

Appendix B Automated Bat Detector Deployment Results

B.1 Bat Passes/Hour Sorted into Quartiles

Quartile	Bat Passes/Hour	Static Location (Figure 1)	Deployment Month (2024)
1	159.7	I	September
1	158.4	I	June
1	131.8	A	June
1	106.1	A	May
1	79.7	I	July
1	60.5	D	July
1	58.4	H	June
1	56.9	I	August
1	47.4	D	August
1	46.9	F	October
1	43.4	F	July
1	40.1	F	May
1	39	G	June
2	37	F	August
2	35.7	G	July
2	33.4	A	July
2	25.7	C	August
2	24.7	I	October
2	24	G	August
2	23.6	A	August
2	22.4	B	August
2	21.7	F	June
2	21.7	D	October
2	21.5	B	May
2	21	D	June
2	20.1	B	June
3	18.4	C	October
3	16.8	C	May
3	16.7	B	September
3	16.6	H	July
3	16.1	C	July
3	15.9	F	September
3	15.3	A	October
3	14.5	G	September
3	14.1	A	September
3	13.8	D	September

Quartile	Bat Passes/Hour	Static Location (Figure 1)	Deployment Month (2024)
3	13.6	B	July
3	12.6	D	May
4	12.3	H	August
4	8.6	E	May
4	7.6	E	July
4	7.4	G	October
4	7.2	E	August
4	7.1	C	June
4	6.8	E	September
4	6.7	E	October
4	6.5	E	June
4	4.7	C	September
4	3.9	H	September
4	3.3	B	October
4	3.1	H	October

B.2 Bat Pass Counts Close to Sunset/Sunrise

Bat passes identified below are those recorded within an hour of sunset and sunrise during automated bat detector deployment. These may be compared to the average emergence times identified in the best practice survey guidelines⁴ to indicate the presence of roosts in the nearby landscape.

Static A

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:30	0	214	04:27	0	11
May	21:00	05:15	Soprano pipistrelle	21:30	0	57	04:26	0	2
May	21:00	05:15	Myotis sp.	21:47	0	74	No passes recorded within an hour of sunrise		
May	21:00	05:15	Noctule	21:24	2	3	04:36	0	3
May	21:00	05:15	Brown long-eared bat	21:54	0	1	No passes recorded within an hour of sunrise		
June	21:30	04:50	Common pipistrelle	21:42	1	48	No passes recorded within an hour of sunrise		
June	21:30	04:50	Soprano pipistrelle	22:11	0	35	No passes recorded within an hour of sunrise		
June	21:30	04:50	Myotis sp.	22:11	0	2	No passes recorded within an hour of sunrise		
June	21:30	04:50	Leisler's bat	22:08	0	8	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:41	3	9	No passes recorded within an hour of sunrise		
June	21:30	04:50	Serotine	22:08	0	2	No passes recorded within an hour of sunrise		
June	21:30	04:50	Brown long-eared bat	22:02	0	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Common pipistrelle	21:48	15	48	04:20	0	37
July	21:25	05:00	Soprano pipistrelle	22:06	0	7	04:26	2	5
July	21:25	05:00	Myotis sp.	22:14	0	6	04:00	0	1
July	21:25	05:00	Noctule	21:37	4	12	04:40	5	11
July	21:25	05:00	Serotine	21:51	5	11	No passes recorded within an hour of sunrise		

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
July	21:25	05:00	Brown long-eared bat	21:48	2	2	04:32	0	6
August	20:40	05:50	Common pipistrelle	21:04	3	54	05:15	0	19
August	20:40	05:50	Soprano pipistrelle	21:10	0	8	05:16	0	12
August	20:40	05:50	Myotis sp.	21:22	0	3	No passes recorded within an hour of sunrise		
August	20:40	05:50	Noctule	20:46	25	85	05:37	12	17
August	20:40	05:50	Leisler's bat	21:06	2	32	05:32	2	3
August	20:40	05:50	Serotine	21:10	0	36	04:59	0	1
August	20:40	05:50	Brown long-eared bat	21:17	0	8	No passes recorded within an hour of sunrise		
September	19:40	06:40	Common pipistrelle	20:04	9	163	No passes recorded within an hour of sunrise		
September	19:40	06:40	Soprano pipistrelle	20:02	1	9	No passes recorded within an hour of sunrise		
September	19:40	06:40	Nathusius' pipistrelle	No passes recorded within an hour of sunset			05:49	0	1
September	19:40	06:40	Myotis sp.	20:16	0	23	No passes recorded within an hour of sunrise		
September	19:40	06:40	Noctule	19:32	8	18	06:26	1	4
September	19:40	06:40	Serotine	20:23	0	2	No passes recorded within an hour of sunrise		
September	19:40	06:40	Lesser horseshoe bat	20:16	0	1	No passes recorded within an hour of sunrise		
September	19:40	06:40	Brown long-eared bat	20:10	0	6	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:54	6	202	06:37	0	10
October	18:30	07:20	Soprano pipistrelle	18:53	3	25	06:45	0	6
October	18:30	07:20	Myotis sp.	18:59	1	11	06:31	0	3
October	18:30	07:20	Noctule	18:46	6	17	No passes recorded within an hour of sunrise		
October	18:30	07:20	Leisler's bat	19:00	0	5	No passes recorded within an hour of sunrise		
October	18:30	07:20	Serotine	19:01	0	2	No passes recorded within an hour of sunrise		

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
October	18:30	07:20	Brown long-eared bat	19:13	0	8	06:43	0	4
October	18:30	07:20	Barbastelle	19:19	0	1	No passes recorded within an hour of sunrise		

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static B

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:30	0	60	04:29	0	3
May	21:00	05:15	Soprano pipistrelle	21:28	1	1	04:20	0	1
May	21:00	05:15	Nathusius' pipistrelle	21:49	0	2	No passes recorded within an hour of sunrise		
May	21:00	05:15	Myotis sp.	21:45	0	4	No passes recorded within an hour of sunrise		
May	21:00	05:15	Noctule	21:18	2	2	No passes recorded within an hour of sunrise		
May	21:00	05:15	Brown long-eared bat	21:55	0	2	04:15	0	23
June	21:30	04:50	Common pipistrelle	21:55	4	44	04:05	0	6
June	21:30	04:50	Soprano pipistrelle	22:10	0	3	04:04	0	6
June	21:30	04:50	Noctule	21:34	15	17	04:18	0	12
July	21:25	05:00	Common pipistrelle	21:51	44	157	04:06	0	2

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
July	21:25	05:00	Nathusius' pipistrelle	21:53	1	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Myotis sp.	22:14	0	4	No passes recorded within an hour of sunrise		
July	21:25	05:00	Noctule	21:42	4	10	04:37	18	26
July	21:25	05:00	Serotine	22:18	0	1	No passes recorded within an hour of sunrise		
August	20:40	05:50	Common pipistrelle	21:07	0	158	05:14	20	46
August	20:40	05:50	Soprano pipistrelle	No passes recorded within an hour of sunset			04:44	0	1
August	20:40	05:50	Myotis sp.	21:21	0	2	04:52	0	2
August	20:40	05:50	Noctule	20:49	6	25	05:34	5	9
August	20:40	05:50	Leisler's bat	21:21	0	3	04:53	0	3
August	20:40	05:50	Serotine	21:28	0	1	04:50	0	1
August	20:40	05:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:50	0	3
September	19:30	06:40	Common pipistrelle	19:46	12	133	06:06	0	3
September	19:30	06:40	Soprano pipistrelle	19:40	4	9	06:07	0	5
September	19:30	06:40	Myotis sp.	19:53	1	9	No passes recorded within an hour of sunrise		
September	19:30	06:40	Noctule	19:52	3	3	No passes recorded within an hour of sunrise		
September	19:30	06:40	Serotine	20:07	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:52	2	28	06:44	0	3

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
October	18:30	07:20	Soprano pipistrelle	18:56	1	7	06:41	0	3
October	18:30	07:20	Myotis sp.	0.801	0	7	06:35	0	2
October	18:30	07:20	Noctule	18:55	1	4	07:04	4	8
October	18:30	07:20	Serotine	19:04	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Brown long-eared bat	19:24	0	1	06:23	0	1

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static C

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:28	2	133	04:20	0	3
May	21:00	05:15	Soprano pipistrelle	21:30	0	64	04:27	0	2
May	21:00	05:15	Noctule	21:19	2	3	04:26	0	1
May	21:00	05:15	Brown long-eared bat	21:37	0	1	04:16	0	1
June	21:30	04:50	Common pipistrelle	22:19	0	12	04:11	0	25
June	21:30	04:50	Soprano pipistrelle	22:12	0	20	04:03	0	3
June	21:30	04:50	Myotis sp.	22:25	0	1	03:57	0	1

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Noctule	21:49	4	7	04:35	2	10
June	21:30	04:50	Brown long-eared bat	No passes recorded within an hour of sunset			03:51	0	1
July	21:25	05:00	Common pipistrelle	21:51	14	96	04:24	0	48
July	21:25	05:00	Soprano pipistrelle	22:12	0	45	No passes recorded within an hour of sunrise		
July	21:25	05:00	Nathusius' pipistrelle	No passes recorded within an hour of sunset			04:22	0	1
July	21:25	05:00	Noctule	22:05	0	3	04:23	1	2
July	21:25	05:00	Serotine	22:00	0	4	No passes recorded within an hour of sunrise		
August	20:40	05:50	Common pipistrelle	21:10	0	100	05:21	34	77
August	20:40	05:50	Soprano pipistrelle	No passes recorded within an hour of sunset			05:15	7	17
August	20:40	05:50	Myotis sp.	No passes recorded within an hour of sunset			04:52	0	2
August	20:40	05:50	Noctule	20:50	4	10	05:34	5	6
August	20:40	05:50	Serotine	No passes recorded within an hour of sunset			05:00	0	39
August	20:40	05:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:59	0	20
September	19:40	06:30	Common pipistrelle	20:10	0	21	06:01	2	8
September	19:40	06:30	Soprano pipistrelle	20:07	1	4	No passes recorded within an hour of sunrise		
September	19:40	06:30	Myotis sp.	20:23	0	3	No passes recorded within an hour of sunrise		
September	19:40	06:30	Noctule	20:06	0	4	06:08	4	6

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
October	18:30	07:20	Common pipistrelle	19:04	0	6	06:48	0	47
October	18:30	07:20	Soprano pipistrelle	18:53	1	4	06:54	12	120
October	18:30	07:20	Myotis sp.	No passes recorded within an hour of sunset			06:43	0	46
October	18:30	07:20	Noctule	18:48	4	5	07:01	5	5

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static D

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:23	3	113	04:33	0	22
May	21:00	05:15	Soprano pipistrelle	21:39	0	1	No passes recorded within an hour of sunrise		
May	21:00	05:15	Myotis sp.	No passes recorded within an hour of sunset			04:15	0	1
May	21:00	05:15	Noctule	21:34	0	2	No passes recorded within an hour of sunrise		
May	21:00	05:15	Serotine	21:51	0	1	No passes recorded within an hour of sunrise		
May	21:00	05:15	Lesser horseshoe bat	21:48	0	1	No passes recorded within an hour of sunrise		
June	21:30	04:50	Common pipistrelle	21:51	23	98	04:23	1	35
June	21:30	04:50	Soprano pipistrelle	22:12	0	8	No passes recorded within an hour of sunrise		

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Myotis sp.	22:08	0	1	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:41	3	3	No passes recorded within an hour of sunrise		
June	21:30	04:50	Serotine	21:59	1	1	No passes recorded within an hour of sunrise		
June	21:30	04:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:00	0	1
July	21:25	05:00	Common pipistrelle	20:53	40	126	05:31	29	51
July	21:25	05:00	Soprano pipistrelle	21:43	1	12	05:31	13	17
July	21:25	05:00	Myotis sp.	22:13	0	4	04:02	0	1
July	21:25	05:00	Noctule	22:11	0	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Serotine	22:09	0	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Lesser horseshoe bat	No passes recorded within an hour of sunset			04:08	0	2
August	20:40	05:50	Common pipistrelle	21:01	0	42	05:20	8	70
August	20:40	05:50	Soprano pipistrelle	21:15	0	5	05:03	0	4
August	20:40	05:50	Nathusius' pipistrelle	21:20	0	2	No passes recorded within an hour of sunrise		
August	20:40	05:50	Myotis sp.	No passes recorded within an hour of sunset			04:58	0	3
August	20:40	05:50	Noctule	20:48	6	11	05:44	2	5
August	20:40	05:50	Lesser horseshoe bat	No passes recorded within an hour of sunset			04:49	0	1
August	20:40	05:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:48	0	1

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
September	19:30	06:40	Common pipistrelle	19:49	18	98	No passes recorded within an hour of sunrise		
September	19:30	06:40	Soprano pipistrelle	20:07	0	1	No passes recorded within an hour of sunrise		
September	19:30	06:40	Myotis sp.	20:28	0	1	No passes recorded within an hour of sunrise		
September	19:30	06:40	Brown long-eared bat	20:22	0	1	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:45	58	299	06:50	0	66
October	18:30	07:20	Soprano pipistrelle	18:47	5	22	06:44	0	4
October	18:30	07:20	Leisler's bat	19:21	0	2	No passes recorded within an hour of sunrise		
October	18:30	07:20	Noctule	18:17	5	5	06:29	0	1

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static E

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:23	2	41	04:39	0	16
May	21:00	05:15	Soprano pipistrelle	21:42	0	6	04:35	0	7
May	21:00	05:15	Nathusius' pipistrelle	21:51	0	2	No passes recorded within an hour of sunrise		

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Myotis sp.	21:45	0	41	No passes recorded within an hour of sunrise		
May	21:00	05:15	Noctule	No passes recorded within an hour of sunset			04:57	5	12
June	21:30	04:50	Common pipistrelle	21:53	1	12	04:19	0	6
June	21:30	04:50	Soprano pipistrelle	22:03	0	3	No passes recorded within an hour of sunrise		
June	21:30	04:50	Nathusius' pipistrelle	22:20	0	1	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:37	8	13	04:43	49	82
June	21:30	04:50	Serotine	No passes recorded within an hour of sunset			04:23	1	1
July	21:25	05:00	Common pipistrelle	No passes recorded within an hour of sunset			04:23	0	4
July	21:25	05:00	Soprano pipistrelle	21:52	1	21	No passes recorded within an hour of sunrise		
July	21:25	05:00	Myotis sp.	22:14	0	1	04:09	0	1
July	21:25	05:00	Leisler's bat	21:38	2	3	No passes recorded within an hour of sunrise		
July	21:25	05:00	Noctule	21:29	27	37	04:49	17	17
August	20:40	05:50	Common pipistrelle	21:01	0	39	04:55	0	4
August	20:40	05:50	Soprano pipistrelle	21:14	0	1	No passes recorded within an hour of sunrise		
August	20:40	05:50	Myotis sp.	21:13	0	5	No passes recorded within an hour of sunrise		
August	20:40	05:50	Noctule	20:44	7	10	05:32	7	8

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
August	20:40	05:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:56	0	2
September	19:30	06:40	Common pipistrelle	19:50	110	147	No passes recorded within an hour of sunrise		
September	19:30	06:40	Soprano pipistrelle	20:02	10	18	No passes recorded within an hour of sunrise		
September	19:30	06:40	Myotis sp.	20:05	1	12	No passes recorded within an hour of sunrise		
September	19:30	06:40	Noctule	19:48	3	5	07:04	3	4
September	19:30	06:40	Serotine	20:33	0	1	No passes recorded within an hour of sunrise		
September	19:30	06:40	Brown long-eared bat	20:12	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:53	20	64	06:51	3	5
October	18:30	07:20	Soprano pipistrelle	18:44	3	8	06:58	1	4
October	18:30	07:20	Myotis sp.	19:04	0	56	06:27	0	2
October	18:30	07:20	Noctule	18:33	9	9	06:45	0	1
October	18:30	07:20	Brown long-eared bat	19:15	0	4	06:36	0	1

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static F

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
May	21:00	05:15	Common pipistrelle	21:24	4	55	04:37	0	33
May	21:00	05:15	Soprano pipistrelle	21:19	1	11	04:30	0	6
May	21:00	05:15	Myotis sp.	21:32	0	13	04:31	0	7
May	21:00	05:15	Noctule	21:17	108	177	04:40	0	11
May	21:00	05:15	Serotine	21:22	3	6	No passes recorded within an hour of sunrise		
June	21:30	04:50	Common pipistrelle	22:16	0	6	No passes recorded within an hour of sunrise		
June	21:30	04:50	Soprano pipistrelle	22:22	0	3	No passes recorded within an hour of sunrise		
June	21:30	04:50	Myotis sp.	22:06	0	2	No passes recorded within an hour of sunrise		
June	21:30	04:50	Leisler's bat	22:08	0	8	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:45	75	98	No passes recorded within an hour of sunrise		
June	21:30	04:50	Serotine	22:16	0	2	No passes recorded within an hour of sunrise		
July	21:25	05:00	Common pipistrelle	21:50	8	121	04:23	0	56
July	21:25	05:00	Soprano pipistrelle	21:50	0	7	04:34	2	7
July	21:25	05:00	Myotis sp.	21:46	3	29	04:34	1	34
July	21:25	05:00	Noctule	21:32	34	35	04:51	20	24
July	21:25	05:00	Leisler's bat	21:41	3	4	No passes recorded within an hour of sunrise		
July	21:25	05:00	Serotine	22:12	0	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Brown long-eared bat	22:22	0	1	04:09	0	2
August	20:40	05:50	Common pipistrelle	21:06	6	65	05:11	2	116
August	20:40	05:50	Soprano pipistrelle	21:07	5	9	05:24	1	4

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
August	20:40	05:50	Myotis sp.	21:21	0	14	05:16	7	27
August	20:40	05:50	Noctule	20:40	5	9	05:33	23	23
August	20:40	05:50	Leisler's bat	21:12	0	1	No passes recorded within an hour of sunrise		
August	20:40	05:50	Serotine	21:12	0	6	04:46	0	2
August	20:40	05:50	Brown long-eared bat	21:28	0	4	04:59	0	12
September	19:30	06:40	Common pipistrelle	19:58	28	123	06:06	3	9
September	19:30	06:40	Soprano pipistrelle	19:56	2	11	06:03	1	7
September	19:30	06:40	Myotis sp.	20:14	0	5	No passes recorded within an hour of sunrise		
September	19:30	06:40	Noctule	20:11	0	2	No passes recorded within an hour of sunrise		
September	19:30	06:40	Brown long-eared bat	20:21	0	4	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	19:05	8	197	No passes recorded within an hour of sunrise		
October	18:30	07:20	Soprano pipistrelle	19:14	0	11	No passes recorded within an hour of sunrise		
October	18:30	07:20	Myotis sp.	19:13	0	5	No passes recorded within an hour of sunrise		
October	18:30	07:20	Noctule	18:49	1	1	No passes recorded within an hour of sunrise		

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static G

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Common pipistrelle	21:57	3	143	04:07	0	14
June	21:30	04:50	Soprano pipistrelle	22:09	0	2	03:59	0	2

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Myotis sp.	22:22	0	1	03:58	0	2
June	21:30	04:50	Leisler's bat	21:48	2	5	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:40	89	114	04:26	5	15
July	21:25	05:00	Common pipistrelle	21:46	22	200	04:25	0	7
July	21:25	05:00	Soprano pipistrelle	21:47	4	14	04:21	0	3
July	21:25	05:00	Myotis sp.	22:02	0	11	04:05	0	1
July	21:25	05:00	Noctule	21:31	18	31	04:47	36	37
July	21:25	05:00	Leisler's bat	No passes recorded within an hour of sunset			04:42	2	2
August	20:40	05:50	Common pipistrelle	21:01	3	66	05:18	0	15
August	20:40	05:50	Soprano pipistrelle	21:06	1	13	05:27	1	17
August	20:40	05:50	Myotis sp.	21:20	0	22	04:55	0	1
August	20:40	05:50	Noctule	20:38	21	27	05:36	15	17
August	20:40	05:50	Leisler's bat	21:32	0	2	No passes recorded within an hour of sunrise		
August	20:40	05:50	Serotine	21:20	0	4	No passes recorded within an hour of sunrise		
September	19:30	06:40	Common pipistrelle	19:46	20	67	06:11	1	34
September	19:30	06:40	Soprano pipistrelle	19:40	24	47	06:12	1	11
September	19:30	06:40	Nathusius' pipistrelle	19:53	1	1	No passes recorded within an hour of sunrise		
September	19:30	06:40	Myotis sp.	19:52	2	19	No passes recorded within an hour of sunrise		
September	19:30	06:40	Noctule	19:29	5	10	06:09	1	3
September	19:30	06:40	Serotine	19:57	1	0	No passes recorded within an hour of sunrise		
September	19:30	06:40	Lesser horseshoe bat	20:21	0	2	No passes recorded within an hour of sunrise		

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
September	19:30	06:40	Brown long-eared bat	20:20	0	2	05:41	0	1
October	18:30	07:20	Common pipistrelle	18:56	1	34	06:29	0	4
October	18:30	07:20	Soprano pipistrelle	18:51	1	8	06:48	0	2
October	18:30	07:20	Myotis sp.	19:05	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Noctule	19:16	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Lesser horseshoe bat	19:19	0	1	No passes recorded within an hour of sunrise		

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static H

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Common pipistrelle	21:51	9	227	04:14	0	94
June	21:30	04:50	Soprano pipistrelle	21:50	42	285	04:13	0	60
June	21:30	04:50	Myotis sp.	22:02	0	27	No passes recorded within an hour of sunrise		
June	21:30	04:50	Noctule	21:33	18	19	04:46	58	77
June	21:30	04:50	Leisler's bat	21:59	1	5	04:29	3	6
June	21:30	04:50	Serotine	22:13	0	3	No passes recorded within an hour of sunrise		
July	21:25	05:00	Common pipistrelle	21:42	38	111	04:30	0	14
July	21:25	05:00	Soprano pipistrelle	21:45	30	71	No passes recorded within an hour of sunrise		
July	21:25	05:00	Myotis sp.	21:49	4	15	04:12	0	1

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
July	21:25	05:00	Noctule	21:28	6	7	04:33	1	5
July	21:25	05:00	Leisler's bat	21:54	1	6	No passes recorded within an hour of sunrise		
July	21:25	05:00	Serotine	21:51	6	8	No passes recorded within an hour of sunrise		
July	21:25	05:00	Brown long-eared bat	21:54	4	4	04:31	1	2
August	20:40	05:50	Common pipistrelle	20:56	6	22	05:00	0	2
August	20:40	05:50	Soprano pipistrelle	21:00	0	245	05:03	0	1
August	20:40	05:50	Myotis sp.	21:12	0	4	05:02	2	2
August	20:40	05:50	Noctule	21:05	0	3	05:43	14	14
August	20:40	05:50	Leisler's bat	No passes recorded within an hour of sunset			05:01	0	1
August	20:40	05:50	Serotine	21:09	0	1	04:57	1	2
August	20:40	05:50	Brown long-eared bat	No passes recorded within an hour of sunset			04:40	0	1
September	19:30	06:40	Common pipistrelle	20:03	23	40	05:47	0	3
September	19:30	06:40	Soprano pipistrelle	19:45	3	3	06:03	1	1
September	19:30	06:40	Myotis sp.	20:12	0	5	No passes recorded within an hour of sunrise		
September	19:30	06:40	Noctule	19:57	3	3	06:25	1	1
September	19:30	06:40	Serotine	20:08	1	4	No passes recorded within an hour of sunrise		
September	19:30	06:40	Brown long-eared bat	20:04	1	1	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:57	4	30	No passes recorded within an hour of sunrise		
October	18:30	07:20	Soprano pipistrelle	19:03	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Myotis sp.	18:57	1	5	06:22	0	1
October	18:30	07:20	Noctule	18:18	7	7	07:10	3	3

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
October	18:30	07:20	Leisler's bat	19:25	0	2	06:26	0	1
October	18:30	07:20	Serotine	18:50	1	2	No passes recorded within an hour of sunrise		
October	18:30	07:20	Brown long-eared bat	No passes recorded within an hour of sunset			06:22	0	1

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

Static I

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
June	21:30	04:50	Common pipistrelle	21:46	30	436	04:21	1	189
June	21:30	04:50	Soprano pipistrelle	22:04	0	5	04:05	0	1
June	21:30	04:50	Myotis sp.	22:00	0	7	04:04	0	3
June	21:30	04:50	Noctule	21:38	46	46	04:34	5	5
June	21:30	04:50	Serotine	21:58	14	26	No passes recorded within an hour of sunrise		
July	21:25	05:00	Common pipistrelle	21:45	22	152	04:36	0	73
July	21:25	05:00	Soprano pipistrelle	22:00	0	1	04:19	0	2
July	21:25	05:00	Myotis sp.	21:58	0	91	04:09	0	2
July	21:25	05:00	Noctule	21:39	1	1	04:14	0	2
July	21:25	05:00	Leisler's bat	22:09	0	1	No passes recorded within an hour of sunrise		
July	21:25	05:00	Serotine	21:58	0	3	No passes recorded within an hour of sunrise		
August	20:40	05:50	Common pipistrelle	21:01	0	58	05:34	5	136

Month	Sunset time	Sunrise time	Species*	First pass time	Number of passes within half an hour of sunset	Number of passes within one hour of sunset	Last pass time	Passes within half an hour of sunrise	Passes within one hour of sunrise
August	20:40	05:50	Soprano pipistrelle	20:55	4	17	05:31	1	3
August	20:40	05:50	Myotis sp.	21:07	0	27	04:55	0	4
August	20:40	05:50	Noctule	20:48	5	13	05:44	2	5
August	20:40	05:50	Leisler's bat	No passes recorded within an hour of sunset			04:56	0	2
August	20:40	05:50	Serotine	21:08	0	10	No passes recorded within an hour of sunrise		
August	20:40	05:50	Brown long-eared bat	21:05	0	3	No passes recorded within an hour of sunrise		
September	19:30	06:40	Common pipistrelle	19:49	63	620	06:18	53	327
September	19:30	06:40	Soprano pipistrelle	19:48	8	12	06:01	2	7
September	19:30	06:40	Myotis sp.	20:07	6	42	06:06	1	14
September	19:30	06:40	Noctule	19:18	1	3	06:25	1	3
September	19:30	06:40	Lesser horseshoe bat	20:00	2	2	No passes recorded within an hour of sunrise		
September	19:30	06:40	Brown long-eared bat	20:10	0	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Common pipistrelle	18:50	8	124	06:52	1	13
October	18:30	07:20	Soprano pipistrelle	18:55	2	66	06:51	1	11
October	18:30	07:20	Myotis sp.	19:01	0	30	No passes recorded within an hour of sunrise		
October	18:30	07:20	Noctule	18:17	4	6	06:59	1	3
October	18:30	07:20	Serotine	18:55	1	3	No passes recorded within an hour of sunrise		
October	18:30	07:20	Brown long-eared bat	19:28	0	1	No passes recorded within an hour of sunrise		

*Where a species is not listed, no passes were identified within an hour of sunset or sunrise during the deployment

B.3 Earliest and Latest Barbastelle Passes

Automated Bat Detector	Month	Sunset Time	Sunrise Time	Barbastelle Passes/Hour	Earliest Barbastelle Call	Latest Barbastelle Call
A	May	21:00	05:15	0.25	22:23	N/A – one pass
A	June	21:30	04:50	0	-	-
A	July	21:25	05:00	0.286	22:25	01:10
A	August	20:40	05:50	0.049	01:03	01:04
A	September	19:40	06:40	0.04	22:11	03:03
A	October	18:30	07:20	0.021	19:19	N/A – one pass
B	May	21:00	05:15	0.025	22:23	N/A – one pass
B	June	21:30	04:50	0	-	-
B	July	21:25	05:00	0.029	22:27	N/A – one pass
B	August	20:40	05:50	0.022	23:02	N/A – one pass
B	September	19:30	06:40	0.055	00:42	03:35
B	October	18:30	07:20	0.05	21:13	03:26
C	May	21:00	05:15	0	-	-
C	June	21:30	04:50	0	-	-
C	July	21:25	05:00	0.057	02:50	03:30
C	August	20:40	05:50	0.022	23:06	N/A – one pass
C	September	19:40	06:40	0	-	-
C	October	18:30	07:20	0	-	-
D	May	21:00	05:15	0	-	-
D	June	21:30	04:50	0.286	23:21	01:19
D	July	21:25	05:00	0.029	22:29	N/A – one pass
D	August	20:40	05:50	0	-	-
D	September	19:40	06:40	0.018	01:21	N/A – one pass
D	October	18:30	07:20	0.017	23:38	N/A – one pass
E	May	21:00	05:15	0	-	-
E	June	21:30	04:50	0	-	-
E	July	21:25	05:00	0	-	-
E	August	20:40	05:50	0.022	23:18	N/A – one pass
E	September	19:40	06:40	0.02	02:08	N/A – one pass
E	October	18:30	07:20	0	-	-
F	May	21:00	05:15	0	-	-
F	June	21:30	04:50	0	-	-
F	July	21:25	05:00	0.714	22:27	03:15
F	August	20:40	05:50	0.05	00:33	03:56
F	September	19:40	06:40	0.2	01:12	02:54
F	October	18:30	07:20	0.083	02:32	
G	June	21:30	04:50	0	-	-

Automated Bat Detector	Month	Sunset Time	Sunrise Time	Barbastelle Passes/Hour	Earliest Barbastelle Call	Latest Barbastelle Call
G	July	21:25	05:00	0.029	22:40	N/A – one pass
G	August	20:40	05:50	0	-	-
G	September	19:40	06:40	0	-	-
G	October	18:30	07:20	0.042	21:03	04:40
H	June	21:30	04:50	0	-	-
H	July	21:25	05:00	0	-	-
H	August	20:40	05:50	0.022	02:23	N/A – one pass
H	September	19:40	06:40	0	-	-
H	October	18:30	07:20	0	-	-
I	June	21:30	04:50	3.657	23:09	03:39
I	July	21:25	05:00	0.486	22:56	03:29
I	August	20:40	05:50	0.756	22:56	04:08
I	September	19:40	06:40	0.2	21:14	03:14
I	October	18:30	07:20	0.05	23:40	01:08
Passes recorded within one hour of sunset/sunrise				Passes recorded within an hour and a half of sunset/sunrise		

The typical emergence time for barbastelle is half an hour after sunset⁴ though they are known to be particularly light adverse and remain within the woodland their roost tree is located until light levels fall¹⁷.

The CSZ for barbastelle is 6 km⁴.

B.4 Earliest and Latest Lesser Horseshoe Bat Passes

Automated Bat Detector	Month	Sunset Time	Sunrise Time	Lesser Horseshoe Passes/Hour	Earliest Lesser Horseshoe Bat Call	Latest Lesser Horseshoe Bat Call
A	May	21:00	05:15	0	-	-
A	June	21:30	04:50	0	-	-
A	July	21:25	05:00	0	-	-
A	August	20:40	05:50	0	-	-
A	September	19:40	06:40	0.02	20:16	N/A – one pass
A	October	18:30	07:20	0.021	01:11	N/A – one pass
B	May	21:00	05:15	0.025	01:52	N/A – one pass
B	June	21:30	04:50	0.057	01:47	02:06
B	July	21:25	05:00	0	-	-
B	August	20:40	05:50	0.022	03:53	N/A – one pass
B	September	19:30	06:40	0	-	-
B	October	18:30	07:20	0	-	-
C	May	21:00	05:15	0	-	-
C	June	21:30	04:50	0	-	-
C	July	21:25	05:00	0	-	-

Automated Bat Detector	Month	Sunset Time	Sunrise Time	Lesser Horseshoe Passes/Hour	Bat	Earliest Lesser Horseshoe Bat Call	Latest Lesser Horseshoe Bat Call
C	August	20:40	05:50	0	-	-	-
C	September	19:40	06:40	0	-	-	-
C	October	18:30	07:20	0	-	-	-
D	May	21:00	05:15	0.15		21:48	04:08
D	June	21:30	04:50	0.143		23:31	03:15
D	July	21:25	05:00	0.286		22:30	04:08
D	August	20:40	05:50	0.259		21:48	04:49
D	September	19:40	06:40	0.2		20:40	05:36
D	October	18:30	07:20	0.033		00:03	01:35
E	May	21:00	05:15	0.025		03:05	N/A – one pass
E	June	21:30	04:50	0	-	-	-
E	July	21:25	05:00	0.114		01:08	03:23
E	August	20:40	05:50	0.044		02:26	04:20
E	September	19:40	06:40	0.04		00:21	03:40
E	October	18:30	07:20	0.033		12:45	05:40
F	May	21:00	05:15	0	-	-	-
F	June	21:30	04:50	0	-	-	-
F	July	21:25	05:00	0.143		02:07	03:29
F	August	20:40	05:50	0.025		22:50	N/A – one pass
F	September	19:40	06:40	0	-	-	-
F	October	18:30	07:20	0	-	-	-
G	June	21:30	04:50	0	-	-	-
G	July	21:25	05:00	0	-	-	-
G	August	20:40	05:50	0	-	-	-
G	September	19:40	06:40	0.127		20:21	02:23
G	October	18:30	07:20	0.021		19:19	N/A – one pass
H	June	21:30	04:50	0	-	-	-
H	July	21:25	05:00	0	-	-	-
H	August	20:40	05:50	0.244		21:31	03:26
H	September	19:40	06:40	0.08		20:42	00:53
H	October	18:30	07:20	0.183		19:32	06:09
I	June	21:30	04:50	0.4		00:10	03:27
I	July	21:25	05:00	0.143		22:47	03:53
I	August	20:40	05:50	0.022		N/A – one pass	04:19
I	September	19:40	06:40	0.622		20:00	05:16
I	October	18:30	07:20	0.017		00:09	N/A – one pass
Passes recorded within one hour of sunset/sunrise				Passes recorded within an hour and a half of sunset/sunrise			

The average emergence time for lesser horseshoe bat is half an hour after sunset⁴.

The CSZ for lesser horseshoe bat is 2 km⁴.

Appendix C Plant Species Associated with Bat Prey Invertebrates

The below tables provide suggested plant species to be included in replanting efforts for the mitigation and compensation of impacts likely to occur as a result of the Proposed Development. The listed are adapted from the Bat Prey Species Associations tool and Table A2 of the associated guide¹⁶. The species included here are those known to support prey species of barbastelle and lesser horseshoe bat, as well as a number of other species of bat identified present within the Ecological Assessment Area. For the purpose of this report, this species list is considered in relation to bat species only, no consideration has been given the conditions, topography or soils present on-site. The suitability of these species for the soil and climate conditions at proposed planting areas must be determined by the landscape architect.

C.1 Trees and Shrubs

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Field maple	<i>Acer campestre</i>	15
Sycamore	<i>Acer pseudoplatanus</i>	12
Horse chestnut	<i>Aesculus hippocastanum</i>	11
Alder	<i>Alnus glutinosa</i>	15
Silver birch	<i>Betula pendula</i>	15
Downy birch	<i>Betula pubescens</i>	14
Hornbeam	<i>Carpinus betulus</i>	15
Sweet chestnut	<i>Castanea sativa</i>	16
Hazel	<i>Corylus avellana</i>	15
Hawthorn	<i>Crataegus monogyna</i>	13
Beech	<i>Fagus sylvatica</i>	15
Alder buckthorn	<i>Frangula alnus</i>	10
Ash	<i>Fraxinus excelsior</i>	15
Holly	<i>Ilex aquifolium</i>	12
Common juniper	<i>Juniperus communis</i>	8
Apple	<i>Malus domestica</i>	14
Crab apple	<i>Malus sylvestris</i>	11
Scots pine	<i>Pinus sylvestris</i>	13
Black poplar	<i>Populus nigra</i>	9
Aspen	<i>Populus tremula</i>	12
Wild plum	<i>Prunus domestica</i>	12
Blackthorn	<i>Prunus spinosa</i>	14
Sessile oak	<i>Quercus petraea</i>	13
Pedunculate oak	<i>Quercus robur</i>	13
Goat willow	<i>Salix caprea</i>	10
Grey willow	<i>Salix cinerea</i>	7
Rowan	<i>Sorbus aucuparia</i>	13
Yew	<i>Taxus baccata</i>	10

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Dogwood	<i>Cornus sanguinea</i>	8
Broom	<i>Cytisus scoparius</i>	12
Wild privet	<i>Ligustrum vulgare</i>	13
Elder	<i>Sambucus nigra</i>	8
Gorse	<i>Ulex europaeus</i>	10
Bilberry	<i>Vaccinium myrtillus</i>	14
Wayfaring tree	<i>Viburnum lantana</i>	5

C.2 Climbers and Scramblers

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Traveller's joy	<i>Clematis vitalba</i>	12
Common ivy	<i>Hedera helix</i>	11
Hop	<i>Humulus lupulus</i>	12
Honeysuckle	<i>Lonicera periclymenum</i>	12
Bramble	<i>Rubus fruticosus</i>	12

C.3 Flowering Plants

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Yarrow	<i>Achillea millefolium</i>	11
Angelica	<i>Althaea officinalis</i>	9
Wild celery	<i>Apium graveolens</i>	8
Burdocks	<i>Arctium spp.</i>	10
Mugwort	<i>Artemisia vulgaris</i>	11
Oraches	<i>Atriplex spp.</i>	10
Borages	<i>Borago spp.</i>	8
Wild cabbage	<i>Brassica oleracea</i>	11
Common knapweed	<i>Centaurea nigra</i>	11
Goosefoots	<i>Chenopodium spp.</i>	11
Foxglove	<i>Digitalis purpurea</i>	10
Teasels	<i>Dipsacus spp.</i>	8
Willowherbs	<i>Epilobium spp.</i>	8
Meadowsweet	<i>Filipendula ulmaria</i>	8
Wild strawberry	<i>Fragaria vesca</i>	12
Cleavers	<i>Galium aparine</i>	11

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Bedstraws	<i>Galium spp.</i>	10
Wood avens	<i>Geum urbanum</i>	7
Common ragwort	<i>Jacobaea vulgaris</i>	7
Prickly lettuce	<i>Lactuca serriola</i>	8
White dead nettle	<i>Lamium album</i>	10
Common toadflax	<i>Linaria vulgaris</i>	9
Dog's mercury	<i>Mercurialis perennis</i>	7
Common restharrow	<i>Ononis repens</i>	9
Geraniums	<i>Pelargonium spp.</i>	9
Ribwort plantain	<i>Plantago lanceolata</i>	9
Greater plantain	<i>Plantago major</i>	6
Primrose	<i>Primula vulgaris</i>	11
Selfheal	<i>Prunella vulgaris</i>	6
Buttercups	<i>Ranunculus spp.</i>	9
Groundsel	<i>Senecio vulgaris</i>	11
Woundworts	<i>Stachys spp.</i>	7
Comon chickweed	<i>Stellaria media</i>	12
Stitchworts	<i>Sellaria spp.</i>	10
Dandelion	<i>Taraxacum spp.</i>	15
Clovers	<i>Trifolium spp.</i>	13
Mulleins	<i>Verbascum spp.</i>	11

C.4 Grasses

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
False oat grass	<i>Arrhenatherum elatius</i>	9
False brome	<i>Brachypodium sylvaticum</i>	12
Cock's foot	<i>Dactylis glomerata</i>	10
Annual meadow grass	<i>Poa annua</i>	12

C.5 Sedges and Rushes

There are no sedges (*Carex* spp.) or rushes (*Juncus* spp.) known to be associated with the prey species of barbastelle bat. Several are associated with the prey species of the lesser horseshoe bat, including but not limited to:

Species Common Name	Species Latin Name	Number of UK Bat Species Known to Prey on Associated Invertebrates
Pendulous sedge	<i>Carex pendula</i>	2
Greater pond sedge	<i>Carex riparia</i>	2
Galingale	<i>Cyperus longus</i>	5
Common spike-rush	<i>Eleocharis palustris</i>	1
Common club-rush	<i>Schoenoplectus lacustris</i>	2
Sharp-flowered rush	<i>Juncus acutiflorus</i>	6
Jointed rush	<i>Juncus articulatus</i>	2
Compact rush	<i>Juncus conglomeratus</i>	7
Soft-rush	<i>Juncus effusus</i>	6
Hard rush	<i>Juncus inflexus</i>	2

