

# **M3 Junction 9 Improvement**

**Scheme Number: TR010055**

## **6.3 Environmental Statement Appendix 8.1i - Preliminary Bat Roost Assessment Report 2018**

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<b>6.3 ENVIRONMENTAL STATEMENT- APPENDIX 8.1i: PRELIMINARY BAT ROOST ASSESSMENT REPORT 2018</b>
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# M3 JUNCTION 9 IMPROVEMENT SCHEME

## PRELIMINARY BAT ROOST ASSESSMENT REPORT

**Highways England**

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




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# EXECUTIVE SUMMARY

WSP is undertaking a suite of ecological surveys for Highways England on land around the M3 Junction 9 proposed improvement works. This report details the methods, results and recommendations resulting from a Preliminary Bat Roost Assessment (PBRA) undertaken on land within 50m of the maximum extent of works (which incorporates all options, hereafter referred to as the Site), hereafter referred to as the 'Survey Area'.

The Survey Area contains a range of habitats including woodland, scattered trees, hedgerows and scrub, as well as wetland, grassland and tall ruderal habitat which may support foraging, commuting and roosting bats. Nine concrete-based bridge structures are also present which traverse the River Itchen.

In order to obtain a detailed overview of the likely value of the site for roosting bats, all structures and trees (and mature scrub specimens) within the Survey Area were assessed from the ground for the presence of features (holes, cracks, crevices) capable of supporting individuals or groups of this order. Trees and structures within the Survey Area were classified as having negligible, low, moderate or high suitability for support bat roosts. Potential Roost Features (PRFs) were recorded in detail and photographed.

Results from the PBRA were as follows:

- One structure of high bat roost suitability
- Four structures of moderate bat roost suitability
- Eight groups of trees with moderate bat roost suitability
- Five groups of trees with low bat roost suitability
- One individual tree with high bat roost suitability
- 15 individual trees with moderate bat roost suitability
- 26 individual trees of low bat roost suitability.

The majority of the trees with roost suitability were identified in the north-west of the Survey Area, within woodland and wetland habitats. The bridge structures with high and moderate roost potential are located in the north of the Survey Area also. All results are shown at Figure 1-1.

Although the final designs of the road alignment are not currently available, some of the trees and structures with roost suitability within the Survey Area will likely be directly or indirectly affected by the Proposed Works. It is recommended that, where possible, trees and structures with roost suitability are retained and protected within the final design.

For trees and structures that will be affected, section 6 of this report gives recommendations for further survey work (for moderate-high suitability trees) and preliminary mitigation measures. Further surveys will include at height inspection of trees to confirm their potential to support bat roosts, as well as potential dusk emergence and/or dawn re-entry surveys.

# 1 INTRODUCTION

## 1.1 PROJECT BACKGROUND

1.1.1 Junction 9 of the M3 is a key transport interchange on the strategic road network which connects South Hampshire and the wider sub-region, with London via the M3 and the Midlands via the A34 (which also links to the principal east-west A303 corridor). A large volume of traffic currently uses the interchange (approximately 6,000 vehicles per hour during the peak periods), which acts as a bottleneck on the local and strategic highway network, causing significant delays. M3 Junction 9 has been proposed for redevelopment in order to help reduce congestion around this stretch of the road by improving the flow of traffic.

1.1.2 Three options have been taken forward to Project Control Framework (PCF) Stage 2 and assessed within the Environmental Assessment Report (EAR), namely:

- Option 14: Northbound and Southbound Free Flow Design
- Option 16B: Incremental Delivery – Northbound A34 Free Flow Link
- Option 16C: Incremental Delivery – Southbound A34 Free Flow Design

1.1.3 Further details of the Proposed Works are presented within the PCF Stage 2 EAR (HE551511-WSP-GEN-M3J9PCF2-RP-LE-00041). The anticipated maximum extent of the works for all options is shown on Figure 1-1, and is hereafter referred to as 'the Site.'

1.1.4 For the purposes of ecological assessment, in order to consider indirect effects on adjacent/nearby receptors in the form of potential bat roosts, a Survey Area of 50m around the Site was defined.

## 1.2 ECOLOGICAL BACKGROUND

1.2.1 An ecological desk study was carried out with respect to the Proposed Works by WSP in 2016 to gain an ecological background of the surrounding area using a 5km search radius (WSP, 2016). No records of bats were found from within the Site. A total of seven species were identified within a 5km radius: Daubenton's bat *Myotis daubentonii*; Natterer's bat *Myotis nattereri*; noctule bat *Nyctalus noctula*; brown long-eared bat *Plecotus auritus*; common pipistrelle *Pipistrellus pipistrellus*; soprano pipistrelle *Pipistrellus pygmaeus* and serotine *Eptesicus serotinus*. The closest bat record represents a soprano pipistrelle, located 20m south-east from the Site, with all other records located more than 350m away from Site.

1.2.2 A broad suite of baseline ecological surveys were undertaken by WSP during 2017, including a Phase 1 habitat survey (WSP, 2017a), which was used to identify areas of potential value to roosting bats.

1.2.3 Bat activity surveys undertaken (WSP, 2017b) concluded that, in general, the Survey Area supports a fairly typical assemblage of widespread bat species, with the exception of a small number of rarer species (such as greater horseshoe *Rhinolophus ferrumequinum* and barbastelle bats). However, high levels of *Myotis* activity were observed from an area which will be directly affected by the Proposed Works, namely along linear features (hedgerow and scrub) in the north-western and south-eastern sections of the Site.

1.2.4 The Survey Area, which is traversed by several roads, includes a range of habitats. East of the M3, the landscape is dominated by arable land, with associated hedgerows and parcels of broadleaved woodland. The central area between the three major roads (A34/A33 & M3) also contains a variety of habitats including grazed semi-improved pastures and several semi-natural and plantation broadleaved woodlands. The majority of woodland is located within the highways boundary. The River Itchen passes through the north and west of the Survey Area flowing in a south-westerly direction and is characterised by a number of interconnected channels with associated wetland and flood meadow grasslands.

## 1.3 BRIEF AND OBJECTIVES

1.3.1 Highways England commissioned WSP UK Ltd to complete a Preliminary Bat Roost Assessment (PBRA) of the 50m Survey Area in 2017. The brief and objectives were to:

- Complete a PBRA to determine the level of potential for bat roosts to be present within the trees and structures within the Survey Area and to search for evidence indicating current or historic use by bats using binoculars and following good practice guidelines (Collins, 2016).
- Record information regarding trees and structures with features that could be used by roosting bats, including a description of the feature(s), geographical co-ordinates (gathered using a handheld GPS unit), the tree species and its broad age category.
- Provide a technical report, including digitised, georeferenced maps, detailing the methods and results of the PBRA survey work, and any recommendations for avoidance, mitigation and enhancement, including any further survey (in line with good practice guidelines). All recommendations given are related to pertinent national and local legislation, planning and biodiversity policy.

# 2 METHODS

## 2.1 PRELIMINARY BAT ROOST ASSESSMENT

- 2.1.1 All trees and bridge structures within the Survey Area were inspected from ground-level to enable an assessment of their potential to support bat roosts and to search for evidence indicating the current or historic use by bat roosts.
- 2.1.2 Urban areas (and thereby all structures except bridges) were excluded from the assessment as they are unlikely to be significantly affected by the Proposed Works, as discussed in Section 3.3 below.
- 2.1.3 A visual inspection of the trees and bridge structures was completed using binoculars to search for potential roost features (PRFs) which may provide suitable roosting opportunities for bats in accordance with good practice guidelines (Collins, 2016), as summarised at Table 3.1 below.
- 2.1.4 Where suitable features were noted, their location and a brief description of their character were recorded. Additionally, each feature was visually inspected, where possible, for evidence indicating use by roosting bats such as droppings, urine staining and characteristic staining from fur oils. Inspected trees and bridges were categorised in line with descriptions in Table 3.1 as having negligible, low, moderate or high suitability for bat roosts. The location of trees and/ or bridges which were assessed to have bat roost suitability was recorded using a handheld GPS device and marked on a plan of the Survey Area.
- 2.1.5 Trees were grouped where they were identified to have similar potential roost features and were within close proximity to each other. Trees assessed to have negligible roosting potential were not recorded within the survey, although bridges of negligible suitability have been recorded for completeness.

**Table 3.1 - Guidelines for assessing the potential suitability of proposed development sites for roosting bats (based on Table 4.1 in Collins, 2016).**

SUITABILITY	DESCRIPTION OF ROOSTING HABITATS
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However these potential roost sites do not provide enough space, shelter, protection, appropriate conditions<sup>a</sup> 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 or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roost potential<sup>b</sup>.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions <sup>a</sup> , and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species

SUITABILITY	DESCRIPTION OF ROOSTING HABITATS
	conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost roots that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions <sup>a</sup> , and surrounding habitat.

<sup>a</sup> For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

<sup>b</sup> This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

## 2.2 DATES OF SURVEY

- 2.2.1 The first phase of assessments was undertaken of land within the Highways boundary on 24<sup>th</sup> April and 10<sup>th</sup> May 2017, under traffic management.
- 2.2.2 The second phase of assessments was undertaken of other land within the 50m Survey Area on 29<sup>th</sup> November – 1<sup>st</sup> December 2017.
- 2.2.3 Assessments were led by an Associate member of the Chartered Institute for Ecology and Environmental Management (ACIEEM) with over six years ecological consultancy experience. Survey work was assisted by a team of ecologists competent in carrying out PBRA.
- 2.2.4 Weather conditions during the surveys did not pose a constraint to the assessment.

## 2.3 NOTES AND LIMITATIONS

- 2.3.1 The surveys undertaken between the 8<sup>th</sup> and 10<sup>th</sup> of May 2017 were undertaken at night due to Traffic Management restrictions. This may have limited the visibility of PRFs, although high power torches were used as part of the assessment. Furthermore, this prevented the taking of photographs of these features. Due to this constraint, a precautionary approach was taken to tree assessments in these areas, comprising the A34 northbound, A34 southbound and habitat surrounding Junction 9 slip roads. For the surveys undertaken in April and May, many of the trees within the 50m Survey Area were in leaf. Potential obstruction of PRF identification within branches and or trunks may occur when a tree is in leaf, especially in large trees. As such, a precautionary approach was taken to these tree inspections when rating overall suitability.
- 2.3.2 During inspection of several of the bridge structures, namely those spanning a watercourse, a full inspection was not possible due to the inaccessibility of one or other sides of the watercourse (. B8 and B9, or due to the underside being too low to the water B4 and B5). As such, a precautionary approach was taken to these structure inspections when rating overall suitability.
- 2.3.3 The location of the trees within the Survey Area were recorded using a handheld GPS device. As such the spatial resolution of tree locations detailed within this report could potentially be limited, but by no more than several metres.
- 2.3.4 Urban areas (and thereby all structures except bridges) were excluded from the assessment as they are unlikely to be significantly affected by the Proposed Works. No buildings are scheduled for removal as part of the Proposed Works, and they are unlikely to be subject to significant increases in disturbance as they are already generally highly lit and subject to road disturbance, being industrial in nature.



# 3 RESULTS AND EVALUATION

## 3.1 OVERVIEW

- 3.1.1 Trees and structures with bat roosting suitability are located throughout the Survey Area, concentrated within the north-west of the Survey Area, on each side of the A34 running northwards (as shown at Figure 3-1). Within the whole Site, trees are located in a variety of habitats including wetland, scrub and woodland, and as isolated scattered trees in artificial environments (hardstanding).
- 3.1.2 The structures are all bridges, and are also distributed throughout the Survey Area, though mainly associated directly with the River Itchen in the north-west of the site and at the M3 roundabout.
- 3.1.3 Apart from the trees located in urban environments (namely commercial areas such as the Tesco car park), many of the trees and structures with roost suitability are also located near to suitable foraging and commuting habitats (see Figure 1-1 and Appendix B for details).

## 3.2 RESULTS

- 3.2.1 The results of the PBRA survey are summarised below, with a full table of results shown at Appendix B. Photographs, where applicable, are provided at Appendix A. In total 42 individual trees, 13 groups of trees and five structures were assessed as having low-high bat roosting suitability within the Survey Area. As shown in Figure 1-1, these comprise:
- One structure of high bat roost suitability
  - Four structures of moderate bat roost suitability
  - Eight groups of trees with moderate bat roost suitability
  - Five groups of trees with low bat roost suitability
  - One individual tree with high bat roost suitability
  - 15 individual trees with moderate bat roost suitability
  - 26 individual trees of low bat roost suitability.
- 3.2.2 Four of the bridge structures were assessed as having negligible suitability for roosting bats, due to the lack of cracks, holes, crevices or any other PRFs.
- 3.2.3 Of these all suitable features were assessed as likely summer/transitional roosts. In addition, four of the nine bridges were assessed as potentially being suitable for hibernating bats.
- 3.2.4 The trees with bat roost suitability are dominated by poplar species *Populus sp.* with many *Salix sp* and alder *Alnus glutinosa* also, ranging from semi-mature to mature and dead specimens, as detailed at Appendix A.
- 3.2.5 The structures (bridges) are all of concrete construction, with crevices formed by expansion gaps and associated cracks.

# 4 IMPLICATIONS FOR DEVELOPMENT

## 4.1 OVERVIEW

4.1.1 42 individual trees, 13 groups of trees and five structures (bridges) have been assessed as having low-high bat roosting potential. As three options for the route are currently being considered, the extent to which these features will be affected is not yet clear.

4.1.2 The following potential effects have been identified:

- Bat roosts could be destroyed, damaged or disturbed by the removal or pruning of trees identified as having potential to support roosting bats, if bats are present. Individual bats within these roosts could be affected.
- Removal of significant amounts of vegetation could indirectly affect bat roosts, if present, by removing key foraging resources, leading to changes in abiotic conditions (e.g. light, humidity) around roosts.
- Bats are known to avoid roosting in illuminated locations. The installation of new or modification of existing lighting could therefore negatively affect any bat roosts, should they occur within the Survey Area.
- Nearby roosts could be indirectly affected by lighting. Certain species of bat avoid foraging and commuting within the vicinity of artificial light, and artificial light may also negatively affect invertebrate assemblages upon which bats forage. The installation of additional lighting could therefore affect the viability of bat roosts occurring in the vicinity of the Proposed Works, even if they are not directly affected.

4.1.3 It is understood that the bridges within the Survey Area will not be altered/ directly affected by the Proposed Works. Nevertheless, should the proposals change to included alterations to these structures, then bat roosts could also be destroyed, damaged or disturbed by works (maintenance, refurbishment/restructuring, demolition). If bats are present. Individual bats within these roosts could be affected.

4.1.4 As all UK species of bats are protected under legislation and planning policy mechanisms, these effects are a material consideration for the scheme. The most pertinent legislation and policy is summarised below.

## 4.2 LEGISLATION

4.2.1 Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitat Regulations'), and as such it is an offence to:

- *deliberately capture, injure or kill a wild bat;*
- *deliberately disturb wild bats; 'disturbance of animals includes any particular disturbance which is likely:*
  - *(a) to impair their ability –*
    - *(i) to survive, breed or reproduce, or to nurture their young; or*
    - *(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or*

- (b) to affect significantly the local distribution or abundance of the species to which they belong' and
- damage or destroy a breeding site or resting place used by this species.

4.2.2 Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.

4.2.3 Certain species of bat including the noctule bat, brown long-eared bat and soprano pipistrelle bat are also listed as Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006), public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

### 4.3 NATIONAL PLANNING POLICY

4.3.1 As the project qualifies as a Nationally Significant Infrastructure Project (NSIP), it must adhere to the National Policy Statement (NPS) for National Networks (Department for Transport 2014). This states *inter alia* that the principals and objectives of the government's 2012 Natural Environment White Paper and Biodiversity 2020 Strategy should be adhered to. These promote moving progressively from net biodiversity loss to net gain by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures. The NPS also states that the likely significant effects on internationally, nationally and locally designated sites of ecological conservation importance, on protected species and on habitats, on other species identified as being of principal importance for the conservation of biodiversity and that potential impacts on ecosystems should be clearly set out.

4.3.2 National Planning Policy Framework (NPPF) (2012) forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including bats; the Office of the Deputy Prime Minister circular 06/2005 also provides supplementary guidance, including confirmation that 'the presence of a protected species is a material consideration when a planning authority is considering a development proposal'.

4.3.3 The NPPF sets out, amongst other points, how at an overview level the '*planning system should contribute to and enhance the national and local environment by:*

- ...recognising the wider benefits of ecosystem services; and
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...*

4.3.4 A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF, and includes the following:

- '*if significant harm resulting from a development cannot be avoided...adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *...opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *...planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland...unless the need for, and benefits of, the development in that location clearly outweigh the loss...*

## 4.4 LOCAL PLANNING POLICY

### 4.4.1

Winchester City Council and the South Downs National Park have adopted the Winchester District Local Plan Part 1 (Adopted 2013). Chapter 9 is entitled 'High Quality Environment' with policy CP16 entitled Biodiversity. This states '*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:*

- *Protecting sites of international, European, and national importance, and local nature conservation sites, from inappropriate development.*
- *Supporting habitats that are important to maintain the integrity of European sites.*
- *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.*
- *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.*
- *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.*
- *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.*

### 4.4.2

The Biodiversity Action Plan for Hampshire includes five bat species; barbastelle bat *Barbastella barbastellus*, serotine bat, Bechstein's bat *Myotis bechsteinii*, common pipistrelle and greater horseshoe bat *Rhinolophus ferrumequinum*. Four of these species (excluding Bechstein's bat) were recorded during bat activity surveys (WSP, 2017b).

# 5 RECOMMENDATIONS

## 5.1 OVERVIEW

- 5.1.1 This section provides recommendations for inspections at height and, where appropriate, further survey to be undertaken in accordance with good practice guidelines (Collins, 2016). The recommendations have been devised with the objective of making sure that the Proposed Works are compliant with relevant legislation and policy pertaining to bats, as summarised at Section 5. This will minimise the likelihood of delays being caused to the works programme.
- 5.1.2 Preliminary recommendations for mitigation measures are also provided, although it is recommended that a detailed Mitigation Strategy is produced following the results of further survey and preferred route selection.

## 5.2 FURTHER SURVEY

- 5.2.1 42 individual trees, 13 groups of trees and five structures (bridges) have been assessed from ground level as having potential to support roosting bats (low, moderate or high potential).
- 5.2.2 As, at this stage, it is understood that the bridges will remain unaffected by the Proposed Works, no further survey is recommended at this stage. However should the designs change to include alterations to the bridges with roost suitability (B1, B4, B5, B8, B9), then further survey should be considered.
- 5.2.3 Where potential impacts to trees (indirect or direct) upon trees with moderate-high roost suitability cannot be avoided through design, further survey should be undertaken. Initially, where possible an at-height inspection of PRFs should be undertaken.
- 5.2.4 At-height inspections of trees (and groups of trees) with moderate-high suitability ratings are undertaken to gather more information regarding the likely presence of roosting bats and inform the requirements of mitigation measures. At height inspections will further investigate the PRFs identified within the results of the preliminary bat roost assessment and confirm (or raise/lower) their assigned potential.
- 5.2.5 If potential roosting cannot be ruled out at this stage, additional survey effort may be appropriate such as additional at height inspections or bat emergence/ re-entry surveys.
- 5.2.6 As a precautionary approach has been used when classifying the suitability of the trees, it is considered reasonable that low-rated trees are not subject to further survey (though they will require mitigation measures). Trees with low potential will not require further survey but will require mitigation as detailed in Section 6.3.

## 5.3 PRELIMINARY MITIGATION MEASURES

5.3.1 The following section outlines preliminary mitigation measures which should be adopted and refined following the outcome of additional survey work outlined above.

### ARBORICULTURAL GOOD PRACTICE MEASURES

5.3.2 Tree felling or pruning work should be done using good practice guidelines to further minimise the likelihood of causing disturbance or injury to bats, should they be present. Precautionary measures for tree felling and pruning required will likely include soft felling of trees and/or branches. Trees or branches with PRFs should be felled so as to avoid cross-cutting cavities or holes, and be left on the ground intact overnight to allow any bats present to disperse, in the unlikely event that they are present.

5.3.3 It is recommended that contractors undertaking tree works have basic bat awareness and adhere to guidance within British Standard BS8596:2015 *Surveying for bats in trees and woodland*.

### SENSITIVE LIGHTING

5.3.4 Lighting during both the construction and operational phase of the Proposed Works could have a negative effect upon bat activity and roosting within the Survey Area.

5.3.5 It is recommended therefore that the lighting strategy for the Site seeks to:

- Avoid, as far as possible, any additional lighting on trees with roosting suitability.
- Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity, and/or using the minimum number of light sources or minimum column height.
- Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation likely to be used by foraging and commuting bats.
- Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wave length blue light, using instead warm/neutral colour temperature <4,200 kelvin lighting (BCT, 2014).
- Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light, or reduce food availability in the dark.

5.3.6 Where possible, consideration should also be given to varying the lighting levels in particularly ecologically valuable areas. These include river corridors, wetland and woodland areas, and the linear vegetated areas shown as most used by foraging bats in the north-west and south-east of the Site.

5.3.7 For example, it may be possible to reduce lighting levels or perhaps even switch installations off after certain times, e.g. between 00:00 and sunrise in the vicinity of tree lines of proposed landscaping. This use of “adaptive lighting” can tailor the installation to suit human health and safety as well as wildlife needs (BCT, 2014).

### MITIGATION LICENCING

5.3.8 In the event that the presence of bat roosts is identified and impacts upon them cannot be avoided, it would be necessary to obtain a Natural England European Protected Species (EPS) Mitigation Licence to allow the Proposed Works to proceed legally.

5.3.9 The licence must be informed by an appropriate level of survey work and include a detailed mitigation strategy for the EPS in question. Mitigation licences are generally only granted once

planning permission is obtained, and the requisite mitigation strategy may include seasonal constraints to the works.

## 5.4 ECOLOGICAL ENHANCEMENT MEASURES

5.4.1 Planning policy promotes the inclusion of ecological enhancement so it is recommended that consideration is given to the following enhancement measures:

- Inclusion of nectar-rich plant species in soft landscaping areas, in suitable areas at sufficient distance from the new road, that are attractive to night-flying insects to enhance foraging opportunities for bats.
- Creation of linear vegetation (tree-lines and hedgerows) within the landscaping scheme to provide additional commuting corridors across the Site for bats.
- Provision of standing water-bodies to provide an additional foraging resource for bats using the site, which may benefit *Myotis* and *Nyctalus* bats in particular.
- Installation of additional bat boxes to suitable retained trees, at suitable positions, to increase the roosting opportunities for bats within the Survey Area.

# 6 CONCLUSION

- 6.1.1 The Proposed Works are likely to affect trees with suitability for roosting bats, although structures (bridges) with roost suitability will remain unaffected under the current proposals. Trees with potential suitability to support bat roosts could be affected directly through felling and pruning, and/or indirectly through nearby lighting and habitat loss/fragmentation.
- 6.1.2 At-height inspections of moderate to high suitability trees are recommended to gather information regarding the potential presence of roosting bats and inform the requirement for mitigation measures. Following this, further survey may be considered in the form of emergence/ re-entry surveys or further climbing survey.
- 6.1.3 Outline mitigation and enhancement recommendations are made which should be clarified within a Mitigation Strategy for the Site, and may be required to obtain a Natural England EPS Mitigation Licence for the Proposed Works.



# 7 REFERENCES

## 7.1 TECHNICAL REFERENCES

- Bat Conservation Trust (2012) *Encouraging Bats – A Guide for Bat-friendly Gardening and Living*.
- Bat Conservation Trust (2014) *Artificial Lighting and Wildlife – Interim Guidance: Recommendations to help minimise the impact of artificial lighting*.
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- Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd Edition. Bat Conservation Trust, London.
- Department for Communities and Local Government (2012), *National Planning Policy Framework*. Department for Communities and Local Government, London.
- Hampshire Biodiversity Partnership (2000) *Biodiversity Action Plan for Hampshire: Volumes 1 & 2*. Available at <http://www.hampshirebiodiversity.org.uk/hampshire%20BAP.html> [Accessed 06/12/17].
- Her Majesty's Stationary Office (HMSO) (1981). *Wildlife and Countryside Act* (as amended by the Countryside and Rights of Way Act 2000).
- HMSO (2005) *Biodiversity and Geological Conservation – Statutory Obligations and Their Impact Within the Planning System*. Office of the Deputy Prime Minister (ODPM) Circular 06/2005 HMSO, Norwich.
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- HMSO (2010). *The Conservation of Habitats and Species Regulations 2010 as amended (the Habitat Regulations)*.
- Mitchell- Jones, A.J (2004) *Bat Mitigation Guidelines*. English Nature.
- Winchester City Council & South Downs National Park Authority (2013), *Winchester District Local Plan, Joint Core Strategy*.

## 7.2 PROJECT REFERENCES

- WSP (2016). M3 Junction 9 Improvement PCF Stage 1. Ecological Desk Study
- WSP (2017a). M3 Junction 9 Improvement PCF Stage 2. Phase 1 Habitat Survey
- WSP (2017b). M3 Junction 9 Improvement PCF Stage 2. Bat Activity Survey Report


# 8


## FIGURES

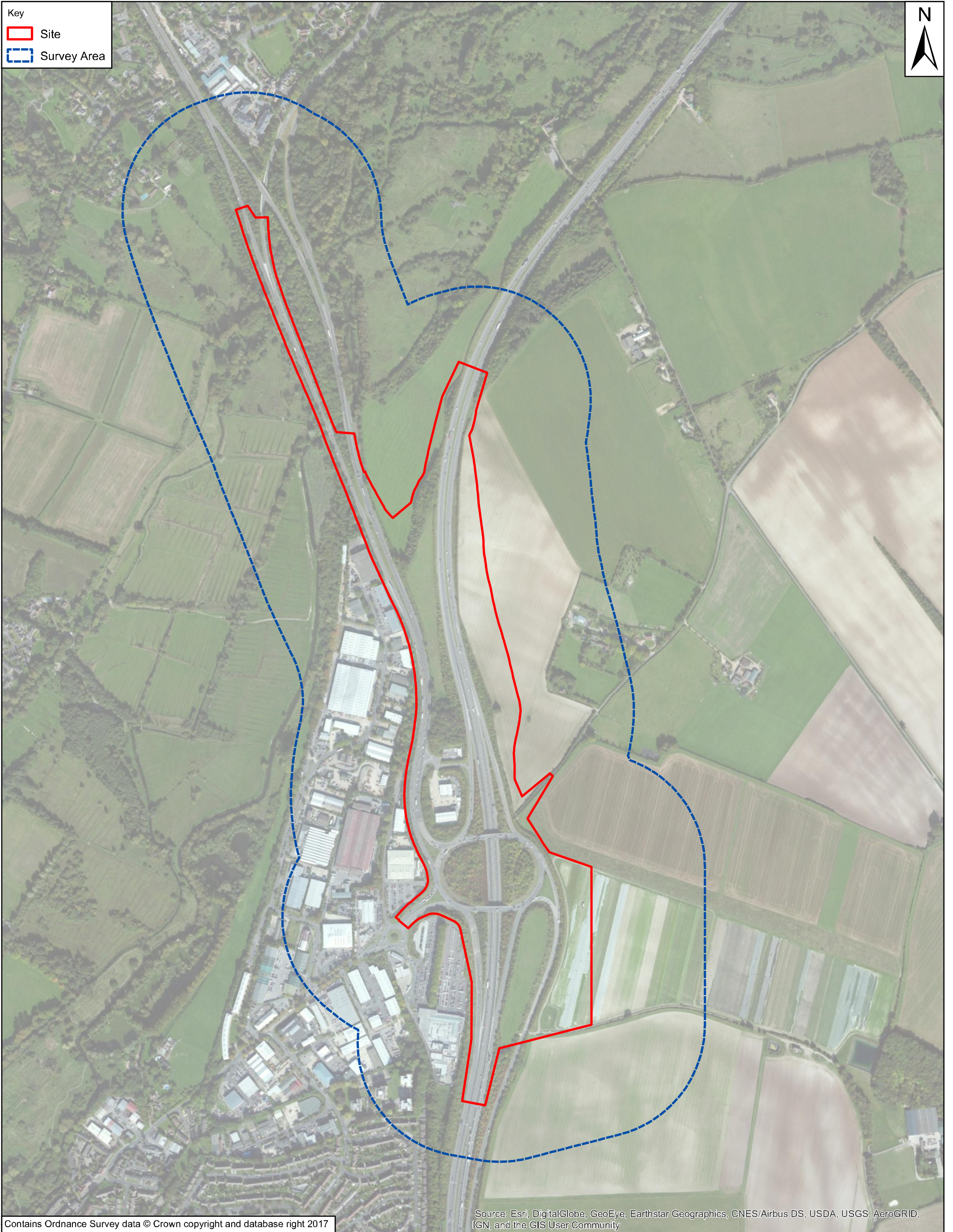
### FIGURE 1-1 – SITE LOCATION



Key

 Site

 Survey Area



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

REV	DATE	BY	DESCRIPTION	CHK	APP
DRAWING STATUS:					
DRAWING STATUS					

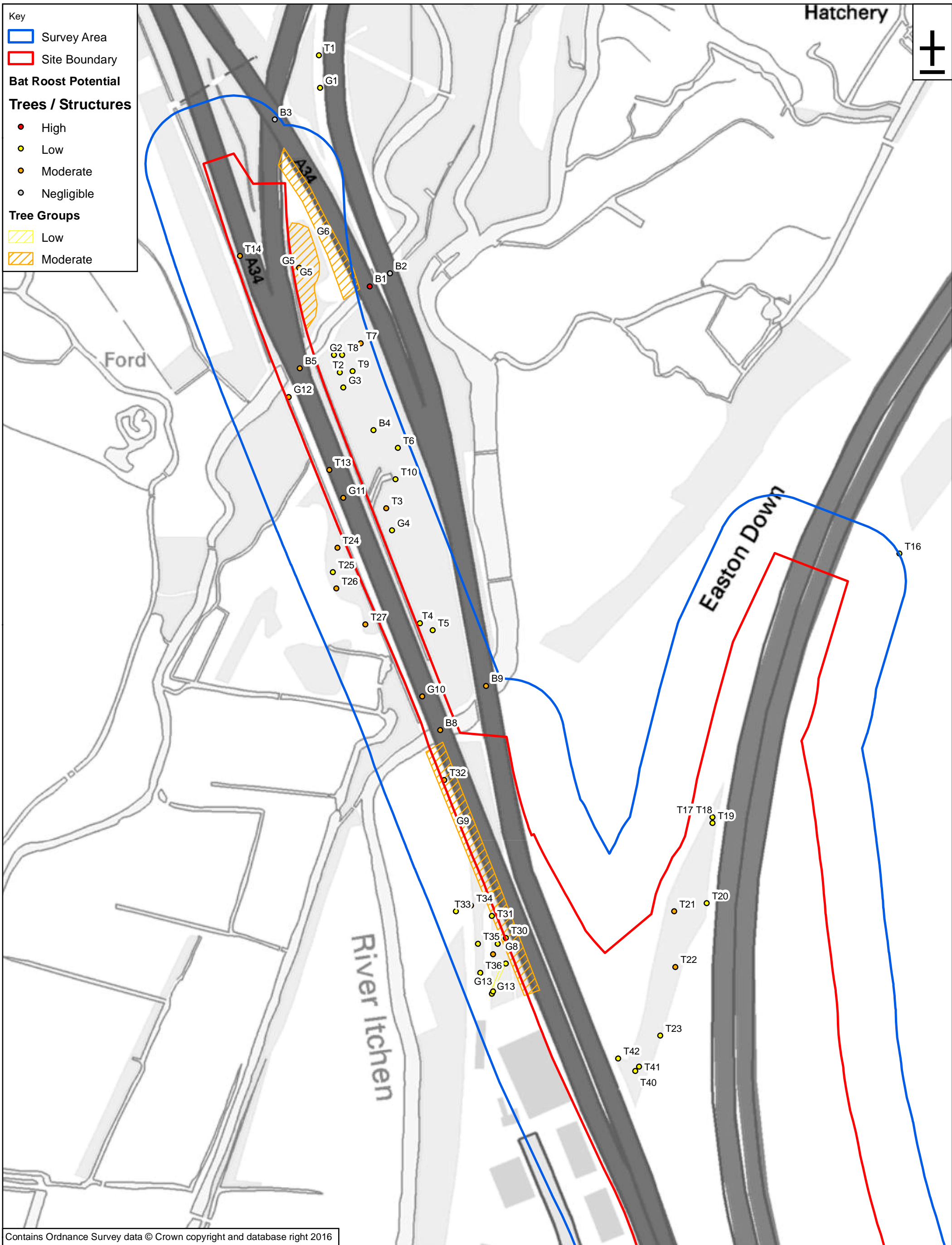

PROJECT:  
M3 Junction 9

TITLE:  
Site Location Plan

SCALE @ A3: 7,500	CHECKED: LR	APPROVED: HS
FILE: A3 Template	DRAWN: BW	DATE: August 2017
PROJECT No: 70016638	DRAWING No: 1	REV: A
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## FIGURE 3-1 – PRELIMINARY BAT ROOST ASSESSMENT RESULTS



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REV	DATE	BY	DESCRIPTION	CHK	APP

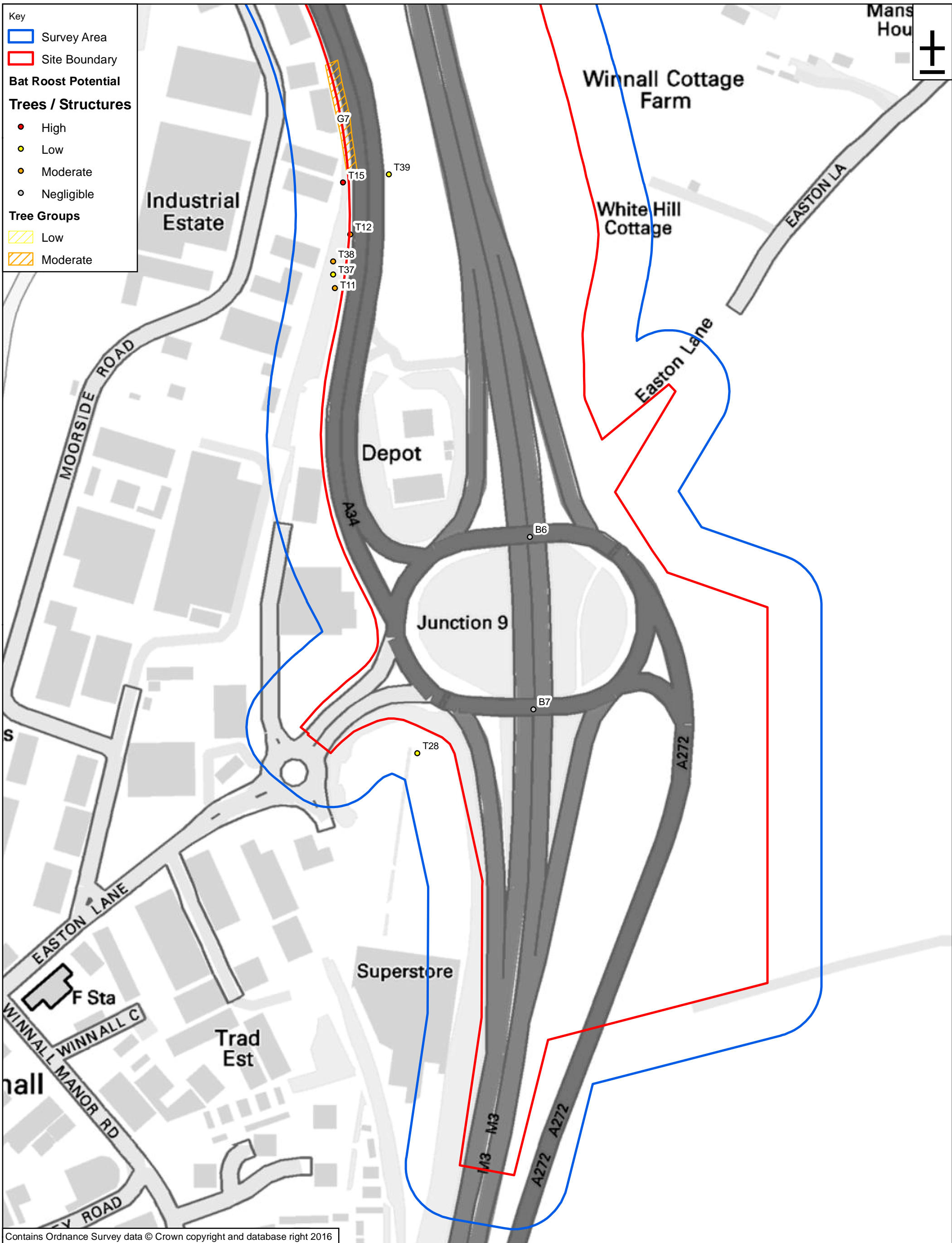
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TITLE: PBRA Results

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FILE:	DRAWN: RP	DATE: December 2017
PROJECT No: 70016638	DRAWING No: 2-1 (North)	REV: A

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REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: DRAWING STATUS



PROJECT:	M3 Junction 9
TITLE:	PBRA Results

SCALE @ A3:	3,168	CHECKED:	LR	APPROVED:	AH
FILE:		DRAWN:	RP	DATE:	December 2017
PROJECT No:	70016638	DRAWING No:	2-1 (South)	REV:	A
© WSP Group plc					



# Appendix A

**PBRA SURVEY DATA**

Identification No.	Tree/Group/Structure	Species	Approx. Height (m)	Age (MM/SM/M)	Description of features with potential to support bats	Brief description surrounding habitat	Overall Suitability Category
T1	Sycamore	20	SM		Dense ivy cover from ground to 12m. Multi stemmed	Woodland	Low
T2	Alder	22	SM		Dense ivy cover.	Woodland	Low
T3	Salix sp.	22	M		Crease on eastern side of trunk 4m high (crevice) Split in main trunk 4-5m high (cavity)	Woodland	Moderate
T4	Salix sp.	22-24	SM-M		Dense ivy all aspects	Woodland	Low
T5	Sycamore	20	SM		2 knot holes on eastern aspect 6m high. Large tree. Dense ivy all aspects.	Woodland	Low
T6	Dead tree	15	I		Loose peeling bark on dead tree, all aspects and heights	Woodland	Low
T7	Ash	22	SM		Dense thick ivy lattice. 2 x dead branches and broken limbs on east aspect 6-8m high. Knot holes on east aspect 10m high	Woodland	Moderate
T8	Sycamore	24	M		No features seen, but very large tree.	Woodland	Low
T9	Sycamore	22	M		Dense ivy cover all aspects. 1 x dead limb with flaking bark on south aspect 10-15m high	Woodland	Low
T10	Sycamore	18-20	M		Multi stemmed tree. Dense ivy cover all aspects	Woodland	Low
T11	Ash	20	M		Large mature tree with some ivy. Full inspection not possible due to night survey.	Woodland	Moderate
T12	Populus sp.	24	M		Large mature tree with some ivy. Full inspection not possible due to night survey.	Woodland	Moderate
T13	Salix sp.	10	M		Dense ivy cover. Full inspection not possible due to night survey.	Woodland	Moderate
T14	Populus sp.				Large Populus tree, no features seen. Full inspection not possible due to night survey.	Woodland	Moderate
T15	Populus sp.	20	SM		Large mature poplar. Woodpecker holes observed at 14m on southern aspect.	Woodland	High
T16	Ash	4	SM		Deformity scars (likely viral) all over trunk and branches creating 'burst' bark, some may be deep enough for a bat, but most are exposed and don't lead to a cavity.	Field edge with woodland parcel	Low
T17	Scot's pine	11	SM		Mature ivy growth, possibly affording shelter to a bat underneath thick stems. Leaning to east.	Plantation woodland	Low
T18	Scot's pine	12	SM		Mature ivy growth, possibly affording shelter to a bat underneath thick stems. No lean.	Plantation woodland	Low
T19	Scot's pine	12	SM		Mature ivy growth, possibly affording shelter to a bat underneath thick stems, though ivy leaves likely to obstruct flight lines. No lean.	Plantation woodland	Low
T20	Beech	10	SM		Kissing stems possibly creating a cavity.	Plantation woodland	Low
T21	Beech	11	SM		Small holes at ~4m and ~6m H.	Plantation woodland	Moderate
T22	Elder	4	SM		Rotten stem with holes leading to cavity but very low to ground ~1m H.	Mature scrub patch in field	Moderate
T23	Unknown (poss. hawthorn)	5	SM-M		Ivy cover and very gnarly with shallow hole ~1.5m H on west side.	Mature scrub patch in field	Low
T24	Salix sp.	5	M/Dead		Hole in trunk ~3m H on west, woodpecker enlarged and open at top, possibly leading to a crevice below, and generally rotten.	Marshy grassland	Moderate
T25	Salix sp.	6	M/Dead		Hole/crack at diverged trunk, possibly leading to crevice though likely exposed to rain.	Marshy grassland	Low
T26	Salix sp.	6	M/Dead		Lifted bark ~1m H, possibly creating good crevice, though low to ground.	Marshy grassland	Moderate
T27	Salix sp.	4.5	SM		Possible hole at joined limbs ~50cm H on south side, leads to cavity with some debris in it (leaves).	Marshy grassland	Moderate
T28	Beech	10	SM		Hole at ~4m H, possibility of cavity.	Tesco car park avenue	Low
T29	Populus sp.	20	M		Thick ivy cladding creating visible crevice underneath. Further features also possible.	Woodland	Moderate
T30	Populus sp.	20	M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland	Low
T31	Populus sp.	10	M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features. Lopped at top possibly meaning dead parts.	Woodland	Low
T32	Salix sp.	15	Dead		Some lifted bark and small holes.	Woodland	Moderate
T33	Ash	18	SM-M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland	Low
T34	Salix sp.	10 (leaning)	SM-M		Leaning willow with split branch possibly leading to a cavity ~1m on W.	Wet woodland edge	Moderate
T35	Unknown (poss ash)	9	SM		Leaning tree with heavy ivy cover and hanging ivy bunch, possibly crevices at the join.	Woodland	Low



Identification No.	Tree/ Group/ Structure	Species	Approx. Height (m)	Age (MM/SM/M)	Description of features with potential to support bats	Overall Suitability Category	
						Brief description surrounding habitat	Overall Suitability Category
T36	Populus sp.	15	SM		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland	Low
T37	Unknown	20	M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland	Low
T38	Ash	18	M		Thick ivy cladding creating visible crevice underneath. Further features also possible but obscured.	Woodland	Moderate
T39	Sycamore	20	SM		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland strip adjacent to field and road	Low
T40	Sycamore	18	SM		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland edge	Low
T41	Lime	20	M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland edge	Low
T42	Lime	20	M		Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland edge	Low
G1	Sycamore	20	SM		5 x Sycamore with dense ivy cover.	Woodland	Low
G2	Alder	20	SM		Dense ivy cover.	Woodland	Low
G3	Salix sp. & alder	22	M		1 x willow sp. & 2 alder. Dense ivy cover	Woodland	Low
G4	Salix sp.	24	M		2 x willow sp. Dense ivy cover all aspects.	Woodland	Low
G5	Populus sp.	22-24	50-70		21 x Populus sp. Large trees with dense ivy cover. Lattice on all aspects.	Woodland	Moderate
G6	Sycamore & ash	16-18	M		Some dense ivy cover. Full inspection not possible due to night survey.	Woodland	Moderate
G7	Populus sp. & horse chestnut	20-24	M		Line of mature Populus and Horse Chestnut in leaf. Some ivy present, dense in places. Full inspection not possible due to night survey.	Woodland	Moderate
G8	Alder	24	M		Large mature Alder woodlands with some ivy. Full inspection not possible due to night survey.	Woodland	Moderate
G9	Sycamore	16-18	M		Multi stemmed trees. Dense ivy cover. Full inspection not possible due to night survey.	Woodland	Moderate
G10	Ash	16	M		5 x Ash. Dense ivy cover. Full inspection not possible due to night survey.	Woodland	Moderate
G11	Field Maple & ash	18	M		1 x F. Maple, 1 x Ash. Dense ivy cover. Full inspection not possible due to night survey.	Woodland	Moderate
G12	Populus sp.	24	M		Two large Ivy-clad Populus. Dense ivy cover on all aspects. Full inspection not possible due to night survey.	Woodland	Moderate
G13	Populus sp.	20	M		Line of 10 near-identical trees. Thick ivy cladding possibly creating feature in its own right, and obscuring much of them. Trees of size and nature possibly supporting other features.	Woodland	Low
B1	N/A	N/A	N/A		A34 southbound bridge. Concrete structure crossing the Itchen tributary. Expansion gaps either side. Gaps above the support columns. Expansion foam fills the concrete beam gaps. Some holes located within the expansion foam - may lead to cavity or crevice.	Woodland	High
B2	N/A	N/A	N/A		A33 southbound concrete bridge. No features noted. No expansion gaps with crevices. Fairly cold and damp.	Woodland	Negligible
B3	N/A	N/A	N/A		Concrete over-bridge, crossing the A33/A34. No significant gaps or crevices on the structures. Fairly cold and damp.	Woodland	Negligible
B4	N/A	N/A	N/A		Drainage tunnel under railway cutting around 1.5m high. Fairly cold and damp. Not fully visible so precautionary suitability rating given. Potentially suitable for hibernating bats.	Woodland	Moderate
B5	N/A	N/A	N/A		Concrete bridge, low to the water. Inspected from north. No features noted but cannot view underside so precautionary suitability rating given. Span ~1m above water. Fairly cold and damp. Potentially suitable for hibernating bats.	Woodland/ Wet Grassland	Moderate
B6	N/A	N/A	N/A		Northern concrete bridge associated with the Junction 9 M3 roundabout. No features noted. Fairly cold and damp.	Motorway/ Industrial/ Arable	Negligible
B7	N/A	N/A	N/A		Southern concrete bridge associated with the Junction 9 M3 roundabout. No features noted. Fairly cold and damp.	Motorway/ Industrial/ Arable	Negligible
B8	N/A	N/A	N/A		Concrete construction, 2-span bridge. Gaps at expansion joint above central pillar. Over a river. Fairly cold and damp. Not fully visible so precautionary suitability rating given. Potentially suitable for hibernating bats.	River with trees	Moderate
B9	N/A	N/A	N/A		Concrete construction with brick upper sides. Arched twin-span constructions with 8 beams underneath. Crevice at expansion gaps adjacent to beams (all). Over a river. Fairly cold and damp. Not fully visible so precautionary suitability rating given. Potentially suitable for hibernating bats.	River with trees	Moderate

# Appendix B

**PHOTOGRAPHS**

**TREE/ TREE GROUP/  
STRUCTURE NO.**

**PHOTOGRAPH**

**T1**



**T2**



T3



T4





T5



T6



T7



T8



T9

**T10**



**T11**

-

**T12**

-

**T13**

-

**T14**



**T15**

-



**T16**



**T17**





**T18**



**T19**



T20



T21





T22



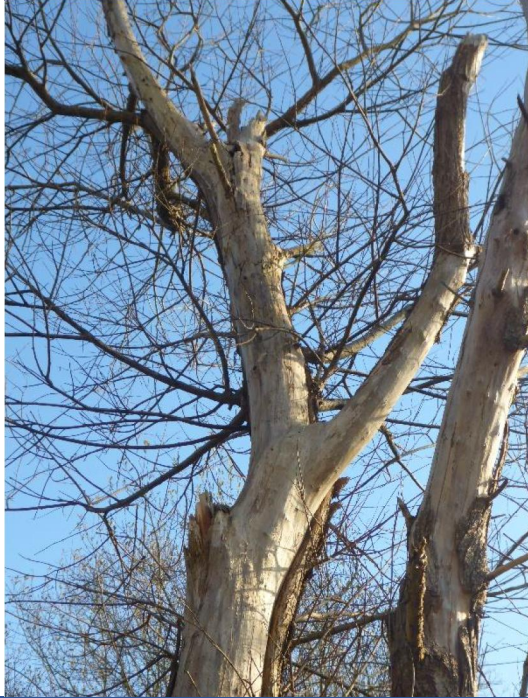
T23



T24



T25





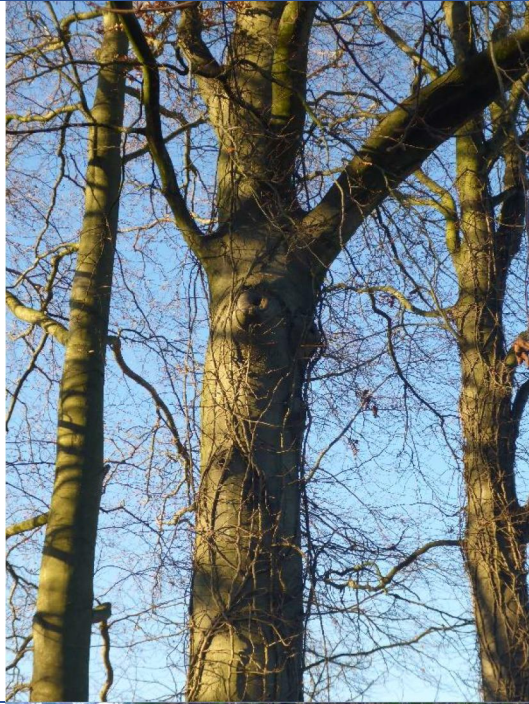
T26



T27



T28



T29





**T30**



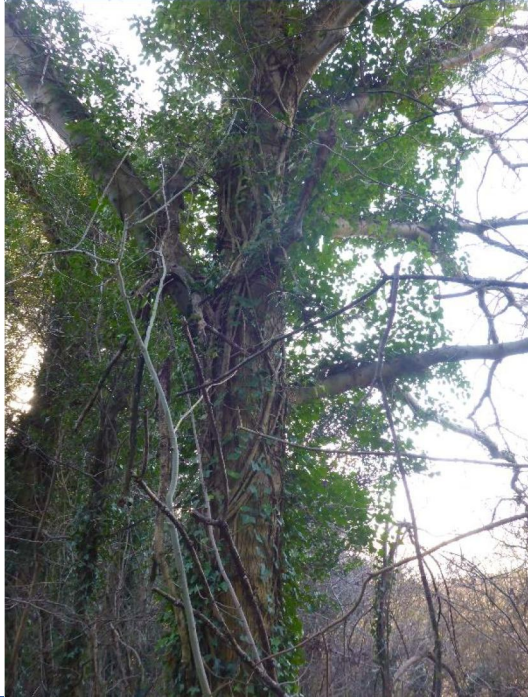
**T31**



**T32**



**T33**

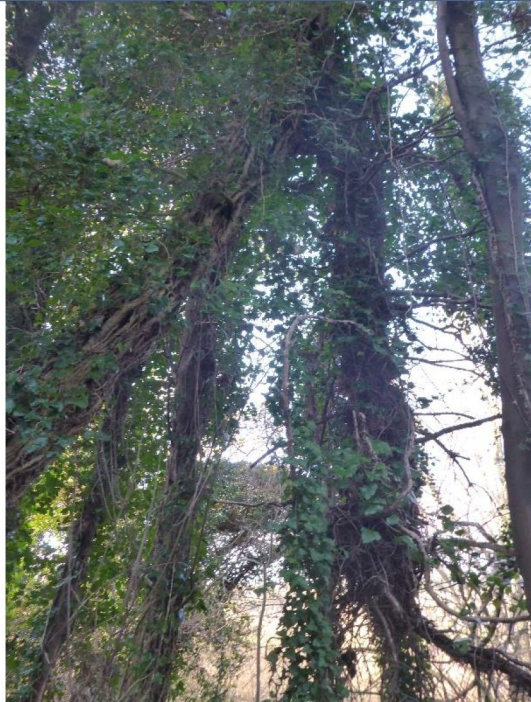




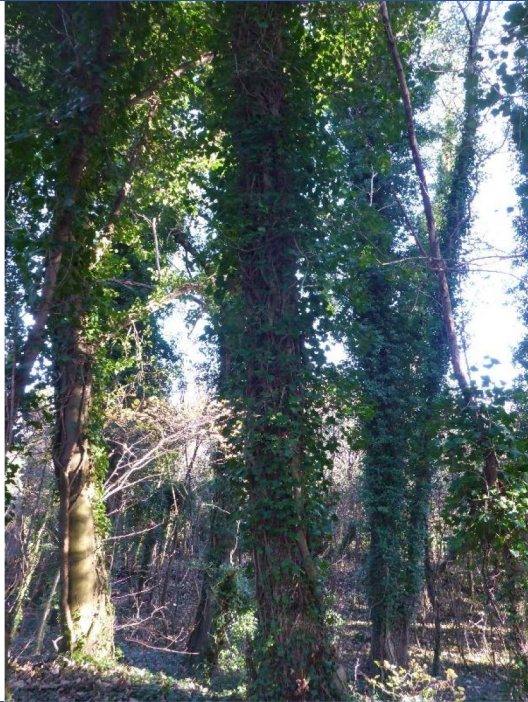
T34



T35



T36

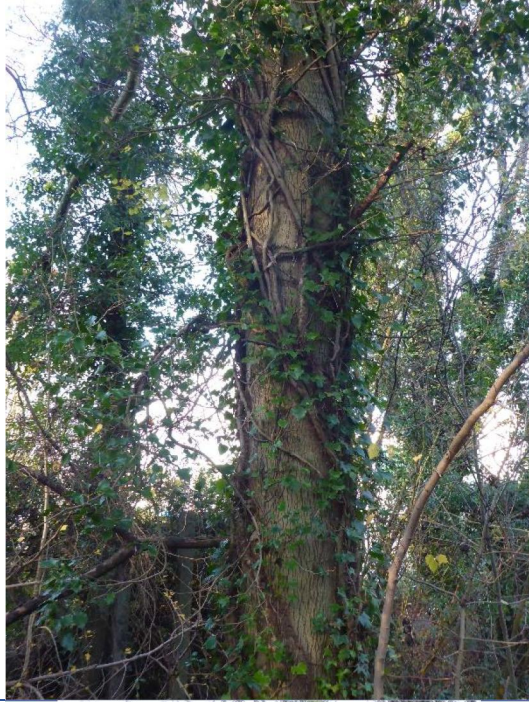


T37





**T38**



**T39**





**T40**



**T41**



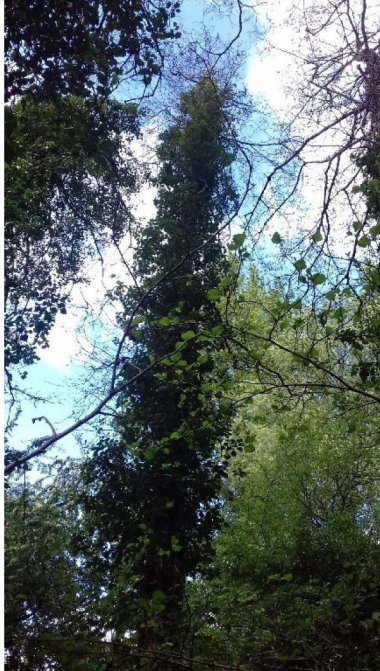
**T42**



**G1**



**G2**





**G3**



**G4**



**G5**

-

**G6**

-

**G7**

-

**G8**

-

**G9**

-

**G10**

-

**G11**

-

**G12**



**G13**



**B1**





**B2**



**B3**



**B4**



**B5**



**B6**



**B7**



**B8**



**B9**

