



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Environmental Statement

Volume 3

Appendix 20.4 – Wintering Birds Survey Report (Revision B) (Tracked)

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The data which we have prepared and provided is accurate, and has been prepared and provided in accordance with the CIEEM’s Code of Professional Conduct. We confirm that any opinions expressed are our best and professional bona fide opinions.



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

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LIST OF ACRONYMS

BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CBC	Common Bird Census
DCO	Development Consent Order
DEP	Dudgeon 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
SEP	Sheringham 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. (WFE) was commissioned by Equinor New Energy Ltd. to undertake a suite of wintering bird surveys of the areas within the Development Consent Order (DCO) boundary associated with the proposed onshore elements of the Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects. An initial survey had been conducted between November 2019 and March 2020 covering the then Preliminary Environmental Information Report (PEIR) boundary. The PEIR boundary has subsequently been refined and become the more precise, narrower Development Consent Order (DCO) boundary. Records of wintering birds obtained for the area outside the DCO boundary are now no longer considered relevant and therefore have been removed from further consideration. This report presents the wintering bird records within the DCO boundary or within habitats connected to it (e.g. within the same field).

The 2019-20 wintering bird surveys were conducted in all areas within 10 kilometres (km) of North Norfolk Coast Special Protection Area (SPA) and Broadland SPA (**Figure 11 - Figure 15 & Figure 17**). Surveys were also undertaken within 500 metres (m) of the River Wensum Special Area of Conservation (SAC) where it intersected with the PEIR boundary near Attlebridge (**Figure 16**), and in the vicinity of the onshore substation site (which is also within the 10km buffer from Broadland SPA). These surveys were all completed from Public Rights of Way (PRoW) and roads only.

The 2020-21 surveys focussed on the same sections to those surveyed in 2019-20, albeit only within areas now within the DCO boundary and within 10km of SPAs. (**Figure 1 - Figure 5 & Figure 10**). Additionally, these surveys covered fields within the Colton and Barford area, due to historical records of golden plover (**Figure 8**). The intersection of the DCO boundary with the River Yare was also included in the survey scope because of the possibility of over-wintering waterfowl (**Figure 9**). The 2020-21 surveys were conducted from roads and PRoW, and in selected locations (where landowner access was available), surveys were completed from field boundaries.

The 2019/20 and 2020/21 over-wintering bird surveys recorded all Red and Amber listed Birds of Conservation Concern (BoCC), Schedule 1 species, and qualifying species for the relevant SPAs. The full list of target species is detailed within **Table 1** in section 4 of this report.

Numbers of target species recorded during the surveys were low, comprising individuals and small groups of Red and Amber listed farmland species such as skylark, yellowhammer, meadow pipit and stock dove. There were no significant flocks of wintering waders and wildfowl recorded within the DCO boundary, and no significant species or concentrations were observed.

Landowner access/coverage constraints experienced during the 2019-20 surveys were largely addressed for the 2020-21 survey season, with access available for the majority of the sections covered.

No further wintering bird surveys are advised because avoidance/mitigation options will be implemented to ensure the risk of impacts to wintering birds are largely negated. Avoidance/mitigation options include pre-emptive habitat controls to affect wintering bird distribution (effectively encouraging birds to use habitats outside of the proposed construction footprint), or timing works to avoid period when wintering birds are using fields within the construction footprint.

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 Extension Project (SEP) and Dudgeon 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).

WFE was commissioned by Equinor to undertake a suite of wintering bird surveys in 2019/2020 and 2020/21, and the findings of which used to inform an impact assessment of the proposed onshore grid connection of 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.

Maps showing the survey area (i.e. the DCO boundary plus surrounding buffers) are provided in **Figure 1** to **Figure 17**, below.

This report outlines the aims, methods and results of the wintering bird surveys which were completed over two winters, i.e. between November 2019 and March 2020, and October 2020 and March 2021.

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*) 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.

3. SURVEY METHODS

3.1. Desk Study

The field survey areas were identified from a desk-based review of Ordnance Survey (OS) maps and other freely available mapping software such as Google Earth and the Multi-Agency Geographic Information for the Countryside (MAGIC) online maps, and comprised those parts of the DCO boundary that were deemed potentially the most sensitive areas with suitable habitat for over-wintering birds.

The survey zones included those areas within 10km of the only two SPAs within this range of the PEIR/DCO boundaries, namely the North Norfolk Coast SPA and Broadland SPA (**Figure 1 - Figure 5 & Figure 10**). The northernmost survey section of the DCO boundary, from Weybourne to Plumstead (within 10km of the North Norfolk Coast SPA) has the most varied habitats, ranging from coastal cliffs and grassland, extensive areas of mixed woodland/plantation and an arable landscape with small plantations and hedgerows.

An area within 500 metres of the intersection of the DCO boundary with the River Wensum SAC (**Figure 6**), and the southern section of the route close to the proposed onshore substation (**Figure 10**) (which is also within 10km of Broadland SPA), were also identified as having the potential to support populations of over-wintering bird species. These areas were therefore added to the survey scope.

The intersection of the DCO boundary with the River Yare between the villages of Colton and Barford was also identified as having the potential to support wintering populations of waterfowl close to the river and golden plover *Pluvialis apricaria* within nearby arable fields (**Figure 8 - Figure 9**). This area was also added to the survey scope. Additional areas included in the 2020-2021 surveys comprised a section of arable farmland to the east of Weston Longville Airfield which has historical records of golden plover and a further area of farmland to the east of Weston Longville village (**Figure 7**).

Following the surveys, the study area was defined as the DCO Boundary and 100m buffer where impacts to birds from the proposed works are likely. Any species wintering over 100m from the DCO boundary are considered unlikely to be impacted by the works.

A list of target species for the field surveys was compiled, comprising those qualifying species for adjacent SPA's, and BoCC Red and Amber listed species (classified within 'Birds of Conservation Concern 4' 2015¹) likely to be present within the habitats along the scoping area (based on the local knowledge of WFE ecologists). This list is provided in **Table 1**, below. 'Birds of Conservation Concern 5'² has subsequently been published

¹ 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.

² 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 [\[redacted\]](#)

(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.

Table 1: Field Survey Target Species

Common Name	Scientific Name
Whooper swan	<i>Cygnus cygnus</i>
Bewick's swan	<i>Cygnus bewickii</i>
Bean goose	<i>Anser fabalis</i>
Pink-footed goose	<i>Anser brachrhynchus</i>
White-fronted goose	<i>Anser albifrons</i>
Brent goose	<i>Branta bernicla</i>
Barnacle goose	<i>Branta leucopsis</i>
Shelduck	<i>Tadorna tadorna</i>
Wigeon	<i>Mareca penelope</i>
Gadwall	<i>Mareca strepera</i>
Teal	<i>Anas crecca</i>
Mallard	<i>Ana platyrhynchos</i>
Shoveler	<i>Spatula clypeata</i>
Grey partridge	<i>Perdix perdix</i>
Hen harrier	<i>Circus cyaneus</i>
Marsh harrier	<i>Circus aeruginosus</i>
Merlin	<i>Falco columbarius</i>
Crane	<i>Grus grus</i>
Lapwing	<i>Vanellus vanellus</i>
Golden plover	<i>Pluvialis apricaria</i>
Curlew	<i>Numenius arquata</i>
Ruff	<i>Calidris pugnax</i>
Snipe	<i>Gallinago gallinago</i>
Avocet	<i>Recurvirostra avosetta</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Stock dove	<i>Columba oenas</i>
Starling	<i>Sturnus vulgaris</i>
Skylark	<i>Alauda arvensis</i>
Fieldfare	<i>Turdus pilaris</i>

Common Name	Scientific Name
Song thrush	<i>Turdus philomelos</i>
Redwing	<i>Turdus iliacus</i>
Mistle thrush	<i>Turdus viscivorus</i>
Tree sparrow	<i>Passer montanus</i>
Linnet	<i>Linaria cannabina</i>
Twite	<i>Linaria flavirostris</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Corn bunting	<i>Emberza calandra</i>

The surveys also recorded any Schedule 1 species such as kingfisher *Alcedo atthis* and barn owl, Annex 1 species from the EU birds Directive and any particularly notable numbers of Green listed species.

In April 2021, a data search with the Norfolk Biodiversity Information Service (NBIS) was undertaken and returned records within a 2km radius of the DCO boundary. Over 40,000 records of birds were returned, and because of this extremely large amount of data only the maximum counts of target species within areas relevant to the DCO boundary are summarised below (**Table 2**).

Table 2: Notable Records of Target Species NBIS Data Search

Target Species (BoCC Red and Amber Listed) and Schedule 1 and SPA qualifying species	Location of Record	Maximum Count	Year of Record
Whooper swan	Ringland	5	2016
Whooper swan	Weybourne	4	2013
Bewick’s swan	Ringland	69	2008
Bewick’s swan	Weybourne	9	2012
Bean goose	Weybourne	27	2011
Pink-footed goose	Weybourne	6,000	2016
Pink-footed goose	Bodham	180	2010
Pink-footed goose	Ringland	200	2005
White-fronted goose	Baconsthorpe	135	2011
White-fronted goose	Weybourne	40	2010
White-fronted goose	Ringland	24	2016
Brent goose	Weybourne	3,000	2011
Barnacle goose	Weybourne	20	2016
Shelduck	Weybourne	292	2015
Wigeon	Weybourne	1,560	2013
Wigeon	Ringland	80	2012

Target Species (BoCC Red and Amber Listed) and Schedule 1 and SPA qualifying species	Location of Record	Maximum Count	Year of Record
Teal	Weybourne	152	2016
Mallard	Ringland	20	2012
Grey partridge	Weybourne	10	2016
Grey partridge	Bodham	2	2015
Hen harrier	Weybourne, Attlebridge, Baconsthorpe (22 records)	1	2016 (most recent)
Marsh harrier	Weybourne	2	2015
Merlin	Weybourne, Bodham (36 records)	1	2016 (most recent)
Crane	Weybourne	2	2016
Crane	Weston Longville	1	2009
Crane	Honingham	2	2008
Crane	Ringland	3	2014
Crane	Attlebridge	6	2014
Lapwing	Weybourne	775	2007
Lapwing	Bodham	360	2012
Golden plover	Colton	1,000	2016
Golden plover	Bodham	30	2016
Golden plover	Weybourne	200	2015
Golden plover	Baconsthorpe	75	2007
Curlew	Weybourne	92	2012
Curlew	Baconsthorpe	16	2008
Ruff	Weybourne	4	2014
Snipe	Weybourne	4	2013
Oystercatcher	Weybourne	135	2013
Stock dove	Weybourne	65	2016
Starling	Weybourne	1,150	2016
Skylark	Weybourne	150	2015
Skylark	Ringland	40	2011
Fieldfare	Weybourne	100	2012
Song thrush	Weybourne	50	2012
Redwing	Weybourne	200	2012
Mistle thrush	Weybourne	10	2010
Tree sparrow	Weybourne	6	2013

Target Species (BoCC Red and Amber Listed) and Schedule 1 and SPA qualifying species	Location of Record	Maximum Count	Year of Record
Linnet	Weybourne	800	2008
Twite	Weybourne	70	2005
Reed bunting	Weybourne	29	2015
Reed bunting	Ringland	20	2012
Yellowhammer	Ringland	40	2012
Yellowhammer	Weybourne	45	2015
Yellowhammer	Bodham	55	2011
Corn bunting	Weybourne	6	2011

3.2. Field Survey

All surveys were undertaken by Graham Riley BSc ACIEEM (25 years ornithological survey experience - RSPB, self-employed and Consultancy) and Ptolemy McKinnon BSc MSc (four years ornithological survey experience - National Trust and Consultancy) working in tandem. Areas within the survey zones were walked-over (where landowner access or PRoWs were available) and visually scanned with binoculars looking for the target bird species (**Table 1**). When these were located the species and number of individuals present were noted and marked on a map. The surveys from public roads were undertaken from the points identified during the desk study and involved visually scanning all areas within the survey buffer visible from the vantage point and marking relevant observations on survey maps.

The surveys were undertaken on the following dates and times:

Table 3. Wintering Bird Survey Details

Date	Survey area (Figures 1-10)	Survey start and end times	Precipitation	Wind		Air temperature (° Celsius)		% Cloud Cover
				Direction	Speed	Max	Min	
28/10/2020	Wensum, Yare and Substation Area Buffers	10:20 - 14:00	None	SW	3-4	12	11	40-70
26/11/2020	Wensum, Yare and Substation Area Buffers	10:45 - 13:45	None	W	1	6	5	10-30

Date	Survey area (Figures 1-10)	Survey start and end times	Precipitation	Wind		Air temperature (°Celsius)		% Cloud Cover
				Direction	Speed	Max	Min	
18/12/2020	Wensum, Yare and Substation Area Buffers	12:25 - 15:05	light rain from 14:30	S	4	12	12	100
27/01/2021	Wensum, Yare and Substation Area Buffers	11:00 - 14:05	None	W	2-3	9	8	80
24/02/2021	Wensum, Yare and Substation Area Buffers	11:45 - 14:40	None	SW	4	16	15	20-70
22/03/2020	Wensum, Yare and Substation Area Buffers	10:50 - 13:25	None	W	2	8	8	50-60
15/10/2020	Weybourne to Plumstead	10:50 - 15:00	Light showers	NE	3-4	12	12	100
12/11/2020	Weybourne to Plumstead	11:25 - 13:45	None	SW	3	12	12	80
07/12/2020	Weybourne to Plumstead	10:30 - 14:00	None	SW	2	3	2	20-100 (fog)
22/01/2021	Weybourne to Plumstead	11:10 - 13:40	None	SW	3	6	5	5
12/02/2021	Weybourne to Plumstead	12:00 - 15:10	Snow from 12:45 - 14:30	E	2	-1	-1	80-100
12/03/2021	Weybourne to Plumstead	11:00 - 14:00	Heavy showers	NW	5	9	8	70

4. RESULTS

The results from the 2019/20 and 2020/21 over-wintering bird surveys are presented in **Table 4** to

Table 10 below.

Table 4. Target species recorded from the Weybourne to Plumstead Section 2020-21 (10km buffer from North Norfolk Coast SPA) (Figure 1 – Figure 5)

Target Species (BoCC Red and Amber Listed) and Schedule 1 and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (away from coast) (Amber list)	113	24
Brent goose (Amber list)	1	1
Bullfinch (Amber list)	1	1
Common gull (away from coast) (Amber list)	5	1
Common crossbill (Schedule 1, Green list)	11	11
Dunnock (Amber list)	11	1
Golden plover (Annex 1, Green list)	2	2
Kestrel (Amber list)	9	1
Iceland gull (Amber list)	1	1
Lapwing (Red list)	3	2
Lesser redpoll (Red list)	6	4
Linnet (Red list)	194	132
Mallard (Amber list)	2	2
Meadow pipit (Amber list)	40	14
Mistle thrush (Red list)	1	1
Oystercatcher (Amber list)	18	11
Red kite (Schedule 1, Green list)	4	1

Target Species (BoCC Red and Amber Listed) and Schedule 1 and SPA qualifying species	Total Count DCO boundary	Maximum Count
Redwing (Red list) (Amber list 2021)	69	65
Ringed plover (Red list)	2	2
Skylark (Red list)	65	6
Song thrush (Red list) (Amber list 2021)	8	1
Starling (Red list)	52	30
Stock dove (Amber list)	12	2
Turnstone (Amber list)	2	2
Woodcock (Red list)	8	1
Yellowhammer (Red list)	16	3

Table 5. Target species recorded from the Weybourne to Plumstead Section 2019-20 (10km buffer from North Norfolk Coast SPA) (Figure 11 – Figure 15) re-calibrated to the DCO boundary

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (Amber list)	49	17
Dunnock (Amber list)	1	1
Kestrel (Amber list)	5	1
Meadow pipit (Amber list)	1	1
Red kite (Schedule 1 Green list)	1	1
Redwing (Red list) (Amber list 2021)	2	2
Skylark (Red list)	9	1
Starling (Red list)	18	18
Stock dove (Amber list)	16	8
Yellowhammer (Red list)	6	2

Table 6. Target Species recorded from the River Wensum – Weston Longville Section 2020-21 (Figure 6 – Figure 7)

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (Amber list)	34	25
Common gull (Amber list)	13	4
Grey partridge (Red list)	2	2
Herring gull (Red list)	13	2

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Linnet (Red list)	37	22
Mute swan (Amber list) (Green list 2021)	34	8
Skylark (Red list)	23	2
Snipe (Amber list)	1	1
Song thrush (Red list) (Amber list 2021)	2	1

Table 7. Target species recorded from The River Wensum – Weston Longville Section 2019-20 (10km buffer from North Norfolk Coast SPA) (Figure 16) re-calibrated to the DCO boundary

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Mute swan (Amber list) (Green list 2021)	5	3

Table 8. Target Species recorded from the Barford – Colton Section 2020 – 21 (Figure 8 – Figure 9)

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (Amber list)	87	85
Bullfinch (Amber list)	1	1
Dunnock (Amber list)	10	1
Grey partridge (Red list)	1	1
Kestrel (Amber list)	1	1
Linnet (Red list)	67	40
Mistle thrush (Red list)	1	1
Meadow pipit (Amber list)	12	5
Mute swan (Amber list) (Green list 2021)	2	2
Redwing (Red list) (Amber list 2021)	1	1
Red kite (Schedule 1, Green list)	1	1
Skylark (Red list)	30	3
Song thrush (Red list) (Amber list 2021)	4	2
Stock dove (Amber list)	5	2
Teal (Amber list)	3	2
Yellowhammer (Red list)	8	1

Table 9. Target Species recorded from the Substation Zone 2020 – 21 (Figure 10)

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (Amber list)	11	8
Common gull (Amber list)	12	4
Dunnock (Amber list)	7	2
Fieldfare (Red list)	39	30
Herring gull (Red list)	15	6

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Kestrel (Amber list)	3	1
Linnet (Red list)	10	10
Mallard (Amber list)	2	2
Meadow pipit (Amber list)	2	2
Redwing (Red list) (Amber list 2021)	24	23
Reed bunting (Amber list)	15	4
Skylark (Red list)	12	1
Song thrush (Red list) (Amber list 2021)	5	1
Starling (Red list)	25	25
Stock dove (Amber list)	16	8
Yellowhammer (Red list)	38	11

Table 10. Target species recorded from the Onshore Substation Zone 2019 – 20 (10km buffer from North Norfolk Coast SPA) (Figure 17) re-calibrated to the DCO boundary

Target Species (BoCC Red and Amber Listed) and SPA qualifying species	Total Count DCO boundary	Maximum Count
Black-headed gull (Amber list)	7	7
Fieldfare (Red list)	70	70
Kestrel (Amber list)	1	1
Mallard	3	3
Meadow pipit (Amber list)	51	50
Mistle thrush (Red list)	2	2
Oystercatcher (Amber list)	2	2
Redwing (Red list) (Amber list 2021)	14	6
Skylark (Red list)	12	4
Starling (Red list)	2	2
Song thrush (Red list) (Amber list 2021)	1	1
Stock dove (Amber list)	6	3

In the 2019-20 and 2020-21 survey seasons a total of thirty-two target species were recorded across the four main survey areas. There were no significant flocks of wildfowl or wading birds such as pink-footed goose, lapwing and golden plover recorded within the DCO boundary, with only infrequent sightings of single birds or very low numbers observed.

The 2020-21 surveys of the Weybourne to Plumstead section of the DCO boundary recorded 26 target species (**Table 4**), mainly comprising low numbers of Red and Amber listed farmland and woodland birds such as skylark, yellowhammer, meadow pipit *Anthus pratensis*, lesser redpoll *Carduelis cabaret* and song thrush. There were several records of coastal species at the landfall location close to Weybourne beach, including brent goose, oystercatcher and ringed plover *Charadrius hiaticula*, but again all in very low numbers.

The 2019-20 surveys recorded a flock of up to 3,500 pink-footed geese foraging in a harvested beet field just south of Weybourne cliffs (**Figure 11**), however this record is no longer relevant as the area is now over 800m to the east of the refined DCO boundary. Other notable records included six observations of woodcock *Scolopax rusticola* during a cold weather influx in February 2021, and two small flocks of common crossbill *Loxia curvirostra* in Weybourne Wood, also in 2021.

The River Wensum to Weston Longville section recorded a total of 10 target species over the two survey seasons (**Table 6** -

Table 7), although there was very little coverage during the 2019-20 surveys of what became the relevant river crossing point due to subsequent changes in the DCO boundary. Observations in this section (almost all relating to the 2020-21 survey season) again comprised low numbers of Red and Amber listed species, including a single snipe, and a pair of grey partridge.

The Barford to Colton section did not receive any coverage in the first year of the survey and therefore all records relate to 2020-21 (**Table 8**). Nineteen target species were recorded within this section, the majority relating to Red and Amber listed farmland species, all in low numbers. There were no records of wintering waders and the only wildfowl recorded were three teal and two mute swans *Cygnus olor*, both in the vicinity of the River Yare.

Surveys at the onshore substation zone recorded a total of seventeen target species across both winter periods (

Table 9 -

Table 10), again comprising mainly low numbers of Red and Amber listed farmland species, with the most notable concentrations being a flock of 50 meadow pipits and a flock of 70 fieldfares. Both these observations were made during the 2019-20 survey season.

4.1. Constraints and Limitations to the Survey

A notable constraint encountered during the 2019/2020 over-wintering bird survey effort was limited landowner access to the surveys areas that had been identified as suitable areas to support over-wintering bird species. No landowner access was available to any of the survey areas throughout the 2019-20 over-wintering bird survey effort, meaning all surveys were conducted from public roads and PRowS. This resulted in some areas being only partially surveyed or not surveyed at all. However, it is considered unlikely that any significant numbers of target species were overlooked during the surveys, particularly flocks of wintering waders and wildfowl which are usually prominent in open fields and generally visible even from a moving vehicle. Additionally, the 2019-20 over-wintering bird surveys were conducted within a previous version of the PEIR boundary, meaning coverage of the refined PEIR corridor was very uneven, with some sections receiving no survey coverage, particularly the Weybourne village/coastal section and River Wensum. The Barford/Colton section was a subsequent addition to the survey areas and received no coverage in 2019-20.

Landowner access was much more widely available during 2020-21 and was more

targeted to the updated PEIR boundary, the only notable gaps being the section within the Muckleburgh Collection just inland from Weybourne beach, and sections of Weybourne Wood.

Given there were fewer limitations and constraints in 2021, the data is considered to be sufficiently reliable and robust to inform the Ecological Impact Assessment (EclA) and wintering bird mitigation measures.

4.2. Further Survey Requirements/Expiry Dates and Mitigation Proposals

No further surveys are required prior to submission of the DCO application.

Targeted surveys may be required pre-ground clearance works, in order to locate any sensitive species, most notably flocks of pink-footed geese within harvested sugar beet fields and avoid any potential disturbance and displacement impacts. Alternatively, pre-emptive habitat manipulation may be able to affect over-wintering bird distribution in relevant parts of the construction footprint, effectively encouraging them to use fields outside of the construction footprint and discouraging them from using fields within it, by providing suitable and unsuitable habitats in these respective areas. From the survey results the only conceivable species that this technique would benefit is pink-footed goose in the event of large flocks foraging within harvested sugar beet fields, most likely in the Weybourne/Bodham/Plumstead section of the DCO boundary. Further information is detailed within the **Outline Ecological Management Plan**.

5. CONCLUSIONS

The two seasons of wintering bird surveys recorded low numbers (generally fewer than 10 individuals) of the pre-identified target species within the DCO boundary. The majority of records related to Red and Amber listed farmland species such as skylark, meadow pipit, yellowhammer and stock dove.

There were no significant flocks of wintering wildfowl or wader species recorded within the refined DCO corridor, the closest such gathering being a flock of 3,500 pink-footed geese approximately 800 metres to the east of the DCO boundary at Weybourne during the 2019-20 survey season.

A lack of landowner access and evolving survey buffers were constraints to the 2019-2020 survey, but the 2020-21 surveys achieved good coverage of the refined DCO boundary and largely addressed the limitations of the initial survey season in giving a good understanding of the species and populations of target species present along DCO boundary.

Annex 1: Survey Maps

Figure 1: Wintering birds survey results 2020-21 Landfall to Weybourne Section

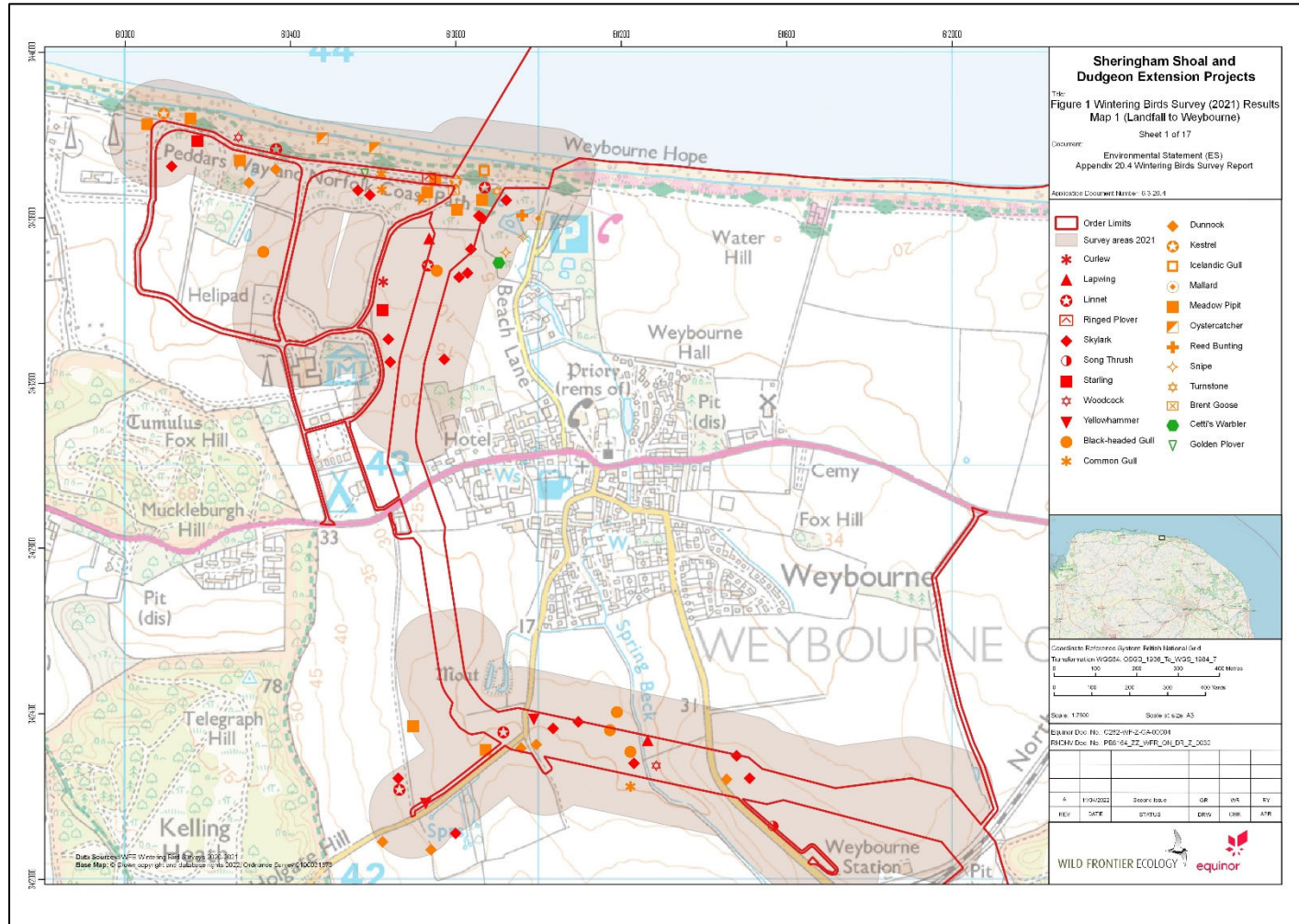


Figure 2: Wintering birds Survey Results 2020 – 21 Weybourne Woods to Bodham Section

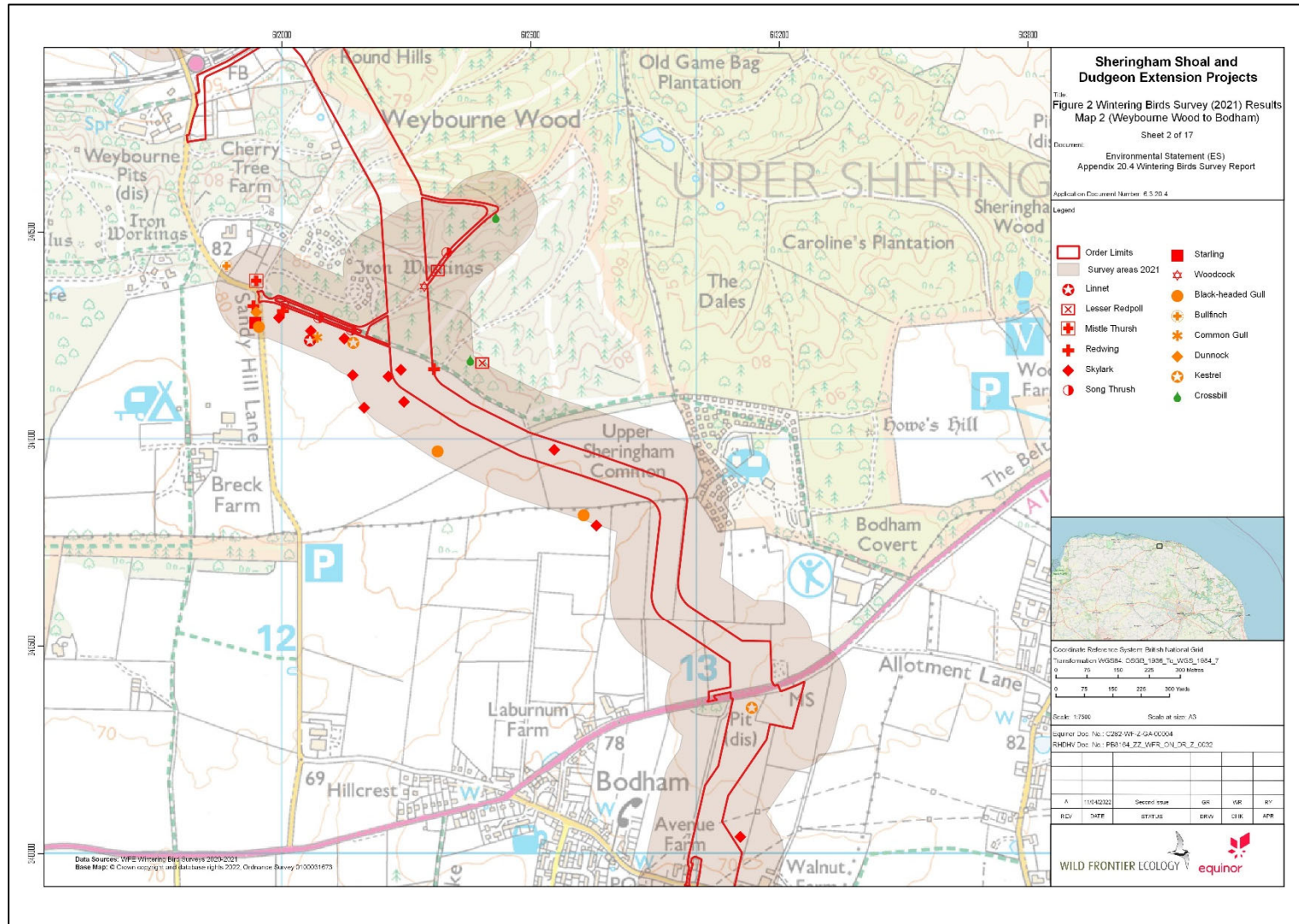


Figure 3: Wintering birds survey results 2020 – 21 Bodham Section

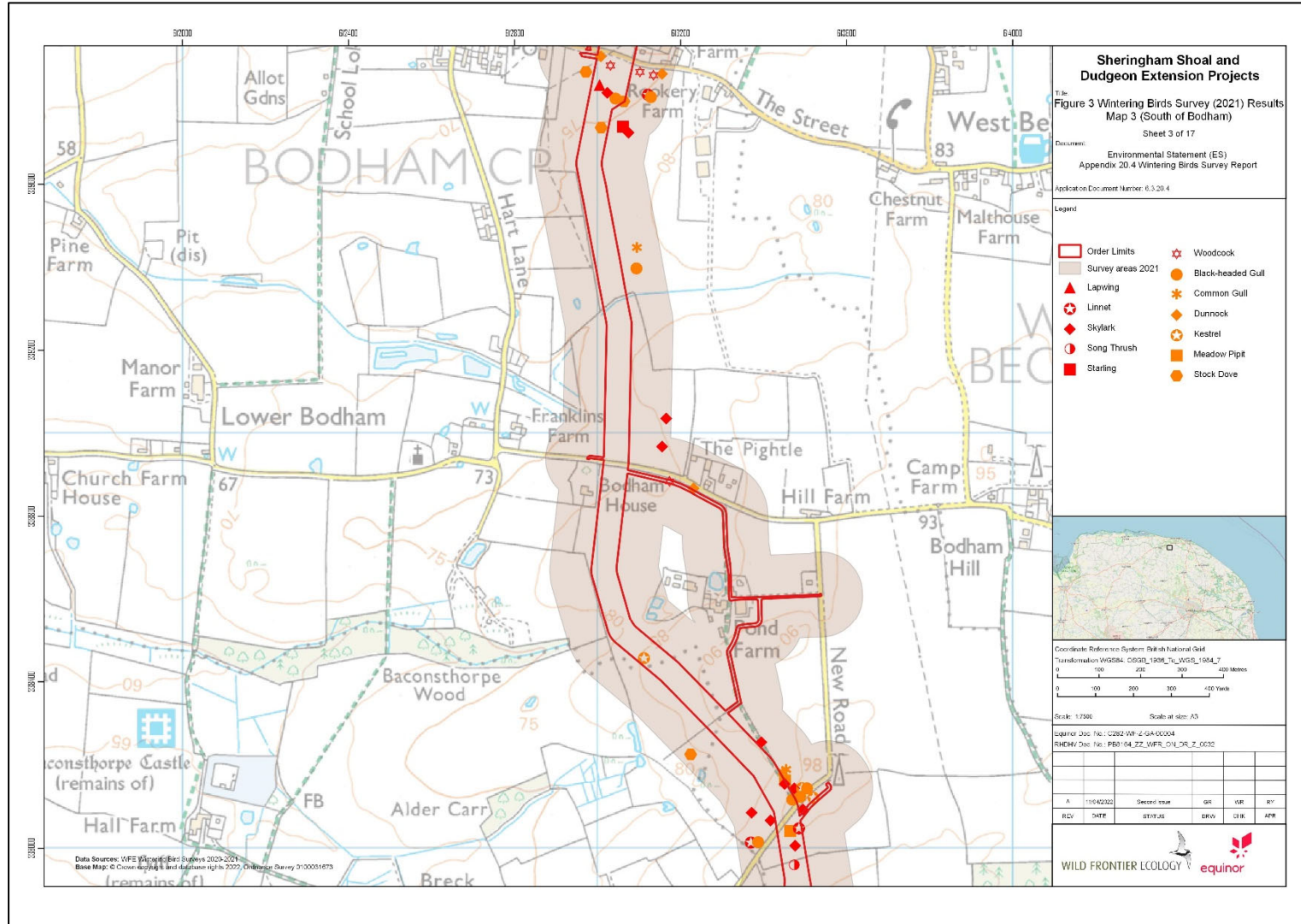


Figure 4: Wintering birds survey results 2020 – 21 Baconsthorpe Section

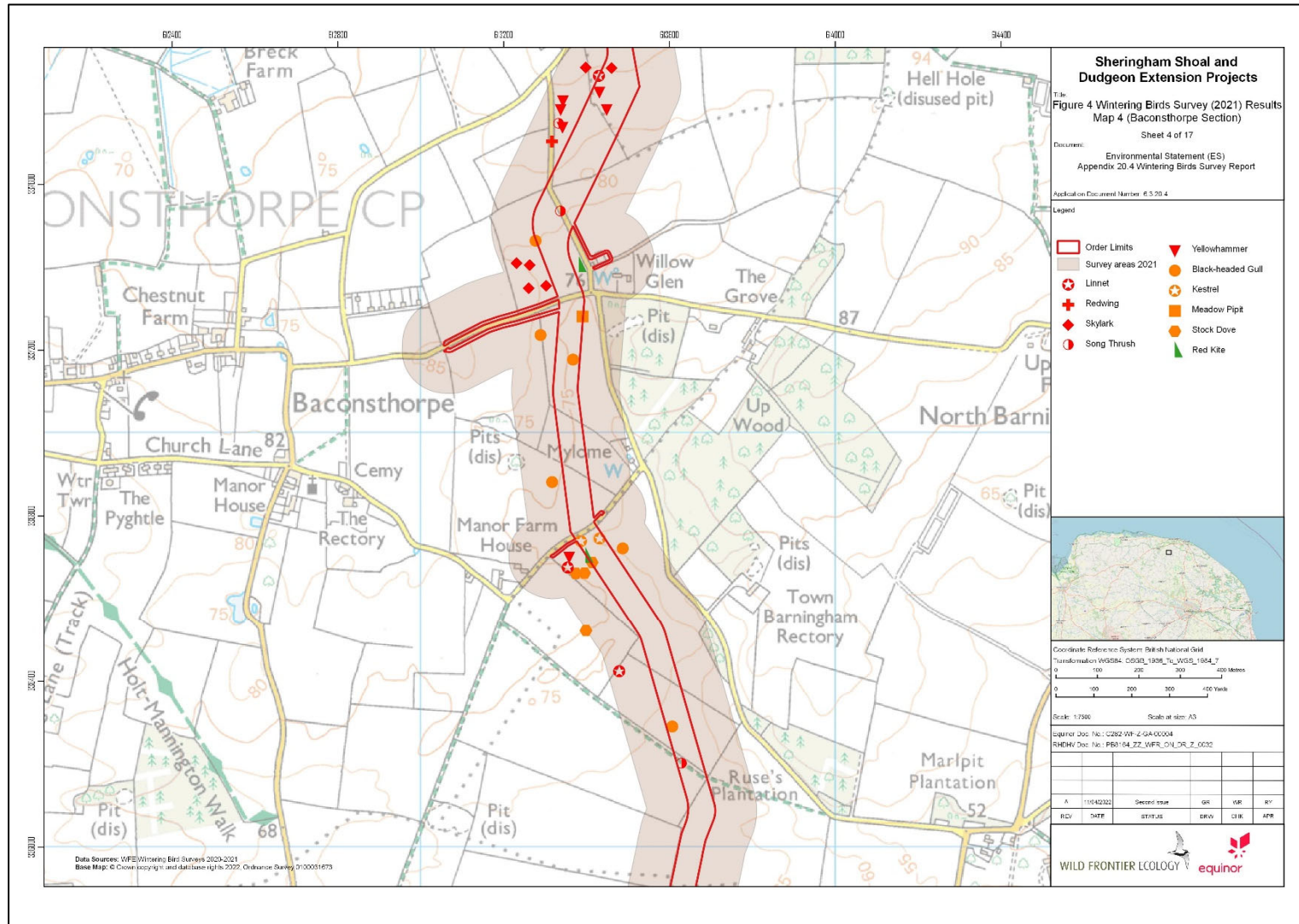


Figure 5: Wintering birds survey results 2020 – 21 Plumstead Section

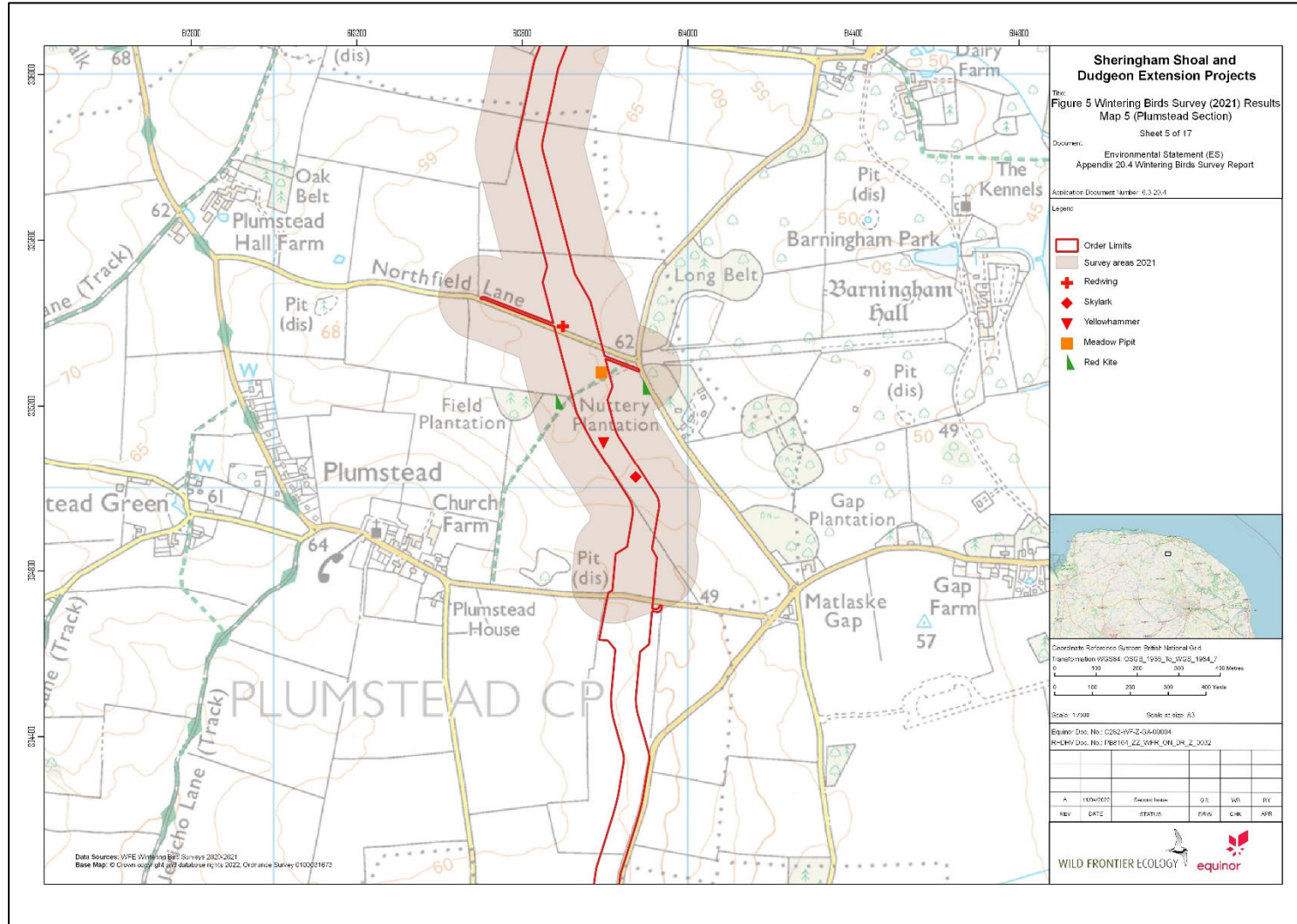


Figure 6: Wintering birds survey results 2020 – 21 River Wensum Section

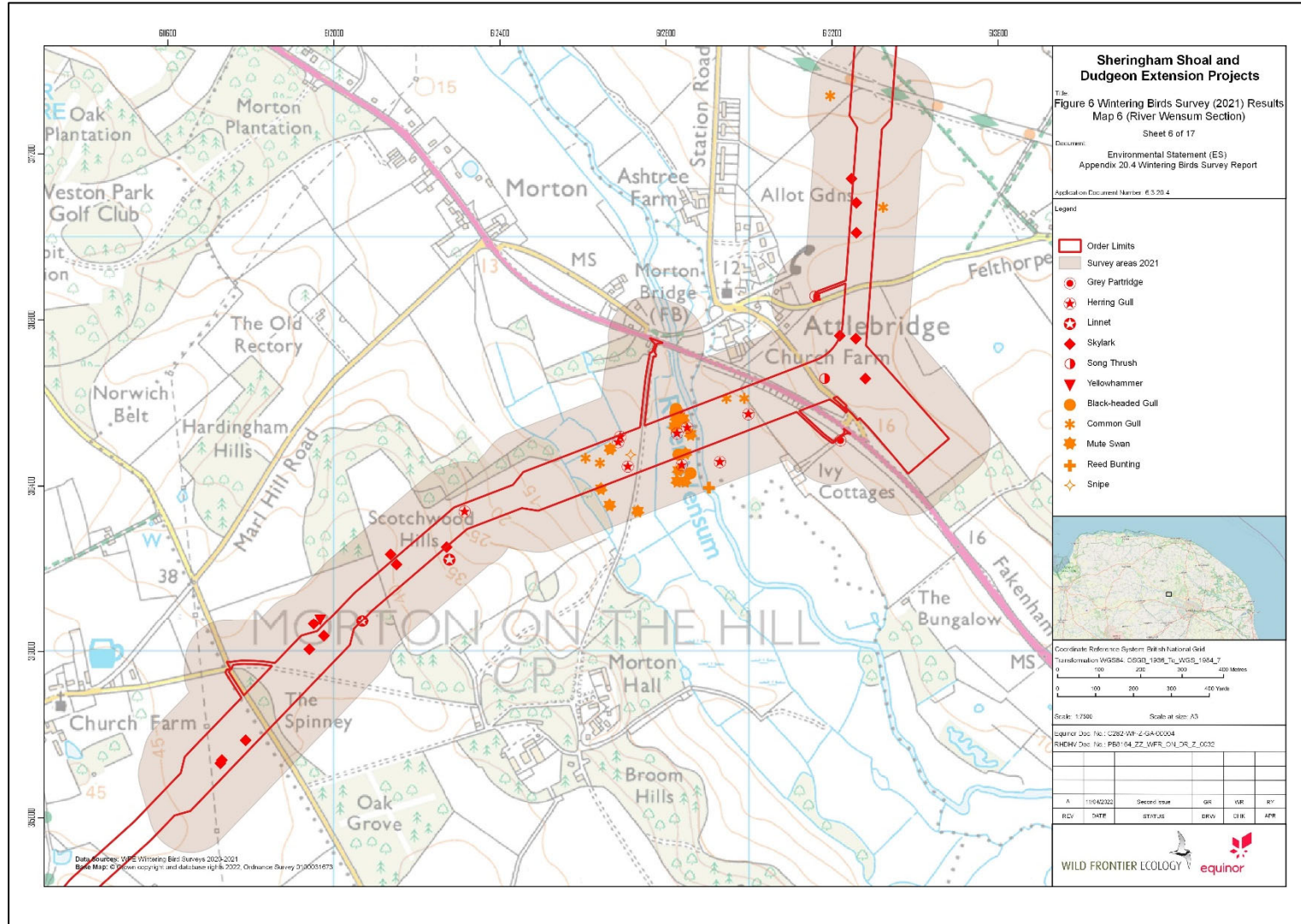


Figure 7: Wintering birds survey results 2020 – 21 Western Longville Section

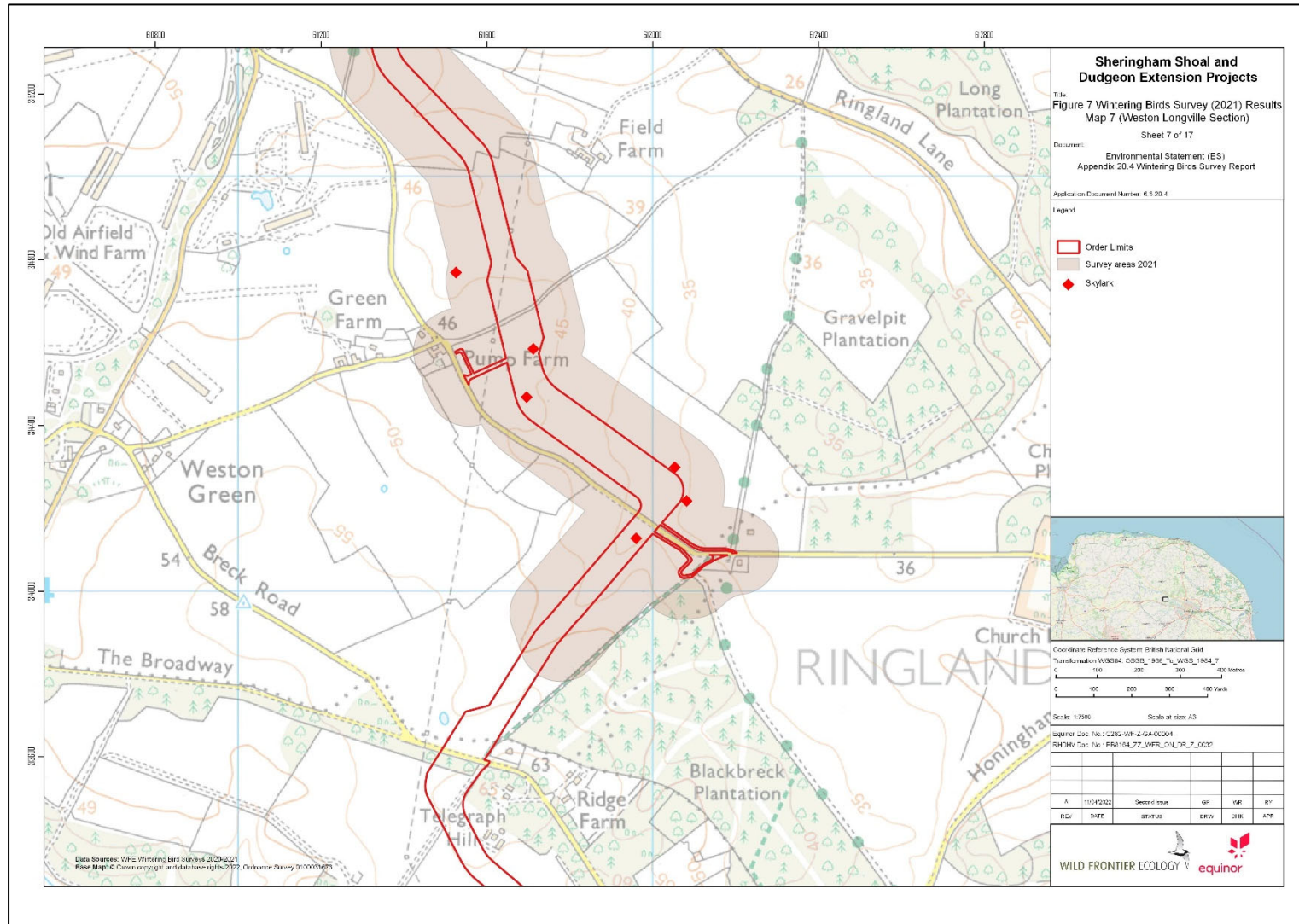
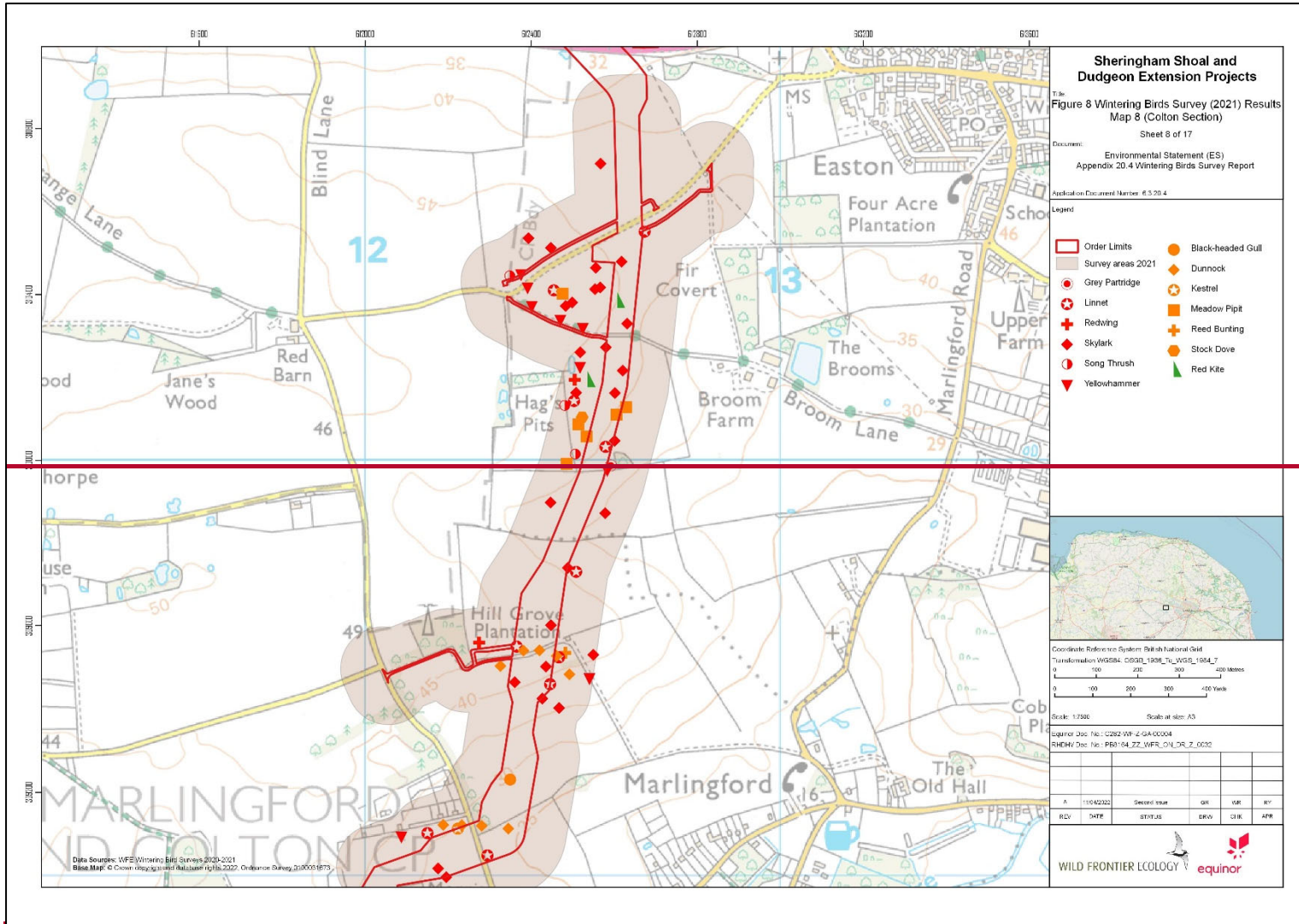


Figure 8: Wintering birds survey results 2020 – 21 Colton Section



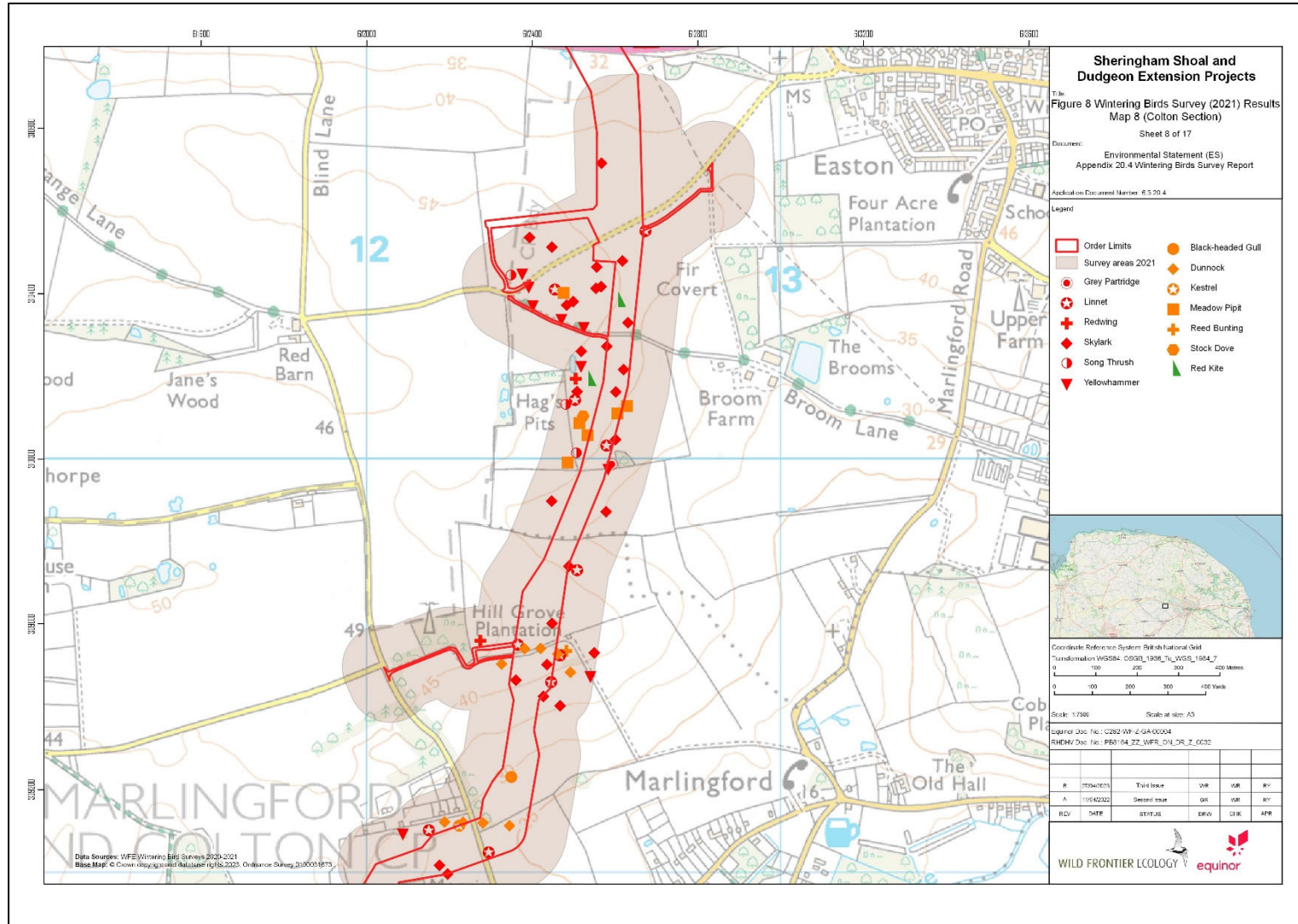


Figure 9: Wintering birds survey results 2020 – 21 Barford Section

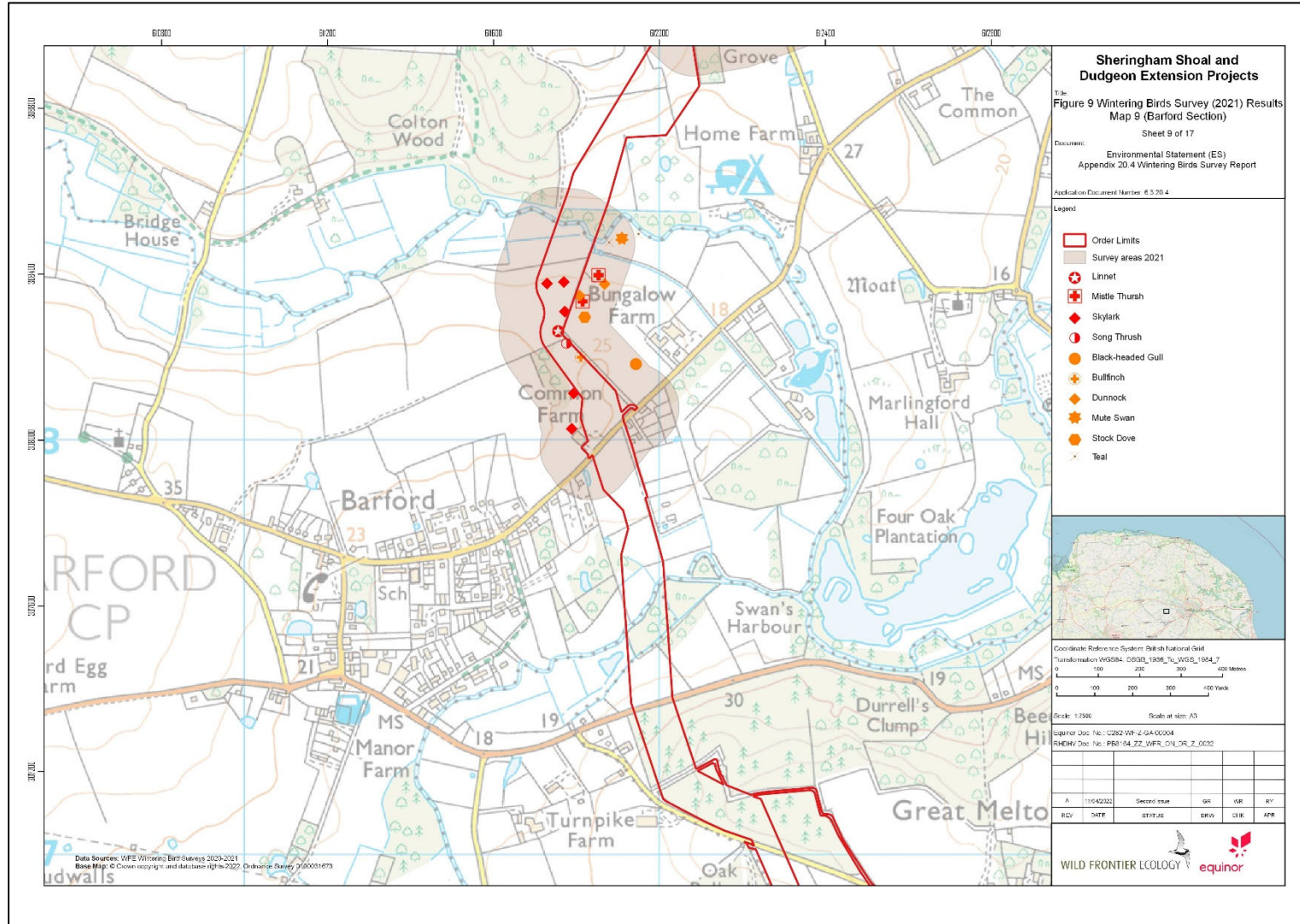


Figure 10: Wintering Bird Survey Results 2020 – 21 Substation Section

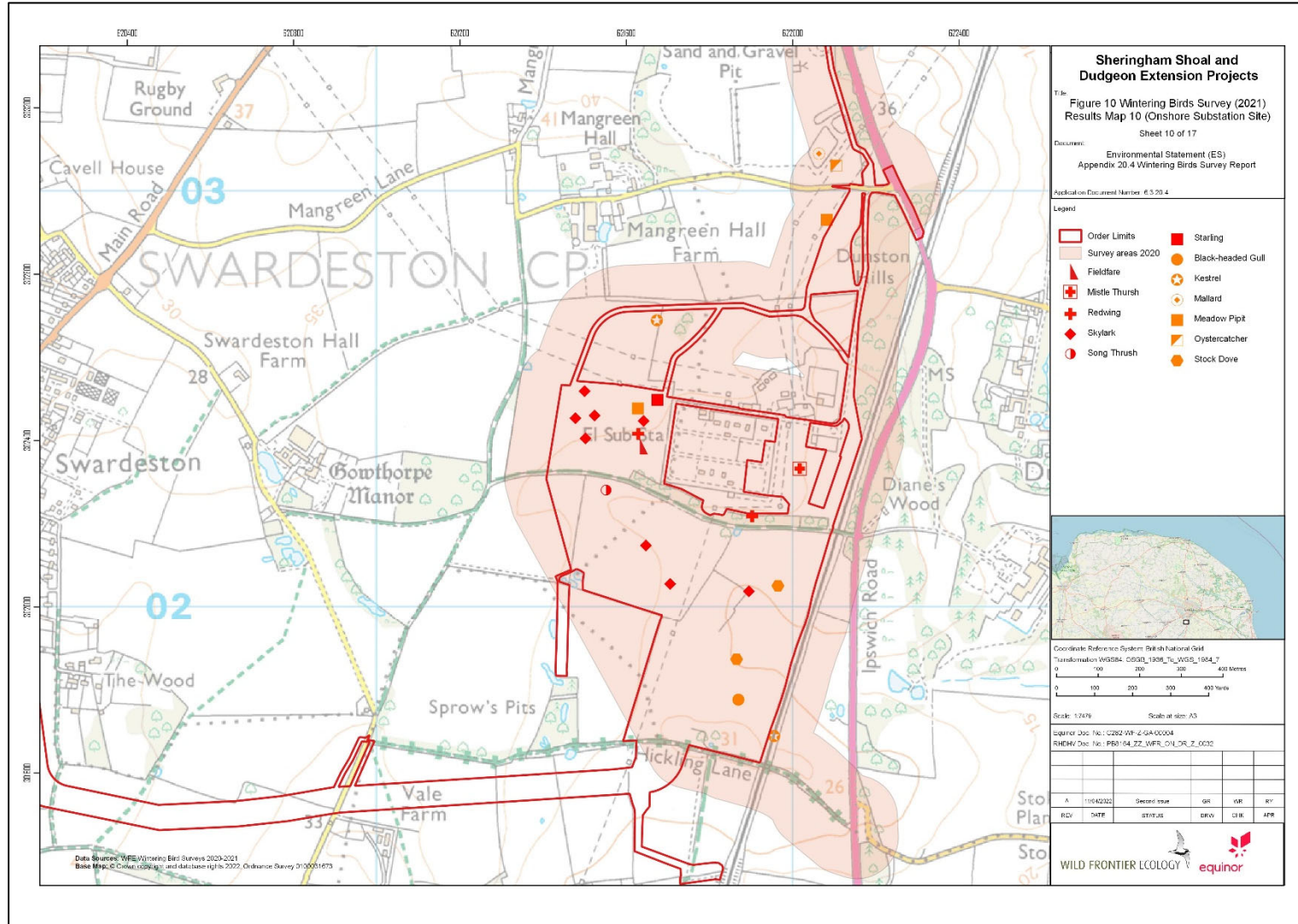


Figure 11: Wintering birds survey results 2019 – 20 Weybourne (Landfall) Section

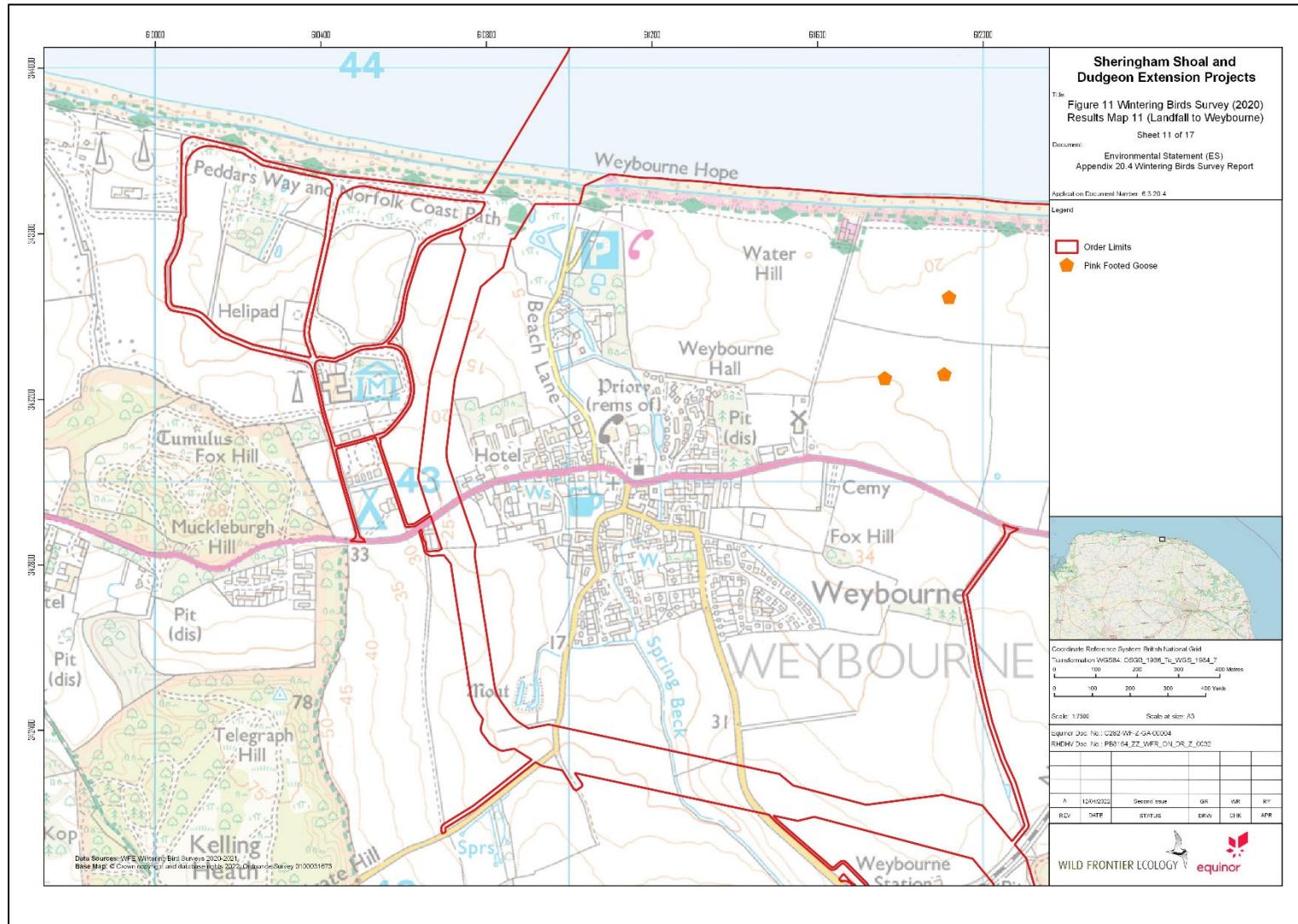


Figure 12: Wintering birds survey results 2019 – 20 South of Weybourne Wood Section

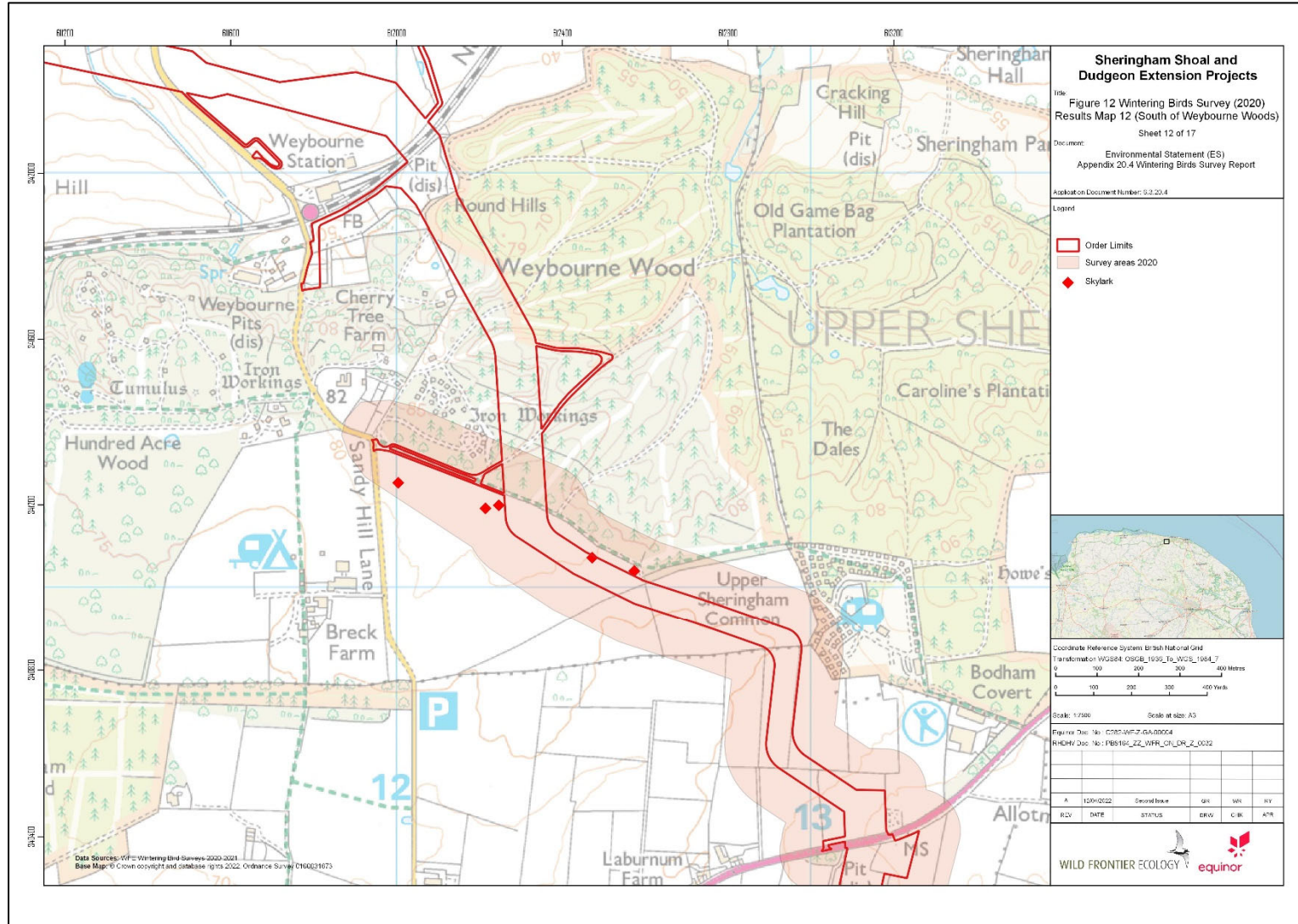


Figure 13: Wintering birds survey results 2019 – 20 Bodham Section

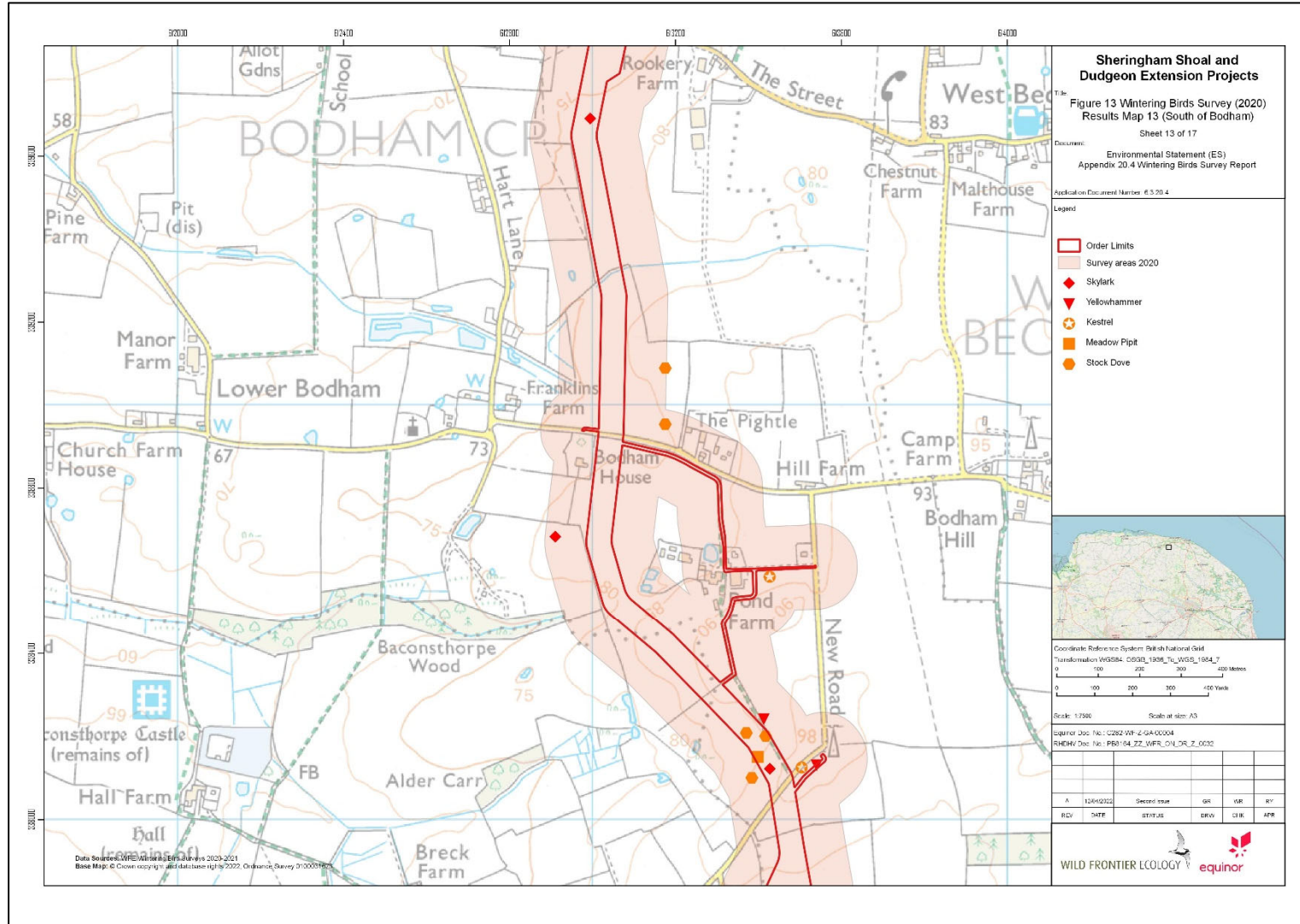


Figure 14: Wintering birds survey results 2019 – 20 Baconsthorpe Section

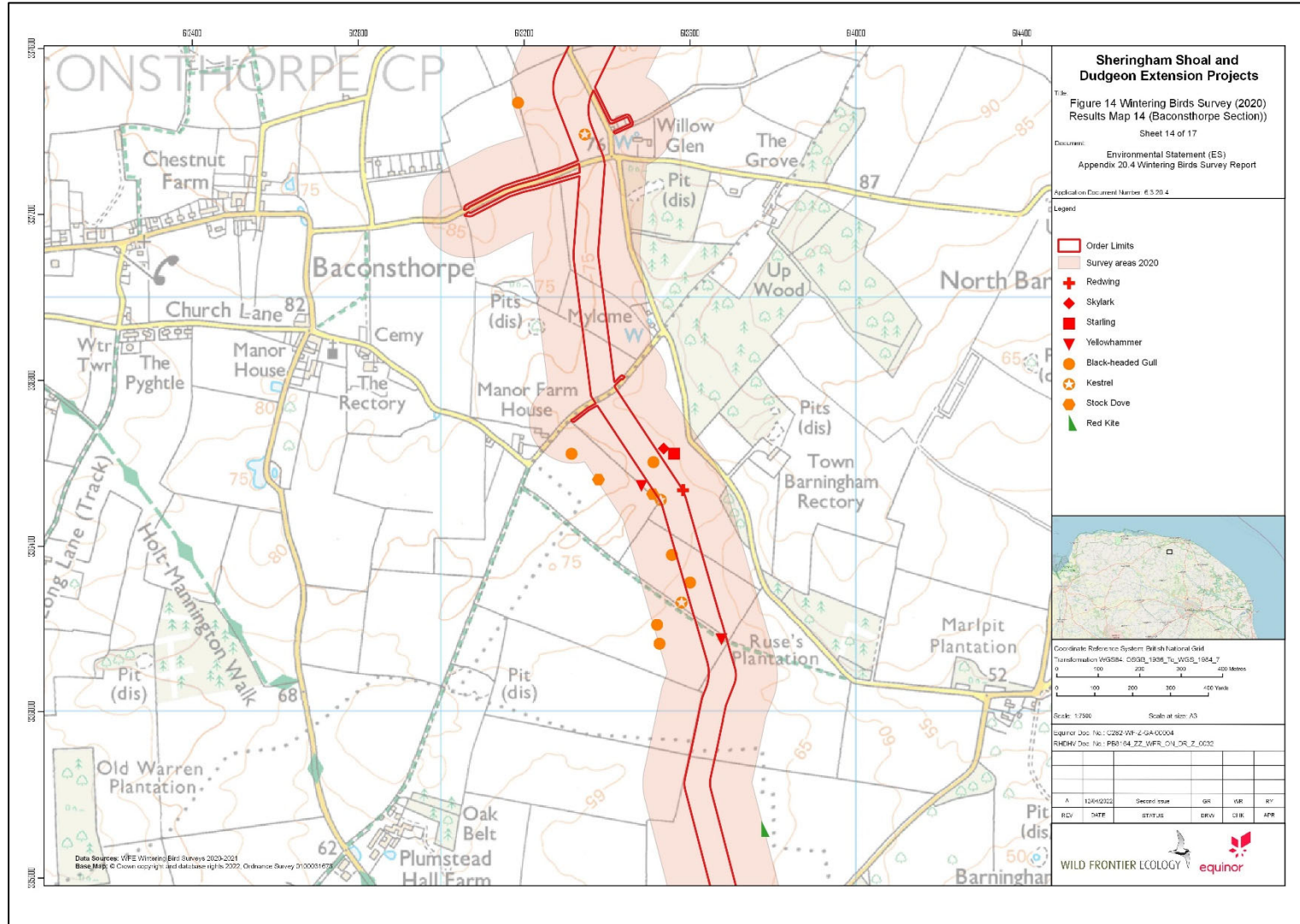


Figure 15: Wintering birds survey results 2019 – 20 Plumstead Section

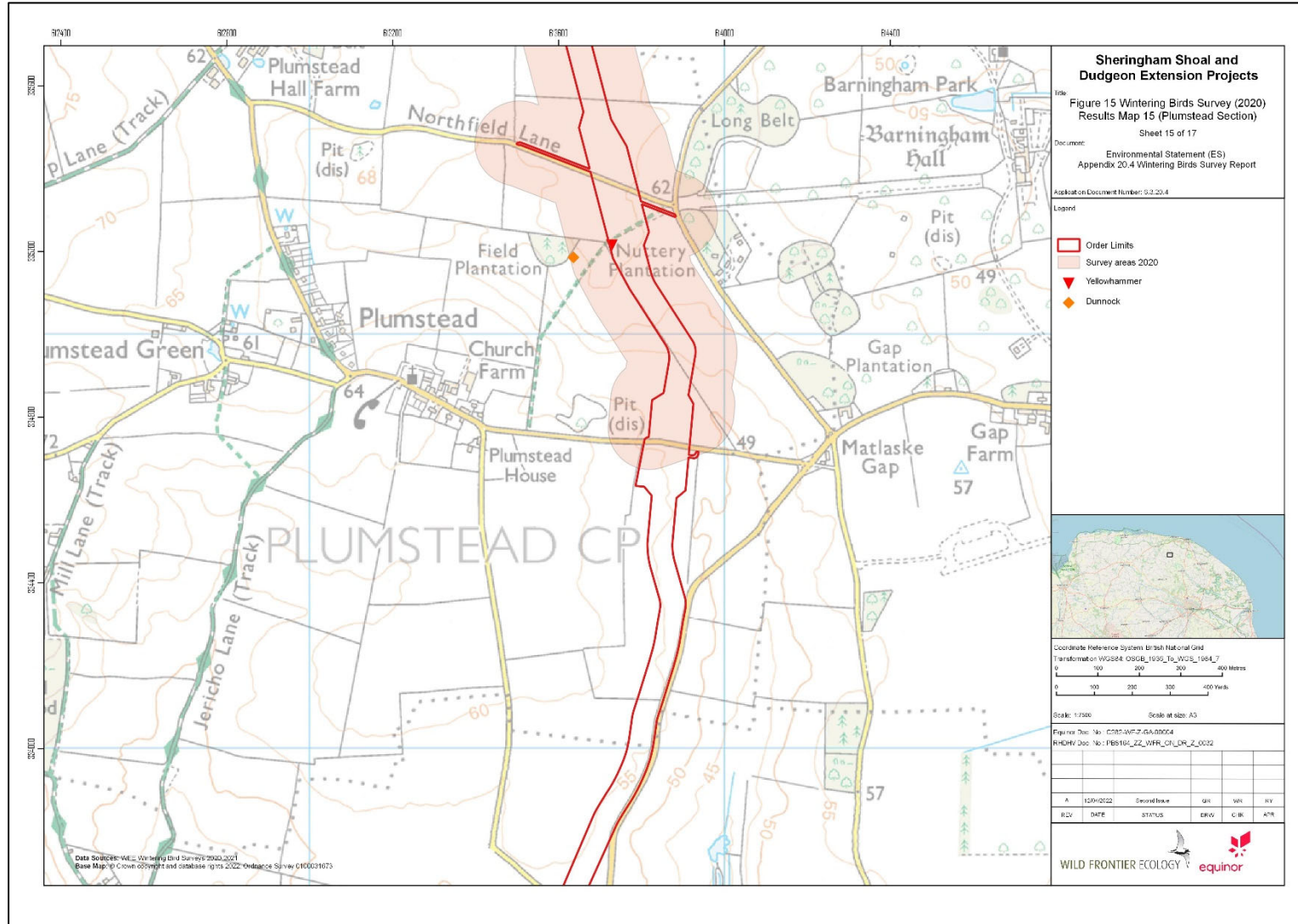


Figure 16: Wintering birds survey results 2019 – 20 River Wensum Area

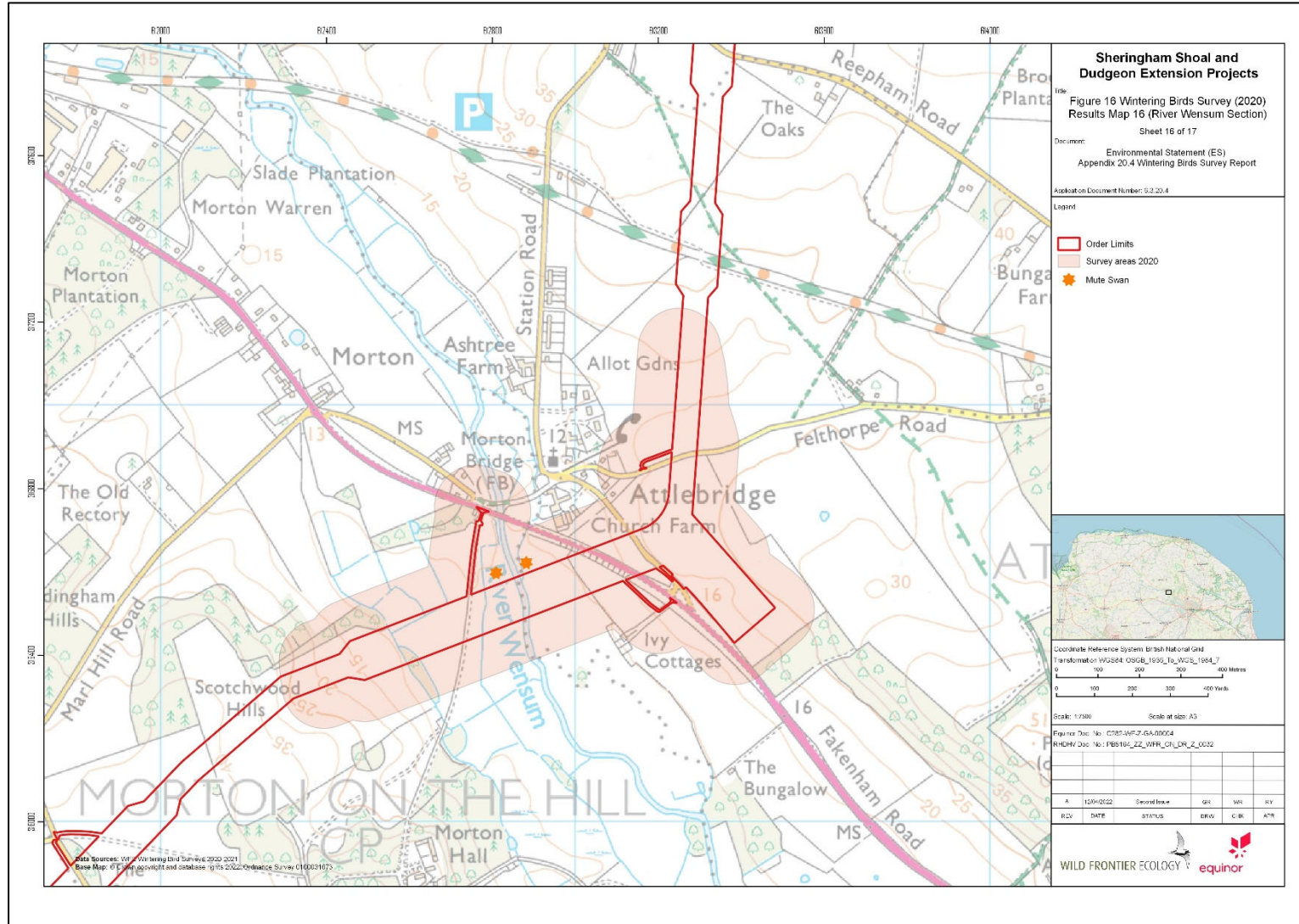


Figure 17: Wintering birds survey results 2019 – 20 Substation Area

