



# **Norwich Western Link**

# **Environmental Statement**

## **Chapter 11: Bats**

## **Appendix 11.5: 2022 Summer Bat Report**

## **Sub Appendix A: Vantage Point Surveys**

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# 1 Introduction

## 1.1 Vantage Point Surveys

1.1.1 WSP UK Ltd was commissioned by NCC in 2022 to complete additional bat surveys to inform the assessment of the Proposed Scheme. Radio-tracking completed during 2021 identified patterns of barbastelle movement across the A1067 to the north of the Site Boundary. Therefore, vantage point surveys were proposed in 2022 in order to fully establish and assess commuting routes/features used by bats in locations where existing hedgerow and woodland vegetation is located close to the A1067 carriageway.

1.1.2 As per the 2020 and 2021 vantage point surveys, a series of vantage point bat surveys were completed between the months of May to September (inclusive). Technical appendix 5a presents a series of maps labelled Figure A-1 to Figure A-8, showing the results of vantage point surveys (VP9 to VP12) and the observed flight lines of barbastelle and *Myotis* species at each vantage point. These four new vantage point locations were identified as requiring further survey to gather data regarding bat activity, and specifically flight paths above the road.

1.1.3 Additionally, two tables are included within the Appendix; detailing the meteorological data and surveys results of each vantage point survey.

Figure A-1

1.1.4 Figure A-1 displays vantage point survey locations including VP9, VP10, VP11 and VP12. Four pre-determined locations, with three located along the A1067 and one location within the Nursery Woodland south of the previous vantage point location VP1.

1.1.5 VP9 is south of the original VP1 and is on a track running north to south through the eastern edge of the Nursery at the junction to Rose Carr. The feature for VP9 is a woodland ride. The features at VP10, VP 11 and VP12 include hedgerows running parallel to the A1067. The features for VP10 also include a line of trees north of the A1067, running perpendicular to the road.



The features for VP11 also include a parcel of woodland to the north of the road. The features for VP12 also include a line of trees north of the A1067, running perpendicular to the road.

#### Figure A-2

- 1.1.6 Figure A-2 shows vantage point 9 with observed barbastelle flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of barbastelle (1 to 5+). Barbastelle flight lines extended in two directions at VP9 including south-west and north-east. The highest number of flight lines recorded were north-east to south-west in both directions.

#### Figure A-3

- 1.1.7 Figure A-3 shows vantage point 9 with observed *Myotis* species flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of *Myotis* species (1 to 5+). *Myotis* species flight lines extended in multiple directions at VP9 including south-west, south-east, north-west and north-east. The highest number of flight lines recorded were north-east to south-west in both directions.

#### Figure A-4

- 1.1.8 Figure A-4 shows vantage point 10 with observed barbastelle flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of barbastelle (3 to 5+). Barbastelle flight lines extended in two directions at VP10 including south-west and north-east. The highest number of flight lines recorded were north-east to south-west.

#### Figure A-5

- 1.1.9 Figure A-5 shows vantage point 10 with observed *Myotis* species flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of *Myotis* species (4 to 5+). *Myotis* species flight lines extended in two directions at VP10 including south-west and north-east. The highest number of flight lines recorded were north-east to south-west.



Figure A-6

1.1.10 Figure A-6 shows vantage point 11 with observed *Myotis* species flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of *Myotis* (1 to 5+). *Myotis* species flight lines extended in two directions at VP11 including south-west and north-east. The highest number of flight lines recorded were north-east to south-west.

Figure A-7

1.1.11 Figure A-7 shows vantage point 12 with observed barbastelle flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of Barbastelle (2 to 3). Barbastelle flight lines extended in two directions at VP12 including south-west and north-east. The highest number of flight lines recorded were north-east to south-west.

Figure A-8

1.1.12 Figure A-8 shows vantage point 12 with observed *Myotis* species flight lines within the Site Boundary, colour coded in relation to the number of observed flight lines recorded of *Myotis* species (1 to 5+). *Myotis* species flight lines extended in two directions at VP12 including south-west and north-east. The highest number of flight lines recorded were south-west to north-east.

Table A-1 Meteorological data for vantage point surveys completed between May – September 2022

1.1.13 Table A-1 shows the meteorological data for vantage point surveys completed between May to September 2022.

1.1.14 From left to right, the first column displays the vantage point location. The second column displays the month of the survey. The third column displays the date of the survey. The fourth column displays the sunset time of the respective survey date. The fifth column displays the start time of the survey. The sixth column displays the end time of the survey. The seventh column displays the temperature at the start of the survey. The eighth column displays the cloud cover (oktas) at the start of the survey. The ninth column displays the wind speed category at the start of the survey. The tenth column



displays the temperature at the end of the survey. The eleventh column displays the cloud cover (oktas) at the end of the survey. The twelfth column displays the wind speed category at the end of the survey. The final column displays any rain recorded prior or during the survey.

Table A-2 Summary of results of vantage point surveys per month

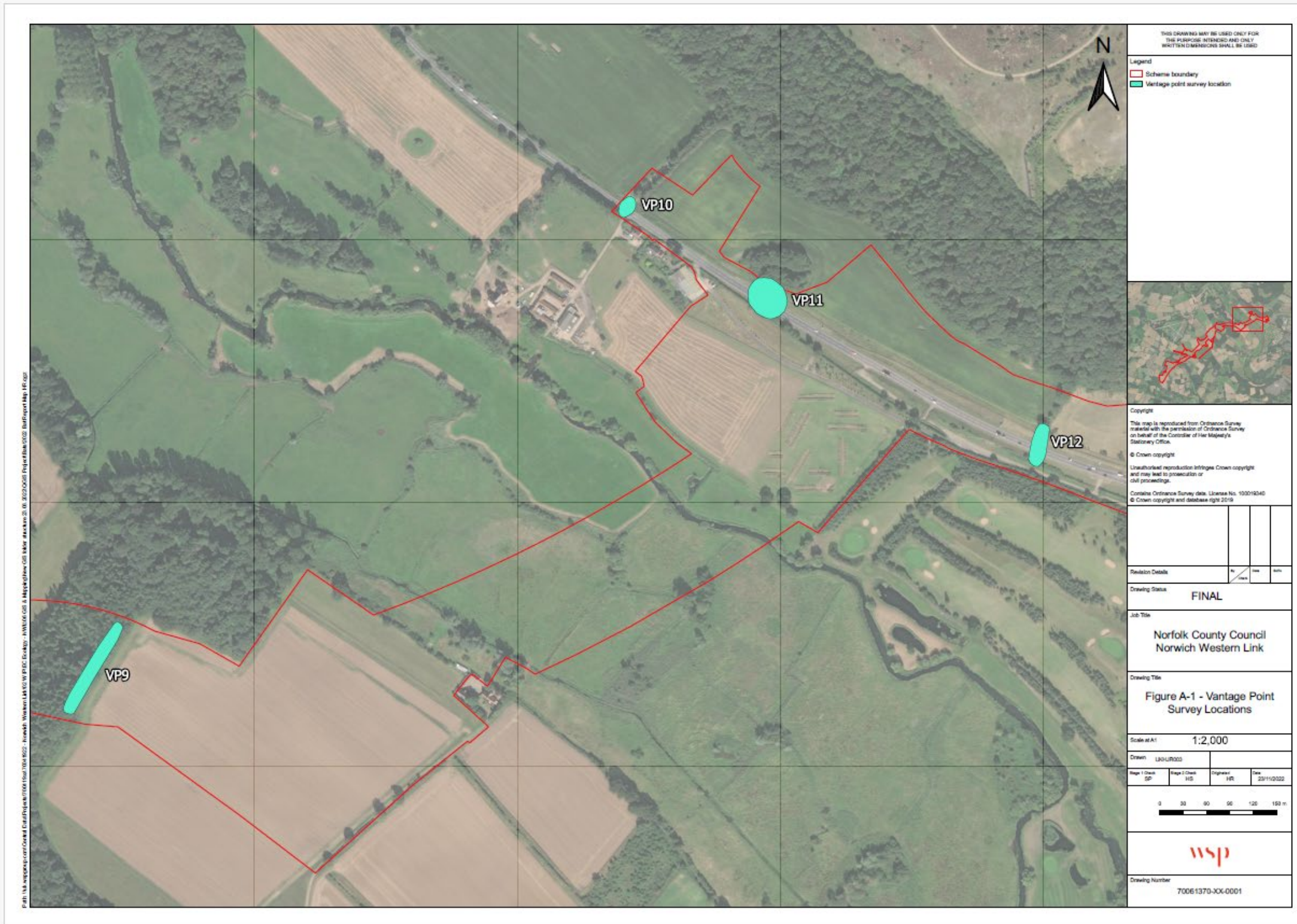
1.1.15 Table A-2 shows the summary of results of vantage points surveys per month.

From left to right, the first column displays the vantage point location. The second column displays the month of the survey. The third column displays the species recorded at each vantage point location. The fourth column displays the total recorded passes at each vantage point location. The fifth column displays the percentage of passes observed at each vantage point location. The sixth column displays the average height in metres (height range). The seventh column displays the percentage of passes observed foraging at each vantage point location. The eighth column displays the percentage of passes observed commuting at each vantage point location. The ninth displays the percentage of passes bats were observed commuting and foraging at each vantage point location. The tenth column displays the total number observed crossing the road. The final column displays the percentage of bats observed crossing at a safe height at each vantage point location.

1.1.16 We have included a summary of key information shown in this document in an accessible format. However, some users may not be able to access all technical details. If you require this document in a more accessible format, please contact [norwichwesternlink@norfolk.gov.uk](mailto:norwichwesternlink@norfolk.gov.uk).

## 2 Vantage Point Surveys

Figure A-1 Vantage Point Survey Locations



**Figure A-2 Vantage Point 9 Indicative Observed Barbastelle Flight Lines**



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**Figure A-3 Vantage Point 9 Indicative Observed Myotis Flight Lines**



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**Figure A-4 Vantage Point 10 Indicative Observed Barbastelle Flight Lines**



**Figure A-5 Vantage Point 10 Indicative Observed Myotis Flight Lines**



**Figure A-6 Vantage Point 11 Indicative Observed Myotis Flight Lines**



**Figure A-7 Vantage Point 12 Indicative Observed Barbastelle Flight Lines**



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**Figure A-8 Vantage Point 12 Indicative Observed Myotis Flight Lines**



**Table A-1 Meteorological data for vantage point surveys completed between May – September 2022**

Vantage point location	Month	Date	Sunset time	Start Time	End Time	Start temp. (°C)	Start cloud cover (oktas)	Start wind speed	End temp. (°C)	End cloud cover (oktas)	End wind speed	Rain (if recorded)
VP9	May	16/05/2022	20:47	21:02	23:47	18	8	1	16	8	1	None.
VP9	June	13/06/2022	21:20	21:35	00:20	15	0	2	13	0	2	None.
VP9	July	11/07/2022	21:16	21:31	00:16	20	0	1	18	3	1	None.
VP9	August	11/08/2022	20:29	20:44	23:29	22	3	0	18	8	0	None.
VP10	May	24/05/2022	20:58	21:13	23:58	17	0	1	11	0	1	Rained approximately 1 hour prior to the survey
VP10	June	14/06/2022	21:20	21:35	00:20	7	1	1	14	1	1	None.
VP10	July	25/07/2022	20:59	21:14	23:59	19	3	4	17	6	4	None.
VP10	August	08/08/2022	20:34	20:48	23:34	22	0	1	16	0	1	None.
VP11	May	18/05/2022	20:51	21:06	23:51	15	7	2	14	8	3	None.
VP11	July	26/07/2022	20:57	21:13	23:58	14	8	1	14	5	1	None.
VP11	August	09/08/2022	20:33	20:47	23:32	19	1	1	17	1	1	None.
VP11	September VP11 in June was terminated early. The June survey for VP11 was repeated in September to ensure a full dataset for VP11	06/09/2022	19:30	19:45	22:30	20	8	2	18	7	1	Light rain during survey.
VP12	May	17/05/2022	20:49	21:04	23:49	17	8	3	16	8	3	None.
VP12	July	27/07/2022	20:55	21:10	23:55	16	8	1	15	1	1	None.
VP12	August	10/08/2022	20:30	20:45	23:30	19	0	1	16	0	1	None.
VP12	August VP12 was unable to go ahead in June. The June survey for VP12 was repeated in August to ensure a full dataset for VP12	23/08/2022	20:02	20:18	23:02	25	8	1	23	8	1	None.

**Table A-2 – Summary of results of vantage point surveys per month**

Vantage point location	Month	Species	Total recorded passes	% Passes observed	Average height m (height range)	% Passes observed foraging	% Passes observed commuting	% Passes observed commuting and foraging	Total observed crossing road	% Observed crossing at safe height
VP9	May	Barbastelle	49	63.3	5.1 (2-7)	14.3	49.0	0	Not Applicable	Not Applicable
VP9	May	Myotis	24	41.7	3 (2-4)	4.2	37.5	0	Not Applicable	Not Applicable
VP9	June	Barbastelle	90	66.7	3.4 (1-6)	31.1	33.3	2.2	Not Applicable	Not Applicable
VP9	June	Myotis	32	71.9	3.1 (1-5)	40.6	31.3	0	Not Applicable	Not Applicable
VP9	July	Barbastelle	50	42	3.9 (1-8)	10	32	0	Not Applicable	Not Applicable
VP9	July	Myotis	58	24.1	1.6 (1-3.5)	13.8	10.3	0	Not Applicable	Not Applicable
VP9	August	Barbastelle	7	42.9	4 (3-5)	14.3	28.6	0	Not Applicable	Not Applicable
VP9	August	Myotis	7	71.4	2.2 (1-3)	28.6	42.9	0	Not Applicable	Not Applicable
VP10	May	Barbastelle	11	9.1	5 (5)	0	9.1	0	1	100
VP10	May	Myotis	7	0	Not Applicable	0	0	0	0	Not Applicable
VP10	June	Barbastelle	3	66.7	5 (5)	0	66.7	0	2	100
VP10	June	Myotis	10	40	3.7 (3-4)	0	40	0	4	0
VP10	July	Barbastelle	1	0	Not Applicable	0	0	0	0	Not Applicable
VP10	July	Myotis	7	57.1	5.7 (4-7)	0	42.9	14.3	4	75
VP10	August	Barbastelle	8	62.5	5.4 (3-10)	0	62.5	0	5	40
VP10	August	Myotis	13	84.6	3.5 (2-6)	7.7	69.2	7.7	11	18.2
VP11	May	Barbastelle	0	Not Applicable	Not Applicable	0	0	0	0	Not Applicable
VP11	May	Myotis	5	60	10 (10)	0	40	20	3	66.7
VP11	July	Barbastelle	0	Not Applicable	Not Applicable	0	0	0	0	Not Applicable
VP11	July	Myotis	2	50	10 (10)	0	50	0	1	100
VP11	August	Barbastelle	1	0	Not Applicable	0	0	0	0	Not Applicable
VP11	August	Myotis	2	0	Not Applicable	0	0	0	0	Not Applicable



Vantage point location	Month	Species	Total recorded passes	% Passes observed	Average height m (height range)	% Passes observed foraging	% Passes observed commuting	% Passes observed commuting and foraging	Total observed crossing road	% Observed crossing at safe height
VP11	September VP11 in June was terminated early. The June survey for VP11 was repeated in September to ensure a full dataset for VP11.	Barbastelle	0	Not Applicable	Not Applicable	0	0	0	0	Not Applicable
VP11	September VP11 in June was terminated early. The June survey for VP11 was repeated in September to ensure a full dataset for VP11.	Myotis	2	100	6 (5-7)	0	100	0	2	100
VP12	May	Barbastelle	20	5	4 (4)	0	5	0	1	0
VP12	May	Myotis	29	13.8	8.3 (2-15)	3.4	10.3	0	3	100
VP12	July	Barbastelle	4	50	8 (6-10)	25	25	0	1	100
VP12	July	Myotis	4	50	3.5 (3-4)	50	0	0	1	0
VP12	August	Barbastelle	14	50	5.9 (4-7)	35.7	14.3	0	3	33.3
VP12	August	Myotis	6	50	8.7 (6-10)	0	50	0	3	100

Vantage point location	Month	Species	Total recorded passes	% Passes observed	Average height m (height range)	% Passes observed foraging	% Passes observed commuting	% Passes observed commuting and foraging	Total observed crossing road	% Observed crossing at safe height
VP12	August VP12 was unable to go ahead in June. The June survey for VP12 was repeated in August to ensure a full dataset for VP12.	Barbastelle	3	66.7	7.5 (5-10)	33.3	33.3	0	1	100
VP12	August VP12 was unable to go ahead in June. The June survey for VP12 was repeated in August to ensure a full dataset for VP12.	Myotis	8	12.5	7 (7)	12.5	0	0	0	Not Applicable