



One Earth Solar Farm

Volume 6.0 Environmental Statement [EN010159]

Volume 3: Technical Appendices Supporting ES Volume 2

Appendix 6.8: Baseline Bird Survey

February 2025

Document Reference: EN010159/APP/6.21

Revision 01

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
- Reg 5 (2) (a)

Contents

Contents	1
A.6 Appendix 6.8: Baseline Bird Survey	2
A.6.1 Introduction _____	2
A.6.2 Methods _____	3
A.6.3 Results _____	9
A.6.4 References _____	18
Annex A – Transect Figures	19
Annex B– Abundance Figures	37
Annex C – Species Record	48

A.6 Appendix 6.8: Baseline Bird Survey

A.6.1 Introduction

Background

- A.6.1.1. This Appendix should be read in conjunction with Chapter 6 of the Environmental Statement (ES) which is provided in support of the delivery of an Environmental Impact Assessment (EIA) associated with the One Earth Solar Farm, hereafter referred to as the 'Proposed Development'.
- A.6.1.2. This Appendix describes the survey methodologies used and summarises the results of the diurnal (daytime) winter bird surveys undertaken between September 2023 and March 2024, and the nocturnal winter bird surveys undertaken between September 2024 and March 2025 within the proposed Order Limits; with emphasis on open farmland habitats and floodplain grazing marsh within the river Trent corridor that have the potential to support important assemblages of non-breeding (wintering) birds.
- A.6.1.3. This report considers baseline information up to and including December 2024. A further report will be issued with the full nocturnal survey results following the completion of the survey programme in March 2025.

Purpose of this appendix

- A.6.1.4. The purpose of the Appendix is to present the results of the winter bird surveys which were undertaken to identify the assemblage of wintering birds potentially impacted by the Proposed Development.

Structure of this appendix

- A.6.1.5. This appendix is structured as follows:
- > Section 2: Methods;
 - > Section 3: Results;
 - > Section 4: References;
 - > Annex A: Figures;
 - > Annex B: Species recorded during the breeding bird survey;
 - > Annex C: Full survey details

A.6.2 Methods

Desk Study

- A.6.2.1. An environmental desk study was undertaken to identify statutory designated sites of international and national importance for ornithology within 10km of the proposed Order Limits, and non-statutory designated sites of ornithological importance within 2km of it. The search for statutory sites was carried out using the Multi-Agency Geographic Information for the Countryside (MAGIC) website (an internet-based Geographic Information Systems database provided by the Department for Environment, Foods and Rural Affairs (DEFRA) (Defra, 2024)) and for non-statutory sites through a data request to Greater Lincolnshire Nature Partnership (GLNP) and Nottinghamshire Biological and Geological Records Centre (NBGR). Information on statutory designated sites was gathered from the websites of Natural England (Natural England, 2024) and the Joint Nature Conservation Committee (JNCC) (JNCC, 2024).
- A.6.2.2. In addition to information on designated sites, species specific data was gathered from GLNP and NBGR within 2km of the proposed Order Limits.

Winter bird surveys

- A.6.2.3. Diurnal winter walkover surveys were undertaken between September 2023 and March 2024 inclusive. The purpose of these surveys was to collect data to confirm the typical distribution and assemblages of species present within the area surveyed (See **Section 3.1**).
- A.6.2.4. Nocturnal winter walkover surveys were undertaken between September 2024 and March 2025 inclusive. The aim of these surveys was to collect data and confirm the typical nocturnal distribution and assemblage of species present within the area surveyed.

Data collection locations

- A.6.2.5. The surveys each adopted a sampling approach and focused on large areas of accessible land within which the wintering bird assemblage has the potential to be impacted by the proposed development. The survey area covered large areas of open farmland, ditch, and hedgerow complexes on both sides of the river Trent, woodland edge habitats (east of the river Trent) and linear features including the river Trent corridor and the embankment of the dismantled railway line that runs east-west through the Site serving as a functional Sustrans Route (647). The survey was undertaken based on the proposed Order Limits, plus a 50m buffer, where the survey areas directly overlapped Order Limits, information was gathered for birds outside of the Order Limits.

- A.6.2.6. For the purposes of the diurnal winter walkover surveys, this area was divided into ten transects (T1 – T10). The transects were spread throughout to give representative coverage on the site. Consideration was also given to include the range of habitats and areas of specific interest for non-breeding birds such as the floodplain along the river Trent. Transects received systematic coverage with diurnal surveys undertaken by a single surveyor to avoid duplication of counting or overlap of adjacent area recordings (Figures A1-A17, **Annex A**).
- A.6.2.7. The nocturnal surveys focussed on different transects to the diurnal surveys; Nocturnal Transects (NT)1 – NT8. These transects were chosen as they were more likely to be utilised by birds during the nocturnal period. Nocturnal surveys were undertaken by a pair of surveyors on a single transect; data from both survey types (diurnal and nocturnal) have been combined for reporting purposes.
- A.6.2.8. Transect 1: lies within the northwest of the Site boundary and includes areas of open farmland (with predominantly large rectangular fields), divided in places by narrow hedgerows and ditches. This transect is dominated by winter stubble and bare ground.
- A.6.2.9. Transects 2&3: abuts Transect 1 to the southeast and continues south- and eastwards from the hamlet of Ragnall toward Fledborough. This area consists of a large expanse of agricultural crop fields including examples of the largest agricultural fields within the Order Limits. These large fields were predominantly winter stubble and bare ground with boundary features of hedgerows and overgrown ditches also present. The area includes agricultural land considered as coastal floodplain grassing marsh (on the priority habitat inventory) on the west of the river Trent.
- A.6.2.10. Transect 4: lies to the north of the hamlet of Skegby. The area consists of large agricultural fields of winter stubble and bare ground. A small patch of woodland was present just off Crabtree Lane and hedges and treelines separated the fields. The transect crossed over the abandoned railway, which was bordered by trees on both sides.
- A.6.2.11. Transect 5: lies in the north of the site, just to the east of the Trent. The area is 50m above the level of the river and is bordered to the east by a steep bank that runs down to the Trent. The fields just south of the A57 were left as winter stubble and bare ground in the winter. The fields closest to the river were grassland that was used sporadically for sheep grazing during the winter. Carefully managed hedges split the field.
- A.6.2.12. Transect 6: lies immediately east of the river Trent on low-lying agricultural land used for crop production. This area includes fields north of Trent Lane between the river corridor escarpment to the east and the river to the west.

This land is mostly left as bare earth over the winter and also had a set-aside or sacrificial crop used for game cover. Along the eastern side of these fields there is a large pond and ditch network (the Sewer Dyke) which forms a transitional habitat from low-lying agricultural land into a scrub / wooded escarpment.

- A.6.2.13. Transect 7: consists of agricultural fields directly east of the river Trent between the villages of South- and North Clifton. These large fields are bordered by linear features including hedgerows and ditches. To the immediate west of the Area is the river Trent, with Church Lane immediately east. These arable fields were made up of winter stubble, bare ground and sports turf during the winter bird survey period.
- A.6.2.14. Transect 8: located in the northeast of the site. The transect passes alongside patches of plantation woodland with fields of grass used for turf located in between. A large, deep ditch runs along the western edge of the transect.
- A.6.2.15. Transect 9: lies within a large area of agricultural fields. The fields were mostly left as winter stubble and bare ground throughout the winter. Two areas of set-aside used for bird cover are also present within the fields as well as a releasing pen for red legged partridges. Hedges with trees set within are present along most field edges and several farm buildings were also spread around the area.
- A.6.2.16. Transect 10: located in the southeast of the site. The transect runs through agricultural fields of bare ground and winter stubble. The transect runs along part of the abandoned railway line with a field of beet to the north and grass being grown for turf to the south. A temporary scrape is also present within the fields south of the transect.
- A.6.2.17. Nocturnal Transect 1: Follows a similar, though shorter route than Transect 6 along the Trent Way. Focusing on the agricultural land which lies immediately east of the river Trent. The land is low-lying and used primarily for crop production and game bird release. This area includes fields north of Trent Lane between the river corridor escarpment to the east and the river to the west. This land is mostly left as bare earth over the winter and also had a set-aside or sacrificial crop used for game cover. Along the eastern side of these fields there is a large pond and ditch network (the Sewer Dyke) which forms a transitional habitat from low-lying agricultural land into a scrub / wooded escarpment.
- A.6.2.18. Nocturnal Transect 2: located east of the river Trent and follows a farm track which lies adjacent to the south of a small open water reservoir. To the south of the transect are three large agricultural fields, to the north are two small agricultural fields and the fenced grassland and embankments that surround the reservoir.

- A.6.2.19. Nocturnal Transect 3: located in the southeast of the site and covers a similar area to Transect 10 though coverage is reduced to seven large agricultural fields. The transect lies between Moor Lane (north of the Sustrans 647 Route) and Moor Lane (south of the Sustrans 647 Route). The transect runs through agricultural fields of bare ground and winter stubble. Part of the transect follows the Sustrans 647 route with a field of beet to the north and grass being grown for turf to the south.
- A.6.2.20. Nocturnal Transect 4: lies within a large area of agricultural fields and covers a similar area to that of Transect 9. The fields were mostly left as winter stubble and bare ground throughout the winter. Two areas of set-aside used for bird cover are also present within the fields as well as a releasing pens for pheasant / partridge. Hedgerows with trees are present along most field edges and several farm buildings were also spread around the area.
- A.6.2.21. Nocturnal Transect 5: abuts Transect 1 to the southeast and continues south- and eastwards from the hamlet of Ragnall toward Fledborough. The transect focuses on the area of agricultural land considered as coastal floodplain grassing marsh (on the priority habitat inventory) on the west of the river Trent. Along this transect are a large expanse of agricultural crop fields including examples of the largest agricultural fields within the Order Limits. These large fields were predominantly winter stubble and bare ground with boundary features of hedgerows and overgrown ditches also present.
- A.6.2.22. Nocturnal Transect 6: this transect is north of High Marnham substation and covers the large agricultural fields to the southwest of Fledborough. The transect starts at Main Street in the west before following Hollow gate Lane east toward the River Trent. The transect heads south to meet the Sustrans 647 route before looping back west to meet Hollow gate Lane. The agricultural fields within this transect are some of the largest within the Order Limits and due to proximity to the river Trent have the potential to support wintering birds.
- A.6.2.23. Nocturnal Transect 7: follows the same route, and covers the same area as Transect 4
- A.6.2.24. Nocturnal Transect 8: follows the same route, and covers the same area as Transect 1.
- A.6.2.25. Full survey details, including surveyor names, visit dates and times, and weather conditions are available in **Table C-3 and Table C-4**, Annex C.

Data collection methods

- A.6.2.26. The surveys followed pre-defined transects throughout the sampling area which were used to observe all birds within the survey areas during the survey period. The aim of these surveys was to determine whether any of the notable

species defined below, regularly feed, loaf, or roost within the Site, and if so, the locations and frequency of records.

- > All waders and wildfowl (excluding feral / domestic birds, Canada goose and greylag goose) for consideration to winter assemblage number;
- > Species listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended);
- > Species listed on Annex I of the European Union (EU) Birds Directive;
- > Birds of Conservation Concern (BoCC) red list species (Stanbury et al., 2021); and
- > Species of Principal Importance (SPI) noted on The Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

A.6.2.27. Where possible surveyors recorded accurate locations of species directly onto survey maps alongside additional details including:

- > Species (Using standard British Trust for Ornithology (BTO) two-character codes);
- > Number of individuals;
- > Location of records; and
- > Activity (foraging, loafing / preening, roosting, flying-over etc.).

A.6.2.28. During the nocturnal surveys, surveyors recorded species, number of individuals (if known), location and activity.

A.6.2.29. The presence of species that do not qualify as notable using the criteria above were noted to record a full species list for each survey area, however, information on numbers, distribution and behaviour were not recorded.

A.6.2.30. Diurnal walkover surveys were undertaken monthly between September 2023 and March 2024. Nocturnal walkover surveys were undertaken monthly between September 2024 and March 2025. Each Transect was visited once per month.

A.6.2.31. All surveys were undertaken in favourable conditions, avoiding periods of heavy rain, or strong or cold winds, therefore minimising variation in bird activity levels due to weather conditions.

A.6.2.32. Diurnal walkover surveys started during daylight hours at least half an hour after sunrise and finishing at least half an hour before sunset.

- A.6.2.33. Nocturnal walkover surveys started in the early evening, at least half an hour after sunset and were completed within five hours.
- A.6.2.34. The transects were walked in different orders and at different times of day / night each month to account for a potential change in bird activity throughout the day and attributed to tidal movements of the river Trent.

Mapping

- A.6.2.35. On completion of the field survey, results were collated and analysed. Bird records were located using field numbers that were previously assigned. Numbers and locations of target species, waders and waterfowl, were mapped to show distributions of the species.

Deviations, constraints and limitations

- A.6.2.36. Surveys were conducted within a sampling area based on the potential for habitats within the Order Limits to provide winter bird habitat. The sampling area focussed on areas with higher habitat diversity within the Order Limits to assess greater quality habitats for wintering birds and form a baseline (worst case scenario) that can be used to assess the potential impacts of the proposed development. In undertaking these surveys during the early stages of project development, areas subject to survey may no longer fall within the Order Limits. However, the results remain representative of how wintering birds use the area.,.
- A.6.2.37. Areas that were due to be walked on Transects 6 and 7 were flooded in December 2023 and January 2024. As a result it was impossible to walk the full length of these transects during these months. The areas within these transects were surveyed from other locations and vantage points such as across the river Trent. This allowed the majority of transects to be surveyed however, it could have limited records of smaller, less conspicuous bird species that may have been in these areas during December 2023 and January 2024. Despite this, it is believed that the winter bird surveys on the transects in other months coupled with the point counts have given an accurate representation of the wintering bird assemblage in the area throughout the winter.
- A.6.2.38. There were no deviations within the nocturnal winter bird surveys.
- A.6.2.39. Despite the deviation, constraints and limitations described above, the dataset is considered to provide a robust approximation of the wintering bird assemblage within the survey area. This conclusion can be drawn as constraints and limitations faced within the wintering bird assessment were not extensive enough to negatively impact the mapping exercise undertaken following the completion of the surveys.

A.6.3 Results

Statutory designated sites of ornithological importance

- A.6.3.1. There are no nationally or internationally statutory designated sites of ornithological importance within 10km of the Order Limits.

Non-statutory designated sites of ornithological importance

- A.6.3.2. There are no non-statutory designated sites of ornithological importance within 2km of the Order Limits.

Species records

- A.6.3.3. As part of the environmental desk study, species data for birds likely to be found within, or in proximity to the Order Limits was gathered from GLNP and NBGR. Species data was screened to include all records within the winter bird season (here considered to be 1st September – 31st March inclusive) from within the last ten years (2014 onwards).
- A.6.3.4. The desk study returned 830 records of 19 species considered to be notable¹ during the wintering season, including:
- > Nine Schedule 1 listed species – kingfisher, marsh harrier, whooper swan, brambling, red kite, redwing, fieldfare, barn owl, Bewick's swan.
 - > Seven Species of Principal Importance (SPI) (Natural Environment and Rural Communities Act (NERC), 2006) – Bewick's swan, reed bunting, linnet, tree sparrow, bullfinch, starling, lapwing.
 - > Seven birds of conservation concern² (BoCC) Red-listed species – skylark, Bewick's swan, linnet, tree sparrow, starling, fieldfare, lapwing.

¹ GLNP returned records of birds considered notable if listed as local priority species (Listed as UK Biodiversity Action Plan (UK BAP) species), protected by Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) or priority species listed on Birds of Conservation Concern 5 – Red List.

² BoCC Red list = The background to the establishment of a 'traffic light system' of conservation concern for UK birds is discussed in Gregory et al. (2002). The updated criteria and lists are detailed in Stanbury et al. (2021). Broadly, 'Red-listed' species include those that are globally threatened, have suffered a historical population decline in the UK (between 1800 and 1995) or which have experienced rapid declines in their UK breeding population or contractions in their UK range of more than 50% over the past twenty-five years. 'Amber-listed' species include any species on the European Red List (Critically Endangered, Endangered or Vulnerable), these are detailed in Stanbury et al. (2021).

- > Six birds of conservation concern (BoCC) Amber-listed species – greylag goose, marsh harrier, whooper swan, reed bunting, bullfinch, redwing.

A.6.3.5. There is potential for schedule 1 species including, whooper swan, redwing and Bewick's swan to overwinter within or in proximity to the Site.

A.6.3.6. Further details of the desk study records can be found within Appendix 6-2 (Document Reference: Ecology Desk Study).

Diurnal winter walkover survey 2023/24

A.6.3.7. A total of forty-four species were recorded during the diurnal wintering bird survey (See Table C-1, **Annex C**), of which nineteen were target species:

- > Nine species listed as SPI: grey partridge, house sparrow, linnet, skylark, song thrush, lesser redpoll, starling, lapwing and yellowhammer.
- > Ten species recorded as BoCC red-listed species: grey partridge, lapwing, mistle thrush, starling, house sparrow, lesser redpoll, linnet, skylark, yellowhammer, and fieldfare.

A.6.3.8. **Table 3.1**, below, presents the records of target species within the survey area, along with any legislative protection or conservation status.

Table 3-1 – Wintering bird records during the 2023-24 wintering bird surveys

BTO code	Species	Number of records	SPI ³	BoCC ²
FF	Fieldfare	18		Red
P.	Grey partridge	3	✓	Red
GP	Golden Plover	6		Green
HS	House sparrow	1	✓	Red
L	Lapwing	11	✓	Red

³ SPI = Species "of principal importance for the purpose of conserving biodiversity" covered under Section 41 (England) of the NERC Act (2006).

BTO code	Species	Number of records	SPI ³	BoCC ²
LR	Lesser redpoll	2	✓	Red
LI	Linnet	9	✓	Red
M.	Mistle Thrush	3		Red
MA	Mallard	11		Amber
MH	Moorhen	2		Amber
OC	Oystercatcher	2		Amber
S.	Skylark	41	✓	Red
ST	Song thrush	6	✓	Amber
SG	Starling	27	✓	Red
SN	Snipe	5		Amber
WN	Wigeon	4		Amber
WS	Whooper Swan	1		Amber
Y.	Yellowhammer	11	✓	Red

A.6.3.9. The winter bird assemblage recorded within the survey area is typical of open farmland habitats with limited vegetative cover (aside from seasonal crop). There were noticeable increases in species diversity and abundance within well-established marginal features such as those found along the river Trent corridor, the escarpment along the east of the Trent and the woodland and scrub edges within the 50m buffer from the Order Limits.

A.6.3.10. The distribution and abundance of wildfowl and waders recorded during the diurnal winter bird survey are shown in **Figures B1-B5, Annex B.**

Waders

- A.6.3.11. Golden Plover were recorded on six occasions during the diurnal winter bird surveys. The maximum number recorded was approximately 400 birds that were flushed from a bare agricultural field in the southwest of the site in November 2023. The majority of records consisted of golden plover flying over the site or being flushed from fields alongside the river Trent.
- A.6.3.12. Lapwing were recorded on eleven occasions during the diurnal wintering bird surveys. The maximum number recorded was 400 birds that were foraging and loafing alongside a temporary scrape in the southeast of the site in December 2023. A large flock of lapwing was recorded on multiple occasions around the temporary scrape alongside T10 throughout the winter. Lapwing were also recorded in large numbers, roughly 200 individuals, in the flooded agricultural fields alongside the river Trent. Smaller flocks were also recorded commuting around the site on various occasions.
- A.6.3.13. Snipe were recorded on five occasions during the diurnal wintering bird surveys. The maximum number recorded was four birds that were flushed from a winter stubble field on T9 in February 2024. All records of snipe were of birds flushed on winter stubble field on T9, the fields remained wet throughout the winter which provided foraging habitat for snipe.
- A.6.3.14. Oystercatcher were recorded on two occasions; Both sightings were of 3 birds recorded foraging along the banks of the river Trent in February and March 2024 respectively.

Waterfowl

- A.6.3.15. Wigeon were recorded on four occasions during the diurnal winter bird surveys. A maximum count of 75 birds was recorded in January 2024 on a flooded field to the east of the river Trent at the northern end of the site. The flock was recorded again the following month foraging and loafing in the flooded fields alongside the river.
- A.6.3.16. Moorhen were recorded on two occasions during the diurnal winter bird surveys. A maximum count of 2 was recorded on a small pond within the farmland on T10 in February 2024. The other sighting involved a single moorhen on the sewer dyke on T6 in October 2023.
- A.6.3.17. Mallard were recorded on eleven occasions during the diurnal winter bird surveys. A maximum count of ten birds were recorded on the river Trent in March 2024. All of the sightings involved birds using the river for foraging or loafing.
- A.6.3.18. Whooper swans were recorded on one occasion; seven swans were recorded flying high over the site in January 2024.

Species of Principal Importance

A.6.3.19. Other than Lapwing which were discussed above, eight species of principal importance were recorded during winter bird surveys:

- > Grey Partridge were recorded on three occasions in the northwest of the site, with a maximum count of two birds in February 2024.
- > House Sparrow were recorded on one occasion in South Clifton, 15 birds were recorded in October 2023.
- > Lesser Redpoll were recorded on two occasions in the southwest and southeast of the site, with a maximum count of 28 birds recorded in February 2024.
- > Linnet were recorded on nine occasions, mostly in arable farmland in the northeast and centre of the site. A maximum count of 70 linnet was recorded in November 2023.
- > Skylark were recorded 41 times spread throughout the site on arable farmland, a maximum count of nine birds was recorded in December 2023.
- > Song thrush were recorded on six occasions, mostly in the northeast and northwest of the site. A maximum count of five birds was recorded in November 2023.
- > Starling were recorded on 27 occasions spread throughout the site, with a maximum count of 1,000 birds in November 2023.
- > Yellowhammer were recorded on eight occasions in areas of arable farmland around the site, with a maximum count of 14 birds in November 2023.

Red listed and large flocks

A.6.3.20. Other red listed or large flocks of birds:

- > Fieldfare were recorded on 18 occasions with a maximum count of 35 in February 2024.
- > Mistle thrush were recorded on three occasions with a maximum count of 3 in December 2023.
- > Goldfinch were recorded on eight occasions with a maximum count of 150 in November 2023.

Other notable Species

A.6.3.21. Other notable species recorded during winter bird surveys include (with max counts):

- > Goshawk (1).
- > Kestrel (2).
- > Kingfisher (2).
- > Hobby (1).
- > Sparrowhawk (1).

A.6.3.22. A full list of species observed during the diurnal winter bird surveys is available in **Annex C**.

Nocturnal winter walkover survey 2024/25

A.6.3.23. A total of twenty-six species were recorded during the nocturnal winter walkover survey (See Table C-2, **Annex C**), of which sixteen were target species:

A.6.3.24. Three species listed as SPI: Grey partridge, skylark and lapwing.

A.6.3.25. Four species recorded as BoCC red-listed species: Grey partridge, skylark, lapwing and woodcock.

A.6.3.26. **Table 3.2**, below, presents the records of target species within the survey area, along with any legislative protection or conservation status.

Table 3-2 – Wintering bird records during the 2024-25 nocturnal winter walkover surveys

BTO code	Species	Number of records	SPI ⁴	Sch.1 ⁵	BoCC ²
BO	Barn Owl	5		✓	Green
H.	Grey heron	5			Green
GP	Golden plover	1			Green
L.	Lapwing	16	✓		Red

⁴ SPI = Species "of principal importance for the purpose of conserving biodiversity" covered under Section 41 (England) of the NERC Act (2006).

⁵ Sch.1 = birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

BTO code	Species	Number of records	SPI ⁴	Sch.1 ⁵	BoCC ²
MA	Mallard	19			Amber
MH	Moorhen	2			Amber
MS	Mute swan	2			Green
P.	Grey partridge	2	✓		Red
PG	Pink-footed goose	3			Green
RE	Redwing	1		✓	Amber
S.	Skylark	3	✓		Red
SN	Snipe	3			Amber
T.	Teal	2			Amber
WK	Woodcock	4			Red
WN	Wigeon	3			Amber
WS	Whooper swan	4			Amber

A.6.3.27. The nocturnal winter bird assemblage recorded within the survey area is typical of open farmland habitats with limited vegetative cover (aside from seasonal crop). Both the number of bird records and the number of individual birds during the nocturnal surveys was below that found within the diurnal winter surveys, with many records attributed to fly-over records of birds migrating over the Site.

A.6.3.28. The distribution and abundance of wildfowl and waders recorded during the nocturnal winter bird survey are shown in **Figures B6-B10, Annex B.**

Waders

- A.6.3.29. Golden Plover were recorded on a single occasion during the nocturnal winter bird surveys, with three individuals foraging in winter cereal in the northwest of the site in November 2024.
- A.6.3.30. Lapwing were recorded on sixteen occasions, with the majority of records (14 of 16) within the southeast of the site on NT3 and NT4. Birds were recorded within winter stubble, winter cereal and on bare ground (turned / prepared arable land). The peak count of lapwing was 43 individuals roosting in winter cereal in November 2024. Lapwing were recorded in low numbers, with all records besides the peak relating to between one and fifteen individuals.
- A.6.3.31. Snipe were recorded on three occasions within wet ground in the southeast of the site, along NT3 and NT4. The peak survey count of snipe was 20 individuals (records of 6 and then 14 birds) recorded foraging and then flushed along NT4 in winter stubble during December 2024.
- A.6.3.32. Woodcock were recorded on four occasions during December 2024. All records were of single birds foraging within arable land, with records in winter stubble, winter cereal and on bare ground on NT3, NT4, NT6 and NT7.

Waterfowl

- A.6.3.33. Wigeon were recorded on three occasions during the nocturnal winter bird surveys. A maximum count of 210 birds was recorded in December 2024 on a flooded field to the west of the river Trent along NT5. Ten wigeon were recorded foraging within flooded fields east of the Trent during October 2024. The final record was of two birds flying over NT5 in December 2024.
- A.6.3.34. Teal were recorded on two occasions (October and November 2024), with a peak count of five birds roosting within a pond in arable farmland on NT3 in November 2024. The October record relates to a single bird flushed from wet fields immediately east of the Trent.
- A.6.3.35. Mallard were recorded on nineteen occasions between September and December 2024. Records were widespread across the survey area with records on all transects excepting NT4. Records related to low numbers of birds, with eighteen records relating to between one and eight individuals. The peak count of mallard was 10+ birds which were heard only within winter stubble on NT8. Ten records were of birds flying over the site or heard only.
- A.6.3.36. Pink-footed goose were recorded flying high over the site on three occasions in November. These birds were heard to continue flying high into the distance and did not associate further with the site.

- A.6.3.37. Whooper swan were recorded flying over the site on four occasions during November and December 2024. All records were of low numbers of birds with a confirmed record of four birds on two occasions with the other two records of birds heard only. Birds were heard to continue flying into the distance and did not associate further with the site.
- A.6.3.38. Mute swan were recorded on two occasions within the river Trent with single birds observed in November and December 2024. There were no further records of swans within the site.
- A.6.3.39. Moorhen were recorded on two occasions within ditches besides the arable land. Both records were from October 2024, with one record of a single individual and a peak count of two individuals.

Species of Principal Importance

- A.6.3.40. Other than Lapwing which were discussed above, two species of principal importance were recorded during nocturnal winter bird surveys:
- > Grey Partridge were recorded on two occasions (September and October 2024) in the east of the site, in fields directly adjacent to the river Trent, with a maximum count of six birds in September 2024 along NT1.
 - > Skylark were recorded on three occasions roosting within stubble field or winter wheat (two records in September 2024 and one in November 2024). The peak count of skylark was nine birds roosting within winter stubble along NT5.

Red listed and large flocks

- A.6.3.41. All red listed species recorded during the nocturnal winter bird survey have been reported on above. There were no other target species recorded in notably large flocks (20+ individuals).

Other notable Species

- A.6.3.42. Barn owl were recorded on five occasions between September 2024 and December 2024. Birds were recorded foraging on NT1, NT5 and NT6, with most records relating to single individuals. Peak counts of two birds were recorded on NT5 and NT1, beside the river Trent. It is unclear if these records relate to the same birds passing over the river Trent to forage on either side.
- A.6.3.43. A full list of species observed during the nocturnal winter bird surveys is available in **Annex C**.

A.6.4 References

Department for Environment, Food and Rural Affairs (Defra), (2024). *Multi Agency Geographic Information for the Countryside webpage*. [Online]. Available at <https://magic.defra.gov.uk/>. [Accessed 29 February 2024].

Gilbert, G, Gibbons, D.W. & Evans, J. (1998). *Bird Monitoring Methods: A manual of techniques for key UK species*. RSPB, Bedfordshire.

Joint Nature Conservation Committee (JNCC), (2024). *JNCC Resource Hub*. [Online]. Available at <https://jncc.gov.uk/>. [Accessed 29 February 2024].

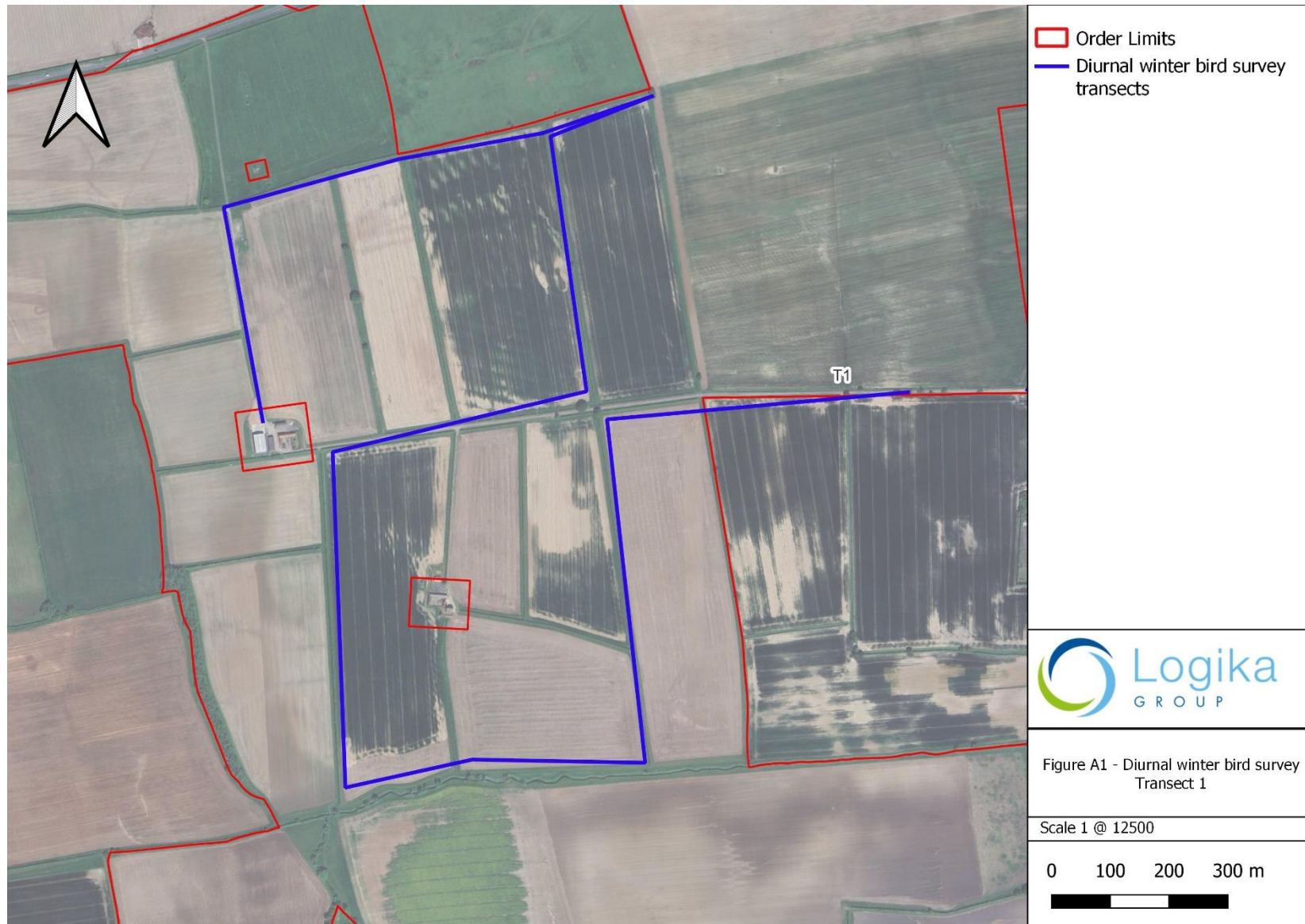
Natural England, (2024). *Designated Sites View*. [Online]. Available at <https://designatedsites.naturalengland.org.uk/>. [Accessed 29 February 2024].

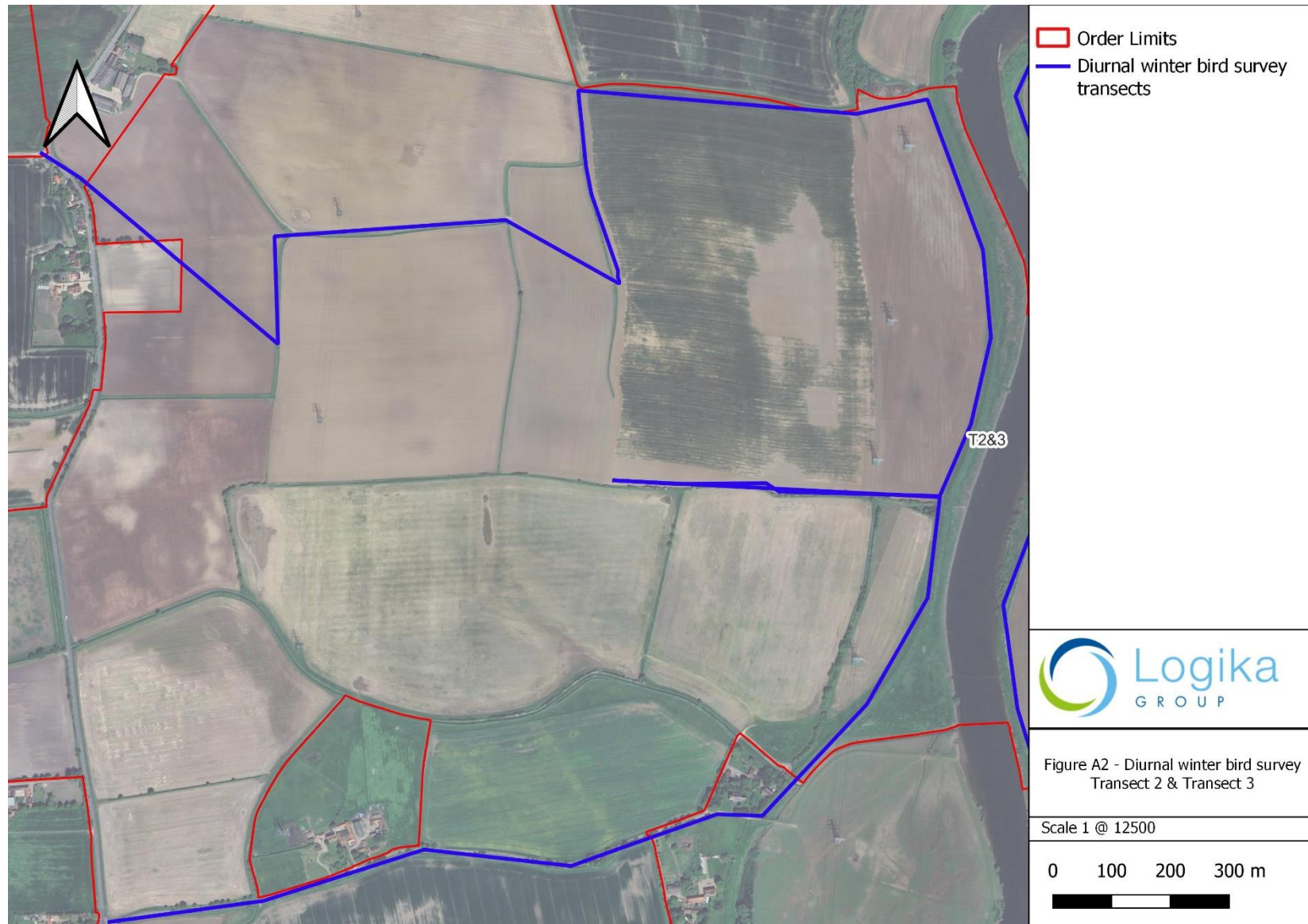
Natural Environment and Rural Communities Act 2006 [Online]. Available at <https://www.legislation.gov.uk/ukpga/2006/16/section/41>. [Accessed 29 February 2024].

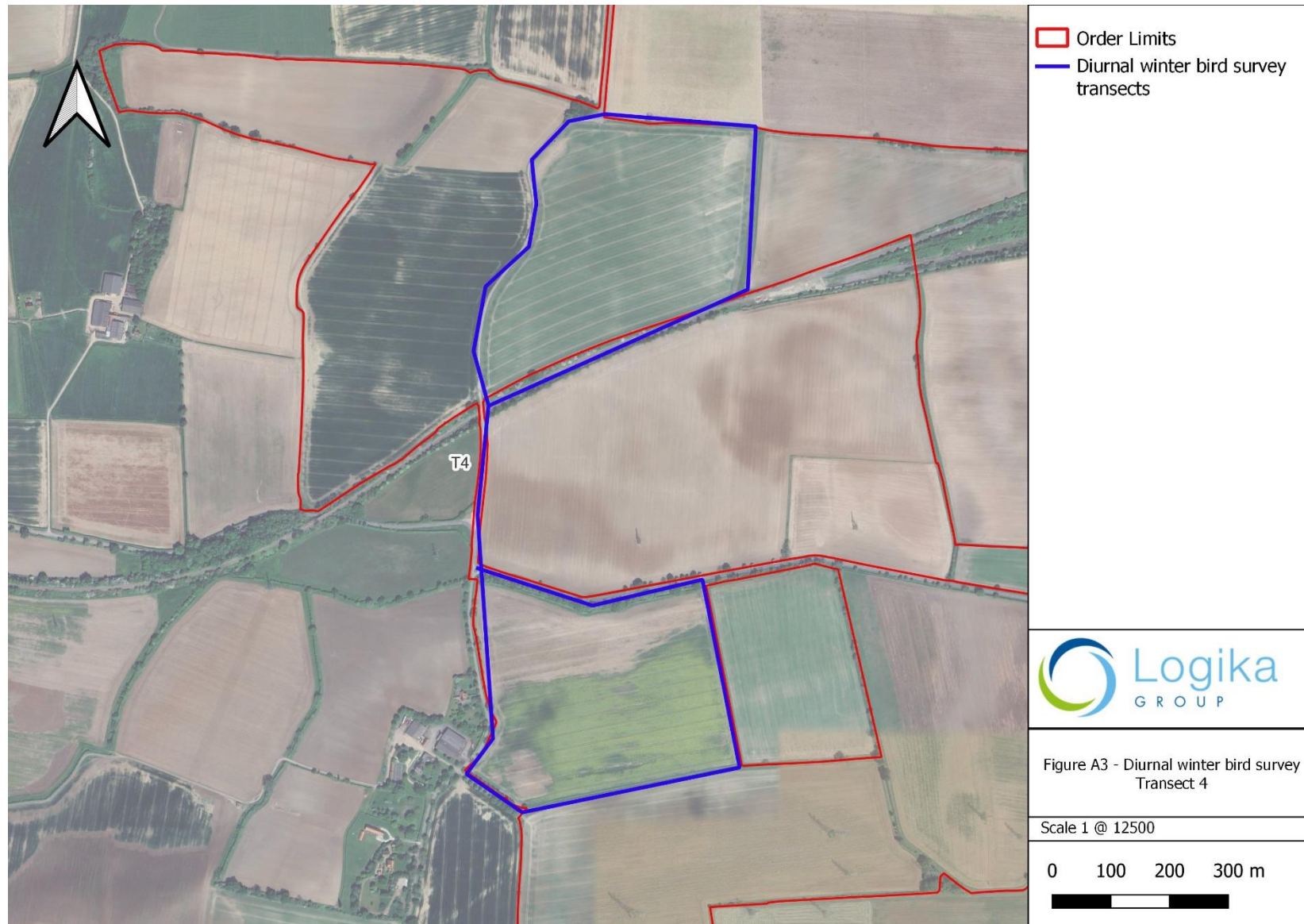
Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. *British Birds* 114: 723-747. [online] Available at <https://britishbirds.co.uk/content/status-our-bird-populations> [Accessed 29 February 2024].

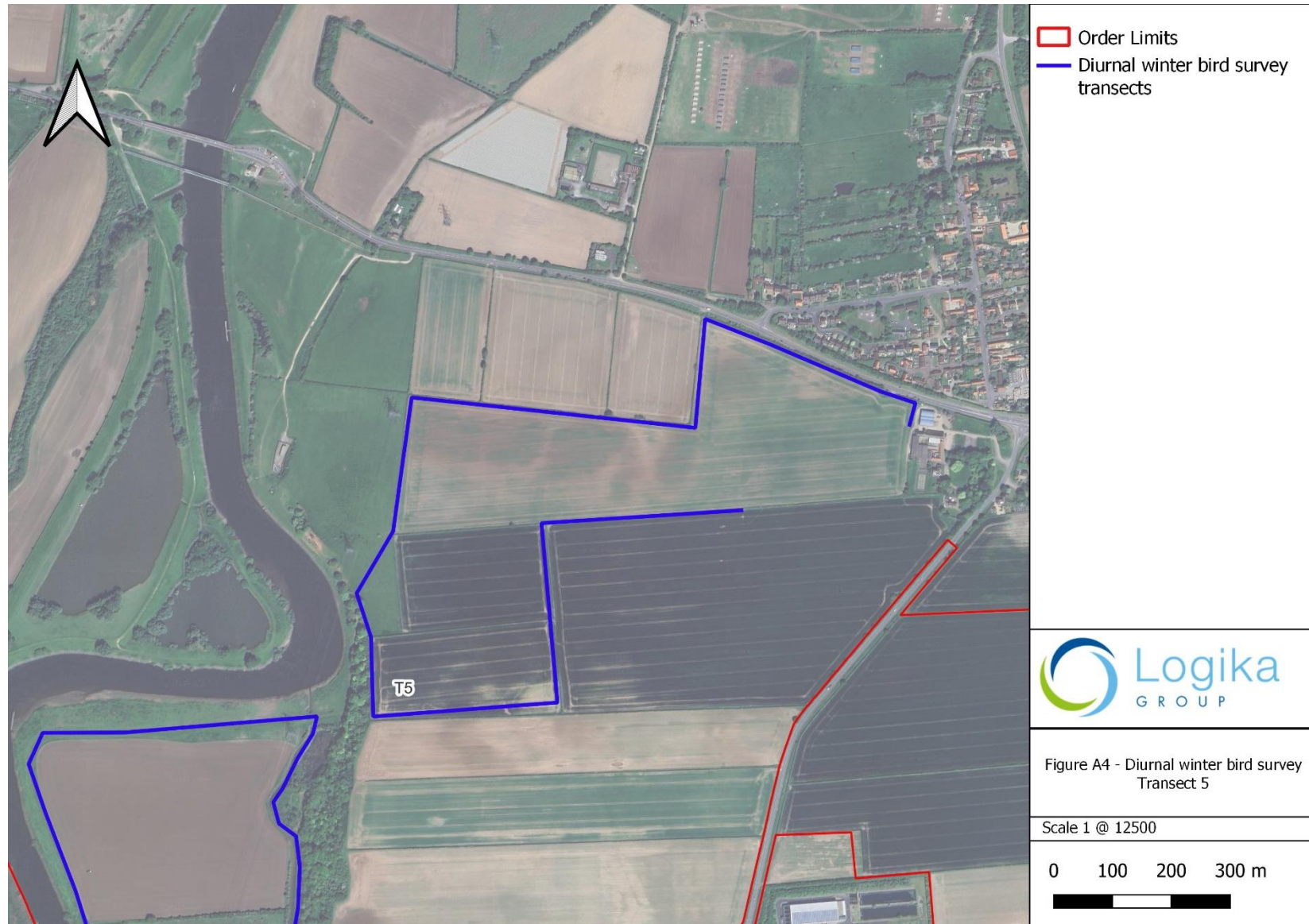
Wildlife and Countryside Act 1981 (as Amended). [Online]. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents> [Accessed 29 February 2024].

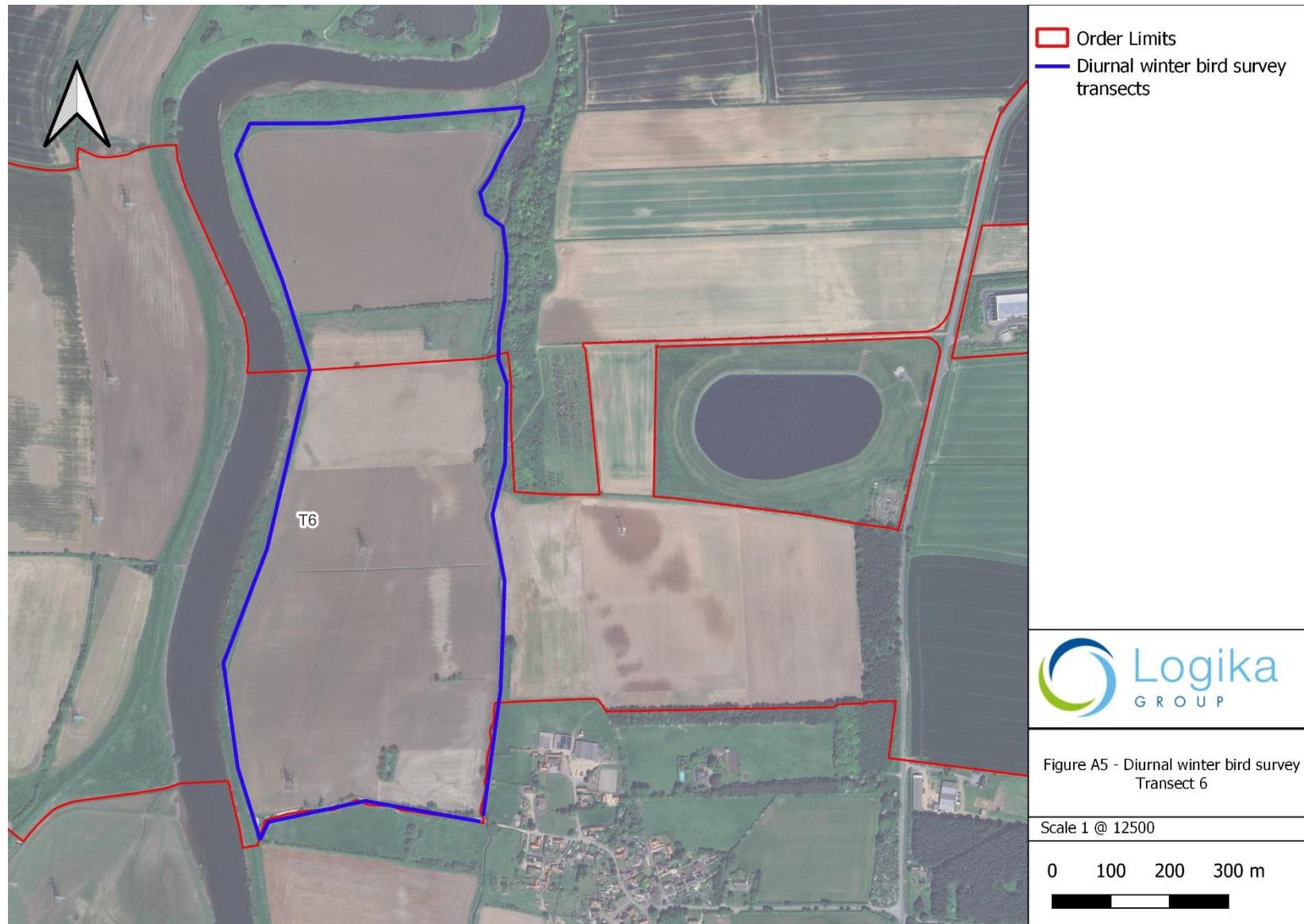
Annex A – Transect Figures

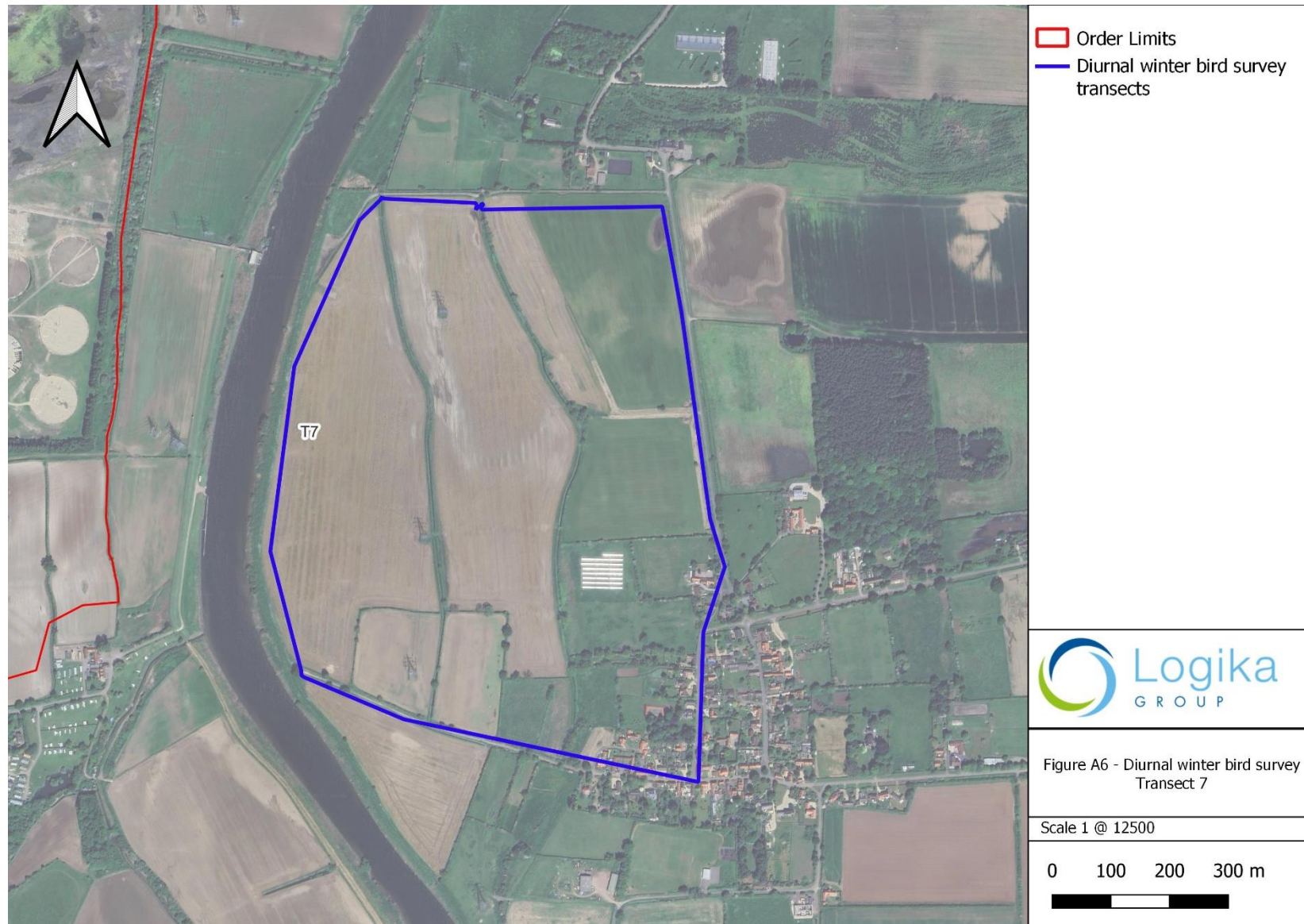


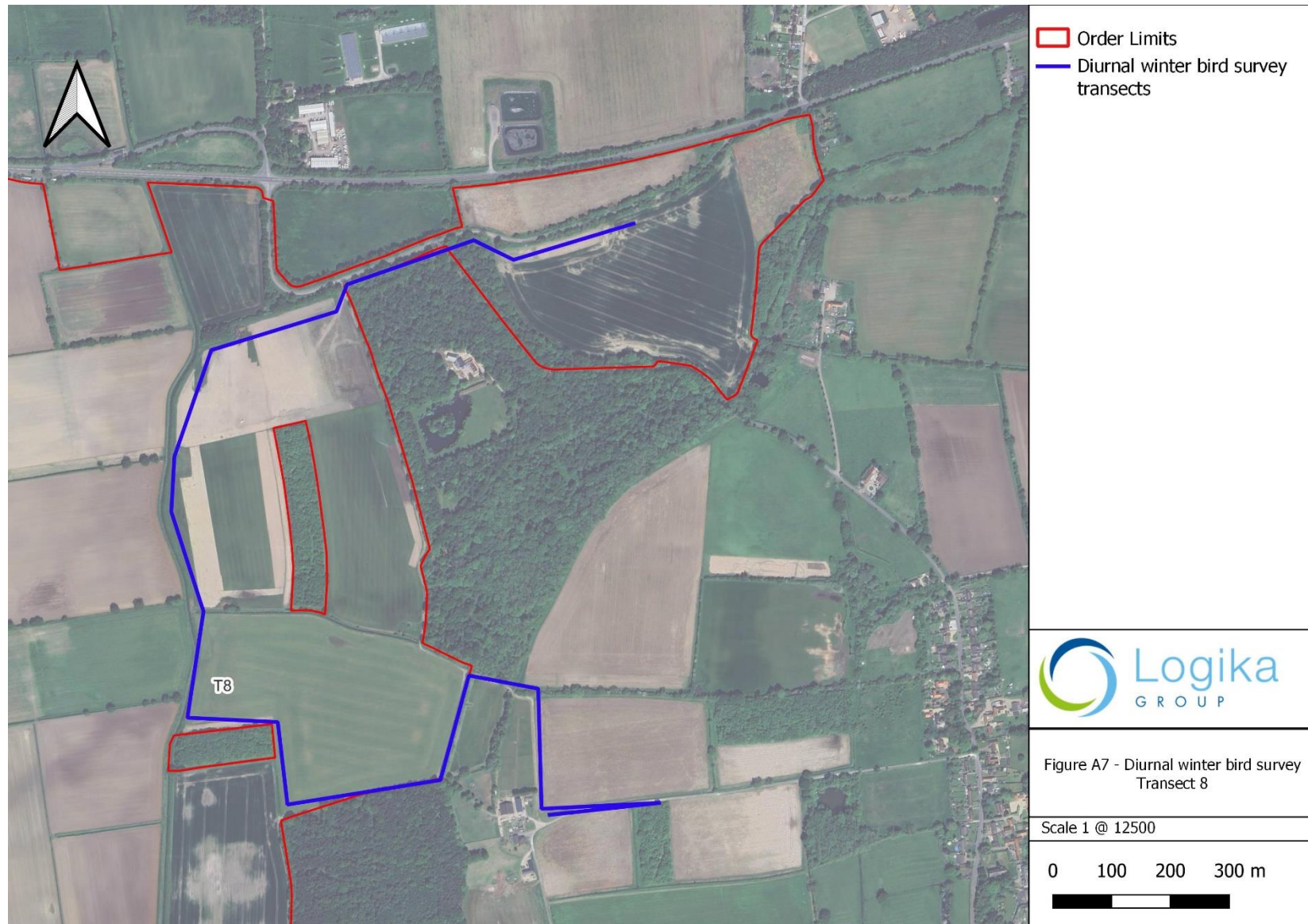


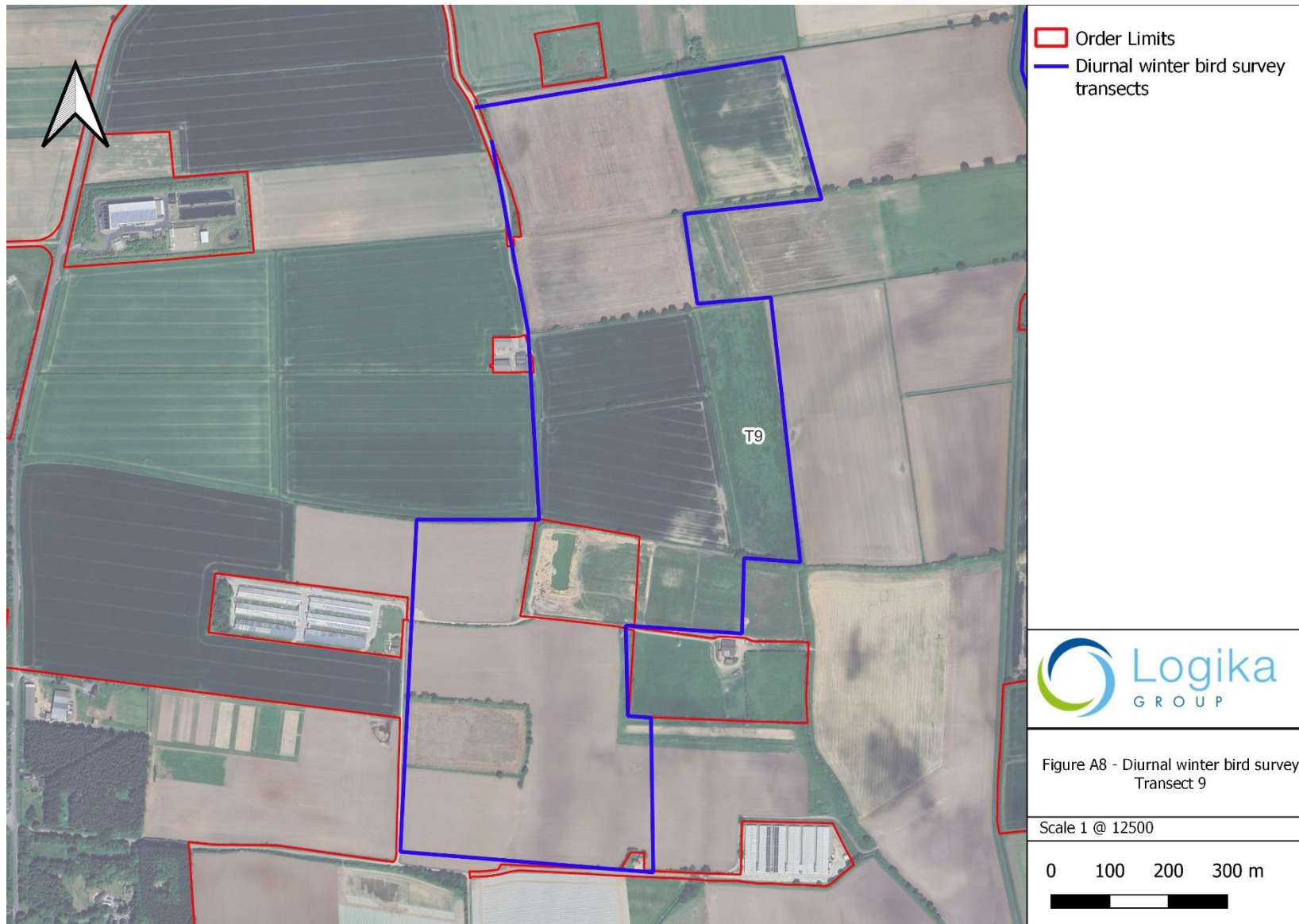


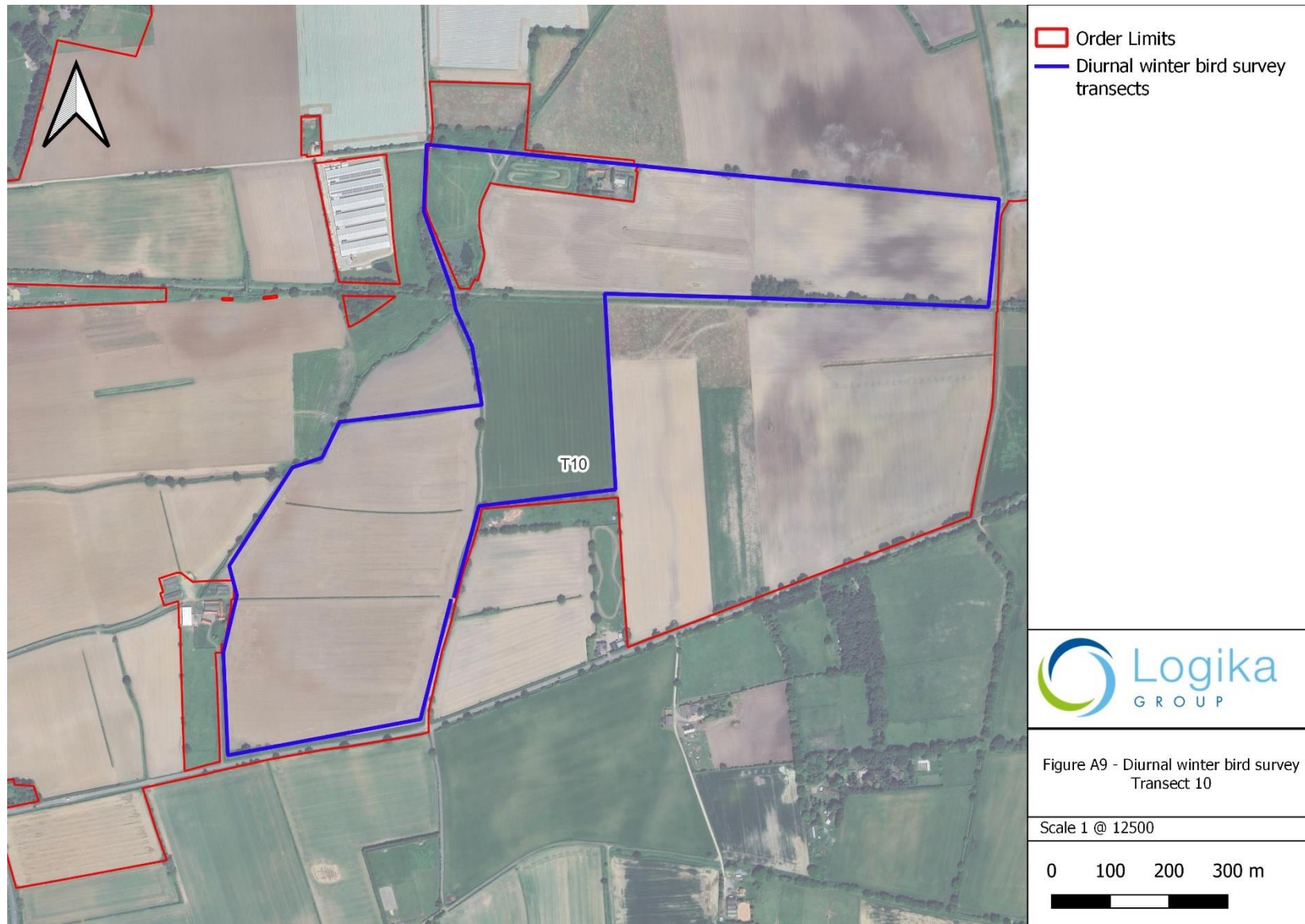


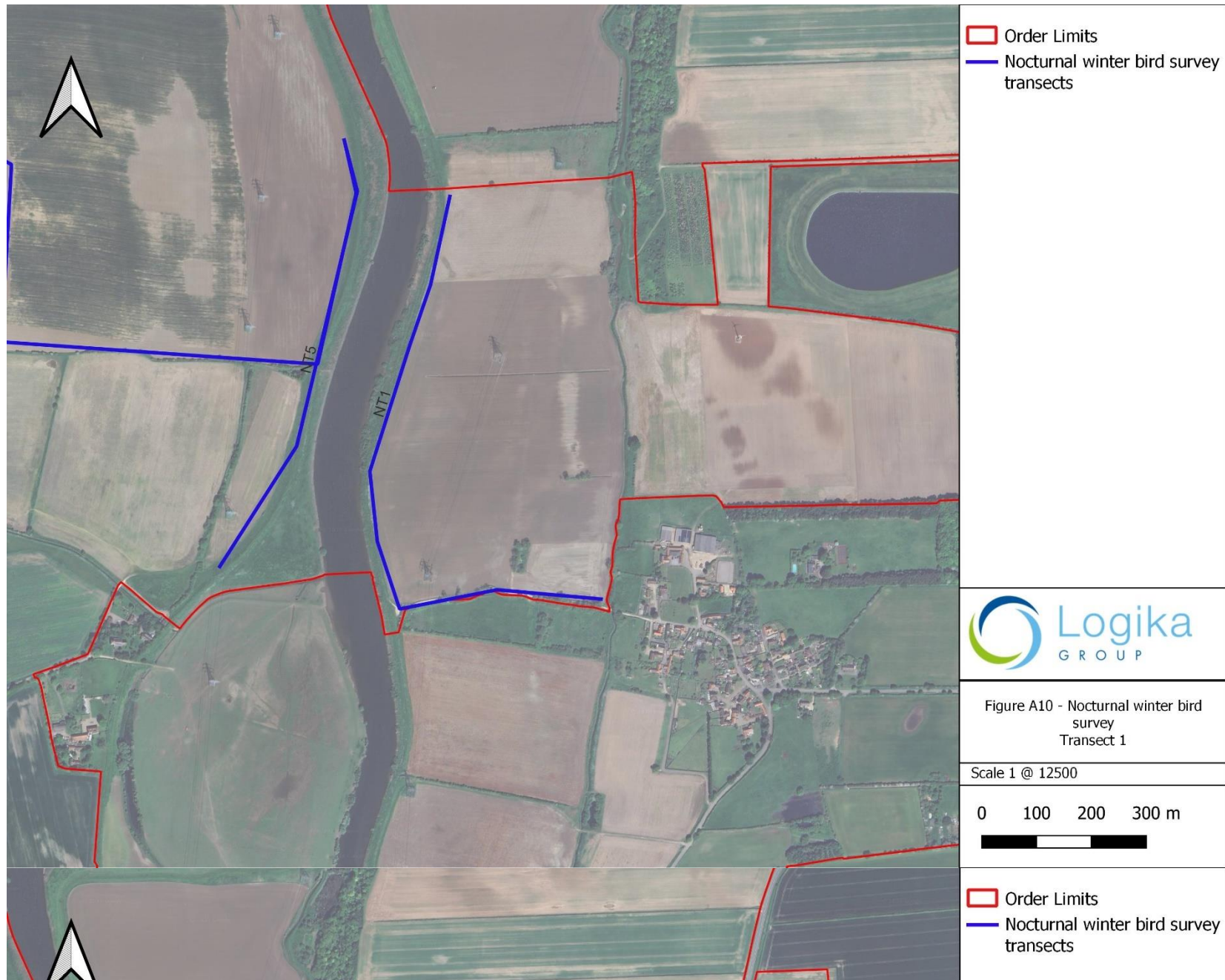


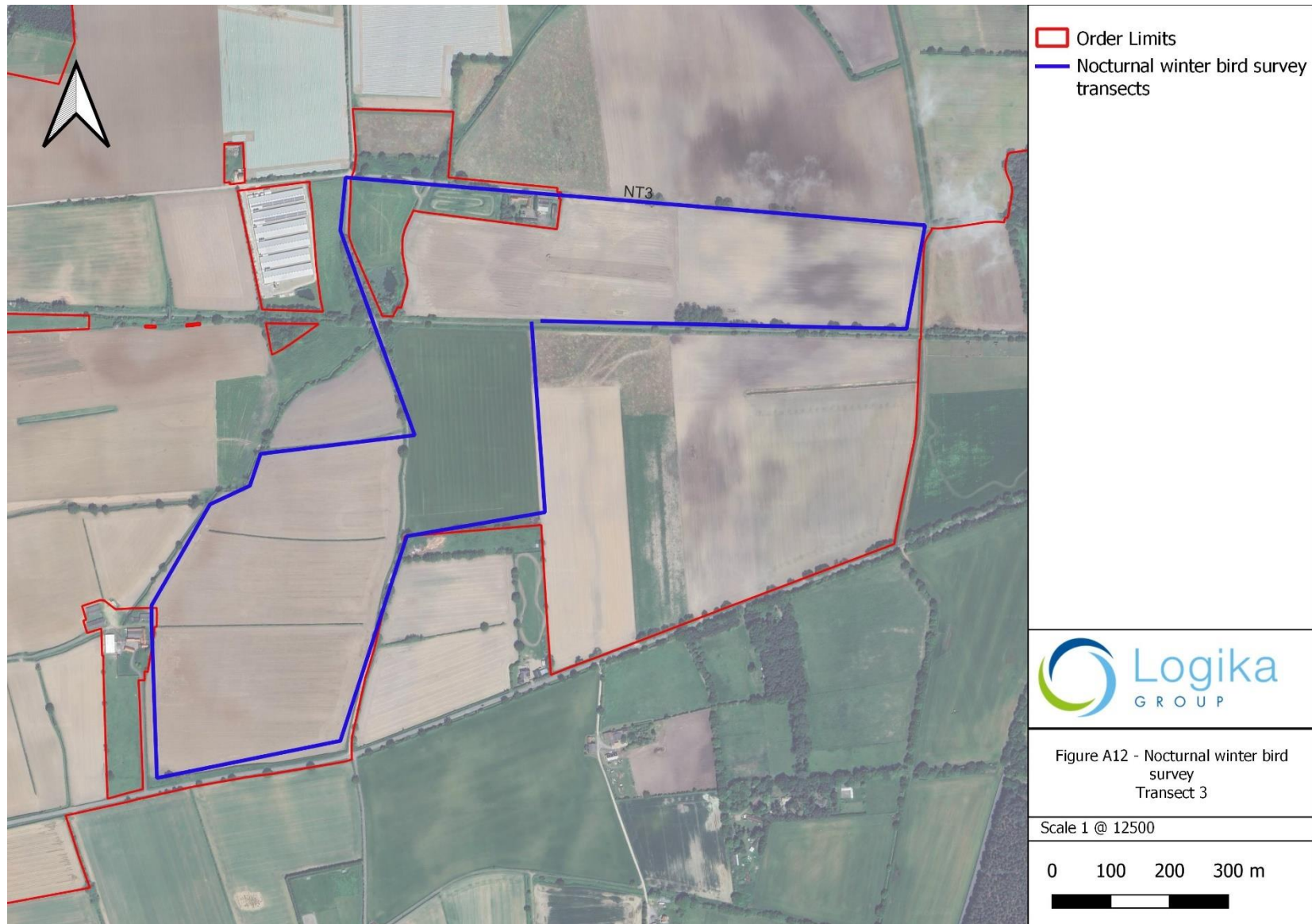


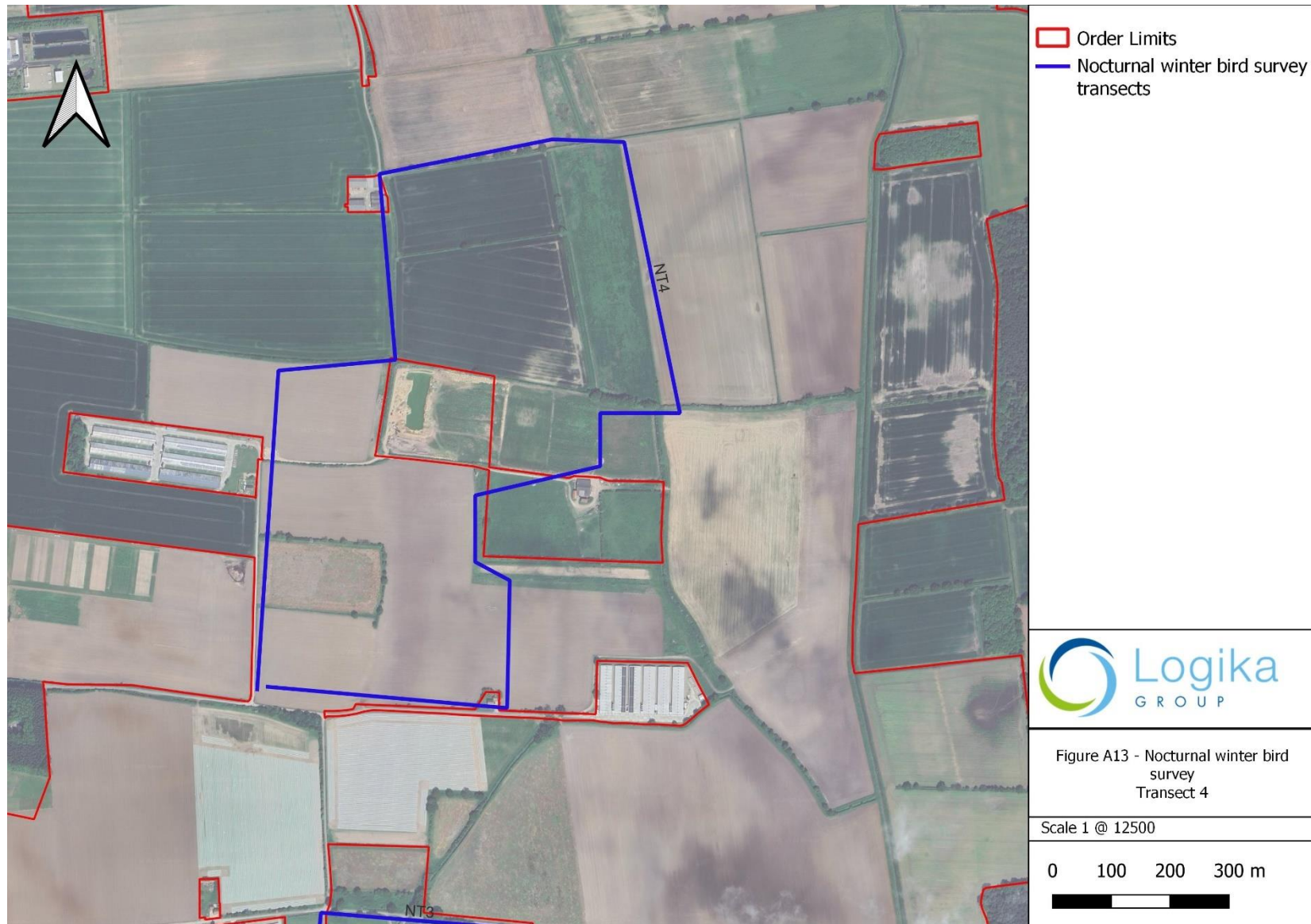


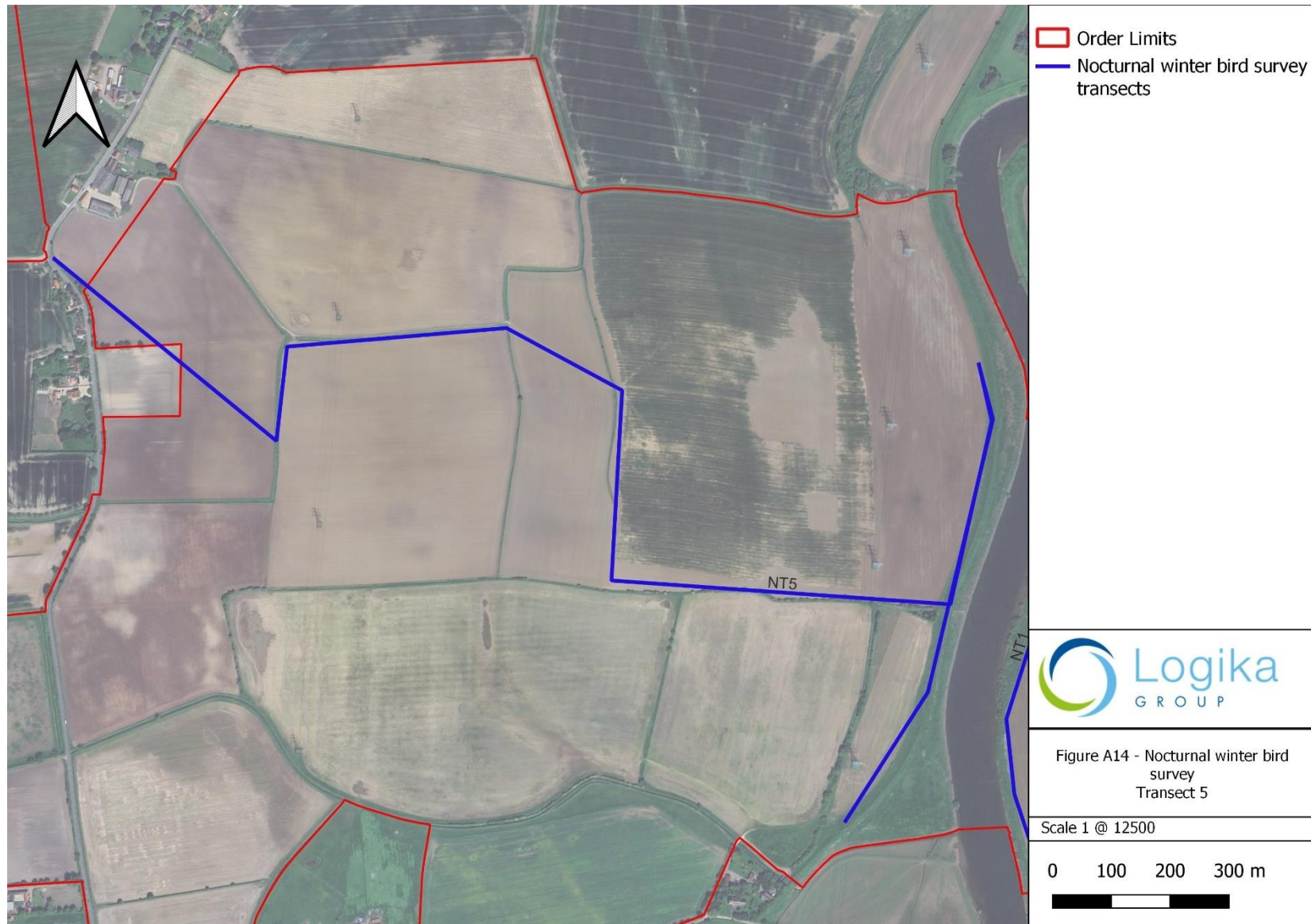


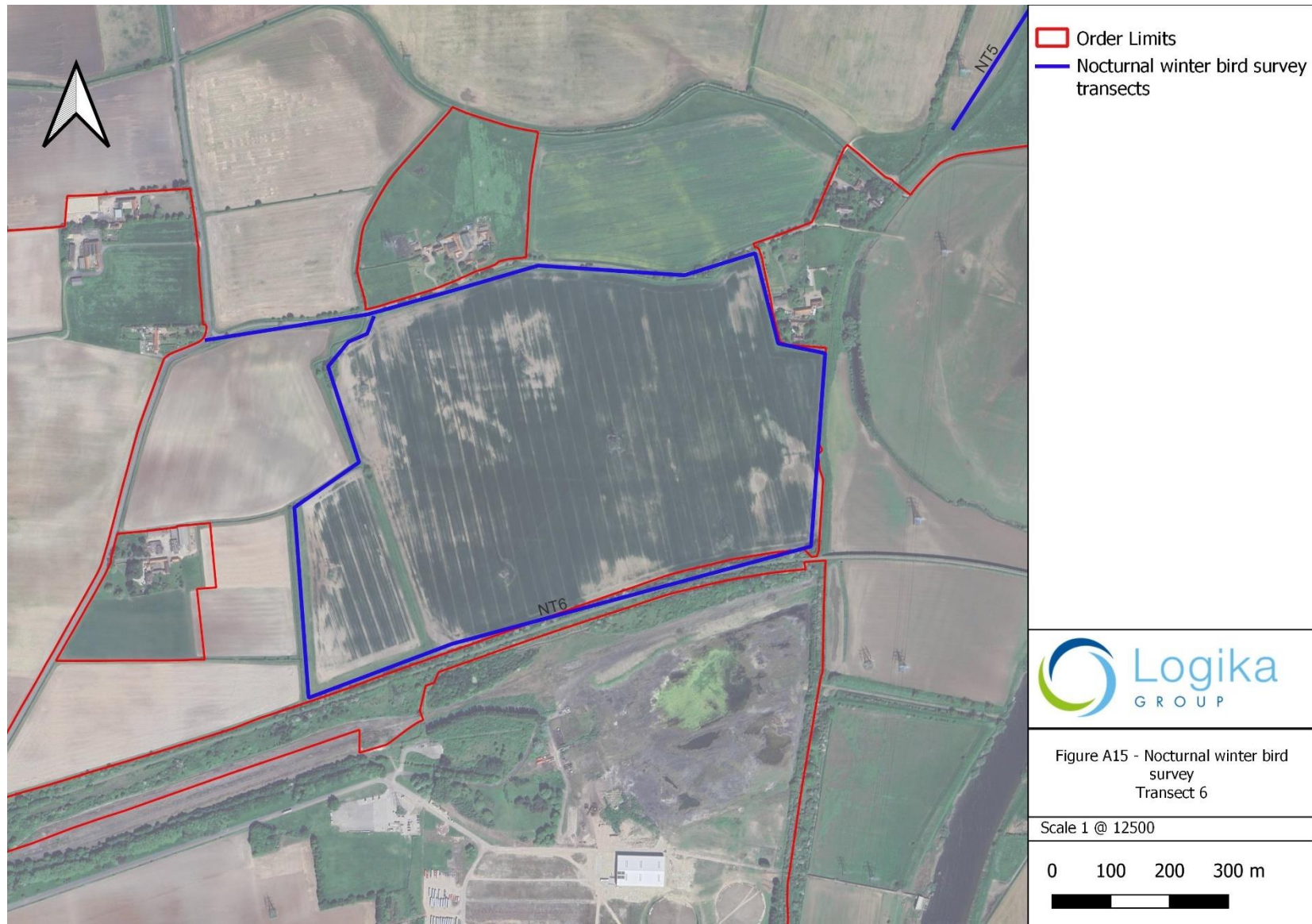


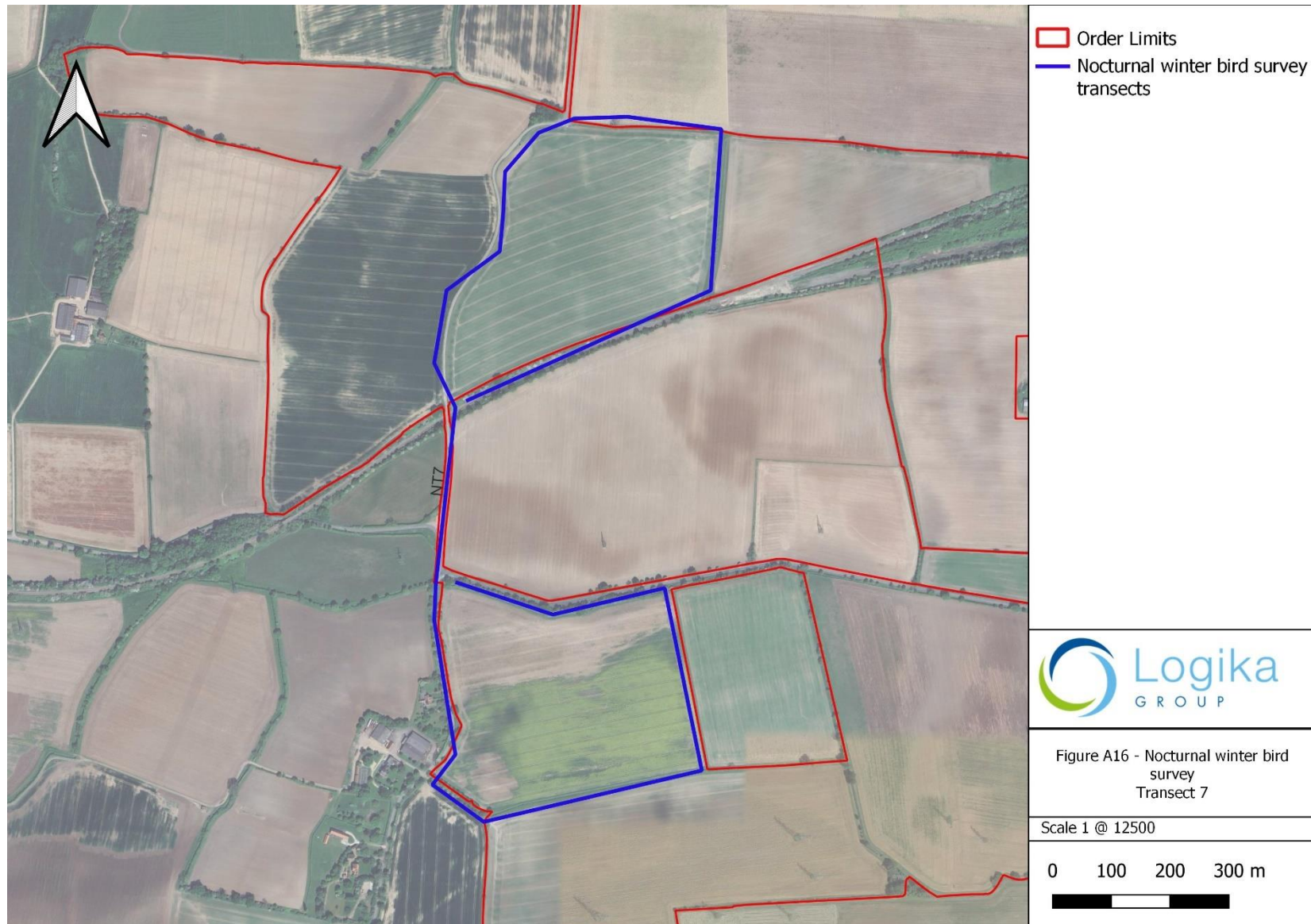


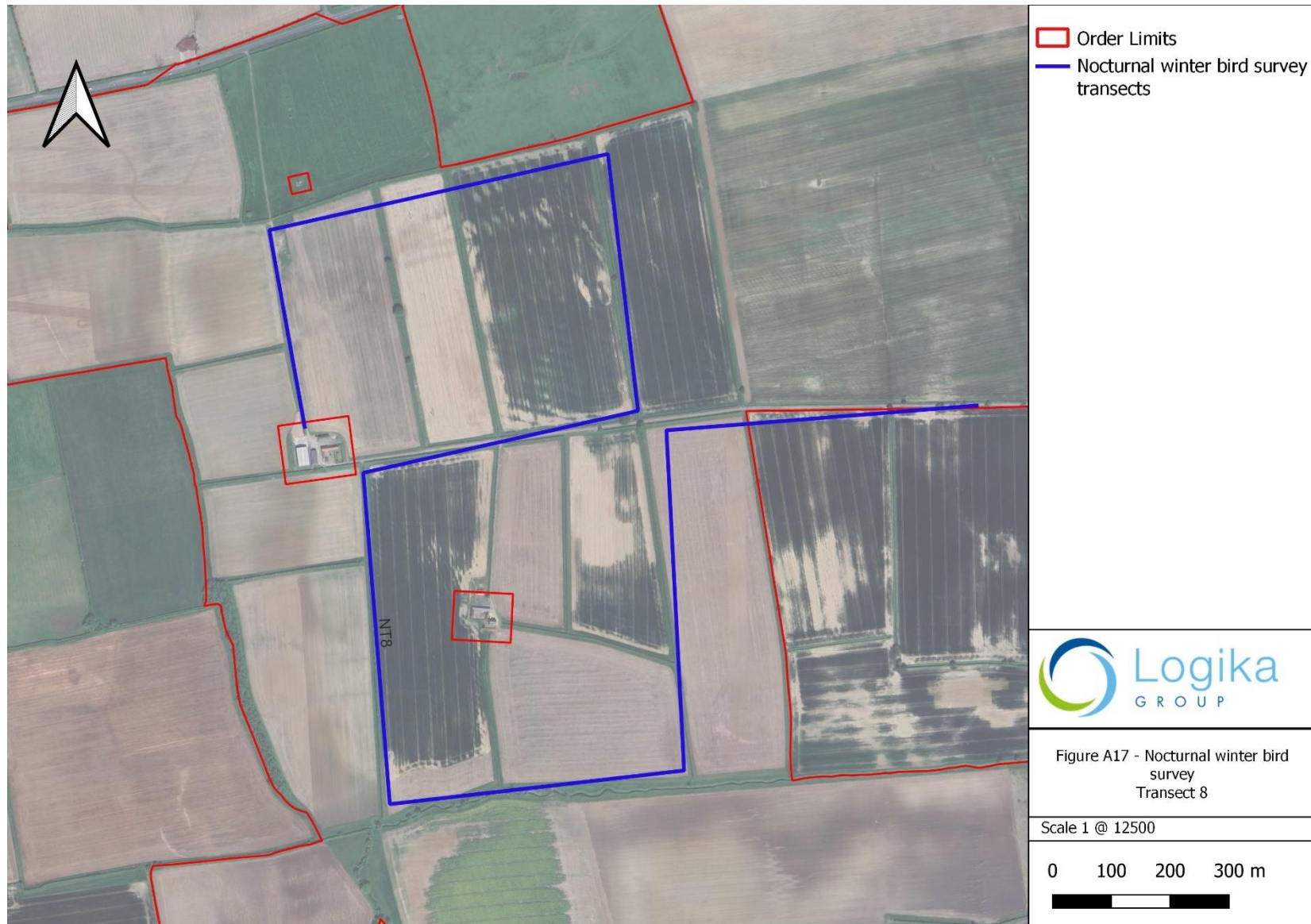


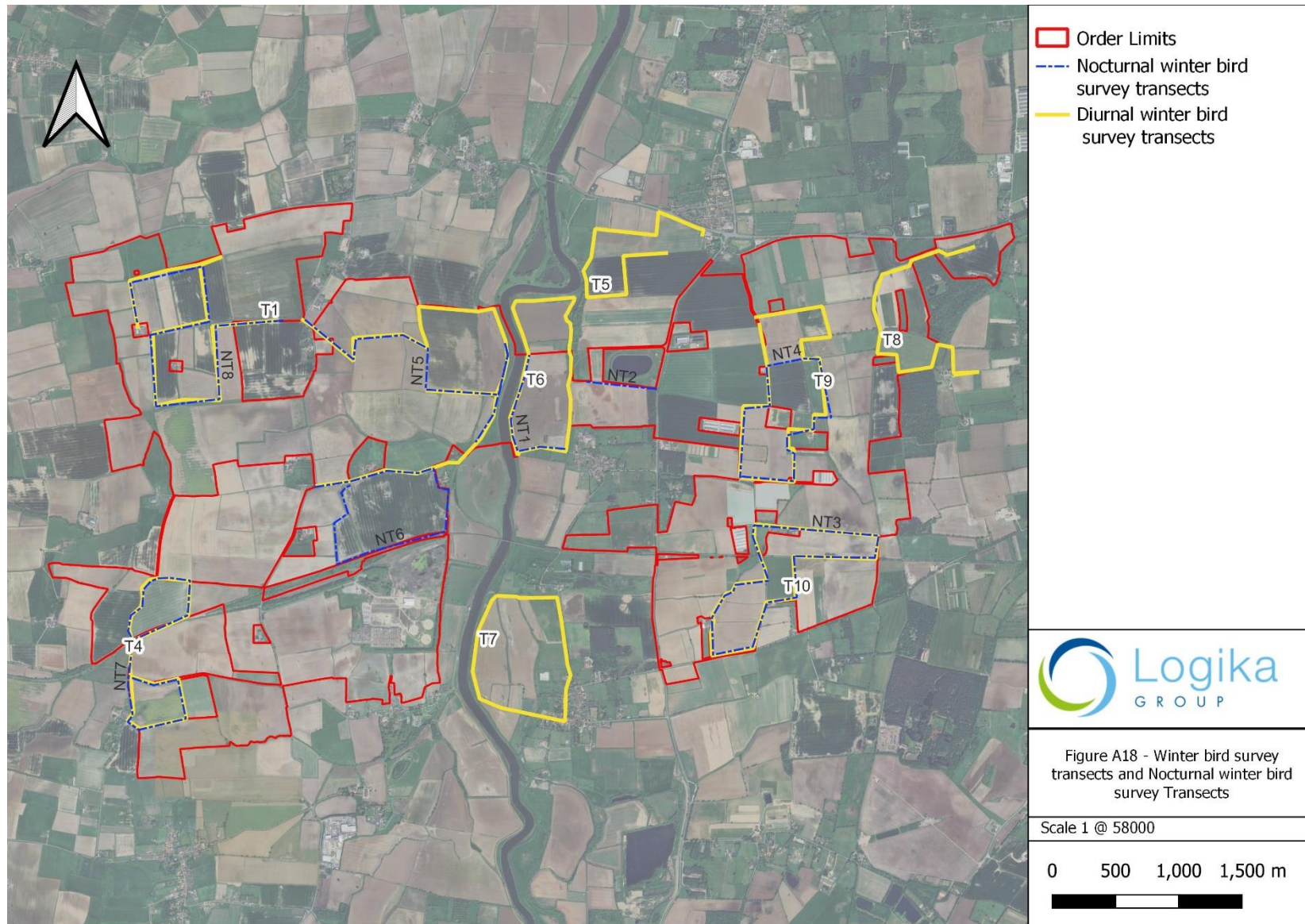




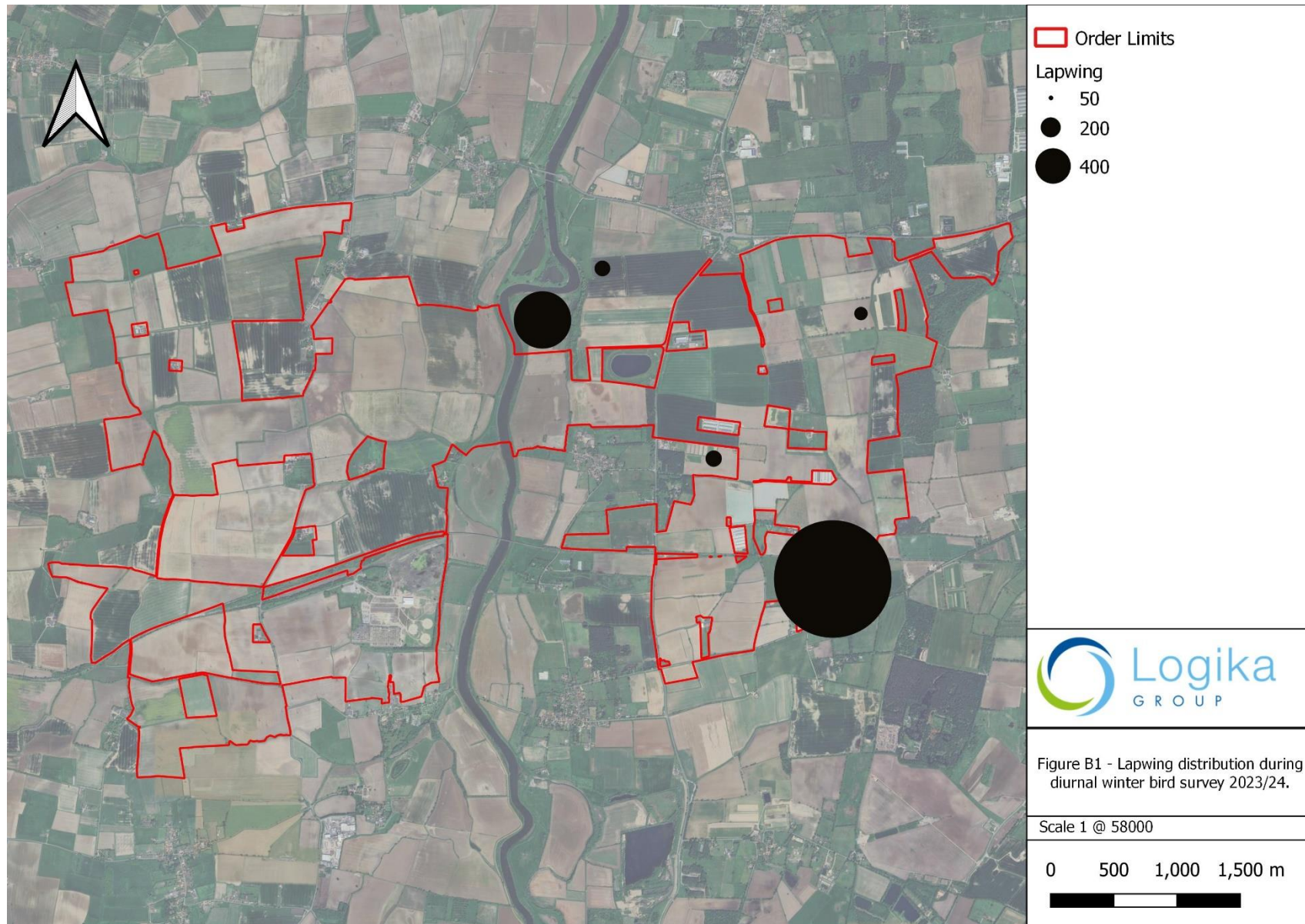


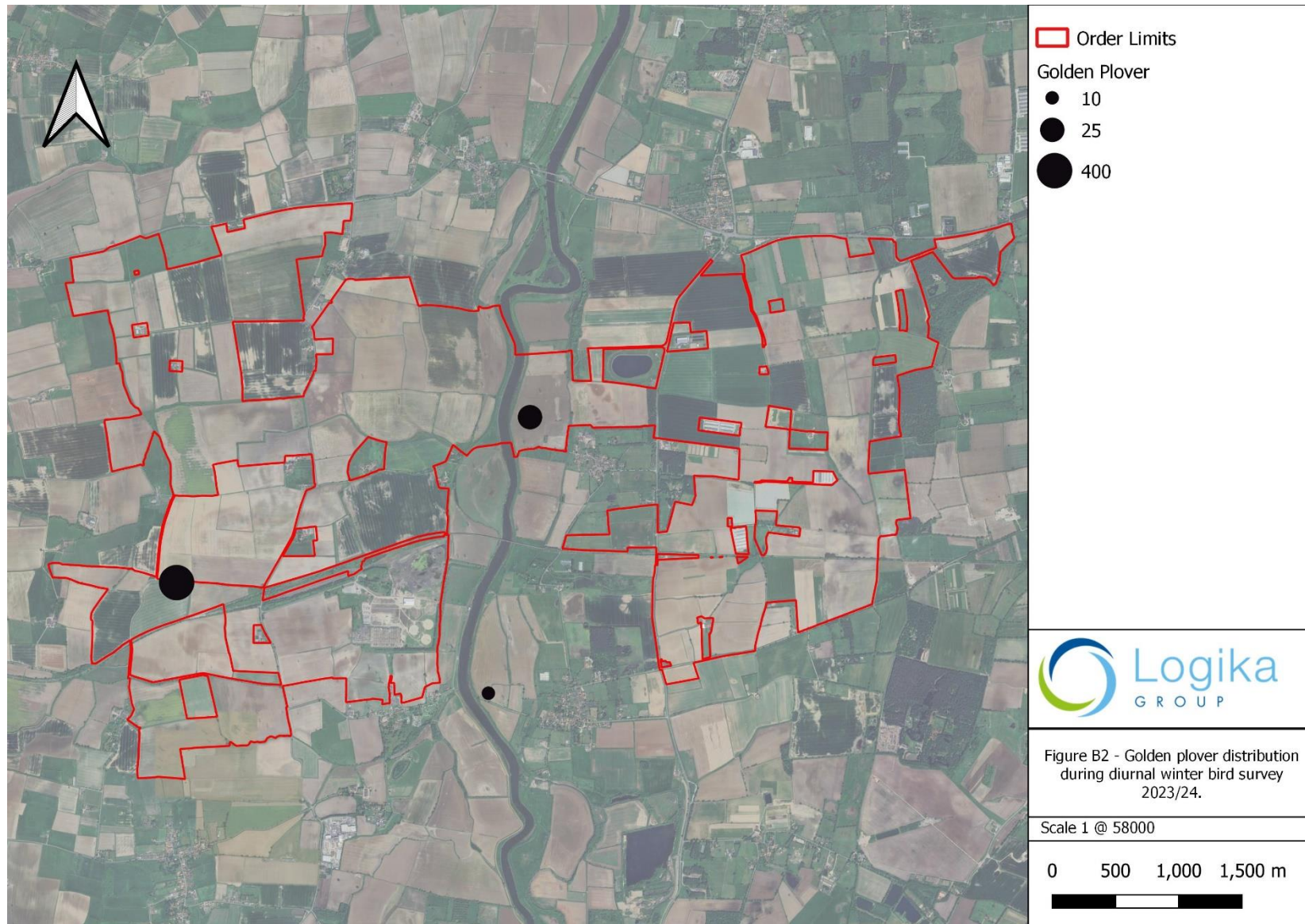


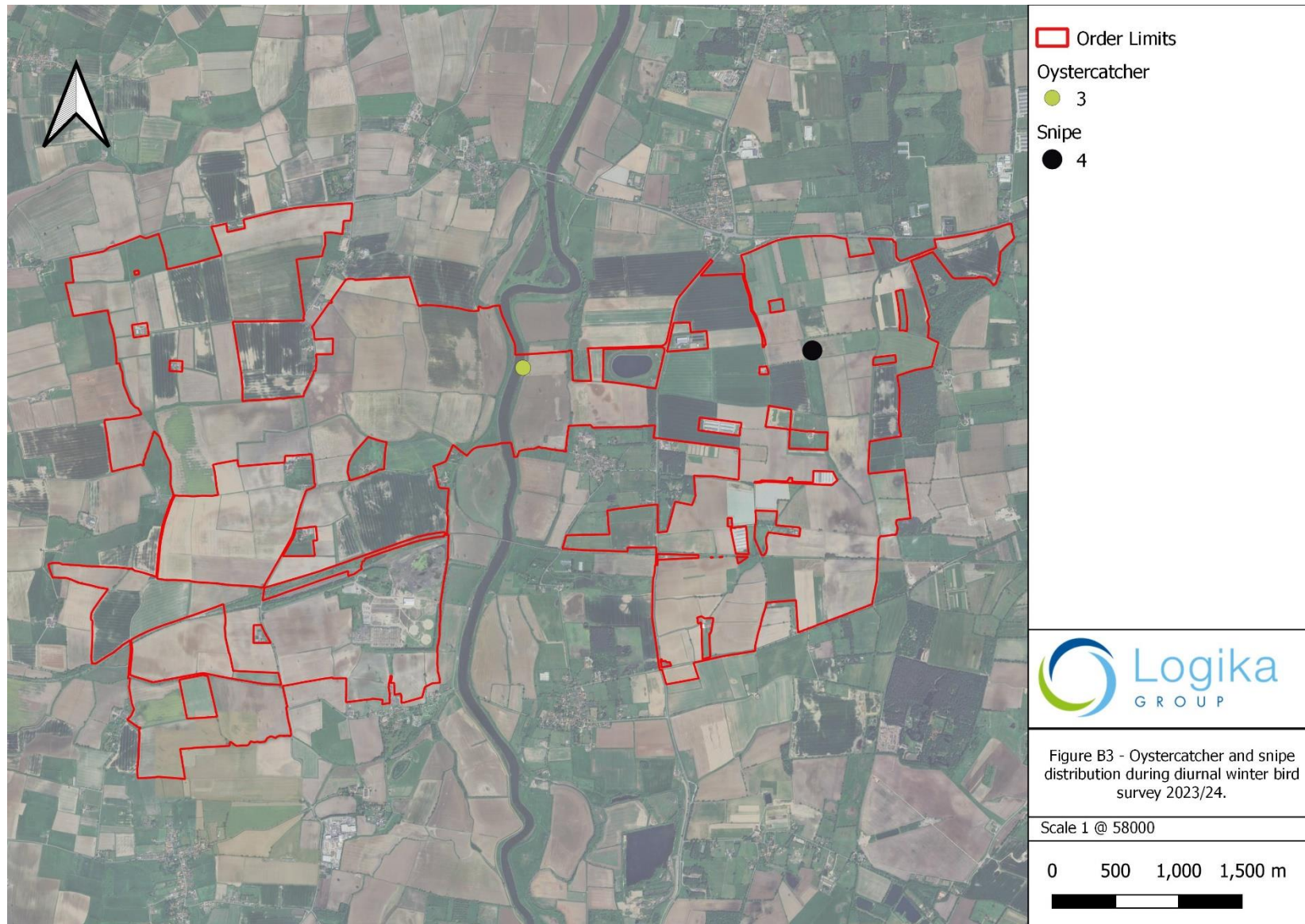


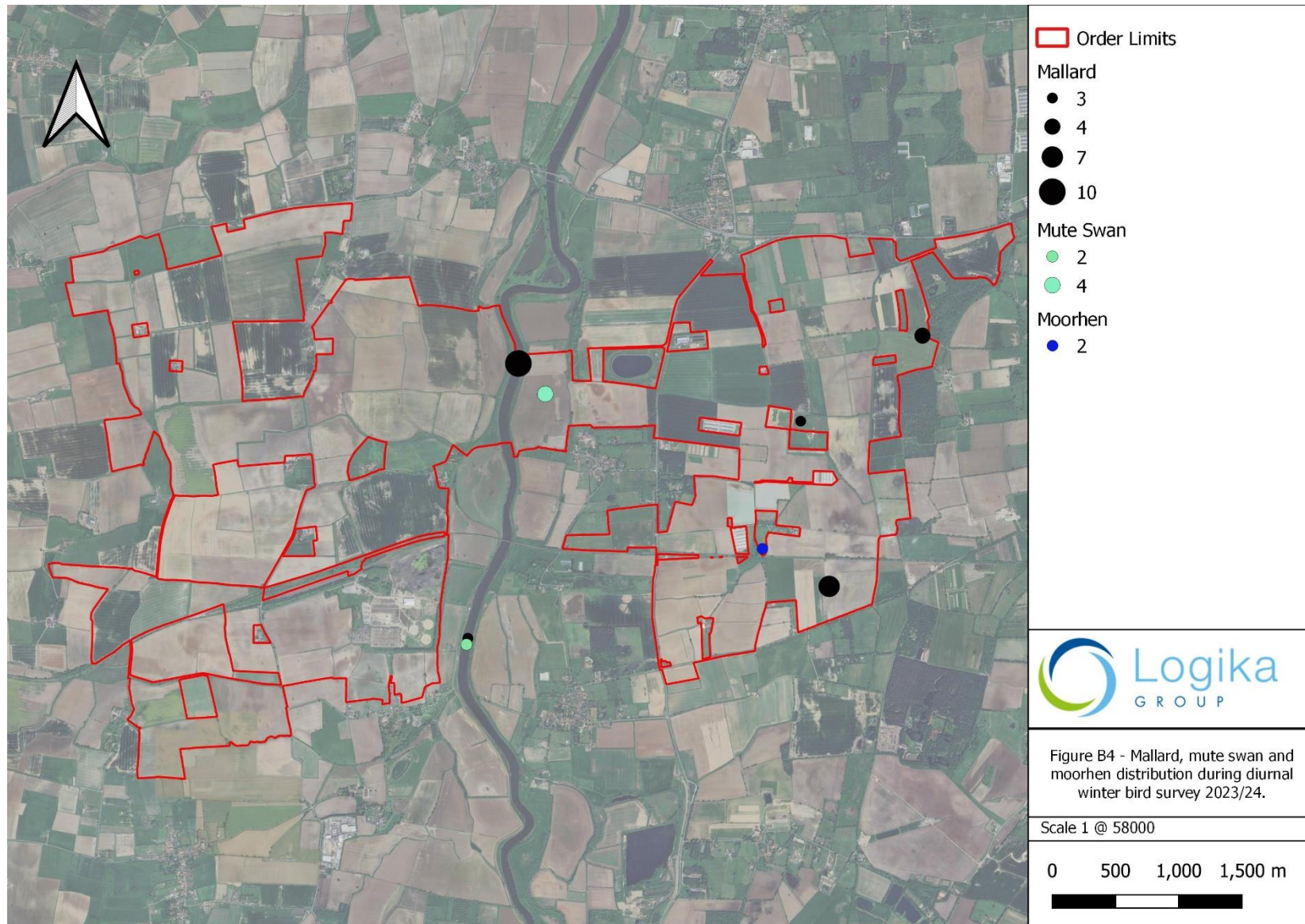


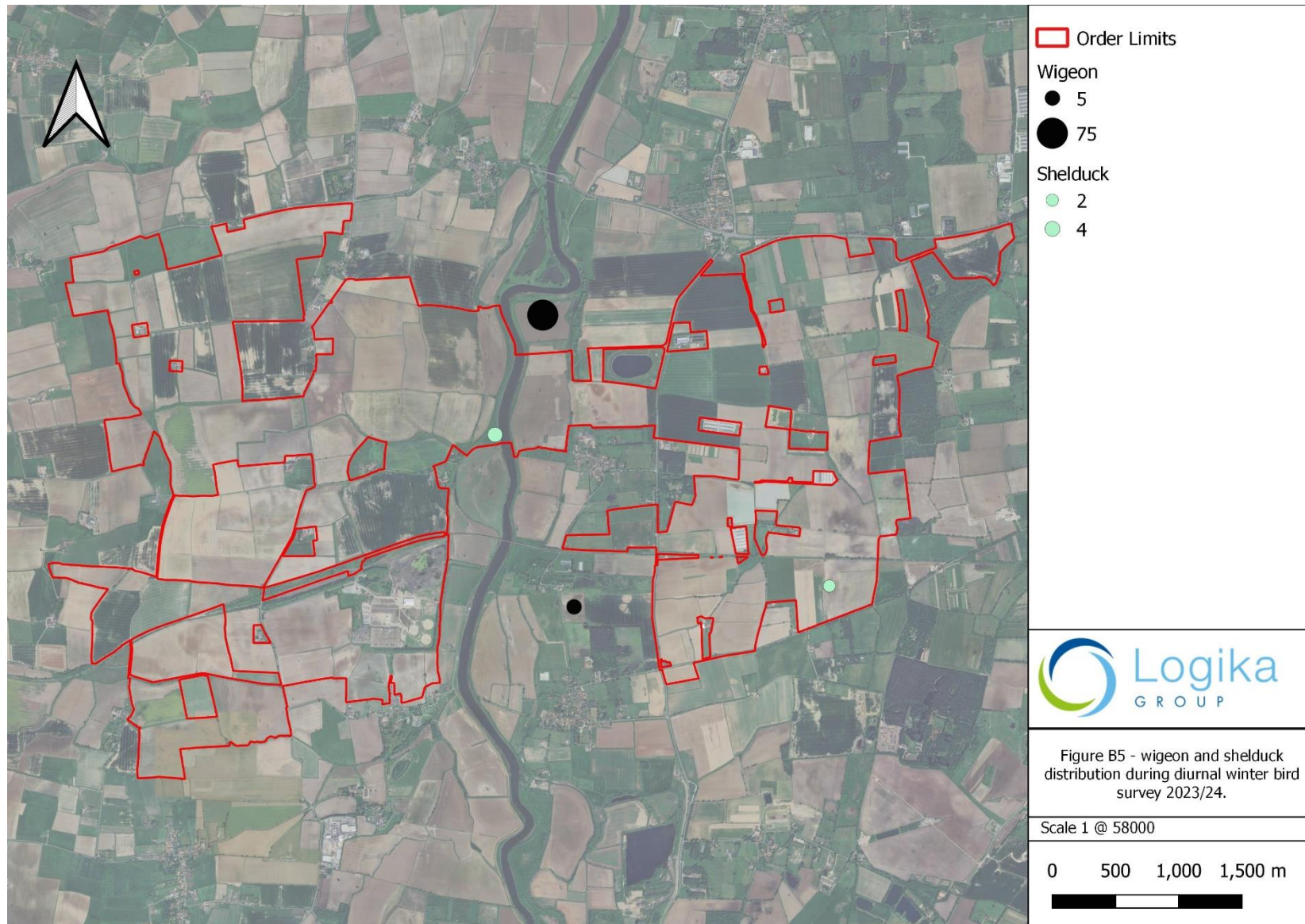
Annex B– Abundance Figures

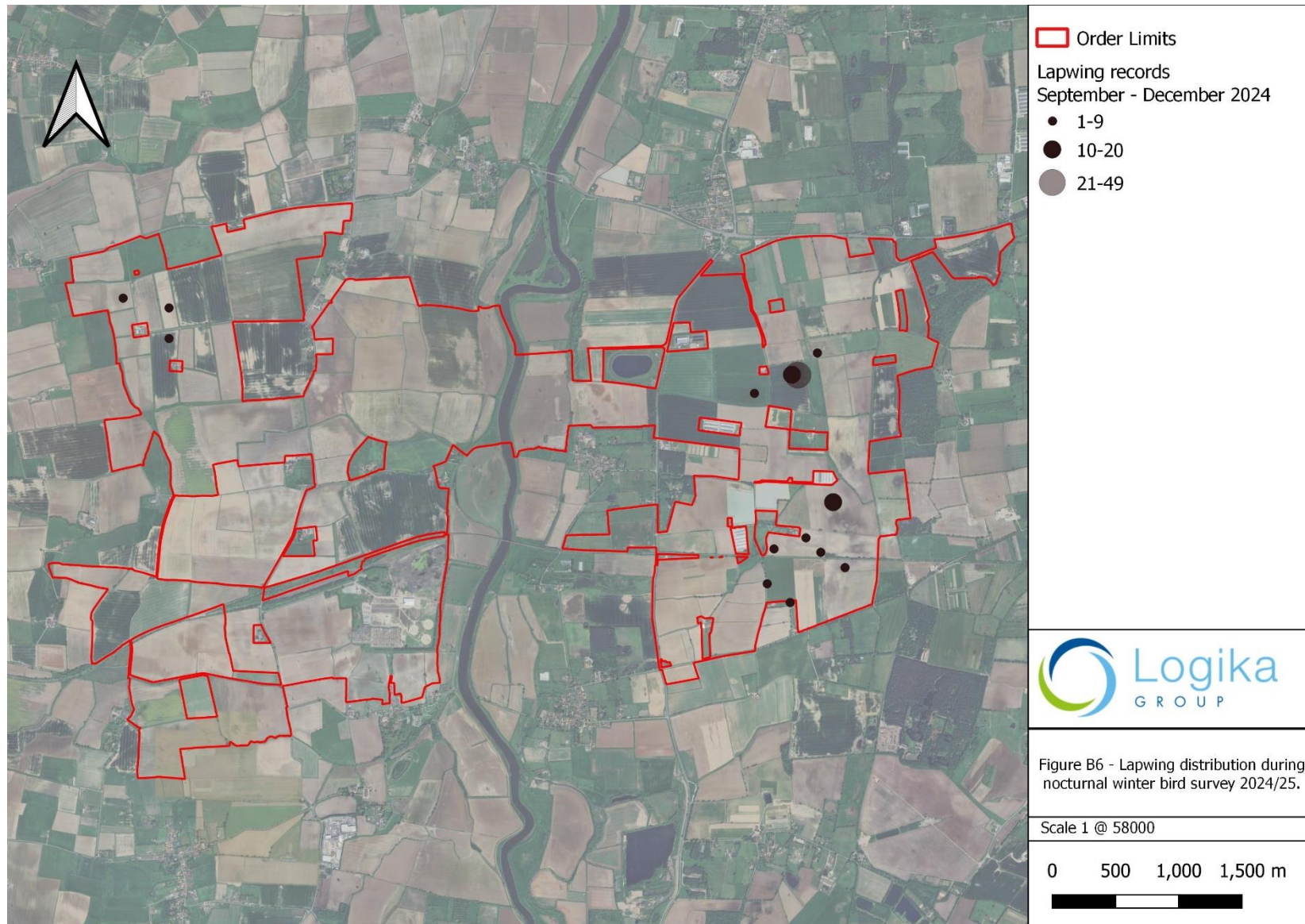


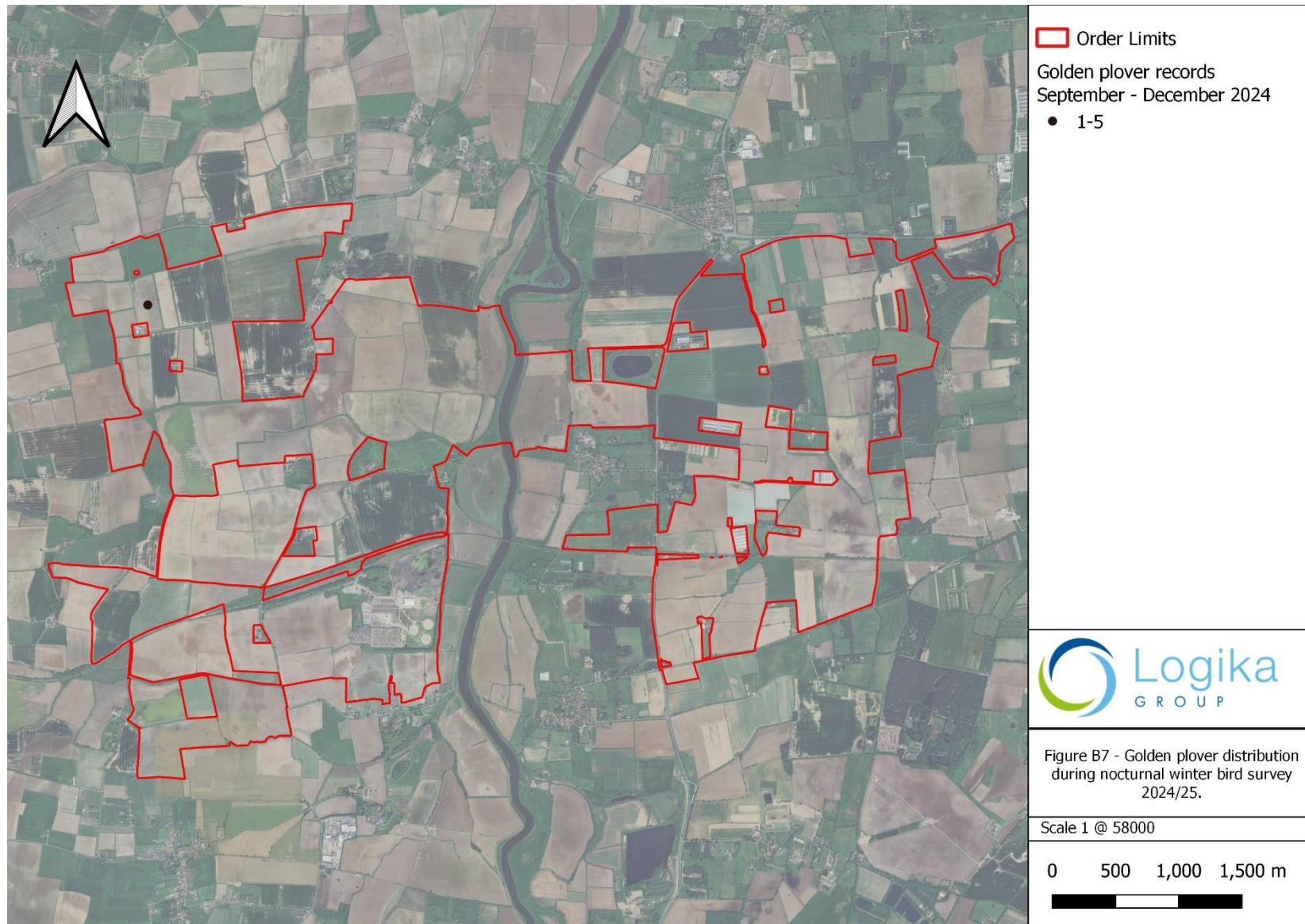


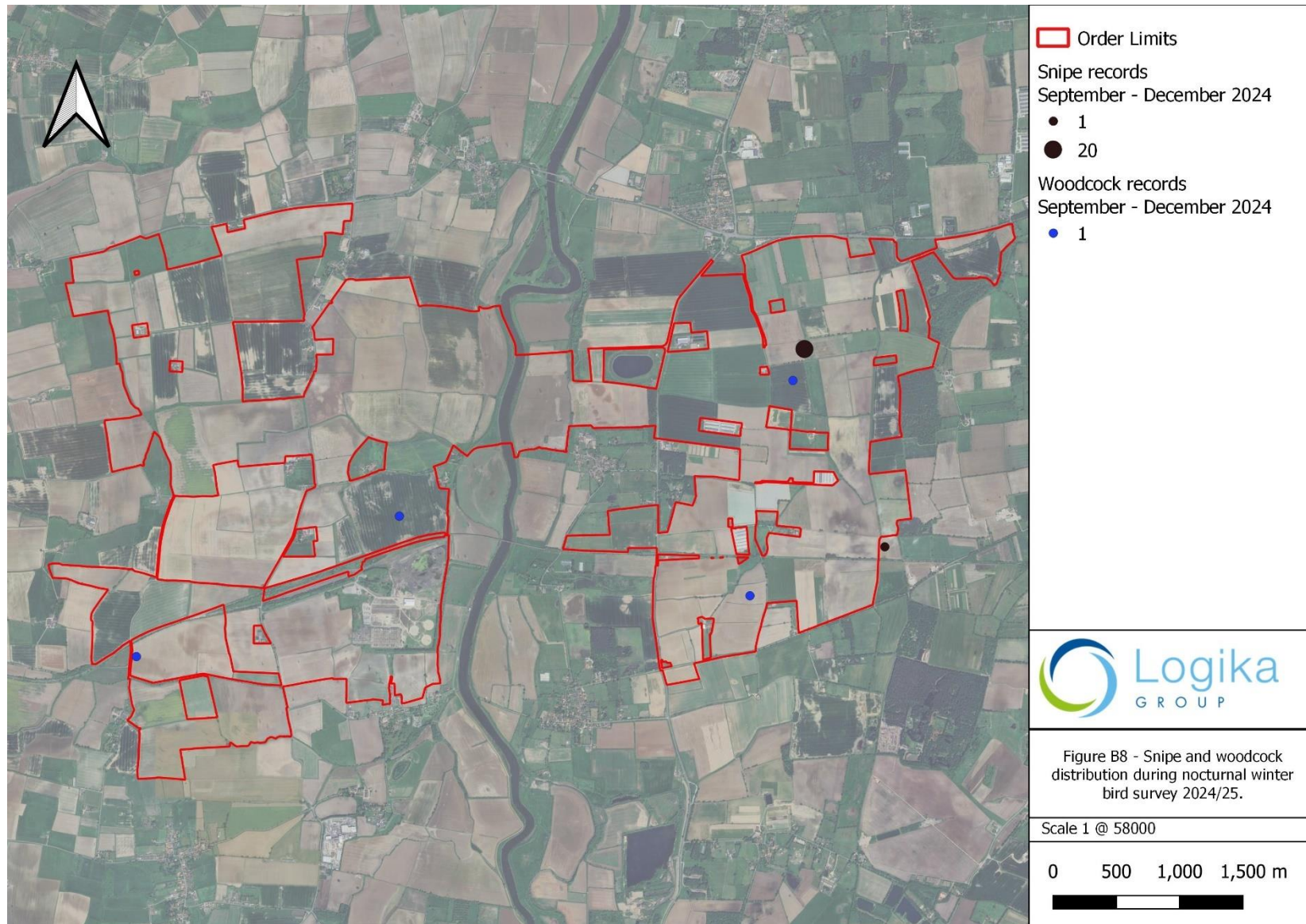


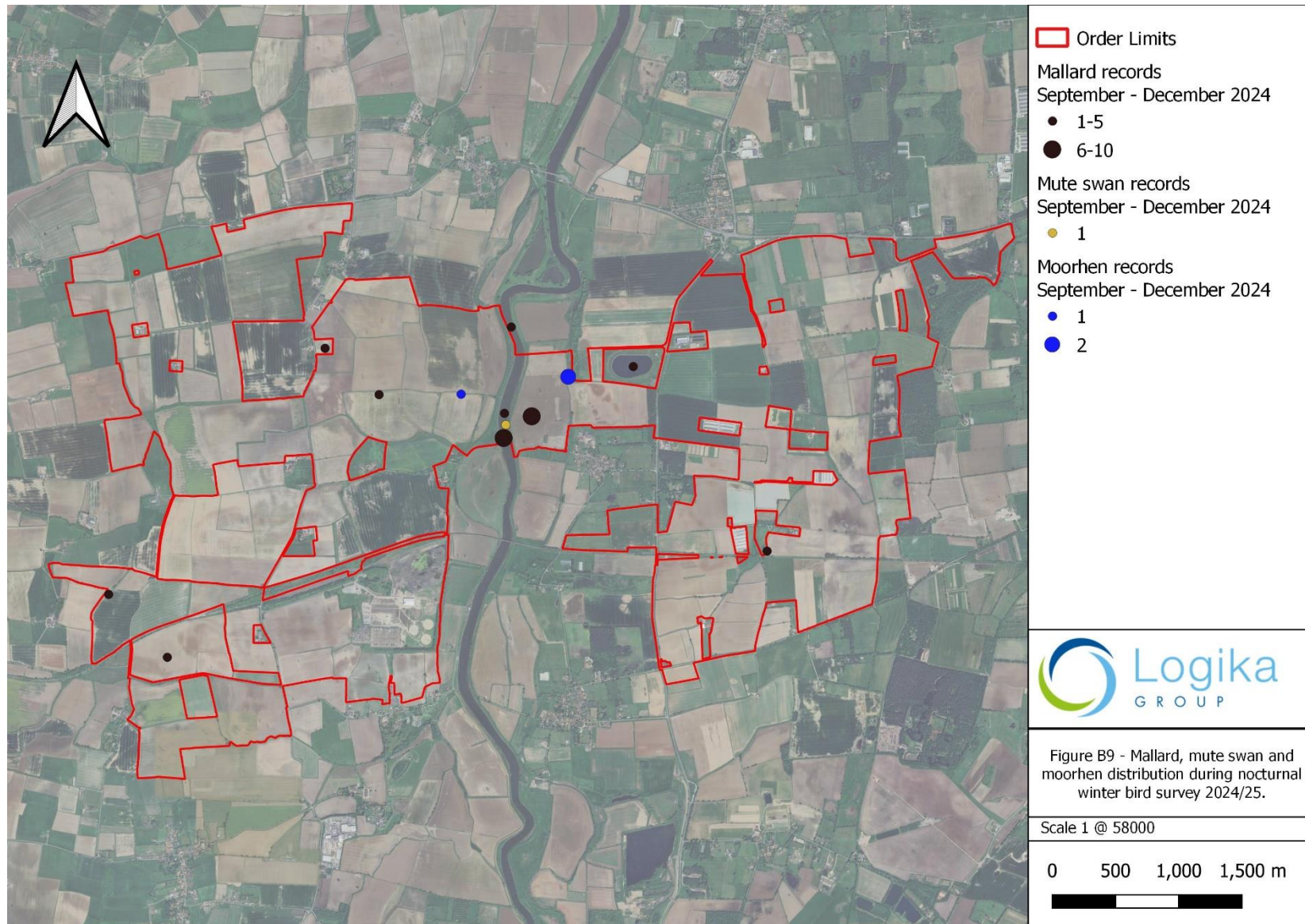


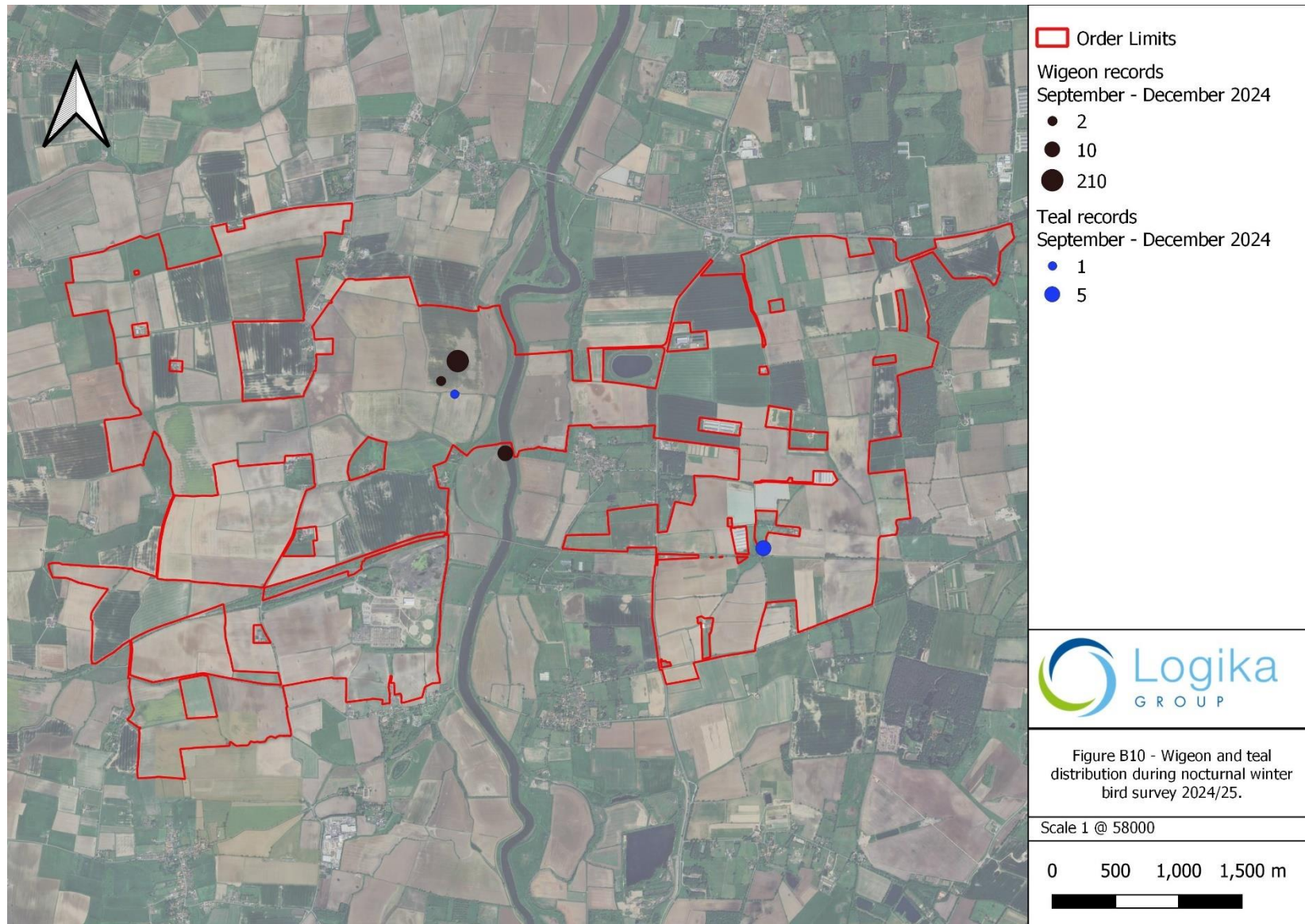












Annex C – Species Record

Full species records

Table C-1 – Complete list of species recorded during diurnal wintering bird surveys 2023/24.

Species	Scientific name
Black-headed gull	<i>Chroicocephalus ridibundus</i>
Buzzard	<i>Buteo buteo</i>
Canada goose	<i>Branta canadensis</i>
Chaffinch	<i>Fringilla coelebs</i>
Common gull	<i>Larus canus</i>
Cormorant	<i>Phalacrocorax carbo</i>
Egyptian goose	<i>Alopochen aegyptiaca</i>
Fieldfare	<i>Turdus pilaris</i>
Golden plover	<i>Pluvialis apricaria</i>
Goldfinch	<i>Carduelis carduelis</i>
Goshawk	<i>Accipiter gentilis</i>
Grey heron	<i>Ardea cinerea</i>
Grey partridge	<i>Perdix perdix</i>
Greylag goose	<i>Anser anser</i>
Hobby	<i>Falco subbuteo</i>
House sparrow	<i>Passer domesticus</i>
Kestrel	<i>Falco tinnunculus</i>

Species	Scientific name
Kingfisher	<i>Alcedo atthis</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Black-backed gull	<i>Larus fuscus</i>
Lesser redpoll	<i>Acanthis flammea</i>
Linnet	<i>Linaria cannabina</i>
Little egret	<i>Egretta garzetta</i>
Mallard	<i>Anas platyrhynchos</i>
Meadow pipit	<i>Anthus pratensis</i>
Mistle thrush	<i>Turdus viscivorus</i>
Moorhen	<i>Gallinula chloropus</i>
Mute Swan	<i>Cygnus olor</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Redwing	<i>Turdus iliacus</i>
Rook	<i>Corvus frugilegus</i>
Skylark	<i>Alauda arvensis</i>
Snipe	<i>Gallinago gallinago</i>
Song thrush	<i>Turdus philomelos</i>
Sparrowhawk	<i>Accipiter nisus</i>
Starling	<i>Sturnus vulgaris</i>
Stock dove	<i>Columba oenas</i>

Species	Scientific name
Stonechat	<i>Saxicola rubicola</i>
Shelduck	<i>Tadorna tadorna</i>
Whooper swan	<i>Cygnus cygnus</i>
Wigeon	<i>Mareca penelope</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>
Yellowhammer	<i>Emberiza citrinella</i>

Table C-2 – Complete list of species recorded during nocturnal wintering bird surveys 2024/25.

Species	Scientific name
Barn owl	<i>Tyto alba</i>
Blackbird	<i>Turdus merula</i>
Buzzard	<i>Buteo buteo</i>
Canada goose	<u><i>Branta canadensis</i></u>
Carrion crow	<i>Corvus corone</i>
Egyptian goose	<i>Alopochen aegyptiaca</i>
Golden plover	<i>Pluvialis apricaria</i>
Greylag goose	<i>Anser anser</i>
Grey heron	<i>Ardea cinerea</i>
Grey partridge	<i>Perdix perdix</i>
Jackdaw	<i>Corvus monedula</i>

Species	Scientific name
Lapwing	<i>Vanellus vanellus</i>
Little owl	<i>Athene noctua</i>
Mallard	<i>Anas platyrhynchos</i>
Magpie	<i>Pica pica</i>
Moorhen	<i>Gallinula chloropus</i>
Mute swan	<i>Cygnus olor</i>
Pheasant	<i>Phasianus colchicus</i>
Pink-footed goose	<i>Anser brachyrhynchus</i>
Red-legged partridge	<i>Alectoris rufa</i>
Redwing	<i>Turdus iliacus</i>
Rook	<i>Corvus frugilegus</i>
Skylark	<i>Alauda arvensis</i>
Snipe	<i>Gallinago gallinago</i>
Tawny owl	<i>Strix aluco</i>
Teal	<i>Anas crecca</i>
Wigeon	<i>Mareca penelope</i>
Woodcock	<i>Scolopax rusticola</i>
Woodpigeon	<i>Columba palumbus</i>
Whooper swan	<i>Cygnus cygnus</i>
Yellowhammer	<i>Emberiza citrinella</i>

A.6.4.1. In addition to those species listed in **Table C-1 and C-2**, the following species noted within the report are given here along with their full scientific name:

- > Marsh harrier *Circus aeruginosus*
- > Bewick's swan *Cygnus columbianus*
- > Reed bunting *Emberiza schoeniclus*
- > Brambling *Fringilla montifringilla*
- > Red kite *Milvus milvus milvus*
- > Tree sparrow *Passer montanus*
- > Bullfinch *Pyrrhula pyrrhula*

Full survey details

Full survey details of the diurnal winter bird surveys 2023/24 are shown below in **Table C.3**. Full survey details of the nocturnal winter bird surveys 2024/25 are shown below in **Table C-4**.

Table C-3 Full survey details of winter bird surveys.

Date	Visit number	Transect number	Start time	End time	Weather conditions
09/10/2023	1	T1	12:52	14:17	0/8 Oktas cloud, Beaufort 1 west, visibility > 3km, precipitation: none, 21°C
09/10/2023	1	T2	14:34	16:05	0/8 Oktas cloud, Beaufort 1 west, visibility > 3km, precipitation: none, 21°C
10/10/2023	1	T9	09:05	10:40	8/8 Oktas cloud, Beaufort 2 west, visibility > 3km, precipitation: none, 16°C
10/10/2023	1	T6	11:02	12:20	4/8 Oktas cloud, Beaufort 2 west, visibility > 3km, precipitation: none, 17°C
10/10/2023	1	T7	12:48	14:27	4/8 Oktas cloud, Beaufort 2 west, visibility > 3km, precipitation: none, 17°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
11/10/2023	1	T8	08:52	10:11	8/8 Oktas cloud, Beaufort 2 south-west, visibility > 3km, precipitation: none, 16°C
11/10/2023	1	T5	12:31	14:05	8/8 Oktas cloud, Beaufort 2 south-west, visibility > 3km, precipitation: none, 16°C
11/10/2023	1	T10	10:32	12:05	8/8 Oktas cloud, Beaufort 2 south-west, visibility > 3km, precipitation: none, 16°C
12/10/2023	1	T3	08:11	09:15	2/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 9°C
12/10/2023	1	T4	09:32	10:53	2/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 11°C
13/11/2023	2	T4	13:29	14:49	1/8 Oktas cloud, Beaufort 4 south-west, visibility > 3km, precipitation: none, 13°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
13/11/2023	2	T1	15:03	16:25	1/8 Oktas cloud, Beaufort 4 south-west, visibility > 3km, precipitation: none, 13°C
14/11/2023	2	T5	12:45	14:03	6/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 11°C
14/11/2023	2	T9	09:25	10:48	6/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 11°C
14/11/2023	2	T6	11:12	12:15	6/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 12°C
15/11/2023	2	T10	11:07	12:28	1/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 8°C
15/11/2023	2	T7	12:55	14:12	1/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 12°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
15/11/2023	2	T8	09:19	10:34	1/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 8°C
16/11/2023	2	T2&3	08:04	10:23	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 5°C
11/12/2023	3	T9	12:48	14:24	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: drizzle, 5°C, Drizzle
11/12/2023	3	T6	14:45	15:32	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 5°C
12/12/2023	3	T5	09:35	10:56	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: light drizzle, 5°C
12/12/2023	3	T7	11:15	12:26	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 6°C
13/12/2023	3	T1	09:37	11:08	8/8 Oktas cloud, Beaufort 3 south-west, visibility > 3km, precipitation: drizzle, 2°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
13/12/2023	3	T2&3	11:25	13:23	8/8 Oktas cloud, Beaufort 3 south-west, visibility > 3km, precipitation: drizzle, 2°C
14/12/2023	3	T8	08:11	09:06	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 2°C
14/12/2023	3	T10	09:32	11:13	8/8 Oktas cloud, Beaufort 1 south-west, visibility 500m - 3km, precipitation: drizzle, 2°C
12/12/2023	3	T4	13:05	14:26	8/8 Oktas cloud, Beaufort 1 south-west, visibility > 3km, precipitation: none, 6°C
08/01/2024	4	T4	12:33	13:55	7/8 Oktas cloud, Beaufort 2 north-east, visibility 500m - 3km, precipitation: none, 3°C
08/01/2024	4	T1	14:18	15:38	7/8 Oktas cloud, Beaufort 2 north-east, visibility 500m - 3km, precipitation: none, 3°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
09/01/2024	4	T10	11:46	13:05	1/8 Oktas cloud, Beaufort 2 north-east, visibility 500m - 3km, precipitation: none, 3°C
11/01/2024	4	T2&3	08:13	10:15	8/8 Oktas cloud, Beaufort 1 north-east, visibility 500m - 3km, precipitation: none, 3°C
10/01/2024	4	T7	12:59	14:04	6/8 Oktas cloud, Beaufort 1 north-east, visibility 500m - 3km, precipitation: none, 3°C
10/01/2024	4	T6	12:12	12:38	6/8 Oktas cloud, Beaufort 1 north-east, visibility 500m - 3km, precipitation: none, 3°C
10/01/2024	4	T9	10:12	11:41	6/8 Oktas cloud, Beaufort 1 north-east, visibility 500m - 3km, precipitation: none, 2°C
09/01/2024	5	T5	13:32	14:57	2/8 Oktas cloud, Beaufort 2 north-east, visibility 500m - 3km, precipitation: none, 2°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
09/01/2024	5	T8	10:03	11:17	1/8 Oktas cloud, Beaufort 2 north-east, visibility 500m - 3km, precipitation: none, 2°C
12/02/2024	5	T9	14:45	16:00	4/8 Oktas cloud, Beaufort 2 west, visibility 500m - 3km, precipitation: none, 8°C
12/02/2024	5	T7	12:50	14:25	4/8 Oktas cloud, Beaufort 2 west, visibility 500m - 3km, precipitation: none, 8°C
13/02/2024	5	T6	13:40	15:15	8/8 Oktas cloud, Beaufort 2 south-west, visibility 500m - 3km, precipitation: none, 8°C
13/02/2024	5	T10	12:00	13:25	8/8 Oktas cloud, Beaufort 2 south-west, visibility 500m - 3km, precipitation: none, 8°C
13/02/2024	5	T1	10:05	11:35	8/8 Oktas cloud, Beaufort 2 south-west, visibility 500m - 3km, precipitation: none, 8°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
14/02/2024	5	T2&3	11:35	13:55	8/8 Oktas cloud, Beaufort 1 south-west, visibility 500m - 3km, precipitation: none, 8°C
14/02/2024	5	T4	09:45	11:15	7/8 Oktas cloud, Beaufort 1 south-west, visibility 500m - 3km, precipitation: none, 8°C
15/02/2024	5	T8	10:30	11:55	8/8 Oktas cloud, Beaufort 2 south-west, visibility 500m - 3km, precipitation: none, 8°C
15/02/2024	5	T5	08:25	10:05	8/8 Oktas cloud, Beaufort 2 south-west, visibility 500m - 3km, precipitation: none, 8°C
11/03/2024	6	T8	14:35	16:02	8/8 Oktas cloud, Beaufort 2 north, visibility 500m - 3km, precipitation: none, 9°C
11/03/2024	6	T10	12:28	14:05	8/8 Oktas cloud, Beaufort 2 north, visibility 500m - 3km, precipitation: none, 9°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
12/03/2024	6	T1	09:58	11:23	8/8 cloud, Beaufort 2 south-east, visibility 500m - 3km, precipitation: rain showers, 7°C
12/03/2024	6	T2&3	11:54	14:12	8/8 cloud, Beaufort 2 south-east, visibility 500m - 3km, precipitation: rain showers, 7°C
13/03/2024	6	T4	12:23	14:09	8/8 cloud, Beaufort 2 south-east, visibility 500m - 3km, precipitation: rain showers, 7°C
13/03/2024	6	T5	11:02	12:19	8/8 Oktas cloud, Beaufort 3 south-east, visibility 500m - 3km, precipitation: none, 7°C
13/03/2024	6	T9	08:58	10:35	8/8 Oktas cloud, Beaufort 3 south-east, visibility 500m - 3km, precipitation: none, 7°C
14/03/2024	6	T7	07:56	09:34	8/8 Oktas cloud, Beaufort 1 south-east, visibility 500m - 3km, precipitation: none 10°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
14/03/2024	6	T6	09:58	11:23	8/8 Oktas cloud, Beaufort 1 south-east, visibility 500m - 3km, precipitation: none 10°C

Table C-4 Full survey details of nocturnal winter bird surveys 2024/25.

Date	Visit number	Transect number	Start time	End time	Weather conditions
24/09/2024	1	NT1, NT2 and NT3	19:35	22:55	0/8 Oktas cloud, Beaufort 1 west, visibility > 3km, precipitation: none, 7°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
27/09/2024	1	NT4, NT5 and NT6	19:17	23:20	7/8 Oktas cloud, Beaufort 2 northwest, visibility > 3km, precipitation: light, 11°C
30/09/2024	1	NT7 and NT8	19:00	21:40	8/8 Oktas cloud, Beaufort 3 north-northwest, visibility > 3km, precipitation: light rain, 10°C
17/10/2024	2	NT1, NT2 and NT3	19:05	22:15	1/8 Oktas cloud, Beaufort 1 southwest, visibility >3km, precipitation: none, 13°C
20/10/2024	2	NT4, NT5 and NT6	18:45	22:35	2/8 Oktas cloud, Beaufort 5 southwest, visibility >3km, precipitation: none, 11°C
20/10/2024	2	NT7 and NT8	18:40	21:50	2/8 Oktas cloud, Beaufort 5 southwest, visibility >3km, precipitation: none, 11°C
08/11/2024	3	NT4, NT5 and NT6	17:40	22:40	8/8 Oktas cloud, Beaufort 2 east, visibility >3km, precipitation: none, 8°C

Date	Visit number	Transect number	Start time	End time	Weather conditions
11/11/2024	3	NT7 and NT8	17:15	20:15	3/8 Oktas cloud, Beaufort 2 north-northwest, visibility >3km, precipitation: none, 12°C
20/11/2024	3	NT1, NT2 and NT3	17:50	20:45	1/8 Oktas cloud, Beaufort 2 west, visibility >3km, precipitation: none, 6°C
05/12/2024	4	NT1, NT2 and NT3	17:35	20:40	5/8 Oktas cloud, Beaufort 6 west, visibility >3km, precipitation: heavy showers, 10°C
09/12/2024	4	NT7 and NT8	17:30	20:35	8/8 Oktas cloud, Beaufort 4 northeast, visibility >3km, precipitation: none, 7°C
10/12/2024	4	NT4, NT5 and NT6	17:40	20:45	4/8 Oktas cloud, Beaufort 2 northeast, visibility >3km, precipitation: none, 4°C



one earth
solar farm