



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Environmental Statement

Volume 3

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This report conforms to the British Standard 42020:2013 Biodiversity - Code of practice for planning and development.

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GLOSSARY OF ACRONYMS

BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CBC	Common Bird Census
DCO	Development Consent Order
DEP	Dudgeon Offshore Wind Farm Extension Project
EcIA	Ecological Impact Assessment
ETG	Expert Topic Group
MAGIC	Multi-Agency Geographic Information for the Countryside
NBIS	Norfolk Biodiversity Information Service
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
RSPB	Royal Society for the Protection of Birds
SEP	Sheringham Offshore Wind Farm Extension Project
WFE	Wild Frontier Ecology Ltd.

GLOSSARY OF TERMS

Term	Definition
Order Limits	The area subject to the application for development consent, including all permanent and temporary works for SEP and DEP.
Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
DEP onshore site	The Dudgeon Offshore Wind Farm Extension onshore area consisting of the DEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive. This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the EIA and HRA for certain topics.
Expert Topic Group (ETG)	A forum for targeted engagement with regulators and interested stakeholders through the EPP.
Horizontal directional drilling (HDD) zones	The areas within the onshore cable route which would house HDD entry or exit points.
Jointing bays	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The point at the coastline at which the offshore export cables are brought onshore, connecting to the onshore cables at the transition joint bay above mean high water
Onshore cable corridor	The area between the landfall and the onshore substation sites, within which the onshore cable circuits will be installed along with other temporary works for construction.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 - 230kV.
Onshore Substation	Compound containing electrical equipment to enable connection to the National Grid.
PEIR boundary	The area subject to survey and preliminary impact assessment to inform the PEIR.
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
SEP onshore site	The Sheringham Shoal Wind Farm Extension onshore area consisting of the SEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
Study area	Area where potential impacts from the project could occur, as defined for each individual Environmental Impact Assessment (EIA) topic.
The Applicant	Equinor New Energy Limited

EXECUTIVE SUMMARY

Wild Frontier Ecology Ltd. was commissioned by Equinor New Energy Limited to undertake a suite of breeding bird surveys within the onshore grid connection cable corridor associated with the proposed onshore elements of the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP). The surveys were undertaken across two breeding seasons, specifically between April and July 2020, and between April and July 2021.

The 2020 survey effort was conducted mainly from roads and Public Rights of Way (PRoW) as landowner access was limited at the time of the survey effort. The 2020 surveys covered the Preliminary Environmental Information Report (PEIR) boundary, which comprised the onshore cable corridor at that time. At the time of the 2021 surveys, the ongoing site selection process had incorporated initial constraints identified by earlier surveys into the alignment of the onshore cable corridor, and had refined the PEIR boundary to slightly narrower corridor. The 2021 surveys therefore covered this narrower and more refined PEIR boundary. Additional landowner access was granted for the 2021 survey effort and therefore these surveys did not experience this same access constraint as the 2020 surveys had.

Breeding bird surveys were conducted within the areas of the PEIR boundary which were within 10 kilometres (km) of Special Protection Areas (SPA), namely North Norfolk Coast SPA and Broadland SPA. Breeding bird surveys were also undertaken in an area surrounding the River Wensum Special Area of Conservation (SAC) corridor where it intersects with the PEIR boundary near Attlebridge. An area surrounding the River Yare near Barford, an area of woodland near Ringland and in the vicinity of the onshore substation sites (which is also within 10km of Broadland SPA) were also included in the 2021 survey scope. Surveys also covered farmland habitat (which is the most common habitat within the PEIR boundary) to obtain a representative data set on breeding bird activity within this habitat; specifically, data from surveys of this habitat was used to estimate the total number of skylark territories within the entire PEIR boundary. Two surveys to record nightjars breeding in Weybourne Woods were also undertaken in summer 2021.

Data from the 2020 and 2021 surveys has been used to further inform the site selection process and refinement of the onshore cable corridor from the PEIR boundary to the narrower Development Consent Order (DCO) boundary. Only data of relevance to the DCO boundary is included within this report, as records of breeding bird territories which are well separated from this boundary are outside the anticipated impact zone of SEP and DEP.

The 2020 and 2021 breeding bird survey methodology followed an adaptation of the British Trust for Ornithology's (BTO) Common Bird Census. All birds seen and heard (from public access or areas where landowner access was permitted) within the survey area were recorded. Red and Amber listed Birds of Conservation Concern (BoCC) and Schedule 1 species, were mapped. The nightjar survey recorded all nightjar activity within the suitable habitat in parts of Weybourne Woods over two surveys, one at dusk and the other pre-dawn.

The surveys recorded nine Red list species, nine Amber list species and four Schedule 1 species breeding territories within the DCO boundary, as well as significant numbers of sand martins breeding in the cliffs at Weybourne and a colony at Mangreen Quarry. The four Schedule 1 species with breeding territories recorded within the DCO boundary were Cetti's warbler in Weybourne Hope reedbeds, crossbill and firecrest in Weybourne Wood, and little ringed plover at Mangreen Quarry. The majority of territories of Red

and Amber listed species recorded in the DCO boundary were of farmland breeding birds such as skylark, dunnock, linnets and yellowhammer. Small numbers of territories of a mix of woodland breeding Red and Amber listed bird species were also recorded. Very few wetland and riverine species were recorded in the survey area, with one grey wagtail territory recorded on the River Wensum during the surveys and mallard and mute swan recorded breeding at both Weybourne and at the River Wensum.

Mitigation will be required to ensure impacts to nesting birds are avoided and minimised. The key measure will be seasonal avoidance of habitat supporting nesting birds, but targeted avoidance of individual nests will also likely be necessary. Pre-construction bird surveys will also be completed and will further inform the mitigation approach.

1. BACKGROUND

Equinor New Energy Limited (hereafter Equinor) is proposing to extend the existing operational Sheringham Shoal Offshore Wind Farm and Dudgeon Offshore Wind Farm, named the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP). SEP and DEP will consist of a number of offshore and onshore elements including the offshore wind turbines, offshore export cables and offshore substation(s). The offshore export cables will connect to shore on the North Norfolk coast, with onshore infrastructure connecting the offshore wind farms to the National Grid, which will comprise underground cables from landfall to an onshore substation and National Grid connection at Norwich Main. A full description of SEP and DEP is provided within ES Chapter 4 Project Description (document reference 6.1.4).

In 2019, WFE was commissioned by Equinor to undertake surveys of breeding birds within accessible parts of the PEIR boundary to inform an ecological impact assessment of the proposed onshore grid connection for the SEP and DEP. The onshore components comprise a c.60km route with landfall location around Weybourne on the North Norfolk coast, with the onshore cable route then running southwards and eventually eastwards around the west and south sides of Norwich, where it is to connect with a proposed onshore electricity substation, feeding into the National Grid near Norwich Main Substation.

The surveys were initially based on the PEIR boundary, which was a relatively wide corridor with extensive scope for route refinement within its limits. The results of the ecological surveys completed from 2020 to early 2021 were then used to inform the site selection process. This process involved ongoing review of the results of the ecological surveys to ensure that habitats and features identified as being of relatively high ecological value were avoided where possible, or subject to reduced impacts (e.g. by minimising the construction footprint or nature of construction activities within certain areas). This process refined the onshore grid connection cable corridor from the relatively wide PEIR boundary to the narrower DCO boundary.

This report outlines the aims, methods and results of the surveys for breeding birds which were completed over two breeding seasons, specifically between April and July 2020, and between April and July 2021. The report provides information relevant to the DCO boundary only; data collected on sections of the PEIR boundary which are well outside the DCO boundary are not relevant as SEP and DEP would not impact these areas. However, some records of breeding bird territories just outside the DCO boundary are included if it is possible that the breeding territory could overlap with the DCO boundary.

2. RELEVANT LEGISLATION AND POLICY

2.1 Birds

All bird species are protected under the Wildlife and Countryside Act 1981 as amended. This prevents killing or injuring any bird or damaging or destroying nests and eggs. Certain species (including barn owl *Tyto alba*, Cetti's warbler *Cettia cetti*, firecrest *Regulus ignicapilla* and nightjar *Caprimulgus europaeus*) are also listed under Schedule 1 of the Wildlife and Countryside Act 1981, which prohibits intentionally or recklessly disturbing the species at, on or near an 'active' nest.

The British Trust for Ornithology (BTO) lists Birds of Conservation Concern (BoCC), which fall into three categories: Red-listed - species of high concern; Amber-listed - species of medium concern; and Green-listed - species of lower concern. Species are placed on these lists based, among other criteria, on the percentage decline of breeding or wintering populations in recent years. These lists do not indicate rarity for the species concerned, and many listed species are currently common and widespread.

2.2 International Site Designations

The European Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) as amended directs the designation of important wildlife sites through the European Community as a SAC and gives statutory protection to habitats and species listed in the Directive as being threatened or of community interest. Sites identified as candidate SAC (cSAC) are provided with the same level of protection as SAC.

Annex I of 92/43/EEC as amended lists habitat types which are regarded as being of international/European importance. Included within these are a number of 'priority habitat types' which are habitats regarded as being in danger of disappearance and whose natural range falls broadly within the European Union. This European law has been transposed into UK legislation by The Conservation (Natural Habitats) & Regulations 1994, now replaced by the Conservation of Habitats and Species Regulations 2017.

Habitats of European-wide importance for birds are listed under the EC Wild Birds Directive (79/409/EEC) as amended. Habitats designated under this Directive are notified as SPAs and are identified for holding populations > 1% of the reference population as defined in Appendix 4 of the SPA review of bird species listed in Annex 1 of the same Council Directive. Sites identified as potential SPA (pSPA) are provided with the same level of protection as SPA. This has also been transposed into UK legislation by the Conservation of Habitats and Species Regulations 2017.

Wetlands of International Importance are designated under the Ramsar Convention. These areas are extended the same protection at a policy level as SACs and SPAs.

3. SURVEY METHODS

3.1 Desk Study

The breeding birds survey areas were selected and agreed during an Expert Topic Group (ETG) meeting in which stakeholders (WFE, Royal HaskoningDHV, Equinor, Natural England, Environment Agency, South Norfolk District Council, Broadland District Council, North Norfolk District Council and Norfolk County Council) advised that areas of the PEIR boundary within 10km of SPAs should be the focus of the breeding bird survey effort. In addition, further survey areas of likely sensitivity for breeding birds were identified from a desk-based review of Ordnance Survey (OS) maps and other freely available mapping software such as Google Earth and Multi-Agency Geographic Information for the Countryside (MAGIC) online maps. The local knowledge of WFE's team of ornithologists was also factored into the decision as to which areas warranted surveys. Another consideration was the availability of Public Rights of Way (PRoW) such as footpaths and roads in areas which could otherwise not be surveyed due to landowner access not being available (mainly at the time of the 2020 surveys).

The study area included those areas within 10km of international designated sites, namely the North Norfolk Coast and Broadland SPAs. The northernmost survey section of the PEIR boundary, from Weybourne to Plumstead (within 10km of the North Norfolk Coast SPA), comprises the most varied habitats within the PEIR boundary, ranging from coastal cliffs and grassland, extensive areas of mixed woodland/plantation and an arable landscape with small plantations and hedgerows.

The section adjacent to the River Wensum SAC, an area surrounding the River Yare and the southern section of the PEIR boundary to the proposed onshore substation sites (which is also within 10km of the Broadland SPA), were also identified as having the potential to support populations of important breeding bird species. Furthermore, these areas provided a range of habitats to give an overall view of farmland and woodland species in the survey area.

In 2021, in addition to the above areas, an area where the PEIR boundary intersected woodland habitat near Ringland was included in the survey scope. This was based on the data search revealing a record of goshawk *Accipiter gentilis* (a Schedule 1 bird species) in woodland close to the PEIR boundary here.

Suitable habitat for nightjar within the PEIR boundary was noted from aerial images of Weybourne Heath within Weybourne Wood, and surveys were undertaken targeting this species in 2021 (see **Section 3.2.3** below).

Following the addition of additional areas in the 2021 survey season, the survey area covering the PEIR boundary was divided into a north and south section for 2021 (see **Table 1**) to cover the route over two surveys.

The current alignment of the DCO boundary was not available at the time of the surveys, so the surveys covered the PEIR boundary as it was aligned at the time; the data from these surveys was subsequently refined according to the alignment of the finalised DCO boundary. Therefore, the survey area was defined as the PEIR boundary and surrounding 100m buffer (where impacts to birds were considered possible from the proposed works), but the study area of relevance to this report covers the DCO boundary and the surrounding 100m buffer. Any species breeding over 100m from the DCO boundary are considered unlikely to be impacted by the works.

Additional information on birds at Weybourne Camp (the landfall location) has also

been provided by a local expert ornithologist.

3.2 Field Survey

3.2.1 Breeding Bird Survey

The breeding bird surveys employed an adaptation of the methodology detailed by the BTO in their Common Bird Census (CBC)¹, and concentrated on recording and mapping BoCC² Red and Amber listed species breeding in the survey area. BoCC Green listed species were recorded and numbers of pairs estimated, but territories were not mapped unless they were also Schedule 1 species³. A green listed species exempt from this was greenfinch *Chloris chloris* as the British breeding sub-species *C. chloris harrisoni* is Red-listed; therefore this species was also mapped.

‘Birds of Conservation Concern 5⁴’ has subsequently been published (December 2021) but all surveys were completed using the BoCC 4 classifications which were relevant at the time. It is not possible to retrospectively adjust the survey results to account for the new Red and Amber classifications, although notes are added to the relevant results, below, where a species’ BoCC listing has subsequently changed.

All surveys were undertaken by Graham Riley BSc ACIEEM and Ptolemy McKinnon BSc MSc working in a pair. Surveys were undertaken between April and July 2020, and between April and June 2021. The survey area from 2021 Breeding Bird Surveys is shown in **Figure 1** to **Figure 15** and 2020 Breeding Bird Surveys area is shown in **Figure 16** to **Figure 28**. Selected, accessible land within the survey area was accessed and surveyed on foot. In 2020, the vast majority of surveys were undertaken from PRowWs, with the exception of Weybourne Woods where landowner access had been granted. More access was granted by landowners for surveys in 2021, where larger areas could be directly accessed without being limited to PRowWs.

Nesting and territorial behaviour (singing, nest building, carrying food, fighting, copulation, nest locations, alarm calling, carrying faecal sacs) were noted by standard codes, as were the age and sex of the birds concerned, where observed. Non-nesting behaviour such as over-flying the survey area was also noted, together with the direction of movement. Birds not considered likely to be nesting were still noted where observed. **Table 1** below shows the dates and times during which breeding bird surveys were conducted.

When compiled after all survey visits during a single breeding season, the CBC data concerning BoCC Red and Amber list and Schedule 1 species was analysed using standard methodology to provide an estimate of bird breeding territory distribution and

¹ Gilbert, G., Gibbons, D.W. & Evans, J. (1998). *Bird Monitoring Methods*. RSPB, Sandy.

² Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* **108**, pp. 708–746.

³ <https://www.legislation.gov.uk/ukpga/1981/69/schedule/1>

⁴ Stanbury, A. Eaton, M.A., Aebischer, N.J., Brown, Balmer, D., R.D., Lock, L., Musgrove, A.J., Noble, D.G., Linley, P. & Win, I. (2021). Birds of Conservation Concern 5: 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, available online at



quantity^{5,6}. This was achieved by isolating the registrations recorded for a single, selected species in each survey visit, and then plotting all of those registrations together on a single map. The resulting cluster of registrations is then interpreted by an experienced ornithologist to define distinct breeding territories. The same method is repeated for each species recorded exhibiting nesting and/or territorial behaviour in any or all of the survey visits.

For species which were more difficult to determine territory locations from CBC methodology, such as crossbill *Loxia curvirostra* (which is a very mobile species with birds breeding on the continent arriving in this country in the summer⁷), the location where they were recorded was mapped.

3.2.2 Farmland Site Surveys and Skylark Extrapolation

The farmland site surveys employed a very similar method to the above breeding bird survey methodology, but targeted recording and mapping territories of skylark *Alauda arvensis*. The survey was undertaken alongside the breeding bird surveys on arable and grassland areas shown in **Figure 29** to **Figure 44**. Landowner access was arranged for these surveys, with a transect walked along field margins by the surveyor to record skylarks. Nesting and territorial behaviour (singing e.g. skylark song flight, nest building, carrying food, fighting, copulation, nest locations, alarm calling, carrying faecal sacs) were noted by the standard code where observed.

The data concerning skylarks was analysed using standard methodology as noted above in **Section 3.2.1** to provide an estimate of skylark breeding territory distribution and quantity. The territory data from the study area (all skylark records being within farmland habitat) were extrapolated to calculate an estimate of skylark territories across arable and grassland habitat throughout the study area. Given the abundance of farmland habitat, coupled with the uncertainty over the precise alignment of the PEIR/DCO boundary at the time of the breeding bird surveys, this approach of using extrapolated data based on selected sample sites was decided upon and agreed with key stakeholders, rather than attempting to survey all arable sites throughout the entire, evolving PEIR boundary.

3.2.3 Nightjar Surveys

Nightjar surveys were undertaken in June and July 2021, within the nightjar survey area shown in **Figure 3**. A dusk survey was undertaken on 15th June 2021 and a pre-dawn survey undertaken on 9th July 2021. Both surveys were undertaken by G. Riley and P. McKinnon working in a pair. Public footpaths were walked along to determine whether the species was present and record numbers of the species and all activity within the survey area. Surveyors listened for the distinctive ‘churring’ call of males and noted any other display behaviour such as wing-clapping and contact calls. The surveys were completed at the peak of the species’ breeding season when display behaviour is more easily noted, as advised by the survey guidance⁸. Each survey lasted approximately two hours, the dusk survey starting approximately fifteen minutes before sunset and the

⁵ Marchant, J.H. (1983). *BTO Common Bird Census Instructions*. BTO, Tring.

⁶ Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000). *Bird Census Techniques* (2nd Edition). Academic Press, London.

⁷ [REDACTED]

⁸ Gilbert, G., Gibbons, D. W., & Evans, J. (1998). *Bird Monitoring Methods*. RSPB, Sandy.

pre-dawn survey ending approximately fifteen minutes after sunrise.

Table 2 below shows the dates and times during which nightjar surveys were conducted.

Table 1: 2020 and 2021 Breeding Birds Survey Timings and Weather Conditions

Date	Survey Route	Surveyors		Start Time	End Time	Precipitation	Wind (Direction & Beaufort Scale)	Air Temp. (°Celsius) (min & max)		Cloud cover (%)
		GR	PM							
23/04/2020	Weybourne to Plumstead	GR	PM	06:30	10:00	None	E2	9	15	0
05/05/2020	Weybourne to Plumstead	GR	PM	06:30	10:00	None	E3	6	10	50
12/05/2020	Weybourne to Plumstead	GR	PM	06:40	10:00	None	W3	5	11	40
19/05/2020	Weybourne to Plumstead	GR	PM	06:30	10:00	Light rain 06:45-07:20	W3	13	17	60
11/06/2020	Weybourne to Plumstead	GR	PM	06:30	10:30	Showers throughout	NE5	12	15	100
26/06/2020	Weybourne to Plumstead	GR	PM	06:30	10:15	Short shower 09:45-09:55	SE3	20	24	4
01/05/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:30	09:45	None	WSW	8	12	30-80
06/05/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:35	09:30	None	E2	6	12	20
14/05/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:40	09:30	None	NE3	6	9	60
01/06/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:40	10:15	Light rain 06:45-07:20	W3	13	20	60
19/06/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:30	10:00	Light rain from 09:30	S2	14	18	100
03/07/2020	Wensum, Yare and Substation Zone Buffers	GR	PM	06:30	10:00	None	SW3	14	18	4
08/04/2021	North Section	GR	PM	06:30	12:15	None	SW4-5	2	8	20-80
22/04/2021	North Section	GR	PM	06:30	12:45	None	NE 1-2	4	9	1-10
06/05/2021	North Section	GR	PM	06:30	12:45	None	SW2-3	3	10	80-100
20/05/2021	North Section	GR	PM	06:30	12:00	None	S2-4	7	14	70-100
03/06/2021	North Section	GR	PM	06:35	11:35	None	ENE1-2	15	20	10-40

Date	Survey Route	Surveyors		Start Time	End Time	Precipitation	Wind (Direction & Beaufort Scale)	Air Temp. (°Celsius) (min & max)		Cloud cover (%)
17/06/2021	North Section	GR	PM	06:30	11:30	Mist at start of survey. Light shower 09:30-10:10	E1 then W2-3	17	18	50-100
15/04/2021	South Section	GR	PM	06:30	12:35	Light showers	NE3-4	2	7	80-100
29/04/2021	South Section	GR	PM	06:30	12:10	None	N4	4	9	5-40
13/05/2021	South Section	GR	PM	06:30	12:15	None	E2-3	9	14	40-70
27/05/2021	South Section	GR	PM	06:30	11:45	None	NW3-4	8	13	100
10/06/2021	South Section	GR	PM	06:30	12:15	None	WSW1-2	15	23	20-100
21/06/2021	South Section	GR	PM	06:30	12:30	None	NE3-4	12	15	50-100

Table 2: Nightjar Survey Timings and Weather Conditions

Date	Surveyors		Start Time	End Time	Precipitation	Wind (Direction & Beaufort Scale)	Air Temperature (°Celsius) (min & max)		Cloud cover (%)
15/06/2021	GR	PM	21:23	22:53	None	SE3	14	15	10-20
09/07/2020	GR	PM	03:11	04:21	Slight mist early on	E3	13	13	<5

3.3 Mapping

Territories of Red, Amber and Schedule 1 species were mapped on the Quantum Geographic Information System (QGIS). All territories within a 100m buffer of the DCO boundary were mapped. The following species have been mapped outside of this buffer for the following reasons:

- Nightjar - a small proportion of the nightjar survey area and 100m buffer are within the study area
- Tawny owl *Strix aluco* - only recorded on nocturnal surveys prioritising suitable habitat for nightjar. This is outside of the study area, but it is likely breeding within 100m of the DCO boundary given the presence of three territories near Weybourne Heath, a small area of Weybourne Woods, and suitable breeding habitat is available closer to the DCO boundary
- Lesser redpoll *Acanthis cabaret* - territory location difficult to determine due to the high mobility of this species, but recorded close to study area so likely breeding within given suitable breeding habitat

3.4 Data Search

A data search for biological records was completed with the Norfolk Biodiversity Information Service (NBIS) in January 2021. This requested and obtained records of all birds within the PEIR boundary (which comprised the extents of the onshore grid connection cable corridor at that time) and the surrounding 2km buffer. The data was subsequently reviewed for records of relevance to the DCO boundary and surrounding 50m buffer only. Records of birds recorded outside this area were not considered relevant to the impact assessment of SEP and DEP (with a few exceptions as noted in **Table 14**, below)

4. SURVEY RESULTS

Nine Red listed, nine Amber listed species, and four Schedule 1 species were recorded within the study area during the breeding bird surveys.

Table 3 provides the Red list criteria for BoCC4 and

Table 4, the Amber list criteria for BoCC 4 which was the relevant conservation criteria classification at the time of the surveys. The following symbols indicate other information: † = UK BAP species; *=BoCC upgraded from Amber to Red in subsequent reviews of BoCC listings.

Table 3: UK BoCC Red List criteria

Code	Issue
IUCN	Global Conservation Status. Species listed by Birdlife International as being Globally Threatened using IUCN criteria.
HD	Historical Decline: A severe decline in the UK population between 1800 and 1995 without substantial recent recovery.
BDp	Breeding Population Decline: Severe decline in the UK breeding population size of more than 50%, over 25 years (BDp1), or since 1969 (BDp2).
WDp	Non-breeding Population Decline: Severe decline in the UK non-breeding population size, of more than 50%, over 25 years (Wdp1) of since 1969 (WDp2).
BDr	Breeding Range Decline: Severe decline in the UK range, of more than 50%, over 25 years (BDr1) or since 1969 (BDr2).

Table 4: UK BoCC Amber List criteria

Code	Issue
ERLOB	Threatened in Europe.
HDrec	Historical Decline – Recovery: previously red listed for Historical Decline, but now with substantial recent recovery (population size has more than doubled in the last 25 years).
BDMp	Breeding Population Decline: As for red list criteria BDp1 and BDp2, but with moderate (≥ 25 - $\leq 50\%$) decline.
WDMp	Non-breeding Population Decline: As for red list criteria WDp1 and WDp2, but with moderate (≥ 25 - $\leq 50\%$) decline.
BDMr	Breeding Range Decline: As for red list criteria BDr1 and BDr2, but with moderate (≥ 25 - $\leq 50\%$) decline.
BR and WR	Rarity: UK breeding population of less than 300 pairs (BR), or non-breeding population of less than 900 individuals (WR).
BL and WL	Localisation: At least 50% of the UK breeding (BL) or non-breeding (WL) population found in 10 or fewer sites.

BI and WI	International Importance: At least 20% of the European breeding (BI) or non-breeding (WI) population found in the UK.

The breeding bird survey results are presented in **Table 5** to

Table 12 below. Maps showing the locations of Red, Amber and Schedule 1 listed breeding bird territories in 2021 are provided in **Figure 1** to **Figure 15**, and for 2020 in **Figure 16** to **Figure 28**, below. These tables and figures include relevant species which were considered likely to be breeding within the study area based on recordings of a species nearby to the study area and the presence of suitable habitat for that species within the study area. For example, tawny owl and lesser redpoll were recorded breeding in Weybourne Woods but not within the particular part of the woodland which overlaps with the DCO boundary and its surrounding 100m buffer. However, given the continuity of suitable woodland breeding habitat between the record location and the study area, it is reasonable to conclude that these species' breeding territories may overlap with the DCO boundary and/or its surrounding 100m buffer.

As the PEIR boundary and DCO boundary differ, numbers of territories do vary from the breeding birds report produced in 2020.

4.1 Weybourne to Plumstead Section

Fifty-one breeding bird species were recorded from the Weybourne to Plumstead section of the study area, including nine Red listed, eleven Amber listed and three Schedule 1 species, as summarised in **Table 5** and **Table 6**, below. Two species shown in **Table 5** were recorded outside of the study area but have been included due to relevance which is noted below.

Table 5: Breeding Birds Recorded in 2021 from the Weybourne to Plumstead Section (10km buffer from North Norfolk Coast SPA) (Figure 1 to Figure 8)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Grey partridge <i>Perdix perdix</i>	Red Listed (BDp ¹ , BDp ² , BDMr ²)	1	n/a
House sparrow <i>Passer domesticus</i>	Red listed (BD _p ¹ , BD _p ²)	2	Recorded at two locations in Bodham marked by a single territory for each location as shown in Figure 4 . These will be using surrounding buildings to nest

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Lesser redpoll <i>Carduelis cabaret</i>	Red listed (BDp ¹ , BDp ² , BI)	1	Recorded in Weybourne Woods in location outside of the study area. Record shown in Figure 3 does not give exact territory location given difficulty in determining location of territory. As there is suitable breeding habitat for this species within the study area, the possibility of it breeding within study area cannot be ruled out
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	17	n/a
Mistle thrush <i>Turdus viscivorus</i>	Red listed (BDM _p ¹ , BDp ²)	4	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	87	Distributed evenly in arable land throughout this section
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	2	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BDp ² , ERLOB) †	20	n/a
BoCC Amber Listed Species			
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed (BDM _p ¹ , BDM _p ²)	6	n/a
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	28	n/a
Mallard <i>Anas platyrhynchos</i>	Amber listed (WDM _p ¹)	1	n/a
Meadow pipit <i>Anthus pratensis</i>	Amber listed (BDM _p ²)	2	n/a
Mute swan <i>Cygnus olor</i>	Amber listed (WI)	1	n/a
Nightjar <i>Caprimulgus europaeus</i>	Schedule 1 & Amber listed (BDM _r ²)	1	
Oystercatcher <i>Haematopus ostralegus</i>	Amber listed (WL, BI, WI)	2	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Reed bunting <i>Emberiza schoeniclus</i>	Amber listed (BDM _p ²)	2	n/a
Stock dove <i>Columba oenas</i>	Amber listed (BI)	4	n/a
Tawny owl <i>Strix aluco</i>	Amber listed	3	Records outside study area, but likely breeding closer to DCO boundary in Weybourne Woods given suitable habitat throughout this area
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	10-20	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	20-30	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	10-20	n/a
Buzzard <i>Buteo buteo</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Cetti's warbler <i>Cettia cetti</i>	Schedule 1 & Green Listed	3	Recorded in Weybourne Hope reedbeds
Chaffinch <i>Fringilla coelebs</i>	Green Listed	10-20	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	10-20	n/a
Coal tit <i>Parus ater</i>	Green listed	20-30	n/a
Crossbill <i>Loxia curvirostra</i>	Schedule 1 & Green listed	3	Recorded in Weybourne Wood
Firecrest <i>Regulus ignicapilla</i>	Schedule 1 & Green listed	10	Recorded in Weybourne Wood
Goldcrest <i>Regulus regulus</i>	Green listed	20-30	n/a
Goldfinch <i>Carduelis carduelis</i>	Green listed	1-10	n/a
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	10-20	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Greenfinch <i>Chloris chloris</i>	Green listed (Red-listed British race: IUCN, ERLOB, BI)	1	n/a
Green woodpecker <i>Picus viridis</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Jay <i>Garrulus glandarius</i>	Green listed	1-10	n/a
Lesser whitethroat <i>Sylvia curruca</i>	Green listed	1-10	n/a
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10	n/a
Magpie <i>Pica pica</i>	Green listed	1-10	n/a
Nuthatch <i>Sitta europaea</i>	Green listed	1-10	n/a
Reed warbler <i>Acrocephalus scirpaceus</i>	Green listed	4	Breeding in Weybourne Hope reedbeds
Robin <i>Erithacus rubecula</i>	Green listed	20-30	n/a
Sand martin <i>Riparia riparia</i>	Green listed	Four locations. Apparently occupied burrows at locations from west to east: 5, 3, 12 & 10	Breeding in cliffs at Weybourne. Number of apparently occupied burrows estimated from number of birds present in active colonies and number of burrows present in cliffs. Active colony locations are depicted as single sand martin territories in Figure 1
Sedge warbler <i>Acrocephalus schoenobaenus</i>	Green listed	5-10	Breeding in Weybourne Hope reedbeds
Siskin <i>Spinus spinus</i>	Green listed	1-2	Recorded in Weybourne Wood
Stonechat <i>Saxicola rubicola</i>	Green listed	2	n/a
Treecreeper <i>Certhia familiaris</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	20-30	n/a
Wood pigeon <i>Columba palumbus</i>	Green listed	50-100	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Wren <i>Troglodytes troglodytes</i>	Green listed	1-10	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

The nightjar surveys completed within the Weybourne to Plumstead section in 2021 confirmed the presence of a single nightjar territory. However, this record is not included in **Table 5**, above, because it is now outside the study area due to changes to the DCO boundary since the surveys were completed.

Table 6: Breeding Birds Recorded in 2020 from the Weybourne to Plumstead Section (10km buffer from North Norfolk Coast SPA) (Figure 16 to Figure 23)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
House sparrow <i>Passer domesticus</i>	Red listed (BD _p ¹ , BD _p ²)	1	1 pair recorded in Bodham marked by a single territory as shown in Figure 19 . These will be using surrounding buildings to nest
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	4	n/a
Marsh tit <i>Poecile palustris</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB)	1	Recorded in Weybourne Wood
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	42	Distributed evenly in arable land throughout this section
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	2	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	16	n/a
BoCC Amber Listed Species			
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	20	n/a
Kestrel <i>Falco tinnunculus</i>	Amber listed (BDM _p ¹ , BDM _p ²)	2	n/a
Reed bunting <i>Emberiza schoeniclus</i>	Amber listed (BDM _p ²)	3	n/a
Stock dove <i>Columba oenas</i>	Amber listed (BI)	2	n/a
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	10-20	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	20-30	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	10-20	n/a
Buzzard <i>Buteo buteo</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Cetti's warbler <i>Cettia cetti</i>	Schedule 1 & Green Listed	1	Recorded in Weybourne Hope reedbeds
Chaffinch <i>Fringilla coelebs</i>	Green Listed	10-20	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	10-20	n/a
Coal tit <i>Periparus ater</i>	Green listed	20-30	n/a
Firecrest <i>Regulus ignicapilla</i>	Schedule 1 & Green listed	4	Recorded in Weybourne Wood
Goldcrest <i>Regulus regulus</i>	Green listed	20-30	n/a
Goldfinch <i>Carduelis carduelis</i>	Green listed	1-10	n/a
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	10-20	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Greenfinch <i>Chloris chloris</i>	Green listed (Red-listed British race: IUCN, ERLOB, BI)	1	n/a
Green woodpecker <i>Picus viridis</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Jay <i>Garrulus glandarius</i>	Green listed	1-10	n/a
Lesser whitethroat <i>Sylvia curruca</i>	Green listed	1-10	n/a
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10	n/a
Magpie <i>Pica pica</i>	Green listed	1-10	n/a
Nuthatch <i>Sitta europaea</i>	Green listed	1-10	n/a
Reed warbler <i>Acrocephalus scirpaceus</i>	Green listed	4	Breeding in Weybourne Hope reedbeds
Robin <i>Erithacus rubecula</i>	Green listed	20-30	n/a
Sand martin <i>Riparia riparia</i>	Green listed	38 apparently occupied burrows	Breeding in cliffs at Weybourne. Number of apparently occupied burrows estimated from number of birds present in active colonies and number of burrows present in cliffs. Active colony location is depicted as a single sand martin territory in Figure 16
Sedge warbler <i>Acrocephalus schoenobaenus</i>	Green listed	5-10	Breeding in Weybourne Hope reedbeds
Siskin <i>Spinus spinus</i>	Green listed	1-2	Recorded in Weybourne Wood
Stonechat <i>Saxicola rubicola</i>	Green listed	2	n/a
Treecreeper <i>Certhia familiaris</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	20-30	n/a
Wood pigeon <i>Columba palumbus</i>	Green listed	50-100	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Wren <i>Troglodytes troglodytes</i>	Green listed	1-10	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

Sand martins *Riparia riparia* were recorded breeding in the cliffs at Weybourne. Thirty apparently occupied burrows were estimated from the number of birds recorded along the cliffs and the total number of burrows observed. These were located across four separate colonies, two colonies along cliffs at Weybourne Camp and two further east in the cliffs which lie outside of the landfall area but within the study area. Each colony location is marked as a single sand martin territory in **Figure 1**.

In the grassland and fields at Weybourne Camp, species such as skylarks (25-35 territories), linnet *Linaria cannabina* (ten territories) and meadow pipits *Anthus pratensis* (two territories) were recorded breeding. Eighty-seven skylark territories were recorded in the whole section between Weybourne and Plumstead, evenly distributed in arable fields within this section of the study area. Three territories of the Schedule 1 species Cetti's warbler were recorded in the Weybourne Hope reedbeds. Two reed bunting *Emberiza schoeniclus* territories were also recorded in the reedbeds here. Dunnock *Prunella modularis* (one territory), linnet (one territory), skylarks (11 territories) and yellowhammer *Emberiza citrinella* (five territories) were recorded in arable land to the south of Weybourne.

Within Weybourne Wood, one territory of Red listed marsh tit *Poecile palustris* and two song thrush *Turdus philomelos* territories were recorded within the study area. Ten firecrest (which is also a Schedule 1 species) territories were also recorded here. Other common woodland species were recorded in the woodland with one territory of stock dove *Columba oenas* and four dunnock territories. Crossbills and lesser redpolls were recorded within the woodland. Precise numbers and locations of crossbill breeding territories were difficult to determine because the species is very mobile and because its breeding season overlaps with late winter when wintering (non-breeding) birds from Scandinavia and the continent are present alongside breeding birds. The lesser redpoll breeding record was outside of the study area, but given the close proximity to the study area (approximately 20m) and the difficulty in determining the precise territory extent, this species cannot be ruled out from breeding in the study area.

The nightjar surveys undertaken at Weybourne Heath found a single displaying male nightjar on both surveys; the location of a churring male is shown in **Figure 3**, below. No other nightjars were recorded. The single male nightjar territory was recorded over 100 metres from the DCO boundary. Amber listed tawny owl was recorded on the nightjar surveys outside of the study area, but given the suitable habitat within the study area, this species will likely be breeding closer to the DCO boundary.

Further inland (between Weybourne Wood and Plumstead), records consisted mainly of small numbers of Red and Amber listed farmland birds such as skylark (40-50

territories), yellowhammer (14 territories) and linnet (four territories). Dunnock (16 territories) and bullfinch *Pyrrhula pyrrhula* (one territory) were recorded in scrubby vegetation and hedgerows.

House sparrows *Passer domesticus* were recorded in areas of human settlements (hamlets, villages and towns) and will be breeding in surrounding buildings, mainly farm buildings. Numbers of territories were difficult to determine during these surveys due to access restrictions to areas where they are nesting (e.g. buildings), so general locations recorded are given for this species. One house sparrow pair was recorded in Bodham. Two kestrel *Falco tinnunculus* territories were also recorded in this section of the survey area, with birds being recorded hunting here more than once taken as confirmation of a breeding territory nearby.

4.2 River Wensum Section and Woodland at Ringland

Surveys in the Wensum area and Woodland at Ringland recorded a total of 34 breeding species, summarised in Table 7 and Table 8, below.

Table 7: Breeding Birds Recorded in 2021 from the River Wensum Section and Woodland at Ringland (Figure 9 and Figure 10)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Grey wagtail <i>Motacilla cinerea</i>	Red listed (BDM _p ¹ , BD _p ²)	1	Recorded by A1067 bridge over River Wensum. Shown in Figure 9
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	4	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	13	n/a
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	1	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	3	n/a
BoCC Amber Listed Species			
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	5	n/a
Kestrel <i>Falco tinnunculus</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a
Mallard <i>Anas platyrhynchos</i>	Amber listed (WDM _p ¹)	1	n/a
Mute swan <i>Cygnus olor</i>	Amber listed (WI)	1	n/a
Stock dove <i>Columba oenas</i>	Amber listed (BI)	1	n/a
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	1-10	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	1-10	n/a
Blue tit <i>Cyanistes</i>	Green listed	1-10	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
<i>caeruleus</i>			
Buzzard <i>Buteo buteo</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Chaffinch <i>Fringilla coelebs</i>	Green listed	10-20	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	1-10	n/a
Coal tit <i>Parus ater</i>	Green listed	1-10	n/a
Collared dove <i>Streptopelia decaocto</i>	Green listed	1-10	n/a
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	1-10	n/a
Green woodpecker <i>Picus viridis</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Jay <i>Garrulus glandarius</i>	Green listed	1-10	n/a
Lesser whitethroat <i>Sylvia curruca</i>	Green listed	1-10	n/a
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10	n/a
Magpie <i>Pica pica</i>	Green listed	1-10	n/a
Robin <i>Erithacus rubecula</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	1-10	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Wood pigeon <i>Columba palumbus</i>	Green listed	20-50	n/a
Wren <i>Troglodytes troglodytes</i>	Green listed	10-20	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

Table 8: Breeding Birds Recorded in 2020 from the River Wensum Section (Figure 24)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Grey wagtail <i>Motacilla cinerea</i>	Red listed (BDM _p ¹ , BD _p ²)	1	Recorded by A1067 bridge over River Wensum
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	3	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	9	n/a
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	2	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	2	n/a
BoCC Amber Listed Species			
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	9	n/a
Stock dove <i>Columba oenas</i>	Amber listed (BI)	1	n/a
BoCC Green Listed Species			

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Blackbird <i>Turdus merula</i>	Green listed	1-10	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	1-10	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	1-10	n/a
Buzzard <i>Buteo buteo</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Chaffinch <i>Fringilla coelebs</i>	Green listed	10-20	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	1-10	n/a
Coal tit <i>Periparus ater</i>	Green listed	1-10	n/a
Collared dove <i>Streptopelia decaocto</i>	Green listed	1-10	n/a
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	1-10	n/a
Greenfinch <i>Chloris chloris</i>	Green listed (Red-listed British race: IUCN, ERLOB, BI)	1	n/a
Green woodpecker <i>Picus viridis</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Jay <i>Garrulus glandarius</i>	Green listed	1-10	n/a
Lesser whitethroat <i>Sylvia curruca</i>	Green listed	1-10	n/a
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10	n/a
Magpie	Green listed	1-10	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
<i>Pica pica</i>			
Robin <i>Erithacus rubecula</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	1-10	n/a
Wood pigeon <i>Columba palumbus</i>	Green listed	20-50	n/a
Wren <i>Troglodytes troglodytes</i>	Green listed	10-20	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged Partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

The surveys recorded high numbers of dunnocks (nine territories in 2020) in this area. Thirteen skylark territories were recorded within this section of the study area with other farmland species such as linnet (four territories) and yellowhammer (three territories) recorded here.

Grey wagtail was recorded at Attlebridge with a territory on the River Wensum. Mallard (one territory) was also recorded on the banks of the River Wensum.

The other red and amber listed species recorded were a mix of small numbers of wetland and woodland birds such as mute swan (one territory) and song thrush (two territories).

The area within close proximity (approx. 10m) to the proposed Attlebridge compound included territories of skylark (three), yellowhammer (one) and dunnock (one).

The woodland at Ringland included single territories of dunnock, mistle thrush *Turdus viscivorus*, song thrush and stock dove.

4.3 River Yare Section

Twenty-nine species were recorded in the River Yare section of the study area. Eight Red listed and five Amber listed species were recorded in this study area, as summarised in Table 9 and Table 10, below.

Table 9: Breeding Birds Recorded in 2021 from the River Yare Section (Figure 11 to Figure 13)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Grey partridge <i>Perdix perdix</i>	Red Listed (BDp ¹ , BDp ² , BDMr ²)	1	n/a
House sparrow <i>Passer domesticus</i>	Red listed (BD _p ¹ , BD _p ²)	1	Single record near Barford marked by a single territory as shown in Figure 12 . These will be using surrounding buildings to nest
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	12	n/a
Marsh tit <i>Poecile palustris</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB)	1	n/a
Mistle thrush <i>Turdus viscivorus</i>	Red listed (BDM _p ¹ , BDp ²)	1	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	22	n/a
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	3	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	6	n/a
BoCC Amber Listed Species			
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	18	n/a
Kestrel <i>Falco tinnunculus</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a
Reed bunting <i>Emberiza schoeniclus</i>	Amber listed (BDM _p ²)	1	n/a
Stock dove	Amber listed	3	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
<i>Columba oenas</i>	(B1)		
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	1-10	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	1-10	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	1-10	n/a
Carrion Crow <i>Corvus corone</i>	Green listed	1-10	n/a
Chaffinch <i>Fringilla coelebs</i>	Green listed	1-10	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Robin <i>Erithacus rubecula</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	1-10	n/a
Wood pigeon <i>Columba palumbus</i>	Green listed	1-10	n/a
Wren <i>Troglodytes troglodytes</i>	Green listed	1-10	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

Table 10: Breeding Birds Recorded in 2020 from the River Yare Section (Figure 25 to Figure 27)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	1	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	7	n/a
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	1	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	1	n/a
BoCC Amber Listed Species			
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	2	n/a
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	1-10	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	1-10	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Chaffinch <i>Fringilla coelebs</i>	Green listed	1-10	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	1-10	n/a
Greenfinch <i>Chloris chloris</i>	Green listed (Red-listed British race: IUCN, ERLOB, BI)	1	n/a
Jackdaw	Green listed	1-10	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
<i>Corvus monedula</i>			
Robin <i>Erithacus rubecula</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	1-10	n/a
Wood pigeon <i>Columba palumbus</i>	Green listed	1-10	n/a
Wren <i>Troglodytes troglodytes</i>	Green listed	1-10	n/a
BoCC Unlisted Species			
Egyptian goose <i>Alopechan aegyptius</i>	Not listed	1	n/a
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

As with the previous sections, the species with the largest number of territories recorded was skylark with 22 territories. Other species recorded were farmland and woodland birds such as dunnock (18 territories), linnet (12 territories), song thrush (three territories) and yellowhammer (six territories).

4.4 Onshore Substation Sites Section

Similar to the above sections, most observations around the onshore substation sites comprised low numbers of Red and Amber listed farmland and woodland species. Three Red listed and five Amber listed species were recorded here (22 species recorded in total), as summarised in **Table 11** and **Table 12**, below. Little ringed plover *Charadrius dubius*, a Schedule 1 species, was also recorded within 100m of the DCO boundary.

Table 11: Breeding Birds Recorded in 2021 from the Onshore Substation Sites Section (Figure 14 and Figure 15)

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
BoCC Red Listed Species			
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	8	n/a
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	26	n/a
Song thrush <i>Turdus philomelos</i>	Red listed (BD _p ²) †	3	n/a
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	6	n/a
BoCC Amber Listed Species			
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1	n/a
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	12	n/a
Oystercatcher <i>Haematopus ostralegus</i>	Amber listed (WL, BI, WI)	2	n/a
Stock dove <i>Columba oenas</i>	Amber listed (BI)	2	n/a
BoCC Green Listed Species			
Blackbird <i>Turdus merula</i>	Green listed	10-20	n/a
Blackcap <i>Sylvia atricapilla</i>	Green listed	20-30	n/a
Blue tit <i>Cyanistes caeruleus</i>	Green listed	10-20	n/a
Buzzard <i>Buteo buteo</i>	Green listed	1-10	n/a
Carrion crow <i>Corvus corone</i>	Green listed	1-10	n/a
Chaffinch <i>Fringilla coelebs</i>	Green Listed	10-20	n/a
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	10-20	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Coal tit <i>Periparus ater</i>	Green listed	20-30	n/a
Goldcrest <i>Regulus regulus</i>	Green listed	20-30	n/a
Goldfinch <i>Carduelis carduelis</i>	Green listed	1-10	n/a
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1-10	n/a
Great tit <i>Parus major</i>	Green listed	10-20	n/a
Green woodpecker <i>Picus viridis</i>	Green listed	1-10	n/a
Jackdaw <i>Corvus monedula</i>	Green listed	1-10	n/a
Jay <i>Garrulus glandarius</i>	Green listed	1-10	n/a
Little ringed plover <i>Charadrius dubius</i>	Schedule 1 & Green listed	1	Displaying pair recorded in Mangreen Quarry (see Figure 14 for location)
Lesser whitethroat <i>Sylvia curruca</i>	Green listed	1-10	n/a
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10	n/a
Magpie <i>Pica pica</i>	Green listed	1-10	n/a
Nuthatch <i>Sitta europaea</i>	Green listed	1-10	n/a
Robin <i>Erithacus rubecula</i>	Green listed	20-30	n/a
Sand martin <i>Riparia riparia</i>	Green listed	Approximately 120 apparently occupied burrows at Mangreen Quarry	Location of single colony at Mangreen Quarry shown in Figure 14
Treecreeper <i>Certhia familiaris</i>	Green listed	1-10	n/a
Whitethroat <i>Sylvia communis</i>	Green listed	20-30	n/a

Species	UK BoCC Conservation Status	Number of Territories recorded within and close to the DCO boundary	Notes
Wood pigeon <i>Columba palumbus</i>	Green listed	50-100	n/a
Wren <i>Troglodytes troglodytes</i>	Green listed	1-10	n/a
BoCC Unlisted Species			
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10	n/a
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10	n/a

Table 12: Breeding Birds Recorded in 2020 from the Onshore Substation Sites Section (Figure 28)

Species	UK BoCC Conservation Status	Number of Territories recorded within the Onshore Substation Area
BoCC Red Listed Species		
Linnet <i>Linaria cannabina</i>	Red listed (BD _p ² , BDM _p ² , ERLOB) †	2
Skylark <i>Alauda arvensis</i>	Red listed (BD _p ² , BDM _p ¹ , ERLOB) †	16
Yellowhammer <i>Emberiza citrinella</i>	Red listed (BD _p ¹ , BD _p ² , ERLOB) †	2
BoCC Amber Listed Species		
Dunnock <i>Prunella modularis</i>	Amber listed (BDM _p ²) †	5
Kestrel <i>Falco tinnunculus</i>	Amber listed (BDM _p ¹ , BDM _p ²)	1
BoCC Green Listed Species		
Blackbird <i>Turdus merula</i>	Green listed	5-10

Species	UK BoCC Conservation Status	Number of Territories recorded within the Onshore Substation Area
Blackcap <i>Sylvia atricapilla</i>	Green listed	10-20
Blue tit <i>Cyanistes caeruleus</i>	Green listed	5-10
Chaffinch <i>Fringilla coelebs</i>	Green listed	5-10
Chiffchaff <i>Phylloscopus collybita</i>	Green listed	5-10
Goldfinch <i>Carduelis carduelis</i>	Green listed	1
Great spotted woodpecker <i>Dendrocopos major</i>	Green listed	1
Great tit <i>Parus major</i>	Green listed	5-10
Greenfinch <i>Chloris chloris</i>	Green listed (Red-listed British race: IUCN, ERLOB, BI)	1
Long-tailed tit <i>Aegithalos caudatus</i>	Green listed	1-10
Robin <i>Erithacus rubecula</i>	Green listed	5-10
Whitethroat <i>Sylvia communis</i>	Green listed	10-20
Wood pigeon <i>Columba palumbus</i>	Green listed	1-10
Wren <i>Troglodytes troglodytes</i>	Green listed	5-10
BoCC Unlisted/Feral Species		
Greylag goose <i>Anser anser</i>	Feral species breeding in England (Amber listing is based on wild population)	2
Pheasant <i>Phasianus colchicus</i>	Not listed	1-10
Red-legged partridge <i>Alectoris rufa</i>	Not listed	1-10

Twelve dunnoek territories and six yellowhammer territories were recorded in hedgerows and arable margins, and 26 skylark territories in farmland.

The Schedule 1 species, little ringed plover, was recorded breeding in Mangreen Quarry. A sand martin colony was also recorded here with approximately 120 apparently occupied burrows.

Figure 1: 2021 Breeding Bird Survey Area and Species Territories from Landfall to Weybourne

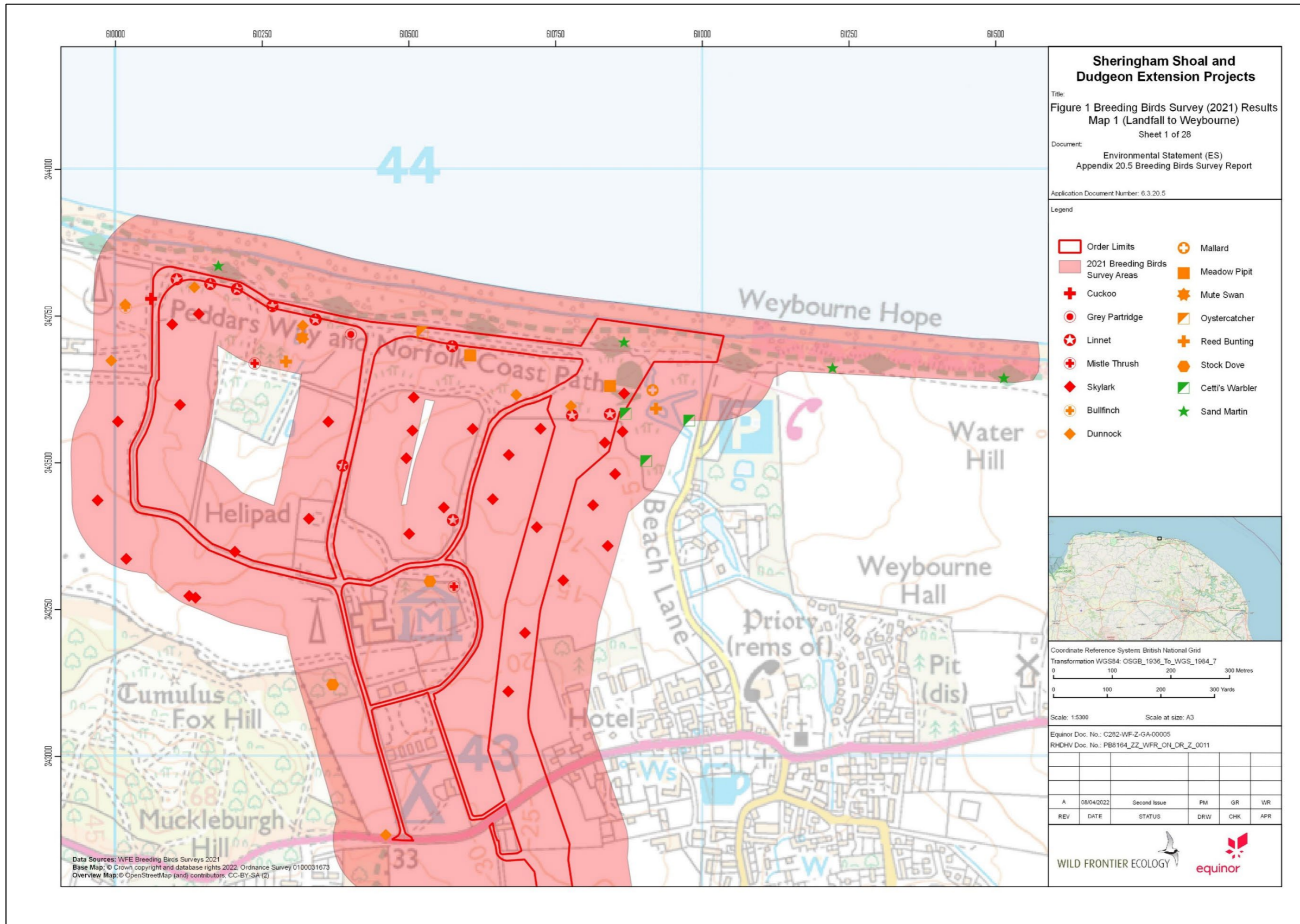


Figure 2: 2021 Breeding Bird Survey Area and Species Territories at Weybourne

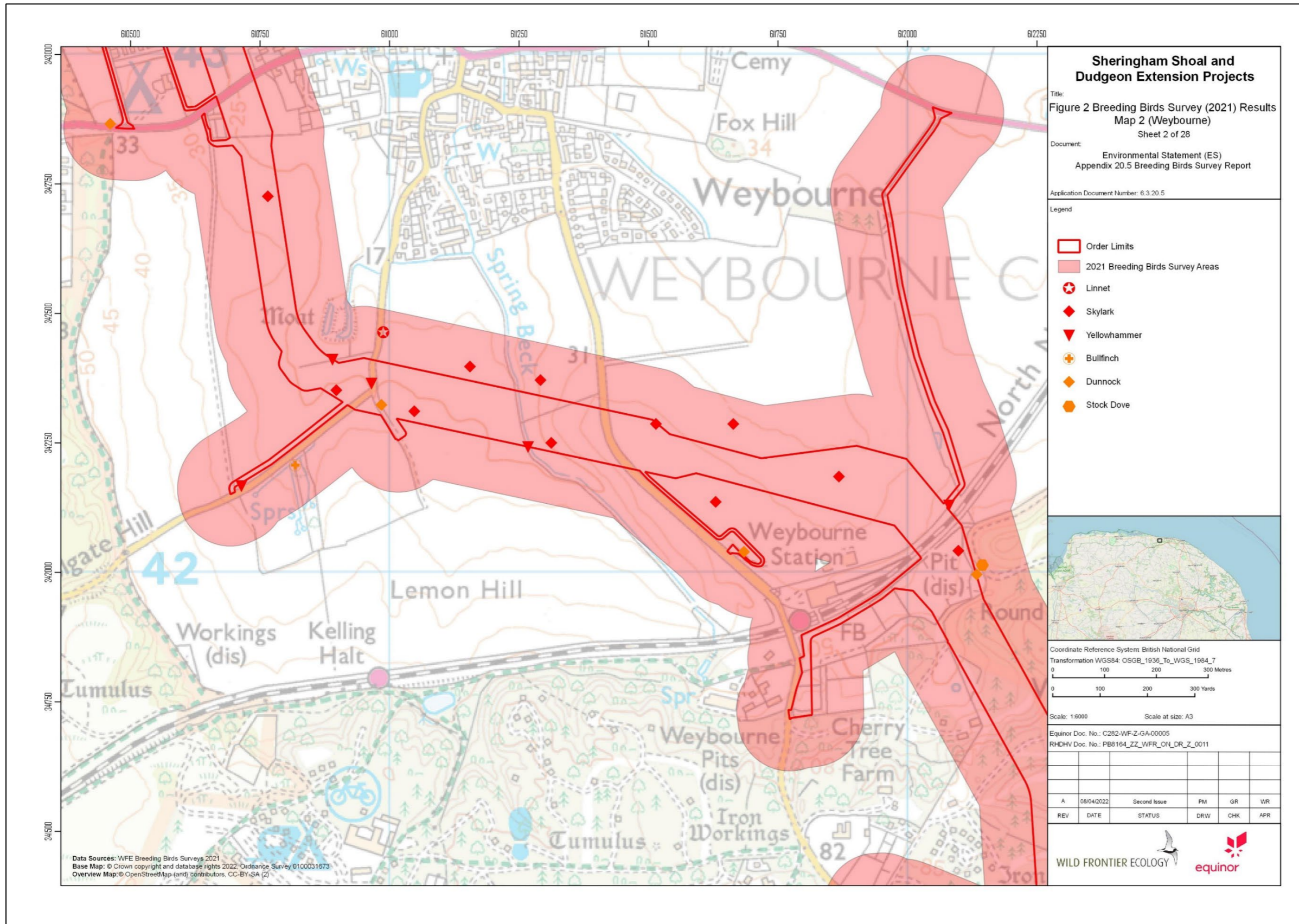


Figure 3: 2021 Breeding Bird Survey Area and Species Territories at Weybourne Wood

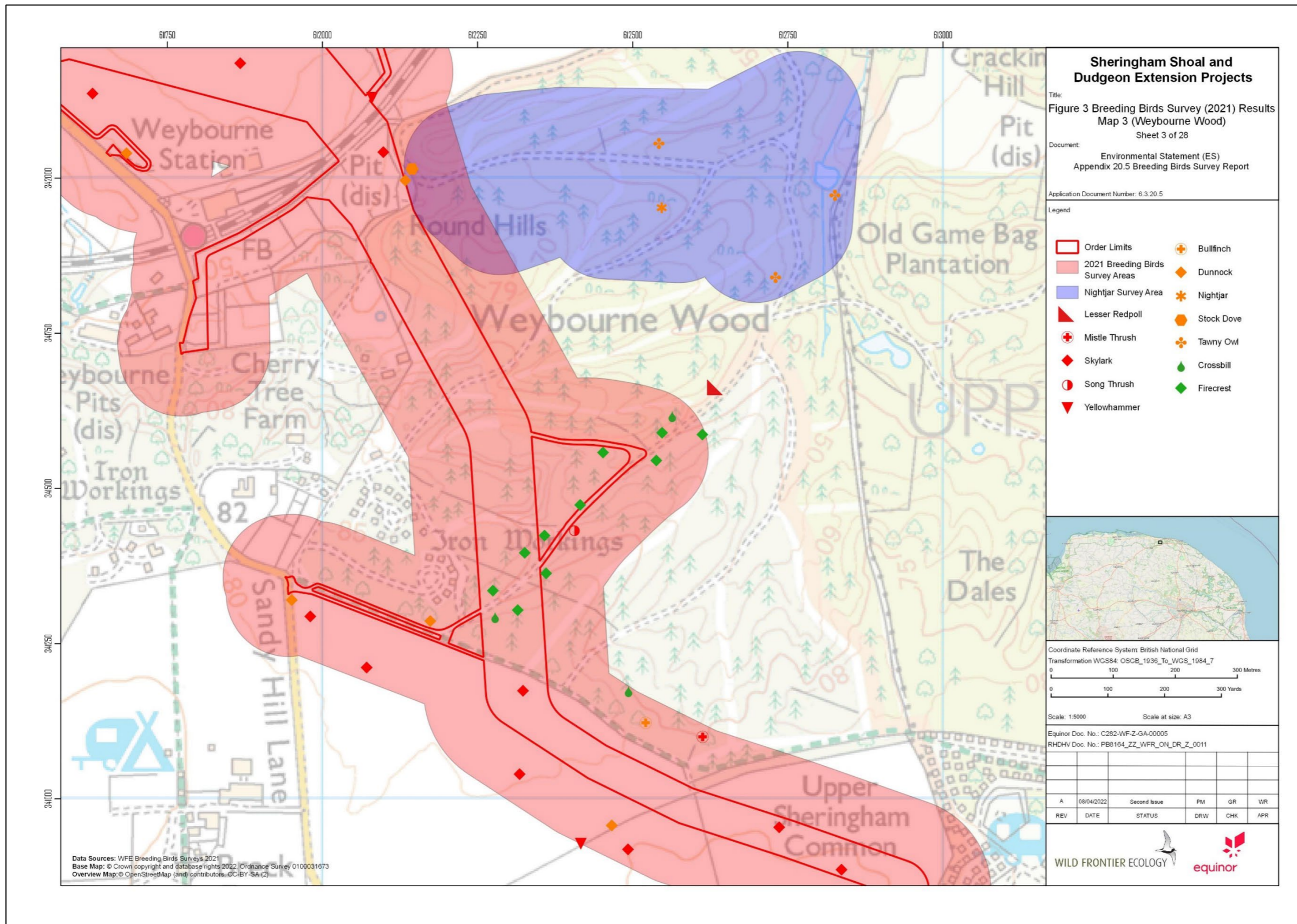


Figure 4: 2021 Breeding Bird Survey Area and Species Territories at Bodham

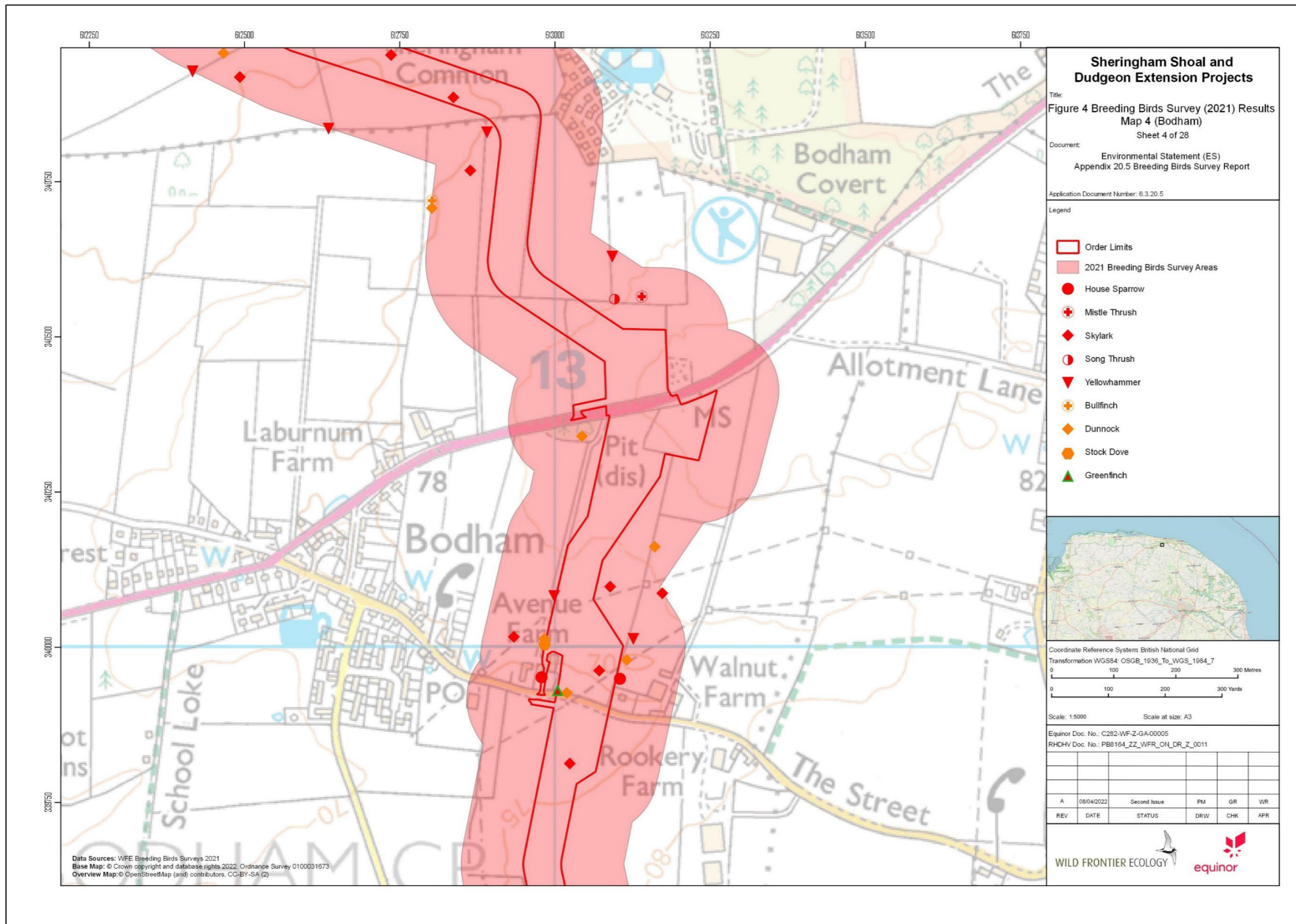


Figure 5: 2021 Breeding Bird Survey Area and Species Territories at Lower Bodham

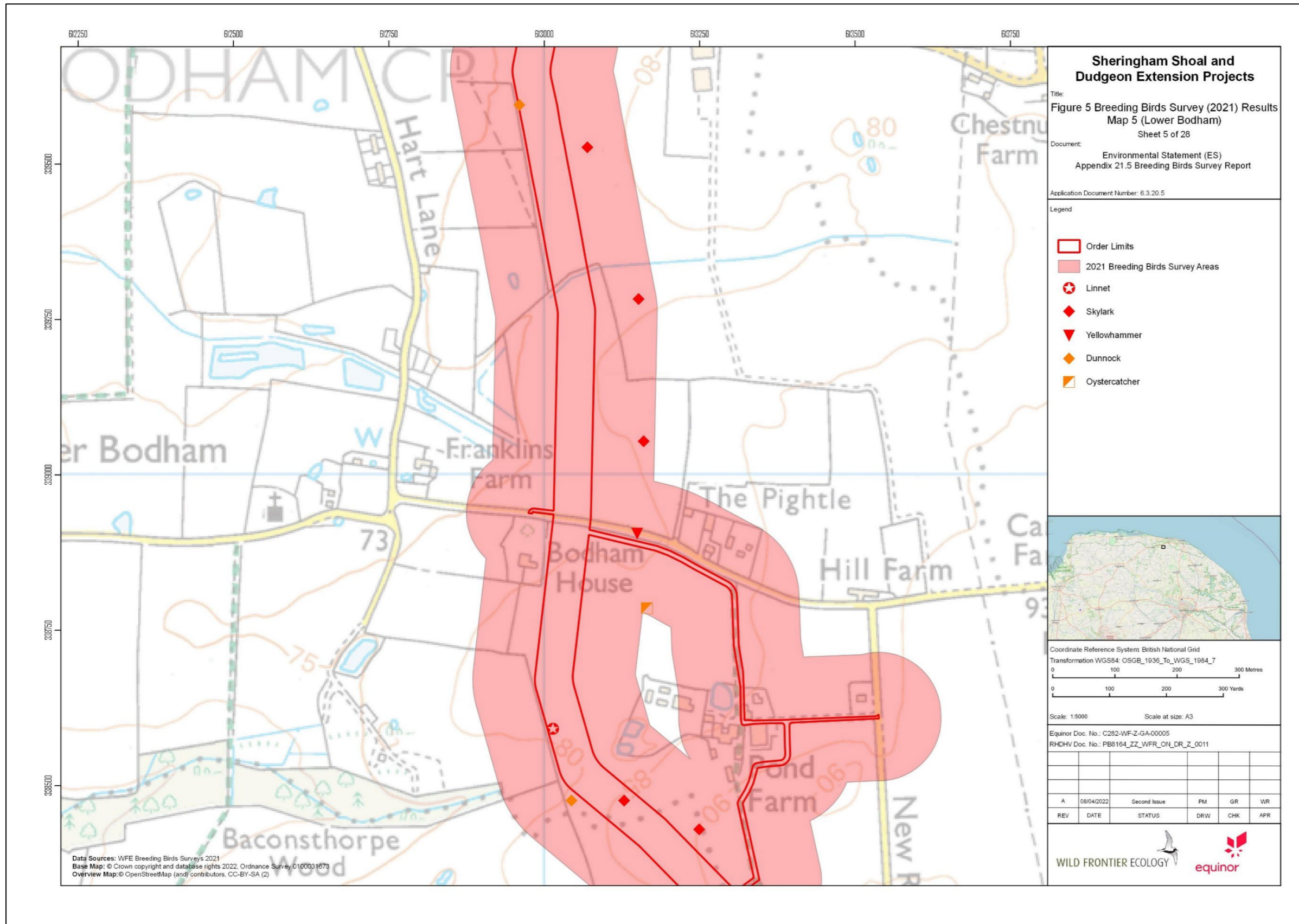


Figure 6: 2021 Breeding Bird Survey Area and Species Territories from Lower Bodham to Baconsthorpe

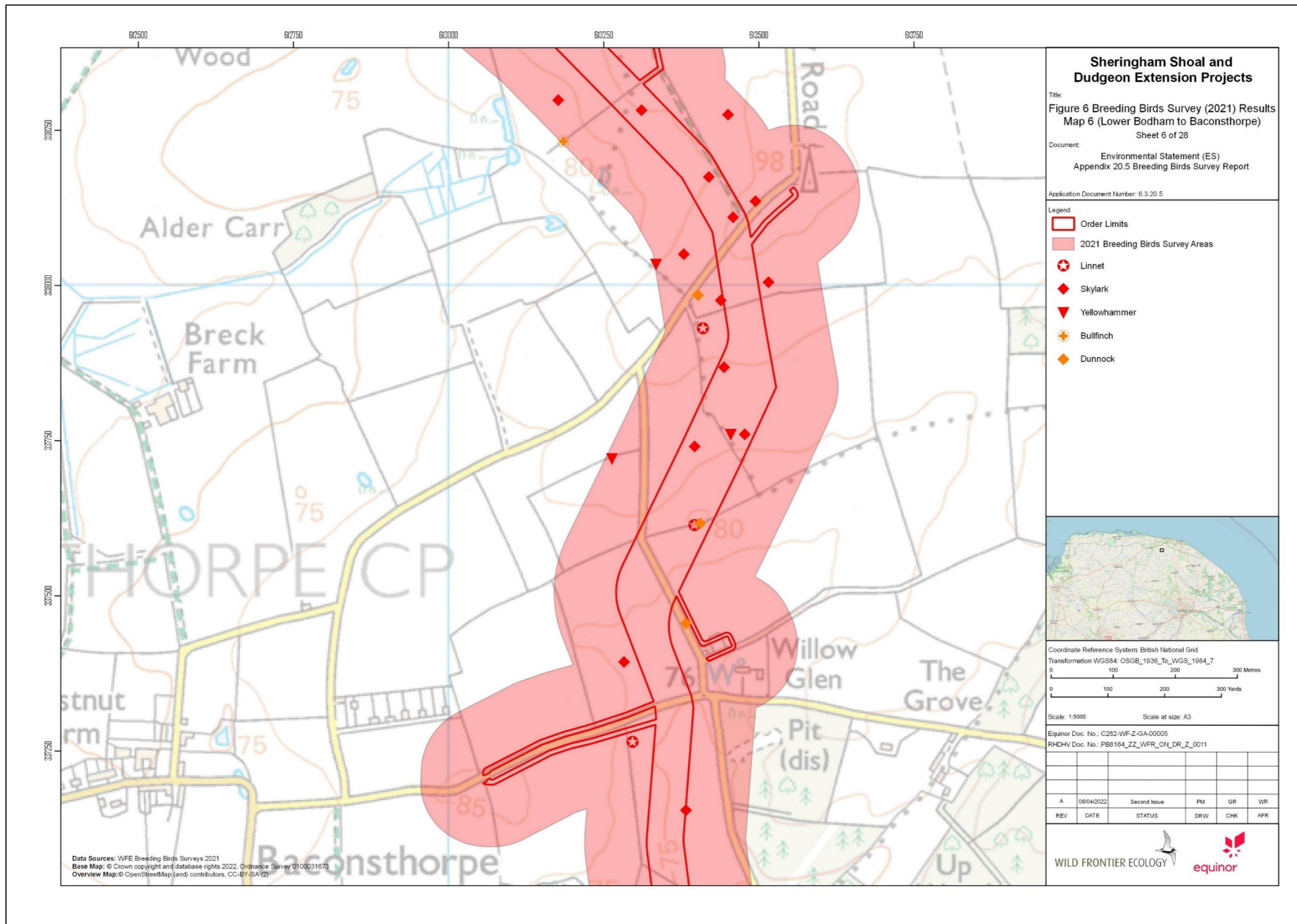


Figure 7: 2021 Breeding Bird Survey Area and Species Territories at Baconsthorpe

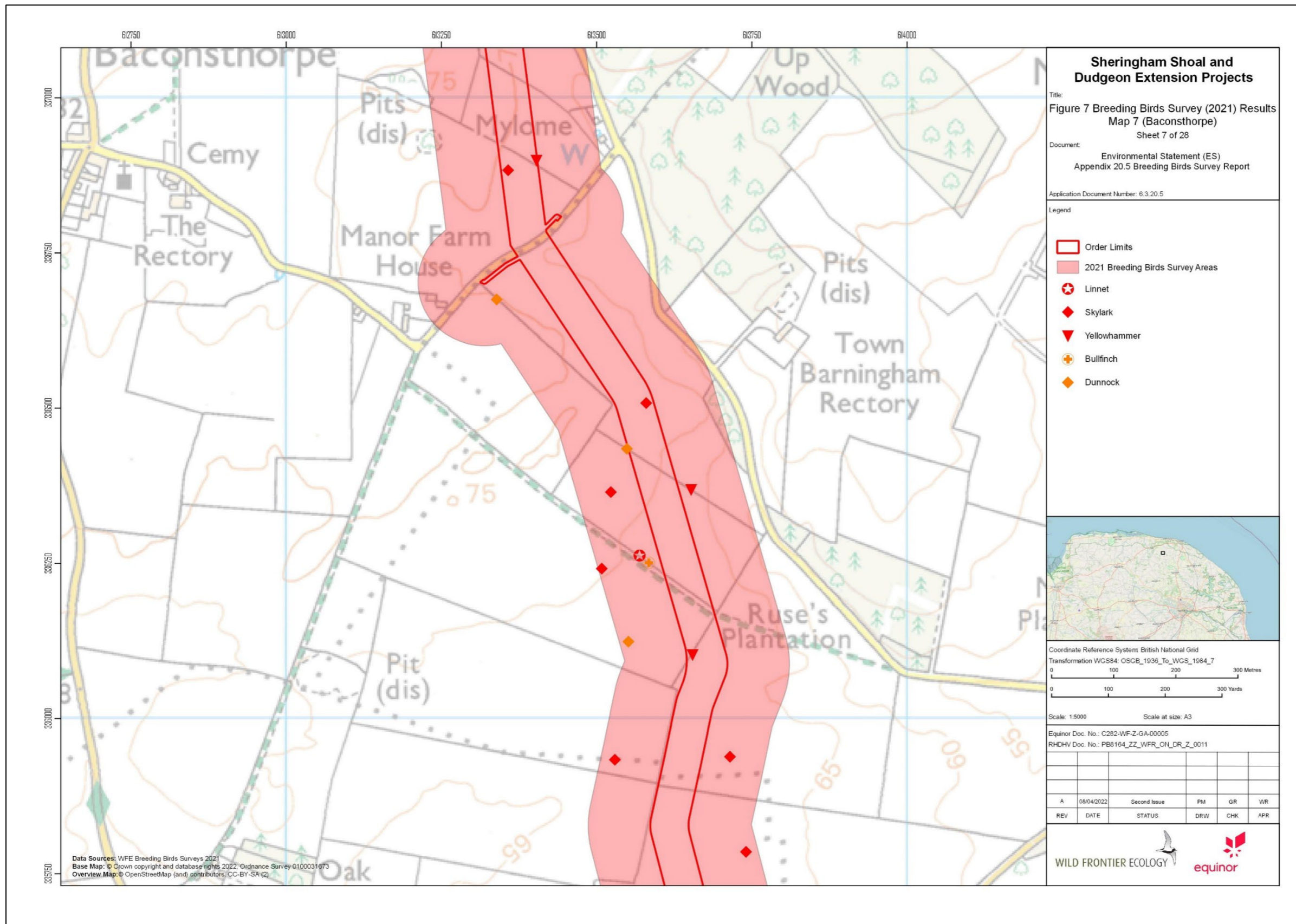


Figure 8: 2021 Breeding Bird Survey Area and Species Territories at Plumstead

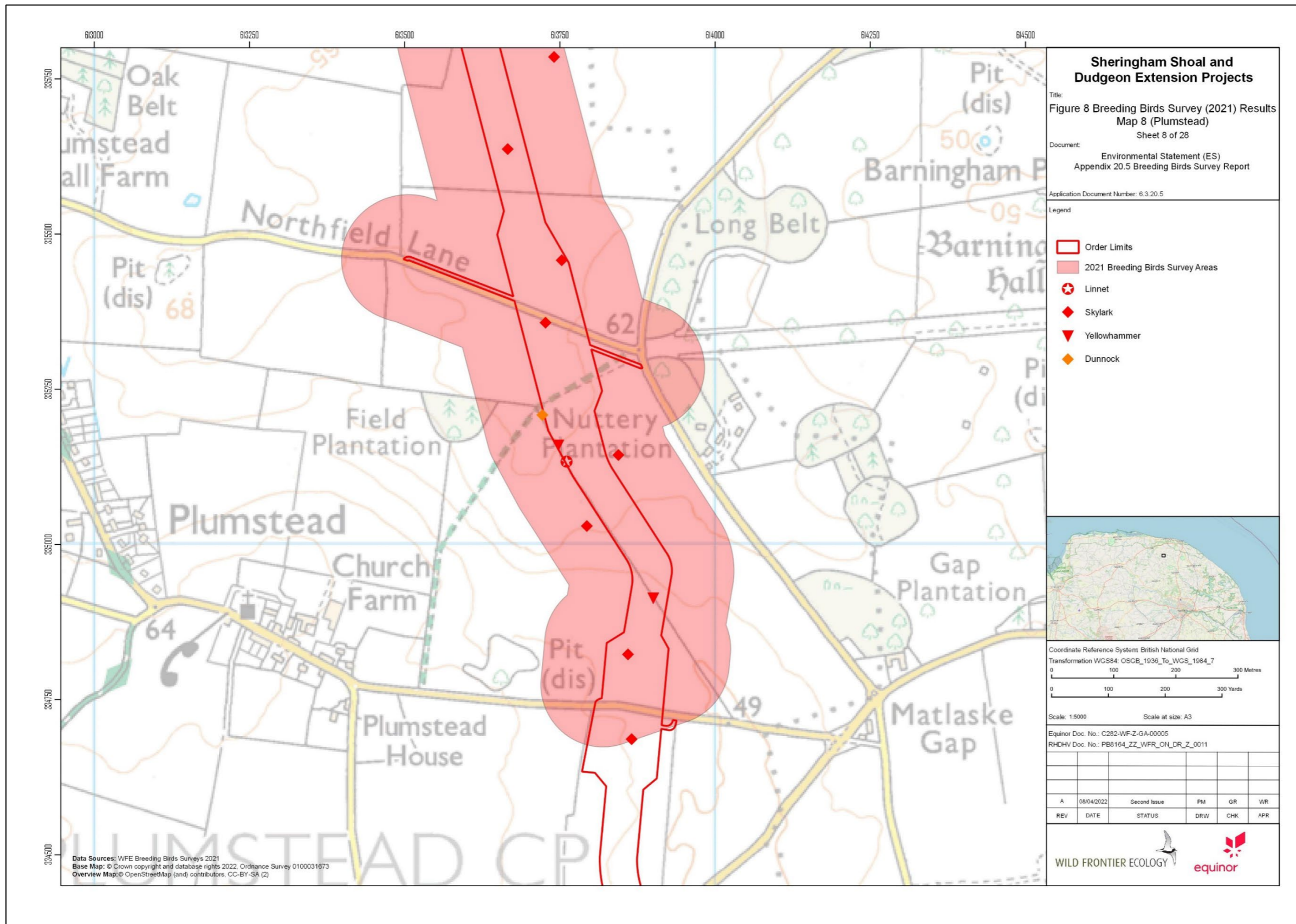


Figure 9: 2021 Breeding Bird Survey Area and Species Territories at the River Wensum

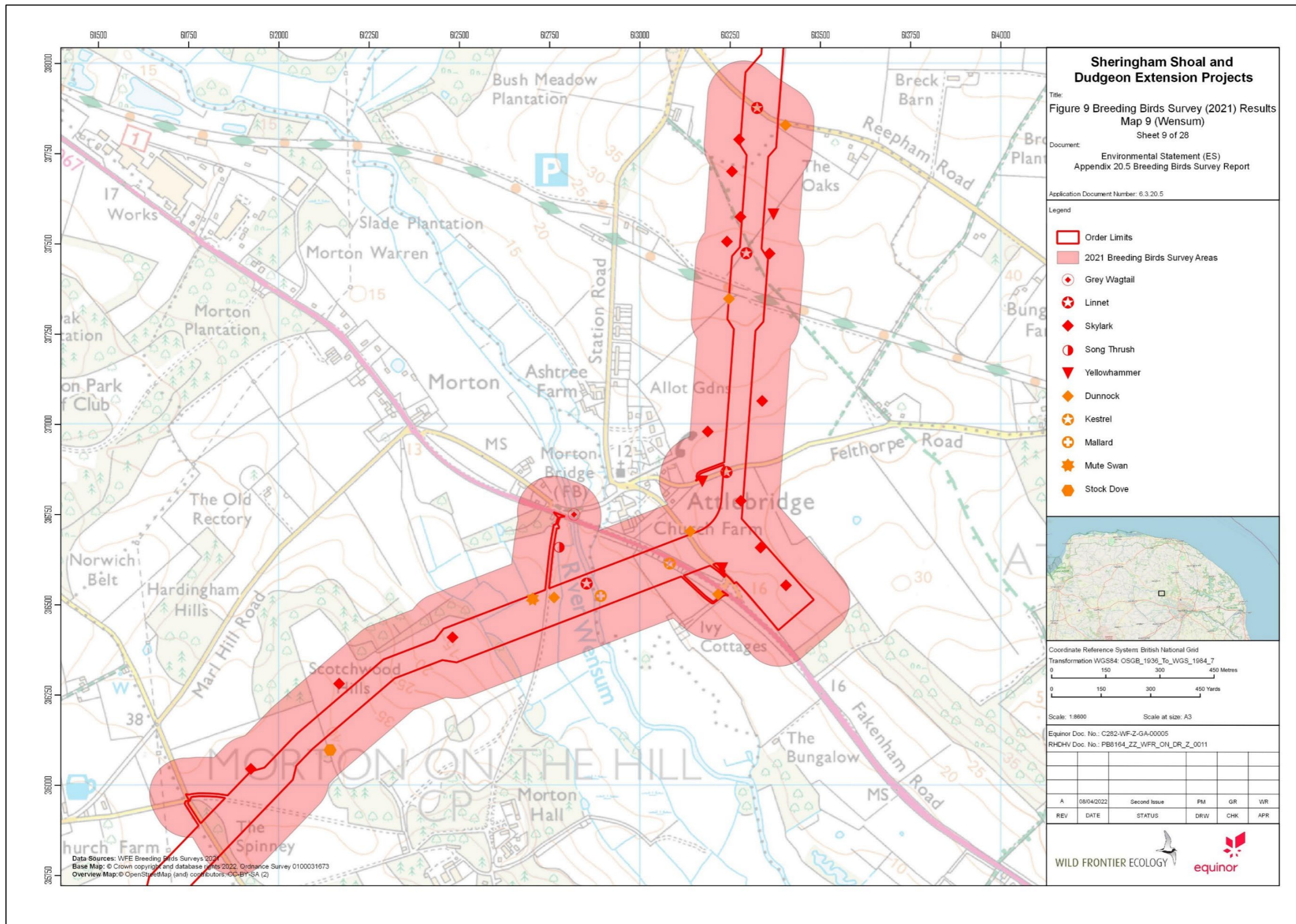


Figure 10: 2021 Breeding Bird Survey Area and Species Territories at Woodland near Ringland

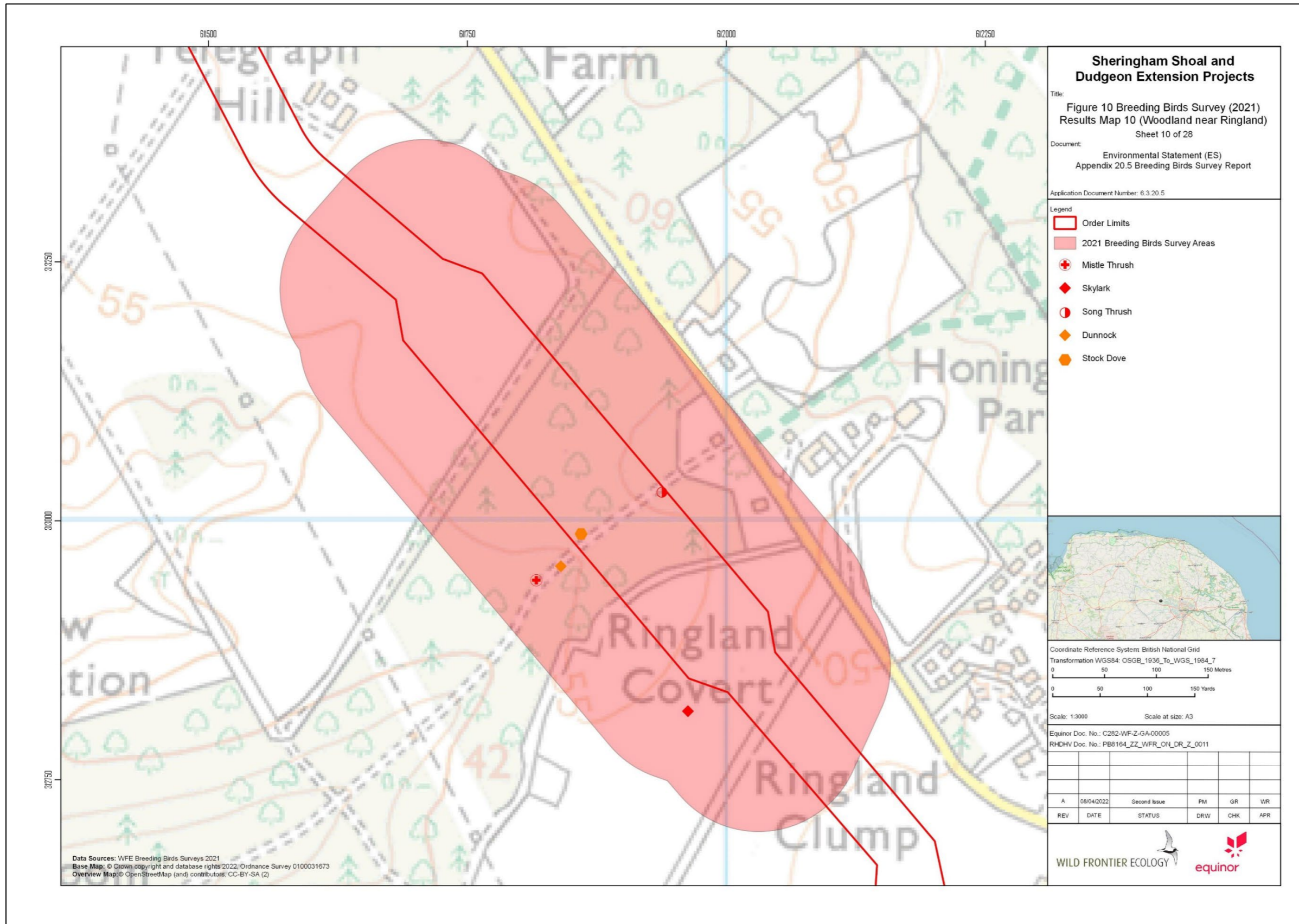


Figure 11: 2021 Breeding Bird Survey Area and Species Territories from Easton to Marlingford

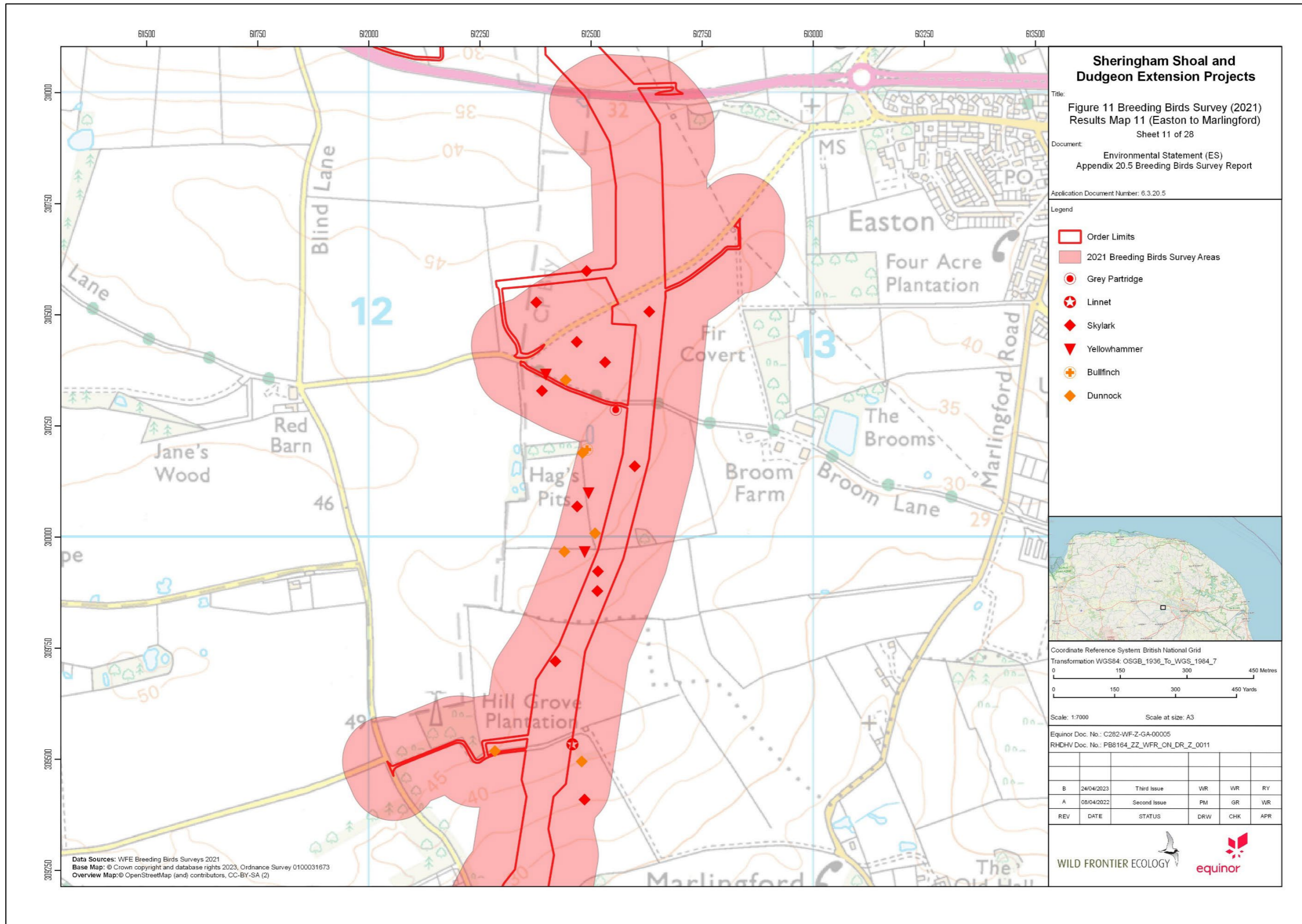


Figure 12: 2021 Breeding Bird Survey Area and Species Territories from Marlingford to Barford

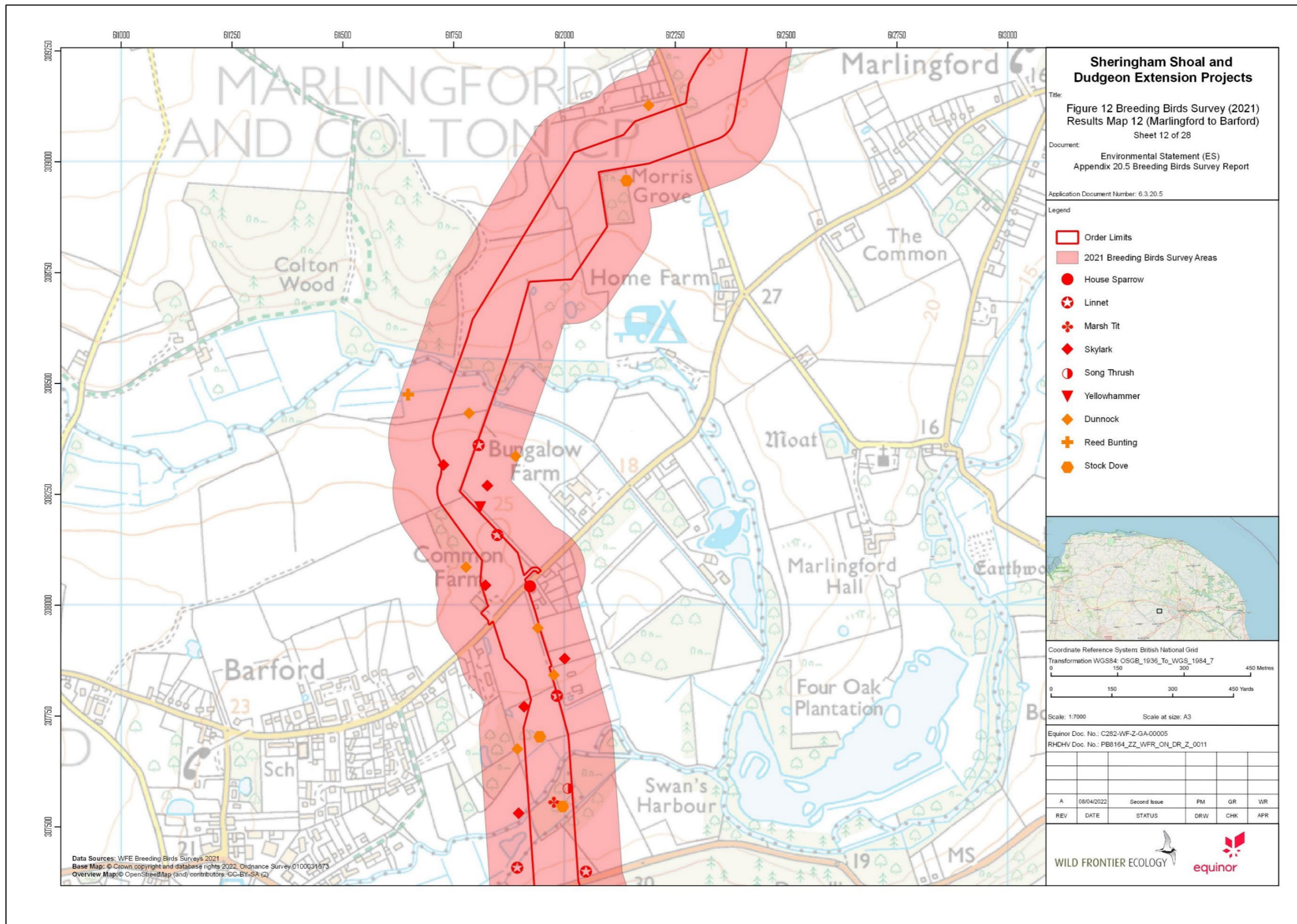


Figure 13: 2021 Breeding Bird Survey Area and Species Territories from Barford to Pockthorpe

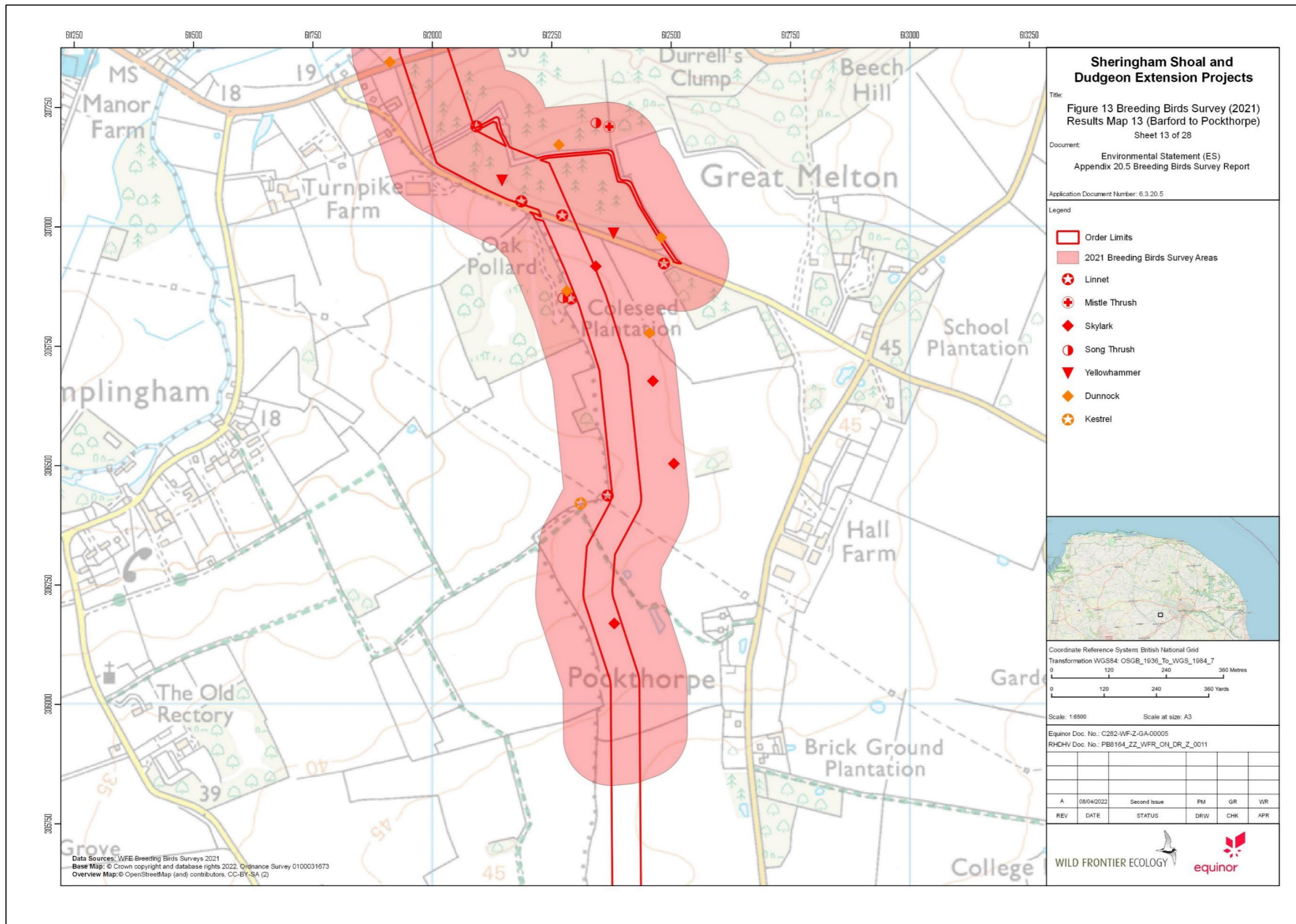


Figure 14: 2021 Breeding Bird Survey Area and Species Territories at Onshore Substation Site (Dunston and Mangreen)

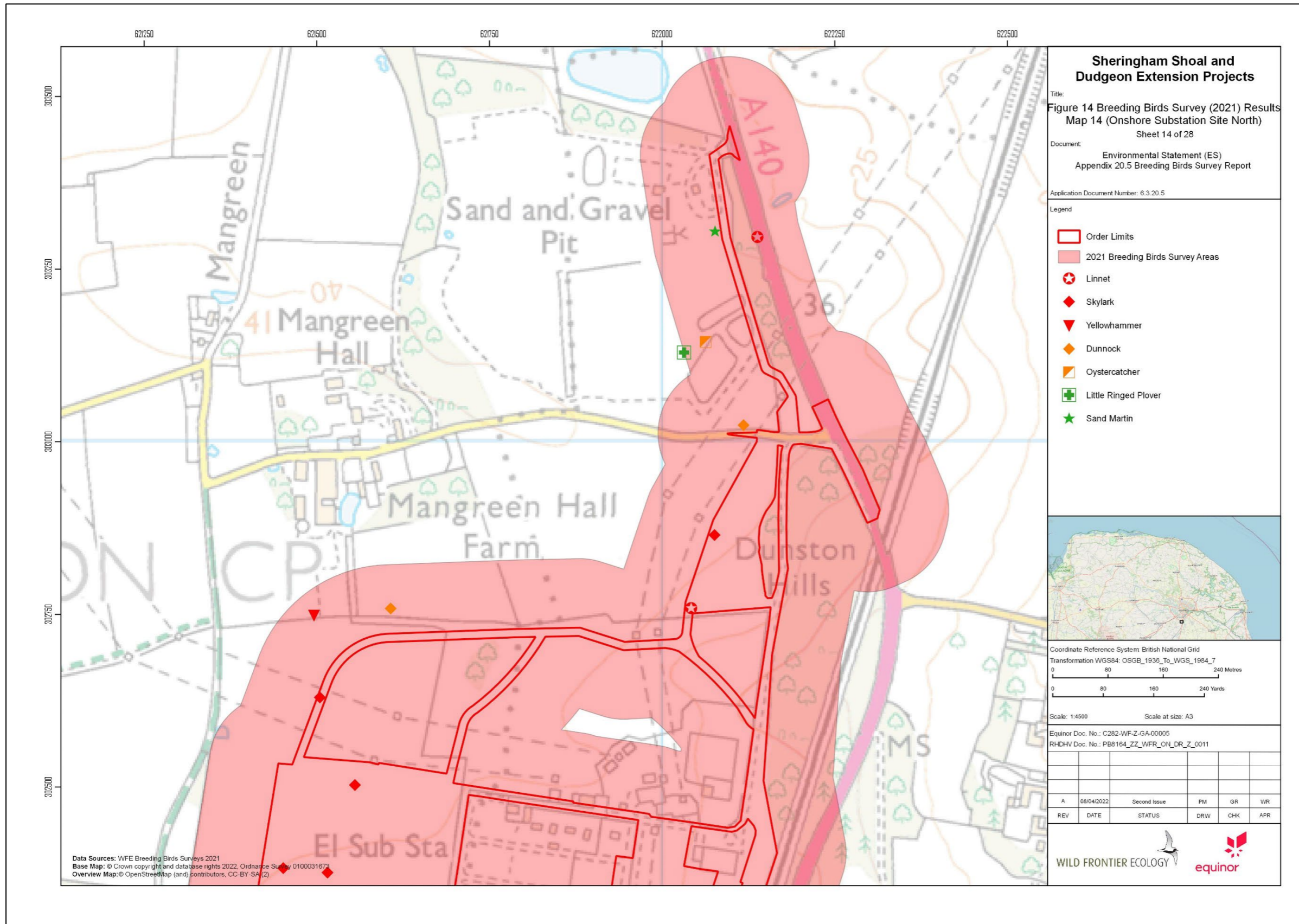


Figure 15: 2021 Breeding Bird Survey Area and Species Territories at Onshore Substation Site (south of existing Main Substation)

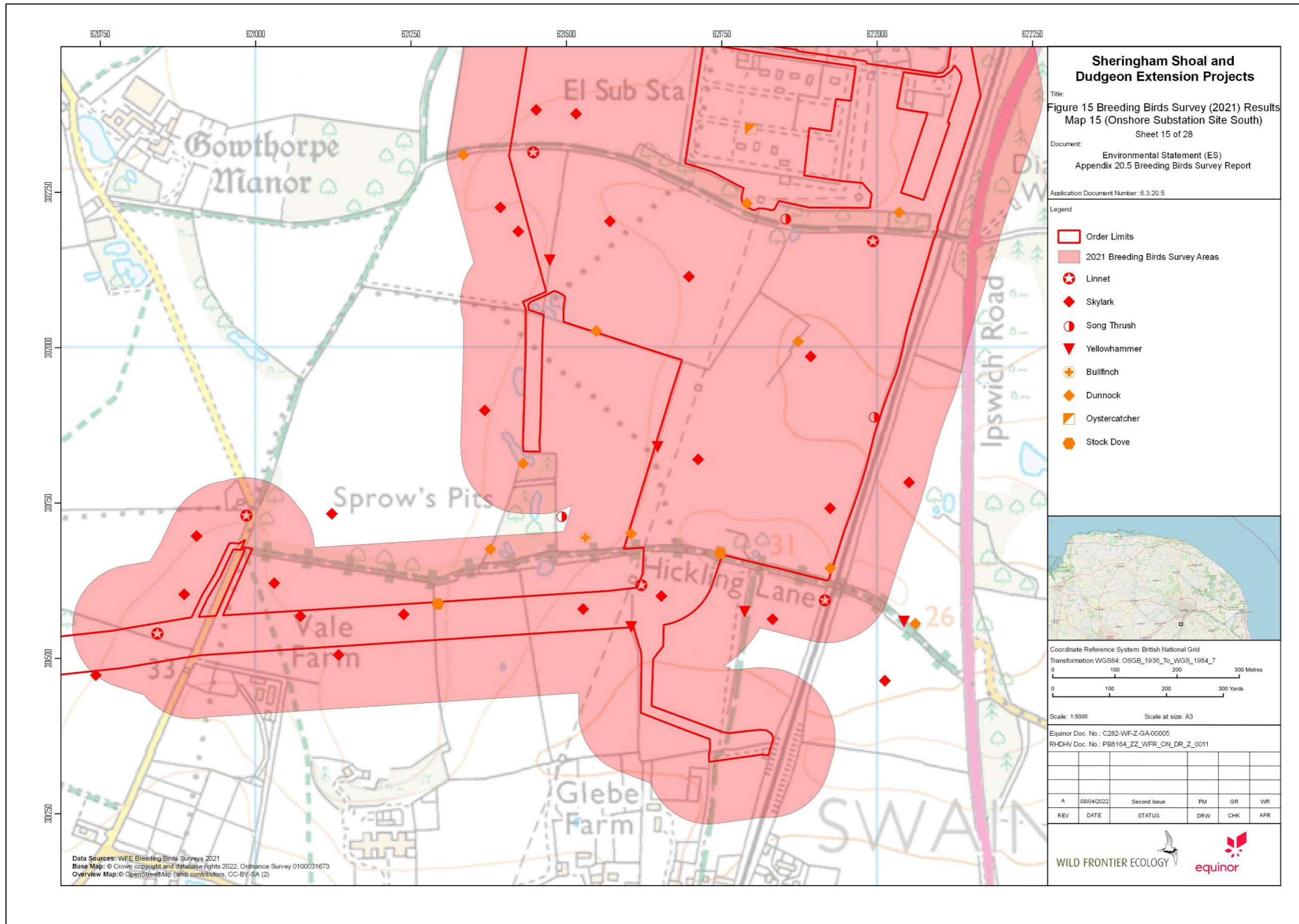


Figure 16: 2020 Breeding Bird Survey Area and Species Territories from Landfall to Weybourne

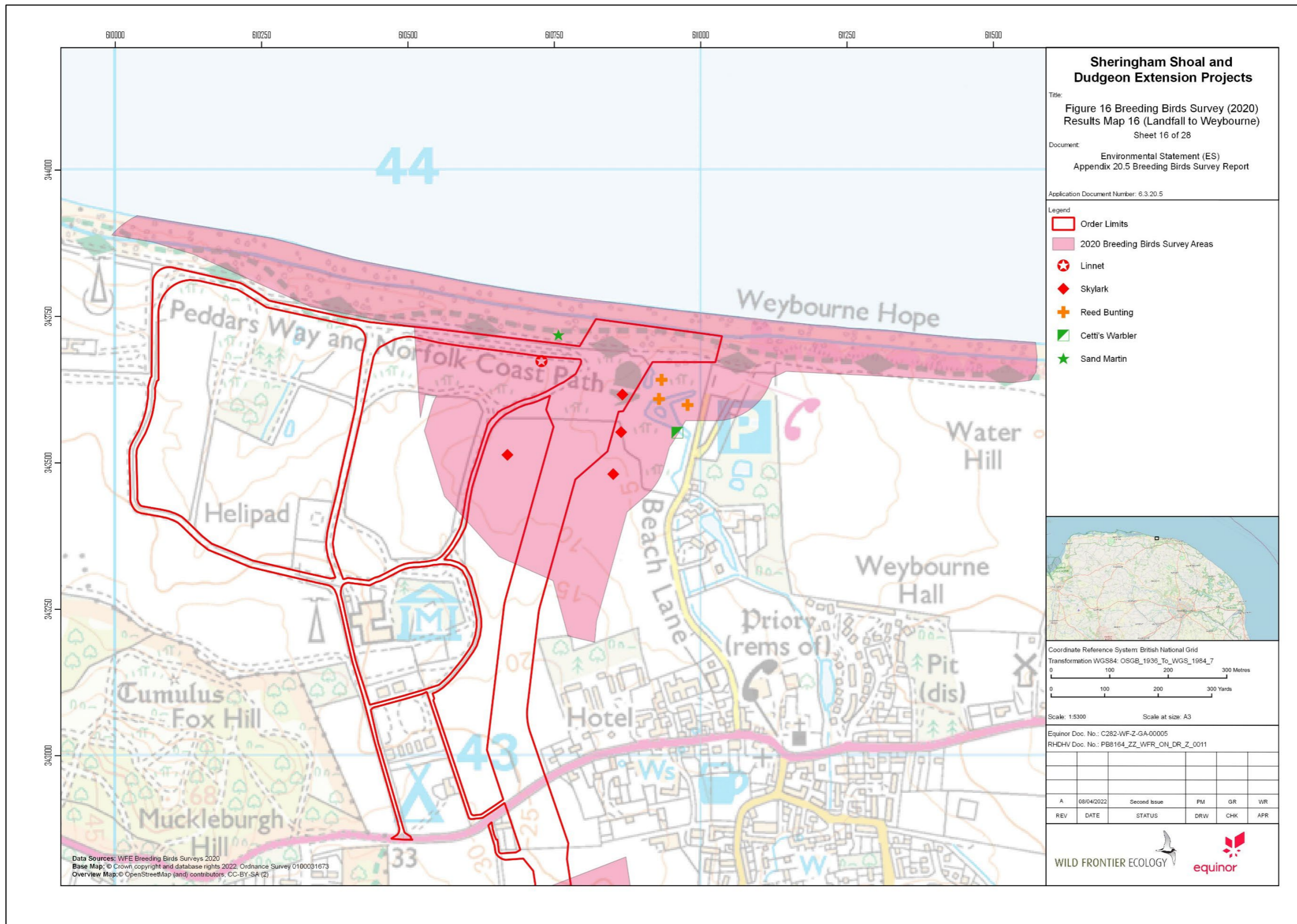


Figure 17: 2020 Breeding Bird Survey Area and Species Territories at Weybourne

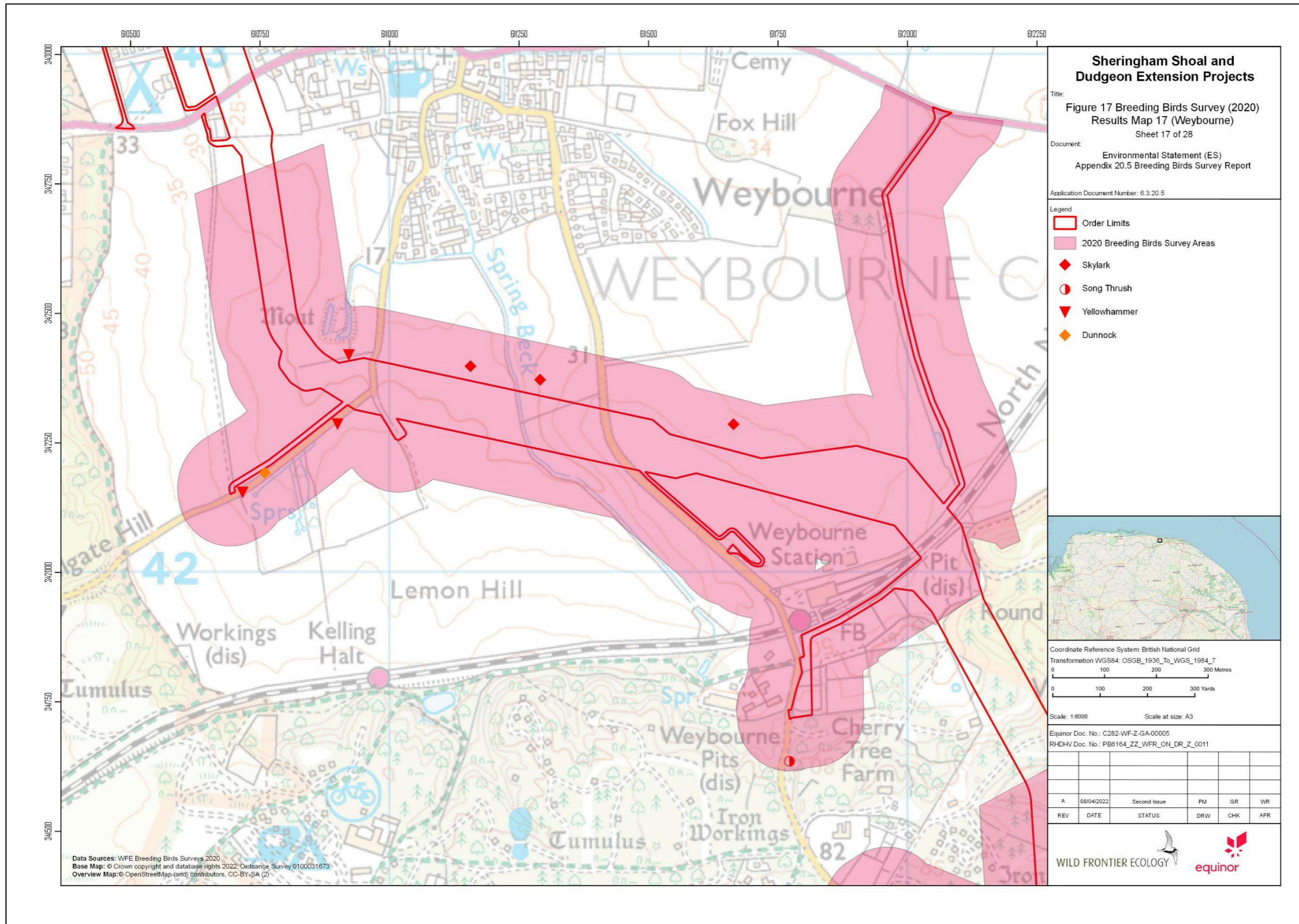


Figure 18: 2020 Breeding Bird Survey Area and Species Territories at Weybourne Wood

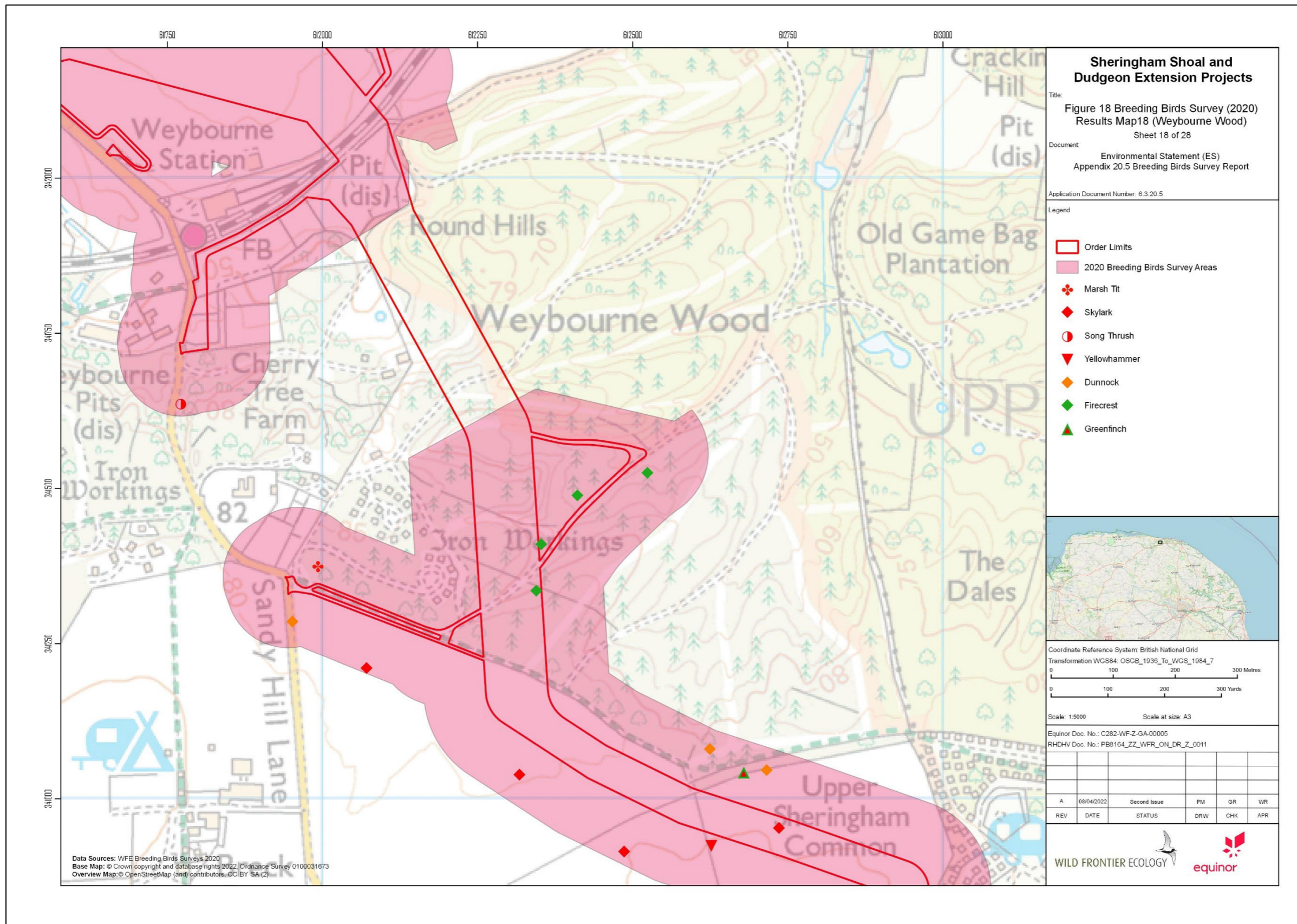


Figure 19: 2020 Breeding Bird Survey Area and Species Territories at Bodham

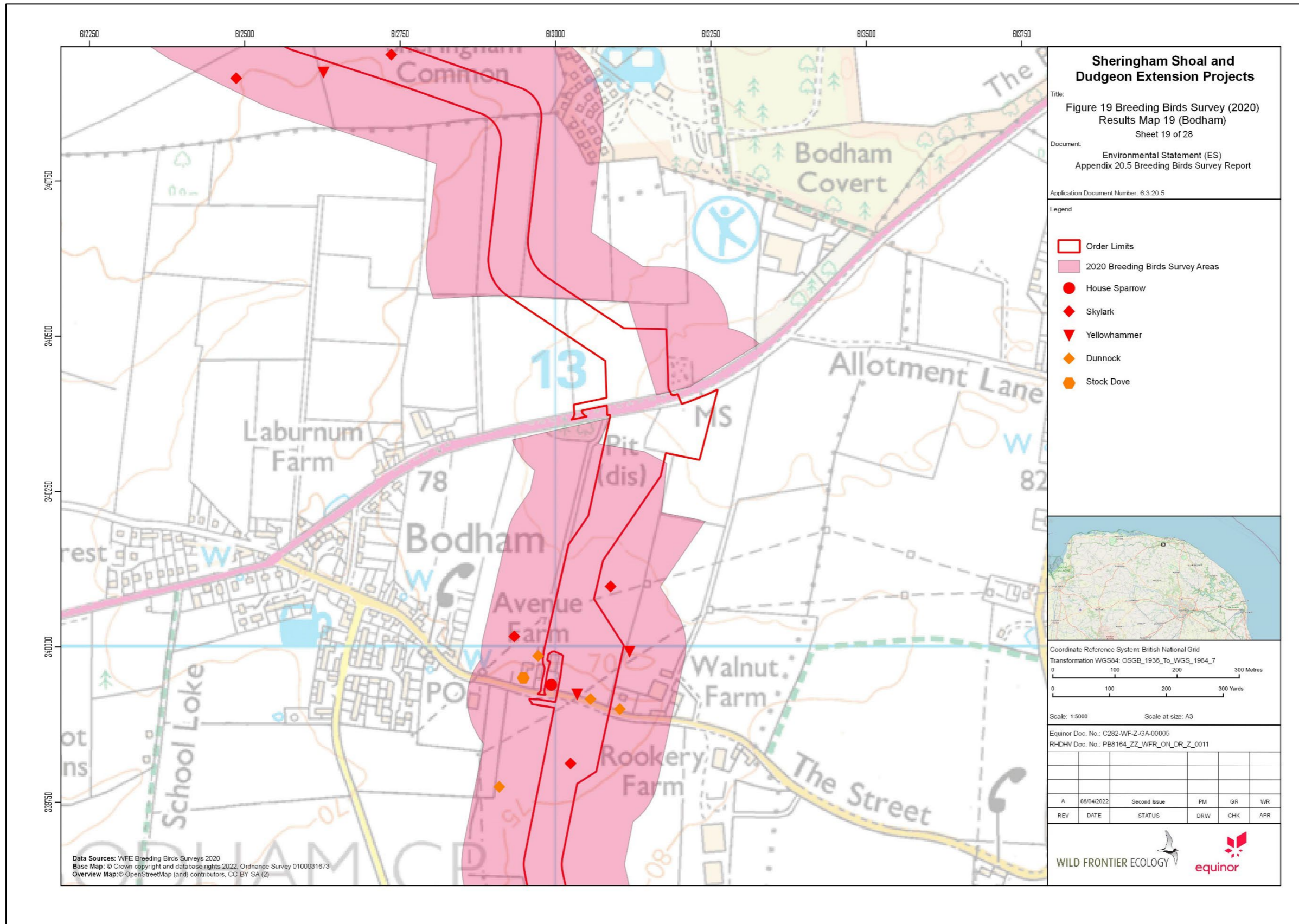


Figure 20: 2020 Breeding Bird Survey Area and Species Territories at Lower Bodham

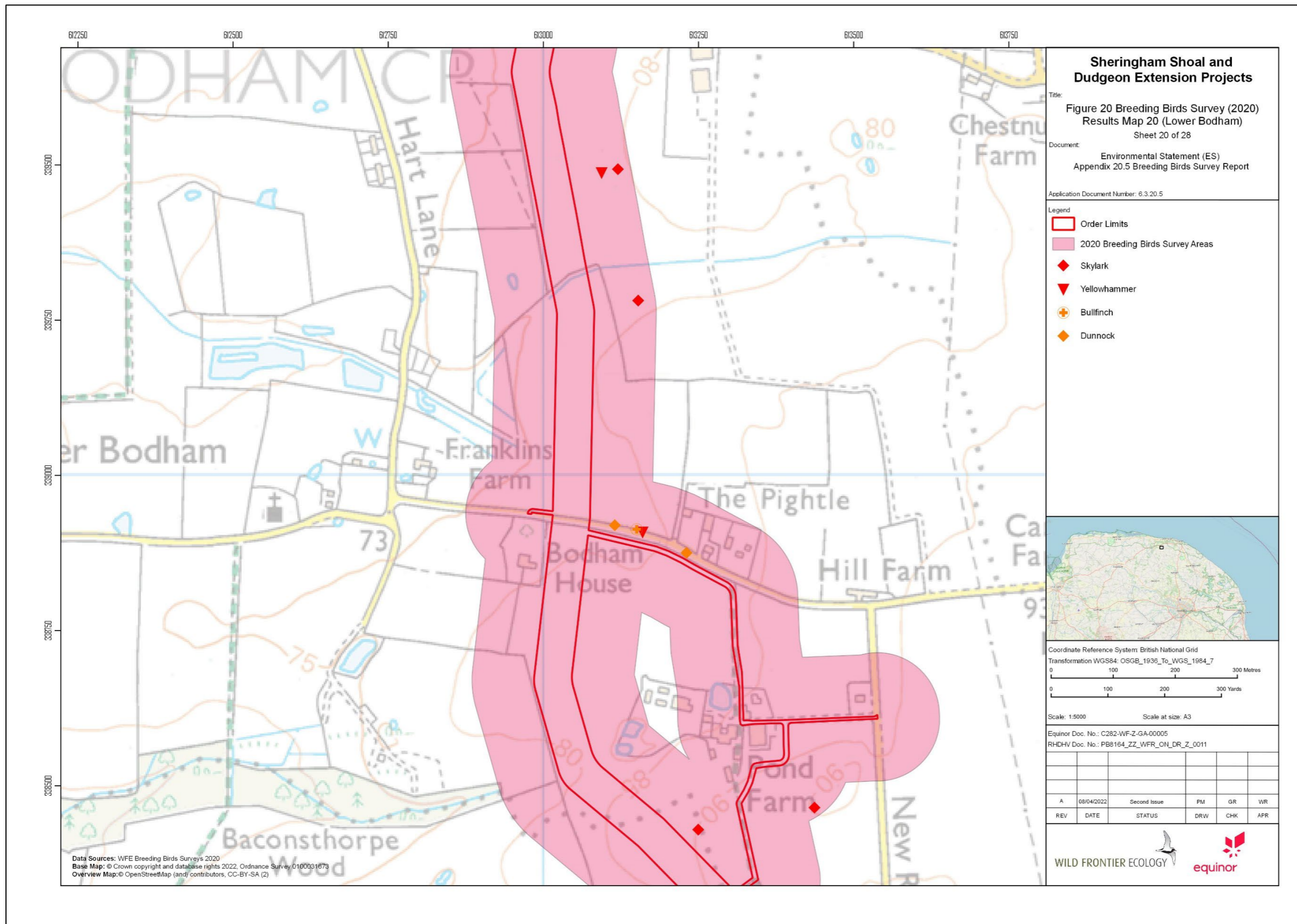


Figure 21: 2020 Breeding Bird Survey Area and Species Territories from Lower Bodham to Baconsthorpe

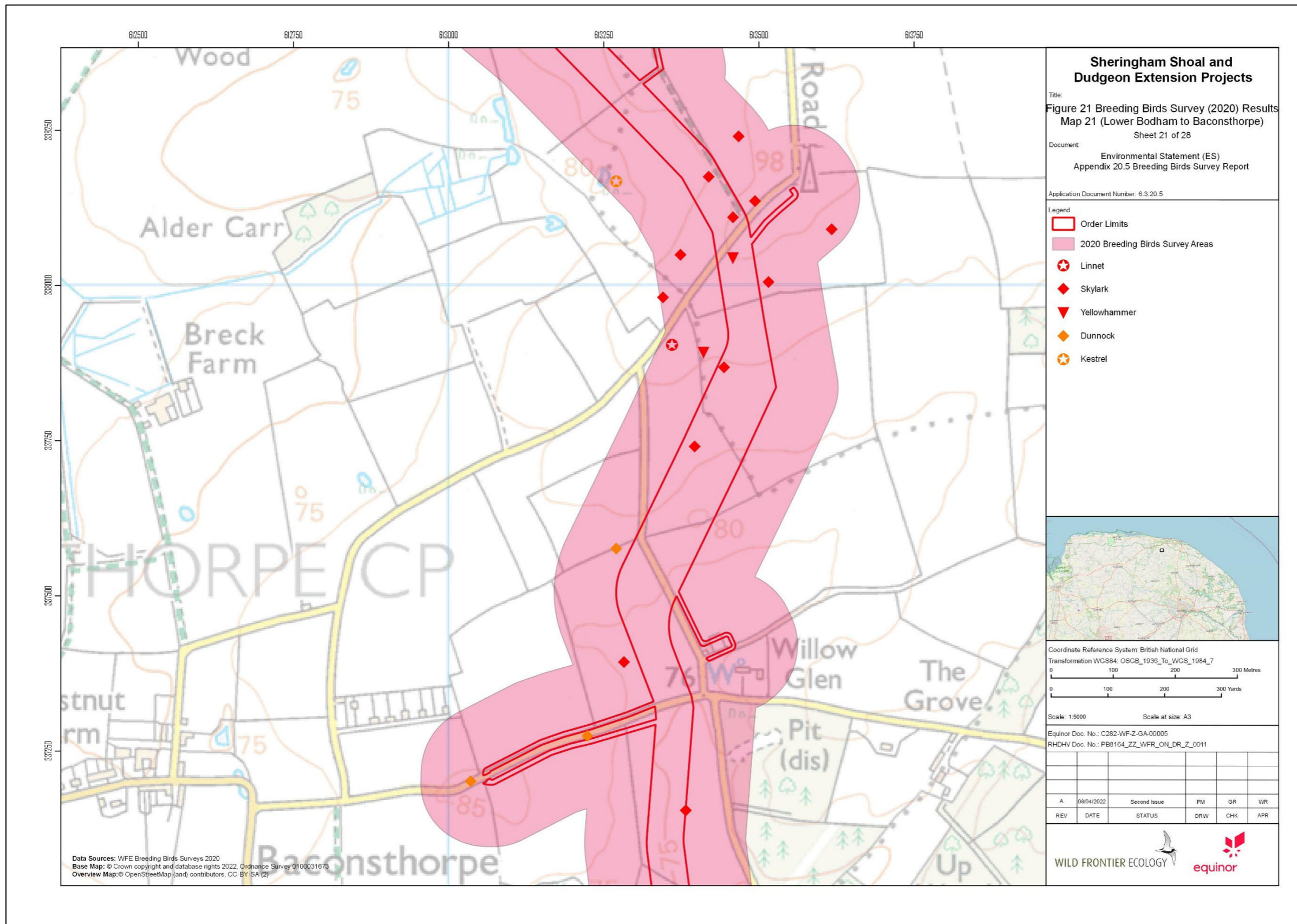


Figure 22: 2020 Breeding Bird Survey Area and Species Territories at Baconsthorpe

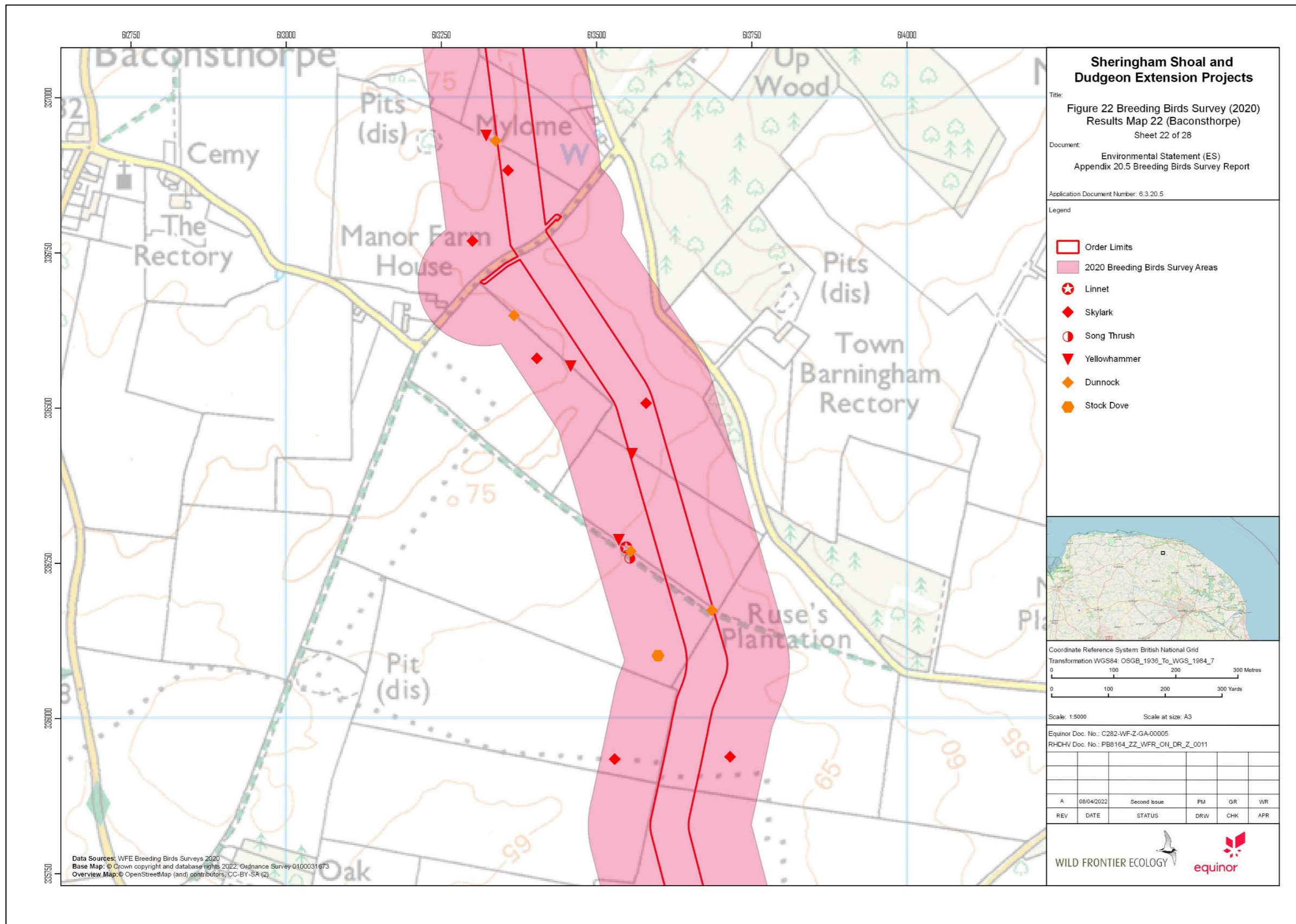


Figure 23: 2020 Breeding Bird Survey Area and Species Territories at Plumstead

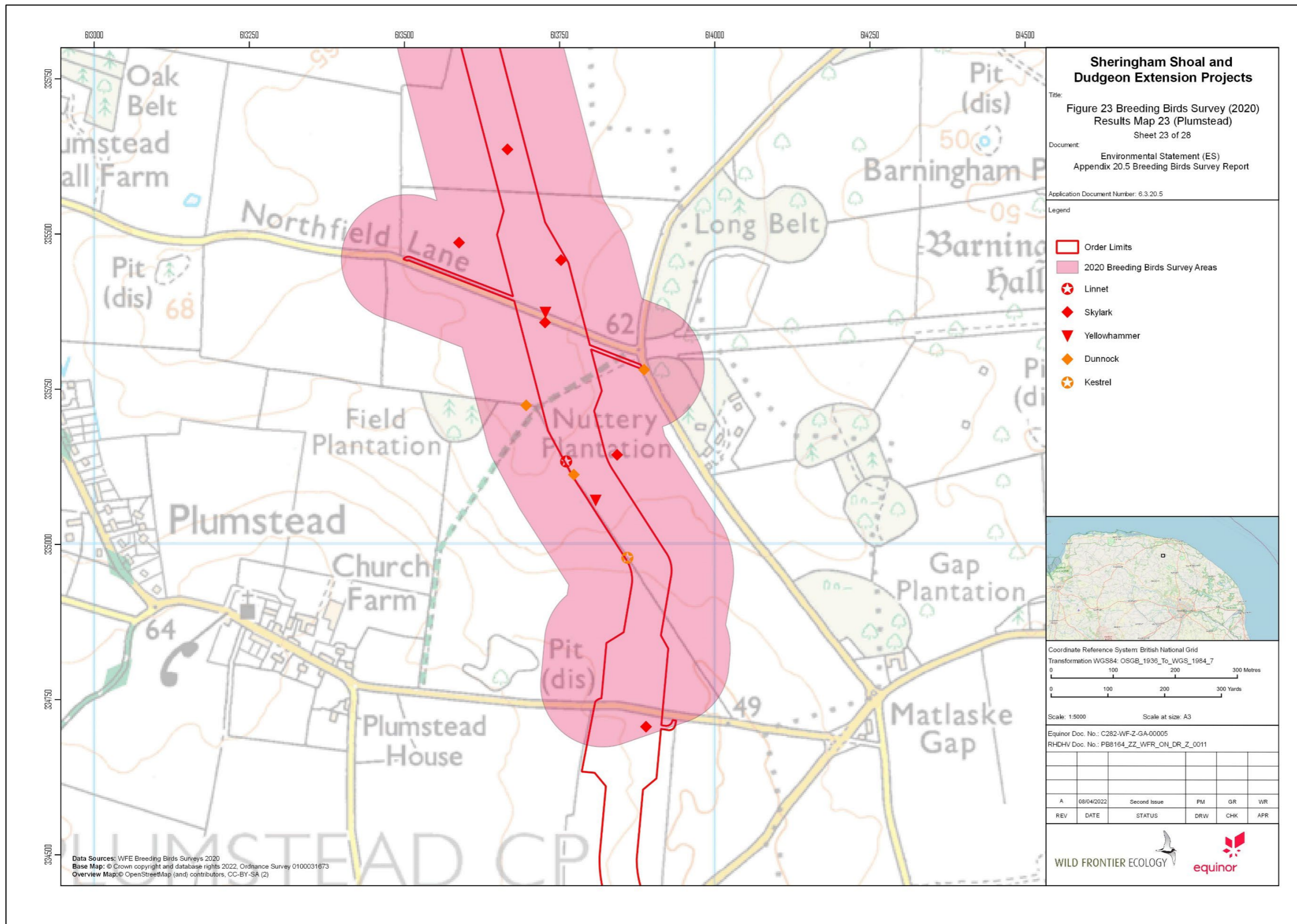


Figure 24: 2020 Breeding Bird Survey Area and Species Territories from at the River Wensum

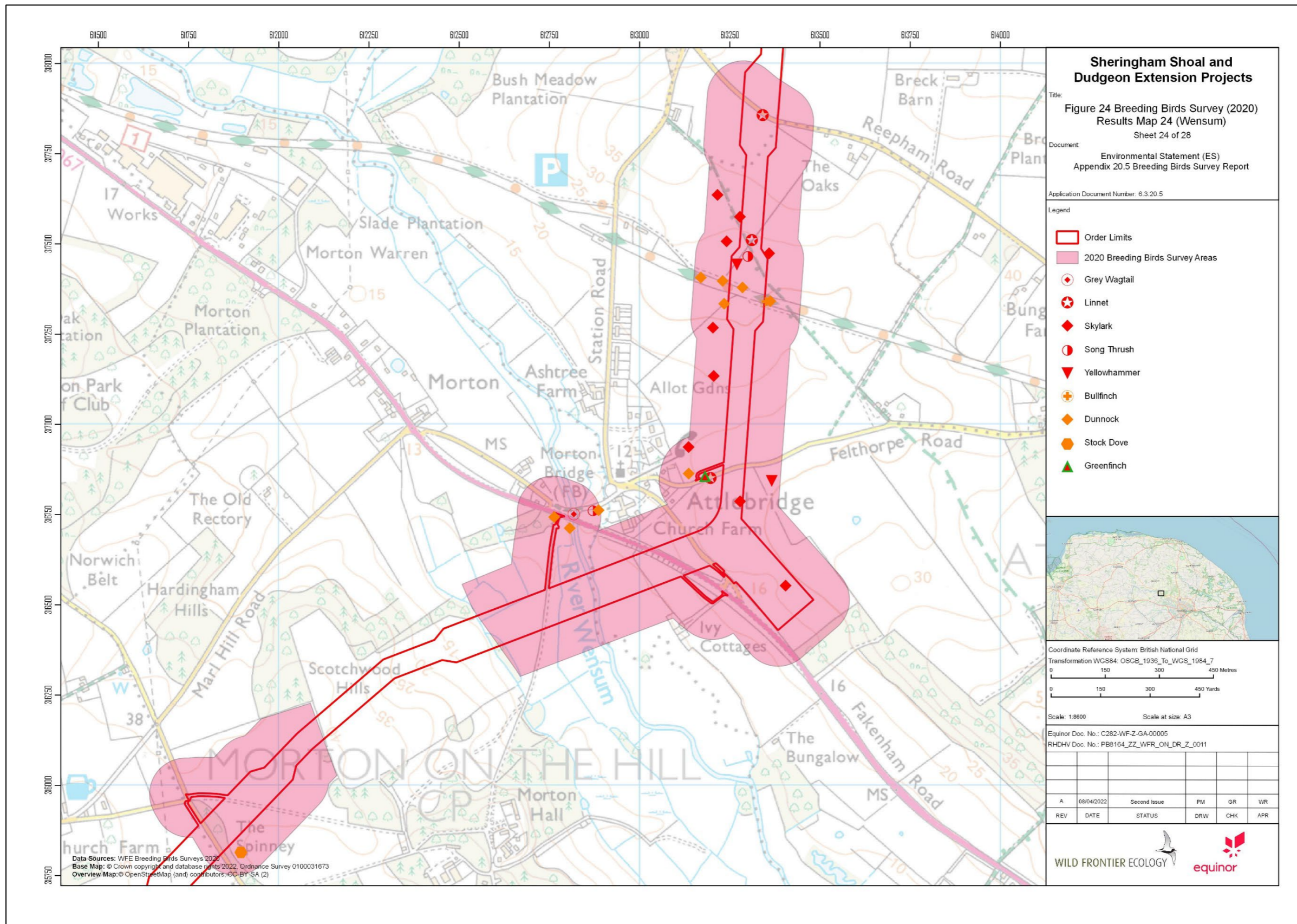


Figure 25: 2020 Breeding Bird Survey Area and Species Territories from Easton to Marlingford

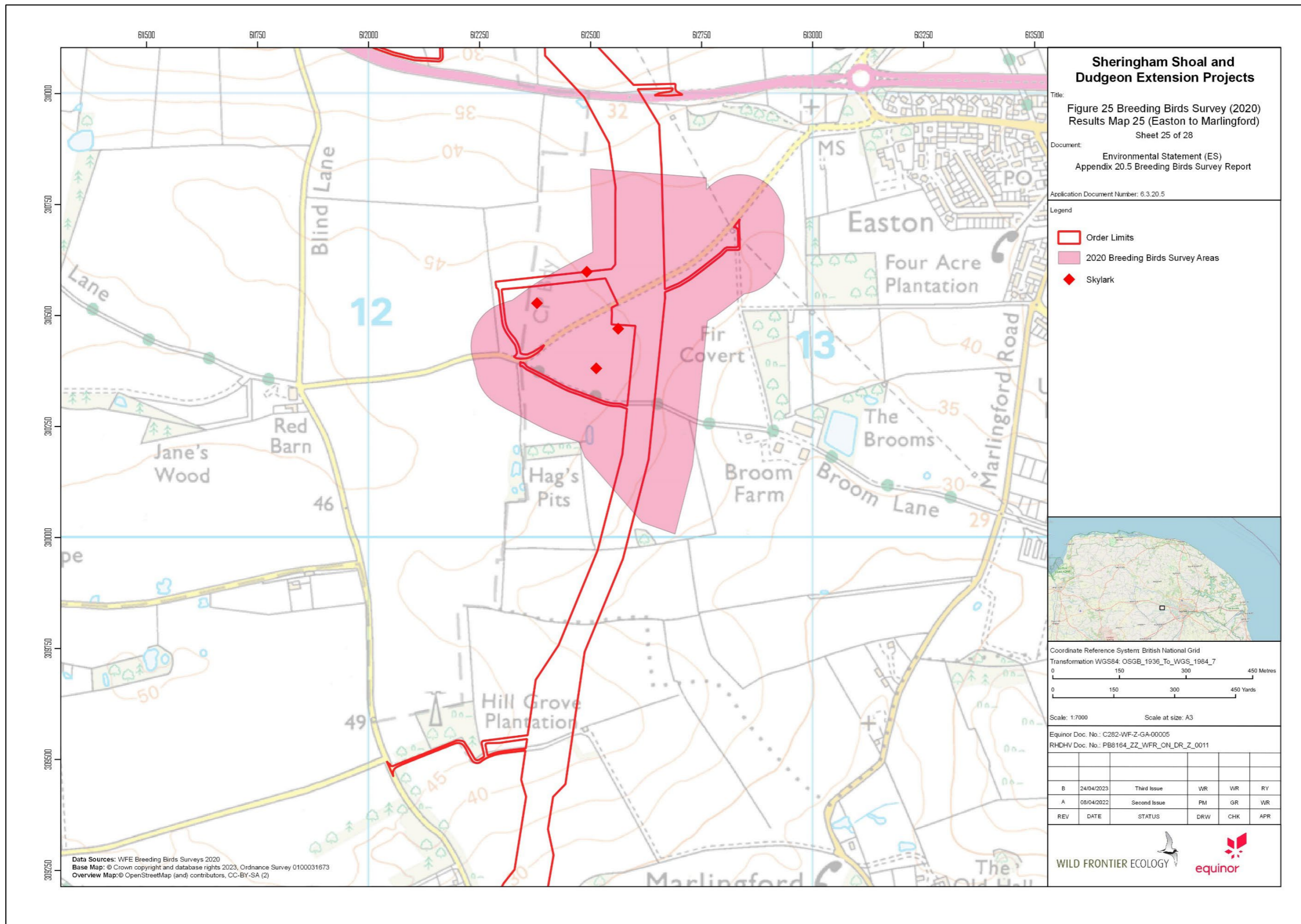


Figure 26: 2020 Breeding Bird Survey Area and Species Territories from Marlingford to Barford

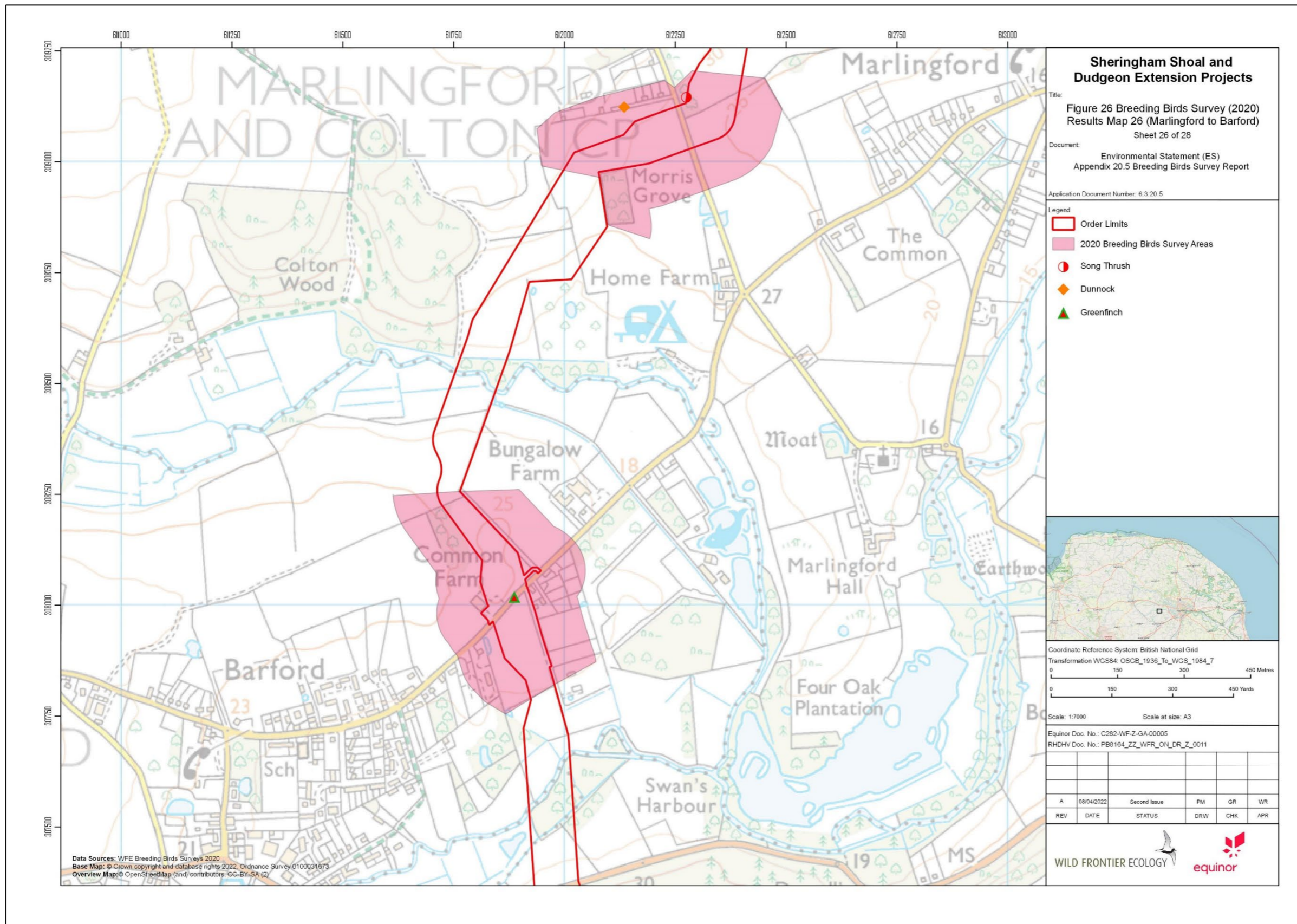


Figure 27: 2020 Breeding Bird Survey Area and Species Territories from Barford to Pockthorpe

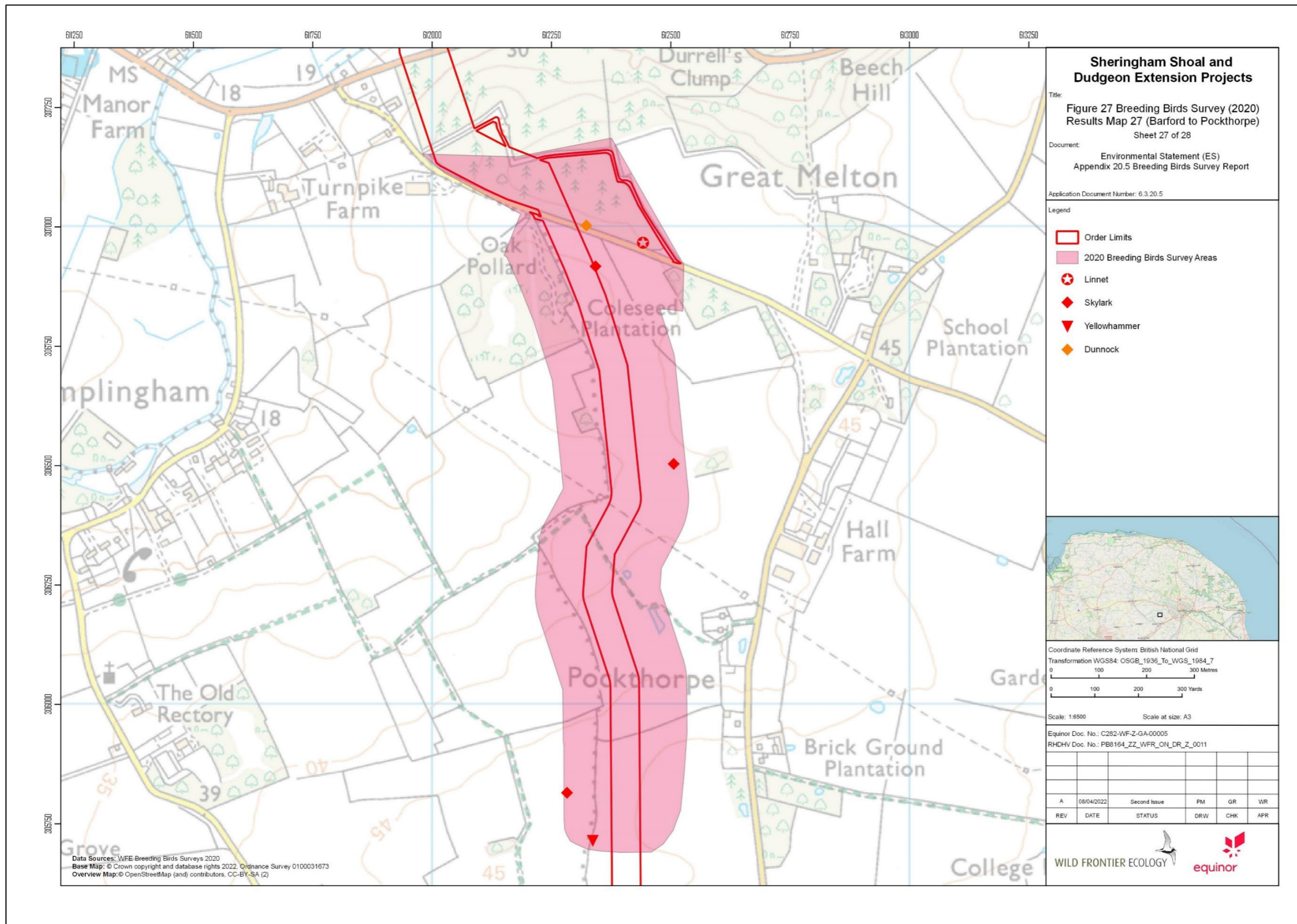
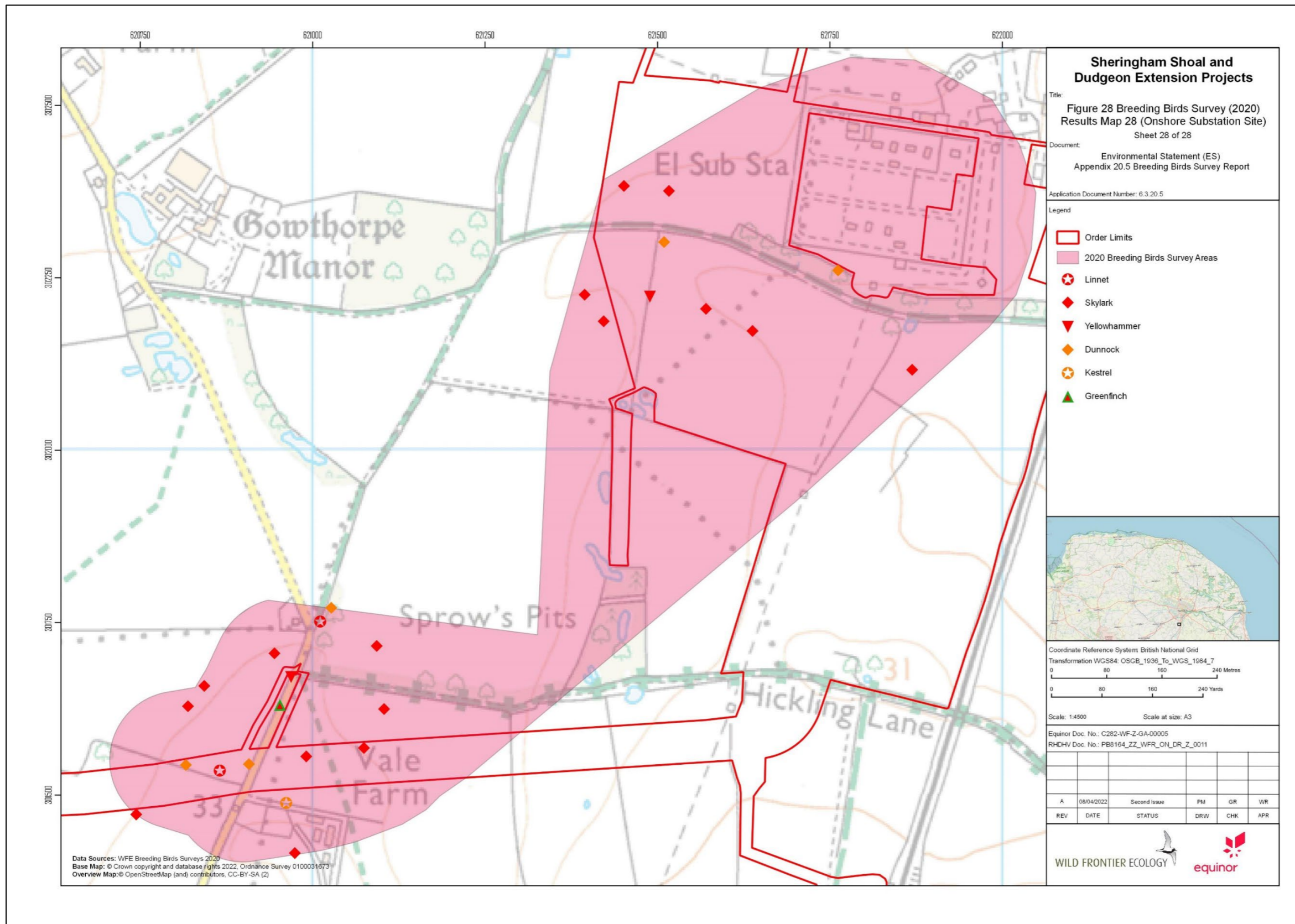


Figure 28: 2020 Breeding Bird Survey Area and Species Territories at Onshore Substation Site



4.5 Skylark Sample Sites

A total of 173 skylark territories were recorded in the Skylark Sample Sites, 157 of these being in arable habitat and 16 in grassland habitat. Locations of these are shown in **Figure 29** to **Figure 44** and the details used for the extrapolation to estimate the number of skylark territories across the study area are shown in **Table 13**, below. By measuring the extent of arable and grassland habitats within the sample sites, a nesting density can be estimated for each of these habitats. This figure can then be extrapolated for the whole DCO boundary by applying a multiplication factor of however much of that habitat type there is across the whole DCO boundary. Total areas of each habitat type (arable and relevant grassland) within the DCO boundary are taken from the Extended Phase 1 Habitat Survey Report Appendix 20.1.

Table 13: Skylark Sample Sites Survey Results and Skylark Territory Extrapolation Results

Habitat	Skylark Territories within Skylark Sample Sites	Area (km ²) of habitat type within Skylark Sample Sites	Density (per km ²) of skylark territories within Skylark Sample Site habitats	Area (km ²) of habitat type across DCO Boundary	Estimated Skylark Territories within the study area
Arable	157	7.09	22.14	14.89	329.72
Grassland	16	0.65	24.62	1.45	35.69

The estimated number of skylark territories within arable habitat within the study area is approximately 330 (based on a nesting density of 22.14 skylark territories per square kilometre [km²] and there being 14.89km² of this habitat type within the DCO boundary, and approximately 36 skylark territories are estimated within grassland habitat within the study area (based on a nesting density of 24.62 skylark territories per km² and there being 1.45km² of this habitat type within the DCO boundary).

This extrapolation does not include a 100m buffer surrounding the DCO boundary because precise classifications of habitats outside the DCO boundary are not available; these areas were not covered during the Extended Phase 1 Habitat Survey.

Figure 29: Skylarks Territories within Skylark Sample Sites from Landfall to Weybourne

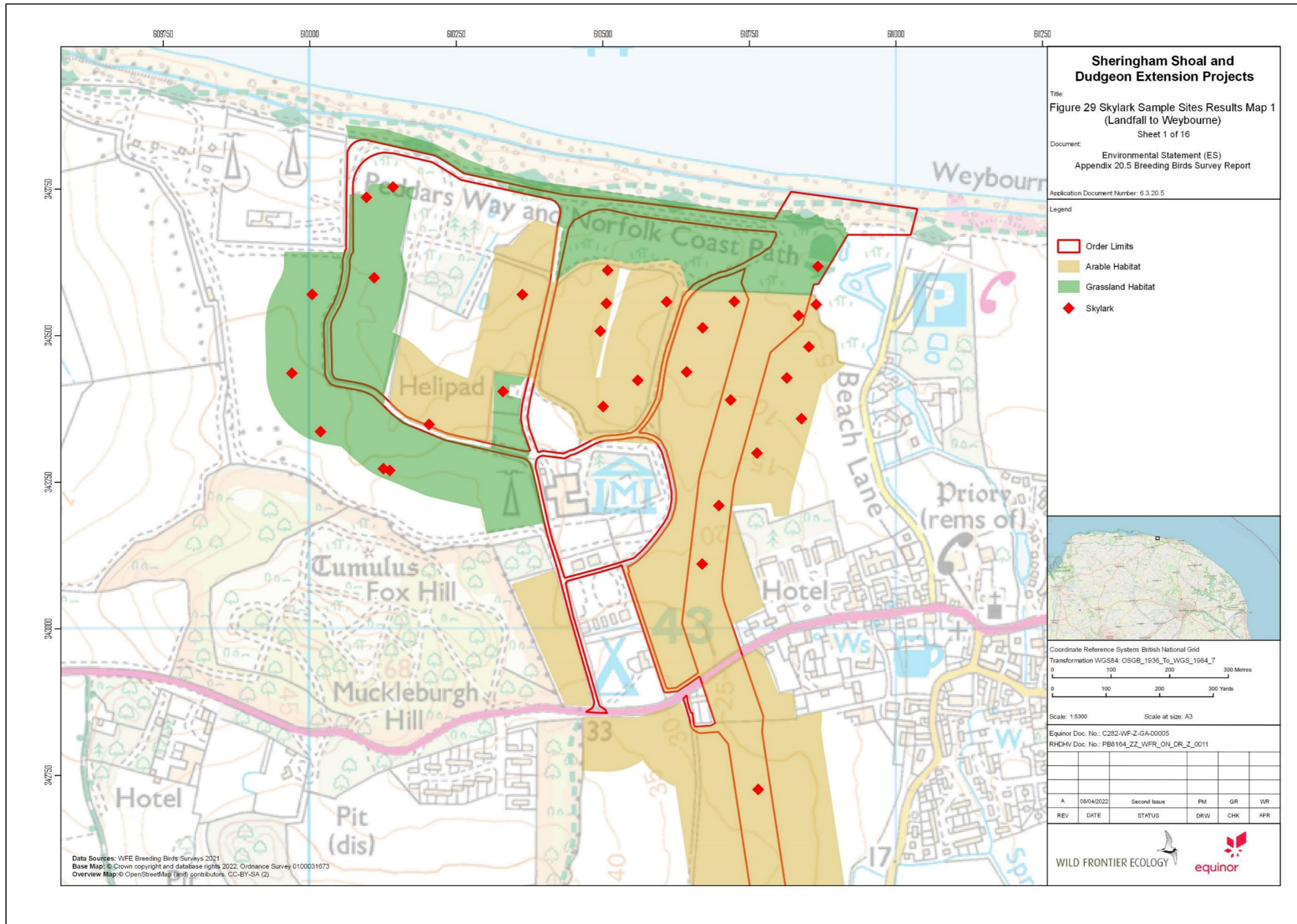


Figure 30: Skylarks Territories within Skylark Sample Sites at Weybourne

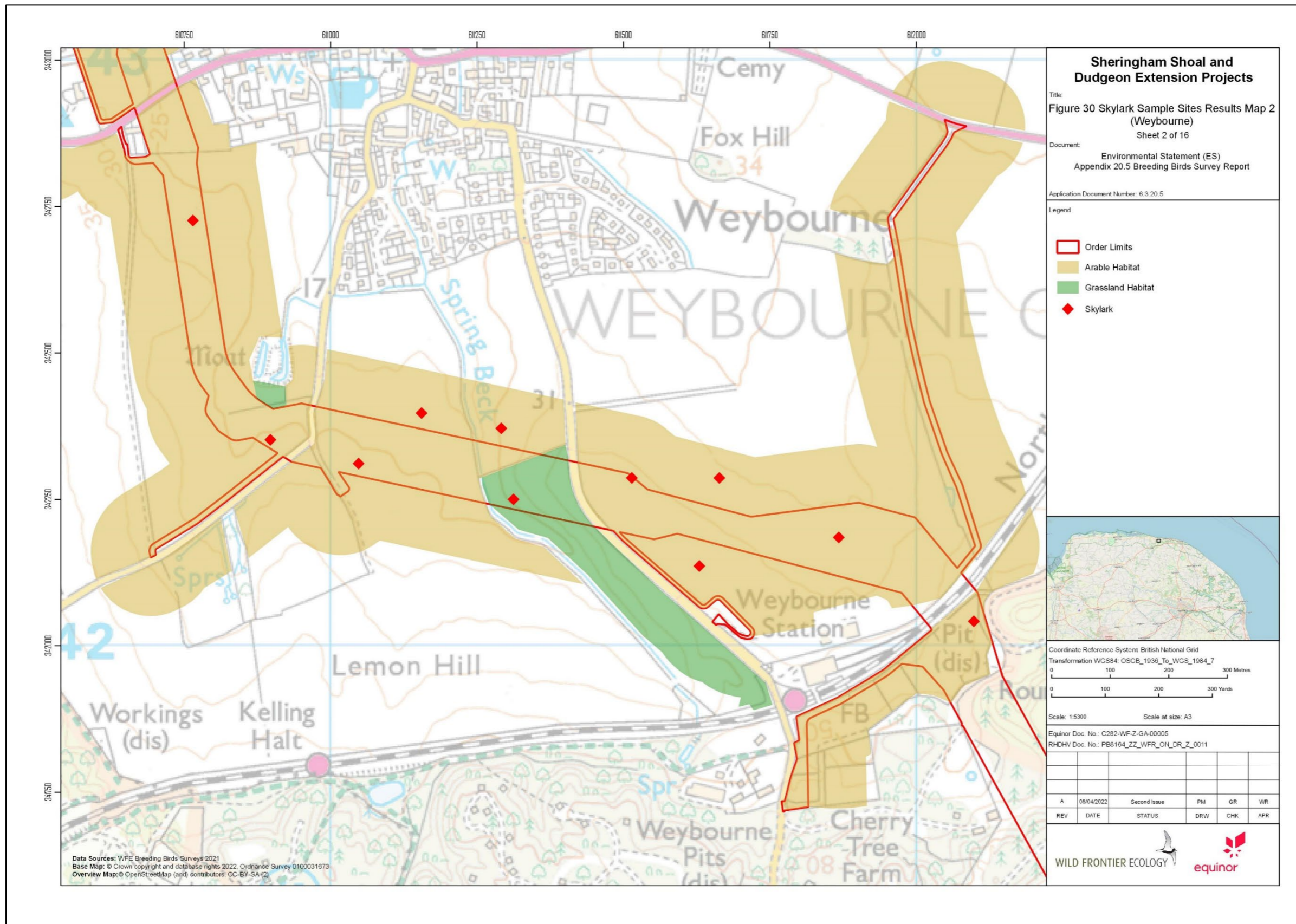


Figure 31: Skylarks Territories within Skylark Sample Sites at Bodham

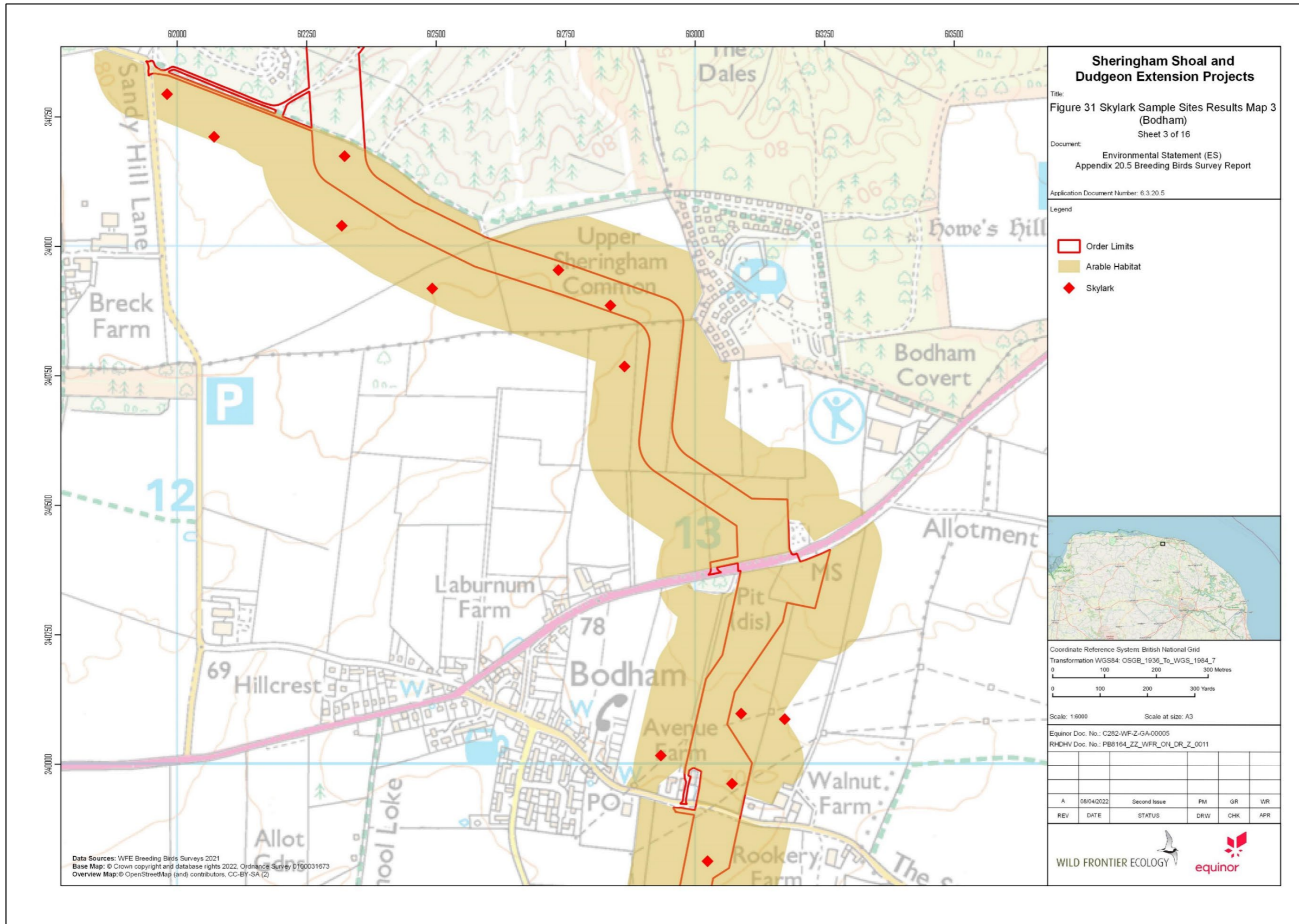


Figure 32: Skylarks Territories within Skylark Sample Sites at Lower Bodham

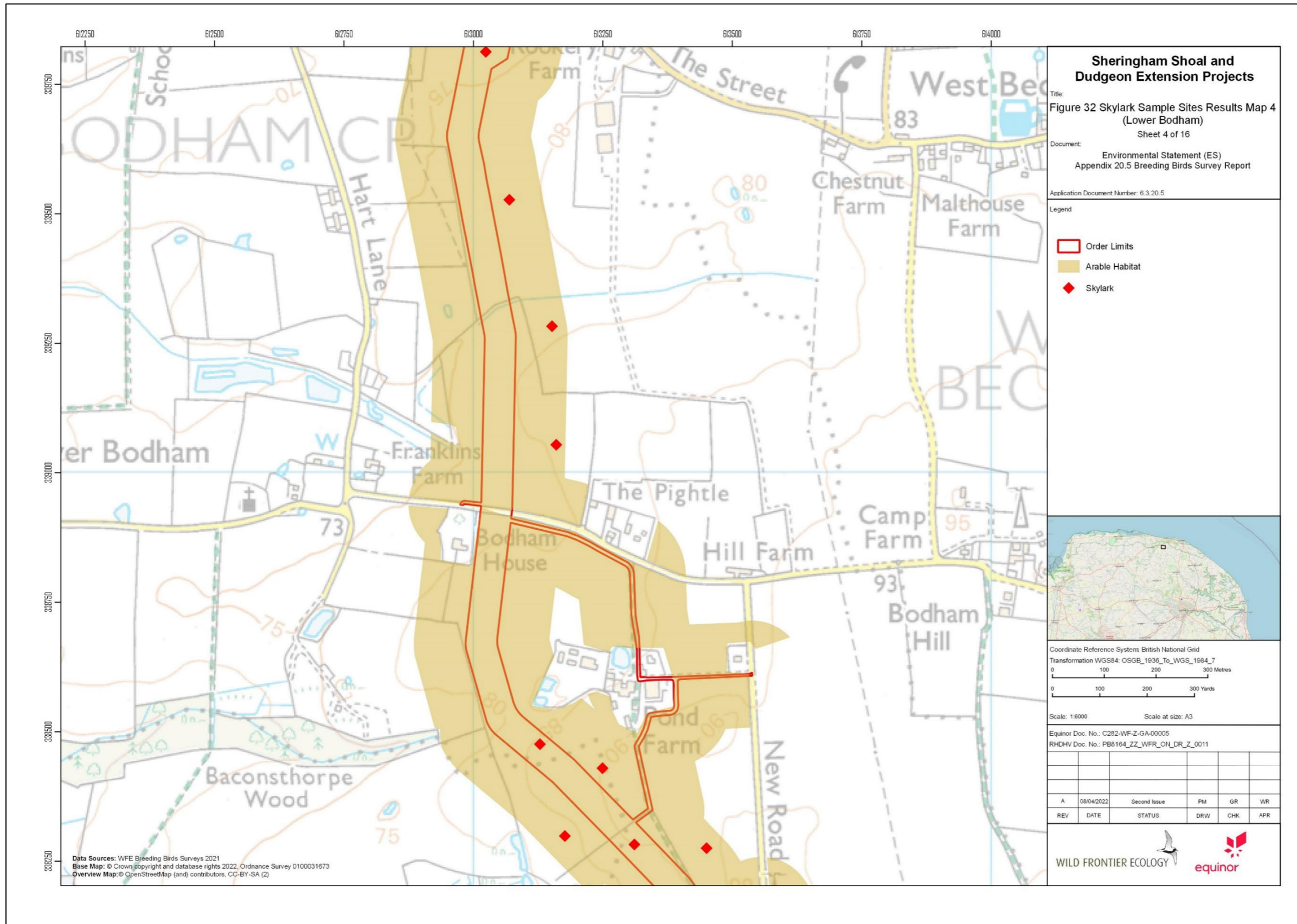


Figure 33: Skylarks Territories within Skylark Sample Sites at Baconsthorpe

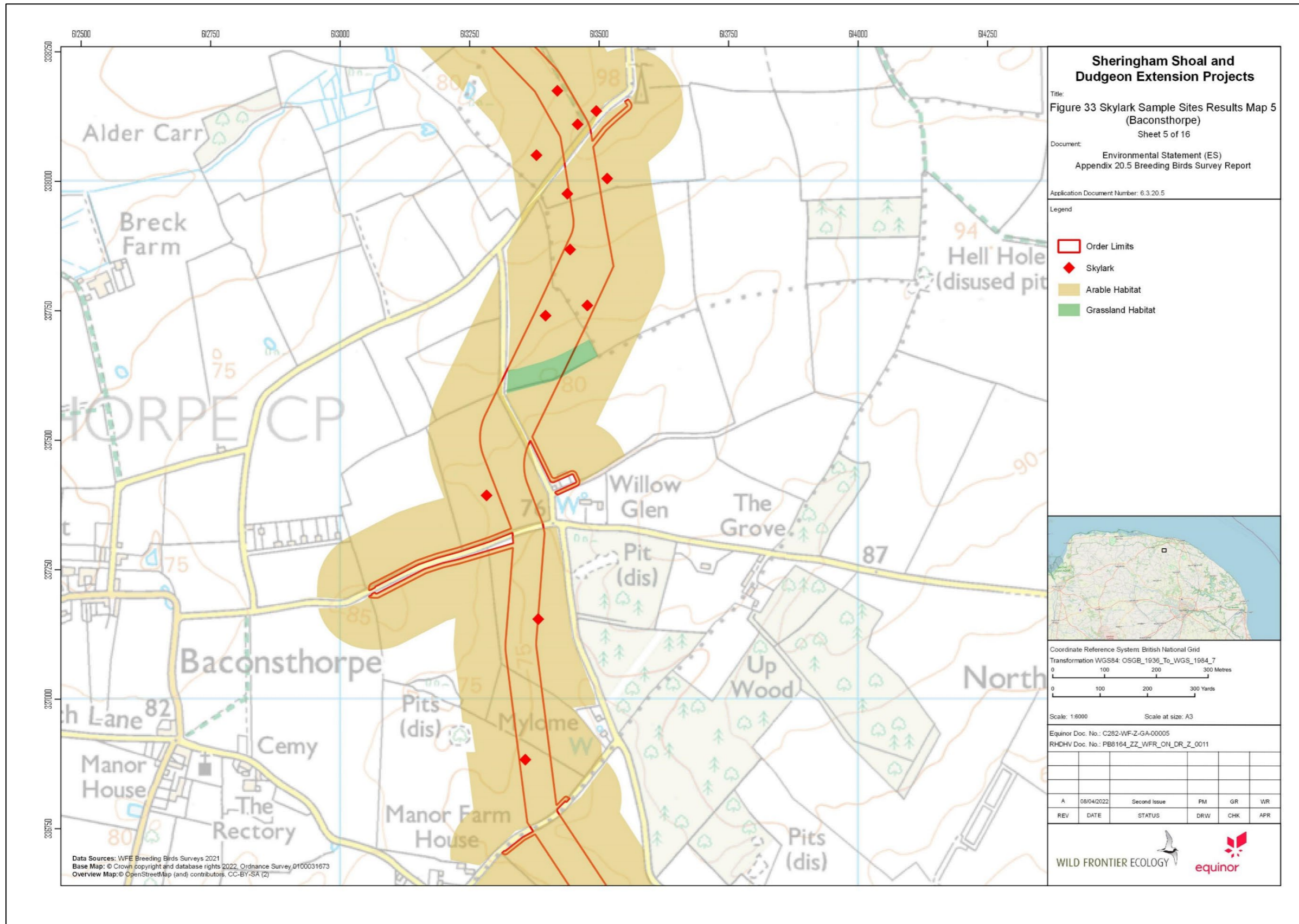


Figure 34: Skylarks Territories within Skylark Sample Sites from Baconsthorpe to Plumstead

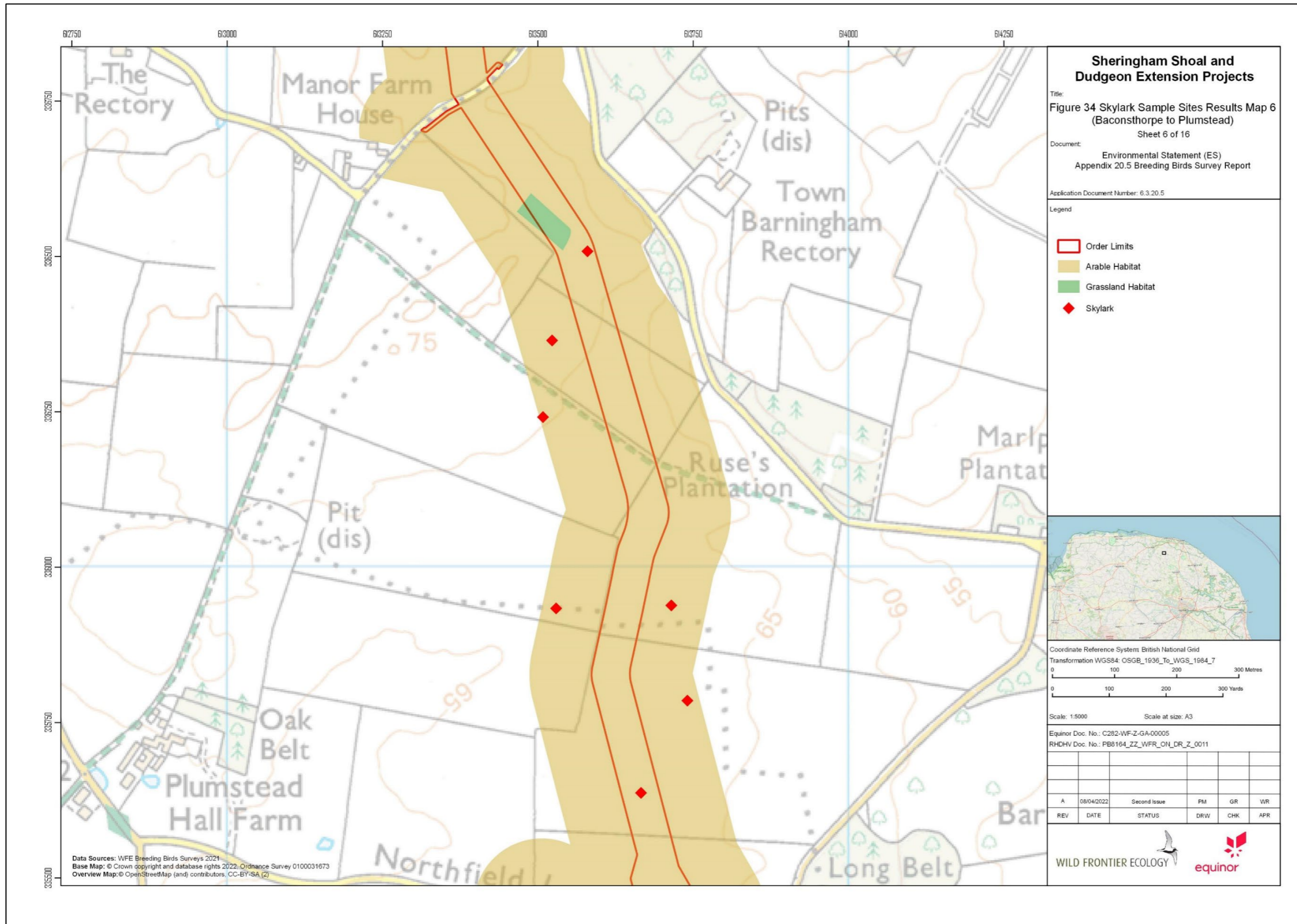


Figure 35: Skylarks Territories within Skylark Sample Sites at Plumstead

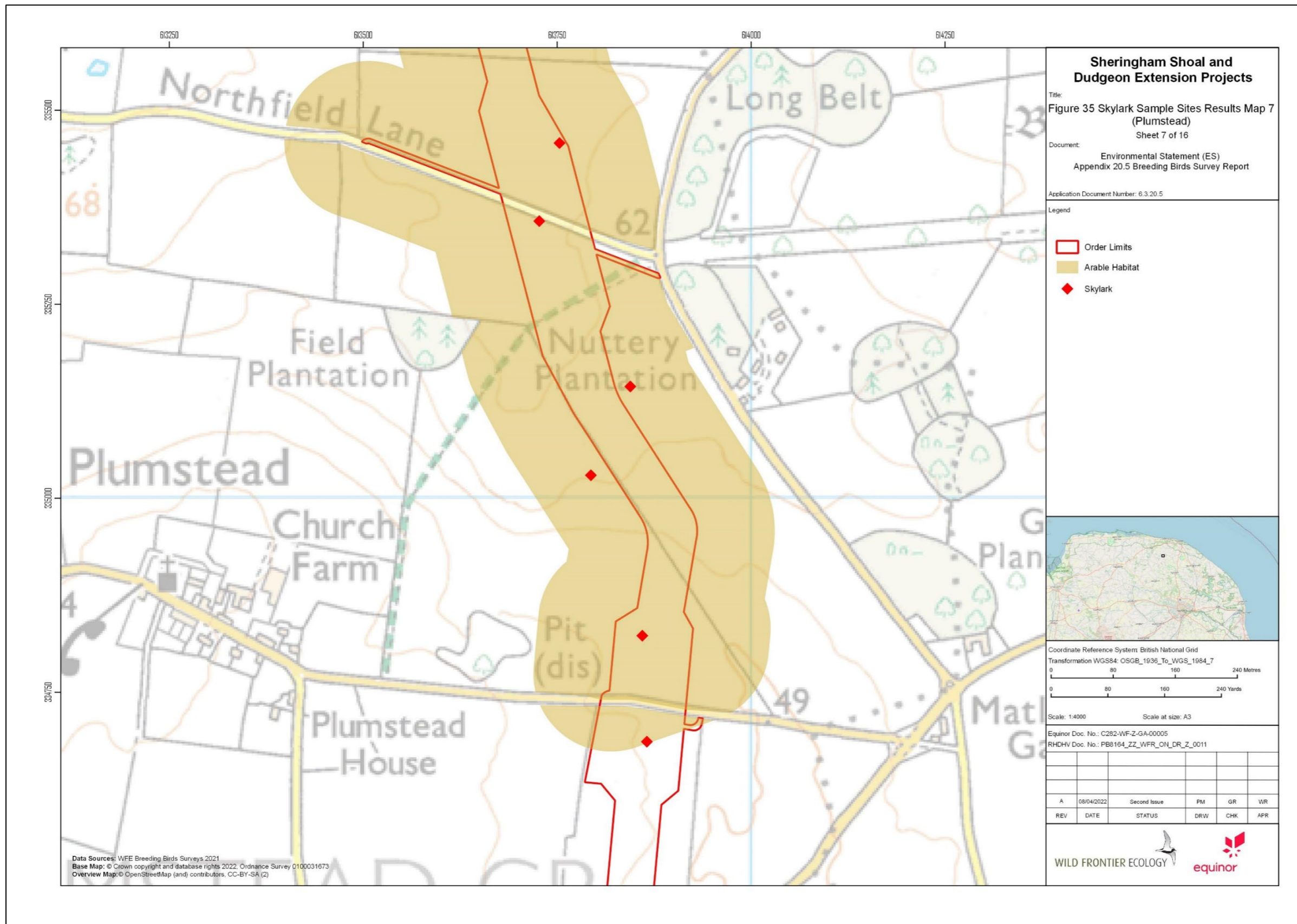


Figure 36: Skylarks Territories within Skylark Sample Sites at Little Barningham

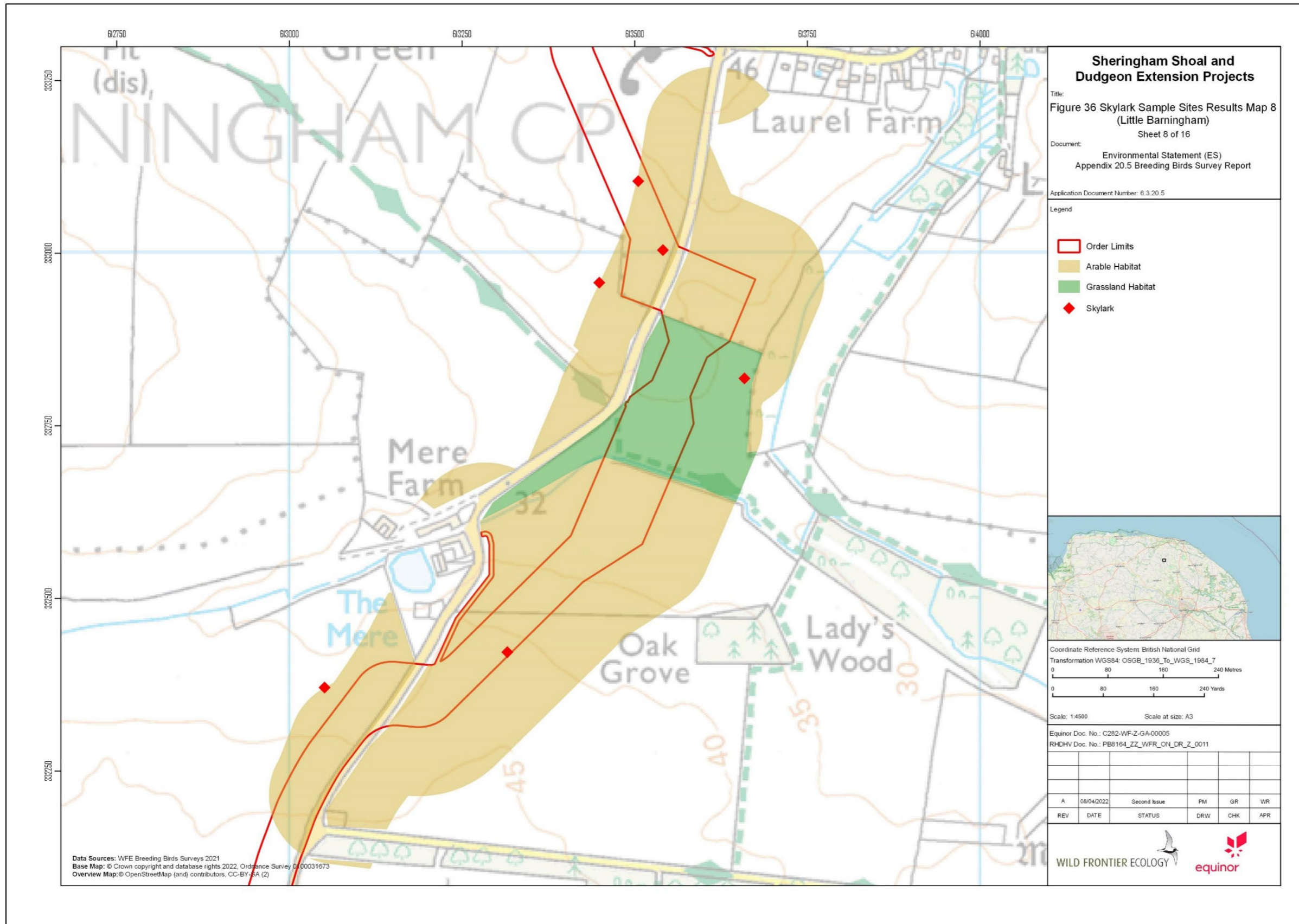


Figure 37: Skylarks Territories within Skylark Sample Sites at Oulton

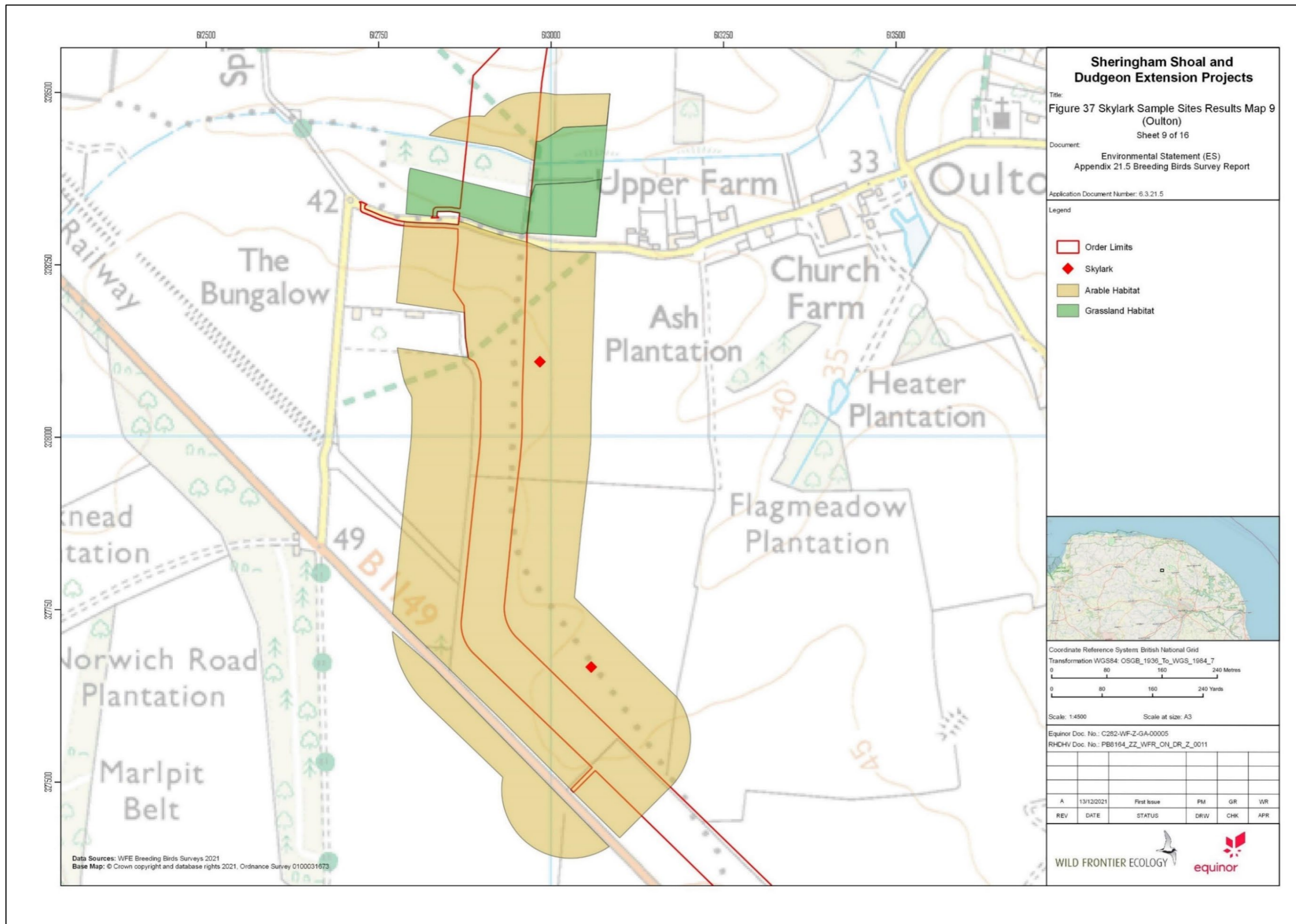


Figure 38: Skylarks Territories within Skylark Sample Sites at Swannington

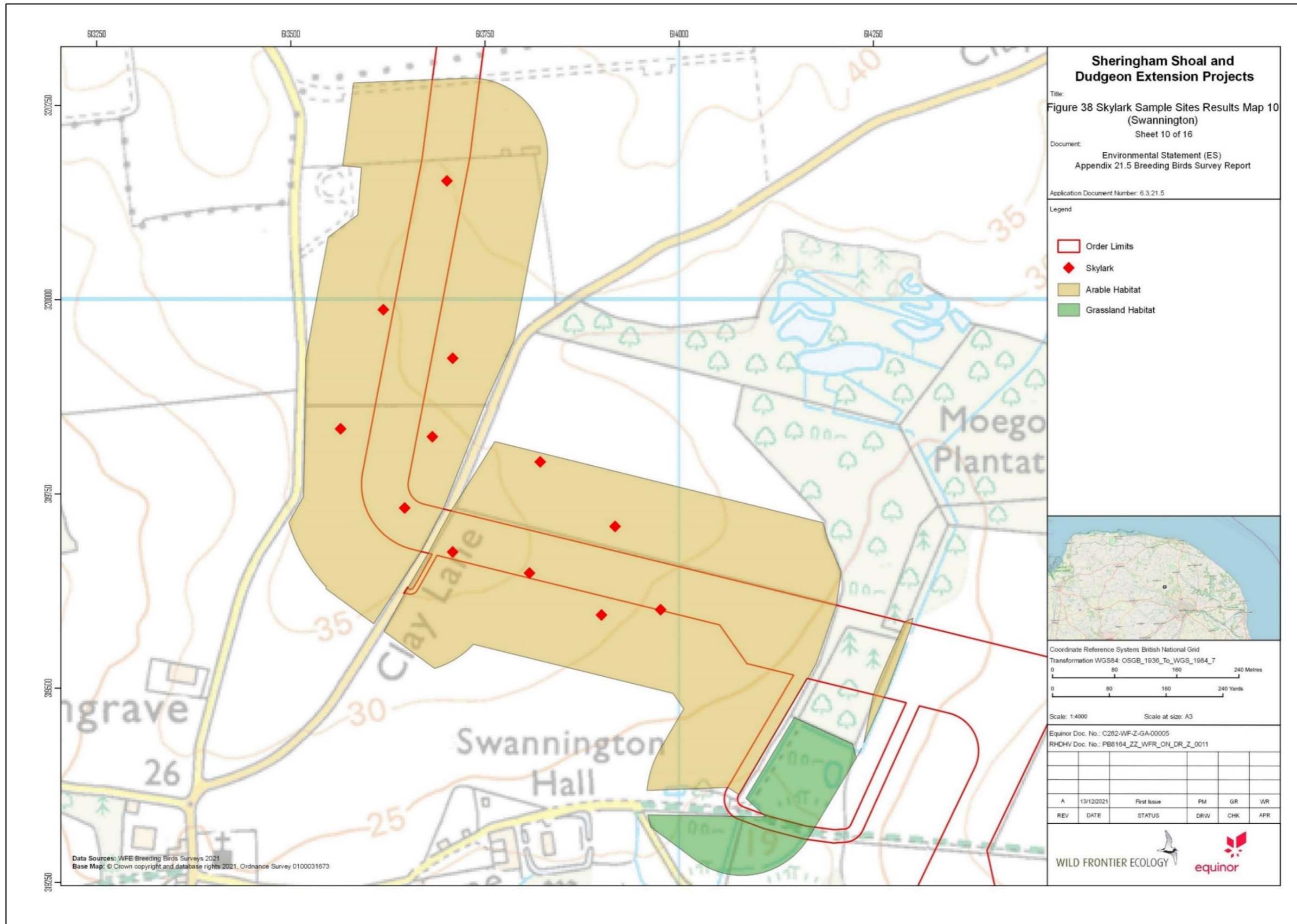


Figure 39: Skylarks Territories within Skylark Sample Sites at the River Wensum

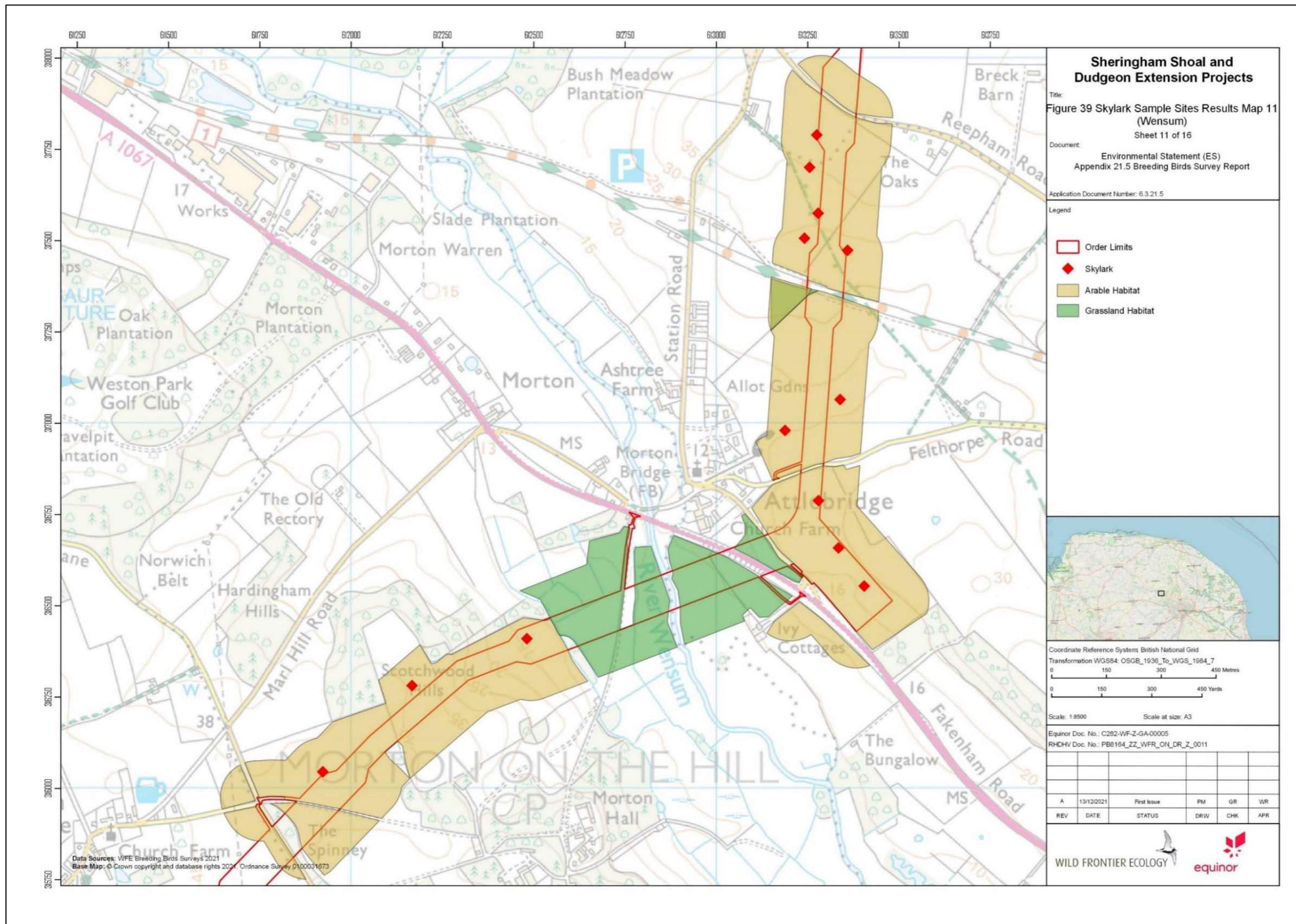


Figure 40: Skylarks Territories within Skylark Sample Sites at Honingham

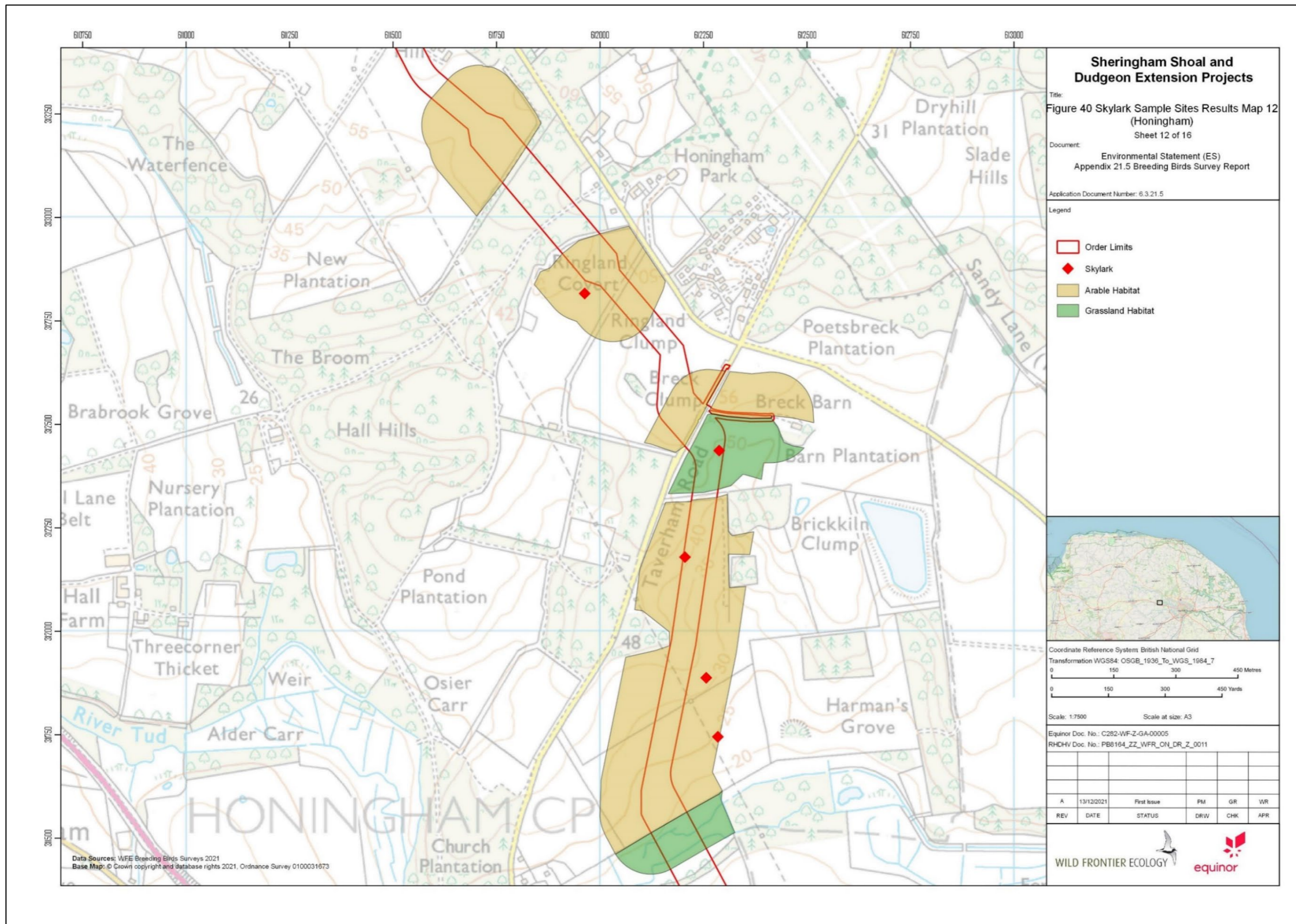


Figure 41: Skylarks Territories within Skylark Sample Sites from Easton to Marlingford

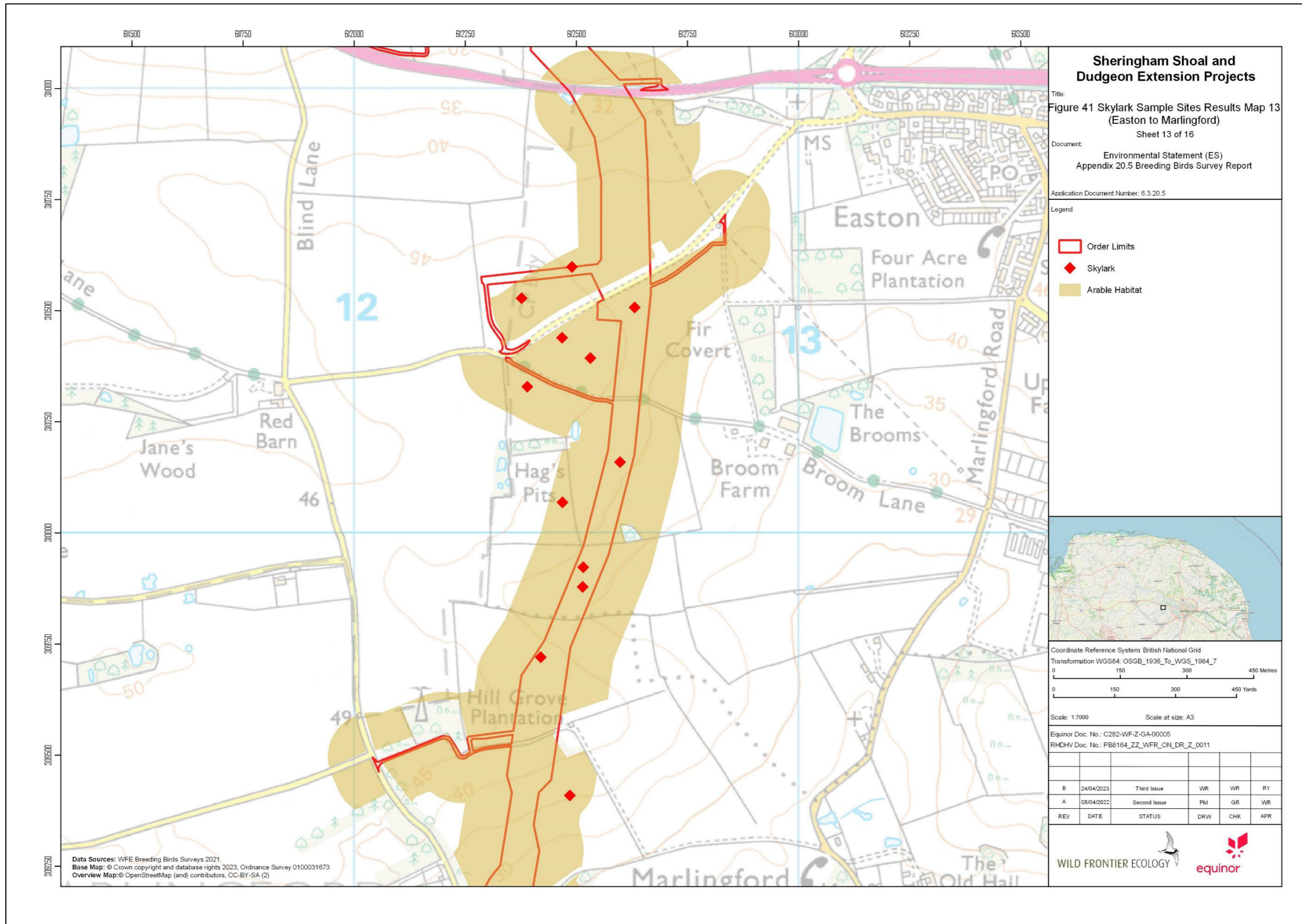


Figure 42: Skylarks Territories within Skylark Sample Sites from Marlingford to Barford

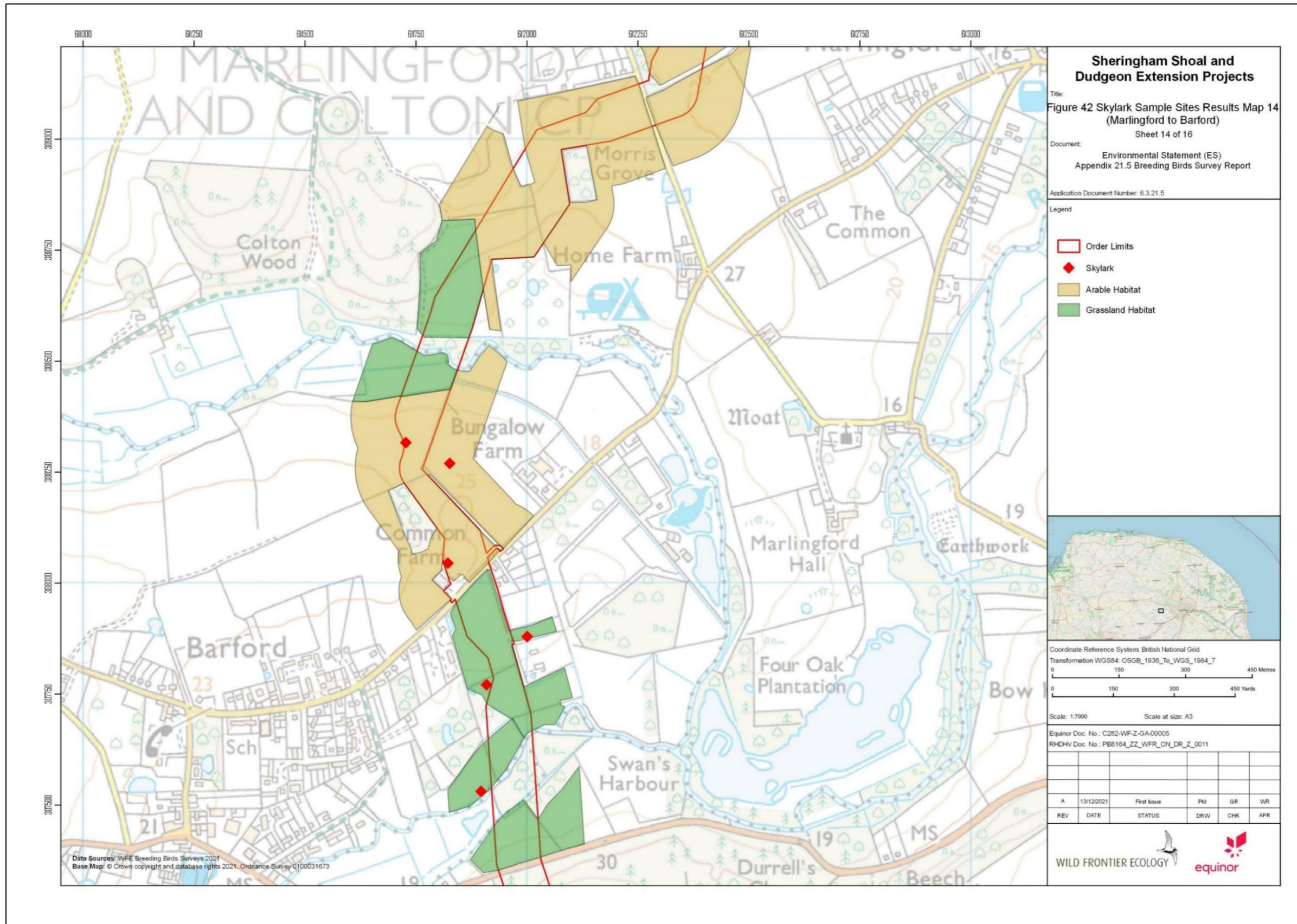


Figure 43: Skylarks Territories within Skylark Sample Sites from Barford to Pockthorpe

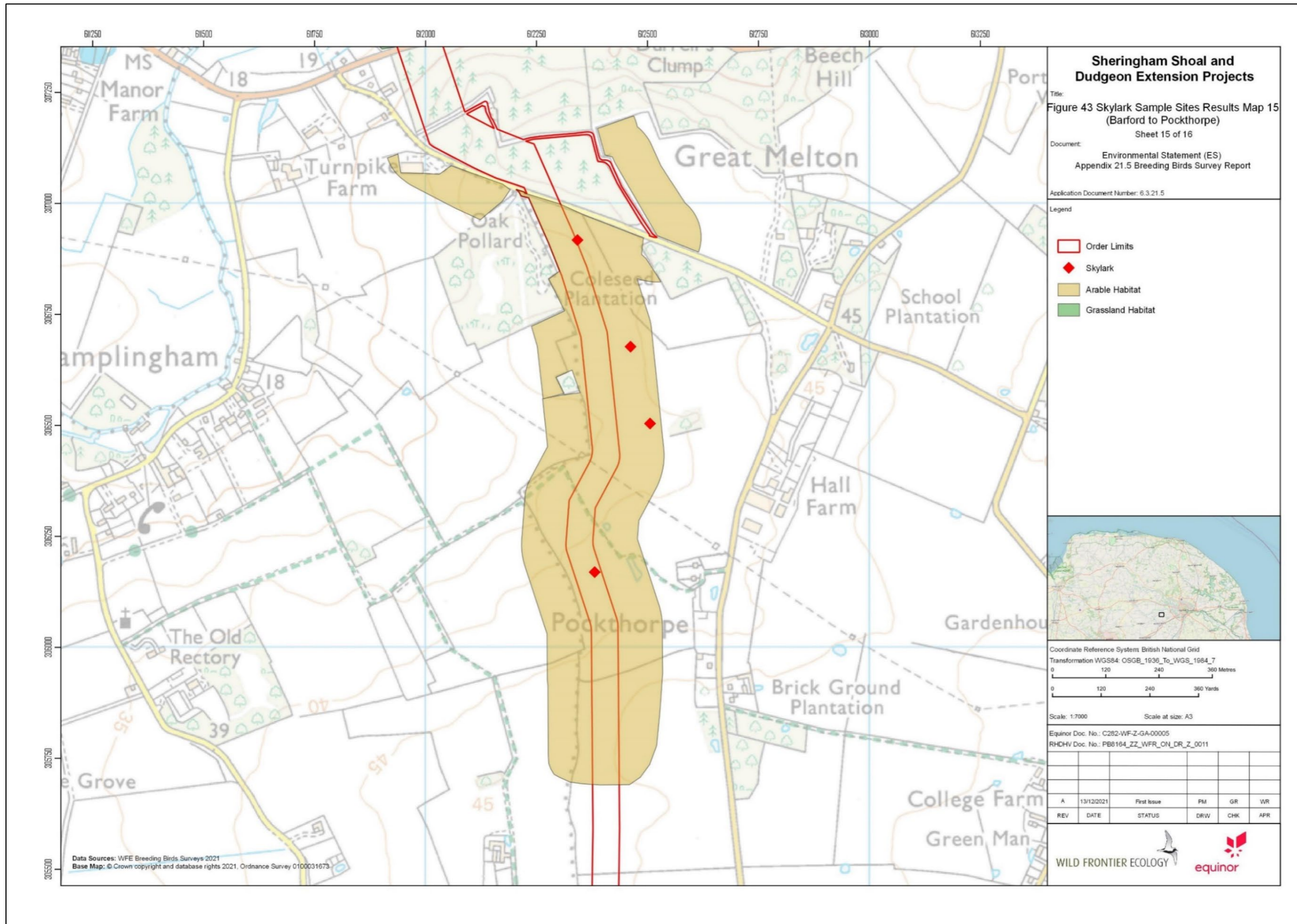
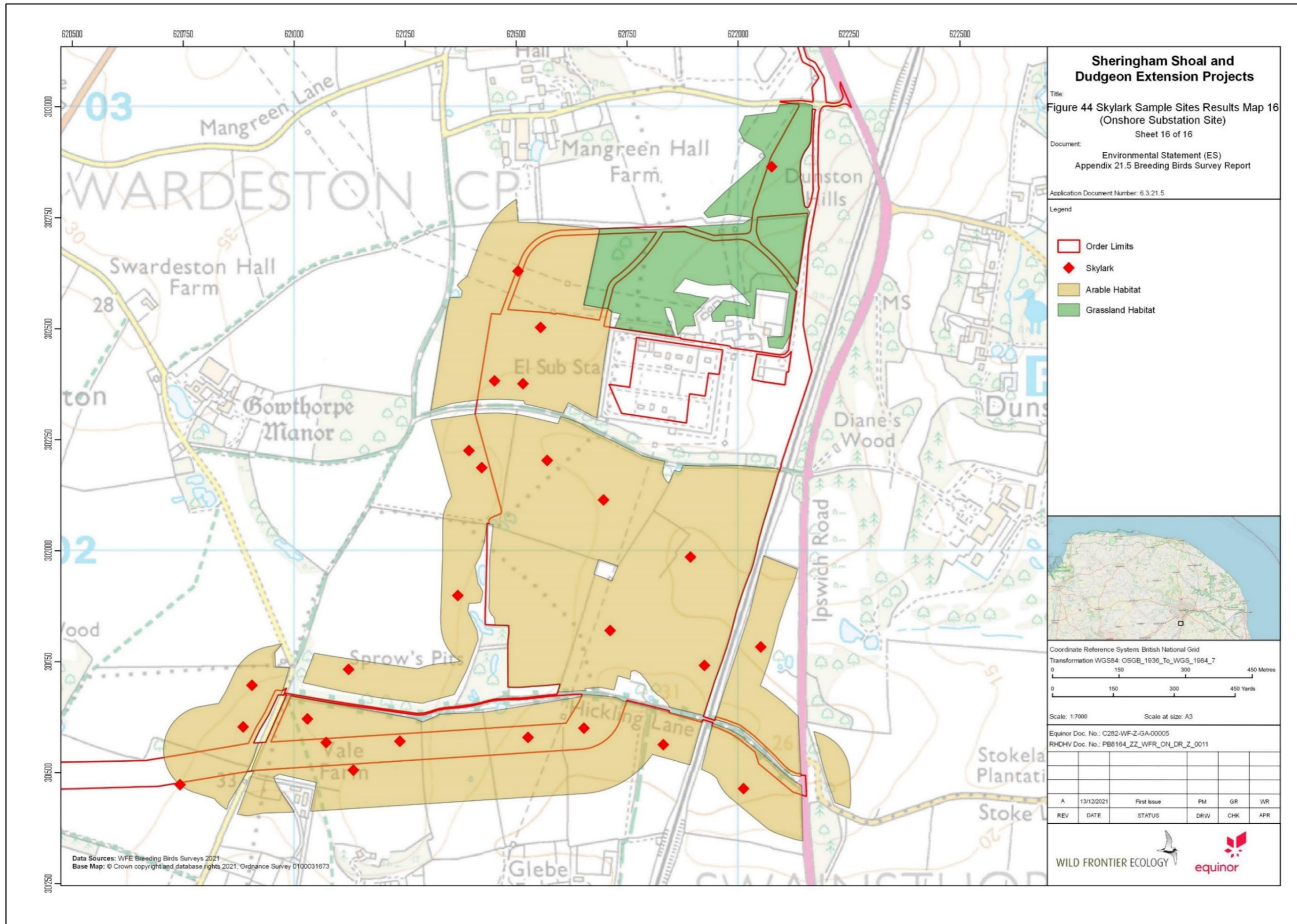


Figure 44: Skylarks Territories within Skylark Sample Sites at Onshore Substation Site



4.6 Desk Study Results

The desk study with NBIS returned 40,880 records of 265 confirmed species of bird within a 2km buffer of the PEIR boundary. To further refine the data, it was manipulated to show only records within the study area (i.e. the DCO boundary) and those of significance which lie outside of the study area. Records of significance were determined by the conservation status of the species (BoCC Red and Amber Listed and Schedule 1-listed species) and if noted as breeding or if the record indicated breeding. They were only included in the results where the location of the record was within approximately 50m of the study area or well connected to the DCO boundary via good quality habitat such as woodland and rivers. There are 54 records of breeding birds which lie within the study area or are ecologically relevant (see note on grey wagtail *Motacilla cinerea* in Table 14). The data search records for each species are summarised in Table 14, below.

Table 14: Data Search Breeding Birds Records within or in close proximity to the study area

Species	Breeding Records	Location(s)	Dates of Records	Notes
Barn owl <i>Tyto alba</i>	2	Weybourne & Swannington	01/06/2005 & 01/06/2015	n/a
Black redstart <i>Phoenicurus ochrurus</i>	2	Weybourne	13/04/2013 & 20/04/2014	Both singing males
Cetti's warbler <i>Cettia cetti</i>	3	Weybourne	11/04/2012, 10/04/2016 & 12/04/2016	All singing males
Corn bunting <i>Emberiza calandra</i>	3	Weybourne	29/05/2005, 18/04/2006 & 17/06/2005	All singing males
Cuckoo <i>Cuculus canorus</i>	2	Weybourne	23/04/2007 & 26/05/2016	2007 record included juvenile in June
Duncock <i>Prunella modularis</i>	2	Weybourne	01/06/2010 & 01/06/2012	Ten singing males and eight pairs respectively
Firecrest <i>Regulus ignicapilla</i>	5	Weybourne	11/05/2005, 19/04/2006, 09/05/2006, 16/06/2006 & 24/05/2015	Singing males in every record (two males in two records)
Goshawk <i>Accipiter gentilis</i>	1	Ringland	12/04/2006	Male and female in display at Slade Hills. Woodland where record is from runs through DCO boundary.
Grasshopper warbler <i>Locustella naevia</i>	4	Weybourne	19/04/2010, 20/04/2011, 05/05/2011 & 07/05/2012	All singing males
Grey partridge <i>Perdix perdix</i>	4	Weybourne	18/07/2007, 17/08/2007,	n/a

Species	Breeding Records	Location(s)	Dates of Records	Notes
			01/06/2012 & 14/06/2016	
Grey wagtail <i>Motacilla cinerea</i>	7	Marlingford Mill	01/06/2007, 01/06/2010, 01/06/2011, 01/06/2012, 01/06/2013, 01/06/2014 & 04/10/2016	Breeding records outside DCO boundary but ecologically relevant due to being located on the River Yare. There is a suitable structure (a bridge) for grey wagtail to breed at the location the DCO boundary crosses the Yare.
Hobby <i>Falco subbuteo</i>	1	Weybourne	07/05/2013	Territorial pair along Holt-Cromer Ridge between Upper Sheringham and Weybourne - obviously breeding but nest site unknown.
Kestrel <i>Falco tinnunculus</i>	1	Weybourne	01/06/2012	n/a
Linnet <i>Linaria cannabina</i>	2	Weybourne	01/06/2010 & 01/06/2012	Eight and ten pairs respectively
Meadow pipit <i>Anthus pratensis</i>	1	Weybourne	01/06/2010	Ten pairs
Mistle thrush <i>Turdus viscivorus</i>	1	Weybourne	26/06/2016	Two adults and two juveniles
Mute swan <i>Cygnus olor</i>	1	Dunston	17/07/2011	Pair with young
Nightingale <i>Luscinia megarhynchos</i>	1	Weybourne	22/05/2007	Singing male
Nightjar <i>Caprimulgus europaeus</i>	1	Weybourne Heath	05/06/2006	Churring (displaying) male
Reed bunting <i>Emberiza schoeniclus</i>	1	Weybourne	01/06/2012	Three pairs
Sand martin <i>Riparia riparia</i>	2	Weybourne	01/06/2011 & 01/06/2012	30 and ten plus nesting pairs respectively
Skylark <i>Alauda arvensis</i>	1	Weybourne	01/06/2010	17 breeding pairs
Song thrush <i>Turdus philomelos</i>	2	Weybourne	01/06/2010 & 01/06/2012	One pair and two pairs respectively
Stock dove <i>Columba oenas</i>	2	Weybourne	09/09/2008 & 01/06/2012	n/a
Swallow <i>Hirundo rustica</i>	2	Weybourne	01/06/2010 & 01/06/2012	Three and five breeding pairs respectively
Turtle dove <i>Streptopelia turtur</i>	14	Weybourne, Kelling Heath and Swannington	Various dates in 2015 and 2016	Pairs or birds singing mainly at Kelling Heath, but also at Weybourne/Muckleburgh Hill and near Swannington- all records to four figure grid

Species	Breeding Records	Location(s)	Dates of Records	Notes
				references.

4.7 Constraints and Limitations of Survey

Constraints to the 2020 breeding bird survey effort included limited landowner access for the areas that had been identified to be surveyed, and ongoing alterations to the PEIR boundary which meant that some surveys covered areas which were shortly after excluded from the survey area, or areas which were brought into the adjusted PEIR boundary were not covered by the initial surveys. In 2021, the former constraint was largely addressed as landowner access was widely available. Similarly, the majority of the PEIR boundary was not subject to significant alterations during the course of the 2021 surveys. Given there were fewer limitations and constraints in 2021, the data is therefore considered to be sufficiently reliable and robust to inform the Ecological Impact Assessment (EIA) and breeding bird mitigation measures.

4.8 Further Survey Requirements and Expiry Dates

No further surveys are currently considered likely to be required.

5. MITIGATION

All active nests of wild birds are legally protected, so pre-emptive avoidance of nest destruction is the only legally acceptable approach; addressing impacts through subsequent mitigation (after nests have been impacted) is not legally permissible.

The final Ecological Management Plan will set out the detailed mitigation measures for each breeding bird species. This will be informed by the results of pre-construction bird surveys to ensure mitigation accurately reflects the status, species and distribution of breeding bird activity at the time construction impacts would occur. General mitigation advice and principles which are expected to be relevant based on existing survey data (although may need to be adjusted following the outcomes of the pre-construction breeding bird surveys) are outlined below.

5.1 General Mitigation

Wherever feasible, vegetation and ground clearance works will take place between September and February inclusive, in order to avoid the main bird nesting season, which runs from March to August inclusive, to ensure that no active birds' nests are damaged or destroyed. This is the primary avoidance measure which will need to be adopted wherever construction works overlap suitable bird nesting habitat, which includes hedgerows, trees, scrub, woodland, scattered shrubs and some arable and grassland habitats.

If vegetation clearance/ground clearance works cannot be timed to occur outside of the main bird nesting season, affected areas will need to be thoroughly checked by an ecologist for any active birds' nests prior to these areas being cleared. Any clearance works will then only be permissible if this check confirms the absence of such nests. If active nests are found, these will need to be retained in-situ and allowed to reach their conclusion without disturbance or interference. In this scenario, the ecologist would be able to advise on appropriate stand-off distances (i.e. buffer zones around any nests) and the period for which the nest needs to be allowed to reach its conclusion before a return visit by the ecologist to recheck the targeted area. A thorough check can only be carried out on small areas such as sections of hedgerows; in larger areas particularly woodland and extensive areas of vegetation, it will not be possible to definitely rule out the possibility of secretive nesting species, so in such cases it will be necessary to time works accordingly to avoid the main bird nesting season.

For SEP and DEP, the construction programme is expected to run for more than one year. In general, vegetation clearance and ground clearance works will take place shortly before (i.e. in the days or weeks before) construction works. However, in order to allow works to run throughout the year including during the main bird nesting season (March to August inclusive), it may be necessary to complete pre-emptive vegetation clearance, for example, clearing vegetation certain parts of the DCO boundary in January and February to allow construction works in this area to take place in April and May. These pre-emptively cleared areas would likely require pre-construction checks by an ecologist to confirm the absence of nesting birds, but this habitat manipulation should successfully deter most nesting bird activity from these areas; any birds which do nest amongst the cleared habitat should be relatively straightforward to identify during a nesting bird check, and overall nesting activity is likely to be substantially reduced.

5.2 Sensitive Areas

In more sensitive areas of the DCO boundary for breeding birds, it will not be possible

to complete a comprehensive check for the presence of active birds' nests, and for the ecologist to be able to confirm the locations of any such nests (thereby allowing avoidance of it). In the following habitats, all clearance works will therefore have to take place outside of the main bird nesting season (which runs from March to August inclusive) as this is the only feasible mitigation solution which can confidently be anticipated to ensure no legal offences are committed.

- Landfall including Weybourne Camp where ground nesting birds such as grey partridge and meadow pipit are breeding in higher densities
- Mangreen Quarry where the Schedule 1 species, little ringed plover, is breeding
- Woodland areas such as the area of woodland near Ringland (specific mitigation for Weybourne Wood is provided below)
- The area outlined for tree clearance in Weybourne Wood will be undertaken in the autumn (September to November inclusive) to avoid impacts during the main breeding season and to the Schedule 1 species crossbill which breeds from January until April

5.3 Skylarks

Given the abundance of arable and grassland habitat, and of nesting skylarks within these habitats, mitigating impacts to this particular species will require careful consideration. Skylark nests are extremely difficult to locate as they are small, well camouflaged and established very low to the ground, usually amongst low vegetation. Given that skylarks typically nest in arable fields, which is by far the most abundant habitat type within the DCO boundary, it would be impossible to attempt to locate all active skylark nests across all potential nesting habitat within the DCO boundary.

The most effective and reliable option to ensure skylark nests within arable habitat are not accidentally damaged or destroyed by ground clearance works would be to time all works within arable fields to avoid the period when skylarks will nest, which is from April to August inclusive (meaning works would need to be completed from September to March). Skylarks will also nest on open ground within arable fields (this can even be a preferred habitat condition for nesting), so pre-April clearance of arable habitat to deter skylarks from nesting would not be an effective mitigation option, although it would likely improve the effectiveness of individual nest finding and avoidance.

However, construction works within arable habitat (but not clearance of the habitat) are inevitably anticipated to occur throughout the skylark breeding season, which will result in a loss of nesting habitat for the species for however many breeding seasons the construction works take place. This will have the effect of removing large quantities of suitable breeding habitat for skylarks which would otherwise have supported breeding activity. A bespoke mitigation approach will therefore likely be required for skylark (which is by far the most abundant and widespread bird of conservation concern breeding within the DCO boundary), and this will be outlined within the final Ecological Management Plan, which will be informed by the results of pre-construction bird surveys.

5.4 Sand Martins

Mitigation for birds close to the landfall is not anticipated to be necessary as the cliffs will not be impacted.

The sand martins nesting at Mangreen Quarry are using a changeable, active quarry

site, so it is not known whether the habitat will remain suitable for the species at the time construction works would occur. Furthermore, it is not certain that construction works would need to overlap with the quarry area. Therefore, attempting to implement habitat mitigation, such as the creation of a bank suitable for breeding sand martins is not a realistic option given the dynamic nature of the quarry site.

However, if pre-construction bird surveys reconfirm the presence of breeding sand martins at Mangreen Quarry, and they are found to be nesting in a bank which would be impacted by construction, the bank would need to be removed before May, as this would be before the birds start prospecting for a nest site. In this scenario, habitat mitigation would also be advised.

5.5 Habitat Creation

Areas of scrub will be created by planting woody plants in areas within the DCO boundary to benefit breeding birds impacted by the proposed works. This could benefit scrub nesting species such as dunnock and song thrush. A minimum of four of the following species would be suitable:

Alder *Alnus glutinosa*

Bird cherry *Prunus padus*

Cherry plum *Prunus cerasifera*

Crab apple *Malus sylvestris*

Field maple *Acer campestre*

Hawthorn *Crataegus monogyna*

Hazel *Corylus avellana*

Holly *Ilex aquifolium*

Hornbeam *Carpinus betulus*

Oak *Quercus robur*

Silver birch *Betula pendula*

Small-leaved lime *Tilia cordata*

Whitebeam *Sorbus aria*

Wild cherry *Prunus avium*

Wild service tree *Sorbus torminalis*

Turtle dove *Streptopelia turtur* would also benefit from this enhancement in areas close to Muckleburgh Hill, Kelling Heath and Alderford Common where they have recently (since 2015) been recorded breeding. Creation of a wild bird seed margin is also advised in these areas to benefit foraging for turtle doves. This mix consists of early English vetch (25%), black medick (20%), birdsfoot trefoil (20%), early white clover (20%), early red clover (10%) and fumitory (5%) and will be sown in blocks or strips, approximately six metres wide, between 1st August and 15th October⁹. Further advice is available from Operation Turtle Dove¹⁰ and the RSPB¹¹.

⁹ [REDACTED]

[REDACTED]

SEP and DEP has a commitment to reinstate all habitats to their pre-construction condition, for example, by replanting any sections of hedgerows which are removed. There is also a commitment to achieve ecological enhancement, largely focusing on habitat creation (above and beyond that required for reinstatement) such as through hedgerow planting, tree planting, scrub creation, pond enhancement, grassland creation/enhancement and others. The precise detail of ecological enhancement will be outlined following consultation with landowners and other stakeholders, with the outline Ecological Management Plan.

11 [REDACTED]

6. CONCLUSIONS

The breeding bird surveys from 2020 to 2021 recorded breeding territories of 25 species of Red and Amber and Schedule 1 listed species, 22 of which are within the study area. Sand martin, which is another species of conservation significance, was recorded nesting in the cliffs at Weybourne and at Mangreen Quarry. The majority of breeding bird species recorded during the surveys were farmland species such as skylark, meadow pipit, yellowhammer and linnet.

Four Schedule 1 breeding species (Cetti's warbler, crossbill, firecrest and little ringed plover) were recorded in the study area. Three Cetti's warbler territories were recorded in the Weybourne Hope reedbeds. Ten firecrest territories were recorded within Weybourne Wood. Single marsh tit and stock dove territories were also recorded here. The little ringed plover breeding territory was recorded at Mangreen Quarry.

A single grey wagtail territory was recorded on the River Wensum at Attlebridge. Mallard and mute swan were also recorded breeding near the River Wensum as well at Weybourne Camp.

The nightjar surveys recorded a single male nightjar churring within the survey area. This territory is outside of the study area so impacts to nightjar are considered unlikely. Three tawny owl territories were also recorded on these surveys close to Weybourne Heath and are likely breeding closer to the DCO boundary given the suitable habitat in Weybourne Wood.

By extrapolating the data on skylark nesting densities, it is estimated that there are 366 skylark breeding territories within the study area. Appropriate mitigation in the form of timed habitat clearance works and other measures will need to be adopted. These will be informed by the results of pre-construction breeding bird surveys.

For all breeding bird species recorded within the study area, appropriate mitigation will be legally required. This will involve timing vegetation and ground clearance works (which affect habitats suitable for nesting birds) so as to avoid the main breeding bird season, which runs from March to August, inclusive.

7. REFERENCES

<p>[REDACTED]</p>
<p>Gilbert, G., Gibbons, D.W. and Evans, J. (1998) <i>Bird Monitoring Methods</i>. RSPB, Sandy.</p>
<p>Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. <i>British Birds</i> 108, pp. 708-746.</p>
<p>https://www.legislation.gov.uk/ukpga/1981/69/schedule/1</p>
<p>Marchant, J.H. (1983). <i>BTO Common Bird Census Instructions</i>. BTO, Tring.</p>
<p>Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. (2000). <i>Bird Census Techniques</i> (2nd Edition). Academic Press, London.</p>
<p>Taylor, M. & Marchant, J.H. (2011). <i>The Norfolk Bird Atlas: Summer and Winter Distributions 1999-2007</i>. British Trust for Ornithology.</p>
<p>[REDACTED]</p>
<p>[REDACTED]</p>
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