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PENTLAND HOMES AND JARVIS HOMES

KINGSNORTH, ASHFORD

BAT ACTIVITY REPORT

MAY 2023

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PENTLAND HOMES AND JARVIS HOMES

KINGSNORTH, ASHFORD

BAT SURVEY REPORT

MAY 2023

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EXECUTIVE SUMMARY

Wardell Armstrong LLP was commissioned by Pentland Homes and Jarvis Homes to undertake bat activity surveys for a proposed residential development scheme of land located near Kingsnorth, Ashford, Kent, approximate National Grid Reference: TQ 997 387.

Bat Activity surveys covered the entire site and were undertaken between April and October 2022.

At least eight species of bat were recorded during the surveys. Bat activity was highest along hedgerows and edge habitats and around trees and woodland patches in the site.

The site is of county value for commuting bats.

The site is county value for foraging bats.

1 INTRODUCTION

1.1 Background

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Pentland Homes and Jarvis Homes to undertake a bat survey near Kingsnorth, Ashford, Kent, approximate National Grid Reference: TQ 997 387; hereafter referred to as 'the site'.

1.1.2 The survey followed recommendations from an Ecological Appraisal undertaken by The Landscape Partnership Ltd (TLP) in July 2013 in support of a planning application for a housing development.

1.1.3 Accordingly, bat surveys were undertaken in 2017 to identify the status of bats within the survey area. The surveys were updated in 2022, and the update is the subject of this report. This report provides a baseline evaluation of the nature conservation value of bat species present within the site.

1.1.4 A variety of methods have been used to assess the use of the site by bats, in line with best practice guidelines, interpreted using professional experience. The Bat Conservation Trust (BCT) third edition of Good Practice Guidelines (2016) was the main source of guidance. The Bat Workers' Manual (2004) and Bat Tree Habitat Key (2018) provide further guidance that has been considered when designing the survey methods and programme of survey work.

1.1.5 Wildlife Legislation relating to bats is provided in Appendix A.

1.2 Site Context

1.2.1 The area of detailed ecological study referred to as the site covers approximately 48.5 hectares (ha). The majority of the site comprises poor semi-improved / improved grassland (~82.5%). For the purposes of the survey the site is split into four areas. The boundaries of the site are shown in *ST19409 012-P0 Bat Activity Transects*.

1.3 Nomenclature

1.3.1 All fauna names follow those on the National Biodiversity Network (NBN) Gateway (NBN, 2013).

1.3.2 The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

1.4 Quality Assurance & Environmental Management

1.4.1 All bat surveys were completed by suitably qualified and experienced ecologists from Wardell Armstrong. All surveyors belong to the Chartered Institute of Ecology and Environmental Management (CIEEM).

1.4.2 The surveys and assessments have been overseen by and the report checked and verified by a full member of CIEEM, who is bound by its code of professional conduct.

2 METHODOLOGY

2.1 Desk-based Study

Previous Reports

2.1.1 A review was made of the previous report: WA (2017) Kingsnorth, Ashford: Bat survey Report (reference ST15979/4.8), undertaken to establish longer term usage of the site by bats.

Local Records Centre

2.1.2 The Kent & Medway Biological Records Centre (KMBRC) and Kent Bat Database were contacted in February 2022 to ascertain whether there are any bat records within a 5km radius from the site.

2.1.3 A 5km radius was determined necessary because bats are very mobile and use large areas as their 'Core Sustenance Zones' (CSZ) to fulfil roosting and feeding requirements (Collins 2016).

2.1.4 A lack of records does not necessarily mean the species is not present in the area.

Online Resources

2.1.5 The DEFRA MAGIC website[1] was consulted for records of European Protected Species Mitigation Licences (EPSMLs) relating to bats within 5 km of the site.

2.2 Field Survey

Activity Transect

2.2.1 The site was appraised for its suitability to support bats during the Preliminary Ecological Appraisal completed in 2017 and updated in 2022 and is considered to have high suitability for foraging and commuting bats. It was recommended transect surveys were carried out over seven months, between April and October with reference to best practice guidelines (Collins, 2016). One dawn survey was also required.

2.2.2 Appendix B shows a summary of transect survey times and weather conditions.

2.2.3 As the scheme design will be retaining all trees and buildings, and it is considered any roosts will not be negatively impacted by noise or light pollution. Therefore, it was deemed unnecessary to perform emergence/re-entry surveys on trees with bat roost potential.

[1] https://magic.defra.gov.uk/

2.2.4 Surveys were completed using Echometer Touch 2 Pro Ultrasonic Modules (Wildlife Acoustics, Inc., Massachusetts) paired to Galaxy tablets (Samsung Group, Seoul).

2.2.5 The transect routes (*ST19409 012-P0 Bat Activity Transects*) were designed to sample representative habitats within the site including arable fields, hedgerows, and woodland.

2.2.6 The surveyors walked at a steady pace following the transects, starting at sunset and continuing for approximately two hours afterwards.

2.2.7 During the dawn survey, surveyors started two hours before sunrise and finished approximately fifteen minutes after sunrise.

2.2.8 Any bats recorded were identified to species (where possible) and recorded on a field map. The calls were recorded on the tablets and later analysed by an experienced bat ecologist using Wildlife Acoustics' Kaleidoscope (Wildlife Acoustics, Inc., Massachusetts) software for desk analysis to allow identification to species or genus level.

Static Detector Surveys

2.2.9 An ANABAT Express (Titley Scientific, Bristol) passive bat detector was used to sample bat activity, distribution, and species across the site. Four static detectors were placed in the following locations.

Table 1. Static Detector Location

51 °06'48.28" N, 0°50'57.54" E
51 °06'40.21" N, 0°51'53.31" E
51 °07'01.71" N, 0°51'10.55" E
51 °06'53.23" N, 0°51'41.87" E

2.2.10 Static detectors were placed on site before sunset and retrieved during the daytime after at least five nights of consecutive recording. Analysis was carried out using Wildlife Acoustics' Kaleidoscope (Wildlife Acoustics, Inc., Massachusetts).

2.2.11 *Drawing ST19409 013-P0 Static Bat Detector Locations* presents the static detector locations.

2.2.12 The detectors were deployed during suitable weather conditions. Appendix C summarises weather conditions during the static detector surveys.

2.3 Sound Analysis

2.3.1 Sound analysis was carried out after both of the previously described field survey methods to confirm the species present during the surveys. Analysis was performed using Wildlife Acoustics' Kaleidoscope (Wildlife Acoustics, Inc., Massachusetts) which allowed surveyors to listen, view and classify their recordings.

2.3.2 Species/species groups were defined using the following parameters.

Myotis bats

- When analysing static monitoring data these are to be grouped as Myotis sp. No attempt is made to identify to species level. The exception is for the low frequency calls (ending below 20 kHz) which are likely to be Natterer's bat *(Myotis nattereri)*.
- A Myotis call may be marked as a Daubenton's (*Myotis daubentonii*) only if the bat was observed e.g., foraging over water during an activity transect

Pipistrelle bats

- Nathusius' pipistrelle (*Pipistrellus nathusii*) – peak frequency 39khz and below
- Common pipistrelle (*Pipistrellus pipistrellus*) / Nathusius' pipstrelle (CP/NP) – peak frequency 40-42khz
- Common pipistrelle - peak frequency 43khz-48khz
- Common pipistrelle /Soprano pipistrelle (*Pipistrellus pygmaeus*) (CP/SP) – peak frequency 49-51khz
- Soprano pipistrelle – peak frequency 52khz+

Big bats

- Noctule (*Nyctalus noctula*) – Constant frequency call with peak frequency below 20khz
- Nyctalus sp. – Constant frequency calls 20khz and above. FM/qCF calls 23khz and below
- Noctule, Leisler's bat (*Nyctalus leisleri*), Serotine (*Eptesicus serotinus*) (NLS) – FM/qCF call peak frequency 24khz and above.
- As with Daubenton's, a call may be marked as Leisler's bat or Serotine if the bat was observed during an activity transect or emergence survey e.g., a

constant frequency call at 22-24khz from a bat observed flying in the open may be marked as a Leisler's bat.

2.4 Limitations

2.4.1 The results of the surveys undertaken by WA are representative of bat activity on the site at the time of surveying. The report results and conclusions are valid for one year, after which due to the potential for changed conditions, a repeat survey should be undertaken.

2.4.2 Long eared bats *Plecotus spp*. and *Myotis spp*. echolocate more quietly than other bat species (or not at all) and so can be more difficult to detect.

2.4.3 Despite thorough analysis, not all bat calls can be accurately identified at a species level. See section *2.3* for details on sound analysis.

2.4.4 In line with best practice guidelines the surveys must be carried out in appropriate weather conditions. If a survey was scheduled, and weather conditions were not appropriate (e.g., thunderstorms) the survey was rescheduled to a more appropriate date.

2.4.5 During activity survey two (17.05.22) there was unavoidable intermittent rain. As bat activity during this survey is similar to that of other visits when weather was dry the weather conditions are not considered to have impacted the results.

2.4.6 As a result of technical malfunctions sound analysis could not be carried out on results for the dusk north transect in April, the dawn north transects in May, the dusk south transect in September, and the dusk south transect in October. However, surveyors took sufficient notes during the survey, and the results did not differ significantly from other visits taking weather and timing into account. Therefore it is considered that this did not affect overall analysis of results.

3 RESULTS

3.1 Desk Study

Previous Reports

3.1.1 Previous WA report (*ST15979/4.8*) identified several bat species active on the site.

3.1.2 Activity and static surveys carried out in 2017 found at least six species present on site.

- Common Pipistrelle
- Soprano Pipistrelle
- Nathusius Pipistrelle
- Noctule
- Leisler's
- Myotis spp.

3.1.3 Common pipistrelles were recorded the most frequently at 'moderate' levels. Other species were recorded less frequently, and it is thought they use the site primarily for commuting.

3.1.4 Based on active timeframes results indicate common pipistrelles roost on or in proximity to the site.

3.1.5 Bat passes were distributed evenly throughout the site. Activity was concentrated along hedgerows and around mature trees, used for commuting and foraging.

Local Records Centre

3.1.6 Results returned 28 bat roosts within 5km of the site, including one bat roost within area four of the site. Additionally, there are three maternity bat roosts within 5km of the site.

3.1.7 The desk-study carried out found ten species of the fifteen that are found in Kent within a 5km radius of the site. These are:

- Common Pipistrelle
- Soprano Pipistrelle
- Nathusius Pipistrelle
- Serotine Bat
- Brandt's Bat (*Myotis brandtii*)

- Daubenton's Bat
- Whiskered Bat (*Myotis mystacinus*)
- Natterer's Bat
- Noctule Bat
- Brown Long Eared

Online Resources

3.1.8 Results returned six European protected species mitigation license within 5km of the site.

3.1.9 The licences covered three species

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Brown Long Eared (*Plecotus auritus*)

3.2 Field Surveys

Bat Activity – Manual Transects

3.2.1 The results from the manual transect survey are provided in Table 2 and 3 and details of weather conditions during the surveys are in Appendix B. Where possible the recorded bat passes of each species recorded during each transect are shown in Drawings *ST19409 014-P0* to 021-P0. Additionally, all data can be found in Table 2.

3.2.2 At least six species were using the site during the manual transect survey:

- Common Pipistrelle
- Soprano Pipistrelle
- Nathusius Pipistrelle
- Long Eared
- Noctule
- Myotis sp.

3.2.3 Bats recorded within thirty minutes of sunset/sunrise or one hour of sunset/sunrise for Myotis and Long eared bats likely roost in proximity to the site. Common pipistrelle, soprano pipistrelle, long eared, myotis, and noctule, were species recorded within this time frame, indicating they likely roost on or in proximity to the site.

3.2.4 Table 2 and 3 presents the number of bats passes by each species recorded. It should be noted that these figures are intended to give an indication of relative levels of bat activity on the transect and do not represent actual numbers of bats. A single bat may pass the surveyor several times, with each pass counted separately.

Table 2. North Transect Results

Total no. of passes per species									
		CP	**SP**	**CP/SP**	**CP/NP**	**LE**	**Noc**	**My**	**Total**
April	Dusk	15	2					1	18
May	Dusk	15	1	4	1	4			25
May	Dawn	6							6
June	Dusk	14	1				1		16
July	Dusk	17	1					23	41
August	Dusk	14	4			1	1	5	28
September	Dusk	1				1	1		3
October	Dusk	7							7
									144

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; CP/SP = Common Pipistrelle/Soprano Pipistrelle.; CP/NP = Common Pipistrelle/Nathusius' Pipistrelle; LE = Long Eared Noc = Noctule, My = Myotis

Table 3. South Transect Results

Total no. of passes per species										
		CP	**SP**	**NP**	**CP/SP**	**CP/NP**	**LE**	**Noc**	**My**	**Total**
April	Dusk	65								65
May	Dusk	4	2				1			7
May	Dawn	31	4	1			1			37
June	Dusk	48	1							49
July	Dusk	21			2			2		25
August	Dusk	10								10
September	Dusk	5	2					1		8
October	Dusk	4	4				1			9
										210

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; CP/SP = Common Pipistrelle/Soprano Pipistrelle.; CP/NP = Common Pipistrelle/Nathusius' Pipistrelle; LE = Long Eared Noc = Noctule, My = Myotis

3.2.5 Overall, during the manual surveys, there was a total of 354 bat passes recorded for all species. The majority of bat passes recorded were common pipistrelles with a total of 83 passes.

3.2.6 Activity levels across the entire site were highest in April and lowest in September, following a general trend of decreasing from spring to autumn (See Chart 1).

3.2.7 There was a greater number of bat passes recorded during the south transect (173) as compared to the north transect (138). However, there was a more varied distribution of species on the north transect, with a greater number of bat passes from species such as *Myotis* bats, soprano pipistrelle, and long eared.

3.2.8 The highest levels of bat activity on the site were, in general, associated with treelines and edge habitats (see *Drawings 014-P0 – 021-P0).* These areas are likely use for commuting and foraging.

3.2.9 Generally, bat activity levels across the manual transects were moderate during all months with the greatest number of passes (83) recorded in April (see Chart 1).

Chart 1. Total Number of Bat Passes by Month from North and South Dusk Transects

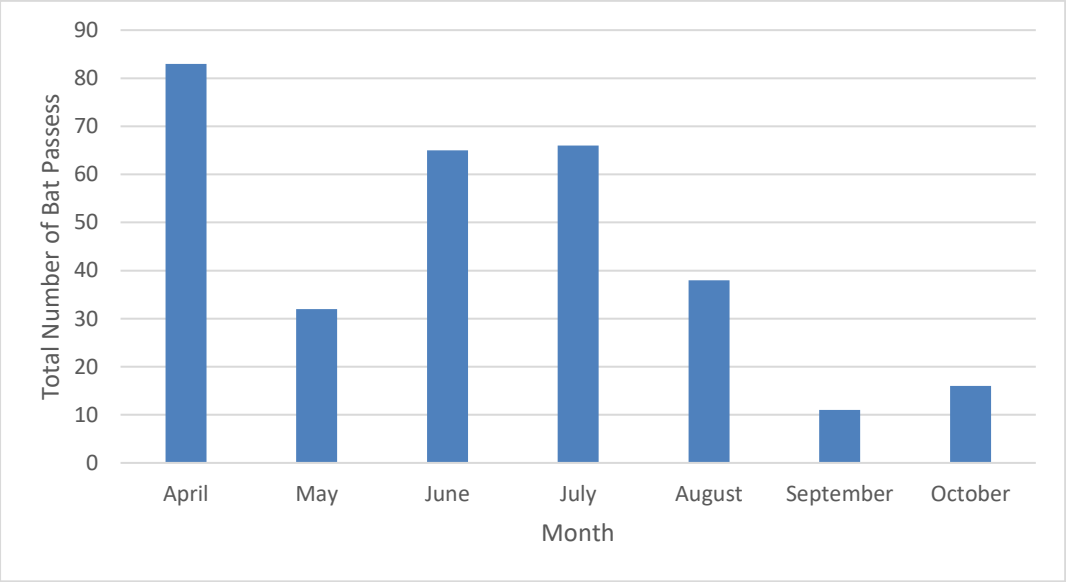
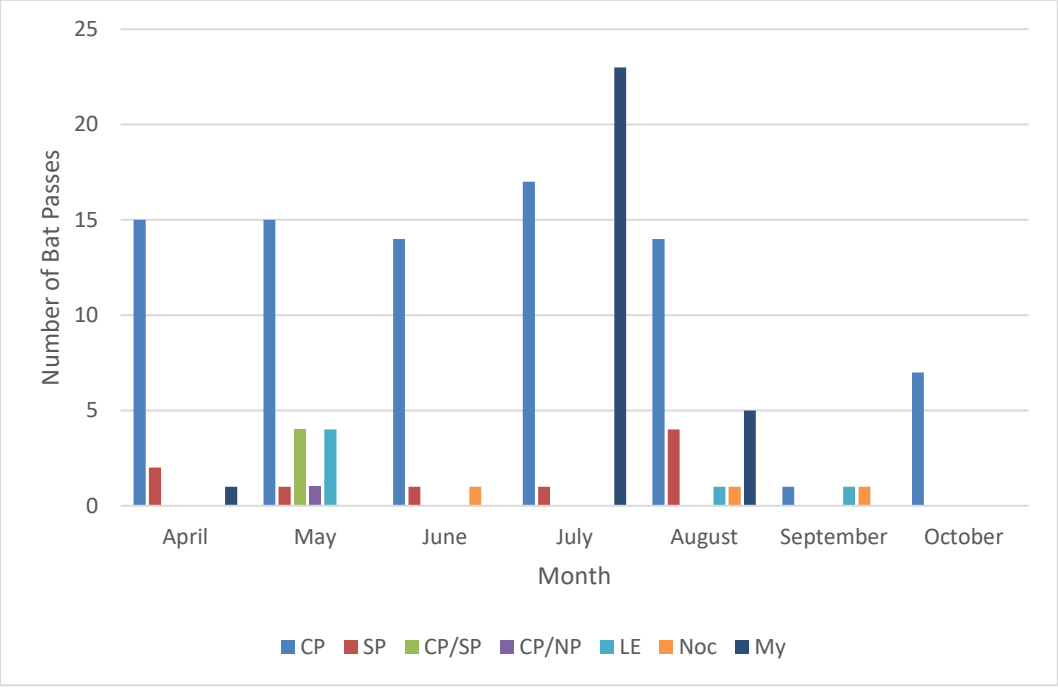
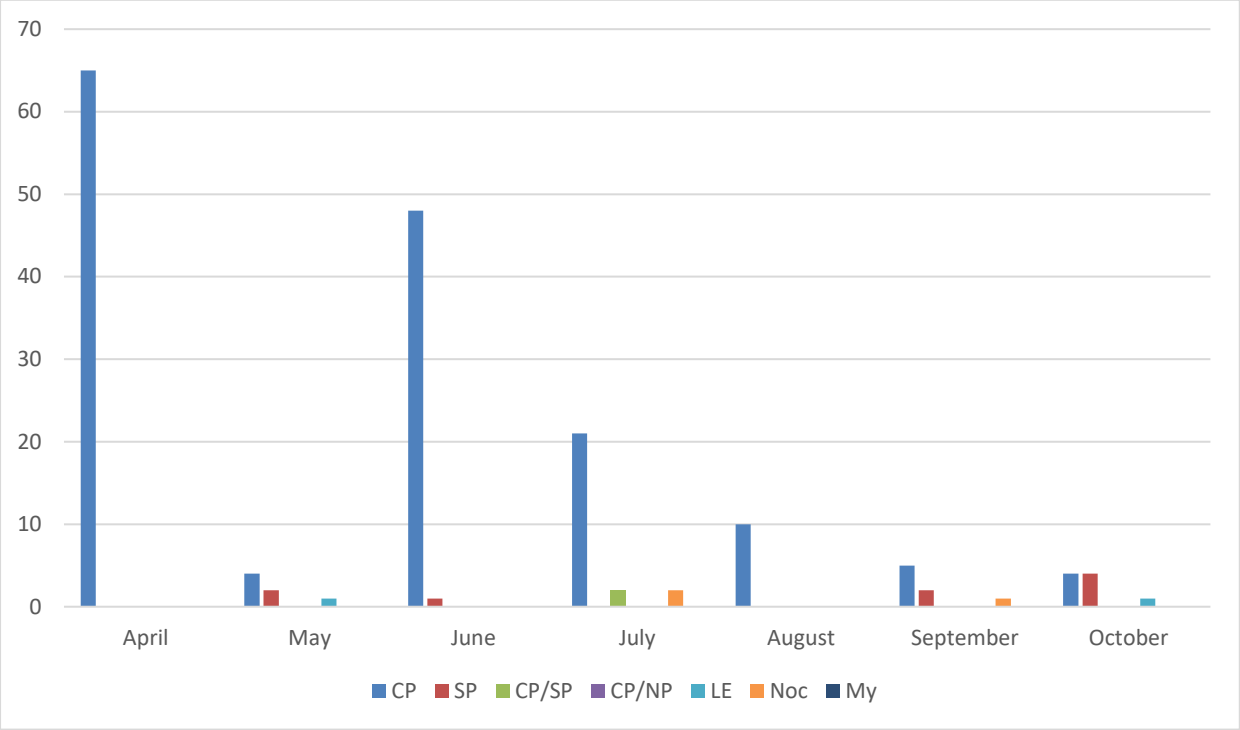


Chart 2. Number of Bat Passes by Month from North Dusk Transects



Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; CP/SP = Common Pipistrelle/Soprano Pipistrelle.; CP/NP = Common Pipistrelle/Nathusius' Pipistrelle; LE = Long Eared Noc = Noctule, My = Myotis

Chart 3. Number of Bat Passes by Month from South Dusk Transects



Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; CP/SP = Common Pipistrelle/Soprano Pipistrelle.; CP/NP = Common Pipistrelle/Nathusius' Pipistrelle; LE = Long Eared Noc = Noctule, My = Myotis

3.3 Static Detector Surveys

3.3.1 A summary of the results from the static detector surveys is presented in Tables 4-8. Weather conditions during the recording sessions are presented in Appendix C.

3.3.2 It should be noted that these figures are intended to give an indication of relative levels of bat activity on the transect and do not represent actual numbers of bats. A single bat may pass the surveyor several times, with each pass counted separately.

3.3.3 At least eight species were confirmed to be using the site during the static detector survey work:

- Common Pipistrelle
- Soprano Pipistrelle
- Nathusius Pipistrelle
- Noctule
- Leisler's Bat
- Serotine
- Myotis sp

- Long Eared

Table 4. Summary of Area 1 Static Detector Survey Results

Total no. of passes per species											
	CP	**SP**	**NP**	**Noc**	**Nyclei**	**SER**	**My**	**LE**	**Nyc**	**NLS**	**Total**
April	396	13	1	2			18	2		1	433
May	395	40	1		1		3			3	443
June	348			3			2				353
July	1249	3	1		3		10			1	1267
August	35	2		15	2	7	27		4	7	99
September	95	14	3	19	1		12	2	2		148
October	204	1		2	1		95	1			304
											3,047

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, SER = Serotine, My = Myotis, LE = Long Eared, Nyc = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Table 5. Summary of Area 2 Static Detector Survey Results

Total no. of passes per species											
	CP	**SP**	**NP**	**Noc**	**Nyclei**	**SER**	**My**	**LE**	**Nyc**	**NLS**	**Total**
April	515	80		1	1		38	5			640
May	1116	181	5	4	1	2	50	1	1	5	1366
June	1573	43		5	1	2	24			1	1649
July	441	26		14			37				518
August	148	10		3			44				205
September	168	4	1	4	2		47	1	2	1	230
October	62	12		8	26		7	3			118
											4,726

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, SER = Serotine, My = Myotis, LE = Long Eared, Nyc = Nyctalus sp. LS = Noctule, Leisler's or Serotine

Table 6. Summary of Area 3 Static Detector Survey Results

Total no. of passes per species											
	CP	**SP**	**NP**	**Noc**	**Nyclei**	**SER**	**My**	**LE**	**Nyc**	**NLS**	**Total**
April	1275	19		5			7			8	1314
May	833	9	1	7		2	14	2		1	869
June	764	6	26	6	2	4	10			3	821
July	1091	64		57	1	6	41	2	1		1263
August	86	8		9	6	3	16				128
September	359	3	3	3			48	22			438
October	120	7	3	8			94	4	15		251
											5,084

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, SER = Serotine, My = Myotis, LE = Long Eared, Nyc = Nyctalus sp. LS = Noctule, Leisler's or Serotine

Table 7. Summary of Area 4 Static Detector Survey Results

Total no. of passes per species											
	CP	**SP**	**NP**	**Noc**	**Nyclei**	**SER**	**My**	**LE**	**Nyc sp.**	**NLS**	**Total**
April	229	56		1	1	1	1			1	290
May	2389	1759		29	22	9	50	19			4277
June	755	412	1	4	6	5	15	6		5	1209
July	1946	1136		4	3	3	49	16			3157
August	135	640		49	11	29	12	18	36		930
September	78	168	1	7	3	9	11	3			280
October	9	48		12			13	1	2		85
											10,228

Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, SER = Serotine, My = Myotis, LE = Long Eared, Nyc = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Table 8. Summary of Static Detector Survey Results Across Areas 1-4

Total no. of passes per species											
	CP	**SP**	**NP**	**Noc**	**Nyclei**	**SER**	**My**	**LE**	**Nyc**	**NLS**	**Total**
April	2415	168	1	9	2	1	64	7	0	10	2677
May	4733	1989	7	40	24	13	117	22	1	9	6955
June	3440	461	27	18	9	11	51	6	0	9	4032
July	4727	1229	1	75	7	9	137	18	1	1	6205
August	404	660	0	76	19	39	99	18	40	7	1362
September	700	189	8	33	6	9	118	28	4	1	1096
October	395	68	3	30	27	0	209	9	17	0	758
											23085

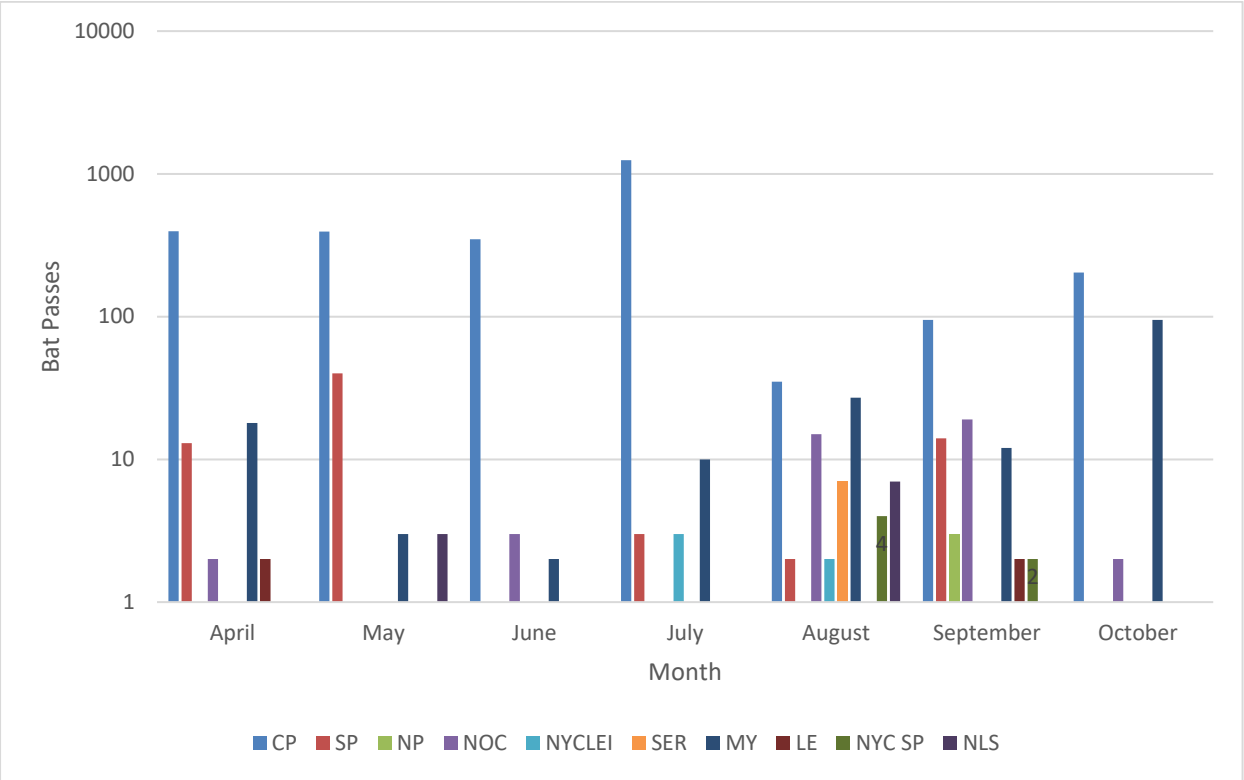
Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, SER = Serotine, My = Myotis, LE = Long Eared, Nyc = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

3.3.4 Overall, there was 23,085 bat passes recorded across all seasons and areas for all species during the static surveys. Bat activity levels recorded during automated monitoring were highest during May (6,955 passes) and lowest during October (758 passes). There were significantly less bat passes in August, September and October as compared to earlier in the season (See Chart 8). However, *Myotis* bat numbers were relatively high in the autumn months (See Charts 4-7).

3.3.5 Common pipistrelles were the most recorded species across all areas (16,814 passes), followed by soprano pipistrelles (4,764), and then *Myotis* bats (795 passes) (See Chart 9).

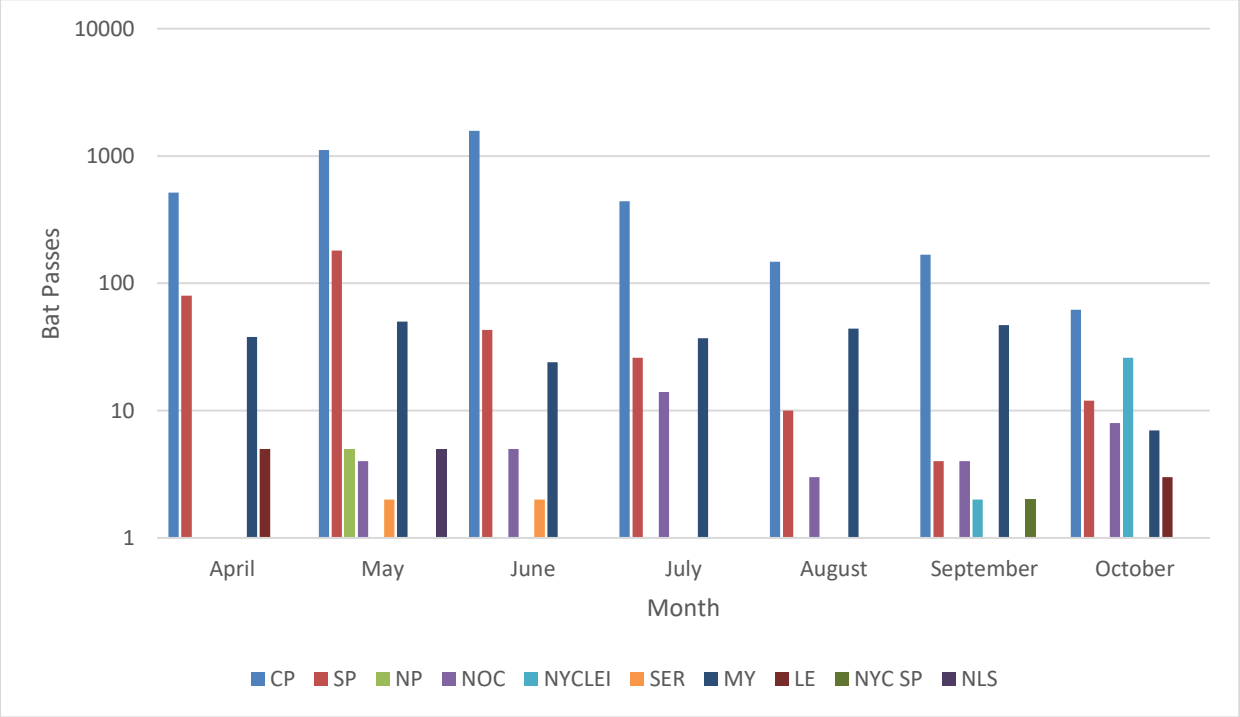
3.3.6 Area Four has the most diverse range of bat species present. A maximum of eight species were present during June and September. Comparatively, Area One has the least diverse range of species (See Chart 4 and Chart 7).

Chart 4. Number of Bat Passes by Month from Area 1 Static, on Logarithmic Scale



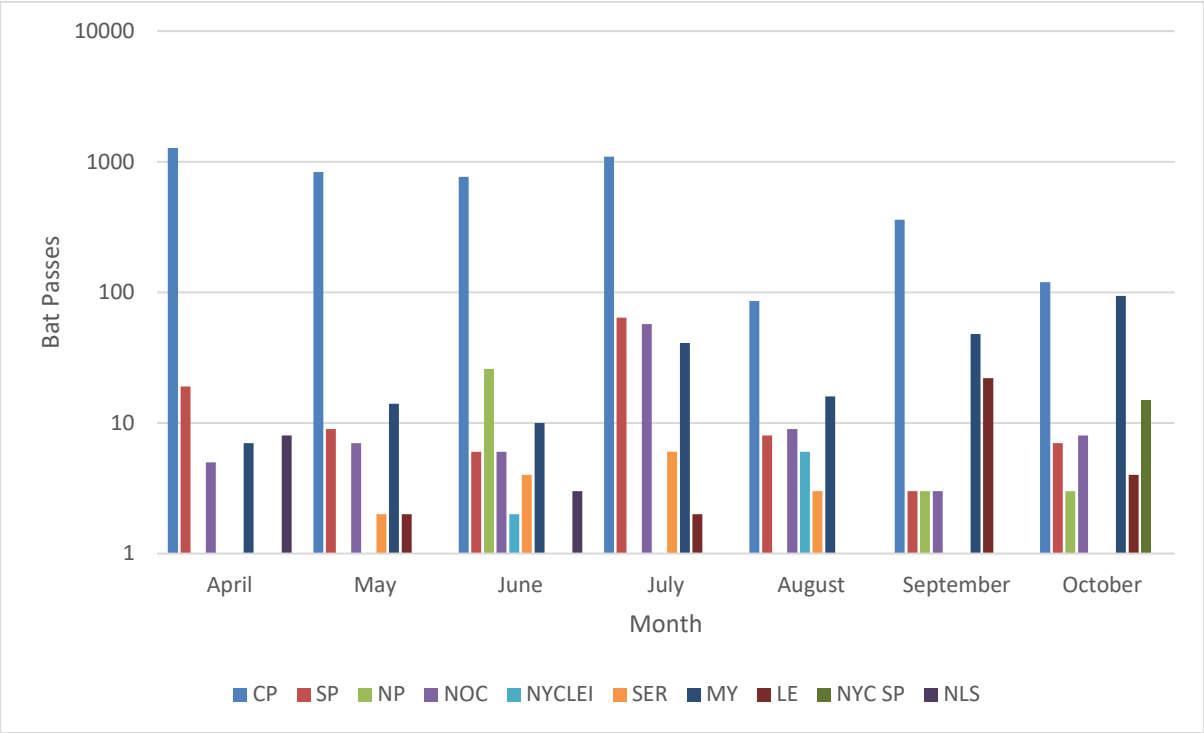
Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, Epster = Serotine, My = Myotis, LE = Long Eared, Nyc sp = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Chart 5. Number of Bat Passes by Month from Area 2 Static, on Logarithmic Scale



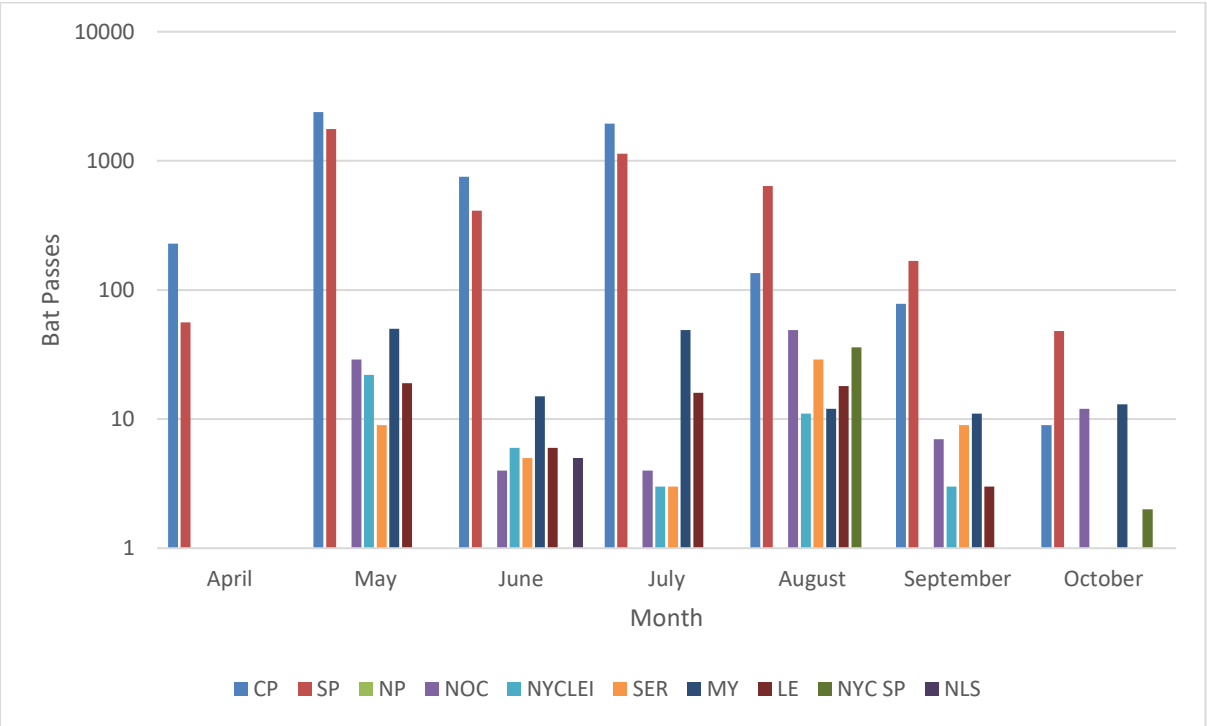
Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, Epster = Serotine, My = Myotis, LE = Long Eared, Nyc sp = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Chart 6. Number of Bat Passes by Month from Area 3 Static, on Logarithmic Scale



Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, Epster = Serotine, My = Myotis, LE = Long Eared, Nyc sp = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Chart 7. Number of Bat Passes by Month from Area 4 Static, on Logarithmic Scale



Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, Epster = Serotine, My = Myotis, LE = Long Eared, Nyc sp = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

Chart 8. Total Number of Bat Passes by Month Recorded by All Statics from April to October

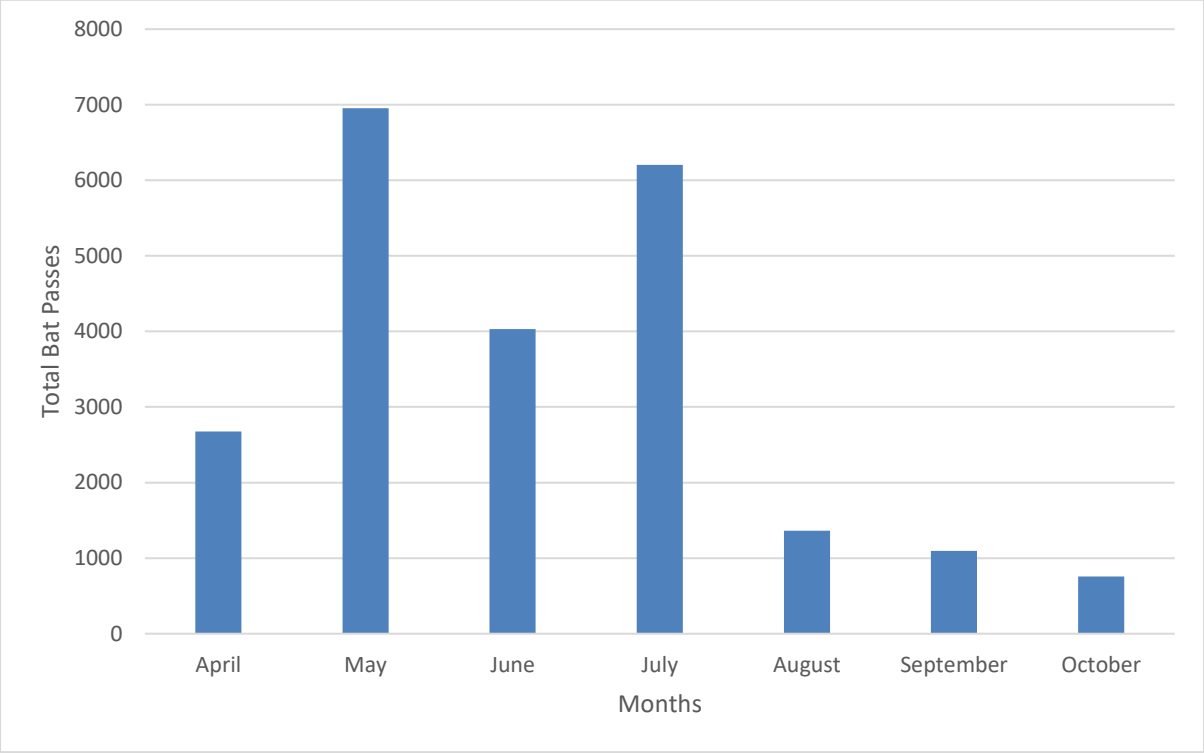
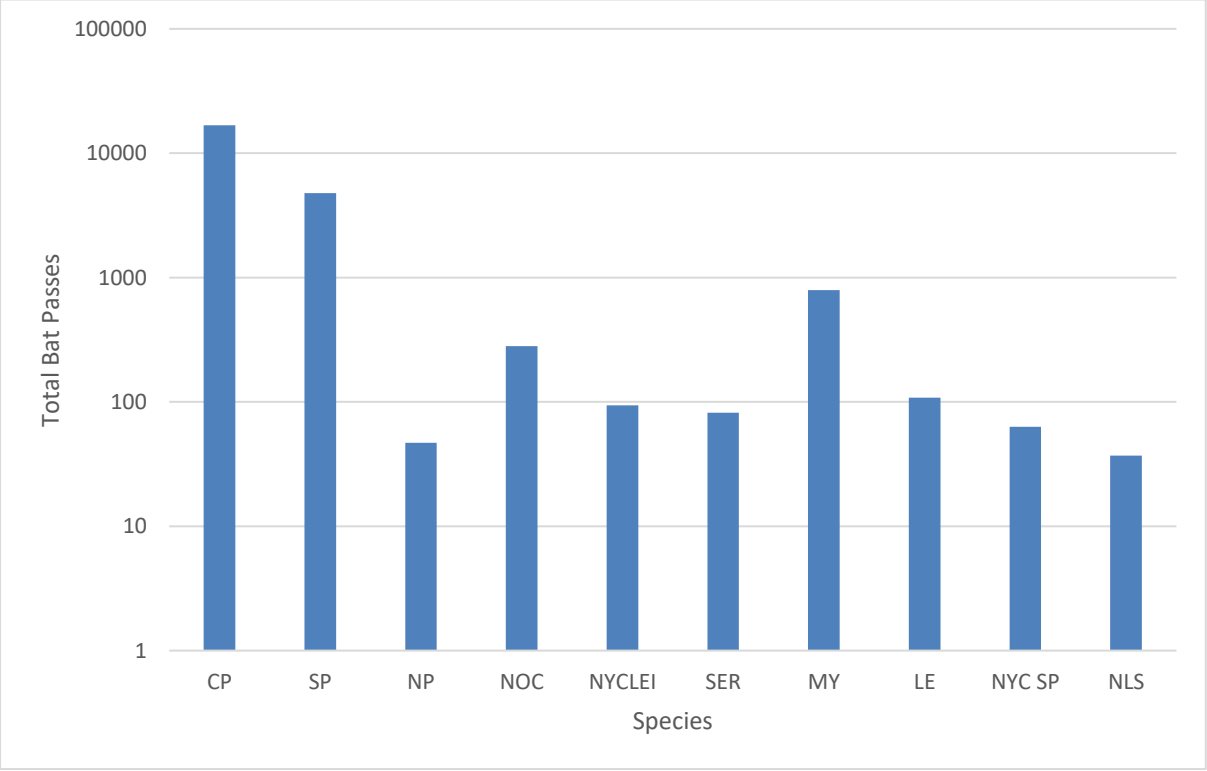


Chart 9. Total Number of Bat Passes (Area 1-4) by Species, on Logarithmic Scale



Notes. CP = Common Pipistrelle; SP: Soprano Pipistrelle; NP = Nathusius Pipistrelle, Noc = Noctule, Nyclei =Leisler's, Epster = Serotine, My = Myotis, LE = Long Eared, Nyc sp = Nyctalus sp. NLS = Noctule, Leisler's or Serotine

4 DISCUSSION

4.1 Overview

4.1.1 The most recorded species during the manual and static activity surveys, was common pipistrelle. This species had at least 16,814 recorded passes during static surveys, and at least 240 recorded passes during manual surveys (total passes 17,054).

4.1.2 Soprano pipistrelle passes were recorded at least 18 times during manual surveys and 4,764 times during static surveys. With six other potential passes that could not be distinguished from common pipistrelle species.

4.1.3 Nathusius' pipistrelles were recorded at a frequency of 47 passes during static surveys. Additionally, there was one potential pass that could not be distinguished from common pipistrelle during the manual transect surveys.

4.1.4 *Myotis* sp. were recorded 29 times during manual transect surveys. Additionally, the species was recorded 795 times during static surveys. In Areas Two and Three the number of passes increased in the autumn months. At this time of year *Myotis* bats tend to swarm around certain sites; and activity associated with mating; higher numbers in these areas may be indicative of swarming activity nearby.

4.1.5 Some rarer species were identified including Noctule, Leisler's, Serotine, Long Eared bats, and Nyctalus sp.

4.1.6 Noctule were recorded six times during transect surveys, and 281 times during static surveys.

4.1.7 Long Eared bats were recorded 8 times during transect surveys, and 108 times during static surveys.

4.1.8 The remaining species were recorded less often, with no passes during transect surveys and between 37-94 passes during all static deployment.

4.2 Area Overview

4.2.1 As shown on Drawing *ST19409 021-P0 Bat Activity Surveys 2022* Area One has the lowest level of bat activity.

4.2.2 Bat activity is concentrated around the western boundary of Area Two. This hedgerow is well-connected and species rich. There is no activity on the east boundary, this may be due to the main road (Ashford Road) causing light and noise pollution.

4.2.3 In Area Three bat activity is concentrated along the eastern boundary, particularly in the north-east where there was a high diversity of bat species recorded. No bats were recorded along the western boundary, which is adjacent to Ashford Road.

4.2.4 Area Four experienced the highest amount of bat activity. This area is the furthest away from Ashford Road and is completely disconnected from it. It is adjacent to Steeds Lane on the south boundary; however, this is a quiet lane with low traffic levels and no artificial lighting present so appears to not have impacted bat activity levels. Activity levels on the southern boundary are quite high, this could be attributed to the well-connected species rich hedgerow. There are also high levels of common pipistrelle activity in and around the woodland patch in the north-east of the area. There is not a high diversity of bat species in this area.

4.3 Geographic frame of reference

4.3.1 To determine the value of the site to bats, a geographic frame of reference must be determined using the scoring system outlined in *Wray et al. (2010).*

4.3.2 As several bat species are present on site, each species will be valued individually, and the highest value obtained will be considered in the report and reported below.

4.3.3 See Table 9 for reference. Common Pipistrelles are a common species (2), with a small number of bats present at the site (10), potential roosts nearby are not known (4), and linear features on site are well-grown and well-connected hedgerows, with a small-medium field size (4). Therefore, the value attributed to this site as a commuting route is 10.

4.3.4 Thus, according to Wray *et al*. (2010) the site is of district/local/parish level of importance for commuting bats.

Table 9. Valuing a Site for Commuting Bats (Wray *et al*., 2010)

Species	Number of Bats	Roosts/Potential Roosts Nearby	Type and Complexity of Linear Features
Common (2)	Individual Bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/not known (4)	Walls, gappy or failed hedgerows, isolated well-grown hedgerows, and moderate field sizes (3)
		Large number of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field sizes (4)

Species	Number of Bats	Roosts/Potential Roosts Nearby	Type and Complexity of Linear Features
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams

4.3.5 See Table 10 for reference. Common Pipistrelles are a common species (2), with a small number of bats present at the site (10), potential roosts nearby are not known (4), and foraging habitat characteristics are isolated woodland patches, less intensive arable and/or small towns and villages (4). Therefore, the value attributed to this site for foraging habitat routes is 20.

4.3.6 Thus, according to Wray *et al*. (2010) the site is of district/local/parish level of importance for bats' foraging habitats.

Table 10. Valuing a Site for Foraging Bats (Wray *et al*., 2010)

Species	Number of Bats	Roosts/Potential Roosts Nearby	Foraging Habitat Characteristics
Common (2)	Individual Bats (5)	None (1)	Industrial or other site without established vegetation
		Small number (3)	Suburban area or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
		Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blacks, mixed agriculture, and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands, and wetland areas (5)

4.3.7 Overall, the value of the site for commuting and foraging bats is of district/local/parish level.

5 REFERENCES

Bat Tree Habitat Key. (2018). *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Pelagic Publishing, Exeter.

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

Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines.* Natural England, Peterborough.

Wray, S., Wells, D., Long, E., & Mitchell-Jones, T. (2010). Valuing bats in ecological impact assessment. *In Practice*, *70*, 23-25.

APPENDICES

APPENDIX A
LEGISLATION

The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended)

All British bat species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* in respect of Section 9, which makes it an offence, *inter alia*, to:

- Intentionally or recklessly kill, injure, or take (handle) a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection; or
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.

British bat species receive further protection under Regulation 43 of the *Conservation of Habitats and Species Regulations 2017* (as amended), which make provision for the purpose of implementing European Union Directive on the *Conservation of Natural Habitats and of Wild Fauna and Flora 1992*. All British bat species are listed on Annex IV of the Directive, which means that member states[2] are required to put in place a system of strict protection as outlined in Article 12, and this is done through inclusion on Schedule 2 of the Regulations, which makes it an offence, *inter alia*, to:

- Deliberately capture, injure or kill any bat;
- Deliberately disturb a bat, in particular any disturbance which is likely:

  (a) To impair their ability:

  (i) To survive, to breed or reproduce, or to rear or nurture their young; or

  (ii) To hibernate or migrate.

  (b) To affect significantly the local distribution or abundance of the bat species.
- Damage or destroy a breeding site or resting place of a bat.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat;
- Lesser horseshoe bat;
- Bechstein's bat;

[2] The *Conservation of Habitats and Species Regulations 2017* (as amended) have been amended by the *Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019* to make them operable after the 1 January 2021. The Regulations as detailed above remain in force following the UK's departure from the EU.

- Barbastelle; and
- Greater mouse-eared bat.

As Annex II species under the Habitats Regulations, the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Where bats occur outside SACs the level of legal protection that these species receive is the same as for other bat species, however their inclusion on Annex II serves to underline their conservation significance and it is therefore less likely that adequate mitigation for loss of roosts of these species will be possible.

Natural Environment and Rural Communities (NERC) Act 2006

Under Section 41 of the *Natural Environment and Rural Communities Act 2006*, seven bats species are of principal importance for the purpose of conserving biodiversity in England. Under Section 41(3) of the Act, the Secretary of State must take steps (where they are reasonably practicable), and promote the taking of steps by others, to further the conservation of these species. The bat species listed as priority species are:

- Greater horseshoe bat;
- Lesser horseshoe bat;
- Barbastelle;
- Bechstein's bat;
- Brown long eared bat;
- Soprano pipistrelle; and
- Noctule.

The Kent Biodiversity Strategy (Kent Nature Partnership) includes the serotine as an Indicator Species (no bats are priority species on the strategy).

National Planning Policy Framework

The National Planning Policy Framework (NPPF) refers to the steps that local authorities should take through the planning process in relation to species and habitats of principal importance. NPPF states that: "*Planning policies should promote the preservation, restoration and recreation of priority habitats, ecological networks and the recovery of priority species*".

APPENDIX B

SUMMARY OF TRANSECT SURVEY DATES AND WEATHER CONDITIONS

APPENDIX B: Summary of Transect Survey Dates and Weather Conditions

Survey Visit 1		
Date	13.04.2022	
Sunset	**19:49**	
	Start	**End**
Time	19:45	22:22
Temperature	13°C	10°C
Cloud Cover	1/8	0/8
Wind	2	1
Precipitation	Dry	Dry

Survey Visit 2		
Date	17.05.22	
Sunset	**20:43**	
	Start	**End**
Time	20:43	22:43
Temperature	20°C	19°C
Cloud Cover	6	8
Wind	1	2
Precipitation	Intermittent rain	Intermittent rain

Survey Visit 3		
Date	**18.05.22**	
Sunrise	05:00	
	Start	**End**
Time	02:29	05:03
Temperature	14°C	12°C
Cloud Cover	1	1
Wind	1	1
Precipitation	Dry	Dry

Survey Visit 4		
Date	**14.06.2022**	
Sunset	21.13	
	Start	**End**
Time	21:13	23:48
Temperature	16°C	14°C
Cloud Cover	2	3
Wind	0	1
Precipitation	Dry	Dry

Survey Visit 5		
Date	**21.07.22**	
Sunset	21:00	
	Start	**End**
Time	21:02	23:01
Temperature	18°C	16°C
Cloud Cover	7	5
Wind	2	1
Precipitation	Dry	Dry

Survey Visit 6		
Date	**24.08.22**	
Sunset	20:15	
	Start	**End**
Time	20:15	22:25
Temperature	28°C	21°C
Cloud Cover	7	7
Wind	1	1
Precipitation	Dry	Dry

Survey Visit 7		
Date	**20.09.22**	
Sunset	19:00	
	Start	**End**
Time	19:00	21:00
Temperature	6°C	13°C
Cloud Cover	8	7
Wind	1	1
Precipitation	Dry	Dry

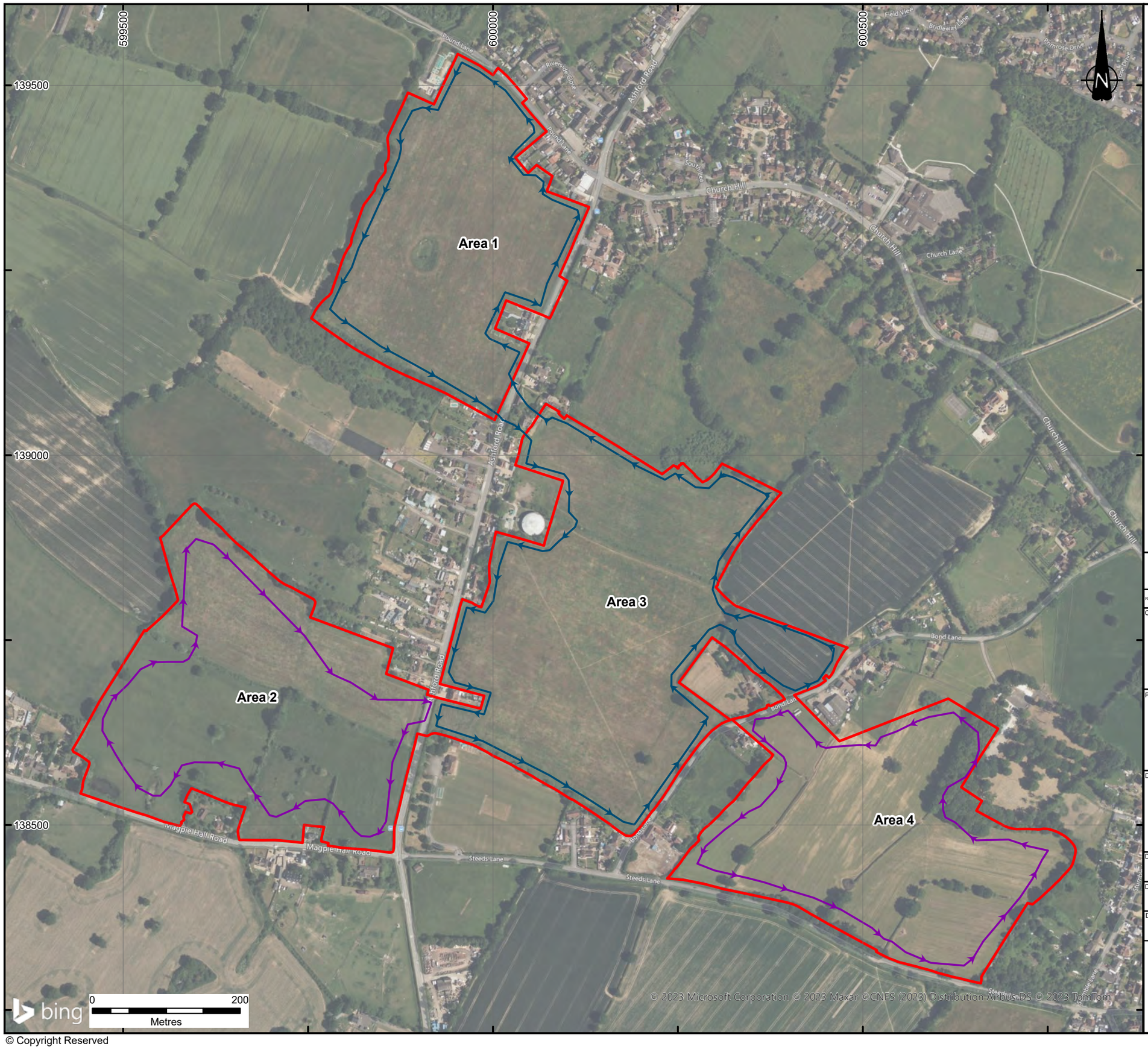
Survey Visit 8		
Date	**24.10.22**	
Sunset	17:47	
	Start	**End**
Time	17:47	19:58
Temperature	14°C	12°C
Cloud Cover	6	4
Wind	2	2
Precipitation	Dry	Dry

APPENDIX C

SUMMARY OF STATIC SURVEY DATES AND WEATHER CONDITIONS

APPENDIX C: Summary of Static Survey Dates and Weather Conditions			
Date	**Minimum Overnight Temperature (°C)**	**Maximum Overnight Wind Speed (mph)**	**Precipitation**
13.04.2022	8	5	Dry
14.04.2022	6	6	Dry
15.04.2022	9	11	Dry
16.04.2022	4	9	Dry
17.04.2022	3	8	Dry
18.05.2022	14	8	Dry
19.05.2022	11	6	Dry
20.05.2022	11	14	Dry
21.05.2022	6	6	Dry
22.05.2022	12	9	Dry
15.06.2022	10	9	Dry
16.06.2022	14	9	Dry
17.06.2022	15	11	Dry
18.06.2022	10	13	Dry
19.06.2022	11	11	Dry
21.07.2022	17	11	Dry
22.07.2022	13	9	Dry
23.07.2022	18	13	Dry
24.07.2022	20	13	Dry
25.07.2022	14	11	Dry
24.08.2022	18	7	Dry
25.08.2022	12	9	Dry
26.08.2022	14	7	Dry
27.08.2022	14	8	Dry
28.08.2022	15	10	Dry
20.09.2022	8	4	Dry
21.09.2022	6	4	Dry
22.09.2022	15	8	Dry
23.09.2022	10	9	Dry
24.09.2022	8	11	Dry
25.10.2022	13	11	Dry
26.10.2022	14	9	Dry
27.10.2022	15	7	Dry
28.10.2022	9	6	Dry
29.10.2022	15	9	Dry

DRAWINGS



KEY

- Site Boundary
- Transect 1
- Transect 2

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY TRANSECTS

DRG No.		REV
ST19409-012		A
DRG SIZE	SCALE	DATE
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DRAWN BY	CHECKED BY	APPROVED BY
MAB	KC	TB

wardell armstrong

KEY

Site Boundary

Static Bat Detector Location

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

STATIC BAT DETECTOR LOCATION

DRG No.		REV
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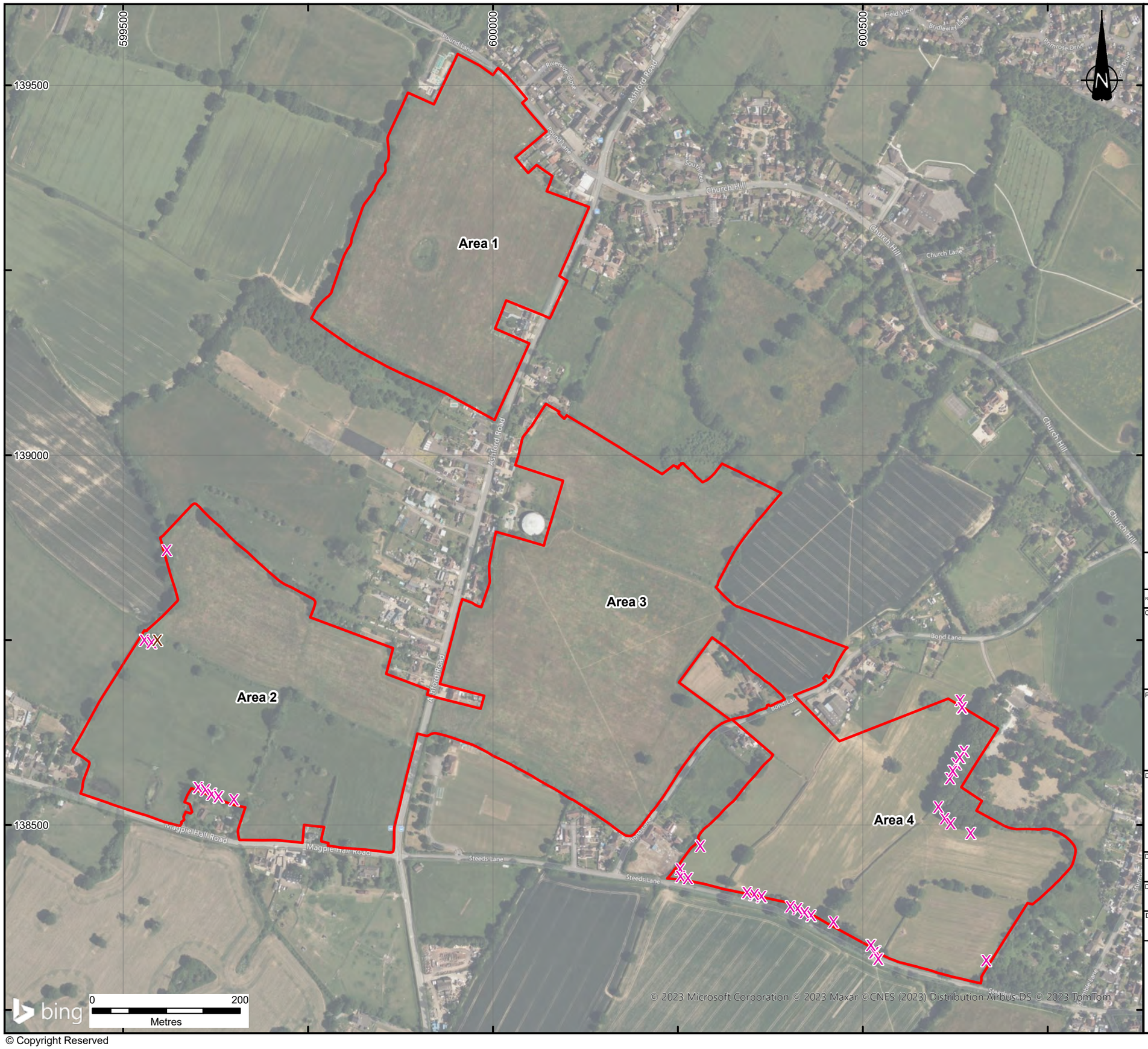
wardell armstrong



KEY

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- X Soprano Pipistrelle

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
APRIL

DRG No.		REV
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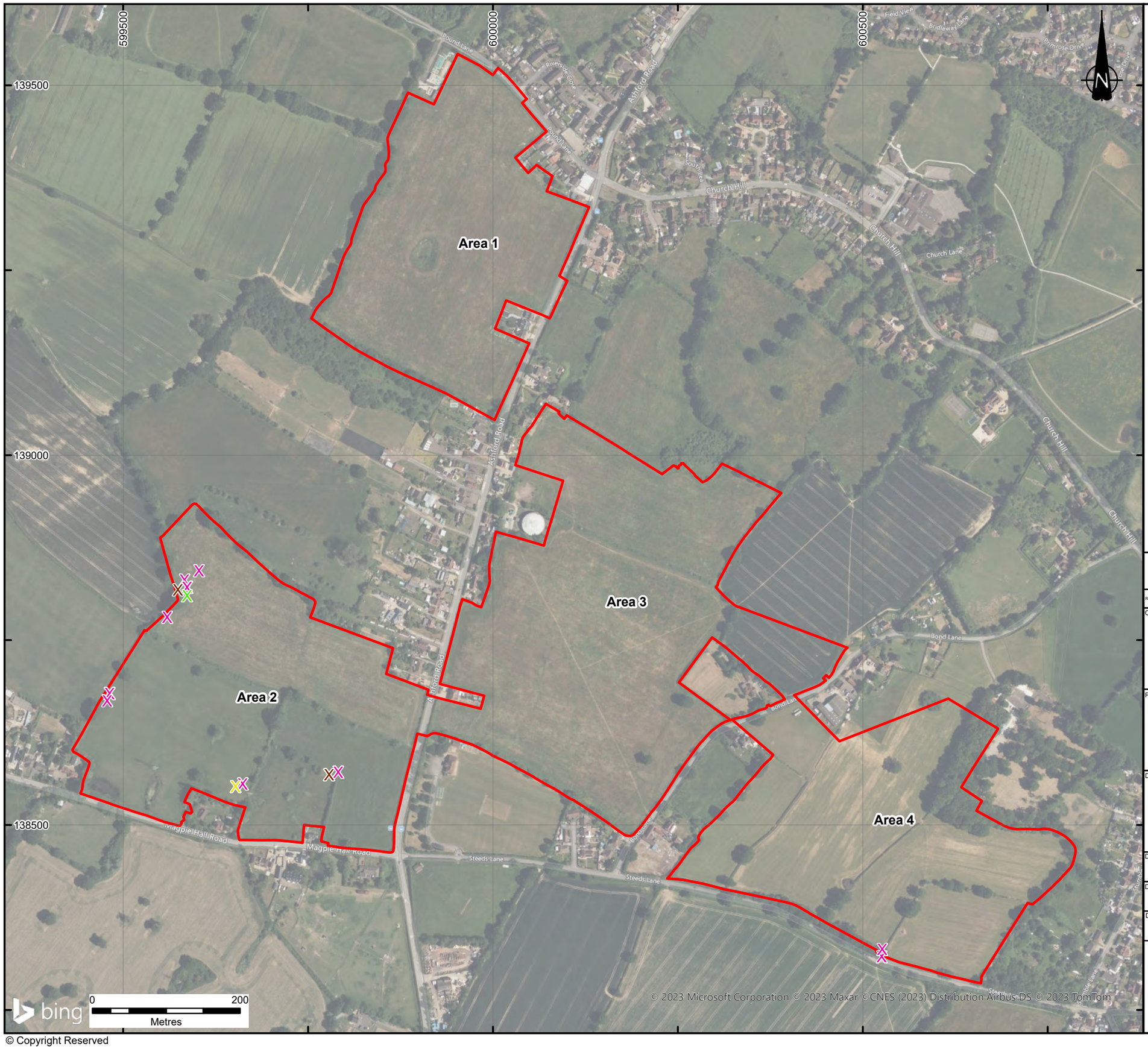

KEY

- Site Boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Nathusius's pipistrelle
- Long eared

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

CLIENT

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PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
DAWN - MAY

DRG No.		REV
ST19409-015		A
DRG SIZE	SCALE	DATE
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DRAWN BY	CHECKED BY	APPROVED BY
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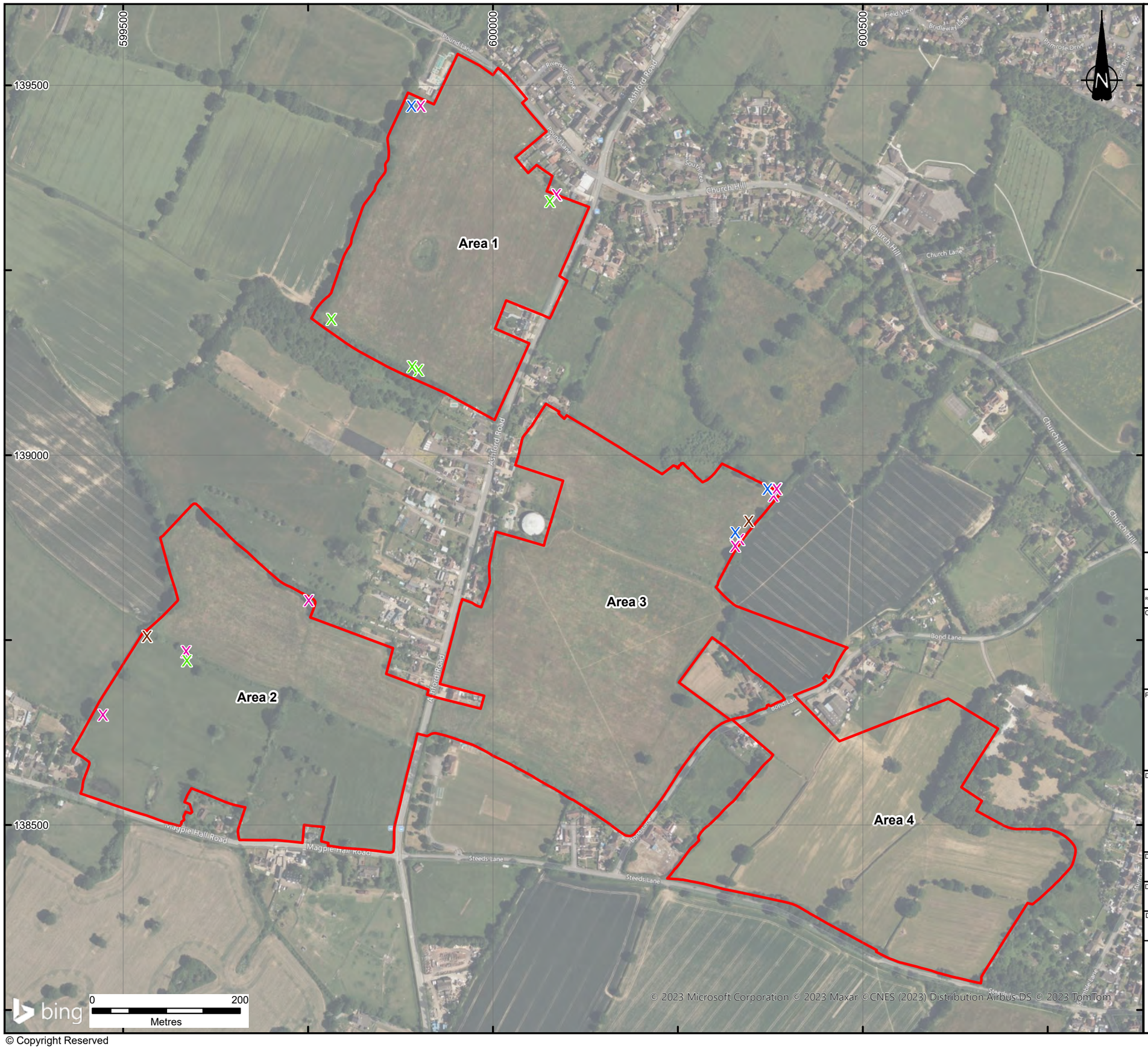

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- Soprano Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle
- Long eared

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
DUSK - MAY

DRG No.		REV
ST19409-016		A
DRG SIZE	SCALE	DATE
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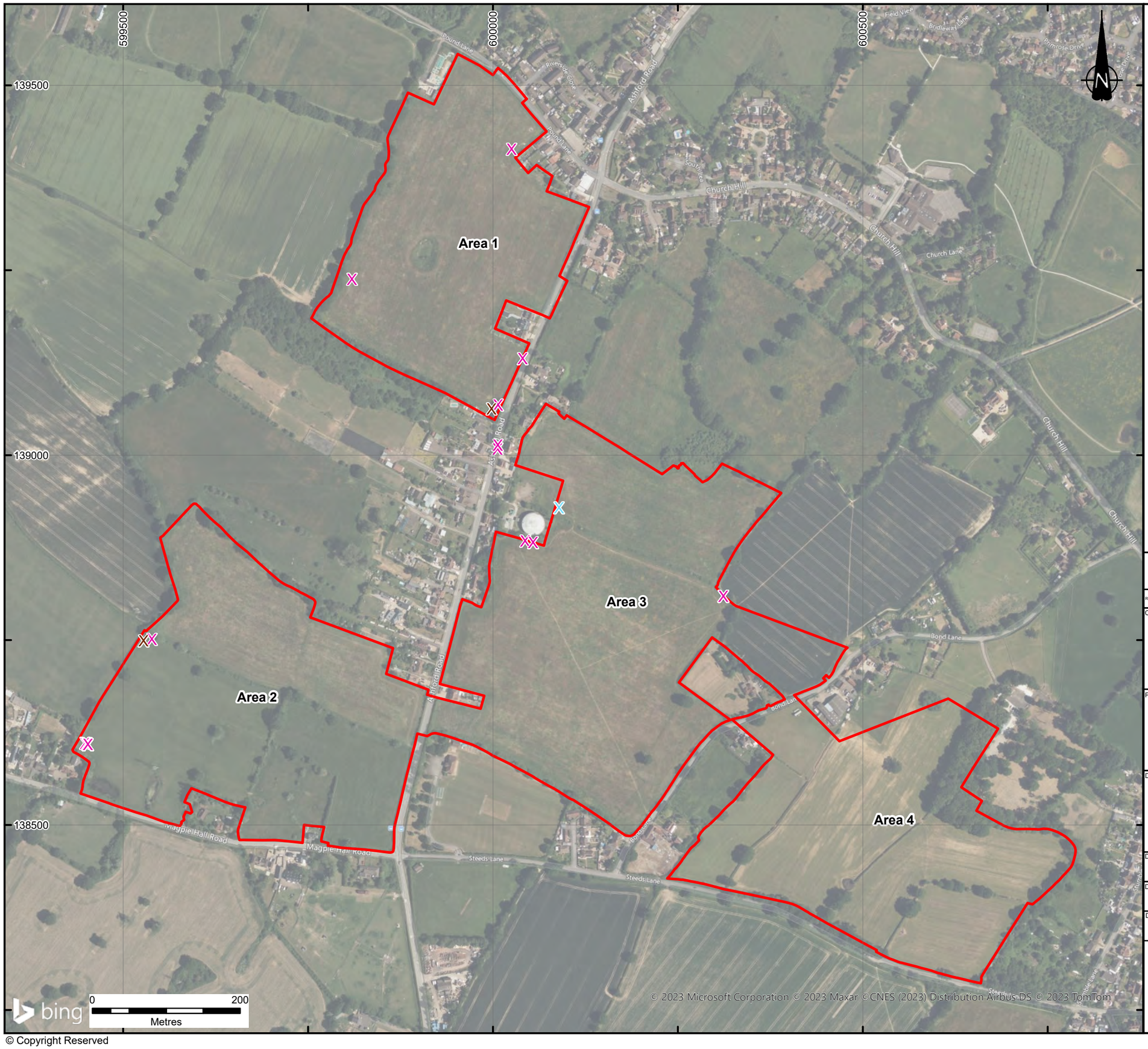

KEY

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- X Soprano Pipistrelle
- X Noctule

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
JUNE

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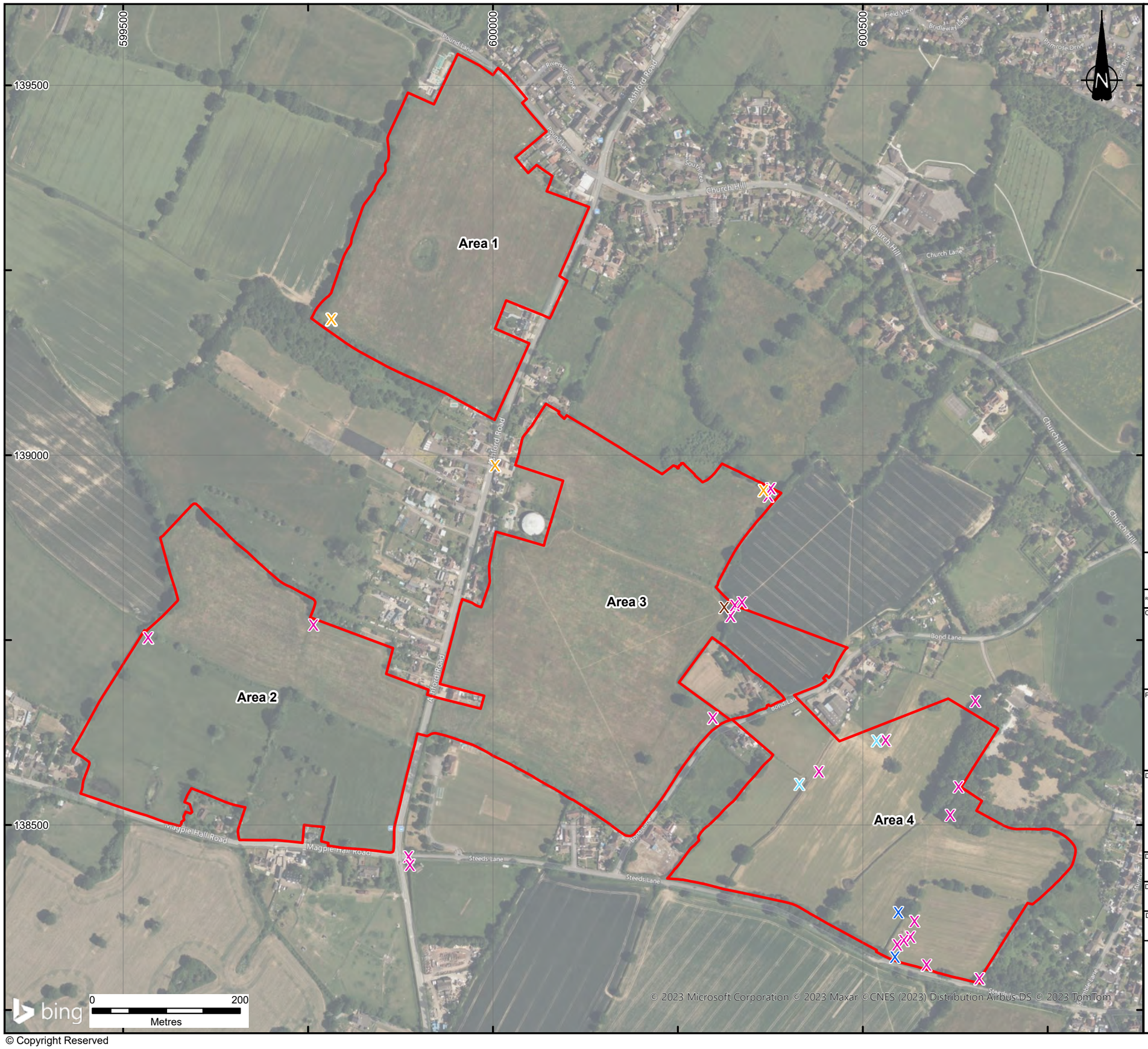

KEY

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- Common Pipistrelle
- Soprano Pipistrelle
- Myotis
- Common Pipistrelle/Soprano Pipistrelle
- Noctule

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
JULY

DRG No.		REV
ST19409-018		A
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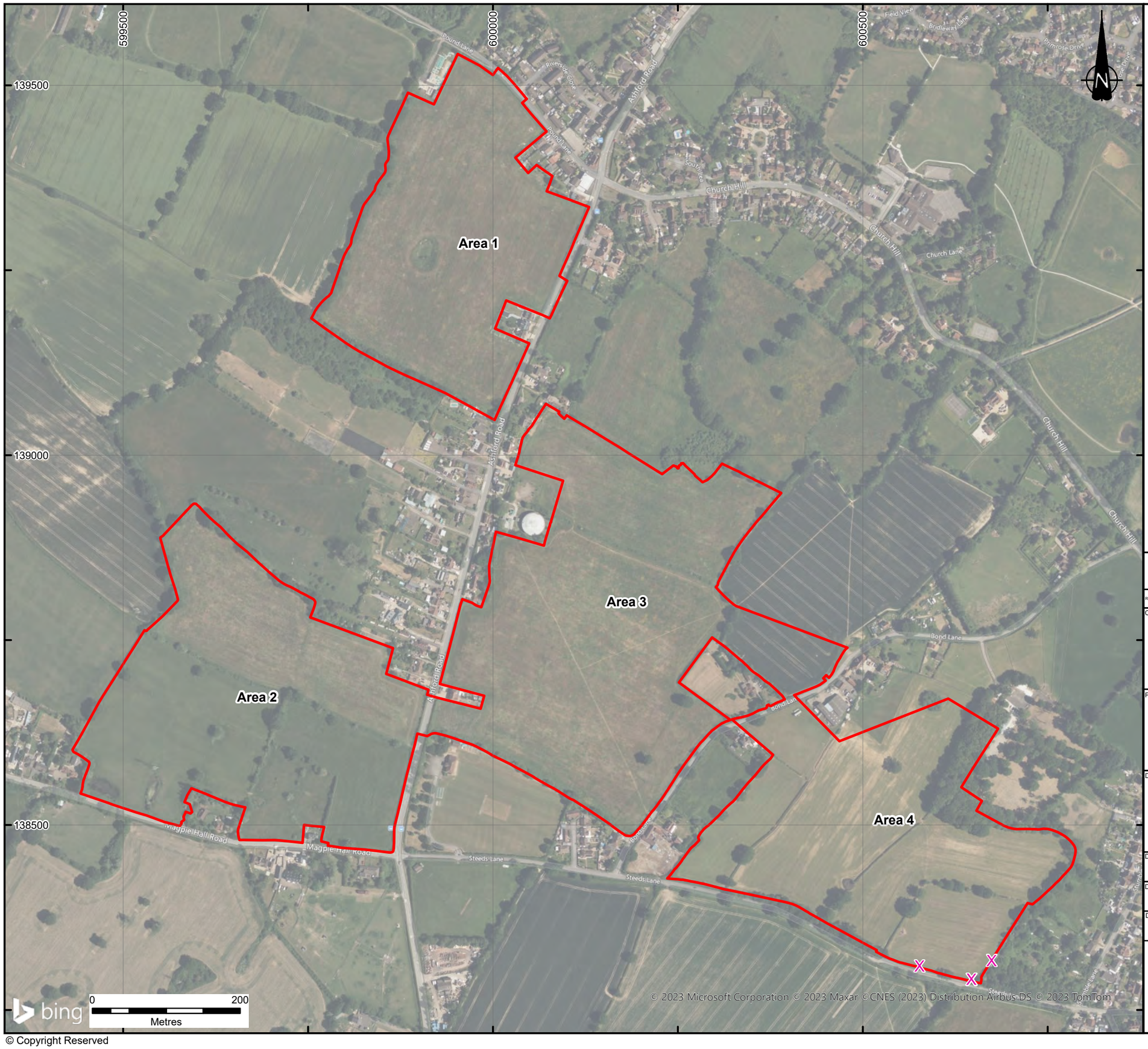

KEY

Site Boundary

X Common Pipistrelle

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

CLIENT

PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
AUGUST

DRG No.		REV
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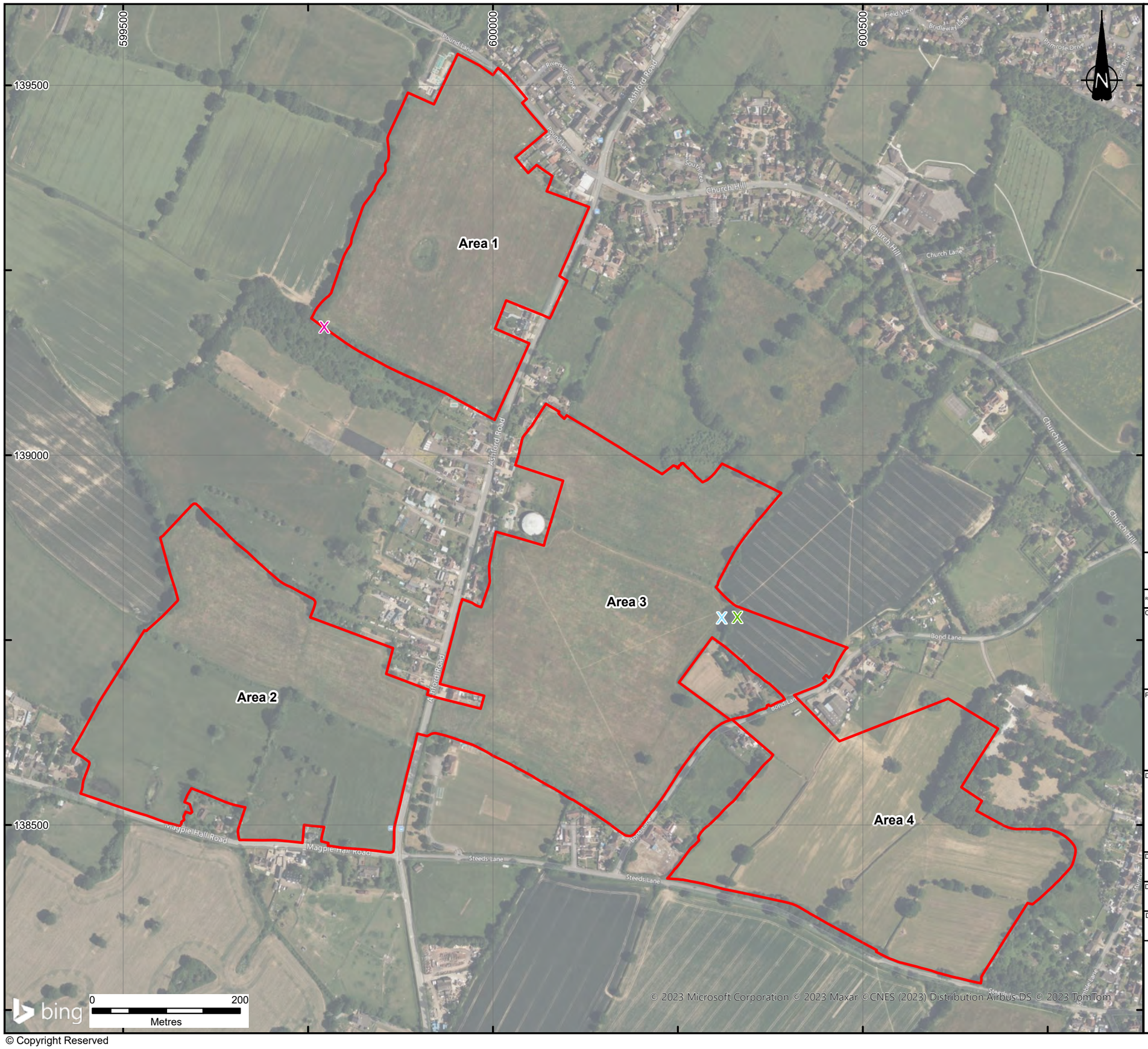
MAB	KC	TB

wardell armstrong



KEY

- Site Boundary
- X Common Pipistrelle
- X Long eared
- X Noctule

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

CLIENT

PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
SEPTEMBER

DRG No.		REV
ST19409-020		A
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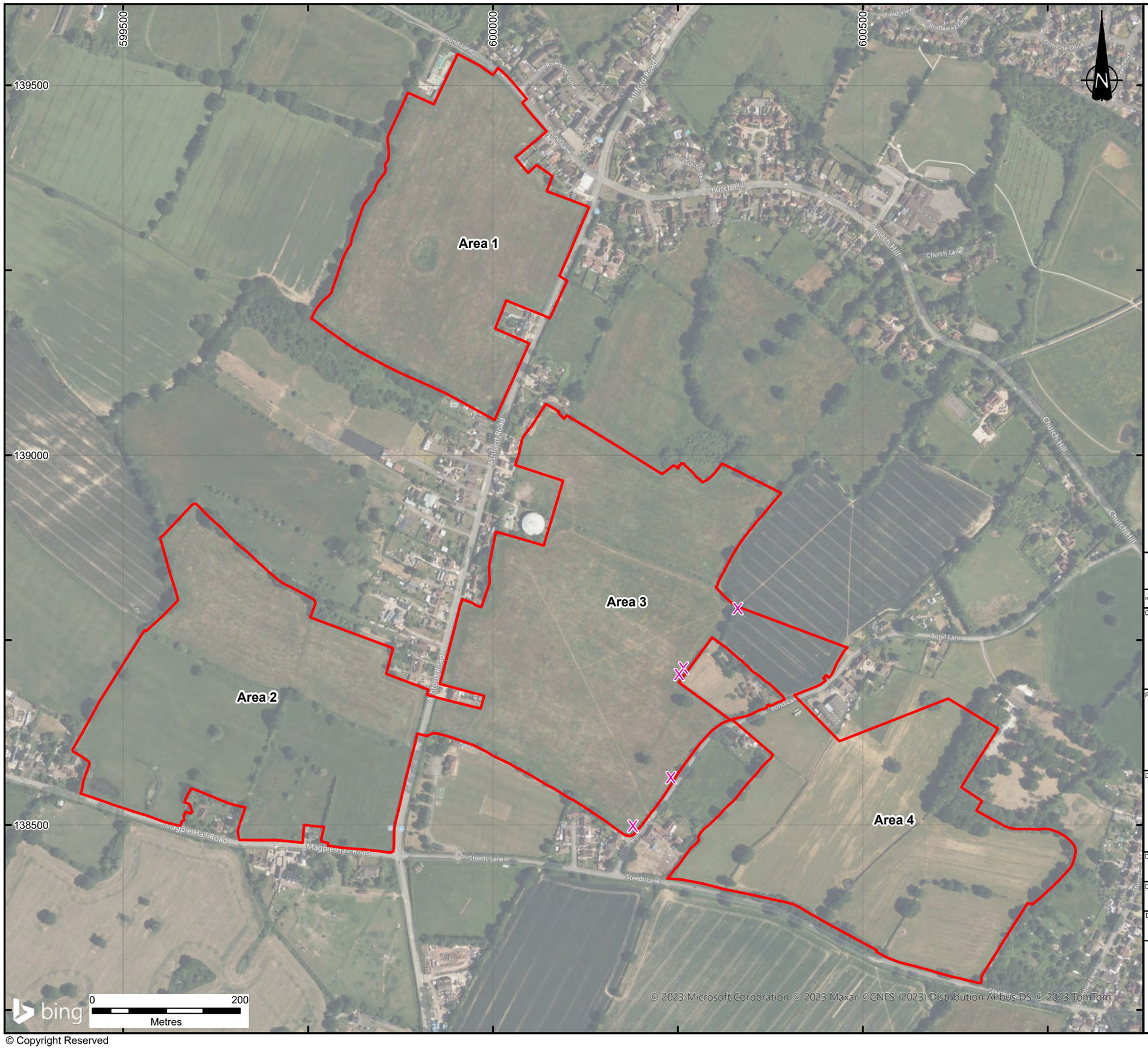
MAB	KC	TB

wardell armstrong



KEY

Site Boundary

X Common Pipistrelle

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
A	FIRST ISSUE	04/05/23	MAB	KC	TB

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PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEY
OCTOBER

DRG No.		REV
ST19409-021		A
DRG SIZE	SCALE	DATE
A3	1:5,000	04/05/2023
DRAWN BY	CHECKED BY	APPROVED BY
MAB	KC	TB

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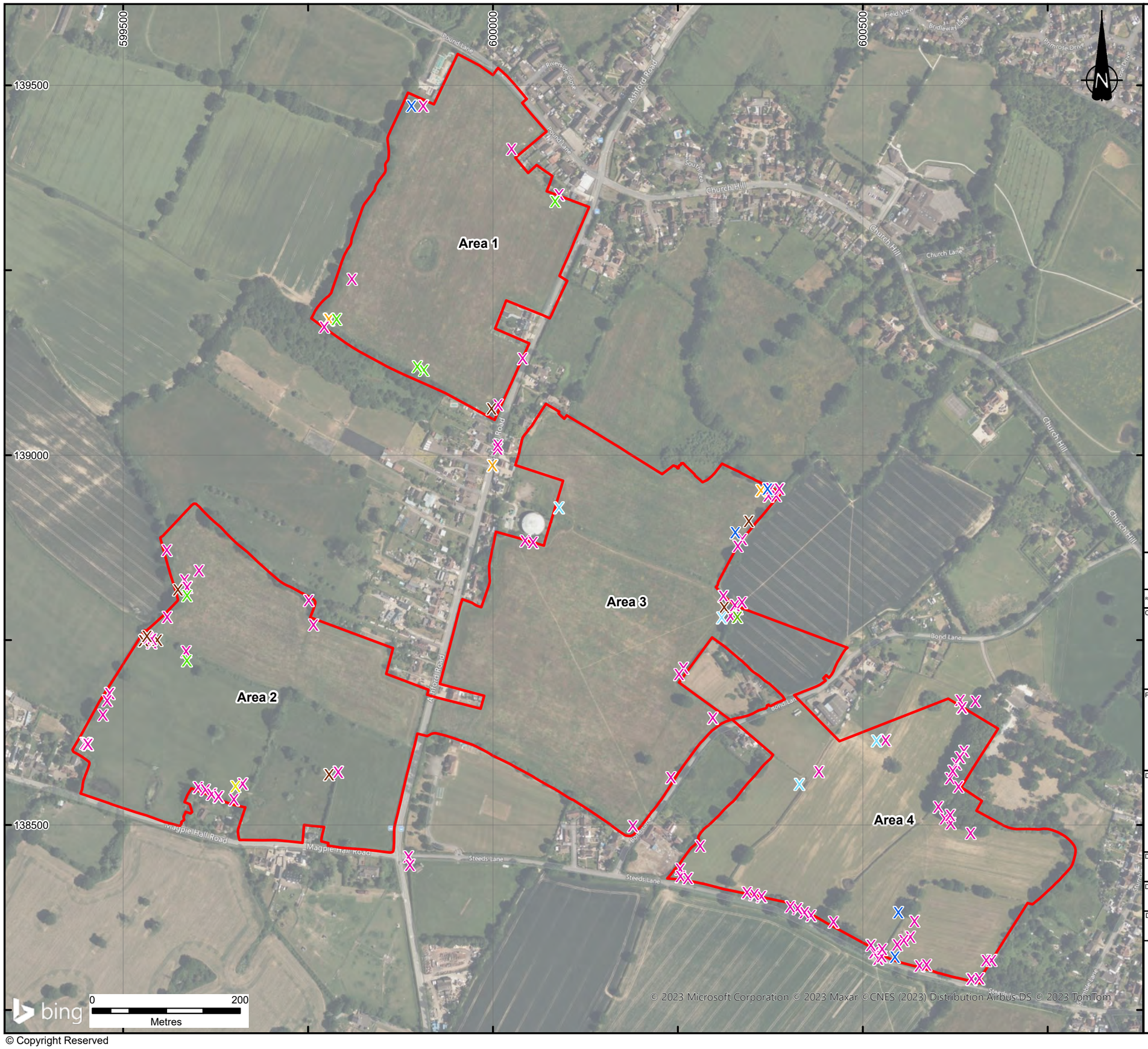

KEY

- Site Boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle
- Long eared
- Noctule
- Myotis
- Nathusius's Pipistrelle

Notes:

Boundaries are indicative.
Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	FIRST ISSUE	04/05/23	MAB	KC	TB

CLIENT

PENTLAND HOMES

PROJECT

KINGSNORTH ECOLOGY SURVEYS

DRAWING TITLE

BAT ACTIVITY SURVEYS
2022

DRG No.		REV
ST19409-022		A
DRG SIZE	SCALE	DATE
A3	1:5,000	04/05/2023
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