NORTH SOMERSET COUNCIL
GREATER HORSESHOE BAT
RADIO-TRACKING 2022

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Ecology and Geology

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Notice

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Summary

Strategic bat surveys are being carried out to inform strategic policy and development plans in relation to the North Somerset and Mendip Bats Special Area of Conservation, with the site designated due to its importance to greater horseshoe and lesser horseshoe bats.

This radio-tracking project will provide up to date information on how greater horseshoe bats from Brockley Hall Stables are using the landscape of North Somerset for commuting and foraging. In addition, this project aims to identify potentially previously unknown roost sites in the wider landscape used by the greater horseshoe bat population from Brockley Hall Stables and King's Wood.

In total 2802 different bat location fixes were achieved through the analysis of 4174 bearings. Between the 24 greater horseshoe bats radio-tracked, this equates to on average 116.8 location fixes per bat.

The area surrounding Brockley Hall Stables was heavily used by adult female greater horseshoe bats, both pre and post-maternity, and by juveniles. In addition, the River Kenn and Kenn Moor, Clevedon Moor, Tickenham Moor, Tickenham Ridge, the Gordano Valley, Kingston Seymour, Backwell Lake and its surrounding fields, Goblin Combe and the fields surrounding Bristol Airport, Backwell Quarry and Stancombe Quarry, and the land east of A38 around Potters Hill and Felton, were all recorded to be used by multiple radio-tracked bats across multiple nights throughout the 2021 survey effort.

None of the bats radio-tracked from Brockley Hall Stables were recorded within the King's Wood roost. The majority of radio-tracked bats day roosted at Brockley Hall Stables for most of the tracking period, however, 5 day roosts used by greater horseshoe bats were identified, with 11 night roosts also identified.

This radio-tracking data should feed into the wider strategic bat survey work commissioned by North Somerset Council, with identified commuting and foraging networks being of use to greater horseshoe bats that are associated with the North Somerset and Mendip Bats SAC used to review and update the North Somerset and Mendip Bats SAC guidance.

Acknowledgements

This Radio-Tracking report has been developed by Geckoella Ltd. for North Somerset Council. Geckoella would like to thank John Flannigan, Samantha Phillips and Gareth Withers for their support with this radio-tracking project.

Geckoella would like to thank the landowners of Brockley Hall Stables along with the landowner of King's Wood for easy access to the greater horseshoe bat roosting sites. This thanks is also extended to all of the neighbours of Brockley Hall Stables for their help with our varying levels of access requests, including the use of some of their gardens as trapping sites.

Geckoella would also like to thank Tom Kitching of Vincent Wildlife Trust and Sarah Dale for their assistance and knowledge on historic roost count data from Brockley Hall Stables and King's Wood.

Lastly, we would like to thank the project team for their professionalism and hard work that was evident throughout this radio-tracking project, with special thanks extended to Laurent Duvergé.

Contents

Tables, Maps and Appendices

1. Introduction

1.1 Project Location and Context

1.1.1 Strategic bat surveys are being carried out to inform strategic policy and development plans in relation to the North Somerset and Mendips Bat Special Area of Conservation (SAC). Special Areas of Conservation are designated as of international importance under the Conservation of Habitats and Species Regulations 2010 (as amended) with the North Somerset and Mendip Bats SAC designated due to its importance to greater horseshoe bats *Rhinolophus ferrumequinum* and lesser horseshoe bats *Rhinolophus hipposideros*.

1.1.2 The ongoing strategic bat surveys commissioned by North Somerset Council, of which this radio-tracking project forms a significant part, are focussed on establishing the activity patterns of greater horseshoe bats from two maternity roosts that comprise constituent parts of the North Somerset and Mendip Bats SAC. This is because successful foraging by juvenile and adult female greater horseshoe bats from maternity colonies comprises a crucial factor in the long-term favourable conservation status for the species.

1.1.3 The two sites this project is focused on are King's Wood and Urchin Wood Site of Special Scientific Interest (SSSI) (the King's Wood site) and Brockley Hall Stables SSSI (the Brockley Hall Stables site).

1.1.4 The findings of the strategic bat surveys may inform and update the mapping of zones that are important for bats as set out in the *North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document (Adopted January 2018)* (Council 2018) It may also influence other guidance and policies relating to, for example, survey effort, mitigation and compensation requirements for each of the zones found within the SAC Guidance. The current zones set out in the guidance comprise:

- Juvenile sustenance zone (0-1000m from maternity roosts)
- Bat Consultation Zone A (0-2200m from maternity roosts)
- Bat Consultation Zone B (2201-4000m from maternity roosts; 0-610m from other associated non-maternity roosts)
- Bat Consultation Zone C (4001-8000m from maternity roosts; 611-2440m from other associated non-maternity roosts)

1.1.5 The strategic bat surveys commissioned by North Somerset Council comprise:

- Trapping, tagging and radiotracking study for bat populations at two known maternity roosts that comprise part of the North Somerset and Mendip Bats Special Area of Conservation, and is what forms the basis of this report.
- Ongoing static bat detector surveys that commenced in July 2020. Although this is not included within the scope of this report it will be referenced as part of the overall suite of strategic bat surveys.

1.2 Radio-Tracking Project Aims

1.2.1 This radio-tracking project will provide up to date information on how greater horseshoe bats from Brockley Hall Stables and King's Wood are using the landscape of North Somerset for commuting and foraging. In addition, this project aims to identify potentially previously unknown roost sites in the wider landscape used by the greater horseshoe bat population from Brockley Hall Stables and King's Wood.

2. Previous Studies

2.1 General

2.1.1 Two previous radio-tracking studies have been carried out on the greater horseshoe maternity populations of Brockley Hall Stables and King's Wood; Duvergé's 1996 PhD Thesis (Duvergé P. , 1996) and Billington's 2002 English Nature Research Report (G. Billington 2002), with regular movement between the two roosts by bats noted in both studies.

2.1.2 The population of greater horseshoe bats has increased significantly at both maternity roost sites since these two previous studies have been carried out. There have also been reported changes in the local landscape including agricultural management, development and lighting which has prompted North Somerset Council to commission this up-to-date radio-tracking study to be undertaken.

2.2 Duvergé 1996

2.2.1 Duvege's PhD (Duvergé P. , 1996) investigated the diet, foraging behaviour and habitat use of the greater horseshoe bat across Avon and Gloucestershire, including at King's Wood and Brockley Hall Stables roosts. At the time of study, the main greater horseshoe population was roosting and bred within the King's Wood roost, however, by 1992 had already started gradually moving back to the old roost of Brockley Hall Stables which had been refurbished following development works in the 1980s. The population residing within the Brockley Hall Stables roost in 1995 shortly after the period of study was approximately 85 individuals, and although believed to be proportionally larger than at Brockley Hall Stables, at the time of study the population of King's Wood roost was not recorded.

2.2.2 With regards to foraging areas for greater horseshoe bats, in summary Duvergé found that 98% of foraging areas that he identified through radio-tracking fell within 4km of the roost sites, with the maximum foraging radius from the roost being 4.5km for adults and 3.6km for juveniles.

2.2.3 Foraging areas identified by Duvergé, were mainly concentrated to the areas immediately surrounding King's Wood; Brockley to Yatton, Yatton to Congresbury, Congresbury to Wrington, Wrington to Backwell, and Backwell to Brockley.

2.3 Billington 2002

2.3.1 Billington's English Nature Report (G. Billington 2002) objectives was to investigate the principal foraging areas and flight routes by greater horseshoe bat from the Brockley Hall Stables roost. No trapping exercise was undertaken from the King's Wood roost site. At the time of study, the greater horseshoe population was roosting and bred both within the Brockley Hall stables roost and the King's Wood roost, with the pre-parturition population counts in 2001 being 86 and 95 respectively.

2.3.2 With regards to foraging areas for greater horseshoe bats, in summary Billington found that 'the majority' of foraging areas that he identified through radio-tracking fell within 4km of the roost site, however, the maximum foraging radius from the roost was found to have increased from that recorded in Duvergé's PhD, to 6.8km for adults and 4.5km for juveniles.

2.3.3 Foraging areas were found to be similar to those identified by Duvergé, with the exception of lack of foraging areas to the south and southwest of King's Wood between Congresbury and Wrington, and with the addition of the area surrounding Chelvey to the north of Brockley Hall Stables.

3. Methodology

3.1 Personnel

3.1.1 The overall Geckoella Project Manager was Samuel Olney, with Laurent Duvergé being the named Natural England licence holder for trapping and tagging bats for the project. Laurent and Samuel formed the core trapping and tagging team, with support where needed gained from the wider radio-tracking team.

3.1.2 Core Geckoella radio-tracking team:

- Amber Avery
- Katie Beale
- Josh Butterworth
- Dela Collins
- Laurent Duvergé (lead)
- Jamie Foster
- Samuel Olney (lead)
- Hannah Weald
- Alex Woolcock

3.1.3 The core radio-tracking team was supplemented by other Geckoella staff as required.

3.2 Timings of Project

3.2.1 The survey was carried out over two periods during the summer of 2021:

- 15th May 2021 – 11th June 2021
- 2nd August 2021 – 27th August 2021

3.2.2 The first period, May/June 2021, was to target the pre-maternity period for greater horseshoe bats, where adult females are pregnant but have yet to give birth. The last night of trapping and therefore tagging of bats for this period was on 1st June 2021.

3.2.3 The second period, August 2021, was to target the post-maternity period for greater horseshoe bats, where adult females have given birth, towards the end of this period the juveniles are independently flying and are of a sufficient weight to allow for safe tagging. The last night of trapping and therefore tagging of bats for this period was on 19th August 2021.

3.2.4 These trapping dates excluded the peak maternity and nursery period for bat welfare reasons. The breeding status of caught females was monitored carefully so that the trapping and tagging exercise could be immediately stopped if it had been considered there was any increased risk of harm to bats.

3.3 Trapping

3.3.1 Trapping only proceeded when weather conditions were suitable for the capture of bats *i.e.* no strong winds and lack of rain, with temperatures during the time when bats were captured and held for tagging being above 12 degrees centigrade. Full weather conditions during the trapping and tracking programme are provided in Appendix 5.

Site Selection

3.3.2 Prior to the first night of trapping at both Brockley Hall Stables and King's Wood a night scoping survey of each of the roost sites was carried out to identify flight lines of bats as they exited each of the roosts. Identification of the flight lines prior to trapping allows for the traps to be strategically placed to increase capture rates of bats. Trapping sites along flight lines were then selected to provide the appropriate vegetation cover to naturally 'funnel' the bats into the traps.

3.3.3 Both trapping sites used at Brockley Hall Stables were approximately 35-40m distance from roost exit. The multiple trapping sites used at King's Wood were all a minimum of 5m away from the nearest mine entrance, with the furthest trapping site approximately 80m distant.

Bat Selection

3.3.4 The 'tagging criteria' for the project comprised:

- Pre-maternity - Pregnant adult females.
- Post-maternity – Adult females that showed signs of giving birth that year.
- Post-maternity - Juveniles (of either sex) from that year's young.

3.3.5 Bats that matched our tagging criteria were weighed with bats that had a minimum body weight of 15.3g kept. 15.3g was the minimum target weight so that the tag weight (~0.45g) was no more than 3% of the bats total body weight. This included an addition 0.3g over the 3% to eliminate any minor errors (equipment or human) when weighing bats, as an added precaution for the safe welfare of any bat that were tagged.

3.3.6 All captured bats were checked for their sex and life stage, with those bats matching our tagging criteria weighed. All bats not matching our tagging criteria and minimal weight were immediately released. We stopped trapping once the target number of individuals we wanted to tag that night had been caught.

3.3.7 Of the captured bats that were kept additional biometric data was taken including bat forearm measurements and their full breeding condition.

3.3.8 Captured bats were also checked for the presence of rings and/or ring damage.

3.4 Tagging

3.4.1 Selected greater horseshoe bats were fur-clipped between their shoulder blades to allow a transmitter to be glued to their skin. Surrounding fur, along with some of the clipped fur, was then placed on top of the glued transmitter to increase likelihood of successful bonding and reducing the chance of the tag falling/being groomed off. All tagged greater horseshoe bats were given adequate time for the glue to set and time for the bat to settle down before being released.

3.5 Radio-Tracking

3.5.1 Bats were monitored by a minimum of two and up to four experienced radio-tracking teams on any one night.

3.5.2 Each bat was tracked when practicable from the night of capture until the tags failed or fell off the bat. The target was for each tagged bat to be tracked for a minimum of 5 nights, excluding the night of capture, from emergence until sunrise/final return to roost. However, due to the nature of radio-tracking and dispersal of bats it was not possible to track all bats at all times and therefore radio-tracking leads prioritised effort according to the following factors: a) if multiple bats could be tracked at the same time, b) quantity and quality of data already collected when compared between individual bats, c) if an individual bat's location added new location data to the overall data set.

3.5.3 Locations of tagged bats were obtained sequentially via triangulation where practicable. This involves radio-tracking teams taking 2-4 simultaneous bearings from separated positions within signal range of the targeted bat.

3.6 Equipment

3.6.1 Standard fieldwork equipment as appropriate to the sites were used, including all required trap attachments, poles and fixings, bat detectors, bat bags and equipment for bat processing and the collection of biometric data.

3.6.2 PPE as appropriate to the sites was worn, including appropriate PPE to reduce the risk of human-to-bat transmission of Coronavirus Coivd-19 as in line with current guidance at the time of the 2021 trapping/tagging exercise (IUCN 2020).

3.6.3 Traps used at the Brockley Hall Stables roost comprised two 3-bank Ausbat harp traps. These traps were supplemented with mist nets of various lengths at the King's Wood roost.

3.6.4 Pip Ag317 173 MHz radio transmitters were used on all of the tagged bats throughout the radio-tracking project. These are manufactured by Lotek, with a specified manufacturer estimated 10-day battery life under standard pulse settings (20ms and 50ppm). The frequencies were sufficiently distinct to enable confident identification of individual bats with radio telemetry equipment.

3.6.5 The glue used in the tagging of the greater horseshoe bats was Osto-Bond, a non-toxic latex based surgical glue.

3.6.6 Radio tracking equipment used included three Lotek Biotracker VHF receivers, one AVM receiver, three whip aerials with magnetic bases for use on vehicles, three collapsible 3-element Yagis, and one 5-element Yagi and mast systems (extendable height up to c. 5m) for extended range use. All radio-tracking equipment was tested prior to use to ensure the quality and reliability of collected data.

3.6.7 Data was collected on iOS devices (with paper forms available as back-up in case needed). All our iOS devices are GPS enabled and were used in combination with Garmin Glo GPS boosters to improve location accuracy, as well as power packs and MiFi (portable WiFi) devices as standard.

3.7 Mapping and Analysis

3.7.1 The location fixes recorded during the radio-tracking were analysed using QGIS (QGIS.org 2022). Where two observers were able to take two bearings that intersect, the location fix of that bat was placed at the intersection. Where the bearings miss each other, intersect at a distance where it would not be possible to obtain telemetry signal or intersect beyond a land feature where it would not be feasible to obtain signal (e.g., built up area or a steep topographical gradient) the location fix was inferred. This inference takes into account the bats historic movements, likely commuting routes, bats flight trajectory and from notes by observers taken in the field.

3.7.2 Where it was only possible for a single observer to obtain a bearing on a bat, the location fix was inferred from obstructions in the field where, beyond this obstruction it would not be possible obtain telemetry signal, bats historic movements, likely commuting routes, bats flight trajectory and from notes by observers taken in the field.

3.7.3 Where three or more observers took bearings on one bat, a Delaunay Triangulation was created. Rather than omitting the polygon data, the Delaunay Triangulation was converted to a point data set by placing a centroid point. This allowed the entire data set to be displayed consistency in the mapping analysis.

3.7.4 Summary maps were created for each bat when the radio-trackers obtained four or more location fixes over the course of the night. Where this was not achieved, the location fixes were used in the overall analysis, but were not displayed on the summary maps. The flight lines are shown as a straight line between location fixes. A change of direction in the line is an indication of a location fix. The solid flight lines displayed in these maps are the "Inferred flight direction between known positions". This line is a straight representation of the route the bat might have flown; however, it does not necessarily represent the actual route the bat will have flown.

3.7.5 Where either a barrier to bat dispersal is present (*i.e.* major roads such as the M5 motorway or A38), a significant period of time has elapsed between location fixes (>20 minutes) or there was a significant distance between location fixes (>2km) the flight line has been categorised differently as it is considered to be a less accurate representation of the a bats likely flight line. Where a single bearing was taken for a bat, and little-to-no historic movement data was present in the area of the bearing, the location fix was based upon historic data from other bats as well as other variables mentioned above. These inferred location fixes are also categorised as being of relatively lower accuracy.

3.7.6 Minimum Convex Polygon (MCP) analysis (QGIS.org 2022) were used to analyse the maximum possible home range areas, whereby the outermost location points are connected to form a convex polygon. MCPs were created to determine individual home ranges (delimitating all location fixes corresponding to each bat) and colony home ranges (delimitating all location fixes from all radio-tracked colony members). Due to the possibility of abnormal behaviour following capture, any radio-tracking data collected from a bat's night of capture was excluded from the MCP analysis. However, radio-tracking data collected from the first night has still been displayed in the mapping and for the majority of bats was broadly found to be consistent with data collected from other nights for each bat.

3.7.7 A density map of bat location points was obtained through kernel analysis using QGIS mapping software. The kernel bandwidth is the distance around a bat location point where it affects other points (Choudhary. J. 2015). A larger bandwidth results in a larger and smoother region showing where a bat was found, whereas a smaller bandwidth highlights finer details of this home range for each bat. In this case, a kernel bandwidth of 100m was considered appropriate for the analysis when balancing requirements for clarity and reliable detail. The kernel density estimation divides the study area into cells. It utilises the kernel function to provide a smoothly tapered raster layer around each bat location point (Watrianthos 2020). High and low densities were categorised as two categories with equal intervals for each (i.e., lowest level of activity and highest level of activity).

3.8 Constraints and Limitations

3.8.1 The survey area was in a predominantly rural landscape with large variations in topography and habitat type. Acquiring signals from the radio transmitters was, at times challenging. Where possible the observers positioned themselves on elevated points so as to maximise the chances obtaining signal. In elevated positions with a clear line-of-sight, it was possible to pick up signal from a distance of up to 8km. However, in environments where obstacles such as topography and dense vegetation were present, signal was limited to distances of less than 100m.

3.8.2 Consistent access to land was obtained only through public property such as roads and footpaths. This created issues when following the bats as the observers had to travel around areas where access and signal was limited. When access limitations are taken into account alongside the speed at which bats travel, it was challenging to maintain continuous signal of the bat as it moved throughout the landscape. As the radio-tracking was carried out in a fast-paced environment and the observers were generally limited to roads, it was sometimes difficult to hear the noise of the receiver above the interference caused by traffic, and other infrastructure causing interference such as power lines. Features in the landscape causing interreference were avoid where possible, but where avoidance was not possible and interference was worse, this had a number of implications on the data. For example, this resulted in an increase in human errors evidenced by an increase in the number of back-bearings obtained in these situations, as well as an increased failure to identify weak signals.

3.8.3 Radio-tags have inherent limitations. With the miniaturisation of the technology, battery life along with signal strength of tags are limited. Specifically, 'Bat 25's' tag failed within hours of release after tagging, and the results from this bat have not been included within the results of this report. However, overall, our target of 5 nights of data for each bat (excluding the night of tagging and 'Bat 25') was achieved for 22 out of the 24 bats comprising 92% of bats. Generally, the tags either dropped or stopped working within 1-2 weeks of attachment.

3.8.4 The numbers of greater horseshoe bats recorded at Brockley Hall Stables compared to the number of bats we tagged, means that our 20 adult bats only represent approximately 3% of the total adult female population currently using Brockley Hall Stables to roost. The importance of appropriate interpretation of the spatial distribution of location fixes and homes ranges of the greater horseshoe bat data, as part of this report, or as part of wider strategic reporting cannot be understated. It is crucial that this relatively small percentage sample size is considered when interpreting the results in this report, so as to not misinterpreted 'blank space' as an absence of greater horseshoe bats from any potential foraging areas, or potential commuting lines. Indeed, the opposite would likely be true, with the number of foraging areas and commuting routes found increasing with sample size.

3.8.5 All these constraints are typical for bat radiotracking studies, which remains nonetheless a cost-effective means to gather high quality data on bats at the population level. Overall, the large volume of data across the bats tagged, the high proportion of location fixes generated, and the robust approach to analysis means that there is a high degree of confidence in the results and conclusions as presented.

4. Results

4.1 Summary

4.1.1 In total 2802 different bat location fixes were achieved through the analysis of 4174 bearings. Between the 24 greater horseshoe bats radio-tracked, this equates to on average 116.8 fix locations per bat. The bat with the fewest fix locations was Bat 3 with 71 fix locations, whilst the bat with the most fix locations was Bat 11 with 202 fix locations.

4.1.2 All location fixes are mapped in Appendix 1, along with locations of surveyors at time of bearing, and considered activity type (commuting or roosting).

4.1.3 Nightly summaries for each bat where four or more location fixes were identified are mapped in Appendix 3, with summaries for each bat over the period they were radio-tracked described below and mapped in Appendix 4.

Table 1: Analysed Bearings

	Bat ID	Inferred Locations from single bearings	Successful Triangu-lations	False Triangu-lations Inferred	Low Quality Inferred	Input Errors	Total Bearings Analysed	Fix Locations
Adult Females – Pre-maternity	**Bat 1**	66	59	12	2	-	139	99
	Bat 2	64	130	18	2	-	214	125
	Bat 3	31	59	13	5	1	109	71
	Bat 4	60	72	6	6	-	144	110
	Bat 5	98	170	20	-	-	288	166
	Bat 6	102	89	14	2	1	208	118
	Bat 7	80	32	7	2	1	122	91
	Bat 8	101	89	5	3	-	198	156
	Bat 9	107	69	11	5	-	192	154
	Bat 10	67	20	4	-	2	93	78
Adult Females – Post-maternity	**Bat 11**	159	117	16	-	-	292	202
	Bat 12	82	28	8	3	-	121	97
	Bat 13	114	96	25	7	-	242	98
	Bat 14	82	78	6	3	1	170	117
	Bat 15	51	65	11	4	-	131	90
	Bat 16	50	57	7	-	1	115	80
	Bat 17	75	94	3	4	-	176	125
	Bat 18	66	48	5	1	-	120	92
	Bat 19	78	62	10	-	-	150	108
	Bat 20	63	81	1	-	-	145	98
Juv. ♂	**Bat 21**	86	76	6	-	1	169	113
Juv. ♂	**Bat 22**	109	102	13	3	-	227	140
Juv. ♀	**Bat 23**	91	64	14	6	2	177	128
Juv. ♀	**Bat 24**	89	122	18	3	-	232	146
	Total	**1971**	**1879**	**253**	**61**	**10**	**4174**	**2802**
	Average per bat	**82.1**	**78.3**	**10.5**	**2.5**	**0.4**	**173.9**	**116.8**

4.1.4 Weather conditions during the trapping and radio-tracking exercise can be found in Appendix 5, alongside a summary of the trapping nights in Appendix 6. Details on all the tagged bats can be found in Appendix 7 of this report.

4.2 Commuting Routes and Foraging Areas

4.2.1 The area surrounding Brockley Hall Stables was heavily used by adult female greater horseshoe bats, both pre and post-maternity, and by juveniles. These areas surrounding Brockley Hall Stables are considered to be the fields south of train line between Brockley Hall Stables, and Cleeve and Claverham, the fields along the west and south west edge of Backwell, and the area of Chelvey. In addition to these areas, the River Kenn and Kenn Moor, Clevedon Moor, Tickenham Moor, Tickenham Ridge, the Gordano Valley, fields west of the M5 around Kingston Seymour stretching to the Severn Estuary, Backwell Lake and its surrounding fields, the top of Goblin Combe and the fields to the west and south west of Bristol Airport, the fields north of Downside Road, the fields adjacent to and the land of both Backwell Quarry and Stancombe Quarry, and the last east of A38 around Potters Hill and Felton, were all recorded to be used by multiple radio-tracked bats across multiple nights throughout the 2021 survey effort.

4.2.2 In addition, lesser used areas by foraging greater horseshoe bats included Worlebury Golf Club, Puxton Moor, north Mendip Hills, and north towards Failand and Portbury.

4.2.3 The maximum foraging radius from the roost during the 2021 radio-tracking was found to be 13.9km for adults and 4.9km for juveniles, with these distances attributed to Bat 12 and Bat 21 respectively.

4.2.4 Key 'pinch-points' to commuting points were also shown by greater horseshoe bats that crossed a major barrier to bat dispersal at the landscape level: the M5 motorway. The crossing points identified included; the Tickenham Road M5 underpass, the stilted section of the M5 by Clevedon Lane Farm, the River Kenn M5 underpass and/or the B3133 M5 overpass, the Lampley Rhyne M5 underpass and/or Lampley Road M5 overpass, and the River Banwell M5 underpass and/or train line M5 underpass.

4.3 Roosting Sites

4.3.1 None of the bats radio-tracked from Brockley Hall Stables were recorded within the King's Wood roost. The majority of radio-tracked bats day roosted at Brockley Hall Stables most of the period for which they were tracked. Roost sites outside of Brockley Hall Stables, are identified to a low level of accuracy in the publicly available version of this report to reduce the risk of persecution; a higher level of accuracy is available to North Somerset Council and Natural England.

4.3.2 Day roost sites found are:

- Outbuilding within Clevedon Court
- Vicinity of the old Blagdon Water Gardens
- Havyatt Road between Wrington and Langford
- Vicinity of Cleeve Lay-by on the south side of the A370
- Centre of Clevedon on Jesmond Road

4.3.3 Night roost sites found are:

- Outbuilding within Clevedon Court
- Unknown location on Tickenham Ridge
- Vicinity of the old Blagdon Water Gardens

- Vicinity of Cleeve Lay-by on the south side of the A370
- Farm to the north of Kingston Seymour
- Centre of Clevedon on Jesmond Road
- Barn off Mill Lane, south of Portbury
- Outbuilding off Kenn Road east of Kenn
- Vicinity of Downside Tyres Ltd, north of Downside Road
- Vicinity of Green Farm off of Brockley Way
- South of the Yatton concrete works, near the train line

4.4 Home Ranges

4.4.1 The tables below show the total area and perimeters of the Minimum Convex Polygons (MCP) for each group of bats, and individually, with the MCPs mapped specifically in Appendix 2, but also shown within the maps included in Appendices 1, 3 and 4.

Table 2: Spatial Data for Home Ranges of All Bats, Pre & Post-maternity Periods, and of Juveniles

Breeding Condition/ Life Stage	Minimum Convex Polygon[1] Area (hectares)	Minimum Convex Polygon Perimeter (m)
Pre-Maternity	10568	40704
Post-Maternity	16928	52004
Juvenile	3075	22000
All Bats	20096	54588

[1] All MCP data omits the first night for each bat *i.e.* their trapping/tagging night.

Table 3: Spatial Data for Individual Bat Home Ranges

	Bat ID	Minimum Convex Polygon Area (hectares)	Minimum Convex Polygon Perimeter (m)
Adult Females – Pre-maternity	Bat 1	1457	17275
	Bat 2	1524	16865
	Bat 3	2331	21176
	Bat 4	1540	17858
	Bat 5	1922	20345
	Bat 6	1869	18988
	Bat 7	1224	14053
	Bat 8	1948	20279
	Bat 9	3138	24226
	Bat 10	459	10618
Adult Females – Post-maternity	Bat 11	1186	16457
	Bat 12	6381	36195
	Bat 13	680	11155
	Bat 14	1962	20783
	Bat 15	1856	19352
	Bat 16	608	10984
	Bat 17	1386	20716
	Bat 18	3889	25228
	Bat 19	1864	19559
	Bat 20	2997	26105
Juv. ♂	Bat 21	2633	21585
Juv. ♂	Bat 22	503	9039
Juv. ♀	Bat 23	1514	16111
Juv. ♀	Bat 24	1192	13417

4.5 Bat 1 Summary of Activity

4.5.1 Bat 1 was generally found commuting via Chelvey and the River Kenn towards the foraging areas of Clevedon Moor, Tickenham Moor, Tickenham Ridge and into the Gordano Valley. Bat 1 is believed to have used both the Tickenham Road M5 underpass and the stilted section of the M5 by Clevedon Lane Farm as ways of avoiding the M5 which acts as a barrier to bats.

Map 4.1: NSC Radio-Tracking: Bat 1 Combined Nightly Summary

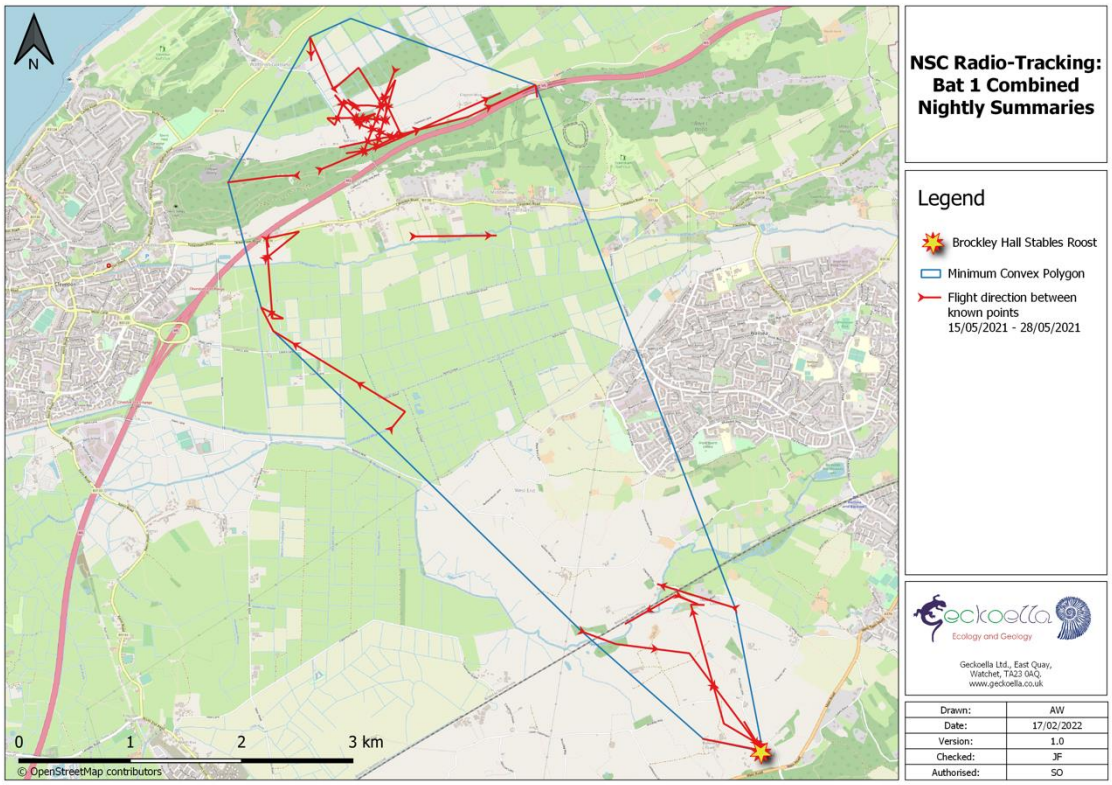

Table 4.1: Bat 1 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly summary map
15/05/21	Tagged	Unknown	Tagged	BHS	-
16/05/21	Unknown	Unknown	BHS	BHS	-
17/05/21	Unknown	Unknown	BHS	BHS	-
18/05/21	Unknown	01:36	BHS	BHS	-
19/05/21	Unknown	01:05	BHS	BHS	-
20/05/21	21:30	04:01	BHS	BHS	-
21/05/21	21:40	21:42	BHS	BHS	-
22/05/21	21:51	02:24	BHS	BHS	Map 3.1
23/05/21	Unknown	01:06	BHS	BHS	Map 3.2
24/05/21	21:34	21:48	BHS	BHS	Map 3.3
25/05/21	Unknown	00:56	BHS	BHS	Map 3.4
26/05/21	Unknown	02:49	BHS	BHS	Map 3.5
27/05/21	Unknown	04:30	BHS	BHS	Map 3.6
28/05/21	21:40	04:22	BHS	BHS	-
29/05/21	-	-	-	-	-

4.6 Bat 2 Summary of Activity

4.6.1 Bat 2 was generally found commuting via Chelvey and the River Kenn towards the foraging areas of Clevedon Moor, Tickenham Moor and Tickenham Ridge. Bat 2 is believed to have used the Tickenham Road M5 underpass as a way of avoiding the M5 which acts as a barrier to bats. In addition to the Brockley Hall Stables main roost, Bat 2 was recorded using an outbuilding within Clevedon Court as both a day and night roost, and an unknown location on Tickenham Ridge as a night roost.

Map 4.2: NSC Radio-Tracking: Bat 2 Combined Nightly Summary

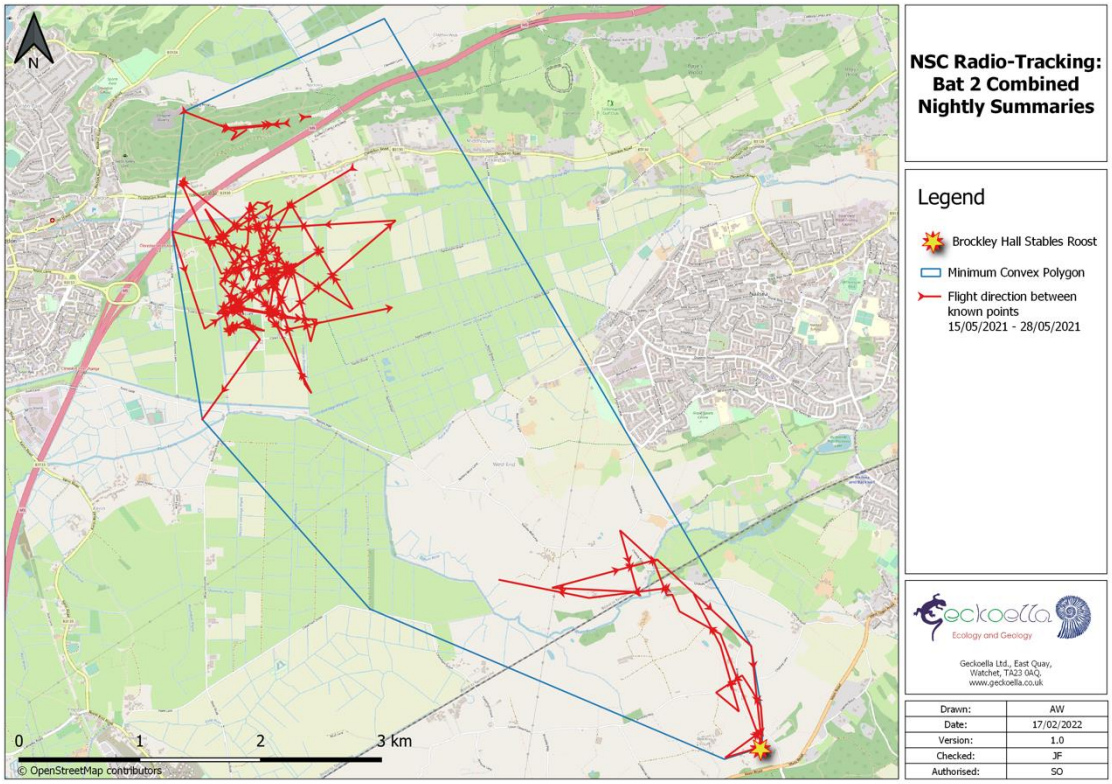

Table 4.2: Bat 2 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
15/05/21	Tagged	Unknown	Tagged	Unknown	-
16/05/21	Unknown	Unknown	Unknown	Unknown	-
17/05/21	Unknown	Unknown	Unknown	Unknown	
18/05/21	Unknown	Unknown	Unknown	BHS	Map 3.7
19/05/21	Unknown	01:40	BHS	BHS	-
20/05/21	21:33	22:38	BHS	BHS	Map 3.8
21/05/21	21:30	04:35	BHS	BHS	Map 3.9
22/05/21	Unknown	Unknown	BHS	Clevedon Court	Map 3.10
23/05/21	Unknown	23:16	Clevedon Court	BHS	-
24/05/21	Unknown	Unknown	BHS	Unknown	-
25/05/21	Unknown	00:57	Unknown	BHS	-
26/05/21	Unknown	Unknown	BHS	BHS	-
27/05/21	Unknown	03:51	BHS	BHS	Map 3.11
28/05/21	21:56	04:28	BHS	BHS	Map 3.12
29/05/21	-	-	-	-	-

4.7 Bat 3 Summary of Activity

4.7.1 Bat 3 was generally found foraging in and around the area of Burrington, west of Blagdon, where she was also found on multiple occasional to both day and night roost in the vicinity of the old Blagdon Water Gardens. Bat 3 was also found to day roost on Havyatt Road between Wrington and Langford. Bat 3 was confirmed to commute to the Langford/Burrington/Blagdon area via the area north of Wrington heading into Goblin Combe.

Map 4.3: NSC Radio-Tracking: Bat 3 Combined Nightly Summary

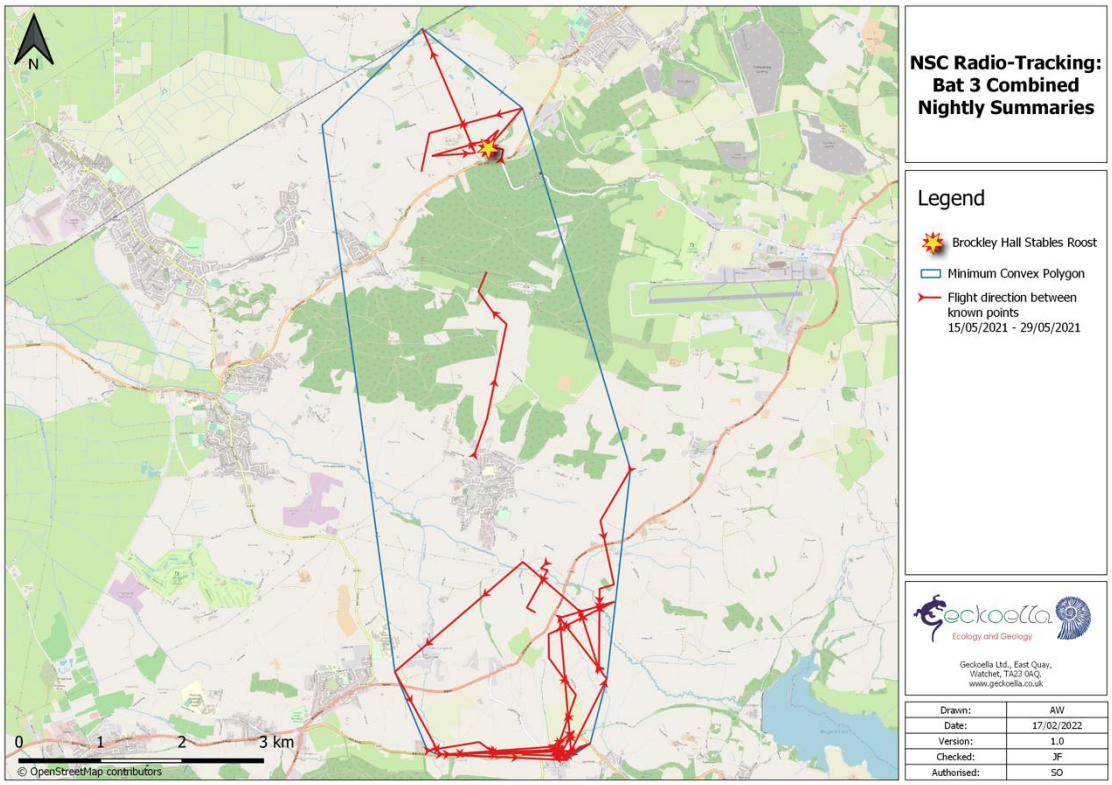

Table 4.3: Bat 3 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
15/05/21	Tagged	Unknown	Tagged	Unknown	-
16/05/21	Unknown	Unknown	Unknown	Blagdon	Map 3.13
17/05/21	Unknown	Unknown	Blagdon	BHS	Map 3.14
18/05/21	Unknown	Unknown	BHS	Unknown	-
19/05/21	Unknown	01:45	Unknown	BHS	-
20/05/21	21:45	00:19	BHS	Blagdon	Map 3.15
21/05/21	Unknown	Unknown	Blagdon	Blagdon	-
22/05/21	Unknown	Unknown	Blagdon	Blagdon	-
23/05/21	Unknown	Unknown	Blagdon	Blagdon	-
24/05/21	Unknown	Unknown	Blagdon	Blagdon	-
25/05/21	Unknown	02:57	Blagdon	BHS	-
26/05/21	Unknown	Unknown	BHS	BHS	-
27/05/21	Unknown	04:25	BHS	BHS	Map 3.16
28/05/21	Unknown	Unknown	BHS	Havyatt Road	Map 3.17
29/05/21	Unknown	03:38	Havyatt Road	BHS	-
30/05/21	-	-	-	-	-

4.8 Bat 4 Summary of Activity

4.8.1 Bat 4 was generally found foraging over Kenn Moor, north of Yatton, and in the fields surrounding Brockley Hall Stables, between Chelvey, Claverham and Cleeve. Bat 4 was also found night roosting in a farm to the north of Kingston Seymour, where it is believed she used both the River Kenn underpass and/or the B3133 overpass, and the Lampley Rhyne underpass and/or Lampley Road overpass to cross the M5 which acts as a barrier to bats. Bat 4 was also found to day and night roost at a site in the vicinity of Cleeve Lay-by on the south side of the A370.

Map 4.4: NSC Radio-Tracking: Bat 4 Combined Nightly Summary

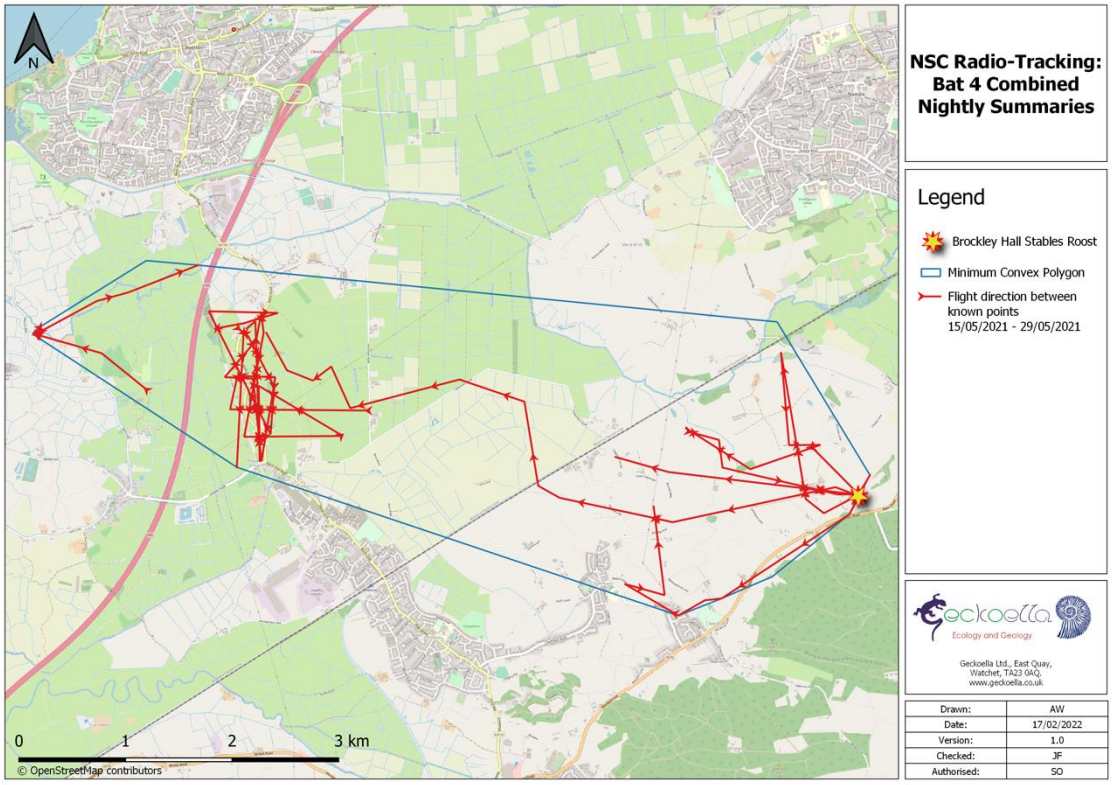

Table 4.4: Bat 4 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
15/05/21	Tagged	Unknown	Tagged	Unknown	-
16/05/21	Unknown	Unknown	Unknown	Unknown	-
17/05/21	Unknown	Unknown	Unknown	BHS	-
18/05/21	21:26	04:37	BHS	BHS	Map 3.18
19/05/21	21:32	04:10	BHS	BHS	Map 3.19
20/05/21	21:27	Unknown	BHS	BHS	Map 3.20
21/05/21	02:00	03:15	BHS	Cleeve Lay-by	-
22/05/21	Unknown	00:00	Cleeve Lay-by	BHS	-
23/05/21	Unknown	04:16	BHS	BHS	-
24/05/21	Unknown	Unknown	BHS	BHS	-
25/05/21	21:44	Unknown	BHS	Cleeve Lay-by	-
26/05/21	Unknown	Unknown	Cleeve Lay-by	Unknown	-
27/05/21	Unknown	04:26	Unknown	BHS	-
28/05/21	22:30	04:28	BHS	BHS	Map 3.21
29/05/21	-	-	-	-	-

4.9 Bat 5 Summary of Activity

4.9.1 Bat 5 was generally found commuting via Chelvey up the western edge of Nailsea towards the foraging areas of Clevedon Moor, Tickenham Moor and Tickenham Ridge. Bat 5 is believed to have used the Tickenham Road M5 underpass as a way of avoiding the M5 which acts as a barrier to bats. In addition to the Brockley Hall Stables main roost, Bat 5 was recorded using an outbuilding within Clevedon Court as a night roost, along with a day and night roost in the centre of Clevedon on Jesmond Road.

Map 4.5: NSC Radio-Tracking: Bat 5 Combined Nightly Summary

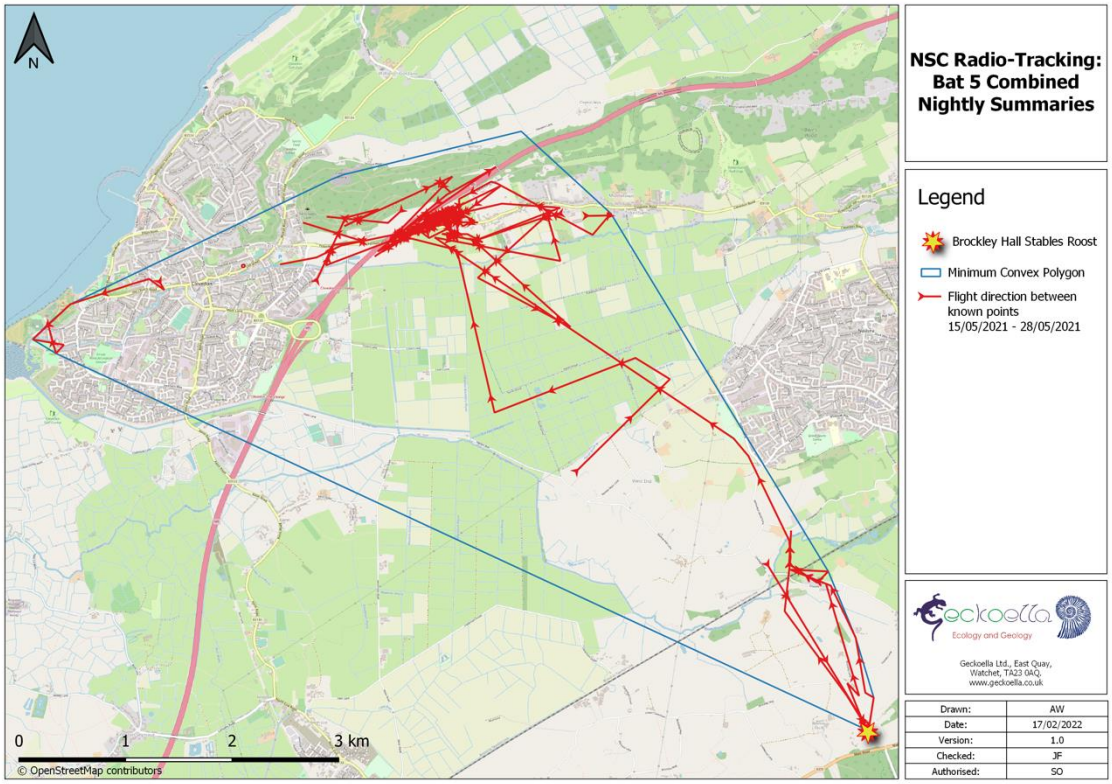

Table 4.5: Bat 5 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
24/05/21	Tagged	02:00	Tagged	Jesmond Road	Map 3.22
25/05/21	Unknown	Unknown	Jesmond Road	Jesmond Road	-
26/05/21	22:05	02:43	Jesmond Road	BHS	Map 3.23
27/05/21	21:51	Unknown	BHS	BHS	Map 3.24
28/05/21	Unknown	04:25	BHS	BHS	Map 3.25
29/05/21	Unknown	Unknown	BHS	BHS	-
30/05/21	Unknown	Unknown	BHS	Jesmond Road	-
31/05/21	Unknown	Unknown	Jesmond Road	Jesmond Road	-
01/06/21	22:05	04:17	Jesmond Road	BHS	Map 3.26
02/06/21	Unknown	Unknown	BHS	Unknown	-
03/06/21	-	-	-	-	-

4.10 Bat 6 Summary of Activity

4.10.1 Bat 6 was generally found commuting via Chelvey, western edge of Nailsea and the River Kenn, to the foraging areas of Clevedon Moor, Tickenham Moor, Tickenham Ridge and the Gordano Valley. Bat 6 is believed to have used the Tickenham Road M5 underpass and the stilted section of the M5 by Clevedon Lane Farm as a way of avoiding the M5 which acts as a barrier to bats. Bat 6 was also believed to be day roosting at an unknown location on Tickenham Ridge for one day.

Map 4.6: NSC Radio-Tracking: Bat 6 Combined Nightly Summary

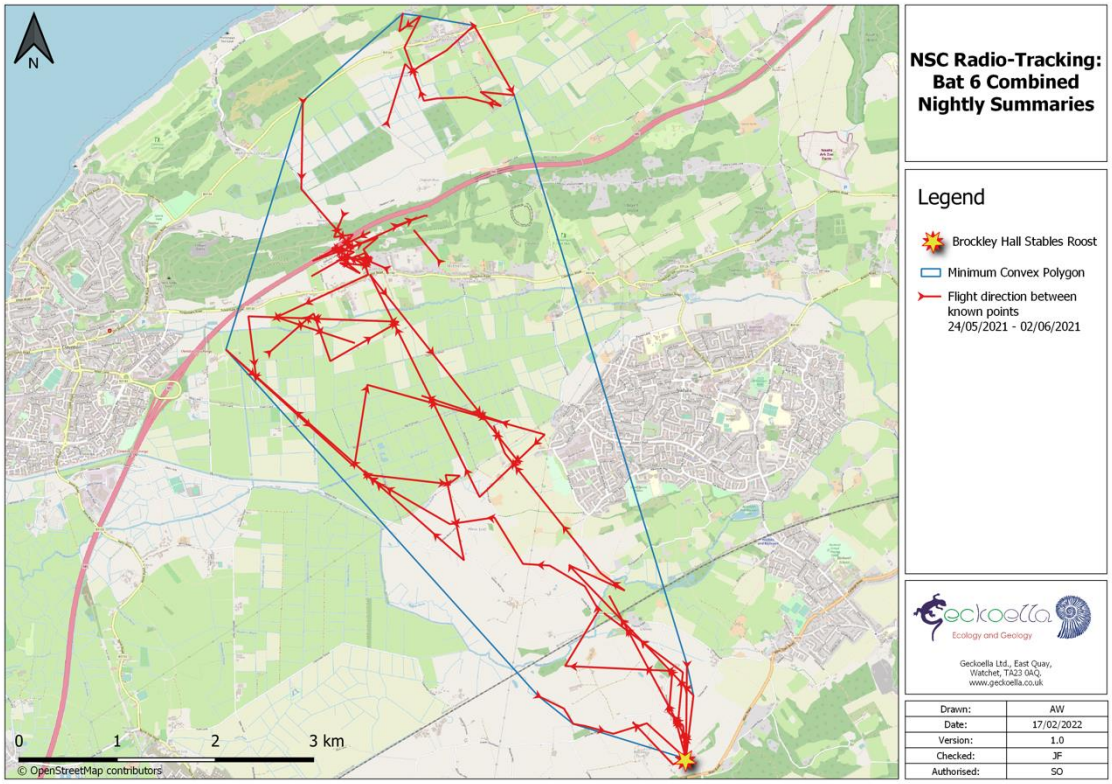

Table 4.6: Bat 6 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
24/05/21	Tagged	01:37	Tagged	BHS	Map 3.27
25/05/21	22:00	Unknown	BHS	Unknown	Map 3.28
26/05/21	Unknown	00:58	Unknown	BHS	Map 3.29
27/05/21	21:36	04:22	BHS	BHS	Map 3.30
28/05/21	Unknown	04:30	BHS	BHS	Map 3.31
29/05/21	Unknown	Unknown	BHS	BHS	-
30/05/21	Unknown	Unknown	BHS	BHS	-
31/05/21	Unknown	Unknown	BHS	BHS	-
01/06/21	22:20	04:15	BHS	BHS	Map 3.32
02/06/21	Unknown	Unknown	BHS	BHS	-
03/06/21	-	-	-	-	-

4.11 Bat 7 Summary of Activity

4.11.1 Bat 7 was found commuting both up the east and west edges of Backwell and found foraging in the fields between Nailsea and Backwell near the train station. It is believed Bat 7 did not go through the centre of Backwell, rather went around to the west/north or south/east. Bat 7 was also found foraging in the fields between the Brockley Hall Stables main roost and Backwell, along with the woodland either side of Brockley Combe, and onwards towards Hyatt's Wood and Backwell Quarry.

Map 4.7: NSC Radio-Tracking: Bat 7 Combined Nightly Summary

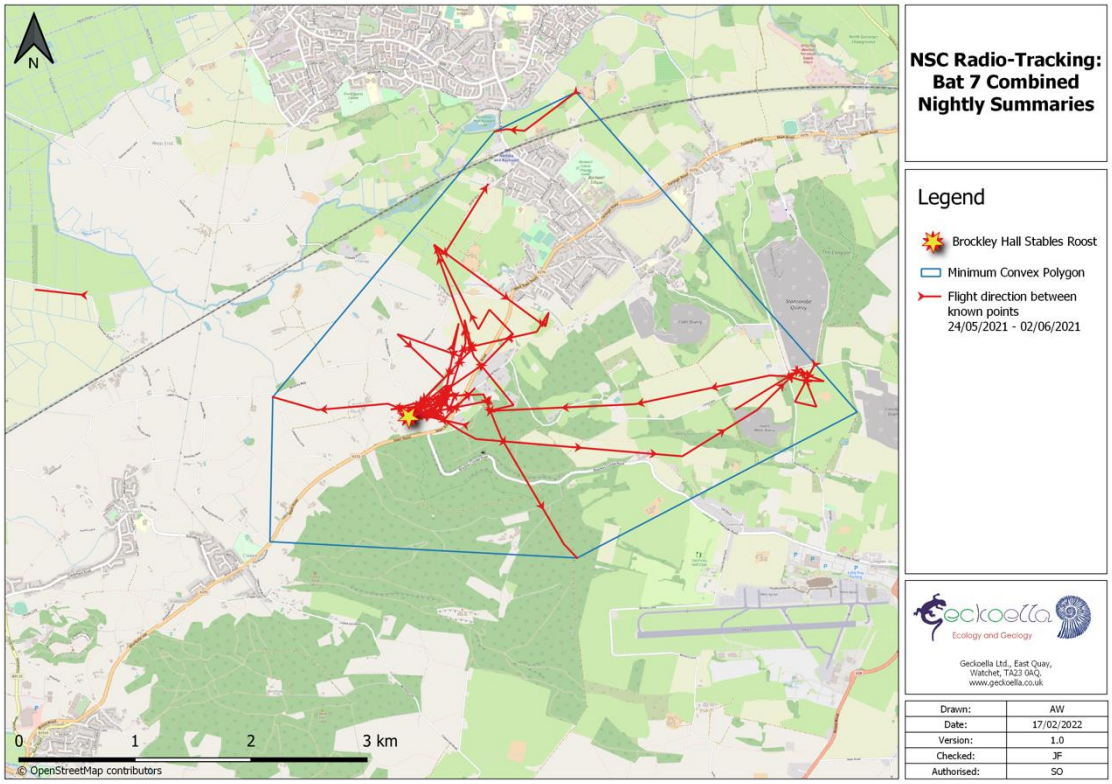

Table 4.7: Bat 7 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
01/06/21	Tagged	02:23	Tagged	BHS	Map 3.33
02/06/21	22:51	02:05	BHS	BHS	Map 3.34
03/06/21	21:50	02:23	BHS	BHS	Map 3.35
04/06/21	22:00	Unknown	BHS	BHS	Map 3.36
05/06/21	21:50	04:09	BHS	BHS	Map 3.37
06/06/21	22:02	Unknown	BHS	Unknown	Map 3.38
07/06/21	Unknown	04:04	Unknown	BHS	-
08/06/21	22:03	04:15	BHS	BHS	Map 3.39
09/06/21	-	-	-	-	-

4.12 Bat 8 Summary of Activity

4.12.1 Bat 8 was generally found commuting through the woods of Brockley Combe to the foraging grounds of the fields north of Brockley Combe Road and Downside Road. In addition, bat 8 was found foraging on the old quarry south of Potters Hill, with bat 8 using the two over mature hedgerows/ tree lines on either side of the A38 north of Felton Village Hall to cross over to the eastern side of the A38. Bat 8 also used Goblin Combe as a commuting route and foraging area, as well as the fields between Brockley Hall Stables and Yatton. Although not used in the MCP data analysis, it is worth noting that on the first night bat 8 upon release immediately flew north, and was found night roosting in a barn off Mill Lane, south of Portbury.

Map 4.8: NSC Radio-Tracking: Bat 8 Combined Nightly Summary

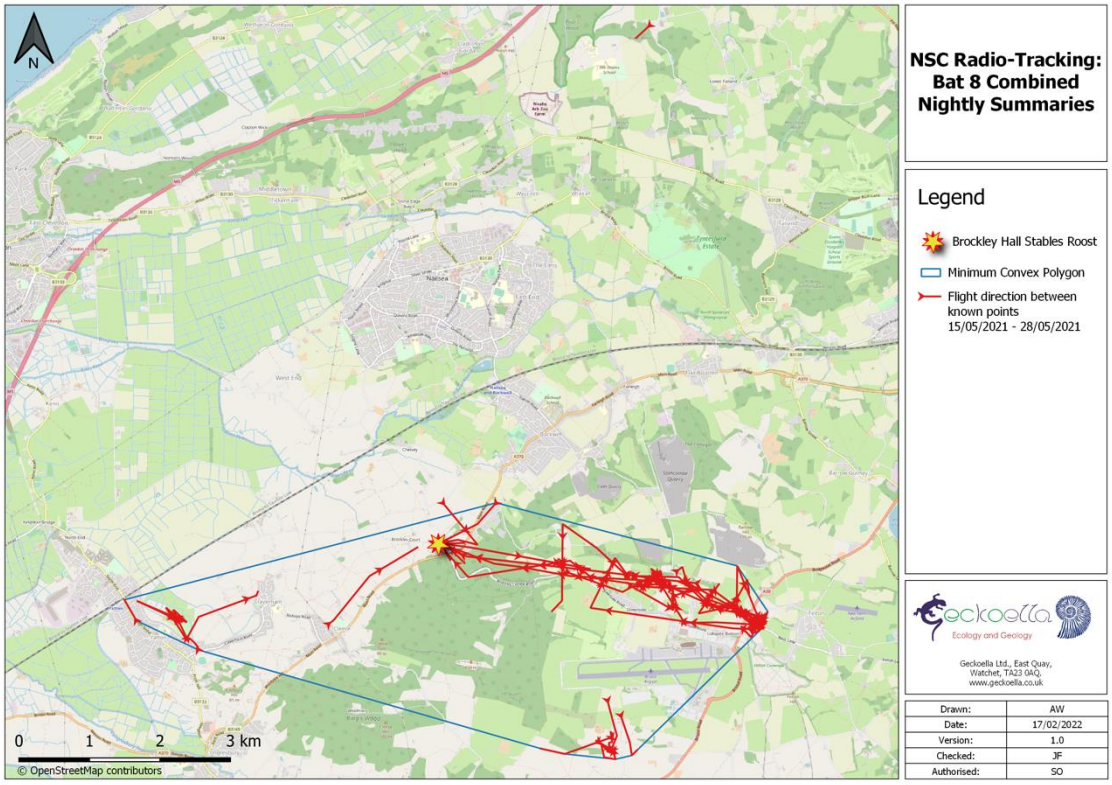

Table 4.8: Bat 8 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
01/06/21	Tagged	04:29	Tagged	BHS	Map 3.40
02/06/21	Unknown	01:45	BHS	BHS	-
03/06/21	21:53	23:54	BHS	BHS	-
04/06/21	22:00	04:02	BHS	BHS	Map 3.41
05/06/21	21:56	04:18	BHS	BHS	-
06/06/21	22:02	04:04	BHS	BHS	Map 3.42
07/06/21	22:07	04:11	BHS	BHS	Map 3.43
08/06/21	Unknown	04:07	BHS	BHS	Map 3.44
09/06/21	22:01	04:18	BHS	BHS	Map 3.45
10/06/21	21:56	04:08	BHS	BHS	Map 3.46
11/06/21	-	-	-	-	-

4.13 Bat 9 Summary of Activity

4.13.1 Bat 9 was generally found commuting via Chelvey towards the foraging areas of Kenn Moor, Clevedon Moor, Tickenham Ridge and Gordano Valley, and in the fields surrounding Brockley Hall Stables, between Chelvey, Claverham and Cleeve. Bat 9 is believed to have used the Tickenham Road M5 underpass as a way of avoiding the M5 which acts as a barrier to bats. In addition to the Brockley Hall Stables main roost, Bat 9 was recorded using an outbuilding within Clevedon Court as both a day and night roost, and an outbuilding off Kenn Road east of Kenn as a night roost. Bat 9 was also found commuting through the woods of Brockley Combe to the foraging grounds of the fields north of Brockley Combe Road and Downside Road.

Map 4.9: NSC Radio-Tracking: Bat 9 Combined Nightly Summary

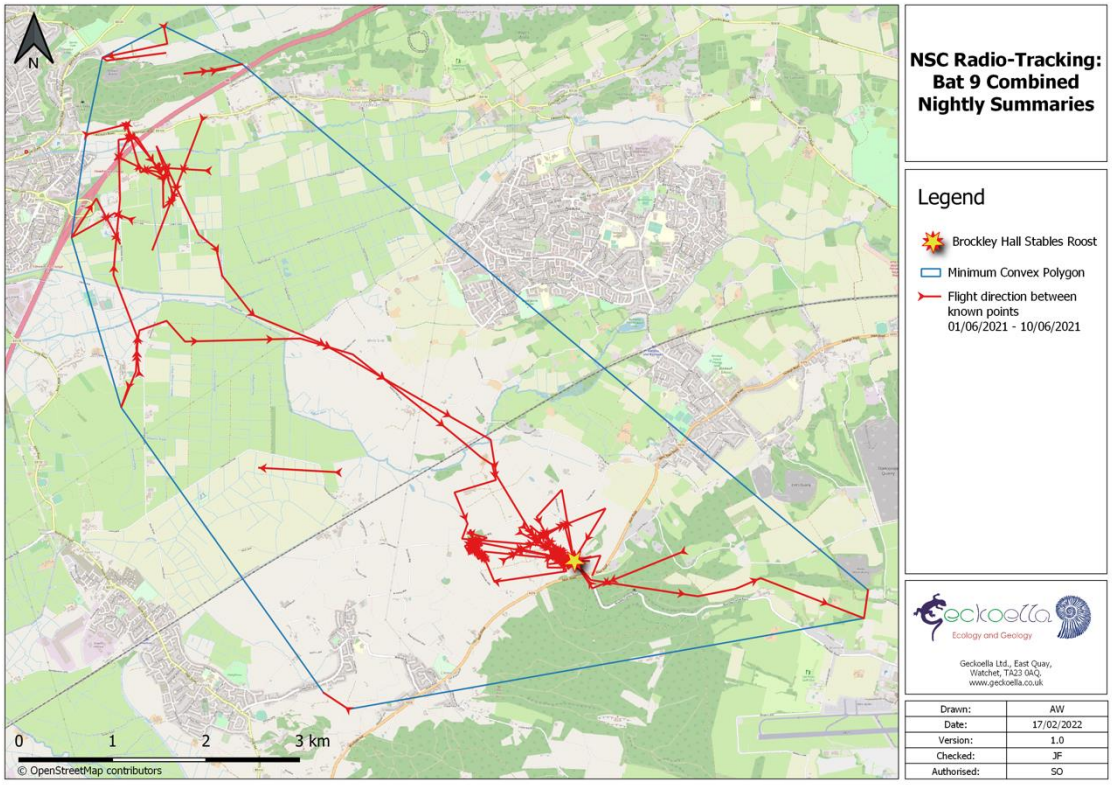

Table 4.9: Bat 9 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
01/06/21	Tagged	Unknown	Tagged	Clevedon Court	Map 3.47
02/06/21	22:20	04:34	Clevedon Court	BHS	Map 3.48
03/06/21	Unknown	02:23	BHS	BHS	Map 3.49
04/06/21	22:00	00:32	BHS	BHS	Map 3.50
05/06/21	22:00	04:16	BHS	BHS	Map 3.51
06/06/21	22:04	04:00	BHS	BHS	Map 3.52
07/06/21	22:00	04:07	BHS	BHS	-
08/06/21	Unknown	04:13	BHS	BHS	Map 3.53
09/06/21	22:02	04:18	BHS	BHS	-
10/06/21	21:53	04:16	BHS	BHS	Map 3.54
11/06/21	-	-	-	-	-

4.14 Bat 10 Summary of Activity

4.14.1 Bat 10 was generally found commuting through the woods of Brockley Combe to the foraging grounds of the fields north of Brockley Combe Road and Downside Road. In addition to the Brockley Hall Stables main roost, Bat 10 was recorded on most nights as using an outbuilding within the vicinity of Downside Tyres Ltd, north of Downside Road as a night roost.

Map 4.10: NSC Radio-Tracking: Bat 10 Combined Nightly Summary

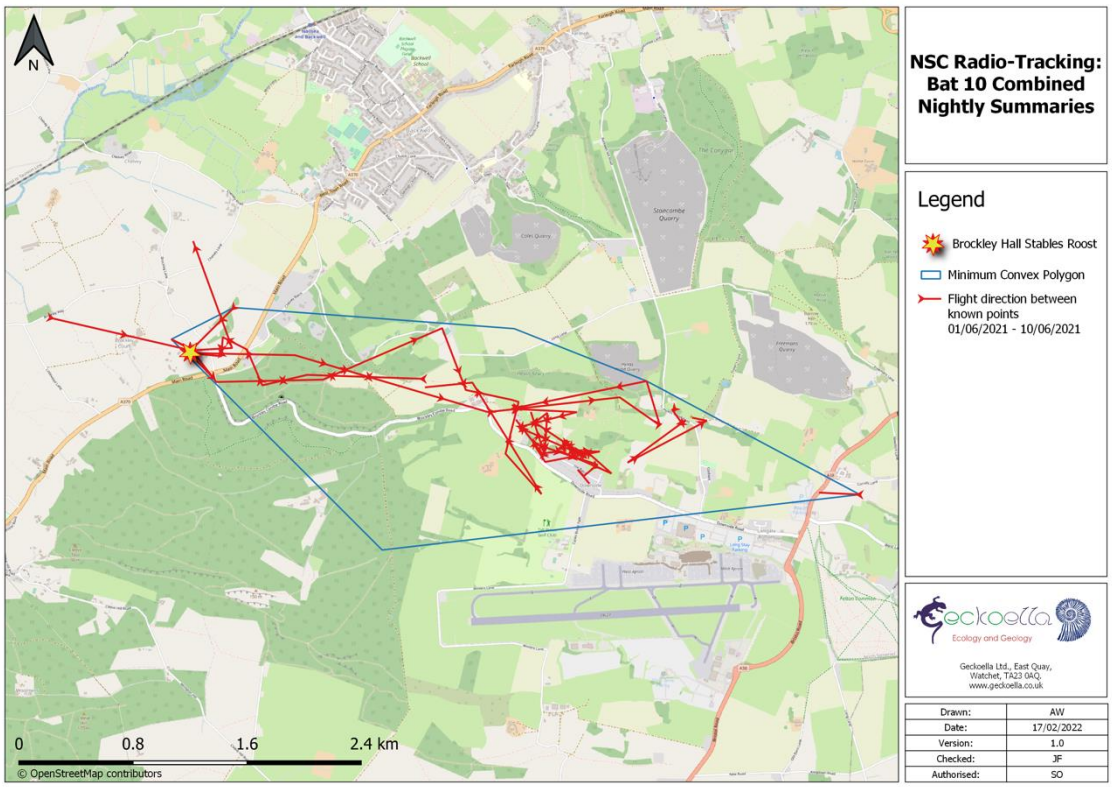

Table 4.10: Bat 10 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
01/06/21	Tagged	04:18	Tagged	BHS	Map 3.55
02/06/21	21:43	02:00	BHS	BHS	Map 3.56
03/06/21	21:53	00:20	BHS	BHS	Map 3.57
04/06/21	22:00	00:10	BHS	BHS	Map 3.58
05/06/21	22:53	04:18	BHS	BHS	-
06/06/21	Unknown	00:19	BHS	BHS	-
07/06/21	Unknown	00:03	BHS	BHS	Map 3.59
08/06/21	Unknown	00:49	BHS	BHS	Map 3.60
09/06/21	-	-	-	-	-

4.15 Bat 11 Summary of Activity

4.15.1 Bat 11 was generally found commuting and foraging around Chelvey and the River Kenn as well as the foraging areas of Kenn Moor, Clevedon Moor, Tickenham Ridge and the Gordano Valley, and in the fields surrounding Brockley Hall Stables and Chelvey. Bat 11 is believed to have used the Tickenham Road M5 underpass as a way of avoiding the M5 which acts as a barrier to bats.

Map 4.11: NSC Radio-Tracking: Bat 11 Combined Nightly Summary

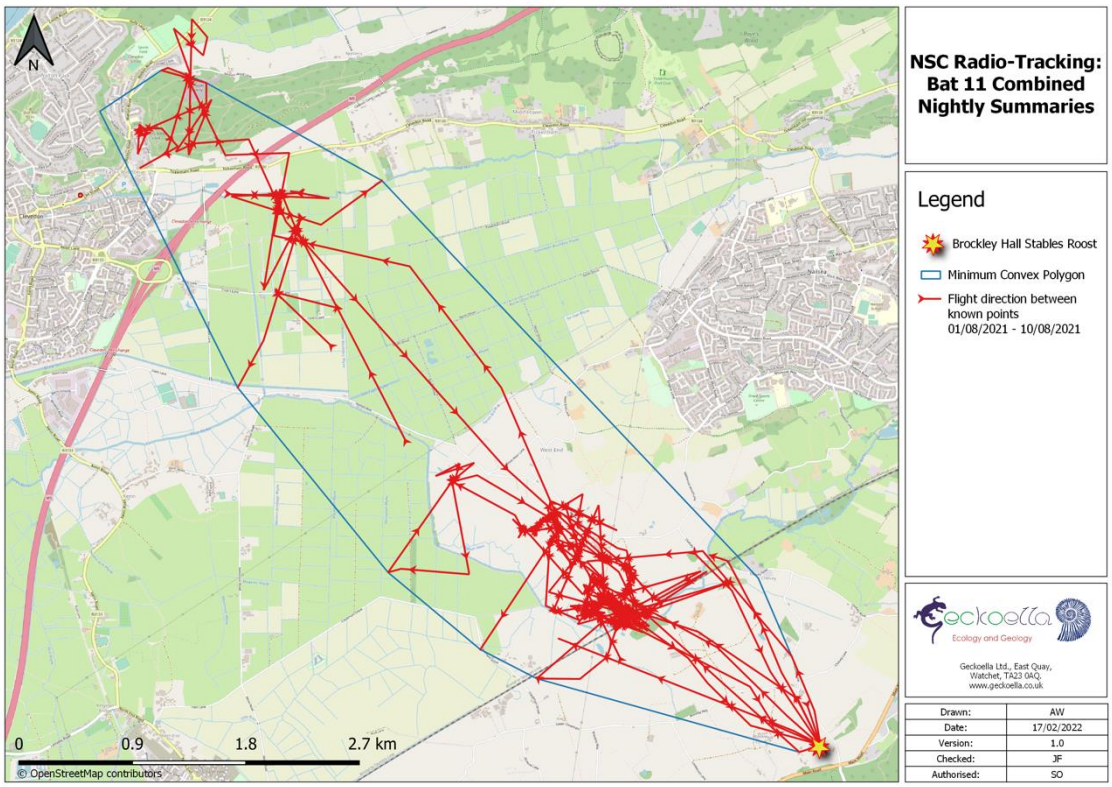

Table 4.11: Bat 11 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
02/08/21	Tagged	01:32	Tagged	BHS	Map 3.61
03/08/21	Unknown	Unknown	BHS	BHS	Map 3.62
04/08/21	21:21	03:17	BHS	BHS	Map 3.63
05/08/21	21:05	05:57	BHS	BHS	Map 3.64
06/08/21	21:15	04:45	BHS	BHS	Map 3.65
07/08/21	21:15	04:59	BHS	BHS	Map 3.66
08/08/21	Unknown	05:00	BHS	BHS	-
09/08/21	Unknown	03:21	BHS	BHS	-
10/08/21	21:15	Unknown	BHS	BHS	-
11/08/21	-	-	-	-	-

4.16 Bat 12 Summary of Activity

4.16.1 Bat 12 was generally found commuting west via Chelvey and the River Kenn towards the foraging grounds of Kenn Moor, or following the direction of the A370 to the south west. Bat 12 would commute through the fields along the north west of the A370 and along the woodland fringe habitat south east of the A370, crossing to the south of the River Yeo through Congresbury to forage in the fields between Puxton and Banwell, or flying across to Hewish south of the A370, crossing the A370 again at the Hewish solar farm, where Bat 12 was regularly found foraging. On occasion Bat 12 was also believed to use either/both the River Banwell and/or train line M5 underpasses as ways of avoiding the M5 which acts as a barrier to bats. Bat 12 found using Worlebury Golf Course to forage, and although suspected to commute up and around the north of the residential area of Worle, Ebdon and St Georges, the exact commuting route Bat 12 used from the M5 to Worlebury Golf Course was not confirmed.

Map 4.12: NSC Radio-Tracking: Bat 12 Combined Nightly Summary

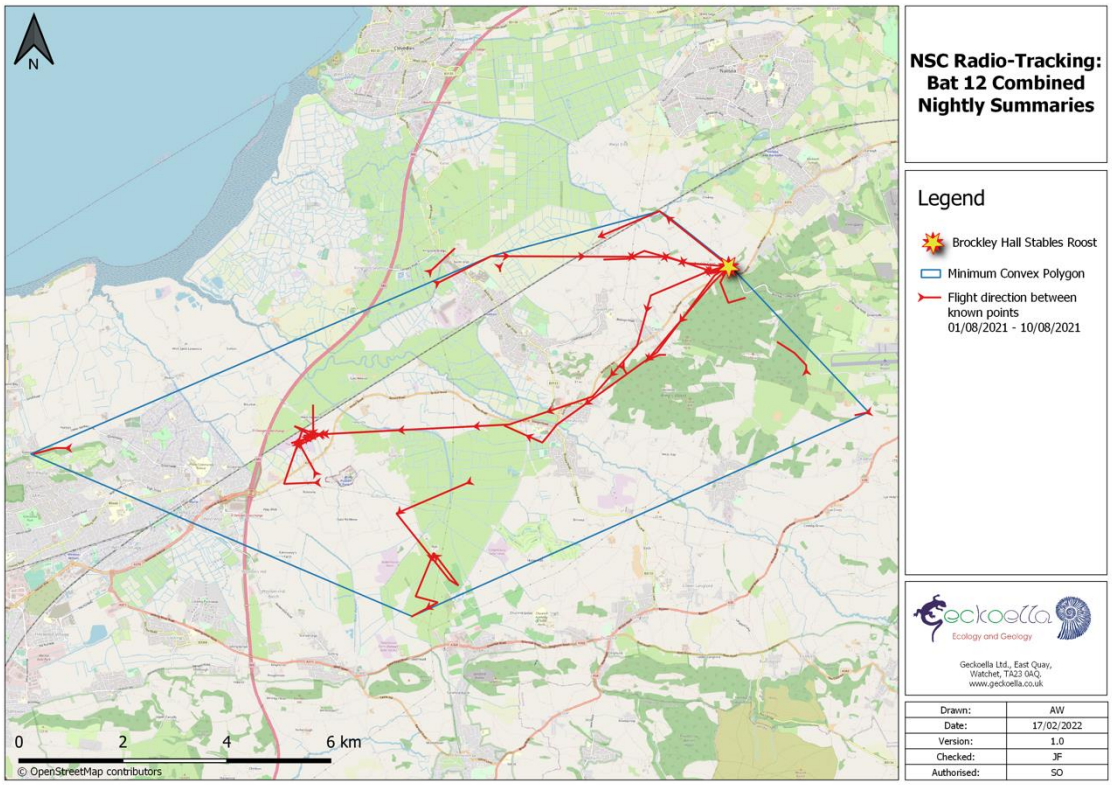

Table 4.12: Bat 12 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
02/08/21	Tagged	02:17	Tagged	BHS	Map 3.67
03/08/21	Unknown	03:06	BHS	BHS	Map 3.68
04/08/21	21:21	03:31	BHS	BHS	-
05/08/21	21:32	02:51	BHS	BHS	Map 3.69
06/08/21	21:22	03:10	BHS	BHS	Map 3.70
07/08/21	21:14	Unknown	BHS	BHS	-
08/08/21	Unknown	03:03	BHS	BHS	-
09/08/21	21:22	03:21	BHS	BHS	Map 3.71
10/08/21	21:28	02:33	BHS	BHS	Map 3.72
11/08/21	21:12	Unknown	BHS	BHS	Map 3.73
12/06/21	-	-	-	-	-

4.17 Bat 13 Summary of Activity

4.17.1 Bat 13 was generally found foraging in the fields surrounding Brockley Hall Stables, between Chelvey, Claverham and Cleeve. Bat 13 was also found night roosting in the vicinity of Green Farm off of Brockley Way.

Map 4.13: NSC Radio-Tracking: Bat 13 Combined Nightly Summary

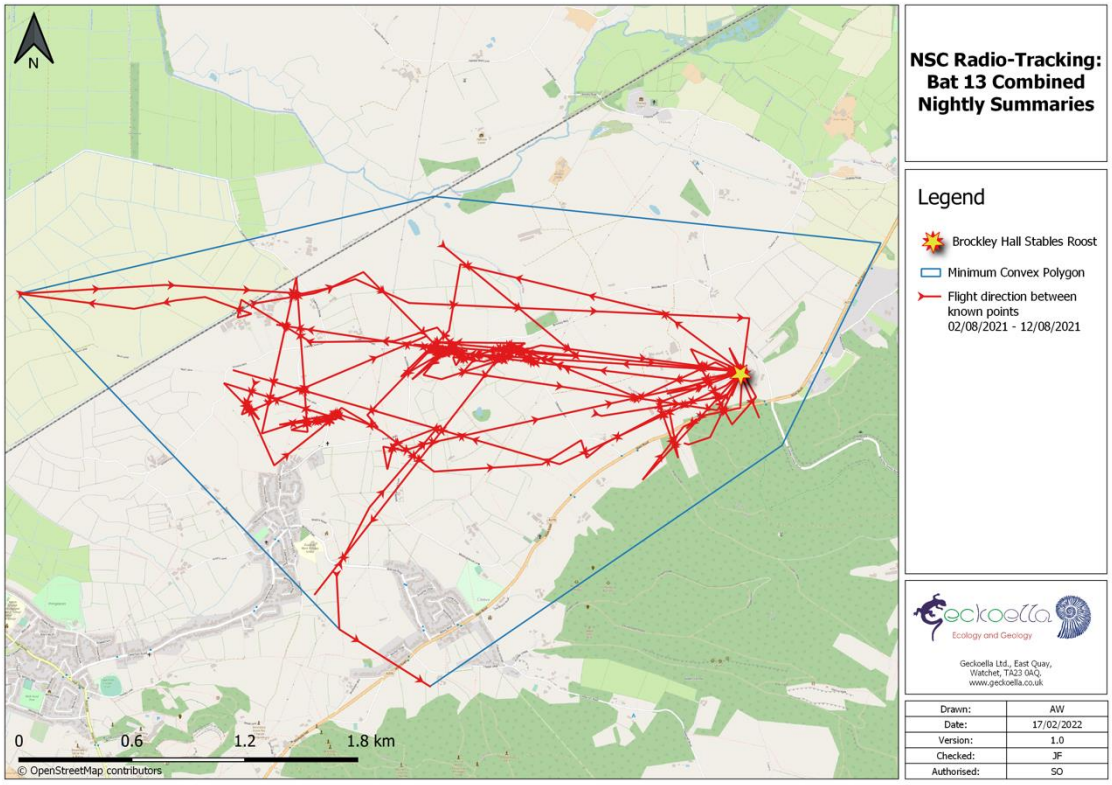

Table 4.13: Bat 13 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
02/08/21	Tagged	03:05	Tagged	BHS	-
03/08/21	22:32	01:37	BHS	BHS	Map 3.74
04/08/21	21:15	05:02	BHS	BHS	Map 3.75
05/08/21	21:02	05:21	BHS	BHS	Map 3.76
06/08/21	21:12	04:47	BHS	BHS	Map 3.77
07/08/21	20:58	03:34	BHS	BHS	-
08/08/21	21:01	02:52	BHS	BHS	Map 3.78
09/08/21	Unknown	05:19	BHS	BHS	Map 3.79
10/08/21	21:15	05:22	BHS	BHS	Map 3.80
11/08/21	21:06	03:53	BHS	BHS	Map 3.81
12/08/21	21:16	Unknown	BHS	Unknown	-
13/08/21	-	-	-	-	-

4.18 Bat 14 Summary of Activity

4.18.1 Bat 14 was generally found commuting both up Brockley Combe and Goblin Combe to forage in the fields and woodland fringe habitat at the top of the hill, south west of Bristol Airport. Bat 14 was also observed commuting along the southern edge of Backwell and on occasion through the Farleigh Fields, using the St. Andrews Church yard as a commuting route into the fields. Bat 14 was found foraging in the vicinity of the Backwell quarry and also found commuting and foraging north of Flax Bourton.

Map 4.14: NSC Radio-Tracking: Bat 14 Combined Nightly Summary

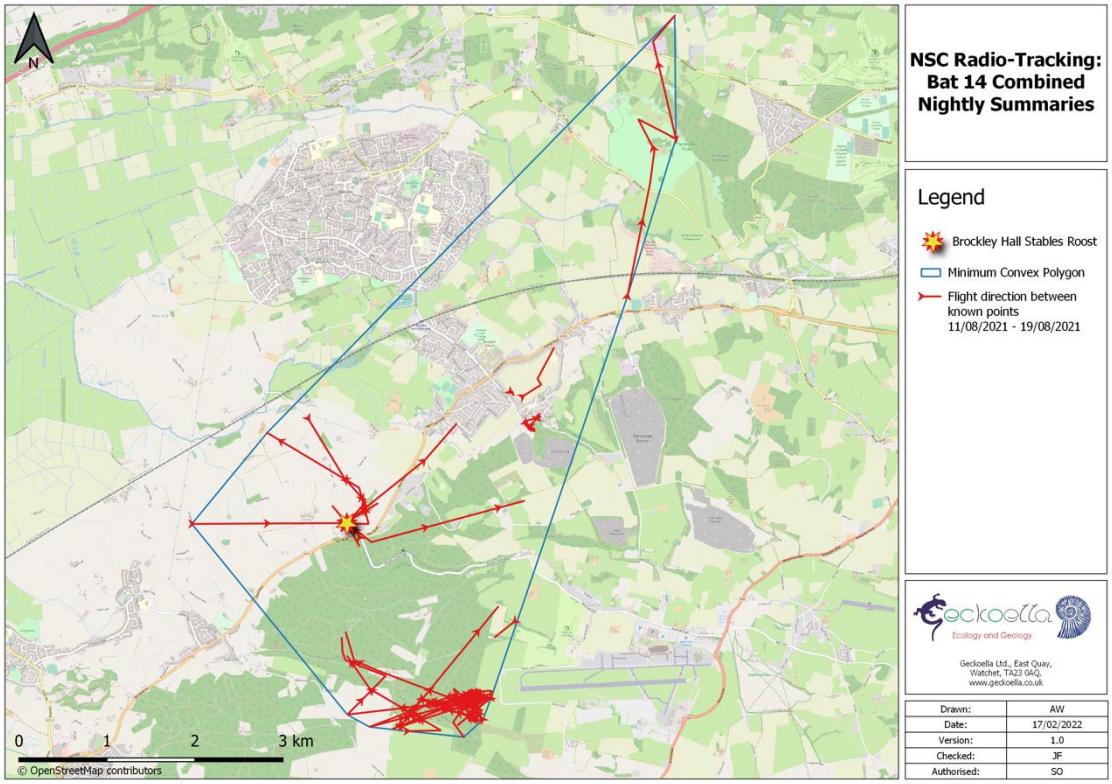

Table 4.14: Bat 14 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
11/08/21	Tagged	05:21	Tagged	BHS	Map 3.82
12/08/21	21:08	05:26	BHS	BHS	-
13/08/21	21:02	05:20	BHS	BHS	Map 3.83
14/08/21	20:56	05:29	BHS	BHS	Map 3.84
15/08/21	22:47	005:25	BHS	BHS	Map 3.85
16/08/21	20:55	05:31	BHS	BHS	Map 3.86
17/08/21	Unknown	05:33	BHS	BHS	Map 3.87
18/08/21	20:50	Unknown	BHS	BHS	Map 3.88
19/08/21	Unknown	Unknown	BHS	Unknown	-
20/08/21	-	-	-	-	-

4.19 Bat 15 Summary of Activity

4.19.1 Bat 15 was generally found commuting through Chelvey and along the River Kenn, or through the fields between Brockley Hall Stables, Cleeve and Yatton, foraging over Kenn Moor, and the land north of the River Yeo and south of Yatton. Bat 15 was also found night roosting south of the Yatton concrete works, near the train line.

Map 4.15: NSC Radio-Tracking: Bat 15 Combined Nightly Summary

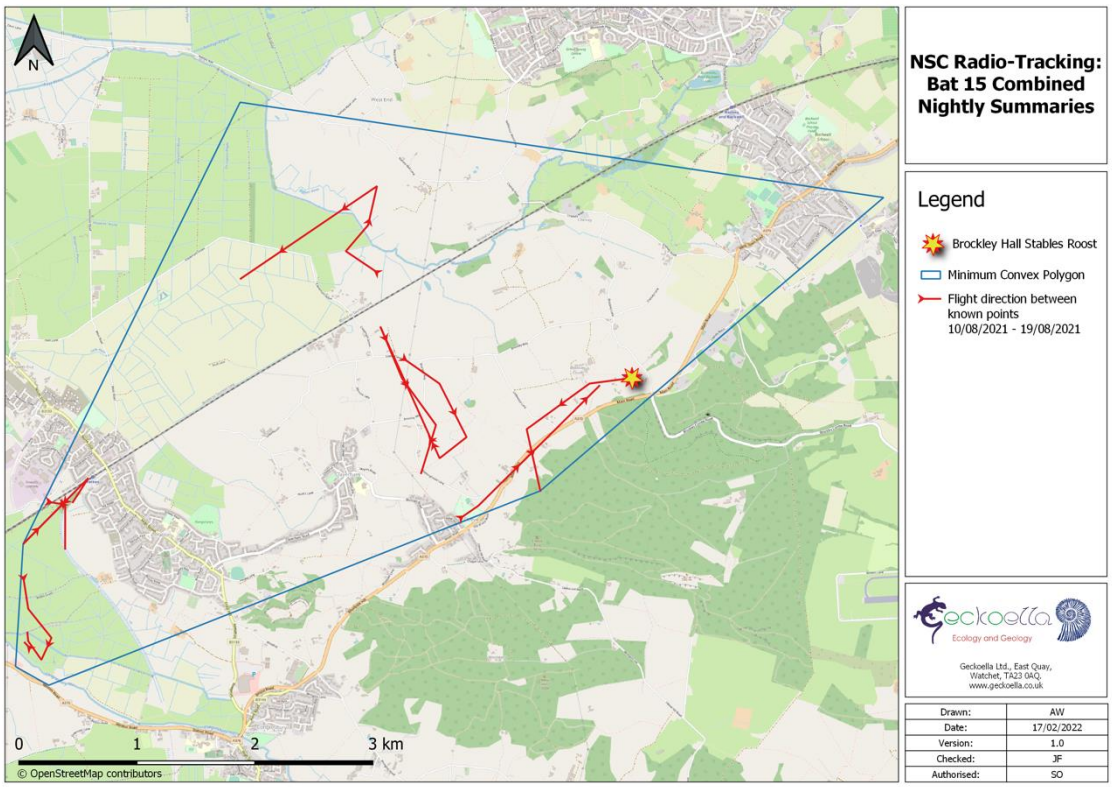

Table 4.15: Bat 15 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
10/08/21	Tagged	02:30	Tagged	BHS	-
11/08/21	21:39	04:17	BHS	BHS	Map 3.89
12/08/21	21:20	03:04	BHS	BHS	Map 3.90
13/08/21	Unknown	04:08	BHS	BHS	-
14/08/21	Unknown	Unknown	BHS	BHS	-
15/08/21	22:47	04:30	BHS	BHS	-
16/08/21	Unknown	Unknown	BHS	BHS	-
17/08/21	Unknown	05:35	BHS	BHS	-
18/08/21	20:50	05:03	BHS	BHS	-
19/08/21	Unknown	Unknown	BHS	BHS	-
20/05/21	-	-	-	-	-

4.20 Bat 16 Summary of Activity

4.20.1 Bat 16 was generally found foraging in the fields surrounding Brockley Hall Stables, between Chelvey, Claverham and Cleeve. In addition to commuting through Chelvey and along the River Kenn to forage in the fields south west of Nailsea.

Map 4.16: NSC Radio-Tracking: Bat 16 Combined Nightly Summary

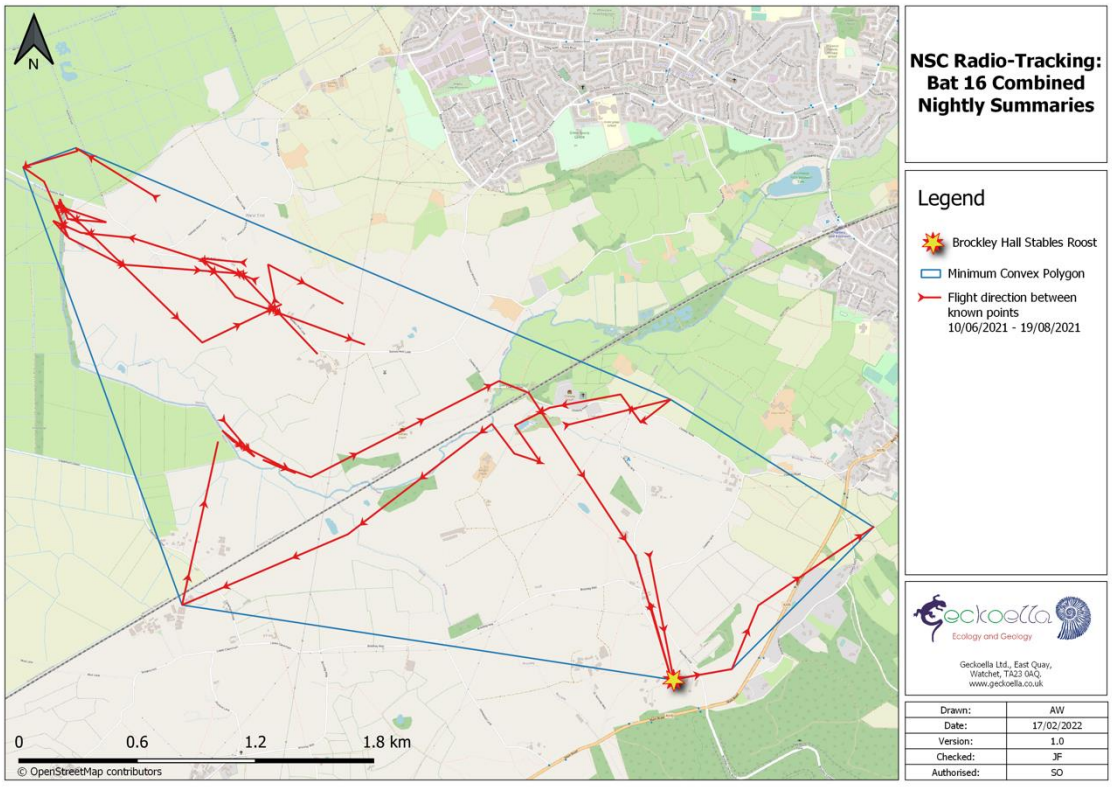

Table 4.16: Bat 16 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
10/08/21	Tagged	03:13	Tagged	BHS	-
11/08/21	22:04	04:03	BHS	BHS	Map 3.91
12/08/21	21:13	Unknown	BHS	BHS	Map 3.92
13/08/21	Unknown	Unknown	BHS	BHS	-
14/08/21	21:54	22:48	BHS	BHS	-
15/08/21	Unknown	Unknown	BHS	BHS	-
16/08/21	Unknown	02:38	BHS	BHS	-
17/08/21	Unknown	5:34	BHS	BHS	-
18/08/21	20:50	05:02	BHS	BHS	-
19/08/21	Unknown	Unknown	BHS	BHS	-
20/08/21	-	-	-	-	-

4.21 Bat 17 Summary of Activity

4.21.1 Bat 17 was generally found commuting and foraging through the fields surrounding Brockley Hall Stables, between Chelvey and Claverham, heading west over Kenn Moor. Bat 17 was also found foraging in Kingston Seymour towards the southern edge of Clevedon, where at points Bat 17 was recorded flying over the estuary mud flats. Bat 17 is believed to use both the River Kenn underpass and/or the B3133 overpass, and the Lampley Rhyne underpass and/or Lampley Road overpass to cross the M5 which acts as a barrier to bats.

Map 4.17: NSC Radio-Tracking: Bat 17 Combined Nightly Summary

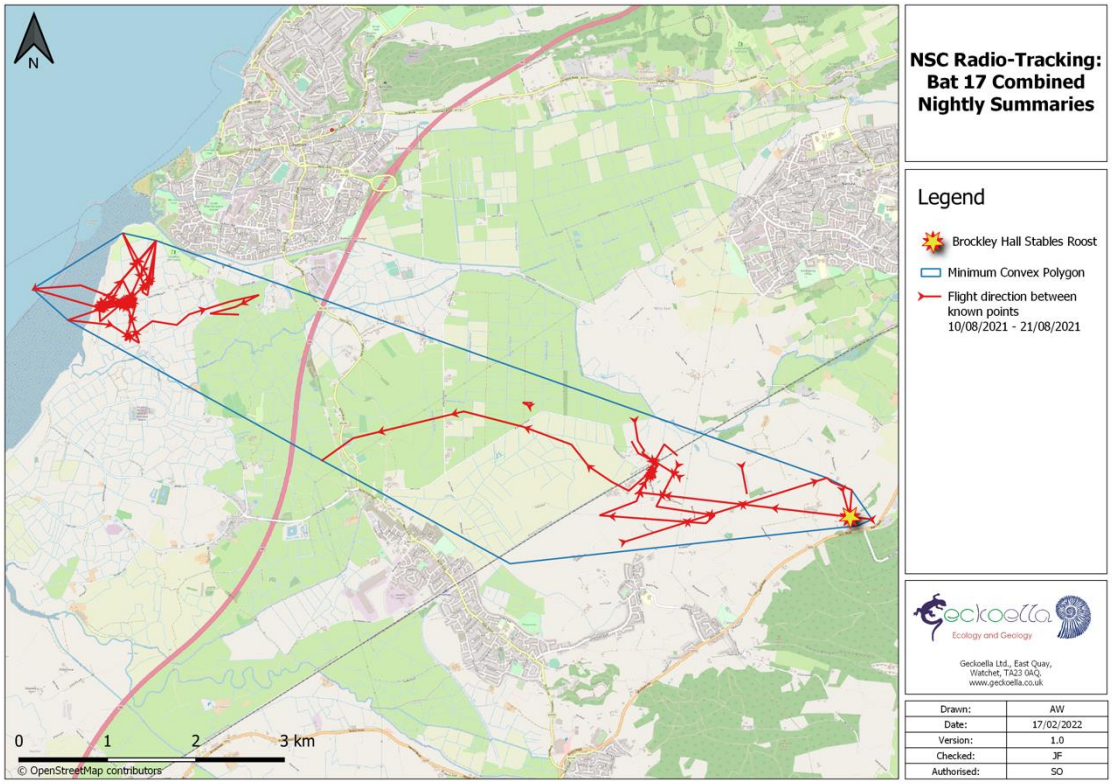

Table 4.17: Bat 17 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
10/08/21	Tagged	01:45	Tagged	BHS	-
11/08/21	21:53	04:45	BHS	BHS	Map 3.93
12/08/21	21:10	Unknown	BHS	BHS	Map 3.94
13/08/21	Unknown	04:10	BHS	BHS	-
14/08/21	21:00	02:10	BHS	BHS	-
15/08/21	Unknown	Unknown	BHS	BHS	Map 3.95
16/08/21	20:50	03:18	BHS	BHS	-
17/08/21	20:50	02:32	BHS	BHS	Map 3.96
18/08/21	Unknown	Unknown	BHS	BHS	-
19/08/21	Unknown	Unknown	BHS	BHS	-
20/08/21	20:40	Unknown	BHS	BHS	-
21/08/21	-	-	-	-	-

4.22 Bat 18 Summary of Activity

4.22.1 Bat 18 was generally found commuting up Brockley Combe to forage in the fields and woodland fringe habitat at the top of the hill, west and south west of Bristol Airport. Bat 18 was also observed commuting along the southern edge of Backwell and on occasion through the Farleigh Fields, using the St. Andrews Church yard as a commuting route into the fields, with Bat 18 faintly picked up near Wraxall Hill north east of Nailsea. Bat 18 was found foraging in the vicinity of the Stancombe quarry and fields south of Backwell quarry.

Map 4.18: NSC Radio-Tracking: Bat 18 Combined Nightly Summary

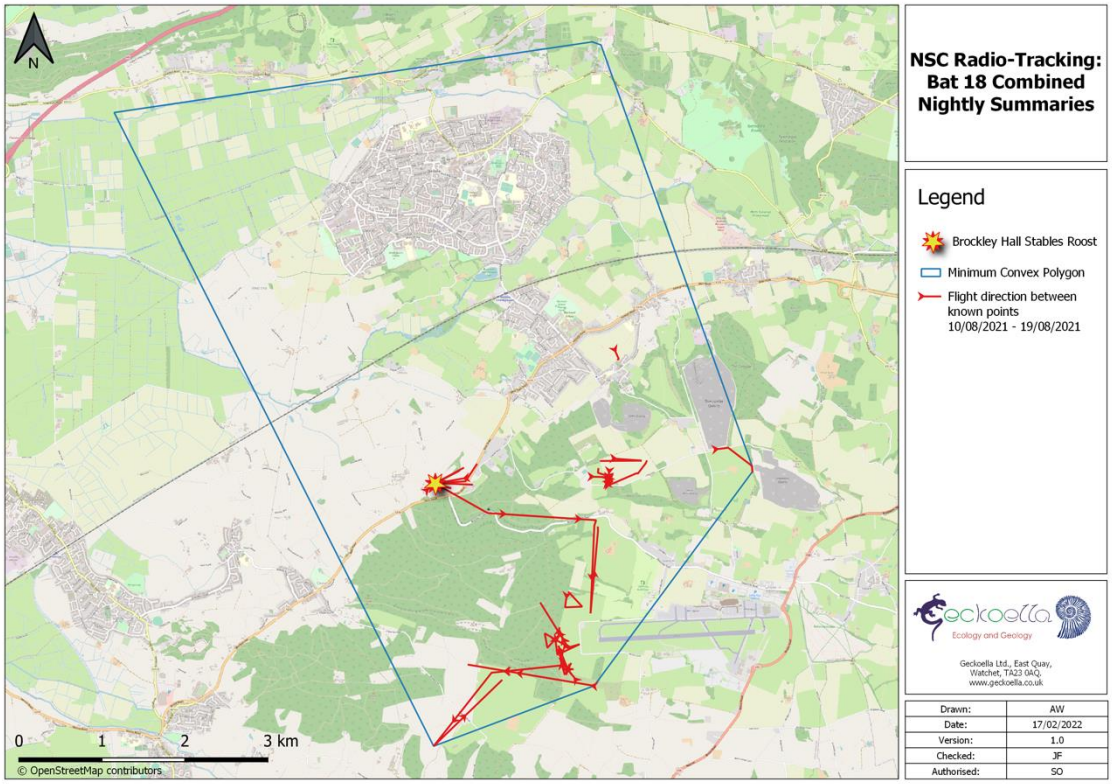

Table 4.18: Bat 18 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
10/08/21	Tagged	Unknown	Tagged	BHS	-
11/08/21	22:00	04:47	BHS	BHS	Map 3.97
12/08/21	21:16	03:38	BHS	BHS	Map 3.98
13/08/21	21:04	03:00	BHS	BHS	Map 3.99
14/08/21	20:55	04:18	BHS	BHS	Map 3.100
15/08/21	21:00	04:00	BHS	BHS	Map 3.101
16/08/21	Unknown	04:15	BHS	BHS	Map 3.102
17/08/21	Unknown	05:36	BHS	BHS	-
18/08/21	20:50	Unknown	BHS	BHS	Map 3.103
19/08/21	20:52	05:45	BHS	BHS	-
20/08/21	-	-	-	-	-

4.23 Bat 19 Summary of Activity

4.23.1 Bat 19 was generally found commuting and foraging up the western edge of Backwell using the fields at Backwell Lake to move between Nailsea and Backwell. Bat 19 was also observed commuting along the southern edge of Backwell and on occasion through the Farleigh Fields, using the St. Andrews Church yard as a commuting route into the fields. Bat 19 was found foraging in the fields north of Flax Bourton, the woodland/parkland habitat at Tyntesfield, the fields at the top of Wraxhall Hill and the woodland and fields either side of Mill Lane leading to Portbury. Bat 19 was also found night roosting in a barn off Mill Lane, south of Portbury.

Map 4.19: NSC Radio-Tracking: Bat 19 Combined Nightly Summary

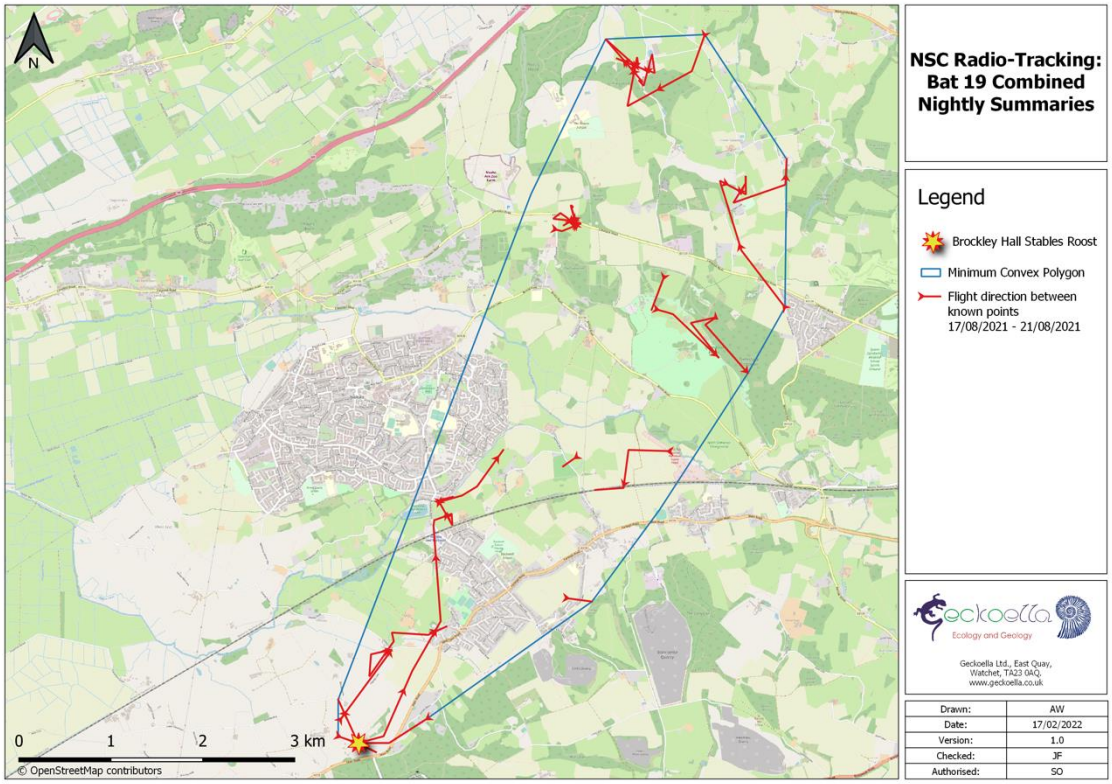

Table 4.19: Bat 19 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
17/08/21	Tagged	04:07	Tagged	BHS	Map 3.104
18/08/21	21:19	05:36	BHS	BHS	Map 3.105
19/08/21	21:02	05:32	BHS	BHS	Map 3.106
20/08/21	Unknown	05.30	BHS	BHS	-
21/08/21	Unknown	Unknown	BHS	Brockley Lane	-
22/08/21	-	-	-	-	-

4.24 Bat 20 Summary of Activity

4.24.1 Bat 20 was found commuting through the woods of Brockley Combe to the foraging grounds of the fields north of Brockley Combe Road and Downside Road, and on to the fields surrounding Felton across the A38. Bat 20 was also found commuting and foraging through the fields surrounding Brockley Hall Stables, between Chelvey, Cleeve and Claverham, and foraging over Kenn Moor. A brief commuting fix for Bat 20 heading down Wrington Hill suggests she also utilises foraging areas and / or roosting sites to the south.

Map 4.20: NSC Radio-Tracking: Bat 20 Combined Nightly Summary

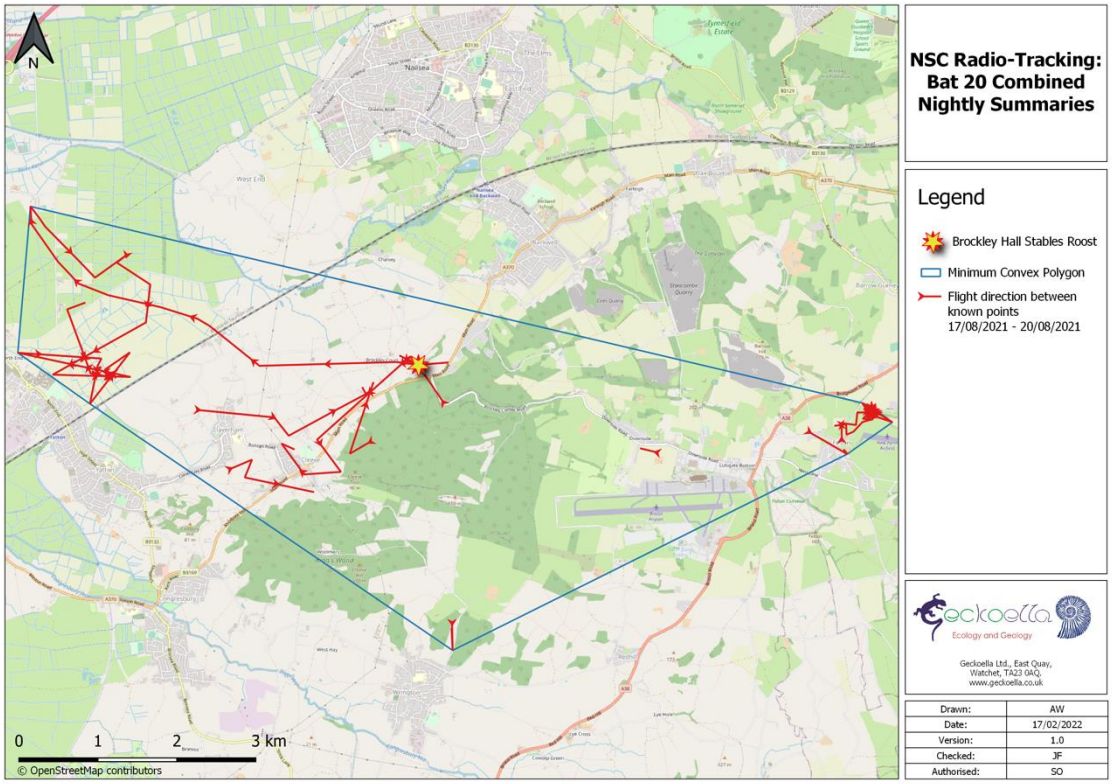

Table 4.20: Bat 20 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
17/08/21	Tagged	03:30	Tagged	BHS	Map 3.107
18/08/21	21:55	04:50	BHS	BHS	Map 3.108
19/08/21	Unknown	Unknown	BHS	BHS	-
20/08/21	20:37	02:37	BHS	BHS	Map 3.109
21/08/21	-	-	-	-	-

4.25 Bat 21 Summary of Activity

4.25.1 Bat 21 was generally found foraging through the fields surrounding Brockley Hall Stables, between Cleeve and Claverham, foraging up the western edge of Backwell, around Chelvey and along the River Kenn over Kenn Moor. Bat 21 was also found to commute up Brockley Combe to forage on the fields south of Bristol Aiport at the top of Golbin Combe, and the fields north of Downside Road, and over to Stancombe quarry and the surrounding fields.

Map 4.21: NSC Radio-Tracking: Bat 21 Combined Nightly Summary

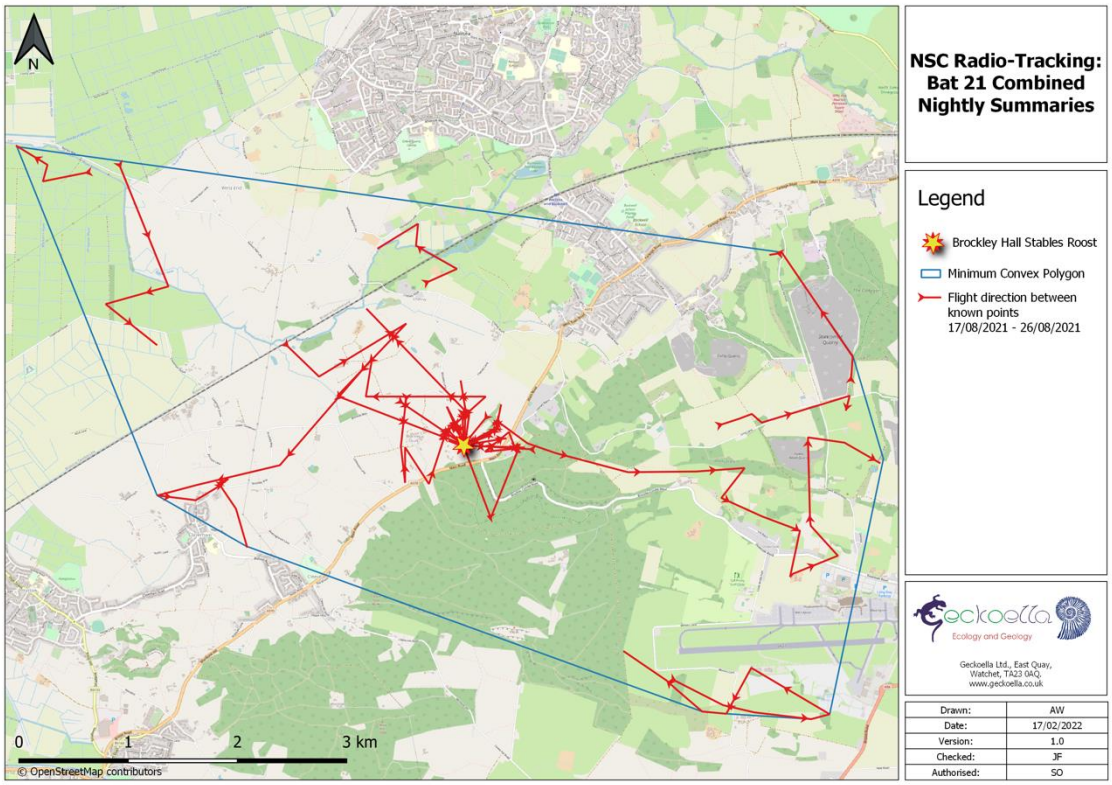

Table 4.21: Bat 21 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
17/08/21	Tagged	05:34	Tagged	BHS	Map 3.110
18/08/21	20:21	05:06	BHS	BHS	-
19/08/21	Unknown	Unknown	BHS	BHS	-
20/08/21	21:08	Unknown	BHS	BHS	-
21/08/21	20:58	05:19	BHS	BHS	-
22/08/21	Unknown	Unknown	BHS	BHS	Map 3.111
23/08/21	20:55	05:25	BHS	BHS	Map 3.112
24/08/21	20:46	03:55	BHS	BHS	Map 3.113
25/08/21	20:49	01:16	BHS	BHS	Map 3.114
26/08/21	21:08	21:30	BHS	BHS	Map 3.115
27/08/21	-	-	-	-	-

4.26 Bat 22 Summary of Activity

4.26.1 Bat 22 was generally found foraging through the fields surrounding Brockley Hall Stables, between Cleeve and Chelvey, foraging along the western and southern edges of Backwell.

Map 4.22: NSC Radio-Tracking: Bat 22 Combined Nightly Summary

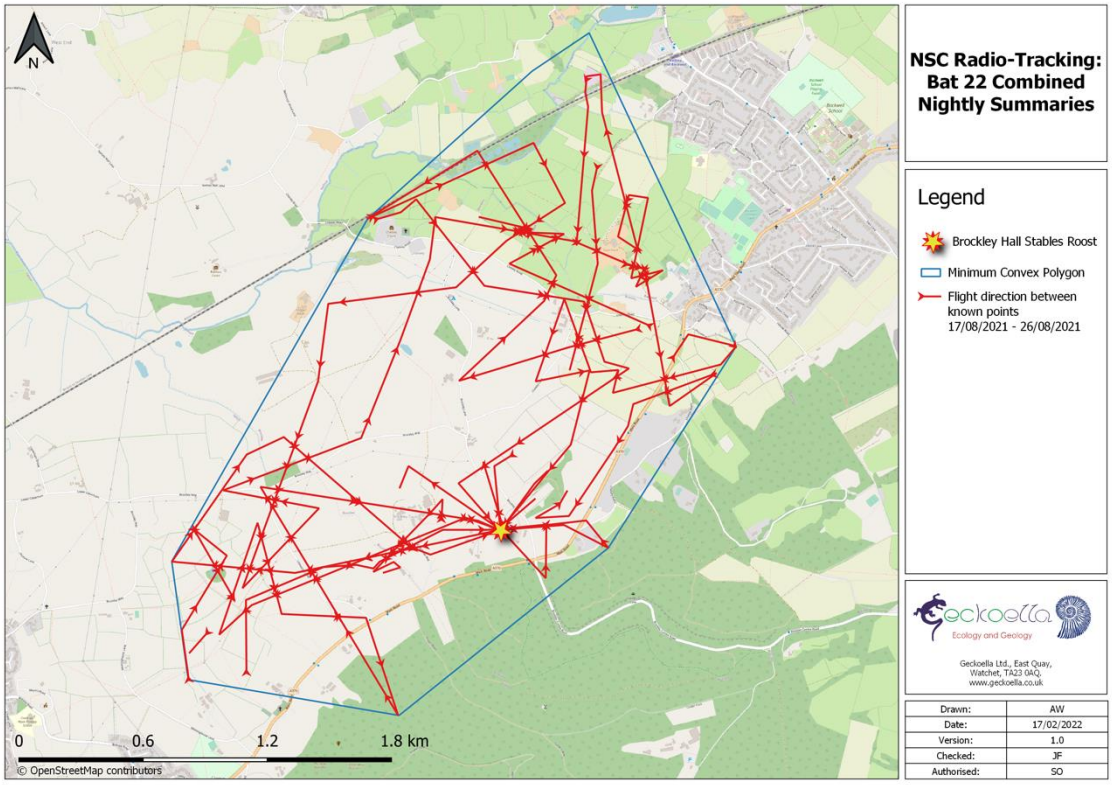

Table 4.22: Bat 22 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
17/08/21	Tagged	Unknown	Tagged	BHS	-
18/08/21	Unknown	Unknown	BHS	BHS	-
19/08/21	Unknown	Unknown	BHS	BHS	-
20/08/21	Unknown	Unknown	BHS	BHS	-
21/08/21	21:08	05:14	BHS	BHS	-
22/08/21	21:25	05:10	BHS	BHS	Map 3.116
23/08/21	20:53	05:11	BHS	BHS	Map 3.117
24/08/21	21:00	03:20	BHS	BHS	Map 3.118
25/08/21	20:45	01:52	BHS	BHS	Map 3.119
26/08/21	22:09	Unknown	BHS	BHS	-
27/08/21	-	-	-	-	-

4.27 Bat 23 Summary of Activity

4.27.1 Bat 23 was generally found foraging through the fields surrounding Brockley Hall Stables, between Cleeve and Claverham, foraging up the western edge of Backwell, around Chelvey and up the western edge of Nailsea. Bat 23 was also found to commute up Goblin Combe to forage on the fields west and south west of Bristol Airport at the top of Goblin Combe.

Map 4.23: NSC Radio-Tracking: Bat 23 Combined Nightly Summary

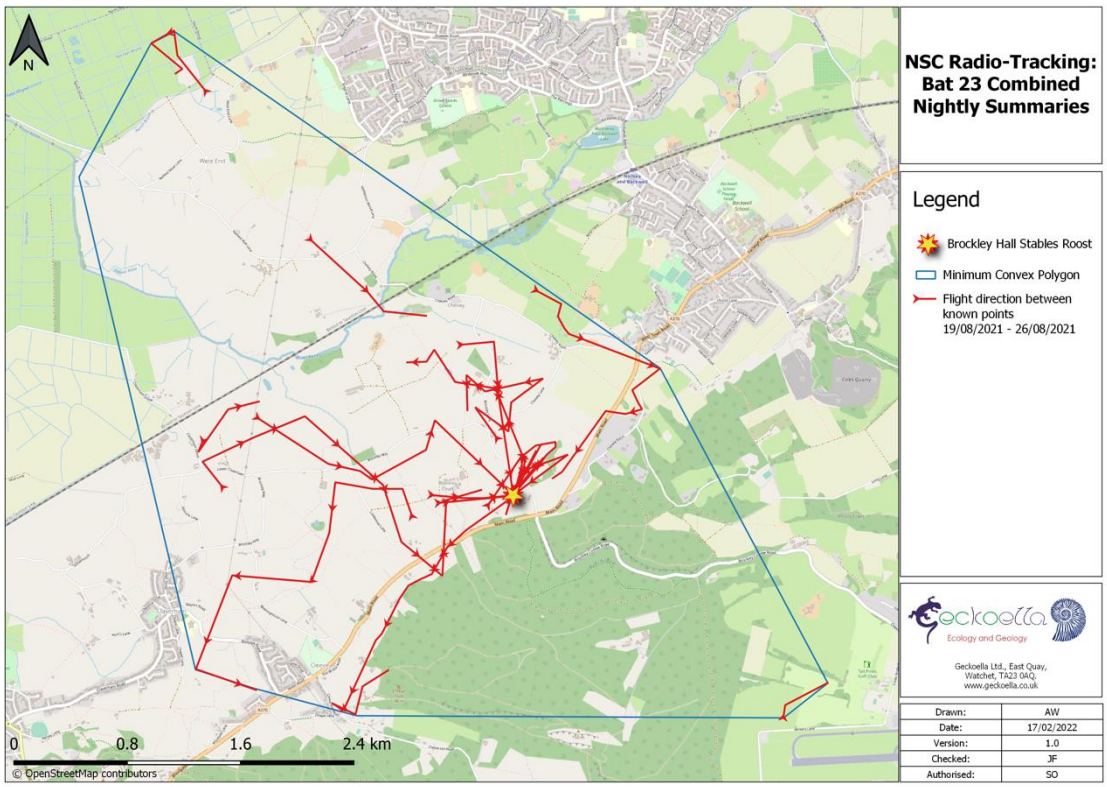

Table 4.23: Bat 23 Summary of Activity

Date	Time of Emergence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
19/08/21	Tagged	Unknown	Tagged	Unknown	-
20/08/21	Unknown	Unknown	Unknown	BHS	-
21/08/21	21:07	21:17	BHS	BHS	-
22/08/21	21:03	05:15	BHS	BHS	Map 3.120
23/08/21	21:06	Unknown	BHS	BHS	Map 3.121
24/08/21	21:14	04:54	BHS	BHS	Map 3.122
25/08/21	20:45	05:03	BHS	BHS	Map 3.123
26/08/21	20:49	02:06	BHS	BHS	-
27/08/21	-	-	-	-	-

4.28 Bat 24 Summary of Activity

4.28.1 Bat 24 was generally found foraging through the fields surrounding Brockley Hall Stables, between Cleeve and Claverham, foraging along the western and southern edges of Backwell, around Chelvey and along the River Kenn. Bat 24 was found to be using the fields at Backwell Lake to move between Nailsea and Backwell. Bat 24 was also found to commute up Brockley Combe to forage on the fields west of Bristol Aiport, and the fields north of Downside Road.

Map 4.24: NSC Radio-Tracking: Bat 24 Combined Nightly Summary

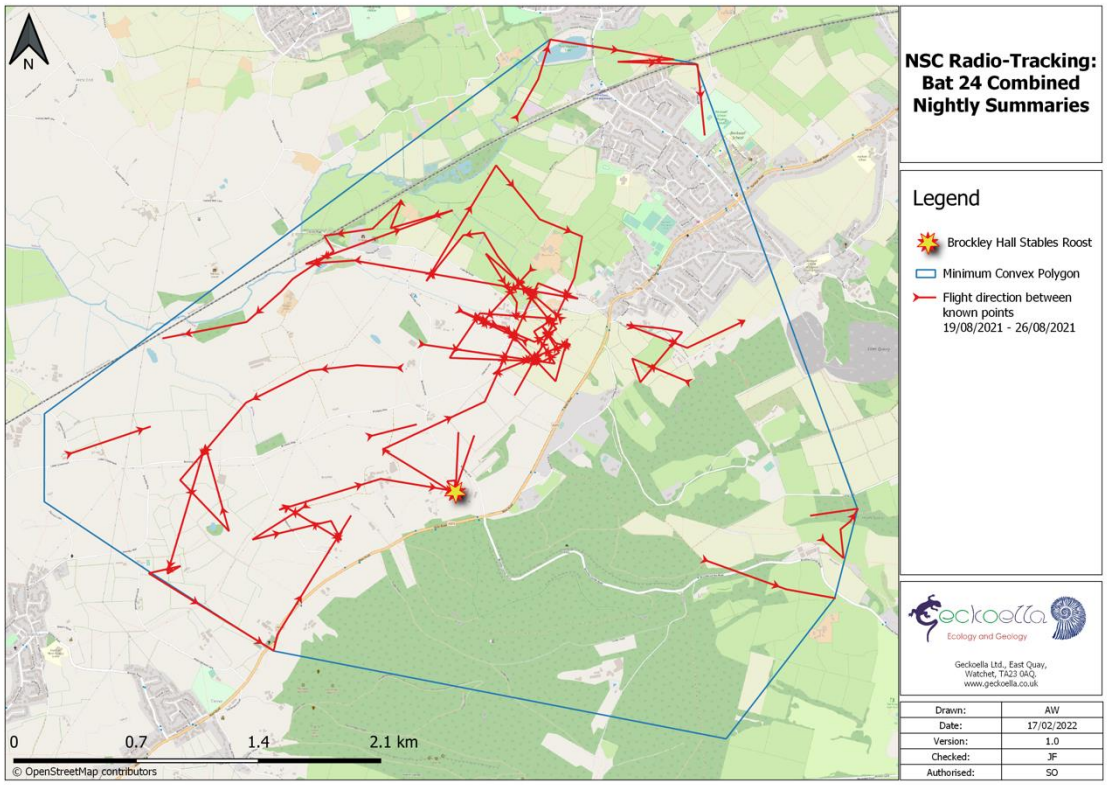

Table 4.24: Bat 24 Summary of Activity

Date	Time of Emer-gence	Time of Re-entry	Roosting Location at Dusk	Roosting Location at Dawn	Nightly Summary Map
19/08/21	Tagged	Unknown	Tagged	BHS	-
20/08/21	Unknown	Unknown	BHS	BHS	-
21/08/21	Unknown	Unknown	BHS	BHS	-
22/08/21	21:34	05:19	BHS	BHS	Map 3.125
23/08/21	22:30	05:28	BHS	BHS	Map 3.126
24/08/21	21:07	04:00	BHS	BHS	Map 3.127
25/08/21	20:50	05:37	BHS	BHS	Map 3.128
26/08/21	Unknown	Unknown	BHS	BHS	-
27/08/21	-	-	-	-	-

5. Discussion

5.1.1 The greater horseshoe population size at Brockley Hall Stables has increased significantly over the last 20 years from a roost count of 86 from 2001 during Billington's English Nature Report (G. Billington 2002) to a count of 639 from 2021 during a roost count lead by Vincent Wildlife Trust (*pers comm.* Tom Kitching, 2021).

5.1.2 The greater horseshoe population size at King's Wood has reportedly increased over the last 20 years from a roost count of 95 from 2001 (G. Billington 2002) to a count of approximately 100 from 2019 during a roost count lead by Sarah Dale (*pers comm.* Sarah Dale, 2021). However, multiple roost counts were conducted during 2021 as part of the scoping work to the 2021 radio-tracking study and by Sarah Dale and none of the roost counts got above 10 individuals, with all attempts at trapping at King's Wood capturing low numbers of adult male greater horseshoe bats only.

5.1.3 It is not known at this time why the reduction in numbers at the King's Wood roost site from 2001/2021 to 2021 has occurred. However, the spring of 2021 was unseasonable cold and wet delaying the formation of the maternity colonies which may also have had an influence on the use of King's Wood during 2021.

5.1.4 The increase in population size at Brockley Hall Stable is reflected in the increased size of the population range. The maximum foraging radius from the roost during the 2021 radio-tracking was found to be 13.9km, which is a 49% increase in distance for adult greater horseshoe bats from Billington's English Nature Report (G. Billington 2002). However, there was only an 8% increase in the range travelled by juvenile bats, from 4.5km in 2001 (G. Billington 2002) to the 4.9km found for juveniles during 2021.

5.1.5 This increased maximum foraging radius and general population home range is also reflected in the increased distribution of different areas found to be of importance to greater horseshoe bats. These were limited, and previously identified by both Duvergé (Duvergé P. , 1996) and Billington (G. Billington 2002) to the areas immediately surrounding King's Wood and Brockley Hall Stables. Whilst all of these areas were still recorded as being of importance to greater horseshoe bats across multiple individuals and nights (with the exception of lack of foraging areas to the south and southwest of King's Wood between Congresbury and Wrington), a number of new foraging areas were identified that were being used by multiple bats over multiple nights. Bats regularly flew north west over Kenn Moor, Clevedon Moor, Tickenham Moor as far as Tickenham Ridge and Gordano Valley.

5.1.6 This radio-tracking data should feed into the ongoing remote acoustic sensing work commissioned by North Somerset Council across North Somerset; with areas where greater horseshoe activity was identified used to highlight a range of commuting and foraging networks which could be of being of use to greater horseshoe bats that are associated with the North Somerset and Mendip Bats SAC.

5.1.7 A more detailed analysis of greater horseshoe bat home range should be undertaken as part of the wider strategic surveys, and following on from this it is recommended that the North Somerset and Mendip Bats SAC guidance is reviewed and updated to take into account this new evidence.

5.1.8 Lastly, identification of new greater horseshoe bat day and night roosts was achieved by the project. Although some were inspected and described in detail as part of this project, other suspected roost sites were not accessed or the exact roost location was not pinpointed within a certain area, *e.g.* within a private farm complex. Detailed inspection of these roost sites should be prioritised so they can be inspected and then considered for further protection for their importance, particularly given their use by bats from the North Somerset and Mendip Bats SAC.

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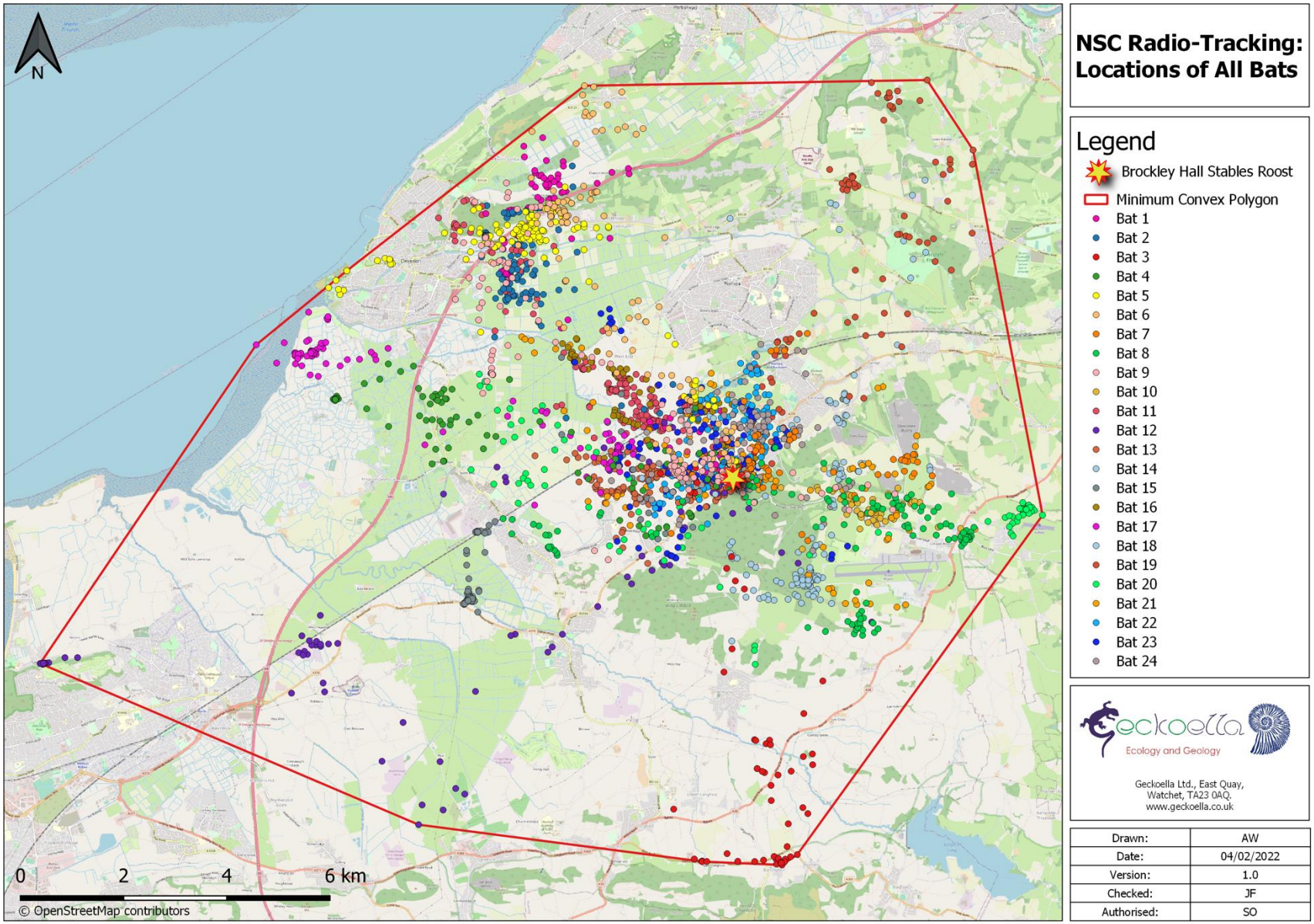
7. Glossary and Acronyms

Kernel density estimation – This is a non-parametric way to estimate the probability density function of a random variable. Kernel density estimation is a fundamental data smoothing problem where inferences about the population are made.
LPA - Local Planning Authority. The public authority whose duty it is to carry out specific planning functions for a particular area.
LRC - Local Record Centre. Organisation which collects collates and manages information on wildlife and the natural environment and can supply to local users.
Minimum convex polygons – The outermost data points are connected to form a polygon where no internal angle exceeds 180 degrees and which contains all sites.
Non-statutory site – A defined area of terrestrial or marine environment, designated to protect and enhance important wildlife conservation areas, in addition to geological and geomorphological features of local interest. Non-statutory sites do not receive legal protection through legislation. [See also statutory protected site].
Priority habitat – Habitat of principal nature conservation importance as listed under Section 41 of the Natural Environment and Rural Communities Act (2006).
Priority species – Species of principal nature conservation importance as listed under Section 41 of the Natural Environment and Rural Communities Act (2006).
Protected species – Species protected by law. Key legislation for England includes the Wildlife and Countryside Act 1981 (as amended), the Conservation Natural Habitats and Species Regulations 2017, the Protection of Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.
QGIS – Quantum Geographical Information System.
Radio-tracking – Determining the exact location of an animal through the use of radio-signals emitted from a radio transmitter on the animal's person.
SAC - Special Area of Conservation are high-quality conservation sites that make a significant contribution to conserving the habitats and species listed under of European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive. Can be both terrestrial and marine.
SSSI - Site of Special Scientific Interest. Site designated by Natural England under the Wildlife and Countryside Act (1981) due to special interest in its flora, fauna, geological and/or geomorphological features.
SSSI Units – A subdivision of Sites of Special Scientific Interest (SSSI), important for maintaining the condition and management of SSSI sites. Condition assessments result in the assignment of 'Favourable' to 'Destroyed', indication the condition of the site, and the features therein. [See also SSSI].
Statutory protected site – A defined area of terrestrial or marine environment, designated to protect and enhance important wildlife conservation areas, in addition to geological and geomorphological features of local interest. Statutory sites receive legal protection through legislation. [See also non-statutory protected site].
Triangulation – A process by which the location of a radio-transmitter can be determined by measuring the direction of the received signal from two or three different points.

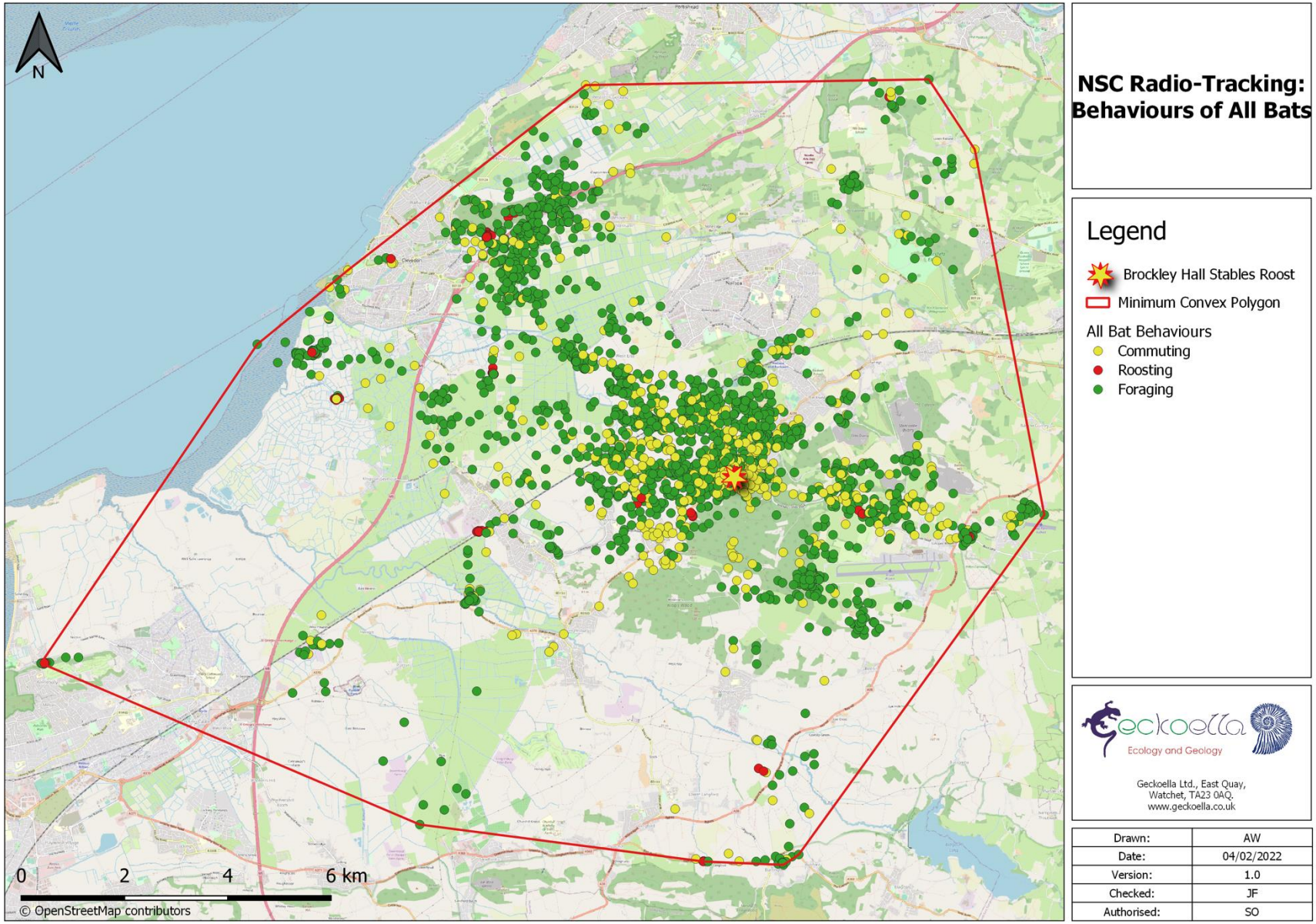
8. Appendices and Mapping

Appendix 1: Summary Maps for All Bats

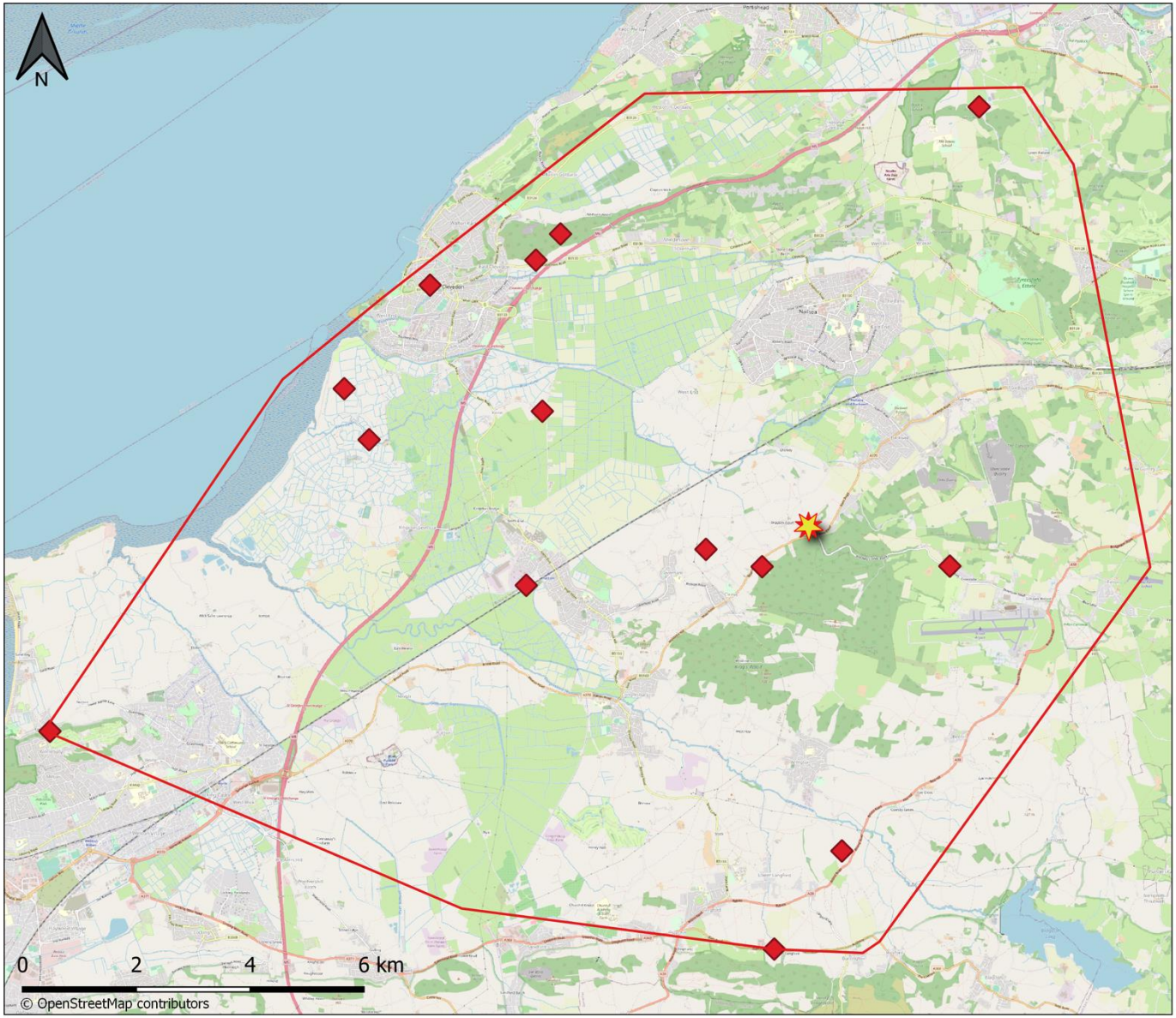
Map 1.1: NSC Radio-Tracking: Locations of All Bats



Map 1.2: NSC Radio-Tracking: Behaviours of All Bats



Map 1.3: NSC Radio-Tracking: Roosting Locations



NSC Radio-Tracking: Roosting Locations

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon All Bats
- Bat roosts

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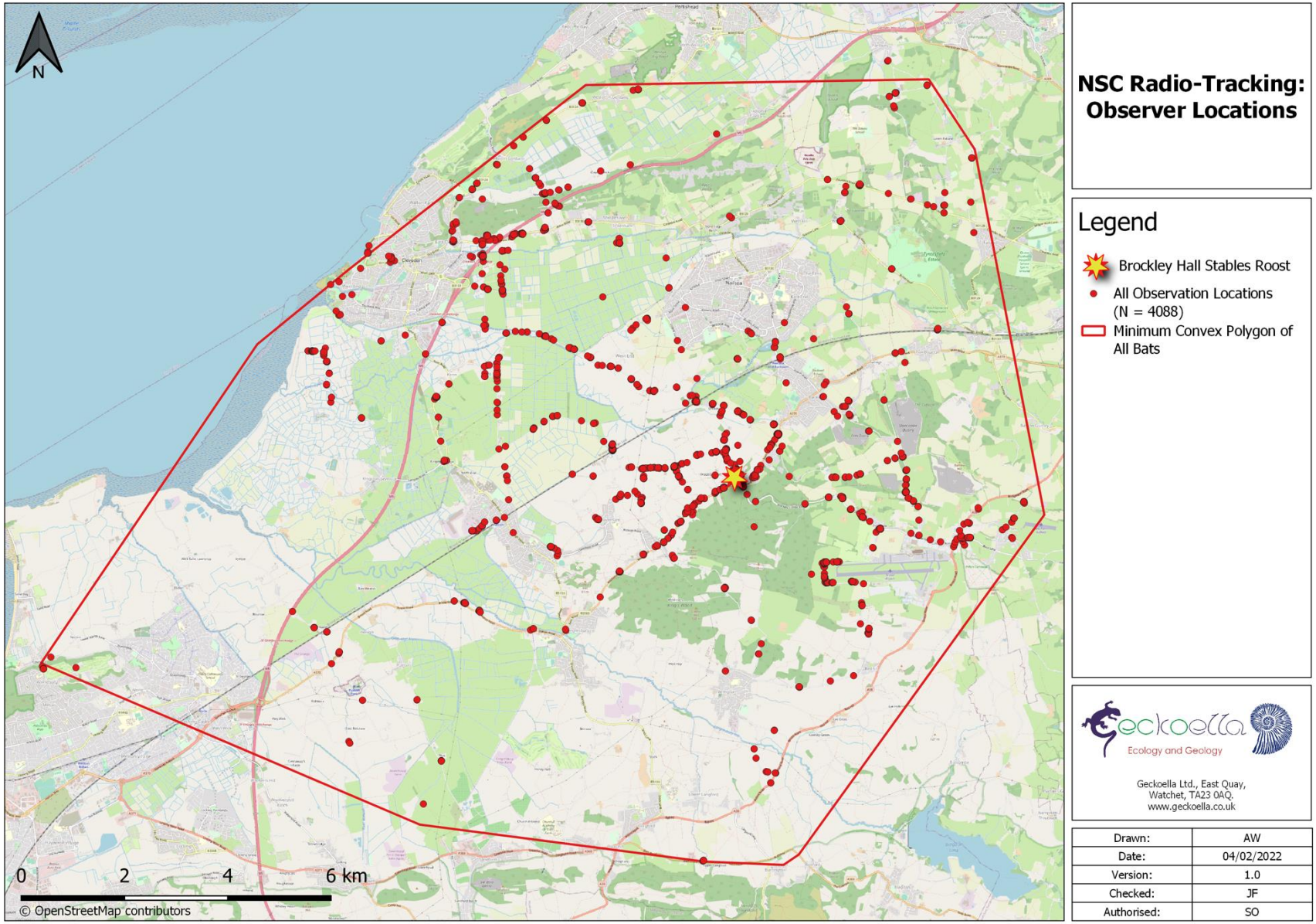
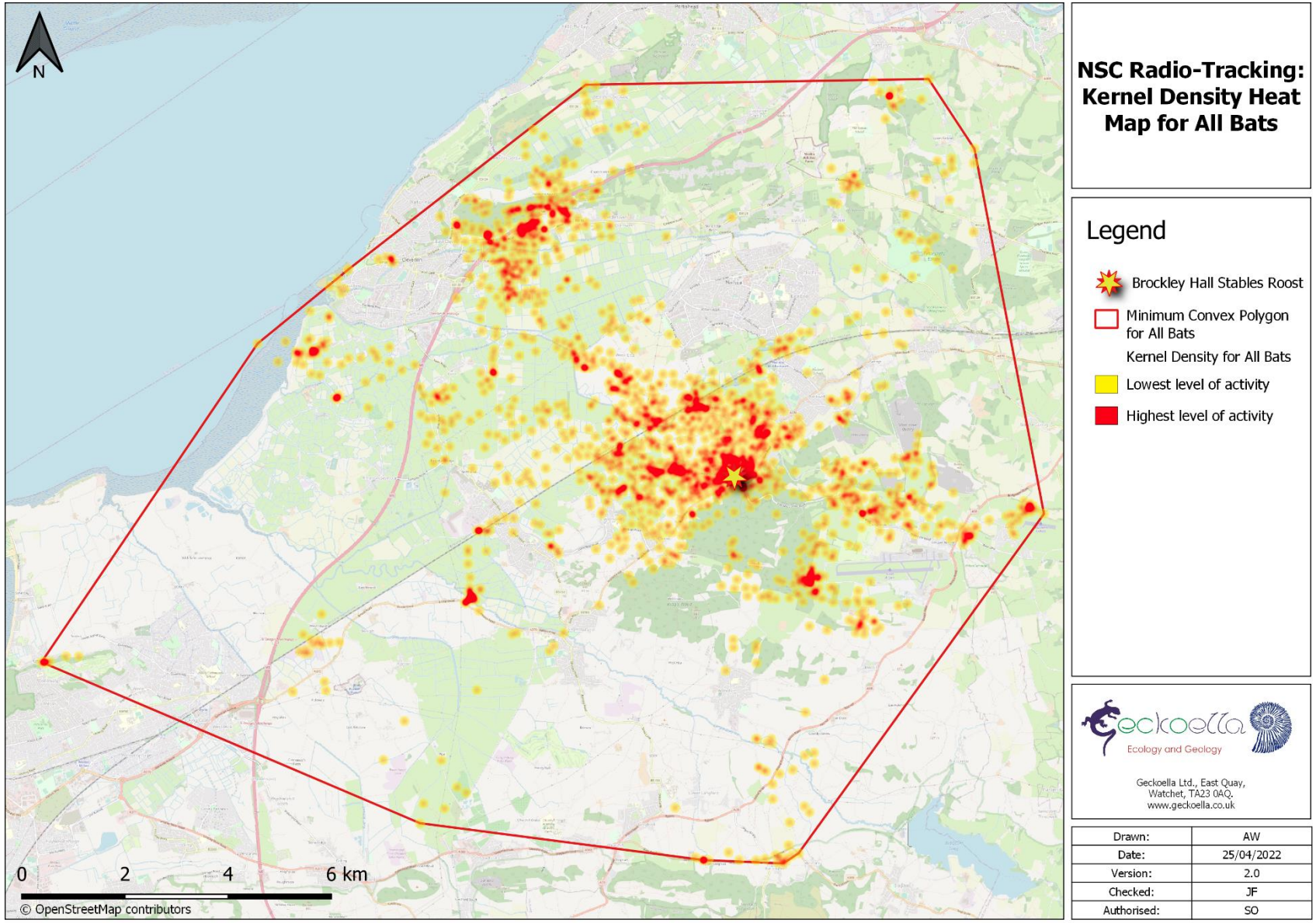
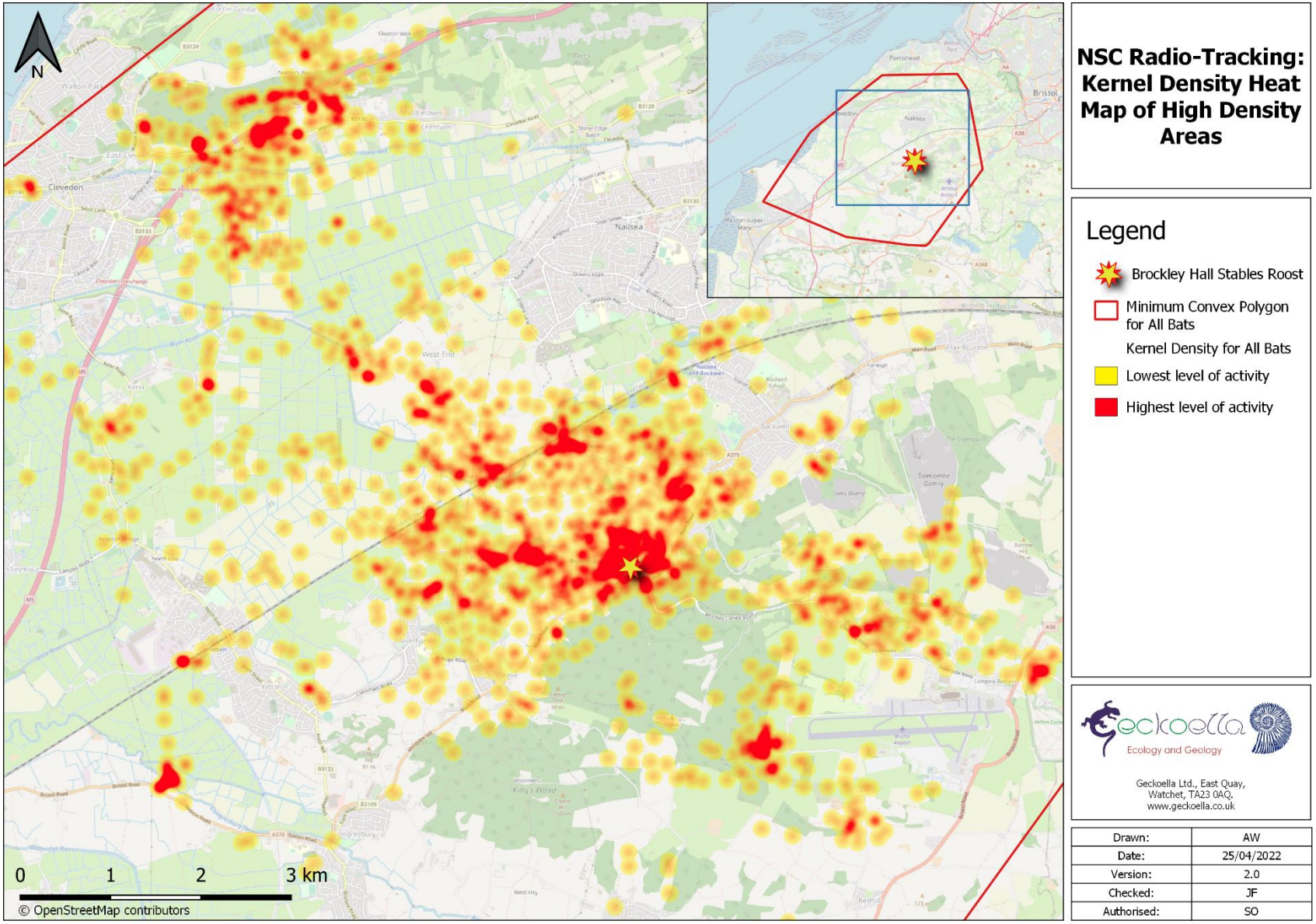
Map 1.4: NSC Radio-Tracking: Observer Locations



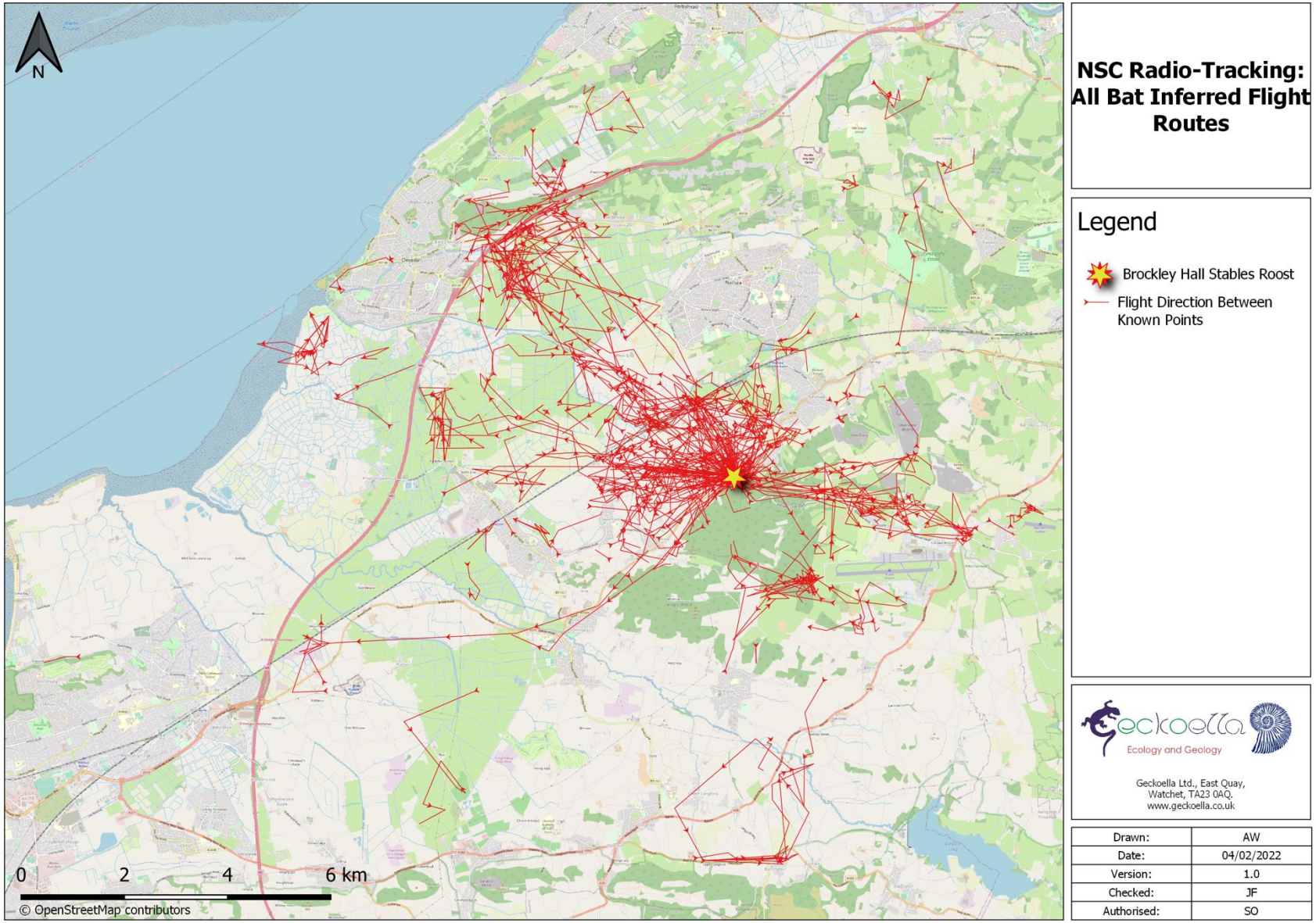
Map 1.5: NSC Radio-Tracking: Kernel Density Heat Map for All Bats



Map 1.6: NSC Radio-Tracking: Kernel Density Heat Map of High Density Areas for All Bats

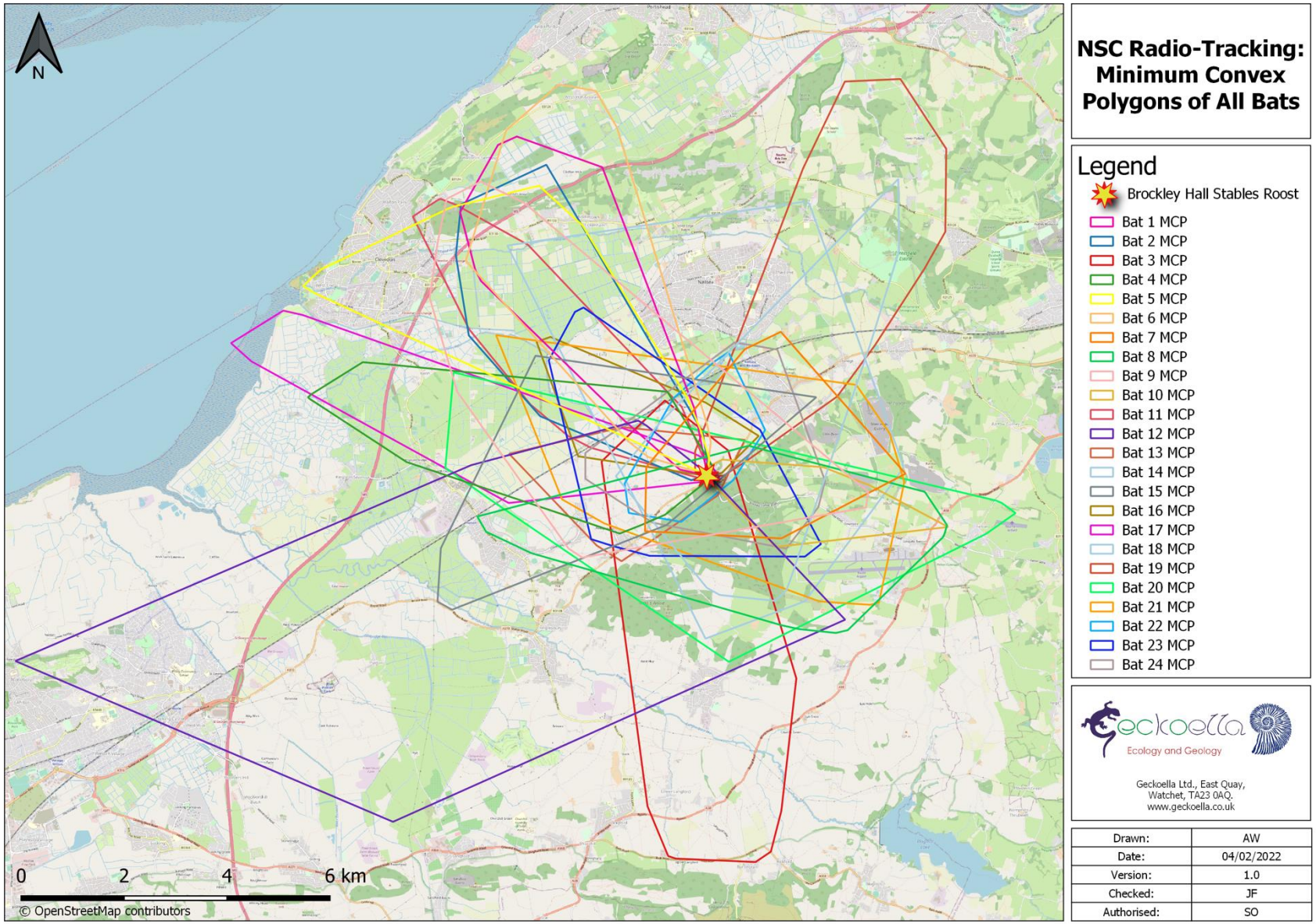


Map 1.7: NSC Radio-Tracking: All Bat Inferred Flight Routes

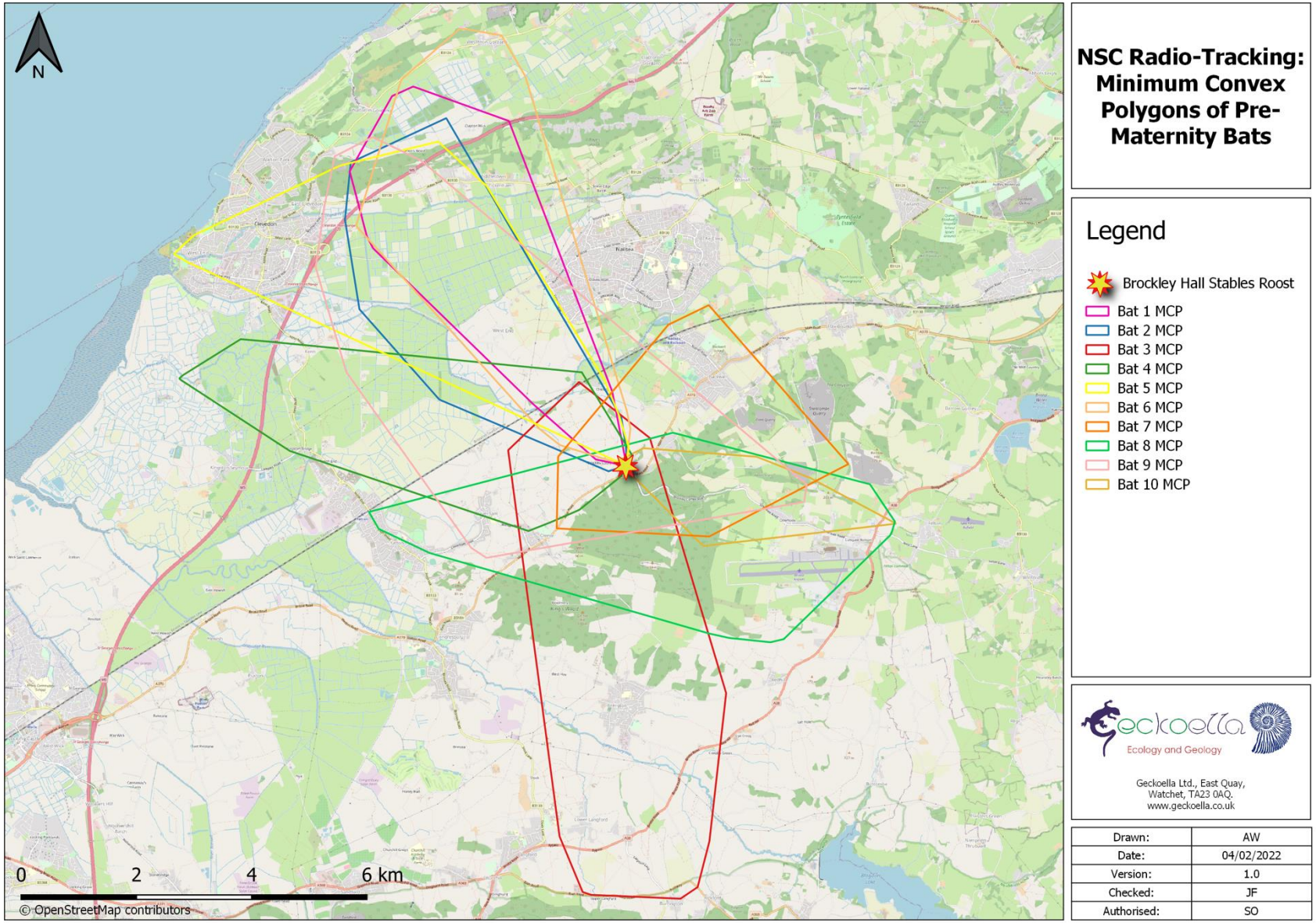


Appendix 2: Minimum Convex Polygons

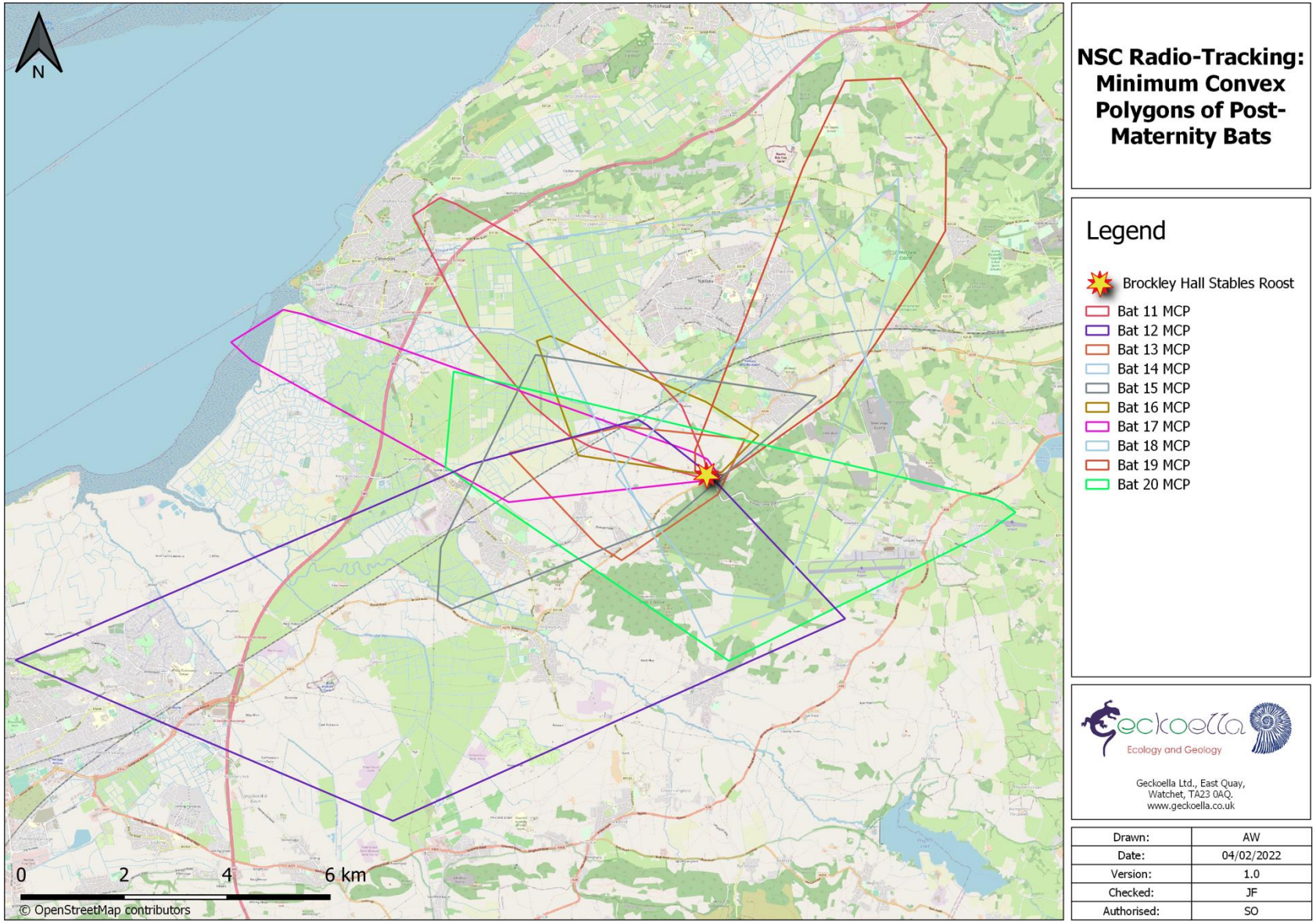
Map 2.1: NSC Radio-Tracking: Minimum Convex Polygons of All Bats



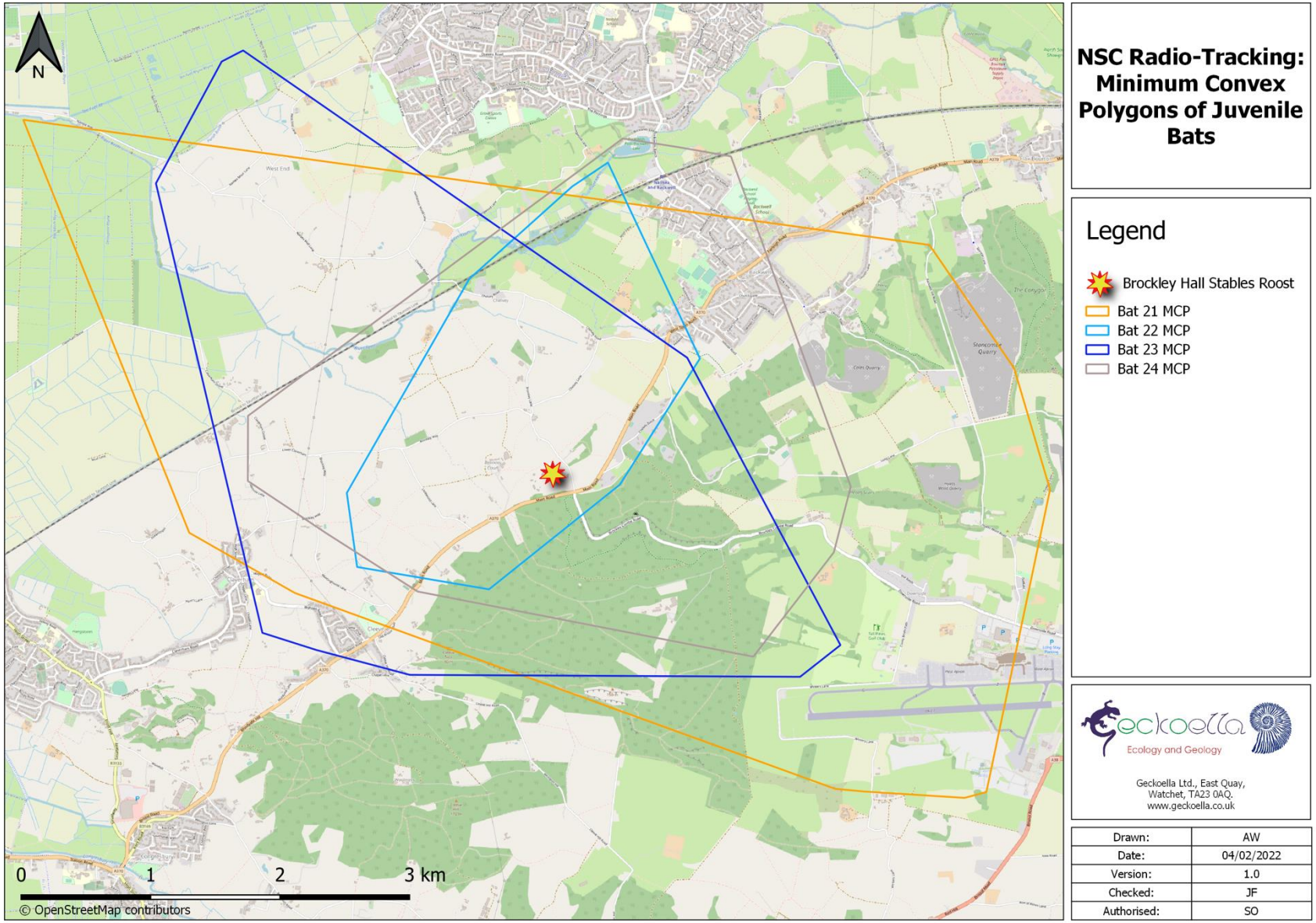
Map 2.2: NSC Radio-Tracking: Minimum Convex Polygons of Pre-Maternity Bats



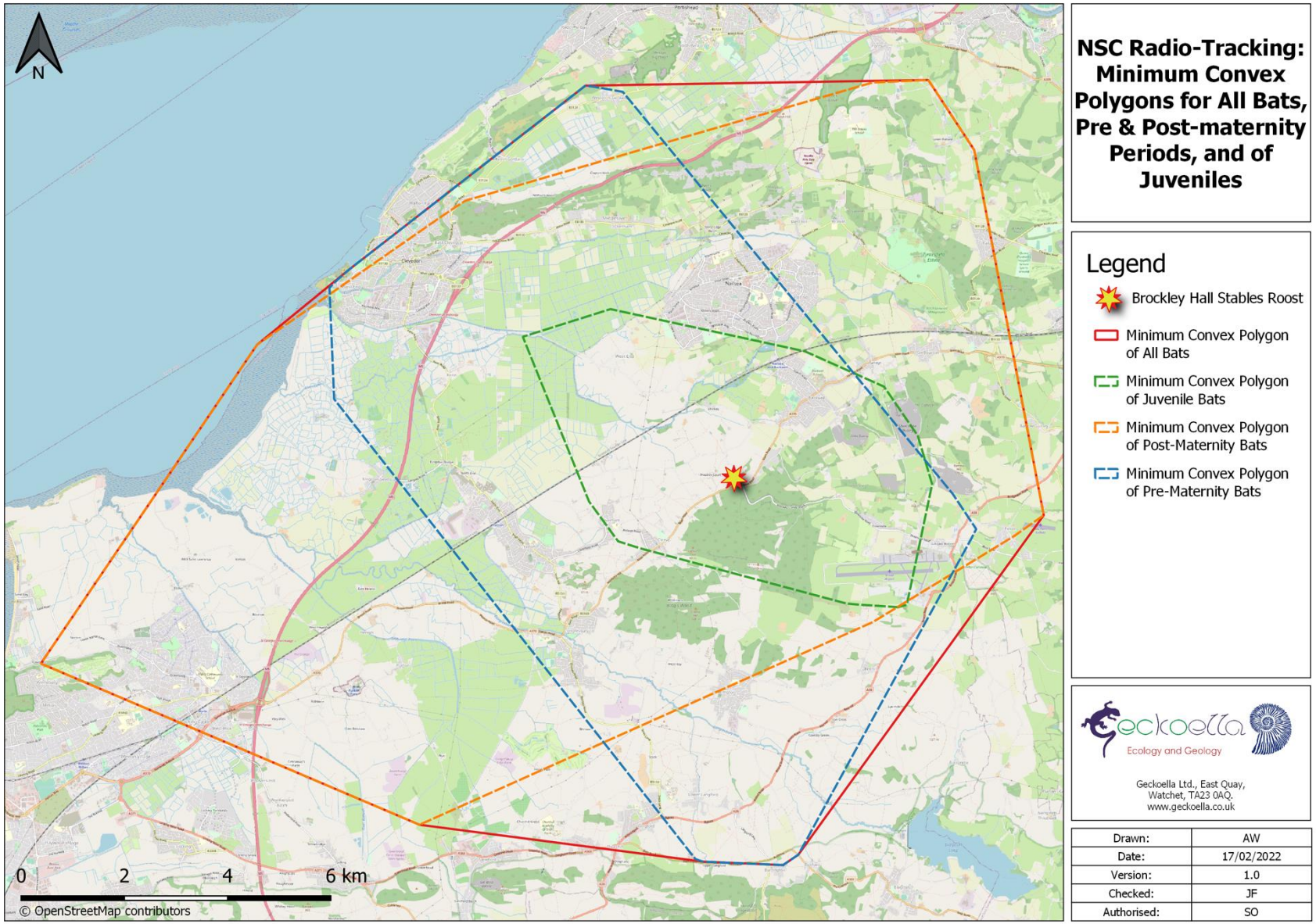
Map 2.3: NSC Radio-Tracking: Minimum Convex Polygons of Post-Maternity Bats



Map 2.4: NSC Radio-Tracking: Minimum Convex Polygons of Juvenile Bats

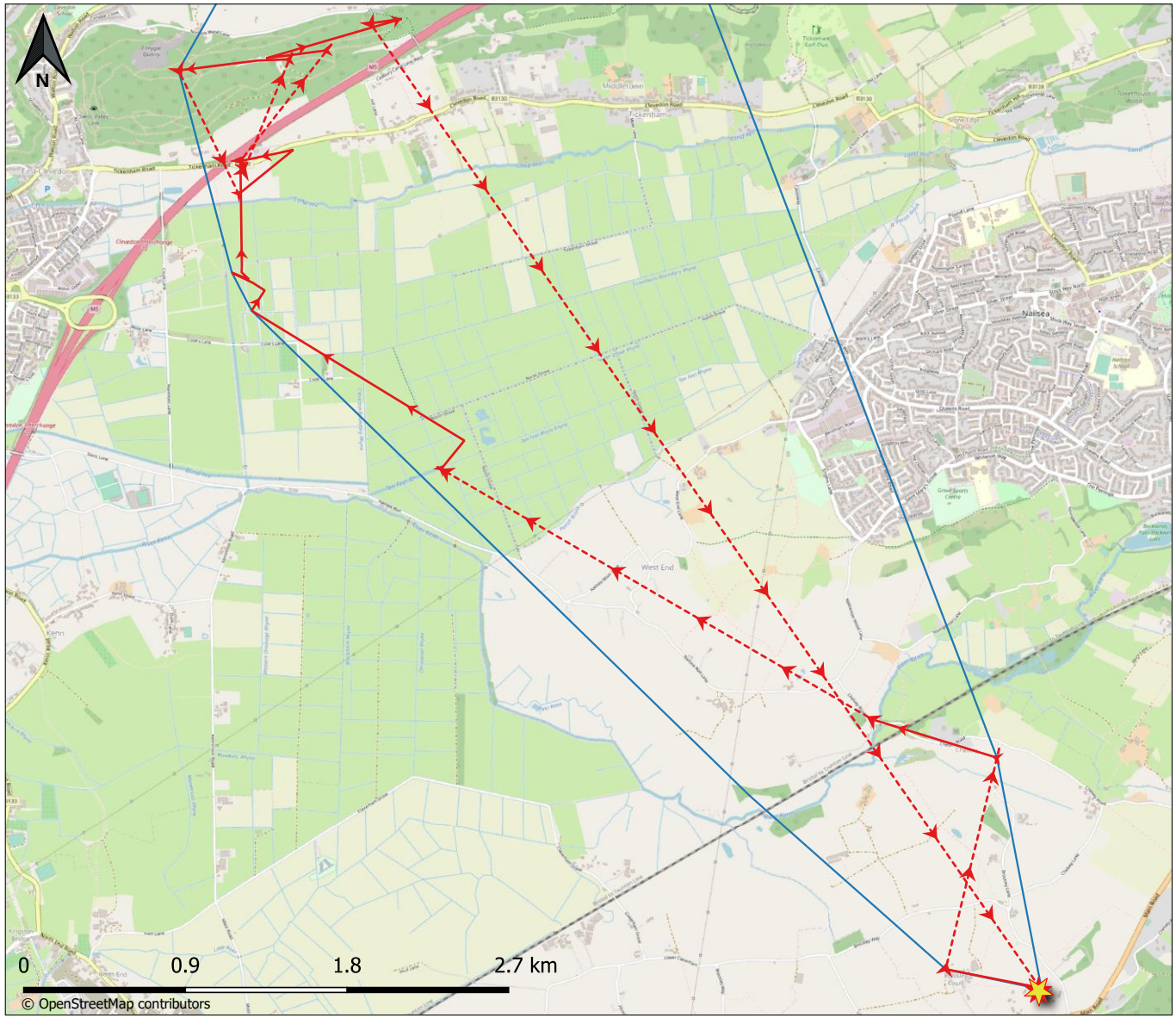


Map 2.5: NSC Radio-Tracking: Minimum Convex Polygons for All Bats, Pre & Post-maternity Periods, and of Juveniles



Appendix 3: Bat Nightly Summaries

Map 3.1 NSC Radio-Tracking: Bat 1 Nightly Summary 22-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 22-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:51 - 02:24

Indicative flight lines from last known position

- 1st foraging bout 21:51 - 02:24

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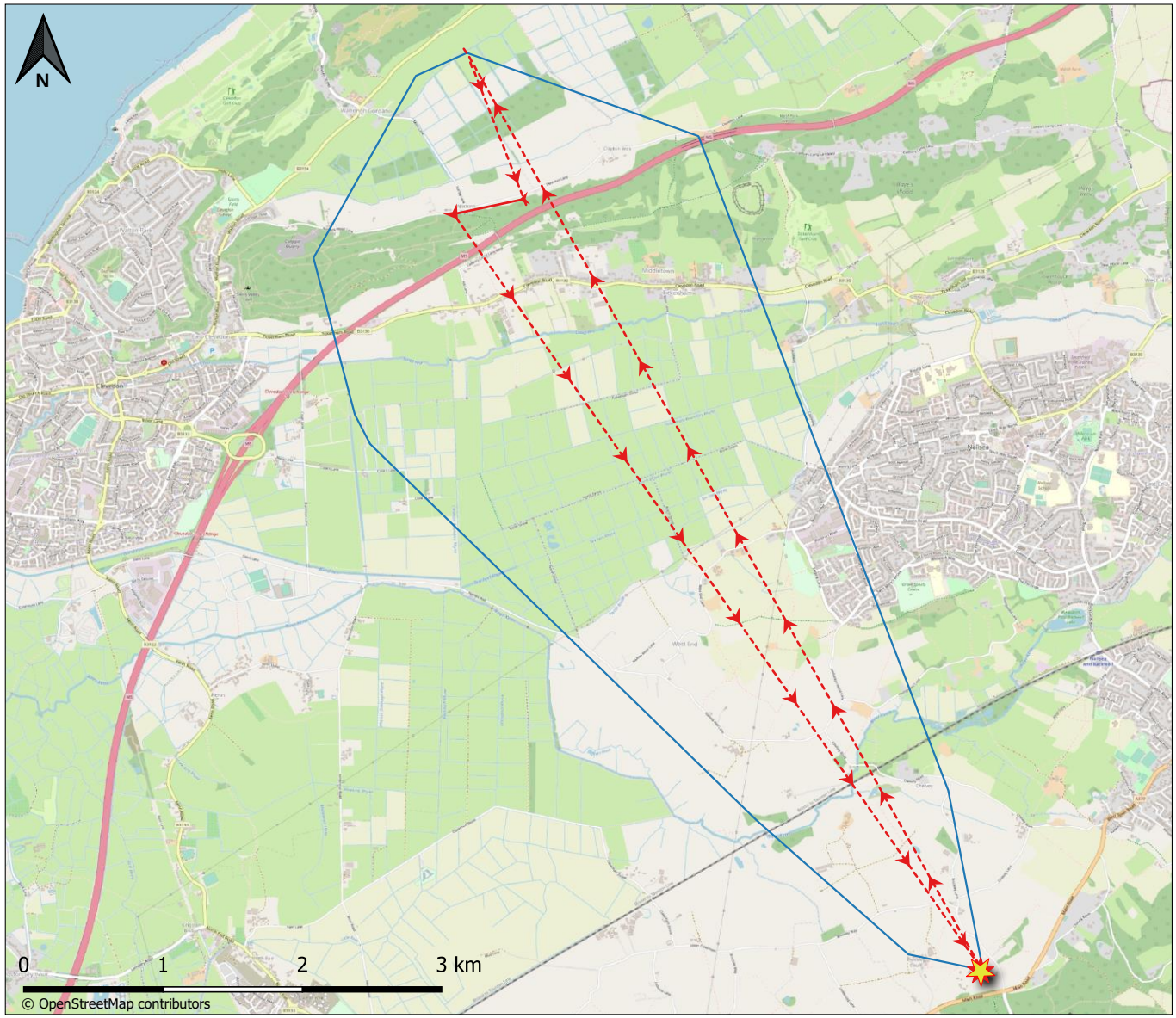
Map 3.2: NSC Radio-Tracking: Bat 1 Nightly Summary 23-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 23-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
23:38 - 01:06

Indicative flight lines from last known position

1st foraging bout
23:38 - 01:06

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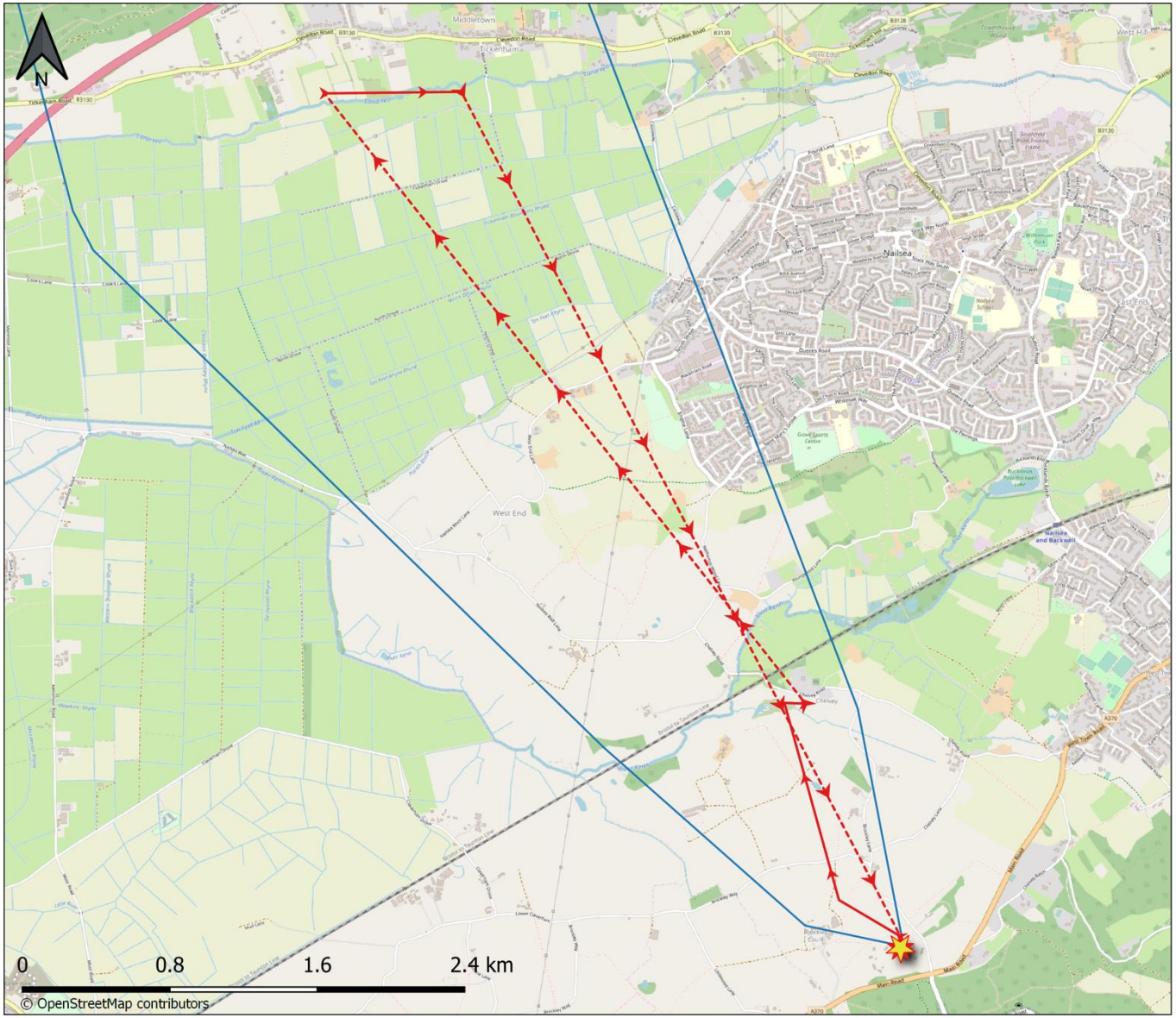
Map 3.3: NSC Radio-Tracking: Bat 1 Nightly Summary 24-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 24-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:36 - 22:22

Indicative flight lines from last known position

- 1st foraging bout 21:36 - 22:22

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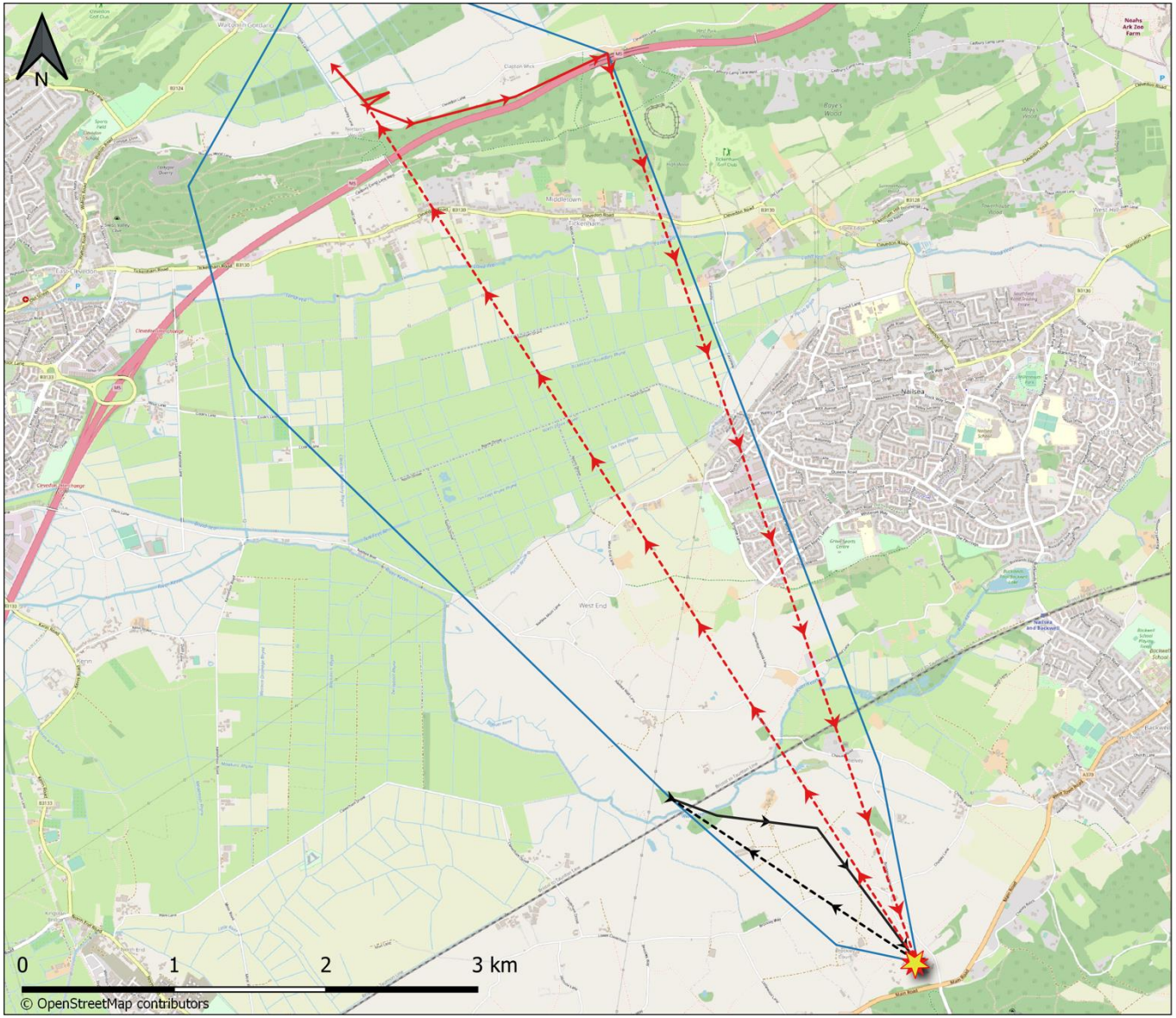
Authorised:	SO

Map 3.4: NSC Radio-Tracking: Bat 1 Nightly Summary 25-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 25-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 23:45 - 00:28
- 2nd foraging bout 03:04 - 04:27

Indicative flight lines from last known position

- 1st foraging bout 23:45 - 00:28
- 2nd foraging bout 03:04 - 04:27

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Version:	1.0
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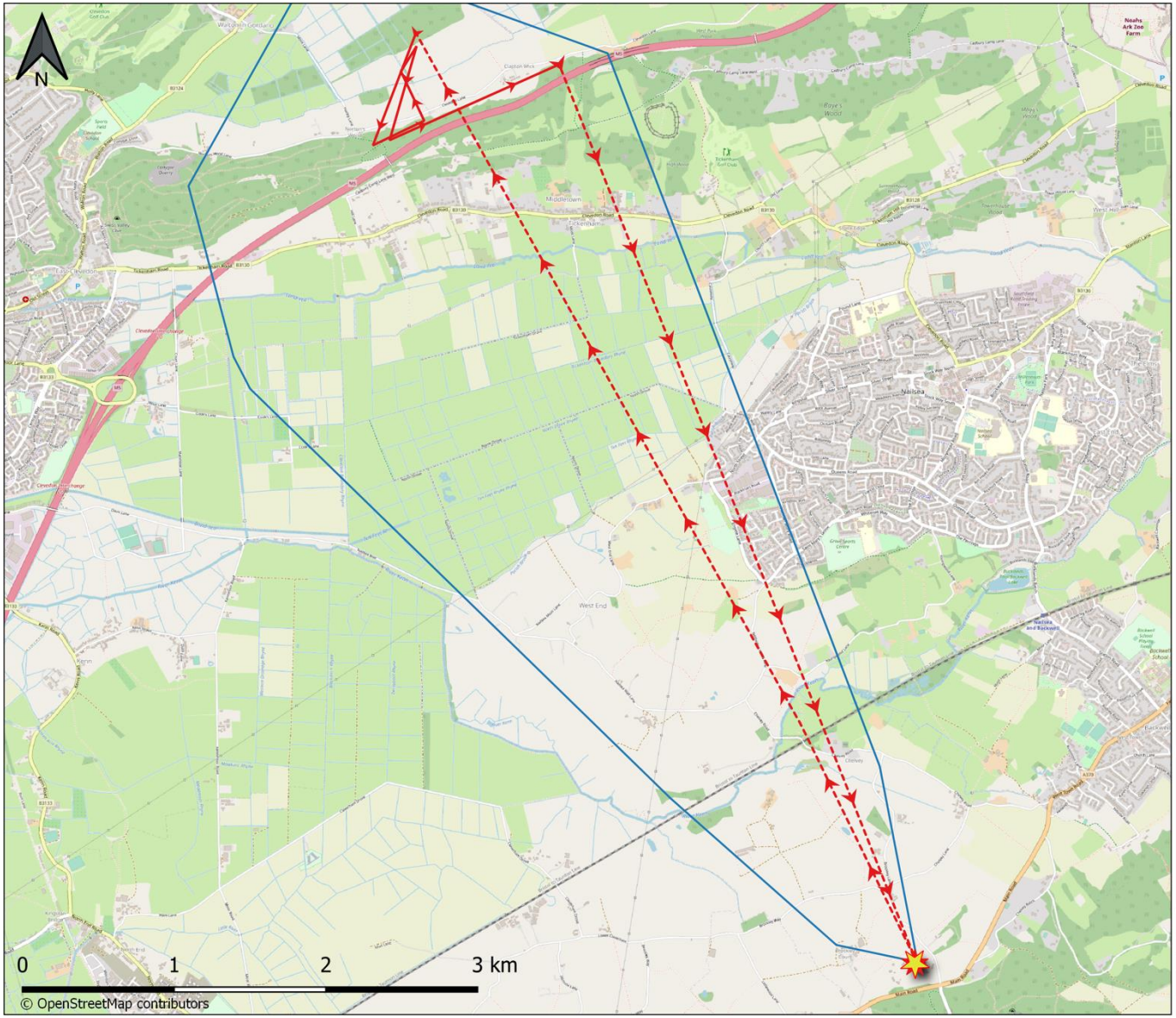
Authorised:	SO

Map 3.5: NSC Radio-Tracking: Bat 1 Nightly Summary 26-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 26-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
21:58 - 02:49

Indicative flight lines from last known position

1st foraging bout
21:58 - 02:49

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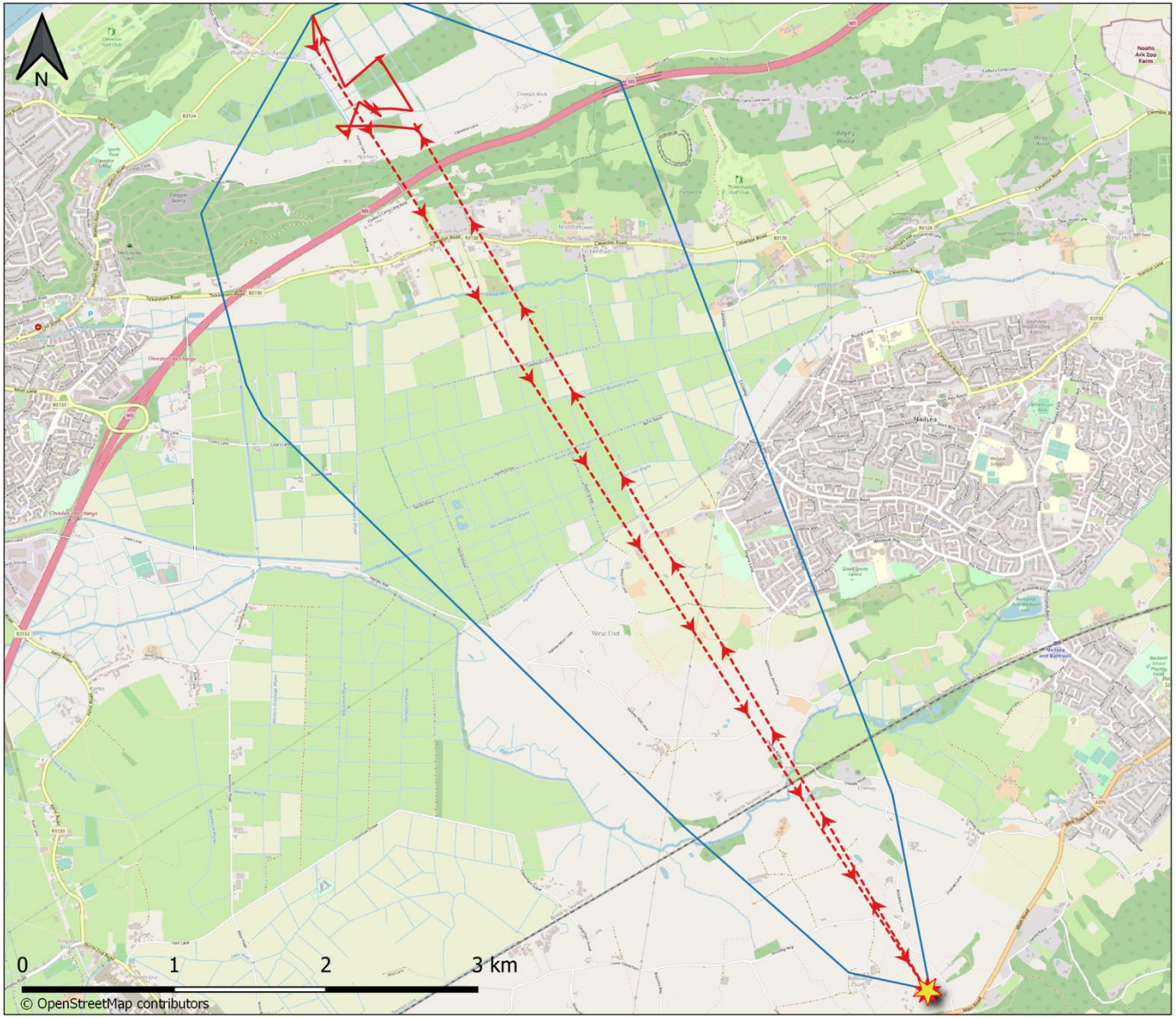
Map 3.6: NSC Radio-Tracking: Bat 1 Nightly Summary 27-05-2021



NSC Radio-Tracking: Bat 1 Nightly Summary 27-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 01:59 - 02:53

Indicative flight lines from last known position

- 1st foraging bout 01:59 - 02:53

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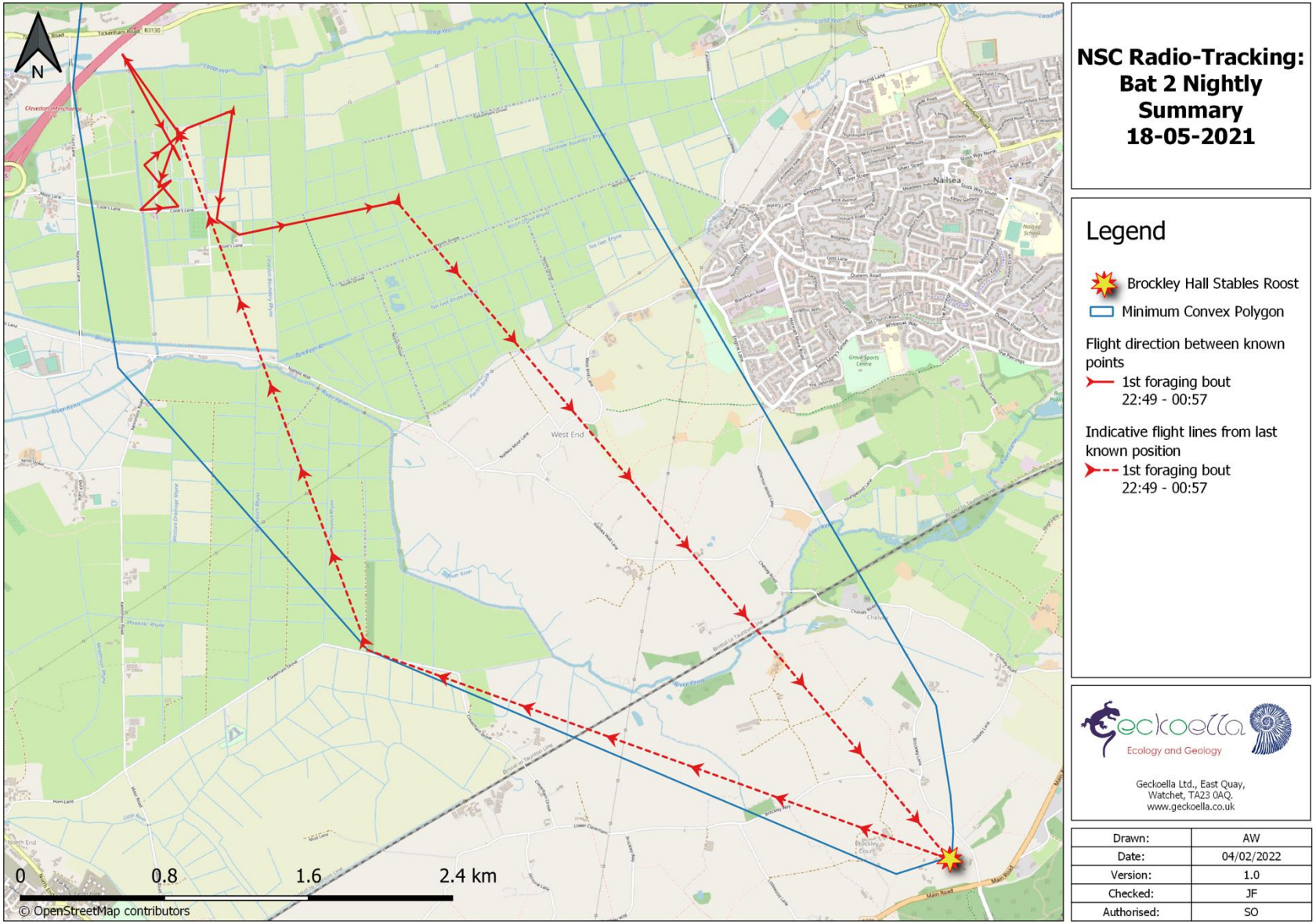
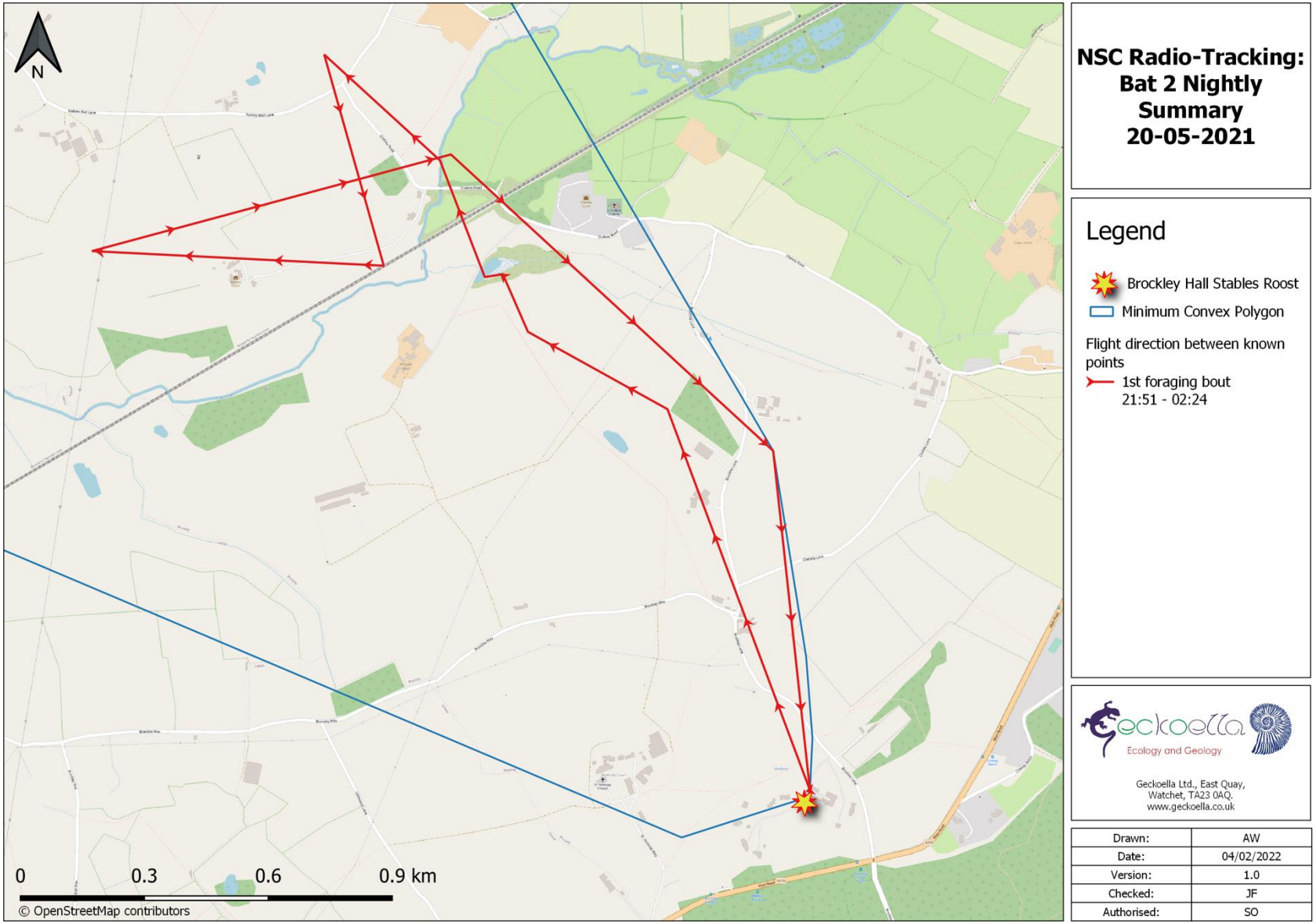
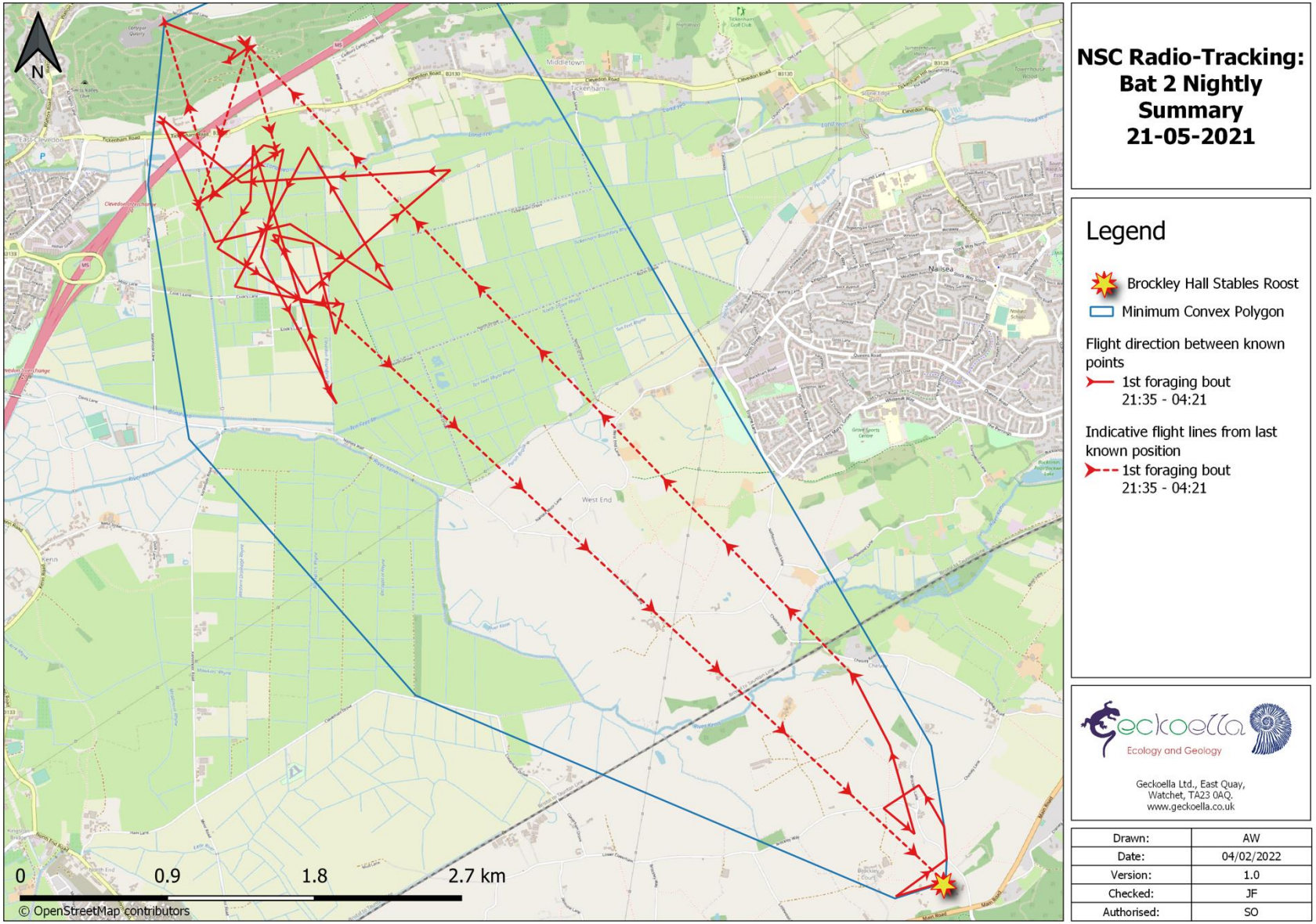
Map 3.7: NSC Radio-Tracking: Bat 2 Nightly Summary 18-05-2021



Map 3.8: NSC Radio-Tracking: Bat 2 Nightly Summary 20-05-2021



Map 3.9: NSC Radio-Tracking: Bat 2 Nightly Summary 21-05-2021



Map 3.10: NSC Radio-Tracking: Bat 2 Nightly Summary 22-05-2021

NSC Radio-Tracking: Bat 2 Nightly Summary 22-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
00:32 - 04:27

Indicative flight lines from last known position

1st foraging bout
00:32 - 04:27

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Map 3.11: NSC Radio-Tracking: Bat 2 Nightly Summary 27-05-2021

NSC Radio-Tracking: Bat 2 Nightly Summary 27-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 01:59 - 02:53

Indicative flight lines from last known position

- 1st foraging bout 01:59 - 02:53

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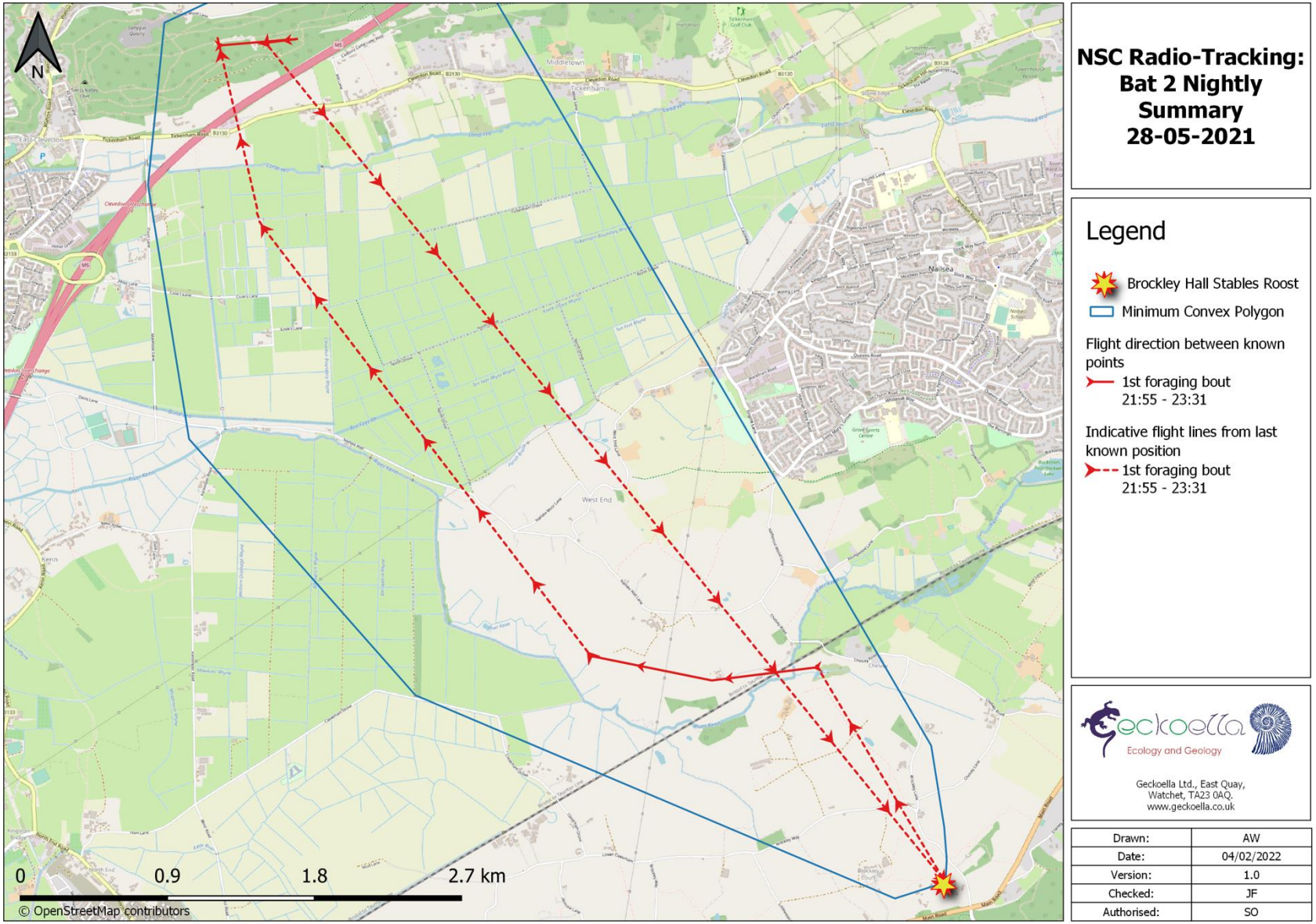
Map 3.12: NSC Radio-Tracking: Bat 2 Nightly Summary 28-05-2021



NSC Radio-Tracking: Bat 2 Nightly Summary 28-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:55 - 23:31

Indicative flight lines from last known position

- 1st foraging bout 21:55 - 23:31

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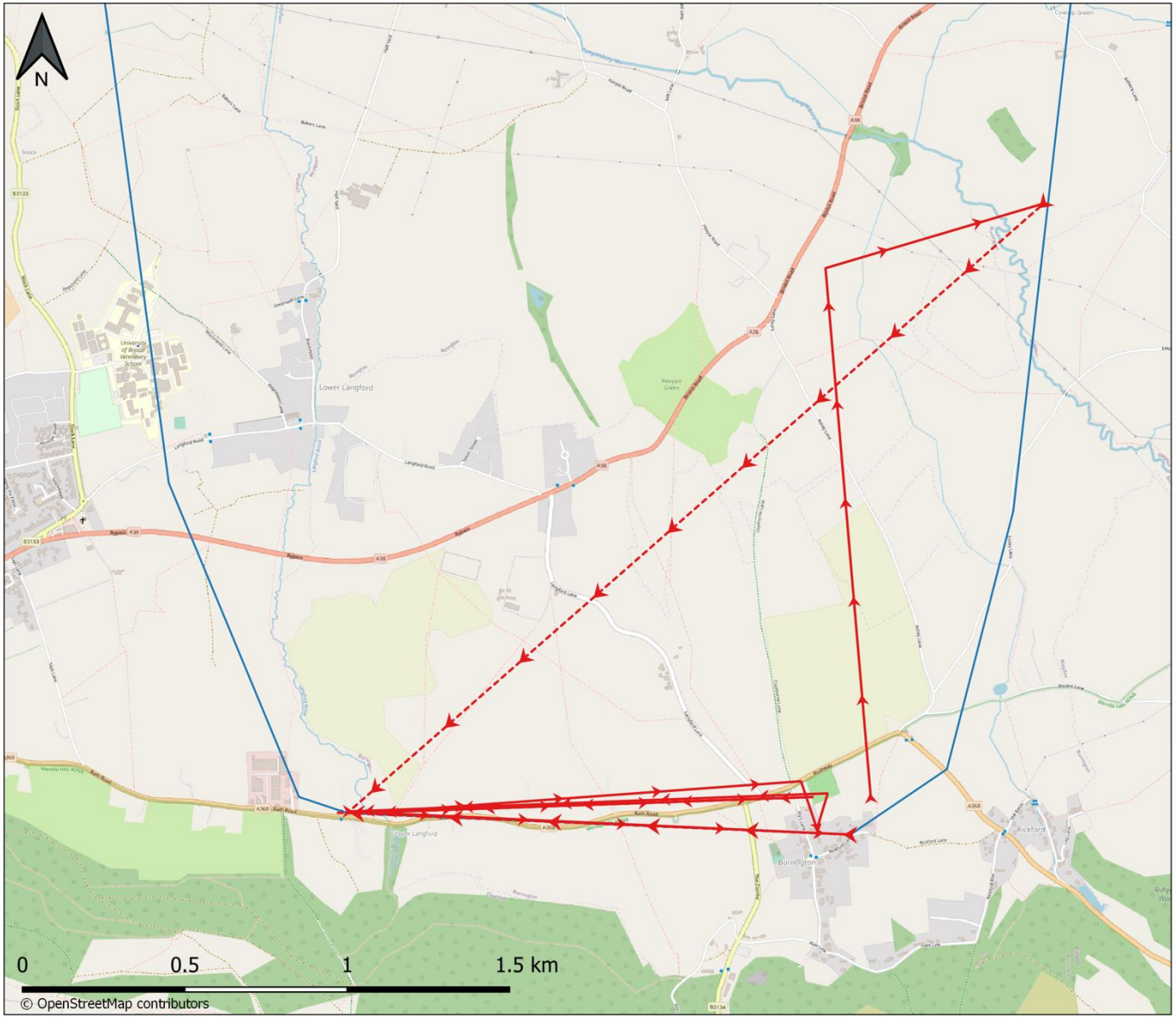
Map 3.13: NSC Radio-Tracking: Bat 3 Nightly Summary 16-05-2021



NSC Radio-Tracking: Bat 3 Nightly Summary 16-05-2021

Legend

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
21:55 - 00:00

Indicative flight lines from last known position

1st foraging bout
21:55 - 00:00

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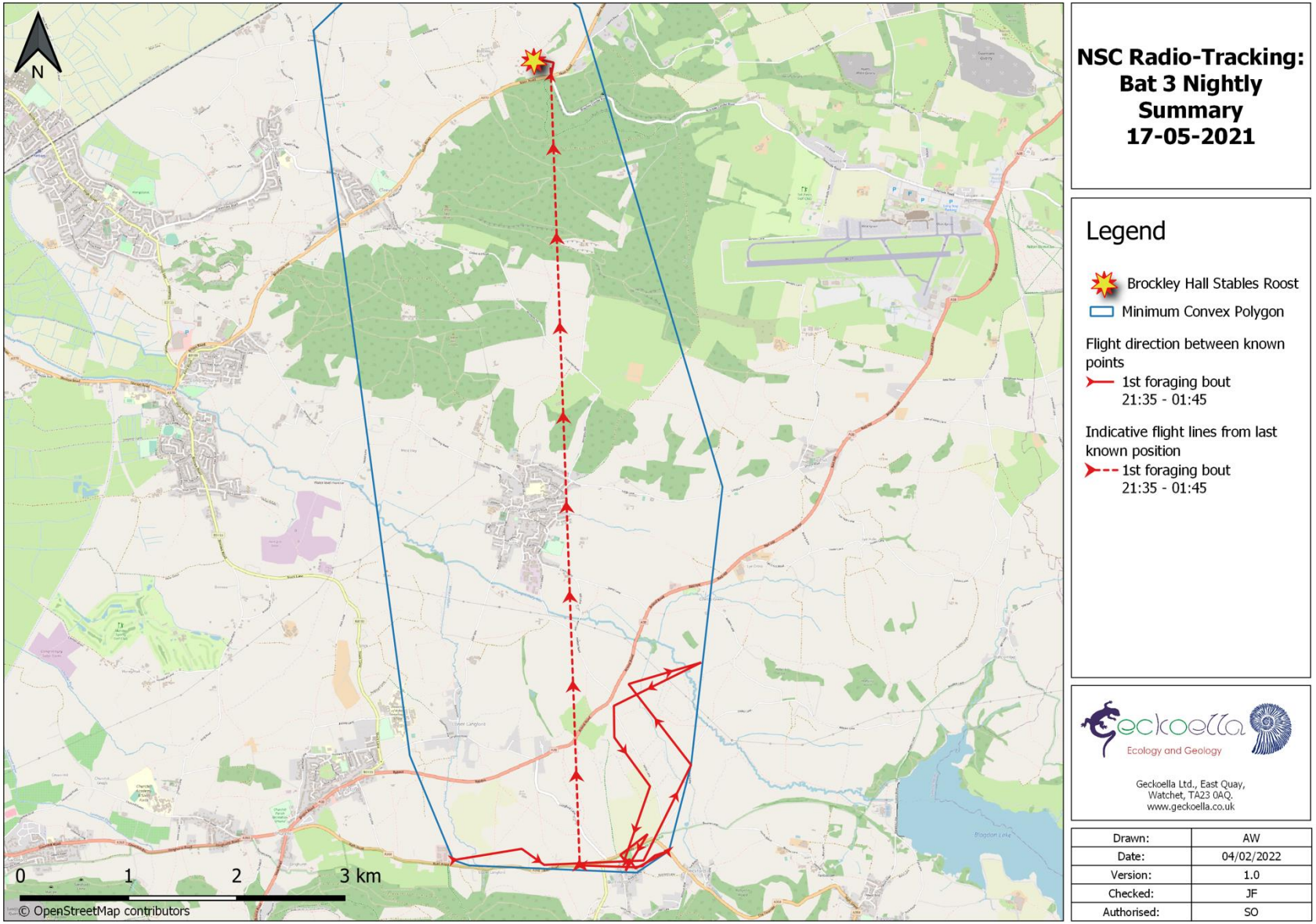
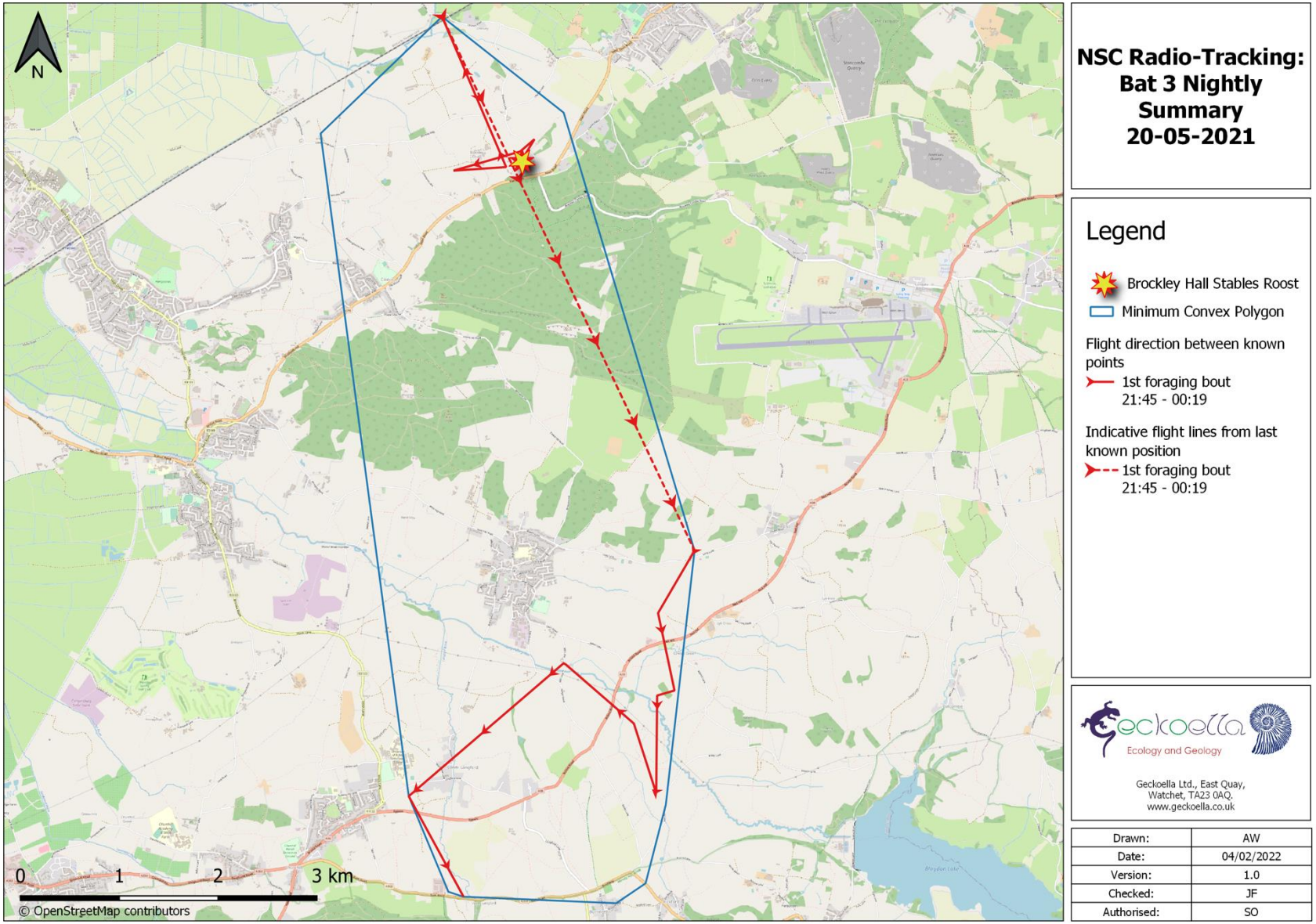
Version:	1.0
Checked:	JF
Authorised:	SO

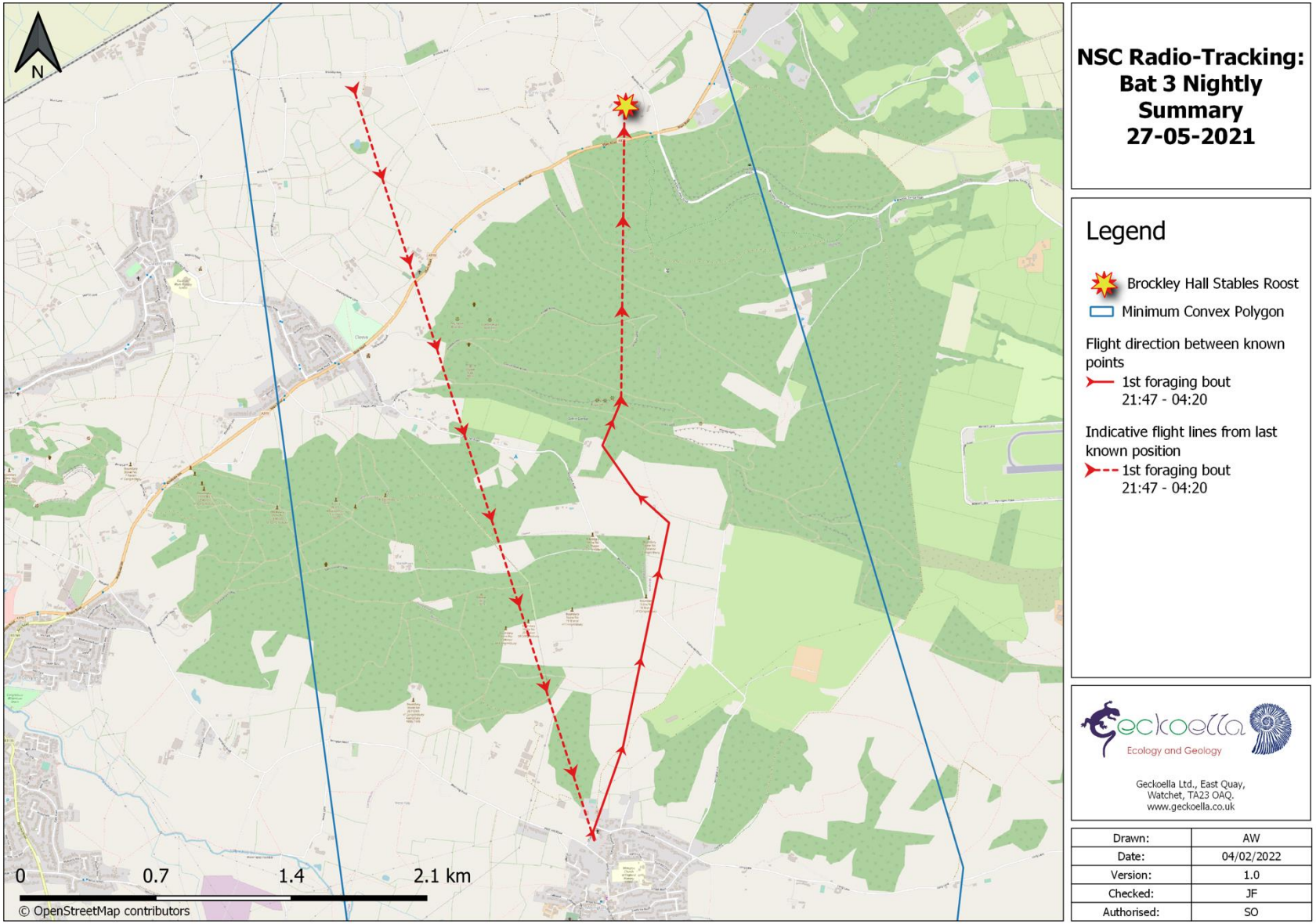
Map 3.14: NSC Radio-Tracking: Bat 3 Nightly Summary 17-05-2021



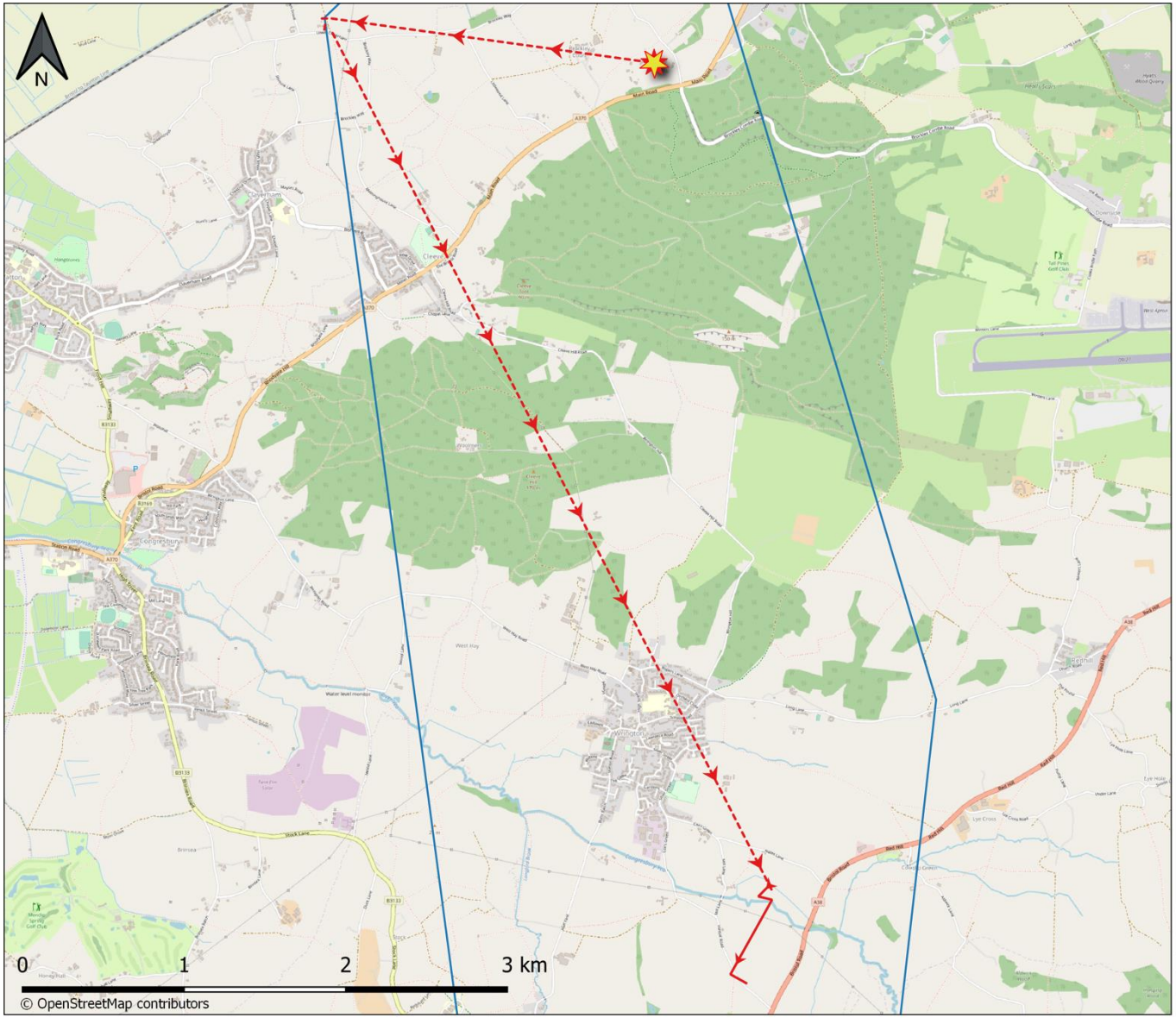
Map 3.15: NSC Radio-Tracking: Bat 3 Nightly Summary 20-05-2021



Map 3.16: NSC Radio-Tracking: Bat 3 Nightly Summary 27-05-2021



Map 3.17: NSC Radio-Tracking: Bat 3 Nightly Summary 28-05-2021



NSC Radio-Tracking: Bat 3 Nightly Summary 28-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 21:53 - 03:48

Indicative flight lines from last known position

1st foraging bout 21:53 - 03:48

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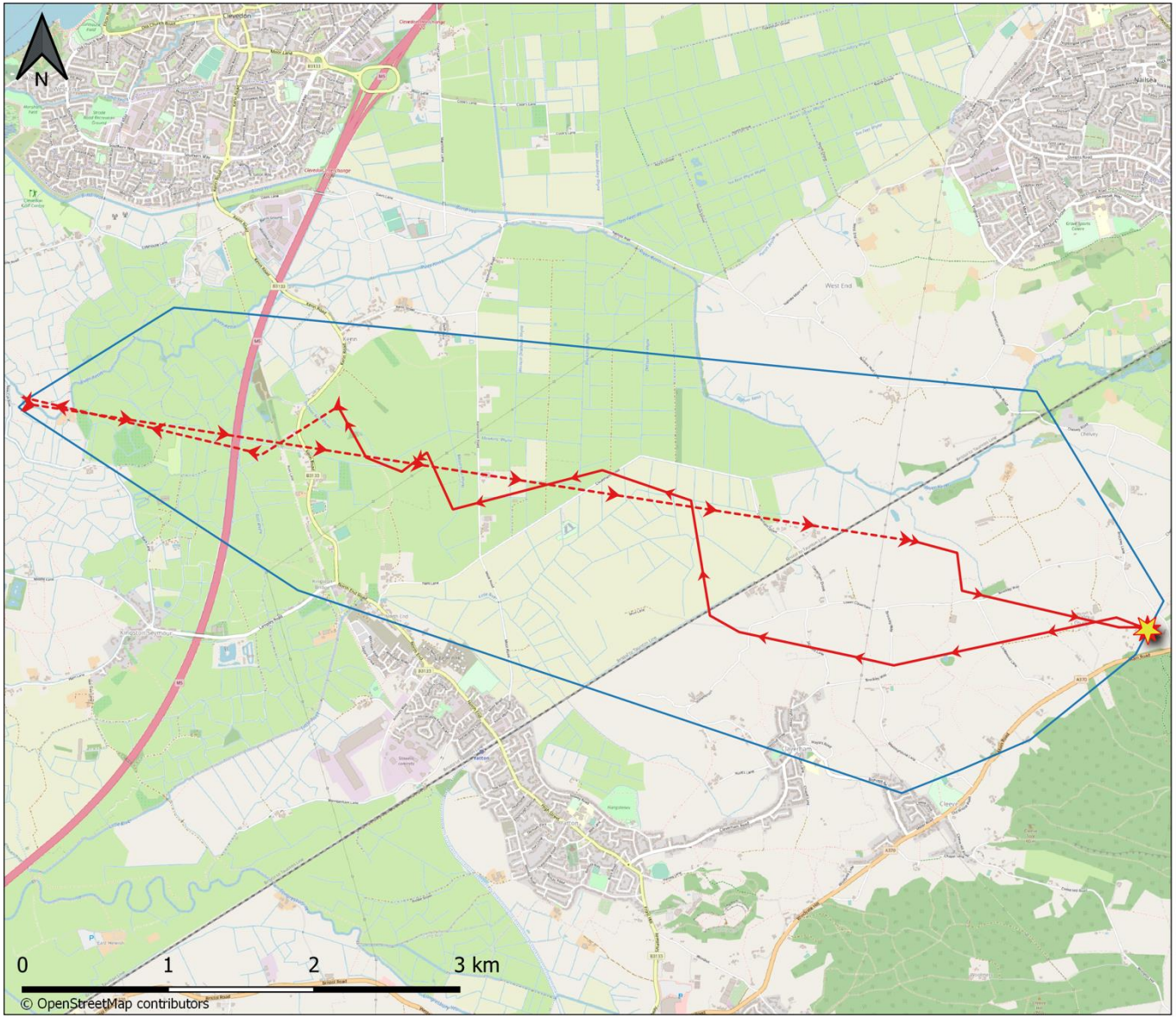
Authorised:	SO

Map 3.18: NSC Radio-Tracking: Bat 4 Nightly Summary 18-05-2021



NSC Radio-Tracking: Bat 4 Nightly Summary 18-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:26 - 04:34

Indicative flight lines from last known position

- 1st foraging bout 21:26 - 04:34

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Version:	1.0
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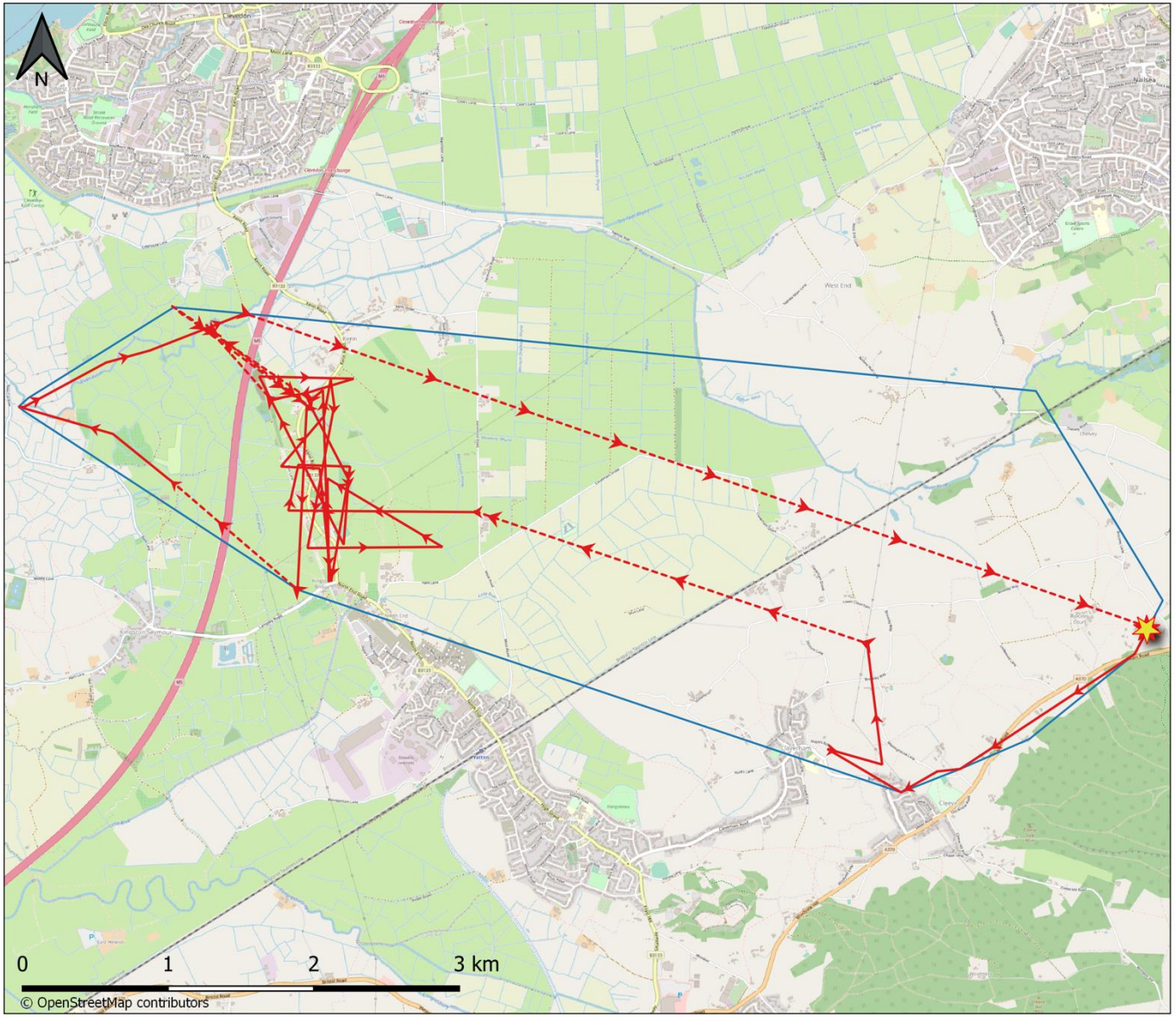
Map 3.19: NSC Radio-Tracking: Bat 4 Nightly Summary 19-05-2021



NSC Radio-Tracking: Bat 4 Nightly Summary 19-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:32 - 03:42

Indicative flight lines from last known position

- 1st foraging bout 21:32 - 03:42

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Version:	1.0
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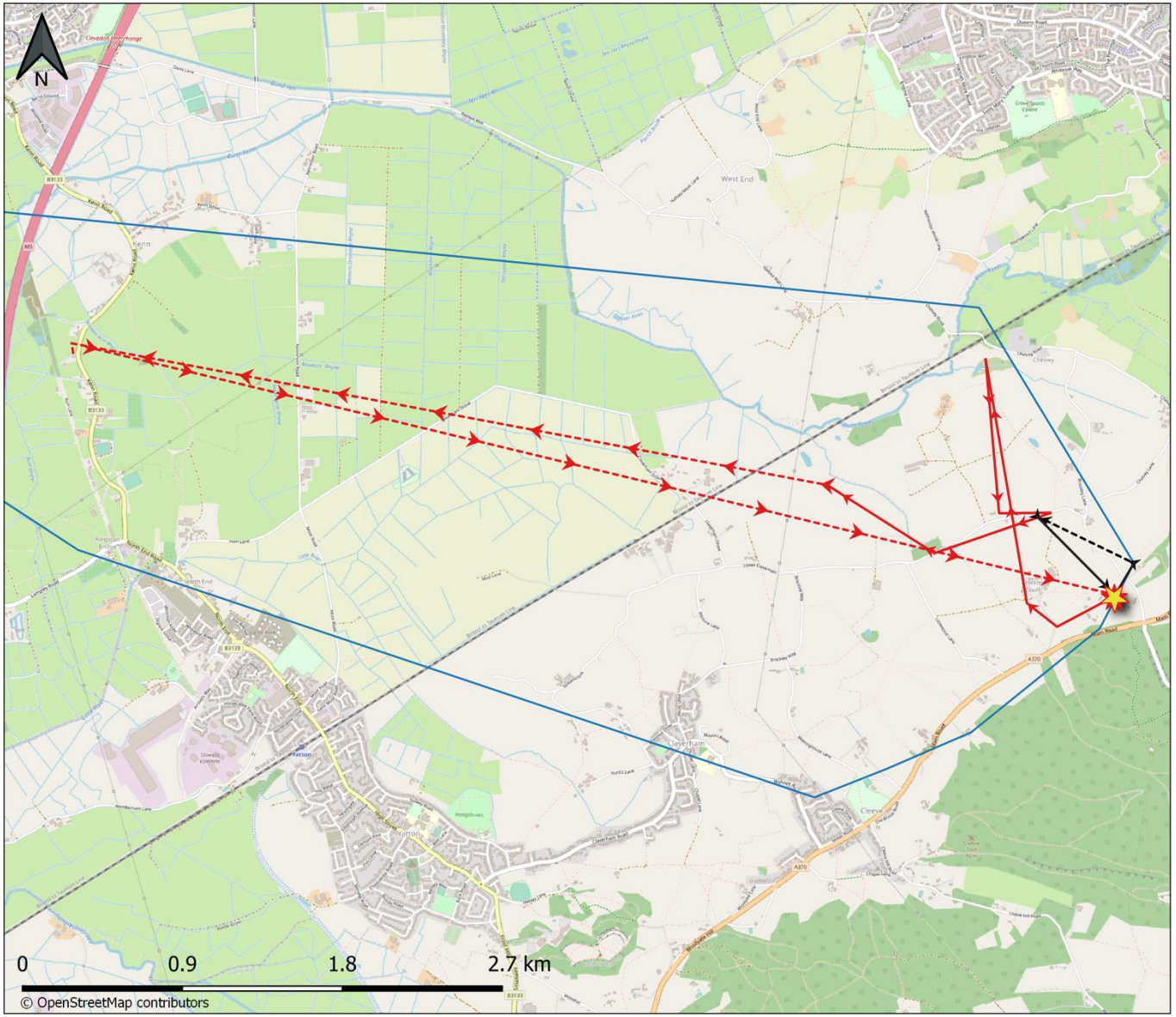
Map 3.20: NSC Radio-Tracking: Bat 4 Nightly Summary 20-05-2021



NSC Radio-Tracking: Bat 4 Nightly Summary 20-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:27 - 00:27
- 2nd foraging bout 21:38 - 22:33

Indicative flight lines from last known position

- 1st foraging bout 21:27 - 00:27
- 2nd foraging bout 21:38 - 22:33

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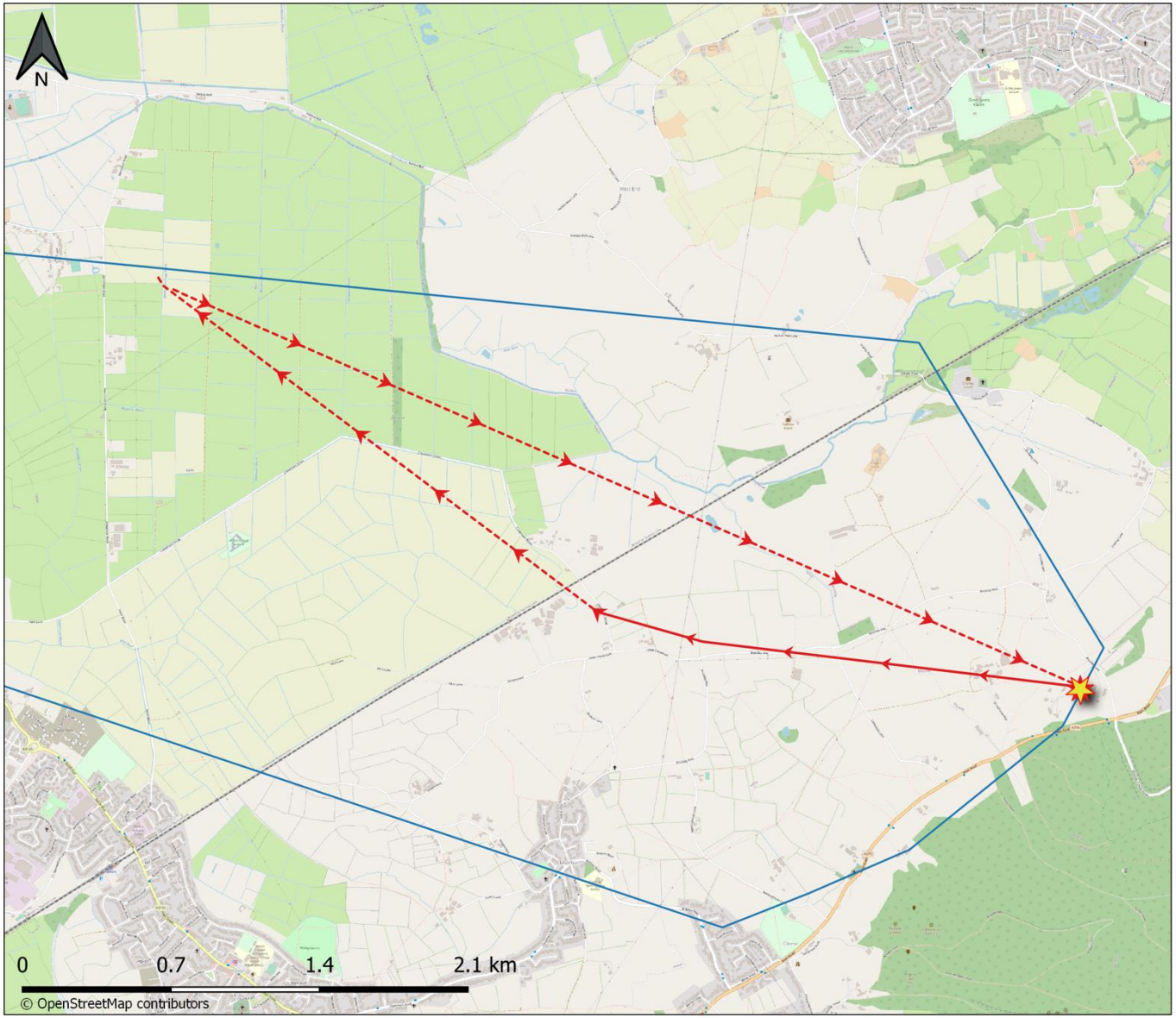
Authorised:	SO

Map 3.21: NSC Radio-Tracking: Bat 4 Nightly Summary 28-05-2021



NSC Radio-Tracking: Bat 4 Nightly Summary 28-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:38 - 22:33

Indicative flight lines from last known position

- 1st foraging bout 21:38 - 22:33

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Version:	1.0
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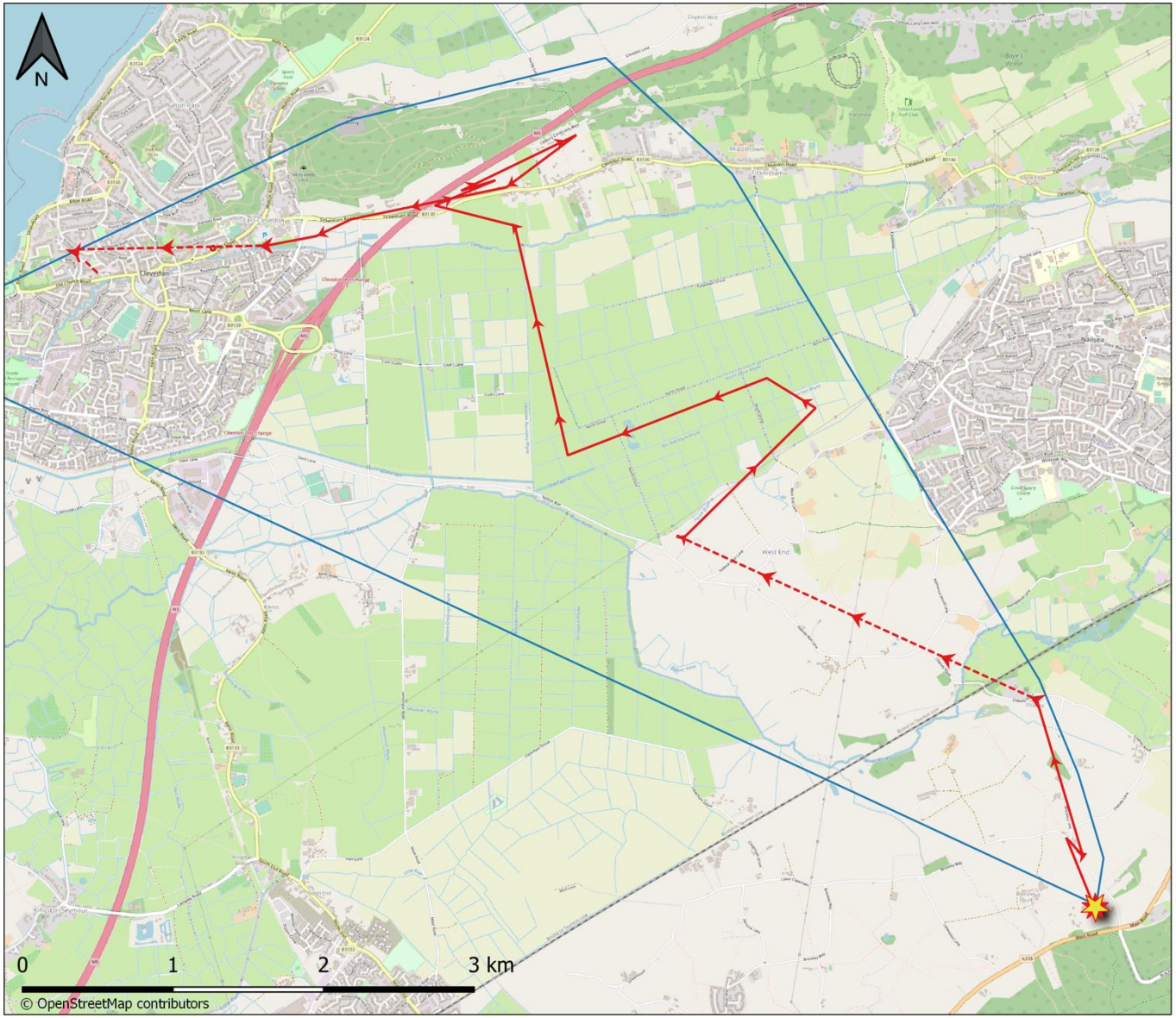
Authorised:	SO

Map 3.22: NSC Radio-Tracking: Bat 5 Nightly Summary 24-05-2021



NSC Radio-Tracking: Bat 5 Nightly Summary 24-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 23:18 - 02:07

Indicative flight lines from last known position

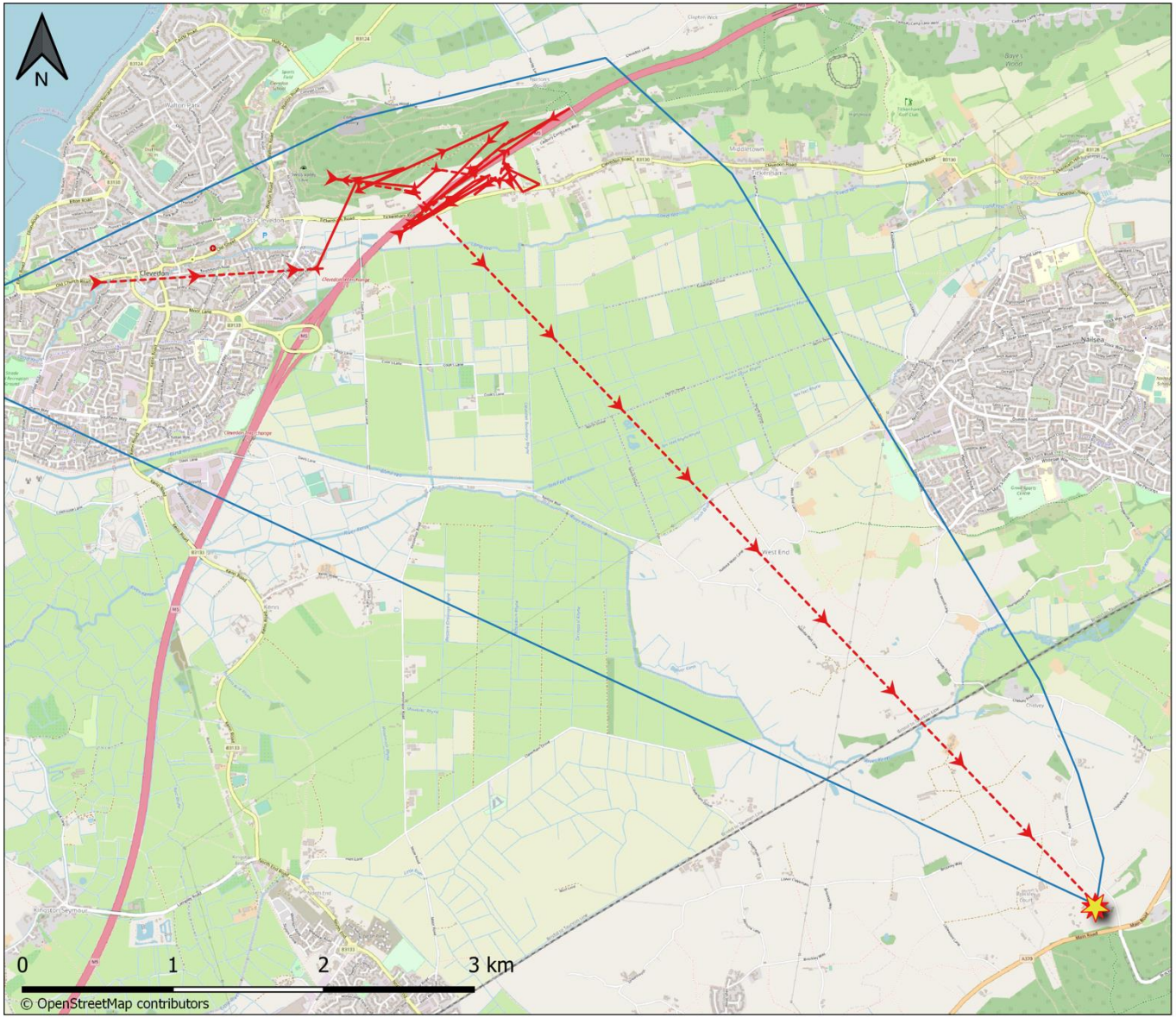
- 1st foraging bout 23:18 - 02:07

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.23: NSC Radio-Tracking: Bat 5 Nightly Summary 26-05-2021



NSC Radio-Tracking: Bat 5 Nightly Summary 26-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:05 - 02:43

Indicative flight lines from last known position

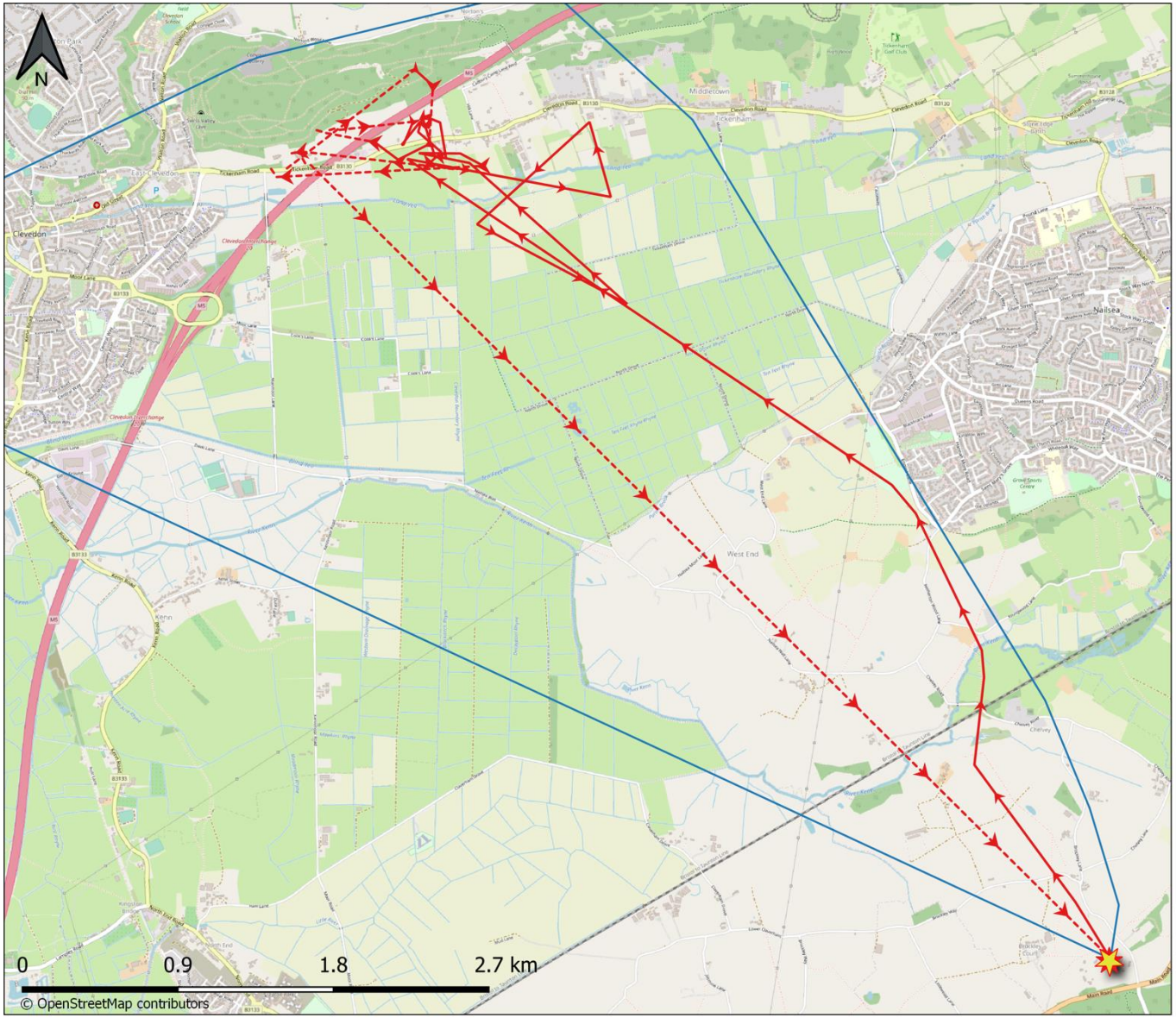
- 1st foraging bout 22:05 - 02:43

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.24: NSC Radio-Tracking: Bat 5 Nightly Summary 27-05-2021



NSC Radio-Tracking: Bat 5 Nightly Summary 27-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:51 - 03:45

Indicative flight lines from last known position

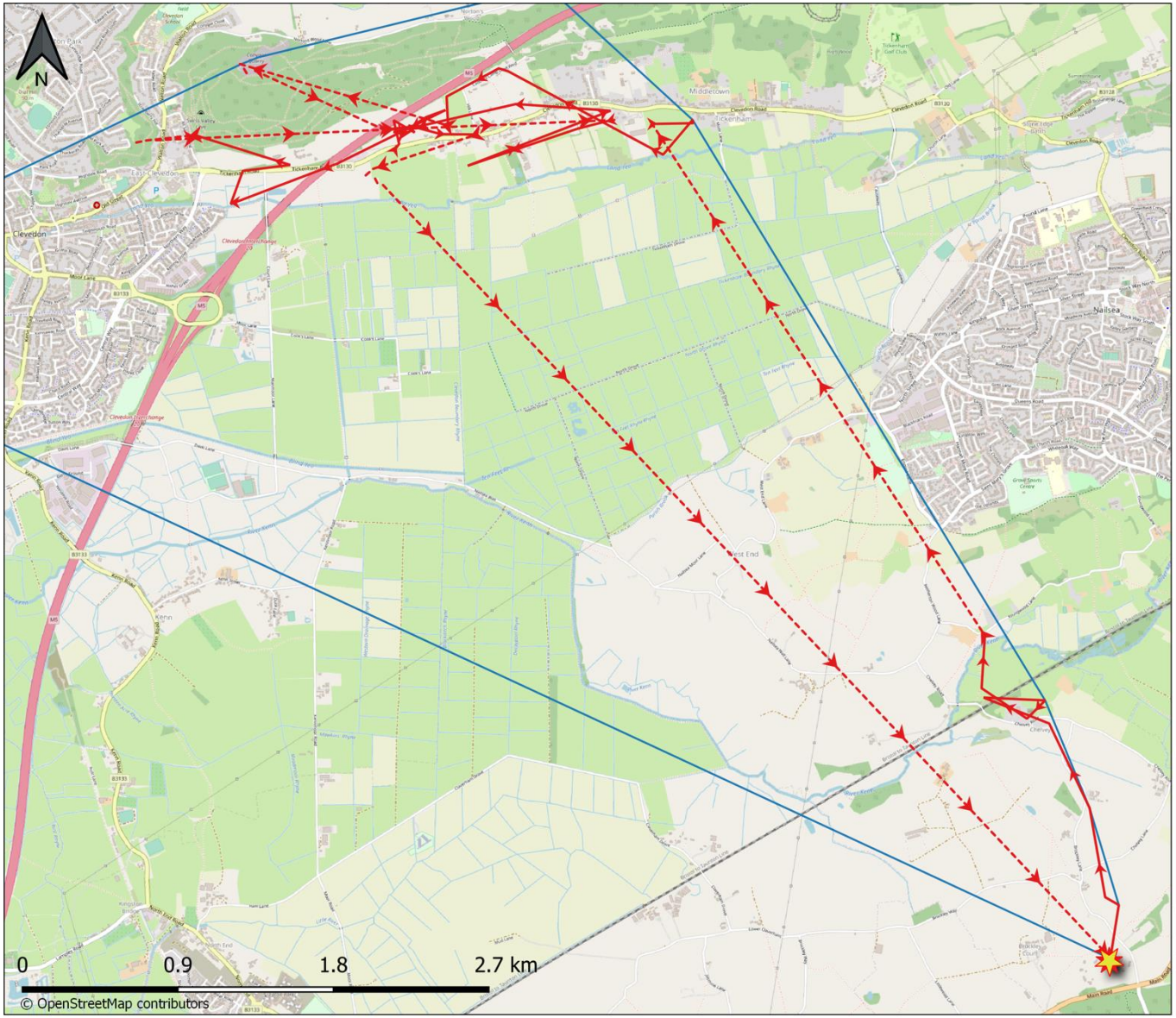
- 1st foraging bout 21:51 - 03:45

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.25: NSC Radio-Tracking: Bat 5 Nightly Summary 28-05-2021



NSC Radio-Tracking: Bat 5 Nightly Summary 28-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:48 - 04:25

Indicative flight lines from last known position

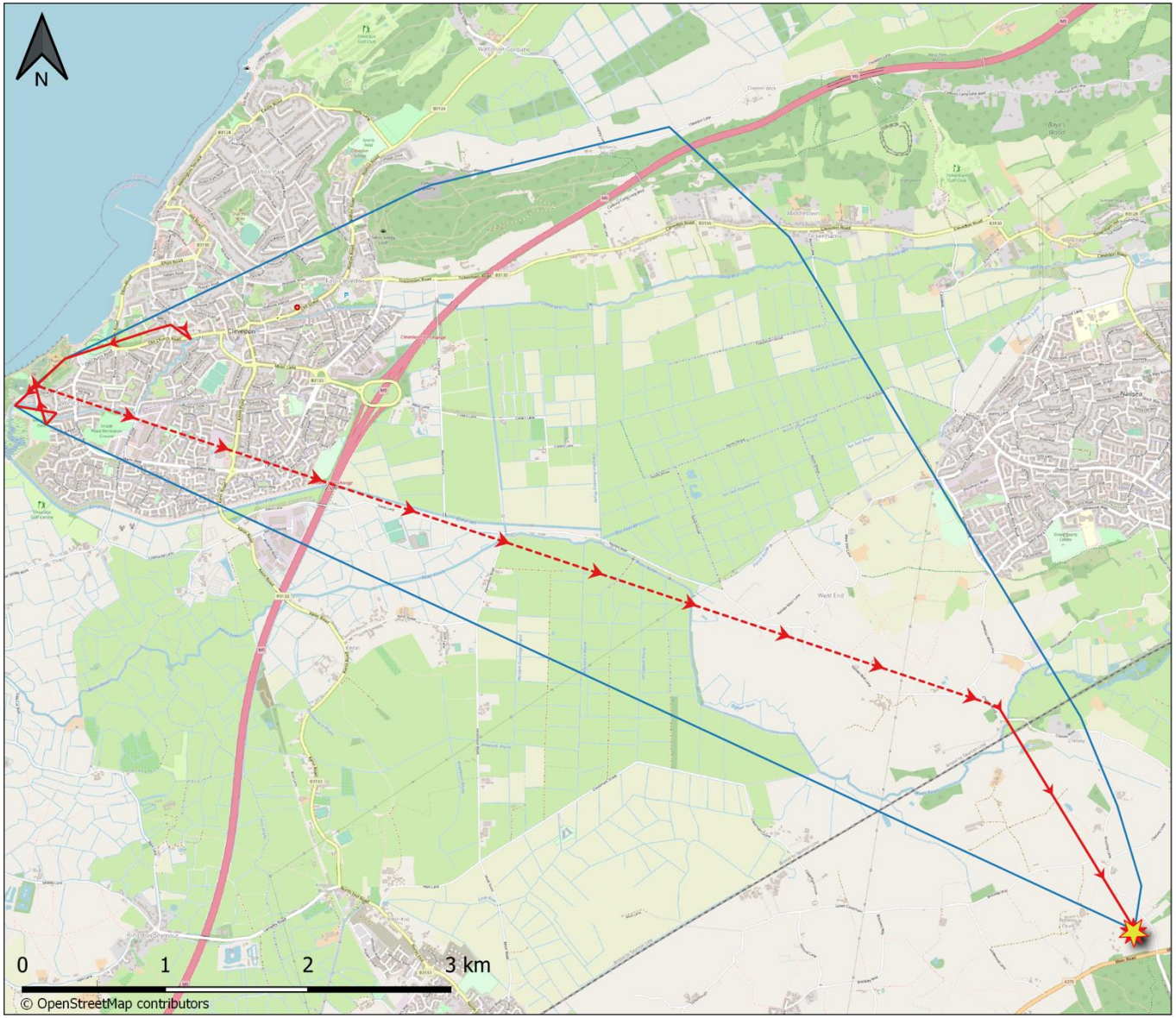
- 1st foraging bout 21:48 - 04:25

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.26: NSC Radio-Tracking: Bat 5 Nightly Summary 01-06-2021



NSC Radio-Tracking: Bat 5 Nightly Summary 01-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:59 - 04:17

Indicative flight lines from last known position

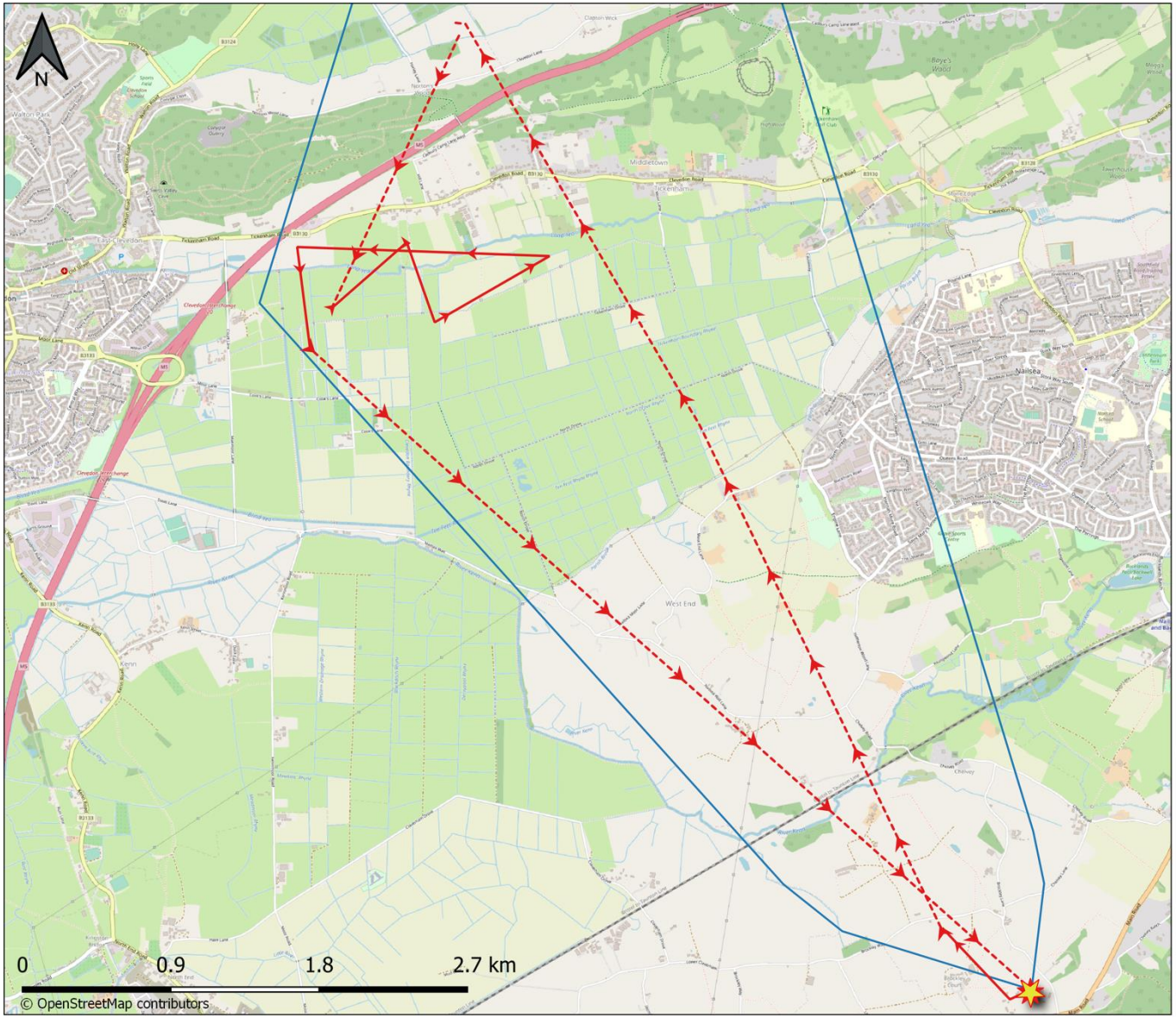
- 1st foraging bout 21:59 - 04:17

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.27: NSC Radio-Tracking: Bat 6 Nightly Summary 24-05-2021



NSC Radio-Tracking: Bat 6 Nightly Summary 24-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 23:16 - 01:35

Indicative flight lines from last known position

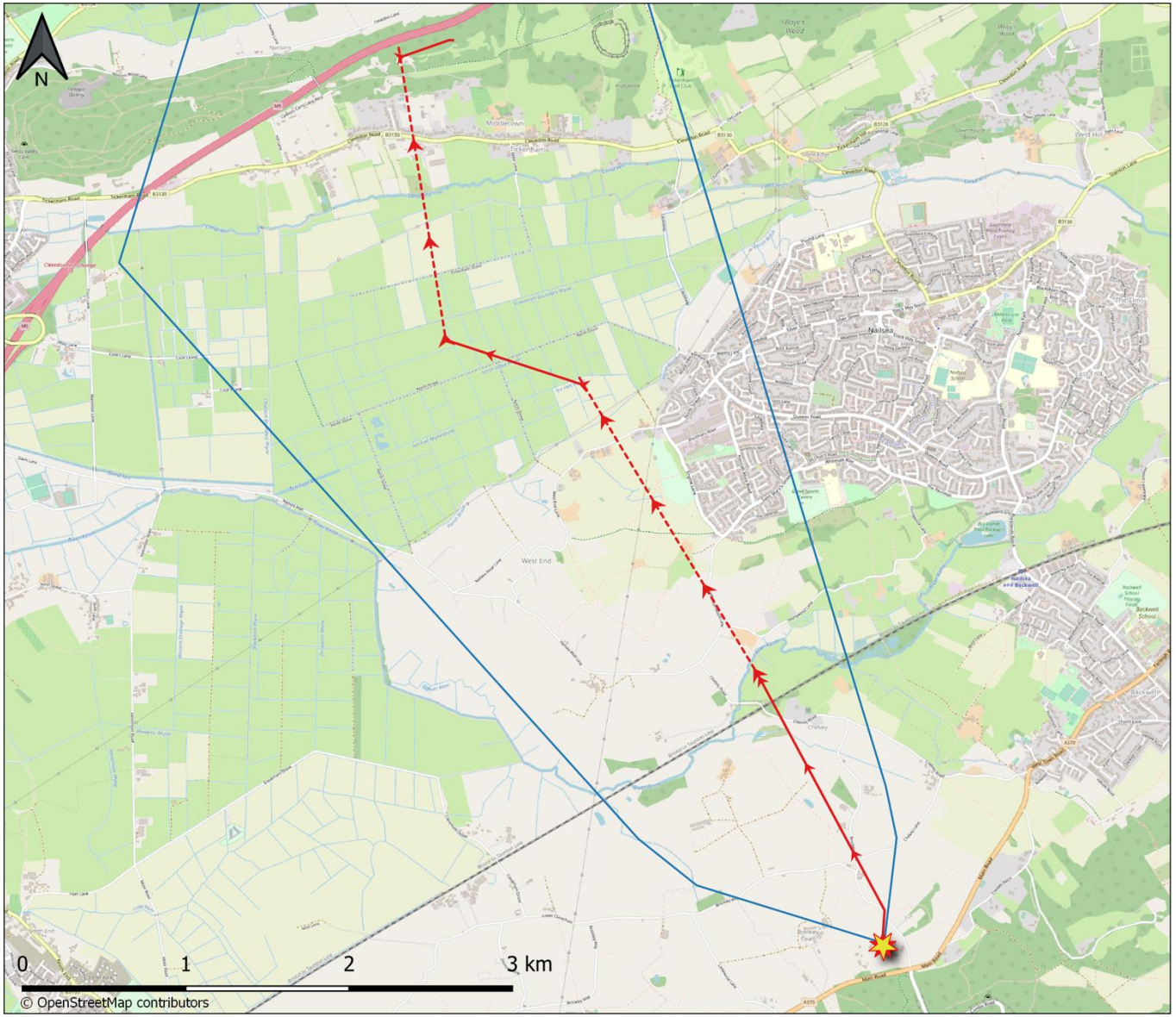
- 1st foraging bout 23:16 - 01:35

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.28: NSC Radio-Tracking: Bat 6 Nightly Summary 25-05-2021



NSC Radio-Tracking: Bat 6 Nightly Summary 25-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:03 - 23:03

Indicative flight lines from last known position

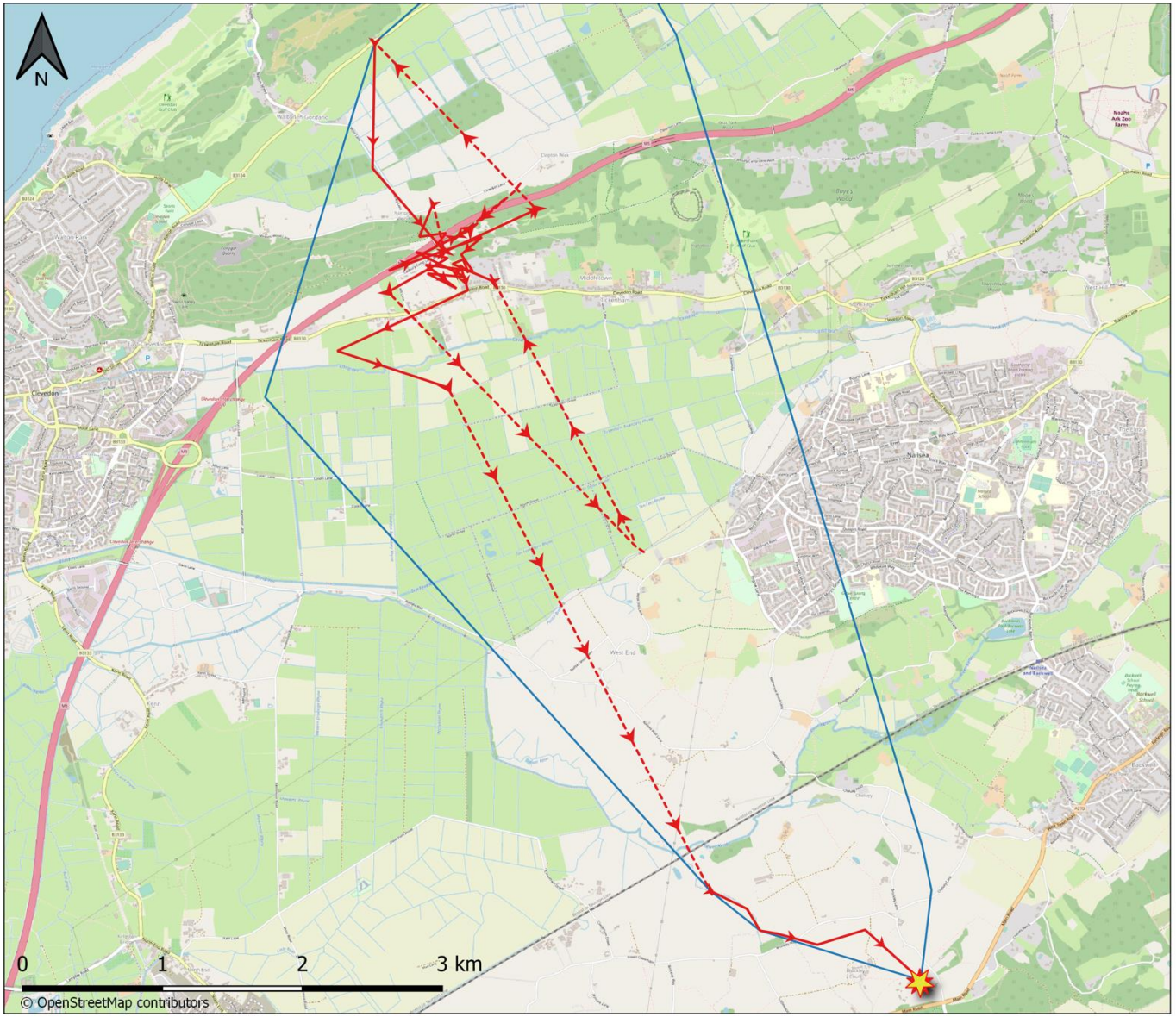
- 1st foraging bout 22:03 - 23:03

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.29: NSC Radio-Tracking: Bat 6 Nightly Summary 26-05-2021



NSC Radio-Tracking: Bat 6 Nightly Summary 26-05-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:25 - 00:58

Indicative flight lines from last known position

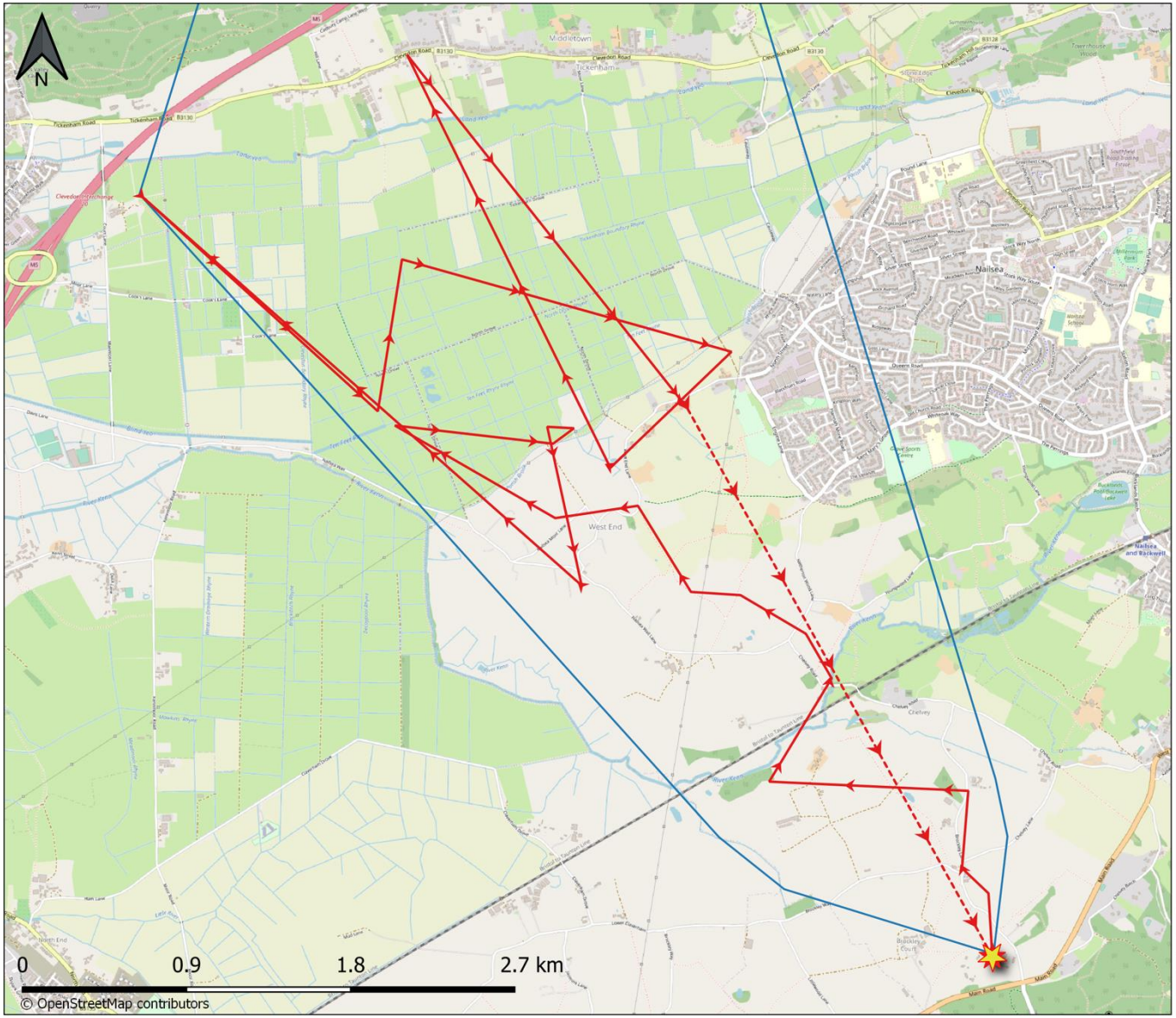
- 1st foraging bout 21:25 - 00:58

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.30: NSC Radio-Tracking: Bat 6 Nightly Summary 27-05-2021



NSC Radio-Tracking: Bat 6 Nightly Summary 27-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 21:36 - 23:53

Indicative flight lines from last known position

1st foraging bout 21:36 - 23:53

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ. www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.31: NSC Radio-Tracking: Bat 6 Nightly Summary 28-05-2021

NSC Radio-Tracking: Bat 6 Nightly Summary 28-05-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 21:42 - 00:38

Indicative flight lines from last known position

1st foraging bout 21:42 - 00:38

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ. www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.32: NSC Radio-Tracking: Bat 6 Nightly Summary 01-06-2021

NSC Radio-Tracking: Bat 6 Nightly Summary 01-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:08 - 04:15

Indicative flight lines from last known position

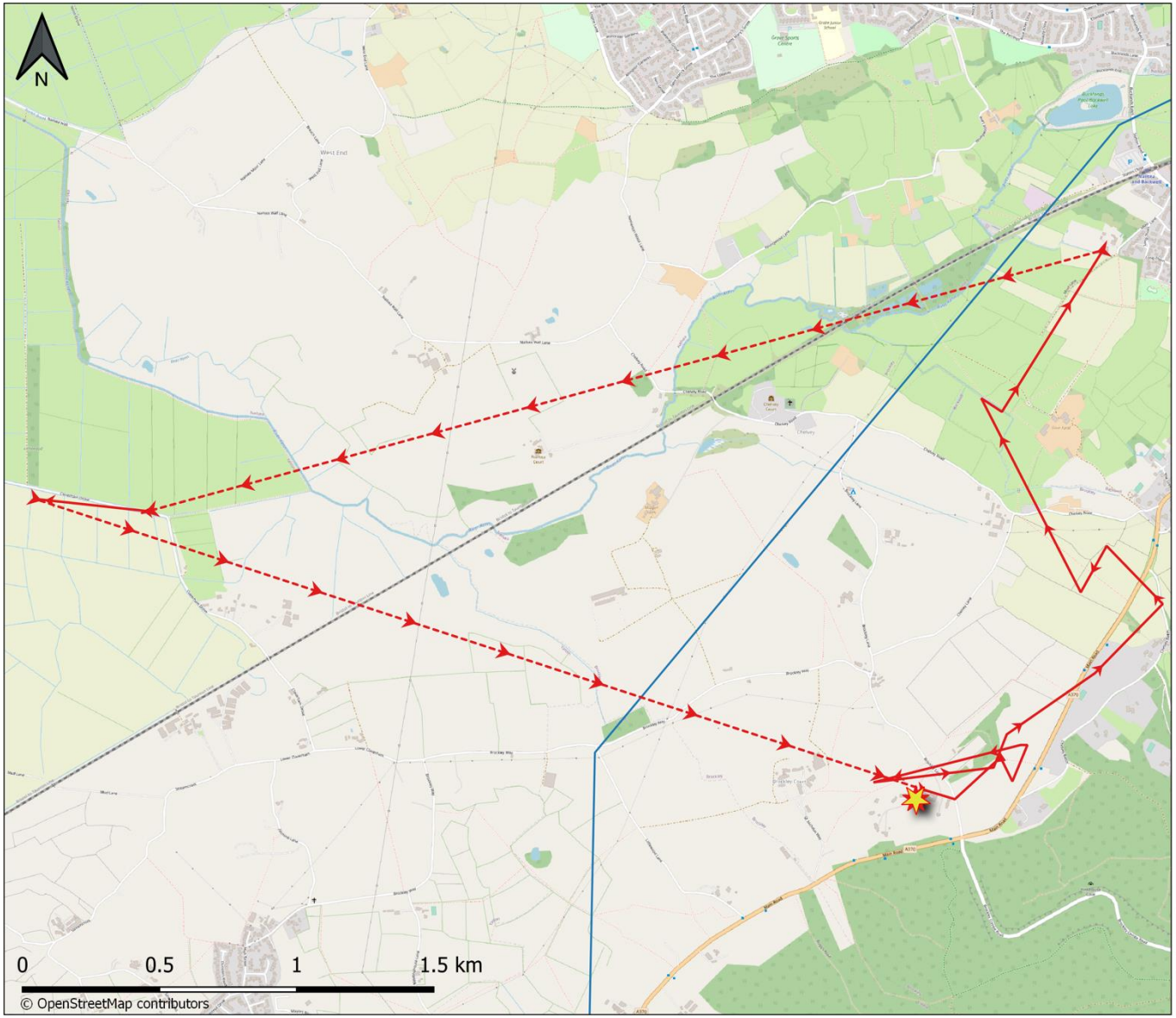
- 1st foraging bout 22:08 - 04:15

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.33: NSC Radio-Tracking: Bat 7 Nightly Summary 01-06-2021



NSC Radio-Tracking: Bat 7 Nightly Summary 01-06-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 23:02 - 02:23

Indicative flight lines from last known position

1st foraging bout 23:02 - 02:23

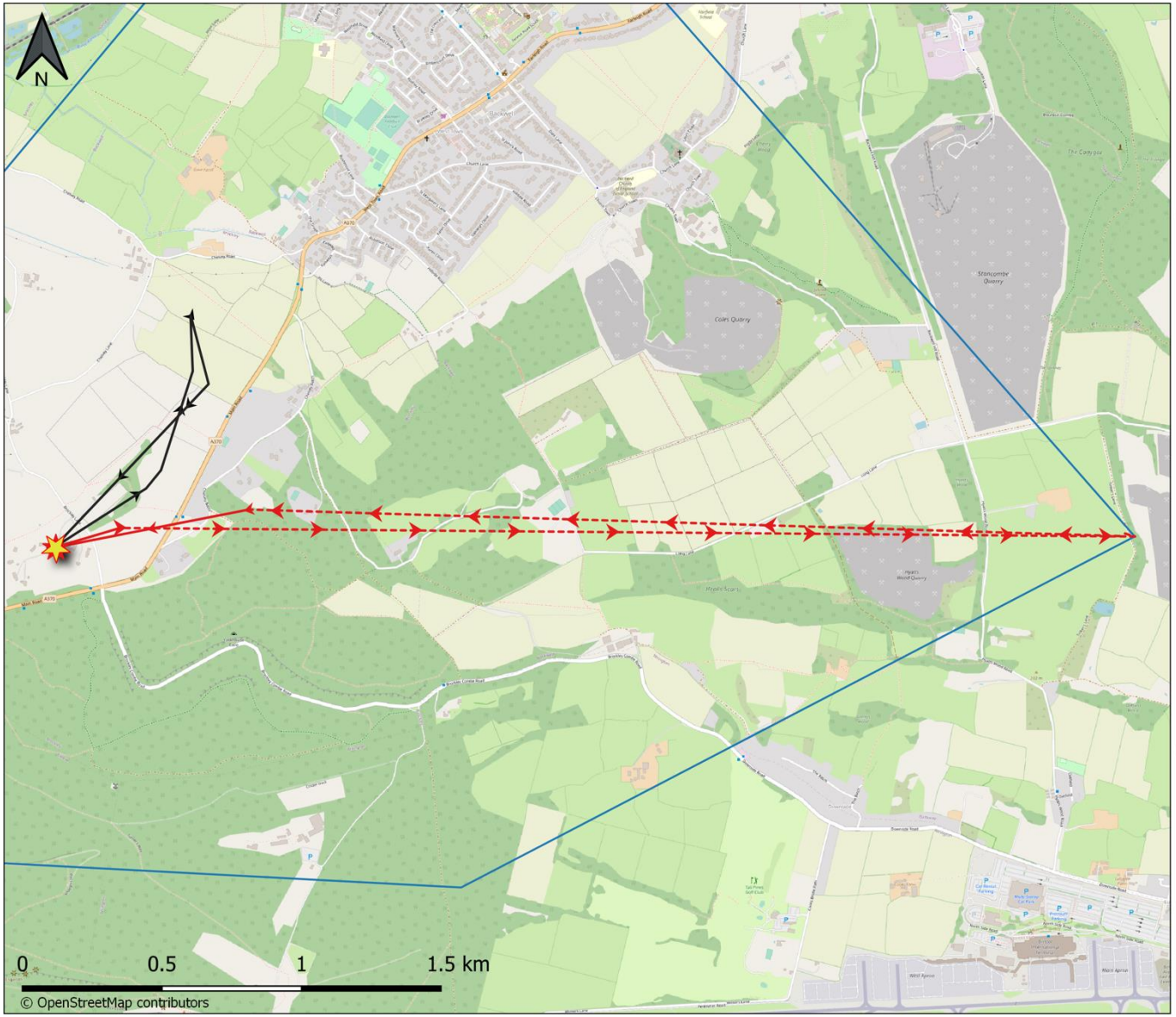
Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ. www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.34: NSC Radio-Tracking: Bat 7 Nightly Summary 02-06-2021

Map 3.35: NSC Radio-Tracking: Bat 7 Nightly Summary 03-06-2021



NSC Radio-Tracking: Bat 7 Nightly Summary 03-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:40 - 00:14
- 2nd foraging bout 02:06 - 02:18

Indicative flight lines from last known position

- 1st foraging bout 22:40 - 00:14

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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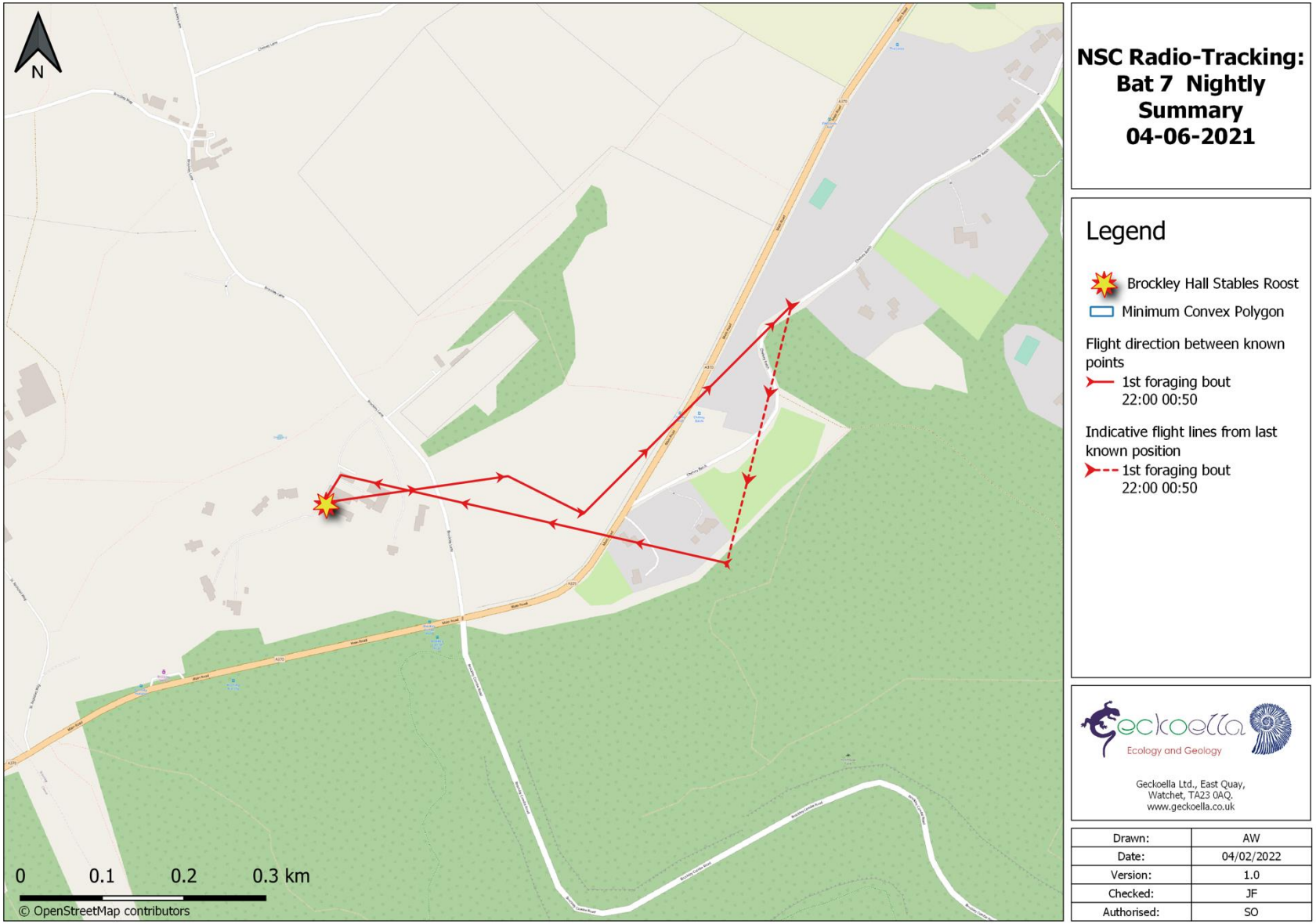
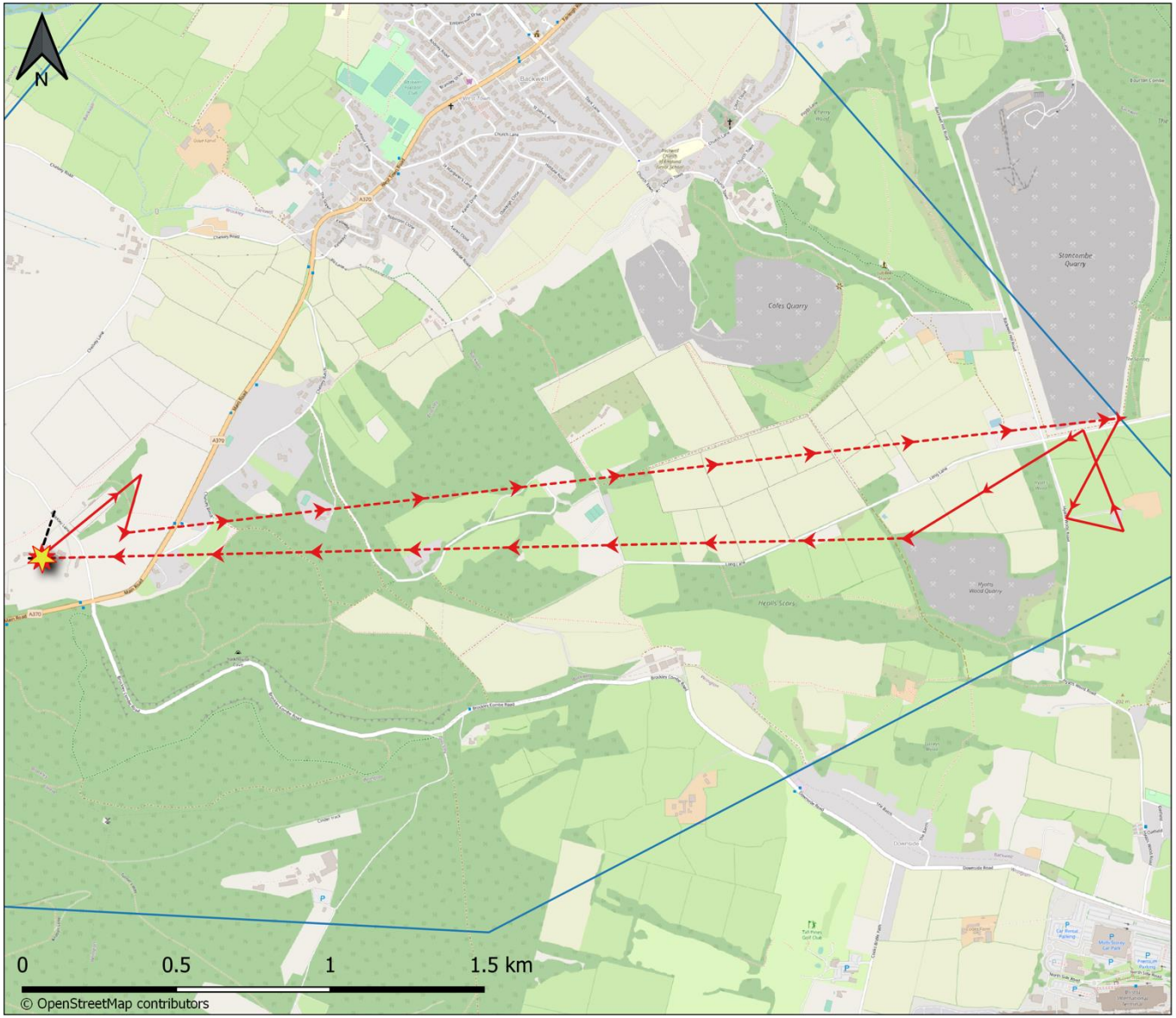
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.36: NSC Radio-Tracking: Bat 7 Nightly Summary 04-06-2021



Map 3.37: NSC Radio-Tracking: Bat 7 Nightly Summary 05-06-2021



NSC Radio-Tracking: Bat 7 Nightly Summary 05-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:50 - 22:23

Indicative flight lines from last known position

- 1st foraging bout 21:50 - 22:23
- 2nd foraging bout Unknown - 04:08

Geckoella Ecology and Geology

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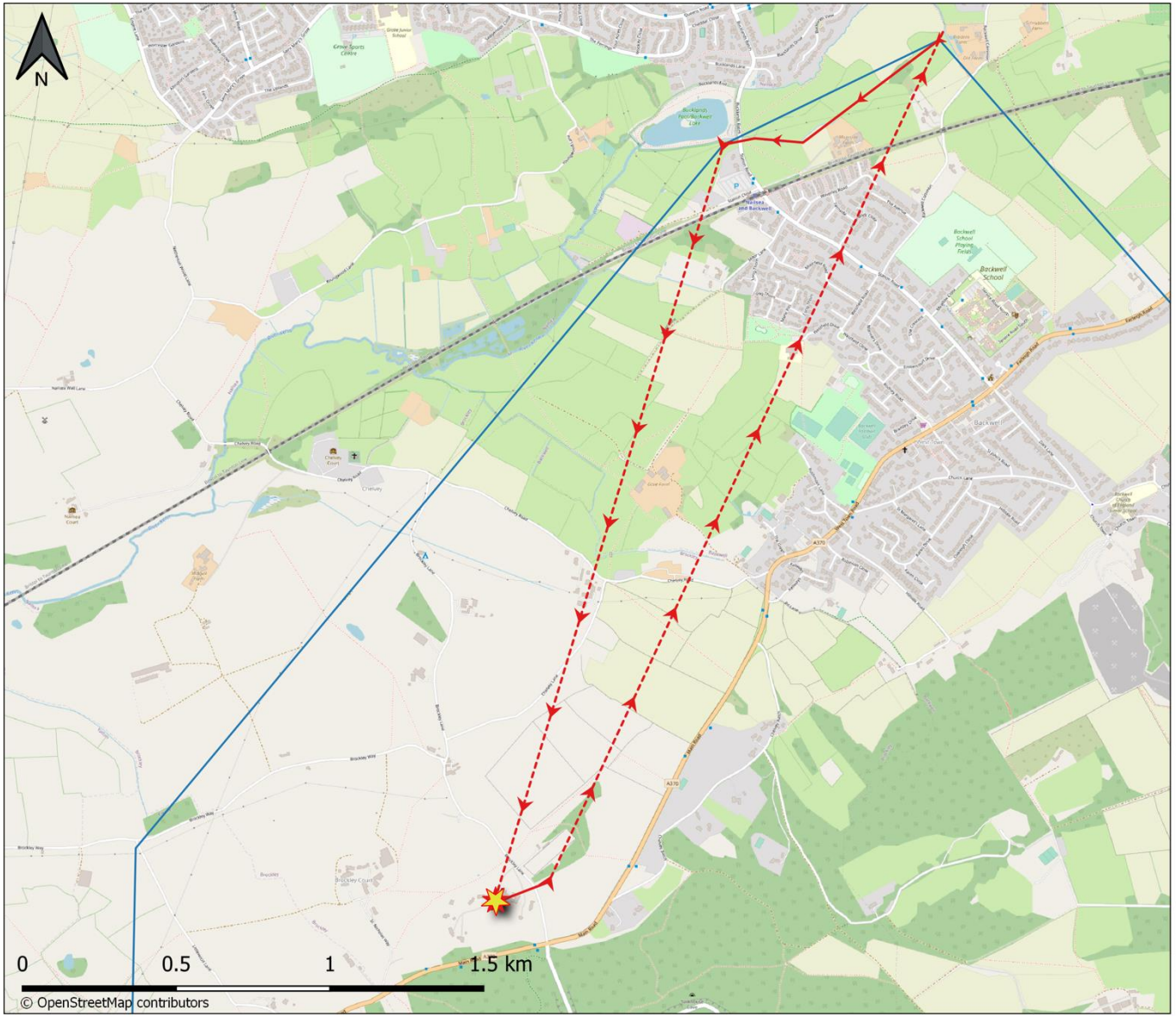
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.38: NSC Radio-Tracking: Bat 7 Nightly Summary 06-06-2021



NSC Radio-Tracking: Bat 7 Nightly Summary 06-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:02 - 00:06
- 2nd foraging bout 04:06 - 04:06

Indicative flight lines from last known position

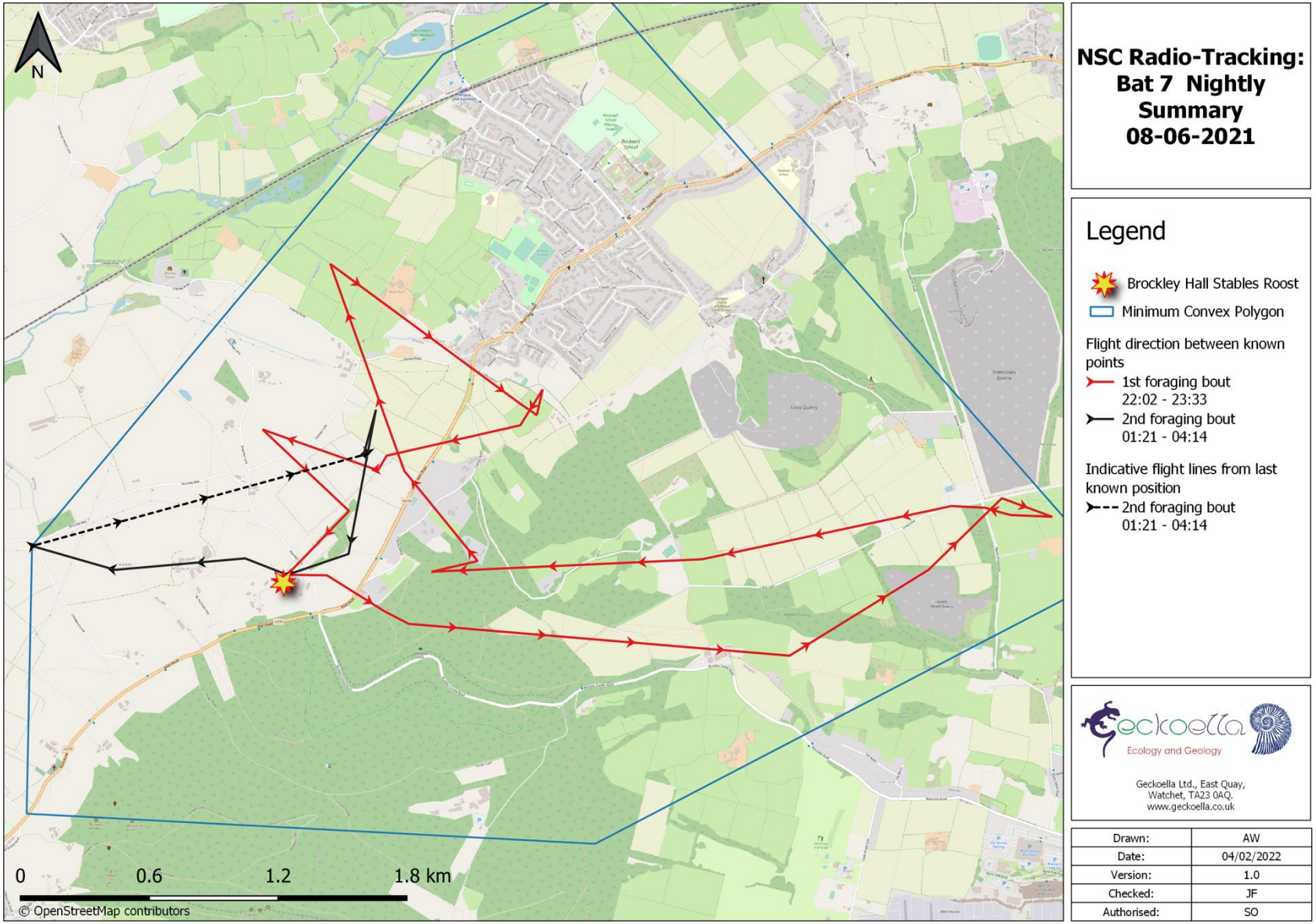
- 1st foraging bout 22:02 - 00:06

Geckoella Ecology and Geology

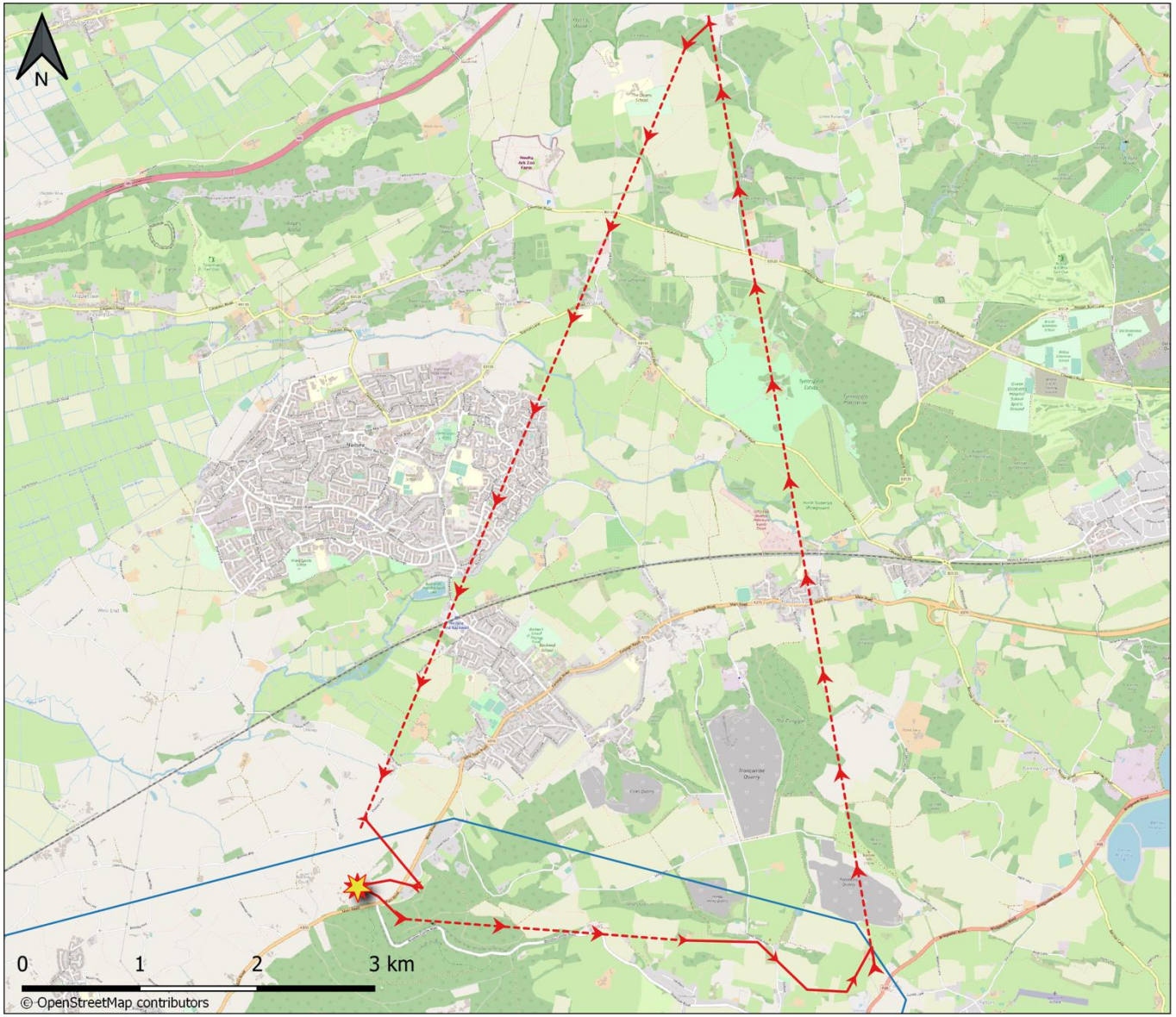
Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.39: NSC Radio-Tracking: Bat 7 Nightly Summary 08-06-2021



Map 3.40: NSC Radio-Tracking: Bat 8 Nightly Summary 01-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 01-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 23:15 - 04:29

Indicative flight lines from last known position

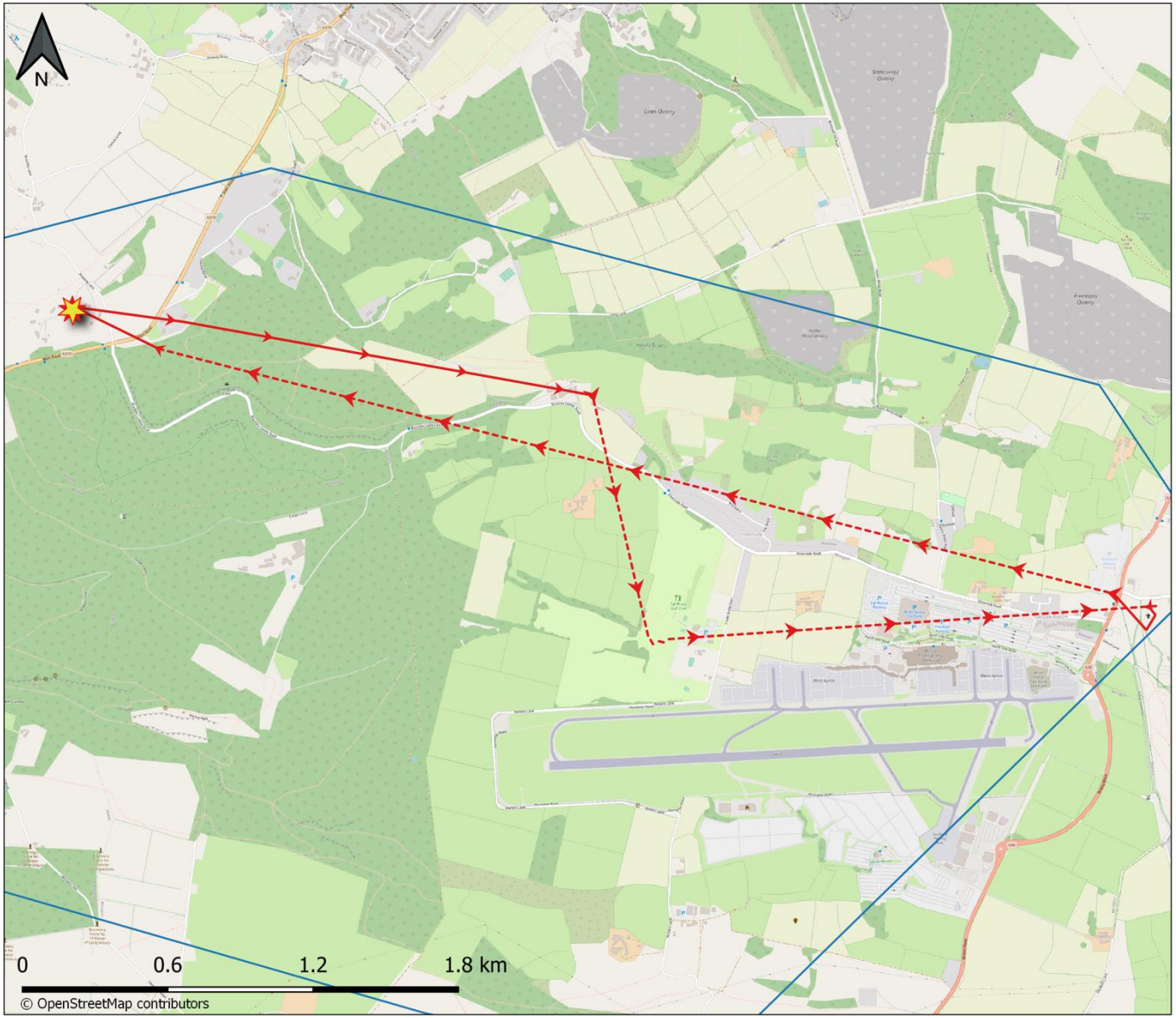
- 1st foraging bout 23:15 - 04:29

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.41: NSC Radio-Tracking: Bat 8 Nightly Summary 04-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 04-06-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 22:00 - 04:04

Indicative flight lines from last known position

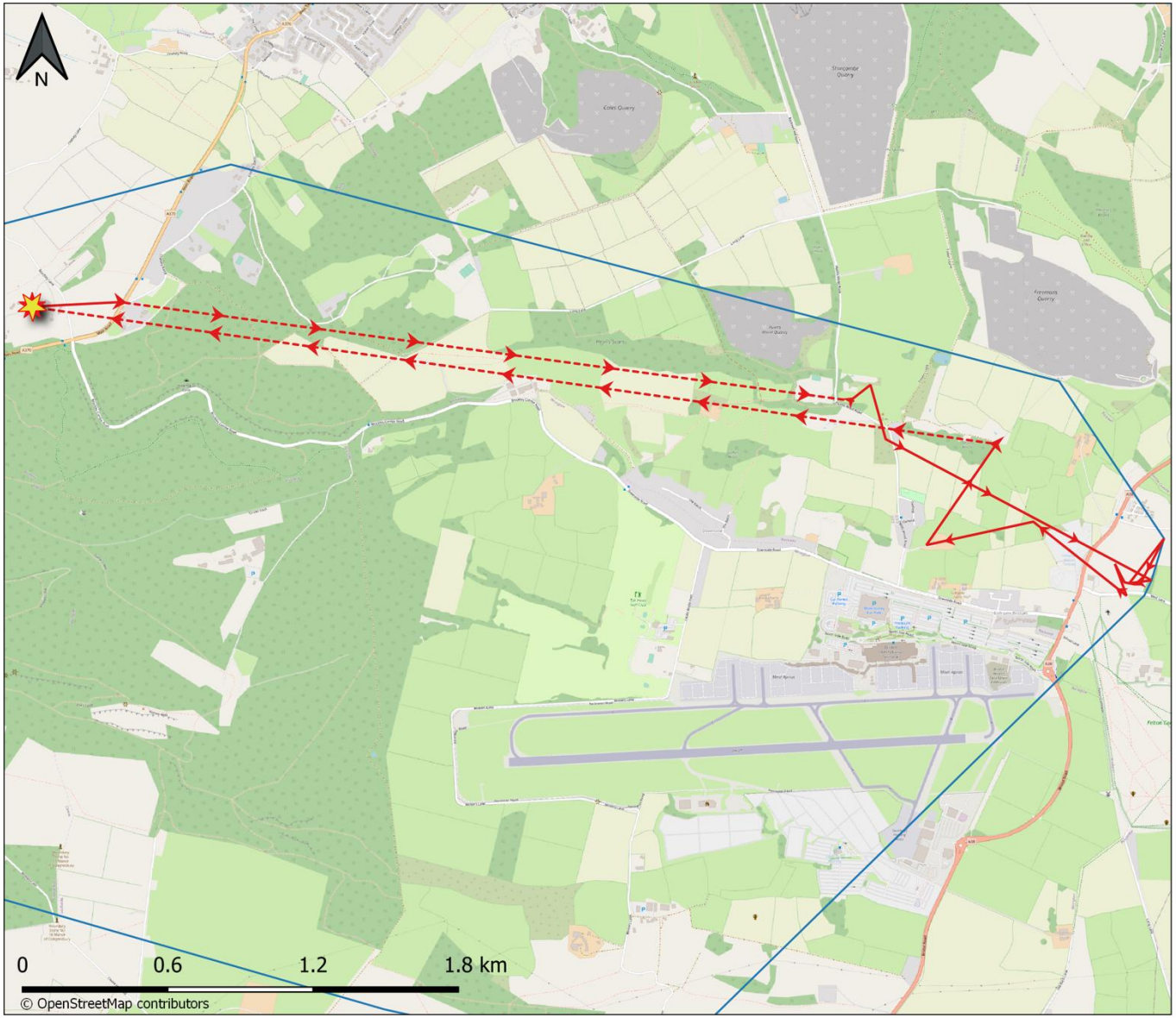
1st foraging bout 22:00 - 04:04

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ. www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.42: NSC Radio-Tracking: Bat 8 Nightly Summary 06-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 06-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:02 - 23:21

Indicative flight lines from last known position

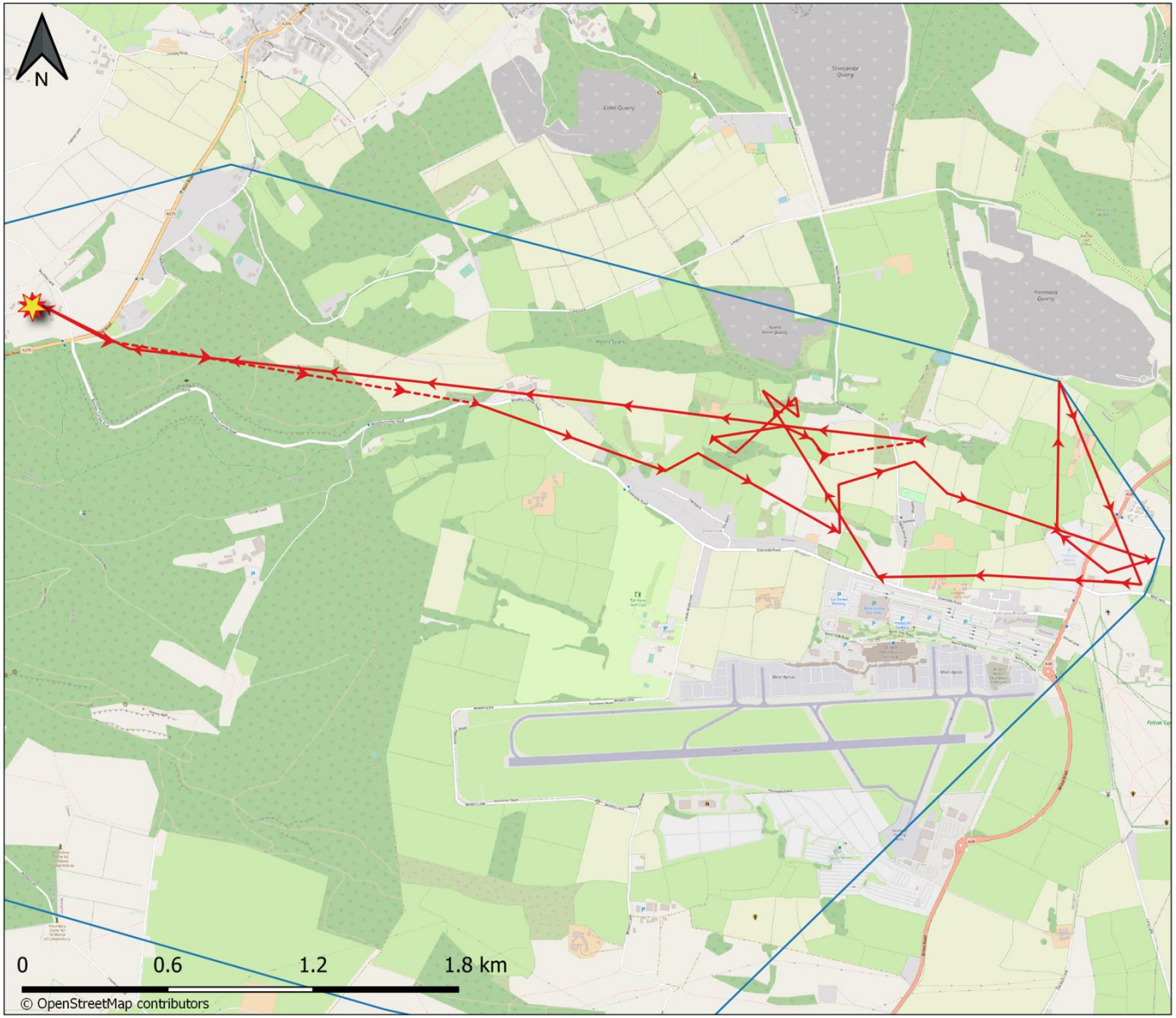
- 1st foraging bout 22:02 - 23:21

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.43: NSC Radio-Tracking: Bat 8 Nightly Summary 07-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 07-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:07 - 04:08

Indicative flight lines from last known position

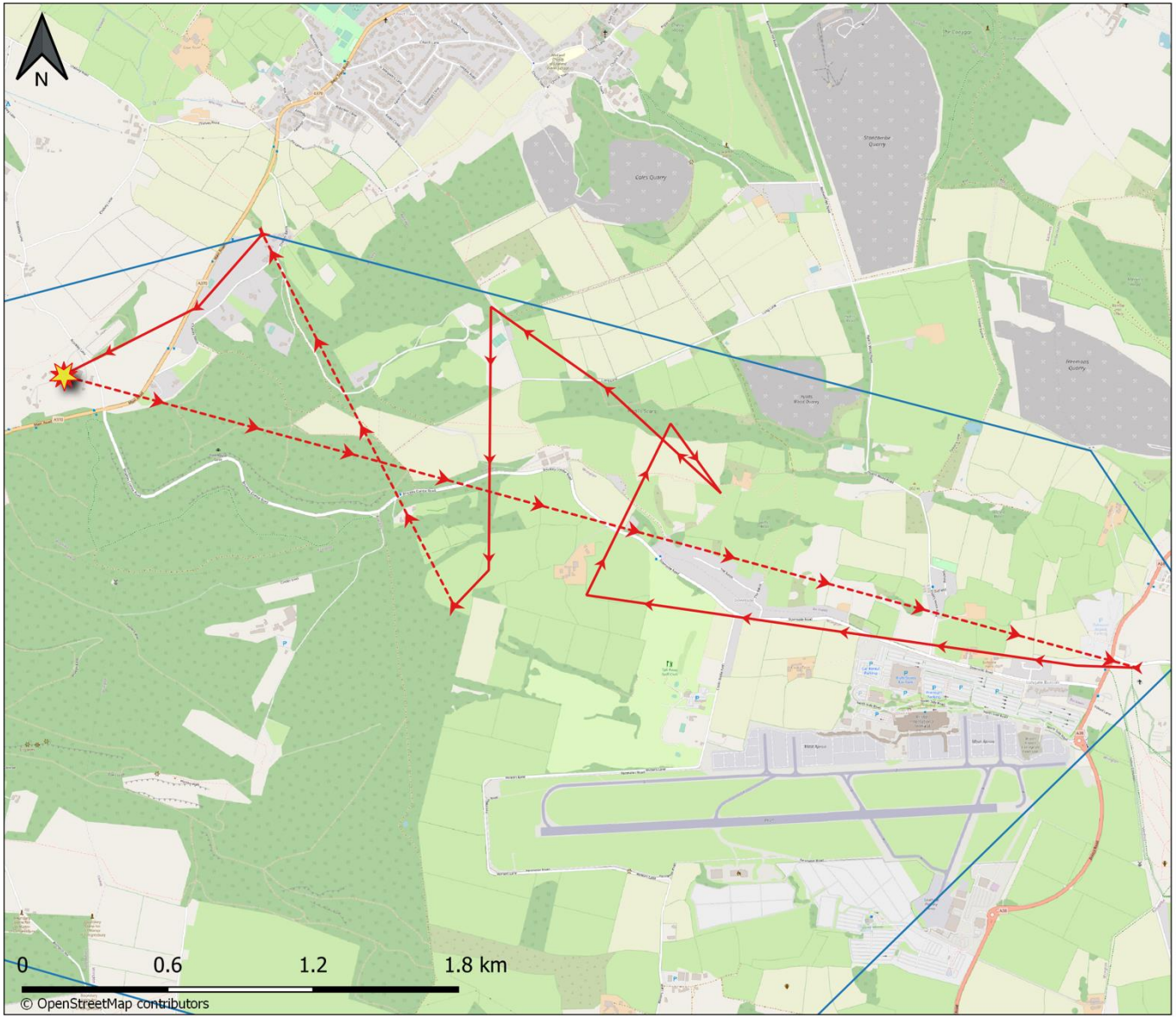
- 1st foraging bout 22:07 - 04:08

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.44: NSC Radio-Tracking: Bat 8 Nightly Summary 08-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 08-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 03:49 - 04:04

Indicative flight lines from last known position

- 1st foraging bout 03:49 - 04:04

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.45: NSC Radio-Tracking: Bat 8 Nightly Summary 09-06-2021

NSC Radio-Tracking: Bat 8 Nightly Summary 09-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:02 - 04:17

Indicative flight lines from last known position

- 1st foraging bout 22:02 - 04:17

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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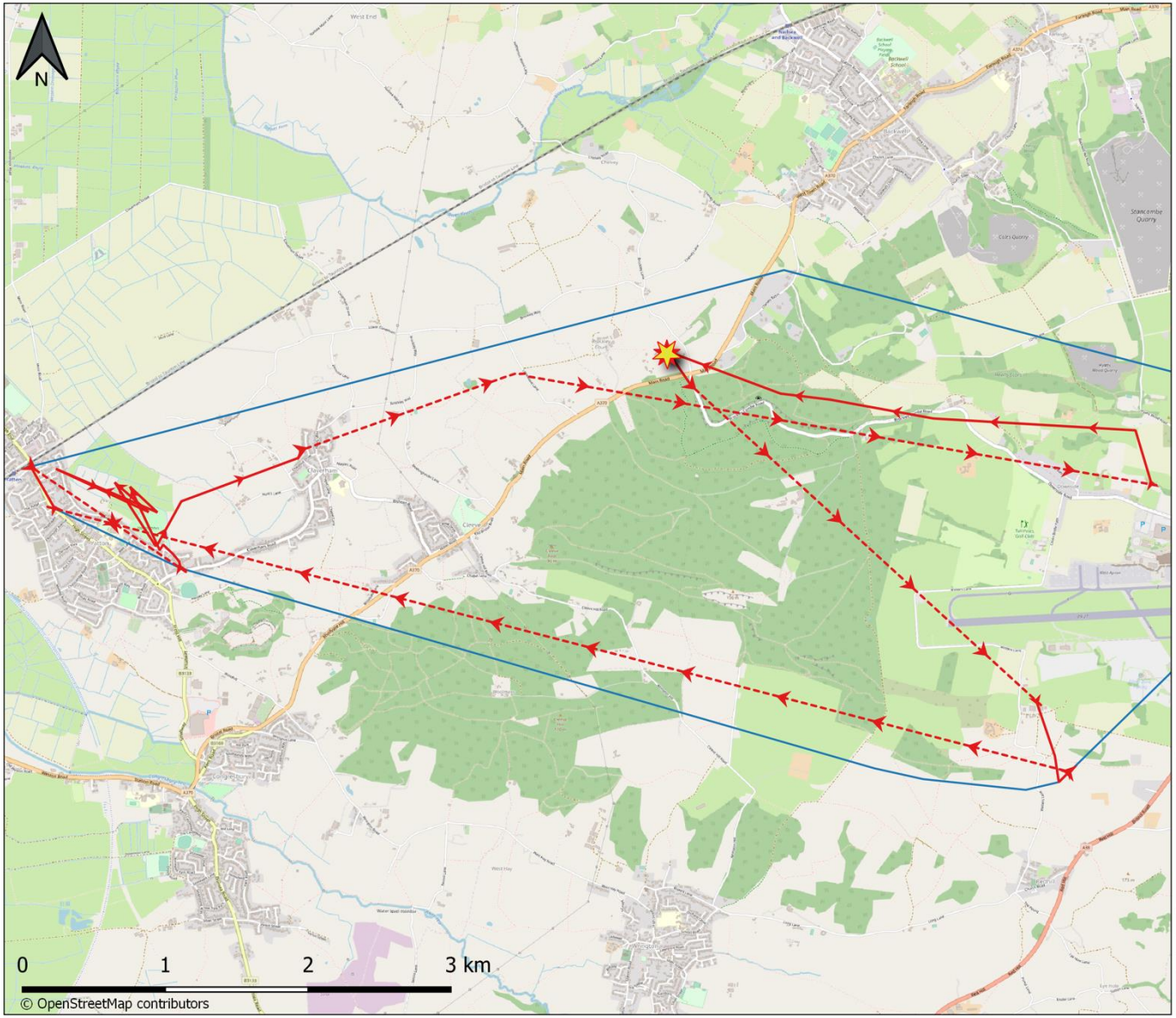
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.46: NSC Radio-Tracking: Bat 8 Nightly Summary 10-06-2021



NSC Radio-Tracking: Bat 8 Nightly Summary 10-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:57 - 04:11

Indicative flight lines from last known position

- 1st foraging bout 21:57 - 04:11

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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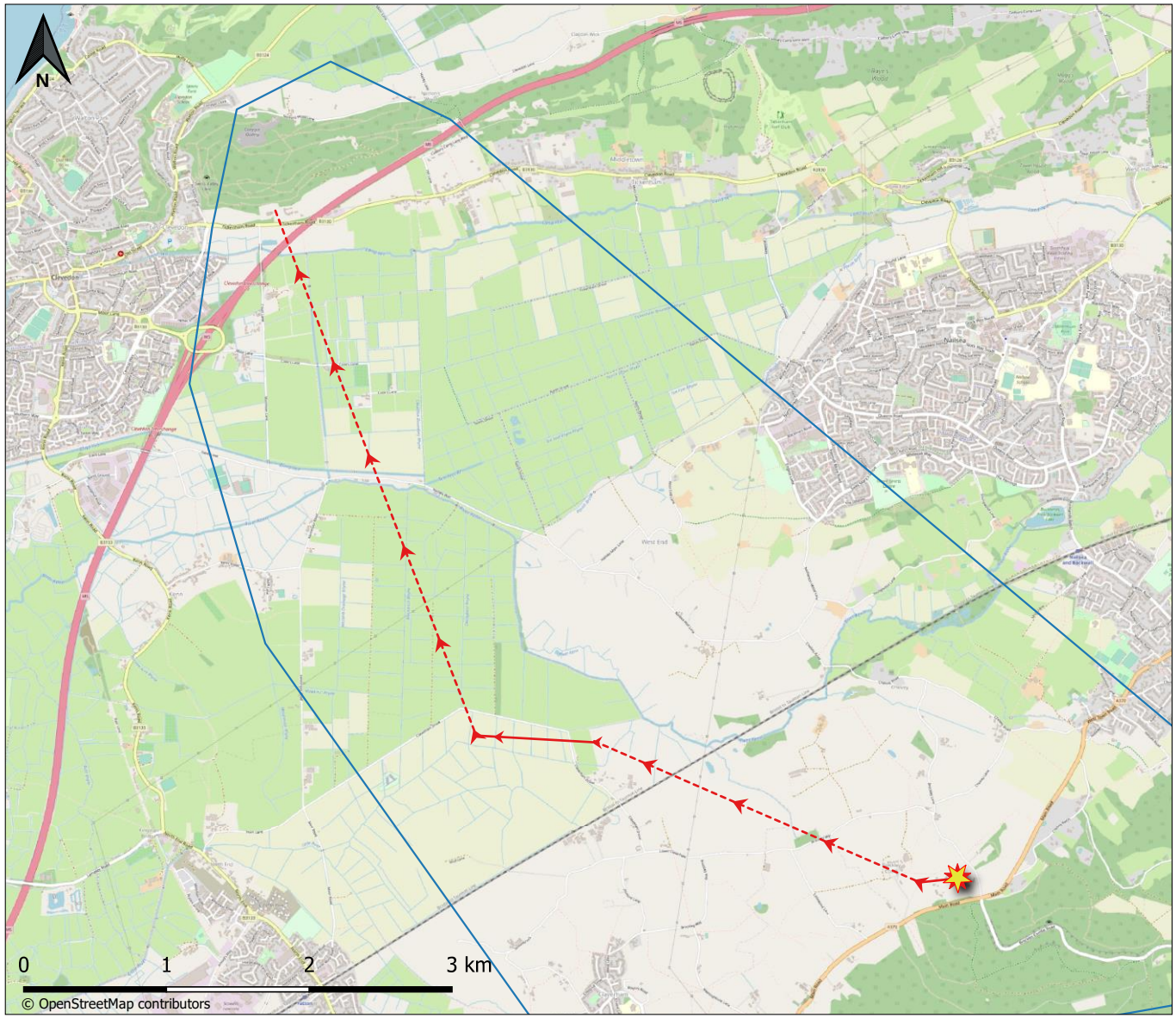
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.47: NSC Radio-Tracking: Bat 9 Nightly Summary 01-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 01-06-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
23:48 - 05:30

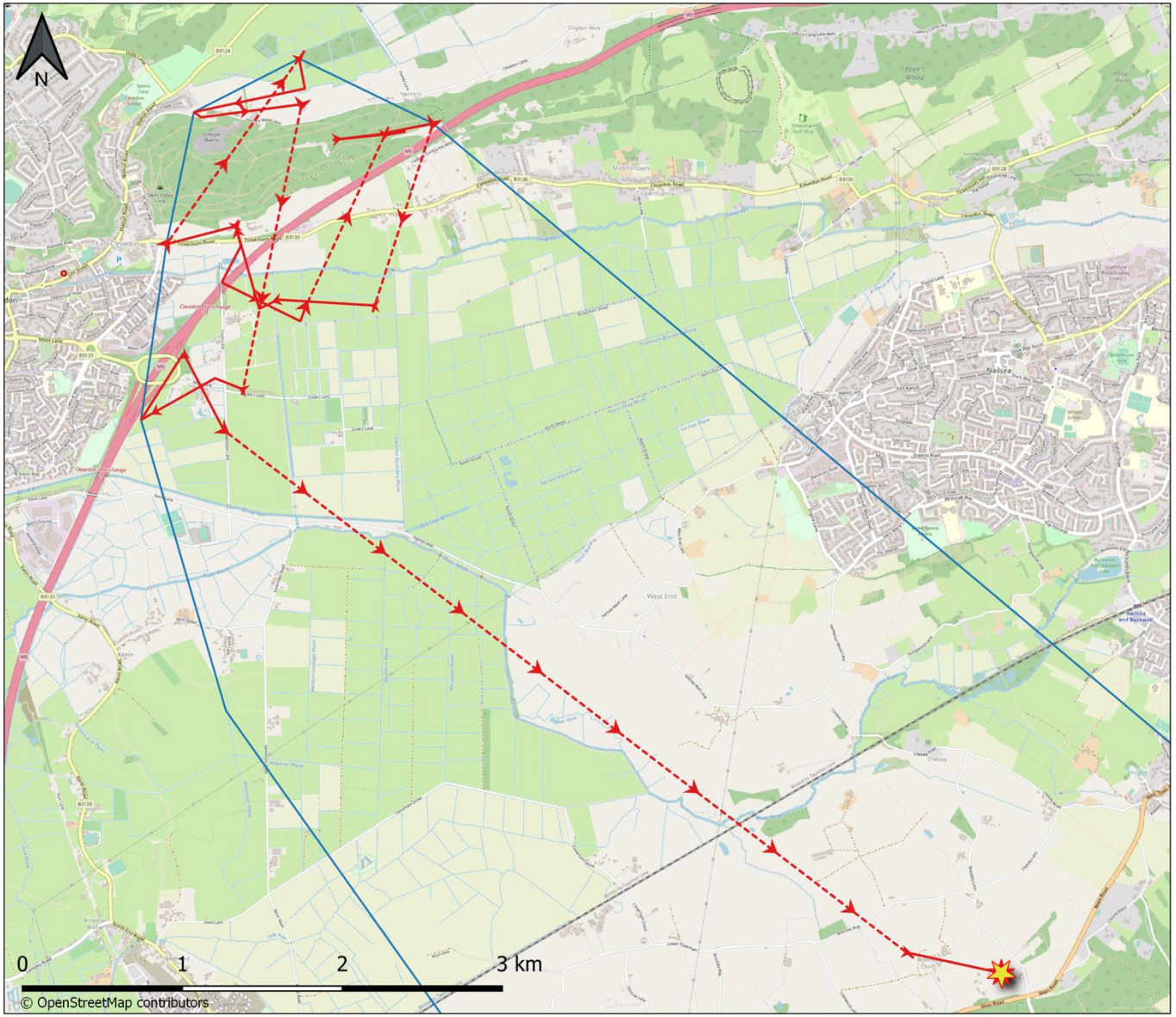
Indicative flight lines from last known position

1st foraging bout
23:48 - 05:30

Geckoella Ltd., East Quay,
Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.48: NSC Radio-Tracking: Bat 9 Nightly Summary 02-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 02-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:20 - 04:30

Indicative flight lines from last known position

- 1st foraging bout 22:20 - 04:30

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
www.geckoella.co.uk

Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.49: NSC Radio-Tracking: Bat 9 Nightly Summary 03-06-2021

NSC Radio-Tracking: Bat 9 Nightly Summary 03-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 00:31 - 02:21

Indicative flight lines from last known position

- 1st foraging bout 00:31 - 02:21

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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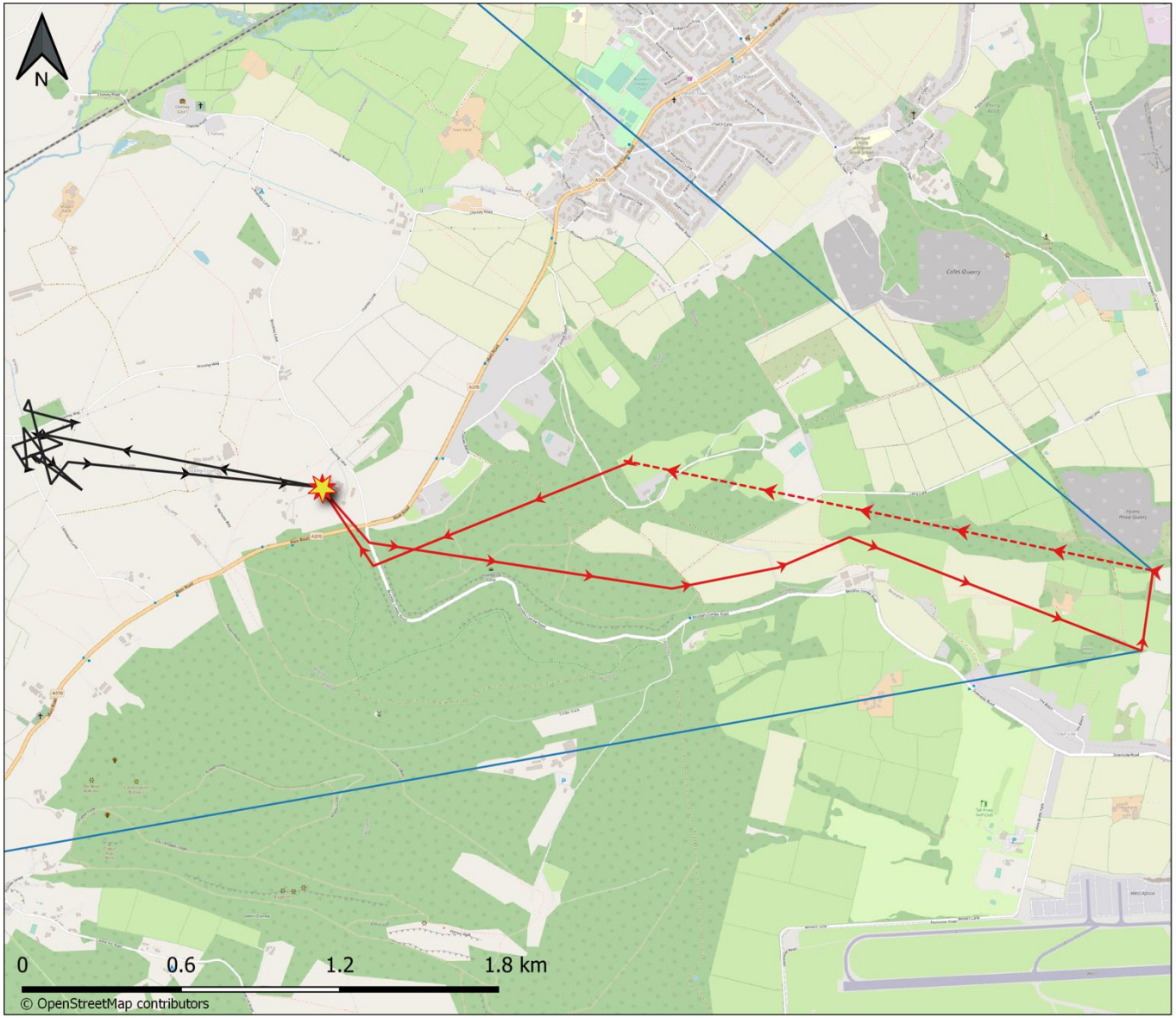
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.50: NSC Radio-Tracking: Bat 9 Nightly Summary 04-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 04-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:00 - 22:50
- 2nd foraging bout 23:00 - 00:25

Indicative flight lines from last known position

- 1st foraging bout 22:00 - 22:50

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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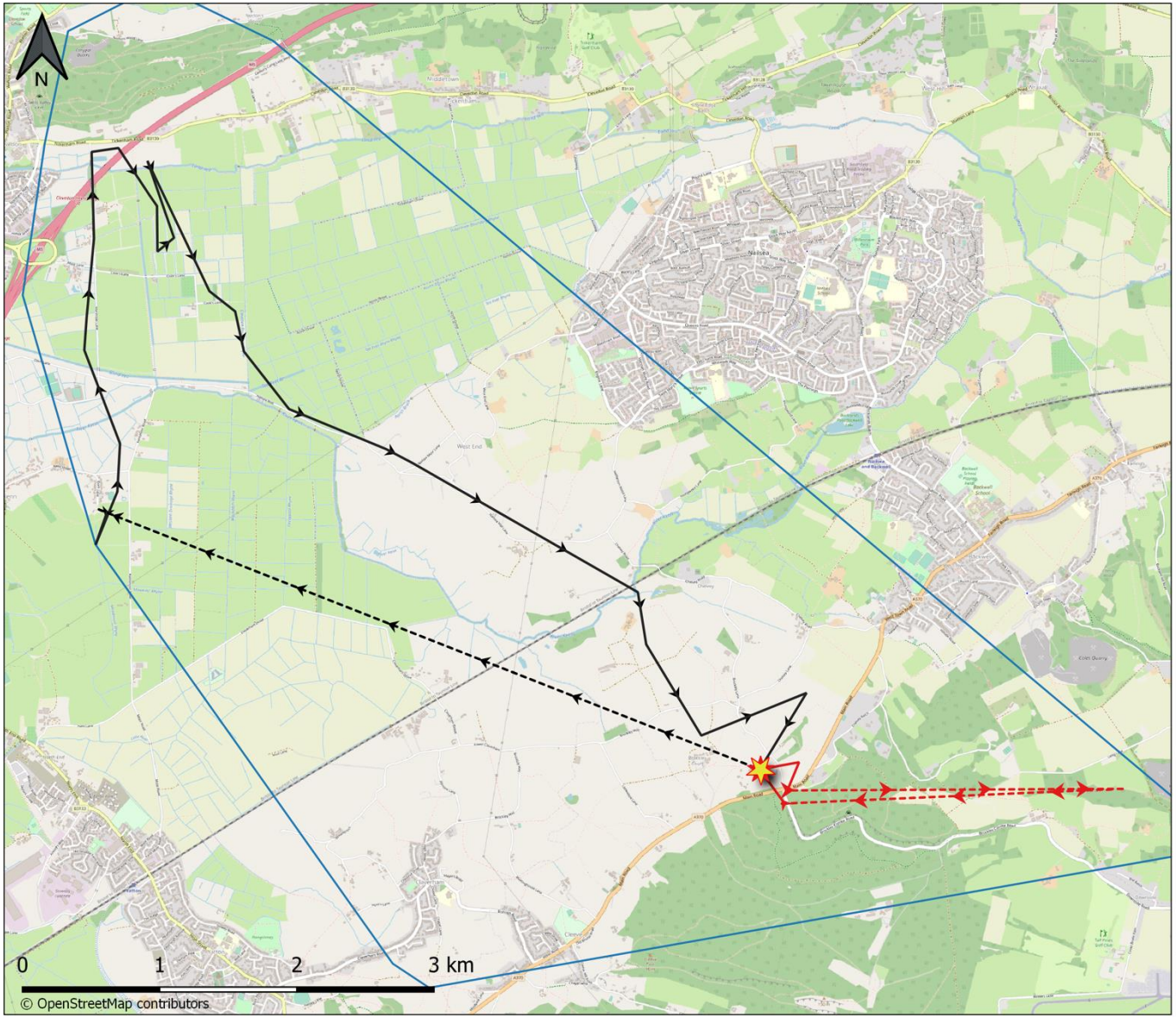
Drawn:	AW
Date:	04/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

Map 3.51: NSC Radio-Tracking: Bat 9 Nightly Summary 05-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 05-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:00 - 22:43
- 2nd foraging bout 01:51 - 04:18

Indicative flight lines from last known position

- 1st foraging bout 22:00 - 22:43
- 2nd foraging bout 01:51 - 04:18

Geckoella Ecology and Geology

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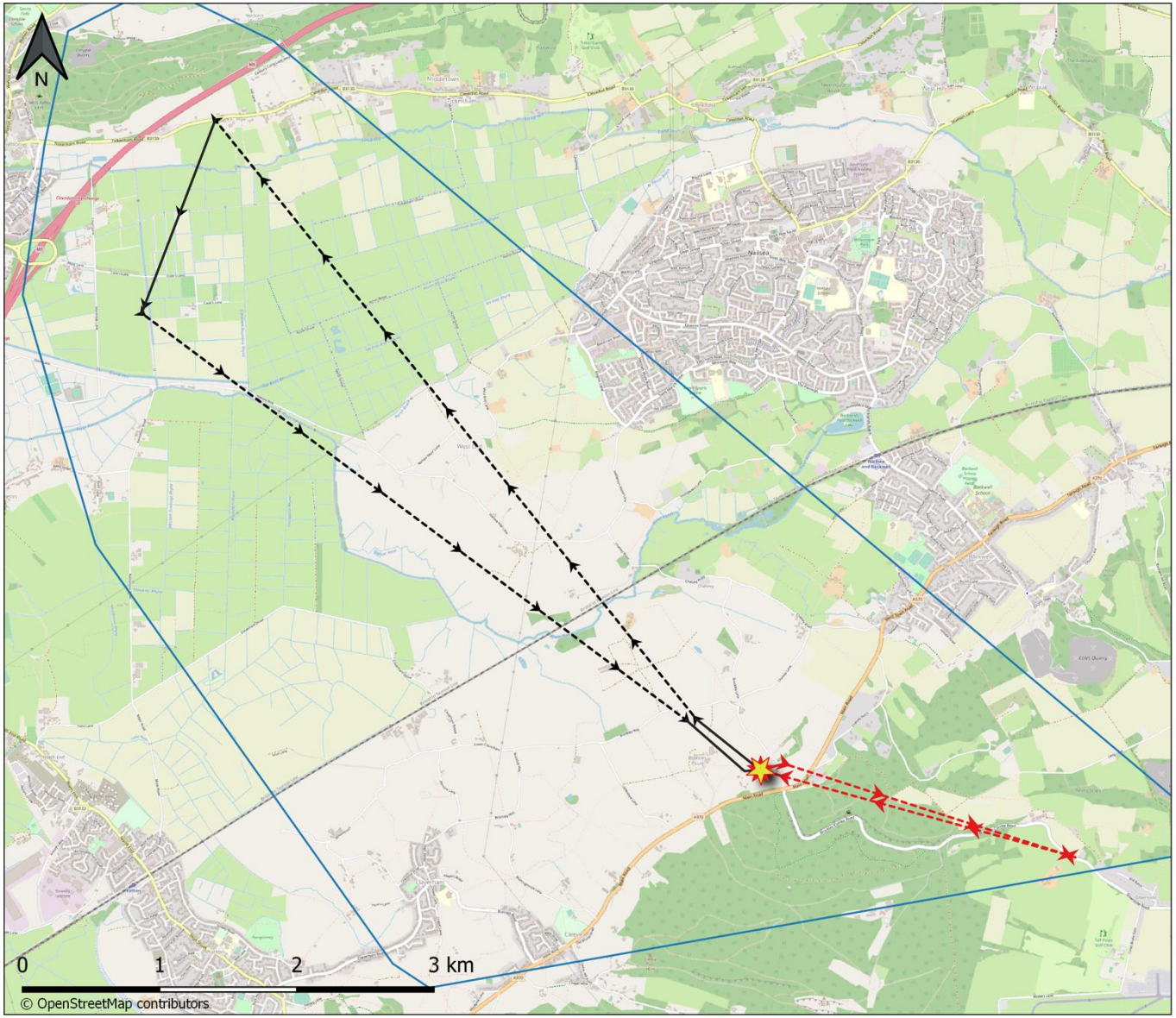
Map 3.52: NSC Radio-Tracking: Bat 9 Nightly Summary 06-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 06-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:05 - 23:44
- 2nd foraging bout 00:35 - 04:11

Indicative flight lines from last known position

- 1st foraging bout 22:05 - 23:44
- 2nd foraging bout 00:35 - 04:11

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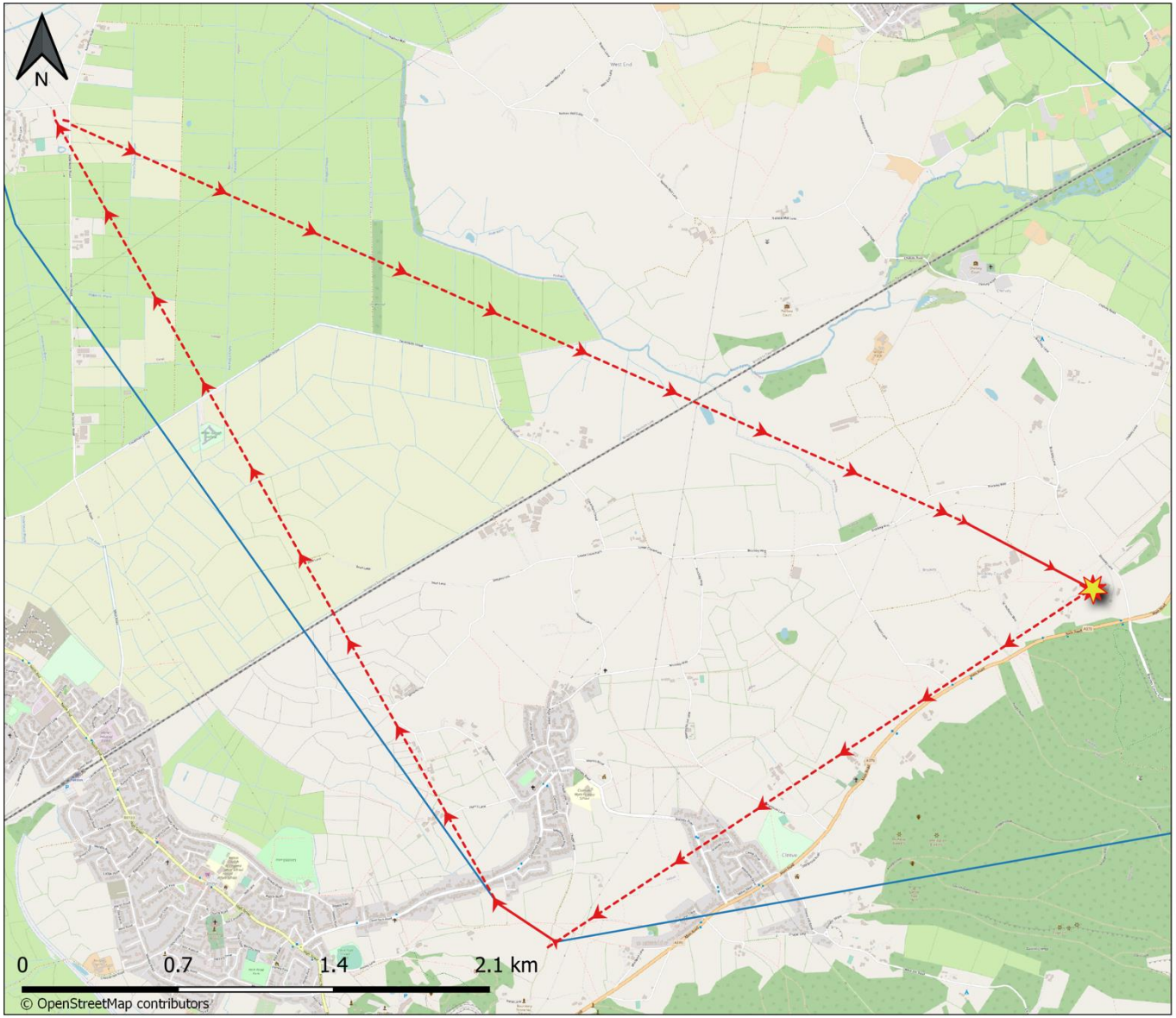
Map 3.53: NSC Radio-Tracking: Bat 9 Nightly Summary 08-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 08-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 02:50 - 04:12

Indicative flight lines from last known position

- 1st foraging bout 02:50 - 04:12

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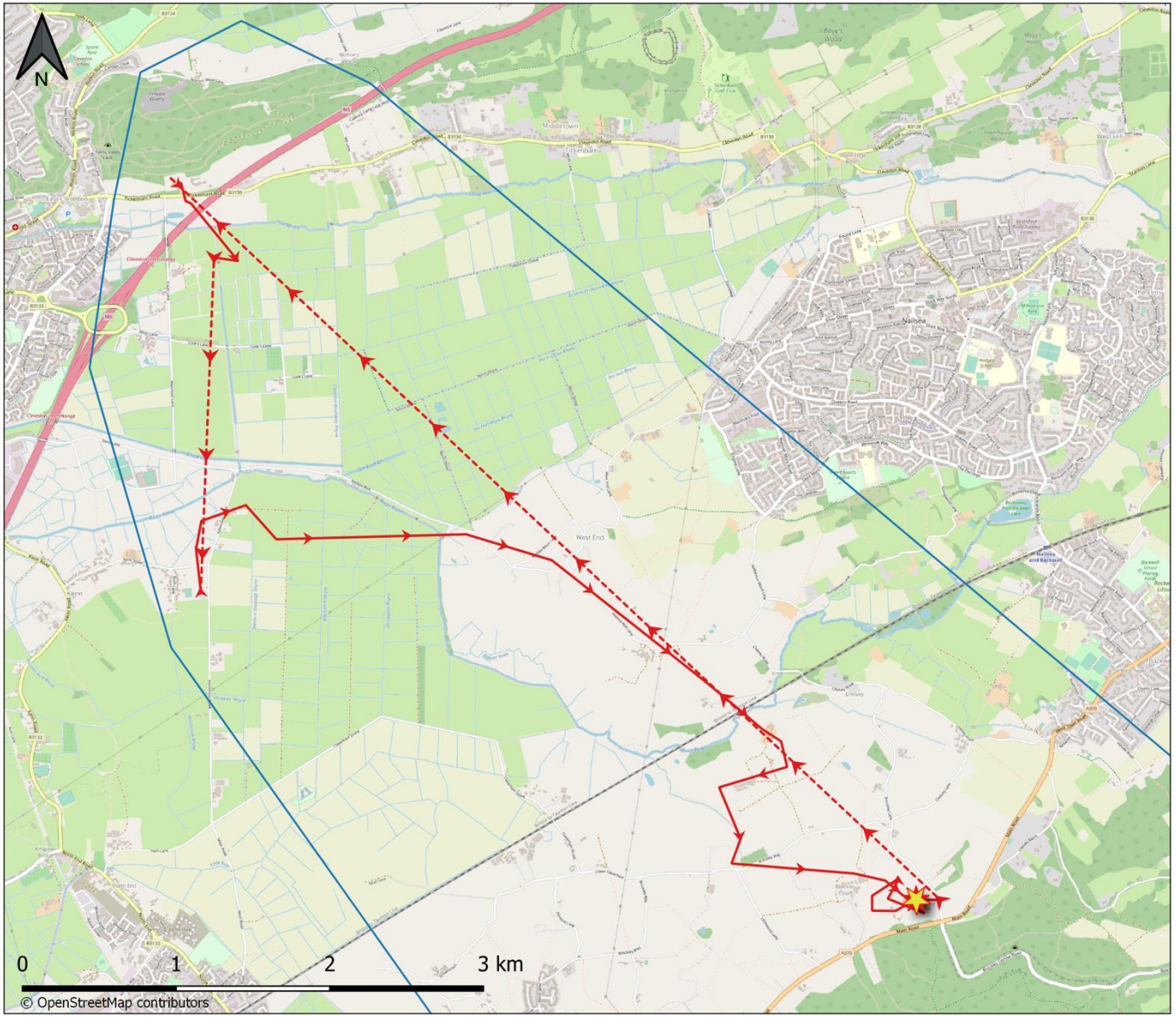
Authorised:	SO

Map 3.54: NSC Radio-Tracking: Bat 9 Nightly Summary 10-06-2021



NSC Radio-Tracking: Bat 9 Nightly Summary 10-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:55 - 04:16

Indicative flight lines from last known position

- 1st foraging bout 21:55 - 04:16

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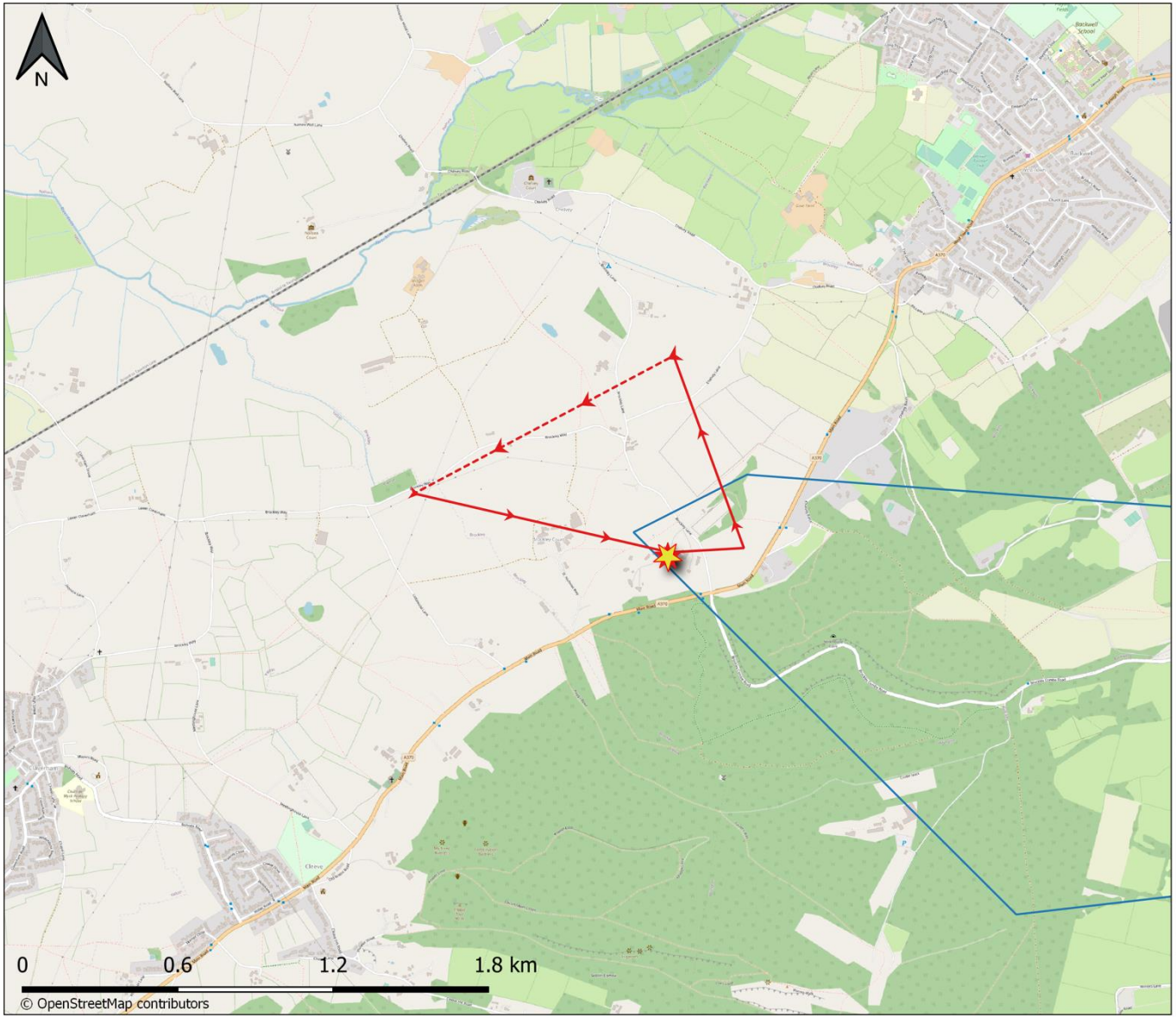
Checked:	JF
Authorised:	SO

Map 3.55: NSC Radio-Tracking: Bat 10 Nightly Summary 01-06-2021



NSC Radio-Tracking: Bat 10 Nightly Summary 01-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 00:10 - 04:18

Indicative flight lines from last known position

- 1st foraging bout 00:10 - 04:18

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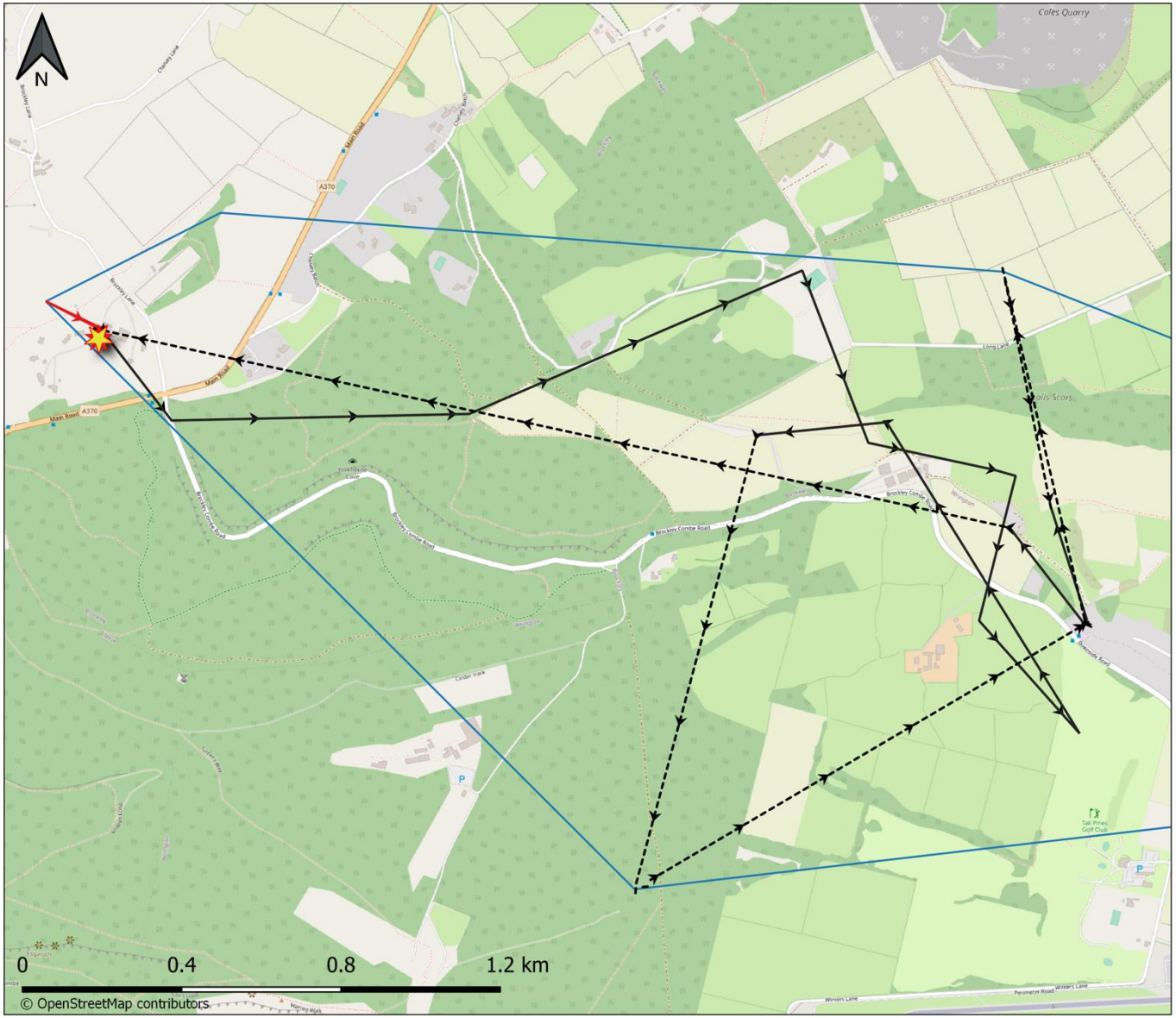
Authorised:	SO

Map 3.56: NSC Radio-Tracking: Bat 10 Nightly Summary 02-06-2021



NSC Radio-Tracking: Bat 10 Nightly Summary 02-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:34 - 21:47
- 2nd foraging bout 22:29 - 01:50

Indicative flight lines from last known position

- 2nd foraging bout 22:29 - 01:50

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Map 3.57: NSC Radio-Tracking: Bat 10 Nightly Summary 03-06-2021

NSC Radio-Tracking: Bat 10 Nightly Summary 03-06-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout 21:53 - 00:19

Indicative flight lines from last known position

1st foraging bout 21:53 - 00:19

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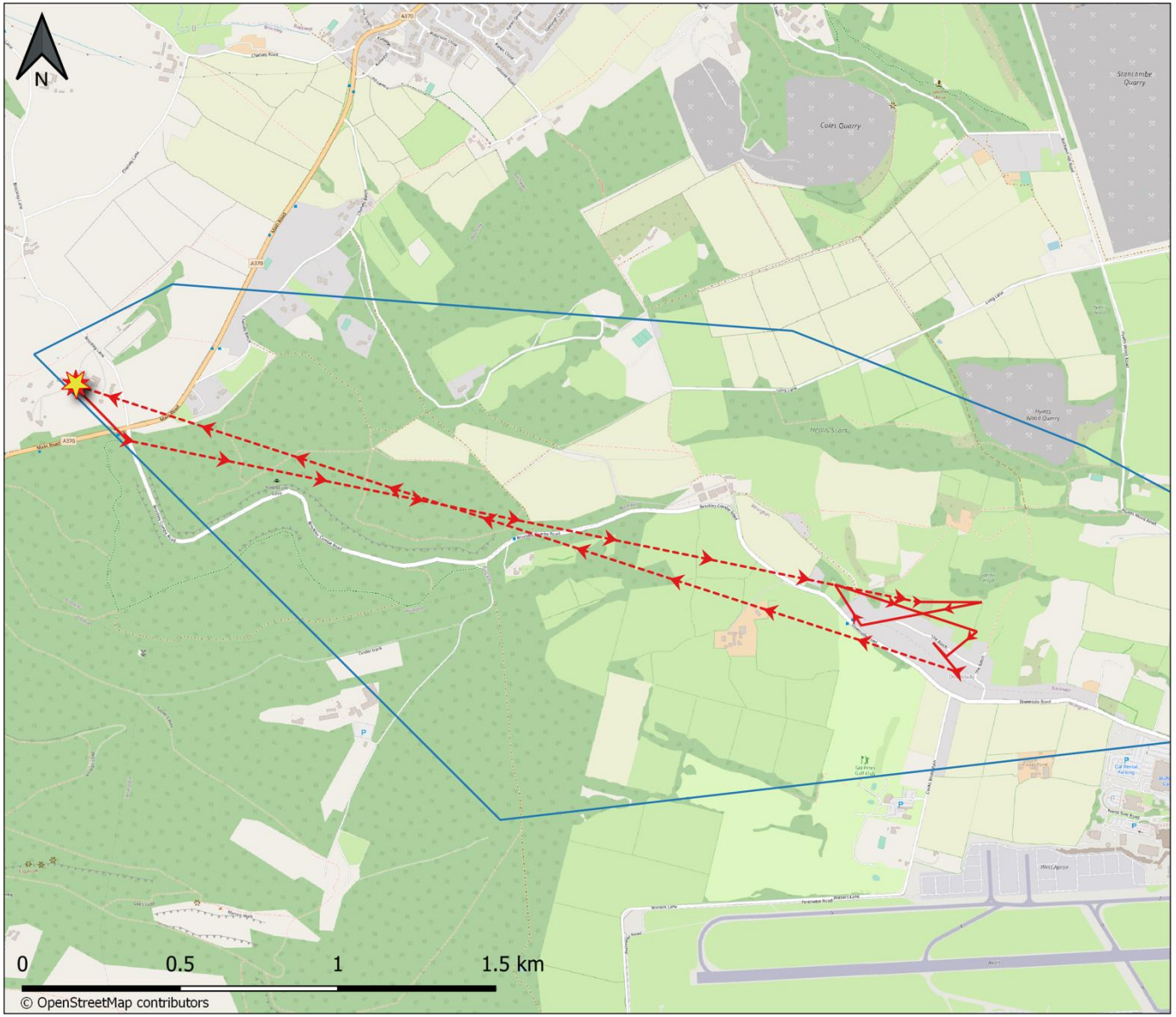
Map 3.58: NSC Radio-Tracking: Bat 10 Nightly Summary 04-06-2021



NSC Radio-Tracking: Bat 10 Nightly Summary 04-06-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:00 - 22:36

Indicative flight lines from last known position

- 1st foraging bout 22:00 - 22:36

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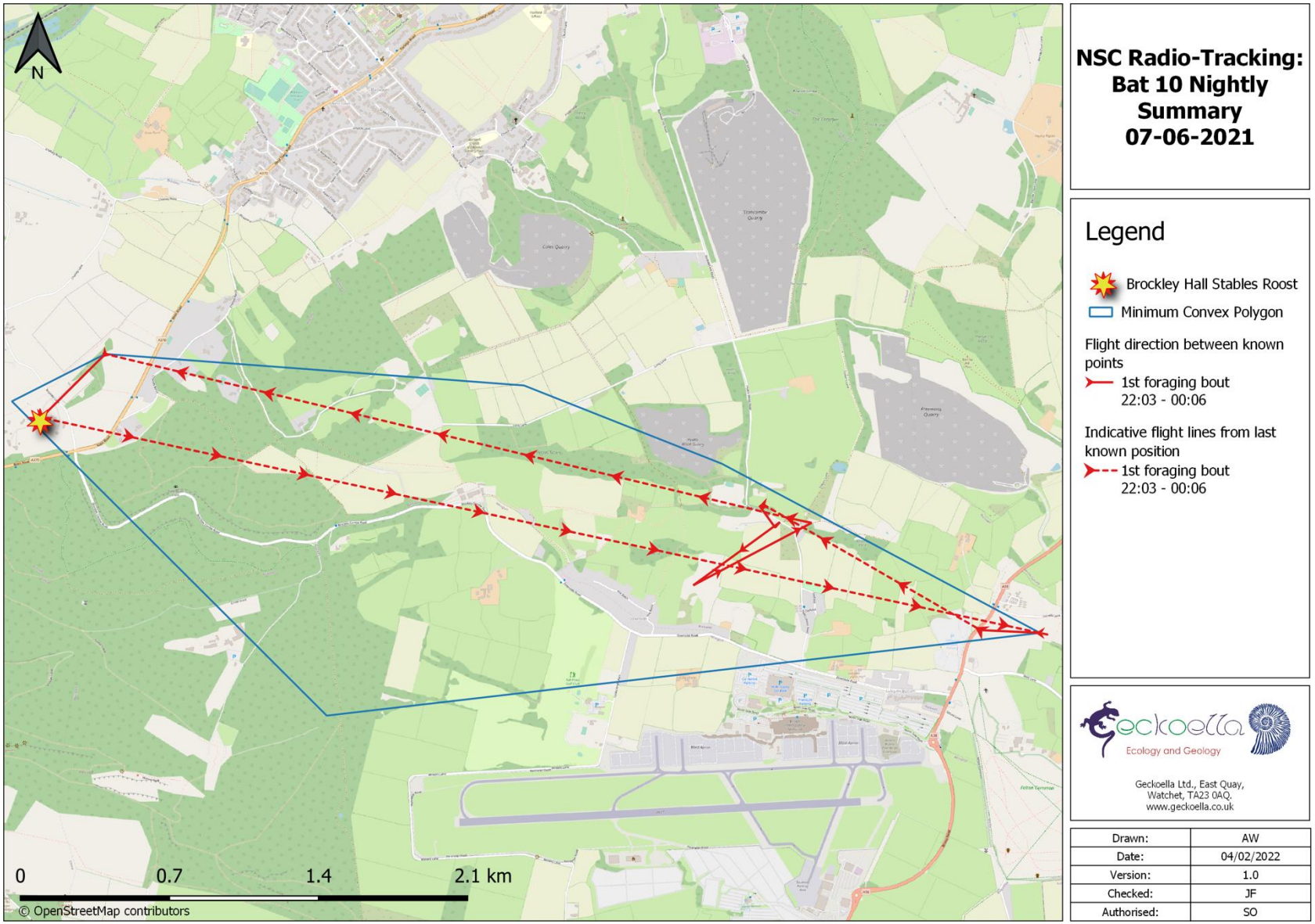
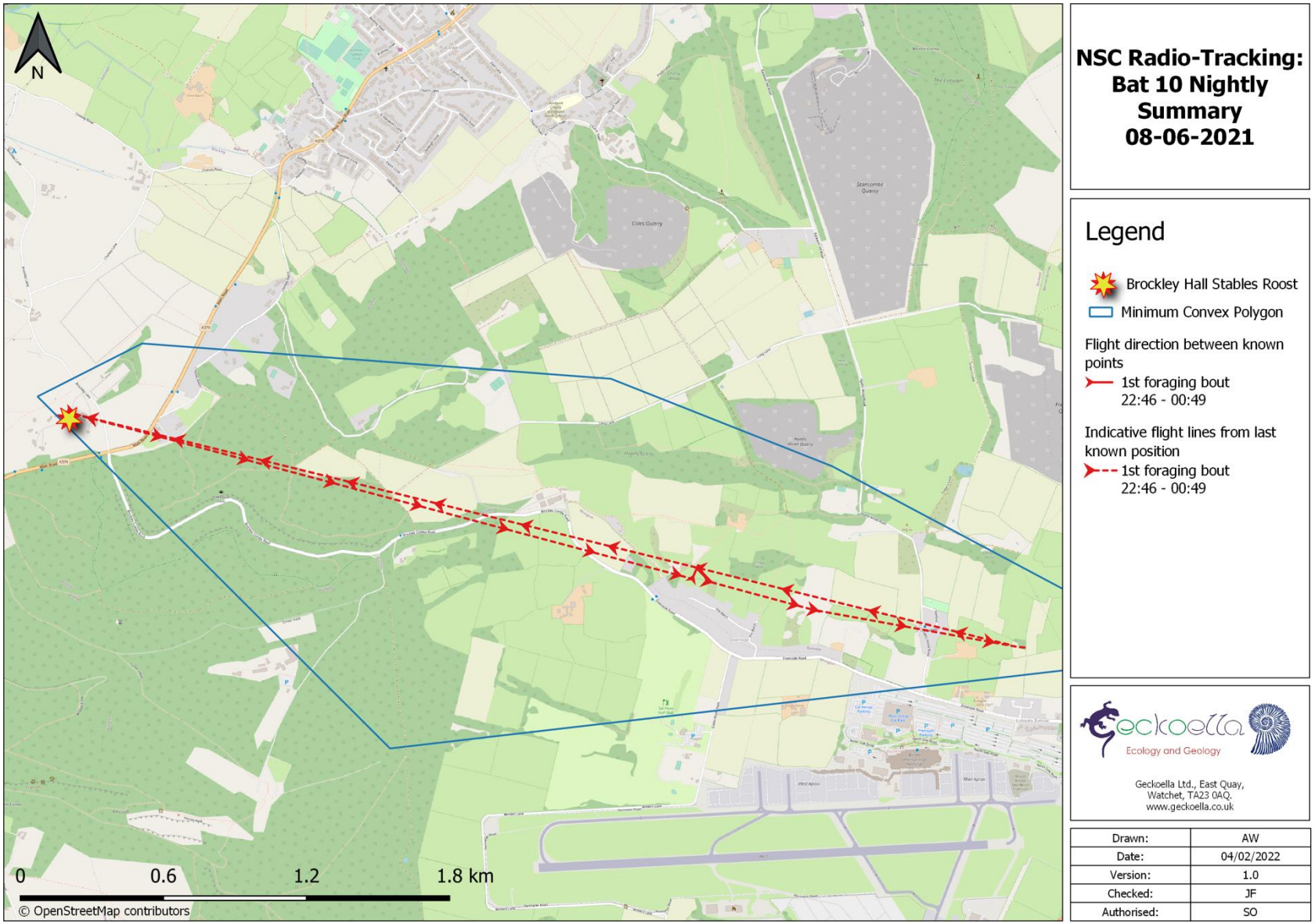
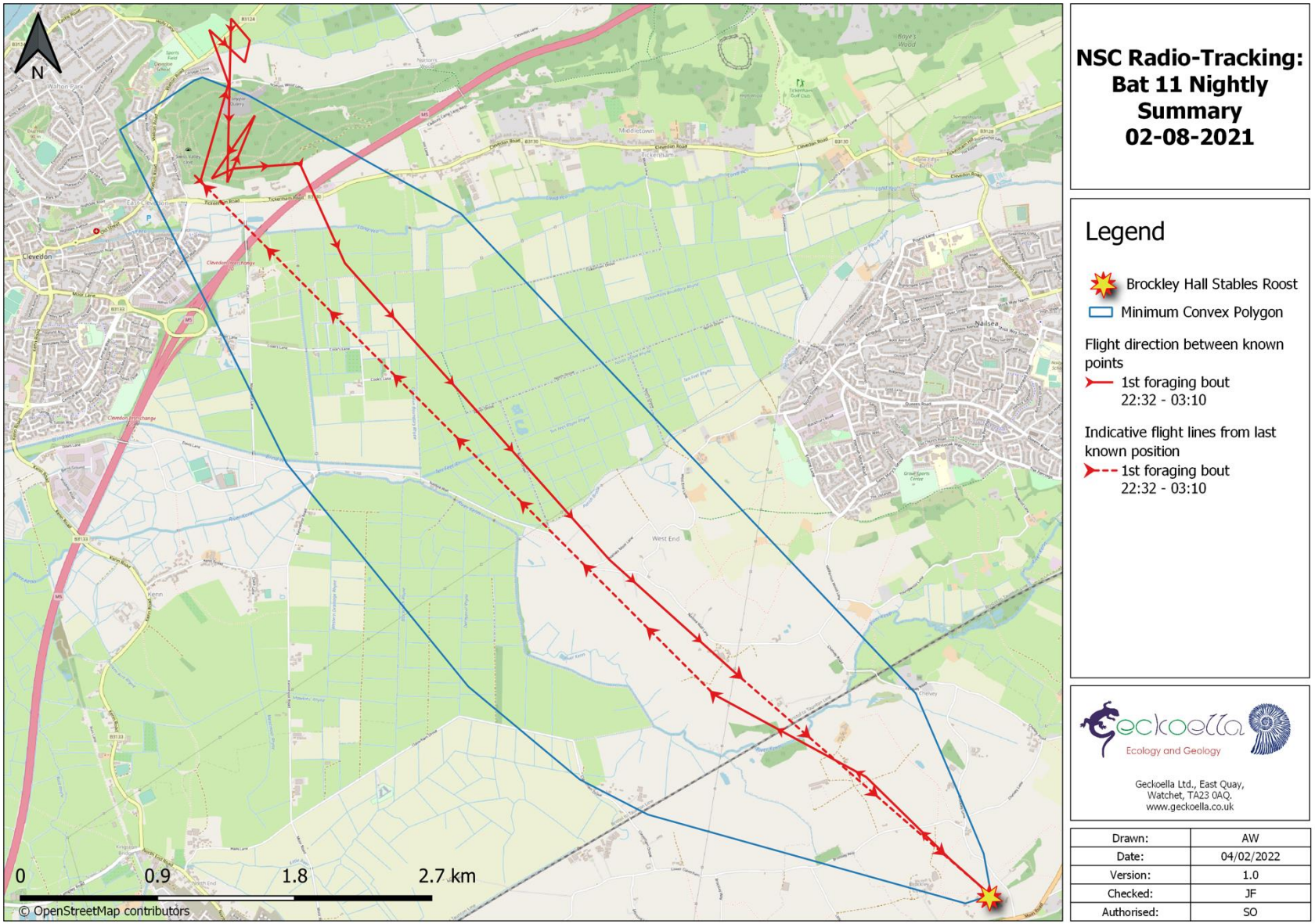
Map 3.59: NSC Radio-Tracking: Bat 10 Nightly Summary 07-06-2021



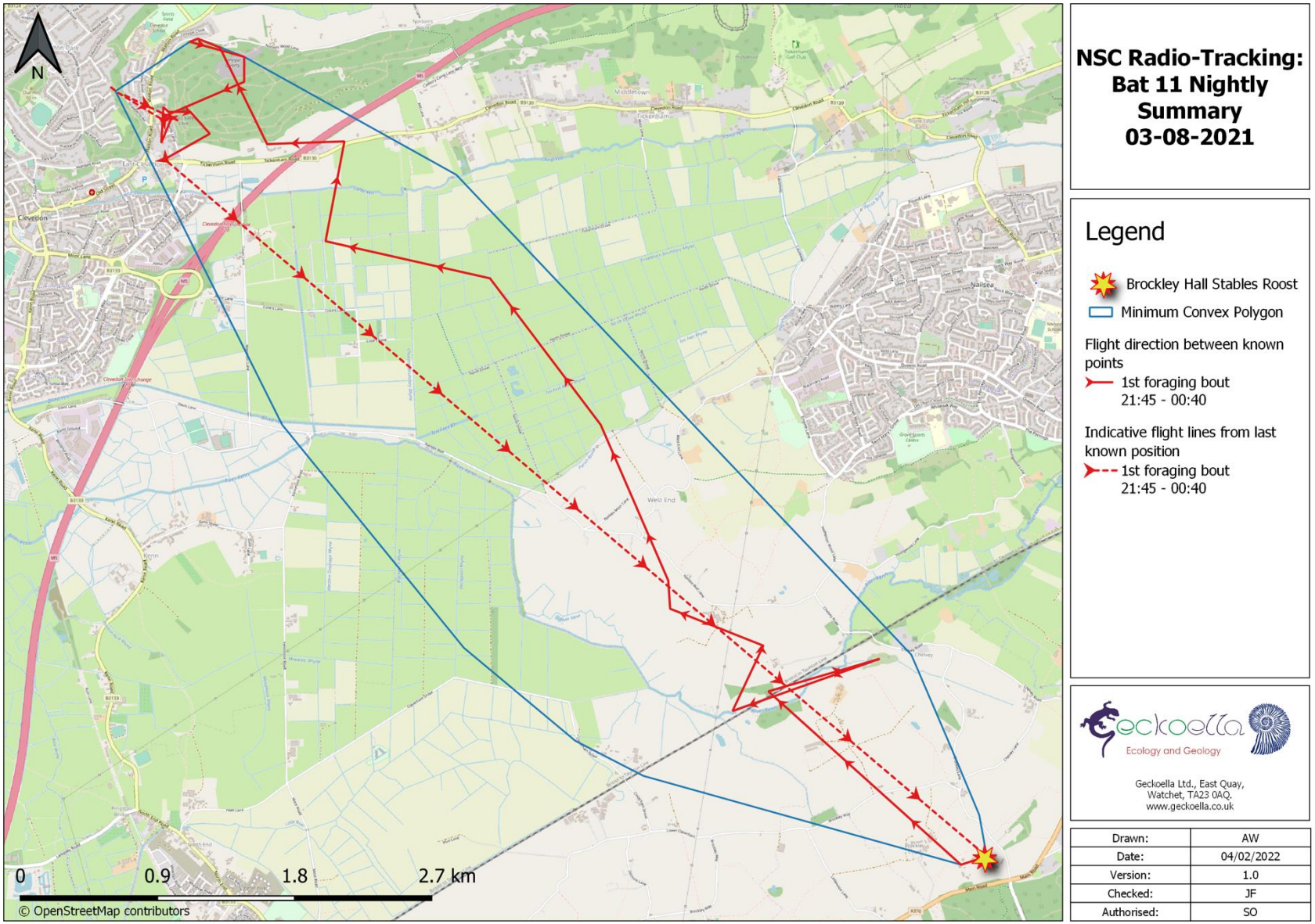
Map 3.60: NSC Radio-Tracking: Bat 10 Nightly Summary 08-06-2021



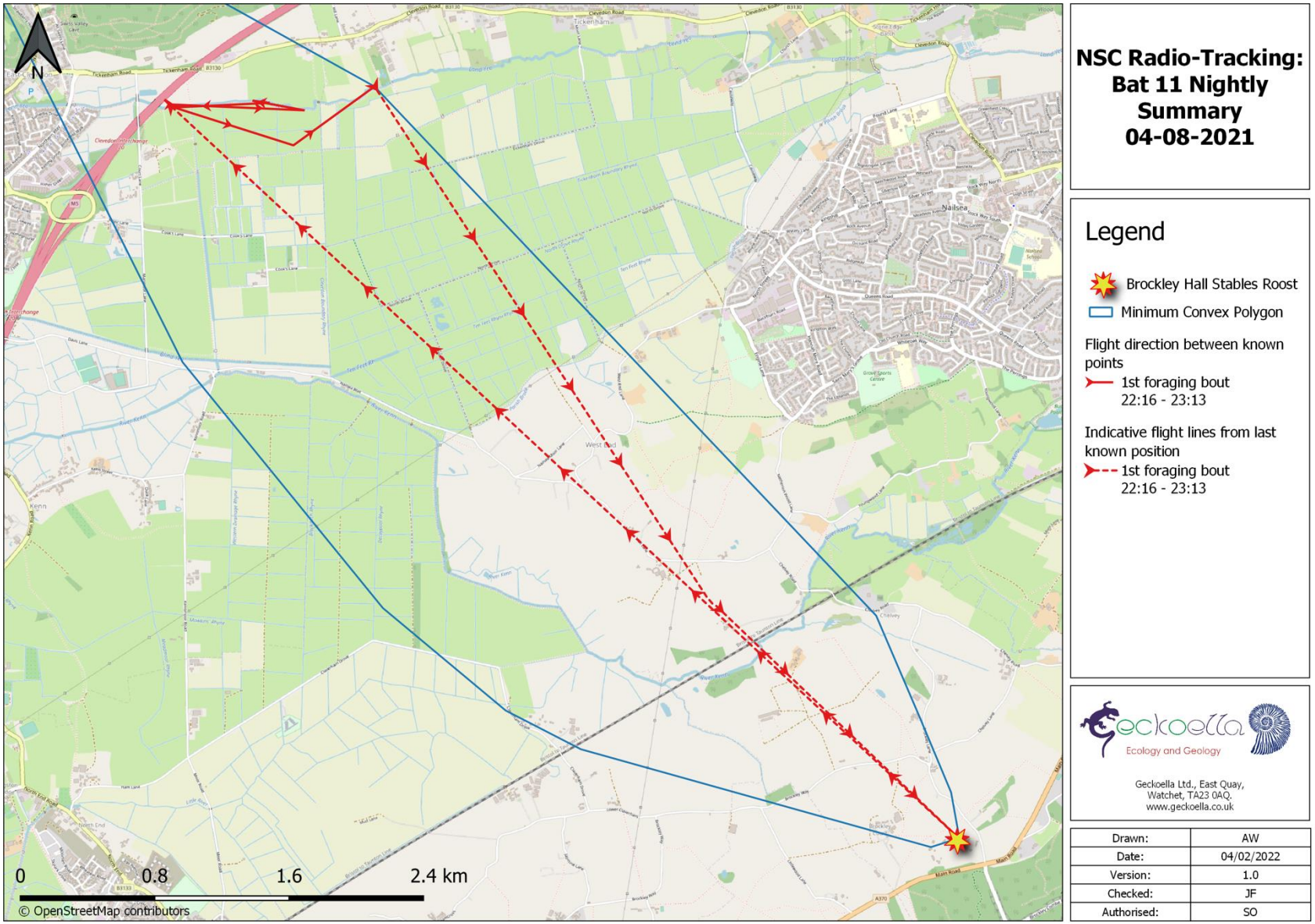
Map 3.61: NSC Radio-Tracking: Bat 11 Nightly Summary 02-08-2021



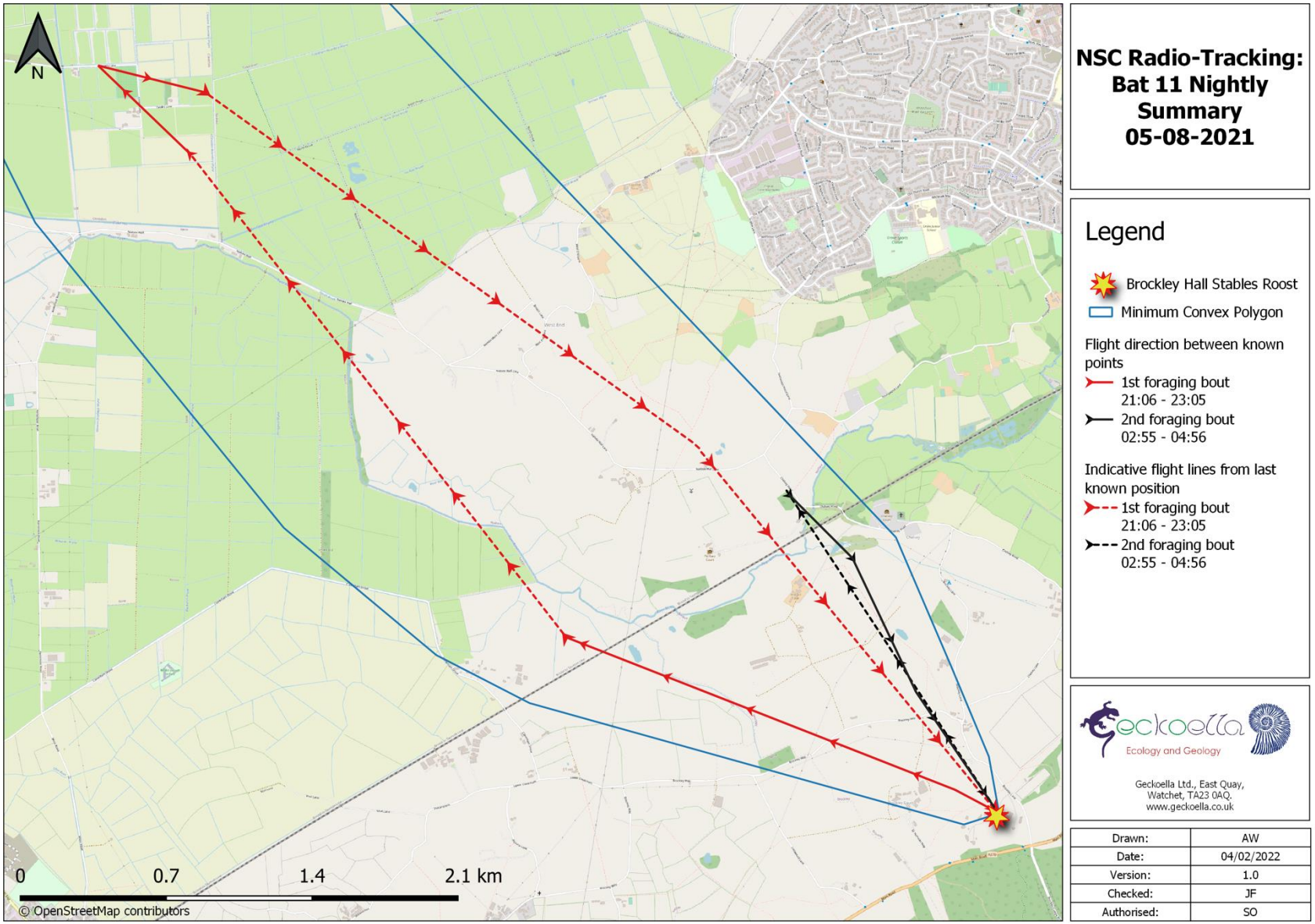
Map 3.62: NSC Radio-Tracking: Bat 11 Nightly Summary 03-08-2021



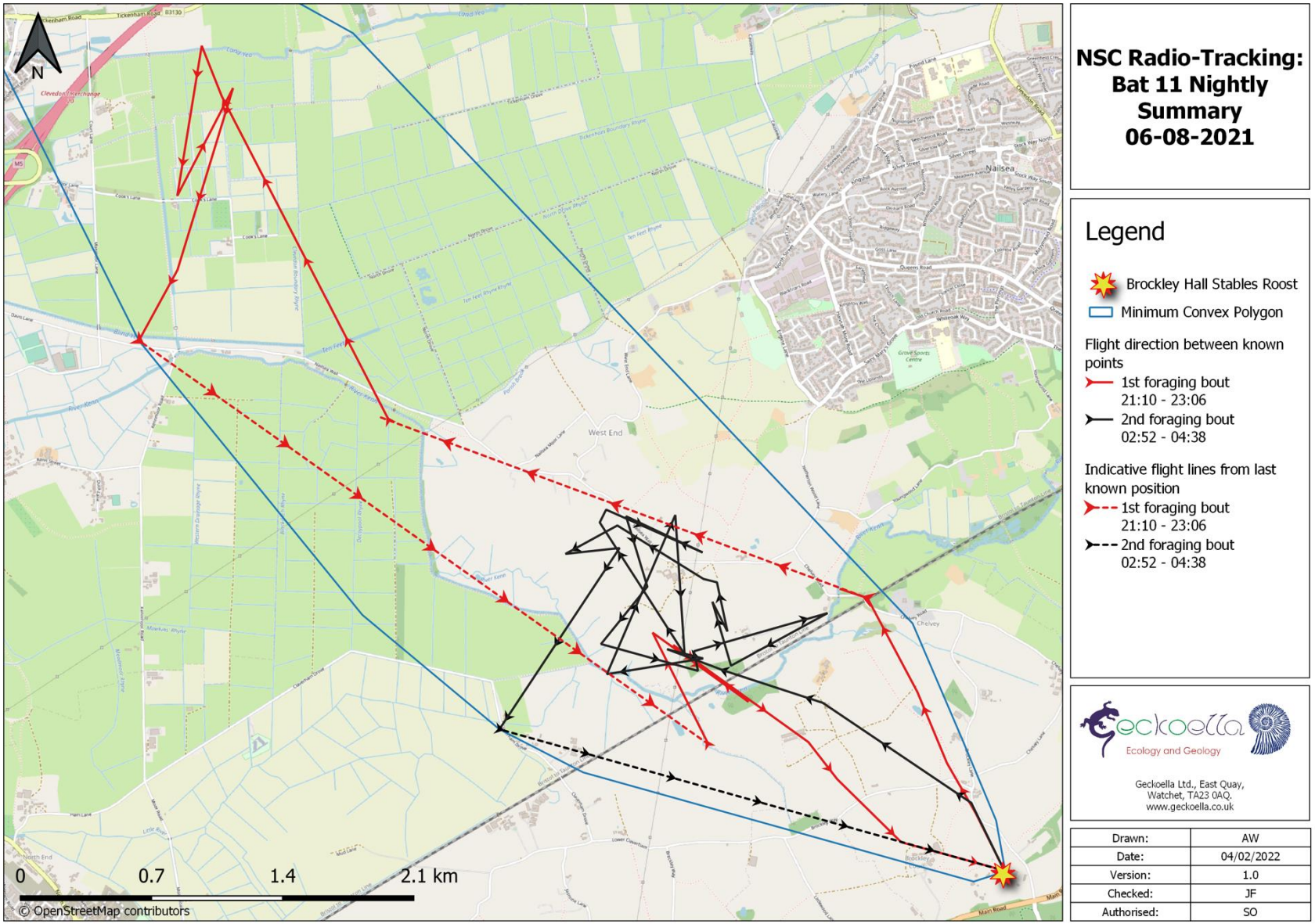
Map 3.63: NSC Radio-Tracking: Bat 11 Nightly Summary 04-08-2021



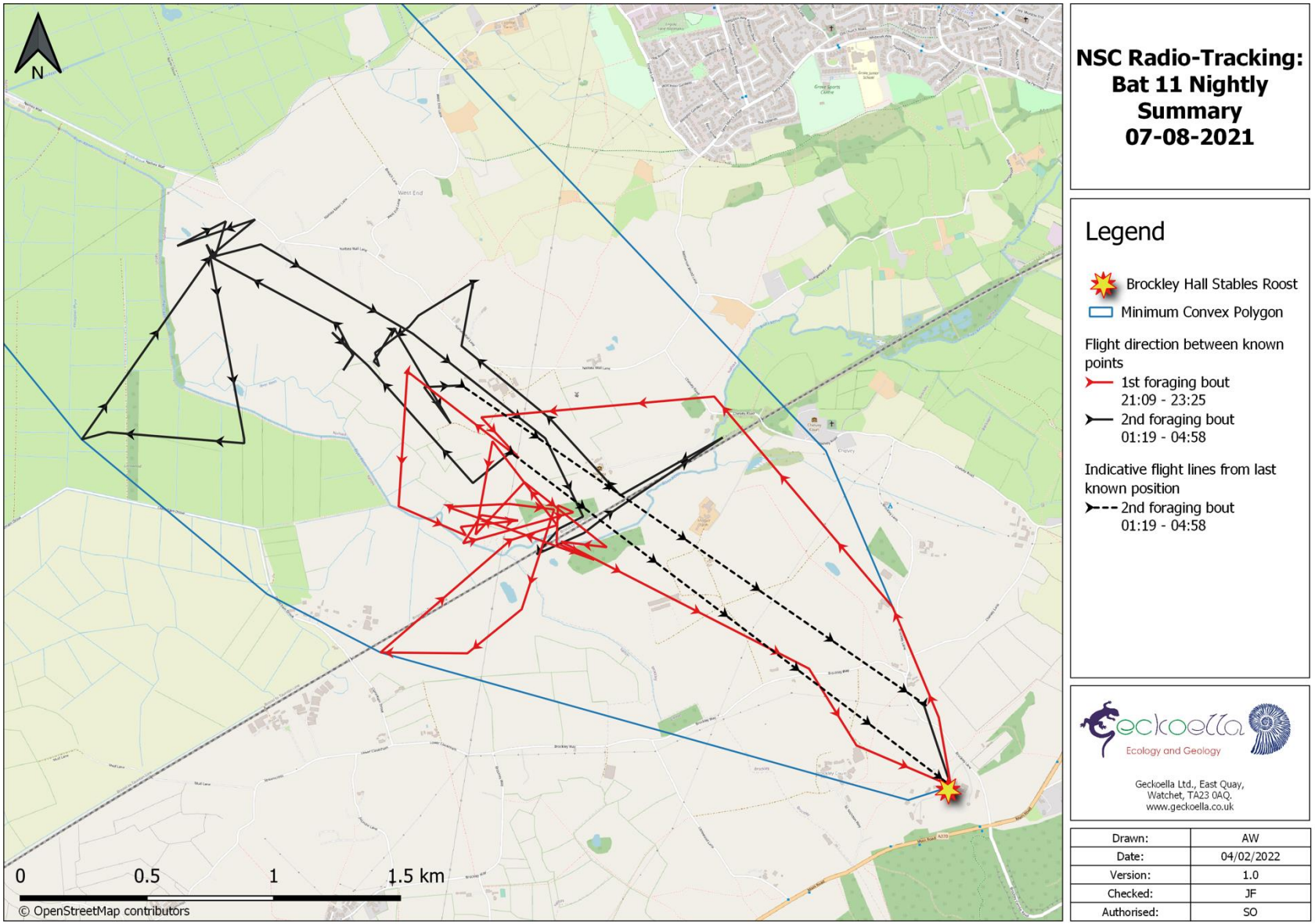
Map 3.64: NSC Radio-Tracking: Bat 11 Nightly Summary 05-08-2021



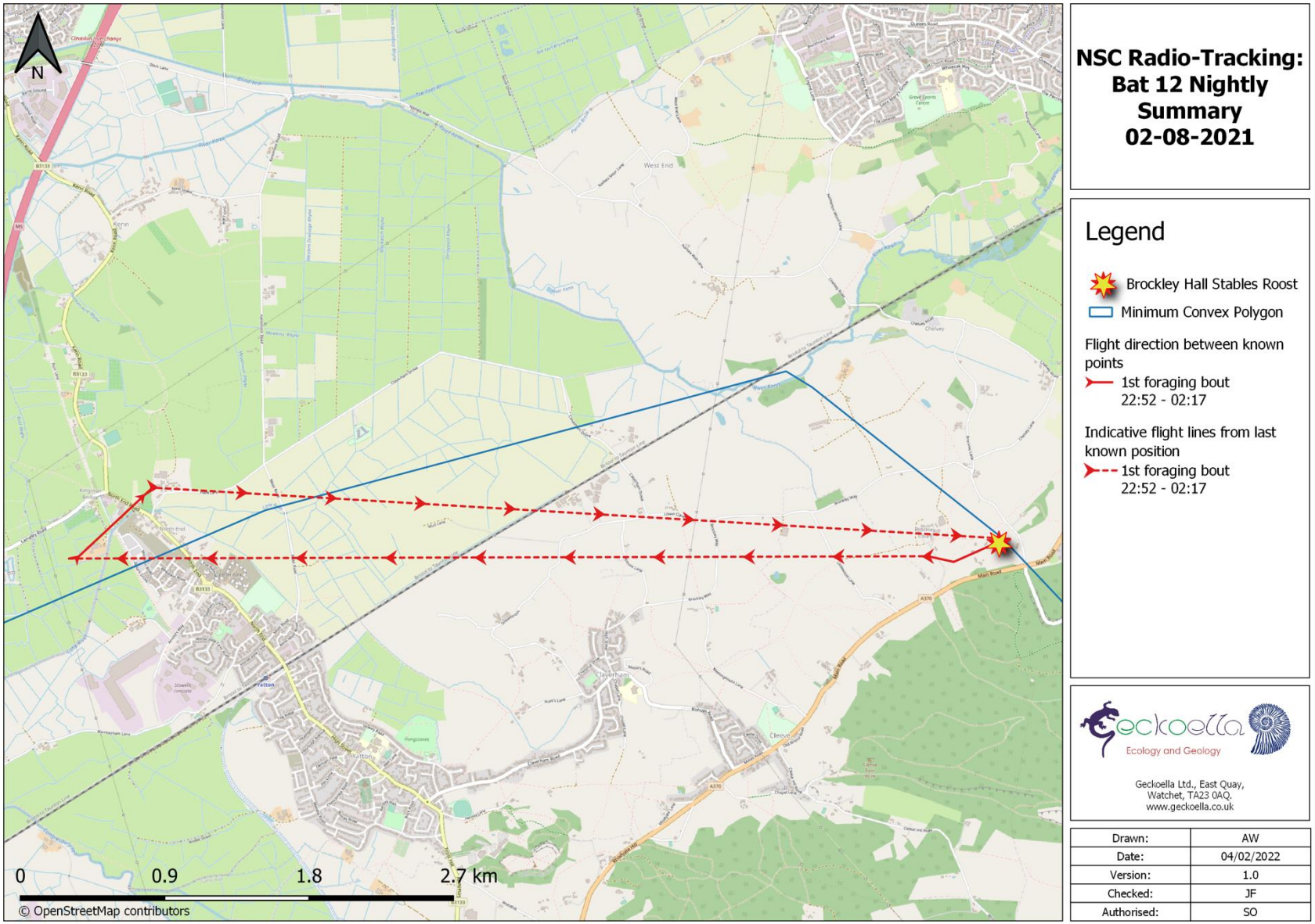
Map 3.65: NSC Radio-Tracking: Bat 11 Nightly Summary 06-08-2021



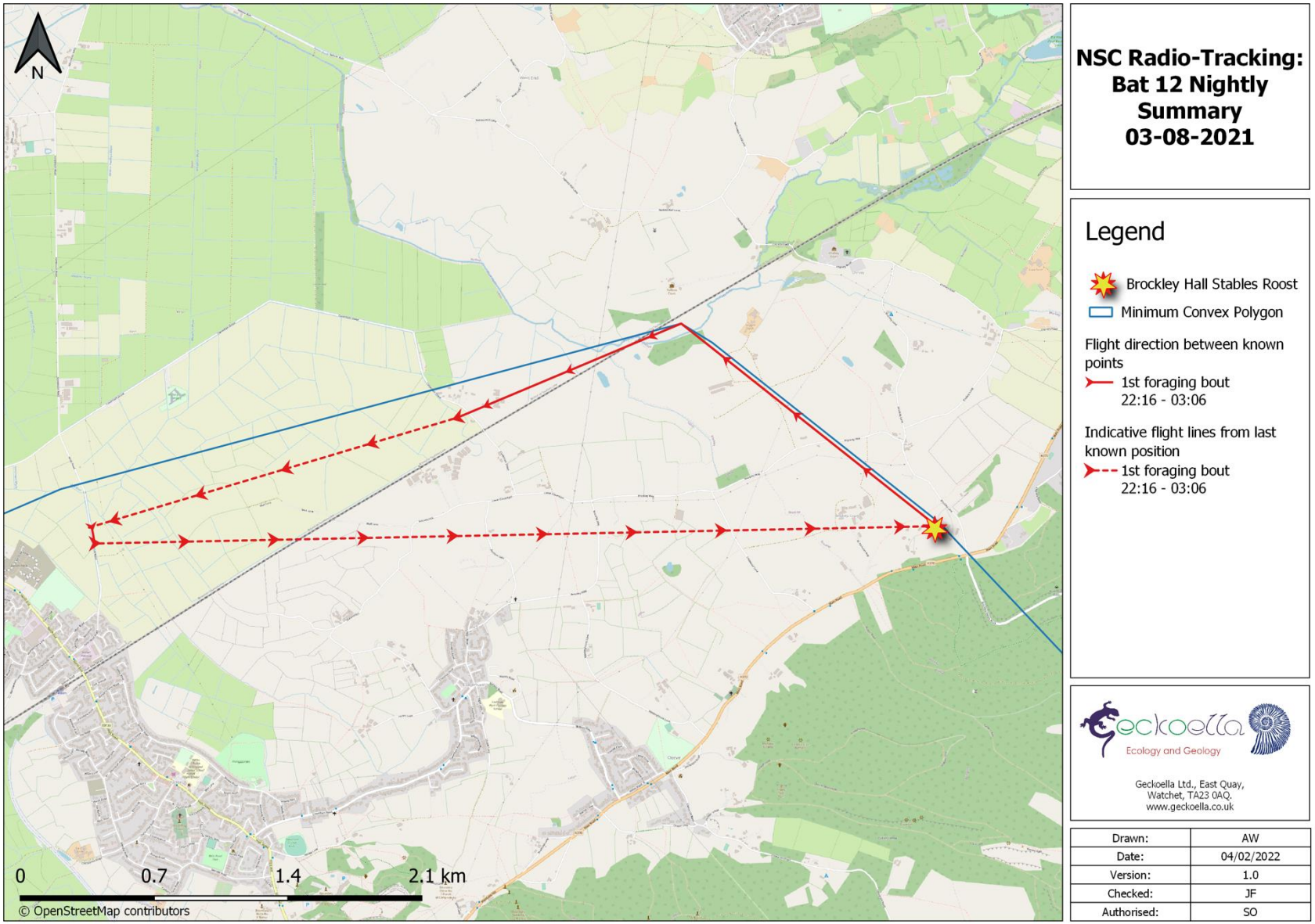
Map 3.66: NSC Radio-Tracking: Bat 11 Nightly Summary 07-08-2021



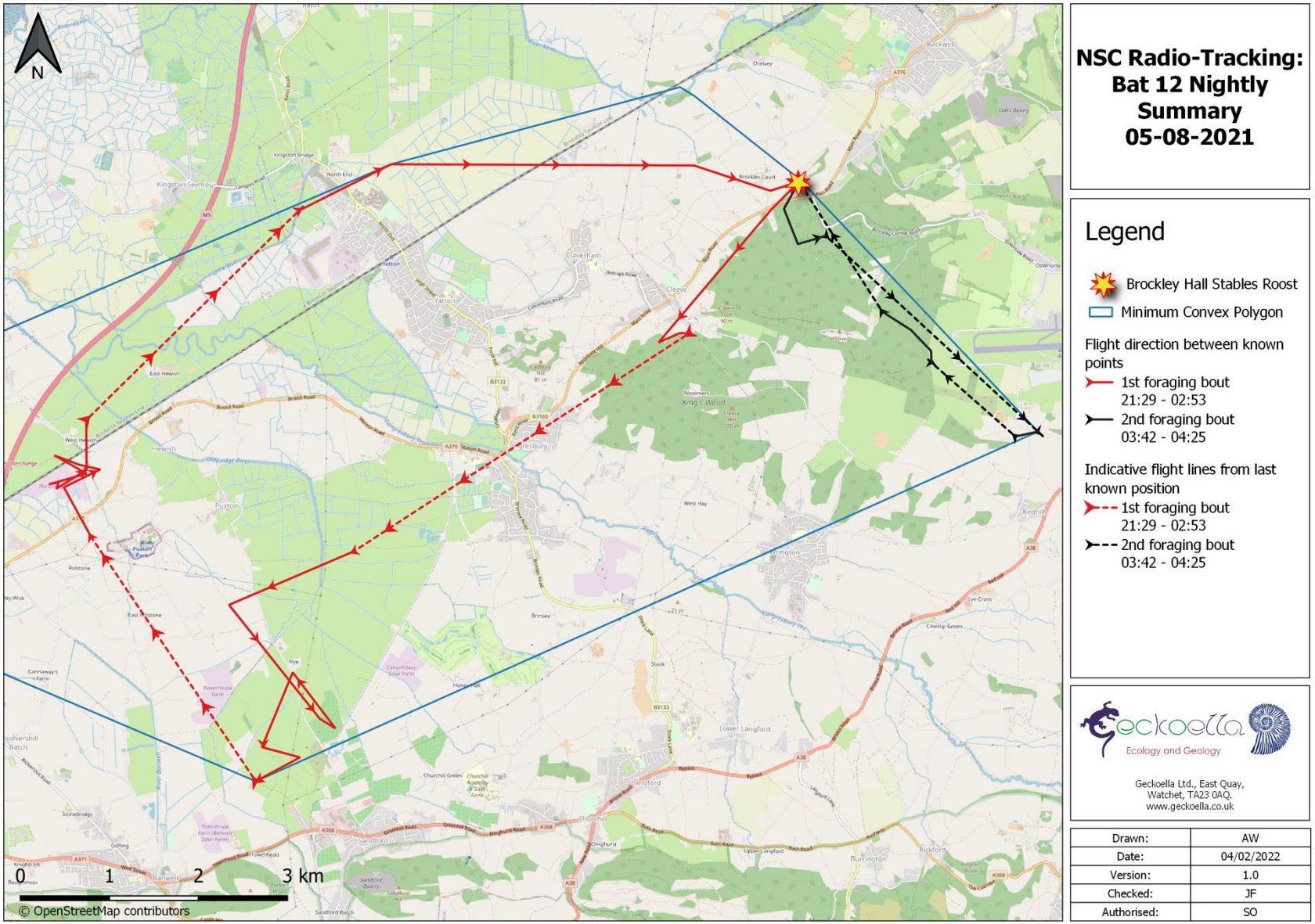
Map 3.67: NSC Radio-Tracking: Bat 12 Nightly Summary 02-08-2021



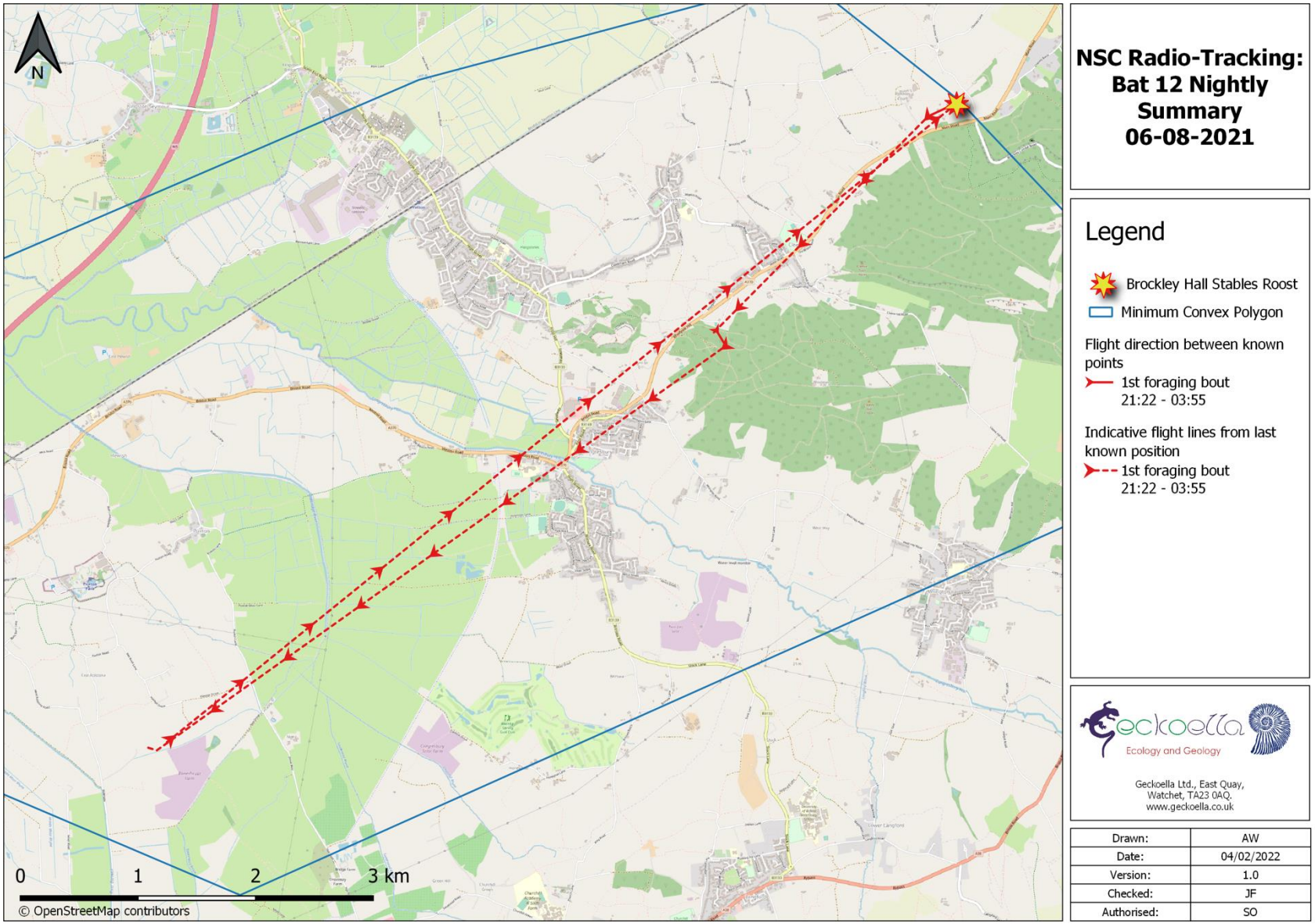
Map 3.68: NSC Radio-Tracking: Bat 12 Nightly Summary 03-08-2021



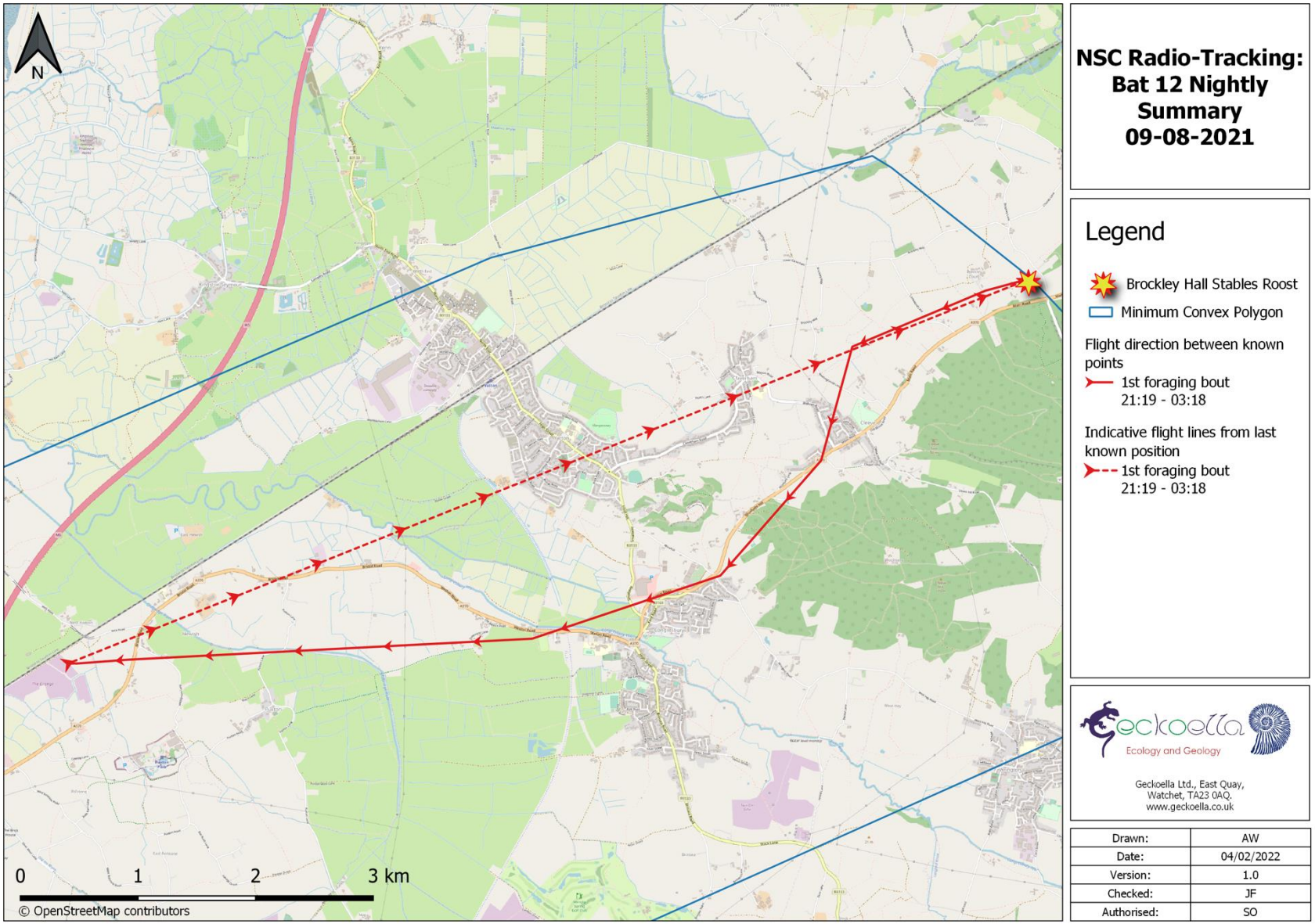
Map 3.69: NSC Radio-Tracking: Bat 12 Nightly Summary 05-08-2021



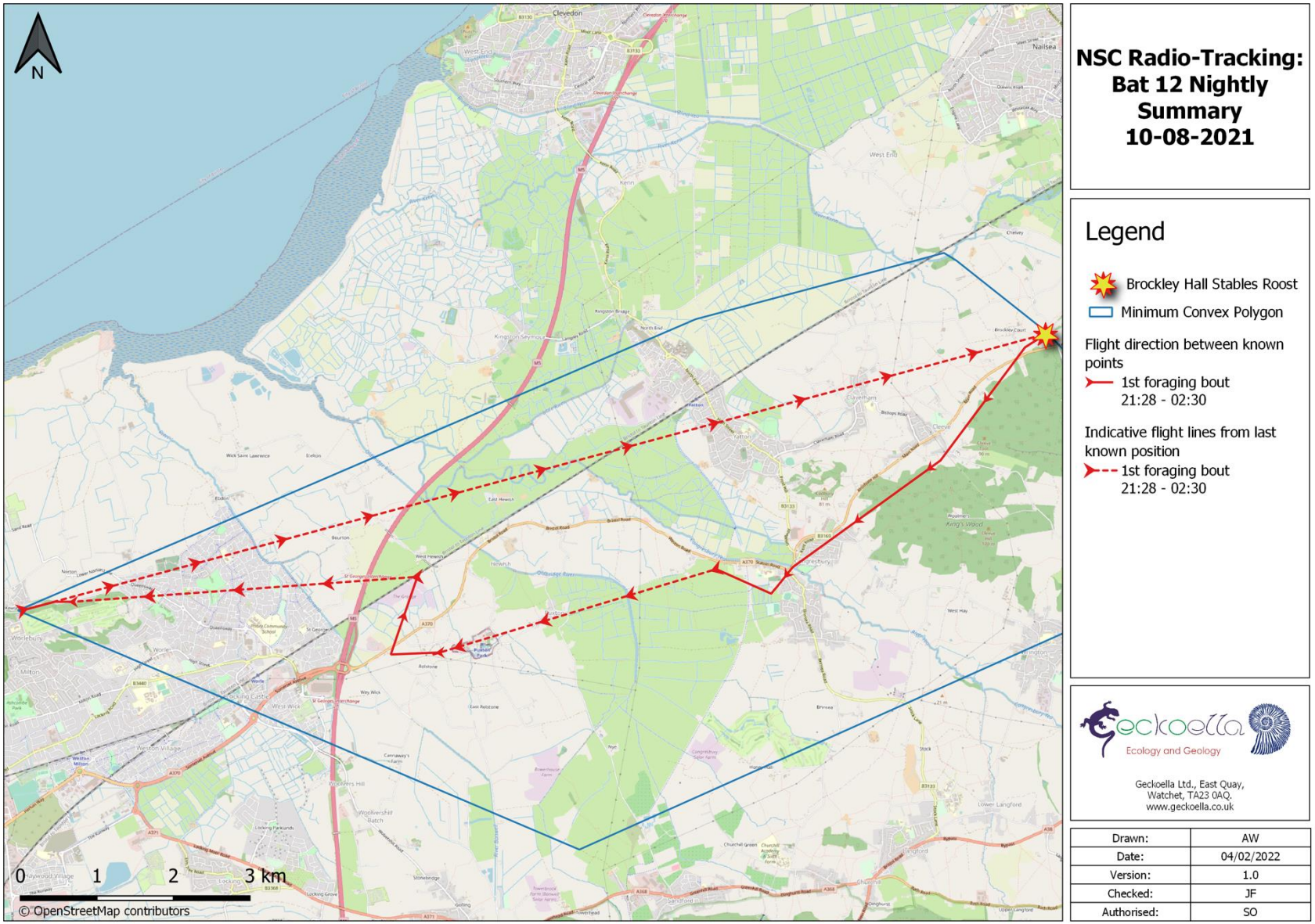
Map 3.70: NSC Radio-Tracking: Bat 12 Nightly Summary 06-08-2021



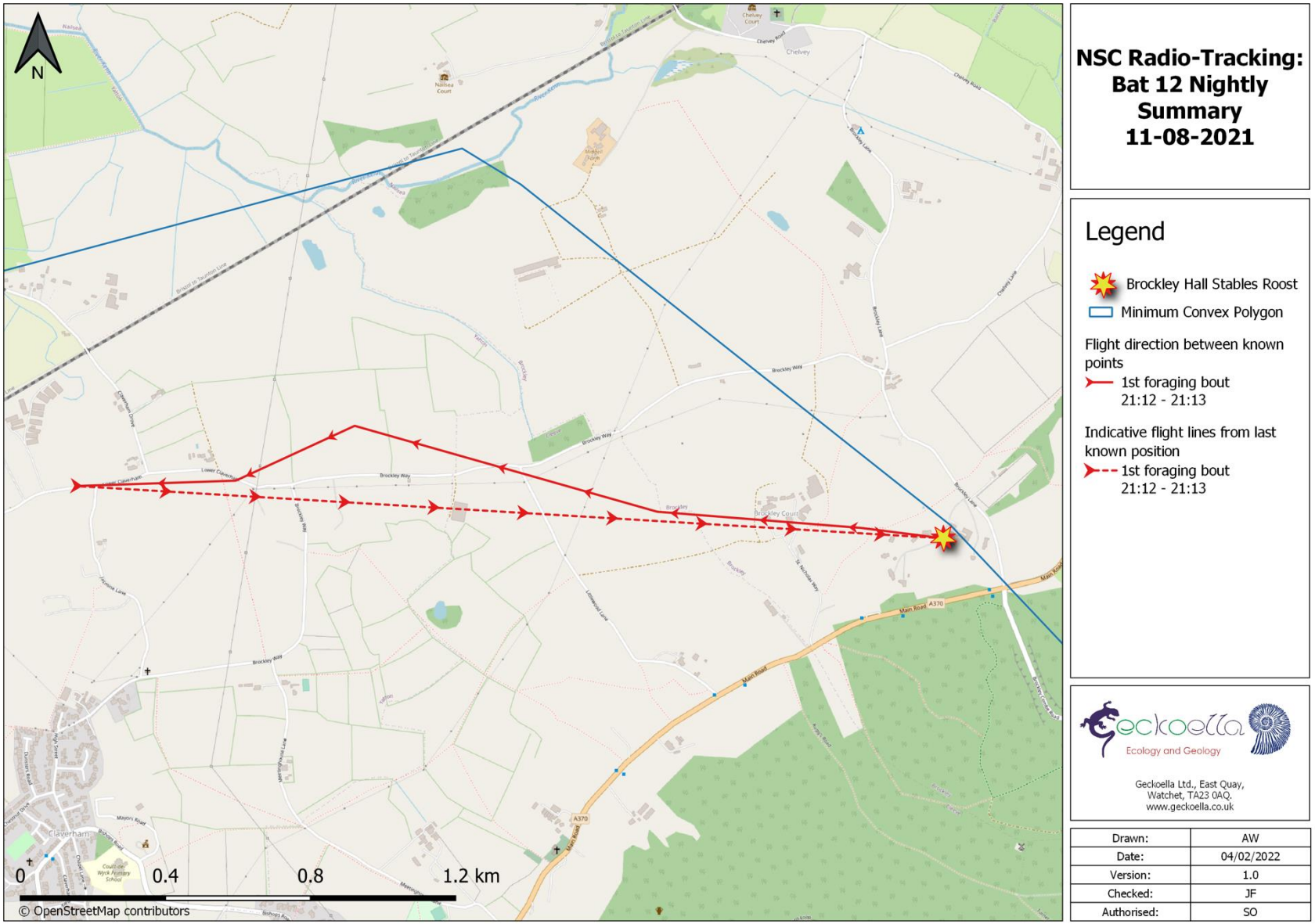
Map 3.71: NSC Radio-Tracking: Bat 12 Nightly Summary 09-08-2021



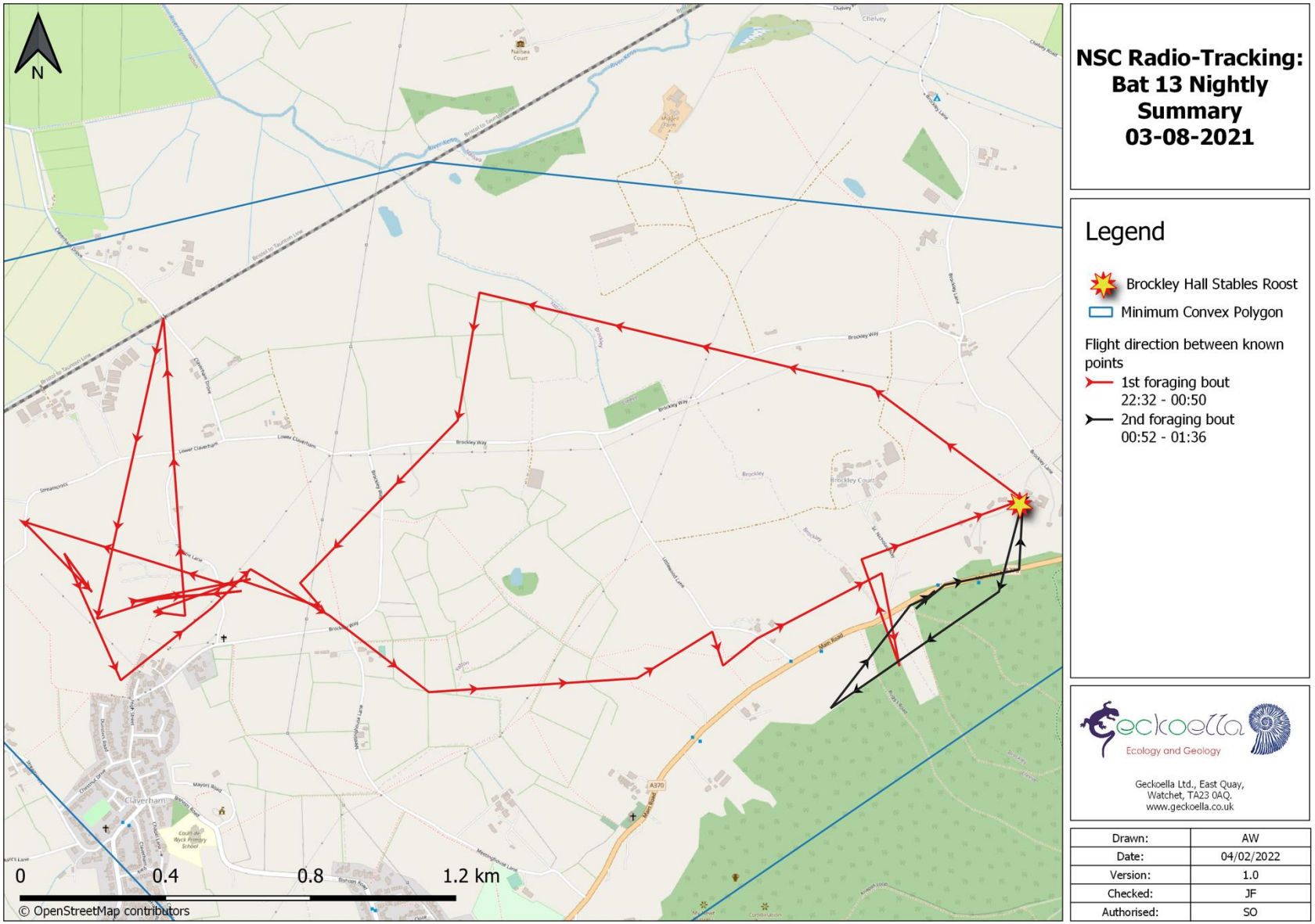
Map 3.72: NSC Radio-Tracking: Bat 12 Nightly Summary 10-08-2021



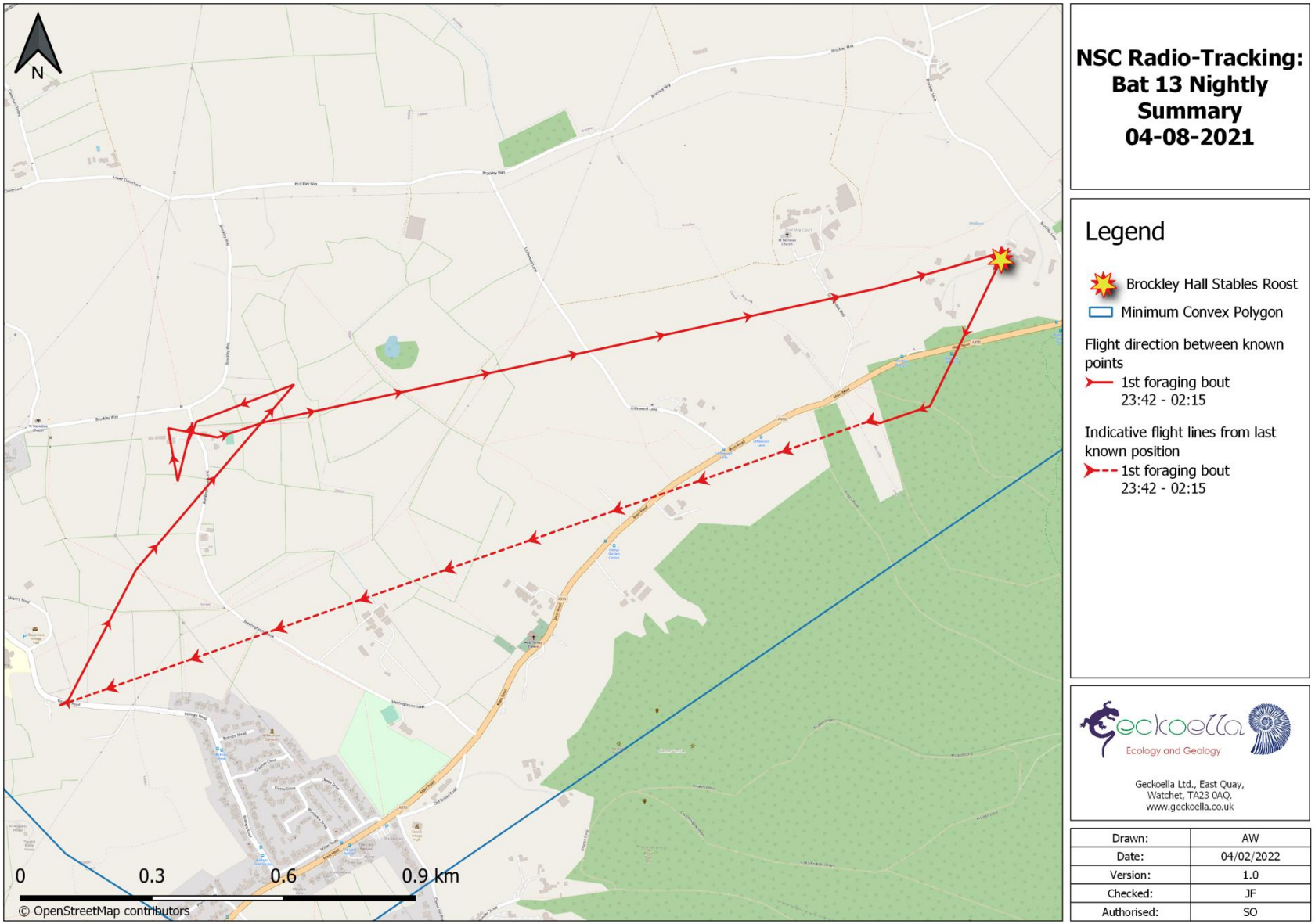
Map 3.73: NSC Radio-Tracking: Bat 12 Nightly Summary 11-08-2021



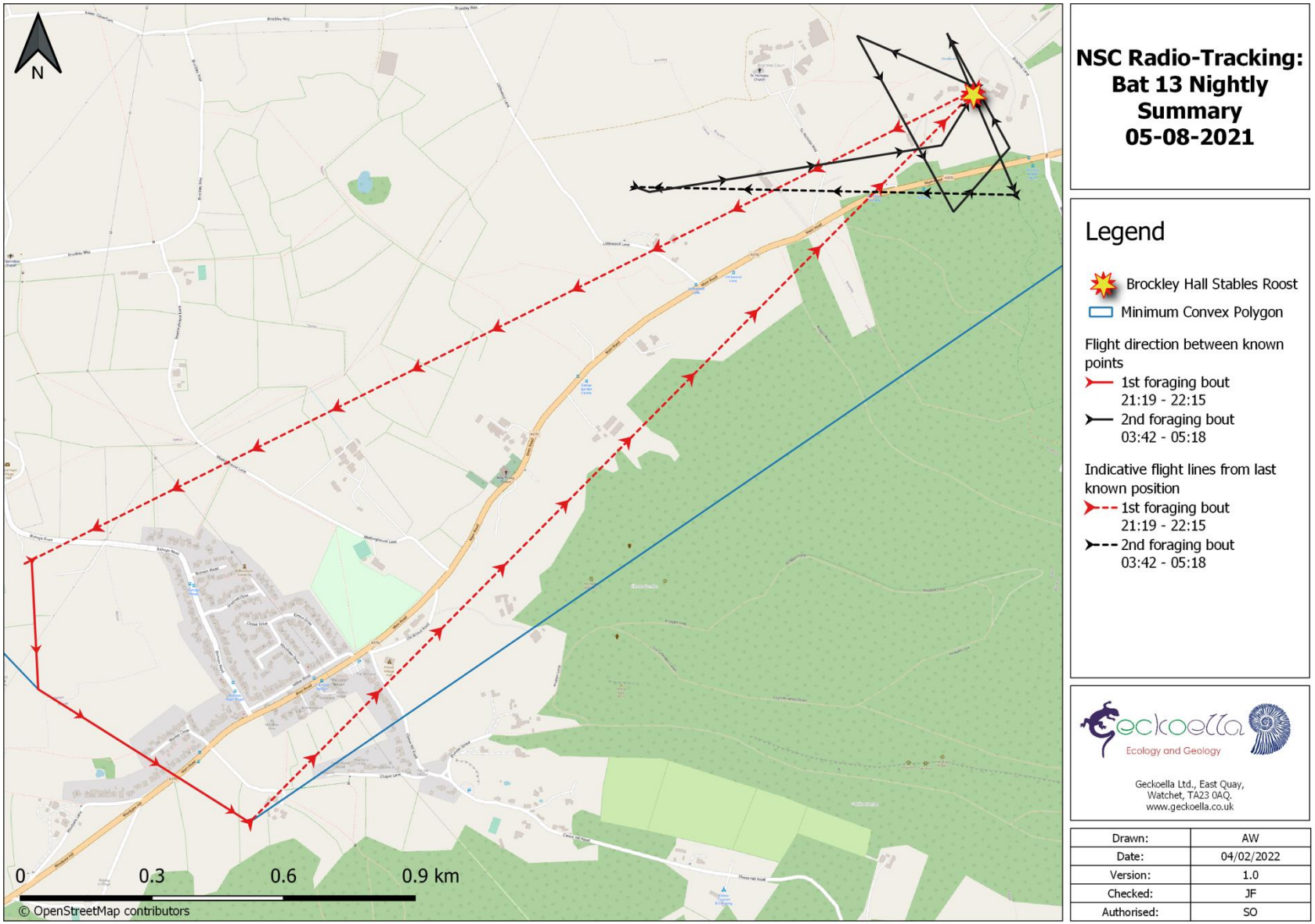
Map 3.74: NSC Radio-Tracking: Bat 13 Nightly Summary 03-08-2021



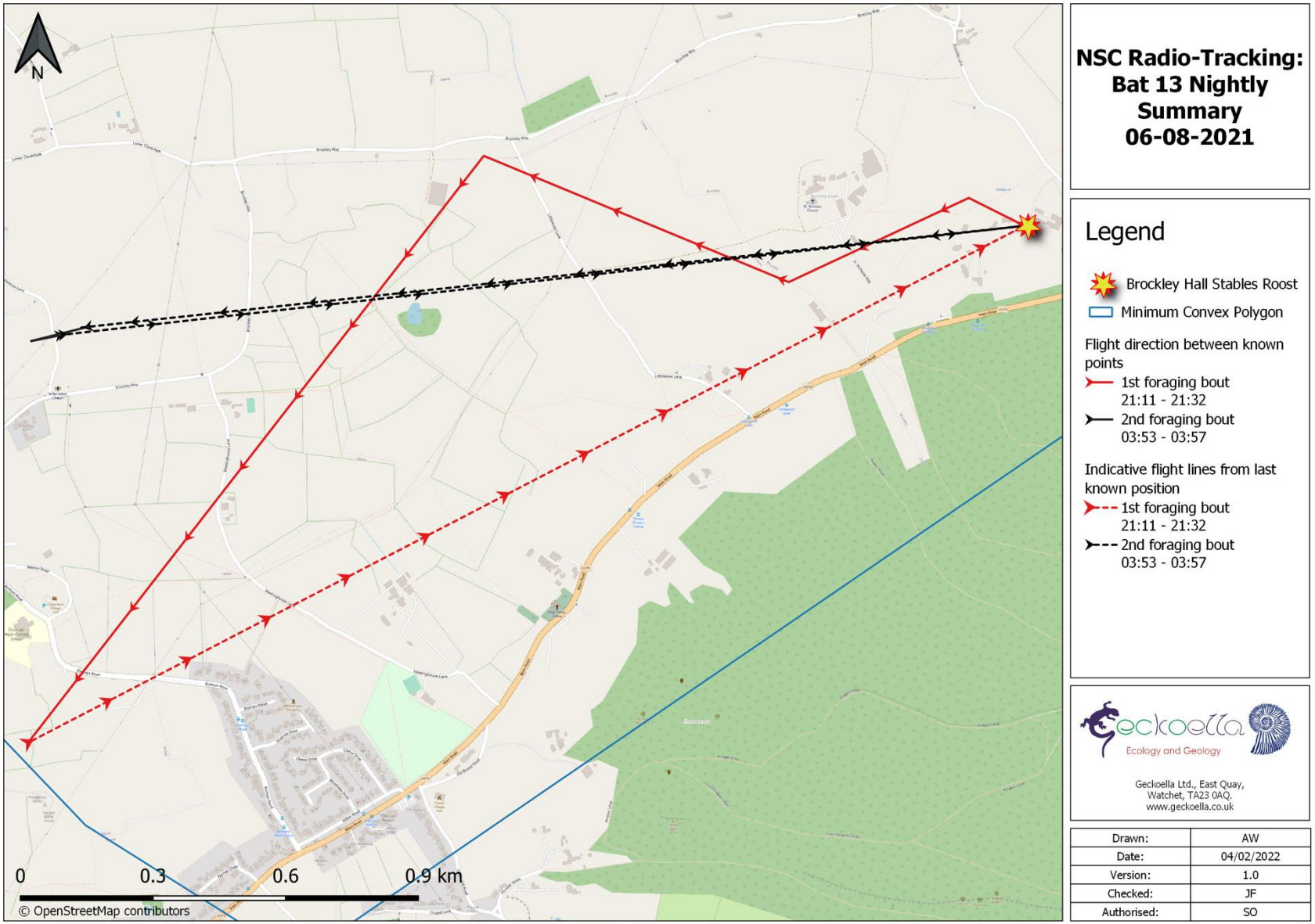
Map 3.75: NSC Radio-Tracking: Bat 13 Nightly Summary 04-08-2021



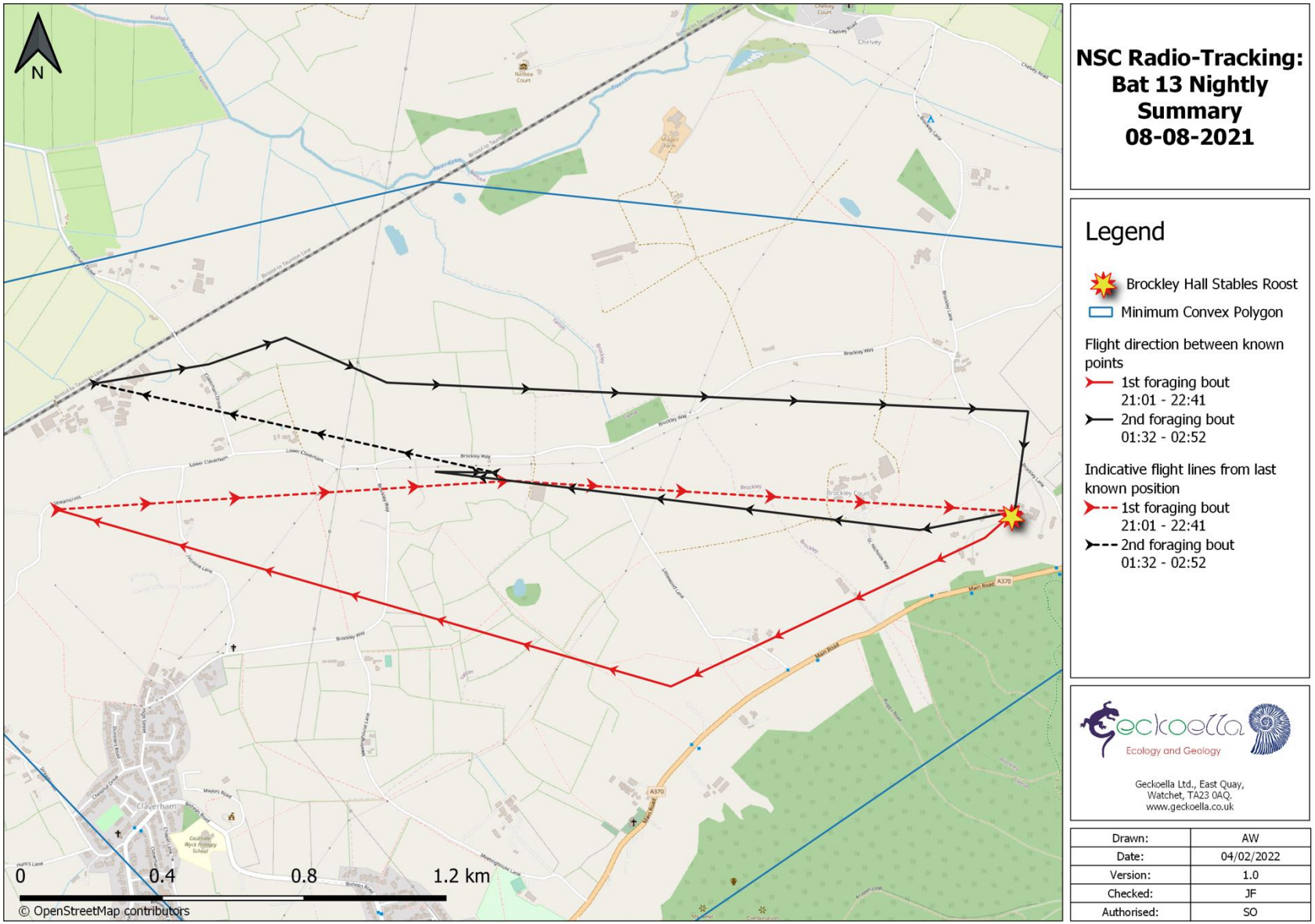
Map 3.76: NSC Radio-Tracking: Bat 13 Nightly Summary 05-08-2021



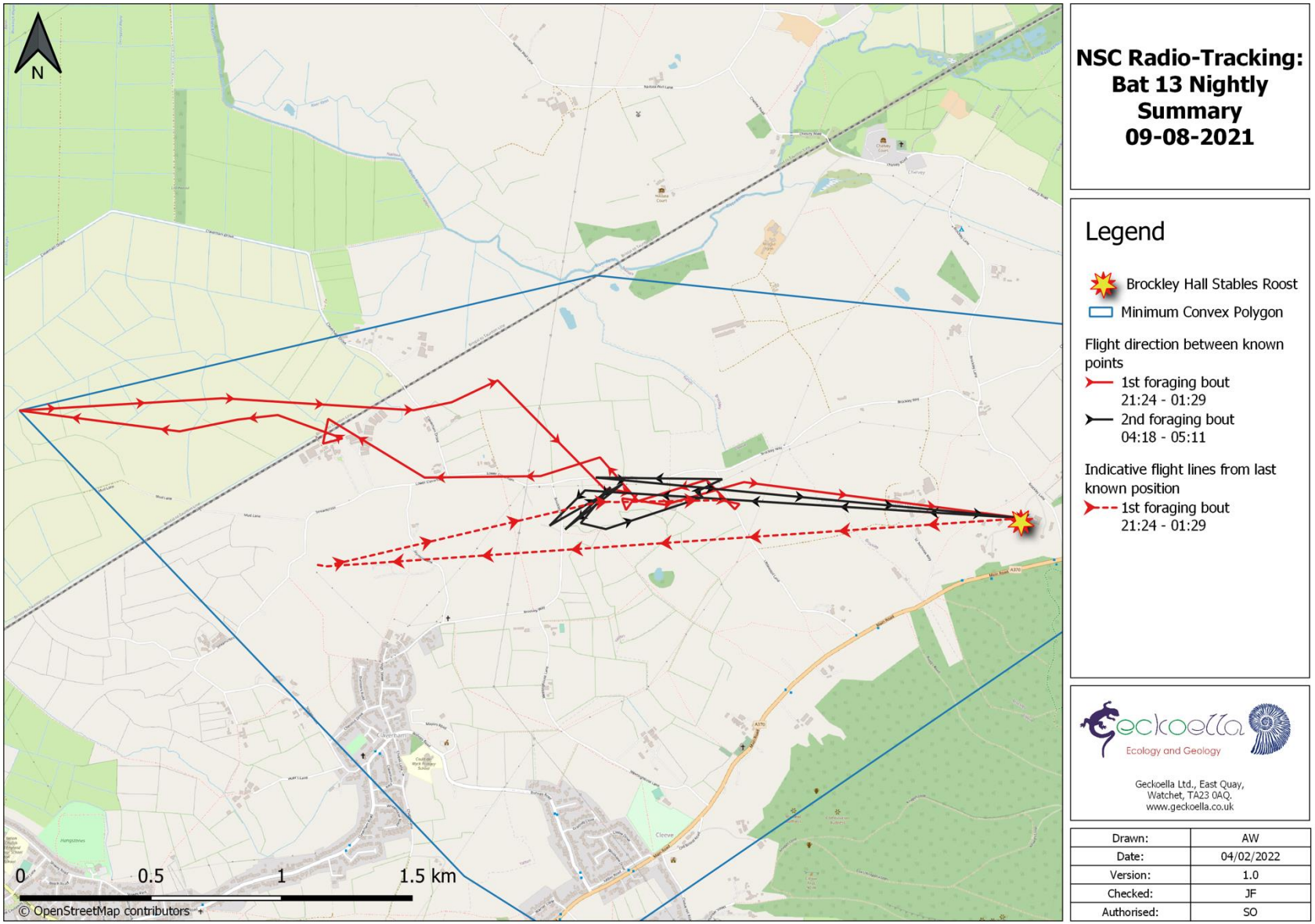
Map 3.77: NSC Radio-Tracking: Bat 13 Nightly Summary 06-08-2021



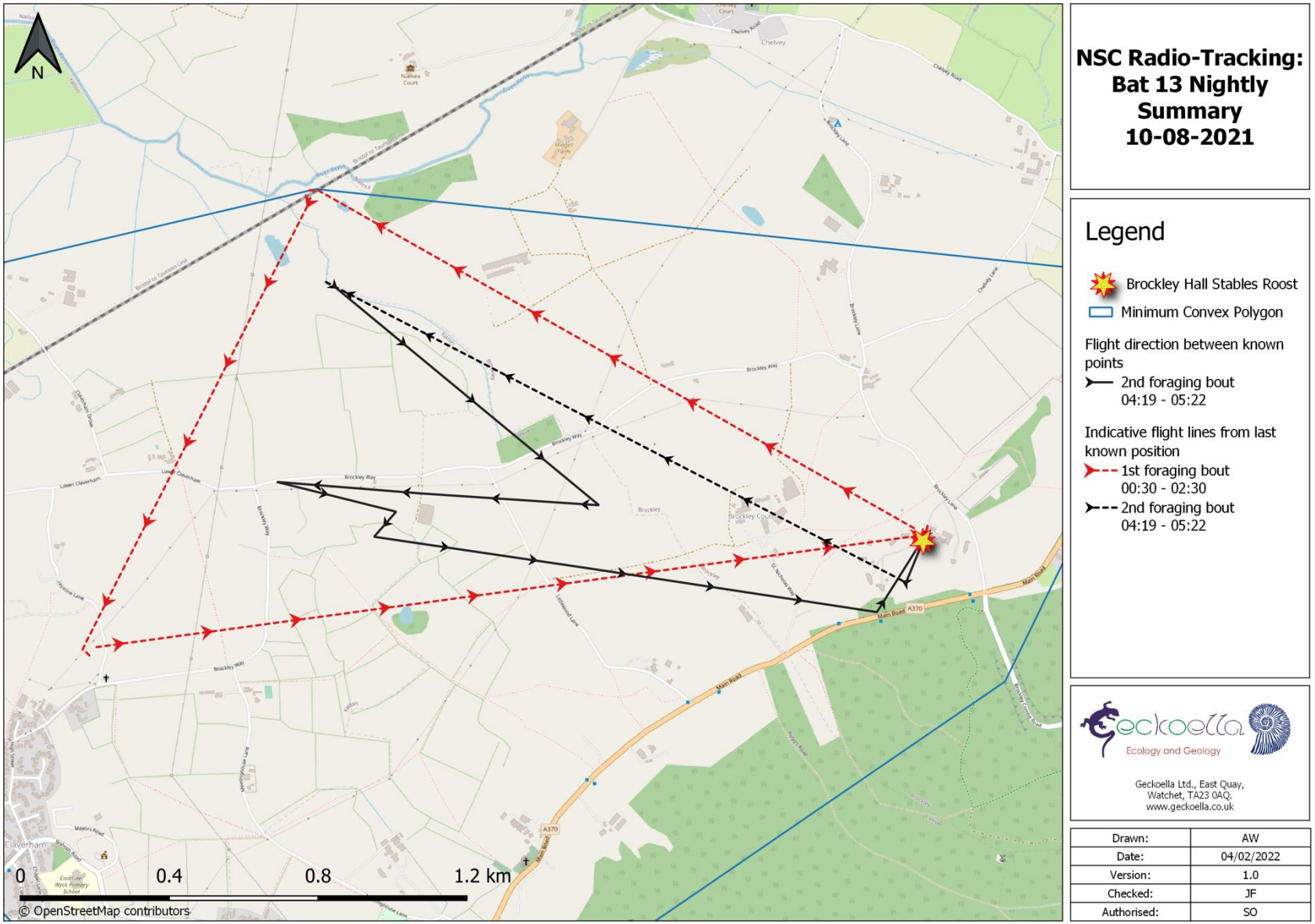
Map 3.78: NSC Radio-Tracking: Bat 13 Nightly Summary 08-08-2021



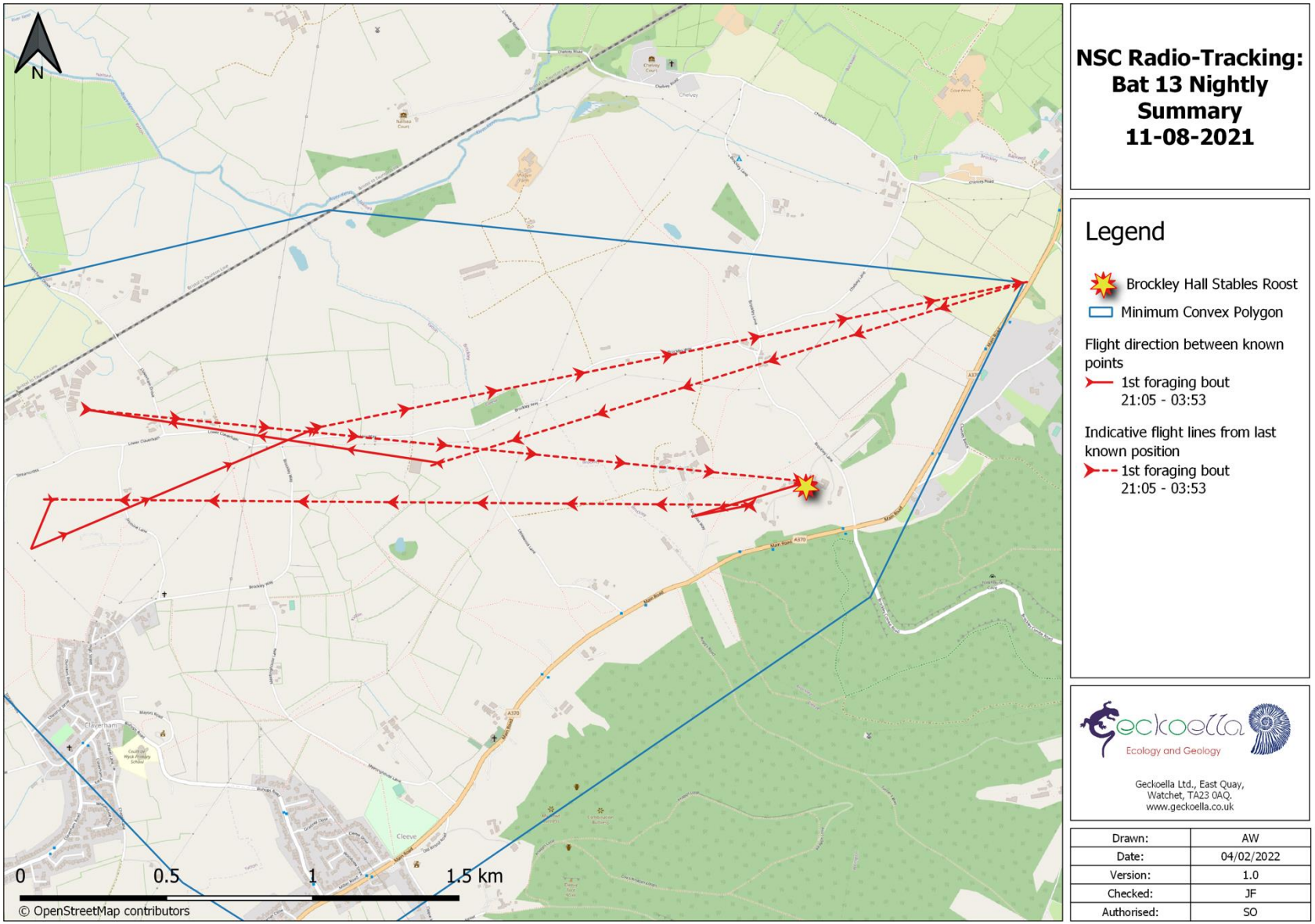
Map 3.79: NSC Radio-Tracking: Bat 13 Nightly Summary 09-08-2021



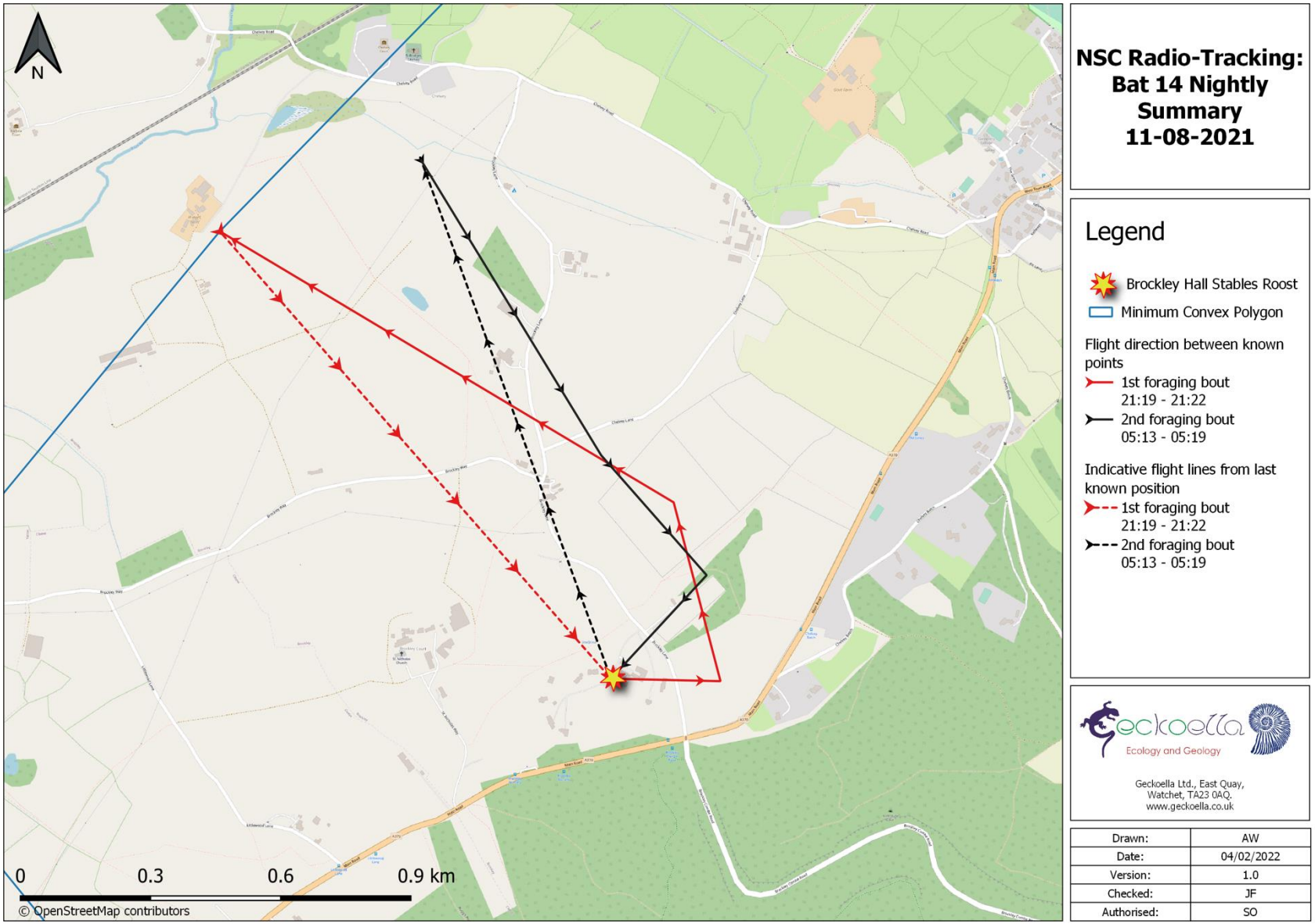
Map 3.80: NSC Radio-Tracking: Bat 13 Nightly Summary 10-08-2021



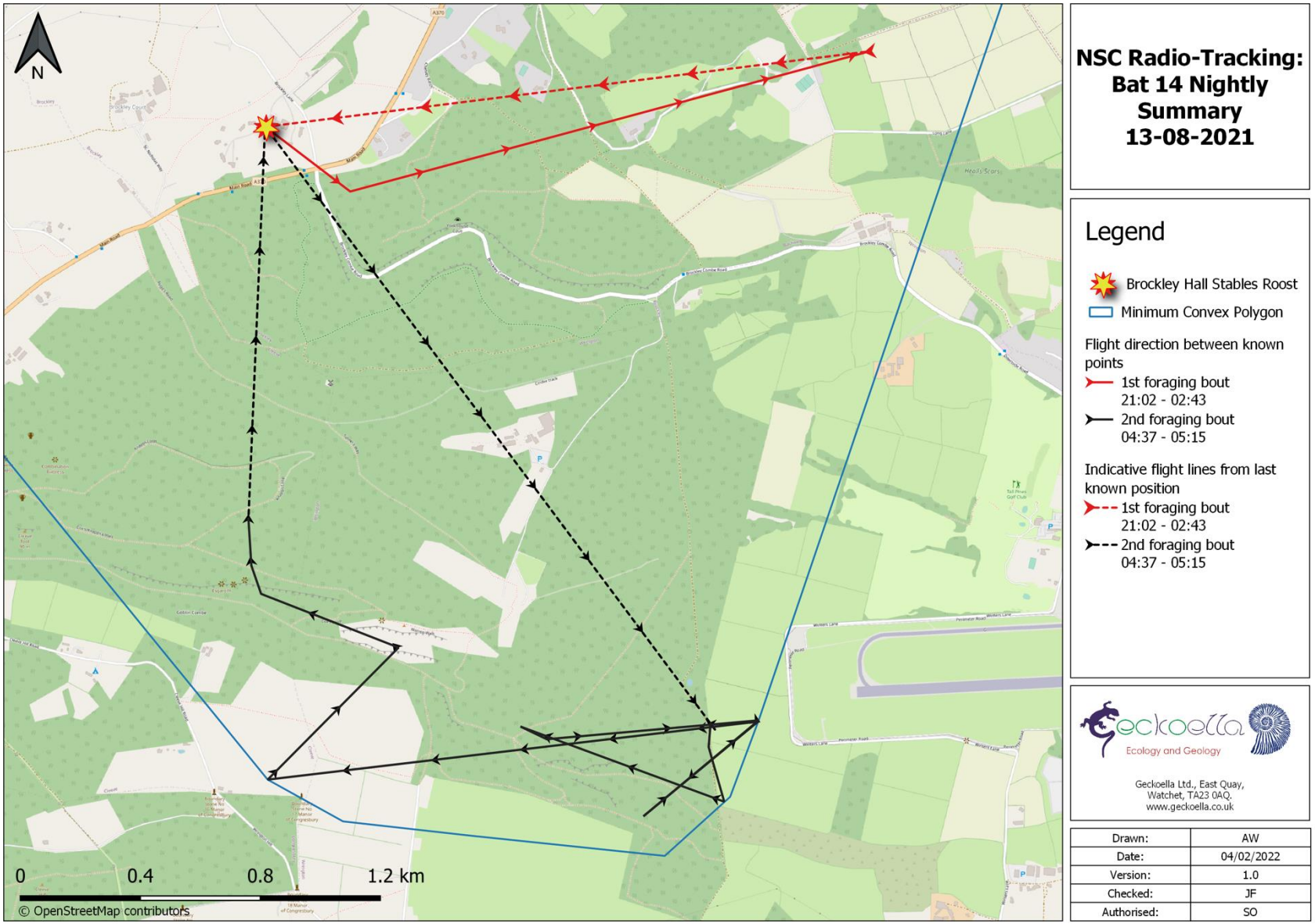
Map 3.81: NSC Radio-Tracking: Bat 13 Nightly Summary 11-08-2021



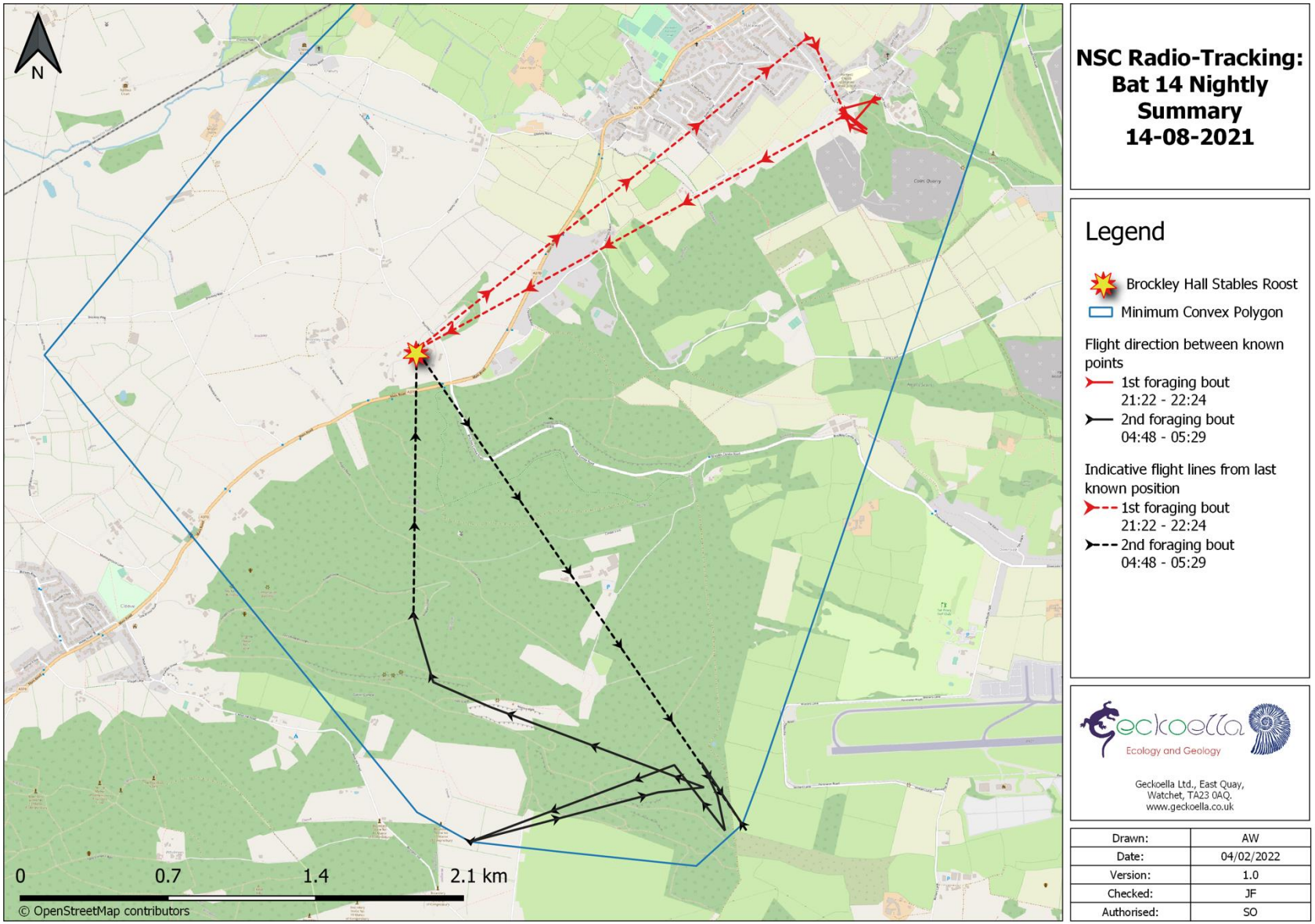
Map 3.82: NSC Radio-Tracking: Bat 14 Nightly Summary 11-08-2021



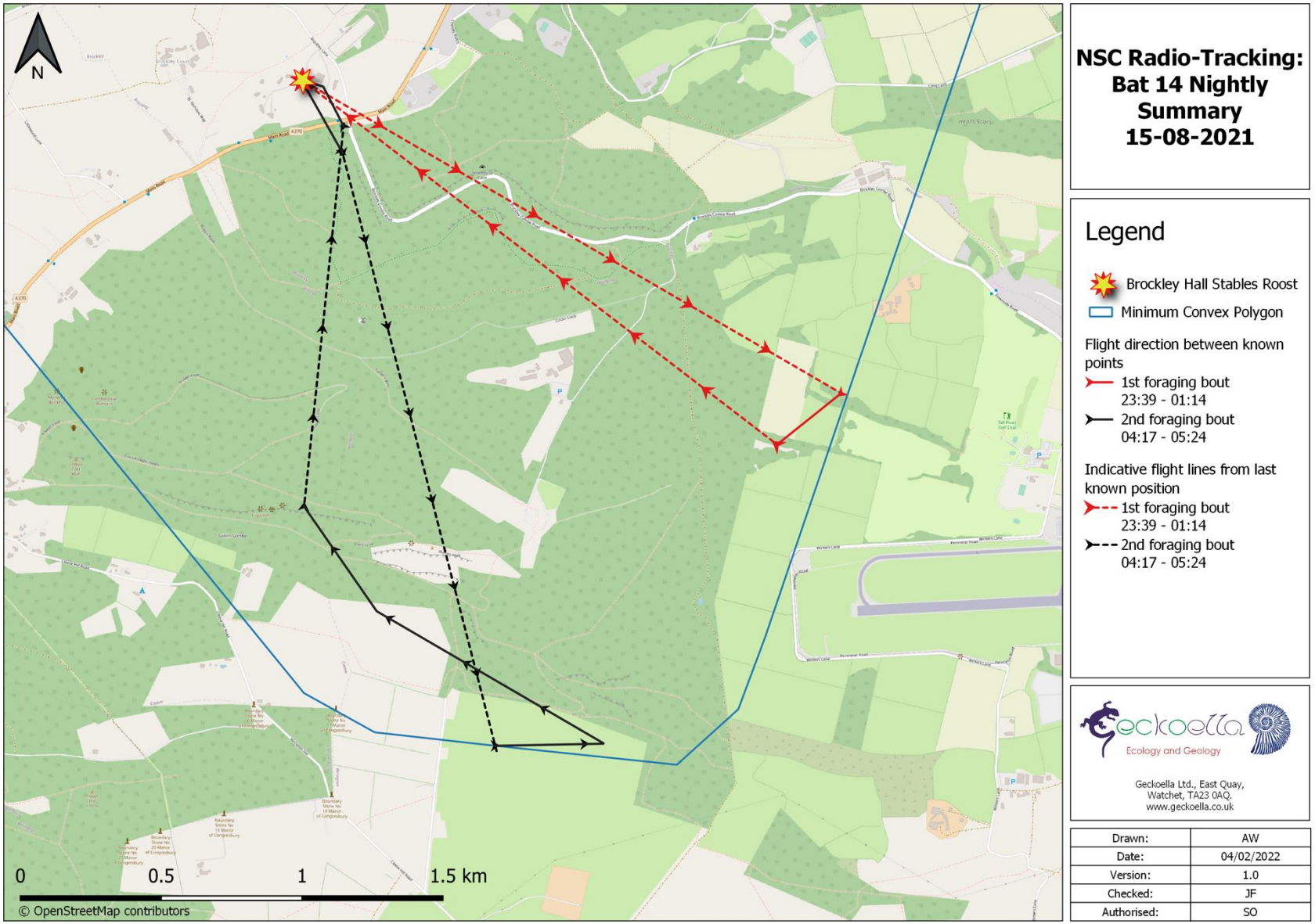
Map 3.83: NSC Radio-Tracking: Bat 14 Nightly Summary 13-08-2021



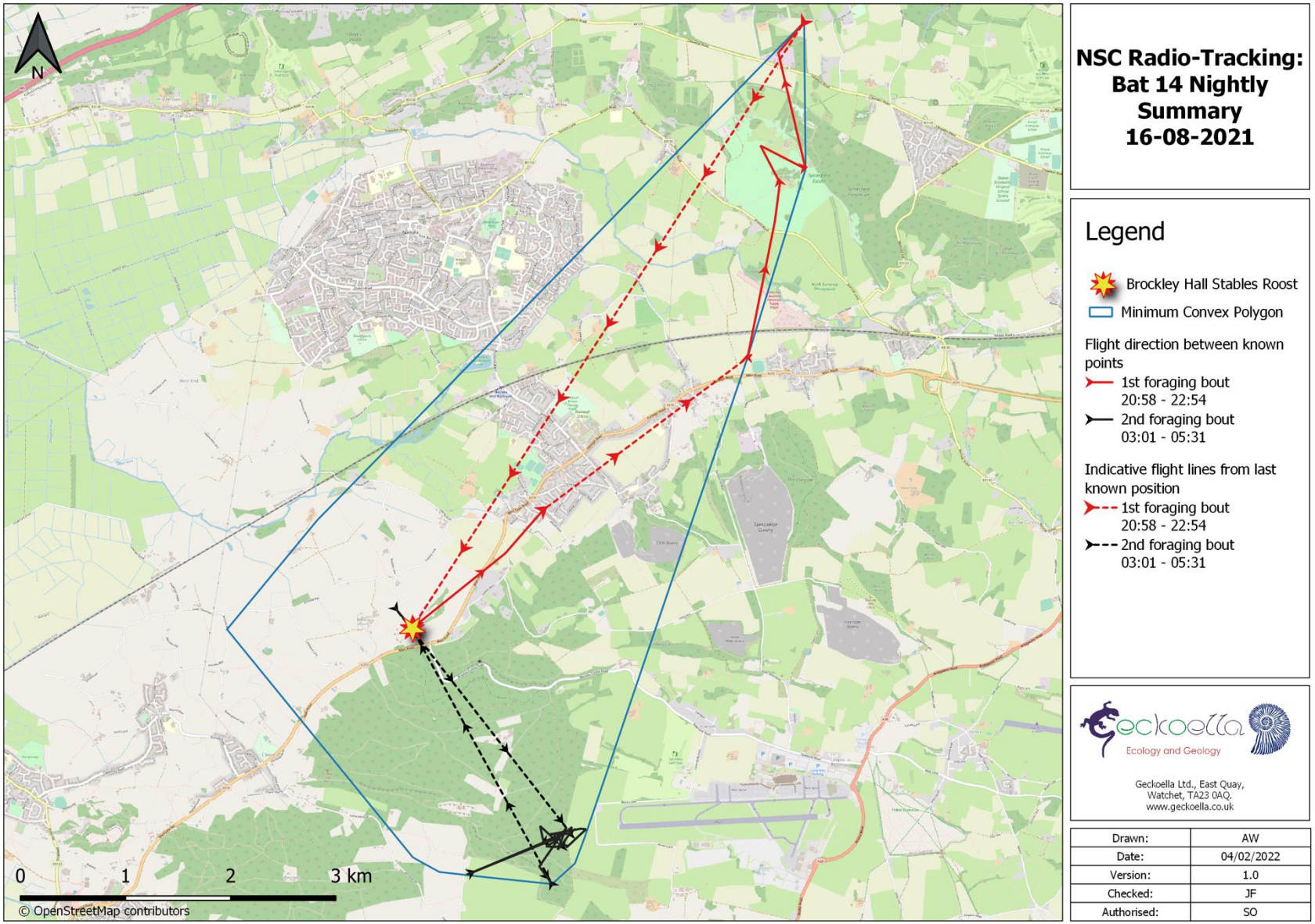
Map 3.84: NSC Radio-Tracking: Bat 14 Nightly Summary 14-08-2021



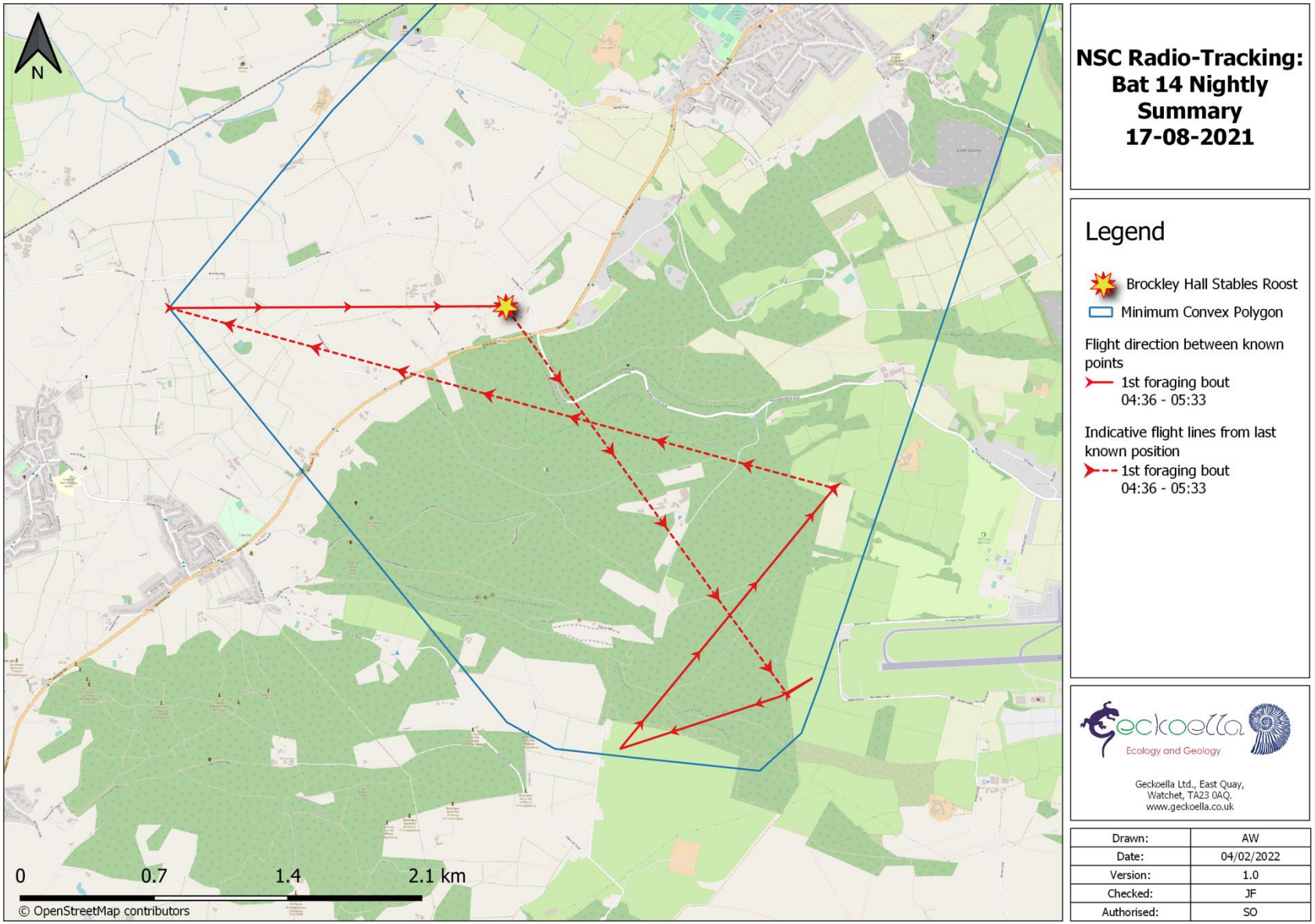
Map 3.85: NSC Radio-Tracking: Bat 14 Nightly Summary 15-08-2021



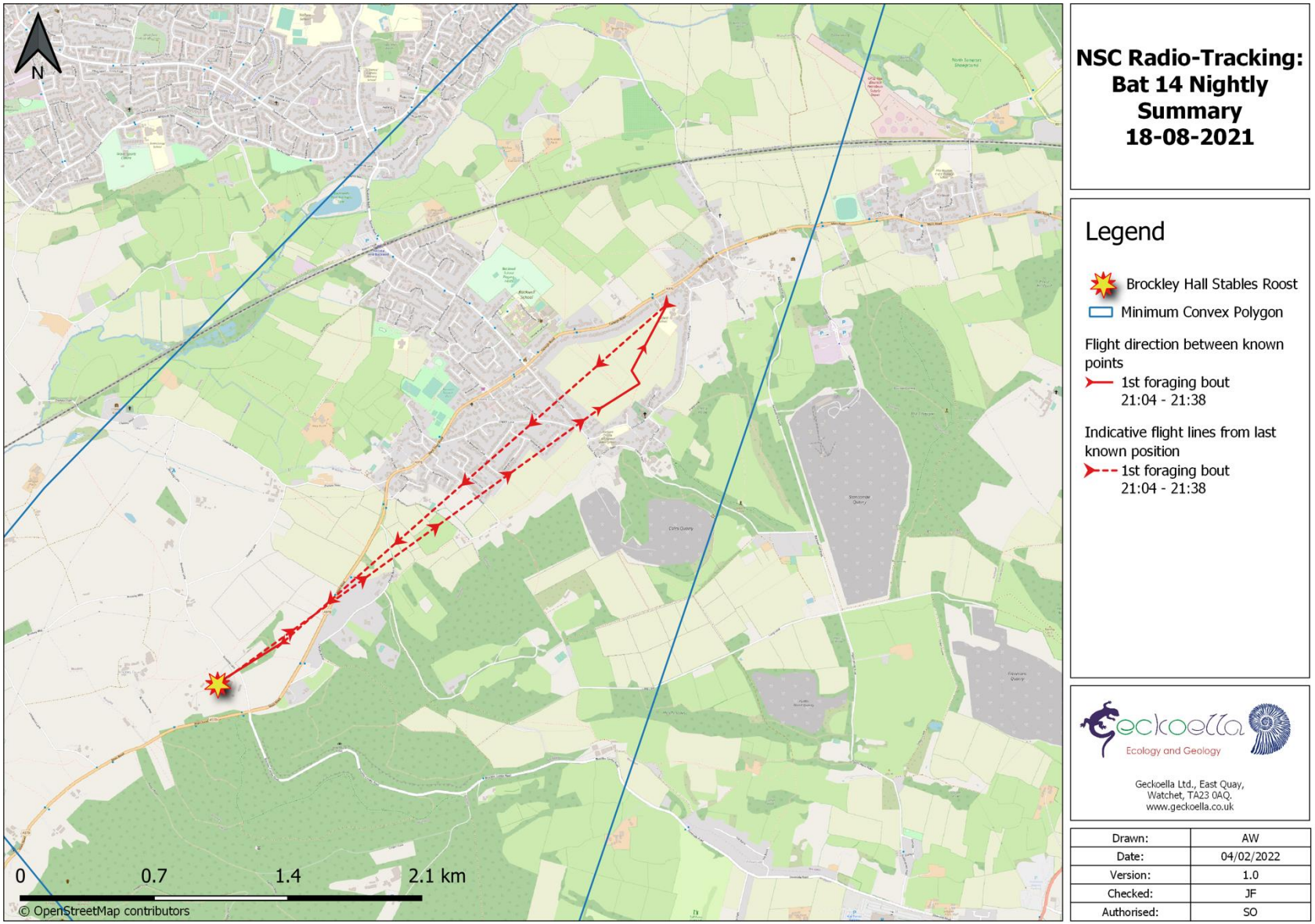
Map 3.86: NSC Radio-Tracking: Bat 14 Nightly Summary 16-08-2021



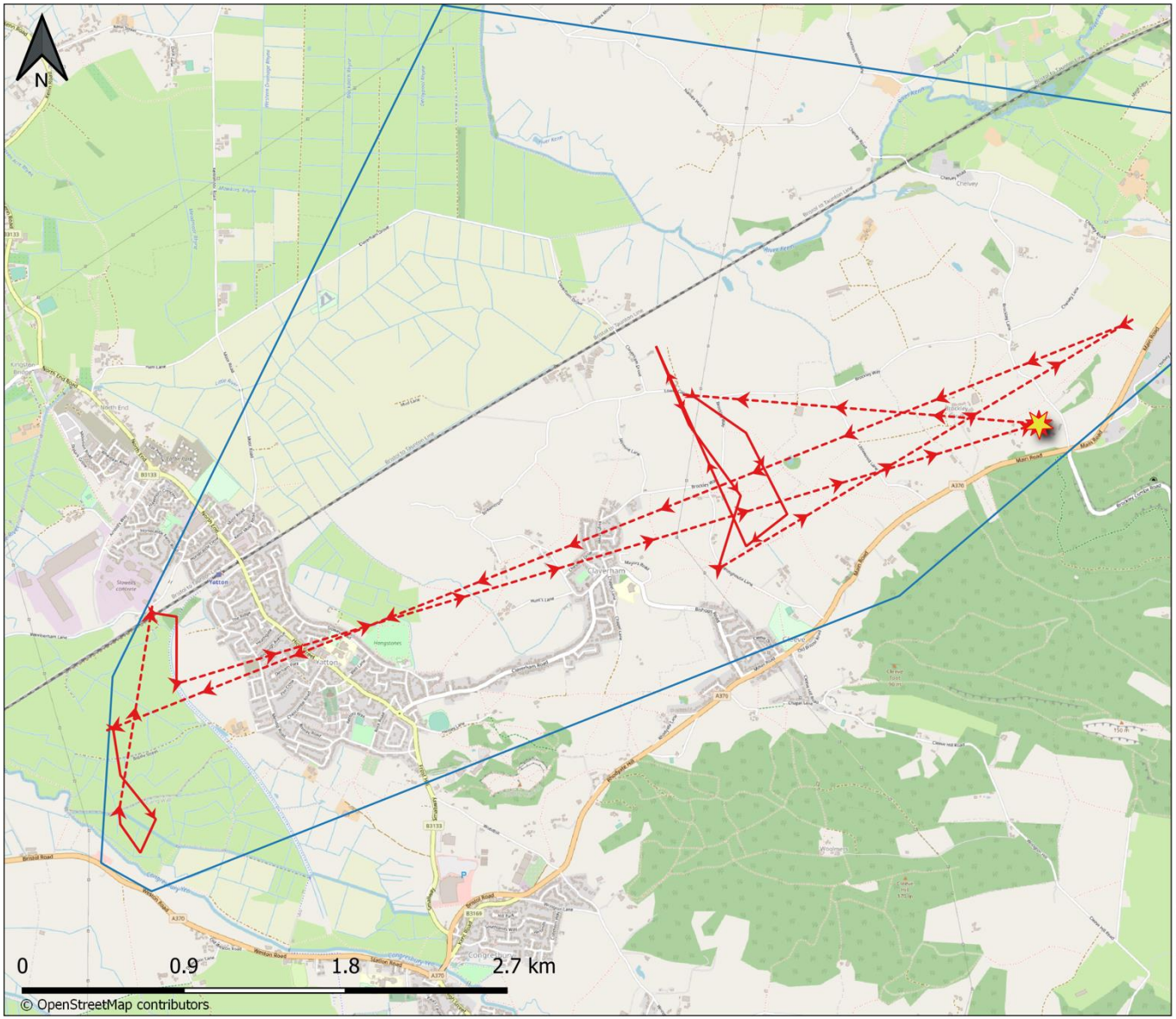
Map 3.87: NSC Radio-Tracking: Bat 14 Nightly Summary 17-08-2021



Map 3.88: NSC Radio-Tracking: Bat 14 Nightly Summary 18-08-2021



Map 3.89: NSC Radio-Tracking: Bat 15 Nightly Summary 11-08-2021



NSC Radio-Tracking: Bat 15 Nightly Summary 11-08-2021

Legend

Brockley Hall Stables Roost

Minimum Convex Polygon

Flight direction between known points

1st foraging bout
21:39 - 03:59

Indicative flight lines from last known position

1st foraging bout
21:39 - 03:59

Geckoella Ecology and Geology

Geckoella Ltd., East Quay, Watchet, TA23 0AQ.
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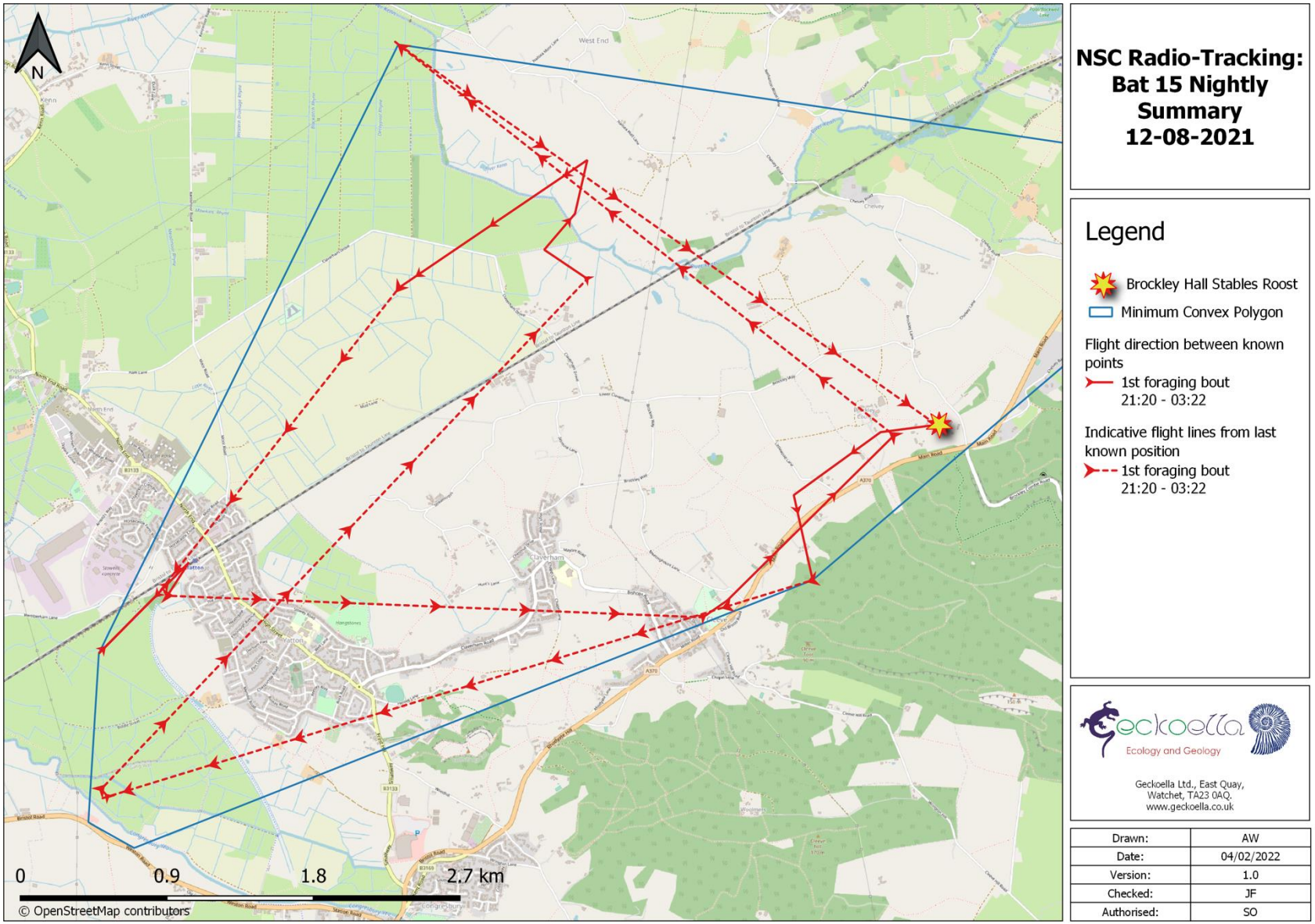
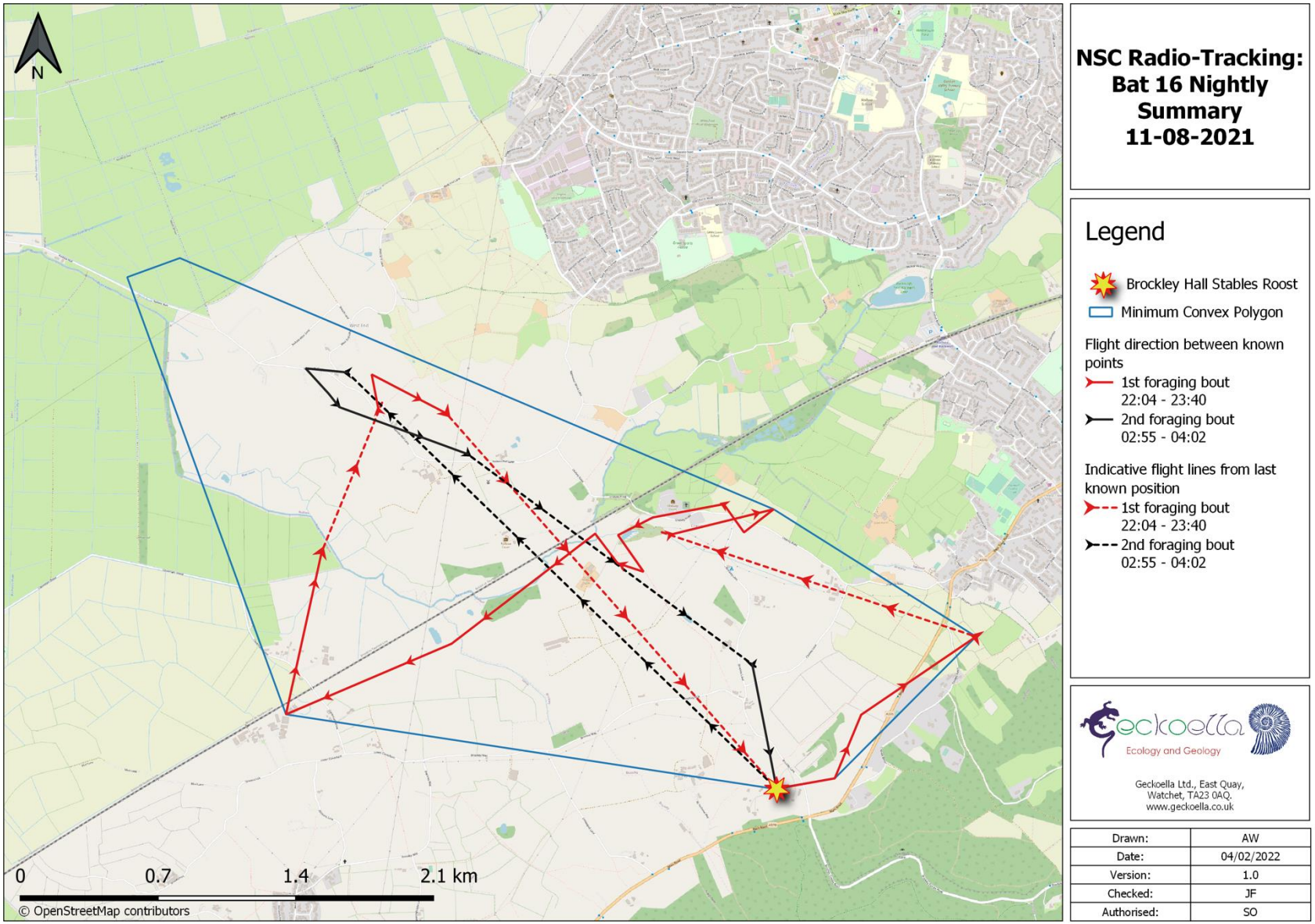
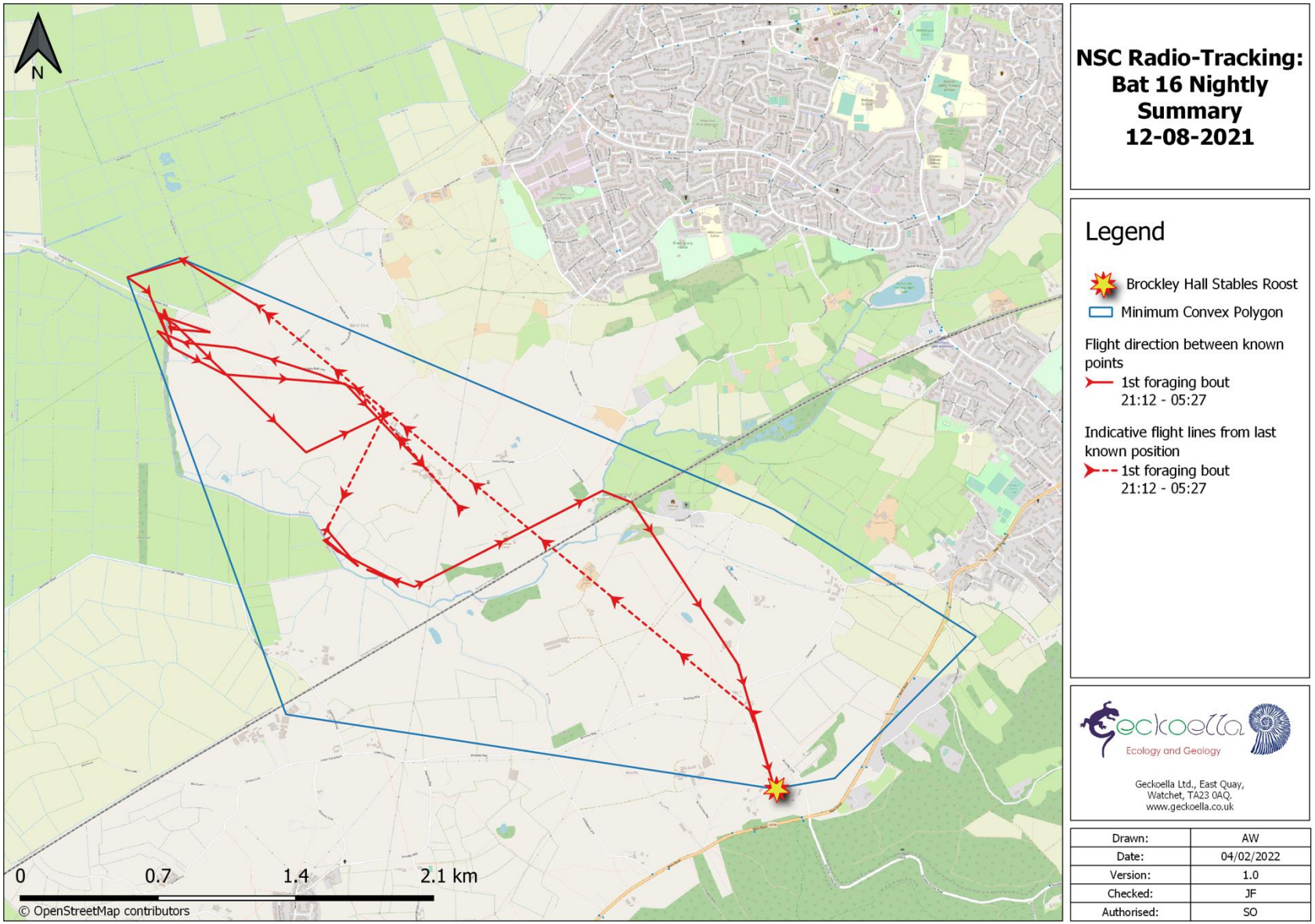
Map 3.90: NSC Radio-Tracking: Bat 15 Nightly Summary 12-08-2021



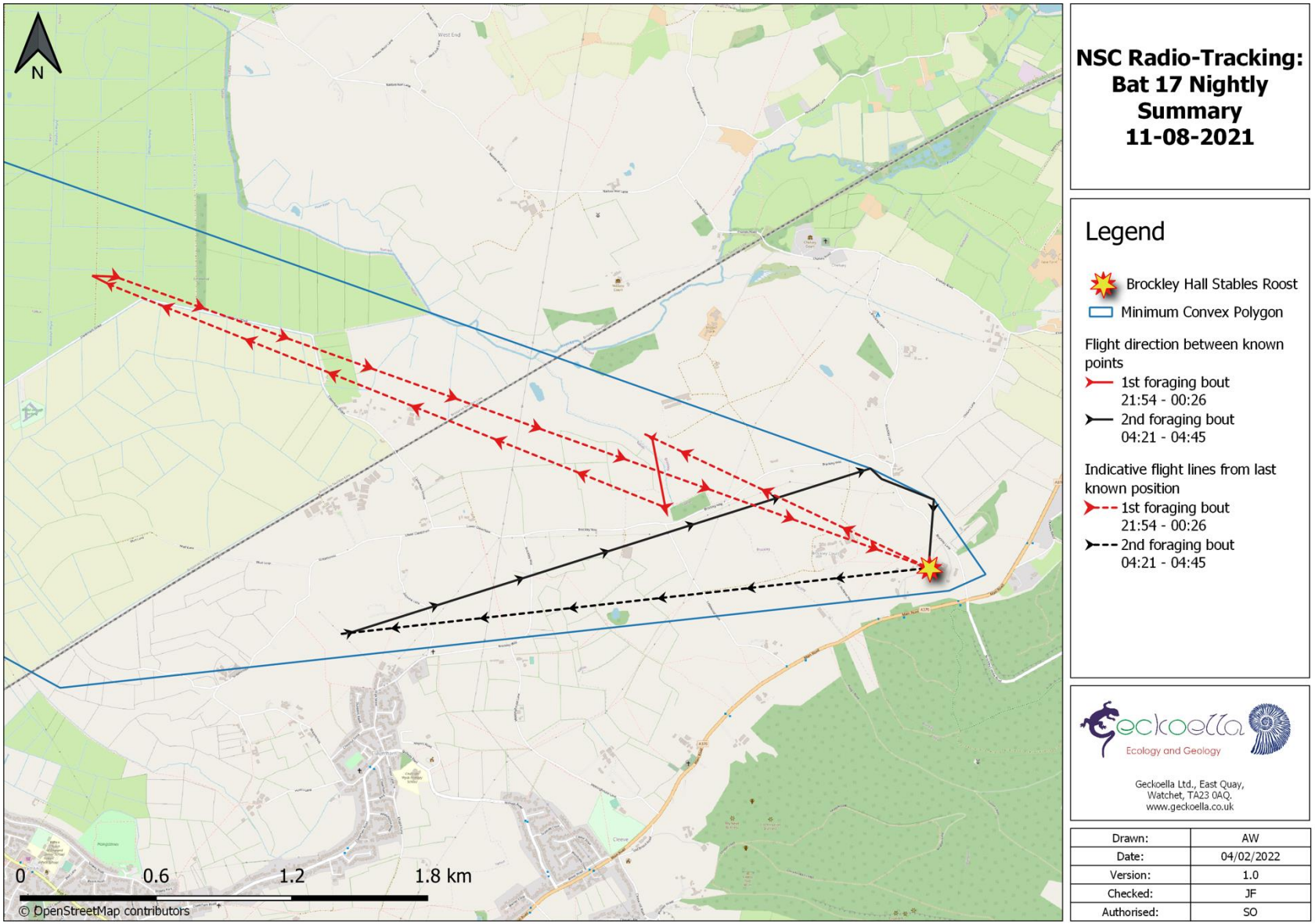
Map 3.91: NSC Radio-Tracking: Bat 16 Nightly Summary 11-08-2021



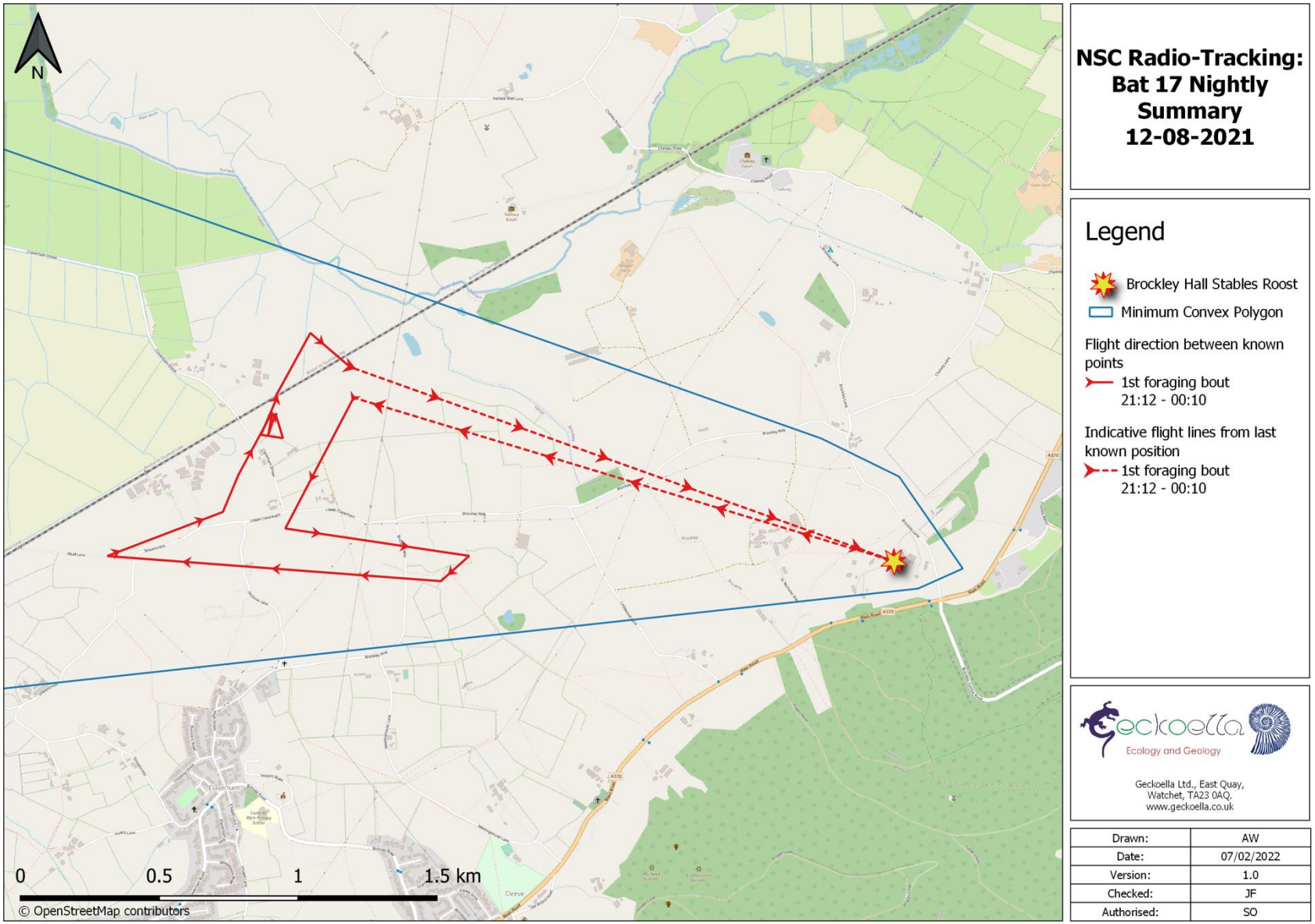
Map 3.92: NSC Radio-Tracking: Bat 16 Nightly Summary 12-08-2021



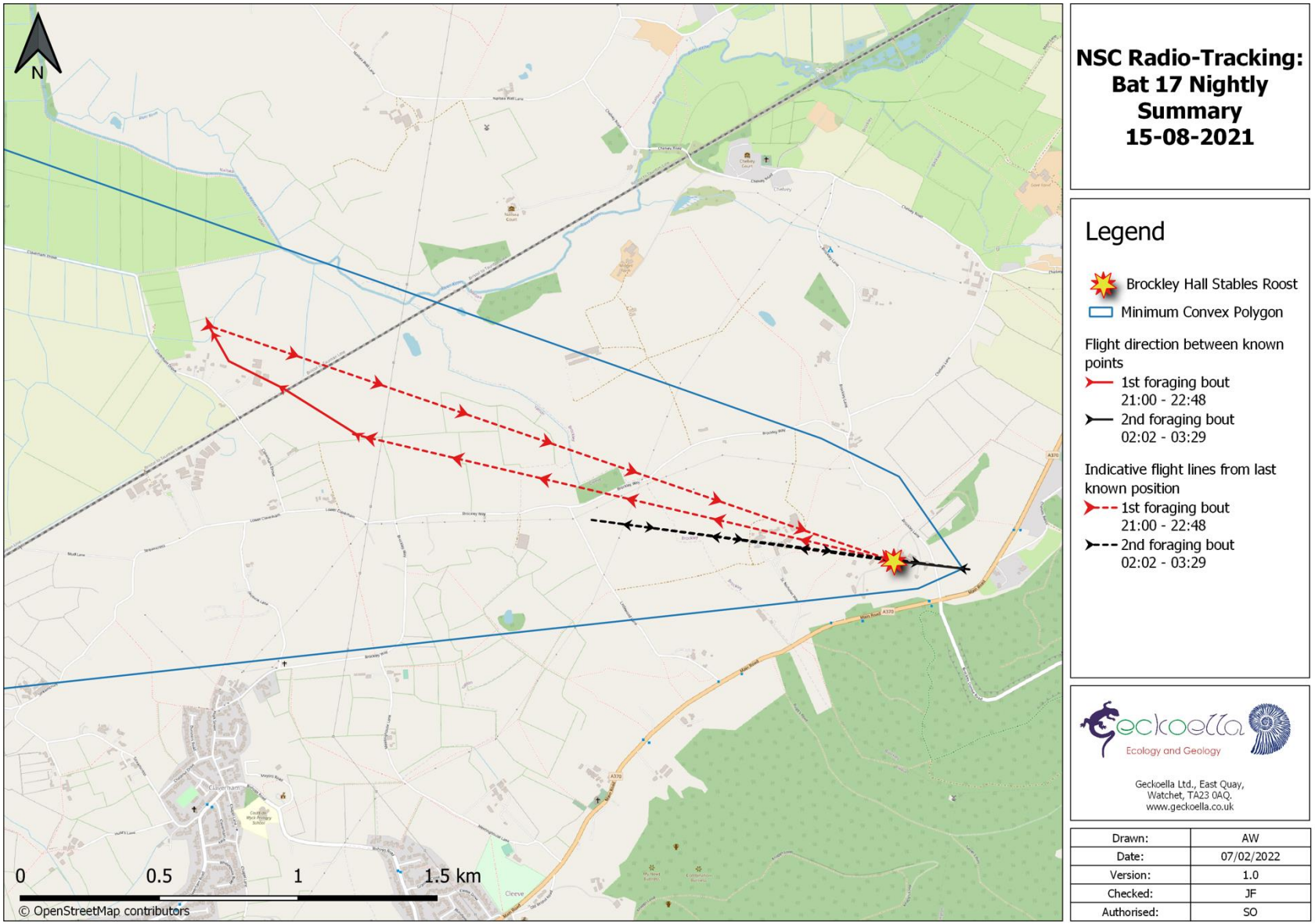
Map 3.93: NSC Radio-Tracking: Bat 17 Nightly Summary 11-08-2021



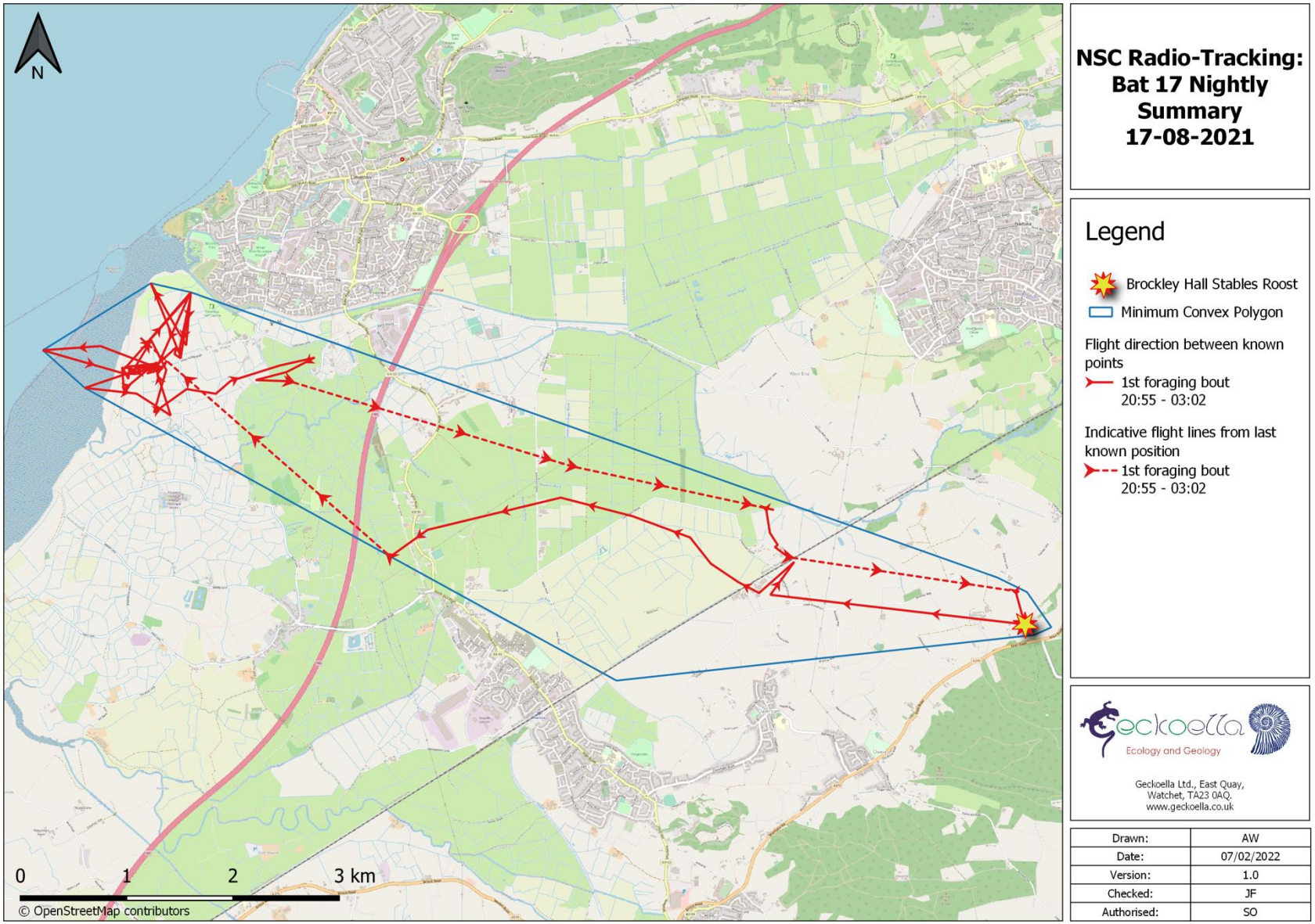
Map 3.94: NSC Radio-Tracking: Bat 17 Nightly Summary 12-08-2021



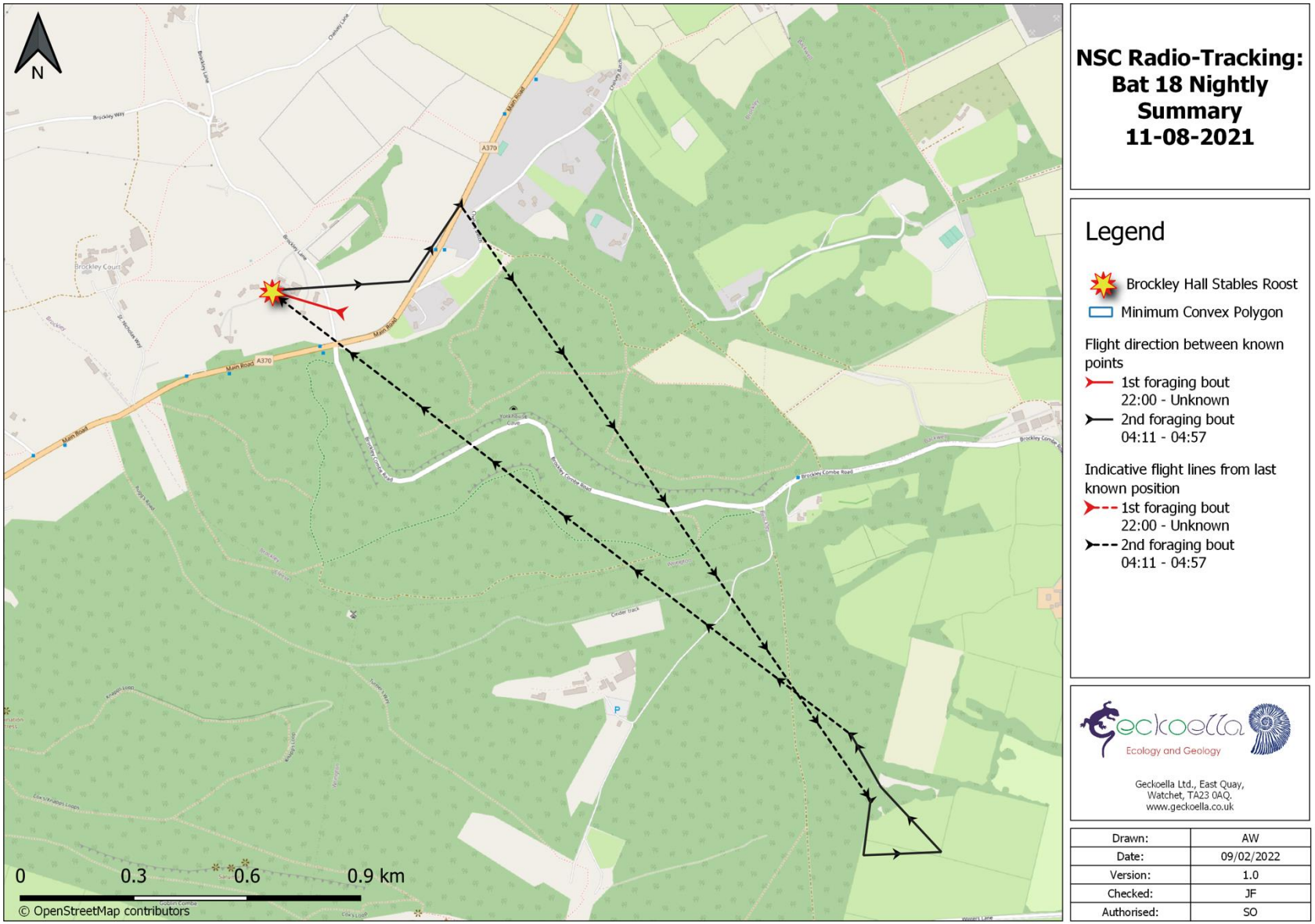
Map 3.95: NSC Radio-Tracking: Bat 17 Nightly Summary 15-08-2021



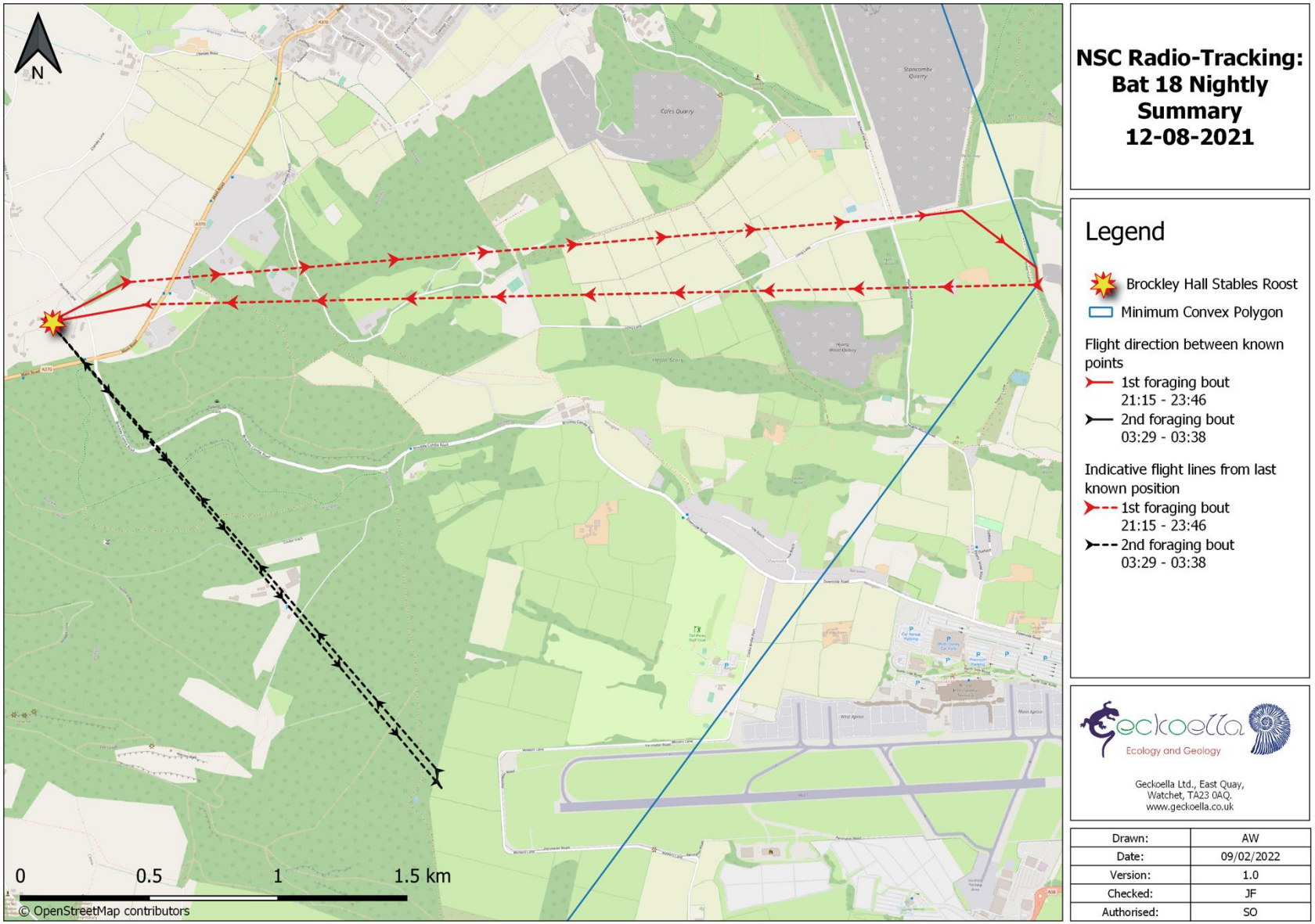
Map 3.96: NSC Radio-Tracking: Bat 17 Nightly Summary 17-08-2021



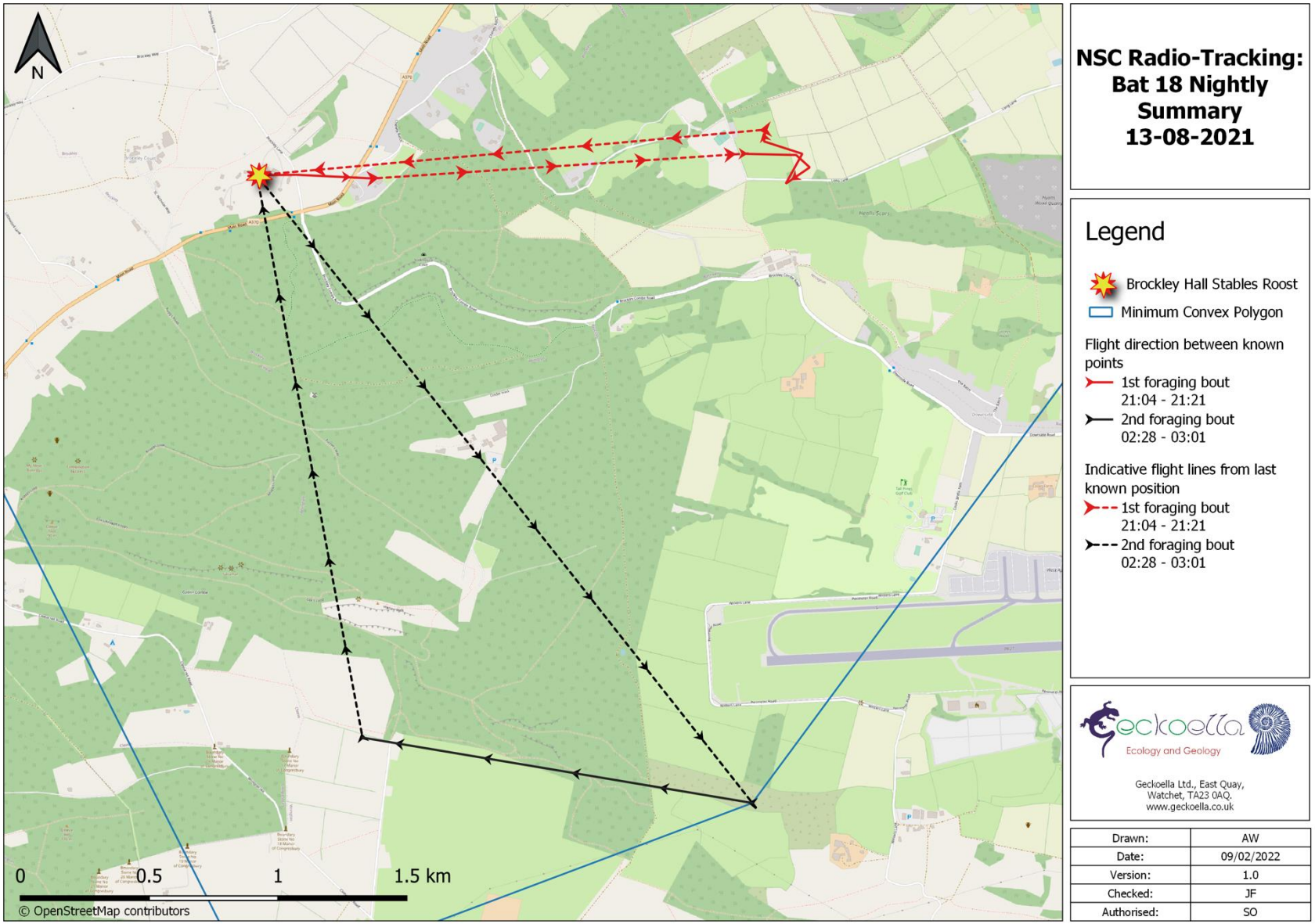
Map 3.97: NSC Radio-Tracking: Bat 18 Nightly Summary 11-08-2021



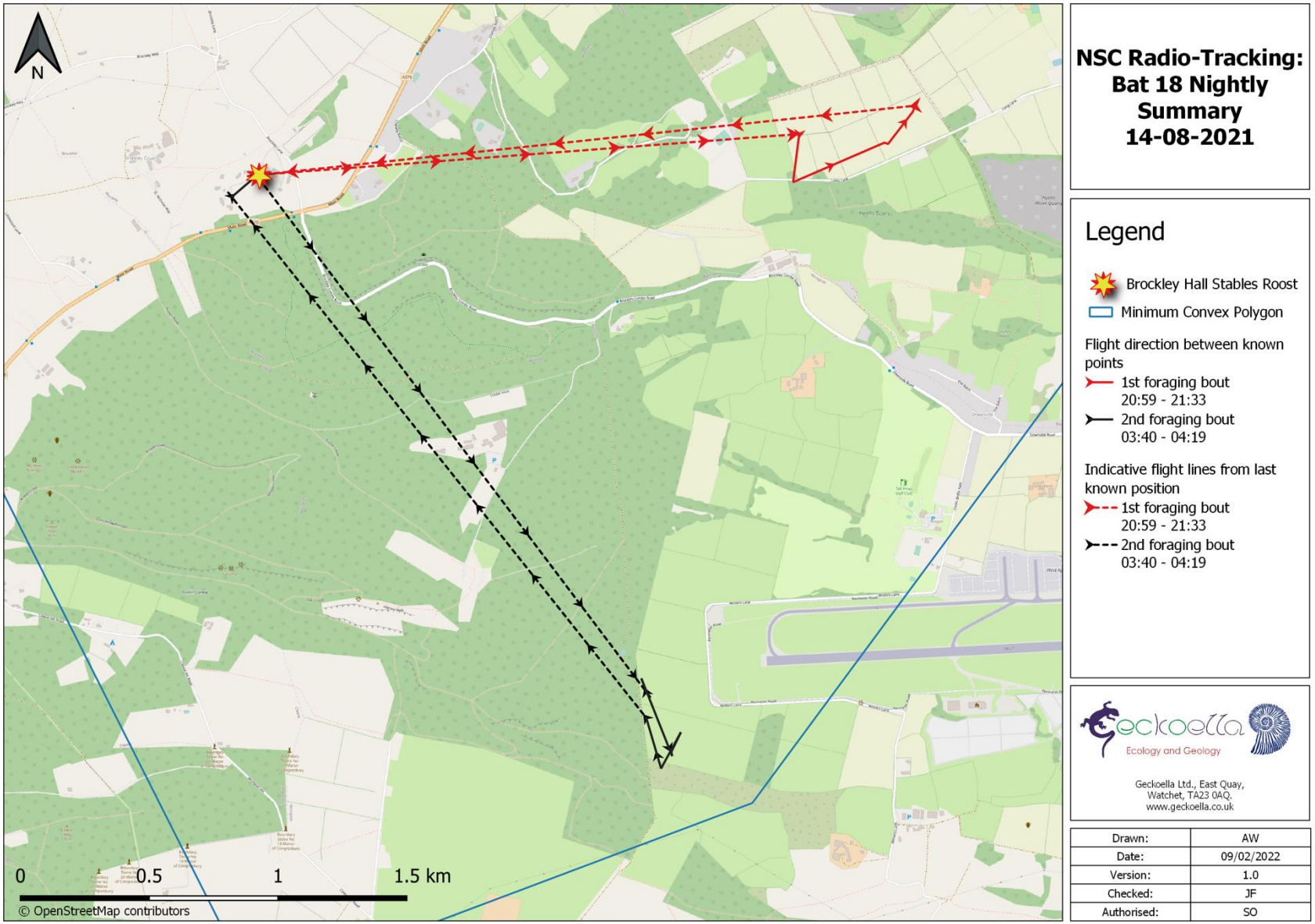
Map 3.98: NSC Radio-Tracking: Bat 18 Nightly Summary 12-08-2021



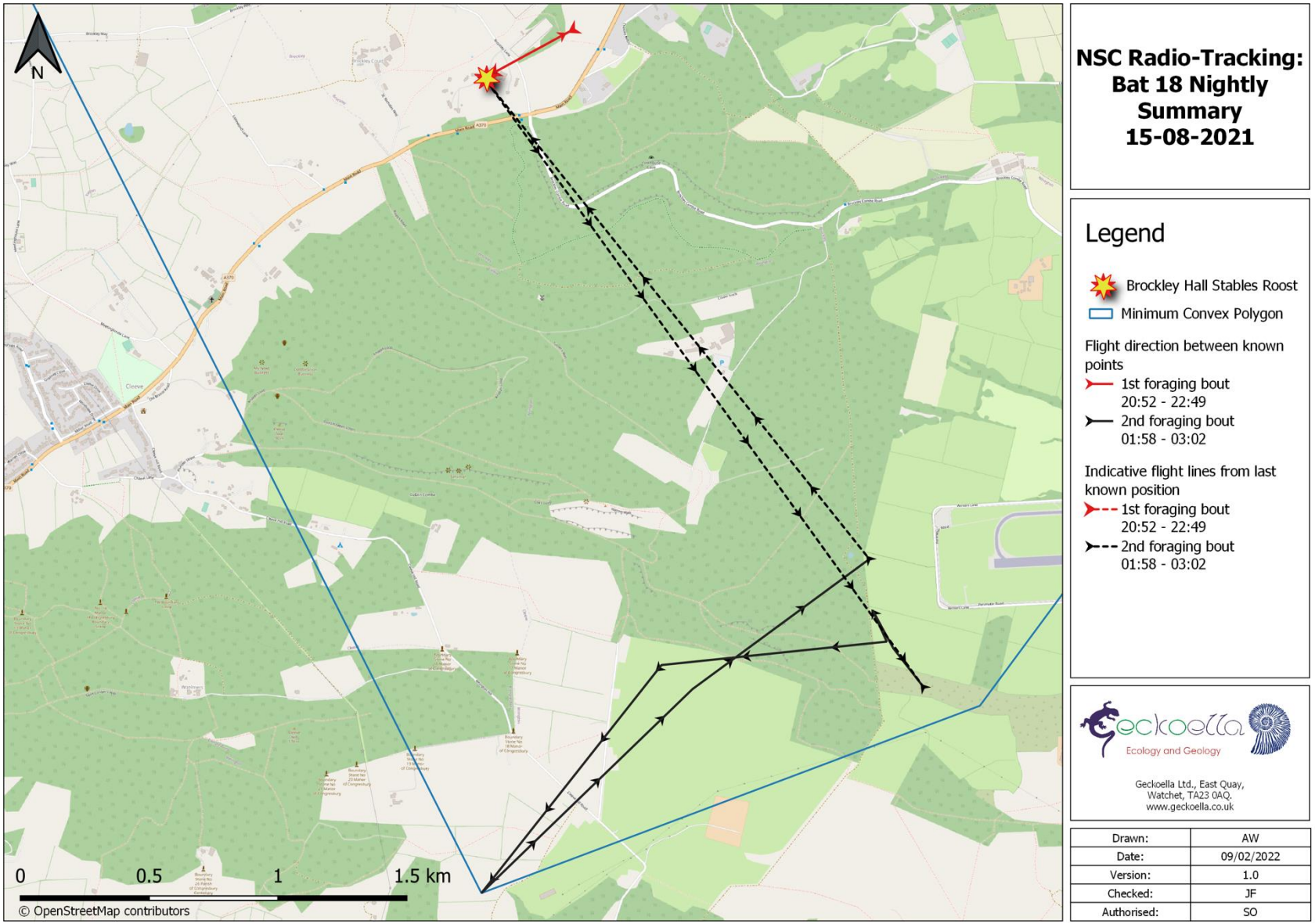
Map 3.99: NSC Radio-Tracking: Bat 18 Nightly Summary 13-08-2021



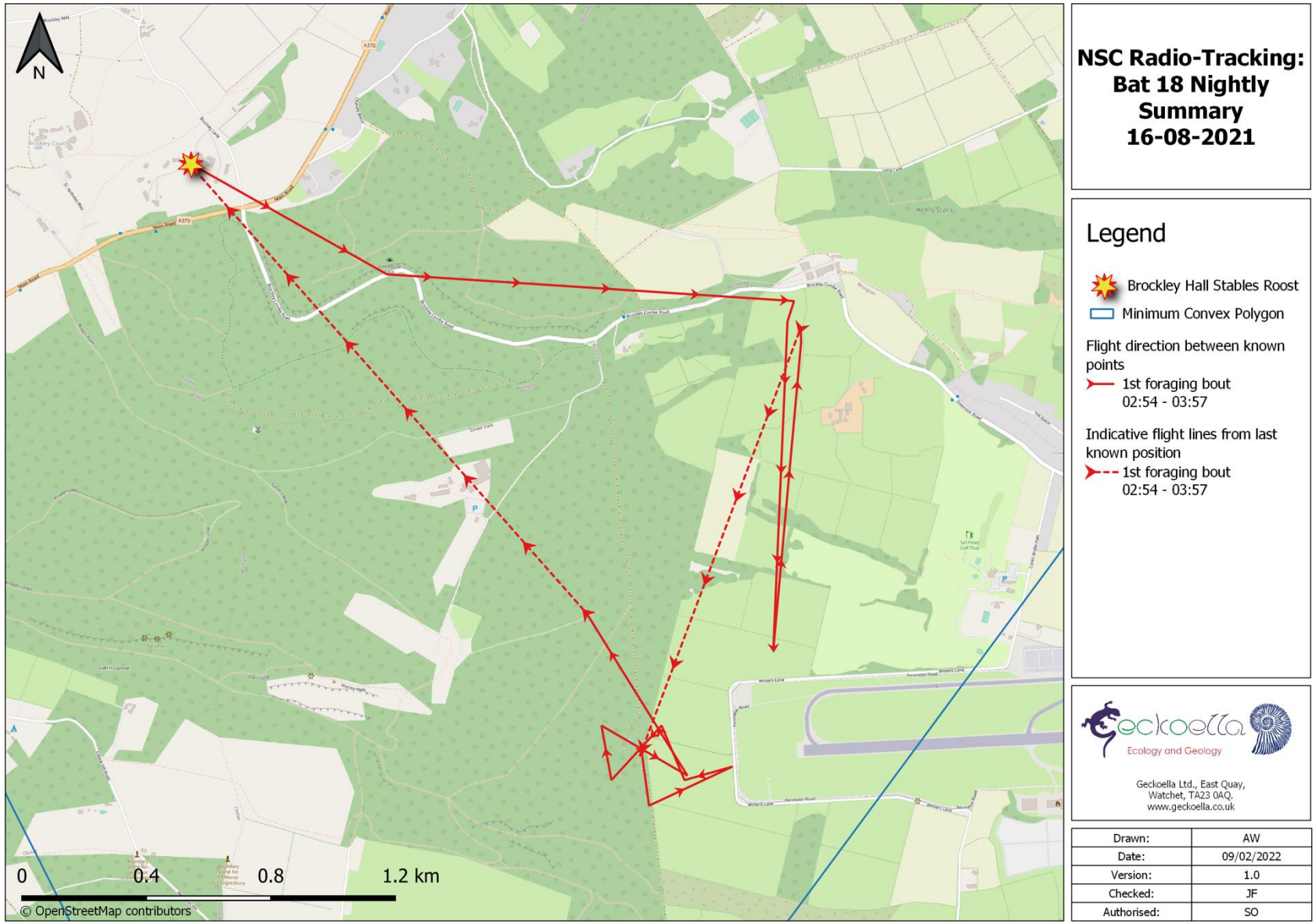
Map 3.100: NSC Radio-Tracking: Bat 18 Nightly Summary 14-08-2021



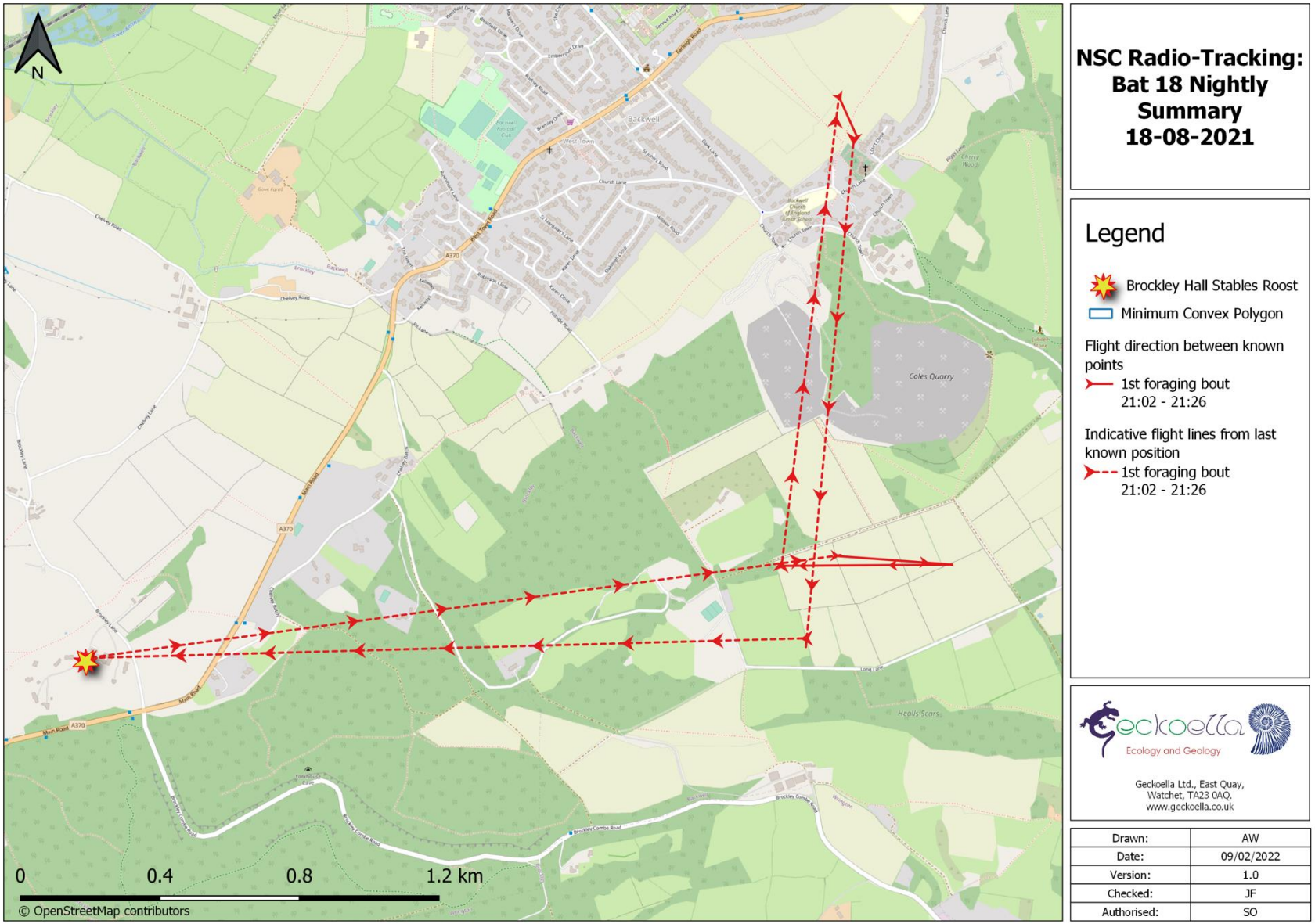
Map 3.101: NSC Radio-Tracking: Bat 18 Nightly Summary 15-08-2021



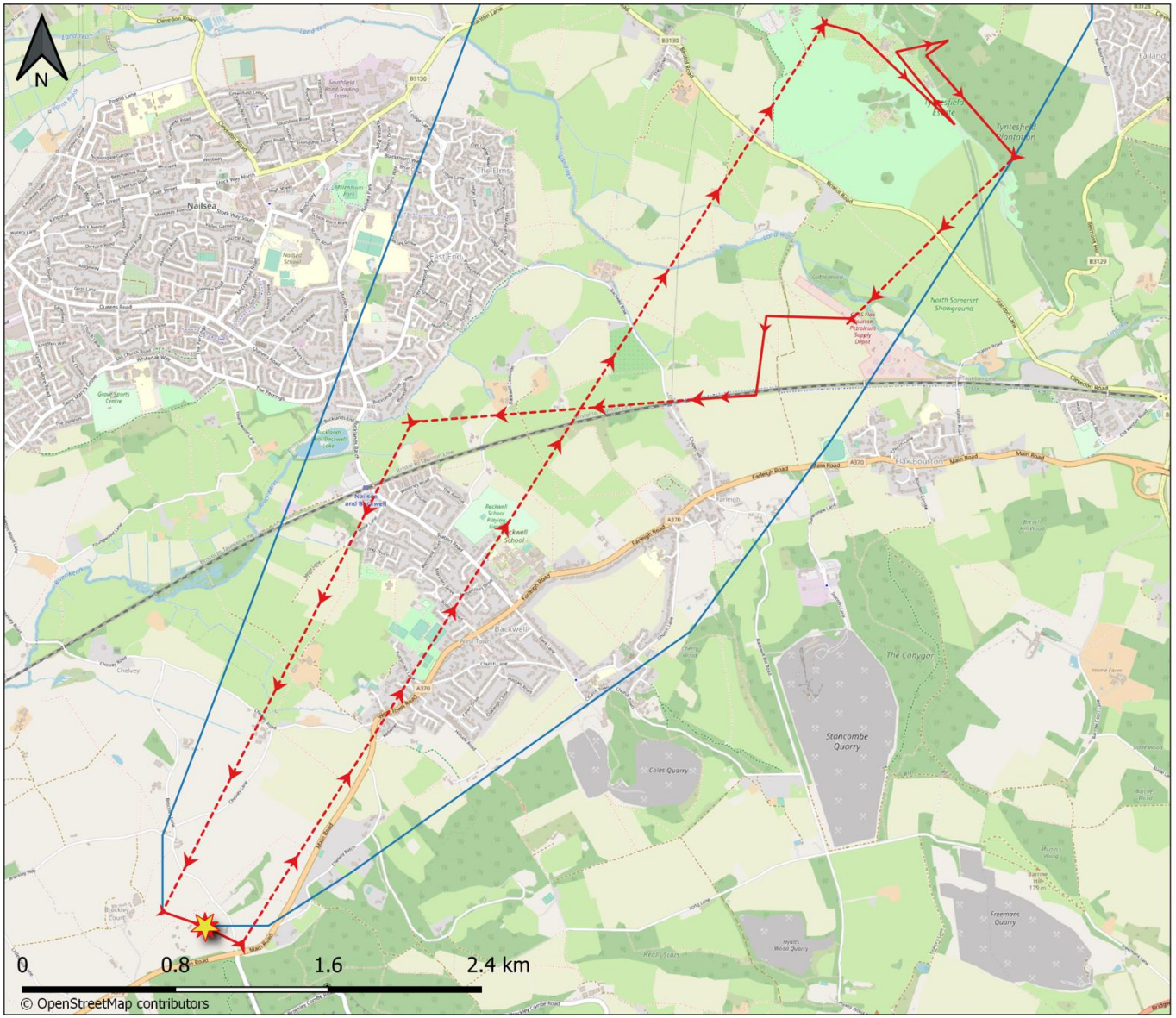
Map 3.102: NSC Radio-Tracking: Bat 18 Nightly Summary 16-08-2021



Map 3.103: NSC Radio-Tracking: Bat 18 Nightly Summary 18-08-2021



Map 3.104: NSC Radio-Tracking: Bat 19 Nightly Summary 17-08-2021



NSC Radio-Tracking: Bat 19 Nightly Summary 17-08-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 22:21 - 04:08

Indicative flight lines from last known position

- 1st foraging bout 22:21 - 04:08

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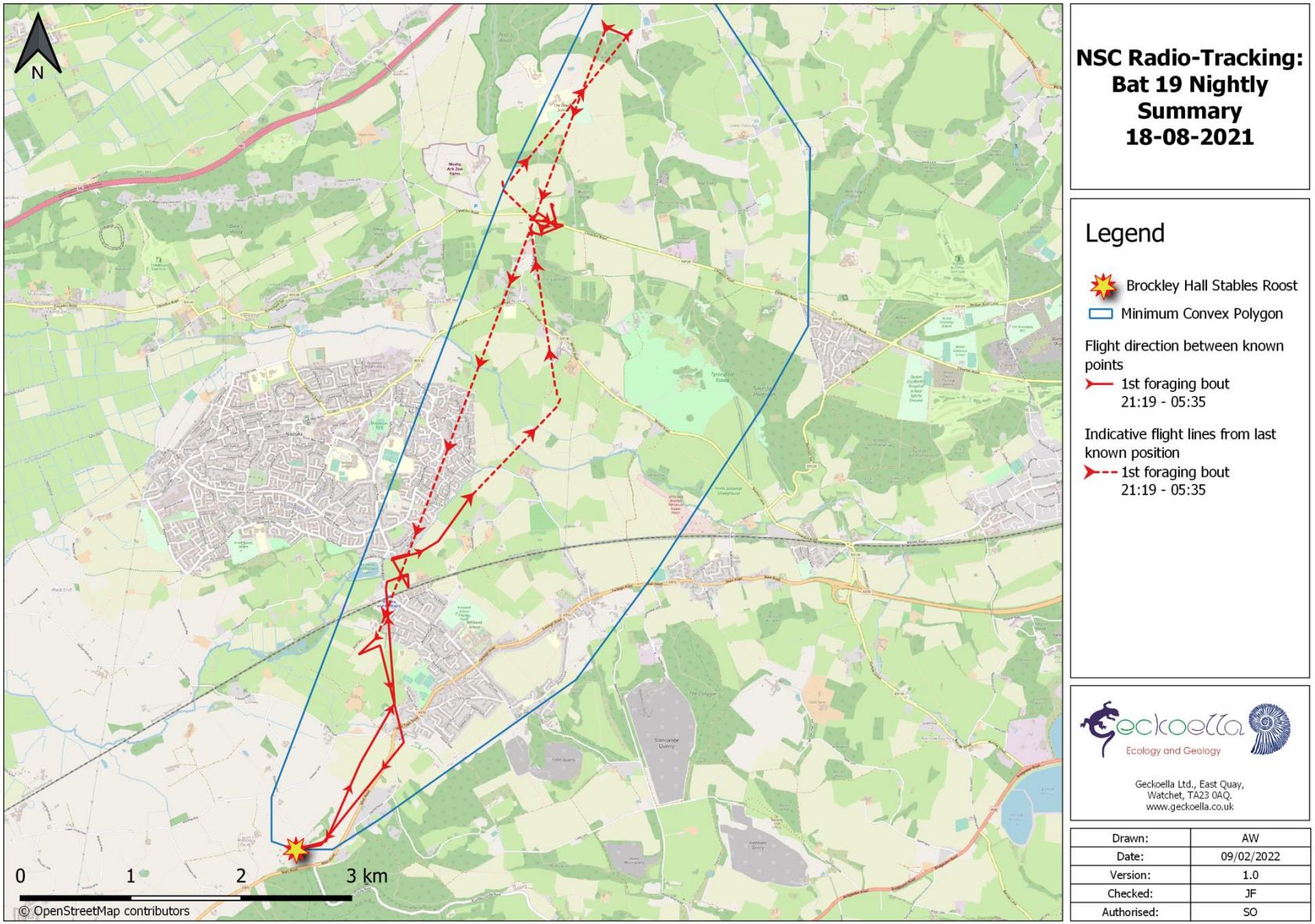
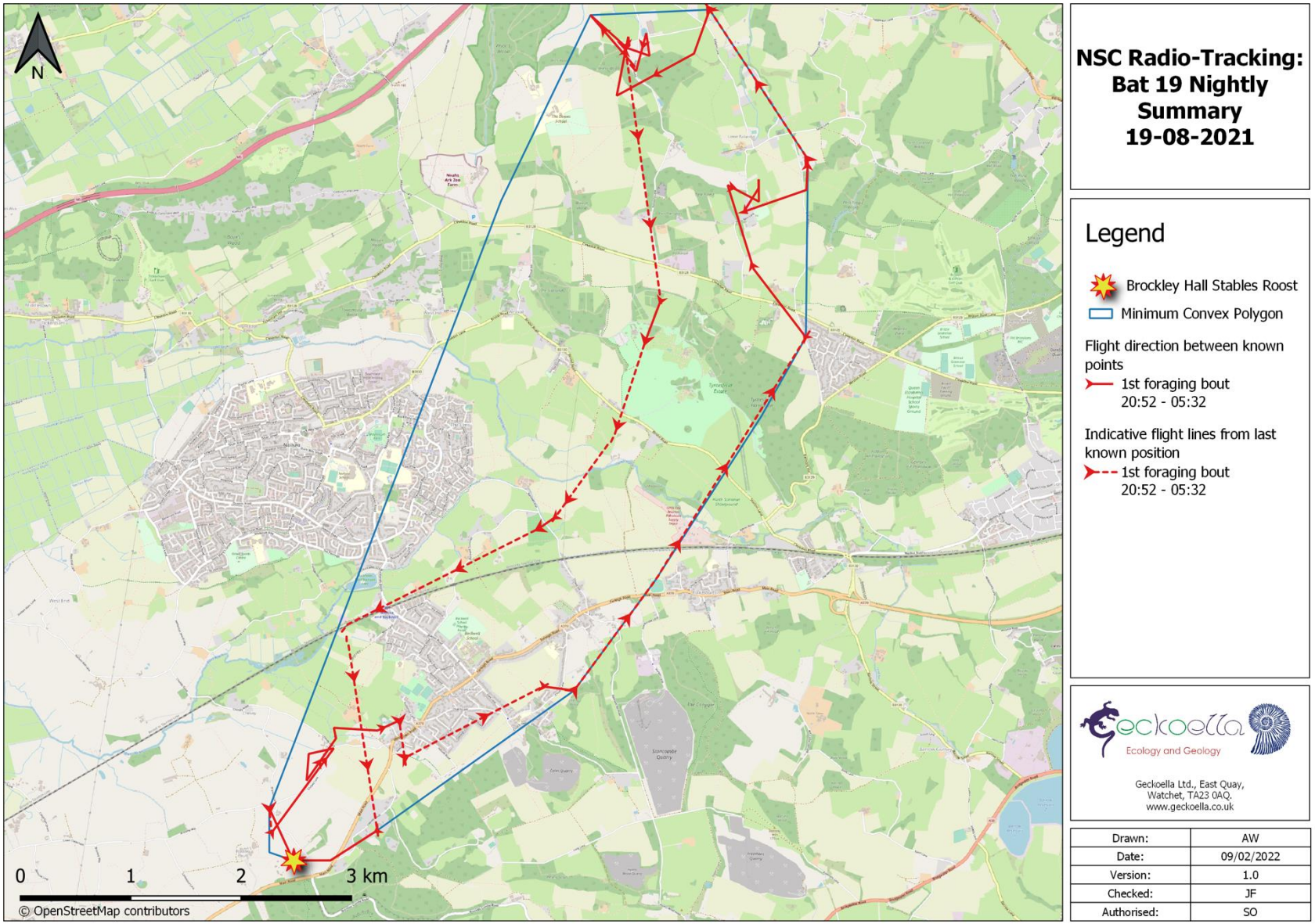
Drawn:	AW
Date:	09/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

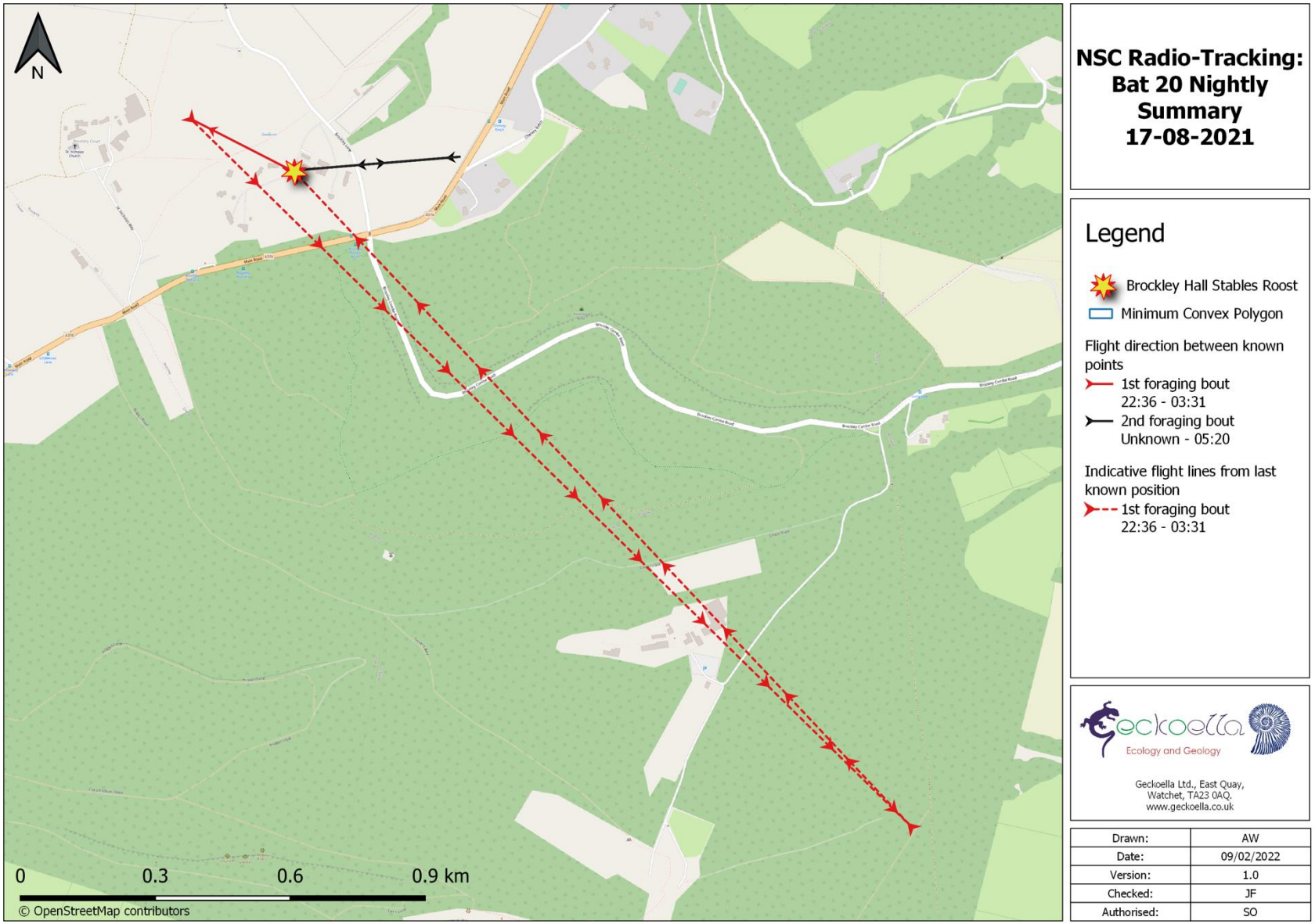
Map 3.105: NSC Radio-Tracking: Bat 19 Nightly Summary 18-08-2021



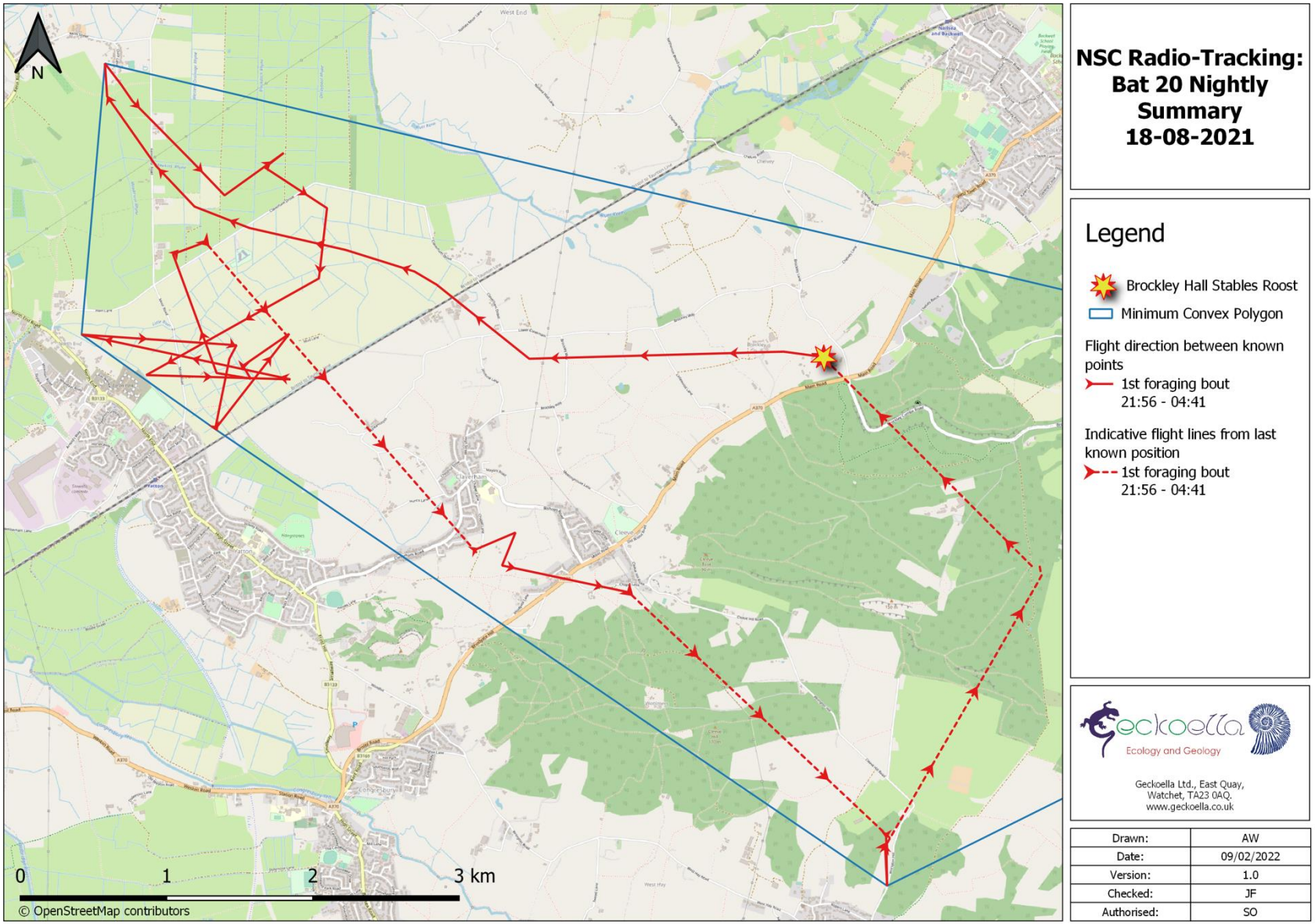
Map 3.106: NSC Radio-Tracking: Bat 19 Nightly Summary 19-08-2021



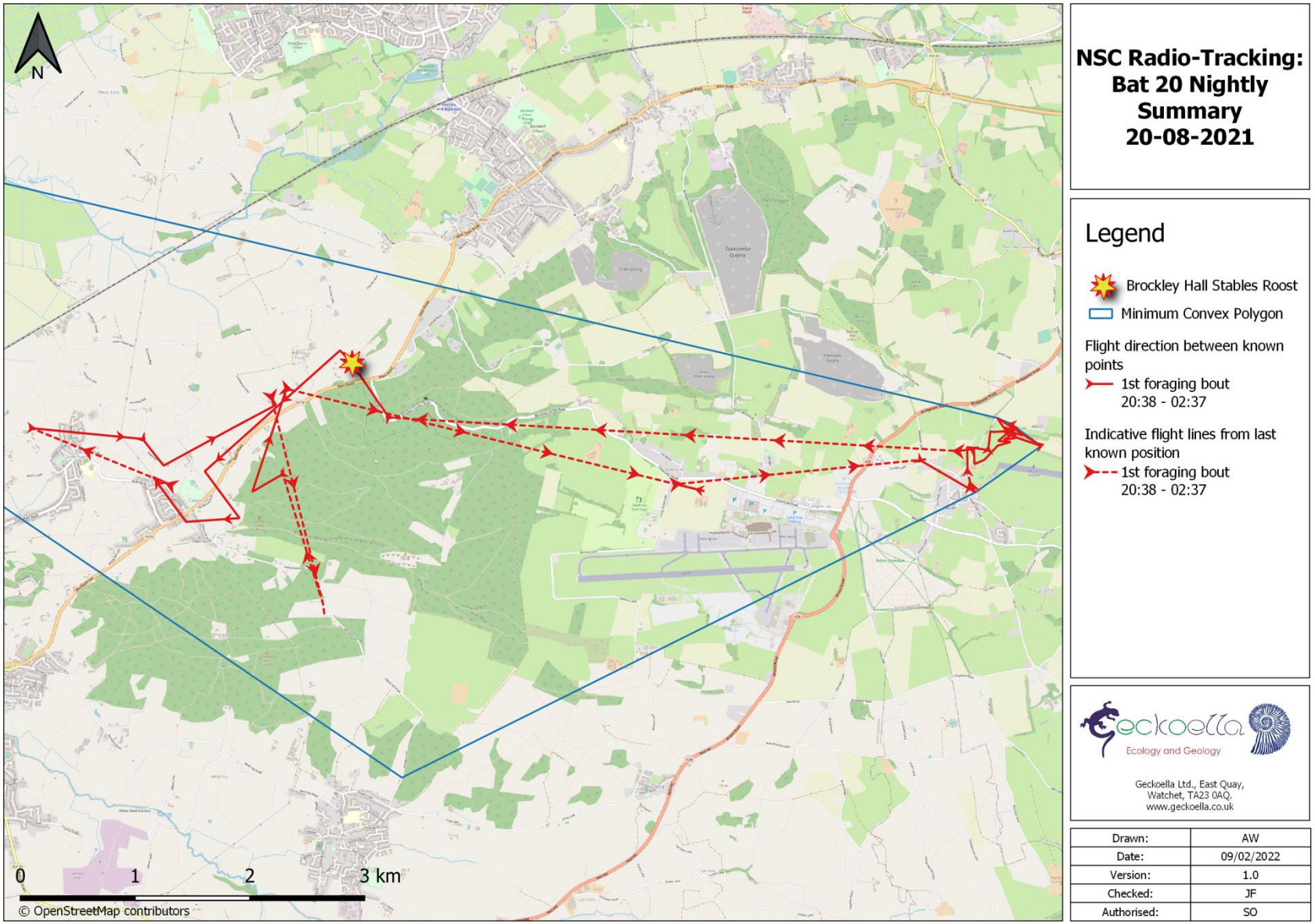
Map 3.107: NSC Radio-Tracking: Bat 20 Nightly Summary 17-08-2021



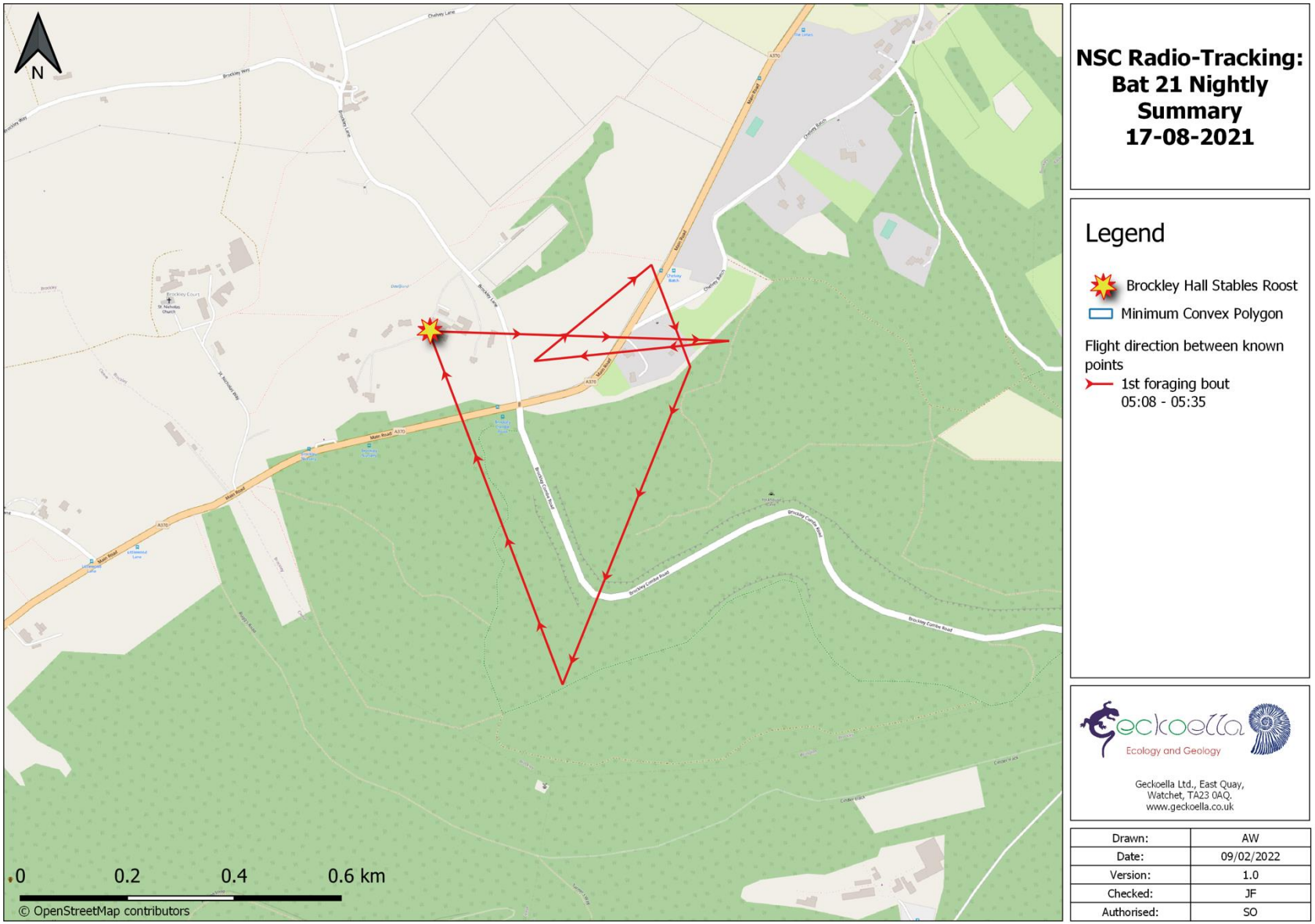
Map 3.108: NSC Radio-Tracking: Bat 20 Nightly Summary 18-08-2021



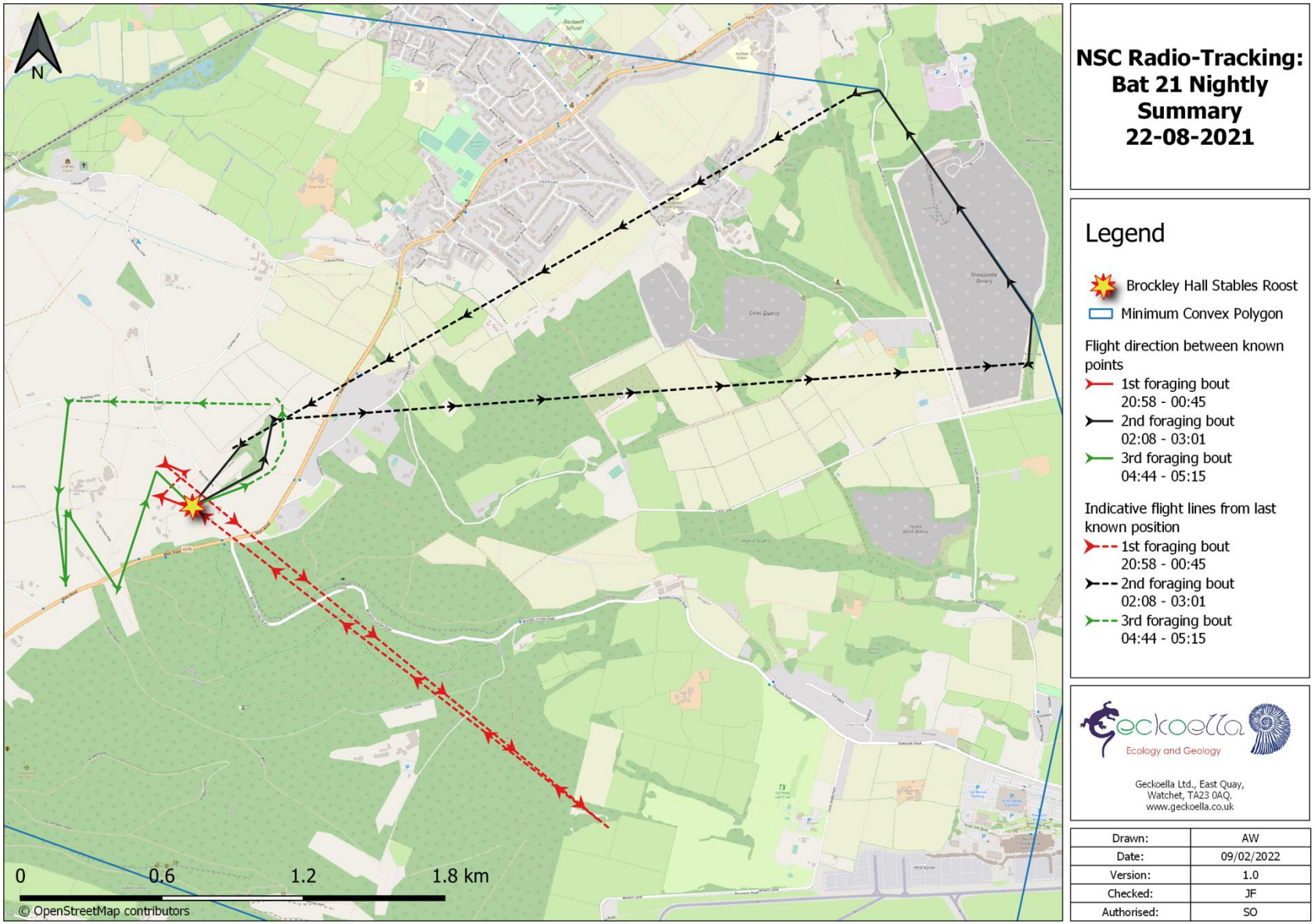
Map 3.109: NSC Radio-Tracking: Bat 20 Nightly Summary 20-08-2021



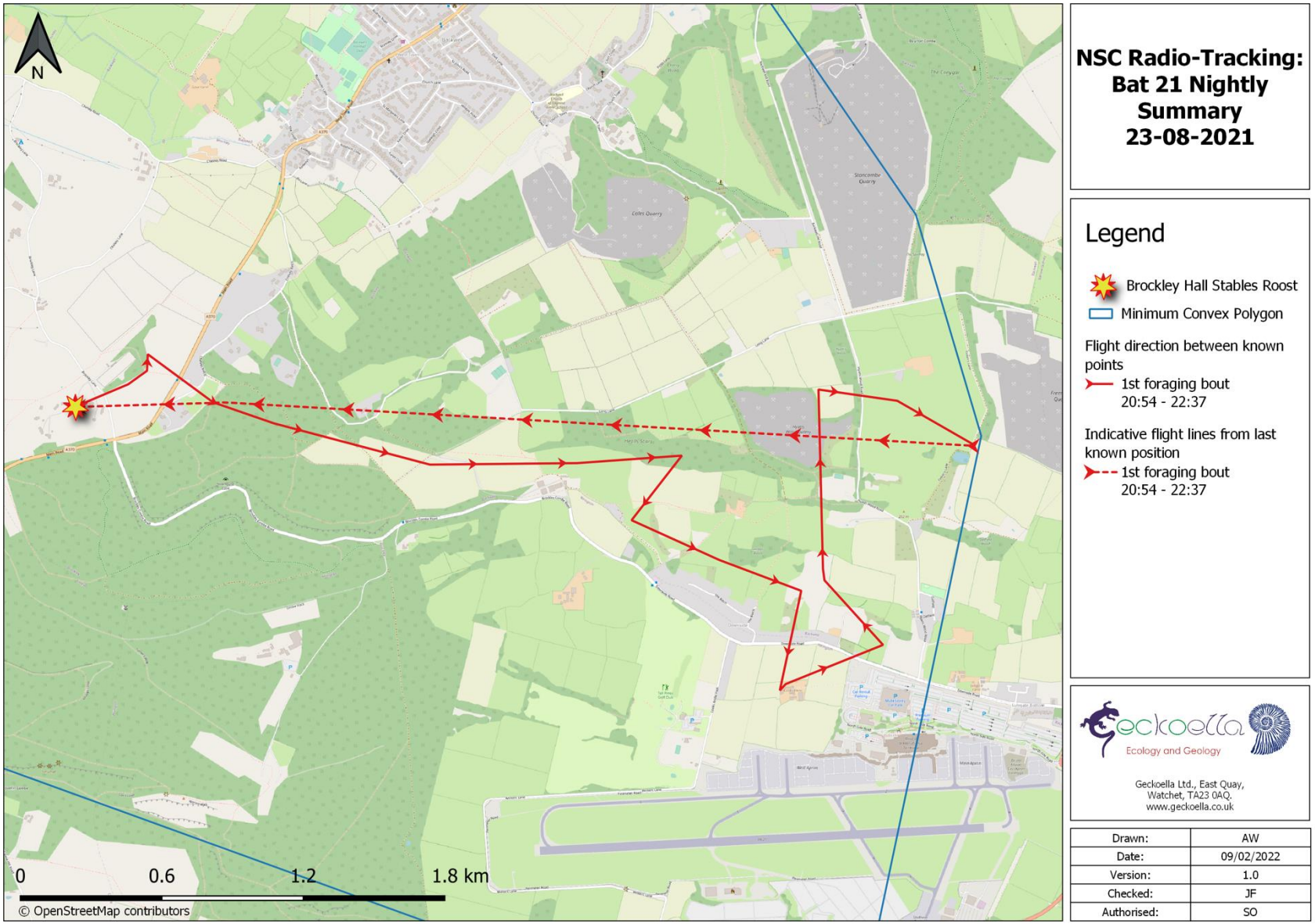
Map 3.110: NSC Radio-Tracking: Bat 21 Nightly Summary 17-08-2021



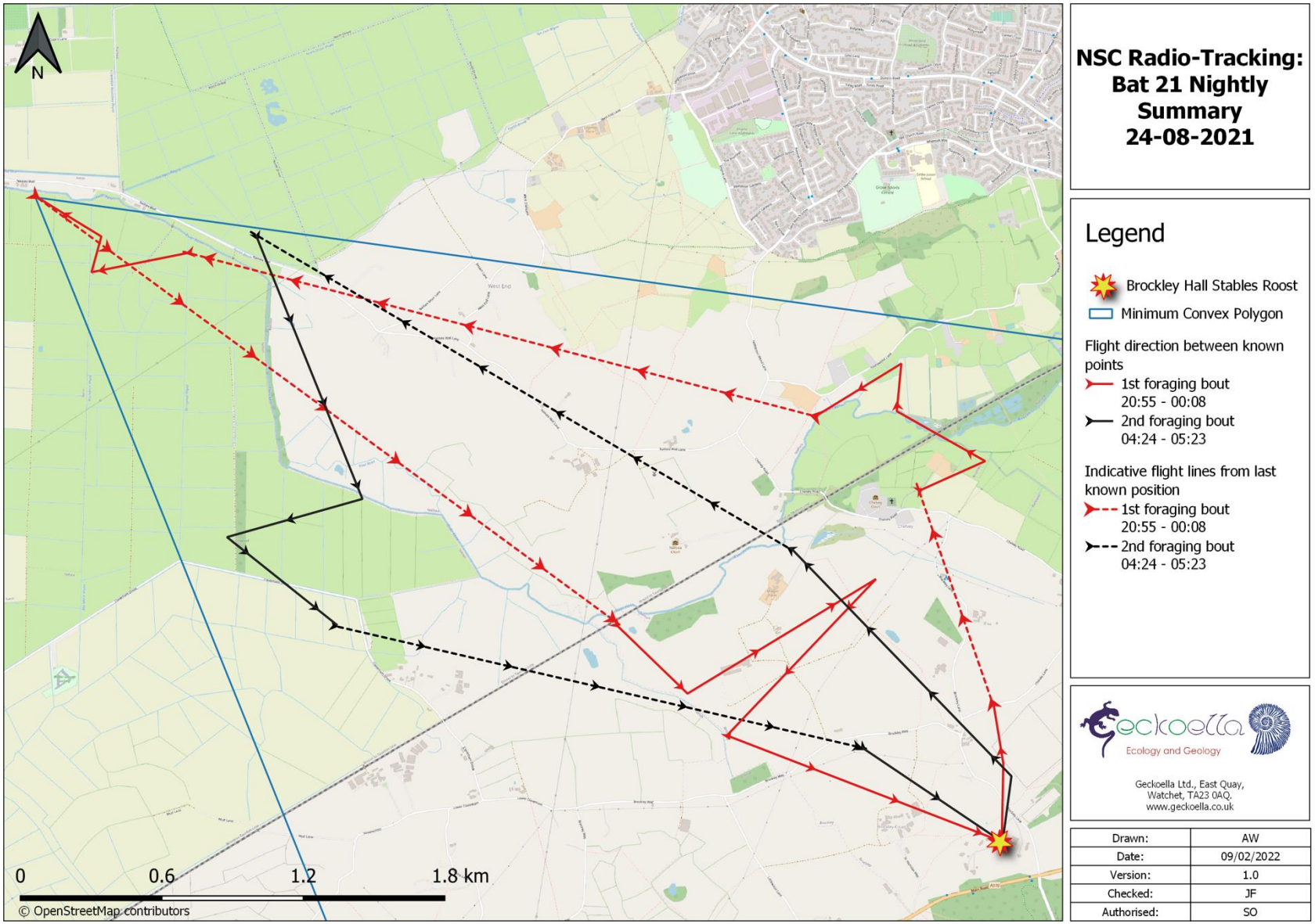
Map 3.111: NSC Radio-Tracking: Bat 21 Nightly Summary 22-08-2021



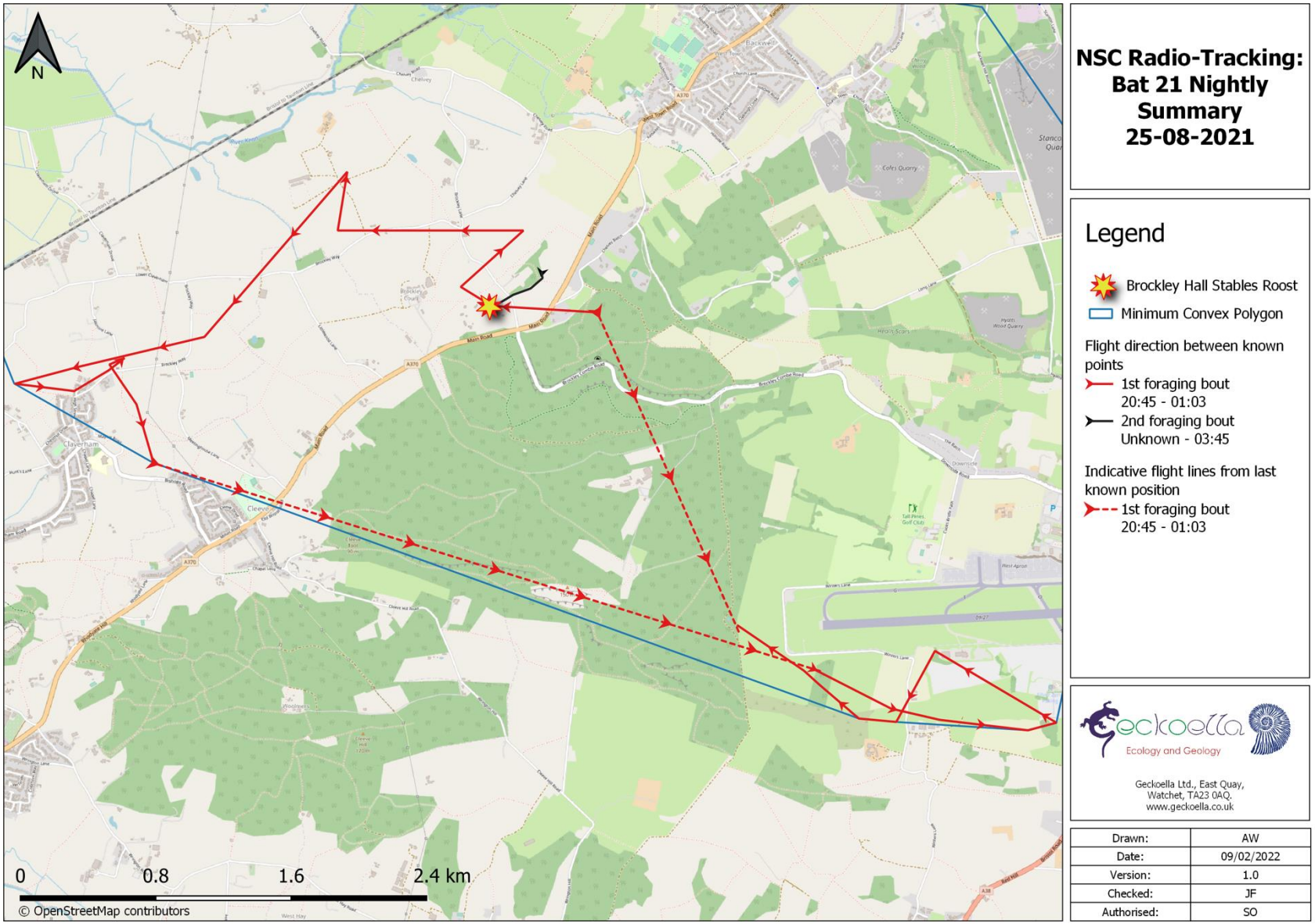
Map 3.112: NSC Radio-Tracking: Bat 21 Nightly Summary 23-08-2021



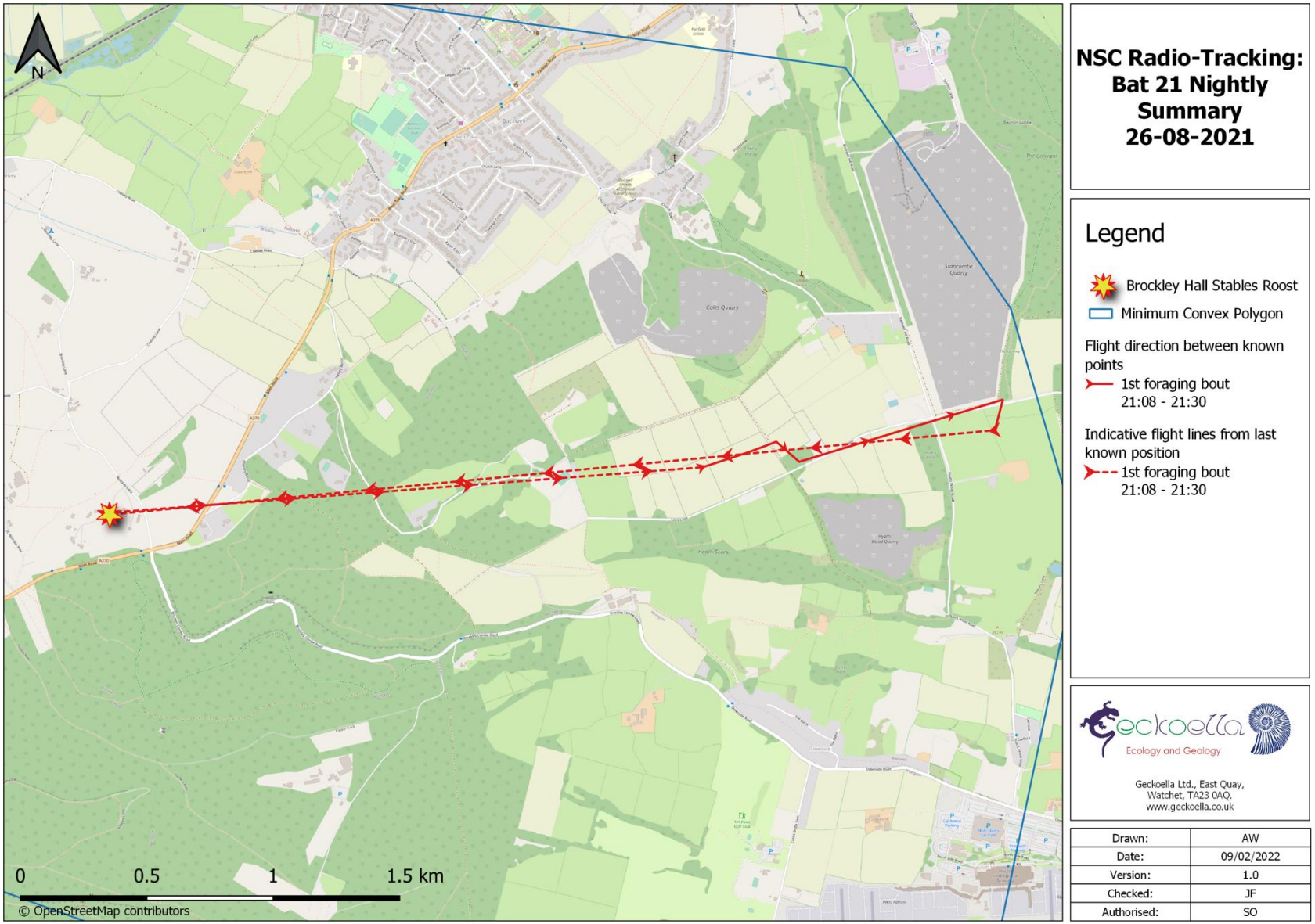
Map 3.113: NSC Radio-Tracking: Bat 21 Nightly Summary 24-08-2021



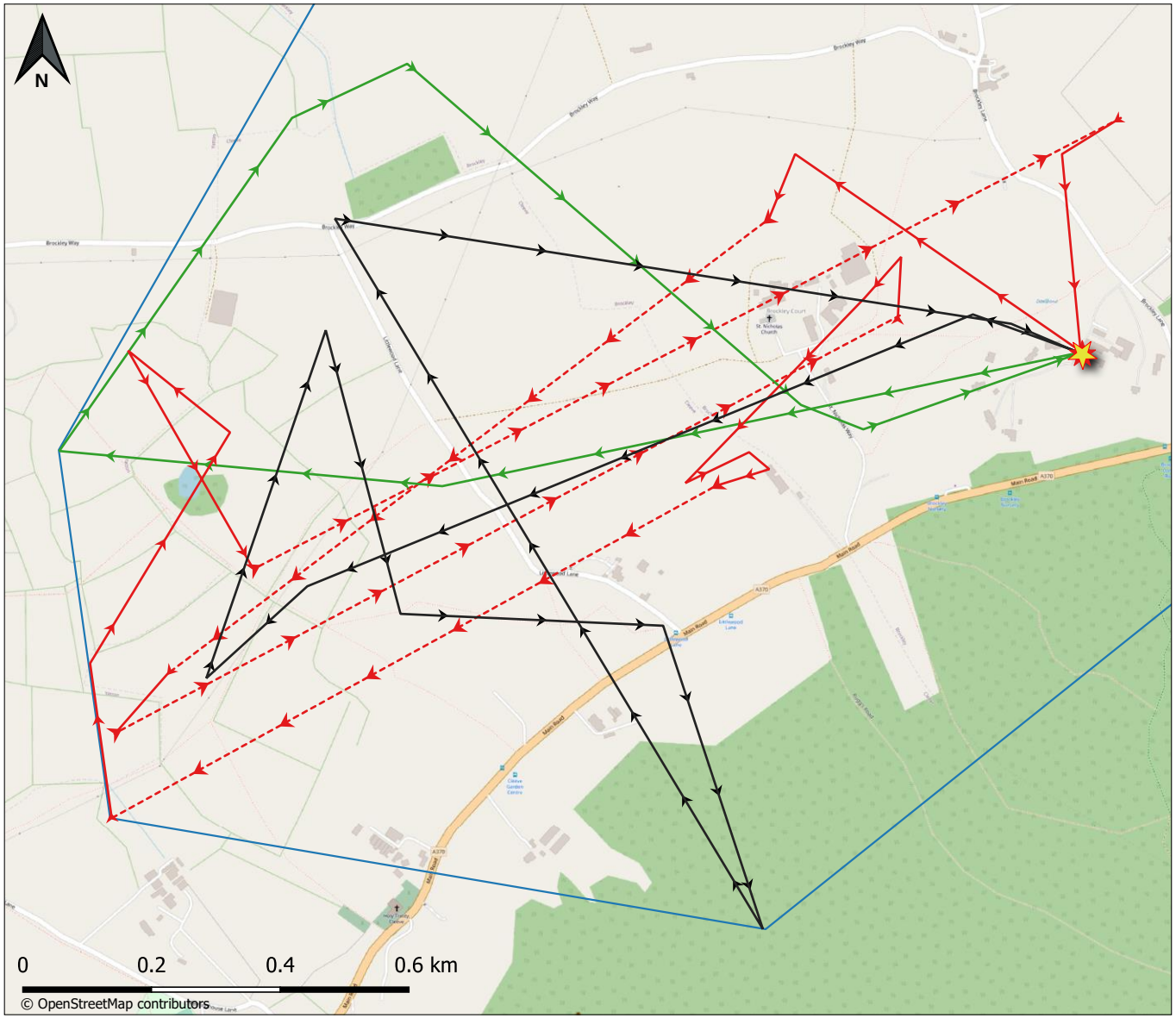
Map 3.114: NSC Radio-Tracking: Bat 21 Nightly Summary 25-08-2021



Map 3.115: NSC Radio-Tracking: Bat 21 Nightly Summary 26-08-2021



Map 3.116: NSC Radio-Tracking: Bat 22 Nightly Summary 22-08-2021



NSC Radio-Tracking: Bat 22 Nightly Summary 22-08-2021

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon

Flight direction between known points

- 1st foraging bout 21:25 - 00:04
- 2nd foraging bout 03:14 - 03:49
- 3rd foraging bout 04:55 - 05:07

Indicative flight lines from last known position

- 1st foraging bout 21:25 - 00:04

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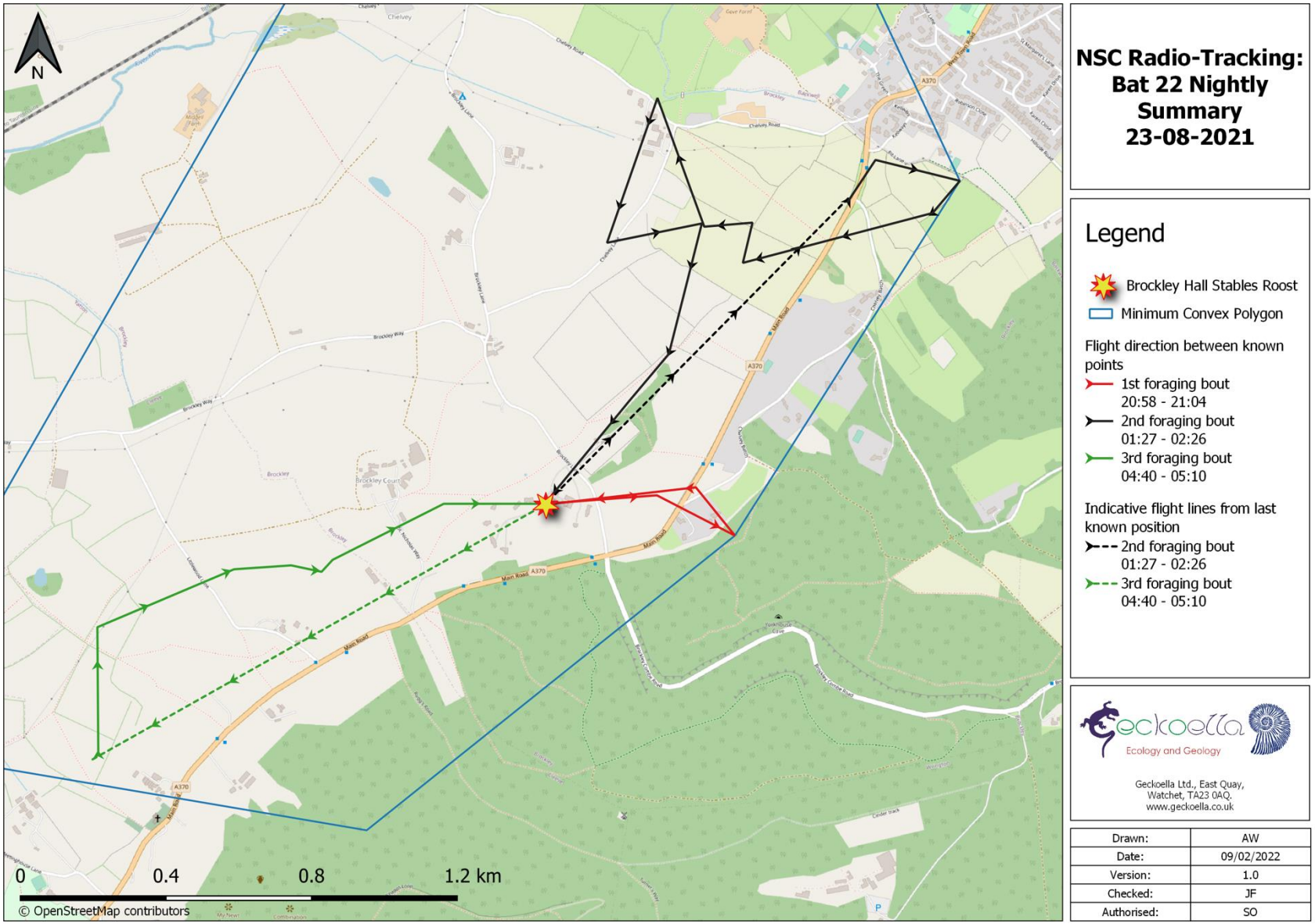
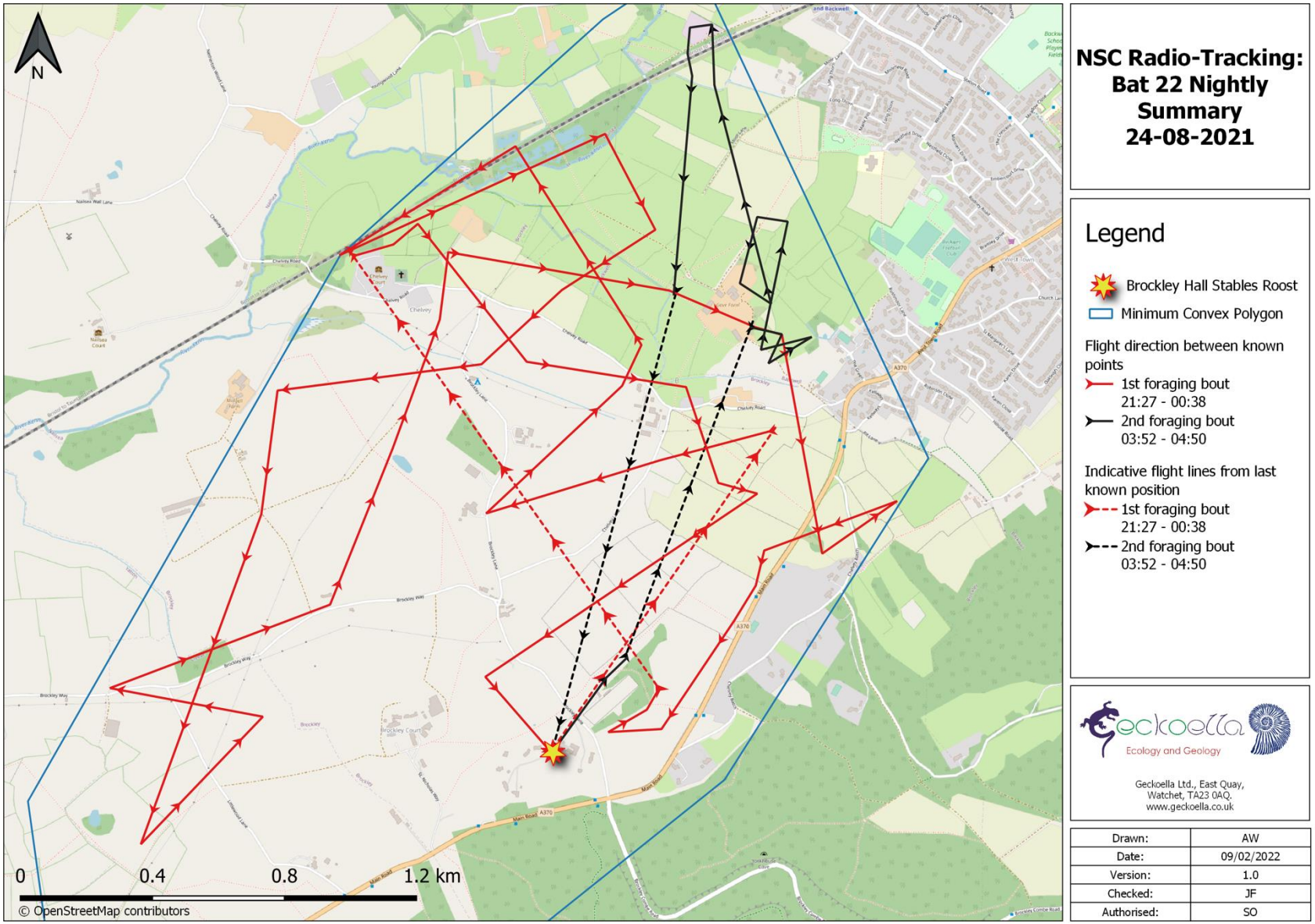
Checked:	JF
Authorised:	SO

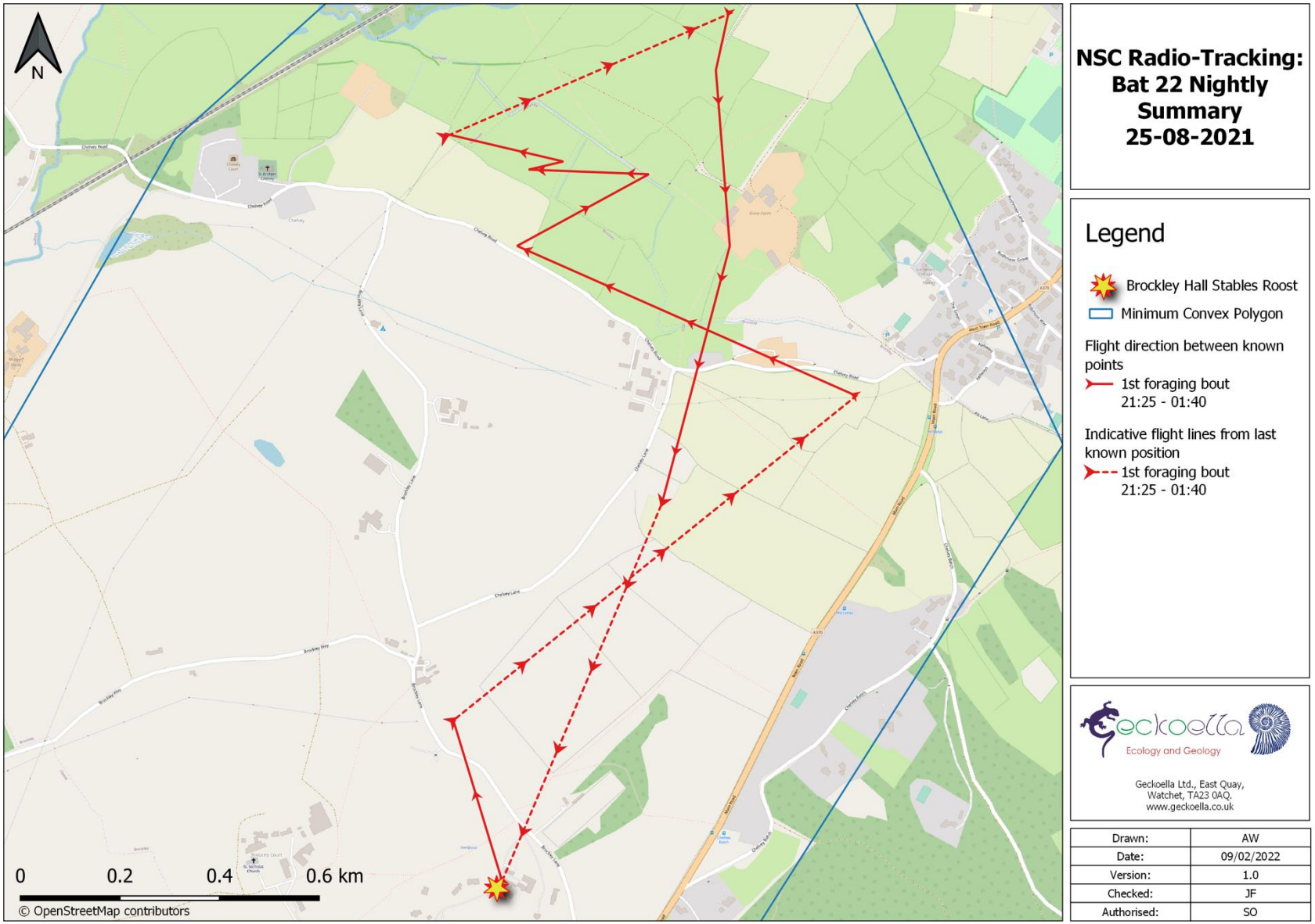
Map 3.117: NSC Radio-Tracking: Bat 22 Nightly Summary 23-08-2021



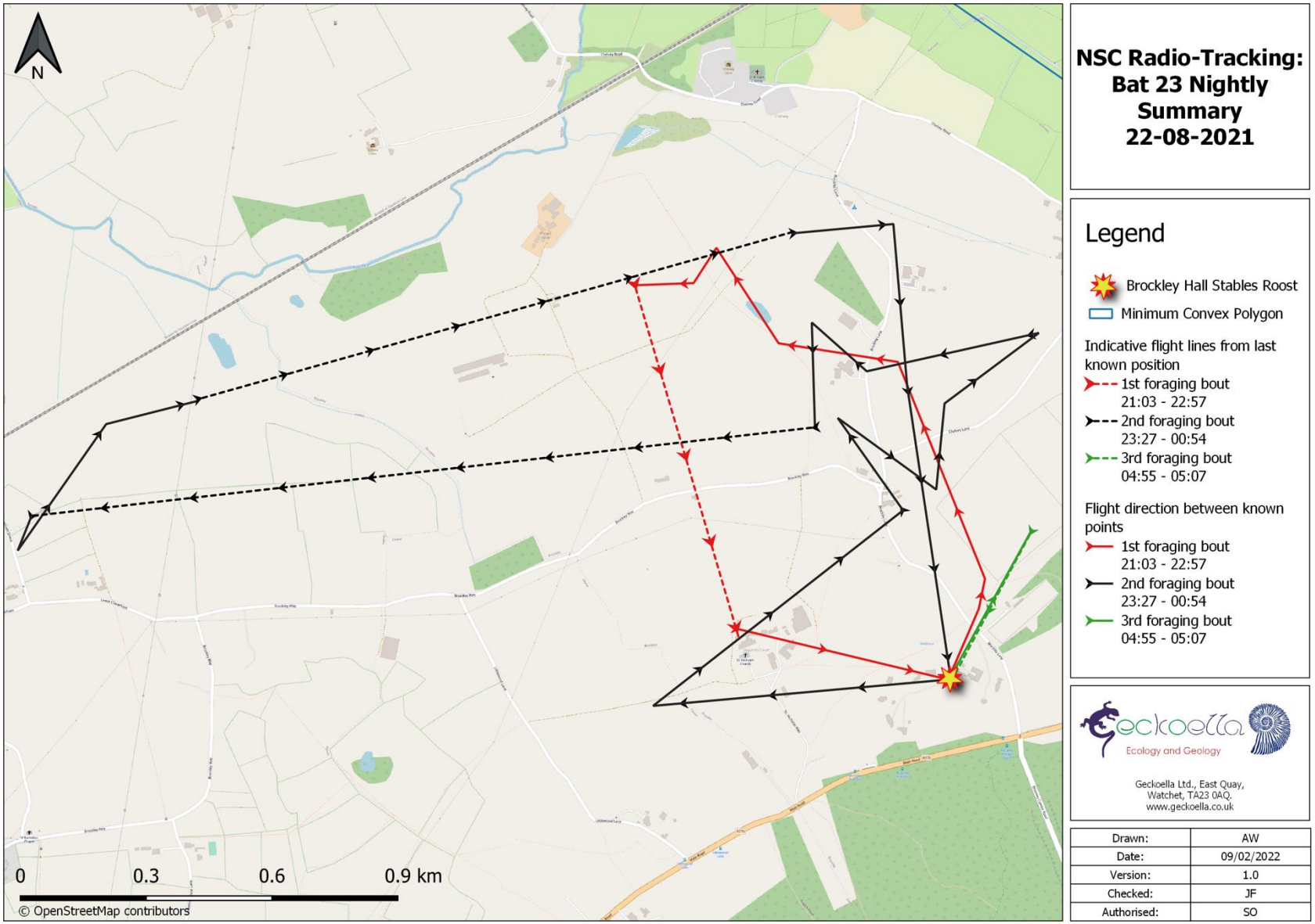
Map 3.118: NSC Radio-Tracking: Bat 22 Nightly Summary 24-08-2021



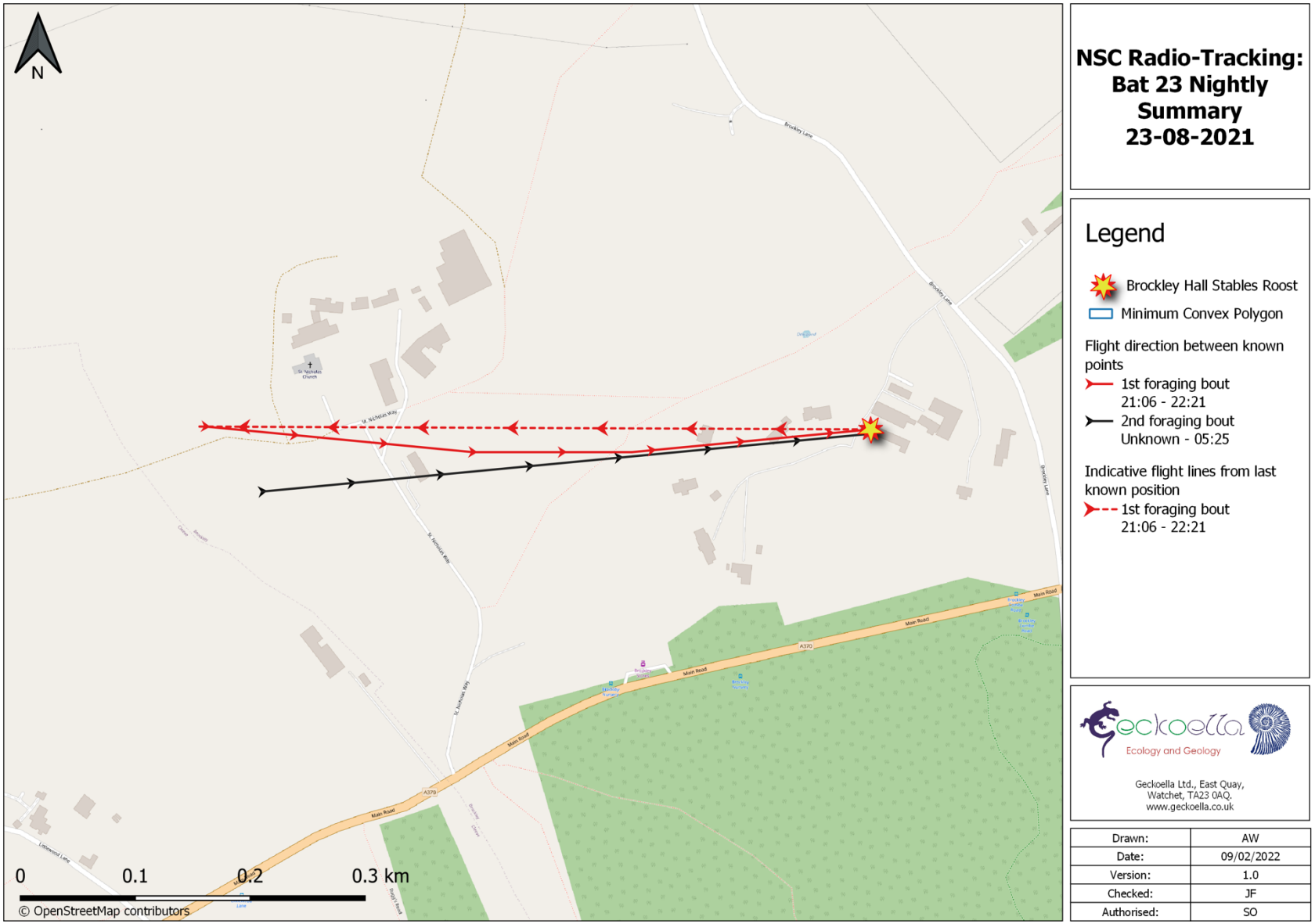
Map 3.119: NSC Radio-Tracking: Bat 22 Nightly Summary 25-08-2021



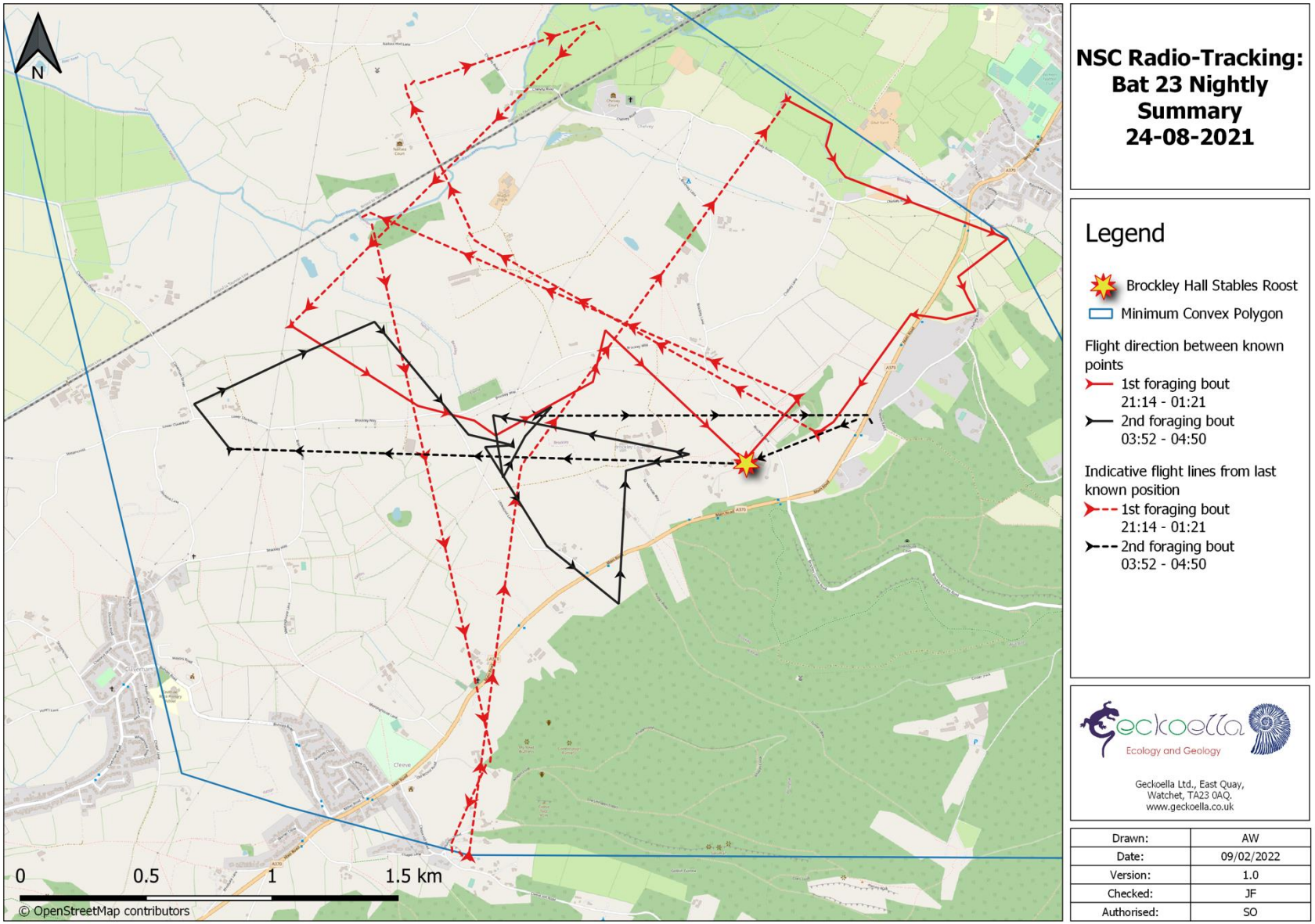
Map 3.120: NSC Radio-Tracking: Bat 23 Nightly Summary 22-08-2021



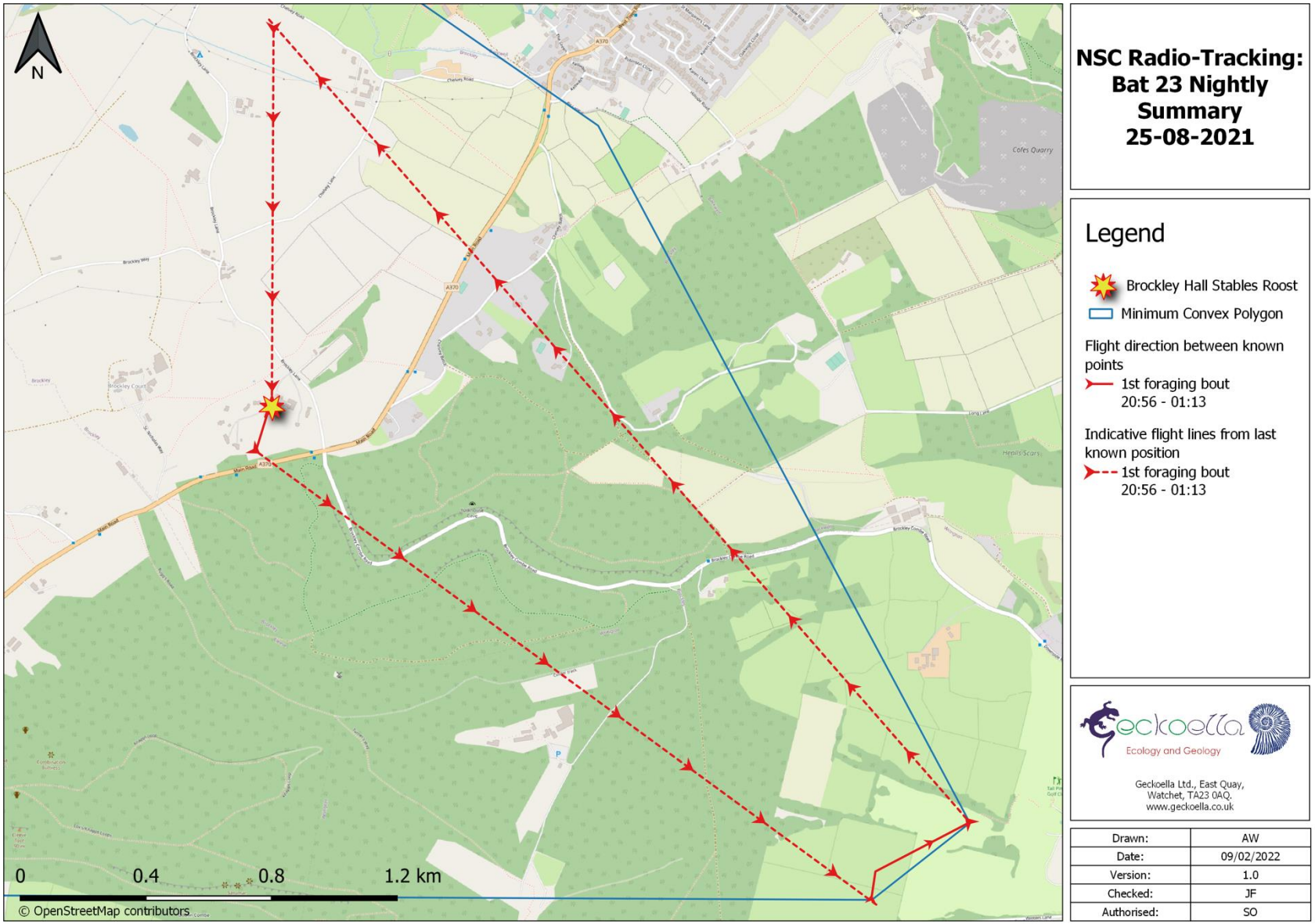
Map 3.121: NSC Radio-Tracking: Bat 23 Nightly Summary 23-08-2021



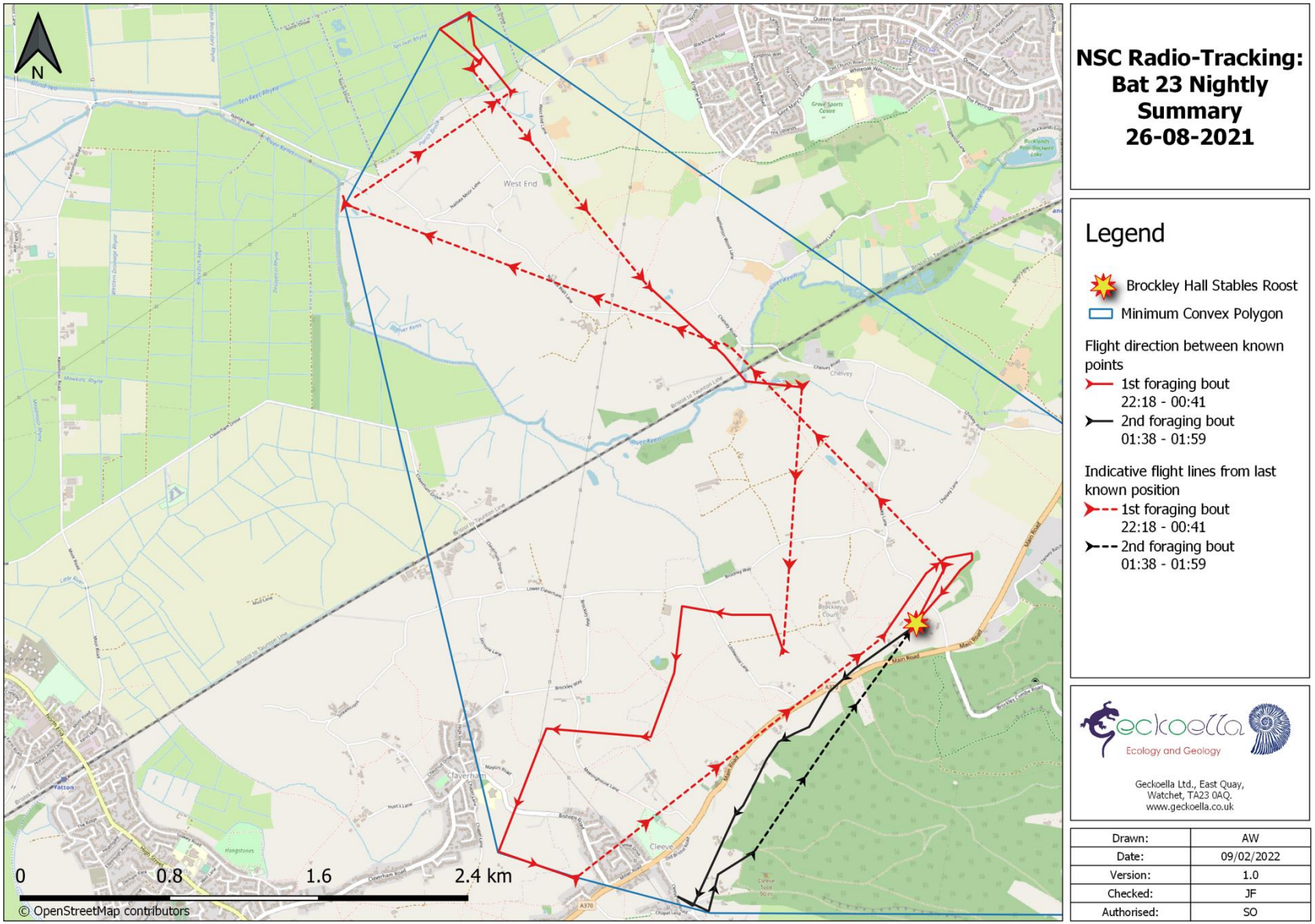
Map 3.122: NSC Radio-Tracking: Bat 23 Nightly Summary 24-08-2021



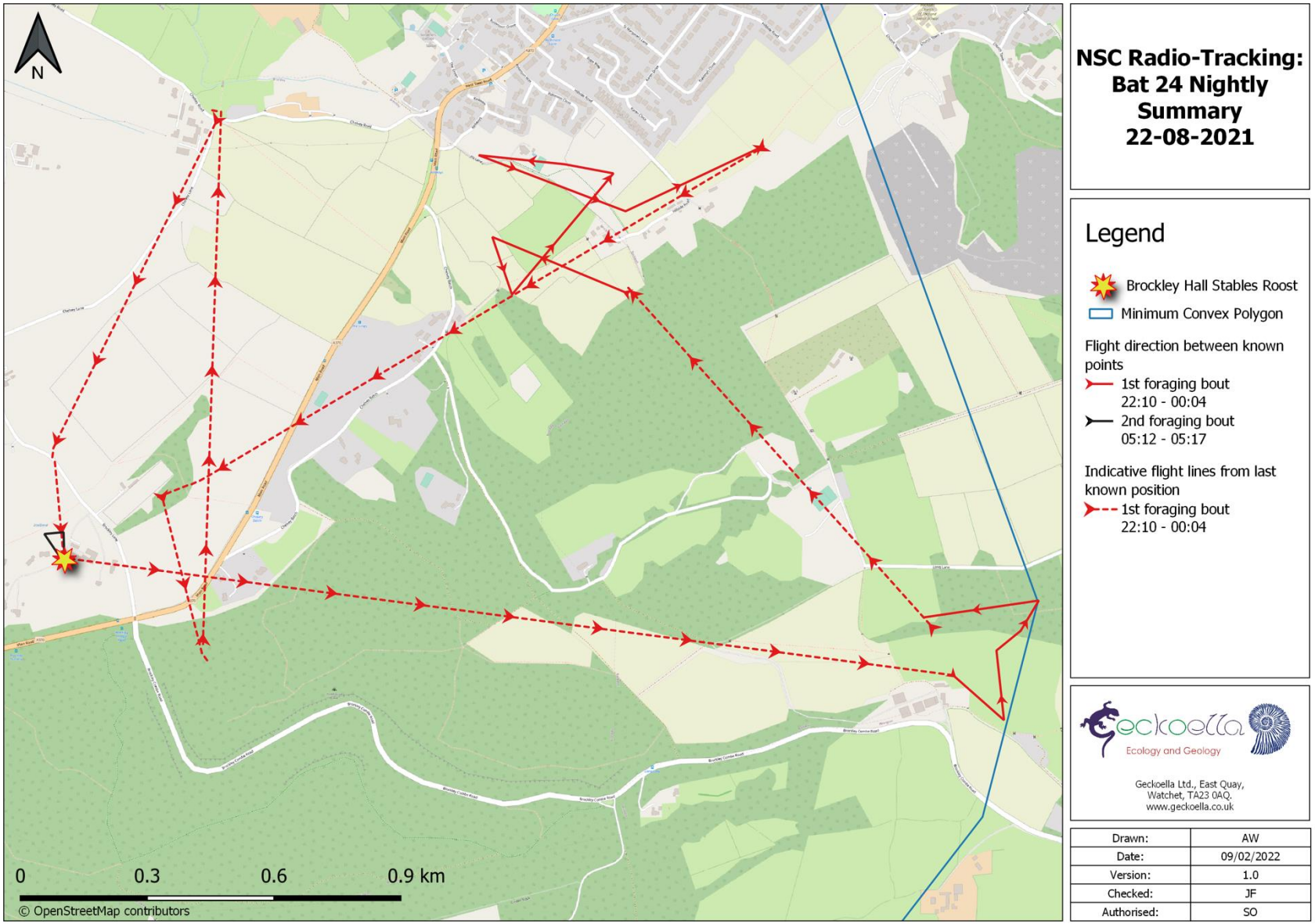
Map 3.123: NSC Radio-Tracking: Bat 23 Nightly Summary 25-08-2021



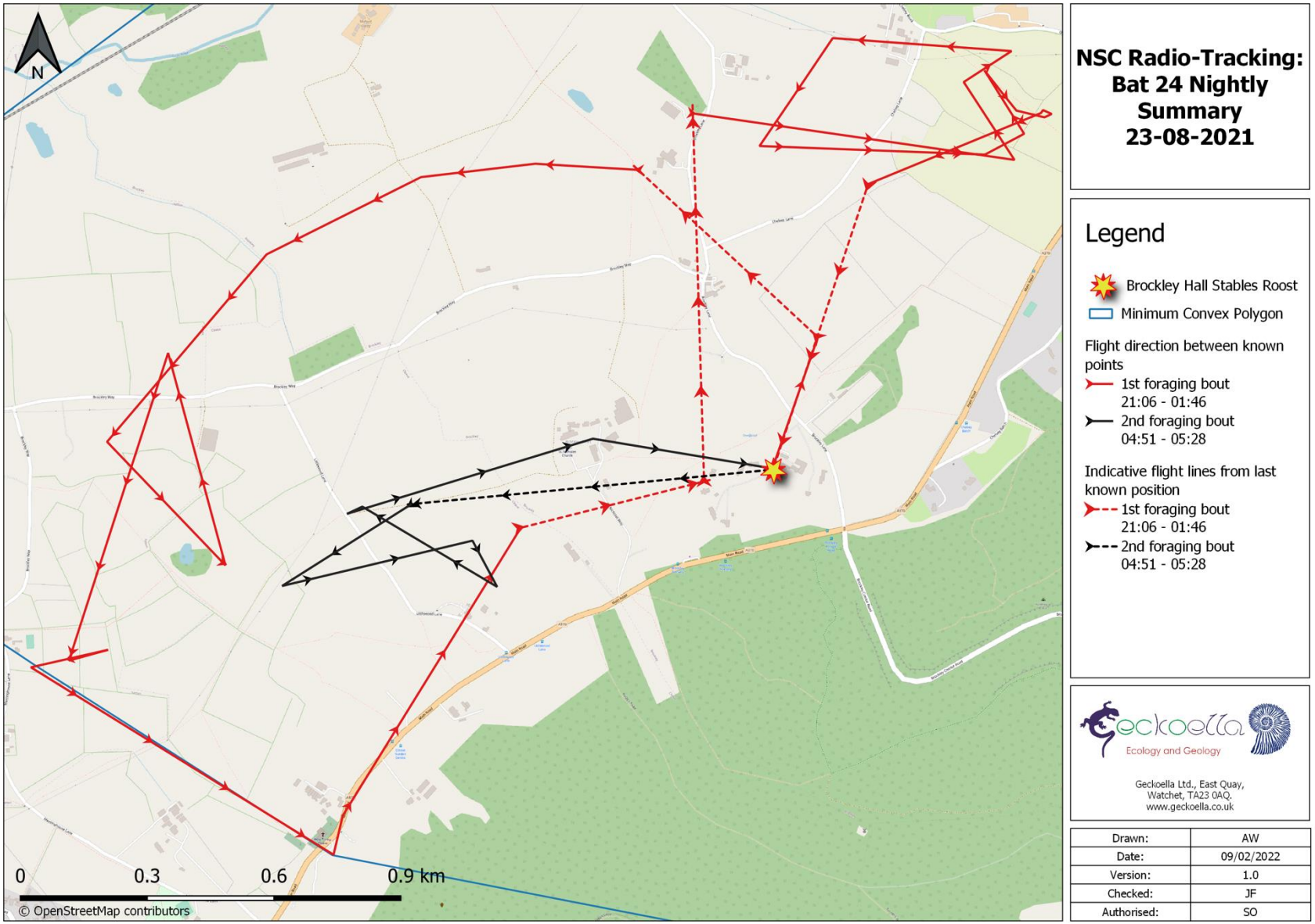
Map 3.124: NSC Radio-Tracking: Bat 23 Nightly Summary 26-08-2021



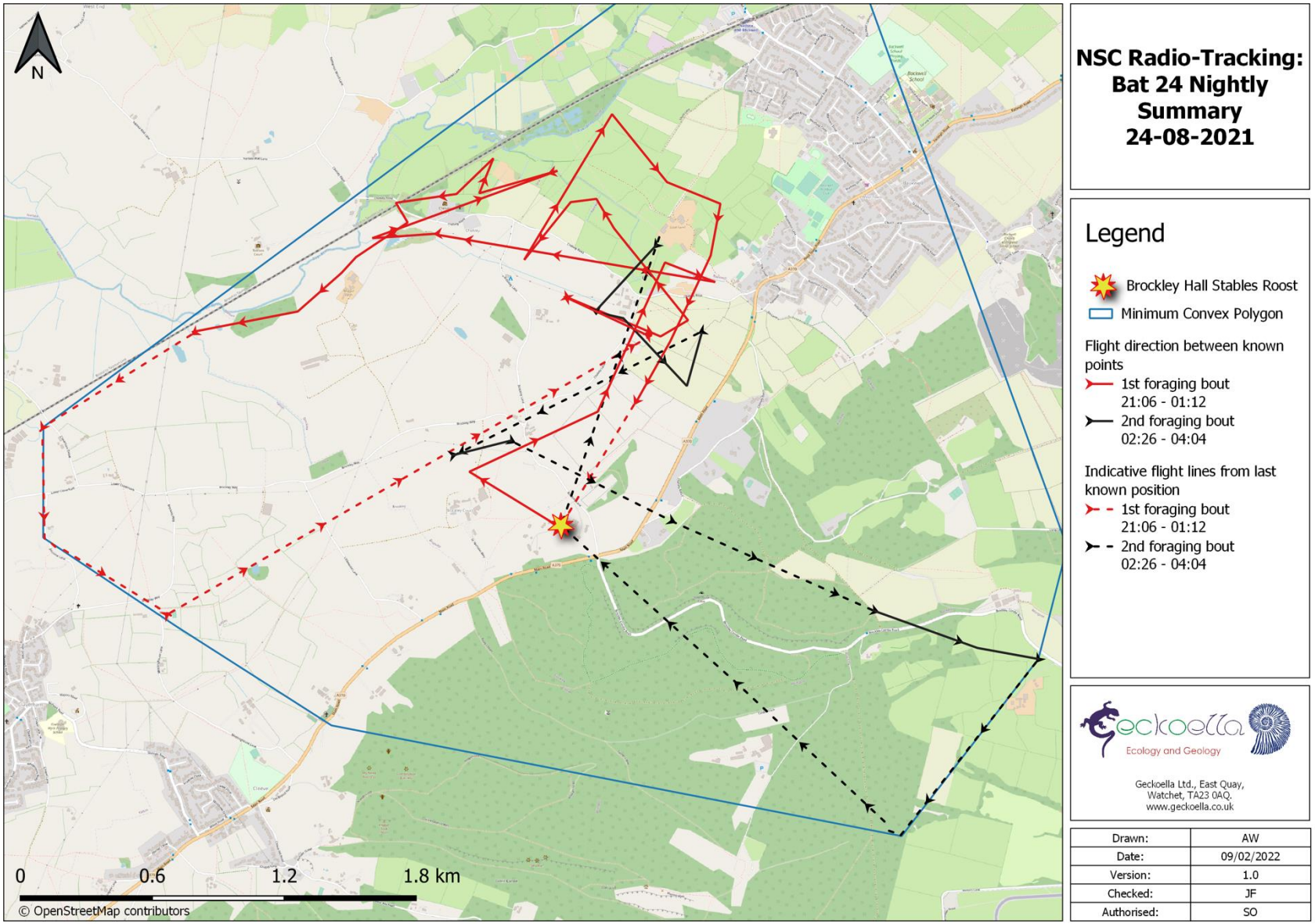
Map 3.125: NSC Radio-Tracking: Bat 24 Nightly Summary 22-08-2021



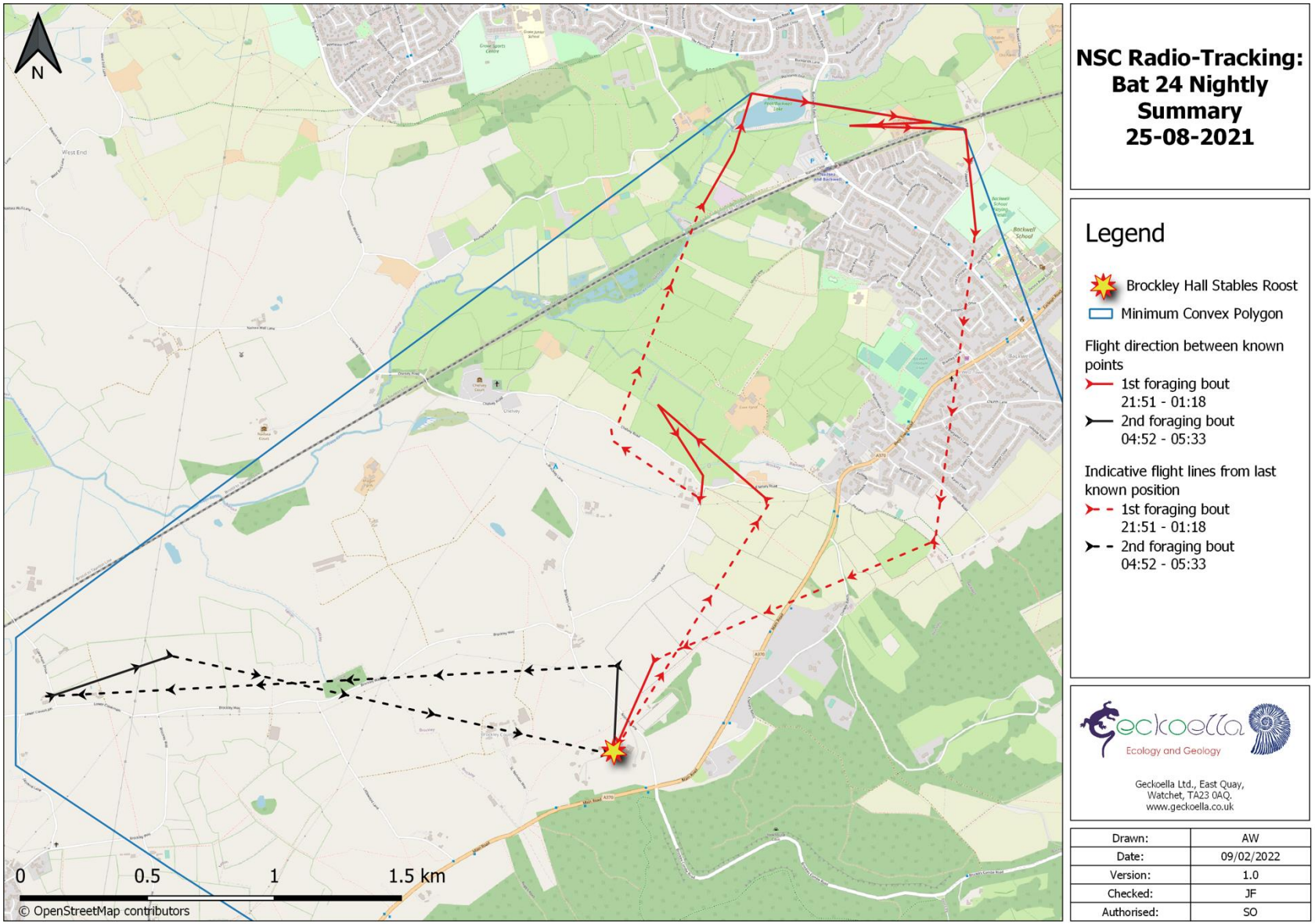
Map 3.126: NSC Radio-Tracking: Bat 24 Nightly Summary 23-08-2021



Map 3.127: NSC Radio-Tracking: Bat 24 Nightly Summary 24-08-2021

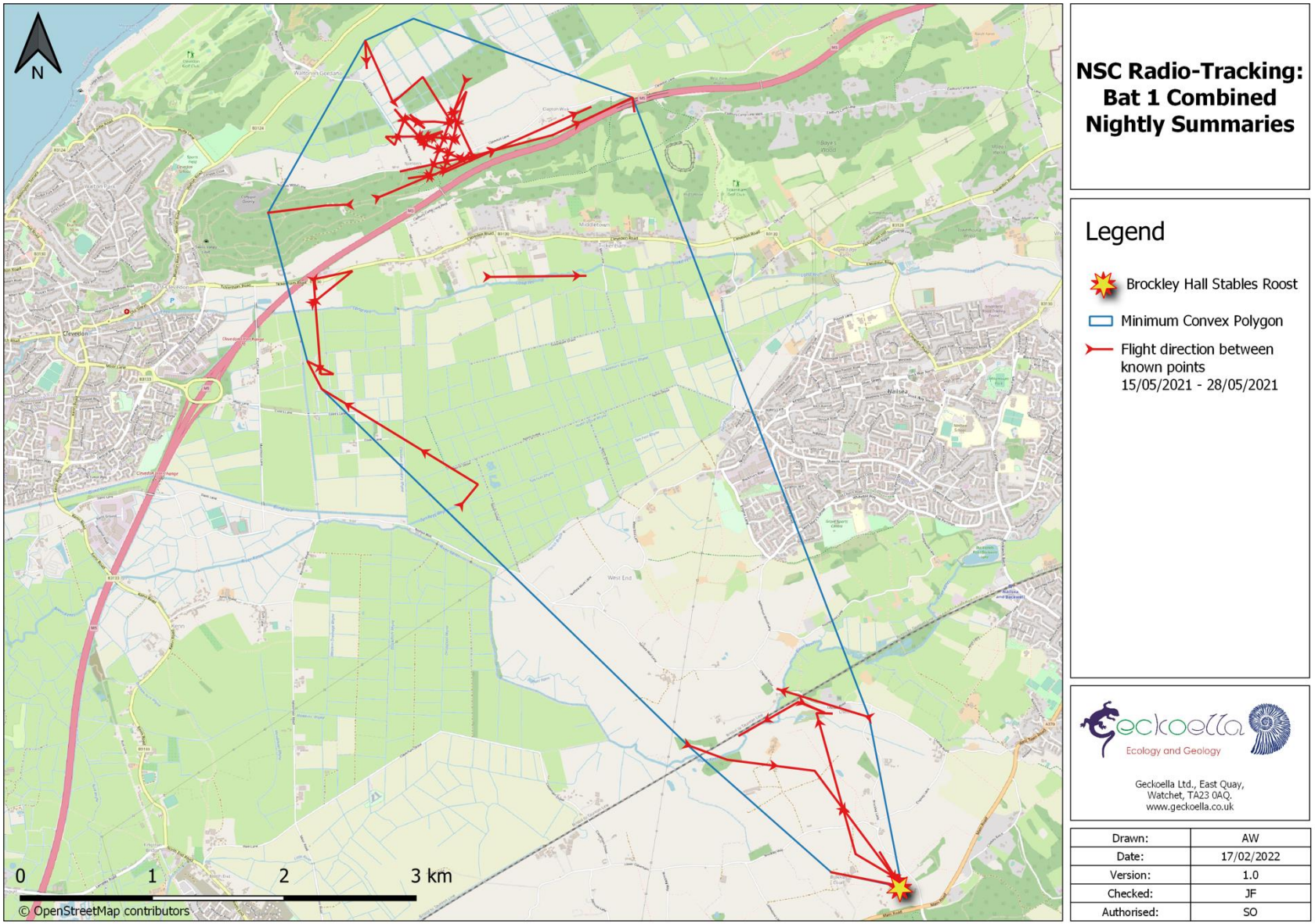


Map 3.128: NSC Radio-Tracking: Bat 24 Nightly Summary 25-08-2021

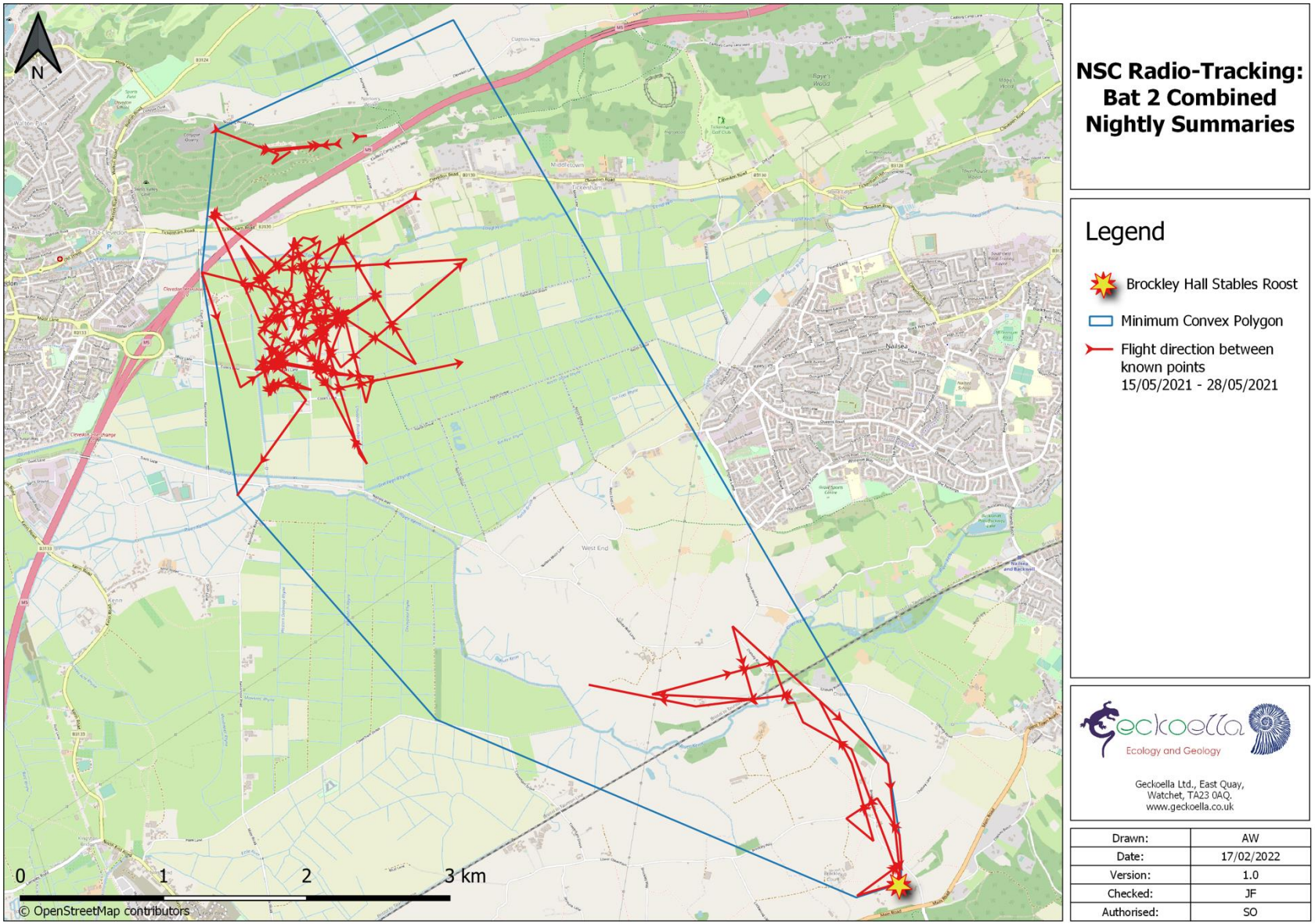


Appendix 4: Combined Nightly Summaries for Individual Bats

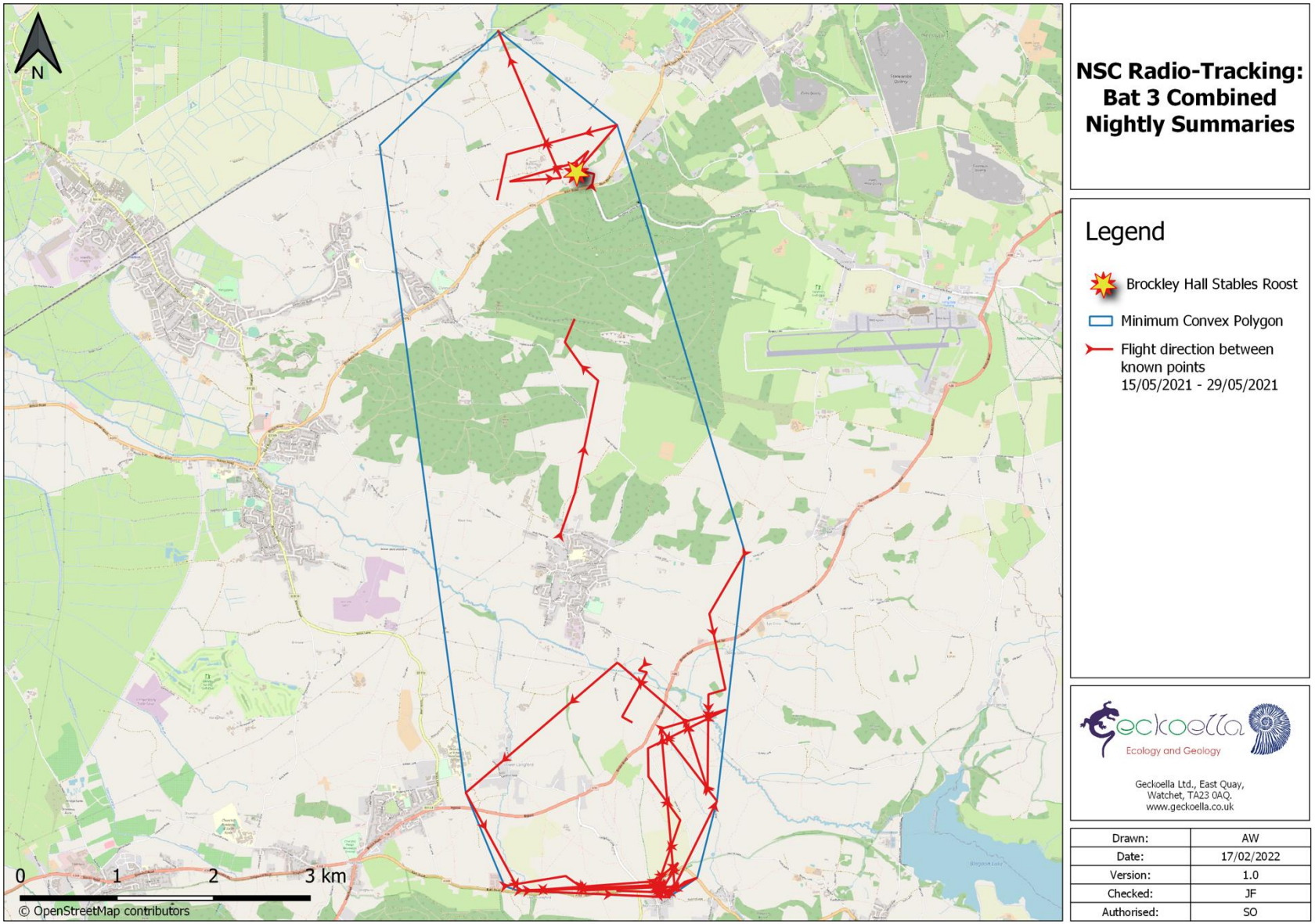
Map 4.1: NSC Radio-Tracking: Bat 1 Combined Nightly Summary



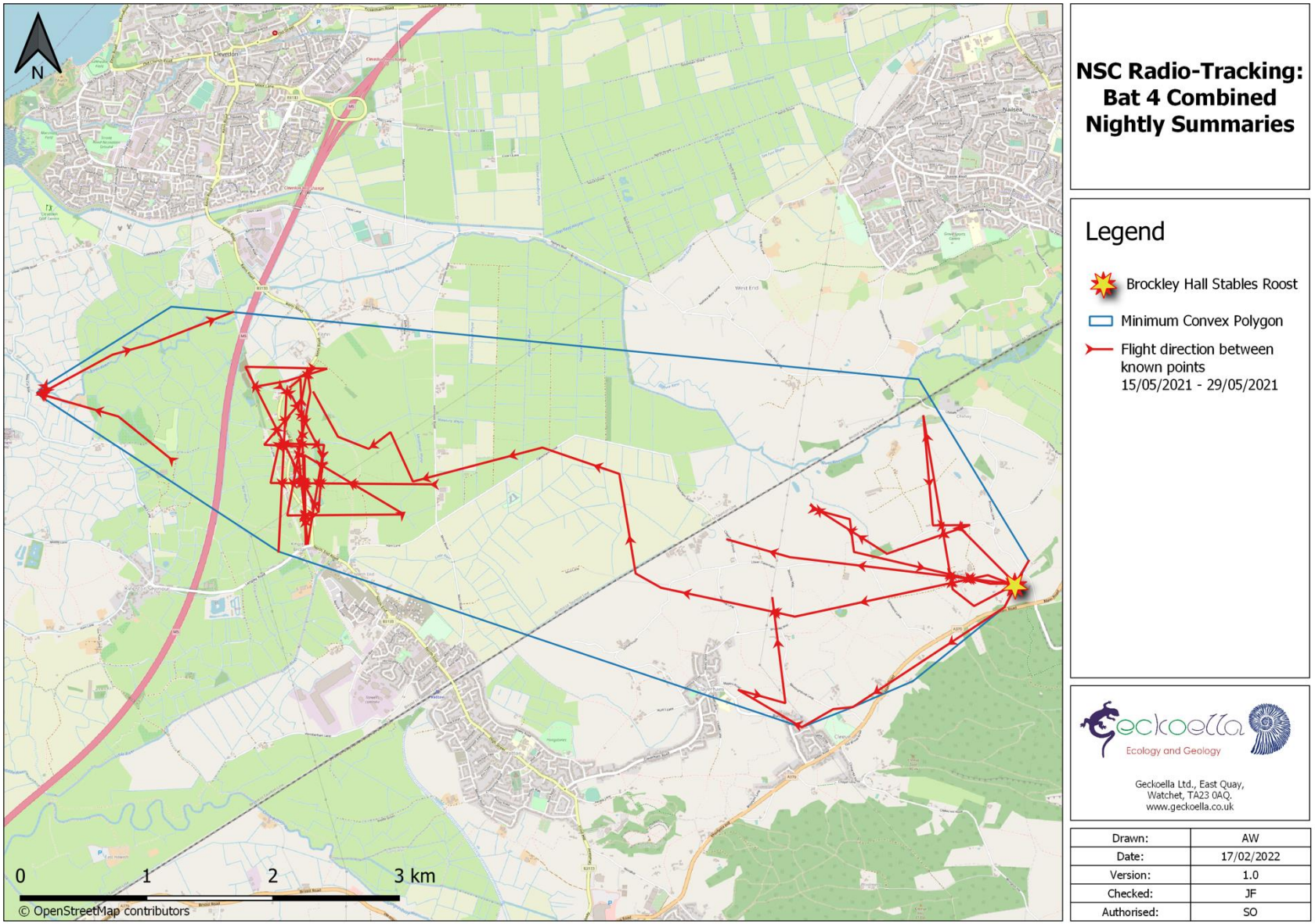
Map 4.2: NSC Radio-Tracking: Bat 2 Combined Nightly Summary



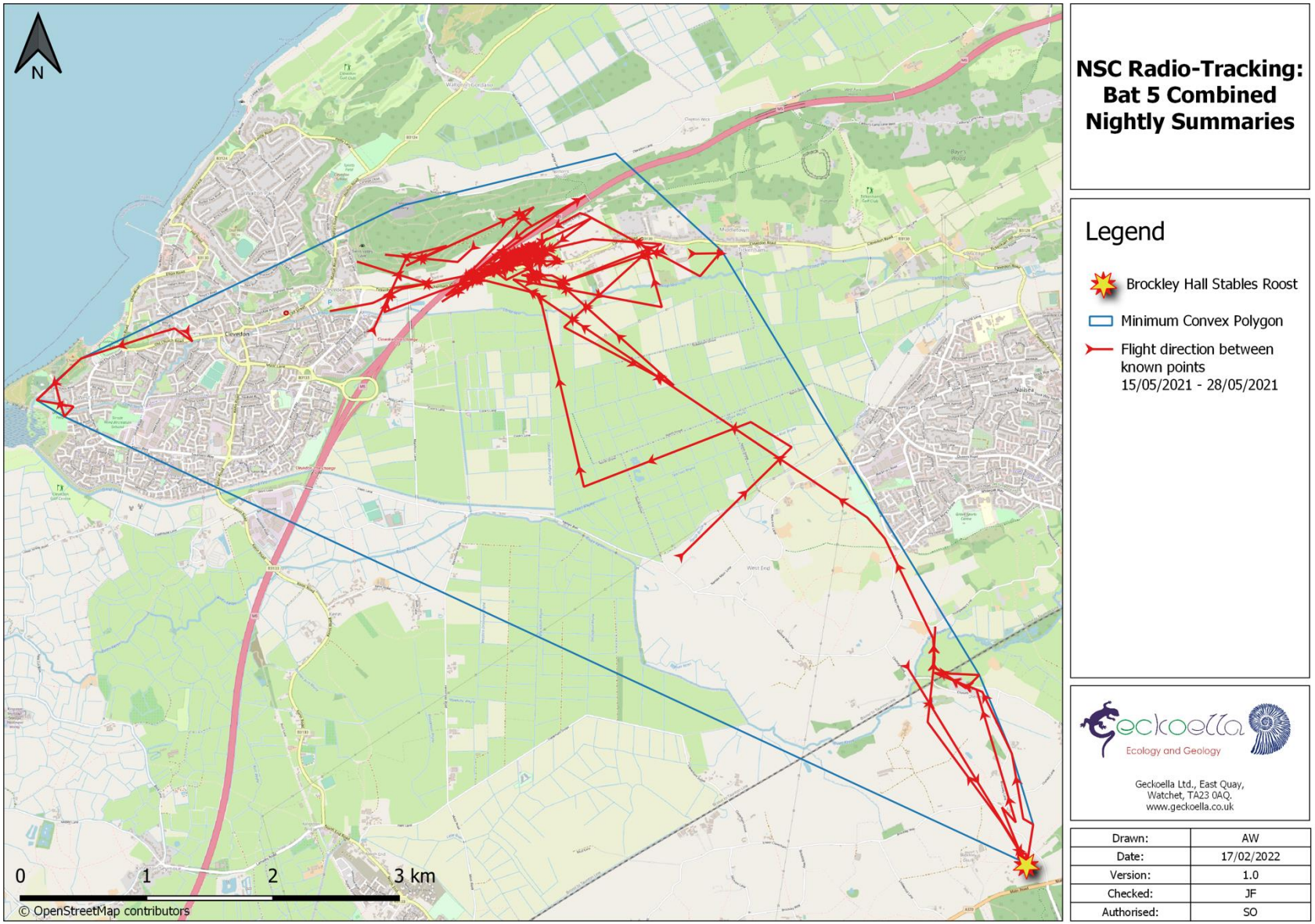
Map 4.3: NSC Radio-Tracking: Bat 3 Combined Nightly Summary



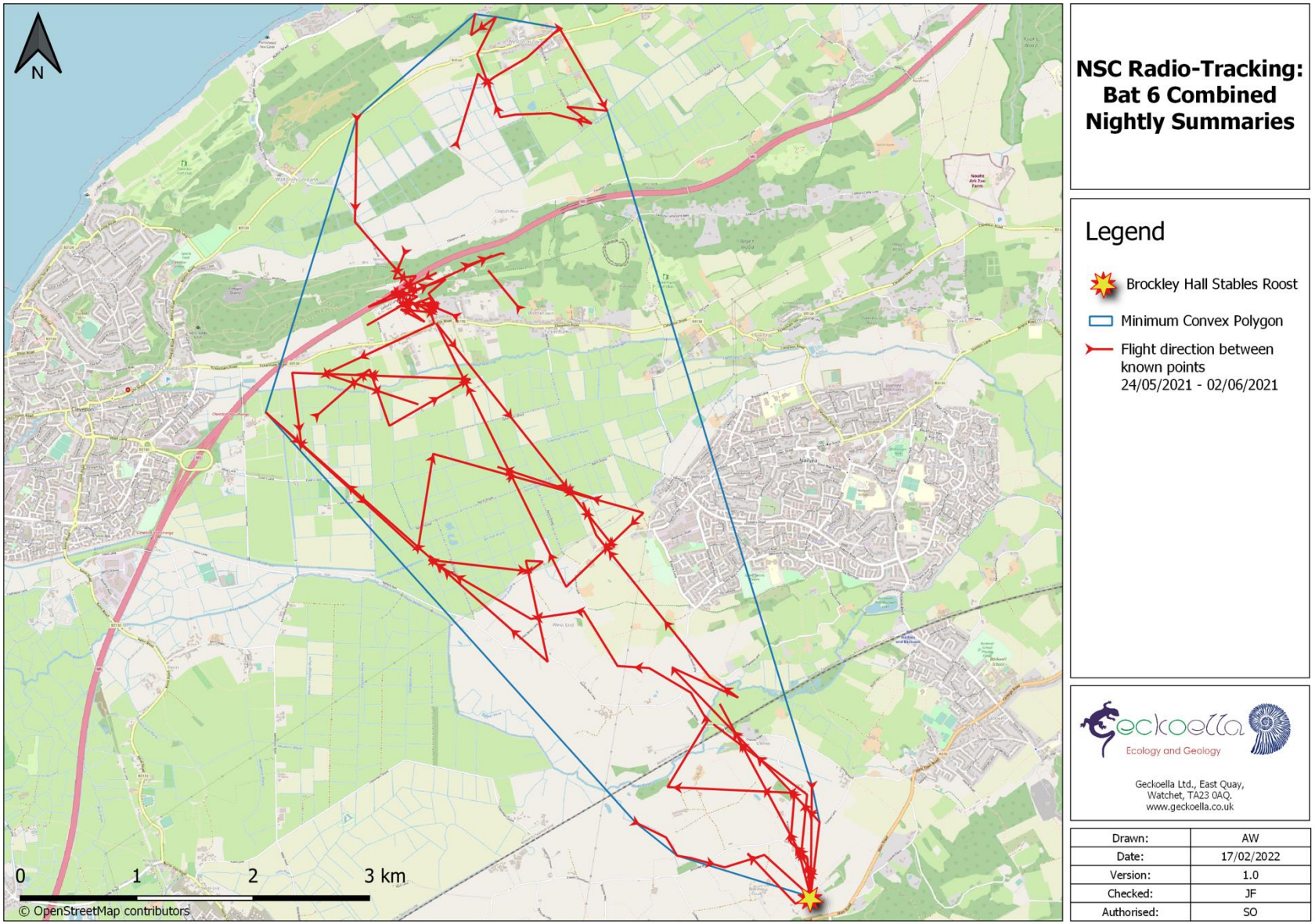
Map 4.4: NSC Radio-Tracking: Bat 4 Combined Nightly Summary



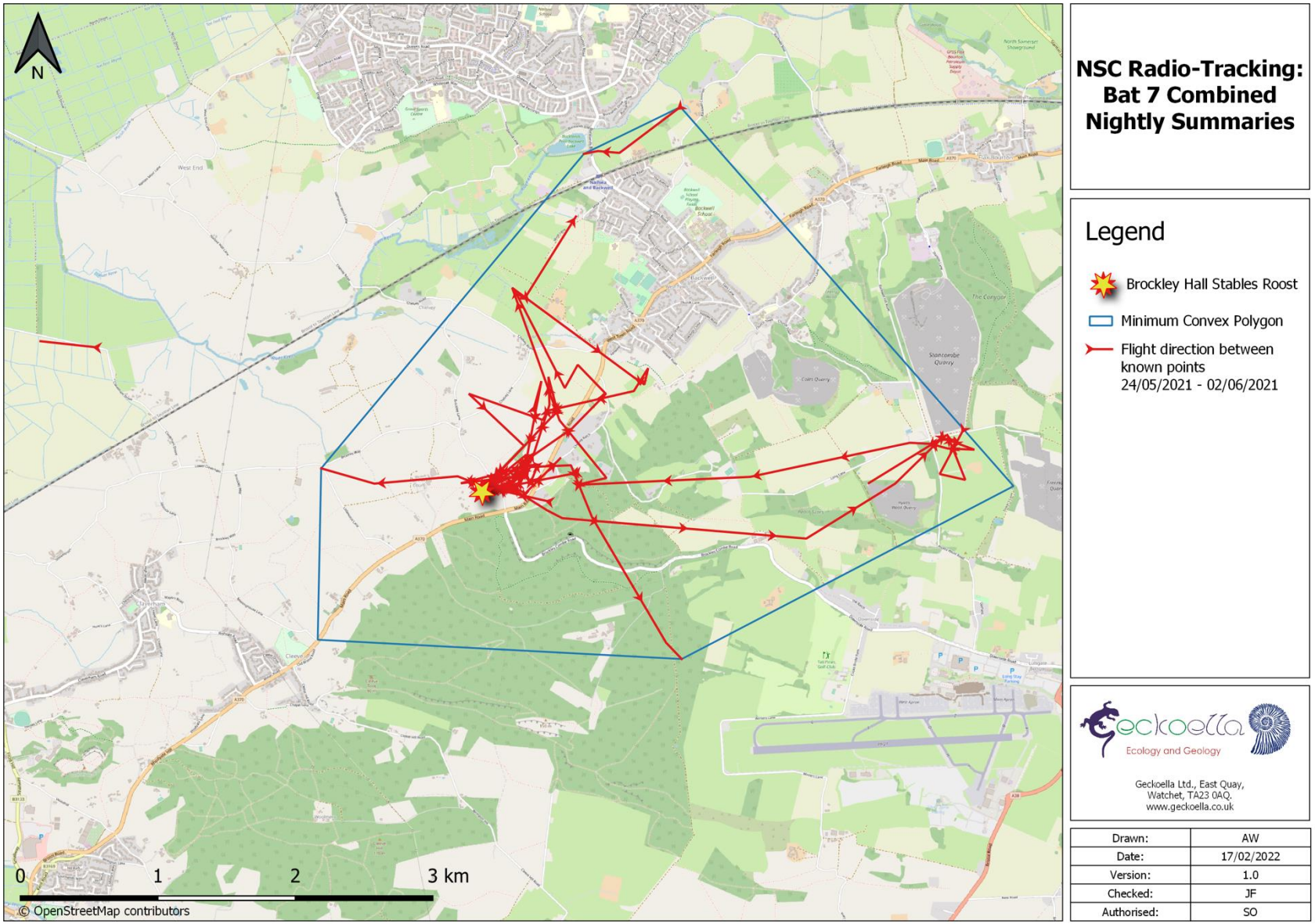
Map 4.5: NSC Radio-Tracking: Bat 5 Combined Nightly Summary



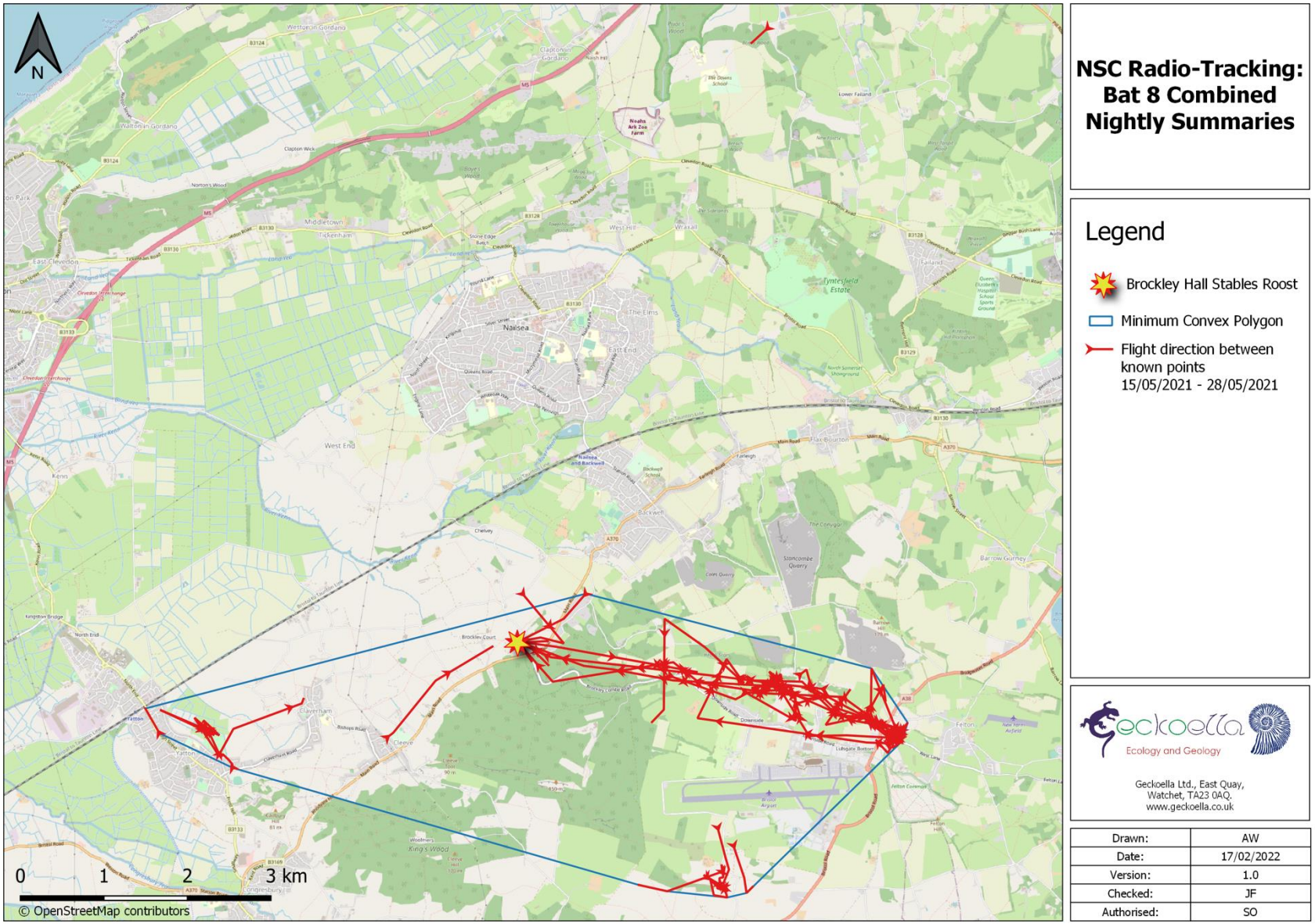
Map 4.6: NSC Radio-Tracking: Bat 6 Combined Nightly Summary



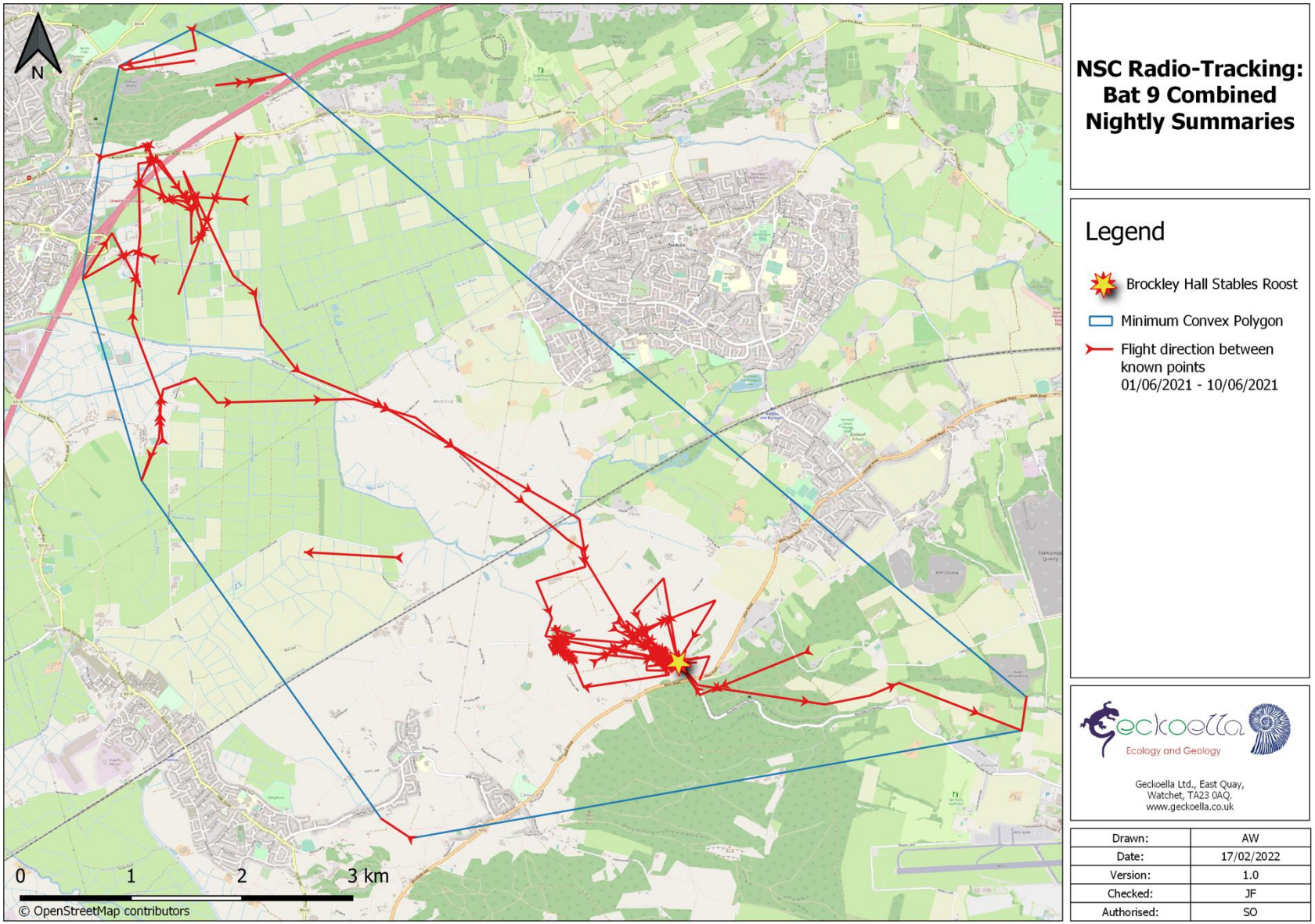
Map 4.7: NSC Radio-Tracking: Bat 7 Combined Nightly Summary



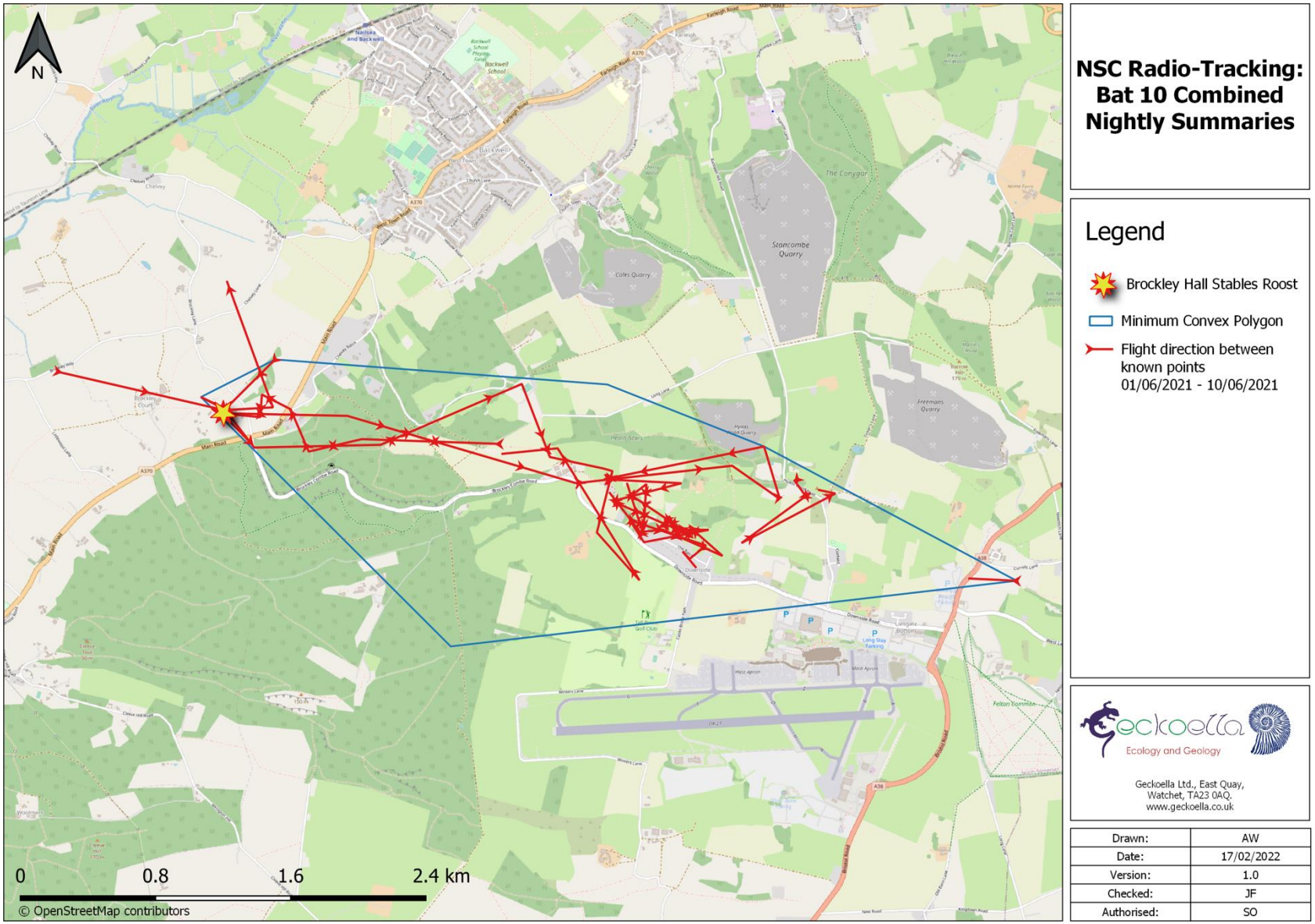
Map 4.8: NSC Radio-Tracking: Bat 8 Combined Nightly Summary



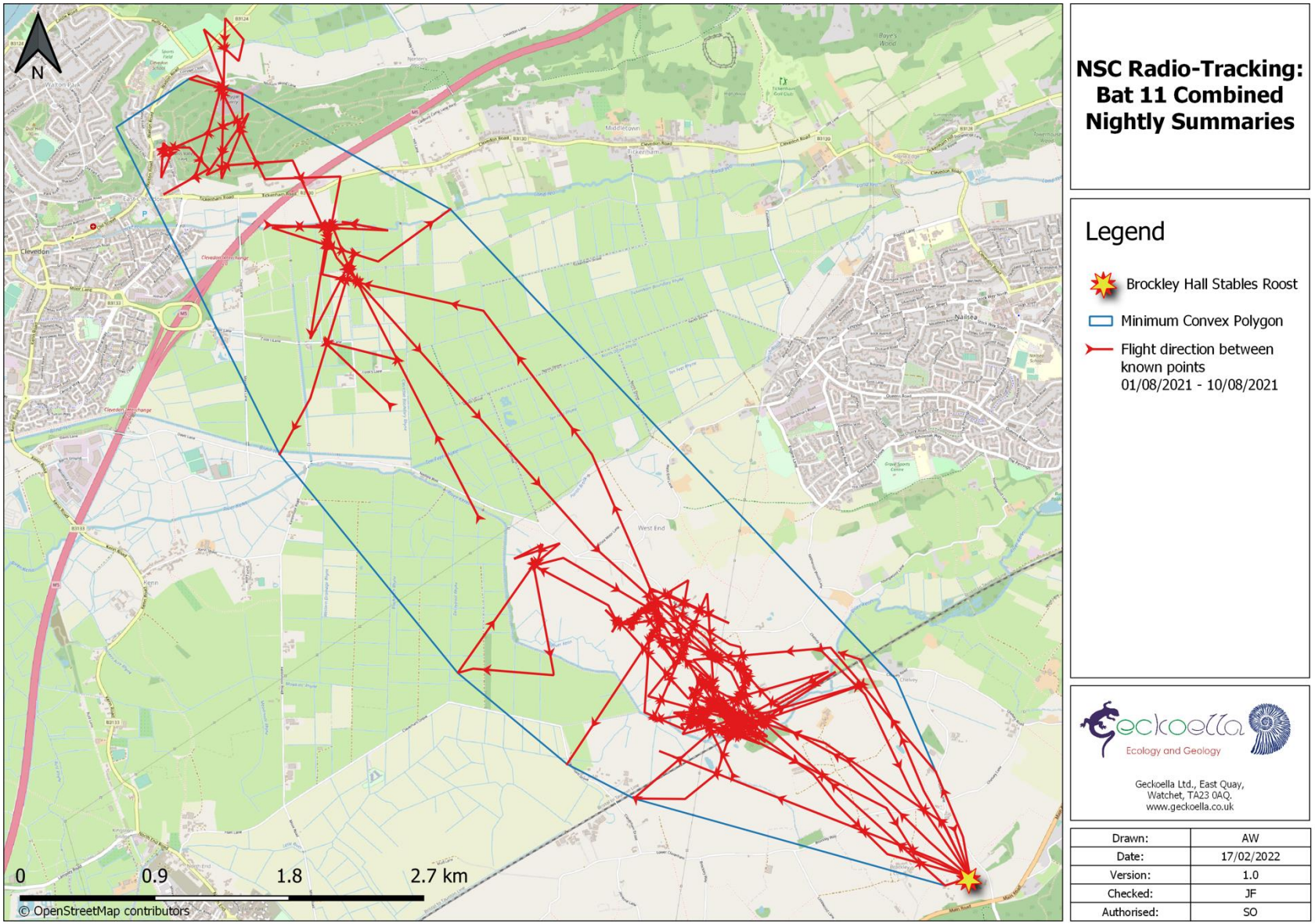
Map 4.9: NSC Radio-Tracking: Bat 9 Combined Nightly Summary



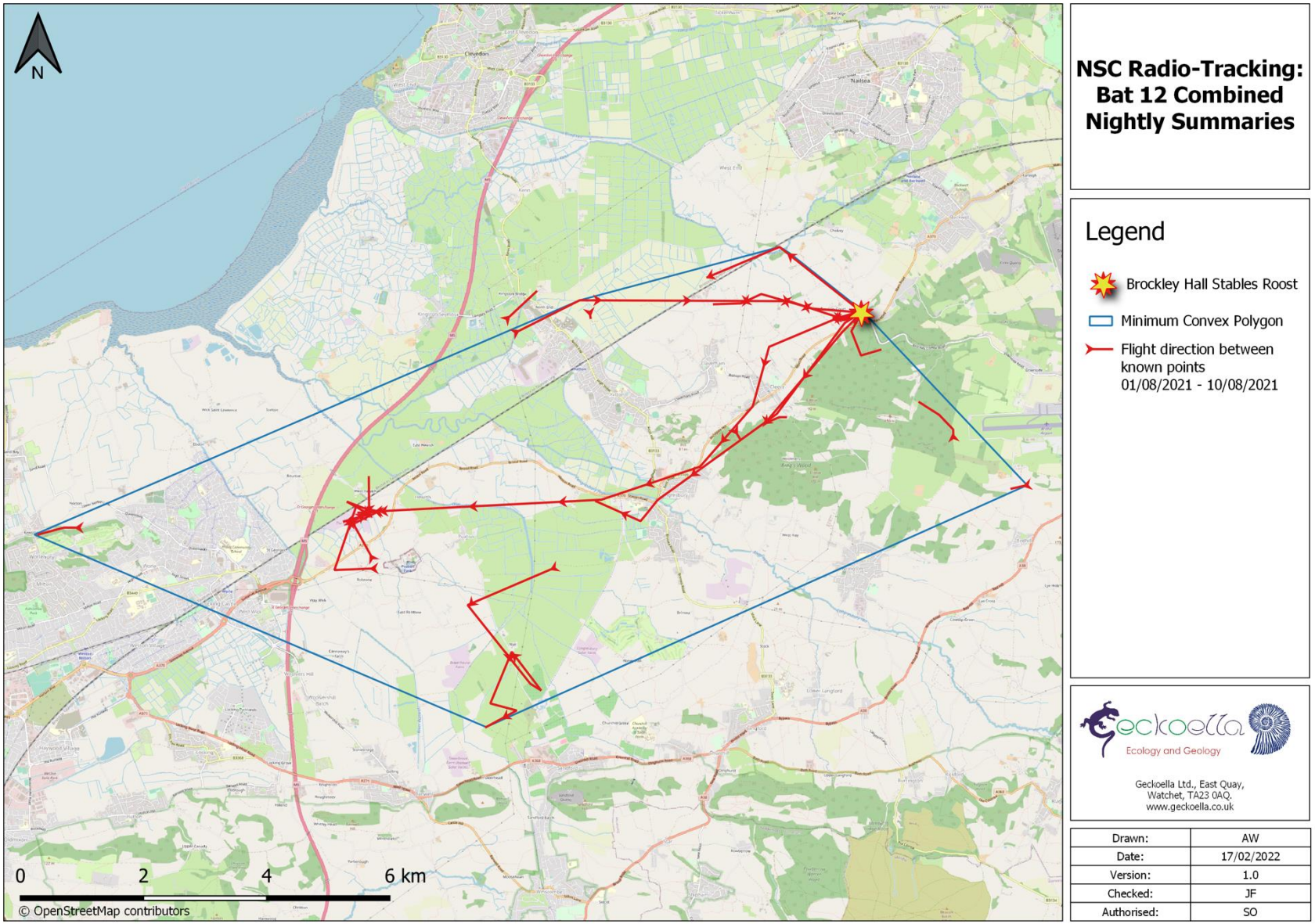
Map 4.10: NSC Radio-Tracking: Bat 10 Combined Nightly Summary



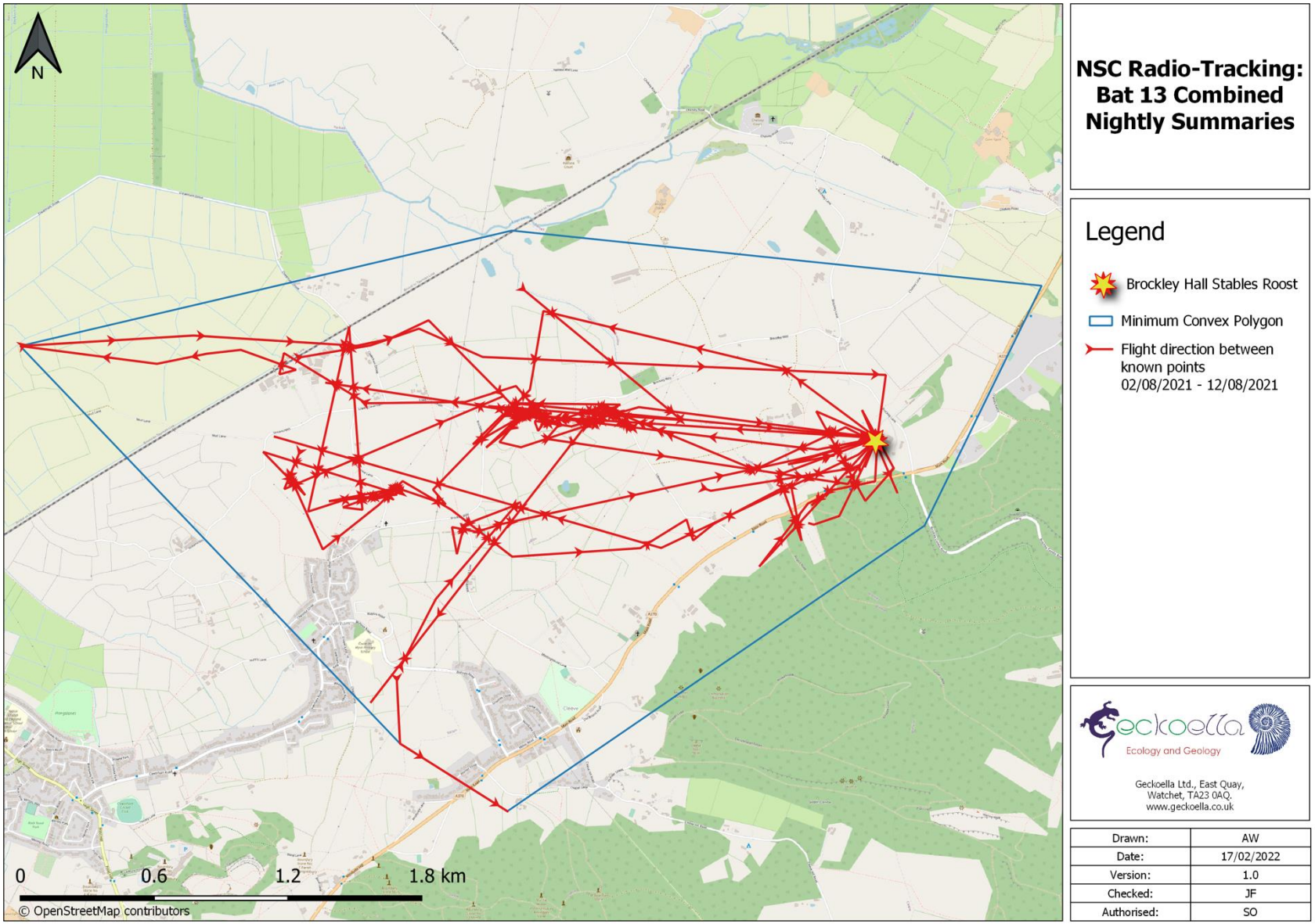
Map 4.11: NSC Radio-Tracking: Bat 11 Combined Nightly Summary



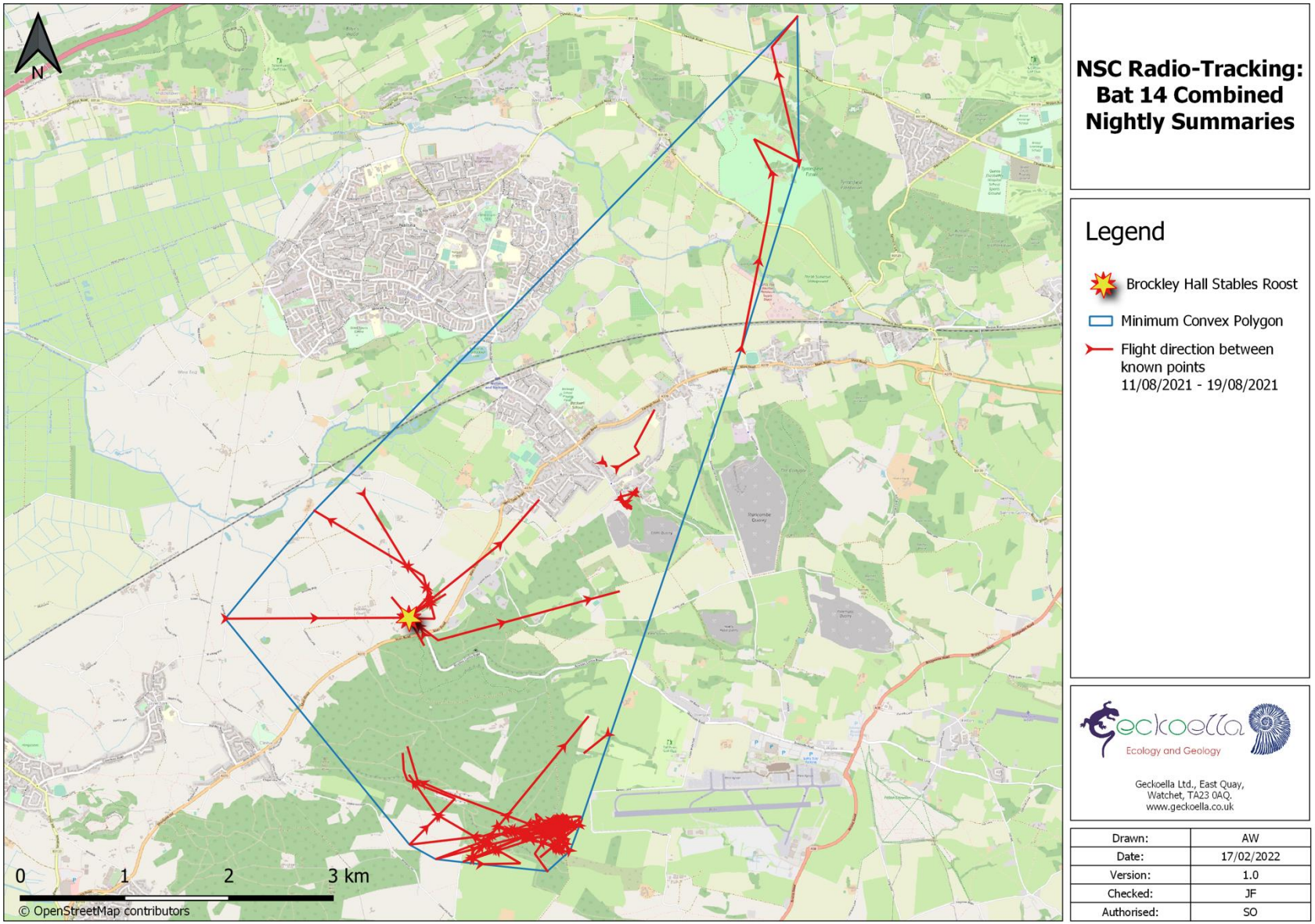
Map 4.12: NSC Radio-Tracking: Bat 12 Combined Nightly Summary



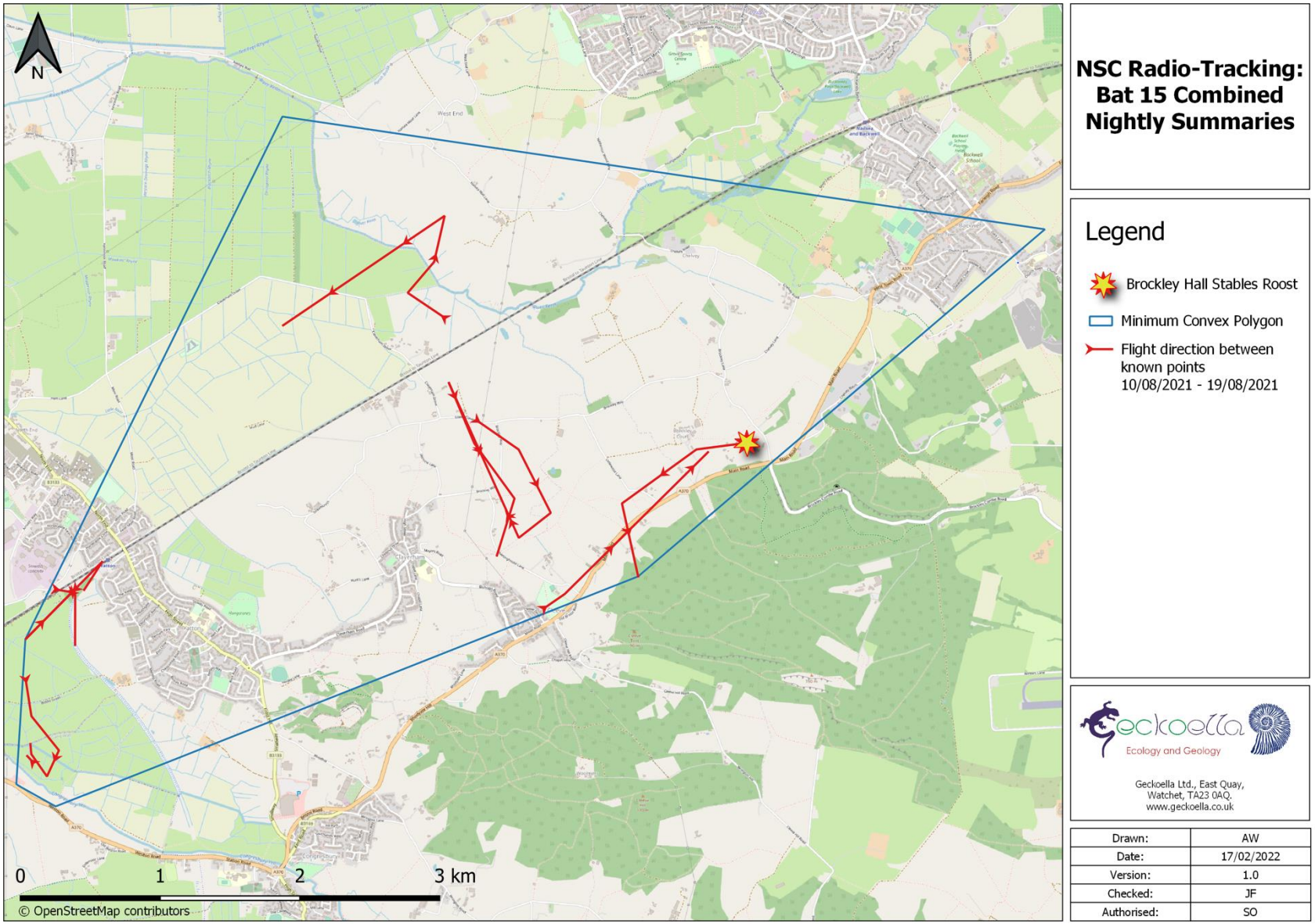
Map 4.13: NSC Radio-Tracking: Bat 13 Combined Nightly Summary



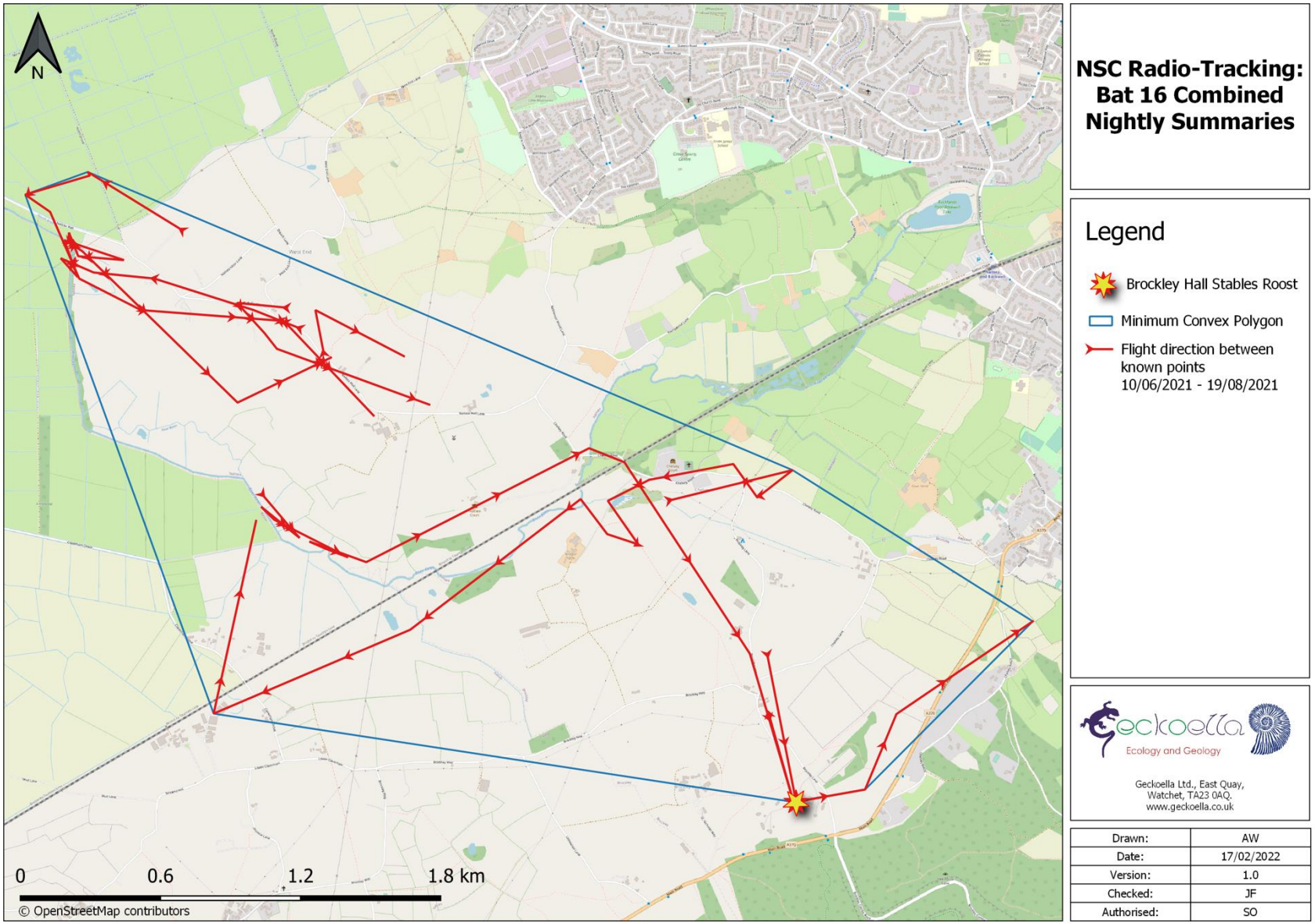
Map 4.14: NSC Radio-Tracking: Bat 14 Combined Nightly Summary



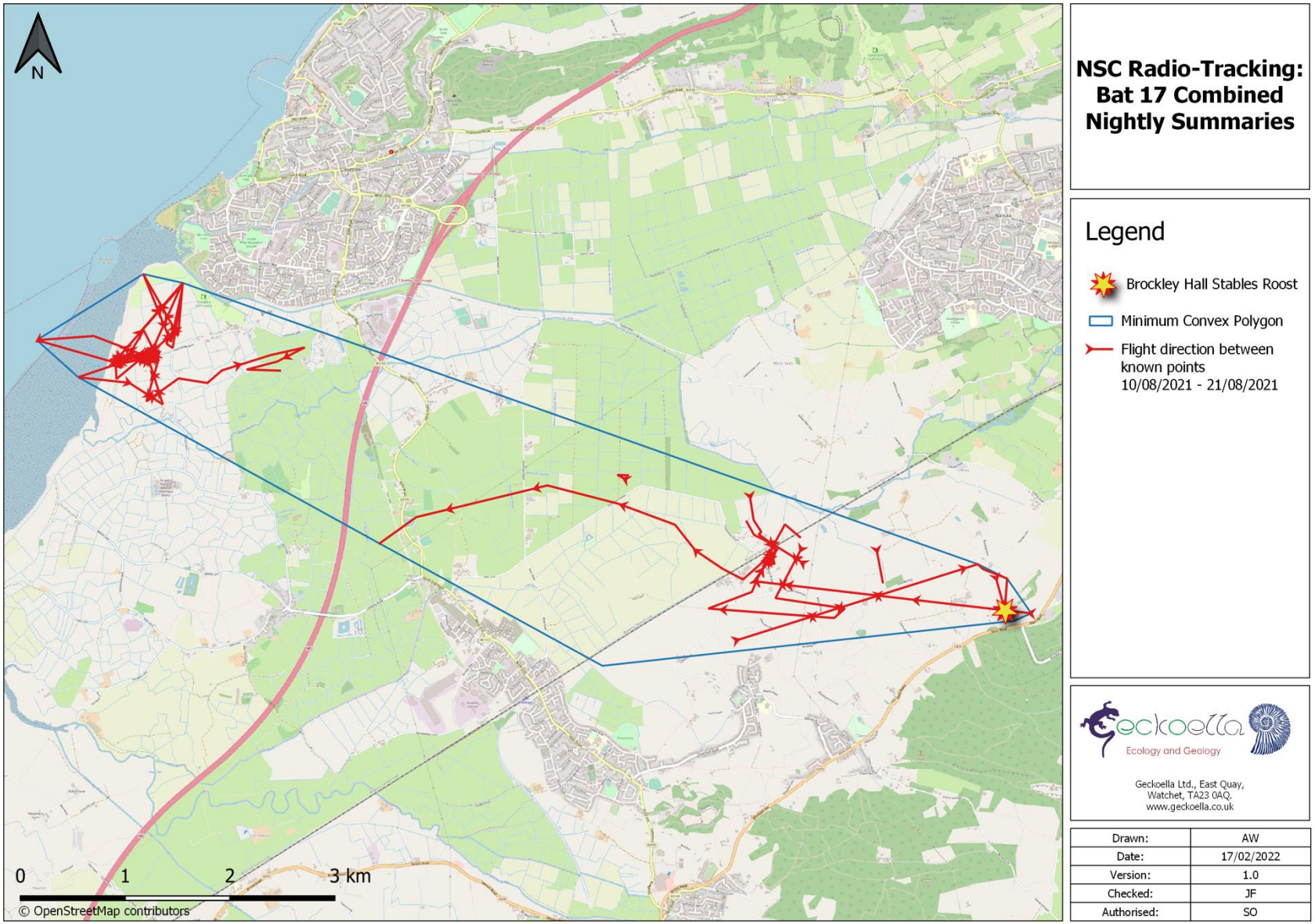
Map 4.15: NSC Radio-Tracking: Bat 15 Combined Nightly Summary



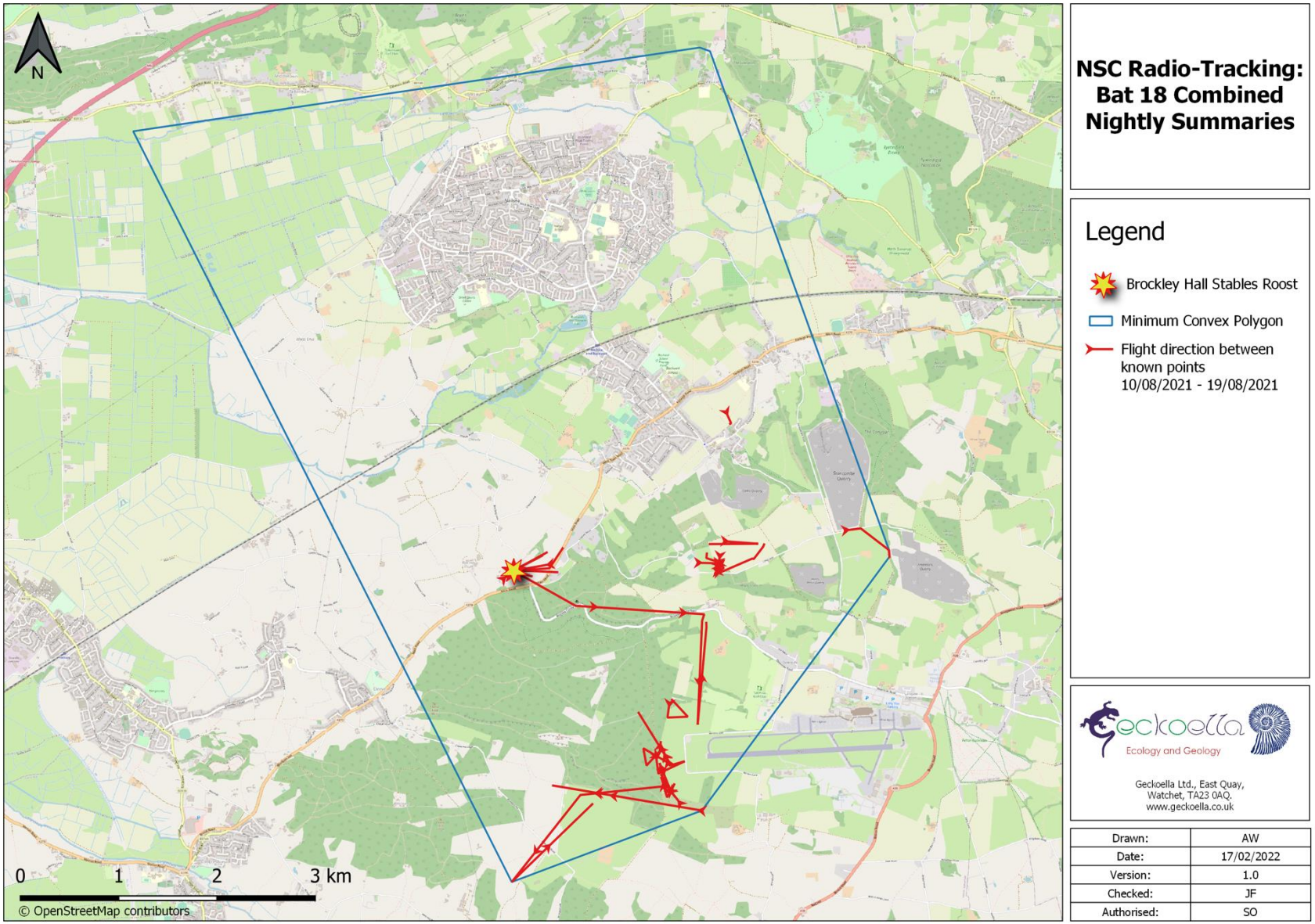
Map 4.16: NSC Radio-Tracking: Bat 16 Combined Nightly Summary



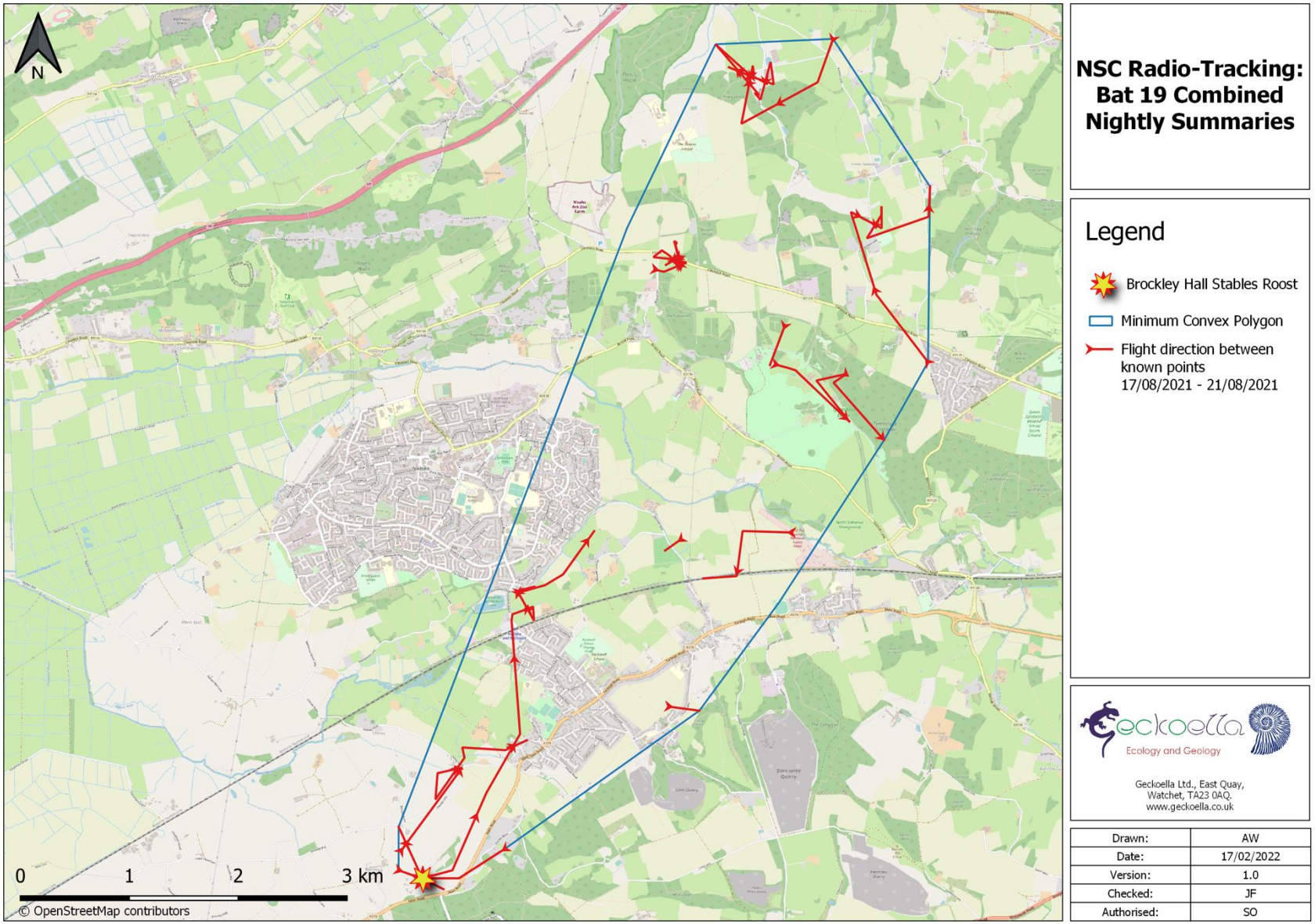
Map 4.17: NSC Radio-Tracking: Bat 17 Combined Nightly Summary



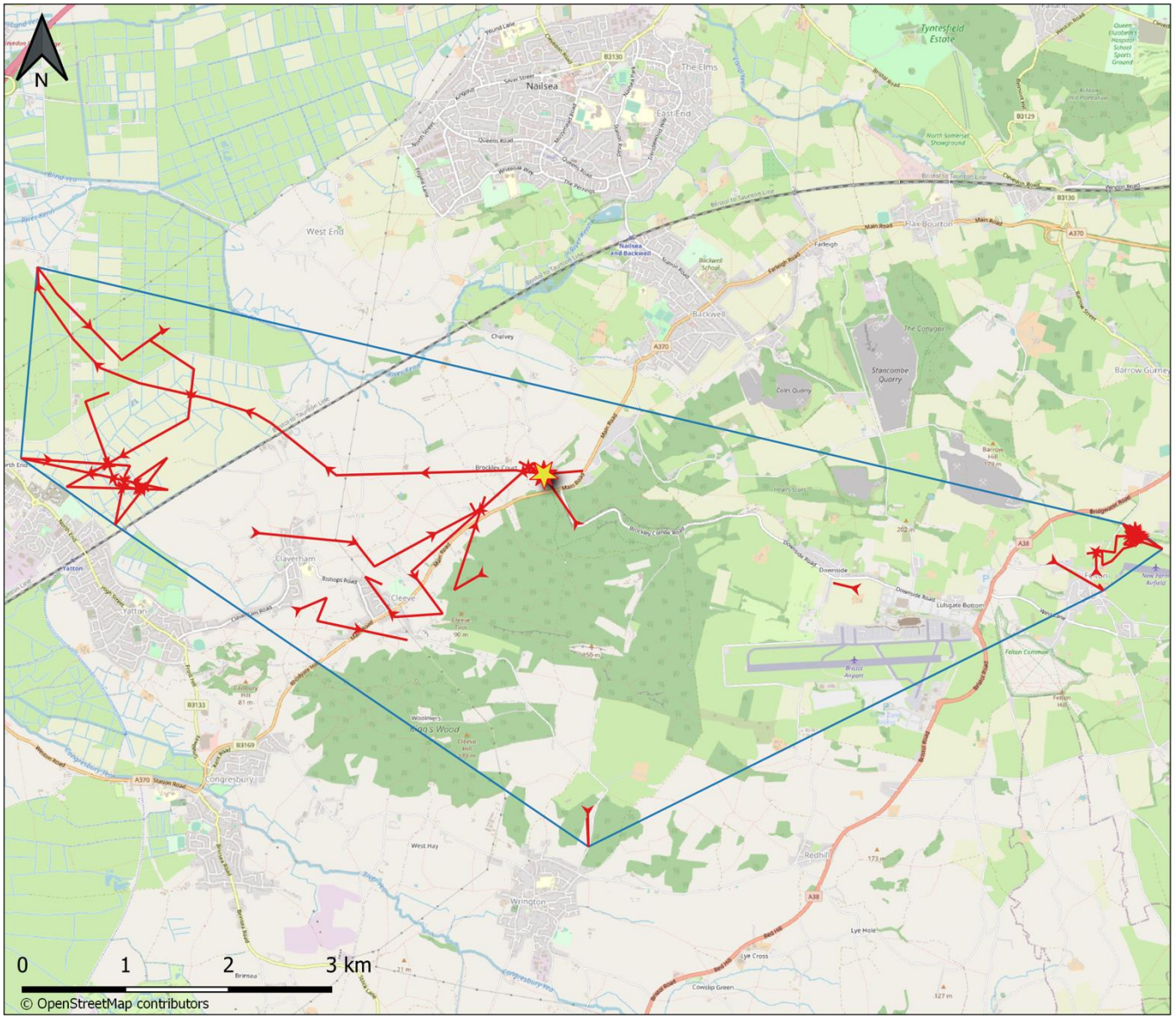
Map 4.18: NSC Radio-Tracking: Bat 18 Combined Nightly Summary



Map 4.19: NSC Radio-Tracking: Bat 19 Combined Nightly Summary



Map 4.20: NSC Radio-Tracking: Bat 20 Combined Nightly Summary



NSC Radio-Tracking: Bat 20 Combined Nightly Summaries

Legend

- Brockley Hall Stables Roost
- Minimum Convex Polygon
- Flight direction between known points 17/08/2021 - 20/08/2021

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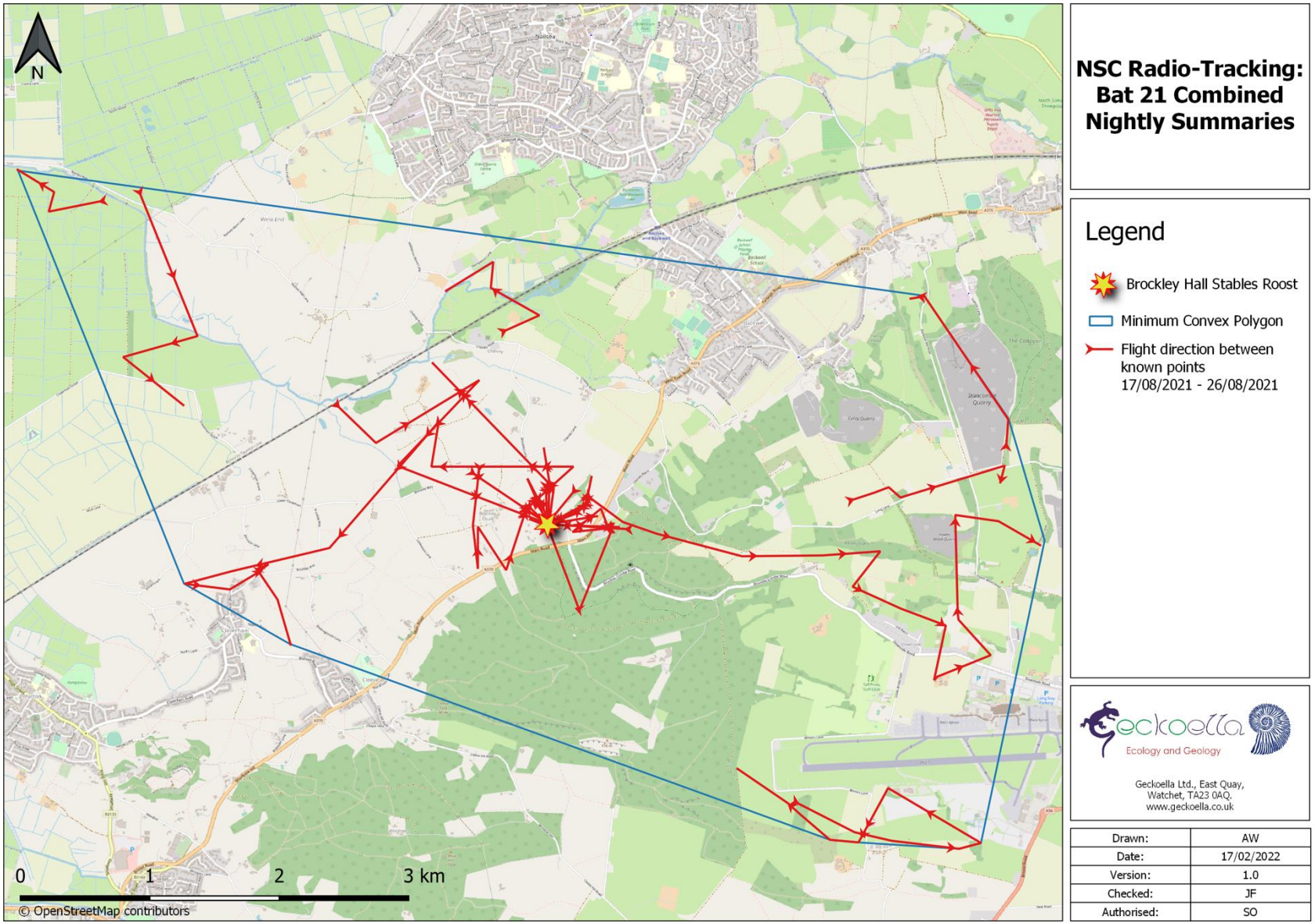
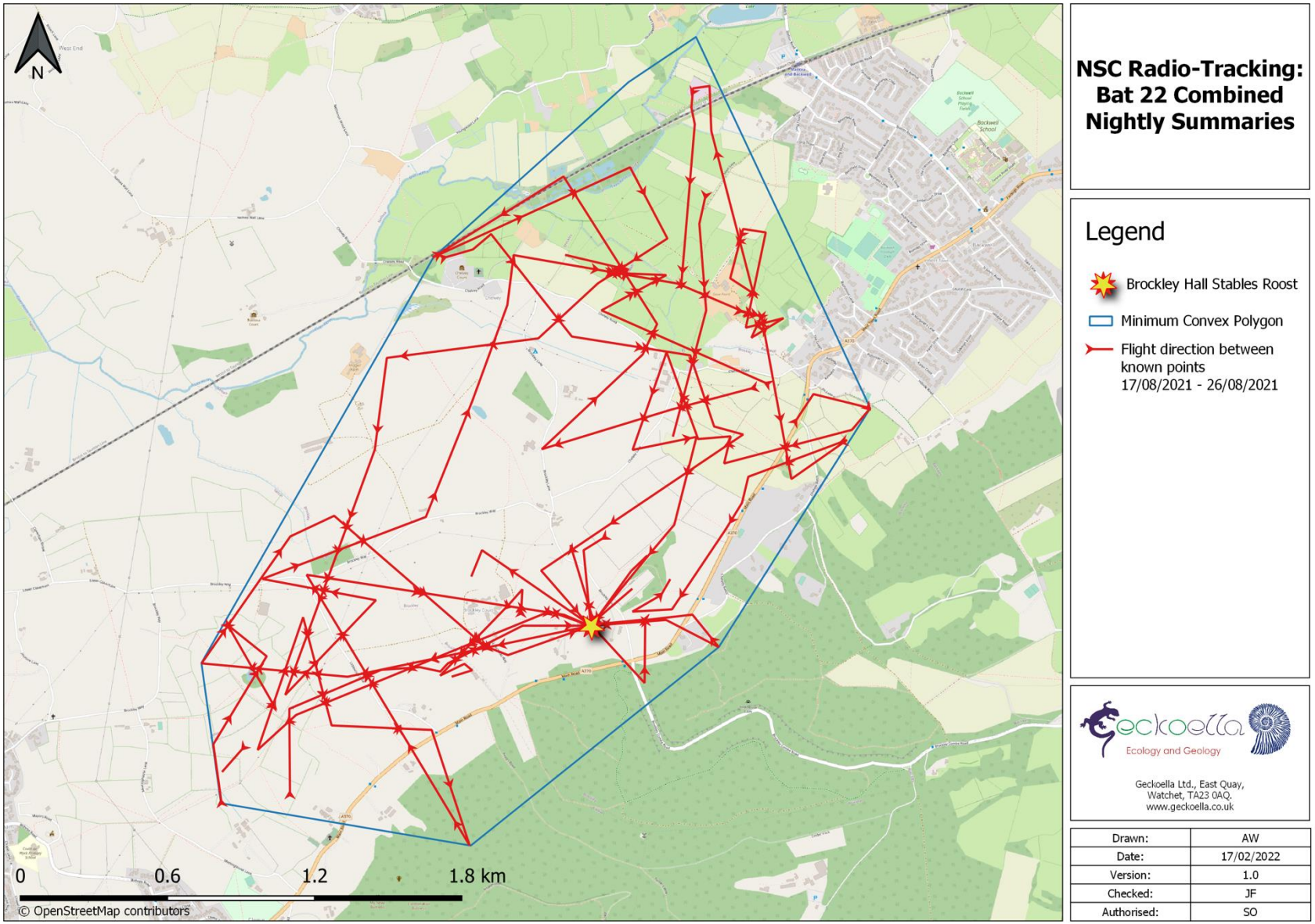
www.geckoella.co.uk

Drawn:	AW
Date:	17/02/2022
Version:	1.0
Checked:	JF
Authorised:	SO

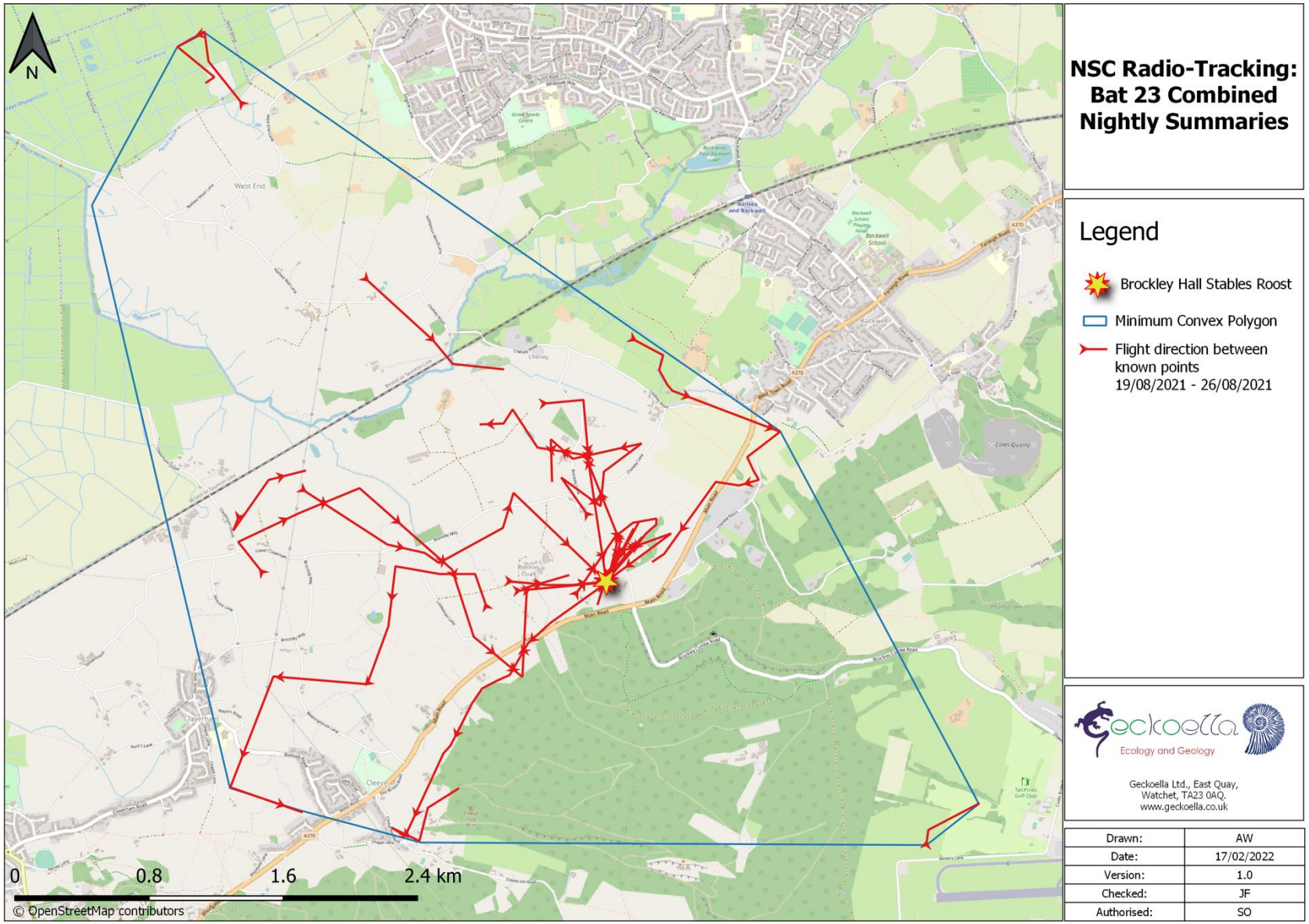
Map 4.21: NSC Radio-Tracking: Bat 21 Combined Nightly Summary



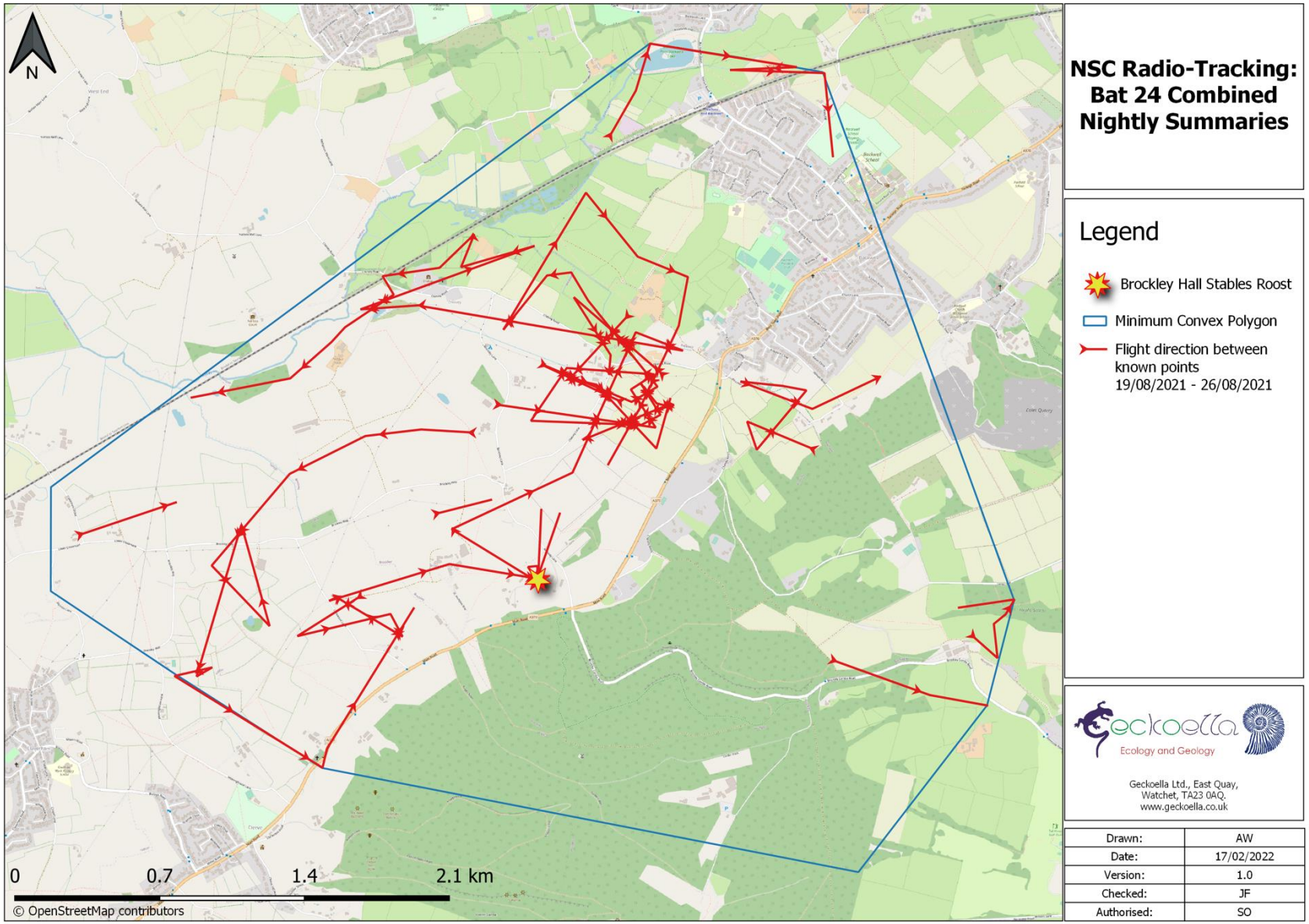
Map 4.22: NSC Radio-Tracking: Bat 22 Combined Nightly Summary



Map 4.23: NSC Radio-Tracking: Bat 23 Combined Nightly Summary



Map 4.24: NSC Radio-Tracking: Bat 24 Combined Nightly Summary



Appendix 5: Weather Conditions

Table 5.1: Pre-Maternity Tracking Period

Date	Period of Night[2]	Time of Recording	Wind (0-12)[3]	Air Temperature (°C)	Rain (0-5)[4]	Cloud Cover (Oktas)
15/05/2021	Dusk	21:00	1	11	0	4
16/05/2021	Night	00:00	1	10	0	2
16/05/2021	Dawn	04:51	3	10	0	1
16/05/2021	Dusk	21:00	5	10	4	8
17/05/2021	Night	00:09	3	10	0	2
17/05/2021	Dawn	04:51	3	10	0	1
17/05/2021	Dusk	20:25	4	12	0	2
17/05/2021	Night	23:47	3	10	1	3
18/05/2021	Dawn	04:49	3	10	0	5
18/05/2021	Dusk	20:25	5	13	0	2
18/05/2021	Night	23:49	2	10	0	2
19/05/2021	Dawn	05:00	2	13	2	7
19/05/2021	Dusk	23:00	2	12	0	4
19/05/2021	Night	01:00	2	11	0	4
20/05/2021	Dawn	05:15	2	9	0	2
20/05/2021	Dusk	21:00	5	12	0	8
21/05/2021	Night	00:23	4	11	3	8
21/05/2021	Dawn	04:33	4	10	2	8
21/05/2021	Dusk	22:29	7	10	3	7
22/05/2021	Night	00:17	4	10	3	8
22/05/2021	Dawn	04:05	2	10	0	5
22/05/2021	Dusk	21:34	2	12	0	1
23/05/2021	Night	00:27	2	10	0	4
23/05/2021	Dawn	05:11	1	7	0	2
23/05/2021	Dusk	20:53	2	8	3	8
24/05/2021	Night	01:17	2	8	0	4
24/05/2021	Dawn	04:39	2	7	0	1
24/05/2021	Dusk	20:37	3	10	0	1
25/05/2021	Night	00:12	4	9	0	0
25/05/2021	Dawn	04:33	2	8	0	2
25/05/2021	Dusk	20:35	2	9	0	2
26/05/2021	Night	00:52	1	4	0	1
26/05/2021	Dawn	04:38	1	5	0	0
26/05/2021	Dusk	21:00	2	13	0	2
27/05/2021	Night	00:54	2	9	0	1
27/05/2021	Dawn	04:49	2	7	0	5

[2] Period of night for weather readings; dusk, night = in the approximate middle of the night, and dawn.
[3] Empirical measure relating to wind speed, known as the Beauford wind force scale.
[4] Rain (0-5): 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Date	Period of Night[2]	Time of Recording	Wind (0-12)[3]	Air Temperature (°C)	Rain (0-5)[4]	Cloud Cover (Oktas)
27/05/2021	Dusk	21:03	2	13	0	1
28/05/2021	Night	01:42	3	12	0	3
28/05/2021	Dawn	04:13	2	11	0	7
28/05/2021	Dusk	21:06	1	15	0	8
29/05/2021	Night	00:20	1	14	0	7
29/05/2021	Dawn	05:00	1	12	0	3
30/05/2021	No tracking	-	-	-	-	-
31/05/2021	No tracking	-	-	-	-	-
01/06/2021	Dusk	21:28	1	21	0	1
02/06/2021	Night	00:20	4	19	0	1
02/06/2021	Dawn	05:07	2	14	0	1
02/06/2021	Dusk	20:54	3	21	0	6
03/06/2021	Night	00:53	3	19	0	5
03/06/2021	Dawn	04:11	2	15	0	8
03/06/2021	Dusk	21:30	3	14	0	7
04/06/2021	Night	00:50	2	13	0	4
04/06/2021	Dawn	04:32	2	9	0	2
04/06/2021	Dusk	22:09	3	13	0	2
05/06/2021	Night	01:00	2	9	0	2
05/06/2021	Dawn	05:08	2	8	0	0
05/06/2021	Dusk	20:52	2	18	0	7
05/06/2021	Night	23:50	2	16	1	7
06/06/2021	Dawn	04:28	3	15	0	7
06/06/2021	Dusk	21:30	3	18	0	3
07/06/2021	Night	00:28	2	15	0	6
07/06/2021	Dawn	03:48	2	15	0	2
07/06/2021	Dusk	22:10	0	13	0	2
08/06/2021	Night	00:07	0	10	0	2
08/06/2021	Dawn	05:00	2	11	0	1
08/06/2021	Dusk	21:37	1	17	0	1
09/06/2021	Night	01:19	1	14	0	0
09/06/2021	Dawn	05:25	0	9	0	4
09/06/2021	Dusk	22:05	1	16	0	8
10/06/2021	Night	01:14	2	17	2	8
10/06/2021	Dawn	04:28	2	17	1	8
10/06/2021	Dusk	21:00	2	18	0	6
11/06/2021	Night	00:21	2	16	0	4
11/06/2021	Dawn	05:00	4	15	0	4

Table 5.1: Post-Maternity Tracking Period

Date	Period of Night[5]	Time of Recording	Wind (0-12)[6]	Air Temperature (°C)	Rain (0-5)[7]	Cloud Cover (Oktas)
02/08/2021	Dusk	21:21	1	14	0	7
03/08/2021	Night	00:05	1	12	0	1
03/08/2021	Dawn	04:57	1	12	0	6
03/08/2021	Dusk	21:00	1	14	0	6
04/08/2021	Night	01:01	1	13	0	1
04/08/2021	Dawn	05:00	1	14	0	1
04/08/2021	Dusk	20:39	1	19	0	1
05/08/2021	Night	01:54	1	17	0	1
05/08/2021	Dawn	04:56	1	12	0	0
05/08/2021	Dusk	21:22	1	16	0	8
06/08/2021	Night	00:00	2	16	1	5
06/08/2021	Dawn	04:56	8	15	1	7
06/08/2021	Dusk	23:00	4	17	0	1
07/08/2021	Night	01:46	3	14	0	0
07/08/2021	Dawn	05:00	5	15	0	1
07/08/2021	Dusk	21:10	5	16	2	8
08/08/2021	Night	01:20	4	15	0	7
08/08/2021	Dawn	04:32	8	15	4	7
08/08/2021	Dusk	20:54	1	15	0	7
09/08/2021	Night	01:00	1	14	0	8
09/08/2021	Dawn	05:01	2	13	2	8
09/08/2021	Dusk	21:02	1	18	0	1
10/08/2021	Night	00:00	0	13	0	0
10/08/2021	Dawn	05:55	1	10	0	1
10/08/2021	Dusk	20:00	4	18	0	2
11/08/2021	Night	00:05	2	15	0	3
11/08/2021	Dawn	05:00	2	14	0	2
11/08/2021	Dusk	20:42	5	18	0	8
12/08/2021	Night	02:04	0	16	0	7
12/08/2021	Dawn	05:10	1	12	0	0
12/08/2021	Dusk	20:17	1	18	0	1
13/08/2021	Night	00:04	2	16	0	4
13/08/2021	Dawn	05:06	1	15	0	8
13/08/2021	Dusk	20:05	1	18	0	8
14/08/2021	Night	00:27	3	16	0	4
14/08/2021	Dawn	05:21	1	15	0	3
14/08/2021	Dusk	20:50	5	19	0	8

[5] Period of night for weather readings; dusk, night = in the approximate middle of the night, and dawn.
[6] Empirical measure relating to wind speed, known as the Beauford wind force scale.
[7] Rain (0-5): 0 = dry, 1 = light drizzle, 2 = light rain, 3 = moderate rain, 4 = heavy rain, 5 = torrential rain.

Date	Period of Night[5]	Time of Recording	Wind (0-12)[6]	Air Temperature (°C)	Rain (0-5)[7]	Cloud Cover (Oktas)
15/08/2021	Night	00:52	2	17	0	1
15/08/2021	Dawn	06:08	4	16	2	6
15/08/2021	Dusk	21:00	1	18	0	4
16/08/2021	Night	00:58	2	15	0	4
16/08/2021	Dawn	05:27	0	14	0	3
16/08/2021	Dusk	20:00	1	15	0	0
17/08/2021	Night	00:05	2	13	0	1
17/08/2021	Dawn	05:00	2	16	0	2
17/08/2021	Dusk	22:27	5	17	0	3
18/08/2021	Night	00:44	3	17	0	3
18/08/2021	Dawn	05:10	1	17	0	8
18/08/2021	Dusk	20:41	2	17	0	4
19/08/2021	Night	00:46	2	14	0	3
19/08/2021	Dawn	05:42	1	14	0	6
19/08/2021	Dusk	21:19	8	17	0	8
20/08/2021	Night	01:00	5	16	2	8
20/08/2021	Dawn	05:34	4	15	0	8
20/08/2021	Dusk	21:45	2	18	1	7
21/08/2021	Night	01:10	1	16	0	7
21/08/2021	Dawn	05:39	1	17	1	7
21/08/2021	Dusk	23:00	3	18	1	6
22/08/2021	Night	00:01	4	17	0	2
22/08/2021	Dawn	05:00	4	15	0	2
22/08/2021	Dusk	23:00	3	18	0	2
23/08/2021	Night	00:00	0	14	0	1
23/08/2021	Dawn	05:27	0	14	0	1
23/08/2021	Dusk	20:15	0	16	0	1
24/08/2021	Night	02:11	1	13	0	0
24/08/2021	Dawn	05:00	3	16	0	0
24/08/2021	Dusk	20:43	1	20	0	0
25/08/2021	Night	01:00	2	15	0	0
25/08/2021	Dawn	04:37	0	14	0	2
25/08/2021	Dusk	19:56	1	19	0	2
26/08/2021	Night	01:00	2	15	0	2
26/08/2021	Dawn	05:14	1	14	0	6
26/08/2021	Dusk	22:00	1	16	0	0
27/08/2021	Night	00:55	1	14	0	0
27/08/2021	Dawn	05:15	1	11	0	0

Appendix 6: Trapping Data

Table 6.1: Bats Caught Pre-Maternity

Date	Location	Trap Type	Species	Number of bats caught	Notes
15/05/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	19	4 adult female bats tagged (Bats 1-4).
22/05/2021	King's Wood Mines	Harp Trap	Greater horseshoe	1	Non breeding female (young of 2020). Released without tagging.
24/05/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	6	2 adult female bats tagged (Bats 5-6).
25/05/2021	King's Wood Mines	Harp Trap & Mist Net	Greater horseshoe	5	All adult males. Released without tagging.
25/05/2021	King's Wood Mines	Harp Trap & Mist Net	Lesser horseshoe	3	Non target species. Released without tagging.
01/06/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	13	4 adult female bats tagged (Bats 7-10).

Table 6.2: Bats Caught Post-Maternity

Date	Location	Trap Type	Species	Number of bats caught	Notes
02/08/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	15	3 adult female bats tagged (Bats 11-13).
10/08/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	14	4 adult female bats tagged (Bats 14-17).
17/08/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	29	2 adult female bats tagged (Bats 18-19). 2 juvenile male bats tagged (Bats 20-21).
19/08/2021	Brockley Hall Stables	Harp Trap	Greater horseshoe	34	2 juvenile female bats tagged (Bats 23-24). 1 juvenile male bat tagged (Bat 25). N.B. Bat 25's tag failed shortly after release – excluded from study.

Appendix 7: Tagged Bats Data

Bat	Sex	Age	Reproductive Status	Date Caught	Time Caught	Time Tagged	Time Released	Forearm (mm)	Bat Weight (g)	Tag Weight (g)	Tag as a % of Body Mass
Bat 1	F	Ad	Early Pregnancy	15/05/21	21.30	23.05	23.25	56.6	17.7	0.47	2.66
Bat 2	F	Ad	Early Pregnancy	15/05/21	21.30-40	23.20	23.50	-	18.0	0.41	2.28
Bat 3	F	Ad	Early Pregnancy	15/05/21	21.30-40	23.40	00.10	-	17.0	0.41	2.41
Bat 4	F	Ad	Early Pregnancy	15/05/21	21.30-45	00.00	00.23	-	17.5	0.41	2.34
Bat 5	F	Ad	Pregnant	24/05/21	21.36-21.45	23.10	23.25	56.5	17.0	0.41	2.41
Bat 6	F	Ad	Pregnant	24/05/21	21.36-45	22.45	23.20	55.5	18.1	0.41	2.27
Bat 7	F	Ad	Pregnant	01/06/21	<22.05	22.32	23.00	55.6	16.6	0.41	2.47
Bat 8	F	Ad	Pregnant	01/06/21	<22.05	22.48	23.20	54.3	20.5	0.41	2.00
Bat 9	F	Ad	Pregnant	01/06/21	<22.05	23.22	23.43	55.4	20.6	0.41	1.99
Bat 10	F	Ad	Pregnant	01/06/21	<22.05	23.50	00.10	56.5	19.0	0.41	2.16
Bat 11	F	Ad	Lactating	02/08/21	21.00-21.25	22.11	22.30	57.0	22.8	0.44	1.93
Bat 12	F	Ad	Lactating	02/08/21	21.00-21.25	22.25	22.52	56.5	20.5	0.44	2.15
Bat 13	F	Ad	Lactating	02/08/21	21.00-21.25	22.50	23.10	55.8	20.1	0.44	2.19
Bat 14	F	Ad	Lactating	10/08/21	21.05-21.15	21.48	22.15	55.1	20.6	0.44	2.14
Bat 15	F	Ad	Lactating	10/08/21	21.05-21.15	22.06	22.37	56.1	20.0	0.44	2.20
Bat 16	F	Ad	Lactating	10/08/21	21.05-21.15	22.29	23.00	55.8	20.3	0.44	2.17
Bat 17	F	Ad	Lactating	10/08/21	21.05-21.15	22.53	23.20	56.7	20.6	0.44	2.14
Bat 18	F	Ad	Lactating	10/08/21	21.05-21.15	23.18	23.46	55.5	20.0	0.41	2.05
Bat 19	F	Ad	Lactating	17/08/21	20.30-20.55	21.50	22.17	55.8	21.7	0.44	2.03
Bat 20	F	Ad	Lactating	17/08/21	20.30-20.55	22.08	22.34	55.2	21.0	0.44	2.10
Bat 21	M	Juv	Young of year	17/08/21	20.55-21.10	22.25	23.00	54.2	17.5	0.41	2.34
Bat 22	M	Juv	Young of year	17/08/21	20.55-21.10	22.50	23.12	54.8	16.6	0.41	2.47
Bat 23	F	Juv	Young of year	19/08/21	21.10	21.49	22.09	53.9	16.2	0.44	2.72
Bat 24	F	Juv	Young of year	19/08/21	21.25	22.05	22.40	55.1	17.9	0.44	2.46
Bat 25	M	Juv	Young of year	19/08/21	21.10	22.25	22.55	55.3	16.2	0.44	2.72