In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Background information and data accompanying SES2 and AP2 ES

Ecology and biodiversity

BID EC-011-00000 SES2 and AP2 ES

Ecological baseline data – bats

MA01: Hough to Walley's Green

MA02: Wimboldsley to Lostock Gralam

MA03: Pickmere to Agden and Hulseheath

MA06: Hulseheath to Manchester Airport

MA07: Davenport Green to Ardwick

MA08: Manchester Piccadilly Station

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Department for Transport

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1 Introduction

1.1.1 This document sets out Background Information and Data (BID) that accompanies the High Speed Two (HS2) High Speed Rail (Crewe – Manchester) Supplementary Environmental Statement 2 (SES2) and Additional Provision 2 Environmental Statement (AP2 ES)[1].

1.1.2 This document sets out baseline data for bats not reported in the Background Information and Data report[2] (the main BID report) that accompanied the High Speed Two (HS2) High Speed Rail (Crewe – Manchester) Environmental Statement published in 2022[3] (the main ES). It also reports baseline data for bats not reported in the BID report[4] (MA01 – MA03 Ecological baseline data – bats) that accompanied the HS2) High Speed Rail (Crewe – Manchester) Supplementary Environmental Statement 1 (SES1) and Additional Provision 1 Environmental Statement (AP1 ES)[5]. It should be read in conjunction with the main BID report, Ecological baseline data – bats (see main BID EC-011-00001) and BID report, Ecological baseline data – bats (see BID EC-011-00000 SES1 and AP1 ES), which accompanied SES1 and AP1 ES.

1.1.3 Baseline data covering other habitats and species are contained in the following BID reports that accompany SES2 and AP2 ES ecological baseline data reports:

- Ecological baseline data – amphibian surveys (BID EC-007-00000 SES2 and AP2 ES); and
- Ecological baseline data – other (BID EC-017-00000 SES2 and AP2 ES), containing data relating to habitats, hedgerows, birds, ponds and canals, river habitat, otter and invertebrates.

[1] High Speed Two Ltd (2023), High Speed Rail (Crewe – Manchester), *Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-2-and-additional-provision-2-environmental-statement.

[2] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data.* Available online at: https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement.

[3] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement.

[4] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement.

[5] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement.

1.1.4 Baseline badger data is provided in BID EC-014-00000 corresponding BID Ecology and biodiversity Map Book: Map Series EC-12C – Other Protected and Notable Species (3) that accompanies the SES2 and AP2 ES. Note that baseline data for badger are not made publicly available due to the historic persecution of this species.

1.1.5 This report covers the following community areas (CA):

- Hough to Walley's Green (MA01);
- Wimboldsley to Lostock Gralam (MA02);
- Pickmere to Agden and Hulseheath (MA03);
- Hulseheath to Manchester Airport (MA06);
- Davenport Green to Ardwick (MA07); and
- Manchester Piccadilly Station (MA08).

1.1.6 Maps referred to in this report are contained in the Background Information and Data, Ecology and biodiversity Map Book that accompanies the SES2 and AP2 ES:

- Map Series EC-05 – Bat – Roosts; and
- Map Series EC-06 – Bat – Activity.

1.1.7 In order to differentiate between the original scheme and the subsequent changes, the following terms are used:

- 'the original scheme' – the Bill scheme submitted to Parliament in 2022, which was assessed in the main ES;
- 'the SES1 scheme' – the original scheme with any changes described in SES1 that are within the existing powers of the Bill;
- 'the AP1 revised scheme' – the original scheme as amended by SES1 changes and AP1 amendments;
- 'the SES2 scheme' – the original scheme with any changes described in SES1 (submitted in July 2022) and the SES2; and
- 'the AP2 revised scheme' – the original scheme as amended by SES1 and SES2 changes (as relevant) and AP2 amendments.

2 Bats

2.1 Methodology

2.1.1 The assessment scope, key assumptions and limitations are as set out in the main ES Environmental Impact Assessment Scope and Methodology Report (SMR) (see Volume 5, Appendix: CT-001-00001 in the main ES)[6].

2.1.2 Details of the standard methodology utilised for bat surveys are provided in the Technical note – Ecology and biodiversity – Ecological field survey methods and standards (FSMS) which is included within the SMR which accompanied the main ES.

2.1.3 The scoping, desk study exercises and surveys reported in the main ES can be found in BID Ecological baseline data – Bats (BID EC-011-00001) which accompanied the main ES. This report contains the outcomes of bat surveys undertaken between:

- August 2021 and June 2022 inclusive for MA01, MA02 and MA03 which were completed since publication of the BID report, Ecological baseline data – bats (see BID EC-011-00000 SES1 and AP1 ES), which accompanied SES1 and AP1 ES; and
- January 2021 and June 2022 inclusive for MA06, MA07 and MA08 which were completed since publication of the main BID report, Ecological baseline data – bats (see main BID EC-011-00001), which accompanied the main ES.

2.1.4 Map Series EC-05 and EC-06 in the BID Ecology and Biodiversity Map Book that accompanies the SES2 and AP2 ES respectively illustrate the bat roosts and activity undertaken between August 2021 to June 2022 inclusive in MA01, MA02 and MA03 and January 2021 to June 2022 inclusive in MA06, MA07 and MA08. Map Series EC-05 illustrates the most important roost at any single building or tree. For example, if a building has an occasional common pipistrelle roost and a maternity soprano pipistrelle roost, the map symbology will only show the maternity roost. If a building has multiple occasional roosts the symbology will illustrate a multiple roost.

2.1.5 No buildings required survey within 100m buffer from the land required for the AP2 revised scheme.

[6] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report,* Volume 5, Appendix CT-001-00001. Available online at: https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement.

2.2 Deviations, constraints and limitations

2.2.1 Surveys undertaken were limited to locations where landowner permission had been obtained.

2.2.2 Climbed inspection of trees were carried out instead of the emergence surveys specified in the FSMS where feasible. This deviation was agreed with Natural England and allowed trees to be surveyed at a faster rate, providing more data to inform the SES2 and AP2 ES.

Trees

2.2.3 Additional surveys to those reported in the main BID report and the BID report that accompanied the SES1 and AP1 ES were undertaken from August 2021 to June 2022 inclusive in MA01, MA02 and MA03 and January 2021 until June 2022 inclusive in MA06, MA07 and MA08. Detailed tree climbing inspection surveys of some trees were not possible due to health and safety risks because they overhung roads or water bodies, were close to overhead lines or were unsafe due to tree decay or access constraints. If trees could not be climbed for the above reasons, bat tree emergence surveys were scheduled to be completed based on the overall highest roosting potential of the trees' sub-features from ground level assessment.

2.2.4 One constraint when undertaking these types of tree surveys was adverse weather, which included high winds, rain and cold temperatures. Adverse weather affects ground level surveys by reducing visibility of features and impedes climbed inspections owing to health and safety concerns. These conditions are also unsuitable to conduct bat emergence surveys and, therefore, scheduled surveys were necessarily cancelled when conditions were adverse. This impeded completion of emergence surveys at sites across the land required for the AP2 revised scheme.

2.2.5 Surveys were also constrained by health and safety issues when trees were assessed as being unsafe to climb. To address this, ground assessments and emergence surveys were carried out to assess the potential of these trees to support roosting bats.

2.2.6 Tree climbing surveys were carried out throughout the year. During winter months, whilst there was a reduced likelihood of encountering bats in accessible cavities, these surveys were continued in order to rule out, or downgrade, a proportion of the trees from high/medium to lower roost potential at an early date. Droppings collected from accessible cavities could also confirm roost presence.

Buildings and structures

2.2.7 No buildings were subject to an internal survey due to COVID-19 restrictions between January 2021 and March 2022. Internal surveys recommenced in April 2022.

2.2.8 No buildings required survey within 100m buffer from the land required for the AP2 revised scheme.

Activity surveys

2.2.9 Where access was not possible, surveys were restricted to public rights of way.

2.2.10 Equipment malfunctions and theft during some surveys meant recordings were corrupted or missing and the data could not be used. This did not occur enough times to be significant; however, where it occurred, this has been recorded in the tables of data for activity surveys and static detector monitoring results.

2.2.11 Adverse weather conditions caused surveys to be cancelled or limited the amount/type of recorded bat activity. However, the less labour-intensive nature of activity surveys, compared with the survey regime for emergence surveys, allowed more flexibility in re-scheduling surveys when conditions were suitable. The constraint of adverse conditions on activity surveys was therefore relatively low.

2.2.12 Driven transect surveys in MA08 in the vicinity of Manchester Piccadilly Station were carried out according to the FSMS but due to safety concerns fewer stops to record bats were made, and it was not possible to survey the transect route in both directions due to traffic restrictions. However, the survey transect route was designed to give representative coverage of areas and habitats that bats may use.

2.3 Baseline

2.3.1 The following sections provide detail on the new bat baseline information for MA01 to MA03 and MA06 to MA08. The records are mapped within the BID, Ecology and biodiversity Map Book, Map Series EC-05 and EC-06 which accompanies the SES2 and AP2 ES.

Desk study

2.3.2 Updated desk study records were obtained as set out in Table 1. The record search also found a changed record in MA08. The record was previously recorded in Manchester Piccadilly Station arches as a common pipistrelle and was changed to a *Myotis* species. It is uncertain whether this is a replacement or updated record.

Table 1: Additional confirmed roosts from biological records

Common name	Location	Ordnance Survey (OS) grid reference	Distance (m)	CA	Within the land required for the SES2/AP2 revised scheme (Y/N)	Relevant to SES2 (Y/N)	Relevant to AP2 (Y/N)
Brown Long-eared Bat	Castleway, Hale Barns	SJ792854	285	MA06	No	No	Yes
Brown Long-eared Bat	Cloughbank Farm, Ringway	SJ81088426	370	MA06	No	Yes	Yes
Common Pipistrelle	Cloughbank Farm, Ringway	SJ81088426	370	MA06	No	Yes	Yes
Common Pipistrelle	Cloughbank Farm, Ringway	SJ81088429	355	MA06	No	Yes	Yes
Soprano pipistrelle	Vicarage Cottages, Ringway	SJ81168439	375	MA06	No	Yes	Yes
Soprano pipistrelle	Vicarage Cottages, Ringway	SJ81168439	375	MA06	No	Yes	Yes
Whiskered Bat	Vicarage Cottages, Ringway	SJ81168439	375	MA06	No	Yes	Yes
Whiskered Bat	Vicarage Cottages, Ringway	SJ81178441	380	MA06	No	Yes	Yes
Common Pipistrelle	Burton Road, Withington	SJ84359272	375	MA07	No	Yes	Yes
Soprano pipistrelle	Manchester College Fielden Campus, West Didsbury	SJ8365291596	35	MA07	No	No	Yes
Soprano pipistrelle	Meridian Place, West Didsbury	SJ84079176	310	MA07	No	No	Yes
Soprano pipistrelle	Palatine Road, West Didsbury	SJ841917	380	MA07	No	No	Yes
Soprano pipistrelle	Palatine Road, West Didsbury	SJ841917	380	MA07	No	No	Yes
Soprano pipistrelle	Palatine Road, West Didsbury	SJ841917	380	MA07	No	No	Yes
Soprano pipistrelle	Palatine Road, West Didsbury	SJ841917	380	MA07	No	No	Yes
Soprano pipistrelle	Palatine Road, West Didsbury	SJ841917	380	MA07	No	No	Yes
Common Pipistrelle	Crusader Works, Chapeltown Street, Manchester	SJ85089800	Adjacent	MA08	No	Yes	Yes
Common Pipistrelle	Crusader Works, Chapeltown Street, Manchester, M1 2WH	SJ85089800	Adjacent	MA08	No	Yes	Yes

Common name	Location	Ordnance Survey (OS) grid reference	Distance (m)	CA	Within the land required for the SES2/AP2 revised scheme (Y/N)	Relevant to SES2 (Y/N)	Relevant to AP2 (Y/N)
Common Pipistrelle	Crusader Works, Chapeltown Street, M1 2WH	SJ85139802	Adjacent	MA08	No	Yes	Yes
Myotis sp.	Manchester	SJ8498597749	Adjacent	MA08	No	Yes	Yes

Hough to Walley's Green (MA01)

Roosting (trees)

2.3.3 A total of 86 trees in MA01 were subject to an initial ground assessment. Following these surveys:

- no bat roosts were confirmed in trees;
- two trees were assessed as having high potential to support roosting bats;
- 21 trees were assessed as having moderate potential to support roosting bats; and
- 63 trees were assessed as having low or negligible potential to support roosting bats. These trees were subsequently scoped out of further survey.

2.3.4 Of the trees previously surveyed from the ground as reported in the main BID and BID report which accompanied the SES1 and AP1 ES, 18 trees were subject to tree climbing inspection surveys, with the following results:

- one tree previously assessed as having high potential to support roosting bats was reclassified as having moderate potential;
- one tree previously assessed as having high potential to support roosting bats was reclassified as having low potential;
- five trees previously assessed as having moderate potential to support roosting bats were reclassified as having high potential;
- five trees previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- four trees previously assessed as having moderate potential to support roosting bats were reclassified as having low potential; and
- two trees previously assessed as having moderate potential to support roosting bats were reclassified as having negligible potential.

2.3.5 No roosts were identified during other surveys.

Roosting (buildings and structures)

2.3.6 A total of six buildings in MA01 were subject to an external buildings and structures assessment. Following these surveys:

- no bat roosts were confirmed in buildings or structures;
- no buildings or structures were assessed as having high potential to support roosting bats;
- no buildings or structures were assessed as having moderate potential to support roosting bats;

- three buildings were assessed as having low potential to support roosting bats; and
- three buildings were assessed as having negligible potential to support roosting bats. These buildings were subsequently scoped out of further survey.

2.3.7 Of the buildings previously surveyed externally in the main BID and BID report that accompanied the SES1 and AP1 ES, eight buildings were subject to internal inspection surveys, with the following results:

- two buildings previously assessed as having low potential to support roosting bats were reclassified as having high potential;
- one building previously assessed as having low potential to support roosting bats was reclassified as having moderate potential; and
- five buildings previously assessed as having low potential to support roosting bats were still classified as having low potential.

2.3.8 Additional emergence/re-entry surveys were completed at three buildings which identified the following changes:

- two buildings previously found to contain roosts were subject to additional surveys. The additional surveys found there was an increase in species; and
- one building previously assessed as having moderate potential to support roosting bats, contained two confirmed roosts.

2.3.9 Details of the additional confirmed roosts identified and changes to roosts within buildings and structures in MA01 are provided in Table 2.

Table 2: Additional confirmed roosts within buildings and structures within MA01

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH657757_L6318_BS3_F003_040821	MA01	Middlewich Road, Minshull Vernon	SJ68416080	Barn	Common pipistrelle (3) Increased numbers in a previously identified roost in the main ES and the SES1 and AP1 ES.	4 August 2021, emergence survey	Occasional	Two storey small agricultural structure, possibly an old mill. Pitched roof with gable ends and a dormer facing east. Open ventilation features and open window on the northern aspect. Tiles were quite tight and there was bitumen felt lining between the tiles and rafters. Approximately 160 years old.	15m south-west
CH253449_L8496_BS3_F001_020921	MA01	Moss Lane, Leighton	SJ69225844	Residential	Common pipistrelle (1)	2 September 2021, emergence survey	Occasional	Residential property and conservatory. Brick-built with slate-tiled pitched roofs, stone lintels and wooden eaves. Approximate age – 60 years. House is brick-built with multiple pitched and slate-tiled roofs, both single and two-storey sections. Roofs largely in good condition with some areas of missing mortar under ridges – may allow access to interior voids. Open half pitch slate-tiled porch by front door in south-west.	60m south-west
CH253449_L8496_BS3_F001_	MA01	Moss Lane,	SJ69225844	Residential	Brown Long-eared (1)	2 September 2021,	Occasional	Residential house and conservatory. Brick-built with slate-	60m south-west

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
020921		Leighton				emergence survey		tiled pitched roofs, stone lintels and wooden eaves. Approximate age – 60 years. House is brick-built with multiple pitched and slate-tiled roofs, both single and two-storey sections. Roofs largely in good condition with some areas of missing mortar under ridges – may allow access to interior voids. Open half pitch slate-tiled porch by front door in south-west.	
CH372436-CH564499_L15997_BS3_F008_100522	MA01	Middlewich Road, Walley's Green	SJ68376175	Residential	Soprano pipistrelle (6) Increased numbers in a previously identified roost in the main ES and the SES1 and AP1 ES.	10 May 2022, emergence survey	Occasional	A large two-storey, brick semi-detached residential property. Looks to be built in early 1900s and is very grand in design. Building in good condition.	65m south-east

Roosting (woodlands)

2.3.10 No woodlands were surveyed during this survey period.

Bat activity surveys

2.3.11 Table 3 summarises the activity surveys undertaken in MA01. There were no new species recorded during the range of bat activity surveys conducted in MA01, compared to the previous results in the main ES and the SES1 and AP1 ES ecological baseline data reports. Static surveys at three locations were undertaken and the results are reported in Table 4 to Table 6.

Table 3: Additional bat activity surveys conducted within MA01

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
A0	Larch Wood	1	22 June 2022	22 June 2022	MA01	EC-06-506
A1	Park Hall Farm	1	25 May 2022	25 May 2022	MA01	EC-06-507a
A17	Moss Lane, Leighton	1	18 May 2022	25 May 2022	MA01	EC-06-505

Table 4: Summary of static detector monitoring results for A0

Ecology survey code	Static Location	OS grid reference				Description of habitats											
A0	Larch Wood	SJ69206009				Woodland edge of Larch Wood, north of Crewe.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	Species peak night count during monthly monitoring															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm /Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
15 June 2022 – 22 June 2022	7	991	539	0	30	0	0	0	0	0	0	10	2	0	10	0	0	0

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.12 High levels of soprano pipistrelle and common pipistrelle activity were recorded at 539ppn and 991ppn, respectively. Moderate levels of *Myotis* species, brown long-eared bats and noctule were recorded, with 10ppn, 2ppn and 10ppn, respectively.

Table 5: Summary of static detector monitoring results for A1

Ecology survey code	Static Location	OS grid reference				Description of habitats												
A1	Park Hall Farm	SJ68876152				Edge of pond, east of West Coast Main Line, north of Crewe.												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 May 2022 – 25 May 2022	7	31	96	0	2	0	0	0	0	0	0	4	1	0	6	0	0	0

2.3.13 Low to moderate levels of common pipistrelle activity were recorded at 31ppn. Moderate levels of soprano pipistrelle and noctule were recorded, at 96ppn and 6ppn, respectively, and low levels of *Myotis* species and brown long-eared bats, at 4ppn and 1ppn, respectively.

Table 6: Summary of static detector monitoring results for A17

Ecology survey code	Static Location	OS grid reference				Description of habitats												
A17	Moss Lane, Leighton	SJ69565853				Woodland at the edge of a residential housing estate in Leighton, north of Crewe												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 May 2022 – 25 May 2022	7	167	14	0	1	0	0	0	0	0	0	21	0	0	0	0	0	0

2.3.14 High levels of common pipistrelle and *Myotis* species activity were recorded, with peaks of 167ppn and 21ppn, respectively. Low to moderate levels of soprano pipistrelle and brown long-eared bat activity were recorded with a peak of 14ppn and 1ppn, respectively.

Discussion of combined results

Bat assemblage

2.3.15 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA01. These assemblages, described in Section 7 of the main ES, are present in the following locations:

- between Coppenhall Moss and Walley's Green; and
- within the area east of Hough.

2.3.16 Compared to the main ES and the SES1 and AP1 ES, the findings of surveys carried out in MA01 were as follows:

- no additional species were recorded;
- no changes to bat assemblages or their composition;
- two occasional roosts for brown long-eared bats and common pipistrelle; and
- no changes in foraging activity of all species at the location surveyed.

Roosts

2.3.17 No additional roosts were recorded in trees during the initial, tree climbing or emergence surveys.

2.3.18 No roosts were identified in buildings during the initial surveys.

2.3.19 A total of four roosts were identified within three buildings and structures in the area. Increased numbers for common pipistrelle were recorded during emergence surveys of a previously recorded roost in a barn in Middlewich Road, Minshull Vernon in the bat assemblage between Coppenhall Moss and Walley's Green; however, it remains classified as an occasional roost. An increase in abundance of soprano pipistrelle was recorded during surveys of a residential building in Middlewich Road, Walley's Green in the bat assemblage between Coppenhall Moss and Walley's Green; however, it remains classified as an occasional roost.

2.3.20 Two new roosts were confirmed in a residential building in Moss Lane, Leighton in the bat assemblage between Coppenhall Moss and Walley's Green. Both are occasional roosts for common pipistrelle and brown long-eared bat.

2.3.21 An occasional roost of common pipistrelle was recorded during a survey of a property in Middlewich Road, Minshull Vernon in the bat assemblage between Coppenhall Moss and Walley's Green, in which common pipistrelle roost has previously been recorded.

Foraging habitat

2.3.22 The results of surveys carried out on the use of habitat in MA01 by foraging bats in the bat assemblage between Coppenhall Moss and Walley's Green, are broadly similar to those reported in the main ES and the SES1 and AP1 ES. There were no localised changes in foraging activity.

Wimboldsley to Lostock Gralam (MA02)

Roosting (trees)

2.3.23 A total of 152 trees in MA02 were subject to an initial ground assessment. Following these surveys:

- no bat roosts were confirmed;
- 19 trees were assessed as having high potential to support roosting bats;
- 40 trees were assessed as having moderate potential to support roosting bats; and
- 93 trees were assessed as having low or negligible potential to support roosting bats. These trees were subsequently scoped out of further survey.

2.3.24 Of the trees previously surveyed from the ground, 50 trees were subject to tree climbing inspection surveys, with the following results:

- six trees previously assessed as having high potential to support roosting bats were still classified as having high potential;
- five trees previously assessed as having high potential to support roosting bats were reclassified as having moderate potential;
- three trees previously assessed as having high potential to support roosting bats were reclassified as having low potential;
- one tree previously assessed as having high potential to support roosting bats was reclassified as having negligible potential;
- five trees previously assessed as having moderate potential to support roosting bats were reclassified as having high potential;
- 18 trees previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- seven trees previously assessed as having moderate potential to support roosting bats were reclassified as having low potential; and

- five trees previously assessed as having moderate potential to support roosting bats were reclassified as having negligible potential.

2.3.25 Two roosts were recorded in two trees during the emergence/re-entry and tree climbing emergence replacement surveys. Both trees were assessed as having high potential to support roosting bats during previous surveys.

2.3.26 Details of confirmed roosts within trees in MA02 are provided in Table 7.

Table 7: Additional confirmed roosts within trees within MA02

Survey code	CA	Location	OS grid reference	Tree species	Species confirmed to be using the roost (and peak count)	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation	Relevant to SES2 (Y/N)	Relevant to AP2 (Y/N)
CH561720-CH634300_L5278_BT3TC_F001_210921	MA02	Linnards Lane, Wincham	SJ7037 7601	Ash	Daubenton's Bat (1)	21 September 2021, tree climbing inspection	Occasional	A roost confirmed within the cavity of feature F001a.	Within	Yes	Yes
CH446575-CH449513_L6259_BT3_F002_120522	MA02	Clive Green Lane, Clive Green	SJ6846 6506	Pedunculate oak	Noctule (1)	12 May 2022, emergence survey	Occasional	Emergence from the tree but not clear what sub-feature within the tree it emerged from.	Within	Yes	Yes

Roosting (buildings and structures)

2.3.27 A total of 29 buildings in MA02 were subject to an external buildings and structures assessment. Following these surveys:

- no bat roosts were confirmed in buildings or structures;
- six buildings and structures were assessed as having high potential to support roosting bats;
- one building was assessed as having moderate potential to support roosting bats;
- six buildings and structures were assessed as having low potential to support roosting bats. These buildings and structures were subsequently scoped out of further survey; and
- sixteen buildings were assessed as having negligible potential to support roosting bats. These buildings were subsequently scoped out of further survey.

2.3.28 Of the buildings previously surveyed externally in the main ES and the SES1 and AP1 ES, 15 buildings were subject to internal inspection surveys, with the following results:

- one building previously assessed as having high potential to support roosting bats was reclassified as a confirmed roost;
- three buildings previously assessed as having high potential to support roosting bats were still classified as having high potential;
- one building previously assessed as having high potential to support roosting bats was reclassified as having moderate potential;
- one building previously assessed as having high potential to support roosting bats was reclassified as having low potential;
- five buildings previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- one building previously assessed as having low potential to support roosting bats was reclassified as a confirmed roost; and
- three buildings previously assessed as having low potential to support roosting bats were unchanged.

2.3.29 During the emergence/re-entry surveys, six roosts were identified in six buildings that were assessed, which are as follows:

- three buildings previously found to contain three roosts were subject to additional surveys. The additional surveys found that there is an increase in numbers of the species using the roost;
- one building that was previously assessed as having high potential to support roosting bats, contained one confirmed roost; and

- two buildings that were previously assessed as having moderate potential to support roosting bats, contained two confirmed roosts.

2.3.30 No buildings required survey within 100m buffer from the land required for the AP2 revised scheme.

2.3.31 Details of the additional confirmed roosts identified and changes to roosts within buildings and structures in MA02 are provided in Table 8.

Table 8: Additional confirmed roosts within buildings and structures within MA02

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH649829_L5391_BS3_F012_110522	MA02	Davenham Road, Northwich	SJ68457121	Barn	Soprano pipistrelle (3) Increased numbers in a previously identified roost in the ES and the SES1 and AP1 ES.	11 May 2022, emergence survey	Occasional	Disused outbuilding with red brick walls and slate and ridge tiles. Wooden barge boards present. Moss covered tiles.	Within
CH333308-CH357796_L17834_BS3_F001_020921	MA02	Davenham Road, Northwich	SJ68617151	Residential	Soprano pipistrelle (9) Increased numbers in a previously identified roost in the ES and the SES1 and AP1 ES.	02 September 2021, re-entry survey	Occasional	Red brick, semi-detached, cottage with double pitched, slate tile roof. Small conservatory to the west. Renovated 1990.	5m north
CH506146_L6588_BS3_F001_240821	MA02	Lostock Green, Lostock Gralam	SJ69207425	Residential	Soprano pipistrelle (2)	24 August 2021, re-entry survey	Occasional	Brick-built bungalow covered by render. Concrete tiles on roof. Pitched roof. One gable end, other finished with dome like extension with skylights. Excellent condition. Built	10m north

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
								approximately 2010.	
CH262543_L15808_BS3_F001_230921	MA02	Clivegreen Lane, Stanthorne	SJ67966506	Residential	Soprano pipistrelle (11)	23 September 2021, re-entry survey	Possible maternity	Inhabited two storey residential brick-built building, approximately 50-60 years old with three, single storey extensions along the north-west, west and south elevations. The roof is pitched and tiled, with hips and valleys. The main roof on the two-storey section appears to have been renewed, some of the roof edging features gaps which are part of the roof design. The soffit boxes are in a reasonable condition but there are gaps in various locations. Along the southern and western elevations are areas of wooden cladding.	30m south
CH426012_L5892_BS2_F011_280422	MA02	Nantwich Road, Wimboldsley	SJ68856460	Residential	Pipistrelle sp. (Visual droppings ID)	28 April 2022, internal inspection	Occasional	Main residential dwelling approximately 75-100 years old with an extension to the west and conservatory to the south. Roof looks quite well sealed but does contain some potential access points and has lifted tiles. There is a slight gap between the brick-built walls and the fascia board which could provide roosting suitability for crevice dwelling species.	35m east
CH365006-	MA02	Croxton	SJ69526753	Barn	*Myotis* species	30 June 2022,	Occasional	Large, red brick, L-shaped barn with	120m

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH366652-CH514558_L5395_F005_BS3_300622		Lane, Stanthorne			(1) (probably Brandt's bat droppings identified from previous eDNA survey) Validated species which was previously a recorded but not identified roost in the main ES and the SES1 and AP1 ES.	re-entry survey		pitched slate tile roof. Many windows and airbricks around the building.	south-east
CH365006-CH366652-CH514558_L5395_F004_BS3_290622	MA02	Croxton Lane, Stanthorne	SJ69556757	Barn	Soprano pipistrelle (1)	29 June 2022, emergence survey	Occasional	Large brick-built barn. Used for housing livestock in part, also for storing feed and machinery. Poor state of repair. Missing roof tiles. Broken windows and missing brick work. Missing doors, open frames.	130m south- east

Roosting (woodlands)

2.3.32 This section applies to all trees subject to the woodland survey methodology. One area of woodland comprising a single large woodland block was included in these surveys.

2.3.33 The woodland identified for survey, and the results of an initial ground-based assessment of trees and surrounding area, are summarised in Table 9. Trees with negligible potential for roosting bats were not recorded or mapped.

Table 9: Potential roosting resource within woodlands in MA02

Woodland	Number of trees with features of potential value to roosting bats			Overall suitability of woodland for bats*
	High suitability	Moderate suitability	Low suitability	
Rookery and Small Rookery Wood and Wimboldsley Wood	4	14	49	High – Large woodland with good connectivity with wider landscape and foraging habitat, located adjacent to the River Weaver, Shropshire Union Canal and Top Flash Lake.

** based on the quality and quantity of the roost and feeding resource and ecological position of the wood.*

Bat activity surveys

2.3.34 Table 10 summarises the activity surveys undertaken in MA02. No new species were recorded during the range of bat activity surveys conducted in MA02 compared to the previous results in the Ecological baseline data – bats (see main BID EC-011-00001)[2] that accompanied the main ES, and BID report Ecological baseline data – bats (see BID EC-011-00000 SES1 and AP1 ES), which accompanied the SES1 and AP1 ES[4]. Six static surveys were undertaken, and the results are reported in Table 11 to Table 16.

Table 10: Additional bat activity surveys conducted within MA02

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
A5	Nantwich Road, Stanthorne	1	23 August 2021	23 August 2021	MA02	EC-06-508
A9	Stanthorne Hall Farm	2	11 October 2021	22 June 2022	MA02	EC-06-510
B4	Pennys Lane, Rudheath	2	8 September 2021	18 October 2021	MA02	EC-06-514
B6	Birches Lane, Lostock Green	3	20 April 2022	22 June 2022	MA02	EC-06-515
B8	A556 Shurlach Road	2	8 September 2022	27 April 2022	MA02	EC-06-515
B11	Linnards Lane, Plumley	1	23 August 2021	14 September 2021	MA02	EC-06-516a

Table 11: Summary of static detector monitoring results for A5

Ecology survey code	Static Location	OS grid reference				Description of habitats											
A5	Nantwich Road, Stanthorne	SJ68526397				Edge of Stove Room Wood, west of Nantwich Road, north of Wimboldsley.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	Species peak night count during monthly monitoring															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
16 August 2021 – 23 August 2021	7	183	642	0	252	0	0	0	0	0	0	125	3	0	40	1	0	3

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.35 High levels of soprano pipistrelle and common pipistrelle activity were recorded at 642ppn and 183ppn, respectively. Notably high levels of activity were recorded for noctule and *Myotis* species with 40ppn and 125ppn, respectively. Moderate levels of brown long-eared bats were recorded with 3ppn and low levels of activity were recorded for Leisler's bat with 1ppn.

Table 12: Summary of static detector monitoring results for A9

Ecology survey code	Static Location	OS grid reference				Description of habitats											
A9	Stanthorne Hall Farm	SJ68456662				Northern edge of Stanthorne Grange, adjacent to Middlewich Road, west of Middlewich.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
11 October 2021 – 18 October 2021	7	641	383	0	15	0	0	0	0	0	0	17	4	0	69	0	0	2
15 June 2022 – 22 June 2022	7	845	119	1	8	0	0	0	0	0	0	2	2	0	0	0	0	0

2.3.36 High levels of common pipistrelle and soprano pipistrelle activity were recorded at 845ppn in June 2022 and 383ppn in October 2021, respectively. In October 2021, high levels of noctules at 69ppn and moderate levels of brown long-eared bats at 4ppn were recorded. Low levels of Nathusius pipistrelle were recorded in June 2022 with 1ppn.

Table 13: Summary of static detector monitoring results for B4

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B4	Pennys Lane, Rudheath	SJ68877271				A line of hedgerow and trees located to the south of the B5082 (Pennys Lane).												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny / Es**
8 September 2021 – 14 September 2021	6	267	507	0	65	0	0	0	0	0	0	2	0	0	5	0	0	0
11 October 2021 – 18 October 2021	7	35	10	0	1	0	0	0	0	0	0	1	2	0	0	0	0	0

2.3.37 High levels of common pipistrelle and soprano pipistrelle activity were recorded in September 2021, with peaks of 267ppn and 507ppn, respectively. Low levels of *Myotis* species, brown long-eared and noctule activity were recorded with a peak of 2ppn in September 2021, 2ppn in October 2021 and 5ppn in September 2021, respectively.

Table 14: Summary of static detector monitoring results for B6

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B6	Birches Lane, Lostock Green	SJ6936173830				Hedgerow boundary along Birches Lane and adjacent to Shurlach Road (A556).												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
20 April 2022 – 27 April 2022	7	239	265	0	10	0	0	0	0	0	0	1	0	0	2	1	0	0
18 May 2022 – 25 May 2022	7	448	52	16	26	0	0	0	0	0	0	2	1	0	43	0	0	1
15 June 2022 – 22 June 2022	7	150	101	0	4	0	1	0	0	0	0	4	1	0	129	0	0	0

2.3.38 High levels of soprano pipistrelle and common pipistrelle activity were recorded, with peaks of 448ppn in May 2022 and 265ppn in April 2022, respectively. High levels of noctule and Nathusius pipistrelle were recorded with peaks of 129ppn in June 2022 and 26ppn in May 2022, respectively. Low levels of *Myotis* species, Daubenton's, brown long-eared bat and Leisler's were recorded with peaks of 4ppn in June 2022, 1ppn in June 2022, 1ppn in May and June 2022 and 1ppn in April 2022, respectively.

Table 15: Summary of static detector monitoring results for B8

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B8	A556 Shurlach Road	SJ69707473				Scrub and broadleaved woodland habitat located west of the A556 Shurlach Road, at the edge of a residential estate.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
8 September 2021 – 14 September 2021	6	28	278	1	74	0	0	0	0	0	0	45	11	0	26	0	0	1
20 April 2022 – 27 April 2022	7	694	241	0	3	0	0	0	0	0	0	0	1	0	8	0	0	0

2.3.39 High levels of soprano pipistrelle and common pipistrelle activity were recorded, with peaks of 278ppn in September 2021 and 694ppn in April 2021, respectively. High levels of *Myotis* species, brown long-eared bat and noctule were recorded in September 2021 with peaks of 45ppn, 11ppn and 26ppn, respectively. Low levels of Nathusius' pipistrelle were recorded with a peak of 1ppn.

Table 16: Summary of static detector monitoring results for B11

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B11	Linnards Lane, Plumley	SJ70337598				Edge of woodland adjacent to Smoker Brook, east of Northwich.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
8 September 2021 – 14 September 2021	6	605	181	1	23	0	0	0	0	0	0	407	3	0	14	0	0	0

2.3.40 High levels of common pipistrelle, soprano pipistrelle and *Myotis* species activity were recorded, with peaks of 605ppn, 181ppn and 407ppn, respectively. Moderate levels of noctules and brown long-eared bat were recorded with peaks of 14ppn and 3ppn, respectively. Low levels of Nathusius' pipistrelle were recorded with a peak of 1ppn.

Discussion of combined results

Bat assemblage

2.3.41 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA02. These assemblages, described in Section 7 of the main ES, are present in the following locations:

- between Wimboldsley and Stanthorne;
- between Stanthorne and Rudheath;
- between Broken Cross and Lostock Gralam; and
- between east and north-east of Lostock Gralam.

2.3.42 Compared to main ES and the SES1 and AP1 ES, the findings of the surveys carried out in MA02 were as follows:

- no additional species of bat were recorded;
- no changes to bat assemblages;
- one additional possible maternity roost for soprano pipistrelle and occasional roosts of several species; and
- an increase in foraging activity of noctule, *Myotis* species and pipistrelle bats at some locations.

Roosts

2.3.43 Two occasional tree roosts were confirmed from emergence surveys with a Daubenton's in an ash tree in Linnards Lane, Wincham in the bat assemblage for east and north-east of Lostock Gralam and a noctule in a pedunculate oak in Clive Green Lane, Clive Green in the bat assemblage associated with habitats between Wimboldsley and Stanthorne.

2.3.44 A total of seven roosts were identified within seven buildings and structures in the area. Five were new roosts and, of these, one new possible maternity roost of soprano pipistrelle was identified in Clive Green Lane, Clive Green in the bat assemblage associated with habitats between Wimboldsley and Stanthorne.

2.3.45 A pipistrelle roost was identified in a residential building in Nantwich Road, Wimboldsley from an internal survey, in the bat assemblage associated with habitats between Wimboldsley and Stanthorne.

2.3.46 A *Myotis* species (possibly Brandt's as identified from DNA analysis of droppings previously recorded from the roost) was identified during emergence survey in Croxton Lane, Stanthorne in the bat assemblage associated with habitats between Stanthorne and Rudheath.

2.3.47 Four soprano pipistrelle roosts were identified from emergence surveys, two of these were identified as new occasional roosts in a barn in Croxton Lane, Stanthorne in the bat assemblage associated with habitats between Stanthorne to Rudheath and a house in Lostock Green, Lostock Gralam in the bat assemblage associate with habitats between Broken Cross and Lostock Gralam.

2.3.48 Two soprano pipistrelle roosts were recorded with higher numbers of individuals than previous surveys in a residential building and barn in Davenham Road, Nantwich in the bat assemblage associated with habitats between Stanthorne and Rudheath.

Foraging habitat

2.3.49 The results of surveys carried out on the use of habitat in MA02 by foraging bats are broadly similar to those reported in the main ES and the SES1 and AP1 ES. There were localised changes in foraging activity, particularly a notable increase in noctule in Nantwich and Stanthorne Hall Farm in the Wimboldsley and Stanthorne assemblage. There was also a large increase in soprano pipistrelle and common pipistrelle foraging in the Rudheath and Plumley area between the Broken Cross and Lostock Gralam assemblage and the east and north of Lostock Gralam assemblage; however, these did not result in any changes to the assemblages.

Pickmere to Agden and Hulseheath (MA03)

Roosting (trees)

2.3.50 A total of 317 trees in MA03 were subject to an initial ground assessment. Following these surveys:

- no bat roosts were confirmed;
- 19 trees were assessed as having high potential to support roosting bats;
- 120 trees were assessed as having moderate potential to support roosting bats; and
- 178 trees were assessed as having low or negligible potential to support roosting bats. These trees were subsequently scoped out of further survey.

2.3.51 Of the trees previously surveyed from the ground, 96 trees were subject to tree climbing inspection surveys, with the following results:

- six trees previously assessed as having high potential to support roosting bats were still classified as having high potential;

- one tree previously assessed as having high potential to support roosting bats was reclassified as having moderate potential;
- one tree previously assessed as having high potential to support roosting bats was reclassified as having low potential;
- one tree was a confirmed roost which was previously assessed as having moderate potential to support roosting bats;
- 24 trees previously assessed as having moderate potential to support roosting bats were reclassified as having high potential;
- 27 trees previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- 21 trees previously assessed as having moderate potential to support roosting bats were reclassified as having low potential; and
- 15 trees previously assessed as having moderate potential to support roosting bats were reclassified as having negligible potential.

2.3.52 During the tree climbing hibernation surveys, one roost was identified in one tree that was assessed as having high potential to support roosting bats.

2.3.53 During the emergence/re-entry and tree climbing emergence replacement surveys, one roost was identified in one tree that was assessed as having high potential to support roosting bats.

2.3.54 Details of confirmed roosts within trees in MA03 are provided in Table 17.

Table 17: Additional confirmed roosts within trees within MA03

Survey code	CA	Location	OS grid reference	Tree species	Species confirmed to be using the roost (and peak count)	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation	Relevant to SES2 (Y/N)	Relevant to AP2 (Y/N)
CH170246_L17894_BT2_F004_300322	MA03	School Lane, Pickmere	SJ70057860	Pedunculate oak	Daubenton's Bat (1)	30 March 2022, tree climbing inspection	Occasional	A single bat, likely to be a Daubenton's was located within a cavity. The feature is located in the middle of the longest limb that extends from the road, on the west side of the limb, on the top part of a dead branch.	Within	Yes	Yes
CH568445-CH670364_L5498_BH1_F002_190122	MA03	Providence Farm, Tabley	SJ70717692	Pedunculate oak	Unknown droppings	19 January 2022, hibernation survey	Occasional	Potential bat droppings present internally; however, these were out of reach to sample and verify species	Within	Yes	Yes
CH458512-CH517829-CH575462-CH586994_L5396_BT3_F005_250522	MA03	Bucklowhill Lane, Hoo Green	SJ72228290	Pedunculate oak	Soprano pipistrelle (1)	25 May 2022, emergence survey	Occasional	A bat observed emerging from the tree and flying east along tree line.	55m east	Yes	Yes

Roosting (buildings and structures)

2.3.55 A total of eight buildings in MA03 were subject to an external buildings and structures assessment. Following these surveys:

- one bat roost was confirmed in a building or structure;
- two buildings and structures were assessed as having high potential to support roosting bats;
- two buildings and structures were assessed as having moderate potential to support roosting bats;
- no buildings and structures were assessed as having low potential to support roosting bats; and
- three buildings were assessed as having negligible potential to support roosting bats. These buildings were subsequently scoped out of further survey.

2.3.56 Of the buildings previously surveyed externally in the main ES and the SES1 and AP1 ES, 12 buildings were subject to internal inspection surveys, with the following results:

- three buildings previously assessed as confirmed roosts were still classified as confirmed roosts (the results of these surveys do not supersede previous roost assessments therefore they are not listed in the roost table below);
- two buildings previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- one building previously assessed as having moderate potential to support roosting bats was reclassified as having low potential;
- one building previously assessed as having low potential to support roosting bats was reclassified as a confirmed roost; and
- five buildings previously assessed as having low potential to support roosting bats were still classified as having low potential.

2.3.57 During the emergence/re-entry surveys, 20 roosts were identified in 16 buildings that were assessed, which are as follows:

- one building previously found to contain roosts was subject to further surveys. The additional surveys found there was an increase in numbers of individuals of existing species and an additional species utilising the building;
- two buildings previously found to contain roosts were subject to further surveys. The additional surveys found an increase in numbers of individuals using the roost;
- four buildings previously found to contain roosts were subject to further surveys. The additional surveys found that additional species are utilising the buildings;

- one building previously assessed as having high potential to support roosting bats (this roost was identified through droppings found during the survey) contained one confirmed roost;
- five buildings that were previously assessed as having moderate potential to support roosting bats contained eight confirmed roosts; and
- three buildings that were previously assessed as having low potential to support roosting bats contained three confirmed roosts.

2.3.58 Details of the additional confirmed roosts identified and changes to roosts within buildings and structures in MA03 are provided in Table 18.

Table 18: Additional confirmed roosts within buildings and structures within MA03

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH561651_L5128_BS3_F001_240821	MA03	Flittogate Farm, Flittogate Lane, Plumley	SJ70687818	Residential	Common pipistrelle (1) New species in a previously identified roost in the ES and the SES1 and AP1 ES.	24 August 2021, re-entry survey	Occasional	Three storey red brick residential structure, well maintained with recently repaired roofing. Approximately over 250 years old.	Within
CH561651_L5128_BS3_F005_250821	MA03	Flittogate Farm, Flittogate Lane, Plumley	SJ70737819	Barn	Soprano pipistrelle (3) New species in a previously identified roost in the ES and the SES1 and AP1 ES.	25 August 2021, emergence survey	Occasional	A long red brick barn with a pitched slated tiled barn in good condition with roof appearing to be redone recently. Approximately over 250 years old.	Within
CH561651_L5128_BS3_F006_260821	MA03	Flittogate Farm, Flittogate Lane, Plumley	SJ70727817	Barn	Soprano pipistrelle (5) New species in a previously identified roost in the ES and the SES1 and AP1 ES.	26 August 2021, emergence survey	Occasional	A single storey red brick building with a slate tiled pitched roof that was previously used as a milking shed. Brickwork in poor condition with a number of holes through damage and air bricks being present. Approximately over 250 years old.	Within

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH561651_L5128_BS3_F006_260821	MA03	Flittogate Farm, Flittogate Lane, Plumley	SJ70727817	Barn	Brown Long-eared (6) Increased numbers in a previously identified roost in the ES and the SES1 and AP1 ES.	26 August 2021, emergence survey	Occasional	A single storey red brick building with a slate tiled pitched roof that was previously used as a milking shed. Brickwork in poor condition with a number of holes through damage and air bricks being present. Approximately over 250 years old.	Within
CH599912_L20568_BS3_F002_220622	MA03	Bowden View Lane, Millington	SJ71688307	Residential	Soprano pipistrelle (1) New species in a previously identified roost in the ES and the SES1 and AP1 ES.	22 June 2022, re-entry survey	Occasional	Double storey red brick garage. Pitched slate roof. Built approximately 2012.	Within
CH129916-CH171520_L17580_BS3_F001_230622	MA03	Pickmere Lane, Pickmere	SJ70737850	Residential	*Myotis* sp. (49) Increased numbers in a previously identified roost in the ES and the SES1 and AP1 ES.	23 June 2022, re-entry survey	Possible Maternity	Two storey residential property that is semi-detached. Tiled and pitched roof. Conservatory to the rear of the property.	Within
CH170246_L17894_BS3_F002	MA03	School Lane, Tabley	SJ70057870	Residential	Soprano pipistrelle (8)	27 August 2021, re-entry	Occasional	Two storey brick-built, rendered farmhouse. Open	1m south-east

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
_270821						survey		porches with slate roofs. Built approximately 1940's.	
CH170246_L17894_BS3_F002_150921	MA03	School Lane, Tabley	SJ70057870	Residential	Common pipistrelle (1)	15 September 2021, emergence survey	Occasional	Two storey brick-built, rendered farmhouse. Open porches with slate roofs. Built approximately 1940's.	1m south-east
CH170246_L17894_BS3_F001_250821	MA03	School Lane, Tabley	SJ70077870	Barn	*Myotis* sp. (12)	24 August 2021, re-entry survey	Possible Maternity	Brick-built barn (approximately 100 years old) with pitched slate roof and gable ends. Open wooden lean-to with sloping flat roof to the rear behind garage. Large metal closed structure with sloping flat roof running the length of the barn at the rear.	5m east
CH170246_L17894_BS3_F001_250821	MA03	School Lane, Tabley	SJ70077870	Barn	Common pipistrelle (2)	24 August 2021, re-entry survey	Occasional	Brick-built barn (approximately 100 years old) with pitched slate roof and gable ends. Open wooden lean-to with sloping flat roof to the rear behind garage. Large metal closed structure with sloping flat roof running the length of the barn at the rear.	5m east

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH170246_L17894_BS3_F001_240622	MA03	School Lane, Tabley	SJ70077870	Barn	Soprano pipistrelle (2)	24 June 2022, re-entry survey	Occasional	Brick-built barn (approximately 100 years old) with pitched slate roof and gable ends. Open wooden lean-to with sloping flat roof to the rear behind garage. Large metal closed structure with sloping flat roof running the length of the barn at the rear.	5m east
CH517829-CH581540_L6103_BS3_F002_240921	MA03	Yew Tree Farm, Warrington Road, High Legh	SJ71358305	Barn	Soprano pipistrelle (1)	24 September 2021, re-entry survey	Occasional	Barn within Yew Tree Farm complex. Two storey semi-detached brick barn with a pitched slate/stone tiled roof and a one storey ridged metal extension to the south.	5m south
CH131342-CH275897-CH434587-CH641530_L5232_BS3_F002_160622	MA03	Hollowood Lane, Tabley	SJ70868036	Residential	Soprano pipistrelle (1) New species in a previously identified roost in the main ES and the SES1 and AP1 ES.	16 June 2022, re-entry survey	Occasional	Red brick building with slate tiles in a pitched roof with no windows.	15m north-east
CH458512-CH517829-	MA03	Bucklowhill Lane, Mere	SJ72118263	Barn	Brown Long-eared (Visual droppings ID)	23 September 2021,	Occasional	A farm building of unknown age. A farm building of brick	15m east

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH575462-CH586994_L5396_BS3_F005_230921						emergence survey		construction with multiple different sections all with pitched roofs. The building is showing signs of disrepair.	
CH131342-CH275897-CH434587-CH641530_L5232_BS3_F003_220622	MA03	Hollowood Lane, Tabley	SJ70888036	Barn	Brown Long-eared (4)	22 June 2022, emergence survey	Occasional	Large red brick-built barn with pitched roof, two gable ends open at eaves and slate roof.	20m north-east
CH400937_L4774_BS2_F001_180522	MA03	Winterbottom Lane, Mere	SJ71218212	Residential	Brown Long-eared (Visual droppings ID)	18 May 2022, internal inspection	Occasional	Georgian style brick-built house. Hipped roof with concrete tiles. Porch with pitched slate roof attached to house by lead flashing. Garage to side with sloping slate roof with plastic ends over end tiles also attached to main house by lead flashing. Good condition.	20m west
CH517829_L6301_BS3_F002_230921	MA03	Bentleyhurst Lane, Mere	SJ71738092	Residential	Soprano pipistrelle (7)	23 September 2021, re-entry survey	Occasional	Two story building/barn converted into residential. Likely to be built 20th century. It is L-shaped in structure and the south-east section has been partially restored; brickwork halfway up and	35m north

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
								wooden boarding. Eastern section of building completely demolished.	
CH396059_L7064_BS3_F003_150921	MA03	Peacock Lane, High Legh	SJ70398494	Shed	Soprano pipistrelle (1)	15 September 2021, emergence survey	Occasional	A large shed of recent construction. A shed of wood construction with a pitched roof covered with corrugated roofing felt built as a chicken coop. The building looks mostly in good condition, but the roofing felt is starting to come away from the wood.	35m north
CH517829_L6301_BS3_F001_230921	MA03	Bentleyhurst Lane, Mere	SJ71718091	Residential	Soprano pipistrelle (10)	23 September 2021, emergence survey	Possible maternity	Three storey, brick residential building with one storey modern extension. Walls in good condition.	40m north
CH412137_L5203_BS3_F002_180522	MA03	Booth Bank Lane, Millington	SJ72318522	Barn	Brown Long-eared (2) Increased numbers in a previously identified roost in the main ES and the SES1 and AP1 ES.	18 May 2022, re-entry survey	Occasional	Red brick barn with pitched slate tile roof. Built in approximately 1800s.	40m north
CH445468-CH461057_L58	MA03	Hulseheath Lane, Hoo	SJ72318361	Garage	Pipistrelle sp. (Visual droppings ID)	16 June 2022, external	Occasional	Double open sided garage, with enclosed room on	40m west

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
12_BS1_F002_160622		Green				inspection		eastern side, likely loft space above the enclosed room. Brick construction with slate roof tiles, oak beams and wooden fascia boards under guttering. Less than 20 years old.	
CH585056-CH596909-MAN80035_L5905_BS3_F001_060921	MA03	A56, Little Bollington	SJ71918655	Residential	Common pipistrelle (4)	06 September 2021, emergence survey	Occasional	Constructed 1869, a two-storey brick house with a small extension on the north side. The building has a pitched tiled roof and sash windows which appear well-sealed, and some are bricked up. The building has three chimneys, and it is in a fairly good condition but has some gaps into the soffit box and gaps under tiles.	760m west

Roosting (woodlands)

2.3.59 This section applies to all trees subject to the woodland survey methodology. One area of woodland comprising a single large woodland block was included in these surveys.

2.3.60 The woodland identified for survey, and the results of an initial ground-based assessment of trees and surrounding area, are summarised in Table 19. Trees with negligible potential for roosting bats were not recorded or mapped.

Table 19: Potential roosting resource within woodlands in MA03

Woodland	Number of trees with features of potential value to roosting bats			Overall suitability of woodland for bats*
	High suitability	Moderate suitability	Low suitability	
Leonard's Wood and Smoker Wood	12	34	20	High – strip of woodland with Smoker Brook running through the middle. Good connectivity to Peas Wood and Winnington Wood.
Unnamed wood north-east of Woodside Farm	3	13	12	Low – connectivity via tree lines and hedgerows. Suitable foraging habitat within High Legh Park Golf Course south-west of the woodland.
Bongs Wood and Bongs Rough and Hey Rose Golf Course	4	14	56	Moderate – Woodland within golf course with good connectivity to surrounding habitat via hedgerows and Arley Brook. Various small water bodies across golf course.

** based on the quality and quantity of the roost and feeding resource and ecological position of the wood.*

Bat activity surveys

2.3.61 Table 20 summarises the activity surveys undertaken in MA03. There were no new species recorded during the range of bat activity surveys conducted in MA03 between August 2021 and June 2022 compared to the Ecological baseline data – bats (see main BID EC-011-00001) that accompanied the main ES, and BID report, and Ecological baseline data – bats (see BID EC-011-00000 SES1 and AP1 ES), which accompanied SES1 and AP1 ES. Two transect surveys and seven static surveys were undertaken, and the results are reported in Table 21 to Table 29.

Table 20: Additional bat activity surveys conducted within MA03

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
BT01b	Pickmere	2	7 September 2021	4 October 2021	MA03	EC-06-516b
BT04	West of Knutsford	1	5 September 2018	11 October 2021	MA03	EC-06-517
B12	Milley Lane, Pickmere	7	9 April 2019	14 September 2021	MA03	EC-06-517
B15	Arley Brook, Pickmere	5	26 October 2020	18 October 2021	MA03	EC-06-518
B18	Hollowood Farm	4	1 August 2018	25 May 2022	MA03	EC-06-519
B19	M6, Tabley	7	1 August 2018	22 June 2022	MA03	EC-06-519
B23	Mere	5	11 July 2018	26 May 2022	MA03	EC-06-521
B25	Chapel Lane, Millington	5	16 April 2019	22 June 2022	MA03	EC-06-522
B28	North of M56, Agden CP	5	12 September 2018	25 August 2021	MA03	EC-06-522

Table 21: Bat activity transect survey results for Transect BT01b

Ecology survey code	Transect location				Description of habitats covered by transect															
BT01b	Pickmere				Immediately north of M6 near Tatton. Transect begins along edge of Leonard's Wood, moving along edge of Smoker Wood and then following hedgerows through arable fields before re-joining Leonard's Wood where the transect ends.															
Visit number and date	**Weather conditions**				**Total species passes during transect survey**															
	Temp (oC)	**Cloud (0-8)**	**Rain (0-5)**	**Wind (0-12)**	**Pp**	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
Visit 2: Dusk: 7 September 2021	26	0	0	1	28	170	0	13	0	0	0	0	0	0	10	0	0	4	0	0	1
Visit 3: Dusk: 4 October 2021	11	4	0	1	1	66	0	0	0	0	0	0	0	0	1	1	0	9	0	0	0

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.62 High levels of soprano pipistrelle were recorded, with a peak count of 170ppn in September 2021. Moderate numbers of common pipistrelle and *Myotis* species were also recorded, with peak counts of 28ppn and 10ppn in September 2022 respectively. Moderate levels of noctule were recorded with 9ppn in October 2021.

Table 22: Bat activity transect survey results for Transect BT04

Ecology survey code	Transect location				Description of habitats covered by transect																
BT04	West of Knutsford				Surrounding Pickmere Lane. The transect begins on a track off of Green Lane east of Pickmere, following the track and passing scattered trees until reaching Flittogate Lane. The transect passes Flittogate Farm through arable fields where it joins and follows treelines ending at the corner of Green Lane.																
Visit number and date	**Weather conditions**				**Total species passes during transect survey**																
	Temp (oC)	**Cloud (0-8)**	**Rain (0-5)**	**Wind (0-12)**	**Pp**	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
Visit 6: Dusk: 11 October 2021	12	3	0	0	73	115	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0

2.3.63 Moderate levels of common pipistrelle and soprano pipistrelle were recorded, with peak counts of 73ppn and 115ppn, respectively. Low numbers of *Myotis* species and noctule were recorded, with peak counts of 1ppn each.

Table 23: Summary of static detector monitoring results for B12

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B12	Milley Lane, Pickmere	SJ70527680				Within trees on the edge of a pond, south of Providence Farm, West Knutsford.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	Species peak night count during monthly monitoring															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
16 August 2021 – 23 August 2021	6	733	801	0	40	0	0	0	0	0	0	793	3	0	14	0	0	1
8 September 2021 – 14 September 2021	7	136	372	0	5	0	0	0	0	0	0	70	8	0	2	0	0	1

2.3.64 Very high peak counts of Common pipistrelle, soprano pipistrelle and *Myotis* species were recorded in August 2021, with 733ppn, 801ppn and 793ppn, respectively. Moderate levels of brown long-eared bat were recorded in September 2021 with a peak of 8ppn. Moderate to high levels of noctules were recorded with a peak of 14ppn in August 2021.

Table 24: Summary of static detector monitoring results for B15

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B15	Arley Brook, Pickmere	SJ70727862				Treeline edge along southern bank of Arley Brook, west of Pickmere Lane, west of Knutsford.												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 August 2021 – 25 August 2021	7	41	682	0	26	0	0	0	0	0	0	353	2	0	13	0	0	1
11 October 2021 – 18 October 2021	7	7	46	0	10	0	0	0	0	0	0	12	10	0	6	0	0	0

2.3.65 Notably high levels of soprano pipistrelle and *Myotis* species activity were recorded, with peaks of 682ppn and 353ppn in August 2021, respectively. High levels of activity were recorded for brown long-eared bat in October 2021 with a peak of 10ppn. Moderate levels of noctule activity in August 2021 were recorded with a peak of 13ppn.

Table 25: Summary of static detector monitoring results for B18

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B18	Hollowood Farm	SJ70938019				Adjacent to road immediately south of Hollowood Farm, west of Knutsford.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 May 2022 – 25 May 2022	7	439	285	0	1	0	0	0	0	0	0	13	17	0	8	0	0	2

2.3.66 High levels of common and soprano pipistrelle were recorded, with peaks of 439ppn and 285ppn, respectively. Low to Moderate levels of *Myotis* species and noctule were recorded with peaks of 13ppn and 8ppn, respectively. High levels of brown long-eared bat were recorded, with a peak of 17ppn.

Table 26: Summary of static detector monitoring results for B19

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B19	M6, Tabley	SJ71018054				Hedgerow immediately adjacent to M6, north of Hollowood Farm, west of Knutsford.												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
20 April 2022 – 27 April 2022	7	0	3	0	1	0	0	0	0	0	0	49	0	0	0	0	0	1
18 May 2022 – 25 May 2022	7	10	11	0	0	0	0	0	0	0	0	2	1	0	5	0	0	0
15 June 2022 – 22 June 2022	7	20	28	0	0	0	0	0	0	0	0	5	2	0	5	0	0	0

2.3.67 Low to moderate levels of common pipistrelle and soprano pipistrelle were recorded, with peaks of 20ppn and 28ppn, respectively, in June 2022. High levels of *Myotis* species were recorded, with a peak count of 49ppn in April 2022. Low to moderate levels of noctule activity were recorded in May and June 2022 with peak counts of 5ppn in each. Moderate levels of brown long-eared bats were recorded in June 2022 with a peak count of 2ppn.

Table 27: Summary of static detector monitoring results for B23

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B23	Mere	SJ71538293				Hedgerow in corner of arable field, east of Yew Tree Farm, south of Lymm.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
19 May 2022 – 26 May 2022	7	1,063	124	6	43	0	0	0	0	0	0	14	3	0	4	0	0	0

2.3.68 Notably high levels of common pipistrelle activity were recorded, with a peak of 1,063ppn. Moderate levels of soprano pipistrelle were recorded with a peak of 124ppn and high levels of Nathusius pipistrelle were recorded with a peak of 6ppn. Moderate levels of *Myotis* species activity were recorded with a peak of 14ppn. Moderate levels of brown long-eared bat were recorded with a peak of 3ppn and low to moderate levels for noctule with a peak of 4ppn.

Table 28: Summary of static detector monitoring results for B25

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B25	Chapel Lane, Millington	SJ72198420				Hedgerow south of Moss House Farm, east of Lymm.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
15 June 2022 – 22 June 2022	7	132	47	0	5	0	0	0	0	0	0	14	4	0	18	0	0	0

2.3.69 Moderate levels of common pipistrelle and soprano pipistrelle activity were recorded, with peaks of 132ppn and 47ppn, respectively. Moderate levels of *Myotis* species activity were recorded with a peak count of 14ppn. High levels of activity were recorded for noctule with a peak of 18ppn. Moderate levels of brown long-eared bat were recorded, with four ppn.

Table 29: Summary of static detector monitoring results for B28

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B28	North of M56, Agden CP	SJ71718532				Edge of arable field, immediately adjacent to the M56, east of Lymm.												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 August 2021 – 25 August 2021	7	407	124	0	2	0	0	0	0	0	0	27	5	0	98	11	0	144

2.3.70 High levels of common pipistrelle were recorded with a peak of 407ppn and moderate to high levels of soprano pipistrelle activity were recorded, with a peak of 124ppn. Notably high activity was recorded for noctule and noctule/serotines with peak counts of 98ppn and 144ppn, respectively. High levels of activity was recorded for Leisler's bat with a peak count of 11ppn.

Discussion of combined results

Bat assemblage

2.3.71 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA03. These assemblages, described in Section 7 of the main ES, are present in the following locations:

- bat assemblage between Smoker Brook and the M6;
- bat assemblage bounded by the M6, the M56 and the A556 within MA03 and MA06;
- bat assemblage between the M56, the River Bollin and the Bridgewater Canal within MA03 and the Broomedge to Glazebrook area (MA04); and
- bat assemblage associated with habitats between the M56 and the Bridgewater Canal and west of Dunham Massey National Trust Property.

2.3.72 Compared to main ES and the SES1 and AP1 ES, surveys carried out in MA03 resulted in:

- there were no new species of bat found in this area;
- no changes to bat assemblages;
- three possible maternity roosts with two for *Myotis* species and one for soprano pipistrelle; and
- an increase in foraging activity of noctule, *Myotis*, brown long-eared bat and Leisler's at some locations.

Roosts

2.3.73 Three occasional tree roosts were found within land required for the construction of the AP2 revised scheme. These included: a Daubenton's bat in an oak tree in School Lane, Pickmere in bat assemblage associated with habitats between Smoker Brook and the M6; an unknown roost in an oak tree in Providence Farm, Tabley in bat assemblage associated with habitats between Smoker Brook and the M6; and, a soprano pipistrelle roost in an oak tree in Bucklowhill Lane, Hoo Green in bat assemblage associated with habitats between the M6 and the M56.

2.3.74 A total of 22 additional roosts were identified within 18 buildings and structures in the area. Five roosts were identified with additional new species and three roosts noted an increase in numbers of individuals.

2.3.75 Two new possible maternity roosts were noted: *Myotis* species in School Lane, Tabley in the bat assemblage associated with habitats between Smoker Brook and the M6; and, soprano pipistrelle in Bentleyhurst Lane, Mere in the bat assemblage associated with habitats between the M6 and the M56. *Myotis* species bats were recorded in greater numbers at a residential building in Pickmere Lane, Pickmere in bat assemblage associated with habitats between Smoker Brook and the M6, which previously recorded a maternity roost for this species.

2.3.76 Four new occasional roosts were identified for soprano pipistrelle and three new occasional roosts were also identified for common pipistrelle in bat assemblage associated with habitats between Smoker Brook and the M6 and in bat assemblage associated with habitats between the M56 and the Bridgewater Canal and west of Dunham Massey National Trust Property.

2.3.77 One new brown long-eared occasional roost was identified in Hollowood Lane, Tabley in bat assemblage associated with habitats between Smoker Brook and the M6 through emergence surveys, and two new brown long-eared roosts were identified by visual identification of droppings in Winterbottom Lane, Mere and Bucklowhill Lane, Mere in bat assemblage associated with habitats between the M56. Increased numbers of bats were recorded at two brown long-eared roosts in barns in Flittogate Farm, Flittogate Lane in bat assemblage associated with habitats between Smoker Brook and the M6, and in Booth Bank Lane, Millington in bat assemblage associated with habitats between the M56 and the M56.

2.3.78 Common pipistrelle were recorded in an existing roost in a house at Flittogate Farm, Flittogate Lane in bat assemblage associated with habitats between Smoker Brook and the M6, and a new soprano pipistrelle roost was recorded in an existing roost in barns nearby at the same property. Soprano pipistrelle was also recorded in a previously recorded roost of common pipistrelle, brown long-eared bats and Myotis species in an existing roost at Hollowood Lane, Tabley in bat assemblage associated with habitats between Smoker Brook and the M6.

Foraging habitat

2.3.79 The results of surveys carried out on the use of habitat in MA03 by foraging bats are broadly similar to those reported in the main ES and the SES1 and AP1 ES. Though there were no meaningful changes, recorded increases in bat activity were as follows:

- *Myotis* species at Arley Brook and Milley Lane, Pickmere in bat assemblage associated with habitats between Smoker Brook and the M6;

- brown long-eared bats at Hollowood Lane in bat assemblage associated with habitats between Smoker Brook and the M6;
- noctule at Chapel Lane in bat assemblage associated with habitats between the M56; and
- Leisler's in North of Agden CP in bat assemblage associated with habitats between the M56 and the Bridgewater Canal and west of Dunham Massey National Trust Property.

Hulseheath to Manchester Airport (MA06)

Roosting (trees)

2.3.80 A total of 271 trees in MA06 were subject to an initial ground assessment. Following these surveys:

- no bat roosts were confirmed;
- six trees were assessed as having high potential to support roosting bats;
- 94 trees were assessed as having moderate potential to support roosting bats; and
- 171 trees were assessed as having low or negligible potential to support roosting bats. These trees were subsequently scoped out of further survey.

2.3.81 Of the trees previously surveyed from the ground, 39 trees were subject to tree climbing inspection surveys, with the following results:

- one tree previously assessed as having high potential to support roosting bats was still classified as having high potential;
- eight trees previously assessed as having moderate potential to support roosting bats were reclassified as having high potential;
- 14 trees previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential;
- 12 trees previously assessed as having moderate potential to support roosting bats were reclassified as having low potential; and
- four trees previously assessed as having moderate potential to support roosting bats were reclassified as having negligible potential.

2.3.82 No roosts were identified during other surveys.

Roosting (buildings and structures)

2.3.83 A total of 47 buildings in MA06 were subject to an external buildings and structures assessment. Following these surveys:

- one bat roost was confirmed in one building;

- two buildings were assessed as having high potential to support roosting bats;
- 11 buildings were assessed as having moderate potential to support roosting bats;
- nine buildings were assessed as having low potential to support roosting bats; and
- 24 buildings were assessed as having negligible potential to support roosting bats. These buildings were subsequently scoped out of further survey.

2.3.84 Of the buildings previously surveyed externally in the main ES, eight buildings were subject to internal inspection surveys, with the following results:

- one building previously assessed as a confirmed roost was still classified as confirmed roosts (the results of these surveys do not supersede previous roost assessments therefore they are not listed in the roost table below);
- one building previously assessed as having moderate potential to support roosting bats was reclassified as a confirmed roost (which has been since superseded by emergence/re-entry surveys results and is not listed in the roost table below);
- three buildings previously assessed as having moderate potential to support roosting bats were still classified as having moderate potential; and
- three buildings previously assessed as having low potential to support roosting bats were still classified as having low potential.

2.3.85 During the emergence/re-entry surveys, 19 roosts were identified in 12 buildings that were assessed which are as follows:

- three buildings previously found to contain roosts were subject to further surveys. The additional surveys found that there is an increase in numbers of individuals using the buildings and an additional species was recorded;
- one building previously found to contain roosts was subject to further surveys. The additional surveys found additional species utilising the building;
- two buildings roosts that were previously assessed as having high potential to support roosting bats contained three confirmed roosts;
- five buildings that were previously assessed as having moderate potential to support roosting bats contained seven confirmed roosts; and
- one building that was previously assessed as having low potential to support roosting bats contained one confirmed roost.

2.3.86 Details of the additional confirmed roosts identified and changes to roosts within buildings and structures in MA06 are provided in Table 30.

Table 30: Additional confirmed roosts within buildings and structures within MA06

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
GM195205-GM49574_L43040_BS3_F001_300621	MA06	Hale Road, Manchester Airport	SJ80228535	Residential	Common pipistrelle (1)	30 June 2021, re-entry survey	Occasional	Detached one storey bungalow built around 1980's, conservatory extension at rear. Well-sealed, moss-covered roof. No obvious gaps.	Within
GM225194_L4633_BS3_F002_300522	MA06	Sunbank Lane, Manchester Airport	SJ80098470	Residential	Soprano pipistrelle (2)	30 May 2022, emergence survey	Occasional	Two story brick, residential building approximately 19th/20th century. Bricks and ridge tiles in good condition. Gable ends and soffit boxes, and chimney all well sealed and intact. Some roof tiles covered in heavy moss, lots of lifting tiles all along the north-east and south-west of the buildings' roof.	Within
GM392459-GM452631_L5778_BS3_F002_270721	MA06	Roaring Gate Lane, Trafford	SJ80438662	Barn	Brown Long-eared (8) Increased numbers in a previously identified roost in the main ES.	27 July 2021, re-entry survey	Occasional	18th/19th century brick-built barn with a pitched roof and a more recent extension.	1m west
GM392459-GM452631_L5778_BS3_F002_020921	MA06	Roaring Gate Lane, Trafford	SJ80438662	Barn	*Myotis* sp. (7) New species in	02 September 2021, re-entry survey	Occasional	18th/19th century brick-built barn with a pitched roof and a more recent extension.	1m west

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
					a previously identified roost in the main ES.				
CH237195-CH693316_L43894_BS3_F001_180821	MA06	Back Lane, Ashley	SJ79008402	Residential	Whiskered bat (2) Increased numbers in a previously identified roost in the main ES.	18 August 2021, emergence survey	Occasional	16th century farmhouse. Painted walls with pitched slate tile roof and open walled awning over the front door.	5m west
CH237195-CH693316_L43894_BS3_F001_180821	MA06	Back Lane, Ashley	SJ79008402	Residential	Soprano pipistrelle (3) New species in a previously identified roost in the main ES.	18 August 2021, emergence survey	Occasional	16th century farmhouse. Painted walls with pitched slate tile roof and open walled awning over the front door.	5m west
CH237195-CH693316_L43894_BS3_F001_310522	MA06	Back Lane, Ashley	SJ79008402	Residential	Common pipistrelle (2) New species in a previously identified roost in the main ES.	31 May 2022, emergence survey	Occasional	16th century farmhouse. Painted walls with pitched slate tile roof and open walled awning over the front door.	5m west

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH439073_L21054_BS3_F001_230622	MA06	Boothbank Lane, Lymm	SJ72098480	Residential	Soprano pipistrelle (2) New species in a previously identified roost in the main ES.	23 June 2022, re-entry survey	Occasional	L-shaped farmhouse with 3 gable ends. Extremities are new extensions around 20 years old and the original structure is 19th century.	10m south-west
CH439073_L21054_BS3_F001_230622	MA06	Boothbank Lane, Lymm	SJ72098480	Residential	Brown Long-eared (1)	23 June 2022, re-entry survey	Occasional	L-shaped farmhouse with 3 gable ends. Extremities are new extensions around 20 years old and the original structure is 19th century.	10m south-west
CH363792_L5852_BS3_F001_010921	MA06	Millington Lane, Little Bollington	SJ72518512	Residential	Soprano pipistrelle (9)	01 September 2021, emergence survey	Occasional	Known as the Courtyard Building. 20th century barn conversion comprising four joined buildings with two gable ends. Possible cavity between double skinned walls. No roof voids.	20m east
CH363792_L5852_BS3_F002_280921	MA06	Millington Lane, Little Bollington	SJ72518510	Residential	*Myotis* sp. (1)	28 September 2021, re-entry survey	Occasional	19th century Grade II listed detached farmhouse. Constructed of brick walls with stone tiled pitched roof. No roof voids as bedrooms are built into the roof.	20m east
CH363792_L5852_BS3_F002_150622	MA06	Millington Lane, Little Bollington	SJ72518510	Residential	Soprano pipistrelle (30)	15 June 2022, emergence	Maternity	19th century Grade II listed detached farmhouse. Constructed of brick walls with stone tiled pitched	20m east

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
						survey		roof. No roof voids as bedrooms are built into the roof.	
GM392459-GM452631_L5778_BS3_F004_060721	MA06	Roaring Gate Lane, Trafford	SJ80418662	Residential	Common pipistrelle (1) New species in a previously identified roost in the main ES.	6 July 2021, emergence survey	Occasional	Small, single-storey, former workers cottage of brick construction with pitched slate roof. Currently un-occupied.	20m west
GM392459-GM452631_L5778_BS3_F002_020921	MA06	Roaring Gate Lane, Trafford	SJ80428663	Plant store for pool	Common pipistrelle (2)	02 September 2021, re-entry survey	Occasional	Small store for swimming pool plant equipment. Lean-to sloped roof shape with wooden beam ridge. Slate tiles are lifted in places and building has similar pattern putlock holes to F002.	20m west
CH232087_L45968_BS1_F002_210622	MA06	Wood Lane, Mobberley	SJ78488198	Garage	Brown Long-eared (Visual droppings ID)	21 June 2022, external inspection	Occasional	Double garage with loft space. Double garage with loft space, owner says garage door is always open, there is access to loft space via hatch, and at the top of the interior walls.	35m east
CH310708_L46305_BS3_F001_140921	MA06	Pine Trees, New Mills, Mobberley	SJ77998191	Residential	Soprano pipistrelle (4)	14 September 2021, re-entry survey	Occasional	L-shaped red brick-built bungalow with an upstairs area. Pitched roof with concrete tiles and gable ends. Built approximately 1970. Good condition.	80m south-west

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH362894_L43402_BS3_F001_290621	MA06	Back Lane, Ashley	SJ77638427	Residential	Soprano pipistrelle (1)	29 June 2021, emergence survey	Occasional	130 year old red brick large rectangular shaped residential building in good condition. Multi pitched hip and valley roof, red brick wall with cavities and air brick, Flemish brick bonding style. Clay and clay ridge tiles open at eaves with exposed rafter beams.	85m north-west
CH362894_L43402_BS3_F001_280721	MA06	Back Lane, Ashley	SJ77638427	Residential	Common pipistrelle (5)	28 July 2021, emergence survey	Occasional	130 year old red brick large rectangular shaped residential building in good condition. Multi pitched hip and valley roof, red brick wall with cavities and air brick, Flemish brick bonding style. Clay and clay ridge tiles open at eaves with exposed rafter beams.	85m north-west
CH396057_L5893_BS3_F001_260821	MA06	Reddy Lane, Little Bollington	SJ72598545	Residential and barn	Common pipistrelle (5)	26 August 2021, re-entry survey	Occasional	Farmhouse and adjoining hay barn, in part over 135 years old. The farmhouse is brick-built, in fairly good condition. The hay barn is also brick-built with a pitched tiled roof and 2 bat boxes The building has some gaps under tiles, including ridge tiles, lifted flashing around skylights and open circular ventilation portals allowing entry to the barn.	115m north-east

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
CH396057_L5893_BS3_F001_260821	MA06	Reddy Lane, Little Bollington	SJ72598545	Residential and barn	Brown Long-eared (3)	26 August 2021, re-entry survey	Occasional	Farmhouse and adjoining hay barn, in part over 135 years old. The farmhouse is brick-built, in fairly good condition. The hay barn is also brick-built with a pitched tiled roof and 2 bat boxes The building has some gaps under tiles, including ridge tiles, lifted flashing around skylights and open circular ventilation portals allowing entry to the barn.	115m north-east

Roosting (woodlands)

2.3.87 Table 31 summarises the activity surveys undertaken in MA06. This section applies to all trees subject to the woodland survey methodology. One area of woodland comprising a single large woodland block was included in these surveys.

2.3.88 The woodland identified for survey, and the results of an initial ground-based assessment of trees and surrounding area, are summarised in Table 31. Trees with negligible potential for roosting bats were not recorded or mapped.

Table 31: Additional potential roosting resource within woodlands in MA06

Woodland	Number of trees with features of potential value to roosting bats			Overall suitability of woodland for bats*
	High suitability	Moderate suitability	Low suitability	
Sunbank Wood	9	23	22	High – good connectivity to other woodlands. Adjacent to the River Bollin.
Flaxhigh Covert, Humphreys Wood and Davenport Green Wood	11	33	45	Moderate – three woodlands in proximity with connectivity to Ringway Golf Club. Timperley Brook runs through Davenport Green wood. Isolated woodlands with few high-quality trees.
Rushy-pits Covert	1	4	18	Moderate – mature broadleaved woodland located within arable fields. Connectivity to Harpers Bank Wood and Rostherne Mere via hedgerows.

* *based on the quality and quantity of the roost and feeding resource and ecological position of the wood.*

Bat activity surveys

2.3.89 Table 32 summarises the activity surveys undertaken in MA06. There were no new species recorded during the range of bat activity surveys conducted in MA06 compared to the previous results in the main ES. One transect survey and nine static surveys were undertaken and the results are reported in Table 34 to Table 42.

Table 32: Additional bat activity surveys conducted within MA06

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
BT09	North of the River Bollin	1	27 April 2021	27 April 2021	MA06	EC-06-541
B31	Millington	1	23 June 2022	23 June 2022	MA06	EC-06-536b
B32	Hope Cottage, Rostherne	3	6 May 2021	14 June 2021	MA06	EC-06-537
B39	Ashlar, Back Lane, Ashley	3	21 April 2022	23 June 2022	MA06	EC-06-540

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
B40	Brickhill Lane, Ashley	3	25 May 2021	18 October 2021	MA06	EC-06-540
B41	River Bollin, near M56	2	4 May 2021	24 May 2021	MA06	EC-06-541
B44	Davenport Green Wood	2	4 May 2021	24 May 2021	MA06	EC-06-542a
B47	Millington	1	28 April 2022	28 April 2022	MA06	EC-06-537
B57	East of Reddy Lane, Booth Bank	2	18 October 2021	28 April 2022	MA06	EC-06-536b-L1
B58	South of Reddy Lane, Booth Bank	1	26 May 2022	26 May 2022	MA06	EC-06-536b-L1

Table 33: Bat activity transect survey results for Transect BT09

Ecology survey code	Transect location				Description of habitats covered by transect															
BT09	North of the River Bollin and near Manchester Airport.				This transect zig-zags through Sunbank Wood, south of the M56 and Warburton Green. The transect circles three small ponds before ending at the corner of Sunbank Lane.															
Visit number and date	**Weather conditions**				**Total species passes during transect survey**															
	Temp (oC)	**Cloud (0-8)**	**Rain (0-5)**	**Wind (0-12)**	**Pp**	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
Visit 8: Dusk: 27 April 2021	10	8	2	2	0	19	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.90 Low to moderate levels of soprano pipistrelle and *Myotis* species activity were recorded at 19ppn and 3ppn, respectively.

Table 34: Summary of static detector monitoring results for B31

Ecology survey code	Static Location	OS grid reference						Description of habitats									
B31	Millington	SJ72798482						Edge of arable field, east of Millington Lane, south of M56, east of Lymm.									
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
16 June 2022 – 23 June 2022	7	26	122	0	1	0	7	0	0	0	0	34	1	0	11	0	0	0

2.3.91 High levels of common pipistrelle and Daubenton's activity were recorded at this location with peaks of 122pp and 7ppn, respectively. Low levels of activity were noted for common pipistrelle and brown long eared bats with peaks of 26ppn and 1ppn, respectively. High levels of *Myotis* species were noted with a peak of 34ppn. Moderate levels of noctule were recorded with a peak of 11ppn.

Table 35: Summary of static detector monitoring results for B32

Ecology survey code	Static Location	OS grid reference						Description of habitats									
B32	Hope Cottage, Rostherne	SJ73468508						A hedgerow junction with broadleaved trees located south of Hope Cottage off Coe Lane.									
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
26 April 2021 – 6 May 2021	10	133	97	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0
6 May 2021 – 17 May 2021	11	56	84	0	2	0	0	0	0	0	0	4	0	0	2	0	0	0
7 June 2021 – 14 June 2021	7	139	18	0	7	0	0	0	0	0	0	2	0	0	29	0	0	0

2.3.92 Moderate levels of common pipistrelle activity were recorded at this location with a peak of 139ppn in June 2021. Low to moderate levels of activity were noted for soprano pipistrelle with a peak of 97ppn in April 2021. Low levels of *Myotis* species were noted with peaks of 4ppn in each of April and May. A notable peak of 29ppn was recorded for noctule in June.

Table 36: Summary of static detector monitoring results for B39

Ecology survey code	Static Location	OS grid reference						Description of habitats									
B39	Ashlar, Back Lane, Ashley	SJ78678390						A hedgerow junction with mature broadleaved trees within the hedgerow, located south of Back Lane, Ashley									
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
21 April 2022 – 28 April 2022	7	105	126	0	1	0	0	0	0	0	0	32	0	0	1	0	0	0
19 May 2022 – 26 May 2022	7	885	788	0	4	0	0	0	0	0	0	456	6	0	8	0	0	0
16 June 2022 – 23 June 2022	7	727	470	4	2	0	0	0	0	0	0	118	6	0	6	0	0	1

2.3.93 Data for this previously unrecorded transect included notably high levels of common pipistrelle, soprano pipistrelle and *Myotis* species activity with 885ppn, 788ppn and 456ppn, respectively, in May 2022, respectively. Moderate to high levels of activity were recorded for Nathusius pipistrelle and noctule with 4ppn in June 2022 and 8ppn in May 2022 respectively. High levels of brown long-eared bat activity were recorded in May 2022 with 6ppn.

Table 37: Summary of static detector monitoring results for B40

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B40	Brickhill Lane, Ashley	SJ78918396				Hedgerow adjacent to Back Lane, south of Little Thorns Green Farm, south of Altrincham.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
18 May 2021 – 25 May 2021	7	775	731	0	0	0	0	0	0	0	0	178	0	0	0	0	0	0
23 June 2021 – 30 June 2021	7	291	159	35	17	0	0	0	0	0	0	61	10	0	16	0	0	0
11 October 2021 – 18 October 2021	7	1,054	933	0	15	0	0	0	0	0	0	200	8	0	1	0	0	0

2.3.94 High levels of common and soprano pipistrelle bat activity were recorded overall, with peaks of 1,054ppn and 933ppn, respectively, during October 2021. There was a peak in Nathusius' pipistrelle activity of 35ppn passes in June 2021 but otherwise there were low levels of activity for this species. Notably high levels of activity were also recorded for *Myotis* species, which had a peak of 200ppn in October 2021. High levels of activity were recorded for both noctule and brown long-eared bats with peaks of 16ppn and 10ppn, respectively, in June 2022.

Table 38: Summary of static detector monitoring results for B41

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B41	River Bollin, near M56	SJ79488427				Treeline adjacent to River Bollin, west of Hale Bank Farm, south of Altrincham.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
26 April 2021 – 4 May 2021	8	112	382	0	1	0	0	0	0	0	0	45	0	0	0	0	0	0
17 May 2021 – 24 May 2021	7	111	225	0	2	0	0	0	0	0	0	26	0	0	1	0	0	0

2.3.95 High levels of soprano and common pipistrelle activity were recorded at this location with a peak of 382ppn and 112ppn respectively in April 2021. High levels of *Myotis* species were recorded with a peak of 45ppn in April 2021.

Table 39: Summary of static detector monitoring results for B44

Ecology survey code	Static Location	OS grid reference							Description of habitats									
B44	Davenport Green Wood	SJ80428585							Hedgerow south of Davenport Green Wood, west of M56, east of Altrincham.									
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
26 April 2021 – 4 May 2021	8	112	340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 May 2021 – 24 May 2021	7	97	41	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0

2.3.96 High levels of soprano pipistrelle activity were recorded with a peak of 340ppn in April 2021. Moderate to high levels of common pipistrelle were recorded with a peak of 112ppn in April 2021.

Table 40: Summary of static detector monitoring results for B47

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B47	Millington	SJ73098501				Woodland (Rushy-pits Covert), south of M56 and east of Hope Cottage, east of Lymm.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
21 April 2022 – 28 April 2022	7	52	753	0	36	0	0	0	0	0	0	146	2	0	4	2	0	0

2.3.97 Notable high levels of soprano pipistrelle and a high level of activity of *Myotis* species were recorded with peaks of 753ppn and 146ppn, respectively. Moderate levels of activity were recorded for common pipistrelle and brown long-eared bat with peaks of 52ppn and 2ppn, respectively. Low levels of noctule were recorded with a peak of 4ppn.

Table 41: Summary of static detector monitoring results for B57

Ecology survey code	Static Location	OS grid reference				Description of habitats												
B57	East of Reddy Lane, Booth Bank	SJ72498538				A hedgerow located east of Reddy Lane and north of the M56.												
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**																
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
11 October 2021 – 18 October 2021	7	190	137	0	9	0	0	0	0	0	0	159	6	0	12	0	0	2
21 April 2022 – 28 April 2022	7	82	186	0	4	0	0	0	0	0	0	203	1	0	2	0	0	0

2.3.98 High levels of common pipistrelle and soprano pipistrelle and *Myotis* species activity were recorded at this location with peaks of 190ppn in October 2021, 186ppn in April 2022 and 203ppn in April 2022, respectively. High levels of brown long-eared bat were recorded in October 2021 with 6ppn. Moderate to high activity levels of noctule and Nyctalus/Eptesicus bat were recorded in October 2021, with peaks of 12ppn and 2ppn, respectively.

Table 42: Summary of static detector monitoring results for B58

Ecology survey code	Static Location	OS grid reference				Description of habitats											
B58	South of Reddy Lane, Booth Bank	SJ72498518				Scrub and scattered trees along Agden Brook, south of the M56.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
19 May 2022 – 26 May 2022	7	12	243	0	1	0	0	0	0	0	0	31	2	0	2	0	0	1

2.3.99 High levels of soprano pipistrelle with a peak of 243ppn and low levels of common pipistrelle with a peak of 12ppn were recorded. Moderate to high levels of *Myotis* species and brown long-eared bat were recorded with a peak of 31ppn and 2ppn, respectively. Low levels of noctule and Nyctalus/Eptesicus bats were recorded, with peaks of 2ppn and 1ppn, respectively.

Discussion of combined results

Bat assemblage

2.3.100 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA06. These assemblages, described in Section 7 of the main ES, are present in the following locations:

- bat assemblage associated with habitats between the M6, the M56 and the A556 within MA03 and MA06;
- bat assemblage associated with habitats between the A556 and the M56, junction 6;
- bat assemblage associated with habitats between junction 6 of the M56 and Manchester Airport; and
- bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road.

2.3.101 Compared to the main ES, the findings of the surveys carried out in MA06 were as follows:

- there were no new species of bat found in this area;
- there were no changes to bat assemblages;
- one additional possible maternity roost for soprano pipistrelle and occasional roosts of several species; and
- an increase in foraging activity of noctule, *Myotis* species and pipistrelle bats at some locations.

Roosts

2.3.102 Twelve new roosts were recorded through emergence surveys and one new roost through an initial survey.

2.3.103 One new maternity roost was recorded with soprano pipistrelle in a residential building in Millington Lane, Little Bollington in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road.

2.3.104 Six new occasional common pipistrelle and four new occasional soprano pipistrelle roosts, all with small numbers of bats, were found in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road, bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6 and bat assemblage associated

with habitats between the M56 junction 6 and Manchester Airport. Three occasional brown long-eared bat roosts were recorded, one from an initial survey and two from emergence survey in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road and bat assemblage associated with habitats between the M56 junction 6 and Manchester Airport. Two occasional roosts of *Myotis* species were recorded from emergence surveys in bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6 and bat assemblage associated with habitats between the M56 junction 6 and Manchester Airport.

2.3.105 Five roosts contained species that were not previously recorded in roost surveys in this area, which were: common pipistrelle roosts in residential buildings in Roaring Gate Lane, Trafford in bat assemblage associated with habitats between the M56 junction 6 and Manchester Airport, and in Back Lane, Ashley in bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6; soprano pipistrelle roosts in Back Lane, Ashley in bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6, and in Boothbank Lane, Lymm in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road; and, a *Myotis* species roost in Roaring Gate Lane, Trafford in bat assemblage associated with habitats between the M56 junction 6 and Manchester Airport.

2.3.106 Greater numbers of bats than recorded in previous surveys were present in three roosts: brown long-eared bat in a barn in Roaring Gate Lane, Trafford in bat assemblage associated with habitats between the M56 junction 6 and Manchester Airport, and in a residential building in Boothbank Lane, Lymm in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road; and, whiskered bat in a residential property in Back Lane, Ashley in bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6.

Foraging habitat

2.3.107 The results of surveys carried out on the use of habitat in MA06 by foraging bats are broadly similar to those reported in the main ES. There were localised changes in foraging activity, particularly a notable increase in noctule in Hope Cottage, Rostherne in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road. There was also a large increase in soprano pipistrelle foraging in the Millington and Booth Bank area in bat assemblage associated with habitats west of Dunham Park to the A556 Chester Road. A new transect was surveyed in Ashley, Back Lane which recorded high levels of common and soprano pipistrelle and *Myotis* species in bat assemblage associated with habitats between the A556 Chester Road and the M56, junction 6.

Davenport Green to Ardwick (MA07)

Roosting (trees)

2.3.108 A total of 19 trees in MA07 were subject to an initial ground assessment. Following these surveys:

- no bat roosts were confirmed;
- one tree was assessed as having high potential to support roosting bats;
- five trees were assessed as having moderate potential to support roosting bats; and
- 13 trees were assessed as having low or negligible potential to support roosting bats. These trees were subsequently scoped out of further survey.

2.3.109 Of the trees previously surveyed from the ground, three trees were subject to tree climbing inspection surveys, with the following results:

- one tree previously assessed as having high potential to support roosting bats was reclassified as having low potential; and
- one tree previously assessed as having moderate potential to support roosting bats was reclassified as having high potential; and
- one tree previously assessed as having moderate potential to support roosting bats was still classified as having moderate potential.

2.3.110 No roosts were identified during other surveys.

Roosting (buildings and structures)

2.3.111 A total of 100 buildings in MA07 were subject to an external buildings and structures assessment. Following these surveys:

- no bat roosts were confirmed in buildings or structures;
- no buildings and structures were assessed as having high potential to support roosting bats;
- five buildings were assessed as having moderate potential to support roosting bats;
- 45 buildings or structures were assessed as having low potential to support roosting bats; and
- 50 buildings or structures were assessed as having negligible potential to support roosting bats. These buildings and structures were subsequently scoped out of further survey.

2.3.112 Of the buildings previously surveyed externally in the main ES, two buildings were subject to internal inspection surveys, with the following results:

- one building previously assessed as having moderate potential to support roosting bats was reclassified as having high potential; and
- one building previously assessed as having low potential to support roosting bats was still classified as having low potential.

2.3.113 During the emergence/re-entry surveys, two roosts were identified in two buildings that were assessed between 2017 and June 2022 which are as follows:

- one building that was previously assessed as having low potential to support roosting bats contained one confirmed roost; and
- one building that was previously assessed as having negligible potential to support roosting bats contained one confirmed roost.

2.3.114 Details of the additional confirmed roosts identified and changes to roosts within buildings and structures in MA07 are provided in Table 43.

Table 43: Additional confirmed roosts within buildings and structures within MA07

Survey code	CA	Location	OS grid reference	Building/ structure type	Species confirmed to be using the roost	Date of peak count and nature of survey	Roost type	Roost description	Distance from the AP2 revised scheme (m) and orientation
GM686564_L5 033_BS3_F034_ 260821	MA07	Ford Lane, Didsbury	SJ84149081	Allotment shed	Soprano pipistrelle (3)	26 August 2021, emergence survey	Occasional	A single storey, narrow wooden shed with wooden mono-pitched slatted roof. Leaning at an angle. Shed in poor condition – missing slates form large openings, exposing the internal of the shed to fluctuating temperatures and weather conditions.	35m east
GM686564_L5 033_BS3_F029_ 260821	MA07	Ford Lane, Didsbury	SJ84149078	Allotment shed	Soprano pipistrelle (1)	26 August 2021, emergence survey	Occasional	A single storey, modern, wooden shed with pitched felt roof and overhang eaves. Good condition (wood not rotten, some signs of varnish/staining wearing away). Window with net curtain, reducing light levels within shed. Cobwebbed in parts but some clear for potential for ingress by roosting bats.	65m east

Roosting (woodlands)

2.3.115 No woodlands were surveyed during this survey period.

Bat activity surveys

2.3.116 Table 44 summarises the activity surveys undertaken in MA07. There were no new species recorded during the range of bat activity surveys conducted in MA07 compared to the previous results in the main ES. One static survey was undertaken, and the results are reported in Table 45.

Table 44: Additional bat activity surveys conducted within MA07

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
C1	Newall Green	1	4 May 2021	4 May 2021	MA07	EC-06-542b

Table 45: Summary of static detector monitoring results for C1

Ecology survey code	Static Location	OS grid reference				Description of habitats											
C1	Newall Green	SJ80878679				Scrub adjacent to Fairywell Brook, east of Roaring Gate Lane, east of Altrincham.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
26 April 2021 – 4 May 2021	8	18	9	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.117 Low to moderate levels of soprano pipistrelle, common pipistrelle and low levels of Nathusius pipistrelle activity were recorded at 18ppn, 9ppn and 1ppn, respectively.

Discussion of combined results

Bat assemblage

2.3.118 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA07. These assemblages, described in Section 7 of the main ES, are present in the following locations:

- bat assemblage associated with habitats between Withington and Ardwick; and
- bat assemblage associated with habitats at Withington Golf Club.

2.3.119 Compared to the main ES, the findings of the surveys carried out in MA07 were as follows:

- no additional species;
- no changes to bat assemblages;
- two occasional roosts of soprano pipistrelle; and
- no increases in foraging activity.

Roosts

2.3.120 Two soprano pipistrelle roosts were recorded in sheds on an allotment in Ford Lane, Didsbury in the bat assemblage associated with habitats at Withington Golf Club.

Foraging habitat

2.3.121 The results of surveys carried out on the use of habitat in MA07 by foraging bats are broadly similar to those reported in the main ES. There were no changes noted during this survey period.

Manchester Piccadilly Station (MA08)

Roosting (trees)

2.3.122 No tree surveys were undertaken in MA08.

Roosting (buildings and structures)

2.3.123 A total of five buildings in MA08 were subject to an external buildings and structures assessment Following these surveys:

- no bat roosts were confirmed in buildings or structures;
- no buildings and structures were assessed as having high potential to support roosting bats;
- one building was assessed as having moderate potential to support roosting bats;
- two buildings were assessed as having low potential to support roosting bats; and
- two buildings were assessed as having negligible potential to support roosting bats. These buildings were subsequently scoped out of further survey.

2.3.124 Of the buildings previously surveyed externally in the main ES, no additional buildings were subject to internal inspection or emergence/re-entry surveys.

Roosting (woodlands)

2.3.125 No woodlands were surveyed during this survey period.

Bat activity surveys

2.3.126 Table 46 summarises the activity surveys undertaken in MA08. No new species were recorded during the range of bat activity surveys conducted in MA08 compared to the previous results in the main ES. One transect survey and one static survey were undertaken and the results are reported in Table 47 to Table 48.

Table 46: Additional bat activity surveys conducted within MA08

Ecology survey code	Transect location	Numbers of surveys conducted	First survey date	Final survey date	CA	Map reference
CT05	Manchester City Centre	3	26 May 2021	23 September 2021	MA08	EC-06-551b
C3	River Medlock, Manchester	1	23 June 2022	23 June 2022	MA08	EC-06-551b

Table 47: Bat activity transect survey results for Transect CT05

Ecology survey code	Transect location				Description of habitats covered by transect															
CT05	Manchester City Centre				A driving transect route around Manchester city centre within the areas of major construction works. Starting at Ancoats, with the route looping around the canals before heading around Manchester Piccadilly and along the arched approach into the station. Then the route follows the River Medlock into urban parkland under Ancoats Bridge before looping around some industrial units before heading back along Fairfield Street towards Manchester Piccadilly Station. Just before reaching the station, the route makes a final turn Northeast heading along Travis Street before returning to the start of the route in Ancoats. This route was repeated eight times each survey.														
Visit number and date	**Weather conditions**				**Total species passes during transect survey**															
	Temp (oC)	**Cloud (0-8)**	**Rain (0-5)**	**Wind (0-12)**	**Pp**	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/Es**
Visit 1: Dusk: 26 May 2021	13	1	0	1	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Visit 2: Dusk: 25 August 2021	21	1	0	1	81	1	0	9	0	0	0	0	0	0	1	0	0	2	0	0
Visit 3: Dusk: 23 September 2021	16	8	0	2	33	1	0	5	0	0	0	0	0	0	0	0	0	0	0	1

Pp – common pipistrelle, Ppy – soprano pipistrelle, Pn – Nathusius' pipistrelle, P.sp – Pipistrelle species, Mb – Bechstein's bat, Md – Daubenton's bat, Mn – Natterer's bat, Mm – whiskered bat, Mbr – Brandt's bat, Mm/Mbr – whiskered/Brandt's bat, M.sp – Myotis species, Pa–brown long-eared bat, Bb – barbastelle, Nn – noctule, Nl – Leisler's bat, Es – serotine, Ny/Es – Nyctalus/Eptesicus bat.

Cloud cover on a scale of 0 – 8, where: 0 = sky completely clear, 4 = sky half cloudy, 8 = sky completely cloudy.

Precipitation intensity on a scale of 0 – 5, where: 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Wind speed score of 0 – 12 against Beaufort scale, where: 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

2.3.127 Moderate to high levels of common pipistrelle activity were recorded during the driven survey with a peak count of 81ppn. Low levels of soprano pipistrelle, *Myotis* species and noctule were recorded with 1ppn, 1ppn and 2ppn, respectively.

Table 48: Summary of static detector monitoring results for C3

Ecology survey code	Static Location	OS grid reference				Description of habitats											
C3	River Medlock, Manchester	SJ854977				River Medlock running through the city from a parkland north of the route. The river goes through a number of culverts.											
Date (night monitoring commenced to night monitoring ceased)	**Number of nights detector deployed**	**Species peak night count during monthly monitoring**															
		Pp	**Ppy**	**Pn**	**P.sp**	**Mb**	**Md**	**Mn**	**Mm**	**Mbr**	**Mm/ Mbr**	**M.sp**	**Pa**	**Bb**	**Nn**	**Nl**	**Es**	**Ny/ Es**
16 June 2022 – 23 June 2022	7	110	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0

2.3.128 Moderate to high levels of common pipistrelle activity were recorded at 110ppn.

Discussion of combined results

2.3.129 Data from field surveys and desk study records are summarised below and provide the basis for identifying bat assemblages associated with habitat in and adjoining the land required for construction of the AP2 revised scheme in MA08. These assemblages, described in Section 7 of the main ES, are present in the bat assemblage associated with habitats in the vicinity of the existing Manchester Piccadilly Station.

2.3.130 Compared to the main ES, the findings of the surveys carried out in MA08 were as follows:

- there were no new species of bat found in this area;
- a change to composition of the bat assemblage associated with habitats in the vicinity of the existing Manchester Piccadilly Station;
- no new roosts were recorded for this area; and
- there was no change in the foraging or commuting activity within this area.

Roosts

2.3.131 Previous record centre data recorded a pipistrelle roost in the railway station arches. This was changed to a *Myotis* species in the bat assemblage associated with habitats in the vicinity of the existing Manchester Piccadilly Station. It is uncertain whether this is a replacement or updated record.

2.3.132 No new roosts or change to species or abundance were recorded for this area.

Foraging habitat

2.3.133 The results of surveys carried out on the use of habitat in MA08 by foraging bats are broadly similar to those reported in the main ES. A new driven transect was undertaken around Manchester City Centre with the activity dominated by common pipistrelle recordings.

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