ENVISION AESC



Part of the ES Group

ENVISION AESC UK BATTERY PLANT, SUNDERLAND

Interim Bat Survey Report

> June 2021 9777.Bats.vf

ecology solutions for planners and developers

COPYRIGHT

The copyright of this document remains with Ecology Solutions. The contents of this document must therefore not be copied or reproduced in whole or in part for any purpose without the written consent of Ecology Solutions.

PROTECTED SPECIES

This report contains sensitive information relating to protected species. The information contained herein should not be disseminated without the prior consent of Ecology Solutions.

CONTENTS

1.	INTRODUCTION	. 1
2.	LEGISLATION	. 2
3.	SURVEY METHODOLOGY	. 3
4.	SURVEY RESULTS	. 4
4 4	Previous Survey Results2021 Survey Results	. 4 . 4
5.	SUMMARY AND CONCLUSIONS	. 6

PLANS

PLAN ECO1	Bat Activity Survey Results 26.05.21

APPENDICES

APPENDIX 1	Survey Plans from WYG (2015)
APPENDIX 2	Survey Plans from WYG (2021)

1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Envision AESC to carry out updated bat surveys of the site proposed for the UK Battery Plant at the International Advanced Manufacturing Park (IAMP), Sunderland. The site forms Phase 2 of IAMP ONE, the southern section of the wider scheme.
- 1.2. Survey work has previously been undertaken at the site as part of the wider study of the baseline information for the IAMP scheme. The current survey focuses on the UK Battery Plant site and the immediate environs, to establish whether any significant differences have arisen in the time since the earlier work was completed.
- 1.3. This report sets out the findings of the work completed to date. Further work is to be completed over the current survey season and will be reported in due course.
- 1.4. A specific assessment of bats and Barn Owls at the West Moor Farm complex within the site has been completed by DWS Ecology, the details of which are provided separately.

2. LEGISLATION

- 2.1. All bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These include provisions making it an offence:
 - Deliberately to kill, injure or take (capture) bats;
 - Deliberately to disturb bats in such a way as to:-
 - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
 - (ii) affect significantly the local distribution or abundance of the species to which they belong;
 - To damage or destroy any breeding or resting place used by bats;
 - Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).
- 2.2. While the legislation is deemed to apply when bats are not in residence, Natural England guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.
- 2.3. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.
- 2.4. The offence of damaging (making worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 2.5. Licences are available from Natural England in certain circumstances, and permit activities that would otherwise be considered an offence.
- 2.6. In accordance with the Habitats Regulations Natural England must apply the three derogation tests as part of the process of considering a licence application. These tests are that:
 - 1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
 - 2. there must be no satisfactory alternative; and
 - 3. the favourable conservation status of the species concerned must be maintained.
- 2.7. Licences can usually only be granted if the development is in receipt of full planning permission.

3. SURVEY METHODOLOGY

- 3.1. The site was subject to an activity transect survey in May 2020, with further surveys to be undertaken in July and August / September. The transect route covers the majority of the site.
- 3.2. The transect commenced at sunset and continued for approximately two hours in order to maximise the encounter rate of bats i.e. both early and late emerging species. The echolocation calls of bats were recorded on iPads paired with Echo Meter Touch 2 PRO bat detectors.
- 3.3. The surveyors observed the behaviour of any bat recorded, i.e. foraging or commuting, together with noting the species present and number of bats present at that location.
- 3.4. The surveys were conducted when the night-time temperature was above 10°C. The insectivorous diet of bats means there is little or no food available when temperature falls below this level and consequently levels of activity are low and may not accurately reflect the value of the site for bats. The weather conditions for the surveys were recorded and any limitations noted.
- 3.5. Following the completion of the surveys all of the recorded data was analysed using the Kaleidoscope Viewer computer program.
- 3.6. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004¹), the Joint Nature Conservation Committee (2004²) and the Bat Conservation Trust (2016³).

¹ Mitchell-Jones, A. J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough

² Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.

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

4. SURVEY RESULTS

4.1. **Previous Survey Results**

- 4.1.1. Bat surveys were completed by WYG in 2014 and 2015, encompassing the wider IAMP site and including the area for the proposed development (see Appendix 1).
- 4.1.2. At least five species of bat were recorded during the activity transect surveys, including Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, *Myotis* species, Noctule *Nyctalus noctule* and Brown Long-eared Bat *Plecotus auritus*. The majority of observations were of Common Pipistrelle (90% of 419 recorded calls in 2014, 99% of 193 recorded calls in 2015; totalling a combined 93% of 612 calls recorded overall) with Soprano Pipistrelle being the second most recorded species (7% in 2014, 1% in 2015 and 5% overall). In 2014, Pipistrelle bat species echolocating at 50 kHz and bat passes each made up 0.7% of recorded calls while *Myotis* species bats and Brown Long-eared bats made up 0.3% and 0.2% of recorded calls, respectively. Noctule, *Myotis* sp. and Brown Long eared bats were not recorded during the 2015 surveys.
- 4.1.3. Remote surveys undertaken recorded at least six species of bat, including; Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* species, Noctule and Brown Long eared bat. In 2014 the vast the majority (94%) of calls were attributed to Pipistrelle bats, 2.6% of calls were attributed to *Myotis* species, 2.2% to Soprano Pipistrelles, 1.2% to Pipistrelle spp., 0.03% to Nathusius' Pipistrelle, 0.009% to *Nyctalus* species, 0.005% to Brown Long-eared bats. In 2015, 97.5% of calls were attributed to Common Pipistrelles, 2.2% to Soprano Pipistrelles and 0.4% Pipistrelle spp.
- 4.1.4. Survey work undertaken by Tetra Tech (formerly WYG) of the ELMA One area to the north of the site in 2020 chiefly recorded activity from Common Pipistrelles (90%), Noctules (7%) and Soprano Pipistrelles (2%). The results of this work are illustrated on the plans at Appendix 2.

4.2. **2021 Survey Results**

Activity Transect Survey

- 4.2.1. The transect survey was undertaken in favourable weather conditions. The temperature was approximately 11°C, there was no precipitation and there was a light breeze during the survey.
- 4.2.2. The activity survey was carried out by the two surveyors walking a circular route around the site. The transect route covered the whole site, as illustrated on Plan ECO1.

<u>26 May 2021</u>

4.2.3. Bat activity recorded during the survey is summarised in Table 4.1 below and illustrated on Plan ECO1.

- 4.2.4. A low level of activity was observed across the transect route, with a total of 139 registrations recorded. The majority of the registrations recorded were attributed to Common Pipistrelle (88%), with some activity from Soprano Pipistrelles (4%) and Nathusius' Pipistrelles *Pipistrellus nathusii* (8%) also recorded.
- 4.2.5. The earliest registrations recorded were for Common Pipistrelle and Nathusius' Pipistrelle, both recorded 47 minutes after sunset.

Survey Night	Species	No. Registrations	%	First Registration after sunset
	Ppip	122	88	47 min
26.05.21	Рруд	6	4	50 min
	Pnat	11	8	47 min
Total	3	139		

Table 4.1. Summary of activity transect survey 26.05.21⁴.

- 4.2.6. The results of the survey work to date are broadly in line with the findings of the previous survey work from the wider area, with a relatively limited species assemblage and the majority of activity attributed to Common Pipistrelles.
- 4.2.7. Overall the results to date confirm that the current site is not of high value for foraging or commuting bats, and is overall considered to be of local value.
- 4.2.8. Further work will be completed during the 2021 survey season, but there is no reason to suggest that the overall results of the surveys will differ significantly from those obtained to date.

⁴ Ppip: Common Pipistrelle *Pipistrellus pipistrellus*; Ppyg: Soprano Pipistrelle *Pipistrellus pygmaeus* and Pnat: Nathusius' Pipistrelle *Pipistrellus nathusii*.

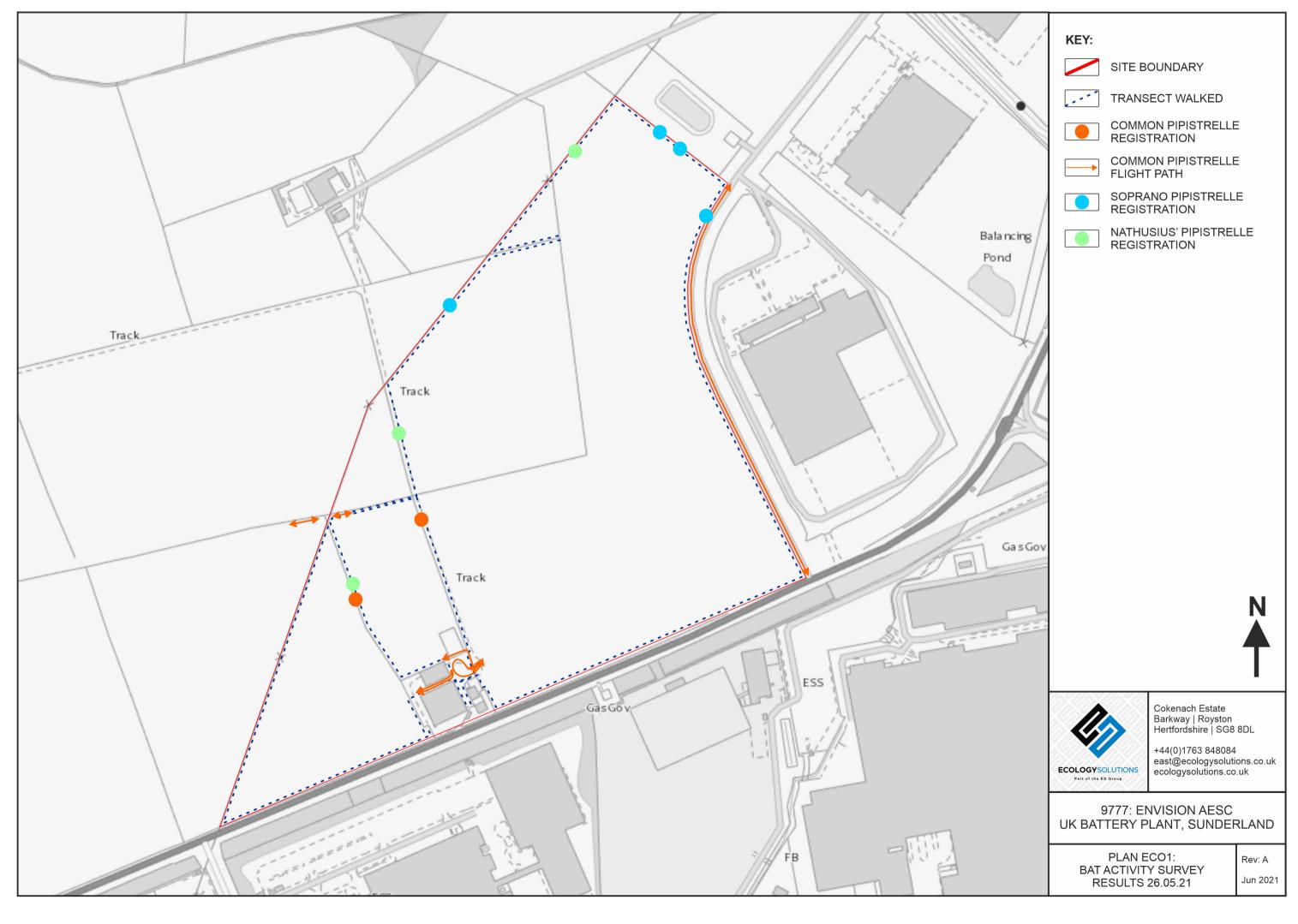
5. SUMMARY AND CONCLUSIONS

- 5.1. Ecology Solutions was commissioned by Envision AESC to carry out updated bat surveys of the site proposed for the UK Battery Plant at the International Advanced Manufacturing Park (IAMP), Sunderland. The site forms Phase 2 of IAMP ONE, the southern section of the wider scheme.
- 5.2. Survey work has previously been undertaken at the site as part of the wider study of the baseline information for the IAMP scheme. The current survey focuses on the UK Battery Plant site and the immediate environs, to establish whether any significant differences have arisen in the time since the earlier work was completed.
- 5.3. This report sets out the findings of the work completed to date. Further work is to be completed over the current survey season and will be reported in due course.
- 5.4. The results of the survey work to date are broadly in line with the findings of the previous survey work from the wider area, with a relatively limited species assemblage and the majority of activity attributed to Common Pipistrelles.
- 5.5. Overall the results to date confirm that the current site is not of high value for foraging or commuting bats, and is overall considered to be of local value.
- 5.6. Further work will be completed during the 2021 survey season, but there is no reason to suggest that the overall results of the surveys will differ significantly from those obtained to date.

PLANS

PLAN ECO1

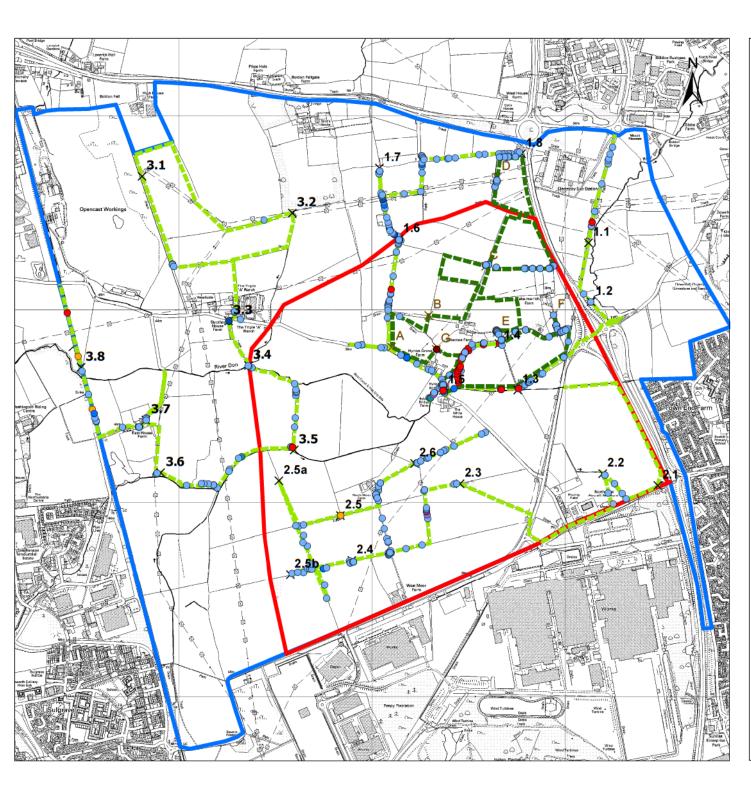
Bat Activity Survey Results 26.05.21



APPENDICES

APPENDIX 1

Survey Plans from WYG (2015)



Legend

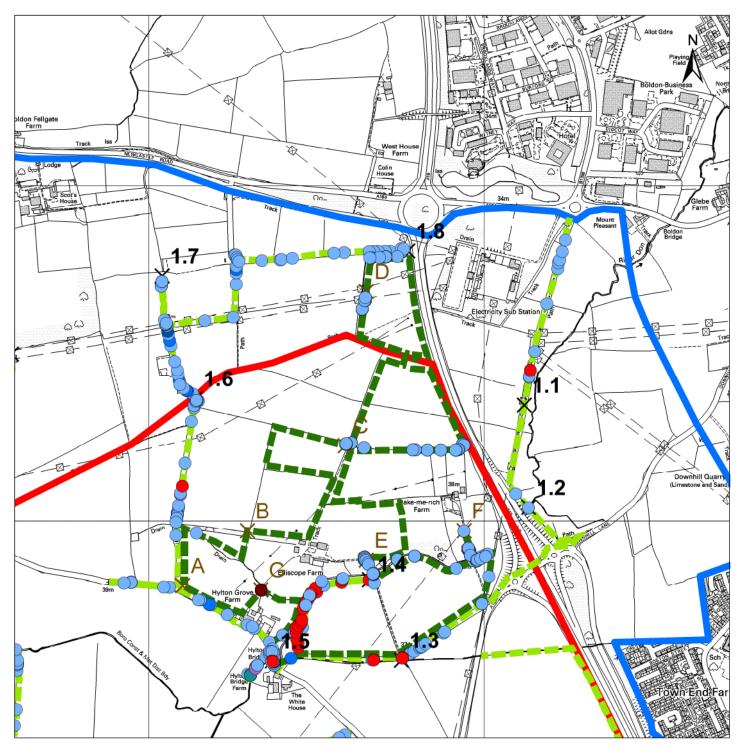
- Amended RLB
- Amended BLB
- Transects 1, 2 and 3 (May to October 2014)
- X Listening stops on Transects 1, 2 and 3 (May to October 2014)
- Transect 4 (July to October 2015)
 - X Listening stops on Transect 4 (July to October 2015)

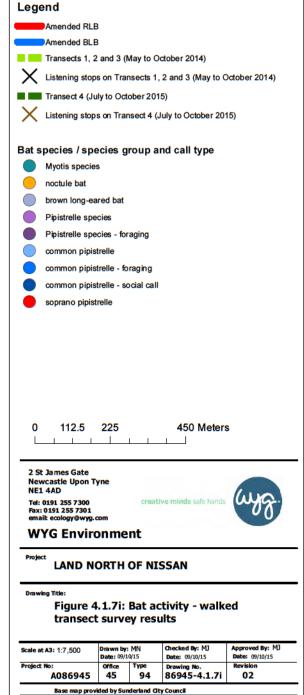
Bat species / species group and call type

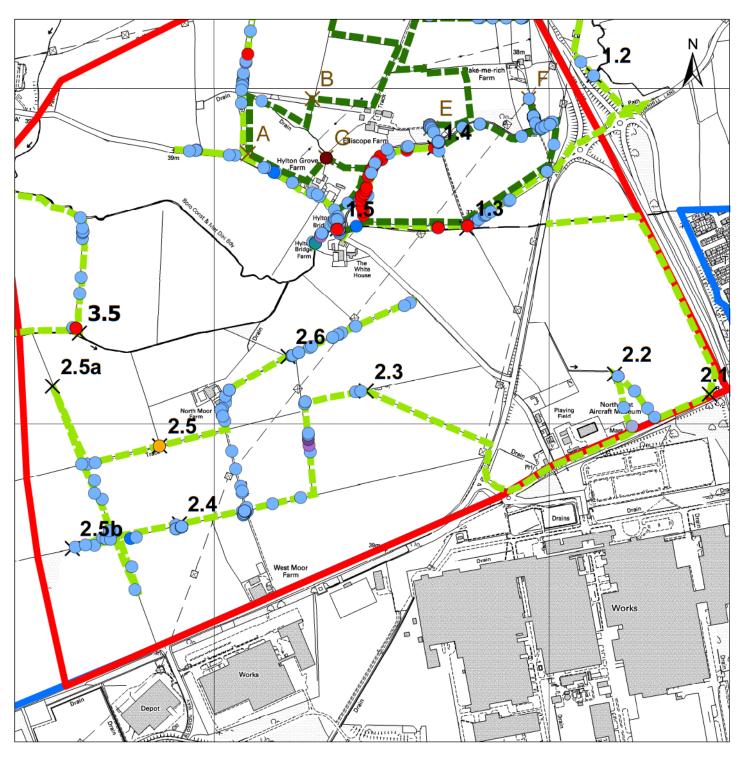
- Myotis species
- noctule bat
- brown long-eared bat
- Pipistrelle species
- Pipistrelle species foraging
- common pipistrelle
- common pipistrelle foraging
- common pipistrelle social call
- soprano pipistrelle

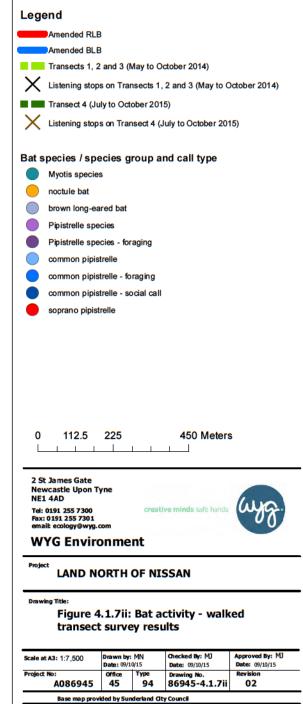
0 195 L I I I	390	1 1	780 Meter	S			
2 St James Gate Newcastle Upon Tyne NE1 4AD Tel: 0191 255 7300 Fax: 0191 255 7301							
WYG Envir	email: ecology@wyg.com WYG Environment Project LAND NORTH OF NISSAN						
Drawing Title: Figure 4.1.7: Bat activity - walked transect survey results							
Scale at A3: 1:13,000	Drawn by Date: 09/		Checked By: MJ Date: 09/10/15	Approved By: MJ Date: 09/10/15			
Project No: A086945	Office 45	Type 94	Drawing No. 86945-4.1.7	Revision 02			

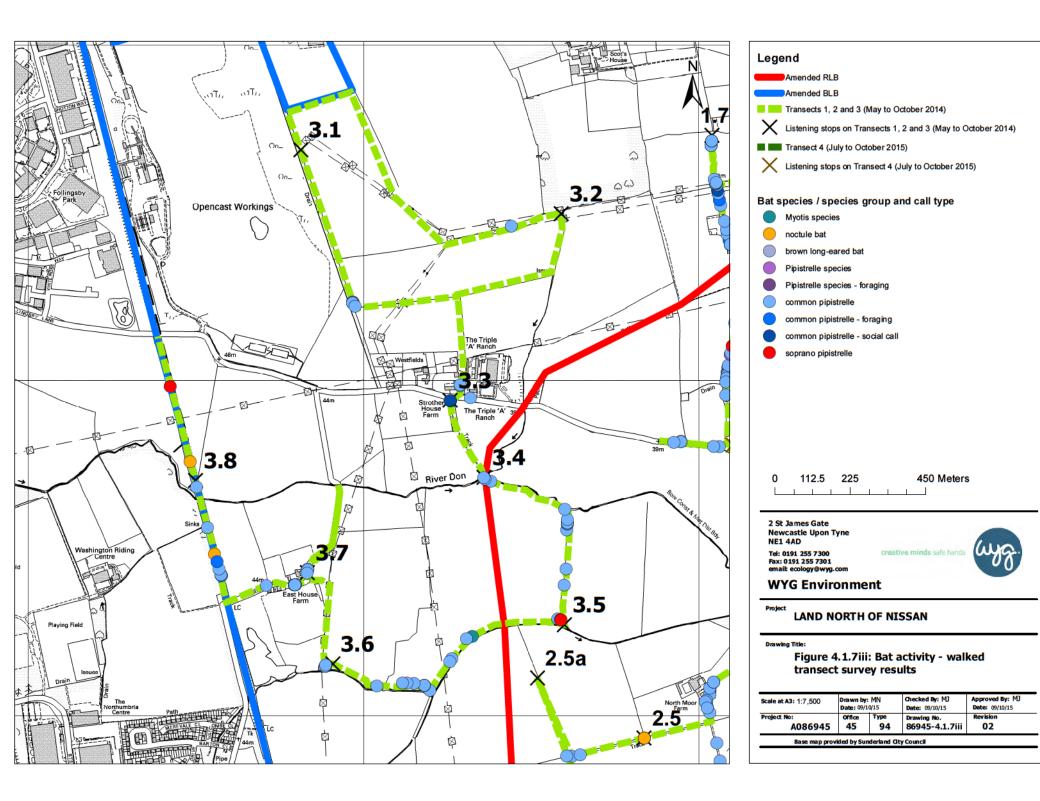
Base map provided by Sunderland City Council











APPENDIX 2

Survey Plans from WYG (2021)



Rev
Α

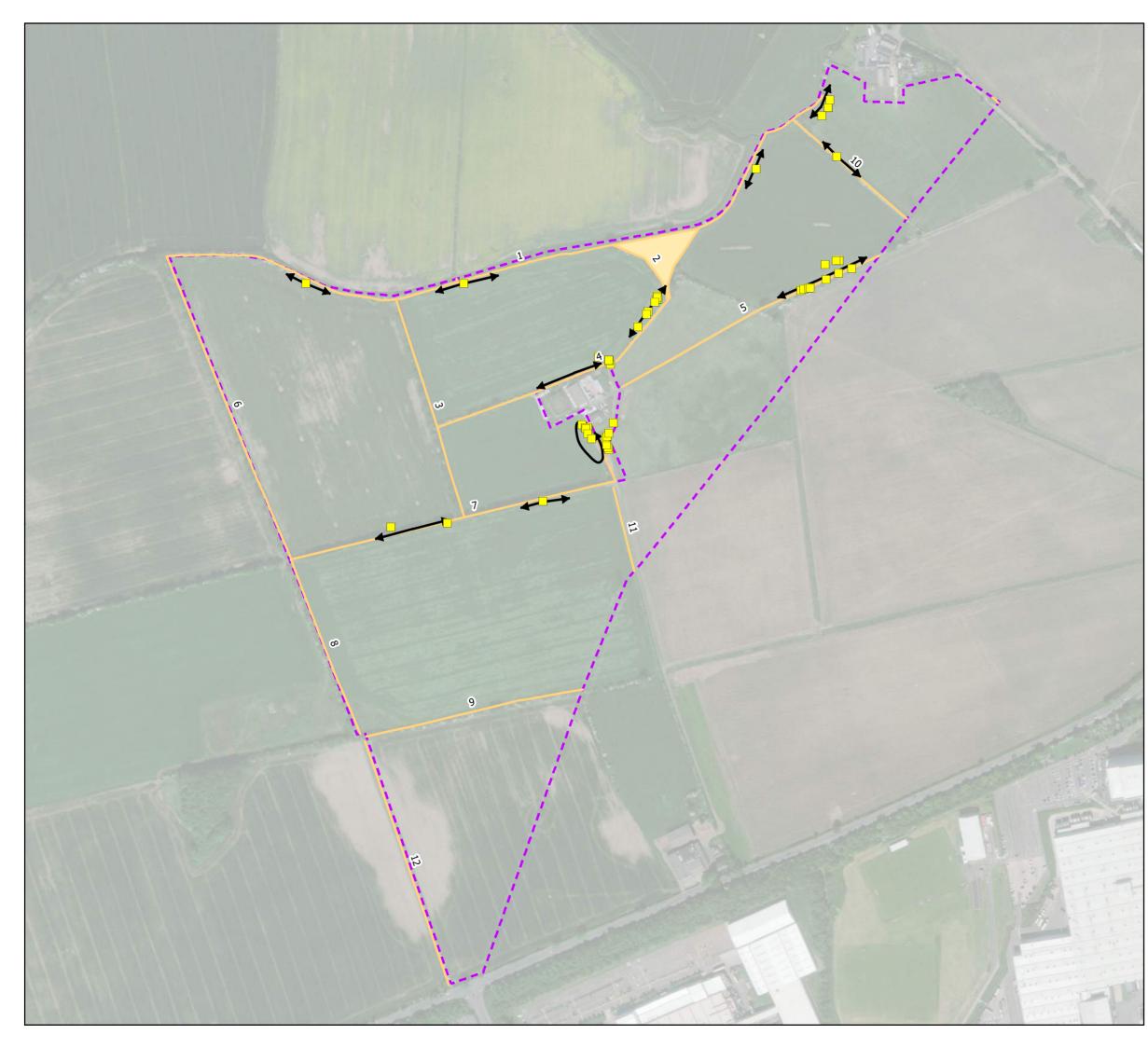
Legend

X

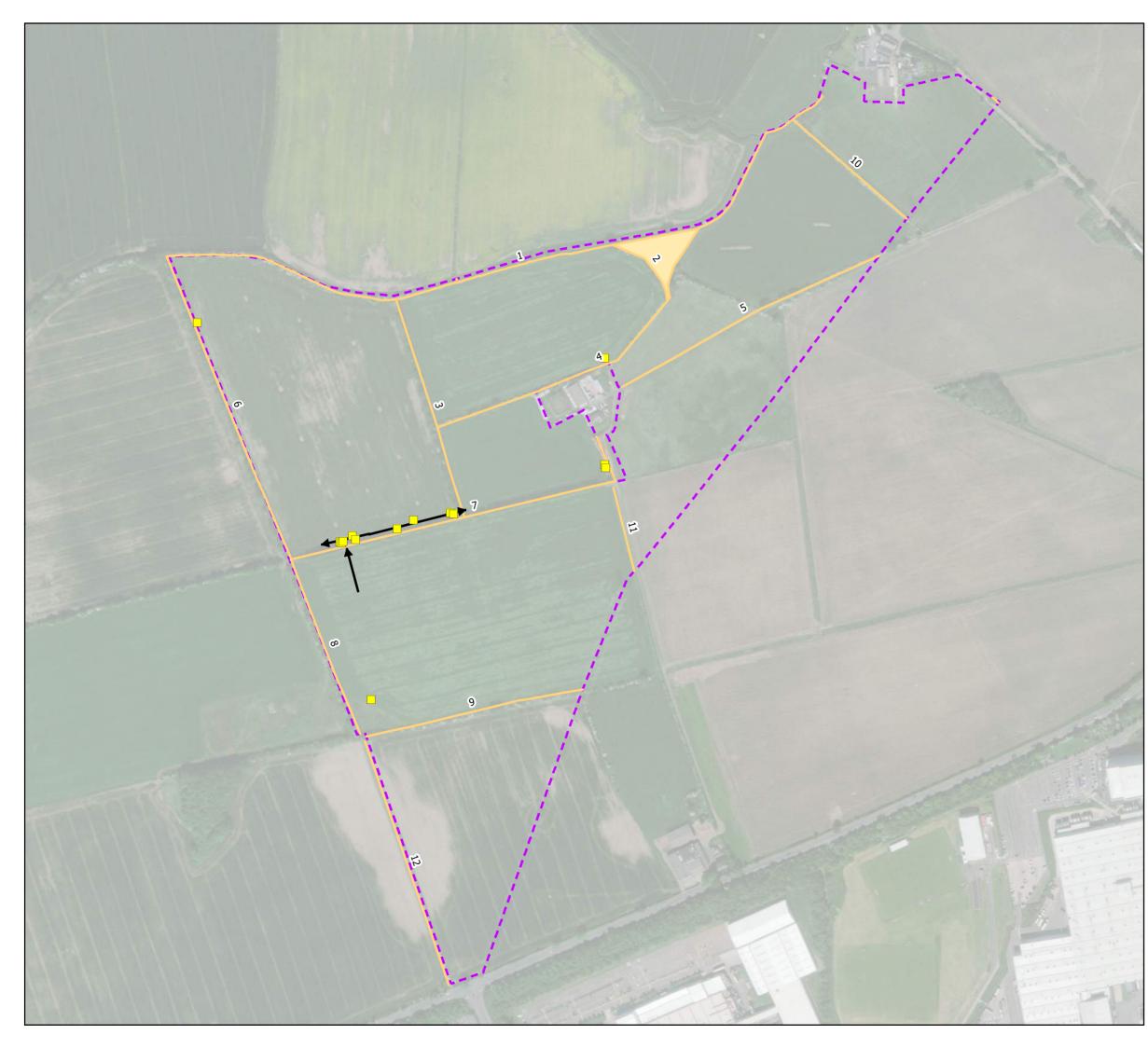
- IAMP One Boundary
- ELMA One Boundary
- Bat foraging and commuting area
- Bat foraging and commuting route
- -----> Common pipistrelle flight line
- Soprano pipistrelle flight line
- → Unidentified bat flight line
- Common pipistrelle heard not seen
- Soprano pipistrelle heard not seen
- Noctule heard not seen
 - The number associated with points and flightlines refer to number observed, where no number is given then only one bat was recorded

Data from both Durham Wildlife Services (DWS) and WYG

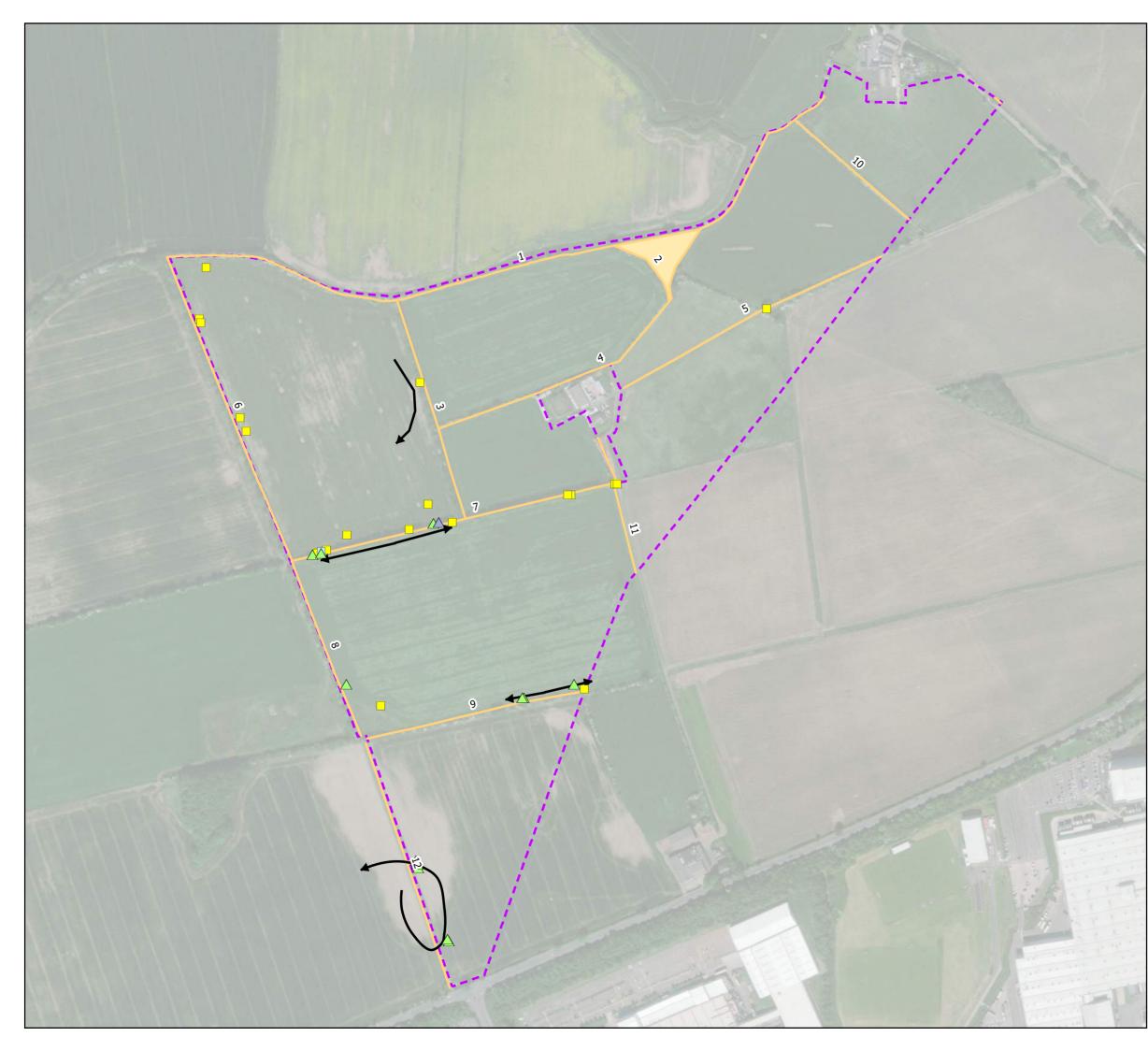
0	50 I	100 I	1	200 1	Metres	\$	
					E TETR	А ТЕСН	
Bat	Survey	Resu	lt 2018	3/20	19		
	A One P LLP	- Year	1				
Scale a 1:4,50		Project A1058	: No: 35-25-1		ving No: re 8	Revision: A	
	Drawn by:Drawn date:Approved by:Maddie Errington26/10/2020Monica Souza						
Cartains Ordnance Suivey Data (): Crown copyright and database right 2017. ()) Northern Ireland Environment Agency. Open Covernment Data regionizand contains public sector information learned under the Open Covernment Licence v1.0 Other Centif: Sciviti Excitivation, Excitivation Sciviti Sciviti Sciviti Sciviti Sciviti Sciviti Sciviti Sciviti							



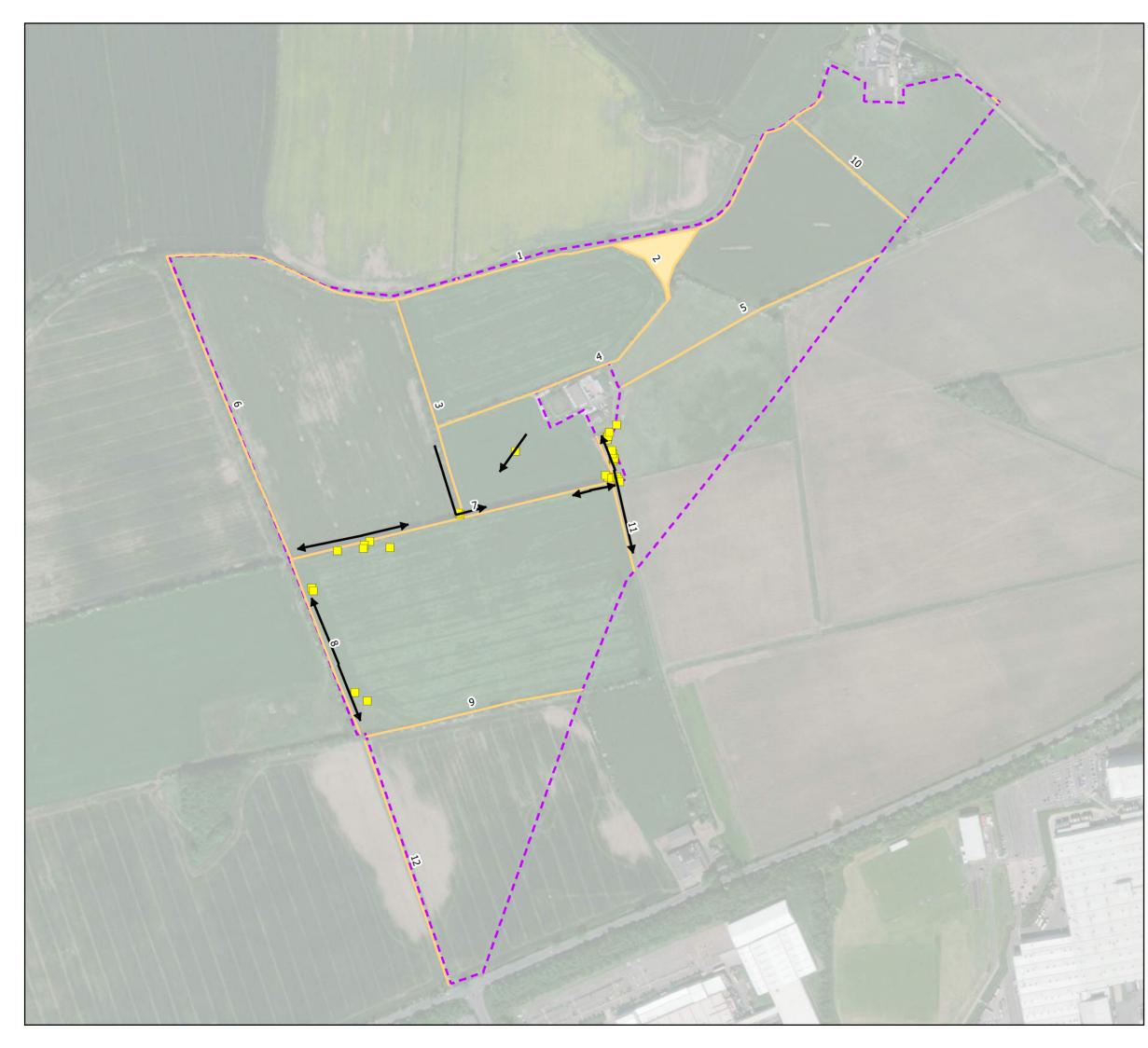
Rev A Date 26/10/20 Notes Initial map production Legend Initial map production Legend ELMA One Boundary → Flight lines Bat foraging and commuting area Bat foraging and commuting route Common pipistrelle, Pipistrellus pipistrellu Common pipistrelle, Pipistrellus pipistrellu D 50 100 200 Metres ELMA One - Year 1 IAMP LLP ELMA One - Year 1 IAMP LLP Fraven by: A105835-25-1 Proving No: A105835-25-1 Revision: A Drawn by: Maddie Erington Project No: 30/10/2020 Drawing No: Monica Source Revision: A										
 ELMA One Boundary Flight lines Bat foraging and commuting area Bat foraging and commuting route Common pipistrelle, <i>Pipistrellus pipistrellu</i> Common pipistrelle, <i>Pipistrellus pipistrellu</i> 			Initia		ion					
Flight lines Bat foraging and commuting area Bat foraging and commuting route Common pipistrelle, <i>Pipistrellus pipistrellu</i> Common pipistrelle, <i>Pipistrellus pipistrellu</i> O <	Legend	l	1							
Bat foraging and commuting route Bat foraging and commuting route Common pipistrelle, <i>Pipistrellus pipistrellu</i> Common pipistrelle, <i>Pipistrellus pipistrellu</i> 0 0 0 0	ELMA One Boundary									
Bat foraging and commuting route Common pipistrelle, <i>Pipistrellus pipistrellu</i> Common pipistrelle, <i>Pipistrellus pipistrellu</i> 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	← Flight lines									
• Common pipistrelle, Pipistrellus pipistrellu • 0 0 • 0		Bat foraging	and com	muting area	a					
0 50 100 201 Metres Image: transmitted by tran		Bat foraging	and com	muting rout	e					
ELMA One - Year 1 IAMP LLP Scale at A3: Project No: 1:4,500 A105835-25-1 Drawn by: Drawn date: Maddie Errington 30/10/2020		Common pi	pistrelle, <i>F</i>	Pipistrellus p	oipistrellus					
ELMA One - Year 1 IAMP LLP Scale at A3: Project No: 1:4,500 A105835-25-1 Drawing No: Revision: 1:4,500 A105835-25-1 Drawn by: Drawn date: Maddie Errington 30/10/2020 Monica Souza										
ELMA One - Year 1 Data Survey Result April 2020 ELMA One - Year 1 Interview of the survey of the surv	0 50			Metres	Ŕ					
ELMA One - Year 1 IAMP LLP Scale at A3: 1:4,500 Project No: A105835-25-1 Drawing No: Figure 9 Revision: A Drawn by: Maddie Errington Drawn date: 30/10/2020 Approved by: Monica Souza	TETRA TECH									
Drawn by: Drawn date: Approved by: Maddle Errington 30/10/2020 Monica Souza	Bat Survey Result April 2020									
1:4,500 A105835-25-1 Figure 9 A Drawn by: Maddie Errington Drawn date: 30/10/2020 Approved by: Monica Souza Contais Generace Surve Die 0 Course opydate and delaber right 2021 (Deep Coursers 4.0.0) Northern Teleford Environment Approx.										
Maddie Errington 30/10/2020 Monica Souza Cotains Ordanes Survey Data © Crown copyright and database right 2017. © Northern Teleind Environment Agency. Open Government Data reproduced contains public setter information Incended under the Open Government Uncense VJ.0										
Onterin Orientes Sang Vide 3 (Cons copyed) and deabar spit 5077. S (Insteam Instead Granomers Agency, Open Genemies Disk special corr common galas, escal andrematics lineard (and ber Disc) Gonomerst (June 3 (J Other Gredits: Source: Eri, Haag; Gesly; Earthater Geographics, CHES/Arbus DS, USDA, ISGS, Aero/RD, Toll, and he GS User Community										
	Contains Ordnance Surve Open Government Data Other Credits: Source: Er	ey Data © Crown copyright and database rij reproduced contains public sector informatic sri, Maxar, GeoEye, Earthstar Geographics, C	ht 2017. © Northern Treland En n licensed under the Open Gover NES/Airbus DS, USDA, USGS, Ae	nvironment Agency. mment Licence v3.0 roGRID, IGN, and the GIS User Comm	nunity					



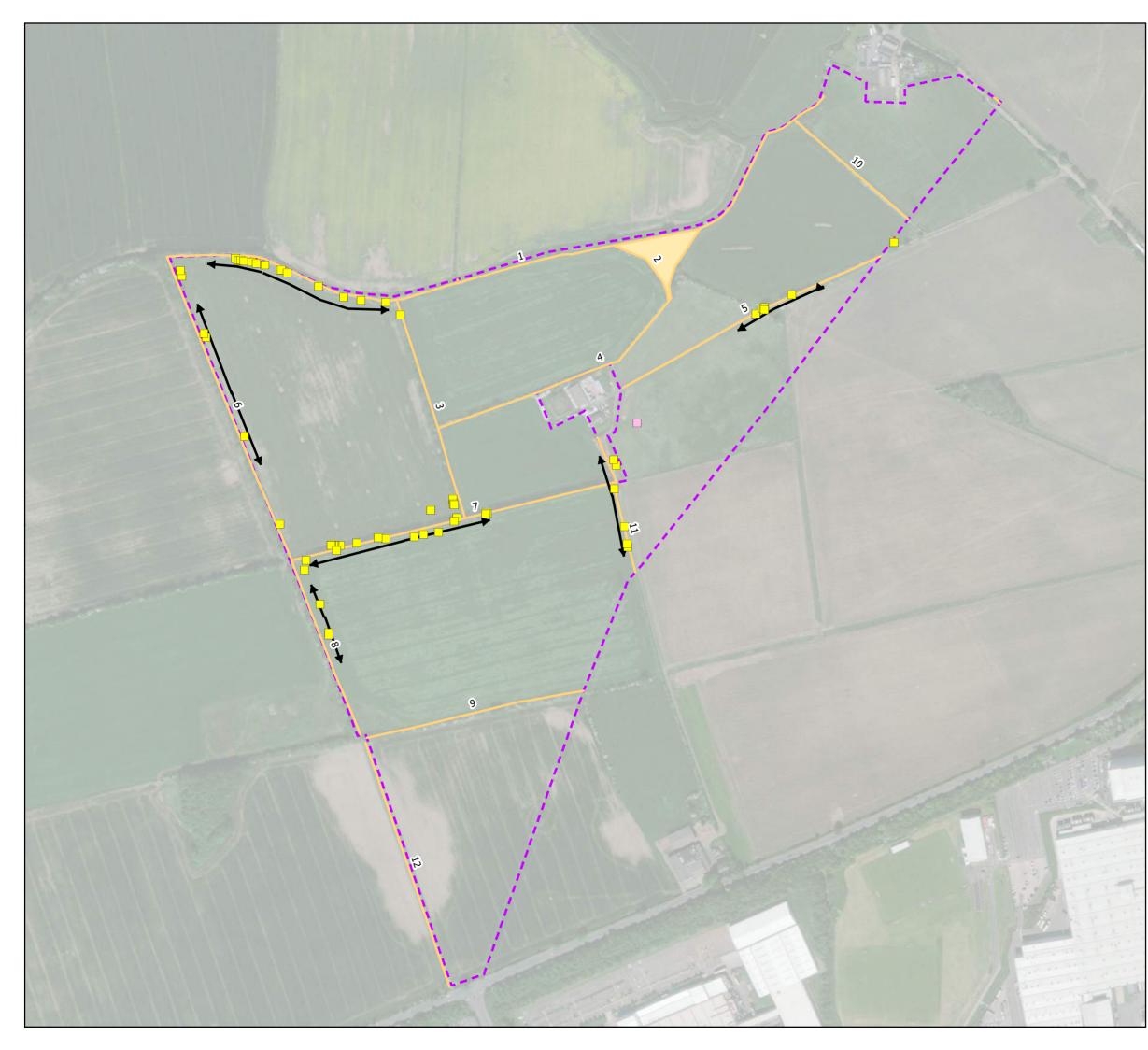
Rev A	Date 26/10/20		lotes ap production					
Legend ELMA One Boundary Flight lines Bat foraging and commuting area Bat foraging and commuting route Common pipistrelle, Pipistrellus pipistrellus								
0 50 		200 Met	res) _				
	TETRA TECH							
	Bat Survey Result May 2020							
ELMA One - Year 1 IAMP LLP								
Scale at A 1:4,500	A105835	5-25-1 Figure	10 A					
Drawn by Maddie E	rrington	30/10/2020 M	pproved by: onica Souza	_				
Contains Ordnance Surve Open Government Data r Other Credits: Source: Es	ry Data © Crown copyright and database ri reproduced contains public sector informati rri, Maxar, GeoEye, Earthstar Geographics,	ight 2017. © Northern Ireland Environmen on licensed under the Open Government Lic CNES/Airbus DS, USDA, USGS, AeroGRID, I	it Agency. cence v3.0 GN, and the GIS User Community	_				



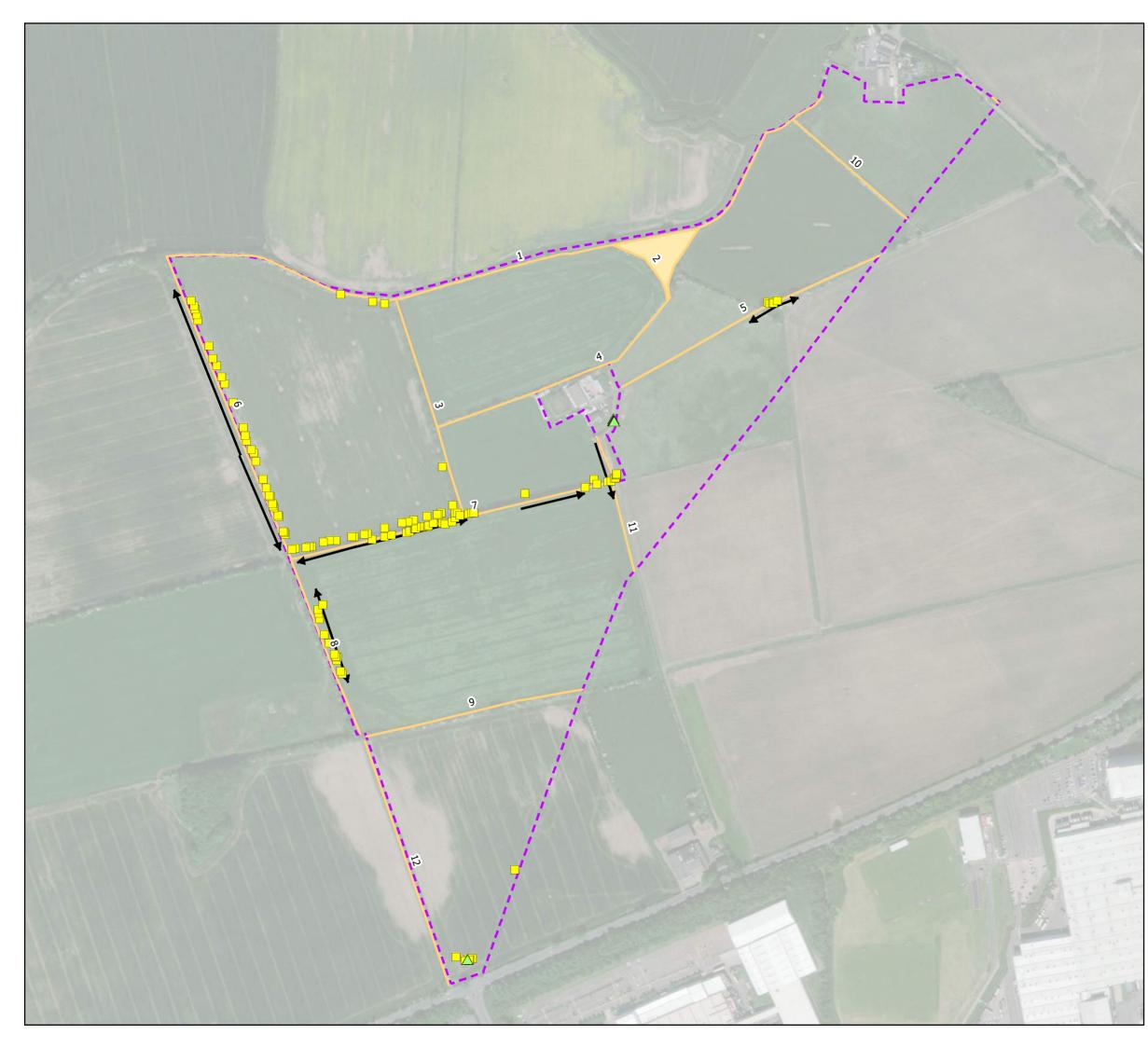
	Rev A	Da 26/10]	initial r	Notes map product	cion			
Le	gend	I								
Ľ.	ELMA One Boundary									
	→ Flight lines									
		Bat for	raging	and c	omm	uting area	а			
_		Bat for	raging	and c	omm	uting rout	ie			
	\bigtriangleup	Leisle	r's bat	, Nyct	alus l	eisleri				
	\land	Noctul	le, Nyd	ctalus	nocti	ula				
		Comm	non pip	oistrell	e, <i>Pi</i> j	pistrellus _l	oipistrell			
		Pipistr	elle sp	o., Pip	istrell	lus spec.				
0	50 I			1	200 M	etres	(N)			
0				1		_				
	1			June		E TETR				
 EI	at Su	rvey R One - \	esult			E TETR				
 	at Su LMA (AMP I ale at A	One - Y	esult Year 1	D:		D TETR	Revision:			
Ba El I/ Sca 1:4	at Su LMA (AMP I ale at A: 4,500 awn by:	One - Y	esult Year 1 roject No. 105835	D:	202 Drawi Figur ate:	D TETR	Revision: A			



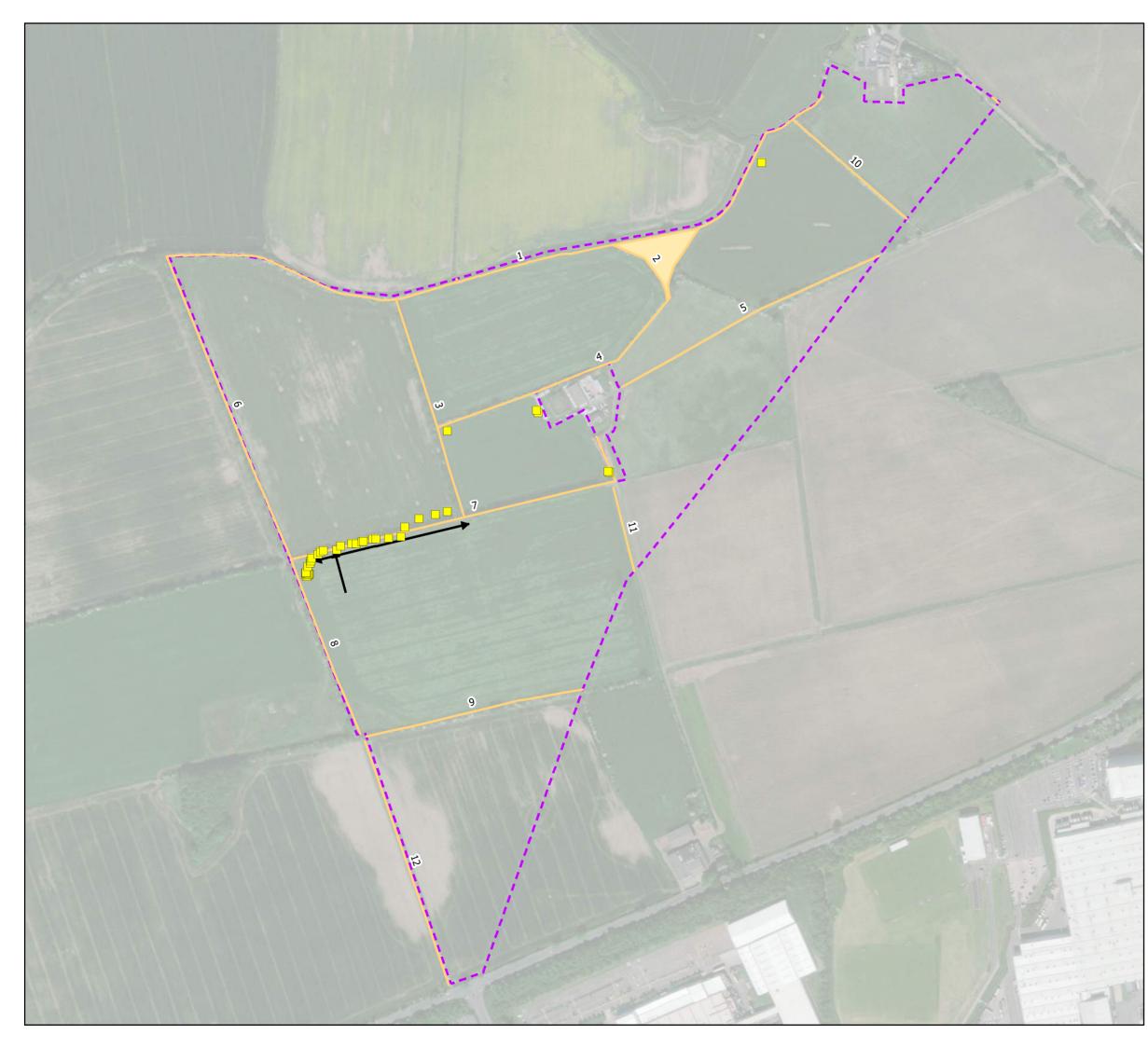
Rev A	Date 26/10/20		tes production					
Legend Flight lines Bat foraging and commuting area Bat foraging and commuting route Common pipistrelle, Pipistrellus pipistrellus								
0 50 		200 Metres	s (N)					
	TETRA TECH							
Bat Survey Result July 2020								
ELMA IAMP	One - Year 1 LLP	L						
Scale at A 1:4,500	3: Project N A105835							
Drawn by Maddie E			roved by: nica Souza					
Contains Ordnance Surve Open Government Data r Other Credits: Source: Es	y Data © Crown copyright and database rig eproduced contains public sector information ri, Maxar, GeoEye, Earthstar Geographics, C	ht 2017. © Northern Ireland Environment Age n licensed under the Open Government Licence NES/Airbus DS, USDA, USGS, AeroGRID, IGN, ar	rcy. v3.0 nd the GIS User Community					



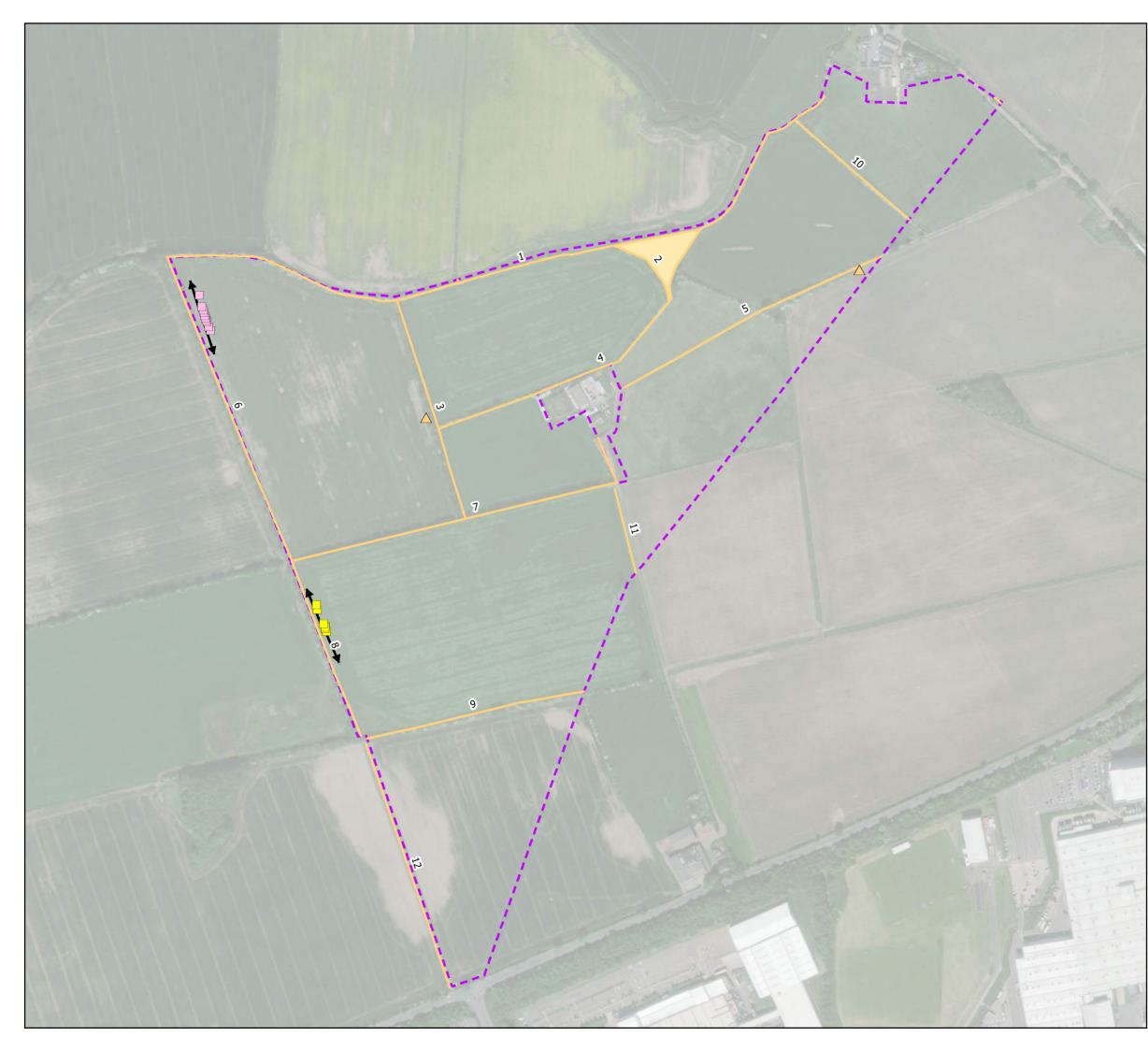
Rev A	Date 26/10/20	Notes Initial map produc	ction				
Legen	d						
1 L	ELMA One	Boundary					
	 Flight lines 						
	Bat foraging	and commuting are	ea				
	 Bat foraging 	and commuting rou	ıte				
	Common pi	pistrelle, <i>Pipistrellus</i>	pipistrellus				
	Soprano pip	oistrelle, <i>Pipistrellus</i>	pygmaeus				
0 5 	50 100 I I	200 Metres	\$				
		TE TET	RA TECH				
Bat S	Bat Survey Result August 2020						
ELMA IAMP	One - Year : LLP	1					
Scale at 1:4,500	A3: Project N A105835		Revision: A				
Drawn b		Drawn date: Approved b 30/10/2020 Monica So	-				
Contains Ordnance Su	new Data @ Crown comunicht and database ris	ght 2017. © Northern Ireland Environment Agency. on licensed under the Open Government Licence v3.0 NES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User C	ommunity				



Rev A	Date 26/10/20	1	initial n	Notes nap product	tion
Legend					
	ELMA One	Bound	ary		
→	Flight lines	i			
	Bat foragin	ig and c	omm	uting area	а
	Bat foragin	ig and c	omm	uting rout	e
\land	Noctule, N	yctalus	noctu	la	
	Common p	pipistrell	e, Pip	oistrellus p	pipistrel
) 50 1) 100 I	_1	200 M	etres	
0 50 L I) 100 I	_1		_	
Bat Su	rvey Resul	lt Sept	T	TETR	
Bat Su ELMA (IAMP I	rvey Resul One - Year LLP	It Septo	embe	er 2020 ((Dusk)
Bat Su	rvey Resul One - Year LLP 3: Project A10583	It Septo	embe	er 2020 (Revision A

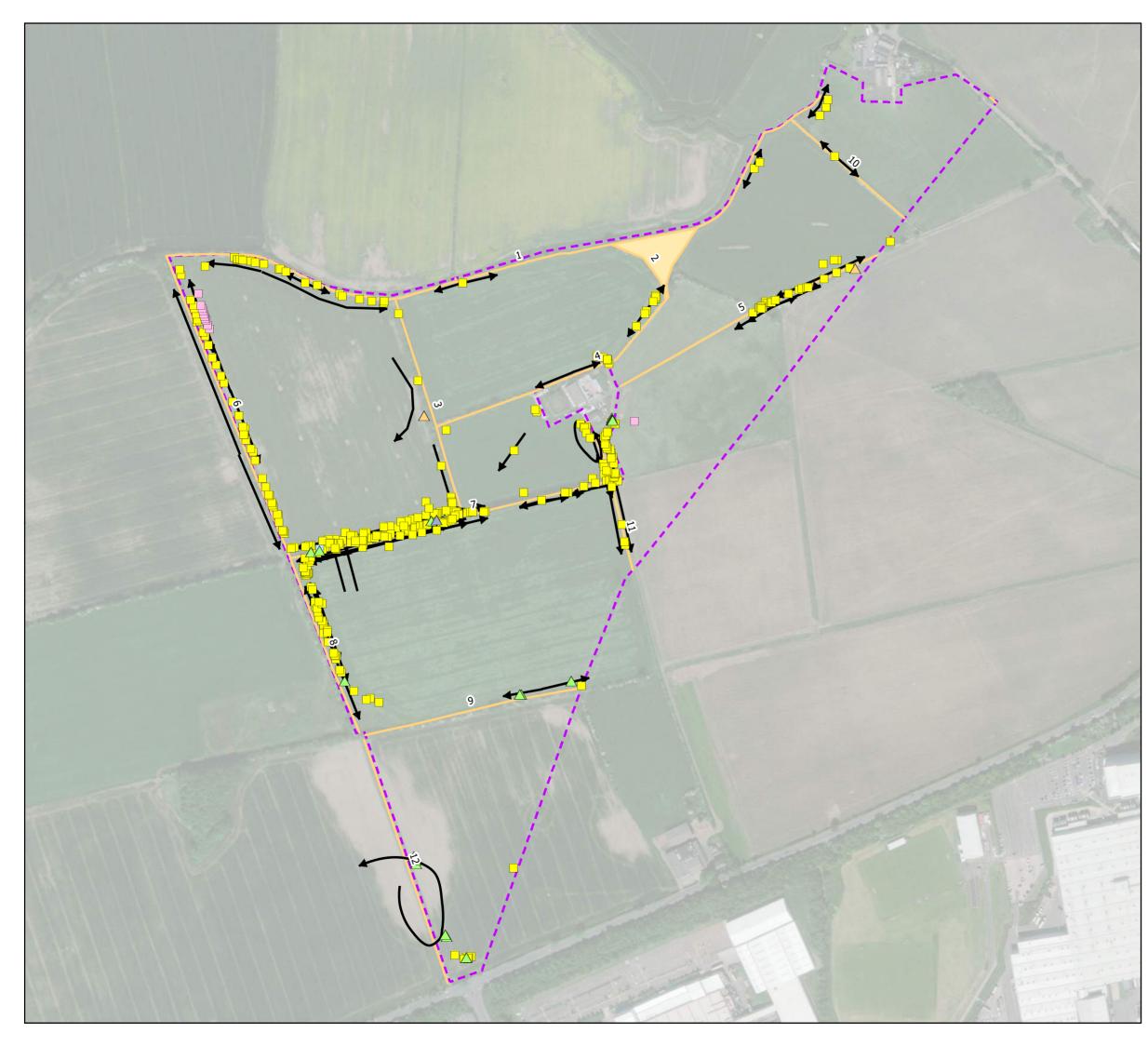


Rev A	Date 26/10/20	I	initial	Notes map product	ion
Legend		<u> </u>			
[[]]	ELMA One	Bound	ary		
	Flight lines				
	Bat foraging	g and c	omm	nuting area	a
	Bat foraging	g and c	omm	nuting rout	e
	Common pi	pistrell	e, <i>Pi</i> j	pistrellus µ	oipistrel
0 50	100 I	1	200 M	letres	
				TETP	
			Ľ	C I I I K	
Bat Su	rvey Result	t Septe	emb	er 2020 ((Dawn)
	One - Year	_	emb	er 2020 ((Dawn)
ELMA (One - Year LP	1 No:		ing No:	(Dawn) Revision A
ELMA (IAMP L Scale at A3	Dne - Year LP 3: Project N A10583	1 No:	Draw Figur ate:	ing No:	Revisio A



	ev A	Date 26/10/20		Note Initial map pr		
Leg	end		•			
62.	11	ELMA One	Bound	ary		
	→	Flight lines				
		Bat foraging	g and c	commuting	area	
		Bat foraging	g and c	commuting	route	
		Noctule sp.	, Nycta	alus spec.		
	1	Common p	ipistrell	e, <i>Pipistre</i>	llus pipis	trellu
]	Soprano pi	pistrelle	e, Pipistrel	lus pygm	aeu
0	50 1	100 I		200 Metres		(2)-
0			1		ETRA T	(C) ECH
	1		t Octo	Tt T	ETRA T	
Bat	: Su	ı rvey Result Dne - Year		Tt T	ETRA T	
Bat	: Su 1A (1P L at A3	rvey Resul Dne - Year LP	1 No:	Tt T		ECH ision:

is then Jb wers\WYG(Ecology GIS - Projects\A105835-25-1_ELMADneYear1)GIS(Figure16_BatResults_October2020_2)



Rev A	Date 06/11/20	Notes Initial map production					
Legend							
6773	ELMA One E	Boundary					
→	Flight lines						
	Bat foraging	and commuting area					
	Bat foraging	and commuting route					
\land	Leisler's bat, Nyctalus leisleri						
\land	Noctule, Nyctalus noctula						
\bigtriangleup	Noctule sp.,	Noctule sp., Nyctalus spec.					
	Common pipistrelle, Pipistrellus pipistrellus						
	Soprano pipi	istrelle, <i>Pipistrellus pygmaeus</i>					
	Pipistrelle sp	o., Pipistrellus spec.					

0 50	100 I		200	Vetres	Ŵ			
<u> </u>	<u> </u>	<u> </u>		E TETR	A TECH			
Bat Surve	Bat Survey Result 2020 (all surveys)							
ELMA One - Year 1 IAMP LLP								
Scale at A3: 1:4,500	Project A1058	: No: 35-25-1		wing No: Ire 17	Revision: A			
Drawn by: Maddie Erringt	Drawn date: 06/11/2020		Approved by: Monica Souza					
Contains Ordnance Survey Data © Cro Open Government Data reproduced co Other Credits: Source: Esri, Maxar, Geo	tains public sector infor	mation licensed under th	e Open Goven	ment Licence v3.0	nunity			



Rev A Date 06/11/20 Notes Initial map production Legend ELMA One Boundary Bat foraging and commuting area Bat foraging and commuting route Expected number of echolocations 0 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 275 - 296							
ELMA One Boundary Bat foraging and commuting area Bat foraging and commuting route Expected number of echolocations 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 Provent Survey Results in 2020 ELMA One - Year 1 MA One - Year 1 May Drawn by: Project No: Atom Sproved by:					Initial		ion
ELMA One Boundary Bat foraging and commuting area Bat foraging and commuting route Expected number of echolocations 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 Provent Survey Results in 2020 ELMA One - Year 1 MA One - Year 1 May Drawn by: Project No: Atom Sproved by:							
ELMA One Boundary Bat foraging and commuting area Bat foraging and commuting route Expected number of echolocations 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 Provent Survey Results in 2020 ELMA One - Year 1 MA One - Year 1 May Drawn by: Project No: Atom Sproved by:		1		1			
Bat foraging and commuting area Bat foraging and commuting route Expected number of echolocations 0 1 - 20 2 1 - 41 4 2 - 62 6 3 - 83 8 4 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 0 0 0 0 0 0 0 0 0 0 0 0	Legen	nd T					
Bat foraging and commuting route Expected number of echolocations 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 275 - 296	L	ELN	IA One I	Bound	ary		
Expected number of echolocations 0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296		Bat	foraging	and o	comr	nuting area	a
0 1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 275 - 296 LELMA One - Year 1 IAMP LLP Scale at A3: 14,500 Project No: A105835-25-1 Project No: Figure 18 A105835-25-1 Figure 18 A200 Mproved by: A005835-25-1							e
1 - 20 21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296	Expec	7	mber of o	echolo	ocati	ons	
21 - 41 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 <u>0</u> 0 <u>100</u> 20 Metres 0 <u>100</u> 200 Metres (a) 0 <u>100</u> 200 Metres (a) 0 <u>100</u> 0 <u>100</u> 200 Metres (b) 100 <u>200 Metres</u> 0 <u>100</u> <u>200 Metres</u> 101 <u>200 Metres</u> 102 <u>100</u> 103 <u>100</u> <u>200 Metres</u> 104 <u>100</u> <u>100</u> 100 114,500							
 42 - 62 63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 <u>5</u> <u>10</u> <u>20 Metres</u> <u>275 - 296</u> Distribution Constant Second Second			-				
63 - 83 84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 Centra tector Heat Map of all Bat Survey Results in 2020 ELMA One - Year 1 IAMP LLP Scale at A3: Project No: A105835-25-1 Prawn by: Madie Erington Drawing No: A105835-25-1 Prawn dette Monica Souza							
84 - 105 106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 50 100 200 Metres 0 50 10 275 - 296 Image: Construct of the second sec			-				
106 - 126 127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 50 100 200 Metres 0 50 100 200 Metres 0 50 100 200 Metres 0 50 0 50 100 200 Metres 0 50 100 200 Metres 0 50 100 200 Metres 100 200 Metres 100 100 100 100 100 100 100 100 100 100 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
127 - 147 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0							
 148 - 168 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 275 - 296 total distribution of the second dis							
 169 - 189 190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 <u>50</u> 10 <u>200 Metres</u> 275 - 296 CETRA TECH Heat Map of all Bat Survey Results in 2020 Heat Map of all Bat Survey Results in 2020 ELMA One - Year 1 Autossis-25-1 Figure 18 Scale at A3: Project No: Figure 18 Scale at A3: Project No: Figure 18 Scale at A3: Project No: Figure 18 Matorial Drawn by: Drawn date: Approved by: Monica Souza Drawn by: Drawn date: Approved by: Monica Souza Drawn by: Drawn date: Approved by: Monica Souza							
190 - 210 211 - 231 232 - 252 253 - 274 275 - 296 0 50 10 200 Metres 0 50 10 200 Metres Image: Comparison of the state of the st							
211 - 231 232 - 252 253 - 274 275 - 296 0 50 100 200 Metres Image: Constraint of the second se							
232 - 252 253 - 274 275 - 296 0 50 10 200 Metres Image: Constraint of the second secon							
253 - 274 275 - 296 0 0 0 0 0 0 200 Metres Image: Colspan="2">Image: Colspan="2" Image: Colspan="2" I							
275 - 296 0 50 100 200 Metres 0 0 0 0 0 0 0 0 200 Metres 0 0 0 0 0 0 0 0 0 0 200 Metres 0 0 0 0 0 200 Metres 0 0 0 0 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
0 50 100 200 Metres 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Image: Source of the second		210	200				
Image: Source of the second							
Image: Source of the second		50	100		200	Antrop	\$
Heat Map of all Bat Survey Results in 2020 ELMA One - Year 1 IAMP LLP Scale at A3: Project No: 1:4,500 A105835-25-1 Figure 18 A Drawn by: Drawn date: Approved by: Maddie Errington 06/11/2020 Monica Souza		50 _I		I		welles	
Heat Map of all Bat Survey Results in 2020 ELMA One - Year 1 IAMP LLP Scale at A3: Project No: 1:4,500 A105835-25-1 Figure 18 A Drawn by: Drawn date: Approved by: Maddie Errington 06/11/2020 Monica Souza					C		
ELMA One - Year 1 IAMP LLP Scale at A3: 1:4,500 Project No: A105835-25-1 Drawing No: Figure 18 Revision: A Drawn by: Maddie Errington Drawn date: 06/11/2020 Approved by: Monica Souza					Ľ	IF IFIE	A TECH
ELMA One - Year 1 IAMP LLP Scale at A3: 1:4,500 Project No: A105835-25-1 Drawing No: Figure 18 Revision: A Drawn by: Maddie Errington Drawn date: 06/11/2020 Approved by: Monica Souza	<u> </u>	M	6 - 11 - 2	+ 0		Deceli i	. 2020
IAMP LLP Scale at A3: 1:4,500 Project No: A105835-25-1 Drawing No: Figure 18 Revision: A Drawn by: Maddie Errington Drawn date: 06/11/2020 Approved by: Monica Souza	Heat	мар с	or all Ba	t Sur	vey	Results II	1 2020
Scale at A3: 1:4,500 Project No: A105835-25-1 Drawing No: Figure 18 Revision: A Drawn by: Maddie Errington Drawn date: 06/11/2020 Approved by: Monica Souza	1		- Year 1	L			
Drawn by: Maddie Errington Drawn date: 06/11/2020 Approved by: Monica Souza Crates Online Surged that Gram coynight and diabase right 207. 9 Worthern Italiae Environment Agency. Deer Gomminstein Subject Sort Control South and the One Gomment Corporations (Jacobianes South	Scale at	A3:					
Contains Ordnance Survey Data © Crown copyright and database right 2017. © Northern Ireland Environment Agency. Open Government Data recorduced contains public sector information licensed under the Open Government Licence v3.0	Drawn b	y:	1	Drawn d	ate:	Approved by	
	Contains Ordnance S	Survey Data © Crown	copyright and database rig	ht 2017. © North	rn Ireland Env	ironment Agency. ment Licence v3.0	

m addle.arrington\WYG\Ecology_GIS - Projects\A105835-25-1_ELMAOneY@r1\GIS\Figure 18_BatResuits_HeatMa



ECOLOGYSOLUTIONS

Part of the ES Group

Ecology Solutions Limited | Cokenach Estate | Barkway | Royston | Hertfordshire | SG8 8DL

01763 848084 | east@ecologysolutions.co.uk | www.ecologysolutions.co.uk