

A38 Derby Junctions

TR010022

Volume 6

**6.3 Environmental Statement
Appendices**

**Appendix 8.9c: Bat Tree Climbing
Survey 2017 Report**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

April 2019

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A38 Derby Junctions Development Consent Order 202[]

6.3 Environmental Statement Appendices Appendix 8.9c: Bat Tree Climbing Survey 2017 Report

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Planning Inspectorate Scheme Reference	TR010022
Application Document Reference	6.3
Author	A38 Derby Junctions Project Team, Highways England

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1	April 2019	DCO Application

A38 DERBY JUNCTIONS – TREE CLIMBING SURVEY

1 INTRODUCTION

- 1.1.1 AECOM was instructed by Highways England to carry out assessment or re-assessment and, where necessary, aerial inspections of trees within or directly adjacent to the A38 Derby Junctions (proposed scheme) boundary.
- 1.1.2 In order to assist with the assessment of the proposed scheme's potential environmental effects, a range of environmental surveys have been undertaken since 2015 to define prevailing baseline conditions. However, as the scheme's preparation progresses, a number of updates have occurred and the proposed scheme boundary has been subject to ongoing refinements.
- 1.1.3 The Phase 1 Habitat survey conducted by AECOM in 2017 across the proposed scheme highlighted the presence of 100 trees with potential bat roost features (PRF) within the proposed scheme boundary and/ or the immediate surroundings, as shown in Figures 1 and 2, Appendix A.
- 1.1.4 Of these 100 trees, 35 had already been scoped into the 2015 bat survey (AECOM, 47071319-URS-05-RP-EN-020, 2016)¹, whilst the other 65 were new trees.
- 1.1.5 The purpose of the surveys reported here was to determine the PRFs of these 65 new trees; confirm the PRFs in the other 35 surveyed in 2015 and subsequently from tree climbing whether the PRF supported roosting bats or signs of roosting bats and inform further survey requirements and potential design constraints.
- 1.1.6 As the guidelines and methodology for assessing roost features² have been updated since the 2015 bat surveys, it was recommended that the 35 trees surveyed in 2015 be updated following the latest guidelines (Collins, 2016). The 65 new trees were assessed based on the latest guidelines. This Technical Note outlines the results of the survey.
- 1.1.7 Refer to the A38 Derby Junctions 2015 Bat Survey Report (AECOM, 2016) for details of relevant ecological legislation and policy regarding bats.

2 METHODOLOGY

2.1 Preliminary Roost Assessment for Bats

- 2.1.1 A Preliminary Roost Assessment for bats was undertaken by two experienced ecologists from AECOM holding a Natural England Bat Class License WML CL18 in March, June and July 2017. The surveys were conducted in line with the Bat Conservation Trust (BCT) survey guidelines³. Close focusing binoculars were used to conduct an external assessment of all 100 trees.
- 2.1.2 All potential bat access/ egress points and features with potential roosting features (PRF) (e.g. cracks, crevices) were identified and recorded along with any evidence, which may have indicated the location of roosts, such as:

¹ AECOM (2016) A38 Derby Junctions Bat Survey Report Ref. No. 47071319-URS-05-RP-EN-020

² Hundt L. (2012) Bat surveys: Good practice Guidelines, 2nd Edition, Bat Conservation trust

³ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

- Stains around entrance holes (resulting from the deposition of oil secretions in bat fur);
- Scratch marks around entrance holes (resulting from bat claw holds);
- Bat droppings;
- Feeding remains;
- Odours or noise characteristics of bats.

2.1.3 Based on the external assessment, the suitability of the trees to support roosting bats was then classified using a scale of negligible, low, moderate, high or confirmed. This assessment was based on the intrinsic suitability of the feature to support roosting bats and other evidence giving an indication of the likelihood of use (e.g. presence of droppings, cobwebs, or exposure to elements).

2.1.4 The grading system used to determine the potential suitability of a feature to support roosting bats is given above in Table 1.

Table 1: Grading System Used to Determine the Potential Suitability of a Feature to Support Roosting Bats

Habitat Suitability/ Level of Risk	Type of Roost		
	Summer or transitional roost used by non-breeding bats	Maternity Roost	Hibernation Roost
Confirmed	Presence of bats or evidence of bats. Confirmation of roost status may require further roost clarification survey.		
High	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.
Moderate	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.
Low	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.
Negligible	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.

2.2 Aerial Tree Climbing Inspections

65 New Trees:

2.2.1 Trees containing moderate or high PRF were climbed using ropes and ladders. Once accessed, the PRFs were examined in detail using a bright torch, endoscope

or mirror to inspect (where possible) the full extent of the PRF and search for bats or evidence of bat activity (e.g. droppings, urine stains, odour, feeding remains, scratch marks, grease stains and wear marks).

2.2.2 Where necessary, these trees were re-categorised following the aerial inspection.

35 trees previously surveyed in 2015:

2.2.3 Among the 35 trees surveyed in 2015, a sub-set was climbed: M6, M8, M35, M42, M43, M44, M48, M49 and M54.

2.2.4 The climb and inspect survey was undertaken by two experienced, certificated tree climbers from AECOM and Natural England bat licence holders.

2.2.5 Where necessary, these trees were re-categorised following the aerial inspection.

2.2.6 The roost assessment followed the Bat Conservation Trust survey guidelines, the Bat Workers Manual⁴ and the Woodland Management for bats guidelines⁵.

3 LIMITATIONS

3.1.1 Trees covered by ivy were assessed, but not climbed because it was not practical to do so (i.e. the action of climbing is likely to be damaging/ destructive to the potential roost locations).

3.1.2 The GPS co-ordinates were taken using a Garmin eTrex device, which typically had an accuracy resolution of 4m.

3.1.3 Land access was not given to survey trees T21, T22, T28, T29, T70 and T71.

3.1.4 Authorisation to climb was not given by the land owner for trees M1, M2, M3, M4 and M37.

3.1.5 Trees M6, M8, M10, M23, M25, M33, M4, T30 and T65 were considered unsafe to climb. The weather conditions were also too bad to climb M24, M15 and M53. A conservative PRF assessment was ascribed to these trees.

3.1.6 Trees T66 and T67 were on the other side of the River Derwent and were not surveyed.

4 RESULTS

4.1.1 A summary of the Potential Roosting Features (PRFs) from the preliminary roost assessment and aerial tree climbing inspection are presented in Table 2. The location of the trees surveyed is presented in Appendix A, Figures 1 and 2 along with their roost potential grading.

4.1.2 Full description of the tree features, GPS location and results of the preliminary roost assessment and aerial tree climbing inspection are presented in Appendix B.

65 New Trees:

4.1.3 Two trees were assessed as having high potential, 13 moderate potential, 26 low potential, 16 negligible potential and 8 were not assessed.

⁴ A. J. Mitchell-Jones & A. P. McLeish (2004) Bat Workers Manual (3rd edn). Joint Nature Conservation Committee

⁵ Anon (2005) Woodland Management for Bats. Forestry Commission England, Forestry Commission Wales, Bat Conservation Trust, Countryside Council for Wales and English Nature

35 Trees Previously Surveyed In 2015:

4.1.4 In 2017, two trees were re-assessed as having high potential, and nine as having moderate potential. Seven trees were downgraded from high to moderate potential, five trees were downgraded from high to low potential, one tree was downgraded from high to negligible potential and two trees were downgraded from moderate to low potential and one tree was downgraded from moderate to negligible potential. Four trees were assessed as moderate in 2015 and four trees assessed as low were not re-assessed in 2017.

Table 2: Summary of the Potential Roosting Features (PRFs) from the Preliminary Roost Assessment and Aerial Tree Climbing Inspection

Tree ID	Potential Roosting Feature (based on 2016 guidelines)	Tree ID	Potential Roosting Feature (based on 2016 guidelines)	Tree ID	Potential Roosting Feature (based on 2016 guidelines)
M1	Moderate	M36	High	T16a	Moderate
M2	Moderate	M37	Moderate	T17	Negligible
M3	Moderate	M38	Moderate	T18	Negligible
M4	Moderate	M39	Low	T19	Negligible
M6	Moderate	M40	Low	T20	Negligible
M7	Moderate	M41	Low	T21	Unknown
M8	Moderate	M42	Low	T22	Unknown
M9	Moderate	M43	Negligible	T23	Low
M10	Moderate	M44	Low	T24	Negligible
M11	Moderate	M45	Low	T25	Low
M12	High	M46	Moderate	T26	Negligible
M13	Low	M47	Low	T27	Negligible
M14	Moderate	M48	Low	T28	Unknown
M15	Moderate	M49	Low	T29	Unknown
M16	Low	M50	Low	T30	Low
M17	Moderate	M51	Moderate	T31	Moderate
M18	Low	M52	Low	T44	Negligible
M19	Low	M53	Moderate	T56	Low
M20	Moderate	M54	Low	T57	Negligible
M21	Low	M55	High	T60	Negligible
M22	Low	T1	Moderate *	T61	Negligible
M23	Moderate	T2	Moderate *	T65	Low
M24	Moderate	T3	Low *	T66	Unknown
M25	Low	T4	Low *	T67	Unknown
M26	Negligible	T5	Moderate *	T68	Negligible
M27	Low	T6	Low *	T69	High
M28	Moderate	T7	Low *	T70	Unknown
M29	Moderate	T12	Moderate *	T71	Moderate
M30	Low	T13	Negligible *	T72	Low
M31	Low	T14	Negligible	T73	Negligible

Tree ID	Potential Roosting Feature (based on 2016 guidelines)
M32	Moderate
M33	Moderate
M34	Moderate
M35	Low

Tree ID	Potential Roosting Feature (based on 2016 guidelines)
T14a	Low
T15	Low
T16	Low

Tree ID	Potential Roosting Feature (based on 2016 guidelines)
T74	Low
T75	Negligible
T76	Negligible

*2015 assessment

Revisions

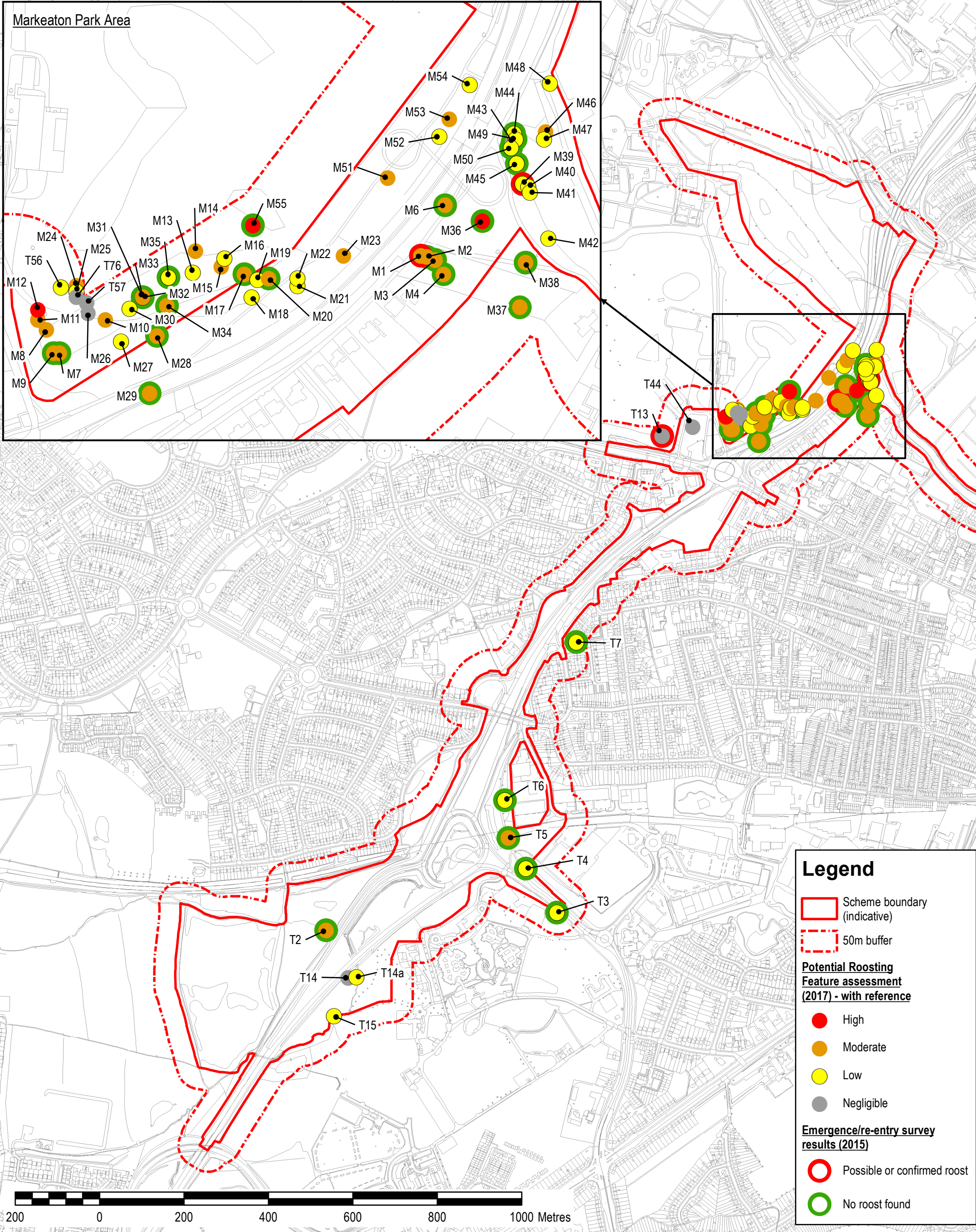
Version	Prepared by	Date	Reviewed by	Date	Approved by	Date
1D	Gaelle Bardsley	03.01.2018	Hannah Procter	26.01.2018	Paul Benyon	06.03.2018
1F	Gaelle Bardsley	04.09.2018	Simon Wild	04.09.2018	Andrew Wilson	04.09.2018

Appendix A – Figures

Figure 1: Kingsway – Markeaton, Bat surveys 2017. Potential Roost Feature Assessment

Figure 2: Little Eaton, Bat surveys 2017. Potential Roost Feature Assessment

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Project Title/Drawing Title

**A38 DERBY JUNCTIONS
KINGSWAY - MARKEATON
BAT SURVEYS 2017
POTENTIAL ROOST FEATURE ASSESSMENT**

AECOM Internal Project Number 60533462		
Drawn GSB	Checked HP	Approved .
Date 05/01/2018	Scale @ A3 1:2,500	Purpose of issue FINAL
Drawing Number Figure 1		Rev .

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File Name: X:\Highways Agency\47071390 A38 Derby Jns - Environment\Technical\Ecology\GIS_A38_2017\project_files\Bats\Tree climbing\A38 Kingsway Markeaton tree climbing 2017.mxd





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Legend


 Scheme boundary (indicative)

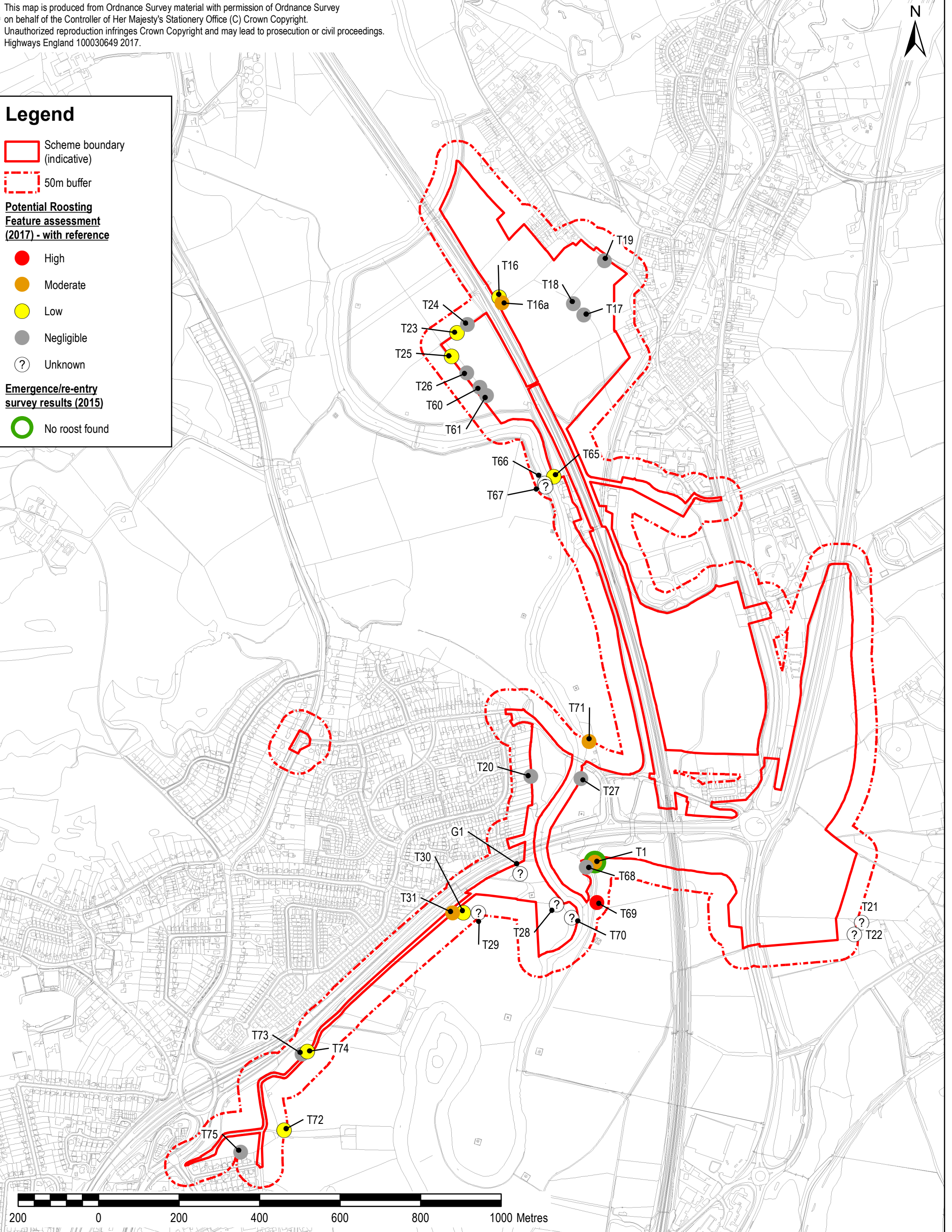
 50m buffer



Potential Roosting Feature assessment (2017) - with reference

-  High
-  Moderate
-  Low
-  Negligible
-  Unknown

Emergence/re-entry survey results (2015)

-  No roost found



Project Title/Drawing Title			AECOM Internal Project Number 60533462			A38 Derby Junctions Project Highways England, Floor 5 2 Colmore Square 38 Colmore Circus Birmingham B4 6BN					
A38 DERBY JUNCTIONS LITTLE EATON BAT SURVEYS 2017 POTENTIAL ROOST FEATURE ASSESSMENT			Drawn GSB	Checked HP	Approved .						
			Date 19/03/2018	Scale @ A3 1:8,500	Purpose of issue FINAL						
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Appendix B – Survey Details

Table B1 Survey Details - 2017

Tree ID	Species	Grid reference	2015 survey results				2017 survey results						
			Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
M1	Oak	SK 33709 37134	Feature part of Group of trees T8 (previous numbering system)	High	Yes	Possible	Mar-17	0.5	A woodpecker hole in the central stem at 10m on the western stem	No	No authorisation to climb Assessed from ground level	-	Possible roost
M2	Oak	SK 33713 37133	Feature part of Group of trees T8 (previous numbering system)	High	Yes	No	Mar-17	0.6	A knot hole at 7m on the western aspect of the central stem	No	No authorisation to climb Assessed from ground level	-	Moderate
M3	Oak	SK 33719 37131	Feature part of Group of trees T8 (previous numbering system)	High	Yes	No	Mar-17	0.7	Rot hole on the east face of the main stem at 6m	No	No authorisation to climb Assessed from ground level	-	Moderate
M4	Oak	SK 33725 37121	Feature part of Group of trees T8 (previous numbering system)	High	Yes	No	Mar-17	0.5	A knot hole in the eastern aspect of the central stem at 6m	No	No authorisation to climb Assessed from ground level	-	Moderate
M6	Unknown	SK 33726 37169	Feature part of Group of trees T8 (previous numbering system)	High	Yes	No	Mar-17	0.5	The top half of the tree was dead with cracks, splits and loose bark throughout	No	Not safe to climb Assessed from ground level	-	Moderate
M7	Sycamore	SK 33457 37066	Feature part of Group of trees T12 (previous numbering system)	Moderate	Yes	No	Mar-17	0.5	A small knot hole in the northern aspect at 8m	Yes		No cavity present	Moderate
M8	Oak	SK 33448 37082					Mar-17	0.6	A cavity in an east facing branch at 6m A hole in the central stem on its eastern aspect at 8m	No	Not safe to climb Assessed from ground level	-	Moderate
M9	Sycamore	SK 33453 37066		Moderate	Yes	No	Mar-17	0.5	A knot hole in the east face at 8m	Yes		The cavity was less than 5m deep and afforded little protection	Moderate
M10	Sycamore	SK 33489 37089					Mar-17	0.6	A vertical split in the main stem at 10m A vertical split in a northwards facing branch at 8m	No	Not safe to climb Assessed from ground level	-	Moderate
M11	Oak	SK 33442 37089					Mar-17	0.7	North-facing cavity at 5m A cavity in a south-facing branch at 7m	Yes		The cavity was shallow and afforded little protection The limb was dead and could not be accessed	Moderate

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
M12	Oak	SK 33442 37096					Mar-17	0.8	A south-facing hollow branch at 7m A knot hole in the eastern aspect of the main stem at 10m	Yes		South-facing hollow branch at 7m with a deep cavity – no evidence of use A deep, dry cavity – no evidence recorded	High
M13	Oak	SK 33550 37122					Mar-17	0.6	A small cavity on the south-facing aspect at 6m Some deadwood in the crown	No	Not required	-	Low
M14	Oak	SK 33552 37137					Mar-17	0.5	Woodpecker hole on the western aspect at 5m	Yes		Large cavity that is clean and dry. No evidence recorded.	Moderate
M15	Sycamore	SK 33570 37126					Mar-17	0.6	Woodpecker hole on the north-western face of the main stem at 7m A vertical split at 5m with a possible cavity	No	Bad weather conditions - Not safe to climb Survey postponed		Moderate
M16	Sycamore	SK 33572 37132					Mar-17	0.3	A central cavity on the eastern face at 5m	No	Not required	-	Low
M17	Oak	SK 33586 37121	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.6	Possible upwards-facing cavity at 6m on the west face Flaking bark throughout	No			Moderate
M18	Oak	SK 33591 37105					Mar-17	1	Thick-stemmed ivy present throughout	No	Not required	-	Low
M19	Oak	SK 33595 37117					Mar-17	0.8	Callous rolls with a small hole and some deadwood in the crown	No	Not required	-	Low
M20	Oak	SK 33603 37118	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	1	A large hole above a branch at 10m A snapped limb to the north-west Some deadwood in the crown	No			Moderate
M21	Oak	SK 33623 37113					Mar-17	0.5	Some deadwood in the crown and could not be inspected from the east due to A38	No	Not required	-	Low
M22	Oak	SK 33623 37118					Mar-17	0.5	Split branches present in the crown but no significant cavities	No	Not required	-	Low
M23	Sycamore	SK 33655 37134					Mar-17	0.6	A cavity in a pruning wound, east-facing at 4m and 6m A large north-facing hole in the main stem at 10m	No	Not safe to climb Assessed from ground level	-	Moderate
M24	Oak	SK 33469 37113					Mar-17	1.2	A knot hole in a north-facing branch at 10m A snapped limb in the crown Some callous rolls in the crown A horizontal split in a north-facing branch at 4m	No	Bad weather conditions - Not safe to climb Survey postponed		Moderate
M25	Willow	SK 33469 37109					Mar-17	1	Some deadwood throughout but cluttered	No	Not safe to climb Assessed from ground level	-	Low
M26	Oak	SK 33477 37094					Mar-17	0.7	A hole in a stem at 5m on the south-face A hole at 7m at on the southern aspect Some deadwood in the crown	Yes		No cavity in the 5m hole The hole at 7m was wet and afforded little protection No obvious cavities in the deadwood	Negligible

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
M27	Oak	SK 33500 37074					Mar-17	0.6	A small hole on the east face at 6m	Yes		The cavity was 5cm deep and afforded little protection	Low
M28	Oak	SK 33525 37078	Feature part of Group of trees T12 at the time	Moderate	Yes	No	Mar-17	0.6	A hole in an east-facing branch at 8m	No			Moderate
M29	Oak	SK 33520 37038	Feature part of Group of trees T12 at the time	Moderate	Yes	No	Mar-17	0.5	A hole in a west-facing elbow and some callous rolls	No			Moderate
M30	Sycamore	SK 33506 37097					Mar-17	0.6	A small branch cavity at 7m on the east face	No	Not required	-	Low
M31	Sycamore	SK 33515 37105	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.5	A small cavity in a western branch at 3m A cavity in a west-facing branch at 4m	No	Not required	-	Low
M32	Oak	SK 33515 37105	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.7	A vertical split on the main stem and the western aspect at 10m	No	Not required	-	Moderate
M33	Sycamore	SK 33515 37105	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.5	A largely hollow trunk with cavities throughout	No	Not safe to climb Assessed from ground level	-	Moderate
M34	Oak	SK 33532 37099	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.8	A branch cavity on a western branch at 12m A snapped limb with several small splits	No			Moderate
M35	Oak	SK 33533 37119	Feature part of Group of trees T11 at the time	Moderate	Yes	No	Mar-17	0.7	Several small holes throughout	No	Not required	-	Low
M36	Oak	SK 33752 37158	Feature part of Group of trees T8 at the time	High	Yes	No	Mar-17	1.5	A cavity in a south facing branch at 8m A cavity in a south-west facing branch at 5m Two Schwegler woodcrete bat boxes Southern facing branch with a hole, 5m high	Yes		Cavity 30cm deep, clean and dry inside but no evidence of use Cavity 15cm deep, clean and dry inside but no evidence of use No evidence of use other than birds The hole contained a cavity 15cm deep but no evidence of use was recorded	High
M37	Oak	SK 33778 37098	Feature part of Group of trees T8 at the time	High	Yes	No	Mar-17	1	A large woodpecker hole on the southern aspect at 9m	No	No authorisation to climb Assessed from ground level	-	Moderate
M38	Oak	SK 33782 37129	Feature part of Group of trees T8 at the time	High	Yes	No	Mar-17	0.9	Two woodpecker holes and a split in a dead limb – all north facing	No		-	Moderate
M39	Willow	SK 33780 37184	Feature part of Group of trees T9 at the time	High	Yes	Yes	Mar-17	0.4	Small cracks and splits throughout	No	Not required	-	Low
M40	Alder	SK 33784 37182					Mar-17	0.5	Small holes in main trunk	No	Not required	-	Low
M41	Alder	SK 33785 37178					Mar-17	0.4	Two broken bat boxes Small split in branch at 6m Rot hole in the main stem at 9m but appears to be very wet (open from above)	No	Not required	-	Low

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
M42	Aspen	SK 33798 37146					Mar-17	1.3	One bat box A cavity in the trunk at 8m but does not go in 10m trunk cavity that does not go in A woodpecker hole in the central stem at 12m facing north Occasional splits and cracks in crown	No	Not required	Evidence of birds in the bat box Not suitable Not suitable Tree creepers seen flying in and out -	Low
M43	Willow	SK 33773 37213	Feature part of Group of trees T9 at the time	High	Yes	No	Mar-17	0.5	A 3m stump with holes throughout	Yes		All features were checked and none were suitable	Negligible
M44	Willow	SK 33774 37219	Feature part of Group of trees T9 at the time	High	Yes	No	Mar-17	0.5	Three Schwegler bat boxes	Yes		Evidence of birds in all three boxes	Low
M45	Willow (x3)	SK 33776 37198	Feature part of Group of trees T9 at the time	High	Yes	No	Mar-17	0.5	Small cavities and splits throughout	Yes		Very few cavities were suitable for more than one individual bat	Low
M46	Alder	SK 33796 37220					Mar-17	0.5	A small hole in the western aspect at 4m A small hole in a north facing elbow A woodpecker hole and two rot holes in a branch over the water at 5m	Yes		No cavity The woodpecker / rot holes could support a small number of pipistrelles but no evidence The branch could not be safely accessed	Moderate
M47	Alder	SK 33795 37215					Mar-17	0.5	A snapped north facing branch with a small hole Several branches have intertwined in the crown at 9m Broken bat boxes	No	Not safe to climb Assessed from ground level	-	Low
M48	Alder (x2)	SK 33799 37254					Mar-17	0.5	Three old bat boxes	Yes		The bat boxes did not contain evidence of use and were very cluttered	Low
M49	Willow	SK 33775 37215	Feature part of Group of trees T9 at the time	High	Yes	No	Mar-17	0.5	Three old bat boxes, two of which have disintegrated	Yes		No evidence of use	Low
M50	Willow	SK 33772 37209	Feature part of Group of trees T9 at the time	High	Yes	No	Mar-17	0.5	Several small splits and cracks throughout	Yes		No significant cavities identified	Low
M51	Oak	SK 33686 37188					Mar-17	1	A horizontal split in an east facing branch Some deadwood in the crowns	No			Moderate
M52	Lime	SK 33722 37217					Mar-17	0.5	South facing hole at 1.8m	No	Not required		Low
M53	Lime	SK 33729 37229					Mar-17	0.5	South facing hole at 5m	No	Bad weather conditions - Not safe to climb Survey postponed		Moderate
M54	Lime	SK 33743 37253					Mar-17	0.5	Several very small holes throughout – very close to road	No	Not required	-	Low
M55	Oak	SK 33592 37155	Feature part of Group of trees T10 at the time	High	Yes	No	Mar-17	1.8	Lots of cavities that extend well over 1m into the remaining heartwood	Yes		The cavities appear highly suitable for hibernating bats. Their extensive depth could not be fully inspected.	High
T1		SK 36002 39901		Moderate	Yes	No							
T2		SK 32494 35879		Moderate	Yes	No							

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
T3		SK 33041 35921		Low	Yes	No							
T4		SK 32968 36025		Low	Yes	No							
T5		SK 32926 36098		Moderate	Yes	No							
T6		SK 32918 36187		Low	Yes	No							
T7		SK 33087 36562		Low	Yes	No							
T12		SK 33518 37084	Feature part of Group of trees T12 at the time	Moderate	Yes	No							
T13	Oak	SK 33291 37050		Moderate	Yes	Yes	Mar-17	0.7	A large oak tree that has been felled recently – several holes and fungal growths	No	Not required		Negligible
T14	Crack Willow	SK 32547 35766					07-Jun-17	1	Snapped limb - The feature is entirely open and exposed to the elements	No	Not required		Negligible
T14 a	Willow	SK 32566 35768					07-Jun-17	1.5	Additional tree noted during survey. East facing branch cavity at 3m	Yes		The cavity was 30cm deep and partially open from above. Dry and clean inside but no evidence of bats	Low
T15	Ash	SK 32513 35676					07-Jun-17	1.2	Dead limb with woodpecker hole and connecting rot hole at the end of the branch	Yes		The cavity was 20cm deep and clean and dry. No evidence of bats recorded	Low
T16	Ash	SK 35764 41305					07-Jun-17	1.2	Callus rolls and vertical spits present throughout	No	Not required	Cavities are less than 5cm in depth	Low
T16 a	Ash	SK 35771 41290					07-Jun-17	1.5	Additional tree noted during survey. Callus rolls present throughout. One of which is in a south facing branch at 4m	Yes		Cavity extends to 60cm, smooth but no evidence of bats. Nest was recorded towards the back of the feature	Moderate
T17	Oak	SK 35975 41260					07-Jun-17	1	Small partial woodpecker hole on the north face at 8m	No	Not required	No cavity	Negligible
T18	Oak	SK 35949 41288					07-Jun-17	1.2	Callus roll within the crown of the tree Deadwood throughout	Yes		No cavity No obvious cavities within the deadwood	Negligible
T19	Dead tree	SK 36026 41395					07-Jun-17	0.5	Loose bark and holes	No	Not required	No roosting features	Negligible
T20	Ash	SK 35843 40114					07-Jun-17	0.2	Large ivy covered tree	No	Not required	Slightly ivy covered tree which is too sparse for shelter. The dead limbs were of an insufficient size to support cavities	Negligible
T21	Unknown	SK 36665 39751					07-Jun-17	N/A	Large woodland parcel	No	No access	-	Unknown
T22	Oak	SK 36647 39721					07-Jun-17	Unknown	Large mature oak	No	No access	-	Unknown
T23	Ash	SK 35660 41216					07-Jun-17	1.2	Broken limb with two holes	Yes		Top trunk cavity extends downwards by 20cm and was dry and clear of detritus Main trunk cavity is very large with crevices within the heartwood	Low
T24	Ash	SK 35686 41236					07-Jun-17	1	Damaged limb in crown South facing woodpecker hole at 4m East facing woodpecker hole at 5m Hollowed out stem	Yes		Hollow throughout and open from above with jackdaw nest present No cavity Projects downwards 30cm with evidence of birds. However, dry and suitable inside Dead wood throughout with no features	Negligible

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/re-entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
T25	Oak	SK 35646 41158					07-Jun-17	0.7	Three woodpecker holes on the north east face	Yes		Top woodpecker hole is open from above The other two extend upwards to 10cm	Low
T26	Oak	SK 35684 41117					07-Jun-17	1.2	Branch cavity at 8m within the crown	Yes		The cavity extends upward. However, it is open from above and was very wet inside. Around the cavity was flaking bark with small plates although these were again open from above	Negligible
T27	Dead tree	SK 35968 40108					07-Jun-17	Flat	The tree has fallen and was lying on the ground	No	Not required	-	Negligible
T28	Unknown	SK 35907 39796					07-Jun-17	Unknown	Possible PRF in Hawthorn - endoscope assessment required	No	No access	-	Unknown
T29	Oak	SK 35713 39775					03-Jul-17	Unknown	Unknown	No	No access	Unable to climb tree due to young cows sitting beneath. Unable to assess from VP due to dense foliage.	Unknown
T30	Oak	SK 35676 39775					03-Jul-17	1.2	North-facing callus roll at 3.5m. Callus roll on the southern aspect at 2.5m. Splits in south-facing branch at 4m. Hollow trunk from ground level to 1m. East-facing branch cavity at 5m	No	Not safe to climb (wasp nest) Assessed from ground level	Cavity is shallow and contains a wasps nest. The cavity is shallow and contains dense cobwebs. No cavities and open from above. Unlikely to be used by bats due to the height of feature. Feature could support single bats	Low
T31	Oak	SK 35649 39775					03-Jul-17	1.2	Trunk cavity on the southern aspect at 3.5m. Trunk cavity on the western aspect at 4m. North-facing woodpecker hole at 8m. South-east facing branch cavity at 8.5m	Yes		No cavity. No cavity. Cavity is dry and clear of debris, extends upwards to 35cm. Shallow cavity that extends upwards	Moderate
T44	Sycamore	SK 33363 37071					14-Jun-17	0.8	Multiple callus rolls on the stem from 2m to 10m on all aspects	No	Not required		Negligible
T56	Oak	SK 33458 37112					14-Jun-17	1.1	Callus roll on west facing limb at 7m with dead wood. Dead snapped limbs throughout the tree at all aspects. Loose bark on south west facing dead limb at 4.5m	Yes		No cavities. No obvious cavities. Cavity extents inwards to 20cm. Suitable for a singular or small number of bats for transitional /summer/day roost only. No evidence	Low
T57	Oak	SK 33476 37101					14-Jun-17	0.6	West facing hole in trunk at 8m. Dead wood within the crown at 10m on the southern aspect West facing hole in trunk at 8m. Dead wood within the crown at 10m on the southern aspect	No	Not required	No cavity. No obvious cavities - open from above	Unknown
T60	Oak	SK 35717 41080					07-Jun-17	0.8	Hollow stem	No	Not required	Open inside and covered in dense cobwebs	Negligible
T61	Oak	SK 35733 41060					07-Jun-17	1.1	Some deadwood and a callus roll	No	Not required	No obvious features	Negligible
T65	Alder	SK 35900 40859					07-Jun-17	0.4	Largely dead tree with numerous callus rolls within the crown	No	Not safe to climb Assessed from ground level	All callus rolls appear to be open from above. No access to view from the riverside or mast side of tree	Low

			2015 survey results				2017 survey results						
Tree ID	Species	Grid reference	Notes	Bat Roost Potential (Hundt, 2012) assessed from ground level	Emergence/entry survey ?	Roost identified	Assessment date	Diameter at breast height (m)	Feature(s)	Tree climbed?	Notes	Results of aerial inspection	Potential Roosting Feature (BCT, 2016)
T66	Unknown	SK 35878 40842					07-Jun-17	Unknown	Trunk cavity, callus roll and woodpecker hole	No	Tree on other side of river	-	Unknown
T67	Unknown	SK 35880 40834					07-Jun-17	Unknown	Trunk cavity and callus rolls	No	Tree on other side of river	-	Unknown
T68	Dead tree	SK 35981 39889					07-Jun-17	0.3	Two exploratory woodpecker holes	No	Not required	Neither woodpecker holes contained cavities	Negligible
T69	Ash	SK 36007 39801					07-Jun-17	1.2	Multiple knot holes in crown Southern facing rot hole at 8m Vertical split	Yes		Knot holes in crown contain no cavities Rot hole at 8m on the southern side extends upwards to 40cm and is clean and dry, although there was no evidence of use - moderate potential. Further cavity was 35cm deep and was clean with no detritus. However, no evidence of bats - moderate potential The vertical split contained no cavity	High
T70	Alder	SK 35945 39763					07-Jun-17	Unknown	Unknown	No	No access	-	Unknown
T71	Apple	SK 35988 40201					Feb -17	Unknown	Two branches with splits and callus rolls	No	No access in June 2017	-	Moderate
T72	Oak	SK 35230 39235					03-Jul-17	1.3	North-facing branch cavity at 9m. East-facing branch cavity at 9m	No	Not required	Open from above. Open from above	Low
T73	Ash	SK 35275 39424					03-Jul-17	1.1	South-facing callus roll on trunk at 8m. East-facing callus roll on branch at 7m	No	Not required	No cavity. No cavity	Negligible
T74	Oak	SK 35288 39430					03-Jul-17	1.3	Trunk cavity on the south-east aspect at 8m. Various splits on all aspects. Snapped west-facing limb at 6.5m	No	Not required	Open from above No cavities and open from above. No cavities	Low
T75	Oak	SK 35122 39180					03-Jul-17	1.2	Ivy on the northern aspect from ground level to 4m. Various callus rolls on all aspects at 4 to 5m. Loose bark on the western aspect at 5m. East-facing trunk cavity at 4m	No	Not required	Not suitable for bats. No deep cavities. Not suitable for bats. Open from above and shallow	Negligible
T76	Sweet chestnut	SK 33469 37105					14-Jun-17	0.9	Dead snapped limb in crown at 12m with west facing cavity	No	Not required	Cavity is open from above - not suitable	Negligible