A46 Coventry Junctions (Walsgrave) Scheme number: TR010066

6.3 Environmental Statement Appendices

Appendix 8.7 Bat Crossing Point Report

APFP Regulations 5(2)(a)

Planning Act 2008

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

Volume 6

November 2024

Infrastructure Planning

Planning Act 2008

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

A46 Coventry Junctions (Walsgrave)
Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT APPENDICES
Appendix 8.7 Bat Crossing Point Report

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010066
Application Document Reference	TR010066/APP/6.3
Author	A46 Coventry Junctions (Walsgrave), Project Team & National Highways

Version	Date	Status of Version
Rev 0	November 2024	Application Issue

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Tables

1. Scheme introduction

1.1. Scheme overview

1.1.1. The A46 is part of the strategic road network forming a significant trade and export route between the East and West Midlands. As part of the Government's Road Investment Strategy (RIS2) 2020-2025, the A46 Walsgrave junction is being improved with the realignment of the carriageway and a new grade separated junction. This aims to increase the road's capacity to cater for future developments across the region and promote safety by separating local and long-distance traffic and reducing congestion.

1.1.2. The bat crossing point surveys detailed within this report were undertaken in advance of the commencement of preliminary design and as such the surveys were based upon the Scheme design as it was at the end of the option selection stage.

1.1.3. Sweco were commissioned by Octavius Infrastructure on behalf of National Highways to undertake ecology surveys for the A46 Walsgrave junction Scheme.

1.2. Site description

1.2.1. The Scheme is located in an area of approximately 25ha of natural habitat located to the east of Coventry (Figure 1).

1.2.2. The Scheme is located within woodland, scrub, arable farmland and hedgerow habitats.

1.3. Previous surveys

1.3.1. Surveys previously undertaken in relation to bats and reported on within the PCF stage 2 Environmental Assessment Report (EAR) (National Highways, 2022) include a desk study undertaken in 2020 which identified no Special Areas for Conservation (SACs) designated for bats within 30km of the Scheme. The desk study included the purchase of species records within 2km of the Scheme from Warwickshire Biological Records Centre (WBRC). There were records returned for:

- common pipistrelle *Pipistrellus pipistrellus*
- soprano pipistrelle *Pipistrellus pygmaeus*
- Nathusius' pipistrelle *Pipistrellus nathusii*
- brown long-eared bat *Plecotus auritus*

- Daubenton's bat *Myotis daubentonii*
- Natterer's bat *Myotis nattereri*
- noctule *Nyctalus noctula*
- serotine *Eptesicus serotinus*
- whiskered bat *Myotis mystacinus*

1.4. Purpose

1.4.1. This bat crossing point report has been prepared by Sweco for National Highways and will be used to inform the Environmental Statement (ES) biodiversity chapter at preliminary design for the Scheme.

1.4.2. Bat crossing point surveys were considered necessary due to the potential impact of the Scheme on the overpass bridge close to Hungerley Hall Farm (crossing point one) under current Scheme designs, the loss of an existing hedgerow perpendicular on both sides of the A46 (crossing point two) and the installation of additional lighting to the A46 which may impact the Walsgrave Farm overpass (crossing point three). The report details bat crossing point surveys undertaken in 2022. The locations of the crossing points can be seen on Figure 1 and further details on the crossing point survey locations is provided in section 2 of this report.

2. Methodology

2.1. Crossing point selection

2.1.1. As bat crossing point surveys are a project-specific requirement which are likely to be necessary only on linear schemes of a certain scale, guidance in Collins (2016) is limited. As such guidance has been taken from, *WC1060 Development of a Cost Effective Method for Monitoring the Effectiveness of Mitigation for Bats Crossing Linear Transport Infrastructure* (Berthinussen and Altringham, 2015) and *Fumbling in the dark – effectiveness of bat mitigation measures on roads, Bat mitigation measures on roads – a guideline* (Elmeros et al., 2016).

2.1.2. All perpendicular existing linear features present within the Scheme (hedgerows, overpasses and the watercourse Smite Brook) were considered for crossing point surveys. The location of these linear features were assessed against the Scheme design to determine whether crossing point surveys would be required due to the nature of works that are proposed and their proximity to each of the linear features. There were three crossing point locations chosen for surveys (Figure 1) with further details provided in Table 2-1:

- Crossing point one (CP1) is located at the existing Hungerley Hall Farm overpass.
- Crossing point two (CP2) is located at the location of the proposed new dumbbell junction where there are hedgerows parallel to the A46 on both sides.
- Crossing point three (CP3) is located at the existing Walsgrave Farm access overpass.

2.1.3. A fourth crossing point was considered where Smite Brook crosses under the A46 immediately south of the existing Walsgrave junction. The Scheme at this location will have minimal direct impacts to the roadside verge habitats and will not impact the culvert. Additionally, the existing carriageway at this location is approximately 27m wide and it is considered unlikely that bats use this linear feature to cross the carriageway

2.1.4. Two further crossing points were considered located between CP2 and CP3 where two hedgerows are located perpendicular to the A46 on the western side. Both hedgerows have a gap of approximately 15m from the end of the hedgerow to the road verge habitat and therefore it is not considered likely that bats use these features as commuting corridors to cross the road.

Table 2-1 Crossing point locations and justification for their selection

Crossing point	Description of crossing point and grid reference	Justification for selection
1	The existing Hungerley Hall Farm overpass north of the existing roundabout (national grid reference SP 38598 79583).	This overpass is an existing linear feature bats may use to cross the A46. This overpass has the potential to be impacted as part of the Scheme under current scheme designs.
2	An existing hedgerow perpendicular to the A46 north of the existing roundabout on both sides of the A46 (national grid reference SP 38742 79906).	The linear feature may act as a commuting corridor for bats to cross the A46. This existing linear feature will be lost under the Scheme, and the width of the road significantly altered (increased) as a major dumbbell junction is proposed here.
3	The existing Walsgrave Farm overpass north of the junction (national grid reference SP 39004 80696).	This overpass is an existing linear feature bats may use to cross the A46. The Scheme includes the addition of central reservation lighting in this location along the A46, where currently there is no lighting. Should bats use this as a crossing point, this could result in disturbance to commuting bats.

2.2. Field surveys

2.2.1. The surveys on CP1 comprised one surveyor positioned on either side of the overpass. The surveys on CP2 and CP3 comprised two surveyors positioned on either side of the A46 at the crossing point to ensure both sides of the hedgerows and overpass respectively were covered. The surveyors were equipped with a full spectrum bat detector (Batlogger M2) to aid detection of bats and made notes of the times and locations of bat calls and any bat activity that had been seen or heard (commuting, foraging or social calls). Particular attention was paid to bats crossing the A46, with direction recorded. Bat calls were recorded in full spectrum format using the detector for later analysis using BatExplorer analysis software. The recordings and the field notes were used to help identify any bats crossing the A46, and the point of crossing, by comparing the notes of surveyors at each side of the A46.

2.2.2. Two initial surveys were undertaken at each crossing point. ‘Survey one’ comprised a 2 hour and 45 minutes dusk survey in May 2022 for CP1 and CP2 and June 2022 for CP3. ‘Survey 2’ comprised a 2 hour and 45 minutes dusk survey undertaken in June 2022 for all three crossing points. The surveys were extended longer than the 60 minutes after sunset recommended by Berthinussen and Altringham (2015), to ensure that any potential crosses over the A46 of later emerging species, such as myotis were captured.

2.2.3. All crossing points were subject to a further six surveys following the initial two surveys with three dusks, one dawn and one survey comprising a dusk and dawn. The length of all of the dusk surveys were 2 hour and 45 minutes and the length of the dawn surveys were 2 hour and 30 minutes, except those detailed in section 2.4 below.

2.2.4. Surveys were undertaken by [redacted]MSc Qualifying member of CIEEM (Senior Ecologist), [redacted]MSc ACIEEM (Senior Ecologist), [redacted]MSc ACIEEM (Senior Ecologist), [redacted] BSc MCIEEM (Senior Ecologist), [redacted]MEcol (Hons) ACIEEM (Senior Ecologist), [redacted] MSc (Consultant Ecologist), [redacted]MSc (Consultant Ecologist), [redacted]BSc (Graduate Ecologist), [redacted] MSc (Graduate Ecologist), [redacted] MSc (Assistant Ecologist), [redacted]g BSc (Graduate Ecologist), [redacted] BSc Qualifying member of CIEEM (Graduate Ecologist) and [redacted] (Ecology Field Assistant, Sweco).

2.2.5. Following each survey, bat call data was imported into BatExplorer (version 2.1.10.1) for call analysis to identify species recorded.

2.3. Survey conditions

2.3.1. Berthinussen and Altringham (2015) recommend surveying at temperatures of 7°C and above at the start of the survey in dry conditions with wind speeds lower than 20km/h. All surveys were undertaken within the parameters of these recommended weather conditions (Tables 2-2 – 2-4).

Table 2-2 CP1 survey conditions

Survey number	Date	Survey times	Temp (°C) start/end	Rain	Wind (Beaufort) start/end	Cloud cover (oktas) start/end
1	10.05.22	20:32-23:17	15-13	None	2-4	7-7
2	06.06.22	21.08-23.53	14-13	Light	1-1	8-8
3	27.07.22	20.50-23.35	20-19	Light-heavy	1-2	8-8
4	16.08.22	03.20-05.50	18-16.5	None	1-1	4-7
5	24.08.22	19.59-22.44	20-19	None	1-2	8-2
6	30.08.22	19.43-22.28	22-17	None	3-3	4-7
7	21.09.22	04.24-06.49	16-14	None	1-1	1-8
8	11.10.22	18.05-20.50	15-7	None	1-1	1-2

Table 2-3 CP2 survey conditions

Survey number	Date	Survey times	Temp (°C) start/end	Rain	Wind (Beaufort) start/end	Cloud cover (oktas) start/end
1	11.05.22	20.34-23.19	11-8	None	1-1	2-1
2	07.06.22	21.09-23.54	18-16	Light	3-2	8-8
3	27.07.22	03.03-05.33	15-10	None	1-2	1-1
4	04.08.22	20.39-23.24	18-15	None	3-2	1-4
5	31.08.22	19.41-22.26	18-14	None	3-4	2-1
6	13.09.22	04.06-06.36	15-13	None	2-2	4-1
7	26.09.22	18.41-21.26	13-12	Light	4-3	8-1
8	11.10.22	18.03-20.48	15-14	None	2-2	8-8

Table 2-4 CP3 survey conditions

Survey number	Date	Survey times	Temp (°C) start/end	Rain	Wind (Beaufort) start/end	Cloud cover (oktas) start/end
1	08.06.22	21.10-23.55	16-13	None	3-2	3-1
2	21.06.22	21.17-00.02	21-15	None	2-1	1-1
3	20.07.22	21.00-23.45	19-16	None	4-3	4-2
4	04.08.22	03.14-05.44	18-13	None	2-2	7-7
5	17.08.22	20.12-22.57	16-16	None	3-2	8-8
6	31.08.22	03.45-06.15	17-16	None	2-2	8-8
7	12.09.22	19.13-22.58	21-20	Light	1-1	8-8
8	27.09.22	18.37-21.22	12-19	Moderate	1-1	8-4

2.4. Limitations

2.4.1. The results of these surveys will remain valid until March 2024. Beyond this period, if works have not commenced, it is recommended that a new review of the ecological conditions is undertaken (CIEEM, 2019).

2.4.2. Surveyors on both sides of the A46 at CP2 were unable to view the road due to the overgrown hedgerows bordering the A46, meaning that they were unable to confirm if bats recorded during the survey had crossed the road. The bat call data was analysed for both sides of the A46 at CP2 after the surveys to identify

any ‘bat crosses’ that were not directly observed by the surveyors but were likely to have involved a bat crossing the road.

2.4.3. In one instance the survey timings differed from those set out in the methodology (see section 2.2.2). Survey seven of CP1 (undertaken on 21 September 2022) started 2 hours and 25 minutes before sunrise (as opposed to 2 hours 30 minutes before sunrise). One of the aims of the longer 2 hour and 30 minute surveys is to identify any early-returning species. As the surveys were undertaken for a significant amount of time prior to sunrise the slight deviation from the outlined methodology is not considered a significant limitation.

2.4.4. Due to visibility limitations as light levels fall during the surveys, it becomes harder to see bats and bats may cross the road without being seen (particularly on darker, more overcast nights). This is a common, unmanageable limitation of bat surveys.

3. Results

3.1. Field survey results

3.1.1. Confirmed instances of bats crossing the A46 (visually observed crossings) are listed below, detailed in Table 3-1 and shown on Figure 1 (Appendix A). In addition, all data and field notes from the surveyors (from opposite sides of the road) have been analysed to identify any further potential unseen bat crosses which may not have been visually observed, but where bat call timings and observations indicate that a bat is likely to have crossed the road.

CP1

3.1.2. There was a single common pipistrelle noted crossing during survey 2 at 22.22 by the surveyor positioned on the eastern side of the A46. The bat was noted flying west to east over the A46.

3.1.3. There was a single noctule noted crossing 10m north of the bridge during survey 3 at 21.06 by the surveyor positioned on the eastern side of the A46.

3.1.4. There was a single soprano pipistrelle noted crossing during survey 3 at 21.26 by the surveyor positioned on the western side of the A46. The bat was noted flying west to east over the A46.

CP2

3.1.5. There were no bats observed crossing or assumed to have crossed the A46 at CP2 during any survey. The analysis of the bat calls determined that there was a higher level of activity on the west side of the A46, where bats were recorded foraging and commuting along the hedgerow during the surveys, compared to the east where less activity was recorded. Given the difference in the levels of bat activity it is assumed that bats were not crossing the A46 during these surveys at CP2.

CP3

3.1.6. There was a single common pipistrelle noted crossing during survey 3 at 22.14 by the surveyor positioned on the eastern side of the A46. The bat was noted flying west to east over the A46.

3.1.7. There was a single noctule noted crossing during survey 7 at 19.31 by surveyors on both side of the bridge. The bat was noted flying west to east over the A46.

3.1.8. There was a single soprano pipistrelle noted crossing during survey 7 at 20.00 by surveyors on both side of the bridge. The bat was noted flying west to east over the A46.

3.1.9. There were a total of three common pipistrelles noted crossing the bridge during survey 7 at 20.04 and 20.06 by the surveyor positioned on the eastern side of the A46. The bats were noted flying west to east over the A46.

3.1.10. There was a potential common pipistrelle crossing noted during survey 3 at 22.10 which was recorded by the surveyor positioned on the eastern side of the A46. The bat was noted flying at a height of 3-4m.

3.1.11. There were two potential common pipistrelle crossings noted during survey 7 at 20.01 and 20.41 which was recorded by a surveyor on the western side of the bridge.

Table 3-1 Summary of bats recorded crossing the A46 at all three crossing point locations

Crossing point	Survey number	Survey date	Crosses	Total number of crosses	
				Confirmed	Potential
1	2	06.06.22	**Confirmed** 22.22 common pipistrelle	1	0
	7	27.07.22	**Confirmed** 21.06 noctule 21.26 soprano pipistrelle	2	0
3	3	20.07.22	**Confirmed** 22.14 common pipistrelle **Potential** 22.10 common pipistrelle	1	1
	7	12.08.22	**Confirmed** 19.30 noctule 20.04 common pipistrelle 20.06 common pipistrelle x 2 **Potential** 20.00 common pipistrelle 20.41 common pipistrelle	4	2

4. Discussion and recommendations

4.1. Identified bat crossing points

4.1.1. The highest number of bats confirmed crossing the A46 during a single survey was at CP3 where four bats were recorded crossing during the seventh survey undertaken on 12 August 2022. There were three common pipistrelle and a single noctule recorded crossing during the seventh survey. There was also a single common pipistrelle recorded crossing at CP3 during survey three on 20 July 2022.

4.1.2. The highest number of bats confirmed crossing the A46 at CP1 was two bats during the third survey undertaken on 27 July 2022. There was a single noctule and a single soprano pipistrelle recorded crossing. There was also a single common pipistrelle recorded crossing at this CP1 during survey 2 on 6 June 2022.

4.1.3. There were no bats recorded crossing at CP2 during any of the surveys.

4.2. Impact assessment

4.2.1. The current Scheme plans indicate that the Hungerley Hall Farm overpass bridge at CP1 will be demolished and a new link road connecting the B4082 to the proposed dumbbell junction will be constructed, creating an ‘island’ of habitat between this new link road and the exiting A46 carriageway. CP2 will be lost due to the construction of the new dumbbell junction. The current plans show that Walsgrave Farm Overpass will be retained however the carriageway in this location will be subject to increased lighting.

4.2.2. The loss of the bridge at CP1 may result in the avoidance and abandonment of habitats and roosts on the opposite side of the A46 and may result in increased mortality should bats still attempt to cross the road without the height of the overpass. In addition, the introduction of in carriageway lighting at crossing point three could impact the more light-averse species, such as myotis which were recorded foraging in the adjacent habitat during the surveys. They were not however recorded crossing at any of the crossing points during the surveys.

4.3. Recommendations

4.3.1. The recommendations presented below refer to recommendations in regard to the crossing point surveys only. The recommendations in regard to bats across the Scheme including activity surveys or roost surveys can be found in the bat activity report (ES Appendix 8.6 (**TR010066/APP/6.3**)) or the bat roost report (ES Appendix 8.5 (**TR010066/APP/6.3**)).

4.3.2. At present there is limited research available on the effectiveness of mitigation in regard to the fragmentation of commuting habitat. The Bat Conservation Trust state, “We are keen to see further monitoring and research across the UK and Europe to consolidate knowledge on what constitutes effective mitigation for the fragmentation of commuting routes by roads” (Bat Conservation Trust, 2023).

4.3.3. It is recommended that the bridge at CP1 is retained and extended to reduce the operational impact on commuting bats as a result of the Scheme. It is also recommended that there is planting on either side of the overpass which is designed to encourage bats towards it to safely cross.

4.3.4. It is recommended that a sensitive lighting scheme is designed in consultation with a suitably experienced ecologist and lighting engineer to ensure that important foraging and commuting areas and CP3 remain undisturbed during the construction and operational phases of the Scheme. Where lighting is necessary, the following measures should be considered to reduce adverse impacts:

- consideration of hood design, lamp height and angle, to reduce light spill; particularly avoiding illuminating retained foraging and commuting habitat within the proposed scheme such as mature trees, tree lines and hedgerows
- use of less ultra-violet (UV) light emitting bulbs such as metal halide or high-pressure sodium
- minimising hours of lighting to those absolutely necessary for safety and security purposes. Where possible lighting should avoid key periods of bat activity (i.e. sunset and sunrise). It should be considered how new technologies can be used to control lighting levels (e.g. dimming lights at certain times)

4.3.5. Further technical details in regard to lighting are given in the Bat Conservation Trust’s (BCTs) and the Institute of Lighting Professionals’ *Guidance Note 08/18 Bats and Artificial Lighting in the UK* (2018) and *Artificial Lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting* (BCT, 2014).

4.3.6. The landscaping should be designed to provide shelter, foraging opportunities and connected dark corridors throughout the proposed scheme. It is recommended that a suitably qualified ecologist is consulted during the design of the landscaping plans to advise on the creation and enhancement of habitats for bats (and other wildlife).

5. References

AECOM for Highways England. (2020a). Environmental Scoping Report PCF Stage 2.

AECOM for Highways England. (2020b). Extended Phase 1 Habitat Update Survey Report.

AECOM for Highways England. (2022). A46 Coventry Junctions Upgrade (Walsgrave Junction). Environmental Assessment Report. PCF Stage 2. P04 S4. Document reference: HE604820-ACM-EGN-WAL_SW_000_Z-RP-LE-0003

Bat Conservation Trust (2014). Artificial Lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting. Available online at:https://cdn.bats.org.uk/uploads/pdf/BCT_Interim_Guidance_Artificial_Lighting_June_2014.pdf?v=1541085199 (Accessed 16/03/2023)

Bat Conservation Trust (BCT) and Institution of Lighting Professionals (2018). Guidance Note 08/18 Bats and Artificial Lighting in the UK Bats and the Built Environment Series. Available online at: https://cdn.bats.org.uk/uploads/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?v=1542109349 (Accessed 16/03/2023)

Bat Conservation Trust (2023). Bats and roads. Available online at: https://www.bats.org.uk/about-bats/threats-to-bats/roads (Accessed 16/03/2023)

Berthinussen, A and Altringham, J. (2015). WC1060 Development of a Cost Effective Method for Monitoring the Effectiveness of Mitigation for Bats Crossing Linear Transport Infrastructure. Final Report 2015. Available online at: http://sciencesearch.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=18518 (Accessed 16/03/2023).

CIEEM (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. Available online at: https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/ (Accessed 16/03/2023)

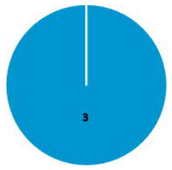
Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.

Elmeros, M., Møller, J. D., Dekker, J., Garin, I., Christensen, M., Baagøe, H. J., Ujvari, M. L. (2016). Fumbling in the dark – effectiveness of bat mitigation measures on roads, Bat mitigation measures on roads – a guideline. In CEDR Transnational Road Research Programme Call 2013: Roads and Wildlife. Conference of European Directors of Roads

Appendix A. Figures

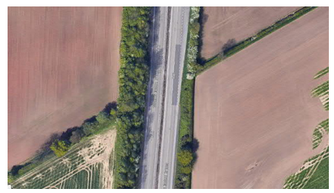
Walsgrave on Sowe
Wyken Croft Nature Park
Rugby Club
Stoke Park School
Wyken Croft Primary School
The Meriden Hospital
University Hospital Coventry
Coventry Myton Hospice
Bodmin Road Industrial Estate
Dorchester Way Open Space
Pearl Hyde Community Primary School
Farren Road
B4082
A46
Crossing point 3

Confirmed


Potential


Crossing point 1

Confirmed

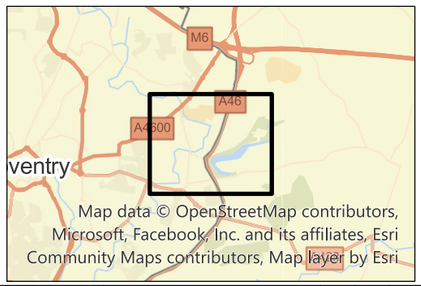

Crossing point 2

No crossings recorded
Hipswell Highway
St Ives Road
The Drive
Richard Lee Primary School
St Gregory's Roman Catholic School
Clifford Bridge Road
Clifford Bridge Academy
Smite Brook
River Sowe
Brinklow Road
B4428
A428
N
0
250
500
750
1,000
Metres
Esri, Intermap, NASA, NGA, USGS, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Legend

- Proposed scheme
- Crossing point

Species composition (Total Number of Passes)

- Common Pipistrelle
- Soprano Pipistrelle
- Noctule



REV	DATE	REVISION NOTE	ORG	CHK'D	APP
P02	12.07.2023	TITLE CHANGE	RM	AN	LM

Designer

Contractor

Client: national highways

Project Title: A46 WALSGRAVE JUNCTIONS (WALSGRAVE)

Project Stage: DCO SUBMISSION

Drawing Title: FIGURE 1 : BAT CROSSING POINT RESULTS

Suitability: FOR INFORMATION

Sheet Size	Scale	Status	Revision
A3	1:10,000	S3	P01

Drawing Number: HE604820-OIL-EBD-00-DR-LB-30011