Developing a strategy for the long-term management of Himalayan Balsam from riparian habitats along scheme corridor, including potentially linking with the Environment Agency's Hamble Catchment-wide Himalayan Balsam management plan.
- Reprofiled ditch habitat and habitat management east of Hillier Garden Centre, Woodhouse Lane

- Extensive native plantings within ‘Holmesland North’ and ‘Holmesland South’ mitigation areas east of Woodhouse Lane.

Construction Environment Management Plan (CEMP)

5.4. The main construction works could result in impacts through noise, visual disturbance and airborne and waterborne pollution. Mitigation for these potential impacts is likely to require elements of the following:

- Noise reduction measures.
- Appropriate materials storage, fuel storage, and refuelling measures in place.

5.5. The most appropriate means of ensuring adequate protection is through the implementation of a Construction Environment Management Plan (CEMP). A CEMP is included within the accompanying planning submission (Milestone, October 2024).

Badgers

5.6. Badgers are likely to occur occasionally within the proposed works area, but it is considered highly unlikely that Badgers will be encountered during works carried out in winter and no setts are impacted by the works.

5.7. No direct mitigation is considered necessary. An appointed Ecological Clerk of Works (EcOW) will undertake regular inspections of the works area and will advise if evidence of Badger activity is noted including whether any new setts have been constructed within or adjacent to the works areas. Should any new setts be created within the works areas then further mitigation would be required, dependent on the location of badger activity in relation to the works.

Bats

5.8. Several low status bat roosts have previously been found to be present within trees across the scheme area. Trees with confirmed and probable roosts will be subject to removal only after a Natural England European Protected Species mitigation licence is obtained. Trees with confirmed and probable roosts will be clearly marked prior to the commencement of works. Additionally, trees supporting potential roost features will also be clearly marked out on site prior to removal.

5.9. The majority of trees with roosts or potential roost features will be felled during the advanced vegetation clearance in winter 2024/25 due to the high risk of nesting birds being present during the spring/summer. However, where trees cannot be safely and fully inspected during the winter to confirm there are no bat present at the time of felling, these trees will be felled in spring 2024 during the active season when pre-felling emergence/re-entry surveys can be undertaken to ensure no bats are present at the time of felling. Where suitable and specified within the Natural England Mitigation Licence, exclusion devices may be fitted to potential roost features during the active season to exclude bats prior to felling.

5.10. For each tree, the following felling procedure will be implemented.

- Tree subject to either climbed inspection on day of removal or emergence/re-entry survey the night/morning prior to removal.
- If bats are present, the tree will be retained until all bats have vacated the roost feature – to be confirmed by climbed assessment of emergence survey.
- Once absence of bats has been confirmed, the tree will be felled on the same day, or features which can be fully inspected and bats confirmed to be absent can be blocked to allow felling at a later time. Where features are blocked in advance of felling they must be subject to regular inspections to ensure features remain blocked. If blocks are dislodged, the PRF will need to be re-inspected.
- Where feasible, trunk or limb sections with PRFs will be cut sectionally to retain PRFs intact and lowered to ground.
- Cut sections with PRFs will be retained on the ground outside the works area.

5.11. To compensate for the loss of roosting resource, where suitable PRF's can be removed from trees intact and are suitable (i.e. the feature has sufficient longevity to merit translocation), and where safe to do so, features will be strapped to trees within the wider woodland in areas outside of the works footprint and outside of public access.

5.12. Further compensatory bat roost boxes will be installed on retained trees outside the works area. These will comprise a series of woodcrete bat boxes of different

designs (including cavity and crevice type boxes) to provide a range of different roosting features suitable for different bat species. These boxes will be attached to suitable trees within the River Hamble corridor. These will be installed on completion of the main construction works: introducing suitable roosting opportunities adjacent to active construction is considered inappropriate. Two boxes will be installed for every PRF-M tree removed and one box will be installed for every PRF-I tree removed.

- 5.13. Landscape planting for the scheme includes a significant number of new native trees which will provide replacement roost sites across the scheme corridor, including in the Hamble corridor in the very long term.

Otter

- 5.14. The proposed vegetation clearance have a potential to disturb Otter if they were present within or adjacent to the works area during the vegetation clearance. There is also an increased risk of pollution of the watercourses during the works which could degrade habitat used by Otter.

- 5.15. The Ecological Clerk of Works would undertake a pre-clearance inspection of the working areas and adjacent areas prior to the commencement of clearance works. In the unlikely event that a lying up site is identified then a buffer of at least 30m would be set up within which no works would be undertaken. Natural England would be consulted regarding the requirement for a mitigation licence to proceed with vegetation clearance within the 30m buffer zone.

- 5.16. To manage the risk of pollution during works and avoid impacts to water quality the CEMP sets out standard best practice measures which will be implemented during the works.

Nesting birds

- 5.17. The proposed vegetation clearance will result in a net loss of bird nesting habitat, with c.0.25ha of woodland loss within the River Hamble corridor, c.0.2Ha of scrub at the Pinkmead junction and c.470m of hedgerow habitat across the entire bypass scheme area.

- 5.18. The majority (see exceptions above in relation to bats) of vegetation clearance works will be carried out in the period January 2025 to February 2025 and

therefore predominantly outside the nesting bird season. The risk of active nests being encountered in February is considered negligible. The risk increases during March and therefore it is anticipated that the bulk of works will be completed by the end of February 2025. ECoW supervision will be used should works extend into March 2025.

5.19. Compensatory habitat will be in the form of the extensive native plantings within the bypass verge and noise bund areas, to be delivered upon completion of construction. Full details of these works will be provided within the main works planning submission.

5.20. Compensatory nest boxes will be installed in the retained woodland habitat within the River Hamble corridor. A selection of bark replica boxes will be used and will provide nesting opportunities for some bird species.

Reptiles

5.21. Small numbers of two reptile species have been recorded within the scheme area including low populations of Slow Worm and Grass Snake. The habitats affected by the vegetation clearance works are less suitable for reptile species, and potential impacts are considered to be limited.

5.22. Works will entail the removal of above-ground woody vegetation only and there will be no clearance of low or ground-level vegetation likely to be utilised by sheltering reptile species. In addition, the most potentially impactful works will occur within the riparian habitats either side of the River Hamble: these are seasonally flooded habitats highly unlikely to be used by reptile species during the winter months. The risk of encountering reptile species is considered to be minimal.

5.23. In order to mitigate any potential impacts arising through the use of access/haul routes affecting ground-level vegetation, an Ecological Clerk of Works (EcOW) will be used to ensure that impacts are avoided.

5.24. The EcOW will agree specific access/haul routes that avoid/minimise disturbance to habitats suitable for reptiles. These routes will be clearly marked (e.g. using site tape) to ensure informal access to adjacent areas is avoided.

5.25. Arisings from vegetation clearance will be used to create at least four log piles to provide additional refugia for reptiles. These will be constructed using a range of log diameters to create a range of void sizes within the log piles. These will be placed outside of the construction area on the edge of woodland or scrub habitats in areas which will be exposed to the sun. Further reptile mitigation and enhancement works will be specified within the reptile mitigation strategy for the main works.

Enhancements

5.26. No ecological enhancements are proposed as part of the advanced vegetation clearance works. Habitat creation works will occur alongside the main works construction and will be detailed within a Landscape and Ecological Management Plan (LEMP) to be submitted in advance of main works. In summary, habitat creation will entail:

- New native-led plantings within new road verge estate
- New native scrub plantings and species-rich grassland within HCC land to the east of Hillier Garden Centre on Woodhouse Lane

6. Conclusions

6.1. The Ecological Appraisal of proposed vegetation clearance works within the Botley Bypass Phase 3 scheme area has identified that the proposed works will impact the following ecological features:

- Botley Mill Woodland SINC
- Sherecroft Farm Meadow SINC
- Roosting, foraging and commuting bats
- Otter
- Nesting and foraging birds

6.2. In the absence of measures to avoid or mitigate impacts, it is concluded that the proposed works would have the potential for the following impacts:

- Net loss of habitats within Botley Mill Woodland SINC
- Impacts to habitat within Sherecroft Farm Meadow SINC.
- Loss of bat roosting, foraging and commuting habitat.
- Potential disturbance of Otter and risk of pollution of Otter habitat.
- Loss of bird nesting and foraging habitat.
- Spread of Invasive Non-native Species (INNS)

6.3. Mitigation measure for these impacts is as follows:

- Implementation of a CEMP to ensure impacts are avoided/minimised.
- Use of Ecological Clerk of Works to undertake pre-clearance checks and supervision as required.
- Phased removal of trees.
- Pre-felling inspections of trees with Potential Roost Features to ensure no bats present.
- Trees with confirmed/suspected bat roosts removed under European Protected Species licence.
- Avoidance of vegetation removal within bird nesting season.
- Implementation of Biosecurity Plan to avoid spread of INNS.

6.4. Provided these measures are followed, it is concluded that the proposed vegetation clearance is unlikely to result in significant impacts to ecological receptors.

6.5. Unless otherwise advised, the findings and recommendations in this report are solely based on the plans and brief provided to HCCET. The results and findings are valid for 18 months from the date of the initial field survey. HCCET should be contacted if this report is to be used after this period to check if any updating work needs to be undertaken.

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Appendix 1 – Plans and Figures

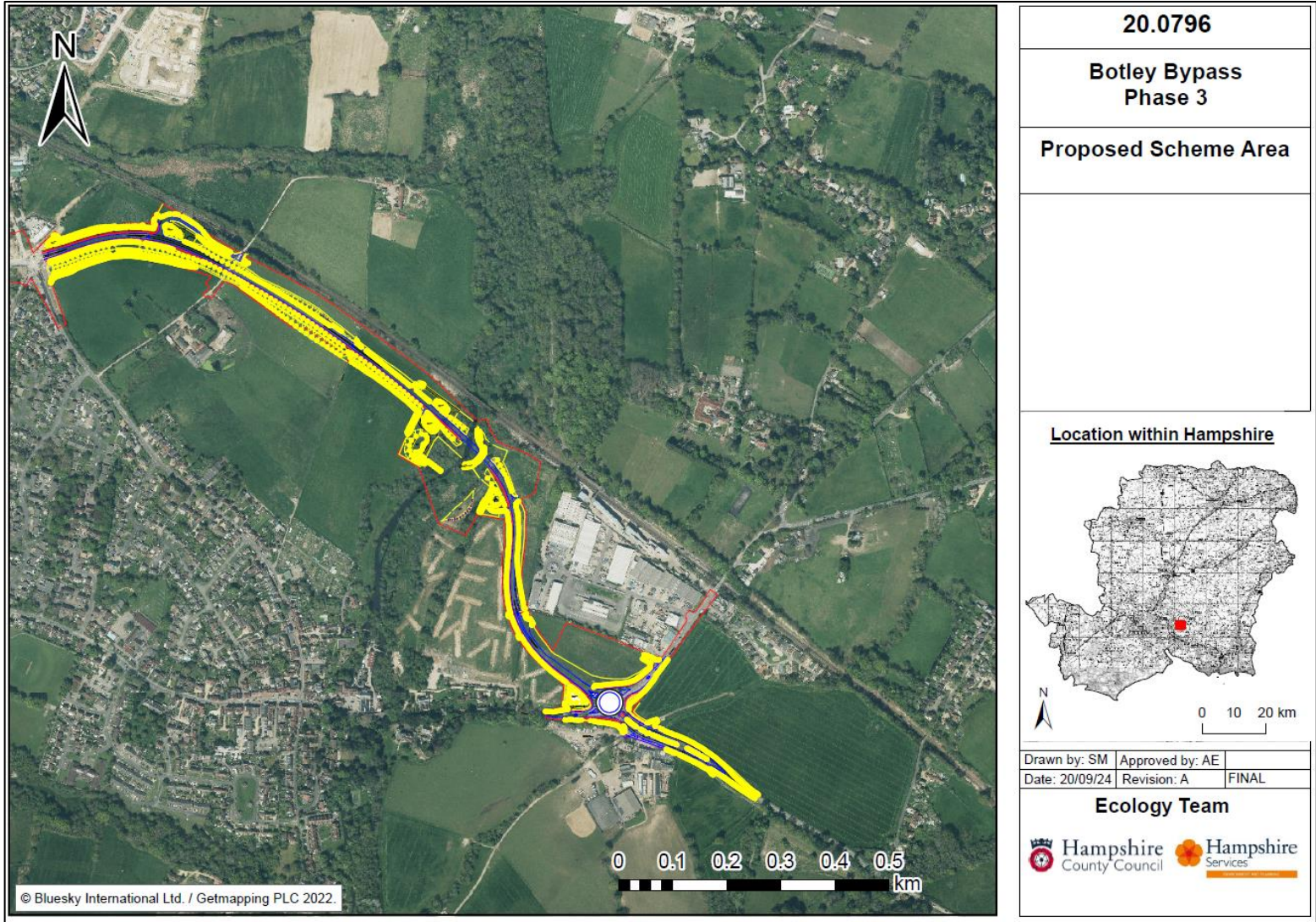


Figure A1.1 Site Location

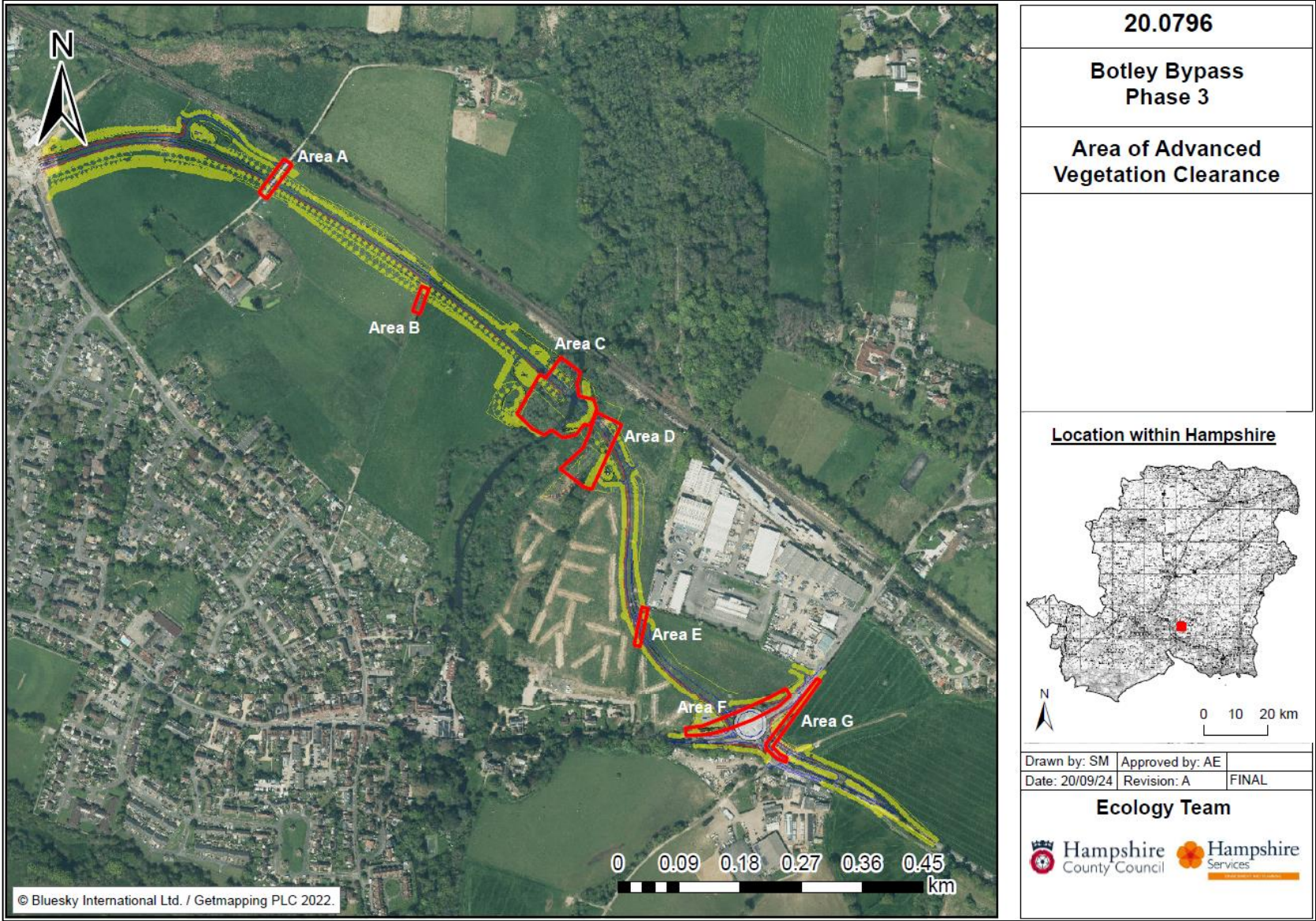


Figure A1.2 Location of Vegetation Clearance

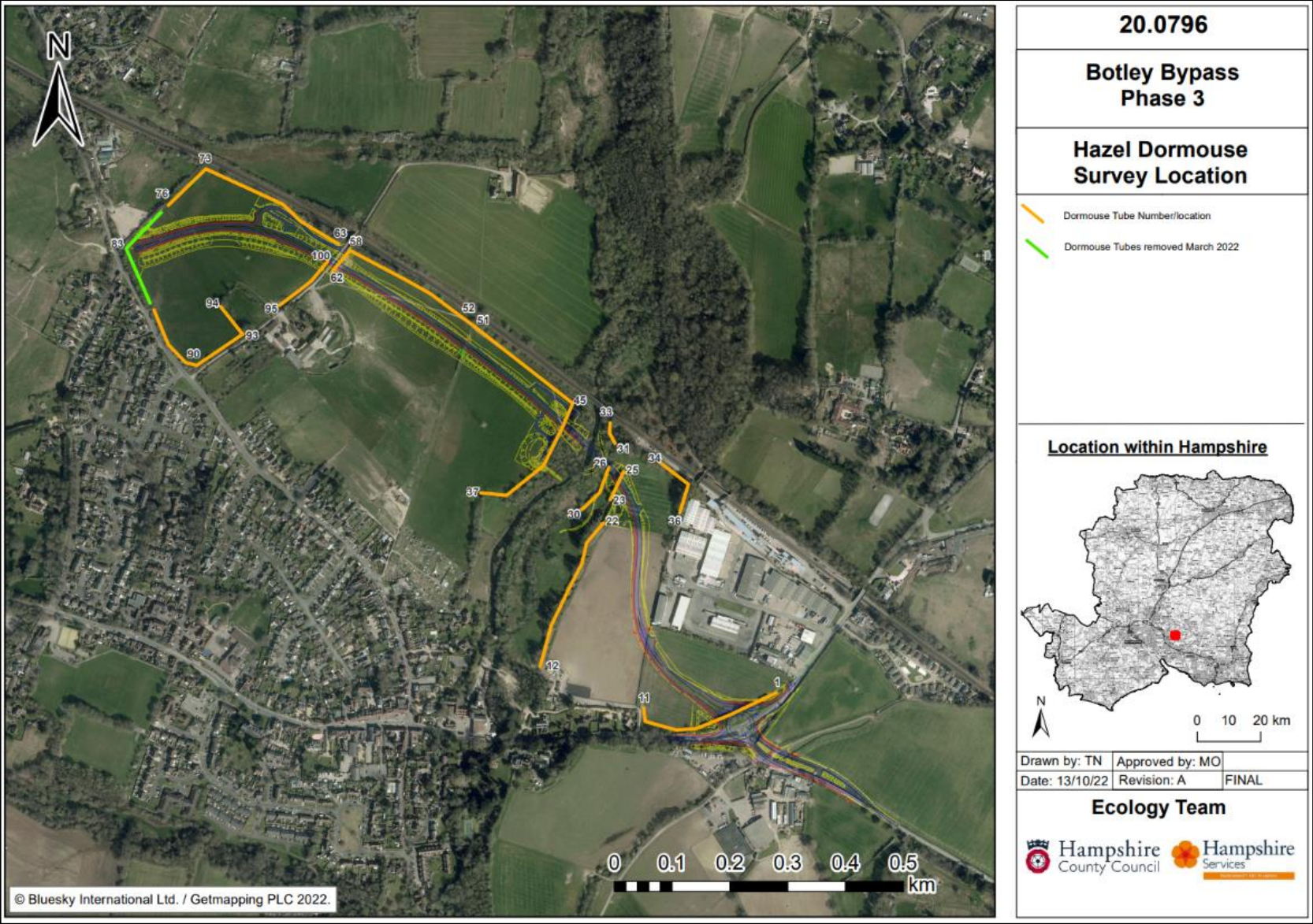


Figure A1.3 Location of Hazel Dormouse Survey

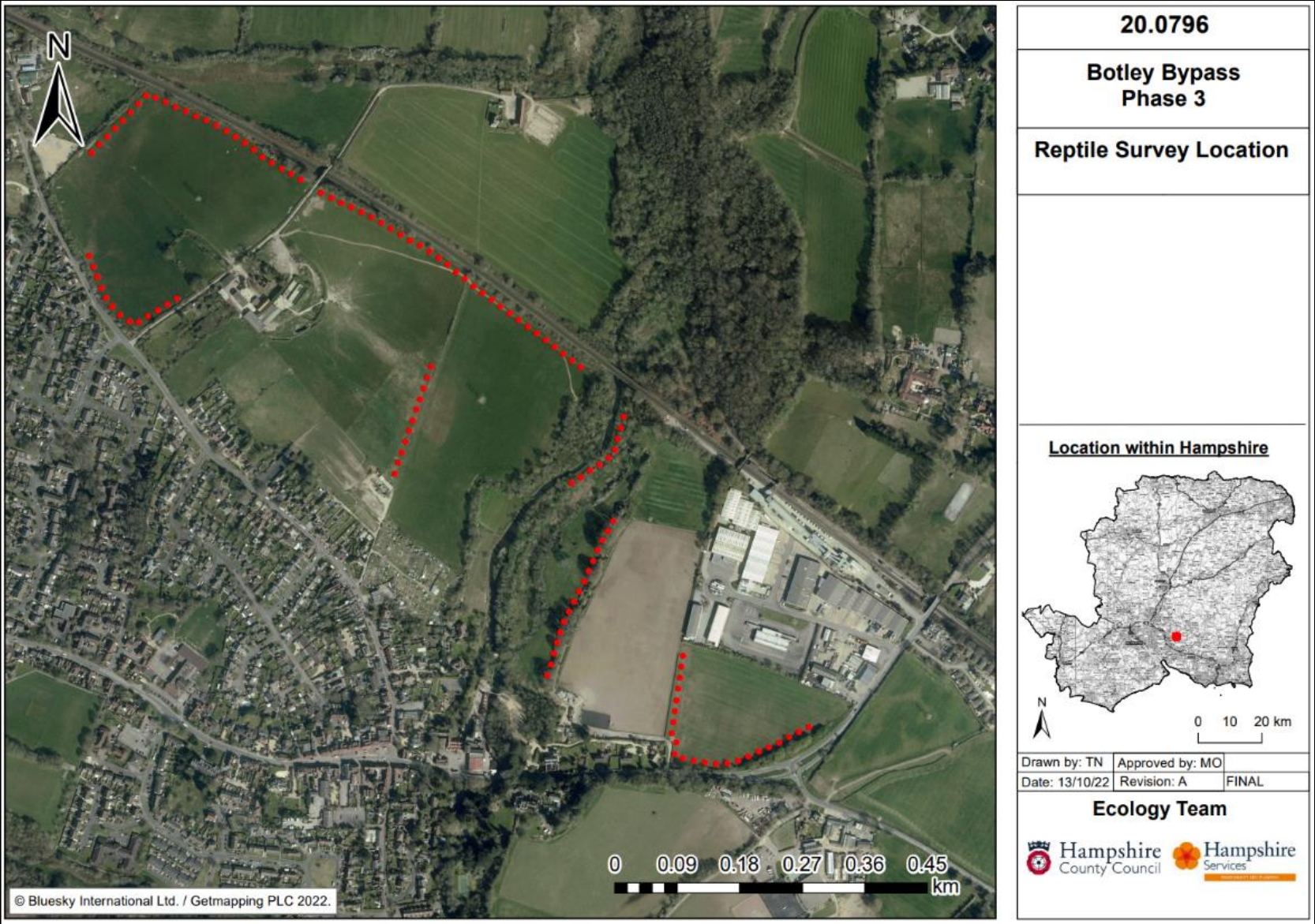


Figure A1.4 Location of 2021 Reptile Survey

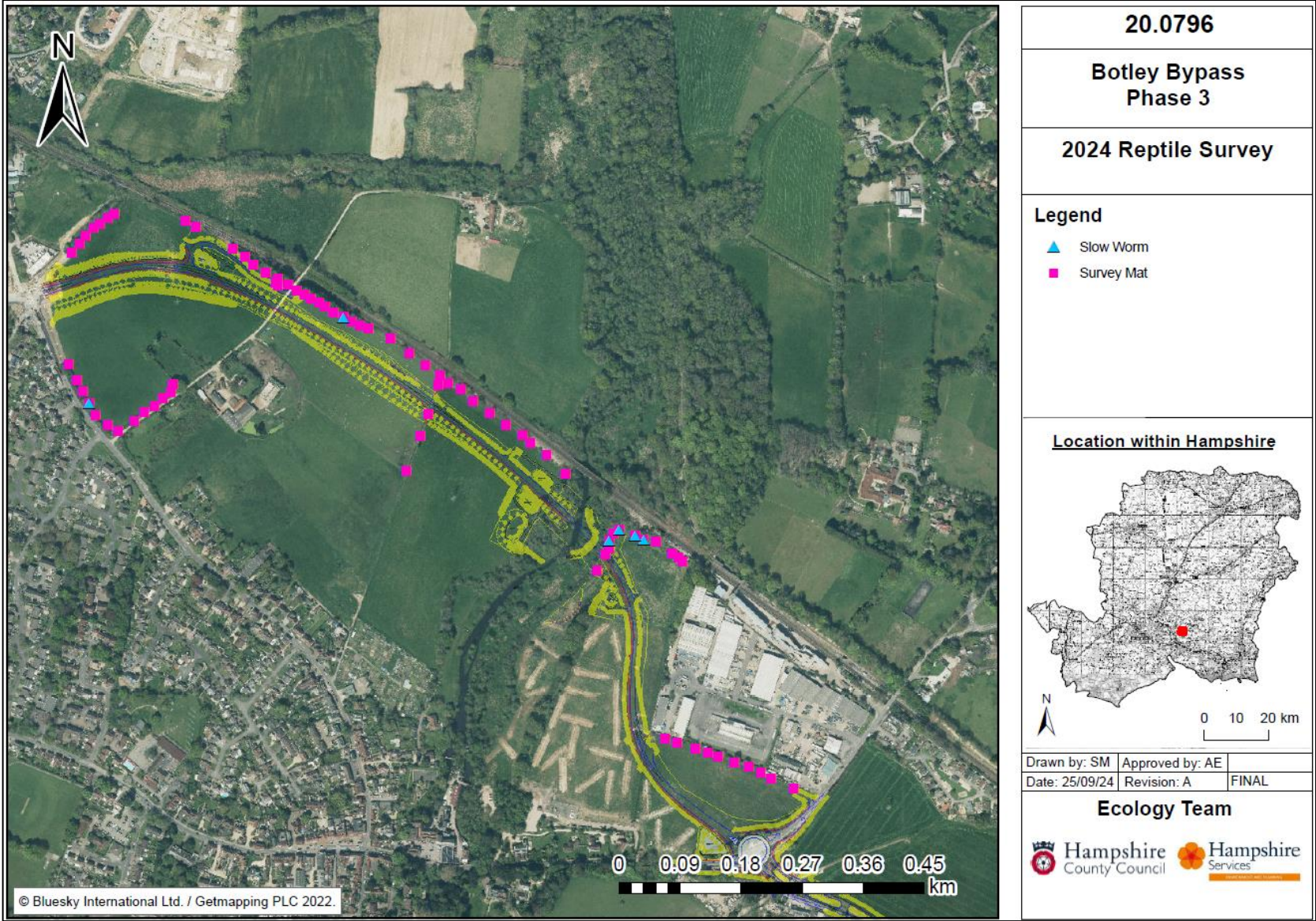


Figure A1.5 Location of 2024 Reptile Survey

Appendix 2 – Photos



Photo 1 Botley Mill Woodland SINC viewed from E bank of Hamble.



Photo 2 River Hamble, looking S from approximate centre of proposed crossing.



Photo 3 Botley Mill Woodland SINC, W side of Hamble.



Photo 4 Sherecroft Farm Meadow SINC, looking S across scheme area.



Photo 5 River Hamble, looking N from approximate centre of proposed crossing.



Photo 6 Fish bypass channel to E of Hamble



Photo 7 Hedgerow to N of Uplands Farm (Area A).



Photo 8 Defunct hedgerow to NE of Uplands Farm (Area B).



Photo 9 Hedgerow with trees within pasture to E of Hamble (Area D).



Photo 10 Tree/scrub line fringing fish bypass channel (Area D).



Photo 11 Hedgerow at Sherecroft Farm (Area E).



Photo 12 Dense scrub/trees at A334/Pinkmead junction (Area F).



Photo 13 Tall species-rich hedgerow on E side of A334 at Pinkmead (Area G).



Photo 14 Defunct remnant hedgerow at A3351/A334 junction.



Photo 15 Dense Himalayan Balsam on western embankment of River Hamble



Photo 16 Himalayan Balsam within Botley Mill Woodland SINC West of River Hamble.

Appendix 3 – Desk-Based Assessment Findings

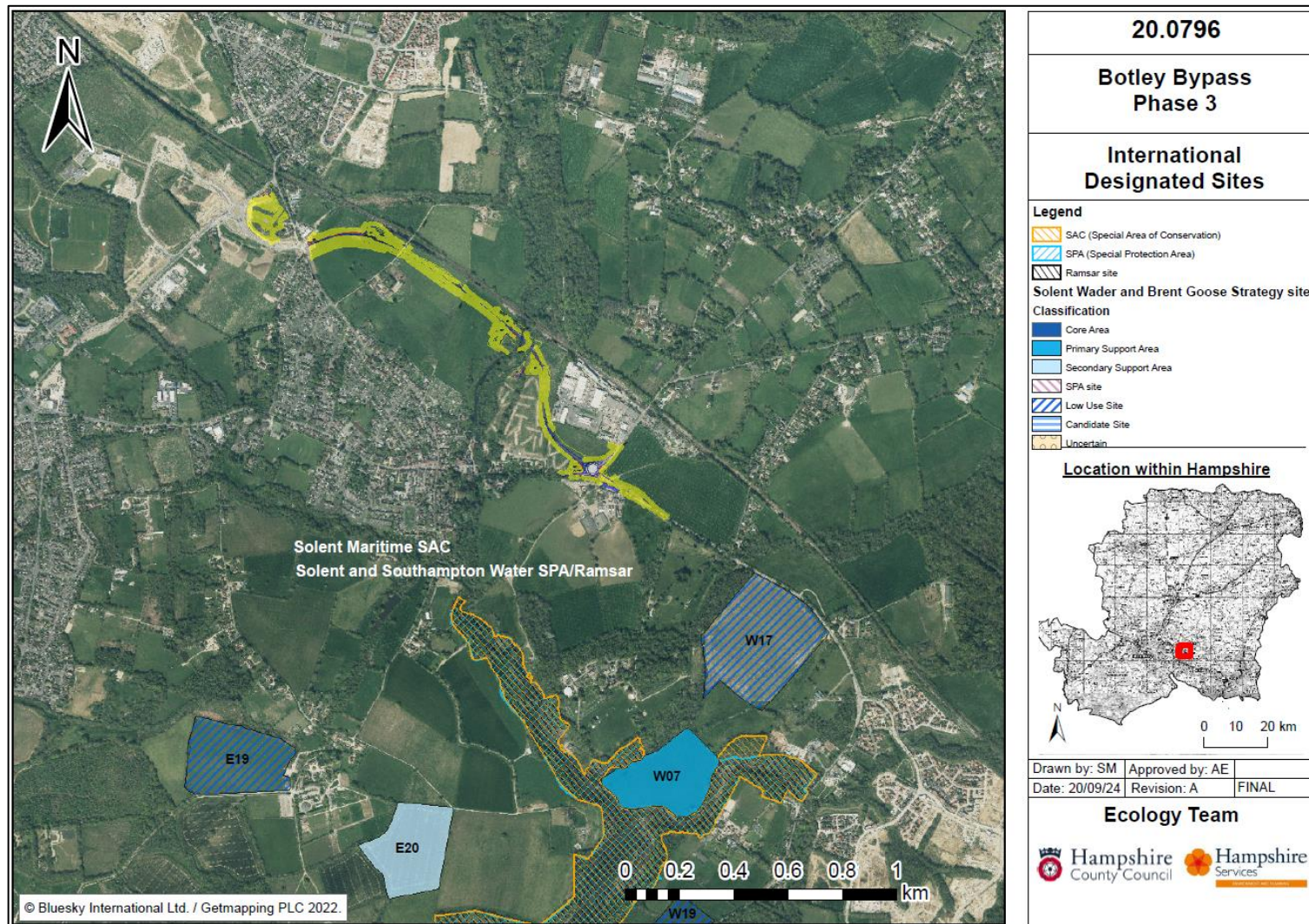


Figure A3.1 Map of International Designated Sites

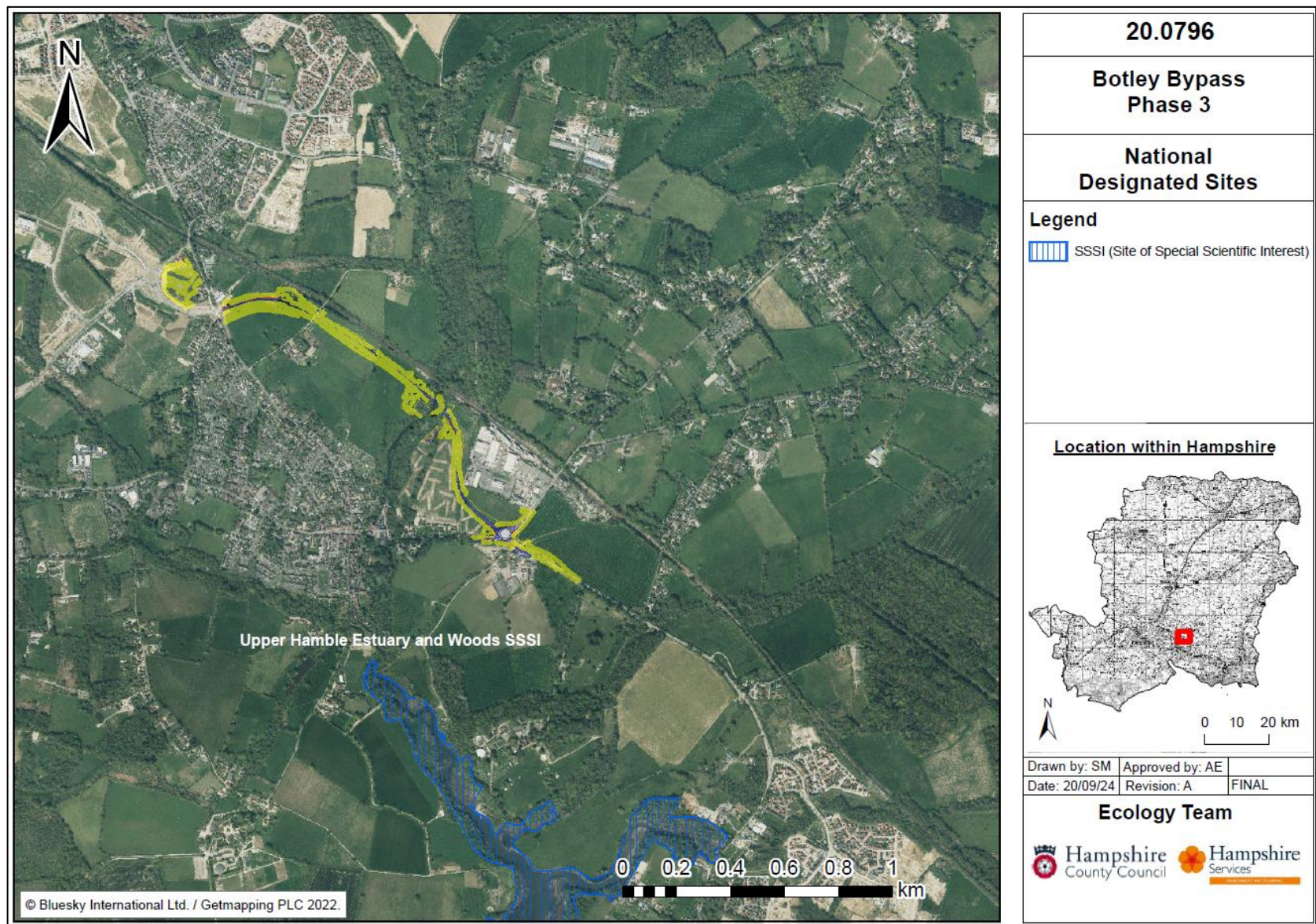


Figure A3.2 Map of National Designated Sites

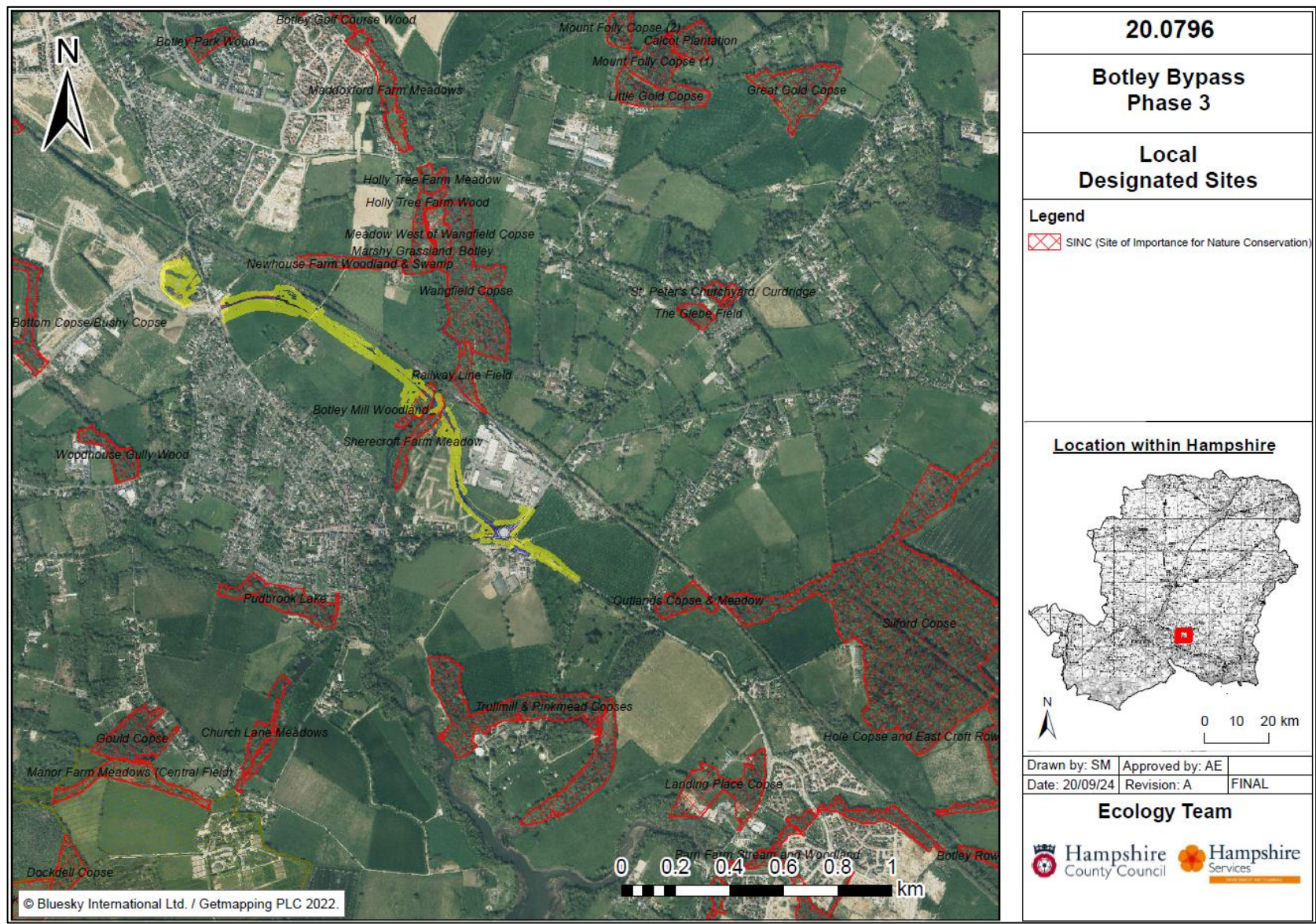


Figure A3.3 Map of Locally Designated Sites

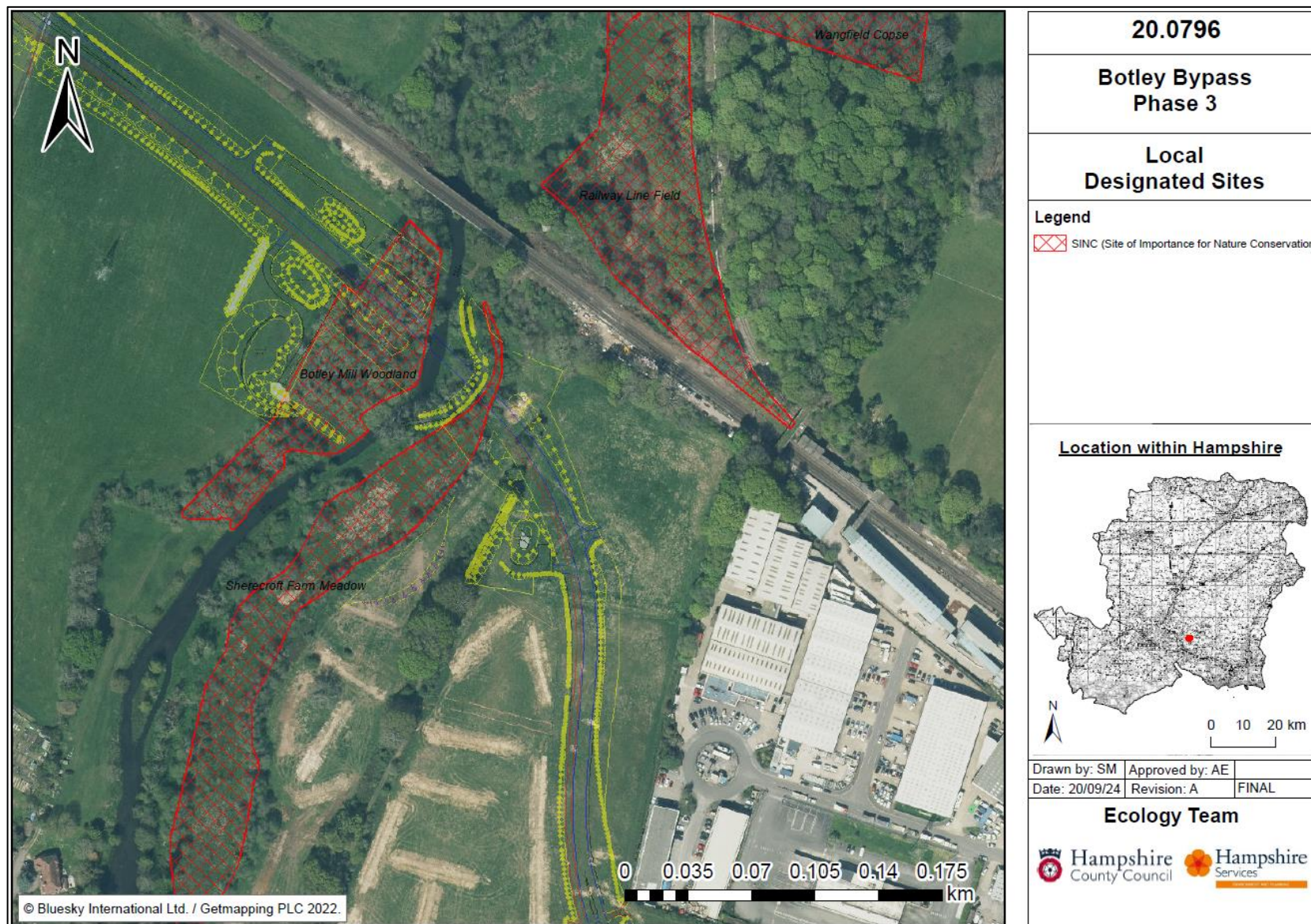


Figure A3.4 Detail of Locally Designated Sites

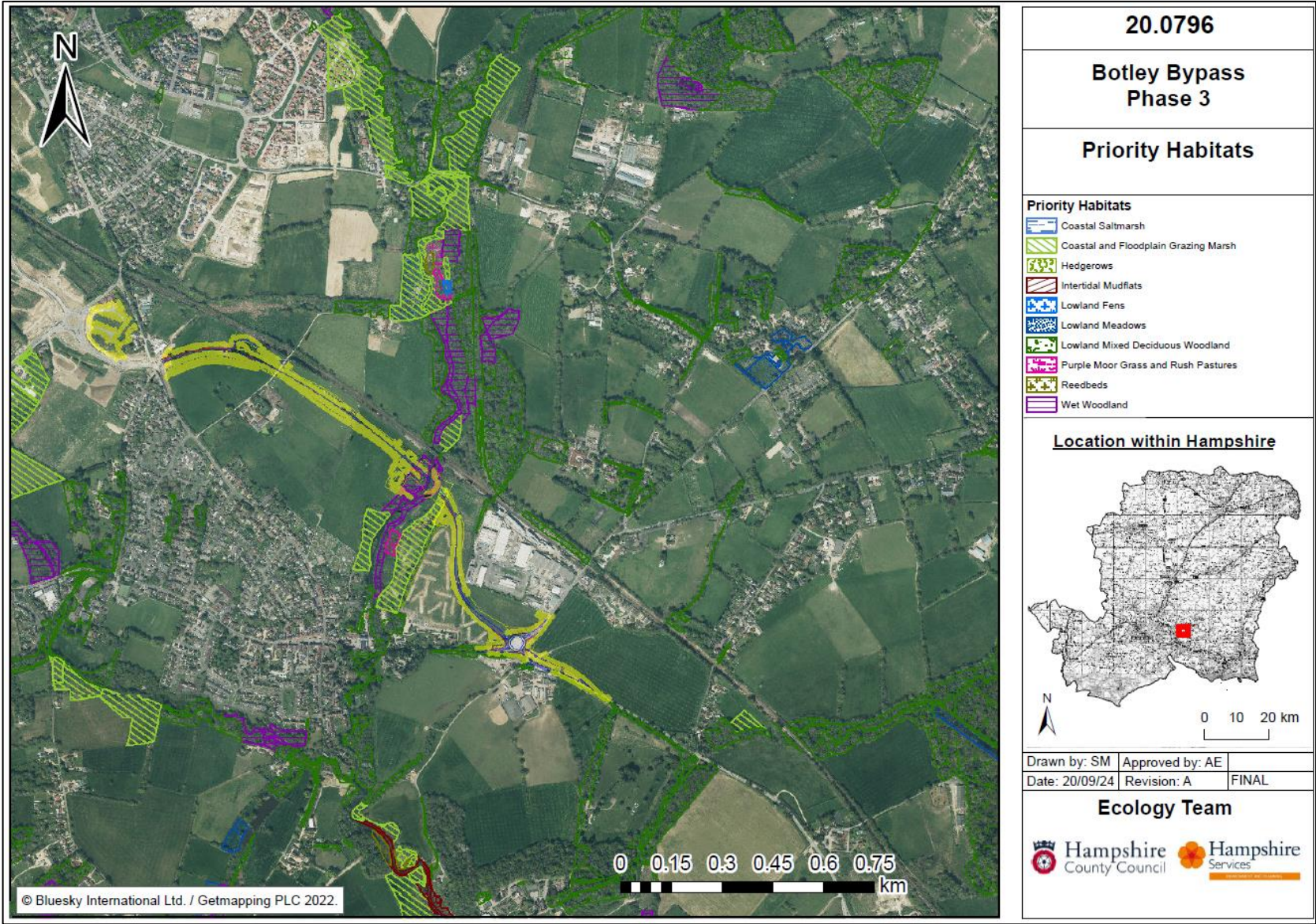


Figure A3.5 Map of Priority Habitats

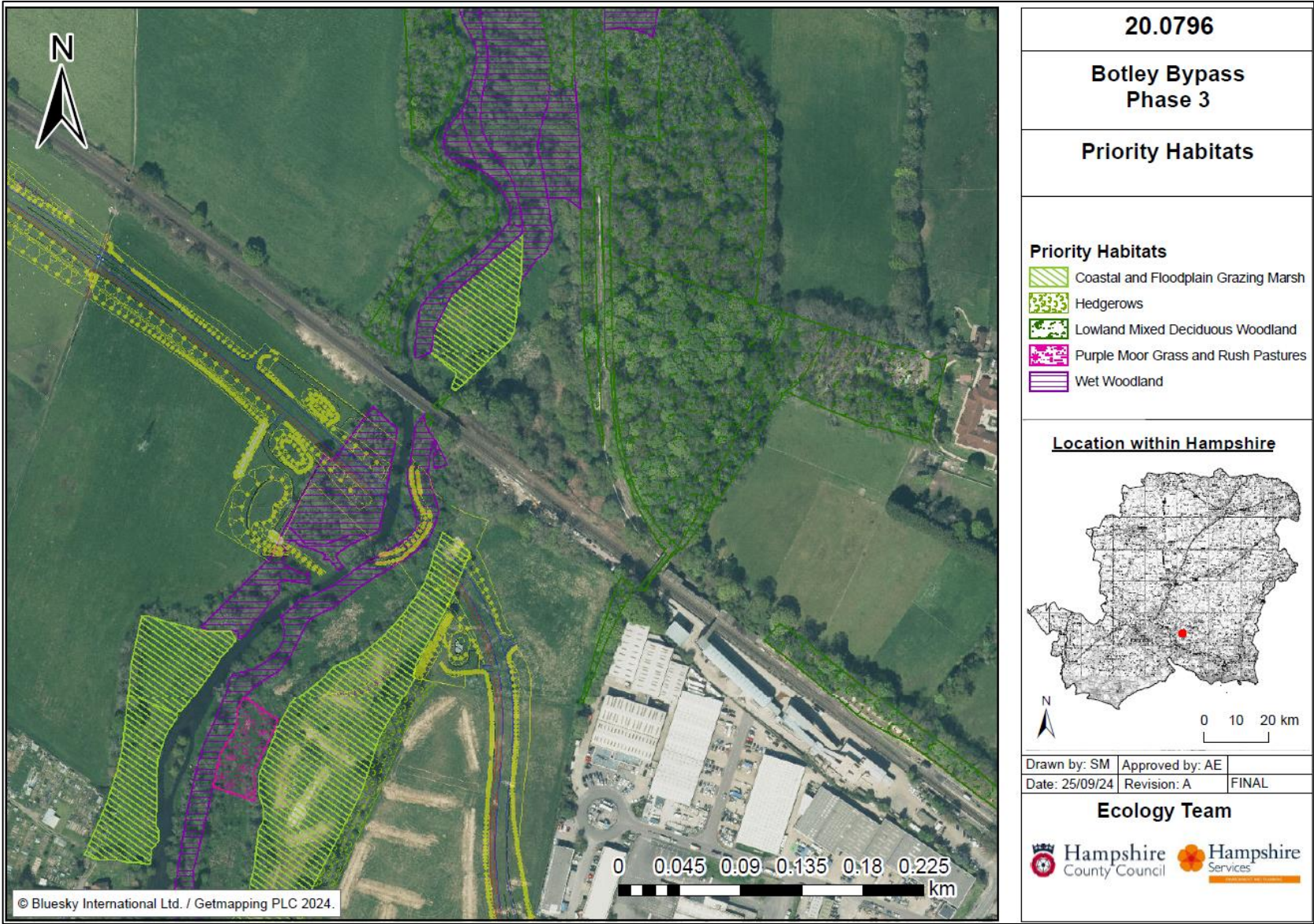
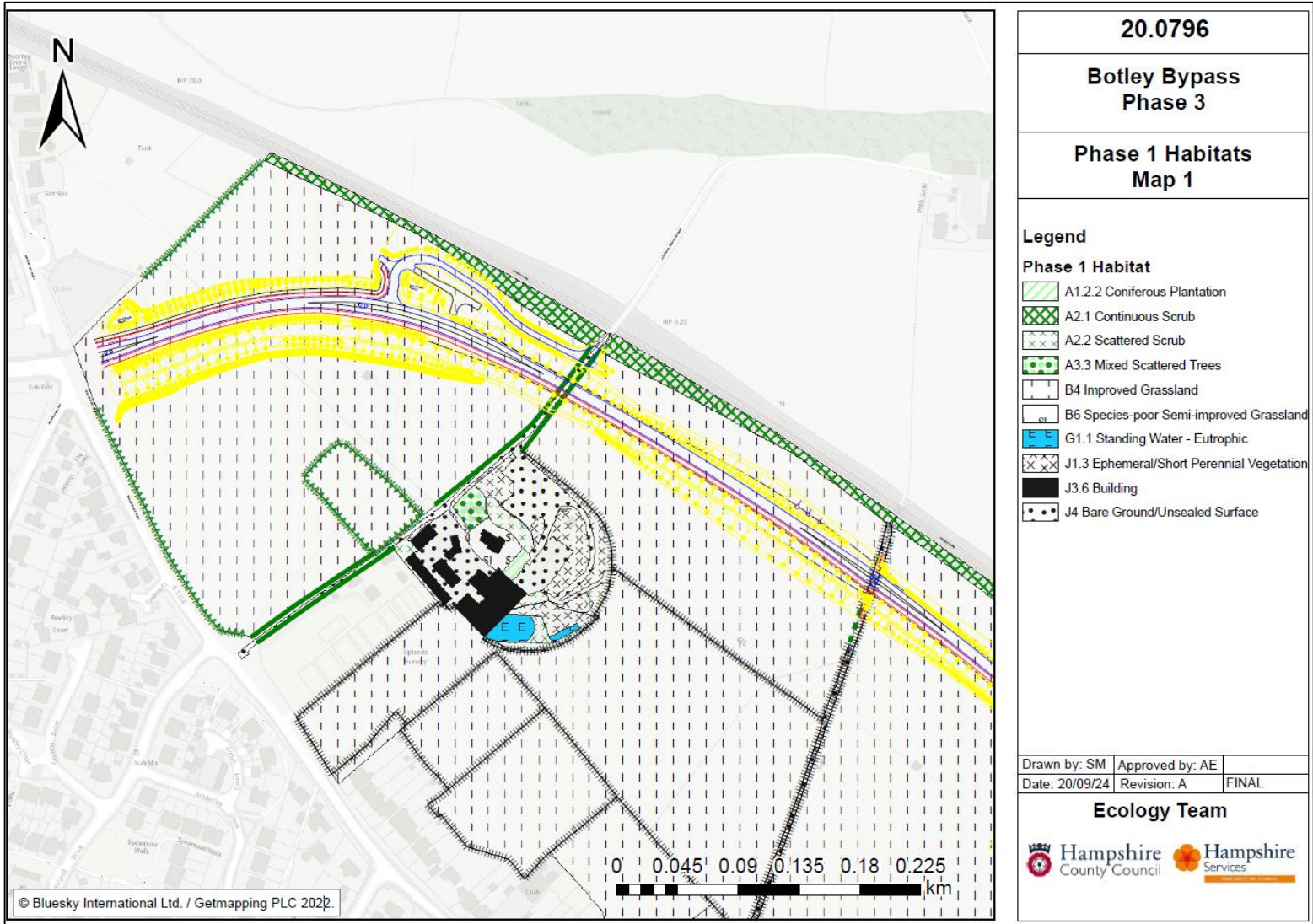
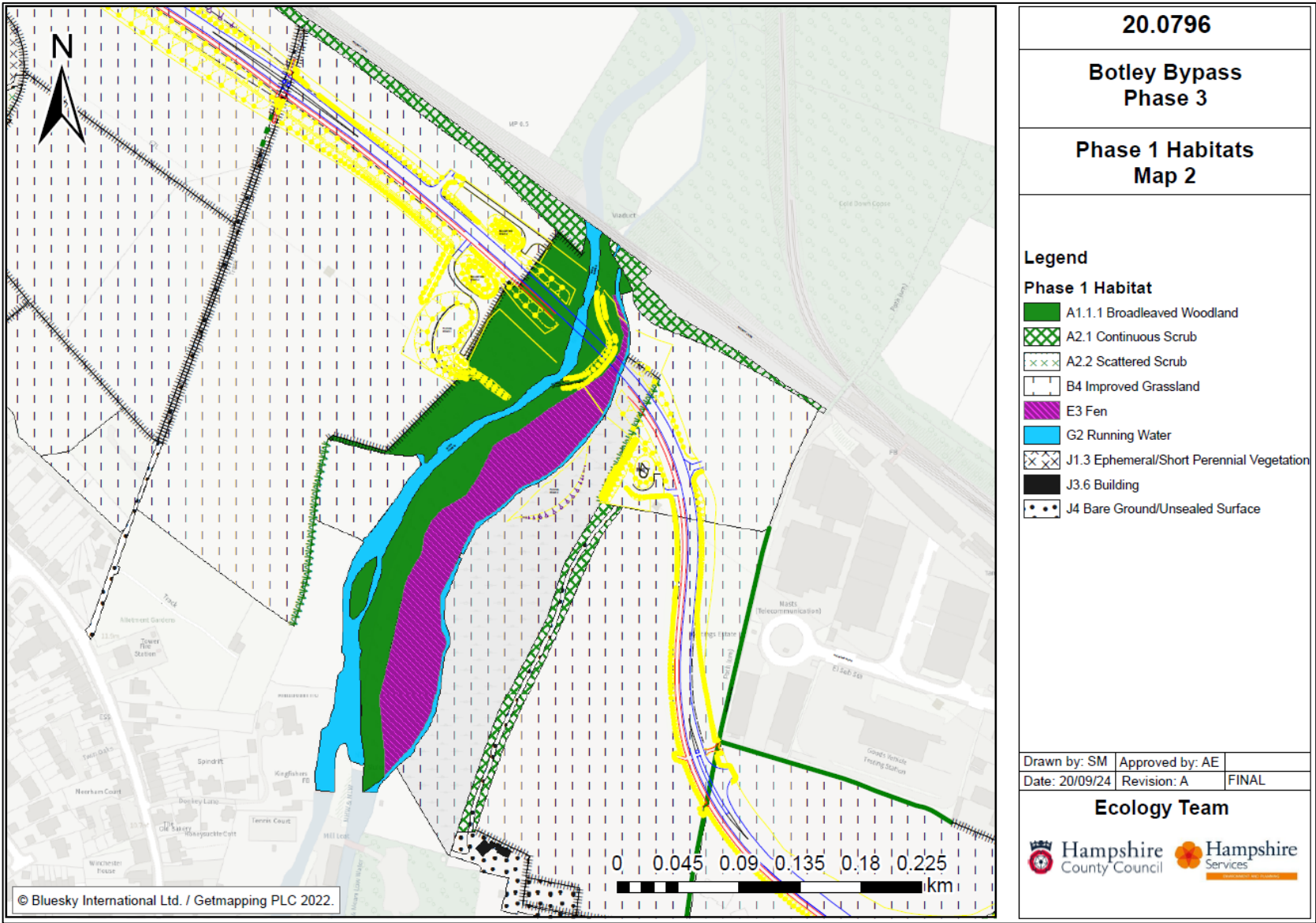
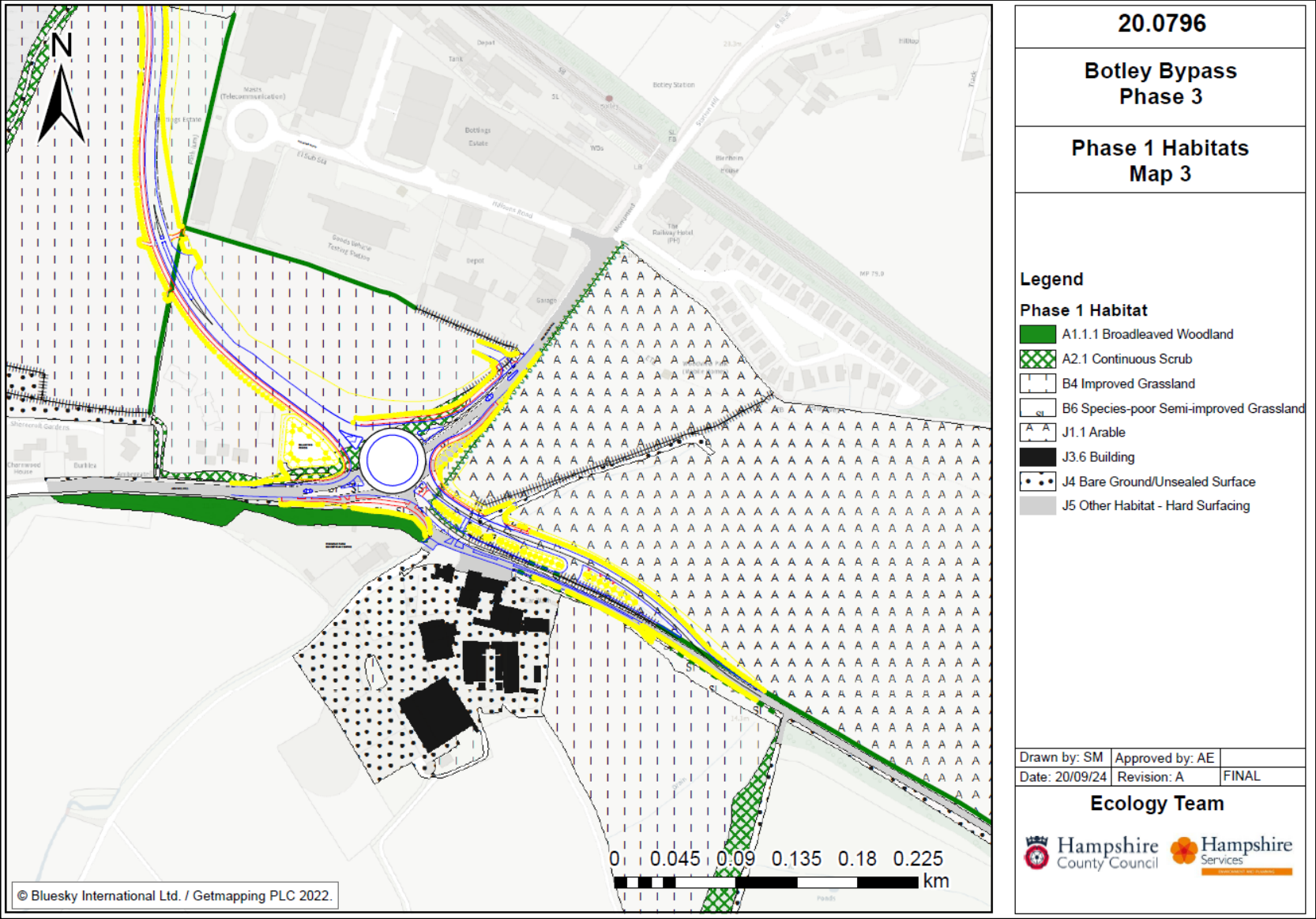


Figure A3.6 Detailed map of Priority Habitats

Appendix 4 – Habitat Mapping







Appendix 5 – ADAS Bat Survey report

Appendix 6 – GLTA and PRF survey of additional trees 2022

Tree No.	Species	Tree/PRF description (Ground Level Tree Assessment)	Roost Potential (GLTA)	At height PRF description	Final Roost Potential
T193	<i>Q. robur</i>	c.15m. Single trunk with division at c.12m. Several dead/decayed limbs to NE + NW. Large limb to NE plus upper section of main trunk both with decay features – crevices/fissures visible. Woodpecker hole/cavity on W-most side at c.12m.	HIGH	Woodpecker hole in major dead limb 12m W. Cavity is open at top and exposed. Low pot. Branch drop on end of limb 12m W. Shallow damp cavity full of sludge. Negligible potential. No other suitable features.	LOW
T194	<i>Q. robur</i>	Large tree c.20m. Thick trunk, large, contorted limbs. Dead ivy to c.10m. Obvious large hole (rot?) at c.5m on W side. Large broken limb on W side – possible cavities/fissures. Various minor limbs with potential cracks/fissures at upper levels.	HIGH	Rot hole 5m SW. Dry cavity extending up with two internal cavities extending up about 10cm. Nice dry cavity. High potential. Branch drop wound 6-10m NE. Two small sections of ramshorn bark with small wet exposed cavities. Low potential. Limb cavity 10m NW. Small damp cavity into branch either side of entrance. Wet and full of sludge. Low potential. Multiple dead limbs, some significant, but no suitable cavities or PRF.	HIGH
T195	<i>Q. robur</i>	Tall tree, c.15m, leaning to SW. Slim trunk with division at c.10m. Minor bark flaking at base to NW. Limb stub c.10m on S side –	LOW	Limb stub at 10m S has shallow exposed and damp cavity at base. Negligible potential.	NEG

Tree No.	Species	Tree/PRF description (Ground Level Tree Assessment)	Roost Potential (GLTA)	At height PRF description	Final Roost Potential
		possible crevices around margin. Decayed/dead limb to W – potential cracks/fissures.		Small cavity on limb 12m W, upward facing and very wet. Negligible.	
T183	<i>S. fragilis</i>	Fallen tree. Some potential fissures/cracks on main limbs but generally obscured by dense young regrowth.	LOW	Split limb 1m S. Shallow and unsuitable. Rot hole 2m E. Shallow and unsuitable. Large open split in main trunk (which lies horizontally) 1.5m W-E. Shallow exposed and wet. Unsuitable.	NEG
T184	<i>S. fragilis</i>	Large fallen tree. Possible cavity (with bracket fungus) at c.2m to E.	LOW	Branch drop 2m W. Shallow and unsuitable. WP hole 4m E. Shallow wet and full of slugs. Negligible. WP hole 8m W. Standing water at base of cavity. Extends up linking to second cavity 8.5m N which is wet. Low potential.	LOW
T192	<i>Q. robur</i>	Large tree, c20m with spreading growth form and in good condition. Some deadwood and broken limb stubs.	LOW	A number of broken limb stubs at various heights and aspects, all of which were shallow, exposed and unsuitable.	NEG

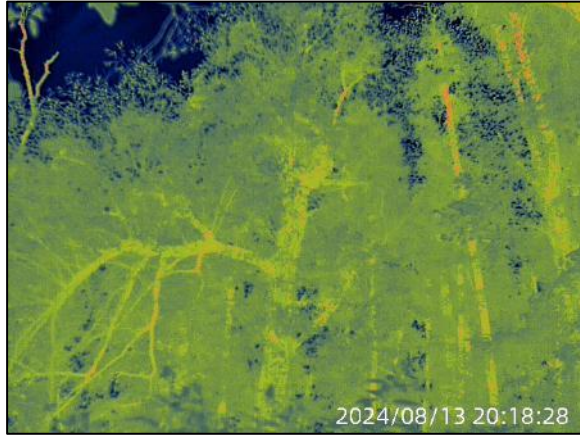
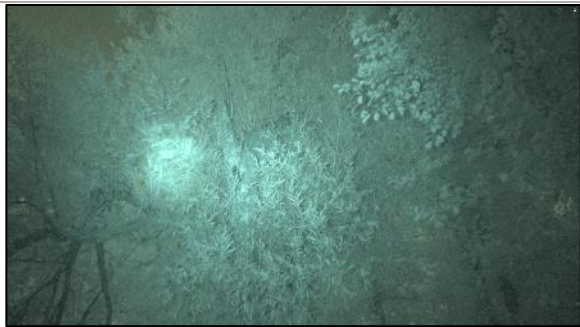
Appendix 7 – 2024 Bat Surveys

A7.1 Night Vision Aid Images

Night Vision Aid Locations are shown in the Survey Results Plan in *Appendix A7.2*

Tree – T142

Start of Survey	Darkest Point
Survey 1 – 23/07/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T142 – 1 NVA ref. A (as on Plan) Location: S of Tree 142 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	
Survey 2 – 13/08/2024	
	
Photo T142 – 2	Photo T142 – 3
NVA ref. B (as on Plan) Location: SE of Tree 142	

NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T142 – 4	
NVA ref. A (as on Plan) Location: S of Tree 142 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	
Survey 3 – 11/09/2024	
	
Photo T142 – 6	Photo T142 – 7
NVA ref. B (as on plan) Location: SE of Tree 142 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T142 – 8	
NVA ref. no (as on plan) Location: S of Tree 142 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	

Tree – T152

Start of Survey		Darkest Point	
Survey 1 – 13/08/2024			
			
Photo T152 – 1		Photo T152 – 2	
NVA ref. C (as on plan) Location: West of Tree 152 NVA Type: Nightfox Whisker IR camera			
Survey 2 – 27/08/2024			
			
Photo T152 – 3		Photo T152 – 4	
NVA ref. C (as on plan) Location: West of Tree 153 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators			

Survey 3 – 17/09/2024	
	
Photo T153 – 5	Photo T154 – 6
NVA ref. C (as on plan) Location: West of Tree 153 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	

Tree – T153

Start of Survey	Darkest Point
Survey 1 – 07/08/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T153 – 1 NVA ref. D (as on plan) Location: East of T153 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	
Survey 2 – 13/08/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T153 – 2 NVA ref. D (as on plan) Location: E of T153 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	
Survey 3 – 11/09/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T153 – 3	

NVA ref. D (as on plan)

Location: E of T153

NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz

Tree – T155

Start of Survey	Darkest Point
Survey 1 – 07/08/2024	
	
Photo T155 – 1	Photo T155 – 2

NVA ref. no (as on plan)

Location: South-east of T155

NVA Type: Sony FDR-AX53 camcorder with infrared illuminators

	
Photo T155 – 3	Photo T155 – 4

NVA ref. F (as on plan)

Location: West of T155

NVA Type: Nightfox Whisker IR camera

Survey 2 – 13/08/2024



Photo T155 – 5



Photo T155 – 6

NVA ref. E (as on plan)

Location: South-east of T155

NVA Type: Sony FDR-AX33 camcorder with infrared illuminators



Photo T155 – 7

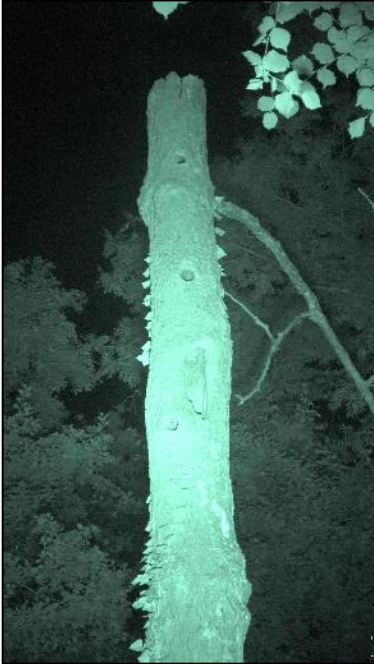


Photo T155 – 8

NVA ref. F (as on plan)

Location: West of T155

NVA Type: Nightfox Whisker IR Camera

Survey 3 – 11/09/2024	
	
Photo T155 – 9	Photo T155 – 10
NVA ref. E (as on plan) Location: South-east of T155 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
	
Photo T155 – 11	Photo T155 – 12
NVA ref. F (as on plan) Location: West of T155 NVA Type: Nightfox Whisker IR Camera	

Tree – T166

Start of Survey	Darkest Point
Survey 1 – 07/08/2024	
	
Photo T166 – 1	Photo T166 – 2
NVA ref. G (as on plan) Location: South of T166 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
Survey 2 – 13/08/2024	
	
Photo T166 – 3	Photo T166 – 4
NVA ref. G (as on plan) Location: South of T166 NVA Type: Sony FDR-AX53 camcorder with infrared illuminators	
Survey 3 – 11/09/2024	
	
Photo T166 – 5	Photo T166 – 6
NVA ref. G (as on plan) Location: South of T166 NVA Type: Sony FDR-AX53 camcorder with infrared illuminators	

Tree – T174

Start of Survey	Darkest Point
Survey 1 – 07/08/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T174 – 1 NVA ref. H (as on plan) Location: West of Tree 174 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12μm, 10mm lens, 50Hz	
	
Photo T174 – 2	Photo T174 – 3
NVA ref. I (as on plan) Location: East of Tree 174 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	

	
Photo T174 – 4	Photo T174 – 5
NVA ref. J (as on plan) Location: South of Tree 174 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
Survey 2 – 27/08/2024	
	No darkest point picture as thermal imager is not dependent on light levels
Photo T174 – 6	
NVA ref. H (as on plan) Location: West of Tree 174 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	

	
Photo T174 – 7	Photo T174 – 8
NVA ref. I (as on plan) Location: East of Tree 174 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	
	
Photo T174 – 9	Photo T174 – 10
NVA ref. J (as on plan) Location: South of Tree 174 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	

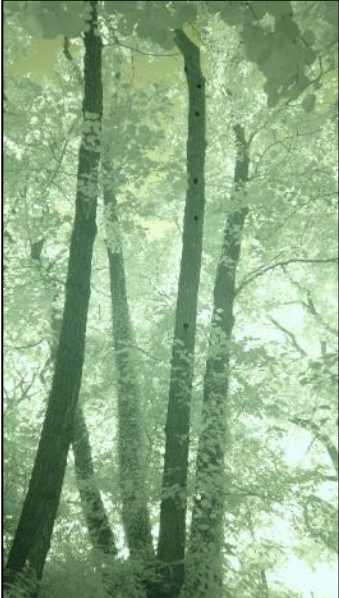
Survey 3 – 17/09/2024	
	<i>No darkest point picture as thermal imager is not dependent on light levels</i>
Photo T174 – 11	
NVA ref. H (as on plan) Location: West of Tree 174 NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	
	
Photo T174 – 12	Photo T174 – 13
NVA ref. I (as on plan) Location: East of Tree 174 NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	

	
Photo T174 – 14	Photo T174 – 15
NVA ref. J (as on plan)	
Location: South of Tree 174	
NVA Type: Sony FDR-AX33 camcorder with infrared illuminators	

Tree – Old Dead Oak

Start of Survey	Darkest Point
Survey 1 – 07/08/2024	
	No darkest point picture as thermal imager is not dependent on light levels
Photo Old Dead Oak – 1	
NVA ref. no (as on plan)	
Location: E of tree	
NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	

	
Photo Old Dead Oak – 2	Photo Old Dead Oak – 3
NVA ref. no (as on plan) Location: N of tree NVA Type: Nightfox Whisker IR camera	
	
Photo Old Dead Oak – 4	Photo Old Dead Oak – 5
NVA ref. no (as on plan) Location: SE of tree NVA Type: Nightfox Whisker IR camera	
Survey 2 – 27/08/2024	
	No darkest point picture as thermal imager is not dependent on light levels
Photo Old Dead Oak – 6	
NVA ref. no (as on plan) Location: East of Oak Tree NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	

	
Photo Old Dead Oak – 7	Photo Old Dead Oak – 8
NVA ref. no (as on plan) Location: N of tree NVA Type: Nightfox Whisker IR camera	
	
Photo Old Dead Oak – 9	Photo Old Dead Oak – 10
NVA ref. no (as on plan) Location: SE of tree NVA Type: Nightfox Whisker IR camera	
Survey 3 – 17/09/2024	
	No darkest point picture as thermal imager is not dependent on light levels
Photo Old Dead Oak – 11	
NVA ref. no (as on plan) Location: East of Oak Tree NVA Type: Guide TK612 Thermal Monocular Camera - 640x480, 12µm, 10mm lens, 50Hz	

	
Photo Old Dead Oak – 12	Photo Old Dead Oak – 13
NVA ref. no (as on plan) Location: North of Oak Tree NVA Type: Nightfox Whisker IR camera	
	
Photo Old Dead Oak – 14	Photo Old Dead Oak – 15
NVA ref. no (as on plan) Location: South of Oak Tree NVA Type: Nightfox Whisker IR camera	

A7.2 2024 Bat Emergence Survey Layout



A7.3 2024 Bat Tree Survey Results

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T6	1660	Oak	High	PRF-M	Tree now shown for retention and no further surveys needed	Retain	6m N - Vertical callus roll with tear out. High. 5m S - Callus roll on main vertical leader. High.	Vertical splits and callus roll full of leaves and dense old cobwebs but PRF-M if not blocked.	12.07.2024	PRF-M				
T14	2066	Oak	High	PRF-M	Tree now shown for retention and no further surveys needed	Retain	6m SW - Large dead branch with hollow sections. High. 8m E - Tear out with cavities. High. 11m NW - Small collar around dead branch. High. 6m N - Tear out with several sections of splits. High. 11m SW - Splits in dead branch. High.	Not safe to climb. Feature 6m SW Large dead branch with hollow sections - feature is quite open and hollow sections are exposed - PRF-I. Other features appear the same based on GLTA.	12.07.2024	PRF-M				
T22	2070	Oak	Moderate	PRF-M	Tree now shown for retention and no further surveys needed	Retain	7m N - Splits on desiccated branch. Moderate. 8m N - Split at base of tear out. Negligible. 10m NE - Large hazard beam on large branch. Low. 14m All - Canopy inspected for features. Low.	Knot hole 3m N. 10cm x 10cm dry cavity. PRF M. Other features same as previous surveys.	12.07.2024	PRF-M				

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T25	2073	Oak	High	PRF-M	Tree now shown for retention and no further surveys needed	Retain	5m SW - Knot hole in branch leading S. High. 6m SW - Flaking bark on central branch. Moderate. 8m W - Cavities around tear out. Low. 5m E - Knot hole on large branch. High. 5m SW - Snapped branch at end of branch of PRF A. Close to fence. High. 7m All - Splits and cracks in desiccated branches and flaking bark not visible from ground level. Low. 8m N - Northern side of tree not visible during GLTA. No features. Negligible.	2073 has been reduced to a monolith due to health and safety risk. Features have been removed.	12.07.2024	None				
T26	2072	Oak	Moderate	PRF-M	Tree now shown for retention and no further surveys needed	Retain	4m N - Large tear out on leader. Moderate Potential. 3.5m N - Cavity leading from collar of large desiccated branch. Extends down and curves into main trunk. Moderate Potential. 3.5m E - Cavity around collar of smaller dead branch, extending into trunk. Slightly cluttered. Low Potential.	Tree has been reduced to a monolith due to health and safety risk. Branch features have been removed. Feature on main stem has open exposed wound at base which is unsuitable. Upper areas of feature have been removed.	12.07.2024	None				
T28	2071	Oak	Moderate	PRF-M	Tree now shown for retention and no further surveys needed	Retain	4m W - Knot hole on elbow of branch. Moderate. Canopy needs inspecting.	Tree has been reduced to a monolith for health and safety. Remaining knot holes and stubs are shallow and unsuitable. Canopy has been removed.	12.07.2024	None				
T90	3387	Alder	Low	PRF-I		Fell	Small rot hole on thin branch pointing towards river 3m W	No features identified likely to have fallen adjacent Alder has snapped branch over river with no cavity.	18.07.2024	None				

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T91	45	Crack Willow	High	PRF-M		Fell	Rot hole 2m East and West	1.8m W and 2m E. Cavity leading into hollow trunk which extends around 1.5m. Entrances and internal full of loose dry rotting wood. Cavity ends in cone of wet rotting wood at top with lots of loose rotting wood. Eastern entrance 10cm x 10cm at top of large wound from 0.5-2m high. Western entrance at top of wound 1-2m high. Entrance at top of wound is 4cm x 4cm.	26.07.2024	PRF M	21.08.2024	Feature remains the same. Cobweb covered in dry rooting wood dust was present across bottom of main cavity indicating no recent bat access. Internal remains full of loose debris.	13.09.2024	Feature remains the same with lots of loose rotting wood and no evidence of roosting bats.
T96	43	Alder	Negligible	Negligible		Fell	2m S - Callus roll with cavity.	2m SW branch drop with wound 0.5m long with callus roll and small cavity at top. Cavity blocked by slugs but if slugs absent could be suitable for 1 bat. PRF I	18.07.2024	PRF I				
T97	3385	Alder	Moderate	PRF-M		Fell	4m N - Dead Ivy stems on central dead bole. Moderate. 3m N - Weld with possible cavity - Low.	Central dead stem now snapped at 2.5m. No ivy present. Small and very shallow woodpecker holes are unsuitable. Weld at 3m is tight and largely unsuitable - small exposed cavity at top which could be used by one bat.	18.07.2024	PRF I				

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T100	3399	Alder	Negligible	PRF-M		Fell	Callus roll extending down to base with cavity extending into heartwood. Possible birds nest. 3.5m N	Upper WP hole 4m W. extends down 10cm and up 2cm. Old nest at base. Opening 7cm x 5cm and resulting cavity is small and quite open. PRF I. Mid cavity 3m E. Upper section behind Callus roll extends up 30cm but cavity full of old cobwebs and loose dry decay timber. Also extends down 15cm with nest at base. Just above bramble clutter. PRF-M but debris indicates not been used recently. Mid-section of Callus roll 2.5m W very tight and blocked with moss. Very cluttered with dense bramble. Mid-section 2m W. Callus roll opening 1cm x 20cm long. Very tight entrance. Cavity behind is blocked with loose dry rotting wood. Very cluttered with dense bramble. Lower section extends up 50cm into narrow cavity behind callus roll with lots of loose dry rotting wood. Very cluttered entrance with dense bramble. PRF-M but no signs of recent use and very cluttered entrance. Cavity on western most limb overhanging track. Entrance east facing 1.5m. Extends up 1m to narrowing apex with dry loose rotting wood. Extends down 40cm to base of wet rotting wood. Entrance 15cm long x 4cm wide. PRF-M but cluttered entrance with dense bramble.	18.07.2024	PRF-M	21.08.2024	Features remain the same with no evidence of bats.	20.09.2024	Features remain the same with no evidence of bats.
T103	41	Alder	Low	PRF-I		Fell	Upward facing knot hole on stem. 4m S	Feature could not be identified. A large stem has fallen from this multi stem alder which may have supported the feature.	18.07.2024	Negligible				
T129	73	Alder	Moderate	PRF-M		Retain	1.5m N - Frost crack or vertical callus roll with cavity at the top.	Branch drop with cavity at top which extends up 30cm. full of slugs at top. Rough wood internally. Entrance 2.5cm x 2cm. PRF-M	26.07.2024	PRF-M	22.08.2024	Feature remains the same during repeat inspection with slugs at top of feature and no evidence of bats.	13.09.2024	Feature remains the same during repeat inspection with slugs at top of feature and no evidence of bats.

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T142	69	Crack Willow	Moderate	PRF-M		Fell	11m S - Crown torn out with associated splits and crack. 10m W - Split close to end of small branch.	Ground level assessment July 2024 - features remain the same and emergence surveys required as not safe to climb.	23.07.2024	No bats recorded emerging or re-entering tree	13.08.2024	No bats recorded emerging or re-entering tree	11.09.2024	No bats recorded emerging or re-entering tree
T145	2098	Alder	Moderate	PRF-M		Retain	2.5m S - WP starter hole but may extend down. Moderate.	Shallow WP hole does not extend down or up. Small cavity about 5cm deep and 5cm wide. Suitable for 1 bat.	26.07.2024	PRF I				
T149	2095	Goat Willow	Moderate	PRF-M		Retain	3.5 NW - Splits and cracks around split branch. Knot hole 1m W. Moderate.	Collapsed hazard beam 3.5m w. Small tight crevices plus open and exposed sections. small crevices could be used by individual bats. PRF I Knot hole 1m W. Extends horizontally into limb by 40cm creating quite open feature with large entrance 20 x 15 cm gradually narrowing to end of cavity. Also extends up into narrow crevice 20cm deep and full of slugs. Suitable for individual or small numbers of bats only. Not suitable for significant roost due to size and exposure. PRF I	26.07.2024	PRF I				
T152	70	Ash	Moderate	PRF-M	Shown for retention in arboricultural impact assessment.	Retain	6m N - Vertical split down trunk, with other PRF likely to be present in the cavity.	Ground level assessment July 2024 - features remain the same and emergence surveys required as not safe to climb.	13.08.2024 23.07.2024?	No bats recorded emerging or re-entering tree	27.08.2024	No bats recorded emerging or re-entering tree	17.09.2024	No bats recorded emerging or re-entering tree
T155	2085 (67)	Alder		PRF-M		Fell	6m South - Multiple woodpecker holes and hollow stem in Alder with snapped top.	Ground level assessment July 2024 - features remain the same and emergence surveys required as not safe to climb.	23.07.2024	No bats recorded emerging or re-entering tree	13.08.2024	No bats recorded emerging or re-entering tree	11.09.2024	No bats recorded emerging or re-entering tree
T157	66	Goat Willow		PRF-M	PRF-I but as possible roost site in 2022 subject to three surveys.	Fell	Crease in stem 4m W	Branch drop wound 4m W. Wound is about 1m long 2cm wide but no crevices. Very small cavity at top of wound 3cm deep 1-2cm wide which could support one bat. PRFI	04.07.2024	PRF-I	26.07.2024	Feature remains the same.	13.09.2024	Feature remains as per first inspection. No evidence of bats. It is likely that the feature has healed over and become less suitable since the

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
														2022 surveys.
T160	2080	Alder	Moderate	PRF-M		Fell	2.5m NE - Small holes and splits around tear out. Negligible. 2.5m E - Hole in stem leading upward. Moderate. 2.5m N - Split in stem that leans over river. Moderate.	2.5m NE tear out. Still negligible with shallow and exposed features. Other features not visible and appear to have fallen since 2022 survey.	04.07.2024	Negligible				
T161	2090	Ash	Moderate	PRF-M		Fell	7m S - Small knot hole which may extend into cavity. Moderate.	Shallow knot hole which does not extend back into suitable cavity.	04.07.2024	Negligible				
T162	2088	Alder	Low	PRF-I		Fell	Small tear out on small branch 6m SW Negligible. Callus roll leading to snapped branch 5m S. Low.	Snapped branch remains negligible. Callus roll tight and wound on limb exposed and unsuitable.	04.07.2024	Negligible				
T166	2093	Ash	Moderate	PRF-M	Not safe to climb	Fell	3.5m S - Large rot hole from wound above. Likely connected but has suitability for roosting. Moderate.	Ground level assessment July 2024 - features remain the same and emergence surveys required as not safe to climb.	23.07.2024	No bats recorded emerging or re-entering tree	13.08.2024	No bats recorded emerging or re-entering tree	11.09.2024	No bats recorded emerging or re-entering tree
T172	65	Alder	Moderate	PRF-M		Fell	3m SW - WP hole. Moderate. 3.5m E - Callus roll with cavity. Moderate.	Both cavities link up creating feature 30cm long. Also extends down 15cm with bird nest at base. PRF M. Hollow at base leading into hollow trunk. Extends up 1m into cavity. Cluttered and low entrance but nice feature. PRF M	04.07.2024	PRF-M	26.07.2024	Features remain the same. Upper feature is smooth internally and free of cobwebs and debris. Cavity at base is heavily cobwebbed and lots of loose rotted dry wood.	13.09.2024	Features remain as per previous survey with no evidence of bats.

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T174	64	Alder	High	PRF-M	Not safe to climb	Fell	5m N - WP hole which has been enlarged. High. 5m S - 2 x WP holes on central stem. High. 6m SE - 6 x WP holes/rot holes on east stem. High. 3.5m S - Knot hole on stem. Negligible. 7m NE - Callus roll on S fork of central bole. Negligible.	Ground level assessment July 2024 - features remain the same and emergence surveys required as not safe to climb.	07.08.2024	No bats recorded emerging or re-entering tree	27.08.2024	No bats recorded emerging or re-entering tree	17.09.2024	No bats recorded emerging or re-entering tree
T177	61	Ash	Low	PRF-I		Fell	Ivy with cavities under thick stems. LowFlaking bark and callus roll features which were unsuitable - negligible.	Ivy is dead. Quite sparse but some very thick stems, but no large plates of thick matted ivy. Limited potential - PRF-IKnot hole 5m S. large open cavity. Cavity was full of nesting material forming a likely squirrel drey. Upper section of cavity inspected and only extends up into a shallow cavity. Feature is currently blocked but could be PRF I without nesting material.	26.07.2024	PRF-I				
T179	2086	Ash	Moderate	PRF-M		Fell	4m S - Small knot hole. Moderate.	Knot hole 4m S very small 2cm diameter and 3cm deep full of woodlice and slugs. PRF-I Branch stub 2m S shallow and full of snails.	26.07.2024	PRF-I				
T180	60	Alder	Moderate	Negligible		Fell	3.5m E - Tear out with possible cavity at base. Negligible.	3.5m E tear out remains unsuitable with no cavity. 0.2m N cavity at base. Very low and cluttered entrance reduces potential for use by bats. Cavity extends up approximately 1.5m ending in an apex of damp rotting wood.	26.07.2024	PRF-M	22.08.2024	Feature remains the same	19.09.2024	Features remain the same although less cluttered as vegetation trampled down.

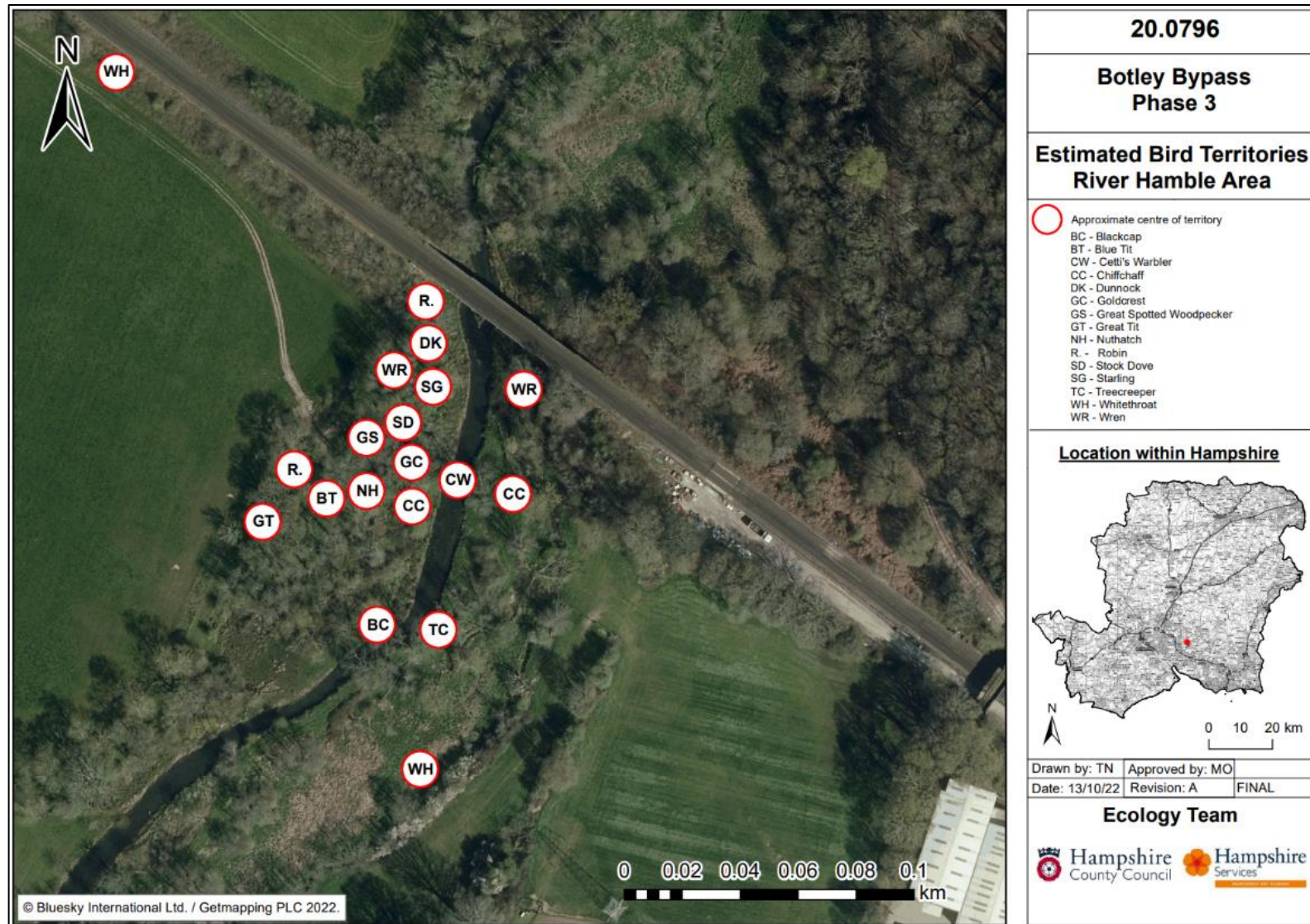
Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T188	63	Oak	Moderate	PRF-M		Fell	3m N - Large tear out with areas around splits. Moderate.4m S - Tear out on elbow of smaller branch. Moderate. 8m SE - Tear out with splits. Negligible.11m NE - Two splits on smaller branches leaning out over field. Low.14m S - Branch snap split. Low.14m NW - Branch snap split. Low.14m N - Branch snap split. Low.	Split 3m N. Dry cavity behind dead wood extends 80cm x 40cm with multiple entry points. large, sheltered feature with staining around lower entrance point. PRF M. 4m SE tear out. extends 8cm. Quite open and only suitable for low numbers of bats. PRF I. Splits in canopy are all open and unsuitable.	04.07.2024	PRF-M	26.07.2024	Features remain the same. Split 3m N with large dry sheltered cavities and smooth surface and staining. Feature under bark to rear of split was covered in dense cobwebs.	13.09.2024	Features remain as per previous surveys with no evidence of bats. Recommend salvaging the split limb and strapping to nearby tree if tree is felled.
T192	56	Oak	Moderate	Negligible		Fell	A number of broken limb stubs at various heights and aspects, all of which were shallow, exposed and unsuitable.	Shallow branch wounds as before. Knot hole 10m N extends back about 5cm into small dry cavity suitable for individual bats. PRF I. Knot hole 3m N extends back and up 3cm. PRF I	04.07.2024	PRF-I				
T193	57	Oak	Low	PRF-I		Fell	12m W - Woodpecker hole in major dead limb 12m W. Cavity is open at top and exposed. Low pot. 12m W - Branch drop on end of limb 12m W. Shallow damp cavity full of sludge. Negligible potential. No other suitable features.	Dead branch with sections of Ramshorn. some nice small, sheltered sections 20cm long by 2cm wide. Suitable for individual or low numbers only. PRF I. WP hole feature as before. PRF I.	04.07.2024	PRF-I				

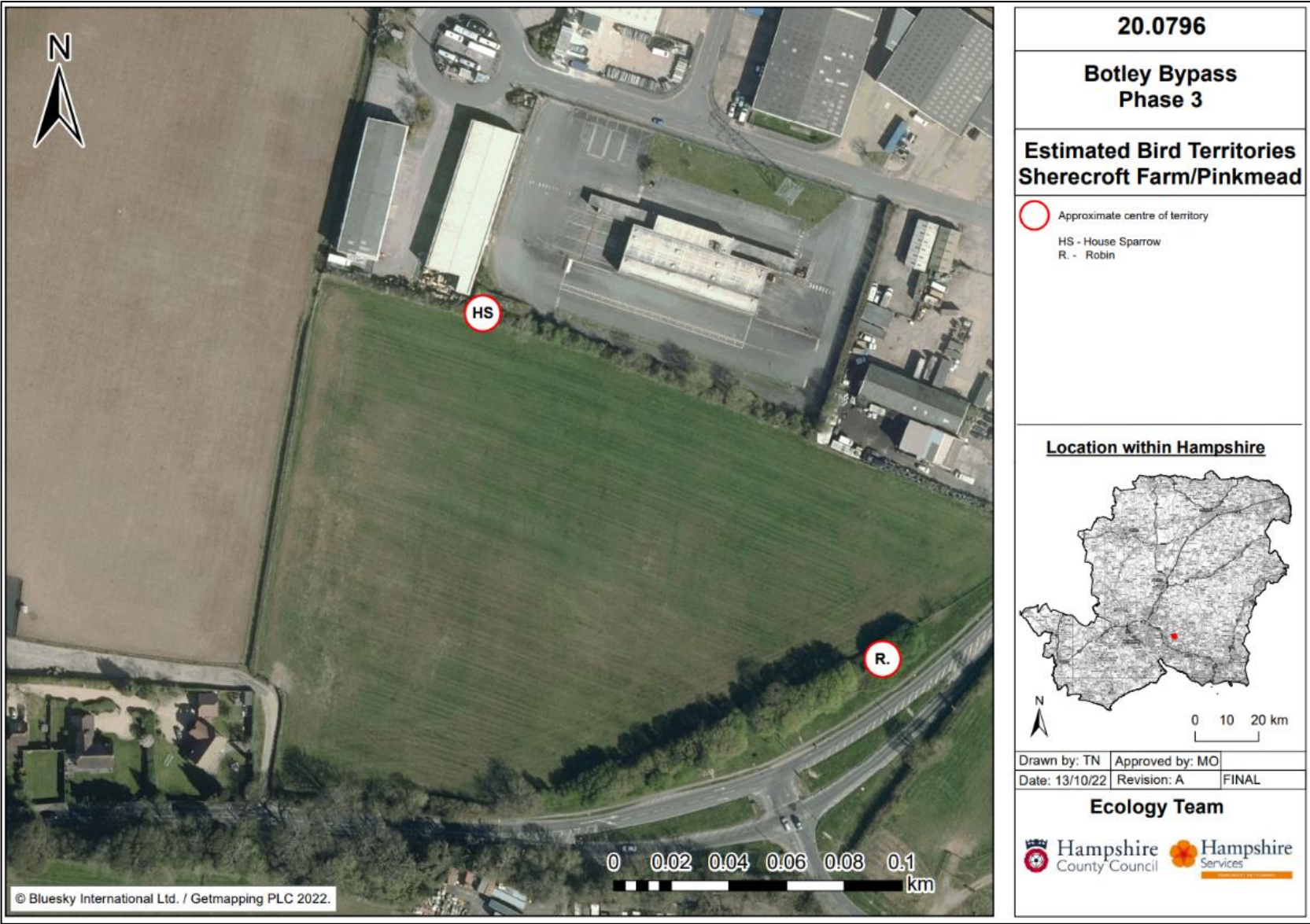
Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T194	58	Oak	High	PRF-M		Fell	5m SW - Rot hole. Dry cavity extending up with two internal cavities extending up about 10cm. Nice dry cavity. High potential. 6-10m NE Branch drop wound. Two small sections of ramshorn bark with small wet exposed cavities. Low potential. 10m NW Limb cavity. Small damp cavity into branch either side of entrance. Wet and full of sludge. Low potential. Multiple dead limbs, some significant, but no suitable cavities or other PRFs.	5m SW rot hole extends back and up 20cm into dry open bowl with smooth wood internally. PRF M. bird dropping at base. 4m S cavity into bark leading to crevice behind bark c40cm long providing sheltered crevice PRF-M. Other features as before. PRF I	04.07.2024	PRF-M	26.07.2024	4m S Bark cavity remains the same. 5m SW rot hole - Northern side of cavity has bird droppings and feathers but smooth and clear internally. Southern side of feature has heavy cobwebs.	13.09.2024	Features remain as per previous surveys with no evidence of bats.
T203	2083	Pedunculate Oak				Fell		Knot hole on branch 3m S. Branch drop 2m S. Both features shallow and unsuitable.	04.07.2024	Negligible				
T219	2078	Alder	Low	PRF-I		Fell	Cavity in centre of trunk 2m SW	Cavity in centre of trunk upwards facing and exposed. Extends down 30cm with nesting materials at base. About 10cm x 10cm wide.	19.09.2024	PRF-I				
T222	47	Willow multi stem	Moderate	PRF-M		Fell	2m S - Split at point of snapped branch. Negligible.	Split now completely open - Negligible.	05.07.2024	Negligible				
No tree number	2091	Goat Willow	Moderate	PRF-M		Fell	2m NE - Callus roll in elbow of stem. Moderate.	Large open wound 0-2m with callus roll bark but tight and no crevices. Cavity at top of feature which is blocked by nesting materials. If no nesting materials would be PRF-I	26.07.2024	PRF-I				
	62	Alder	N/A	PRF-I		Fell	Large open wound down trunk. Extends down at base into cavity 1.5m S. Cavity full of old cobwebs and exposed. PRFI	Large open wound down trunk. Ramshorn bark but no deep cavities. Extends down at base into cavity 1.5m S. Cavity full of old cobwebs and exposed. Small cavity at top suitable for individual bat. PRFI	04.07.2024	PRF-I				

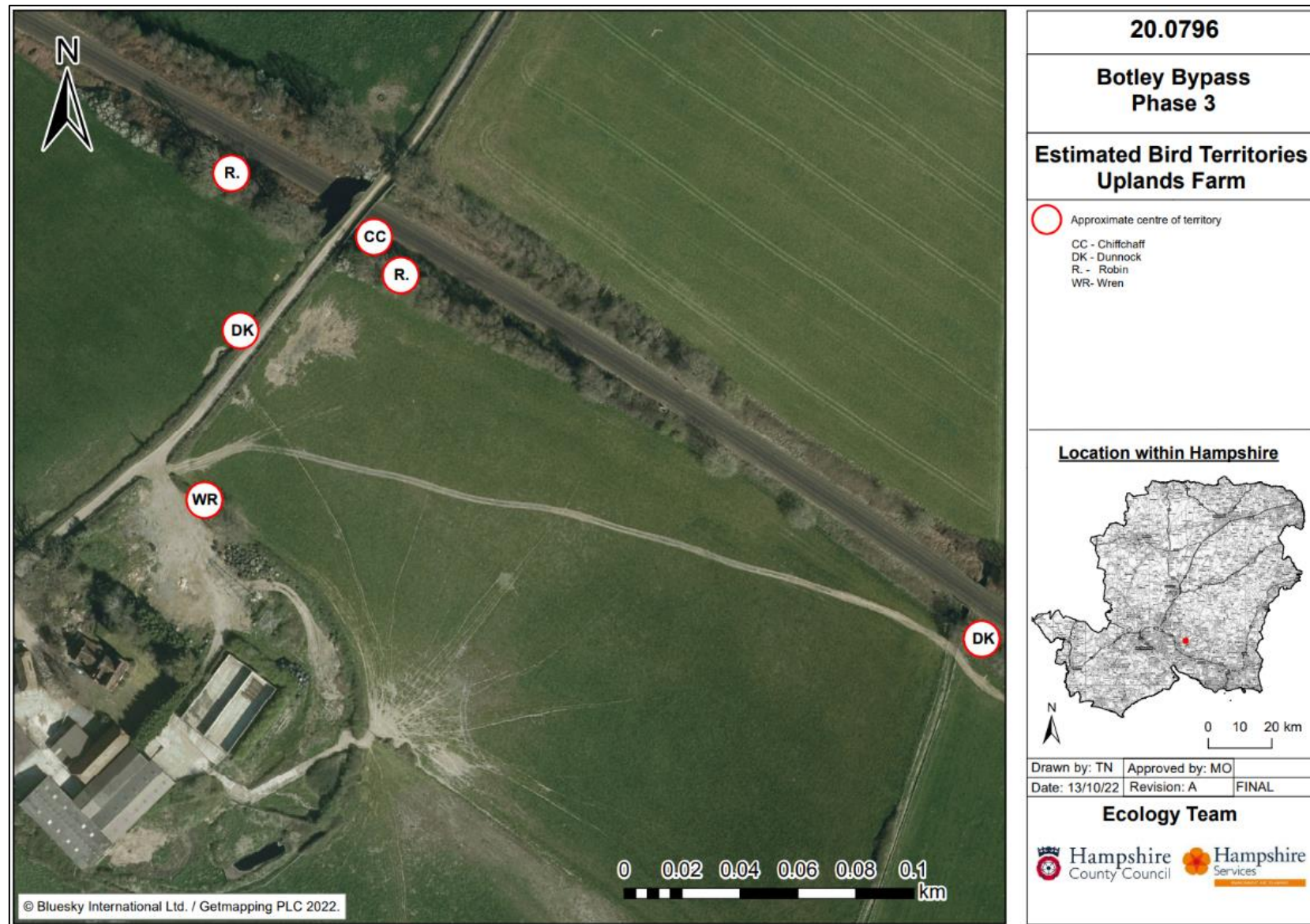
Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T94	3396	Alder	N/A	None				Branch stub 3m NE. Shallow and unsuitable. Knot hole on limb over river 4m N Shallow and unsuitable. Deadwood snap 6m N shallow and unsuitable.	18.07.2024	Unsuitable				
N/A	N/A	Oak	N/A	PRF-M	Not impacted by works - no further surveys.	Retain	Not previously described.	Tree east of 2073. Tear out cavity. Open end extends back 5cm. Entrance is 10cm x 5 cm. PRF I. Snapped branch at end of limb near fence is shallow and PRFI. Flaking bark on central branch is open and exposed. PRFI. Two major dead limbs with splits which are small and PRFI. Open cavity at top of deadwood limb. upward facing open and exposed. Negligible. Knot hole 5m E. entrance 2cm x 4cm extends 8cm into narrow slug filled hole suitable for small roost only. PRF I.	04.07.2024	PRF-I				
Dead Oak Tree	N/A	Oak	N/A	PRF-M	Not safe to climb	Fell	N/A	Ground level assessment July 2024. Small section of flaking bark on dead limb over field 4m S. Split in dead limb 3m S may extend into deeper cavity. PRF M.	07.08.2024	No bats recorded emerging or re-entering tree	27.08.2024	No bats recorded emerging or re-entering tree	17.09.2024	No bats recorded emerging or re-entering tree
T153	68	Alder	Low	PRF-M	Not safe to climb	Fell	Knot hole 8m W	Trunk cavity 10m E which is not safe to climb to as stem over river and no safe anchor points.	23.07.2024	No bats recorded emerging or re-entering tree	13.08.2024	No bats recorded emerging or re-entering tree	11.09.2024	No bats recorded emerging or re-entering tree
T175	2084	Goat Willow	Negligible	Negligible		Fell	Split in branch 2m S	Remains negligible	04.07.2024	Negligible				
T169	2087	Alder	Low	PRF-I		Fell	Callus roll with small cavity at top 1.5m S	Callus roll with small cavity 1.5m S no longer provides suitable cavity. Two shallow woodpecker holes at 3m W are currently too small and unsuitable for roosting bats.	04.07.2024	Negligible				

Tree Number	Tag Number	Species	Roost Potential 2022	2024 Provisional Roost Potential	Comments	2024 Vegetation Clearance	Description of PRFs	2024 PRF Description Update	2024 Survey 1 Date	2024 Survey 1 Results Summary	2024 Survey 2 Date	2024 Survey 2 Results Summary	2025 Survey 3 Date	2025 Survey 3 Results Summary
T163	2089	Alder	Moderate	PRF-M		Fell	Large basal cavity 1m S. Feature could not be identified during earlier surveys in 2024 as was completely obscured (and blocked) by dense vegetation. Identified during survey on 22 August and entrance cleared of vegetation to allow inspection.	Wound at base is 50cm wide at base tapering upwards to 0.5m high where it enters hollowing trunk. Internal entrance at top of wound is 30cm x 20cm and extends up into trunk. Sides of feature have lots of loose dry rotting wood and are rough. Extends up into separate crevices. Deepest 120cm deep tapering to narrow tube with wet rotting wood at top. Other cavity 70cm long ending in hard internal wood. Could support multiple bats. Entrance cluttered and blocked by dense vegetation until cleared to access feature.	22.08.2024	PRF-M	06.09.2024	Feature remains as per first inspection. No evidence of bats.	13.09.2024	Feature remains as per first inspection. No evidence of bats.
T29	2075	Oak	Negligible	Negligible		Fell	None noted - 2022 report notes unable to access north side of tree.	No features recorded on any aspect of tree	12.07.2024	None				
T36	2079	Field Maple	Low	PRF-I		Fell	4m North main leader with spit and cavity.	Split is open and upwards facing at the top, tapering down to tight crevice at base which is upward facing and subject to regular expansion and contraction as split limbs sway creating a risk of being crushed.	22.08.2024	Negligible				

Appendix 8 – Bird Survey maps







Appendix 9 – Assessment Criteria

Table 8.1 BCT guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape.

Potential Suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
<i>None</i>	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices / suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any foraging or commuting bats at any time of the year (i.e., no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available for foraging bats).
<i>Negligible^a</i>	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, small element of uncertainty remains in order to account for non-standard bat behaviour.
<i>Low</i>	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classis cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
<i>Moderate</i>	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity or hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation roosts, e.g., maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
^a Negligible is defines as ‘so small or unimportant as to be not worth considering, insignificant.’ This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). ^b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance. ^c Evidence from the Netherlands shows mass swarming events of Common Pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common Pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.		

Table 8.2 BCT guidelines for assessing the suitability of trees on proposed development sites for bats.

Initial assessment of suitability of trees for bats	
NONE	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.
Suitability of trees for bats further defined following Ground Level Tree Assessment	
PRF- I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF - M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Table 8.3 Protected Species Grading Criteria

Grading Criteria	Justification
<i>Confirmed Presence</i>	Species confirmed on site through direct sighting, presence of field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
<i>High Potential</i>	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
<i>Moderate Potential</i>	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
<i>Low Potential</i>	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
<i>Negligible Potential</i>	Site is entirely unsuitable for species. Presence of species highly unlikely.