

A47 North Tuddenham to Easton Dualling

Scheme Number: TR010038

Volume 6

6.3 Environmental Statement Appendices **Appendix 8.10 - Wintering Bird Survey Report**

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

March 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

The A47 North Tuddenham to Easton
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ENVIRONMENTAL STATEMENT APPENDICES
Appendix 8.10 - Wintering Bird Survey Report

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1. Introduction

1.1. Background

- 1.1.1. In 2019, wintering bird surveys on the A47 between North Tuddenham and Easton were completed. This is to inform the Environmental Statement (ES) Biodiversity Chapter at PCF Stage 3 for the A47 North Tuddenham to Easton Improvement Scheme (the Proposed Scheme).
- 1.1.2. The Proposed Scheme improvements will:
- improve accessibility to and around the region, reducing congestion and delays to enable more reliable journey times
 - improve safety performance for all road users, contributing to a 40% reduction target in accidents across Highways England's roads over the implemented schemes' first five years in operation
 - provide alternative access to local roads
 - improve the environmental impact of traffic along the A47 route, particularly for the communities in the six Proposed Scheme areas
 - support economic growth in the Peterborough, Norwich and Great Yarmouth areas by improving overall road capacity
- 1.1.3. This baseline report provides a summary of the results of the wintering bird surveys undertaken between North Tuddenham to Easton in January, February, November and December 2019. Impacts of the Proposed Scheme and proposals for mitigation are addressed in chapter six (Assessment and mitigation) (**TR010038/APP/6.1**).

1.2. Scheme description and location

- 1.2.1. The North Tuddenham to Easton section of the A47 lies to the west of Norwich at national grid reference (NGR) TG 05952 13577. This 8.7km mile single carriageway section forms a part of the main strategic highway route. The proposed route is the partial duelling of the existing road with some deviations along the route.

1.3. Aims and objectives

- 1.3.1. The aim of the wintering bird surveys is to determine which species are using the study area during winter and to assess its importance for supporting populations of notable bird species including:

- Species protected under Schedule 1 of the Wildlife and Countryside Act (WCA) 1981
- Species of principal importance for the purpose of conserving biodiversity covered under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006
- Red and amber listed birds of conservation concern (BoCC) (Eaton *et al.*, 2015)

1.3.2. The data gathered will assist in determining the potential significant effects on wintering birds and the potential effects on assemblages through the following impacts:

Construction:

- Habitat loss (direct impact)
- Disturbance from construction, i.e. noise and visual disturbance (indirect impacts)

Operation:

- Mortality of wintering birds e.g. traffic collisions (direct impact)
- Reduced population size & overwintering success due to traffic noise and visual disturbance (indirect impact)

1.4. Relevant bird legislation

1.4.1. This legislation is presented in summary form and is intended for general guidance only. It is recommended the original documentation is referred to for detailed and definitive information. Web addresses can be found in chapter seven (References) (**TR010038/APP/6.1**).

International Conventions

1.4.2. The Bonn Convention (1979) provides protection to migratory species and their habitats. There are a number of legally binding international agreements, including:

- African Eurasian Migratory Waterbird Agreement (AEWA)
- Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia
- Convention on the Conservation of Migratory Species (CMS)

1.4.3. The Bern Convention (1982) aims to ensure the protection of wild plant and animal species. The obligations of the Convention are transposed into national

law by the Wildlife and Countryside Act 1981 (as amended). At the European level, the obligations are met by means of the Directive 2009/147/EC on the conservation of wild birds (the Birds Directive).

European legislation

1.4.4. The Birds Directive

- The European Union meets its obligations for bird species under the Bern Convention and Bonn Convention by means of Directive 2009/147/EC (Birds Directive) on the conservation of wild birds.
- The Council Directive 2009/147/EC on the conservation of wild birds provides for the conservation and management of all wild bird species naturally occurring in the European Union, their nests, eggs and habitats. The Birds Directive bans activities that directly threaten birds (e.g. deliberate killing and destruction of nests and young), regulates hunting of selected species, bans non-selective and large scale killing of birds, and promotes research for bird conservation and management. Article 4(4) of the Birds Directive requires that member states “should strive to avoid pollution or deterioration of habitats.” The Conservation of Habitats and Species (Amendment) Regulations 2017 provide a fuller transposition of the Birds Directive into English law. Regulation 8 introduces a new Regulation 9A to the Habitats Regulations for duties of appropriate authorities in relation to wild bird habitat. Regulation 9A(3) addresses the transposition of Article 2 of the Birds Directive, while Regulation 9A(8), requiring competent authorities to “use all reasonable endeavours” to “avoid any pollution or deterioration of habitats of wild birds.”

1.4.5. Annex 1 of the EC Birds Directive also lists rare and vulnerable species of wild birds that are subject to special conservation measures.

UK and English Legislation

Wildlife and Countryside Act (1981)

1.4.6. The primary legislation relating to the protection of British birds lies within Part 1 of the Wildlife and Countryside Act (1981).

1.4.7. Under current legislation, it is an offence to:

- Kill, injure or take any wild bird
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built
- Take or destroy an egg of any wild bird

1.4.8. Schedule 1 of the Act lists a number of species that are protected by special penalties at all times. In addition, the Act makes it an offence (subject to exceptions) to:

- Intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5
- Interfere with places used for shelter or protection by a wild animal
- Intentionally disturb animals occupying such places
- The Act also prohibits certain methods of killing, injuring, or taking wild animals

1.4.9. In addition to statutory protection, some bird species have been identified within key documents as species of conservation concern.

UK Biodiversity Action Plan (UKBAP)

1.4.10. The UK Post 2010 Biodiversity Framework (2012) has now succeeded the UK Biodiversity Action Plan (UKBAP) (2007). Much of the work previously carried out by the UKBAP is now focussed at the country level. The UKBAP lists of priority species and habitats remain important and have been used to draw up the statutory lists of species of principal importance for the conservation of biodiversity in England and Scotland under the Natural Environment and Rural Communities Act (2006). The UK Biodiversity Action Plan (UKBAP) (2007) lists 59 bird species as priority species requiring conservation action, and consequently, action plans have been developed for the conservation of these species.

Local Biodiversity Action Plan (LBAP)

1.4.11. Norfolk Biodiversity Partnership lists 16 bird species as priority species requiring conservation action. Local Biodiversity Action Plans identify habitat and species conservation priorities at a local level (typically at the County level) and are usually drawn up by a consortium of local Government organisations and conservation charities.

National Network National Policy Statement (NSP NN)

1.4.12. The NSP NN outlines government planning policies to deliver nationally significant infrastructure projects (NSIPs) and provides planning guidance for these projects and the basis for the examination by the Examination Authority and decisions by the Secretary of State. The NSP NS states that a development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable

alternatives. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.

1.5. Conservation status and guidance

Birds of Conservation Concern

1.5.1. The Birds of Conservation Concern 4: The Red List for Birds was published in December 2015. The document is commonly referred to as the UK Red List for birds. This is the fourth review of the status of birds in the UK, Channel Islands and the Isle of Man, and is an update of the last assessment in 2009. Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts from a range of bird non-governmental organisations (NGOs) and assigned to the red, amber or green lists of conservation concern.

- Red list species are those whose breeding population or range is rapidly declining (50% or more in the last 25 years), have declined historically and not recovered, or those of global conservation concern.
- Amber list species are those whose breeding population is in moderate decline (25 – 49% in the last 25 years), breed rarely, are of international importance, are localised species and of unfavourable conservation status in Europe.

The IUCN Red List of Threatened Species

1.5.2. The IUCN Red List of Threatened Species is widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. The introduction in 1994 of a scientifically rigorous approach to determine risks of extinction that is applicable to all species has become a world standard.

2. Desk study

- 2.1.1. In works undertaken to date, wintering bird surveys have been completed and the findings of these reports will be summarised below.
- 2.1.2. Further to this, a data search was carried out using multi-agency geographical information for the countryside (MAGIC) maps for all statutory and non-statutory protected sites and these are summarised in section 2.3 (Designed Sites).

2.2. Previous studies

- 2.2.1. Previously, a wintering bird survey was undertaken by an ornithologist between January and March 2017. On each visit, the ornithologist walked a transect route around the 500m buffer survey area of the proposed new A47 road and recorded bird observations, such as birds in flight. The surveys were undertaken during suitable weather conditions and followed standard methods for bird monitoring including the use of British Trust for Ornithology (BTO) species codes and symbols for bird activity (Bibby *et al.*, 2000).
- 2.2.2. The surveys aimed to determine which species were using the study area during winter and to assess its importance for supporting populations of notable species including:
- Species protected under Schedule 1 of the Wildlife and Countryside Act (WCA) 1981, as amended
 - Species of Principal Importance for the purpose of conserving biodiversity covered under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006
 - Red and amber listed Birds of Conservation Concern (BoCC) (Eaton *et al.*, 2015)
- 2.2.3. In total 28 species were recorded (Table 2-1). This included three species listed on the Wildlife & Countryside Act (1981) Schedule 1, ten species on the red-listed species of conservation concern and nine species on the amber list (**TR010038/APP/6.1**).

Table 2-1 All species recorded on the wintering bird survey

BTO Code	Common Name	Scientific Name	Designation and Conservation Status
BO	Barn Owl	<i>Tyto alba</i>	Bern, WCA 1, LBAP
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC, Amber List
BH	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Birds Dir 2.2, Amber List
BZ	Buzzard	<i>Buteo buteo</i>	Bonn
CM	Common Gull	<i>Larus canus</i>	Birds Dir 2.2, Amber List

BTO Code	Common Name	Scientific Name	Designation and Conservation Status
CO	Coot	<i>Fulica atra</i>	Bonn, Birds Dir 2.1, IUCN NT
D	Duncock	<i>Prunella modularis</i>	Bern, NERC, Amber List
FF	Fieldfare	<i>Turdus pilaris</i>	Birds Dir 2.2, WCA 1, Red List, IUCN VU
GJ	Greylag Goose	<i>Anser anser</i>	Bonn, Birds Dir 2.1, Amber List
HG	Herring Gull	<i>Larus argentatus</i>	Birds Dir 2.2, NERC, Red List, IUCN NT
HS	House Sparrow	<i>Passer domesticus</i>	NERC, Red List
K	Kestrel	<i>Falco tinnunculus</i>	N/A
KT	Red Kite	<i>Milvus milvus</i>	Bonn, Birds Dir 1, WCA 1, IUCN NT
L	Lapwing	<i>Vanellus vanellus</i>	Birds Dir 2.2, NERC, Red List, IUCN VU
LI	Linnet	<i>Linaria cannabina</i>	Bern, NERC, Red List
M	Mistle Thrush	<i>Turdus viscivorus</i>	Birds Dir 2.2, Red List
MA	Mallard	<i>Anas platyrhynchos</i>	Bonn, Birds Dir 2.1, Amber List
MP	Meadow Pipit	<i>Anthus pratensis</i>	Amber List, IUCN NT
PG	Pink-footed Goose	<i>Anser brachyrhynchus</i>	Bonn, Birds Dir 2.2, Amber List
RE	Redwing	<i>Turdus iliacus</i>	Birds Dir 2.2, WCA 1, Red List, IUCN NT
RT	Redstart	<i>Phoenicurus phoenicurus</i>	Bern, Amber List
S	Skylark	<i>Alauda arvensis</i>	Birds Dir 2.2, NERC, LBAP Red List
SG	Starling	<i>Sturnus vulgaris</i>	Birds Dir 2.2, NERC, Red List
SN	Snipe	<i>Gallinago gallinago</i>	Bonn, Birds Dir 2.1
ST	Song Thrush	<i>Turdus philomelos</i>	Birds Dir 2.2, NERC, LBAP Red List
TU	Tufted Duck	<i>Aythya fuligula</i>	Bonn, Birds Dir 2.1
WK	Woodcock	<i>Scolopax rusticola</i>	Birds Dir 2.1, Red List
Y	Yellowhammer	<i>Emberiza citrinella</i>	Bern, NERC, Red List

Bern – Bern Convention (1982)

Bonn – Bonn Convention (1979)

WCA1 – Wildlife and Countryside Act (1981) Schedule One

Birds Dir 1, 2.1 & 2.2 – EC Directive on the Conservation of Wild Birds (791409/EEC) Annex 1, 2.1 and 2.2

NERC – National Environment of Rural Communities Act Section 41

LBAP – Local Action Plan Species

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

IUCN NT – IUCN Near Threatened Status (European Status)

IUCN VU – IUCN Vulnerable Status (European Status)

2.3. Designed sites

- 2.3.1. A MAGIC search was undertaken for all statutory and non-statutory protected sites within a 500m buffer of the main A47.
- 2.3.2. No designated sites were identified within this buffer zone. The closest designated site outside this buffer zone was Hockering Wood Site of Special Scientific Interest (SSSI) more than 1km north of the proposed route of the new A47 road.

2.3.3. There are four County Wildlife Sites (CWS) within the 500m buffer zone for the proposed route of the new A47 road:

- Fen West of East Tuddenham - Grid ref TG088122
- Old Covert, Wood Lane - Grid ref TG096128
- Fen Plantation - Grid ref TG097117
- Land adjoining River Tudd - Grid ref TG128113

2.3.4. These sites are offered some protection from development and are managed in Norfolk by the Norfolk Wildlife Trust in partnership with Natural England and Norfolk County Council. The local councils have produced guidance on the scope of future development on these sites to help maintain protection on these sites.

2.4. Data search

2.4.1. A data search from the National Biodiversity Network (NBN) Atlas returned 763 bird records within 1km of the proposed new A47 road. However, due to licence restrictions, not all these records are allowed to be reported for commercial purposes.

2.4.2. NBN Atlas record sources under the following licences:

- Open Government Licence (OGL)
- Creative Commons Licence with Attribution (CC-BY)

2.4.3. A total of 250 records were identified which could be used for commercial purposes (as above). These have been summarised in Table 2-2 (TR010038/APP/6.1).

Table 2-2 : Records of bird species and their designations and conservational value

Common Name	Scientific Name	Number of Records	Latest Sighting	Designation and Conservation Value
Blackbird	<i>Turdus merula</i>	39	2009	N/A
Blue Tit	<i>Cyanistes caeruleus</i>	14	2009	N/A
Chaffinch	<i>Fringilla coelebs</i>	12	2009	N/A
Coal Tit	<i>Parus ater</i>	8	2009	N/A
Collared Dove	<i>Streptopelia decaocto</i>	12	2009	N/A
Common Swift	<i>Apus apus</i>	5	2012	Bern, BoCC Amber, LBAP
Dunnock	<i>Prunella modularis</i>	9	2009	Bern, NERC, BoCC Amber

Common Name	Scientific Name	Number of Records	Latest Sighting	Designation and Conservation Value
Feral Pigeon	<i>Columba livia domestica</i>	2	2009	N/A
Goldfinch	<i>Carduelis carduelis</i>	9	2009	Bern
Great spotted Woodpecker	<i>Dendrocopos major</i>	1	2009	Bern
Great Tit	<i>Parus major</i>	14	2009	N/A
Greenfinch	<i>Chloris chloris</i>	8	2009	Bern
House Sparrow	<i>Passer domesticus</i>	28	2009	NERC, BoCC Red
Jackdaw	<i>Corvus monedula</i>	1	2009	N/A
Lapwing	<i>Vanellus vanellus</i>	2	2001	NERC, BoCC Red, IUCN VU
Long-tailed Tit	<i>Aegithalos caudatus</i>	6	2009	N/A
Magpie	<i>Pica pica</i>	6	2009	N/A
Pheasant	<i>Phasianus colchicus</i>	2	2009	N/A
Pied/White Wagtail	<i>Motacilla alba</i>	2	2009	Bern
Red-legged Partridge	<i>Alectoris rufa</i>	1	2009	N/A
Robin	<i>Erithacus rubecula</i>	14	2009	Bern
Siskin	<i>Spinus spinus</i>	1	2009	Bern
Song Thrush	<i>Turdus philomelos</i>	3	2009	NERC, BoCC Red, LBAP
Spotted Flycatcher	<i>Muscicapa striata</i>	2	2004	NERC, BoCC Red, LBAP
Starling	<i>Sturnus vulgaris</i>	26	2009	NERC, BoCC Red
Tree Sparrow	<i>Passer montanus</i>	1	2004	NERC, BoCC Red, LBAP
Turtle Dove	<i>Streptopelia turtur</i>	7	2005	Bonn, NERC, BoCC Red, LBAP, IUCN VU
Woodlark	<i>Lullula arborea</i>	1	2005	Birds Dir 1, WCA 1, NERC, LBAP
Woodpigeon	<i>Columba palumbus</i>	10	2009	N/A
Wren	<i>Troglodytes troglodytes</i>	3	2009	Bern

Bern – Bern Convention (1982)

WCA 1 – Wildlife and Countryside Act (1981) Schedule One

Birds Dir 1 – EC Directive on the Conservation of Wild Birds (791409/EEC) Annex 1

NERC – National Environment of Rural Communities Act Section 41

LBAP – Local Action Plan Species

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

IUCN VU – IUCN Vulnerable Status (European Status)

3. Methodology

- 3.1.1. The site was visited on four occasions through the wintering bird season (January, February, November and December 2019). The ‘look-see’ method (Gilbert et al, 1998) was used, where all birds observed using the site were counted. The survey method was broadly based on that of territory mapping (Bibby et al, 2000) as used for the BTO Common Bird Census (CBC). Standard BTO species codes and symbols for bird activity were used to identify birds and denote activity where appropriate.
- 3.1.2. On each visit, the surveyor, an experienced ornithologist, used binoculars to survey the open habitat whilst walking along a pre-determined transect route (Appendix A) at a slow pace so that all birds could be located and recorded (TR010038/APP/6.3).
- 3.1.3. The number of species recorded in the area is a simple measure of diversity that can help indicate the importance at each season of the year. The site's importance in value can be determined by several factors including geographical location, the diversity of habitats present and size of the habitat. Fuller (1980) detailed the diversity criteria, for bird species diversity, as shown in Table 3-1.

Table 3-1 Bird species diversity criteria: The importance of an area based on the number of bird species recorded (Fuller 1980)¹

National Importance	Regional Importance	County Importance	Local Importance
85+	70-84	50-69	25-49

- 3.1.4. Fuller’s criteria and professional judgement have been used to assess the importance of the survey area for wintering birds. In addition to evaluating the area based on the wintering bird assemblages, consideration is given to the value of the area for the populations of individual key species that it supports. This was done by comparing the population present within the survey area with national and country wintering populations for certain species. National population estimates have been referred to as published in Musgrove et al (2013).
- 3.1.5. As Fuller’s criteria was written in 1980, farmland bird species have continued to suffer a large scale decline across the UK. Due to this, consideration of counts that are within the upper limits of each criteria should be carried out using professional judgement to determine whether the count should be upgraded into the lower limits of the next highest criteria.

¹ Although these criteria are principally concerned with breeding populations, they are used here as an indication of the importance of the wintering bird population.

3.1.6. The conservation value of individual species can be measured by two separate approaches: nature conservation value and conservation status. The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment (CIEEM 2018), assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 3-2. In some cases, professional judgement may be required to increase or decrease the allocation of specific value, based upon local knowledge.

Table 3-2 Species value, terms and criteria

Species Value	Selection Criteria
International and European	A species which is part of the cited interest of a SPA and which regularly occurs in internationally or nationally important numbers. A species which is present in internationally important numbers (>1% of the international population).
National	A species which is part of the cited interest of an SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or over-wintering species. A species which is present in nationally important numbers (>1% UK population). Rare breeding species (<300 breeding pairs in the UK).
Regional	Species of principal importance under Section 41 of the National Environment and Rural Communities (NERC) Act (2006), which are not covered above, and which regularly occurs in regionally important numbers. Species present in regionally important numbers (>1% of regional population). Sustainable populations of species that are rare or scarce within a region. Species on the BoCC red list and which regularly occur in regionally important numbers.
County	Species of principal importance under Section 41 of the National Environment and Rural Communities (NERC) Act (2006), which are not covered above and which regularly occur in county important numbers. Species present in county important numbers (>1% of county population). Sustainable populations of species that are rare or scarce within a county, or listed as priority species for nature conservation under the Scottish Biodiversity List. A site designated for its county important assemblage of birds (e.g. a SINC Site). Species on the BoCC Red List and which regularly occur in county important numbers.
District	Species of principal importance under Section 41 of the National Environment and Rural Communities (NERC) Act (2006), which are not covered above, and are rare in the locality or in the relevant natural area profile. Species present in numbers just short of county importance. Sustainable populations of species that are rare or scarce within the locality. A site whose designation falls just short for inclusion in its county important assemblage of birds (e.g. a SINC Site). Other species on the BoCC red list and which are considered to regularly occur in district important numbers.
Local	Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List and listed as of principle importance under Section 41 of the National Environment and Rural Communities (NERC) Act (2006) which are not covered above, regularly occurring in locally sustainable populations.

Species Value	Selection Criteria
Site	All other BoCC greenlist, common and widespread species.

3.2. Pre-survey constraints

- 3.2.1. The pre-designed survey transects were modified from the wintering bird survey transects undertaken in 2017 due to access restrictions and scoping out unimportant habitats.
- 3.2.2. The transects accessed private property after permission was granted and where possible, access was via public rights of way surrounding the site. The transect route chosen targeted higher value areas, rather than attempting to cover the entirety of the site. This is not considered to represent a significant limitation to the survey.
- 3.2.3. There is potential for species to be missed or go unnoticed due to the nature of wintering bird surveys and possibilities of birds not vocalising or being located in dense vegetation. There is also potential to miss nocturnal species.
- 3.2.4. The details of this report will remain valid for a period of two years from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the suggestions within this report should be reviewed (and reassessed if necessary) should there be any changes to the DCO boundary or development proposals which this report was based upon.
- 3.2.5. Due to timing limitations, it was not possible to conduct the wintering bird surveys during the months of November and December 2018 and therefore, these need to be undertaken in 2019 to complete the data set.

4. Field surveys

4.1.1. The field surveys was undertaken during the wintering bird season (January February, November and December 2019) inclusive. All surveys were led by a specialist ornithological ecologist and assisted by fellow members of the ecology team.

4.2. Survey data and conditions

Table 4-1: Date and weather conditions of each survey

Survey Number	Date	Weather Conditions
Survey One – January 2019	28	Bright with scattered cloud. Light rain showers. Temperature -1 – 5°C. Wind NW4
	29	Bright with scattered cloud. Temperature 0 – 5°C. Wind S3
	30	Bright and clear. Temperature 0 – 4°C. Wind W2
Survey Two – February 2019	25	Bright with scattered cloud, occasional light rain showers. Temperature 2-12°C. Wind N1
	26	Bright and clear. Temperature 1-17°C . Wind N2
	27	Bright and clear. Temperature 1-16°C. Wind SW2
Survey Three – November 2019	25	Partly sunny. Temperature 8-11°C. Wind SE2
	26	Partly sunny. Temperature 10-13°C. Wind S2
	27	Partly sunny. Rain shower early AM. Temperature 10-11°C. Wind N2
Survey Four – December 2019	9	Scattered clouds. Temperature 6-8°C. Wind NW4
	10	Overcast, drizzle showers. Temperature 3-10°C. Wind S4
	11	Sunny. Temperature 2-7°C. Wind S2

4.3. Bird survey records

4.3.1. In total 69 species were recorded during the wintering bird survey between January, February, November and December 2019 across the site. A breakdown of species and total individuals recorded per survey can be found in Appendix B (TR010038/APP/6.3).

Table 4-2 Total species recorded which cited on European and UK legislation and of conservation concern.

Designation	Number of Species
Wildlife and Countryside Act	6
Birds Directive	5
NERC	13
BoCC Red List	14
BoCC Amber List	14
LBAP	3

IUCN Red List	9
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Survey one – January 2019

4.3.2. Table 4-3 summarises the total number of species which are cited under legislation outlined in Chapter 1 (Introduction) (TR010038/APP/6.1). Some species are cited on multiple legislations. A total of 60 species were observed.

Table 4-3 Total species recorded which cited on European and UK legislation and of conservation concern.

Designation	Number of Species
Wildlife and Countryside Act	4
Birds Directive	3
NERC	11
BoCC Red List	12
BoCC Amber List	12
LBAP	3
IUCN Red List	8

Survey two – February 2019

4.3.3. Table 4-4 summarises the total number of species which are cited under legislation outlined in Chapter 1 (Introduction) (TR010038/APP/6.1). Some species are cited on multiple legislations. A total of 57 species were observed.

Table 4-4 Total species recorded which cited on European and UK legislation and of conservation concern.

Designation	Number of Species
Wildlife and Countryside Act	3
Birds Directive	2
NERC	9
BoCC Red List	11
BoCC Amber List	11
LBAP	2
IUCN Red List	6

Survey three – November 2019

4.3.4. Table 4-5 summarises the total number of species which are cited under legislation outlined in Chapter 1 (Introduction) (TR010038/APP/6.1). Some species are cited on multiple legislation. A total of 51 species were observed.

Table 4-5 Total species recorded which cited on European and UK legislation and of conservation concern.

Designation	Number of Species
Wildlife and Countryside Act	3

Designation	Number of Species
Birds Directive	3
NERC	11
BoCC Red List	11
BoCC Amber List	8
LBAP	3
IUCN Red List	6

Survey four – December 2019

4.3.5. Table 4-6 summarises the total number of species which are cited under legislation outlined in Chapter 1 (Introduction) (TR010038/APP/6.1). Some species are cited on multiple legislation. A total of 51 species were observed.

Table 4-6 Total species recorded which cited on European and UK legislation and of conservation concern.

Designation	Number of Species
Wildlife and Countryside Act	5
Birds Directive	4
NERC	9
BoCC Red List	9
BoCC Amber List	12
LBAP	2
IUCN Red List	7

4.4. Disturbance events

4.4.1. Disturbance was recorded at numerous points during the bird survey. The main disturbance events include the following detailed in Table 4-7 (TR010038/APP/6.1).

Table 4-7 Disturbance events

Activity	Time	Level of Disturbance
Agricultural Operations	Occasional activities from ploughing, herbicide application, fertiliser application, reseeded, etc.	Negligible – mainly game birds moving between field boundaries.
Bird Scaring	Regular use of gas guns throughout the transect.	High – Large scale flushes of woodpigeons across the site. Passerines in cover crops also flushed.
Dog Walkers	Occasional chasing of flocks of birds, and alarm calls heard by birds on footpaths when dogs were present.	Low – alarm calls and low-level flushing from areas adjacent to footpaths.
Game Keeping	Regular shooting activities and gamekeepers driving around estates.	Moderate – flocks of woodpigeons flushed by gunshots and game birds seen to flush.

Activity	Time	Level of Disturbance
Aeroplanes and Helicopters	Low flying military planes.	Negligible – no obvious signs of disturbance, although alarm calls were not audible.
Arboriculture Operation	Occasional chainsaw operations in woodland areas.	Low – mainly a reduction in bird activity including vocalising.

4.5. Survey constraints

- 4.5.1. Access for land parcels 118 (TG120108, TG115110 and TG111111) and 131 (TG126108) had not been granted prior to the first survey undertaken in January 2019 and therefore parts of the transect route were not surveyed for wintering birds. Access was granted for the following survey in February.
- 4.5.2. In land parcel 177 (TG 12041 10556 - TG 12344 10587) and 163 (TG 11441 10610) large-scale construction activities were observed and therefore, this parcel of land was scoped out from any further surveys and the nearby transect routes adjusted.

5. Results

5.1. Wintering bird survey

5.1.1. A total of 69 species were recorded within the DCO boundary during the surveys. Of the 69 species, 12 are red-listed, 11 are amber-listed, four are listed on WCA 1.1, four are listed on the Birds Directive and 11 are cited on the NERC Act.

5.1.2. Table 5-1 outlines the key species wintering on-site (cited on the Birds Directive Annex I, WCA Schedule One, the NERC Act, LBAP Birds of Conservation Concern and listed on IUCN). This information is displayed spatially in Appendix C (TR010038/APP/6.3). Full survey results are provided in Appendix B (TR010038/APP/6.3).

Table 5-1 Key species recorded, their designations, conservation status and total count per survey

Common Name	Scientific Name	Designation	Conservation Status	Total Individuals			
				Survey One	Survey Two	Survey Three	Survey Four
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	N/A	BoCC Amber	37	187	86	109
Brambling	<i>Fringilla montifringilla</i>	WCA1	IUCN VU	5	0	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC, UKBAP	BoCC Amber	8	13	6	5
Common Gull	<i>Larus canus</i>	N/A	BoCC Amber	49	24	101	100
Dunnock	<i>Prunella modularis</i>	Bern, NERC, UKBAP	BoCC Amber	17	20	17	8
Fieldfare	<i>Turdus pilaris</i>	WCA 1	BoCC Red, IUCN VU	271	185	75	77
Goldcrest	<i>Regulus regulus</i>	N/A	IUCN NT	9	16	38	14
Golden Plover	<i>Pluvialis apricaria</i>	Bonn, Birds Dir 1	N/A	50	0	0	0
Greylag Goose	<i>Anser anser</i>	Bonn	BoCC Amber	14	70	0	3
Herring Gull	<i>Larus argentatus</i>	NERC	BoCC Red, IUCN VU	6	5	457	32
House Sparrow	<i>Passer domesticus</i>	NERC	BoCC Red	114	52	76	52
Kingfisher	<i>Alcedo atthis</i>	Bern, Birds Dir 1, WCA 1	BoCC Amber, IUCN VU	0	0	0	1
Lesser Black-backed Gull	<i>Larus fuscus</i>	N/A	BoCC Amber	0	3	0	3
Lesser Redpoll	<i>Acanthis cabaret</i>	NERC	BoCC Red	100	0	0	0
Linnet	<i>Linaria cannabina</i>	Bern, NERC,	BoCC Red	7	7	20	0

Common Name	Scientific Name	Designation	Conservation Status	Total Individuals			
				Survey One	Survey Two	Survey Three	Survey Four
Little Egret	<i>Egretta garzetta</i>	Bern, Birds Dir 1	N/A	0	1	1	1
Mallard	<i>Anas platyrhynchos</i>	Bonn	BoCC Amber	74	54	95	110
Marsh Tit	<i>Poecile palustris</i>	NERC	BoCC Red	0	0	6	3
Meadow Pipit	<i>Anthus pratensis</i>	N/A	BoCC Amber, IUCN VU	3	16	11	5
Mistle Thrush	<i>Turdus viscivorus</i>	N/A	BoCC Red	9	10	4	7
Mute Swan	<i>Cygnus olor</i>	Bonn	BoCC Amber	4	5	0	2
Red Kite	<i>Milvus milvus</i>	Bonn, Birds Dir 1, WCA 1	IUCN NT	4	8	23	16
Redwing	<i>Turdus iliacus</i>	WCA 1	BoCC Red, IUCN VU	169	158	15	9
Reed Bunting	<i>Emberiza schoeniclus</i>	Bern, NERC, LBAP	BoCC Amber	4	0	2	1
Skylark	<i>Alauda arvensis</i>	NERC, LBAP	BoCC Red	39	52	104	21
Song Thrush	<i>Turdus philomelos</i>	NERC, LBAP	BoCC Red	6	12	13	0
Sparrowhawk	<i>Accipiter nisus</i>	Bonn, Birds Dir 1	N/A	1	0	1	3
Starling	<i>Sturnus vulgaris</i>	NERC	BoCC Red	55	30	78	44
Stock Dove	<i>Columba oenas</i>	N/A	BoCC Amber	5	26	11	91
Teal	<i>Anas crecca</i>	Bonn	BoCC Amber	19	7	0	0
Wigeon	<i>Mareca penelope</i>	Bonn	BoCC Amber, IUCN VU	1	0	0	0
Woodcock	<i>Scolopax rusticola</i>	N/A	BoCC Red	1	2	0	0
Yellowhammer	<i>Emberiza citrinella</i>	Bern, NERC	BoCC Red	16	74	35	8

Designation

Bern – Bern Convention (1982)

Bonn – Bonn Convention (1979)

WCA 1 – Wildlife and Countryside Act (1981) Schedule One

Birds Dir 1 – EC Directive on the Conservation of Wild Birds (79/409/EEC) Annex I

NERC – Environment and Rural Communities Act (2006)

LBAP – Local Biodiversity Action Plan Species

Conservation Status

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

IUCN VU – IUCN Vulnerable Status (EU 27 Status)

IUCN NT – IUCN Near Threatened Status (EU 27 Status)

5.2. Incidental records

- 5.2.1. Owl pellets were found in two buildings around the site. The first building (O1) is located at TG 06712 13657, north-west of Hockering and the second building (O2) located at TG 11051 12078. The surveyor was also informed by a resident that five minutes before arrival at location TG 08556 12739, a barn owl was hunting along the northern boundary hedge where suitable rough grassland is present.
- 5.2.2. Building O1 held a single tawny owl pellet which was approximately one year old. A single kestrel pellet and two (c. one year old) barn owl pellets were also recorded in the accessible areas of the open-sided barn. There was a small area of the barn which was not accessible to undertake a search for pellets however, is considered to be suitable nesting habitat.
- 5.2.3. Building O2 held more than 30 barn owl pellets of which two pellets were fresh from the night before. There was a large amount of whitewashing on a wall, below a suitable nest site, and ground-up pellet remains were also present indicating the likelihood of a nest site.
- 5.2.4. A kestrel and owl nest box was observed near All Saints Church, TG 08542 11500. A single stock dove and jackdaw were present around the boxes during the survey, further inspection should be undertaken to check for winter roost potential.

6. Assessment and mitigation

6.1. Bird assemblages

- 6.1.1. The overall assemblage of bird species recorded on site was typical of the range of habitat which dominates the site including hedgerow, woodland, scrub habitat and agricultural habitat.
- 6.1.2. Fuller (1980) devised a standard where the importance of an area can be assessed by the number of bird species recorded (Table 3-1) (**TR010038/APP/6.1**). The species list for the whole site was 69. This places the site within the range of county importance.
- 6.1.3. As outlined in section 3.1.5 (Methodology), professional judgement has been used in this instance to upgrade the importance level to Regional due to the species composition on site (**TR010038/APP/6.1**). Out of the 69 species on-site in over 50% of the species which have been recorded are cited on European and UK legislation and included as species of conservation concern.

6.2. Species value level

- 6.2.1. On comparing the wintering bird data obtained with national and county populations outlined by Musgrove *et al.* (2013) and in the Norfolk Bird and Mammal Report 2017 (produced by Norfolk and Norwich Naturalist Society) with the guidance on ecological impact assessment (Table 3-2), most of the species recorded are resident and regular wintering species within the region (**TR010038/APP/6.1**). At the species value level the site is considered to be of local conservation value.

6.3. Impact of habitat change or loss

- 6.3.1. The impact on wintering bird species across the site arising from the effects of the proposed works is based upon an understanding of each species individual requirements for winter foraging and roosting.
- 6.3.2. The species recorded on site that are considered most sensitive to impacts from habitat change are species which are listed under Annex I of the Bird Directive, birds which are cited on the Birds of Conservation Concern red and amber list and those on the Local Biodiversity Action Plan. The habitat requirements, species status during the surveys nature conservation value and unmitigated impacts are summarised in Table 6-1 (**TR010038/APP/6.1**).
- 6.3.3. It is considered that impacts to other species that are wintering on the site are expected to be no greater than those listed in Table 6-1 (**TR010038/APP/6.1**).

Table 6-1 Habitat requirement and nature conservation value of important species cited on Birds Directive Annex I, WCA 1, NERC, LBAP, BoCC Red/Amber and IUCN species of wintering birds.

Species	Habitat Requirement	Survey Account	Nature Conservation Value ²	Unmitigated Impacts
Black-headed Gull	Highly gregarious in winter both when feeding and roosting. Commonly feeds on worms, insects, fish and carrion both on agricultural land and wetland habitats during the winter months.	Birds were present during all surveys. Numbers increasing by 405% as agricultural activities such as ploughing and reseeded increased.	Local	Loss or arable land and wetland habitat across site will reduce foraging habitat.
Brambling	Gregarious in the winter migrating into the UK from Scandinavia to feed mainly on seed in agricultural habitats, hedgerows and woodland.	A small flock of five individuals were observed during survey, one within a flock of 20 Chaffinch feeding on wintering cover crop.	Local	Loss of hedgerow sections and scrub habitat within the site which currently offers foraging habitat.
Bullfinch	Winters mainly in broad-leaved woodland, but also common in dense hedgerow and thickets. Adult birds are herbivores although invertebrates are important for fledglings.	Birds were recorded on all four surveys	Local	Loss of hedgerow sections and scrub habitat within the site which currently offers foraging habitat.
Common Gull	Widespread across agriculture, urban parkland and wetland habitats during winter months. Main food source is invertebrates with some fish.	Birds were recorded throughout the site during all four surveys	Local	Loss or arable land and wetland habitat across site will reduce foraging habitat.
Dunnock	Commonly occupies a wide variety of scrub grown situations. Has adapted to field hedgerows, farms, railway embankments, parks, gardens and vacant urban land. Feeds mainly on insects but small seeds are an important winter food.	Birds were recorded throughout the site during all four surveys	Local	Loss of hedgerow and scrub areas within the site which currently offers foraging and roosting habitat. Loss of arable land will reduce suitable foraging habitat.
Fieldfare	Found in both arable and grassland agricultural land, hedges and trees. Can also utilise urban areas feeding on ornamental berry trees. Feeds mainly on insects, worms and berries.	Large flocks were present feeding in agricultural fields during survey one and two. Numbers decreased by 50% during surveys three and four.	Local	Loss of hedgerow and scrub areas within the site which currently offers foraging and roosting habitat. Loss of arable land will reduce suitable foraging habitat

² Based on criteria set out in Table 4 and professional judgement.

Species	Habitat Requirement	Survey Account	Nature Conservation Value ²	Unmitigated Impacts
Goldcrest	Found mainly in coniferous woodlands and parks with large mature trees although they can range during the winter months when food is in short supply. Feeds mainly on small invertebrates such as spiders and moth eggs.	Birds were recorded in suitable woodland habitats throughout all four surveys.	Local	Loss of woodland habitat across the site will reduce wintering foraging and roosting habitat.
Golden Plover	In winter months feeds in lowland fields eating worms, beetles and insects.	A flock of 50 birds was observed flying north over Poppy's Wood. Their low altitude of flight would indicate these birds were feeding in nearby open fields before taking flight.	Local	Loss of arable land and wetland habitat across site will reduce foraging habitat.
Greylag Goose	Commonly found in lowland areas, in agricultural grass fields, wetland habitats and suburban parks and lakes. Feeds mainly on plant material, incl. roots, tubers, shoots, leaves.	Birds were recorded during both survey one two and four with birds commonly found on Easton Estate and also roosting and flying to the small reservoir located at TG 12732 12195	Local	Removal of wetland area and short grassland will reduce wintering and foraging habitat.
Herring Gull	Commonly found across countryside and urban areas, feeding on open fields, wetlands, lakes and parkland. Varied diet of carrion, seeds, fruits, birds, small mammals, insects and fish.	Small numbers were recorded during both survey one two and four. The peak count of 457 was during survey three.	Local	Loss of arable land and wetland habitat across site will reduce foraging habitat.
House Sparrow	Often associated with humans and will typically avoid dense vegetation. Usually, avoid arable crops and areas lacking in shrubs and trees other than during feeding.	Birds were recorded in good numbers across the site on all four surveys.	Local	Loss of scrub and hedgerow habitat across the site which currently offers roosting habitat.
Kingfisher	Often inhabit slow-moving, shallow rivers or streams which are clean enough to support abundant small fish.	A single bird was recorded in survey four flying along the River Tud near Church Lane.	Local	Pollution of water course will result in reduction in fish.
Lesser Black-backed Gull	Increasingly common in urban habitats and also found in open countryside feeding in fields and wetland habitats. They are omnivorous and have a varied diet.	Three birds were observed during the second and fourth survey flying over open agricultural fields.	Local	Loss of arable land and wetland habitat across site will reduce foraging habitat.

Species	Habitat Requirement	Survey Account	Nature Conservation Value ²	Unmitigated Impacts
Lesser Redpoll	Found in woodland areas where seeding trees are present but are also found in urban gardens and parklands. Mainly feeds on seeds of particularly birch and alder, and plants such as willowherb and sorrel.	A flock of approximately 100 birds were present on Easton Estate feeding on alder and birch trees.	Local	Removal of woodland areas will reduce foraging availability for this species.
Linnet	Found in various habitats such as open countryside, heathland, rough ground, farmland hedge, saltmarshes and parks and gardens. Feeding mainly on seeds and insects.	Small numbers were recorded in the hedgerows and agricultural areas during survey one and two. The peak count of 20 was recorded during survey three.	Local	Removal of scrub & hedgerows will reduce roosting habitat across the site. The loss of arable land will reduce foraging habitat.
Little Egret	Found more commonly in wetland habitats such as marshland, fenland, streams, and estuaries. They feed mainly on fish.	A single bird was seen during surveys two, three and four on a small stream running adjacent to the River Tudd at TG078125.	Local	Loss of wetland areas across the site will reduce foraging habitat.
Mallard	Commonly found in suitable wetland habitats and urban areas such as parks.	Birds were recorded in all four surveys forming small flocks on ponds and occupying the River Tudd and local fishing lakes.	Local	Loss of wetland areas across the site will reduce foraging habitat.
Marsh Tit	Found mainly in broadleaved woodland also copses, parks and gardens. Feeds mainly on insects and seeds	Birds were recorded in surveys three and four in broadleaved woodlands. Individuals were also part of larger mixed species flocks.	Local	Removal of woodland and scrub will reduce foraging habitat.
Meadow Pipit	Feeds in open habitats, either uncultivated or low-intensity agriculture and moorland, but also occurs in low numbers in arable croplands. Feeds mostly on insects with some seeds in the winter months.	Three birds were recorded on the first survey, with numbers increasing to 16 on survey two. This could be due to birds that moved further south during the winter move back to upland areas later, feeding up in agricultural fields on route. In the autumn migration, a peak count of 11 birds were recorded during survey three which dropped to five in survey four.	Local	Removal of grassland and agricultural areas will reduce suitable roosting and foraging habitat.
Mistle Thrush	Commonly found in woodland and woodland edge, farmland, parkland and gardens. Diet consists mainly of invertebrates, with berries in autumn and winter.	Birds were recorded in open habitat across the site during all four surveys.	Local	Loss of woodland edge and parkland will reduce roosting and foraging habitat.

Species	Habitat Requirement	Survey Account	Nature Conservation Value ²	Unmitigated Impacts
Mute Swan	Can be found in a wide range of wetland habitats ranging from urban parks to rivers, lakes and reservoirs. Feeds mainly on aquatic vegetation, amphibians, invertebrates and molluscs.	Birds were recorded on the fishing lakes on site and open water on survey one, two and four.	Local	Loss of wetland areas across the site will reduce foraging habitat.
Red Kite	Found near woodlands and in open rural areas. Feeds mainly on carrion and worms but can take small mammals.	Birds were recorded during all four surveys, mainly within a 200m buffer zone of the proposed works. Large roosting flocks during survey three and four south of Honnigham.	Local/national	Loss of woodland habitats will reduce roosting habitats. Loss of open agricultural habitat will reduce foraging.
Redwing	Found in both arable and grassland agricultural land, hedges and trees. Can also utilise urban areas feeding on ornamental berry trees. Feeds mainly on insects, worms and berries.	Flocks of redwing were present during survey one and two, often associating with flocks of fieldfare feeding on open agricultural habitat. Numbers decreased by 50% during survey three and four.	Local	Loss of hedgerow and scrub areas within the site which currently offers foraging and roosting habitat. Loss of arable land will reduce suitable foraging habitat
Reed Bunting	Found mainly in farmland and wetland habitats including ditch edges, and crops set aside. Young are fed solely on invertebrates until they fledge. During winter birds feed mainly on seed.	Four birds were recorded in the wild bird cover crop on Easton Estate during survey one. Birds were also recorded during survey three and four.	Local	Loss of hedgerow habitat will reduce roosting habitat and the loss of arable land will remove foraging habitat.
Skylark	Species that prefer open farmland habitats where short, sparse vegetation provides cover and foraging habitat. Feeds on plant and animal products with insects being especially important in the summer.	Birds were recorded during all four surveys feeding in the open agricultural grass fields.	Local	Loss of arable areas where species are currently feeding over winter.
Song Thrush	Often associated with thick hedgerows, native woodland and damp ground, including grazed pasture. Main food source is worms and snails when insect larvae and berry crops are not available.	Birds were recorded across the site during both survey one two and three.	Local	Loss of hedgerows across site which currently offers roosting and foraging habitat.
Sparrowhawk	Found in woodland habitats near open fields and can also be seen in suburban areas hunting around gardens. Mainly feed on birds.	A single bird was recorded during survey one hunting along a hedgerow at TG069136. Individuals were also recorded during survey three and four.	Local	Loss of woodland habitat, hedgerows and farmland will reduce the feeding availability for this species.

Species	Habitat Requirement	Survey Account	Nature Conservation Value ²	Unmitigated Impacts
Starling	Found in wide ranging habitats from open countryside, suburban areas such as gardens and parkland and saltmarsh. Feeds mainly on invertebrates and fruit.	Flocks of birds were recorded on all four surveys.	Local	Loss of foraging habitat across the site and removal of trees with suitable roosting cavities.
Stock Dove	In winter small flocks form to feed in agricultural areas, mainly where arable stubble and cover crops remain where they feed mainly on seeds.	Birds were recorded during all four surveys with the peak count of 91 in survey four.	Local	Loss of foraging habitat across the site.
Teal	In winter birds congregate in low-lying wetlands habitats including ponds, marshland and saltmarsh habitats.	Birds were recorded on waterbodies within Easton Estate during survey one and two.	Local	Loss of wetland areas across the site will reduce foraging habitat.
Wigeon	A grazing duck specialist, favouring wetland habitats such as wet grassland, floodplain meadows, ponds and reservoirs with grassy bankings. Feeds mainly on aquatic plants, grasses and roots.	A single bird was recorded on the fishing lake at TG073117 during survey one	Local	Loss of wetland areas across the site will reduce foraging habitat.
Woodcock	Found mainly in deciduous and mixed woodland and young conifer plantations where it feeds and rests amongst the leaf litter or bracken. Feeds mainly on worms, beetles, spiders, caterpillars, fly larvae and small snails.	A single bird was recorded on survey one and two birds were recorded on survey two.	Local	The loss of woodland habitat will reduce suitable wintering habitat for this species.
Yellowhammer	Traditionally based on edges of open areas or forest and scrub. Found wintering extensively across cultivated land with hedges and plantations. Feeds mainly on seeds, with an increase in invertebrates during the summer.	Birds were recorded on all four surveys.	Local	The loss of arable fields will greatly reduce the foraging opportunities. Removal of hedgerows will also reduce the roosting habitat.

6.4. Construction impacts

- 6.4.1. Construction operations are likely to disturb bird species of nature conservation interest using the site for roosting and foraging. The construction of the new road will result in land-take, fragmentation and general habitat loss.
- 6.4.2. The loss of some habitats during the construction phase cannot be mitigated and therefore, it is highly likely that birds currently using the site will move away to find alternative suitable winter feeding grounds.
- 6.4.3. Hedgerows are also likely to be removed, increasing the fragmentation of corridors across the site. This will be unfavourable to many bird species recorded and will likely see a reduction in hedgerow species during the construction phase of the Proposed Scheme.
- 6.4.4. Visual and noise disturbance from machinery required during the construction phase will likely lead to desertion or avoidance of the area by wintering bird species.

6.5. Operational impacts

- 6.5.1. Birds are generally considered likely to be affected by an increase in traffic and can be particularly susceptible to noise from a new road.
- 6.5.2. Post-construction monitoring of the site should be undertaken to establish if there has been any increase in road casualties as a result of the proposed works. A wintering bird survey replicating this survey methodology is recommended to establish whether there has been a reduction in population size from the works. If a reduction is observed, further mitigation will be required.

6.6. Mitigation measures

- 6.6.1. The following mitigation measures are suggested.
 - Areas across the site that require vegetation clearance during the winter months should be staggered to allow the natural food resources to be consumed by the birds remaining on site.
 - To prevent disturbance to off-site habitats, areas around the DCO boundary should be buffered where possible using retained hedgerows or artificial screening to reduce visual disturbance.
 - Where fragmentation of hedgerows occurs, movable screens should be placed across the gaps created where possible to allow birds to continue using the hedgerow as a corridor without disturbance.
 - Site compounds should be screened off from the surrounding habitat to reduce visual disturbance.

- It is important that the hedgerows, scrub and standard trees are retained and managed for their value to birds and other wildlife.

6.7. Mitigation and conservation compensation

6.7.1. To ensure biodiversity is retained, protected and enhanced within the Proposed Scheme, resulting in a net gain for wintering birds, the following is suggested:

- Hedgerow gaps are to be infilled with at least double hedge planting, ideally triple.
- Ensure all trees around the site are protected and retained where possible and any trees are afforded a root protection zone.
- Native planting should be encouraged to attract invertebrates and berry-rich species should be planted away from the new road in the hedgerow and scrub replanting plans.
- Wetlands should be suitably replanted with reeds to help increase populations of invertebrates.
- Areas of grassland should be allowed to be unmanaged, to enable the establishment of rough grassland habitats which will increase both invertebrate and small mammal populations.
- Areas of set aside should be allowed along pre-designated boundary hedgerows and sown with seed rich plant species to provide suitable foraging for wintering birds to promote species moving back into the site after works have completed.

6.8. Further surveys

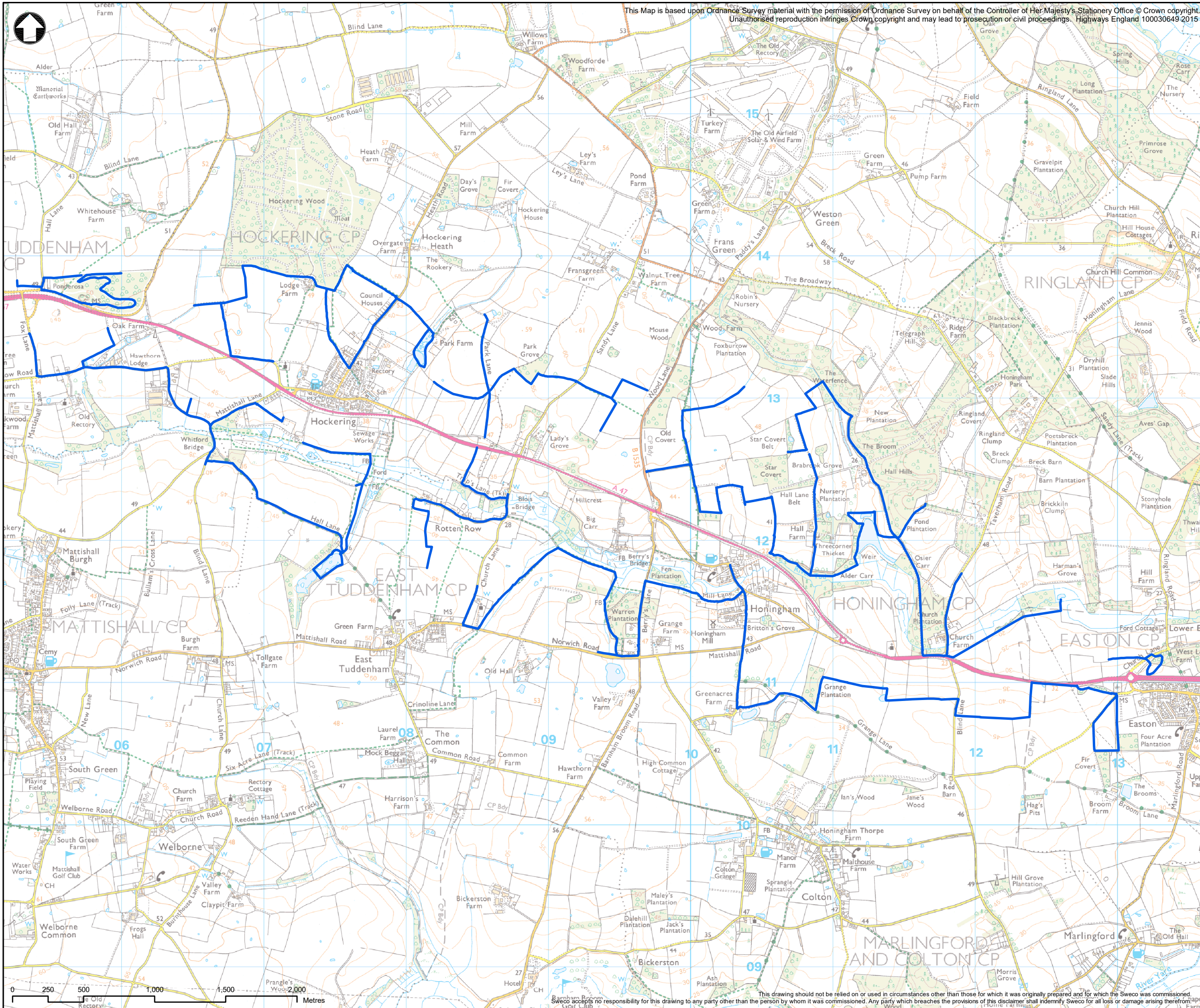
6.8.1. As there were records of active barn owl roosts and potential nest sites, a comprehensive barn owl survey should be undertaken to gather information on the location of wintering roosts.

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 - Norfolk Local Biodiversity Action Plan (2011) [online] <http://www.norfolkbiodiversity.org/actionplans/> [accessed April 2019]
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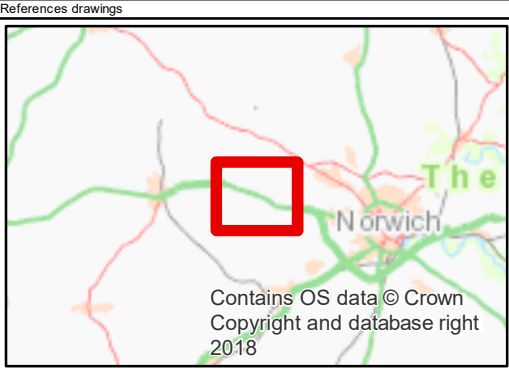
Appendix A: Transect Route



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Key to symbols
 Wintering bird survey transect routes

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Mott MacDonald Sweco

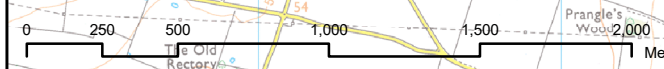


Drawing Status: For Stage Approval
 Subtality: S4

Project Title: A47 - North Tuddenham to Easton

Drawing Title: Wintering Bird Survey - Transect Routes

Scale: 1:25,000	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Jones, Bryn
Original Size: A3	Date: 24/05/2019	Date: 24/05/2019	Date: 24/05/2019	Date: 24/05/2019
Drawing Number: HE551489 - MMSJV	Originator: - EBD -	Volume: -	Project Ref. No.: HE551489	
000 - DR - LB - 00001	Type: Role: Number:		Revision: P01	



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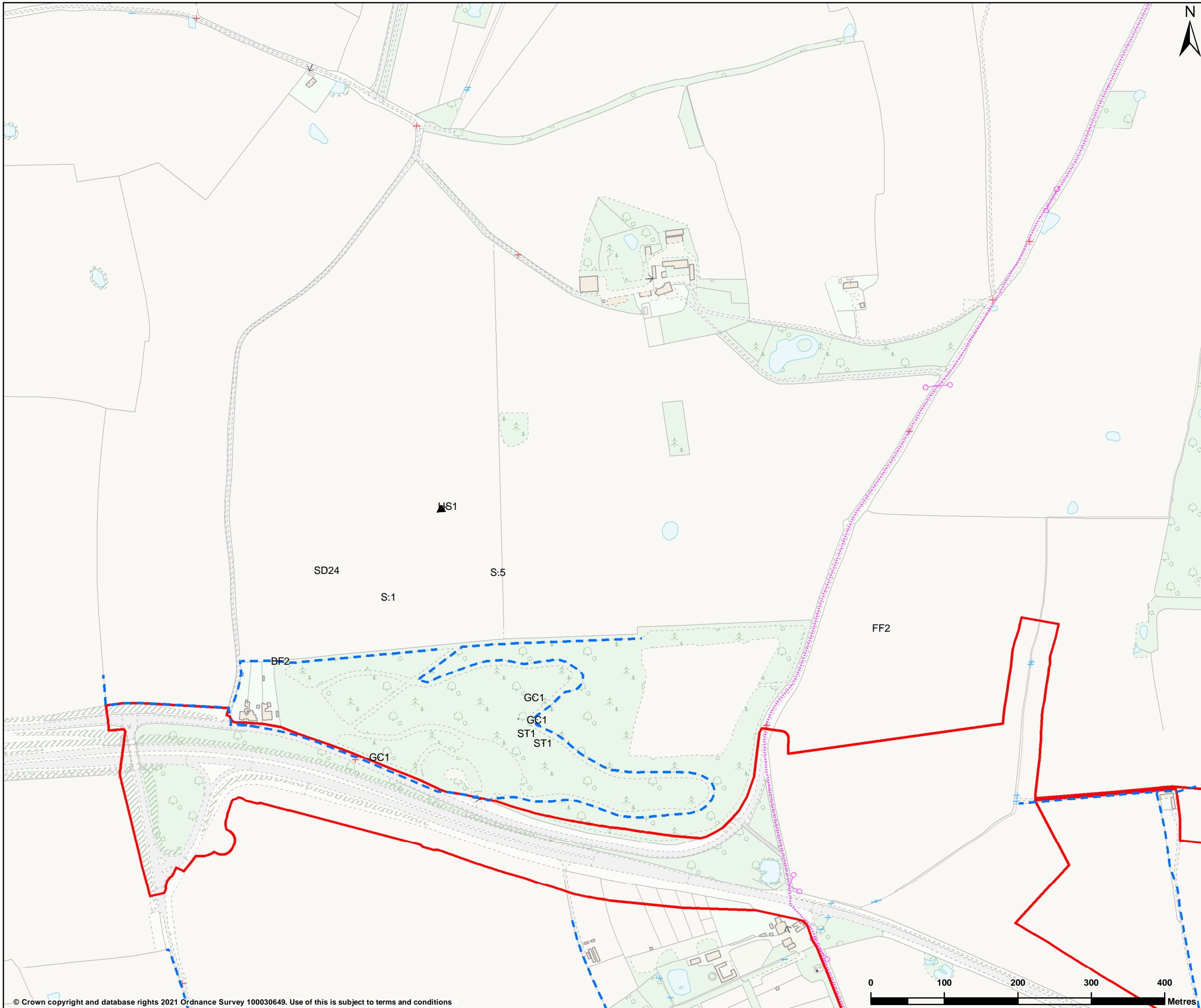
Appendix B: Full wintering bird data

Common Name	Scientific Name	Designation	Conservation Status	Total Individuals			
				Survey One	Survey Two	Survey Three	Survey Four
Blackbird	<i>Turdus merula</i>	Birds Dir 2.2		129	102	145	101
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Birds Dir 2.2	BoCC Amber	37	187	86	109
Blue Tit	<i>Cyanistes caeruleus</i>			127	159	141	77
Brambling	<i>Fringilla montifringilla</i>	WCA1		5	0	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC, UKBAP	BoCC Amber	8	13	6	5
Buzzard	<i>Buteo buteo</i>	Bonn		13	25	15	15
Carrion Crow	<i>Corvus corone</i>	Birds Dir 2.2		26	68	167	68
Chaffinch	<i>Fringilla coelebs</i>			65	116	269	41
Coal Tit	<i>Periparus ater</i>			9	9	10	1
Collared Dove	<i>Streptopelia decaocto</i>	Birds Dir 2.2		14	6	21	15
Common Gull	<i>Larus canus</i>	Birds Dir 2.2	BoCC Amber	49	24	101	100
Cormorant	<i>Phalacrocorax carbo</i>			4	1	1	3
Dunnock	<i>Prunella modularis</i>	Bern, NERC, UKBAP	BoCC Amber	17	20	17	8
Egyptian Goose	<i>Alopochen aegyptiaca</i>	Bonn		2	0	0	0
Feral/hybrid goose	#N/A	#N/A	#N/A	0	4	0	0
Fieldfare	<i>Turdus pilaris</i>	Birds Dir 2.2, WCA 1	BoCC Red	271	185	75	77
Goldcrest	<i>Regulus regulus</i>			9	16	38	14
Golden Plover	<i>Pluvialis apricaria</i>	Bonn, Birds Dir 1, 2.2		50	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	Bern		100	127	49	12
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Bern		5	5	4	1
Great Tit	<i>Parus major</i>			93	104	28	21
Green Woodpecker	<i>Picus viridis</i>	Bern		0	3	11	2
Greenfinch	<i>Chloris chloris</i>	Bern		4	14	0	0
Grey Heron	<i>Ardea cinerea</i>			1	2	1	1
Greylag Goose	<i>Anser anser</i>	Bonn, Birds Dir 2.1, WCA 1.2	BoCC Amber	14	70	0	3

Common Name	Scientific Name	Designation	Conservation Status	Total Individuals			
				Survey One	Survey Two	Survey Three	Survey Four
Herring Gull	<i>Larus argentatus</i>	Birds Dir 2.2, NERC,	BoCC Red	6	5	457	32
House Sparrow	<i>Passer domesticus</i>	NERC,	BoCC Red	114	52	76	52
Jackdaw	<i>Coloeus monedula</i>	Birds Dir 2.2		47	115	273	29
Jay	<i>Garrulus glandarius</i>	Birds Dir 2.2		7	20	10	4
Kestrel	<i>Falco tinnunculus</i>			4	5	2	0
Kingfisher	<i>Alcedo atthis</i>	Bern, Birds Dir 1, WCA 1	BoCC Amber	0	0	0	1
Lesser Black-backed Gull	<i>Larus fuscus</i>	Birds Dir 2.2	BoCC Amber	0	3	0	3
Lesser Redpoll	<i>Acanthis cabaret</i>	NERC	BoCC Red	100	0	0	0
Linnet	<i>Linaria cannabina</i>	Bern, NERC,	BoCC Red	7	7	20	0
Little Egret	<i>Egretta garzetta</i>	Bern, Birds Dir 1		0	1	1	1
Long-tailed Tit	<i>Aegithalos caudatus</i>			50	62	106	70
Magpie	<i>Pica pica</i>	Birds Dir 2.2		2	7	19	19
Mallard	<i>Anas platyrhynchos</i>	Bonn, Birds Dir 2.1	BoCC Amber	74	54	95	110
Marsh Tit	<i>Poecile palustris</i>	NERC,	BoCC Red	0	0	6	3
Meadow Pipit	<i>Anthus pratensis</i>	0	BoCC Amber	3	16	11	5
Mistle Thrush	<i>Turdus viscivorus</i>	Birds Dir 2.2	BoCC Red	9	10	4	7
Moorhen	<i>Gallinula chloropus</i>	Birds Dir 2.2		14	12	9	17
Mute Swan	<i>Cygnus olor</i>	Bonn, Birds Dir 2.2,	BoCC Amber	4	5	0	2
Nuthatch	<i>Sitta europaea</i>			8	1	2	0
Pheasant	<i>Phasianus colchicus</i>	Birds Dir 2.1		30	54	154	43
Pied Wagtail	<i>Motacilla alba</i>	Bern		7	6	52	19
Red Kite	<i>Milvus milvus</i>	Bonn, Birds Dir 1, WCA 1		4	8	23	16
Red-legged Partridge	<i>Alectoris rufa</i>	Birds Dir 2.1		102	140	600	182
Redwing	<i>Turdus iliacus</i>	Birds Dir 2.2, WCA 1	BoCC Red	169	158	15	9
Reed Bunting	<i>Emberiza schoeniclus</i>	Bern, NERC,	BoCC Amber	4	0	2	1

Common Name	Scientific Name	Designation	Conservation Status	Total Individuals			
				Survey One	Survey Two	Survey Three	Survey Four
Robin	<i>Erithacus rubecula</i>	Bern		79	82	31	26
Rock/Feral Pigeon	<i>Columba livia</i>	Birds Dir 2.1		0	0	10	0
Rook	<i>Corvus frugilegus</i>	Birds Dir 2.2		288	252	169	41
Siskin	<i>Spinus spinus</i>	Bern		11	37	0	0
Skylark	<i>Alauda arvensis</i>	Birds Dir 2.2, NERC,	BoCC Red	39	52	104	21
Snipe	<i>Gallinago gallinago</i>	Bonn, Birds Dir 2.1		0	1	0	0
Song Thrush	<i>Turdus philomelos</i>	Birds Dir 2.2, NERC,	BoCC Red	6	12	13	0
Sparrowhawk	<i>Accipiter nisus</i>	Bonn, Birds Dir 1		1	0	1	3
Starling	<i>Sturnus vulgaris</i>	Birds Dir 2.2, NERC,	BoCC Red	55	30	78	44
Stock Dove	<i>Columba oenas</i>	Birds Dir 2.2	BoCC Amber	5	26	11	91
Teal	<i>Anas crecca</i>	Bonn, Birds Dir 2.1	BoCC Amber	19	7	0	0
Treecreeper	<i>Certhia familiaris</i>			3	13	0	0
Tufted Duck	<i>Aythya fuligula</i>	Bonn, Birds Dir 2.1		2	0	0	1
Wigeon	<i>Mareca penelope</i>	Bonn, Birds Dir 2.1	BoCC Amber	1	0	0	0
Woodcock	<i>Scolopax rusticola</i>	Birds Dir 2.1,	BoCC Red	1	2	0	0
Woodpigeon	<i>Columba palumbus</i>	Birds Dir 2.1		405	985	1685	1144
Wren	<i>Troglodytes troglodytes</i>	Bern		17	43	31	19
Yellowhammer	<i>Emberiza citrinella</i>	Bern, NERC,	BoCC Red	16	74	35	8

Appendix C: Distribution map of key species



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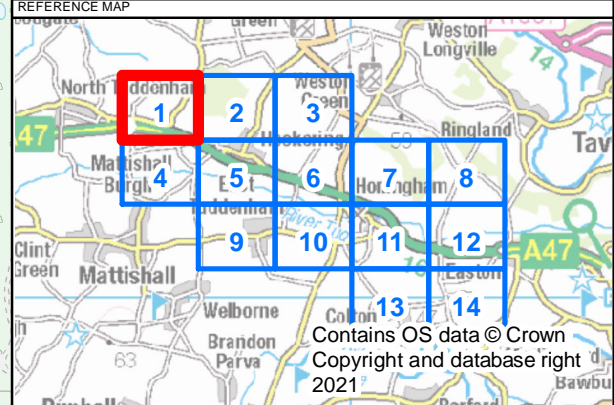
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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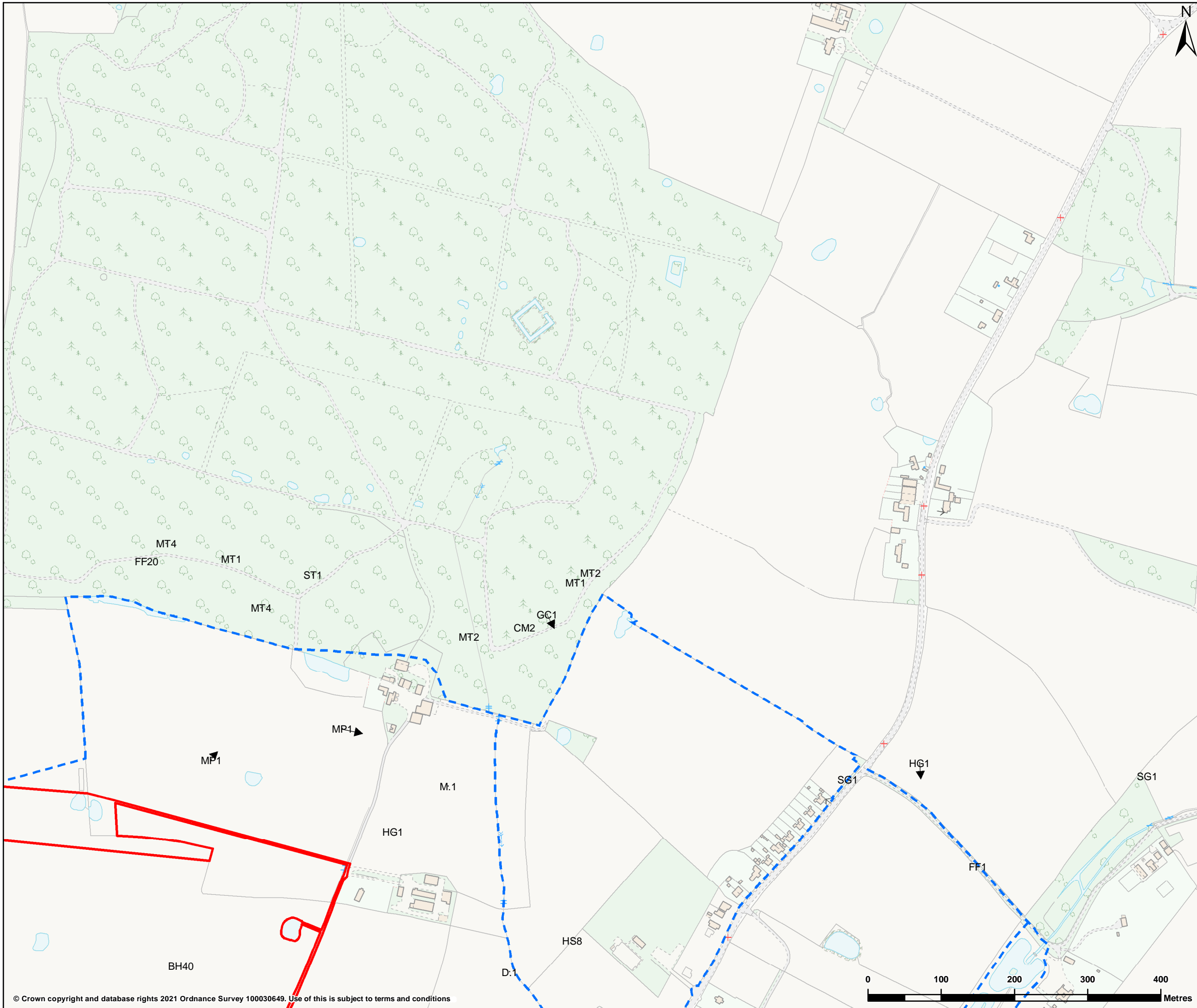
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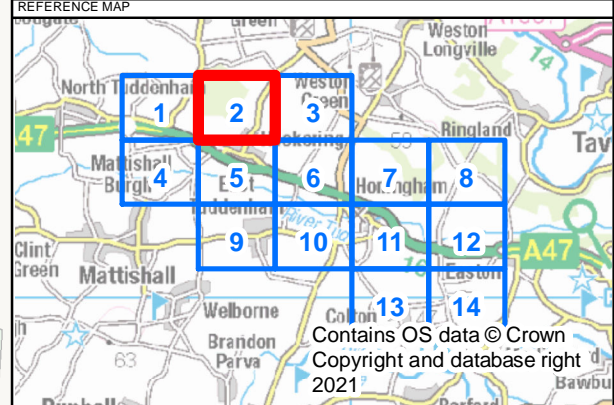
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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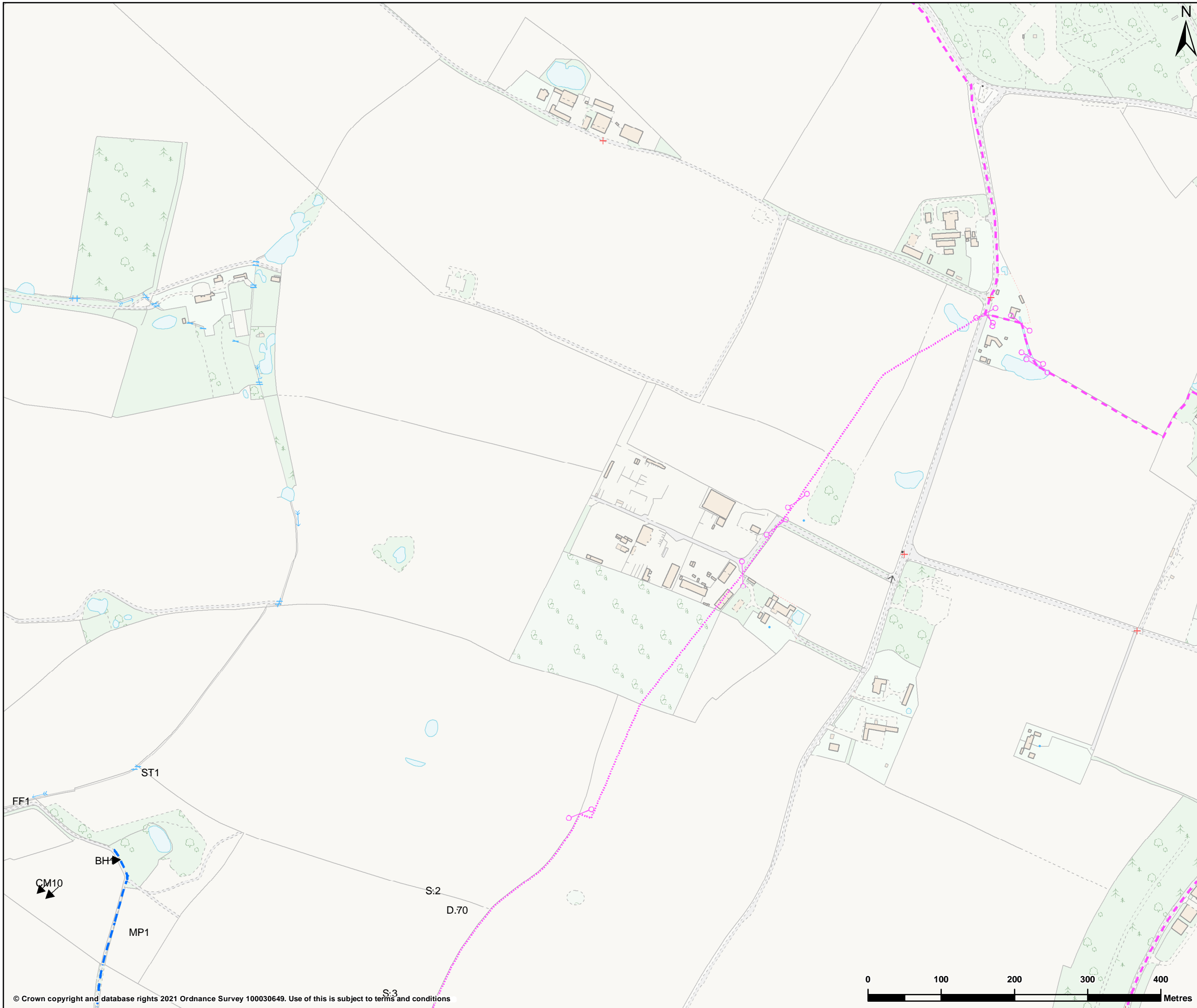
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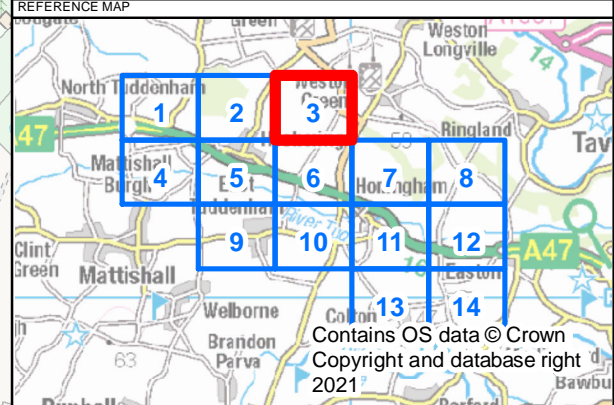
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
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- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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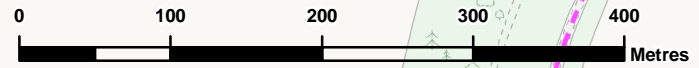
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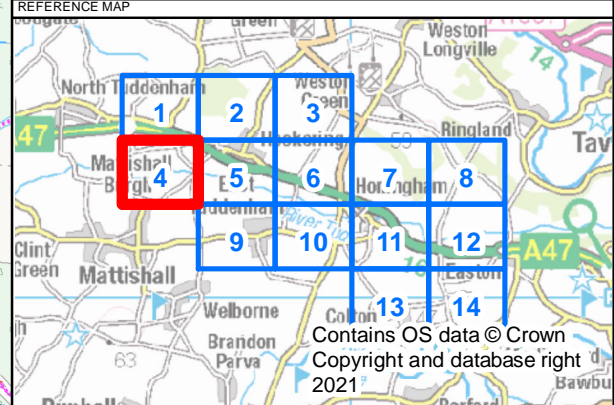
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
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Sex

- ♀ Female
- ♂ Male
- juv Juvenile
- ♂♀ Pair



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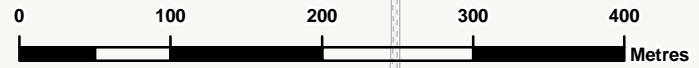
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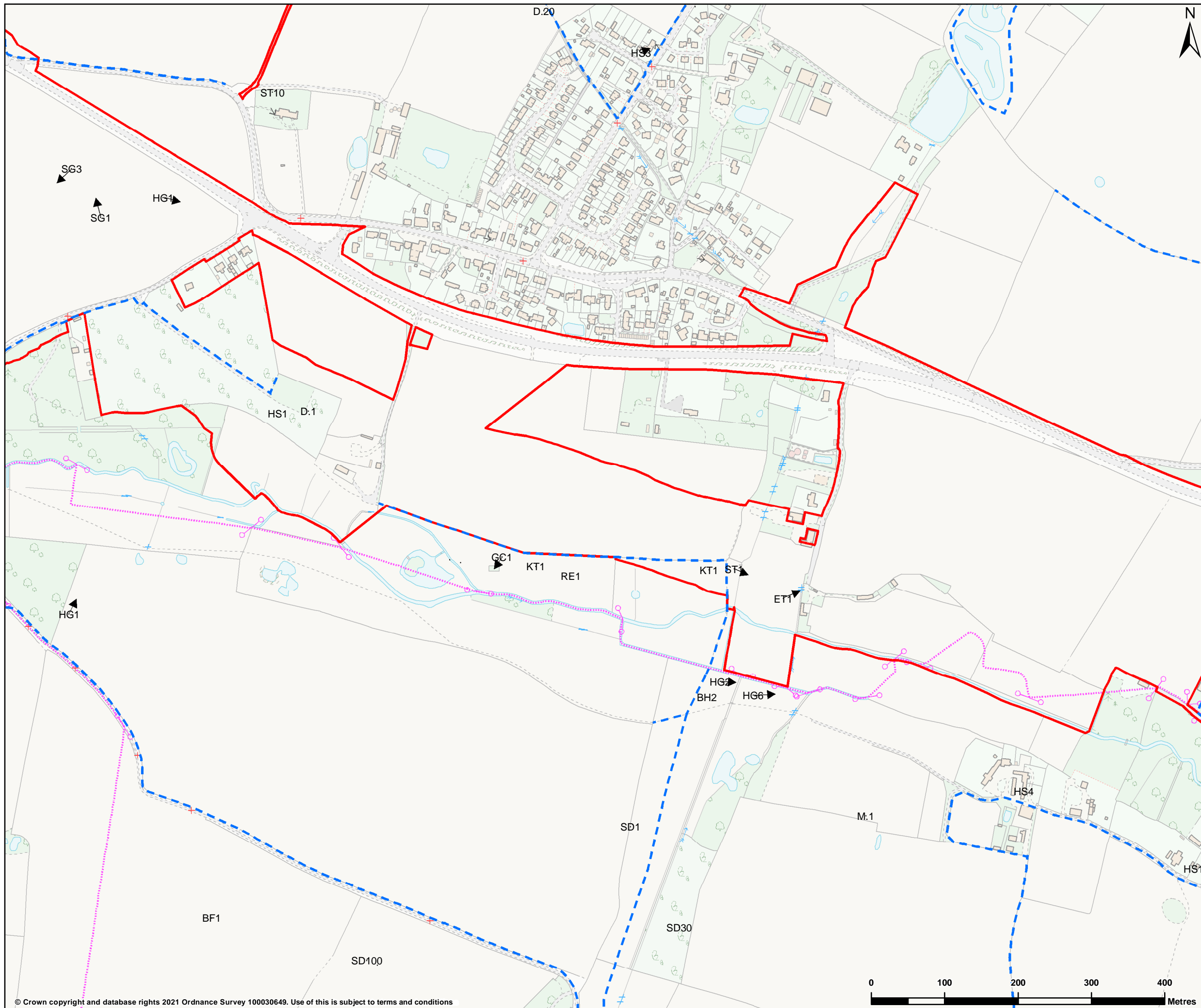
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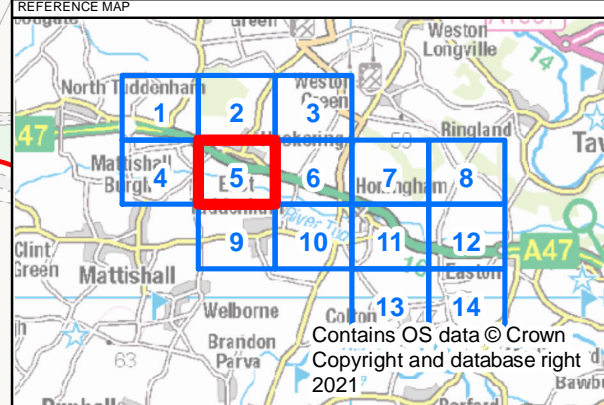
- DCO boundary
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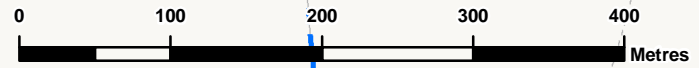
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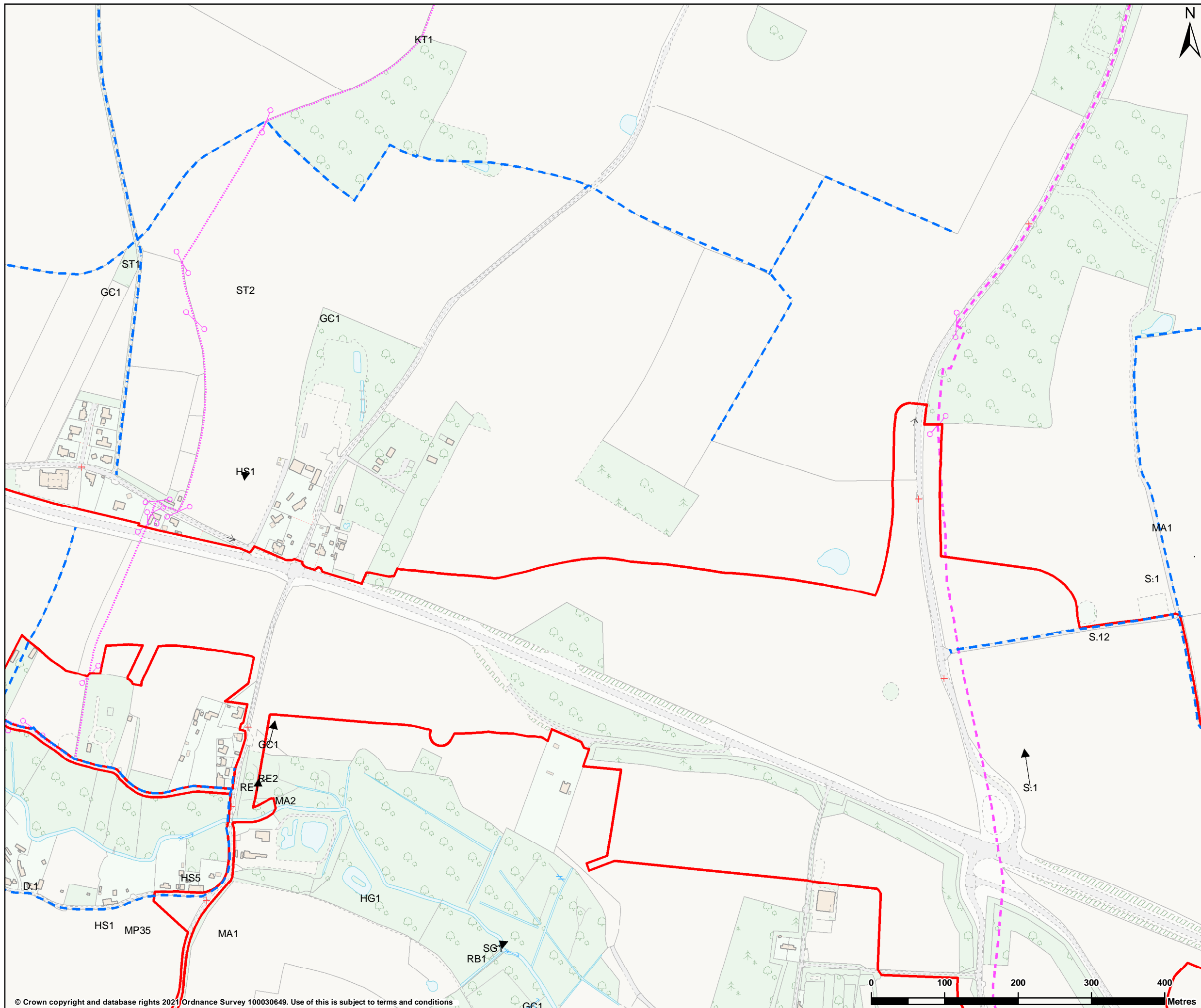
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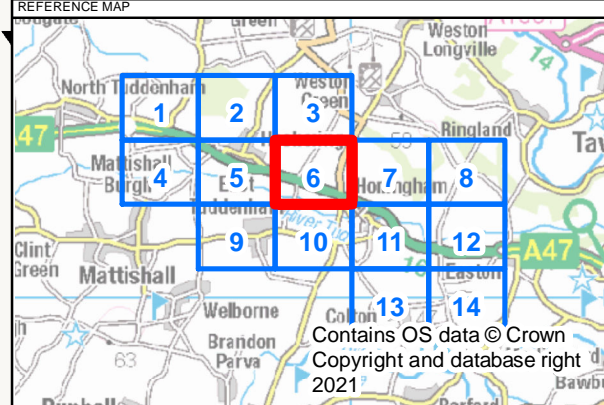
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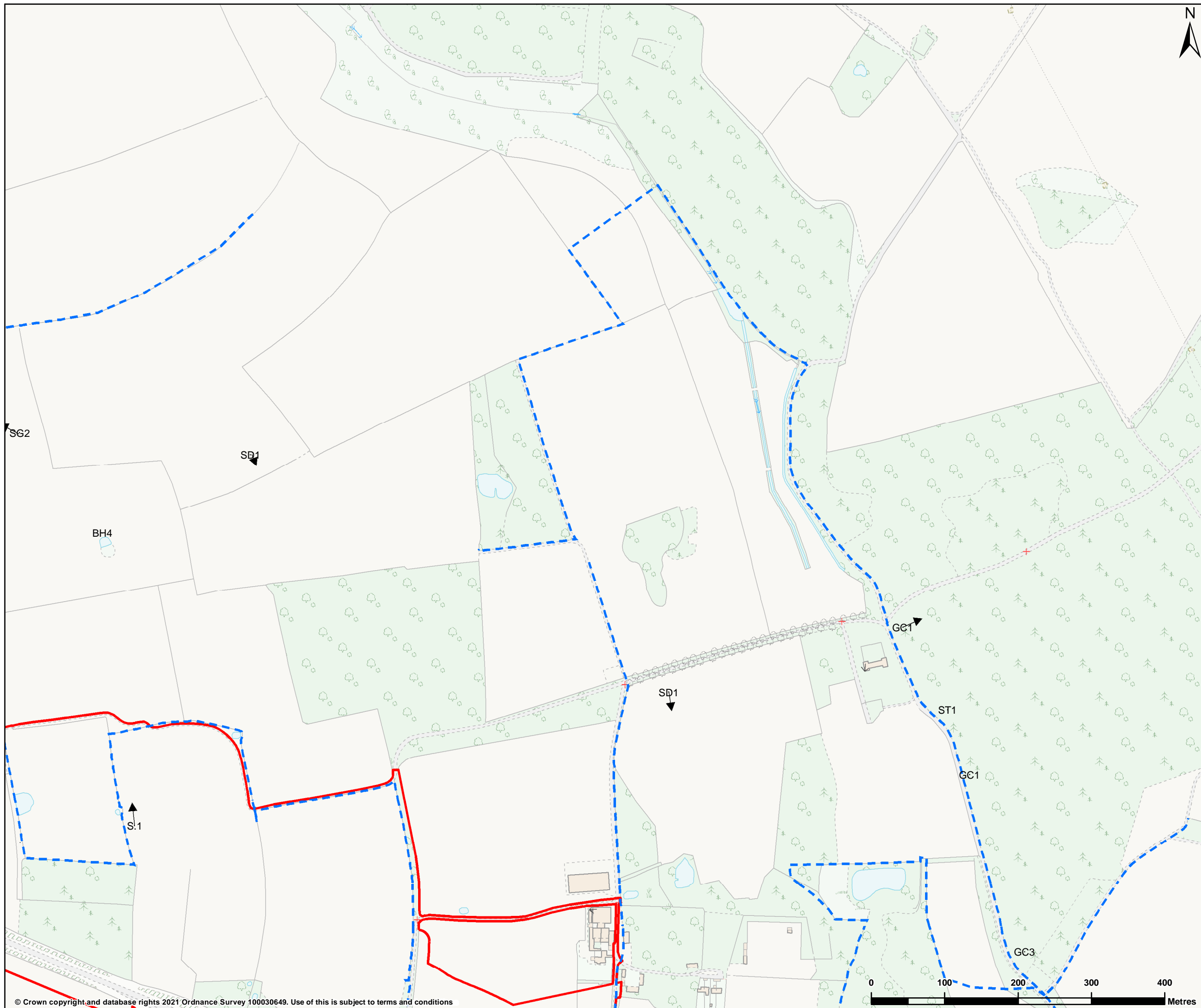
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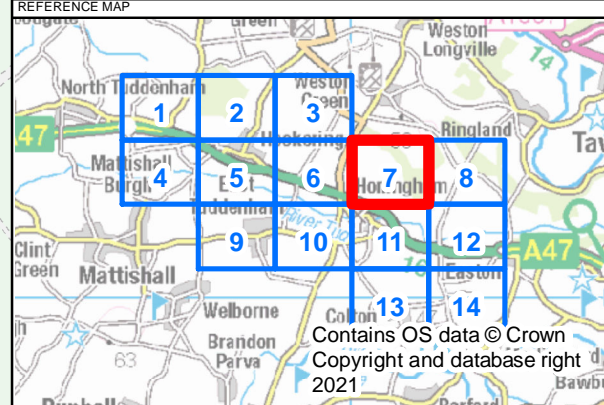
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SHEET 7 OF 14
TR010038/APP/6.2

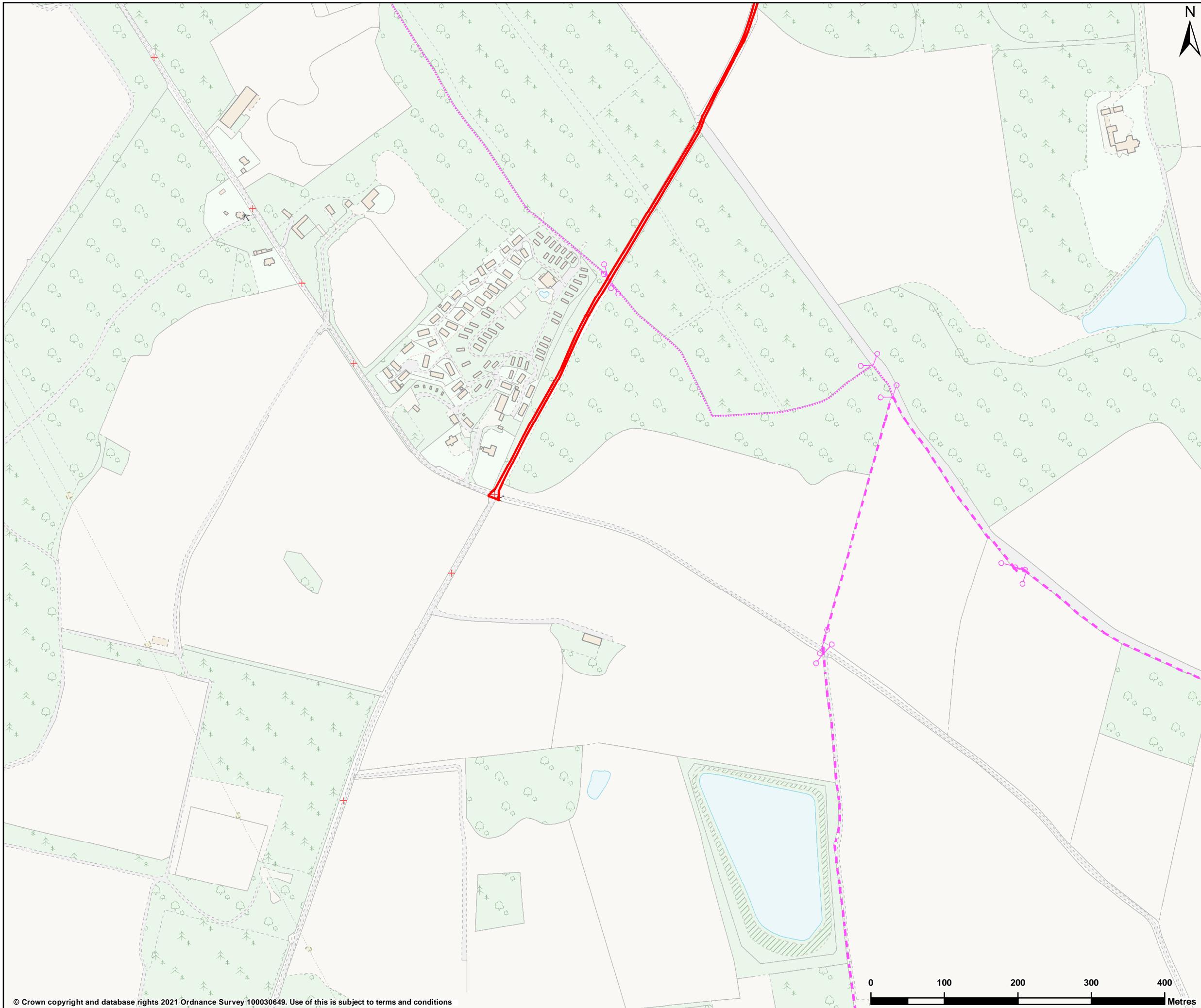
SUITABILITY
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

DRAWING NUMBER
HE551489-GTY-EBD-000-DR-LB-30031

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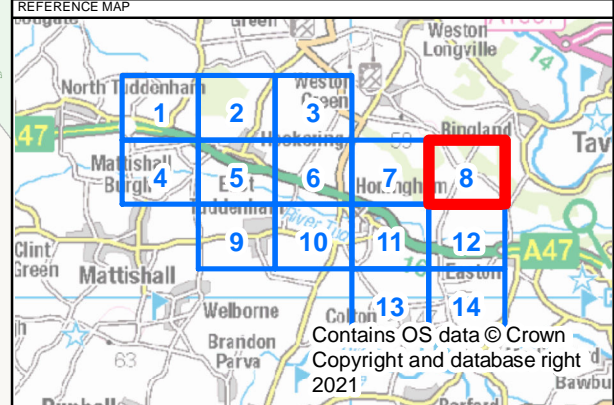
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 8 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

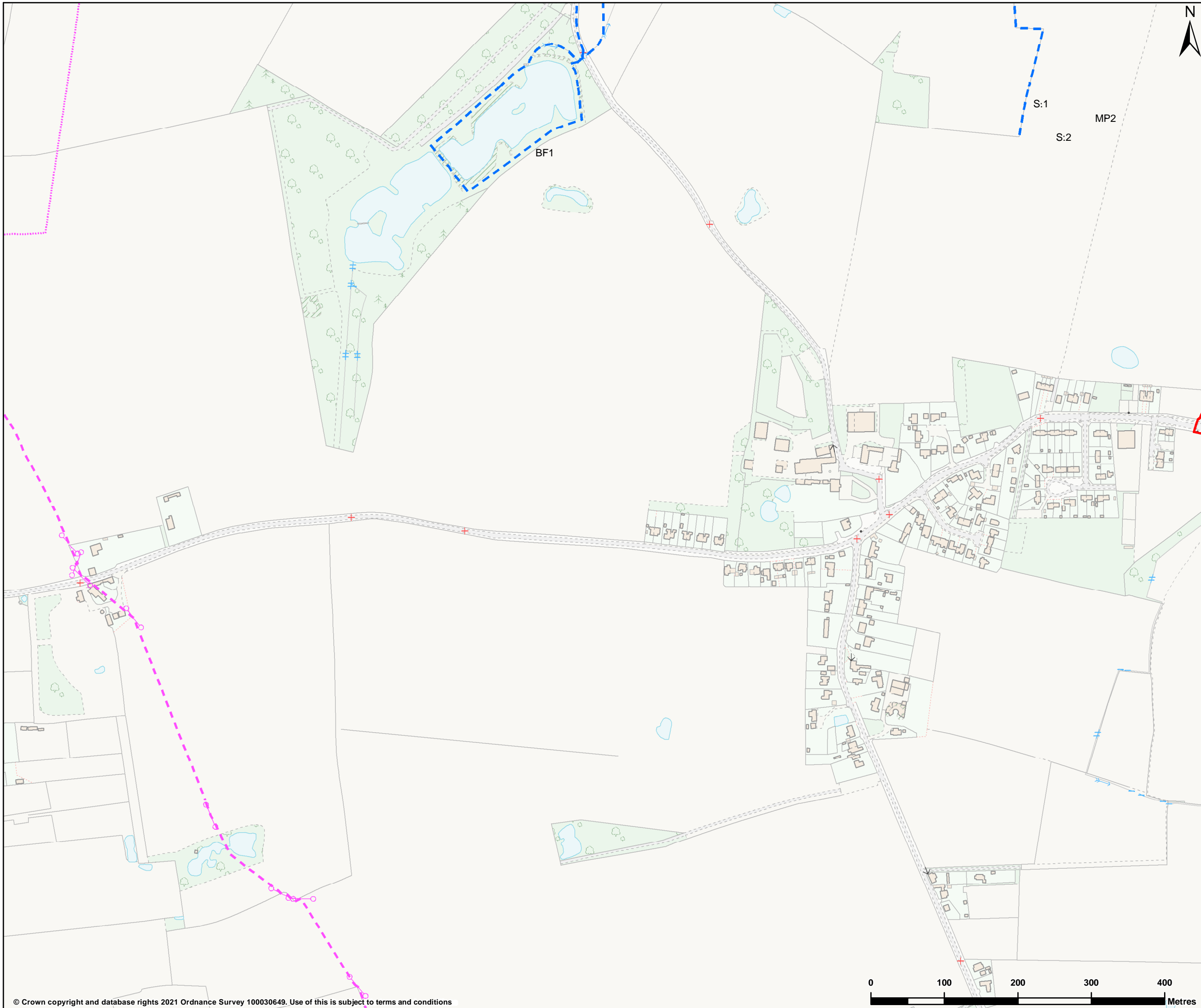
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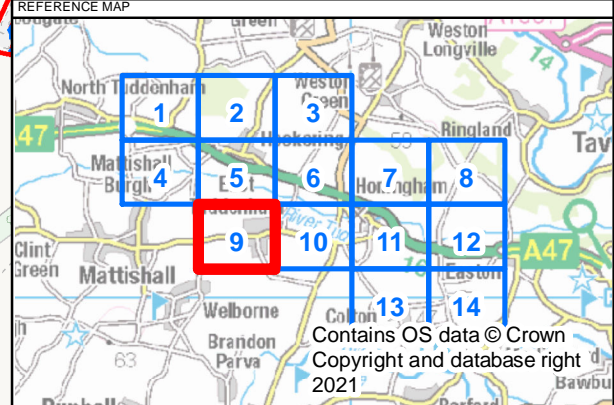
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways
england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 9 OF 14
TR010038/APP/6.2

SUITABILITY

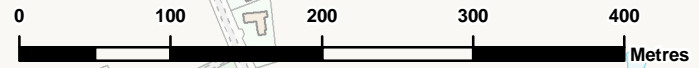
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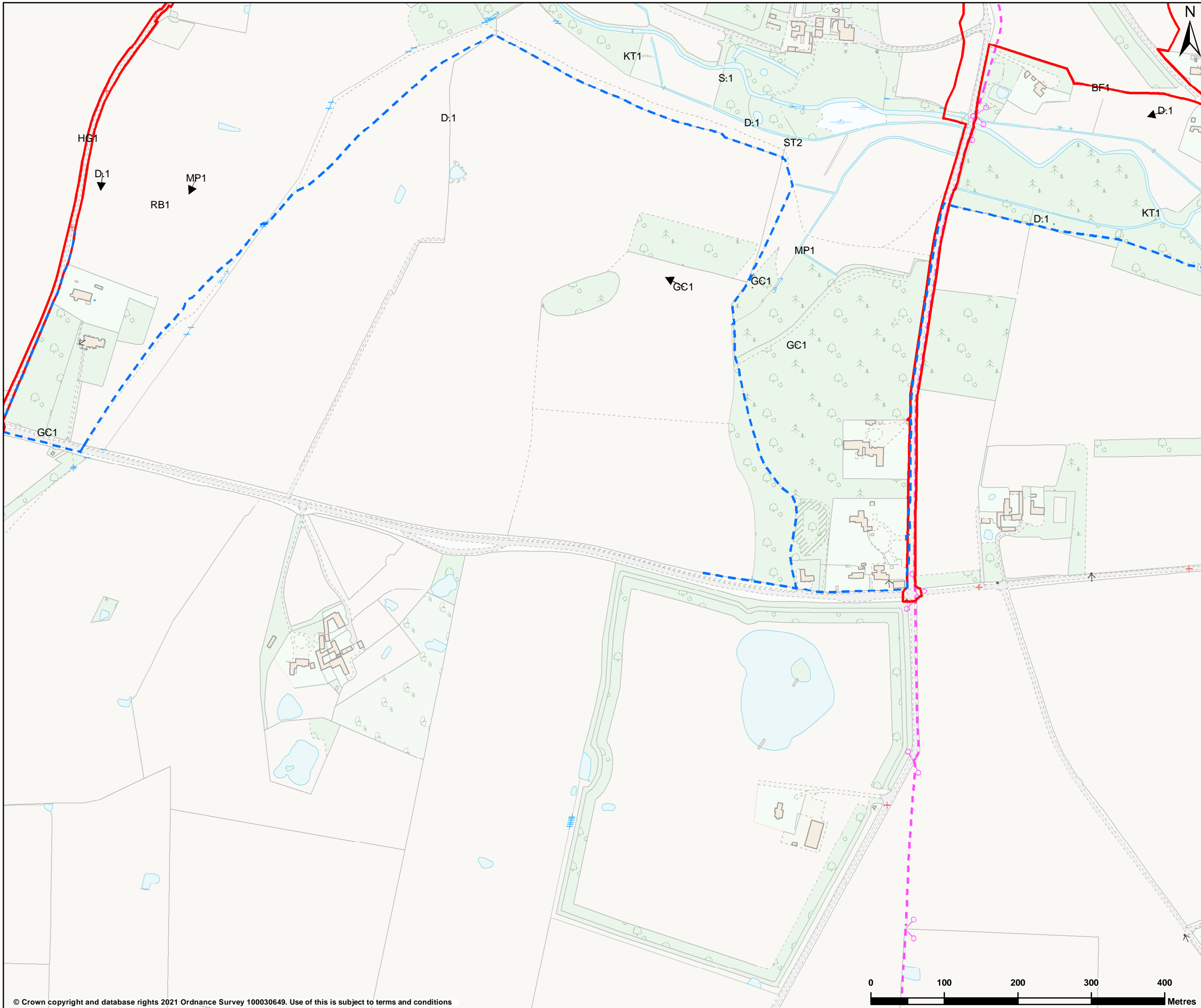
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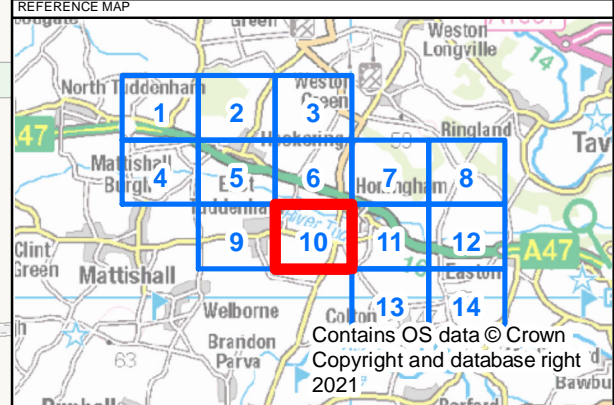
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

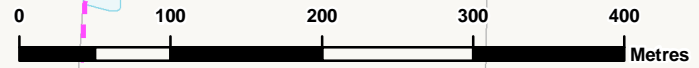
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APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 10 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

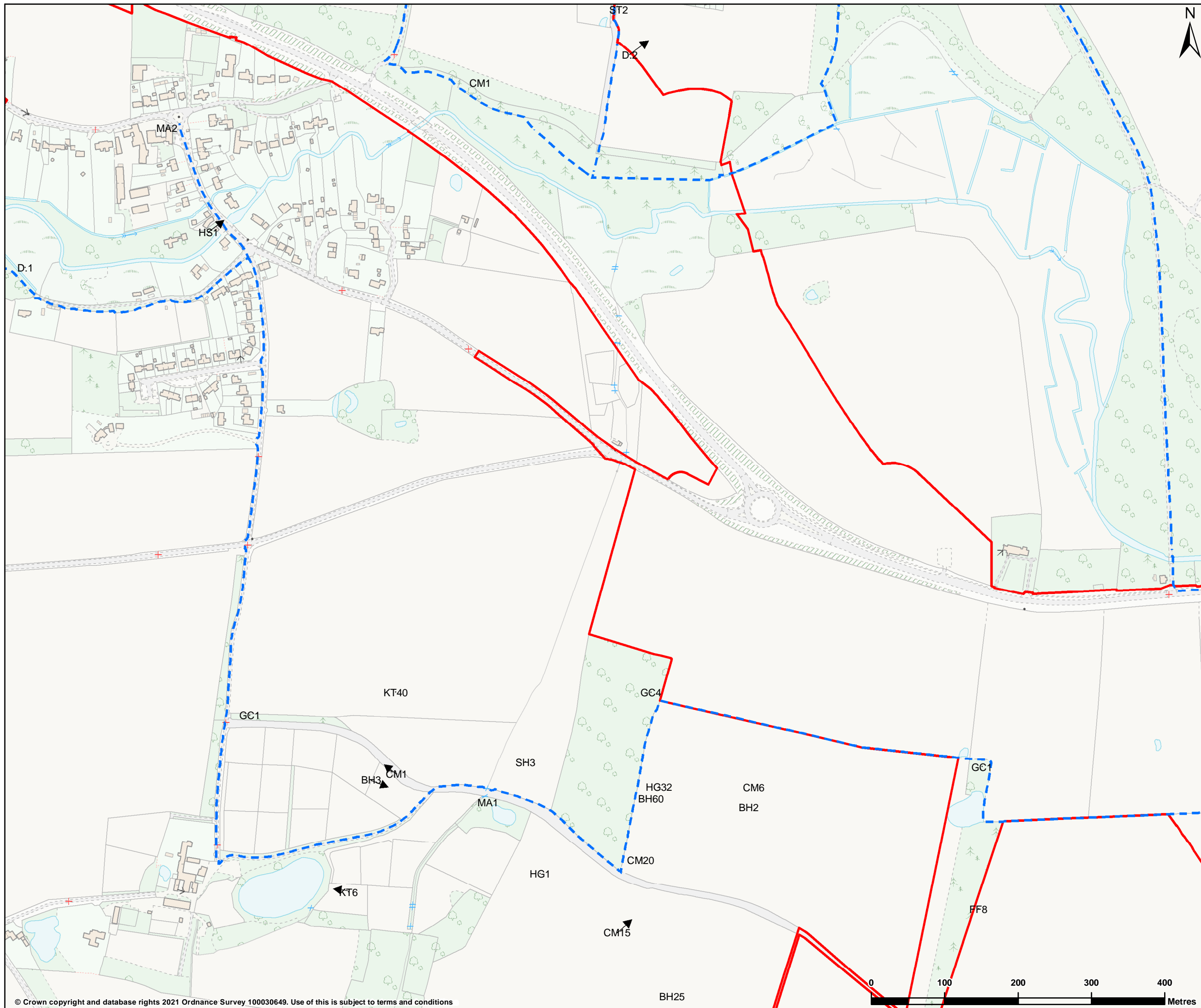
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A3	1:5,000	S2

DRAWING NUMBER
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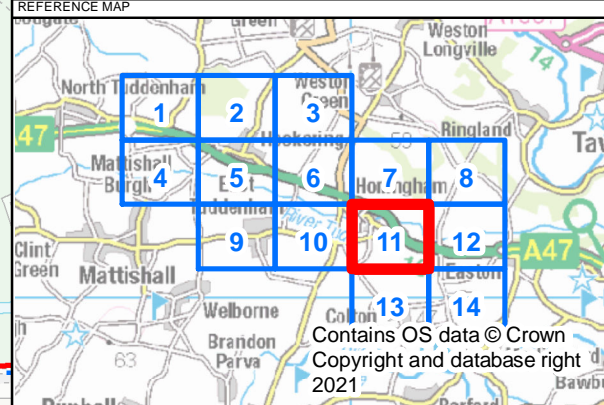
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 11 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

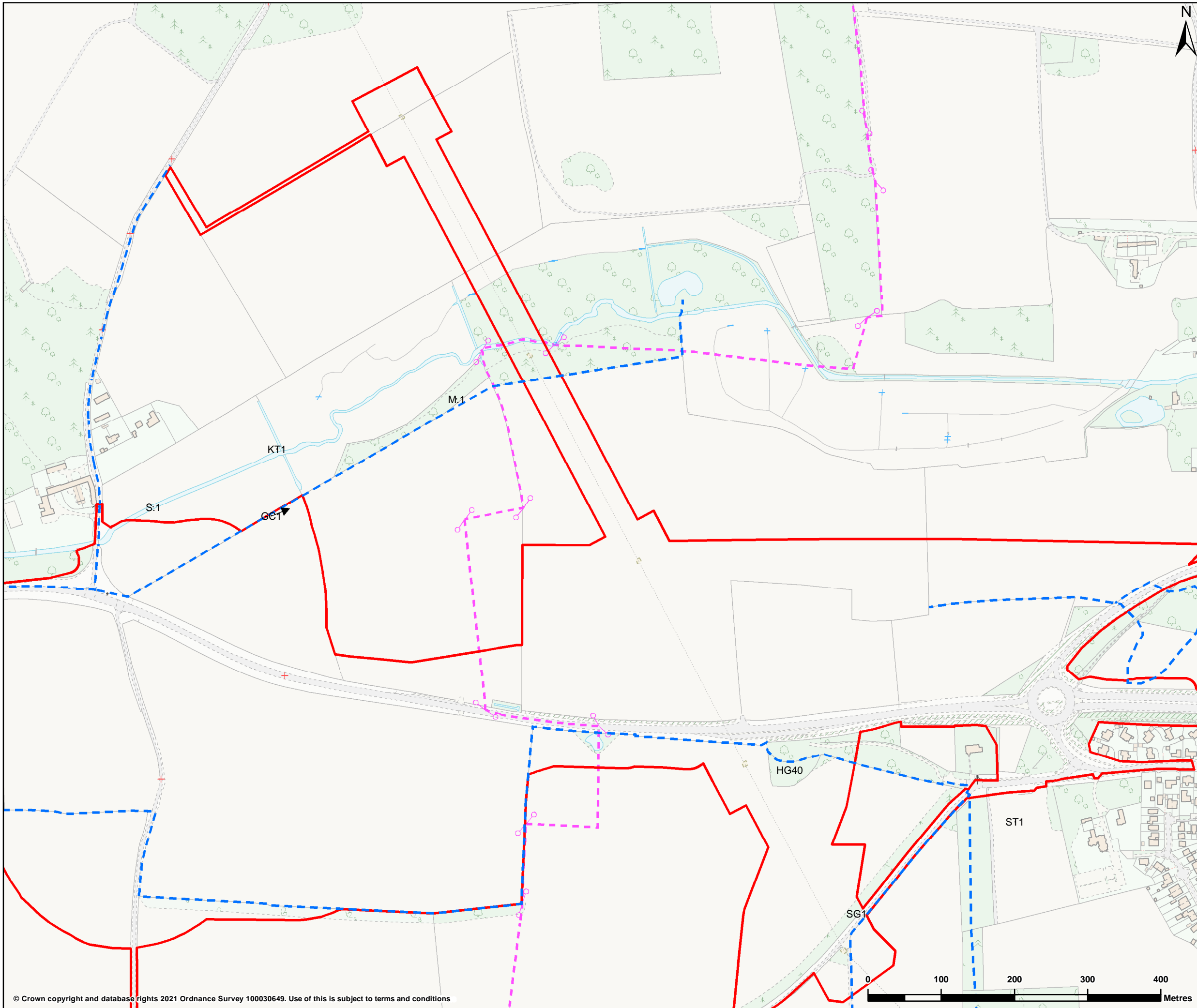
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DRAWING NUMBER

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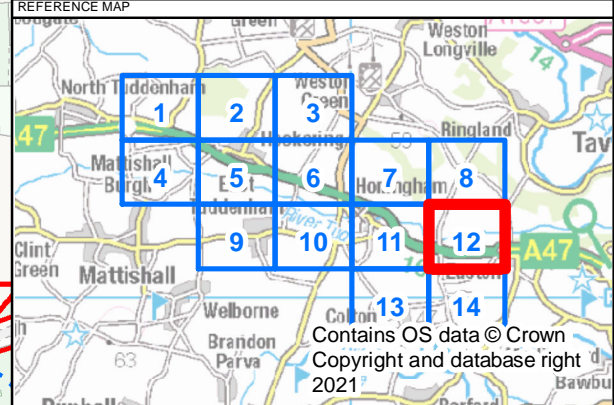
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 12 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

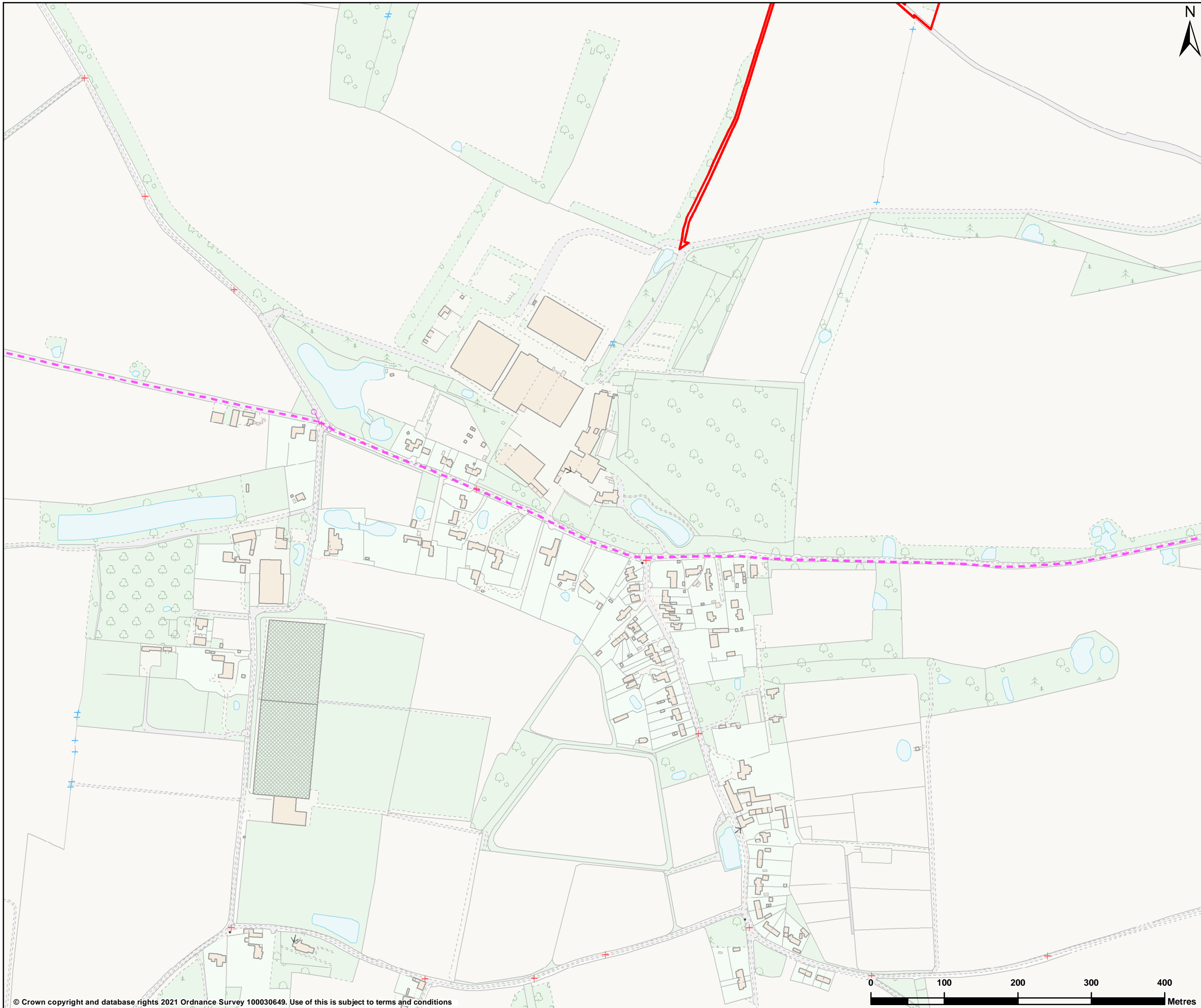
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A3	1:5,000	S2

DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30036

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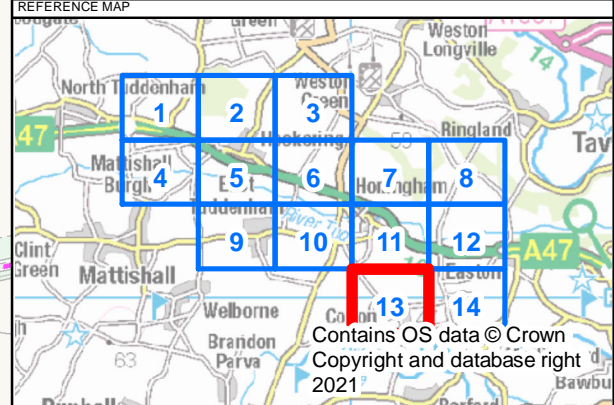
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

CLIENT

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - NOVEMBER
SHEET 13 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

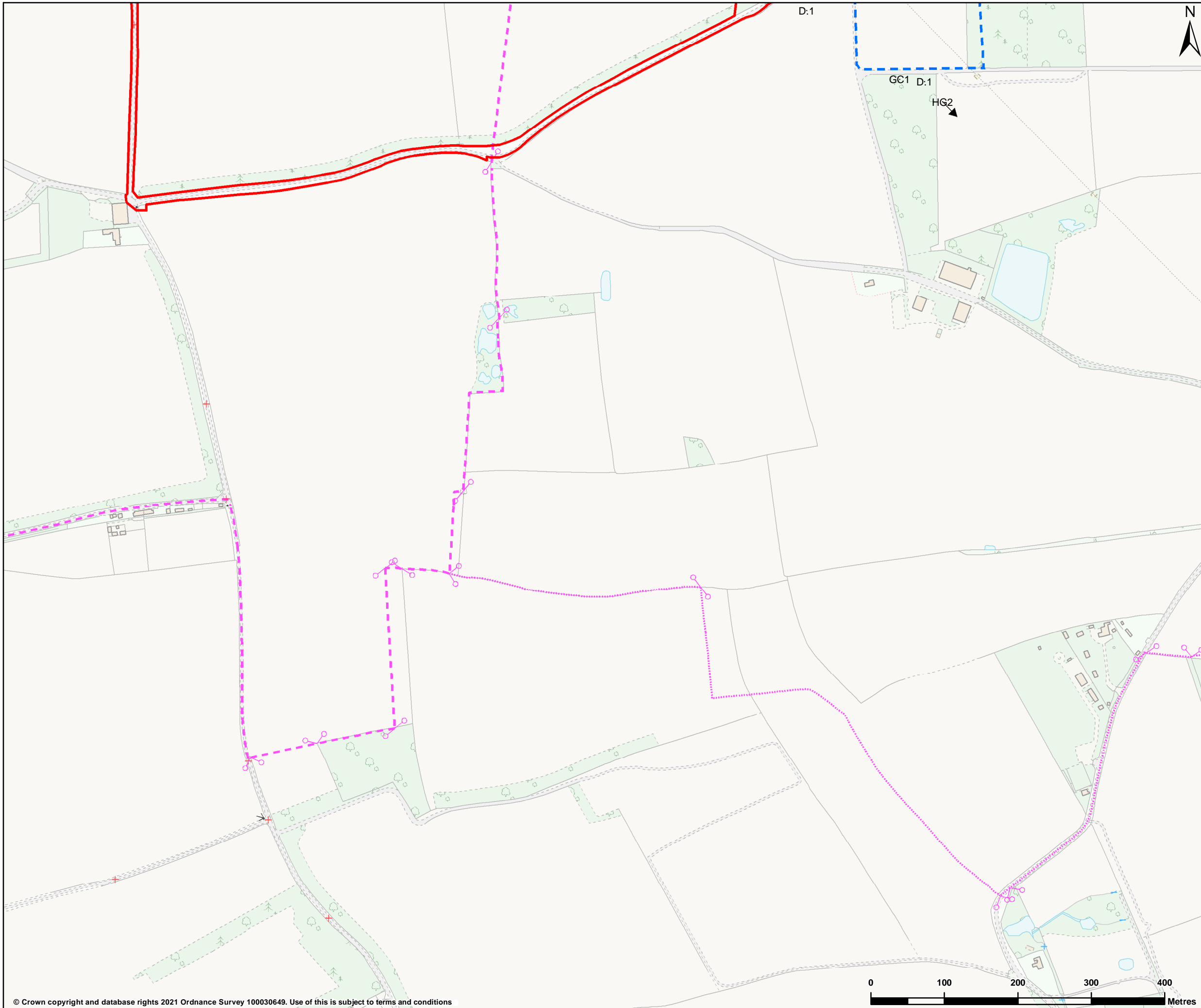
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A3	1:5,000	S2

DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30037

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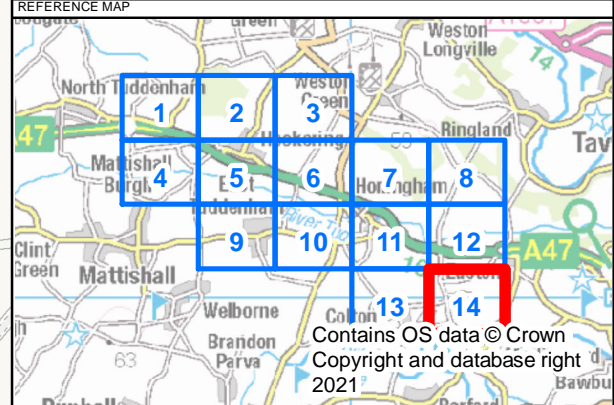
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



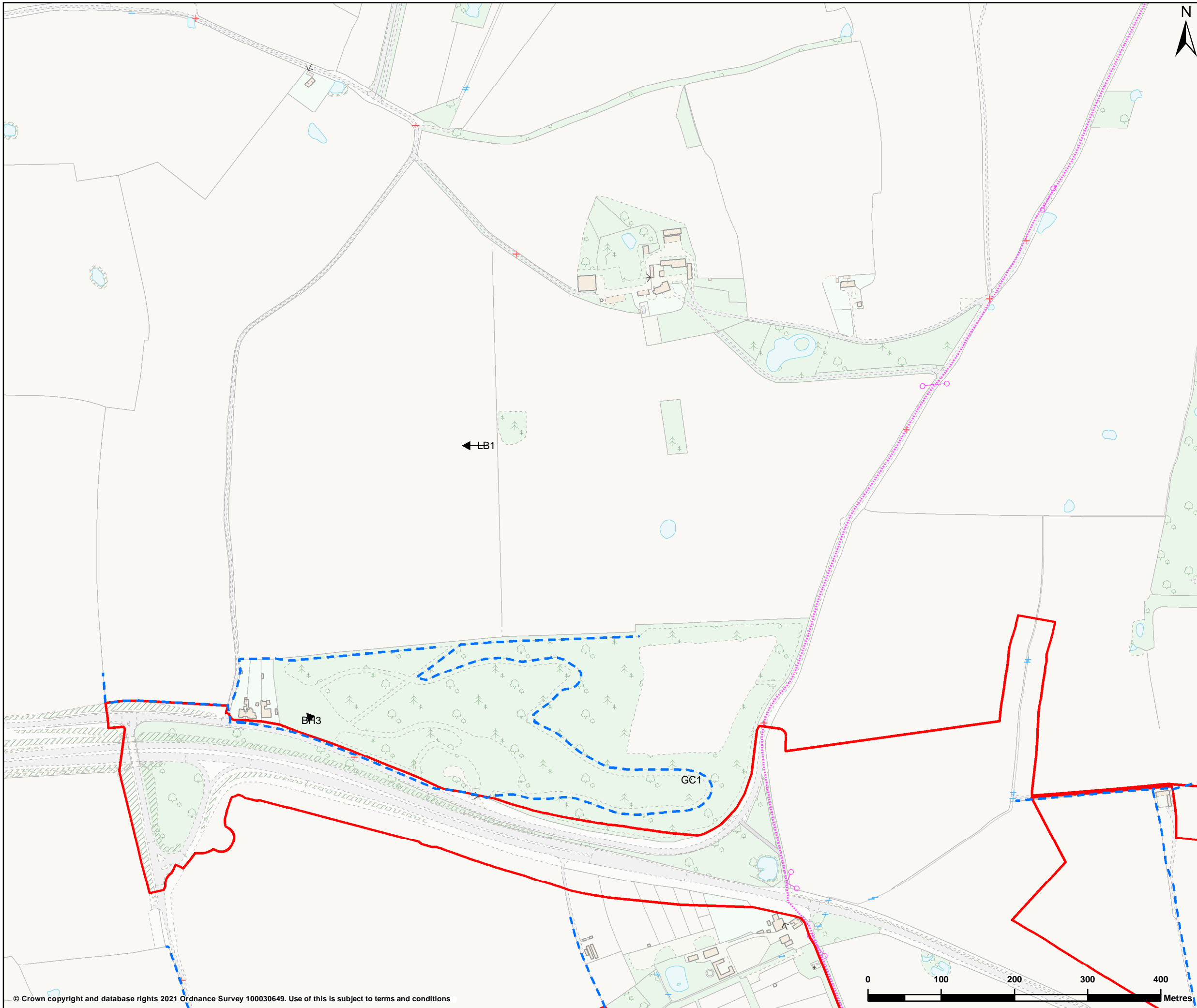
P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D
DESIGNER					
CONTRACTOR					
CLIENT					
PROJECT TITLE					
A47 NORTH TUDDENHAM TO EASTON					
PROJECT STAGE					
PCF STAGE 3					
DRAWING TITLE					
APPENDIX C: WINTERING BIRD SURVEY - NOVEMBER SHEET 14 OF 14 TR010038/APP/6.2					
SUITABILITY					
FOR INFORMATION					
SHEET SIZE	A3	SCALE	1:5,000	STATUS	S2



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HE551489-GTY-EBD-000-DR-LB-30038



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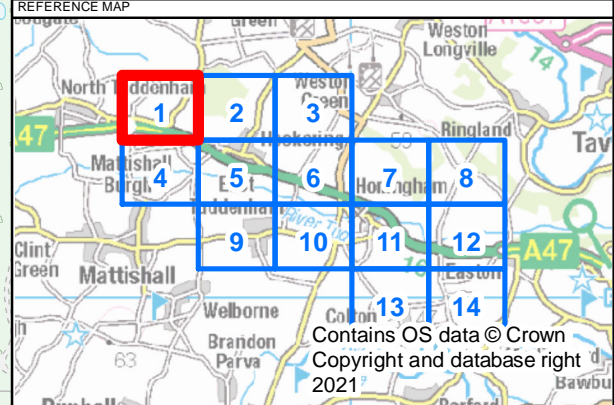
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	22/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 1 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

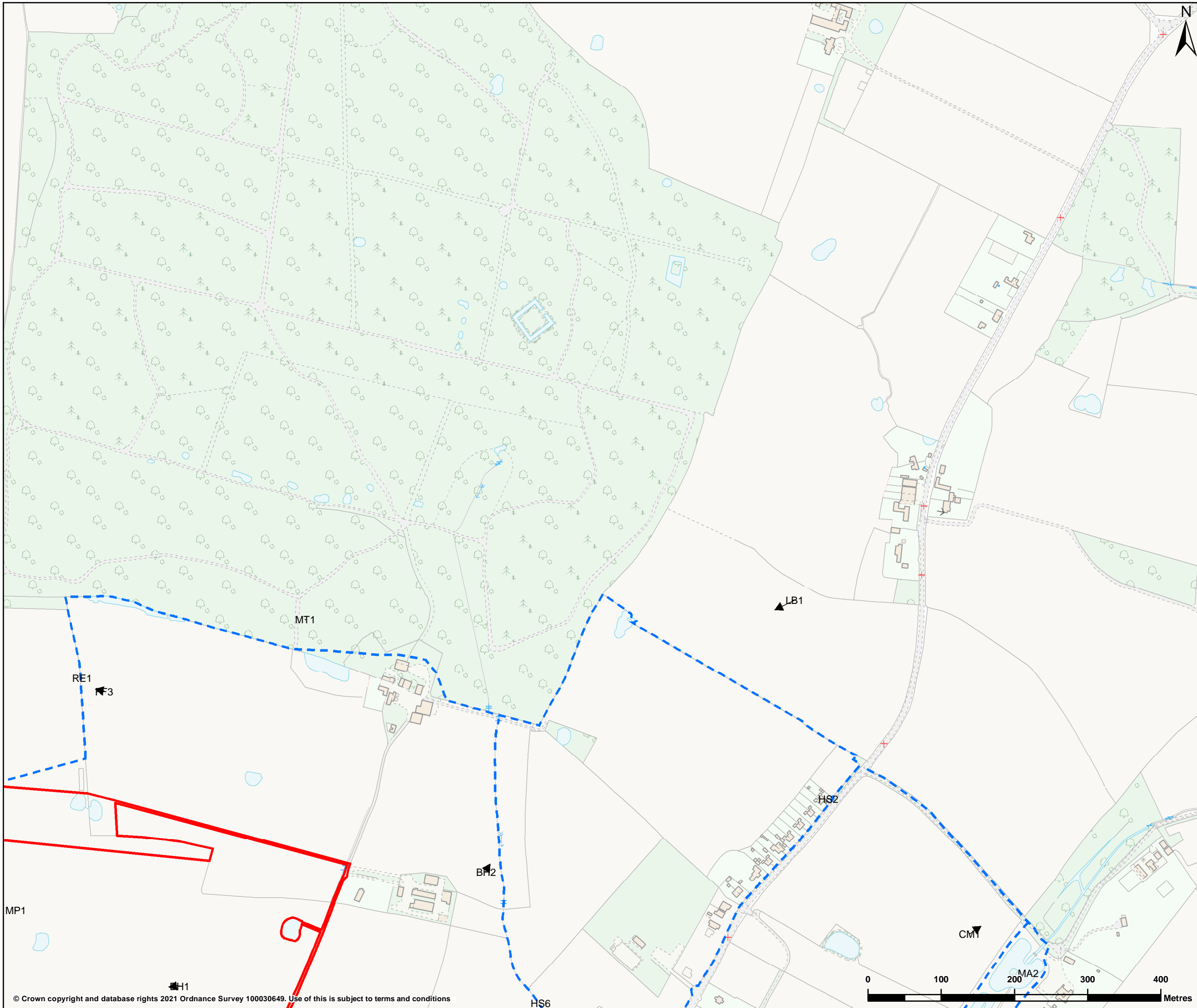
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DRAWING NUMBER

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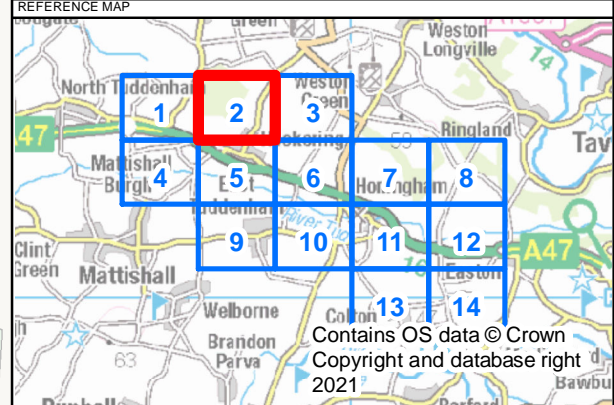
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 2 OF 14
TR010038/APP/6.2

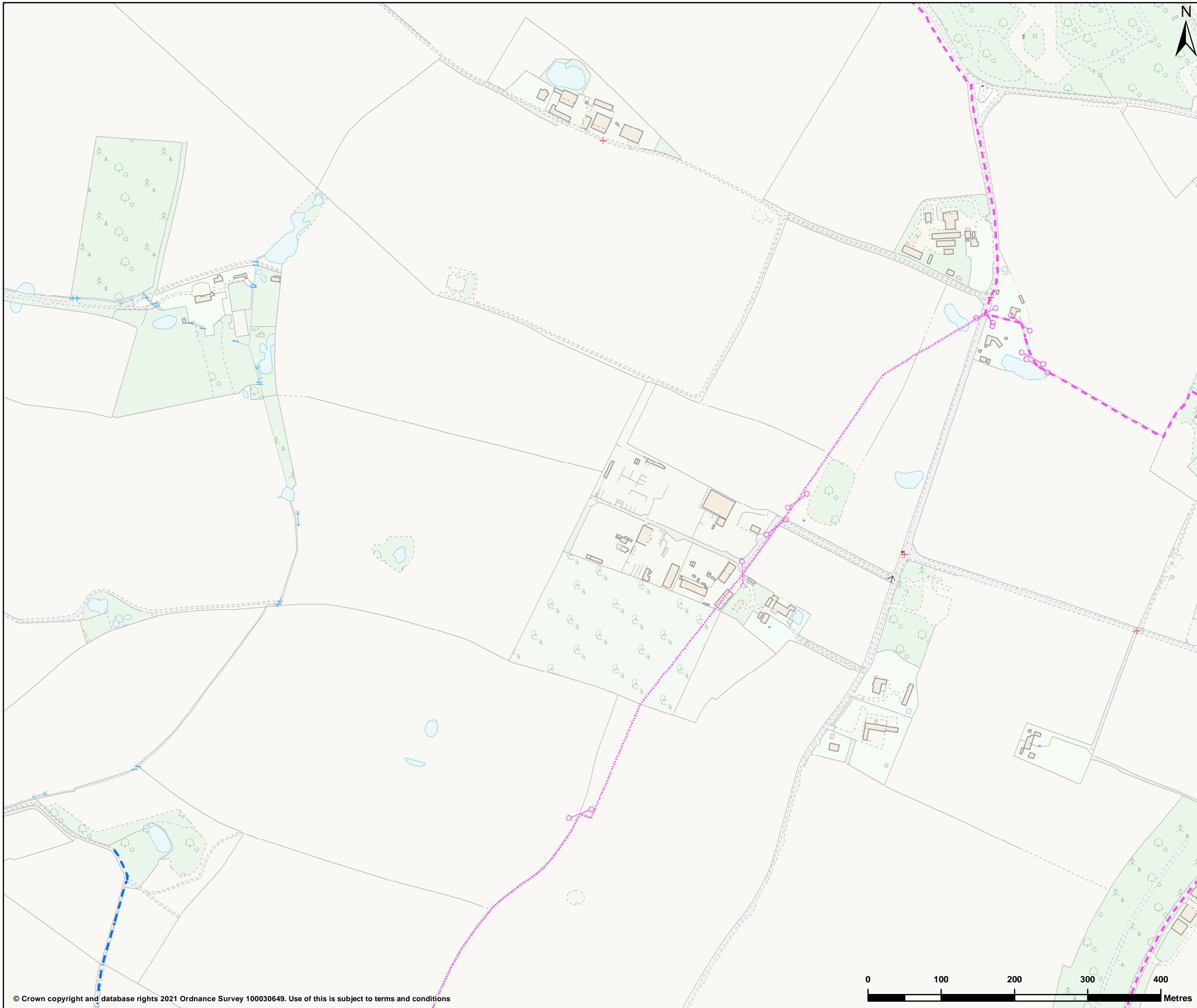
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DRAWING NUMBER
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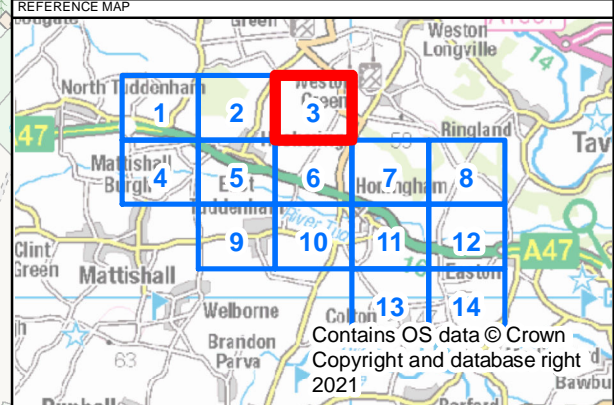
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	22/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

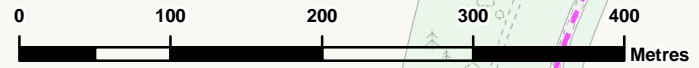
PROJECT TITLE
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PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 3 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2



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HE551489-GTY-EBD-000-DR-LB-30041



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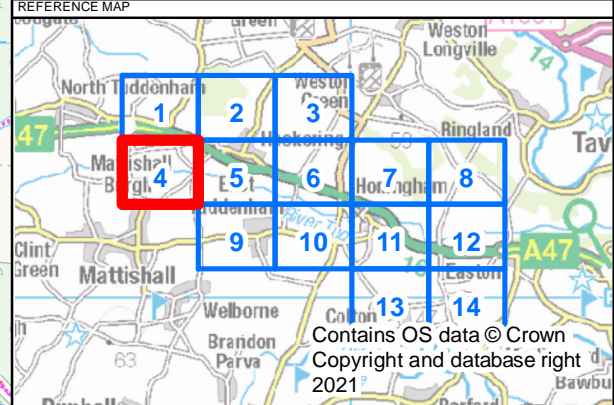
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f o o d Carrying Food
- m a t Carrying Nest Mat
- In Song
- * Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juv Juvenile
- ♂♀ Pair



P01	22/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways
england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 4 OF 14
TR010038/APP/6.2

SUITABILITY

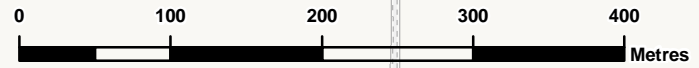
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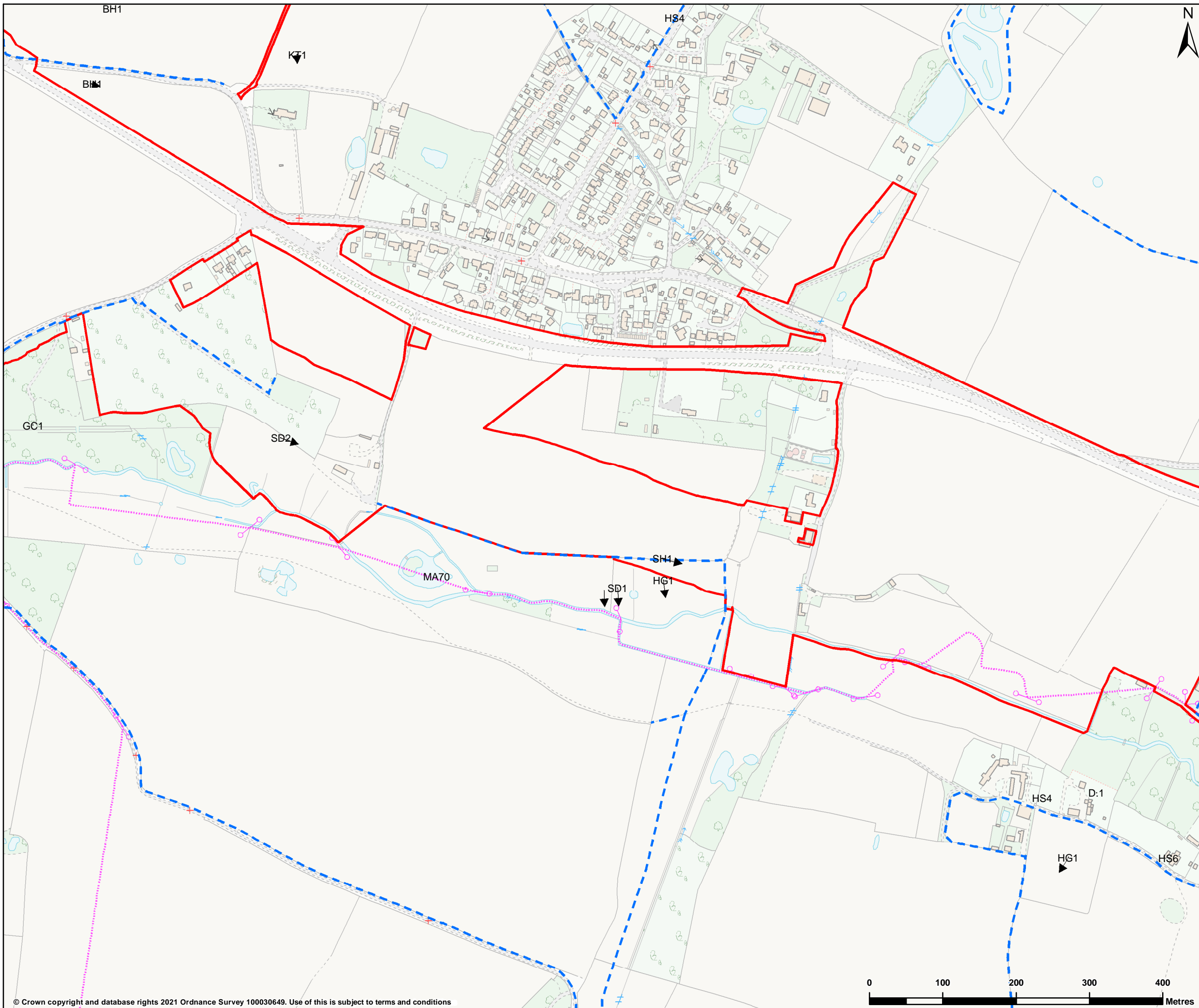
DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30042

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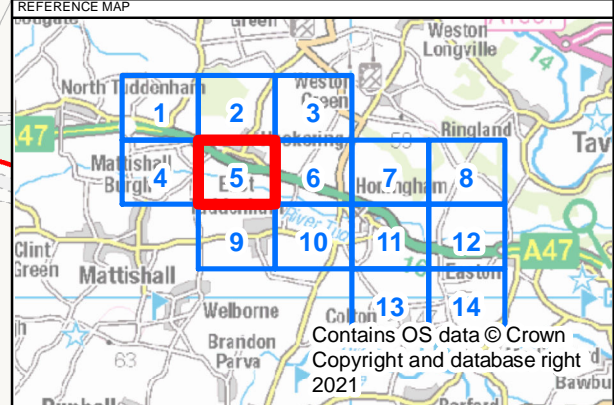
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 5 OF 14
TR010038/APP/6.2

SUITABILITY

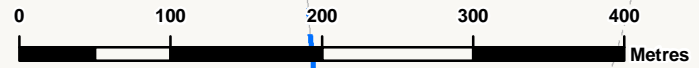
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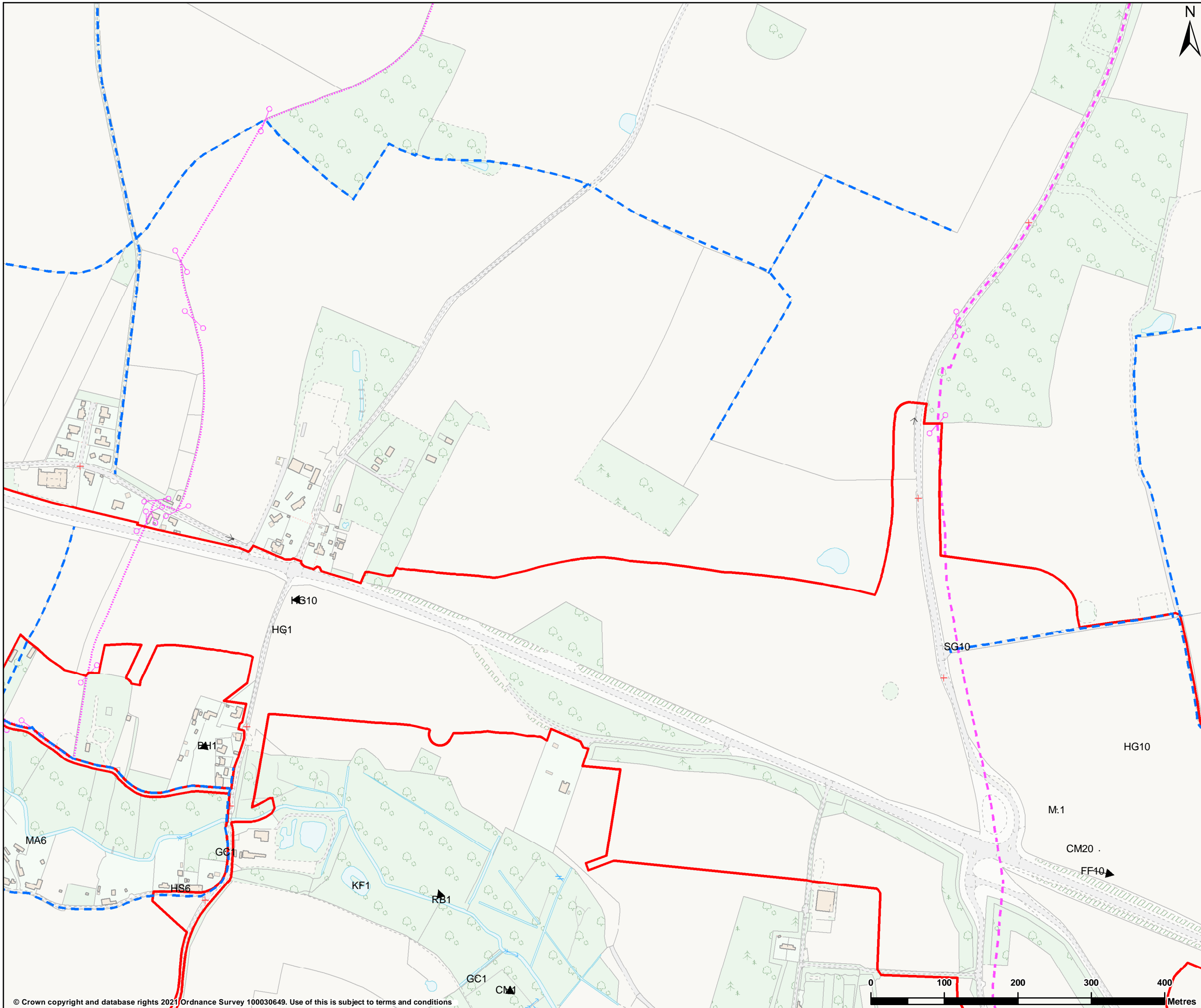
DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30043

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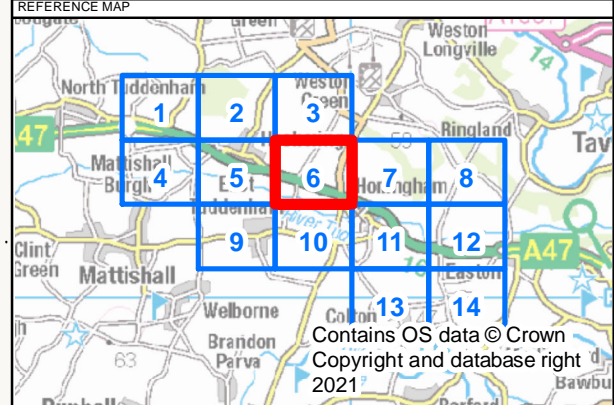
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✳ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 6 OF 14
TR010038/APP/6.2

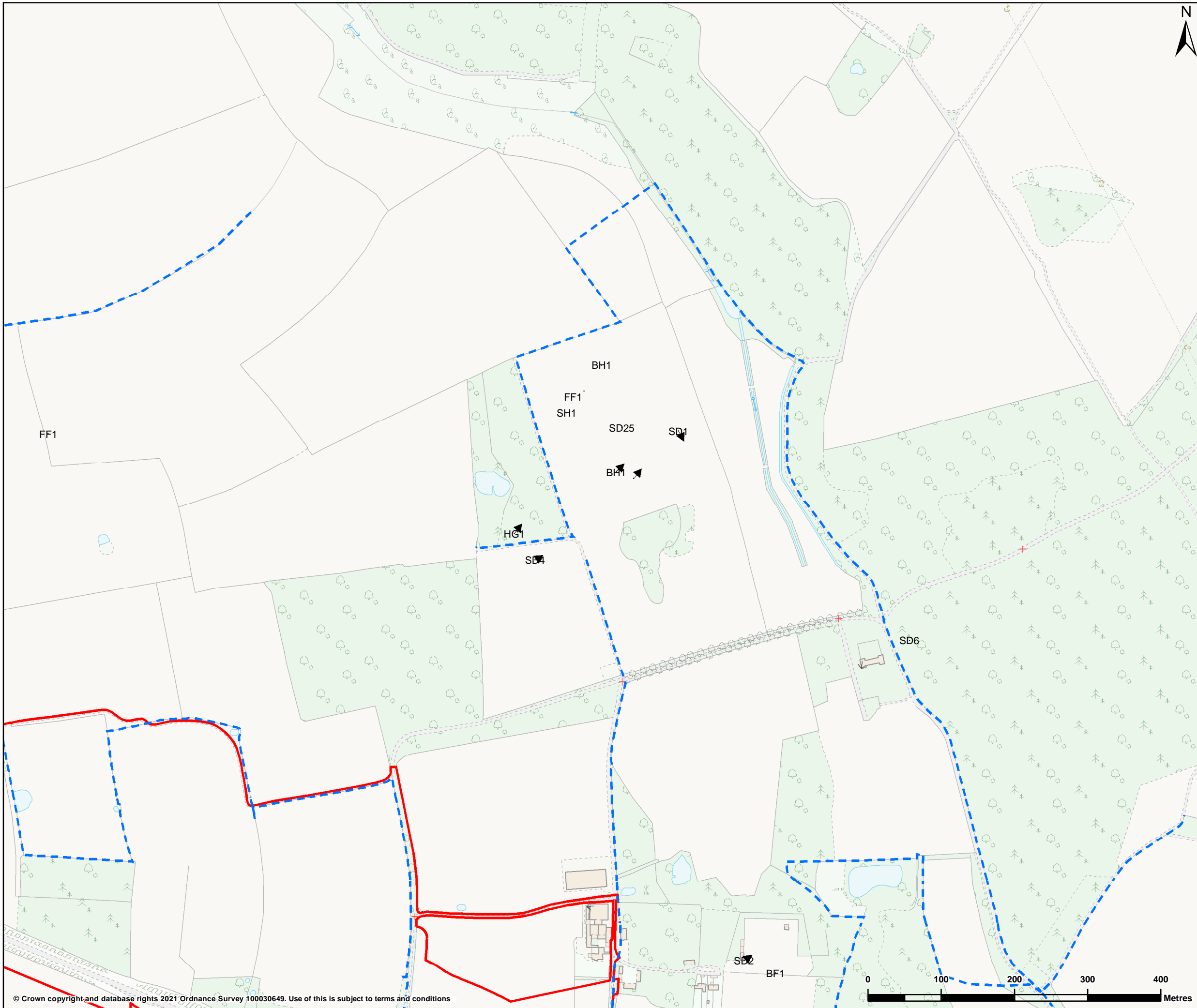
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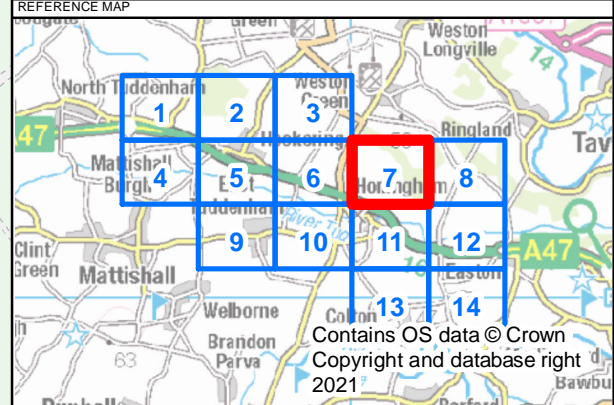
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 7 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

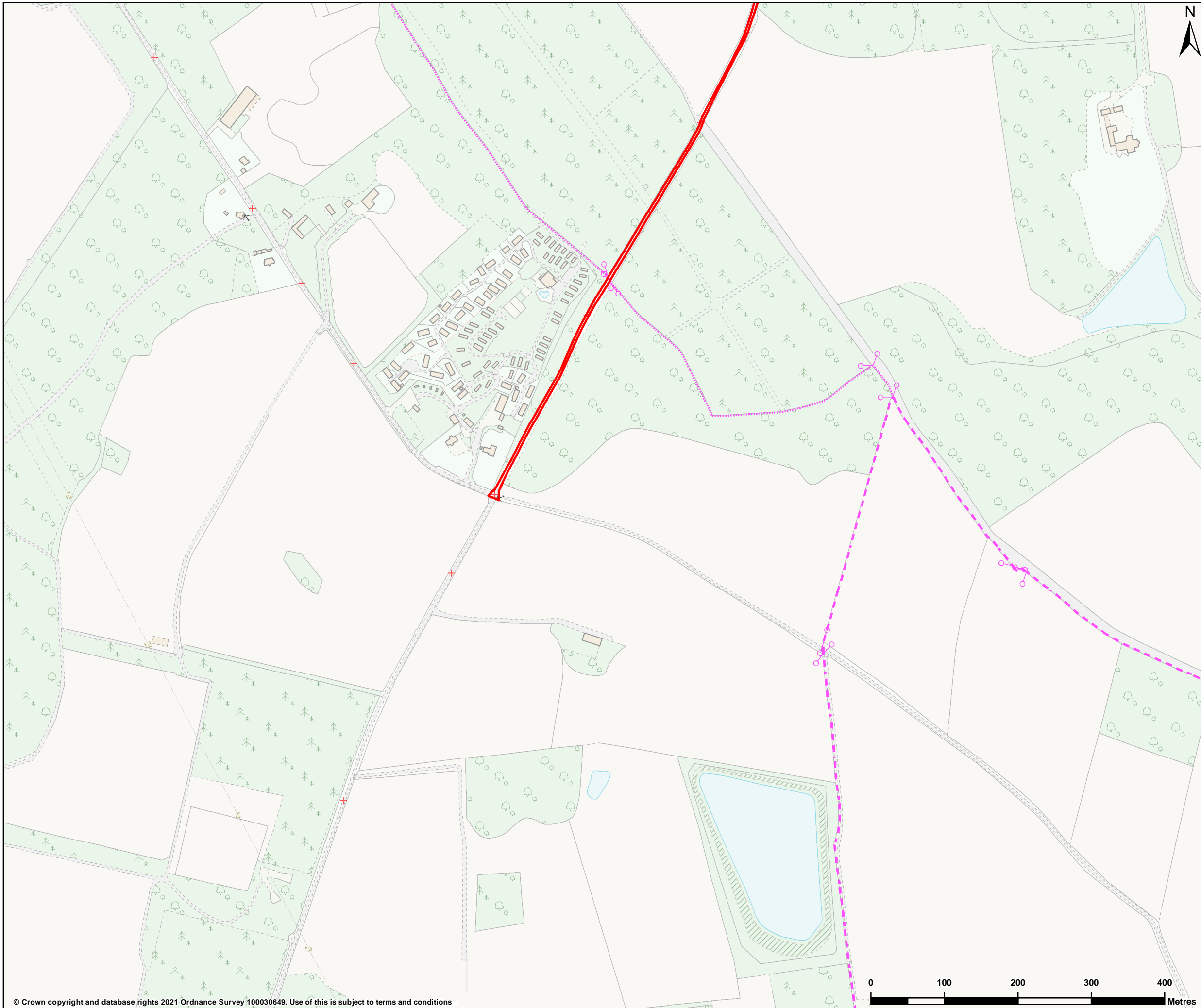
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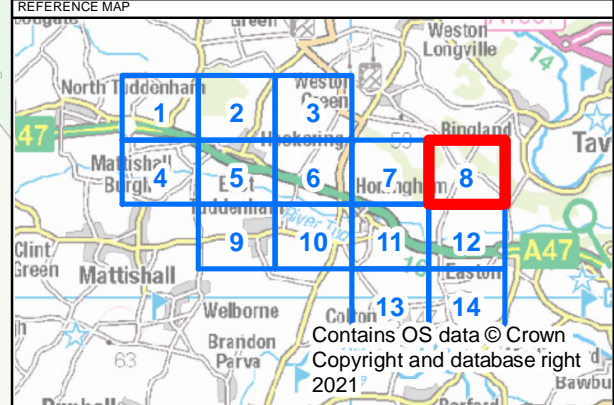
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 8 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

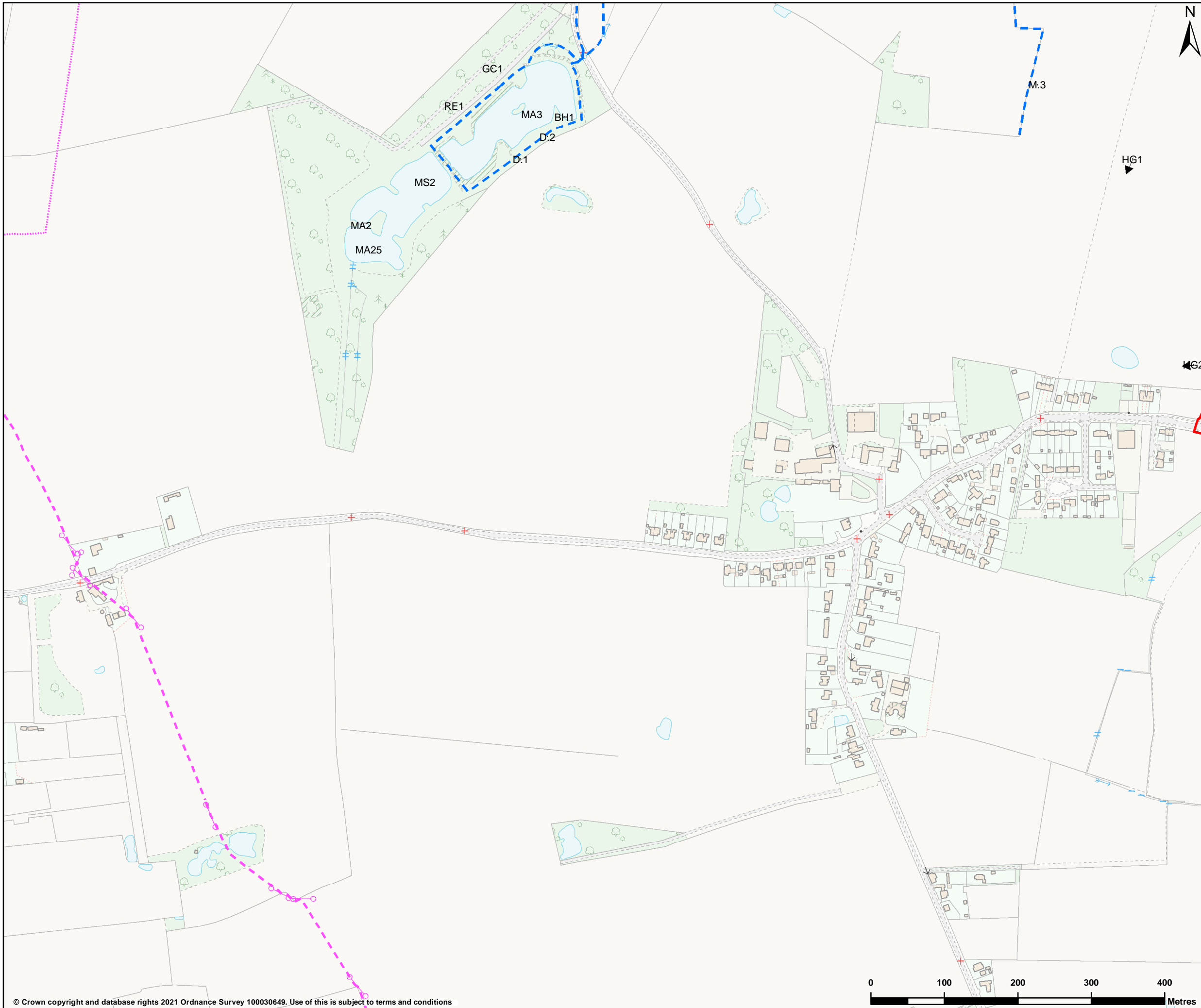
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DRAWING NUMBER

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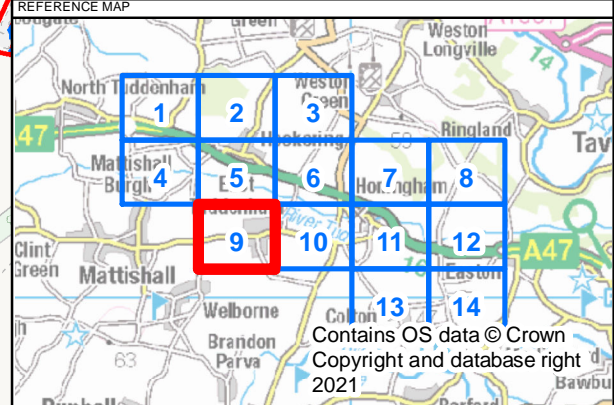
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 9 OF 14
TR010038/APP/6.2

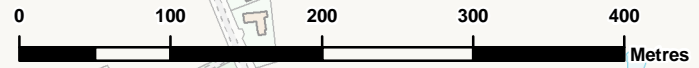
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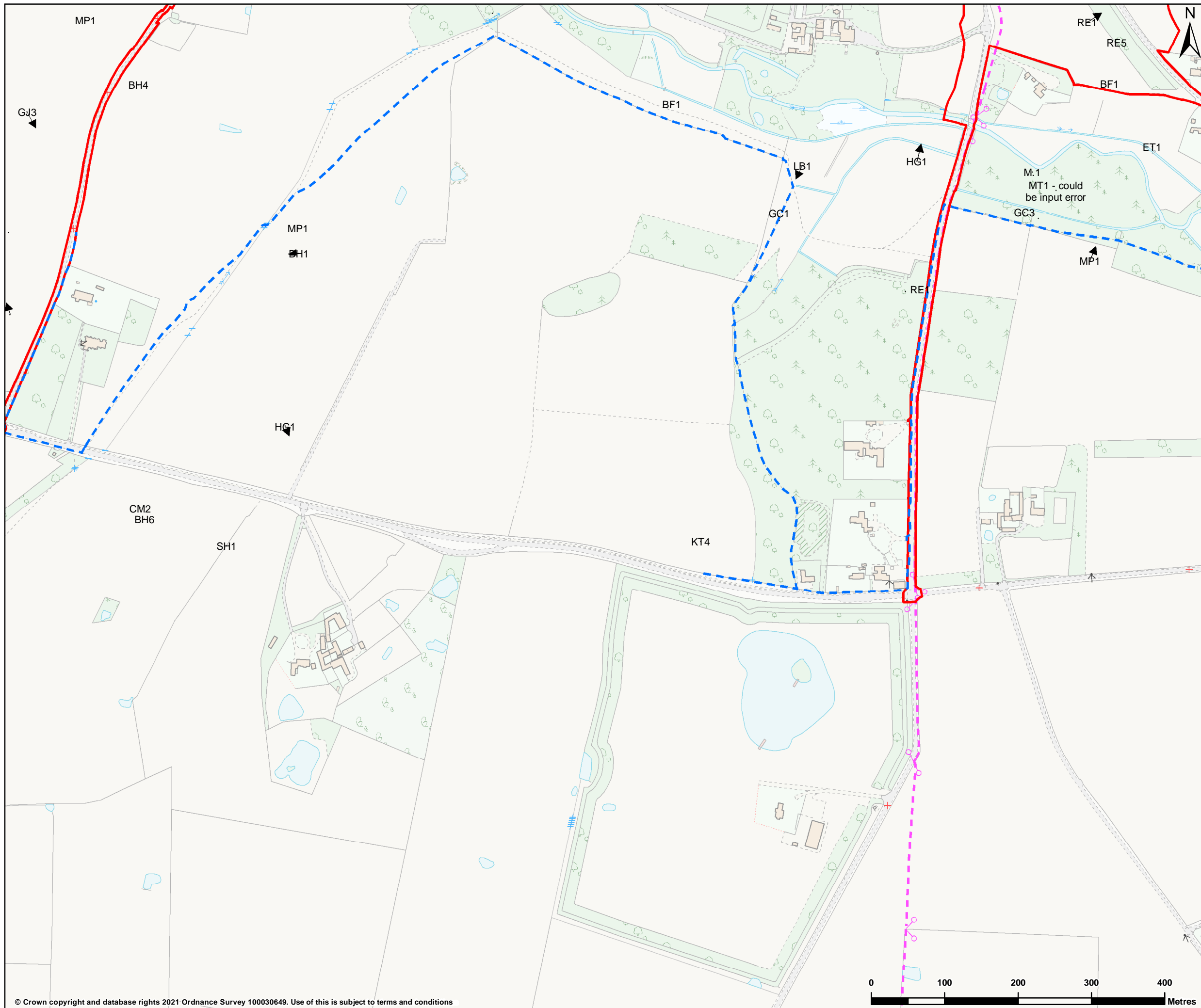
DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30047



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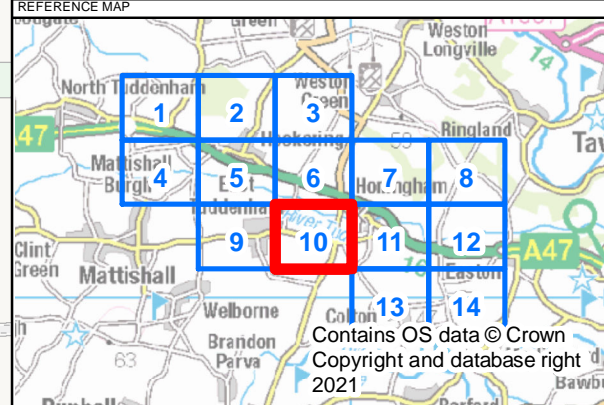
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

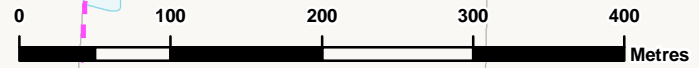
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APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 10 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

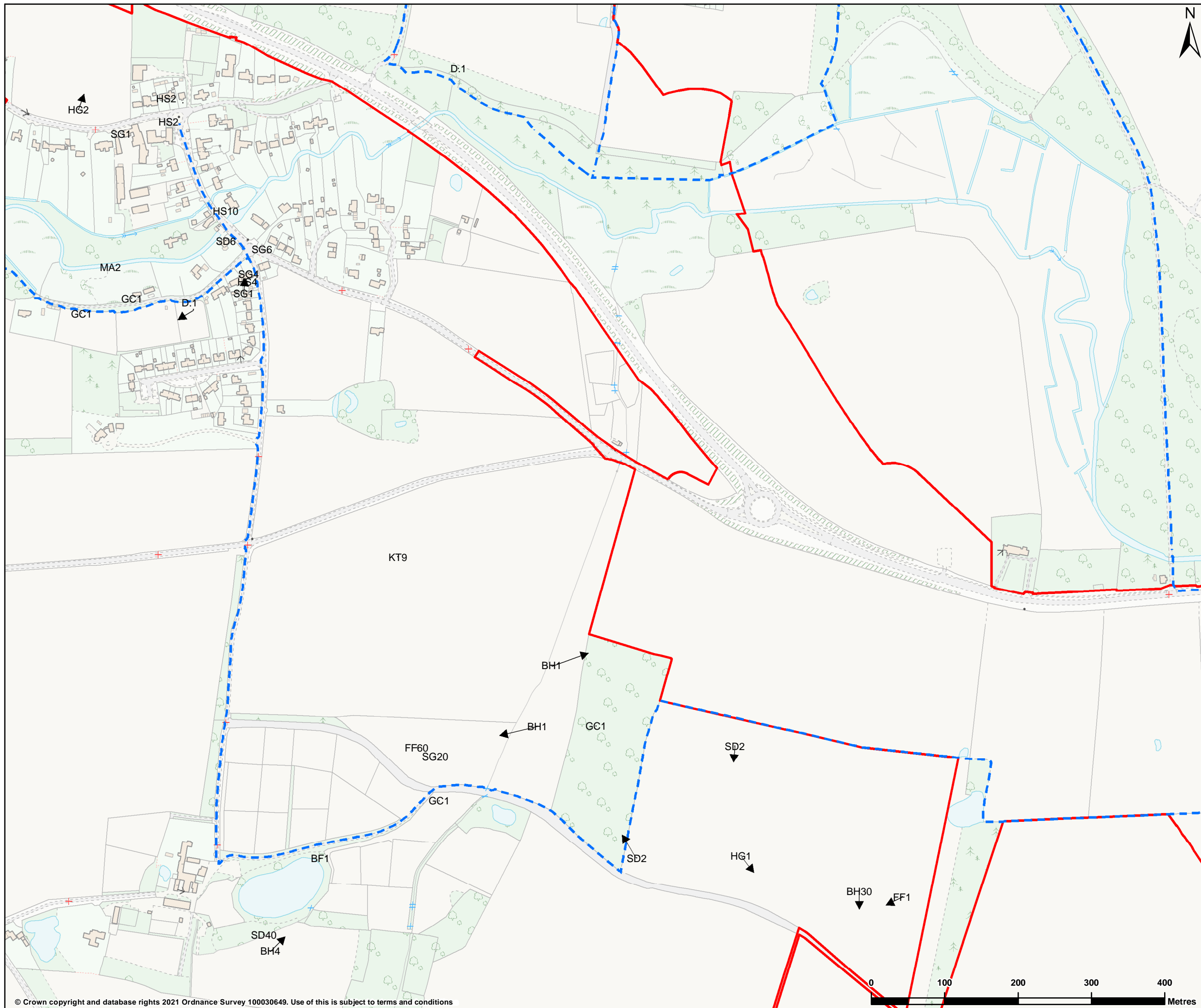
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DRAWING NUMBER
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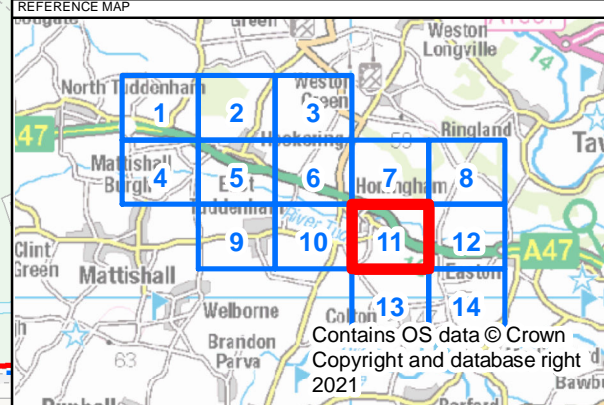
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	22/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 11 OF 14
TR010038/APP/6.2

SUITABILITY

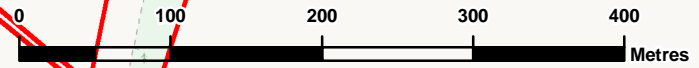
FOR INFORMATION

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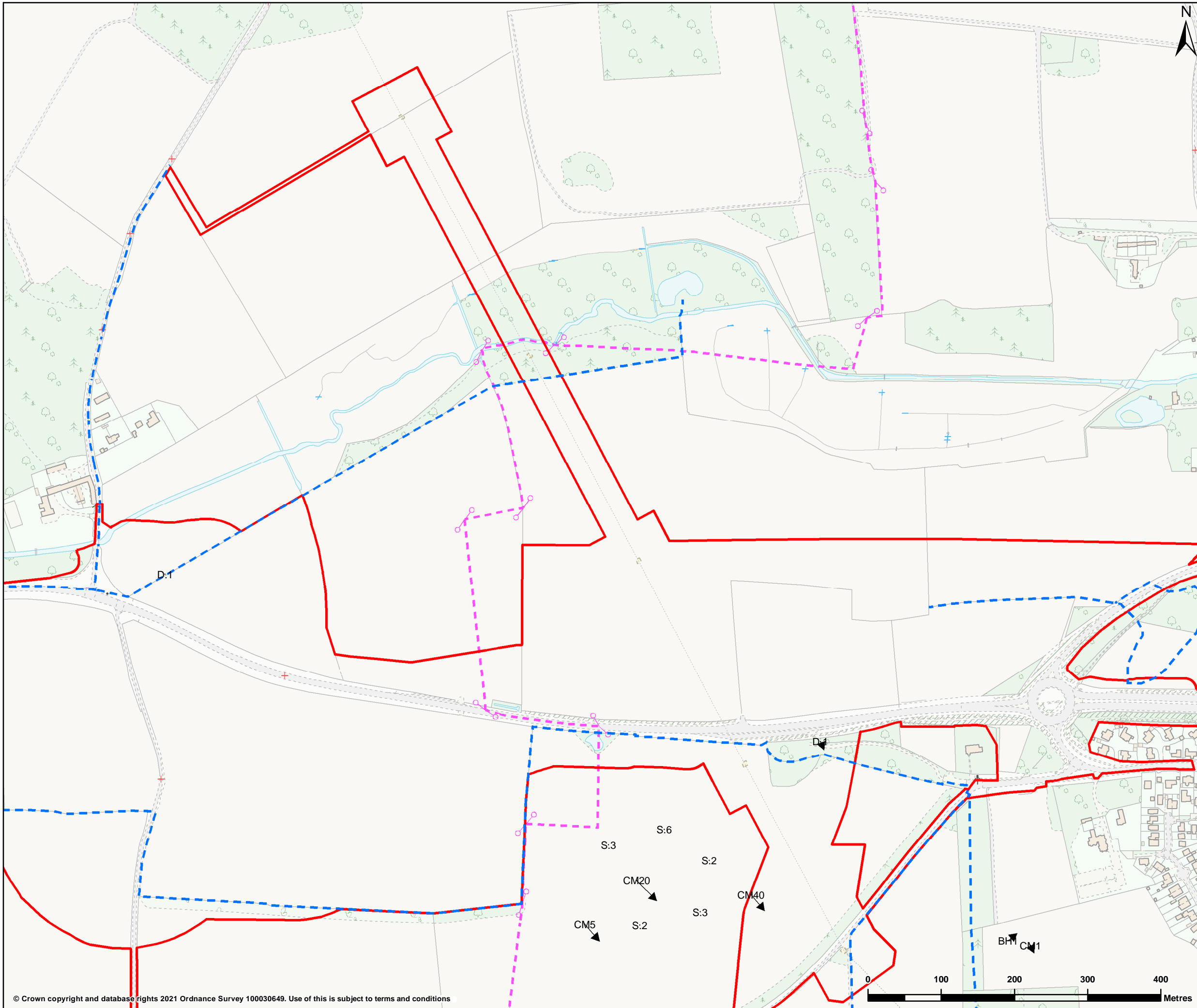
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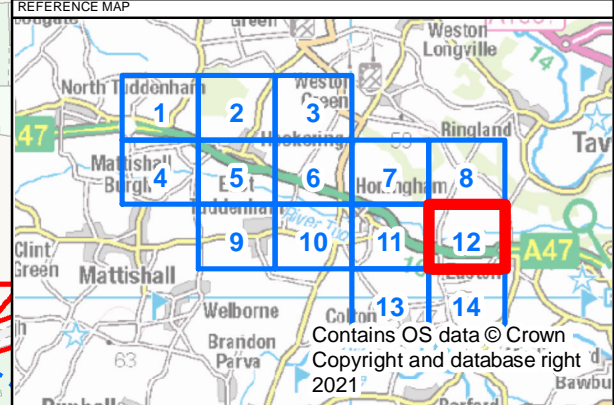
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 12 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

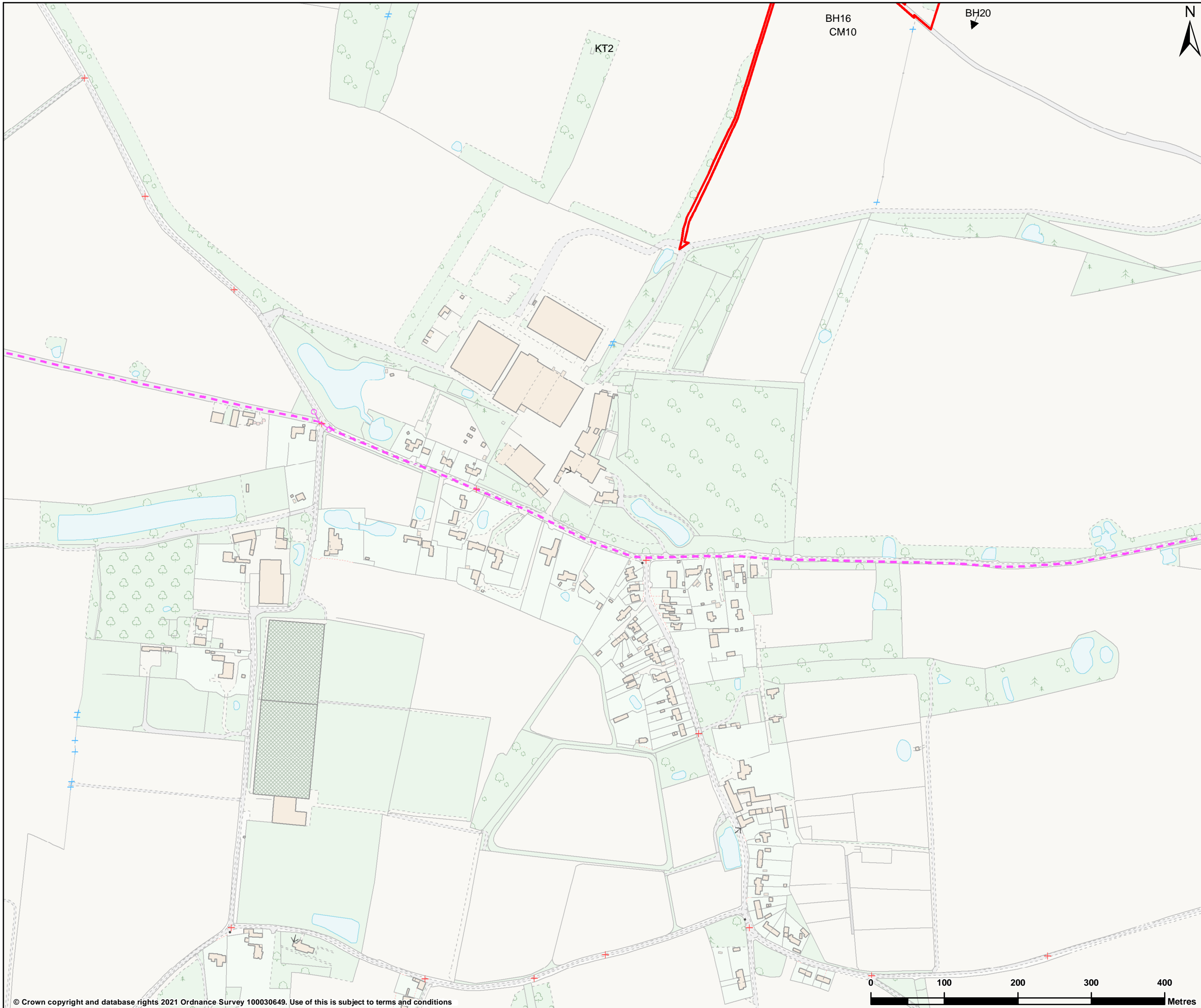
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DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30050

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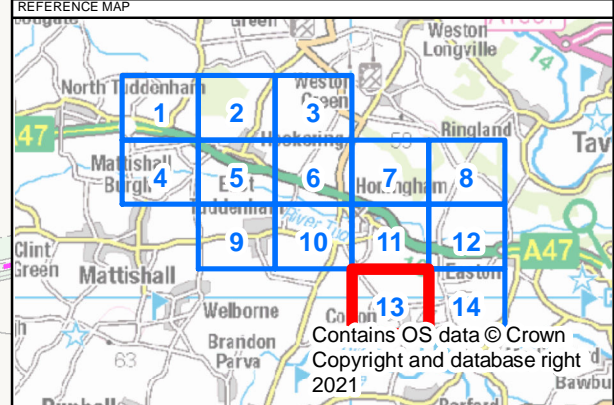
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

CLIENT

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 13 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

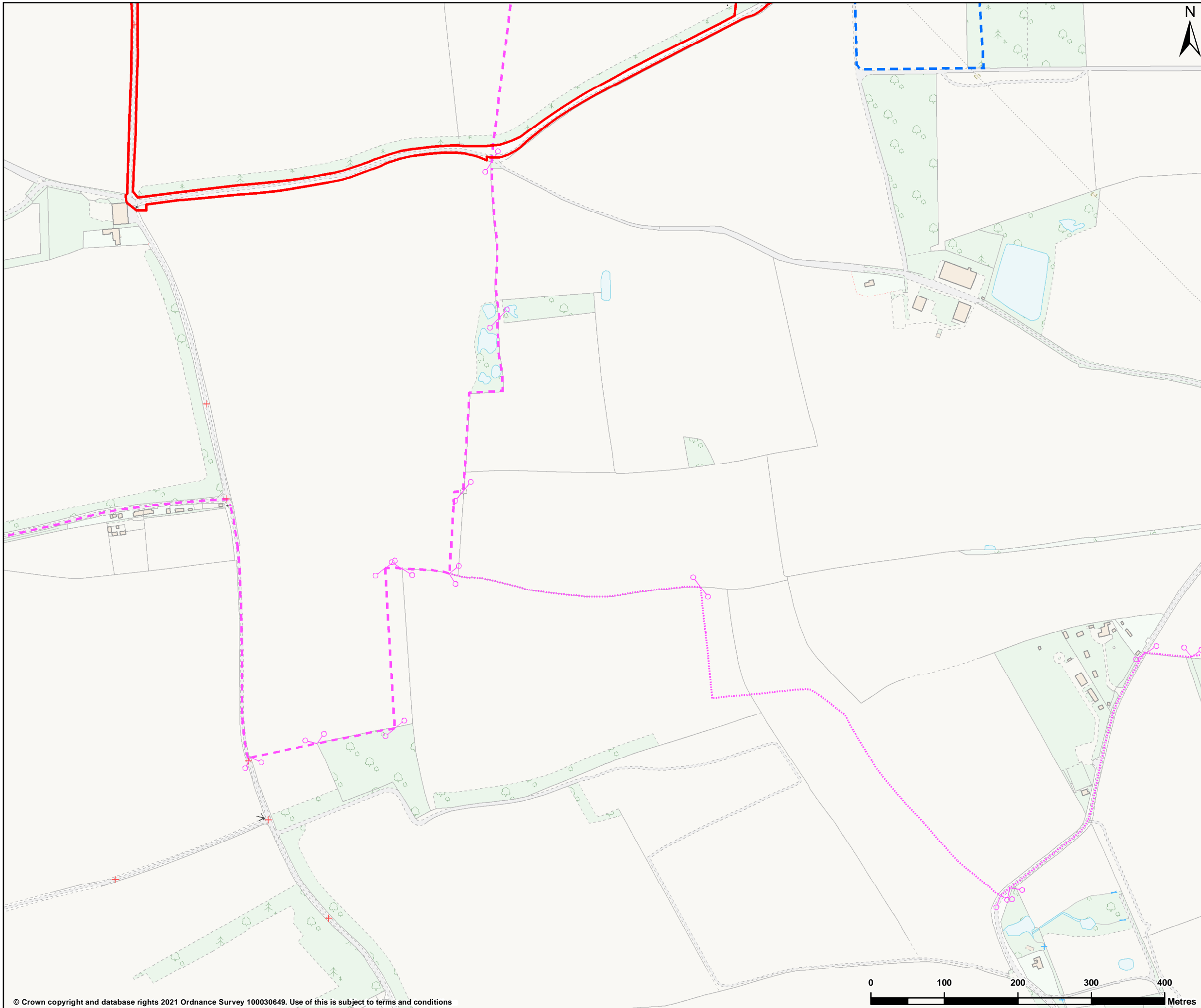
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DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30051

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LEGEND

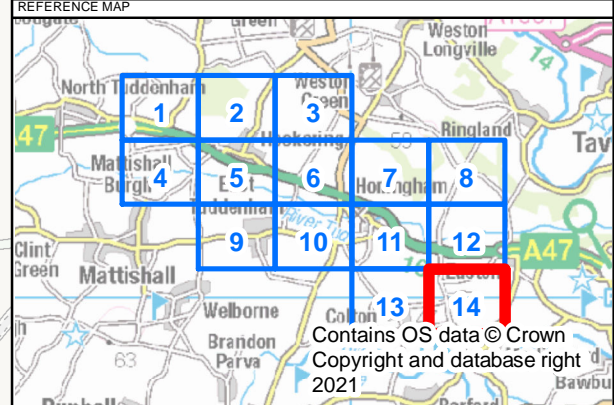
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	22/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - DECEMBER
SHEET 14 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

SHEET SIZE	SCALE	STATUS
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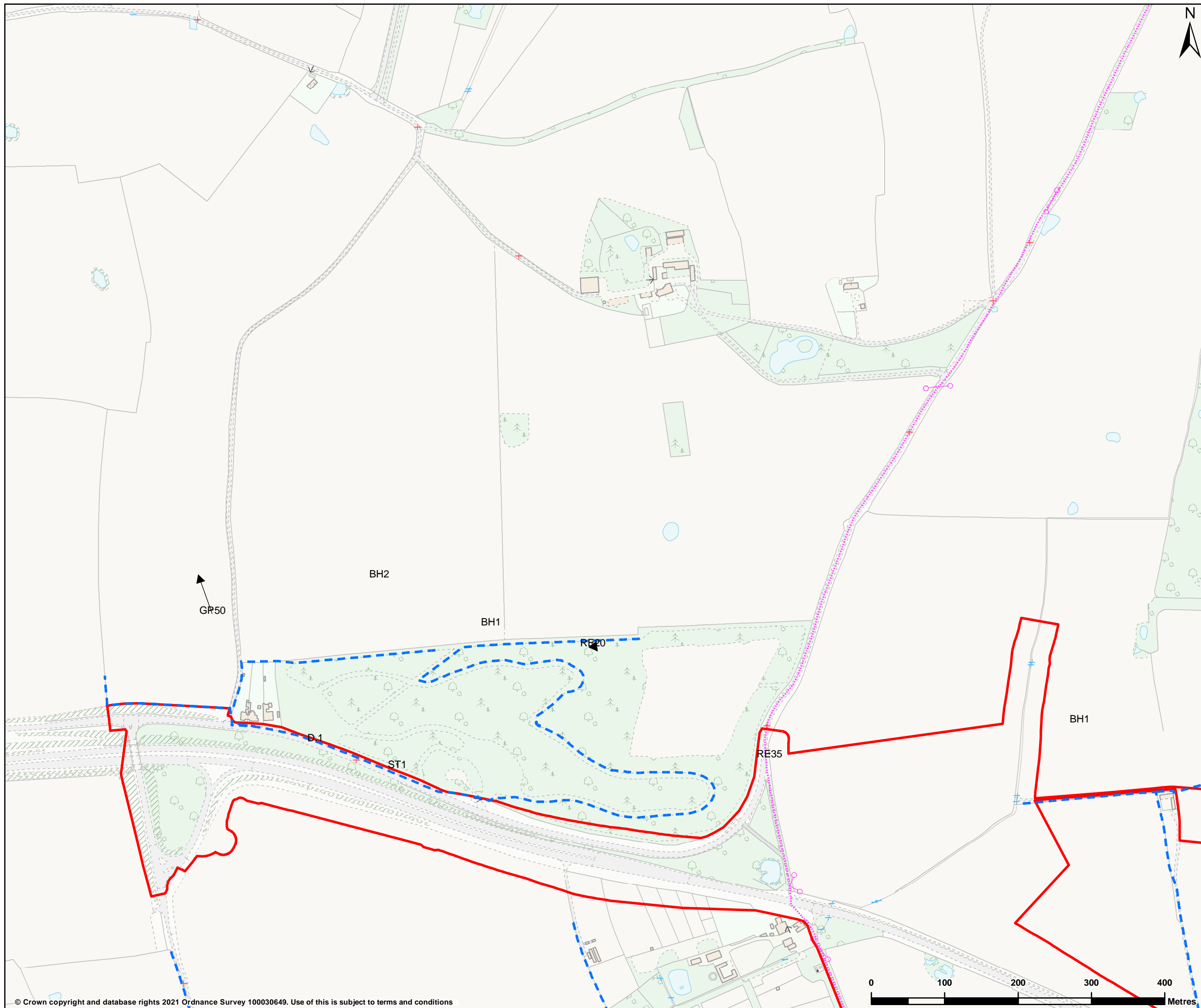
DRAWING NUMBER

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LEGEND

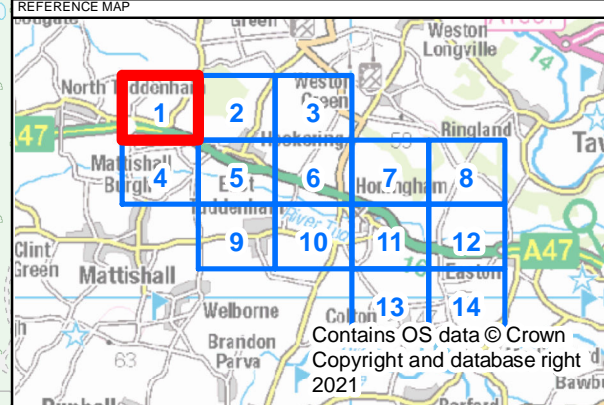
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 1 OF 15
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

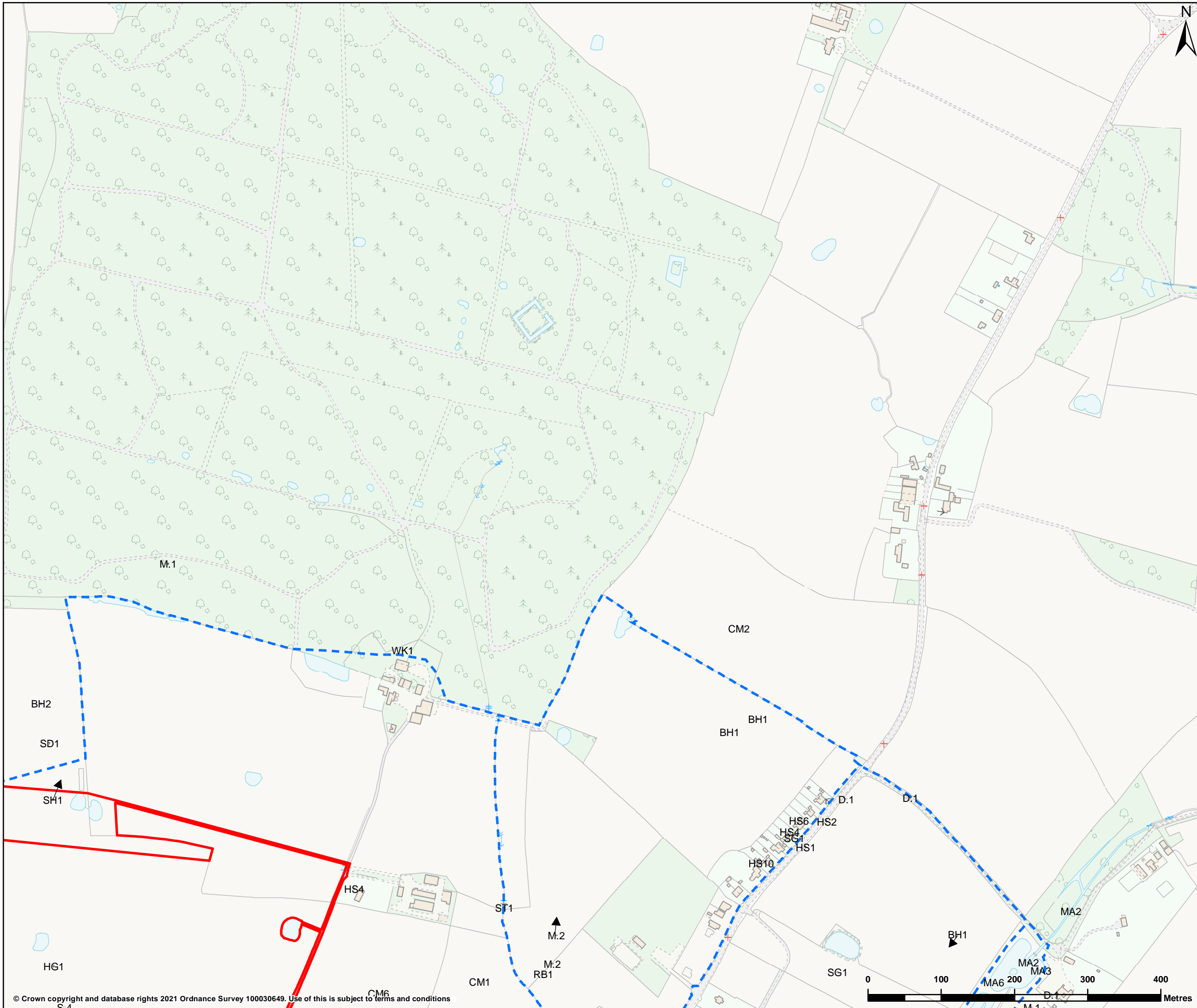
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A3	1:5,000	S2

DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30053

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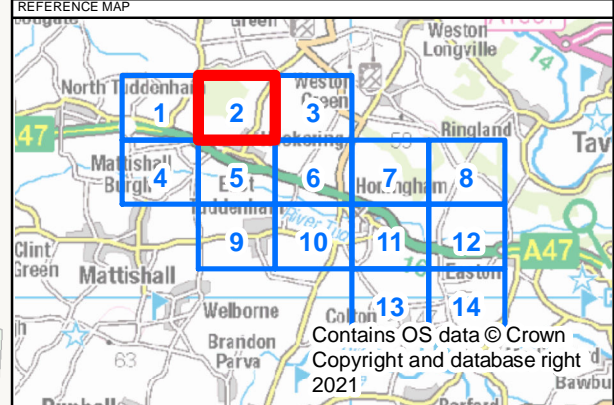
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 2 OF 15
TR010038/APP/6.2

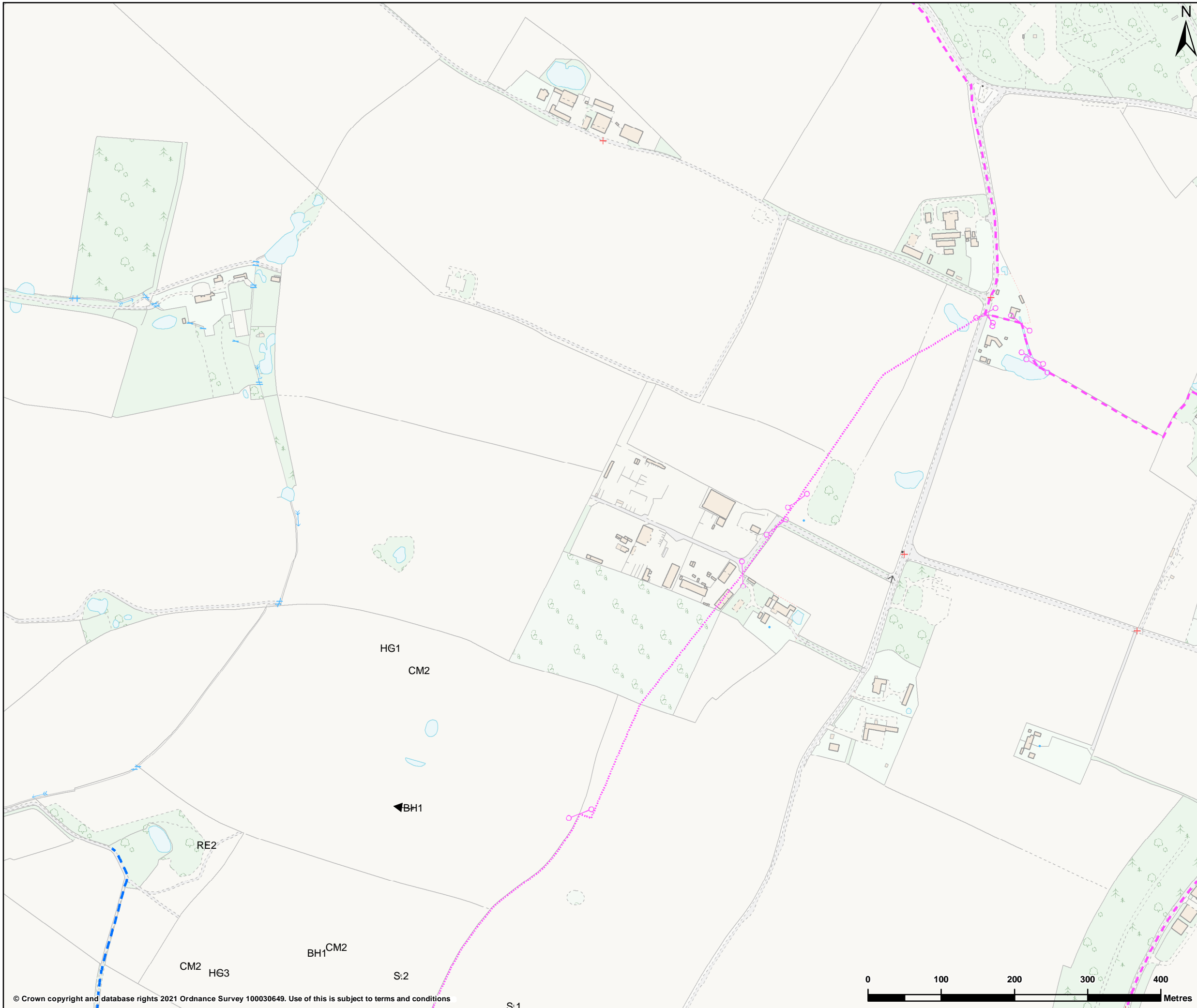
SUITABILITY
FOR INFORMATION

SHEET SIZE A3	SCALE 1:5,000	STATUS S2
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DRAWING NUMBER
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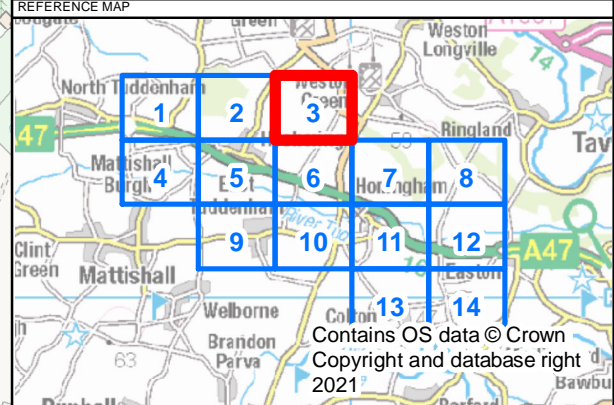
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

**APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 3 OF 15
TR010038/APP/6.2**

SUITABILITY

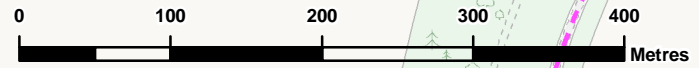
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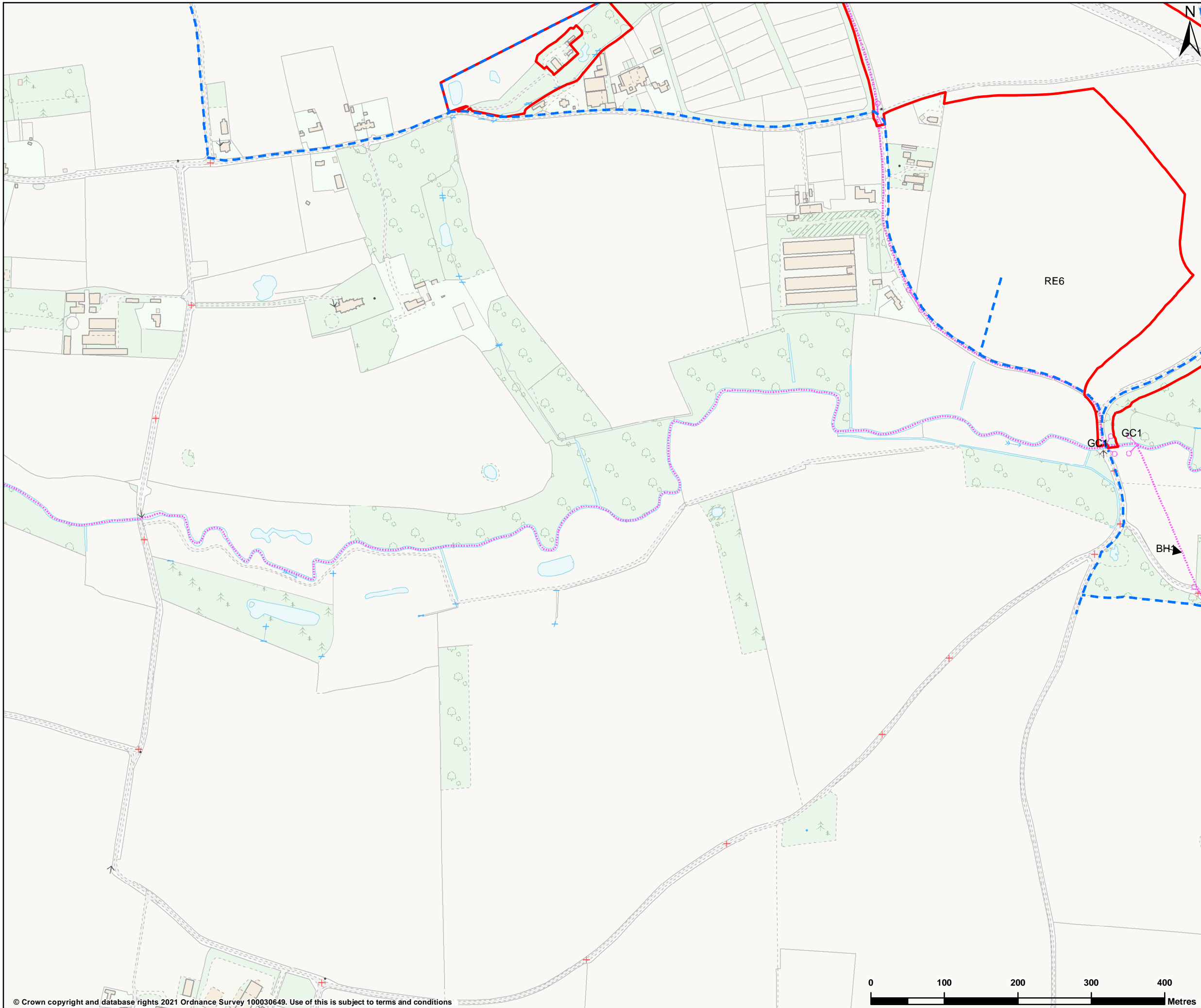
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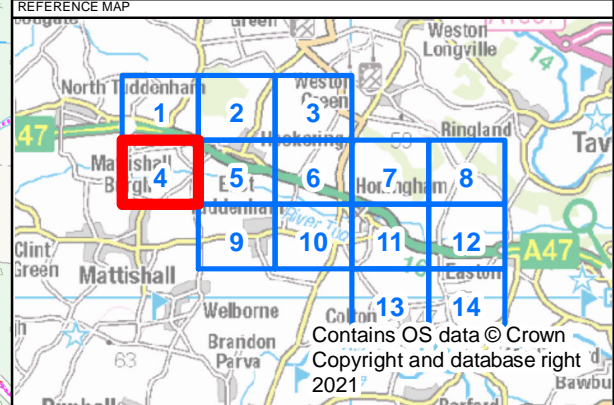
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f o o d Carrying Food
- m a t Carrying Nest Mat
- In Song
- * Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juv Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 4 OF 15
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

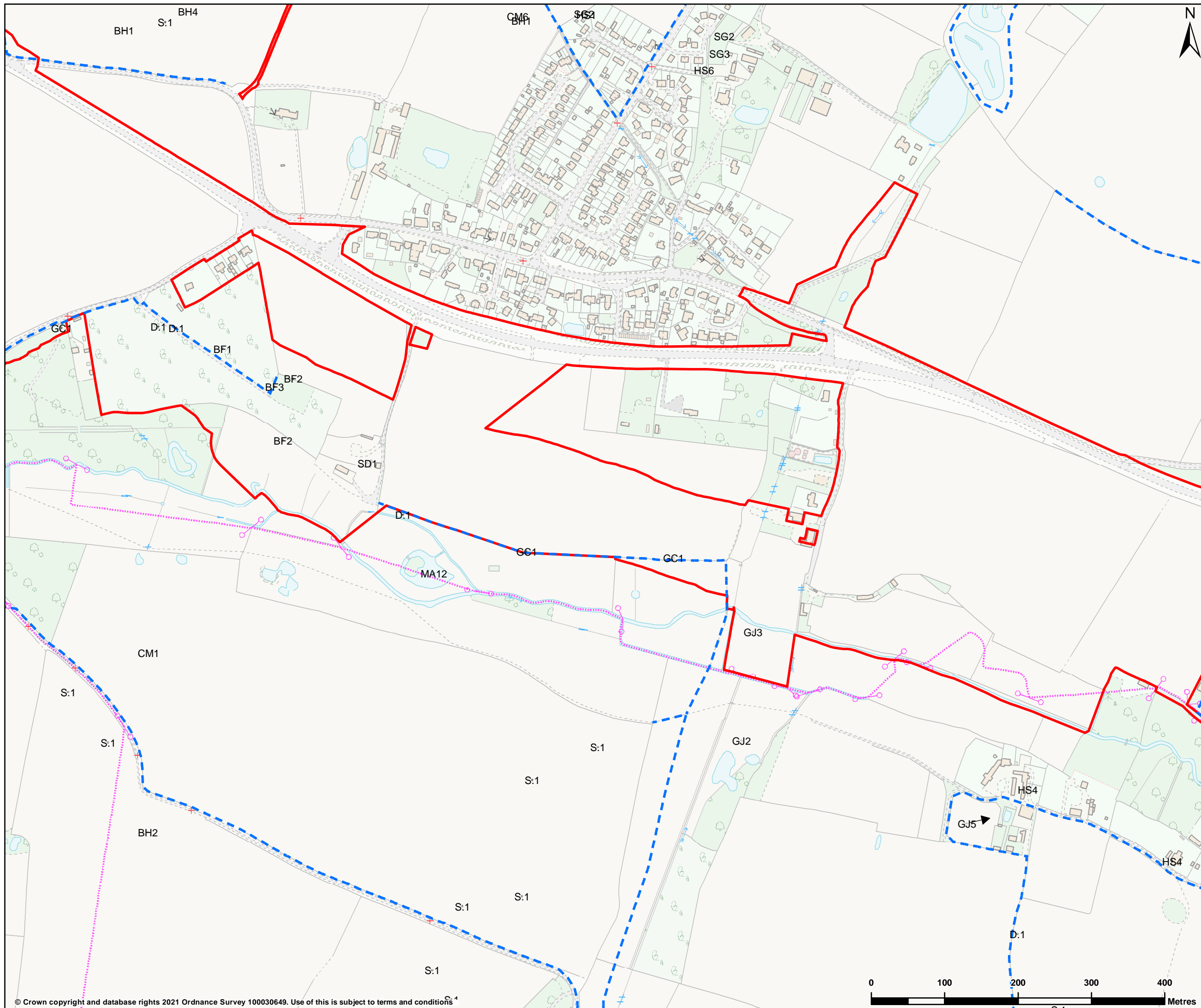
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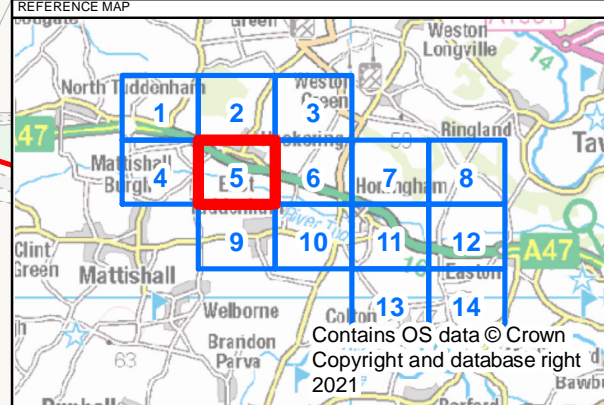
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

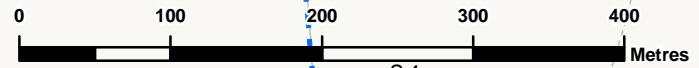
DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 5 OF 15
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

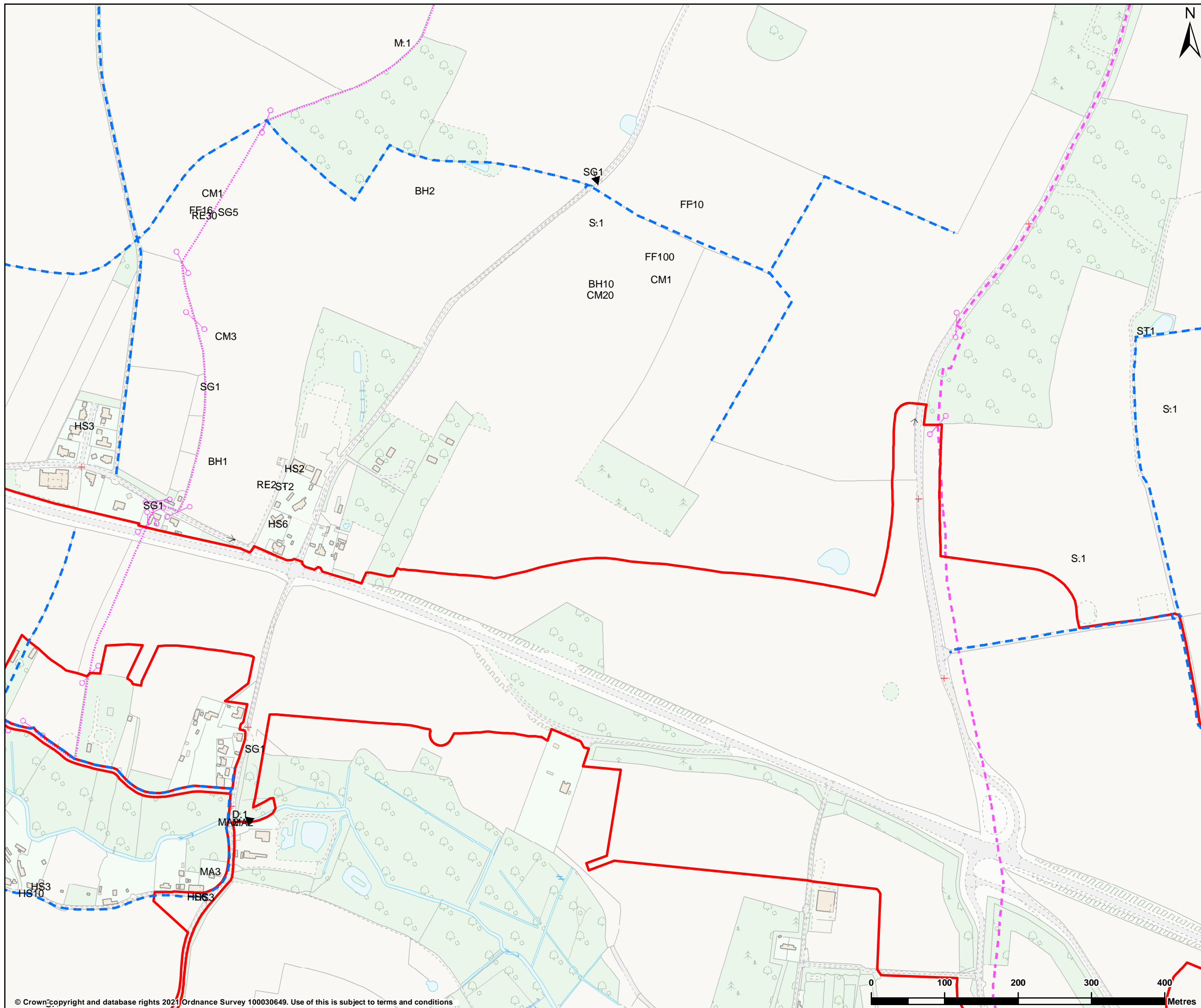
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DRAWING NUMBER
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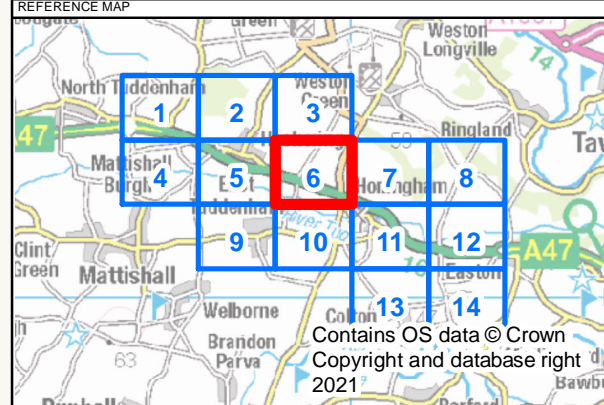
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 6 OF 15
TR010038/APP/6.2

SUITABILITY

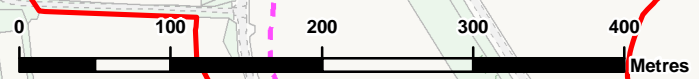
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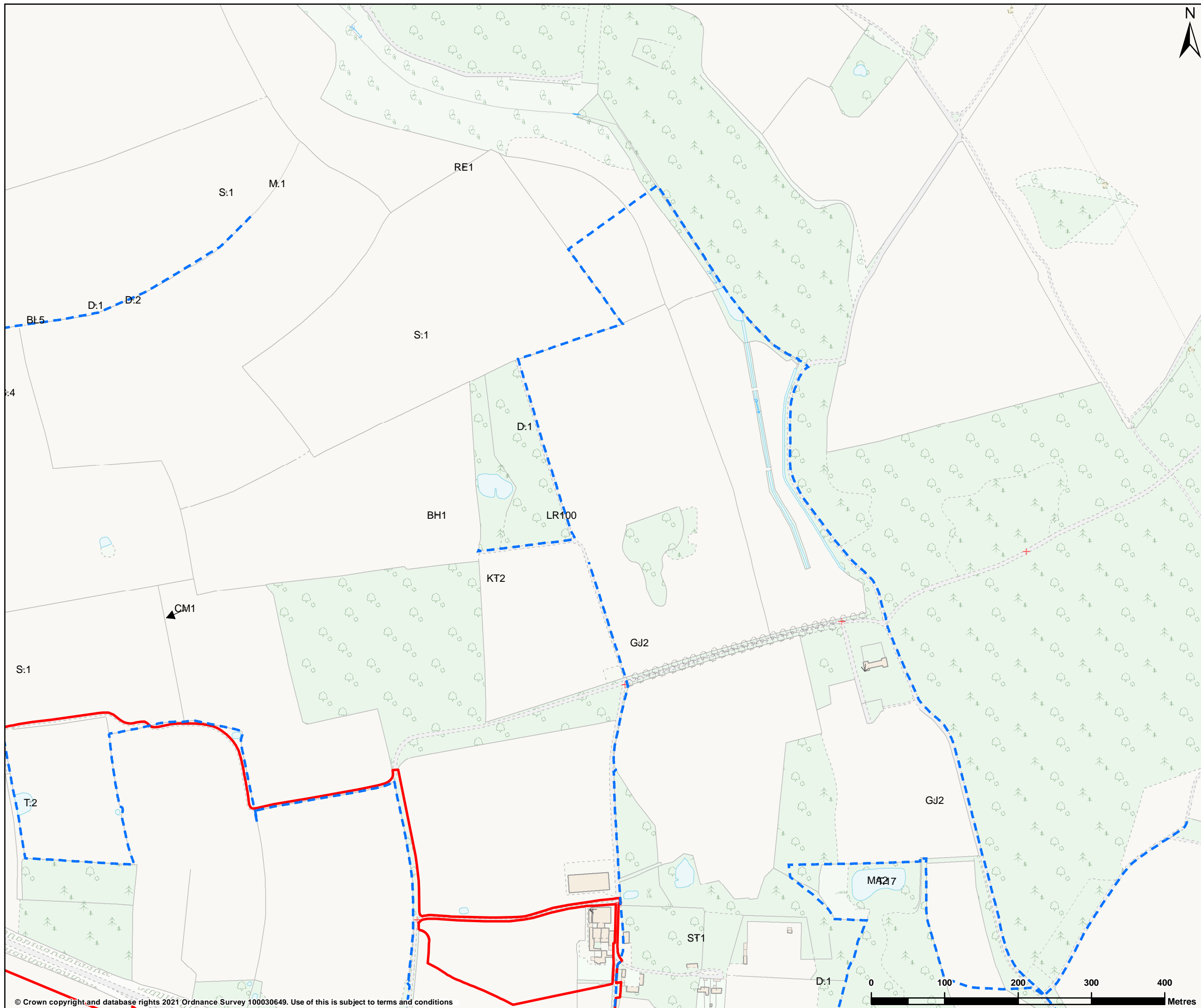
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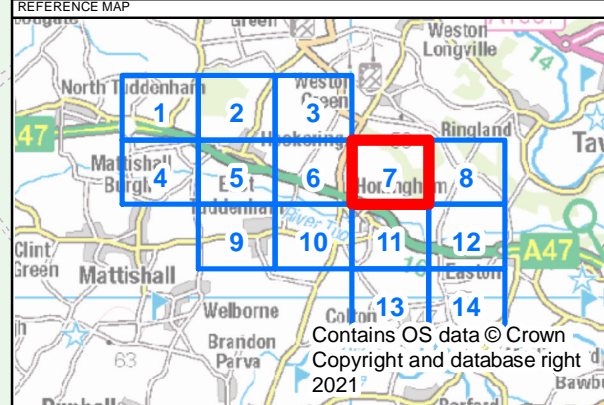
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- == Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 7 OF 15
TR010038/APP/6.2

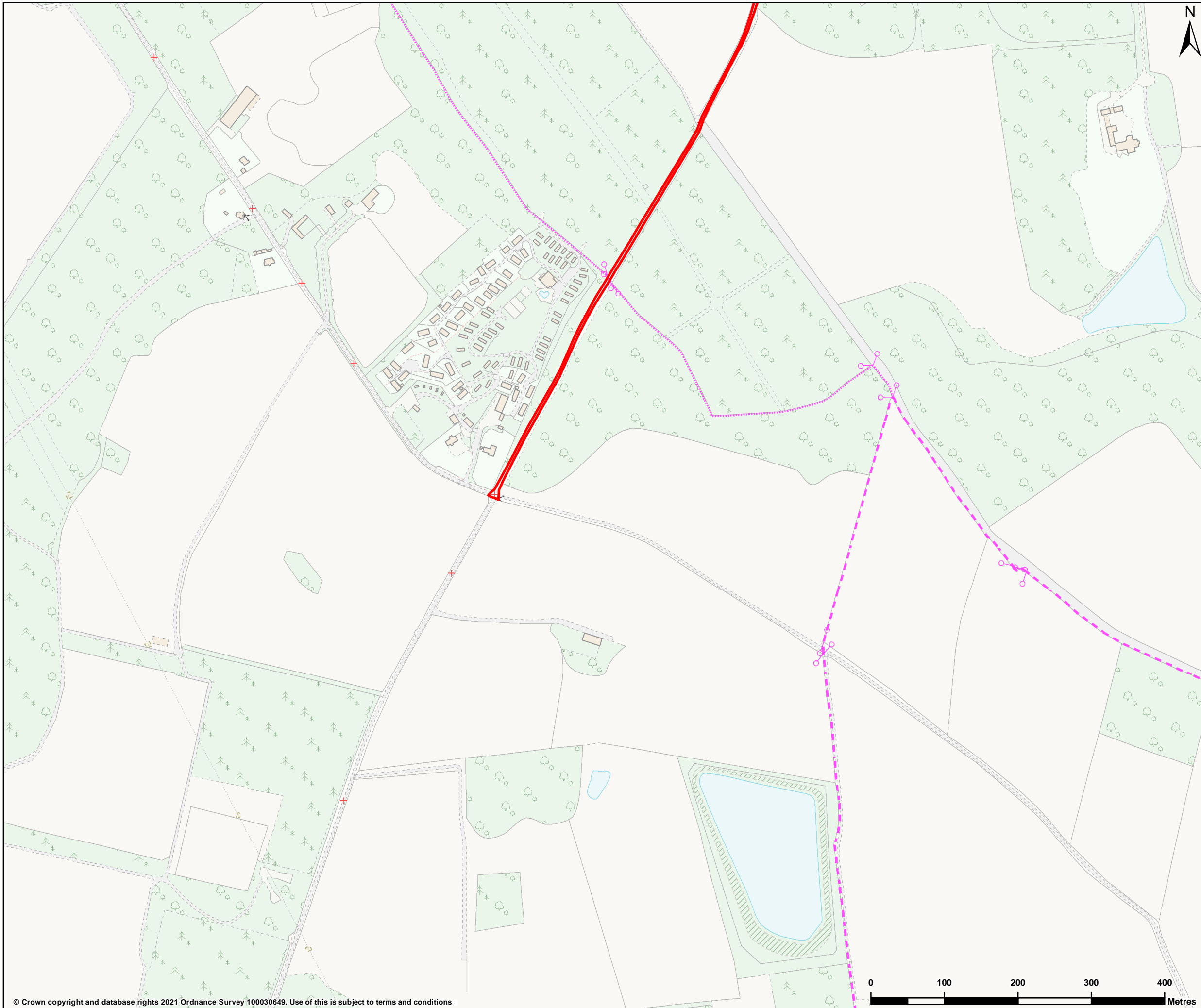
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FOR INFORMATION

SHEET SIZE A3	SCALE 1:5,000	STATUS S2
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DRAWING NUMBER
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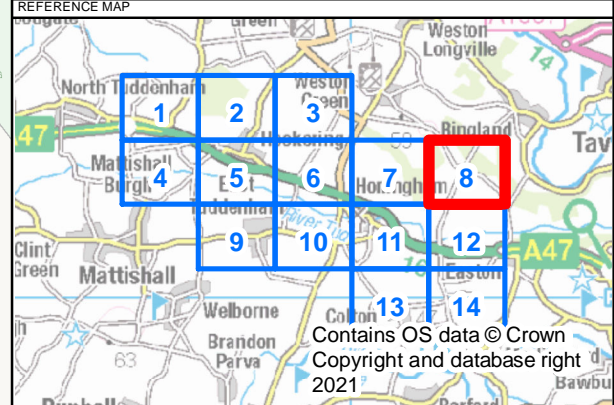
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ⊠ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 8 OF 15
TR010038/APP/6.2

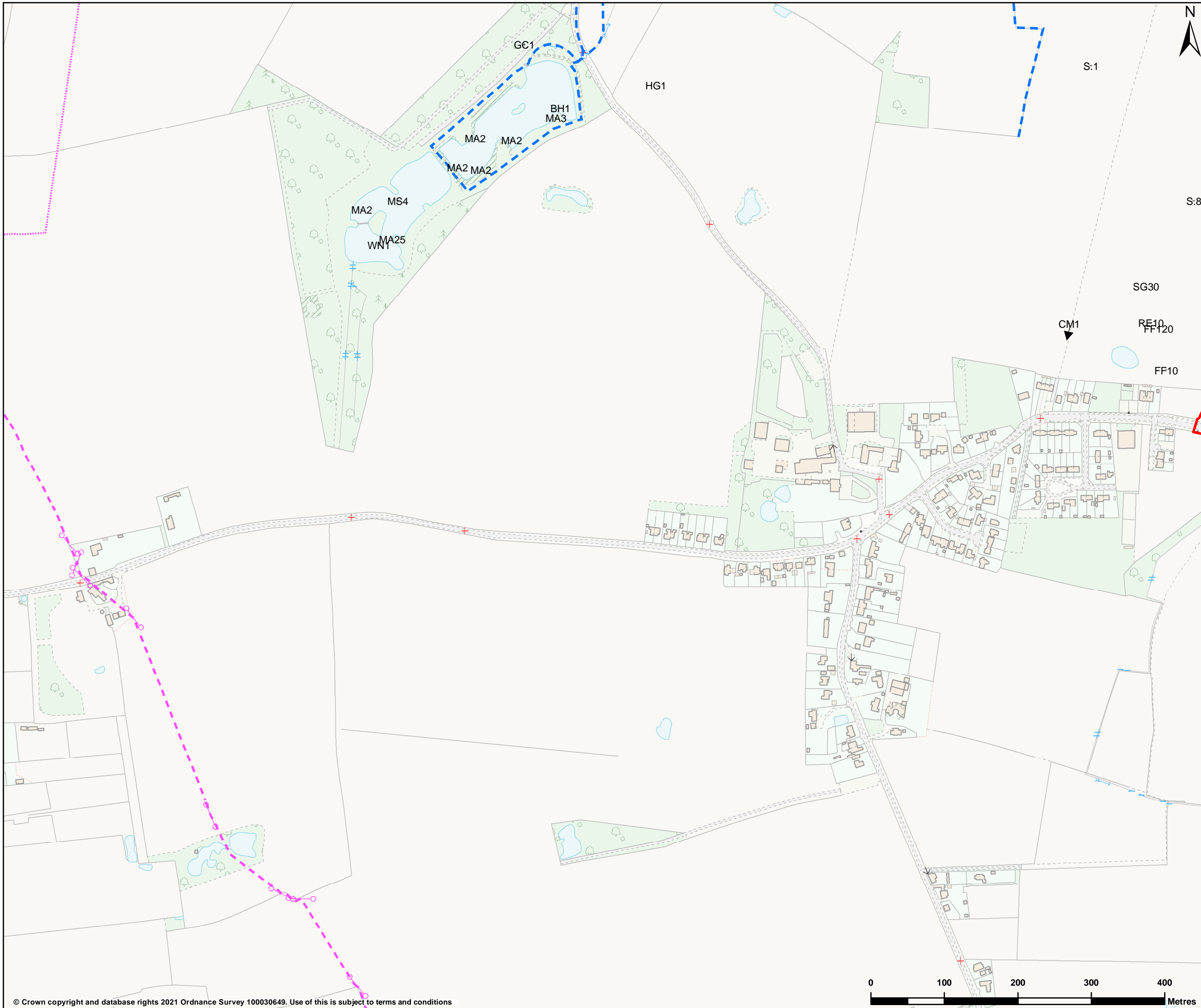
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FOR INFORMATION

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DRAWING NUMBER
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LEGEND

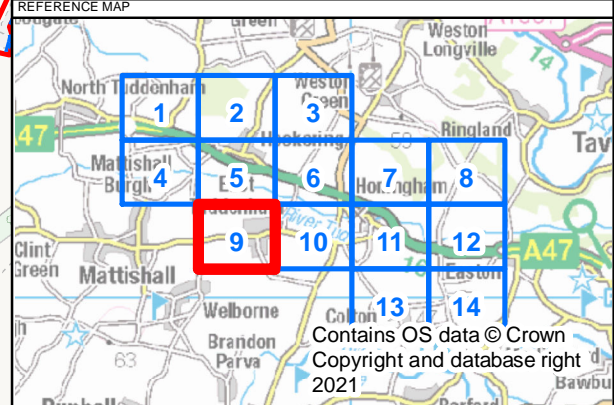
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways
england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 9 OF 15
TR010038/APP/6.2

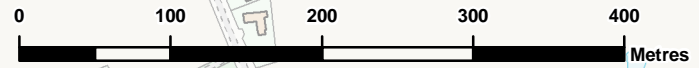
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SHEET SIZE	SCALE	STATUS
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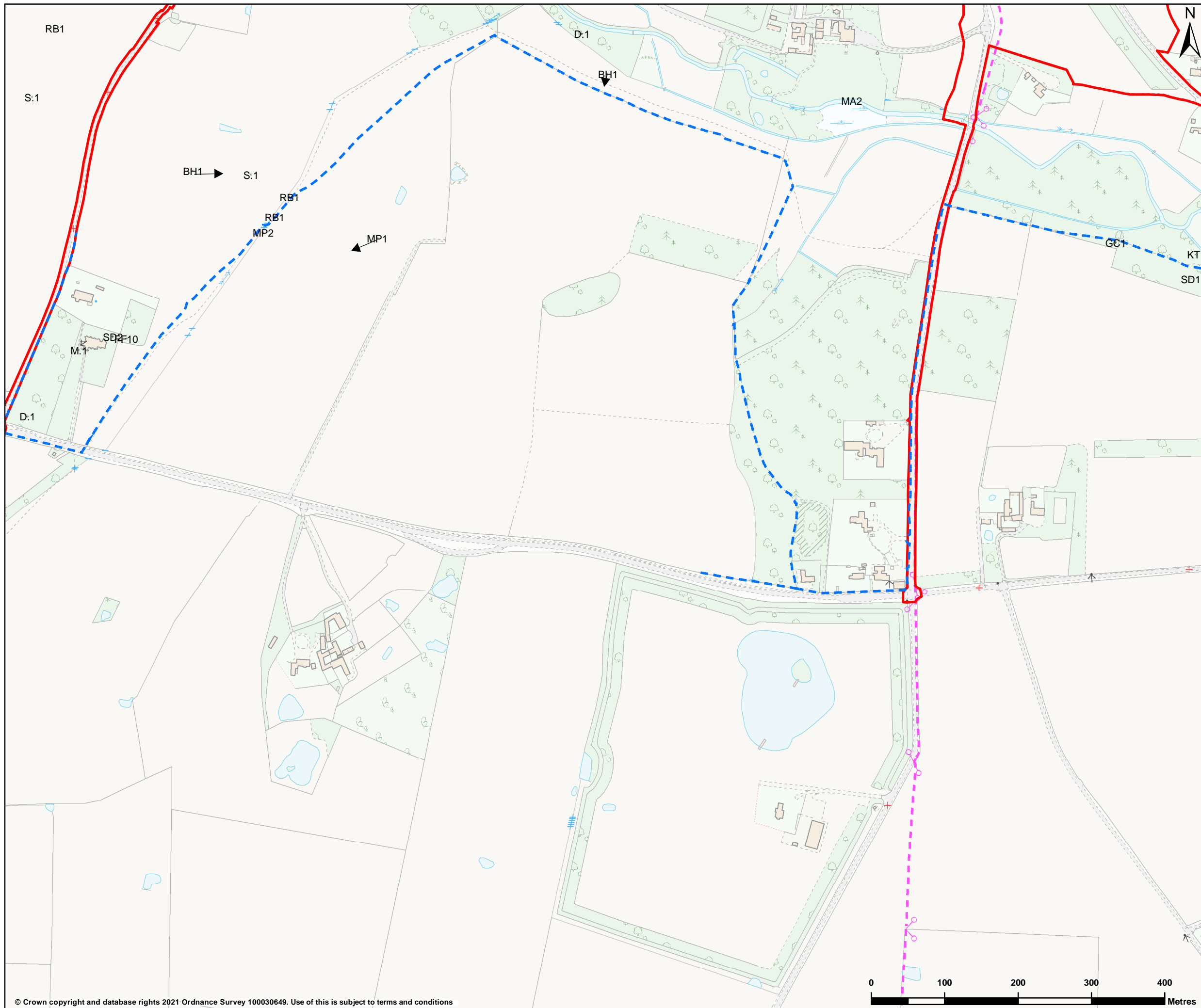
DRAWING NUMBER

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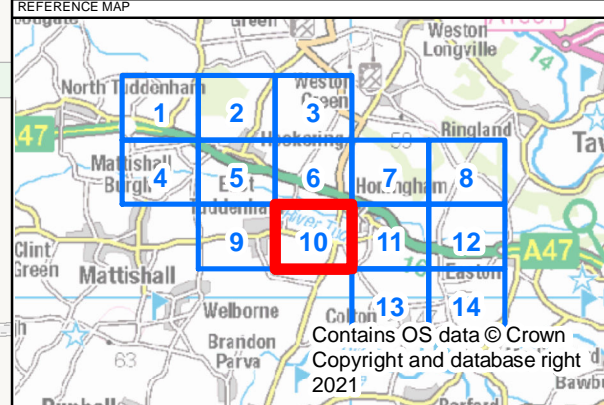
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

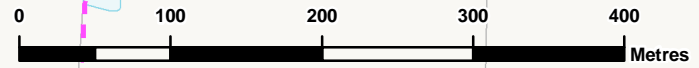
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WINTERING BIRD SURVEY - JANUARY
SHEET 10 OF 15
TR010038/APP/6.2

SUITABILITY
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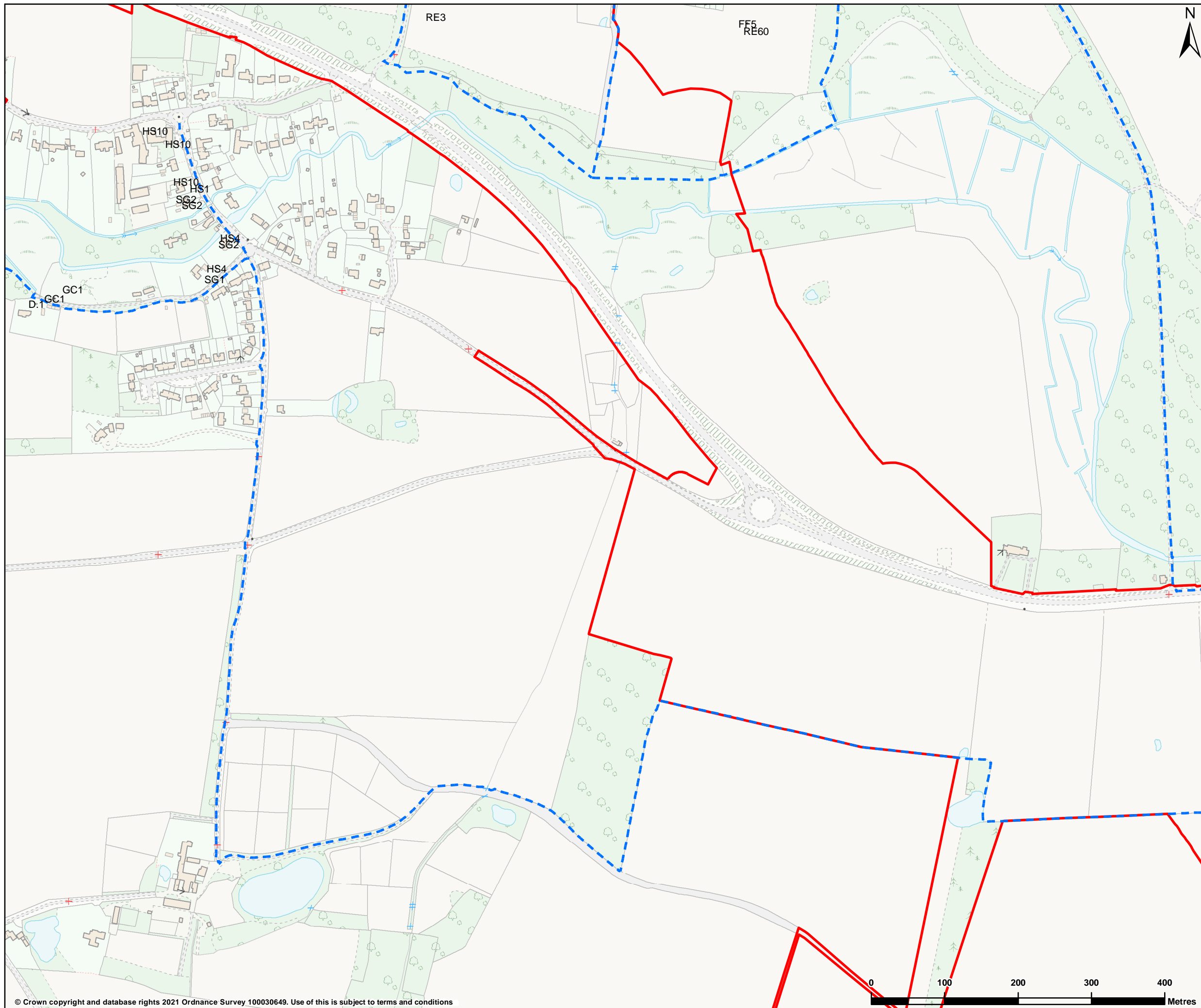
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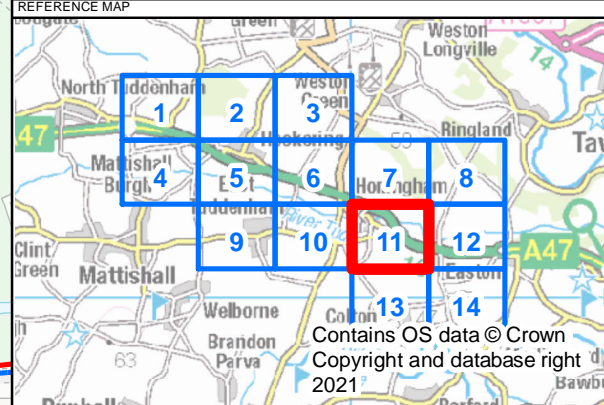
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

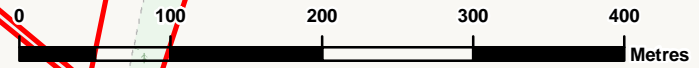
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WINTERING BIRD SURVEY - JANUARY
SHEET 11 OF 15
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

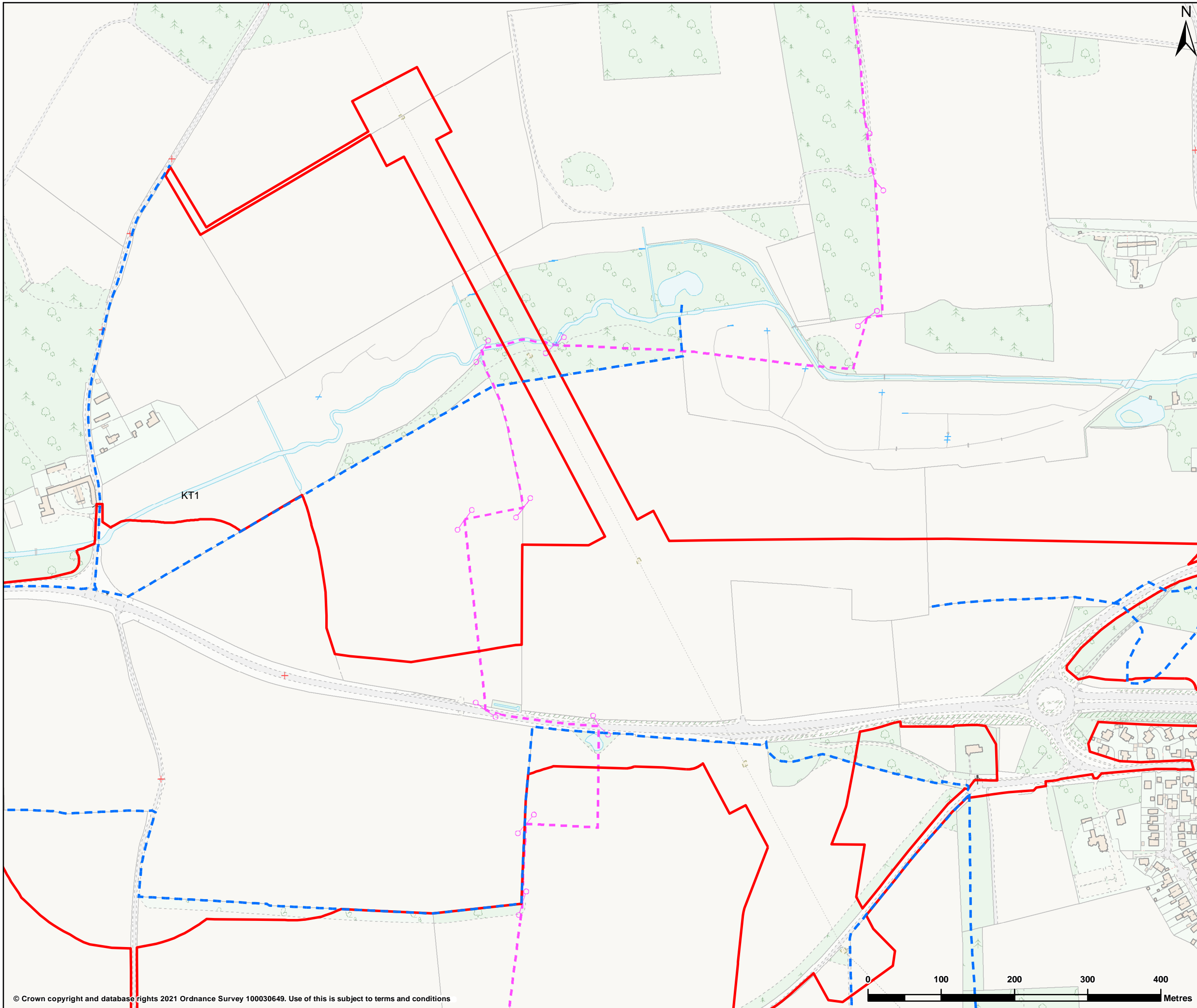
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DRAWING NUMBER
HE551489-GTY-EBD-000-DR-LB-30063

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LEGEND

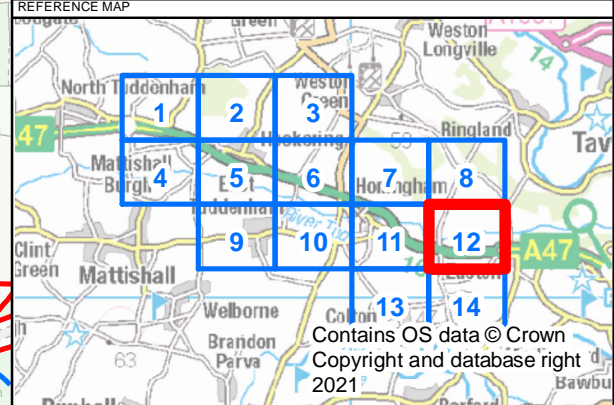
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO ✱

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 12 OF 15
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

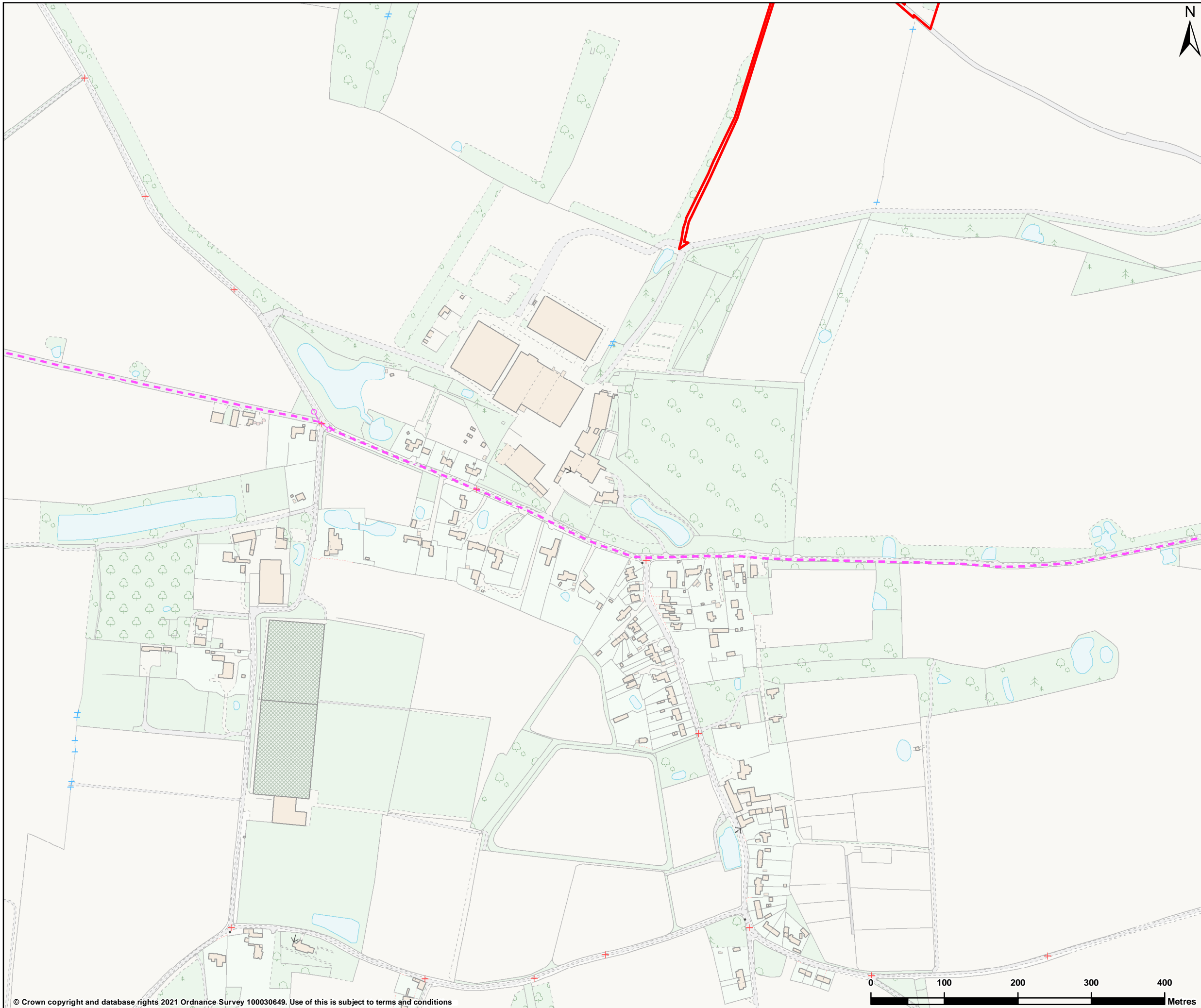
DRAWING NUMBER

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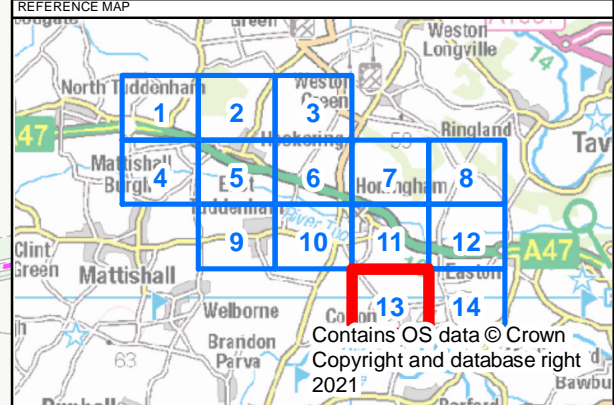
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✳ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 13 OF 15
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30065

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LEGEND

DCO boundary

Survey transects

Bird Activity

on Adult Sitting

✱ Aggressive Encounter

Alarm Calls

Calling

food Carrying Food

mat Carrying Nest Mat

In Song

✱ Occupied Nest

Occupied Nest -Provided

➔ Flight Path

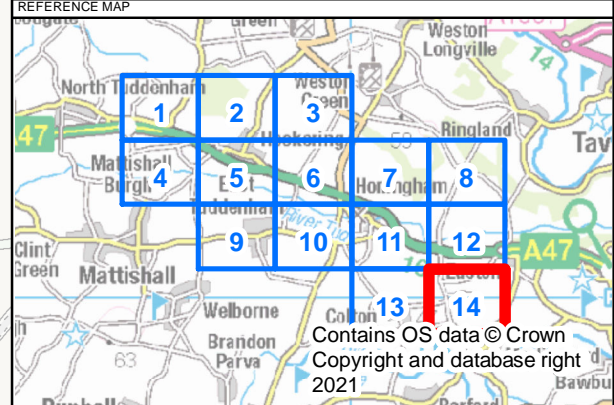
Sex

♀ Female

♂ Male

juve Juvenile

♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - JANUARY
SHEET 14 OF 15
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

SHEET SIZE	SCALE	STATUS
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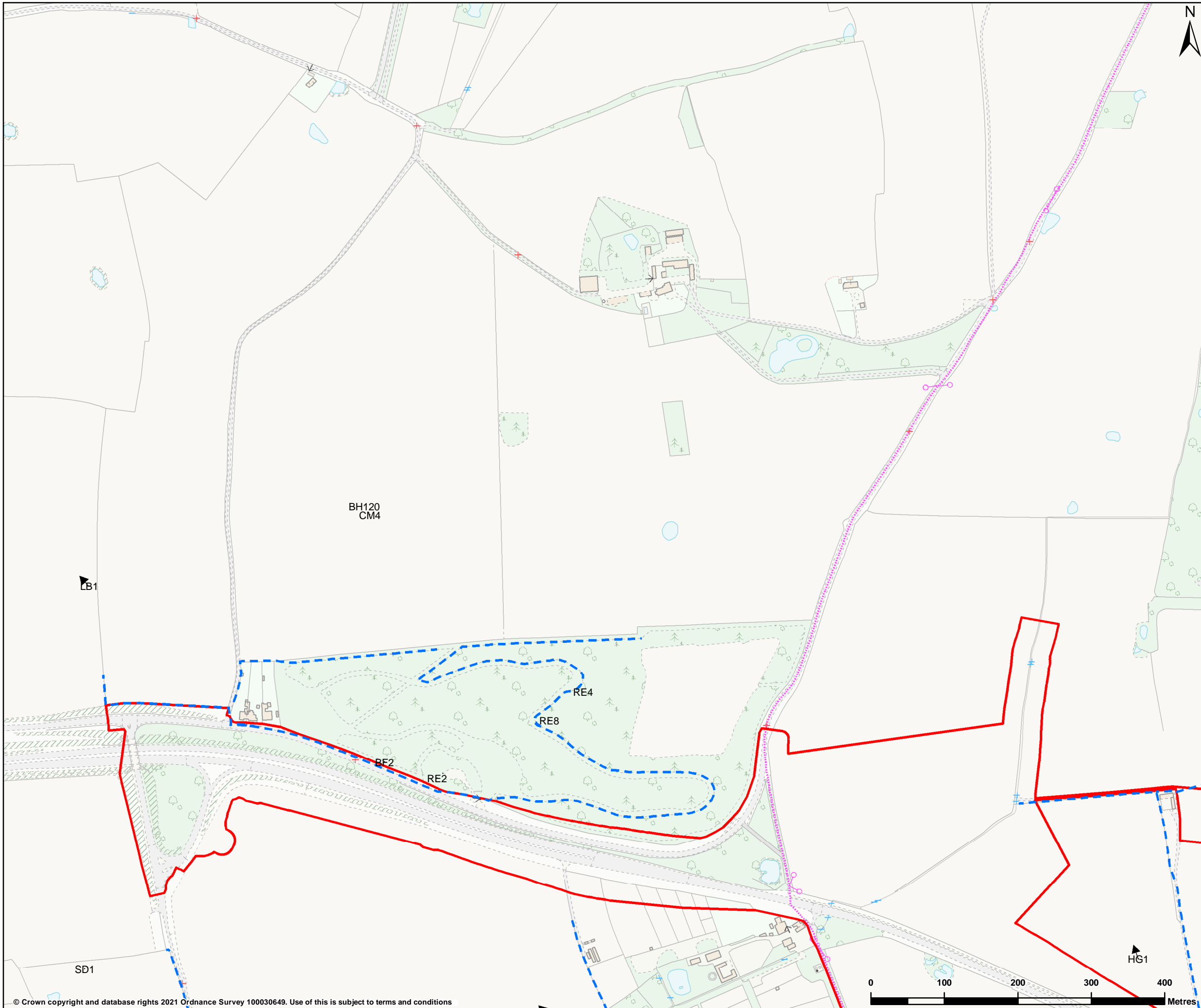
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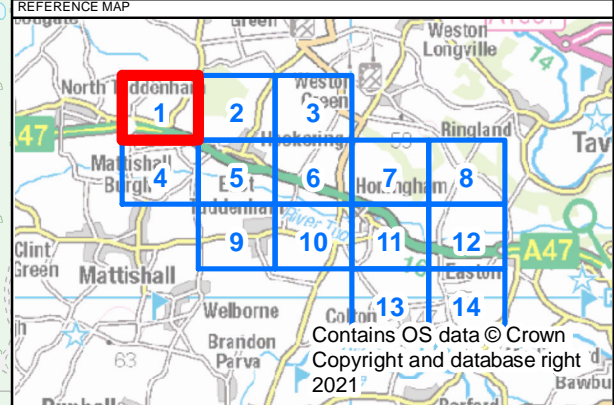
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 1 OF 14
TR010038/APP/6.2

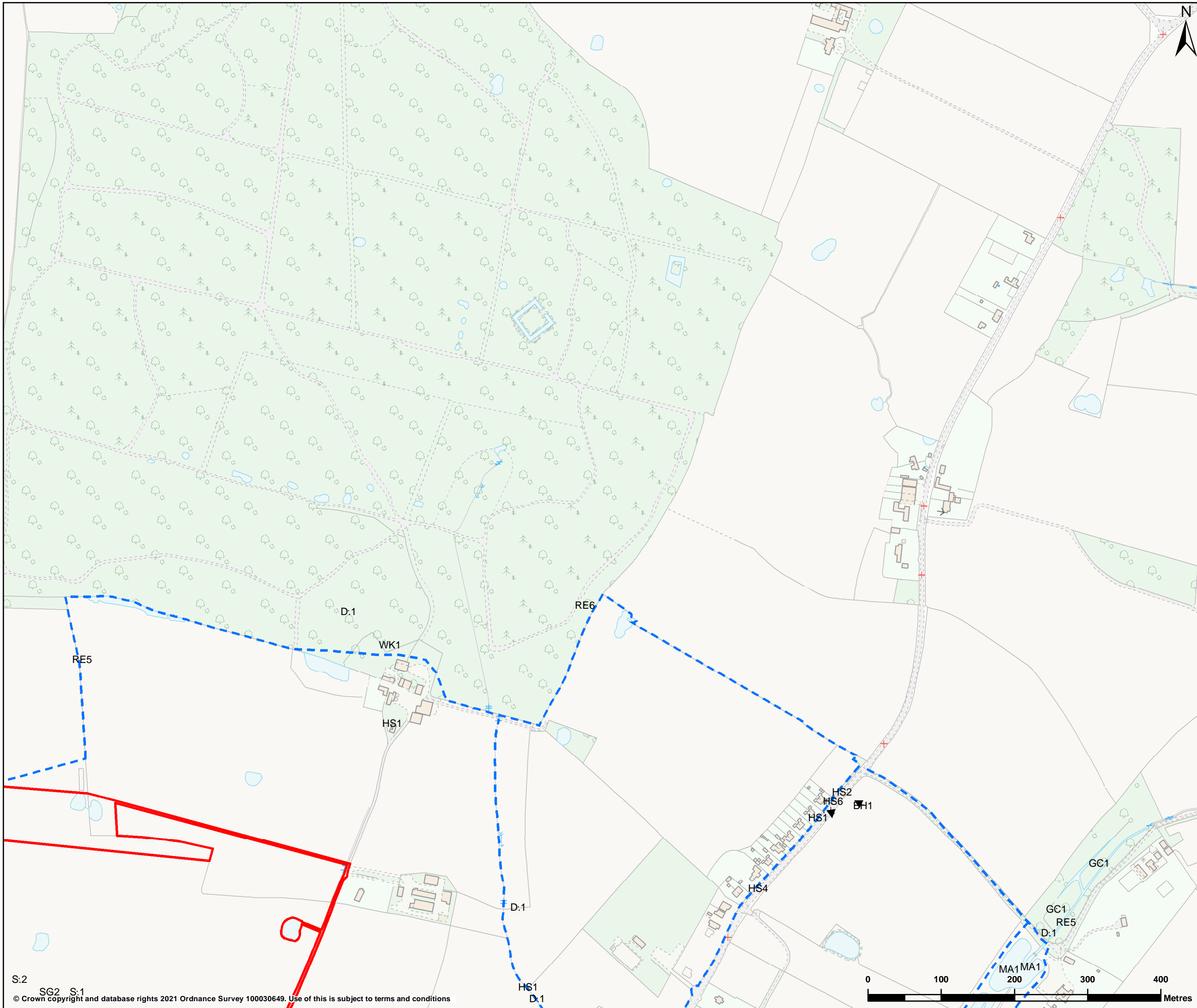
SUITABILITY
FOR INFORMATION

SHEET SIZE A3	SCALE 1:5,000	STATUS S2
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DRAWING NUMBER
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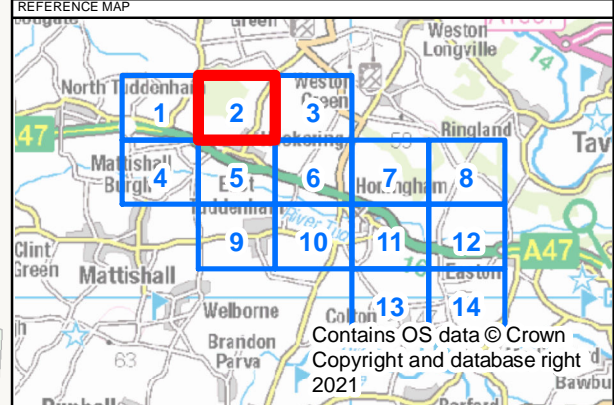
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 2 OF 14
TR010038/APP/6.2

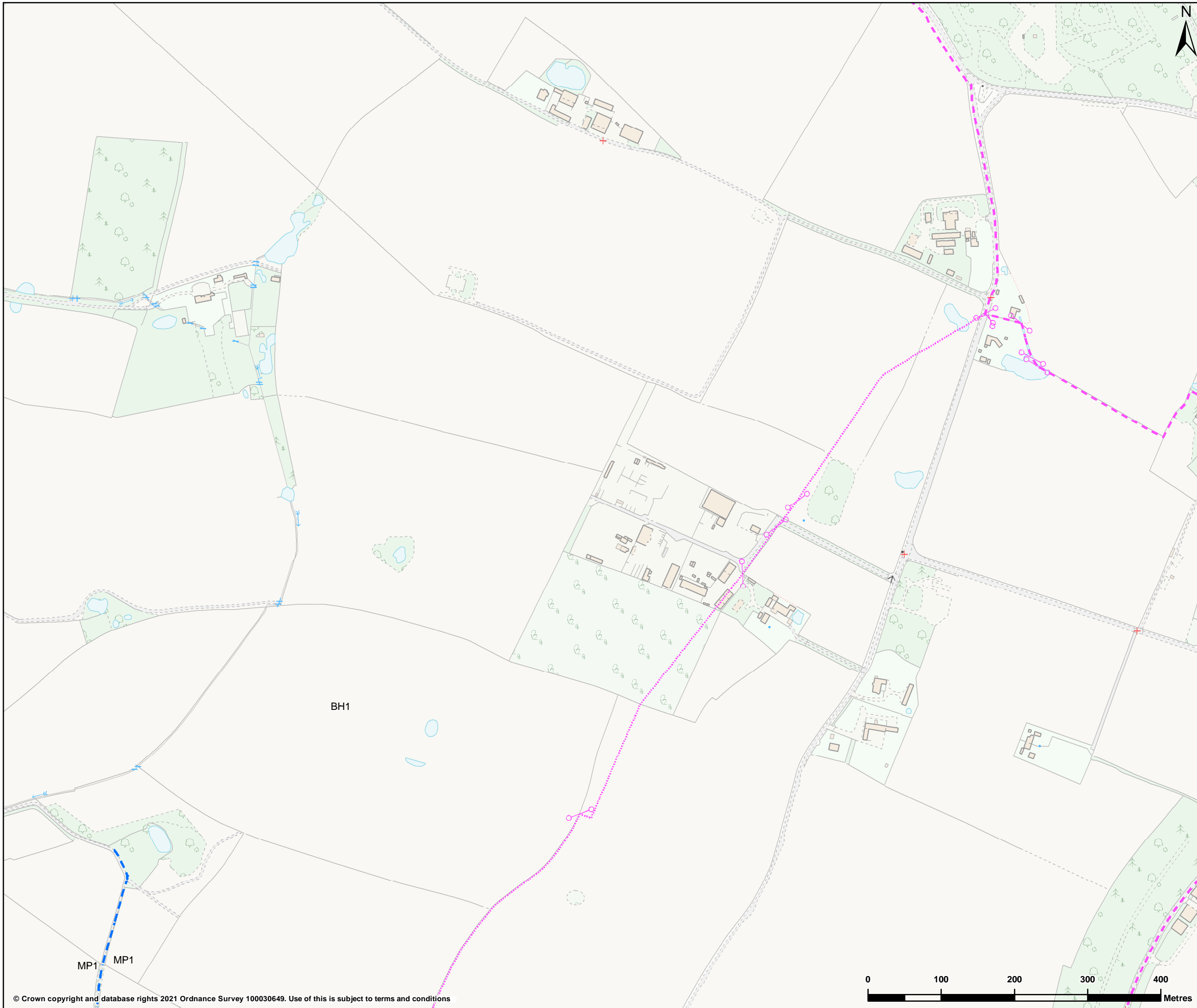
SUITABILITY
FOR INFORMATION

SHEET SIZE A3	SCALE 1:5,000	STATUS S2
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DRAWING NUMBER
HE551489-GTY-EBD-000-DR-LB-30068

S:2
SG2 S:1
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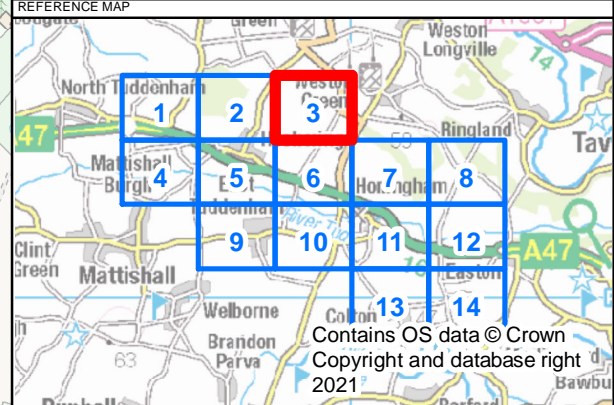
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

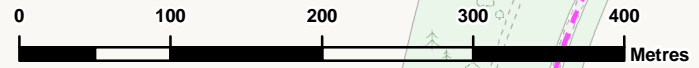
DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 3 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

DRAWING NUMBER
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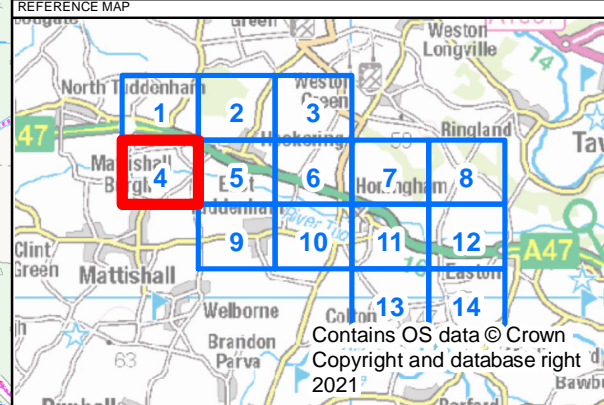
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

highways england

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 4 OF 14
TR010038/APP/6.2

SUITABILITY

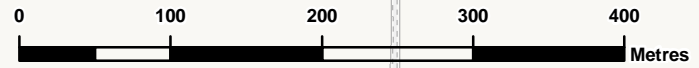
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
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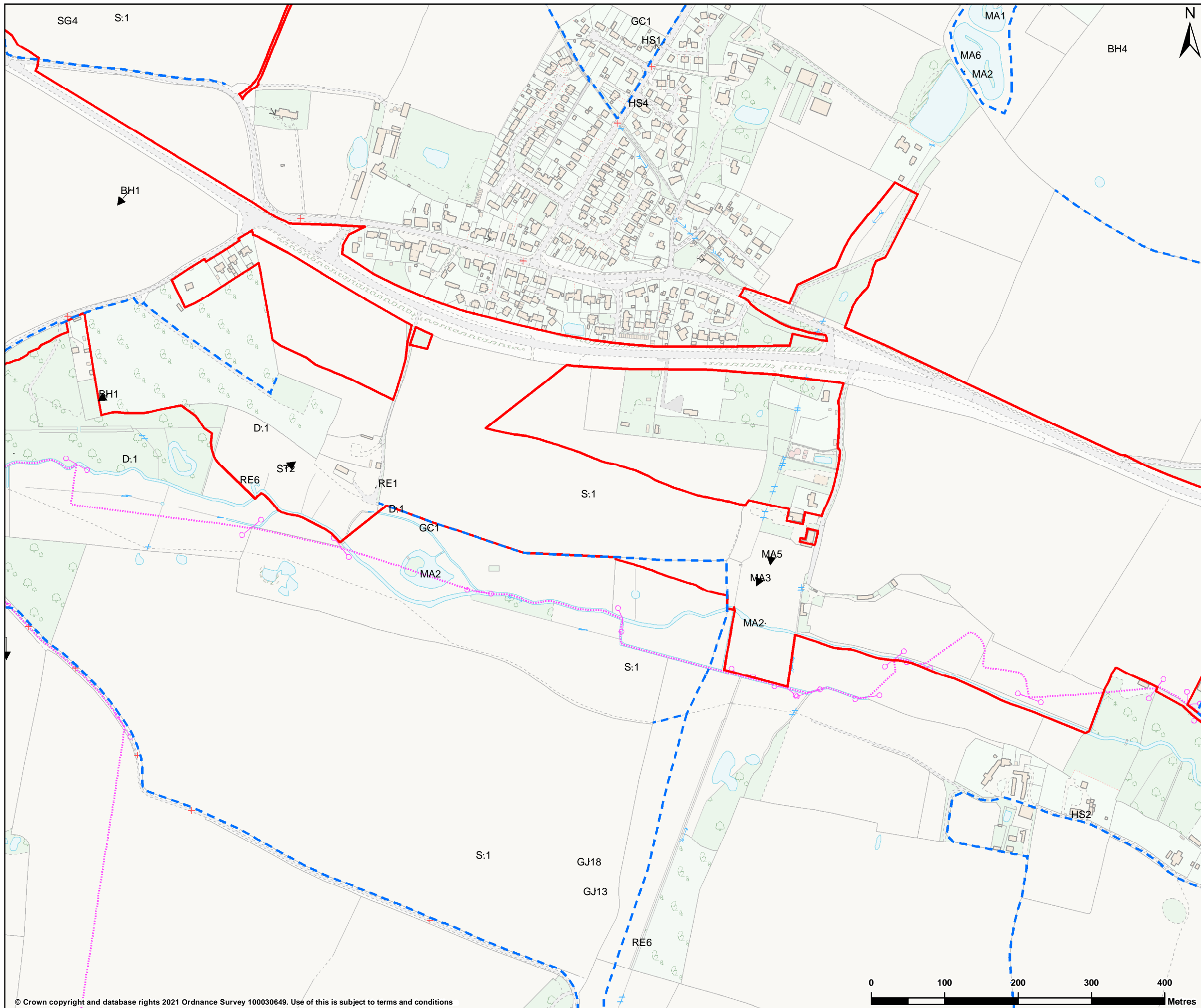
DRAWING NUMBER

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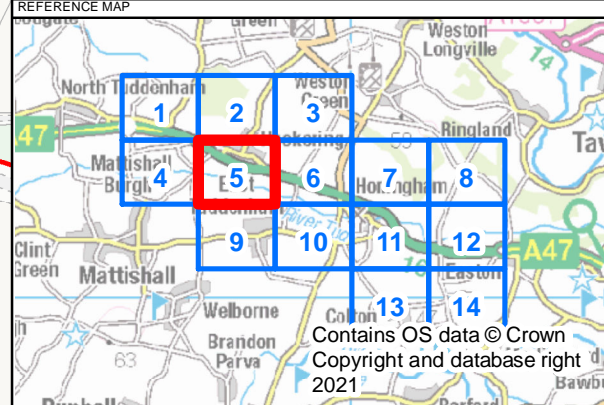
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

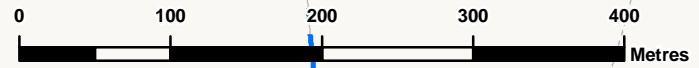
DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 5 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

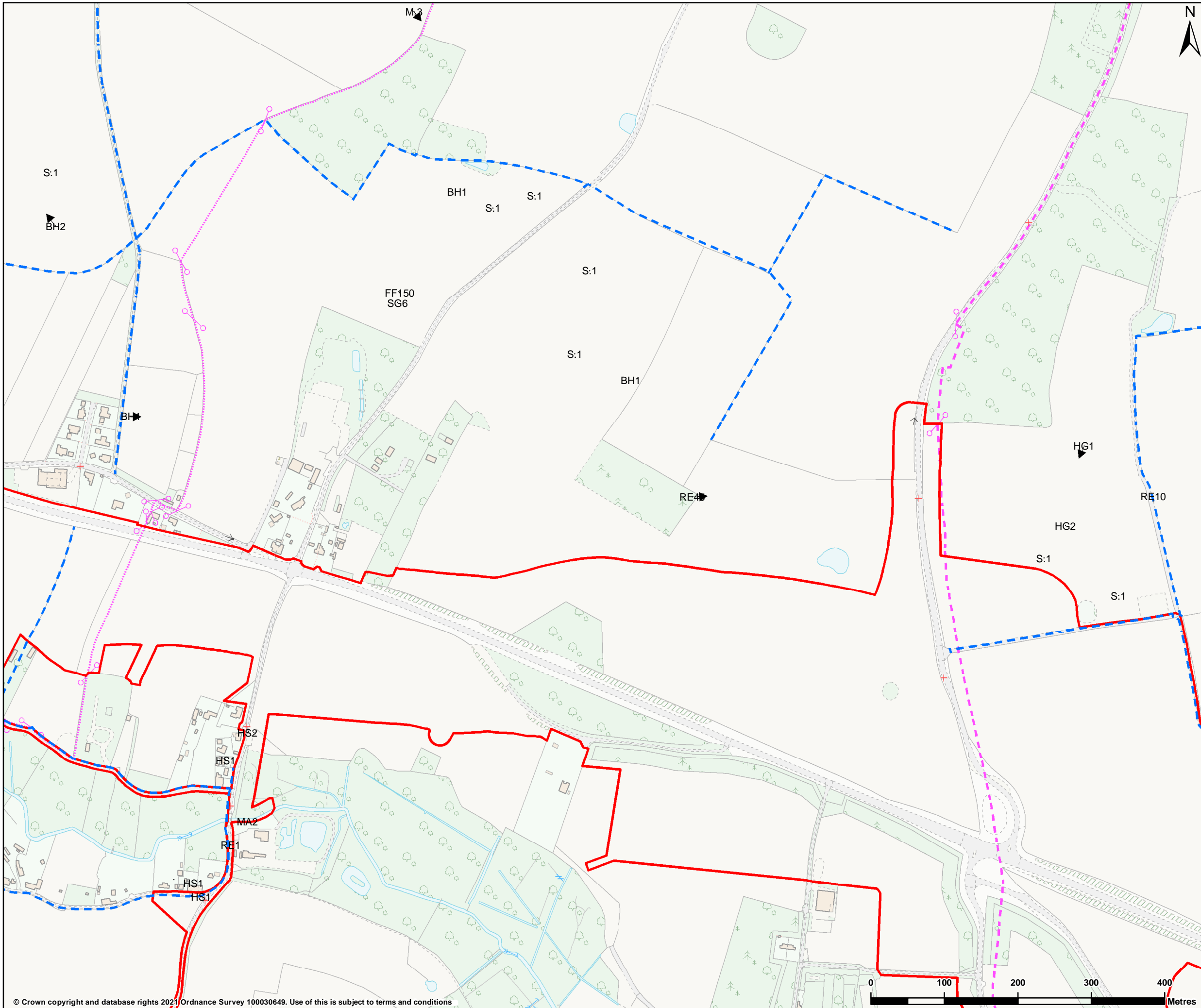
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A3	1:5,000	S2

DRAWING NUMBER
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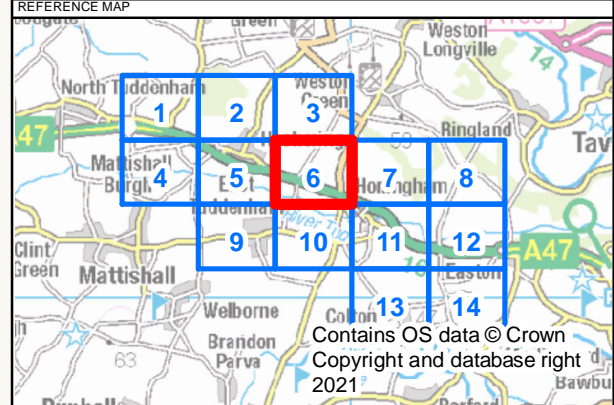
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✳ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 6 OF 14
TR010038/APP/6.2

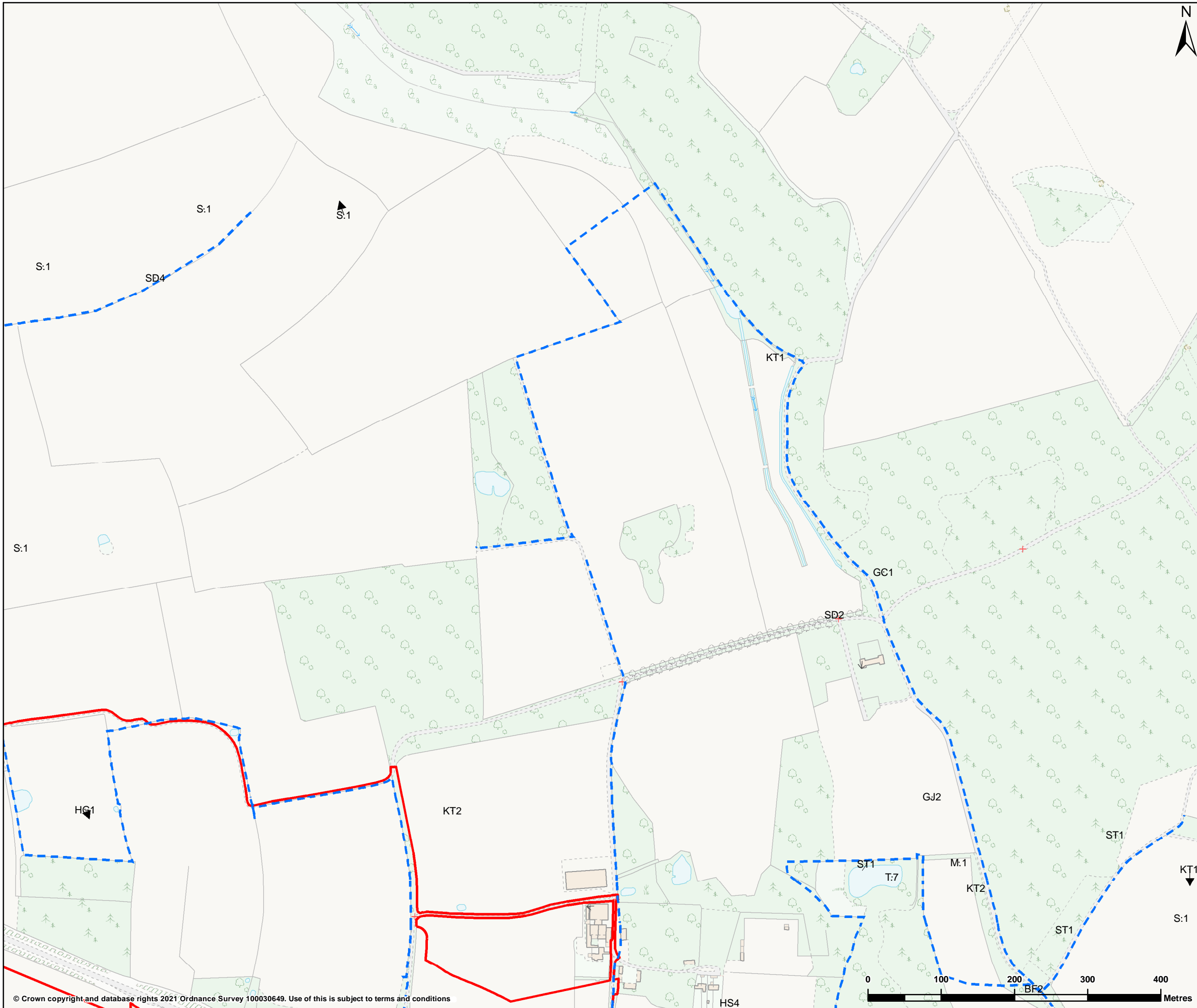
SUITABILITY
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

DRAWING NUMBER
HE551489-GTY-EBD-000-DR-LB-30072

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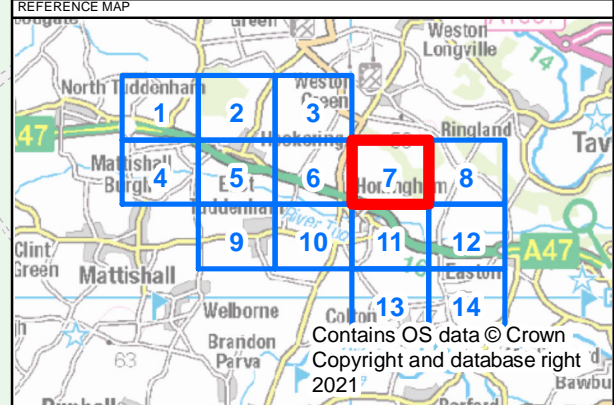
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO ✳

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 7 OF 14
TR010038/APP/6.2

SUITABILITY

FOR INFORMATION

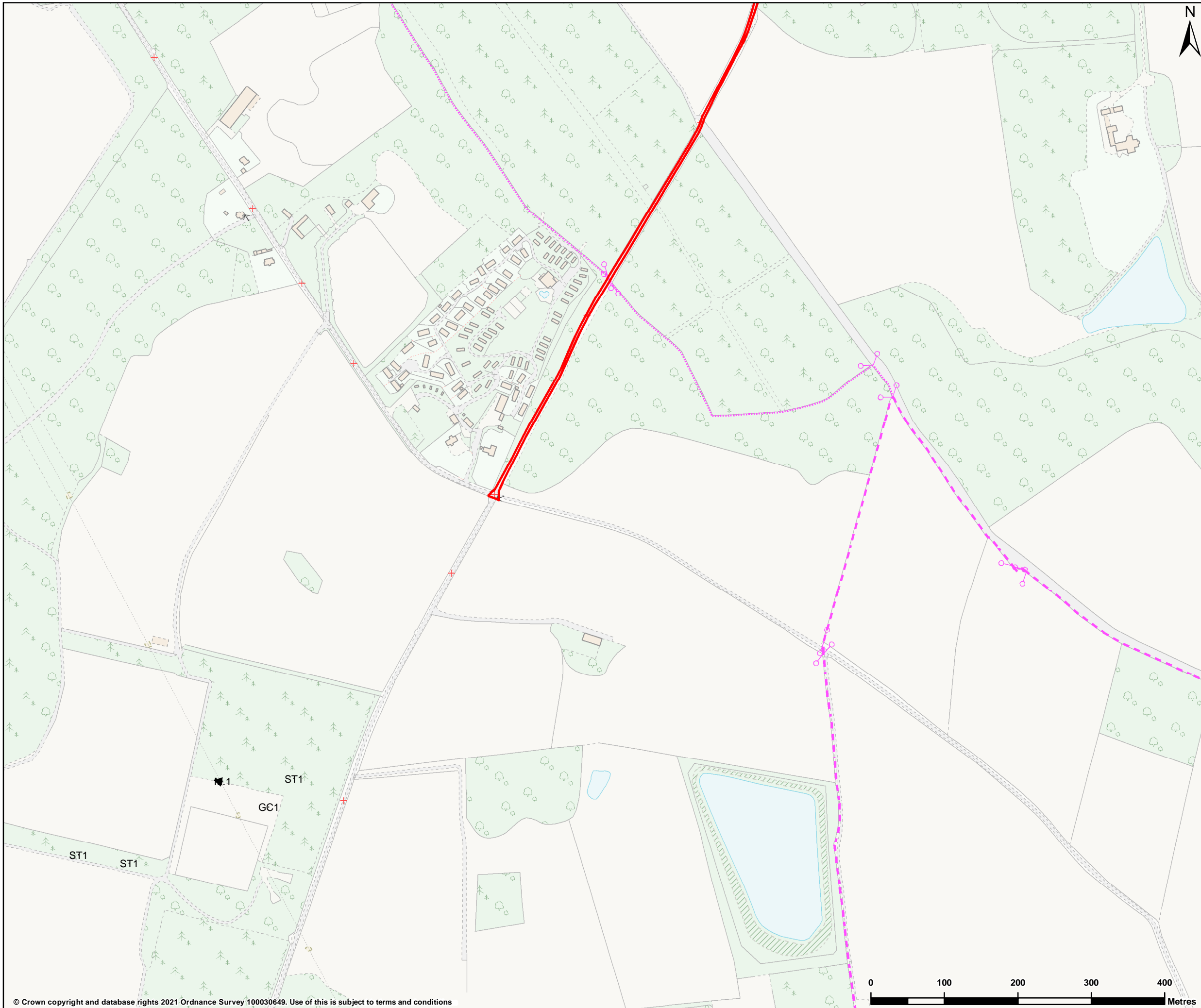
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A3	1:5,000	S2

DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30073

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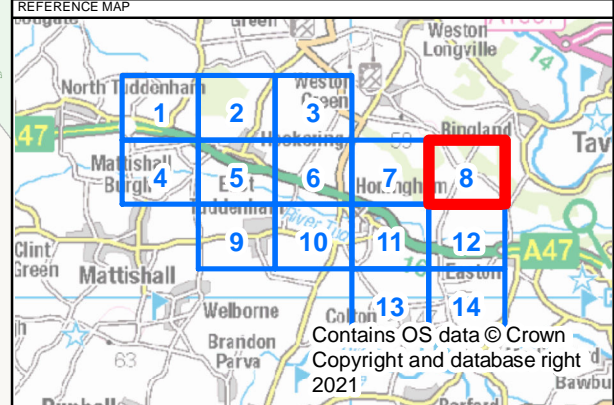
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 8 OF 14
TR010038/APP/6.2

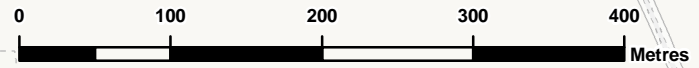
SUITABILITY
FOR INFORMATION

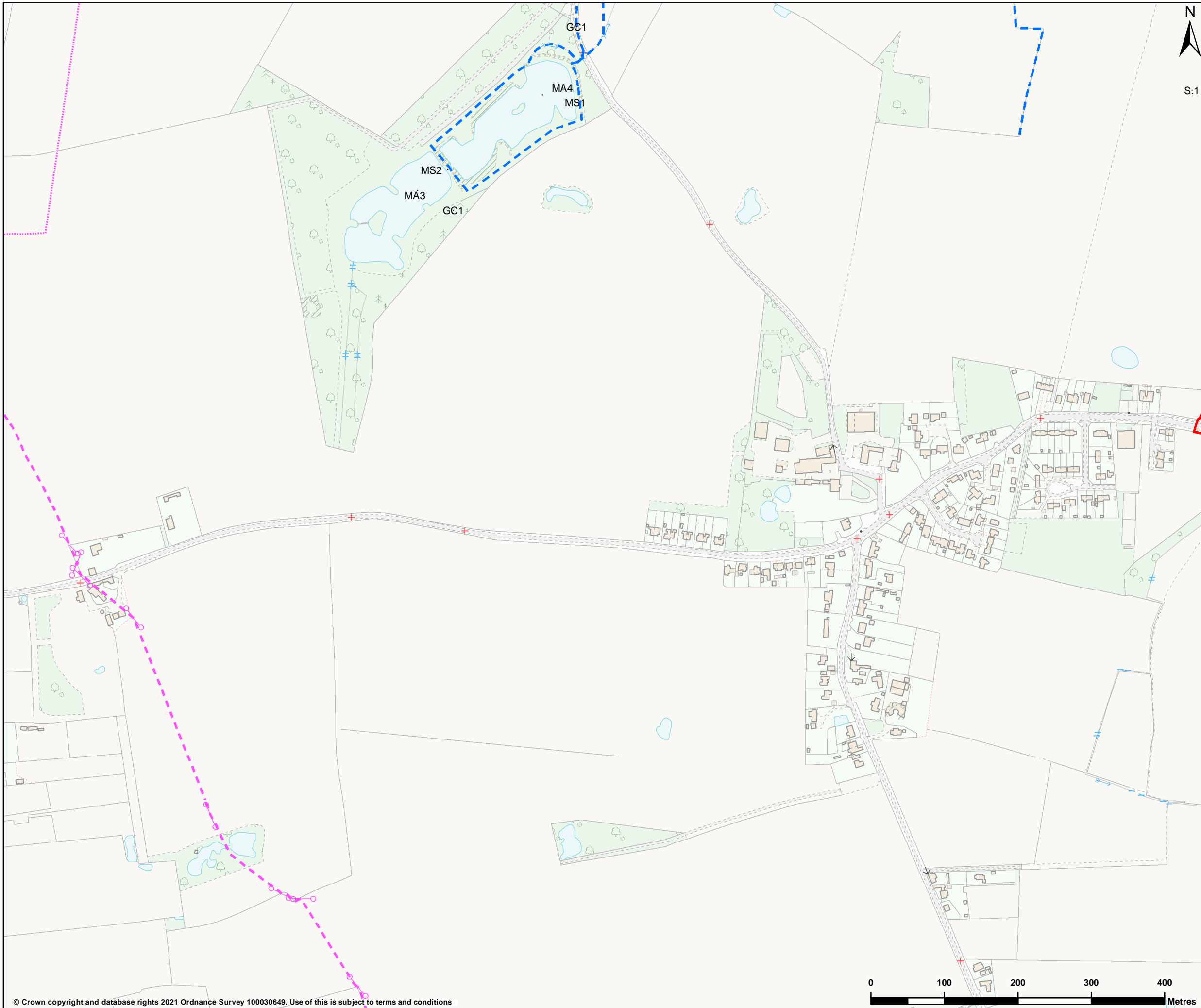
SHEET SIZE A3	SCALE 1:5,000	STATUS S2
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DRAWING NUMBER
HE551489-GTY-EBD-000-DR-LB-30074

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N
S:1

LEGEND

DCO boundary

Survey transects

Bird Activity

on Adult Sitting

✱ Aggressive Encounter

Alarm Calls

Calling

food Carrying Food

mat Carrying Nest Mat

In Song

✱ Occupied Nest

✱ Occupied Nest -Provided

➔ Flight Path

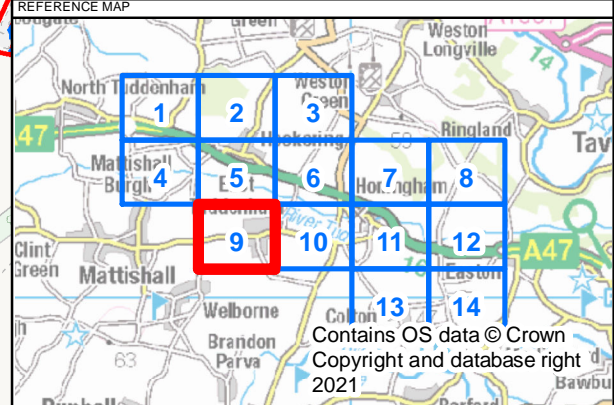
Sex

♀ Female

♂ Male

juve Juvenile

♂♀ Pair



P01	23/02/2021	First Edition	AC	MY	DW
REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 9 OF 14
TR010038/APP/6.2

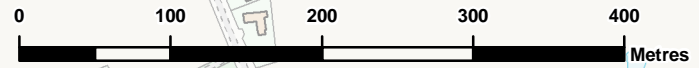
SUITABILITY

FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

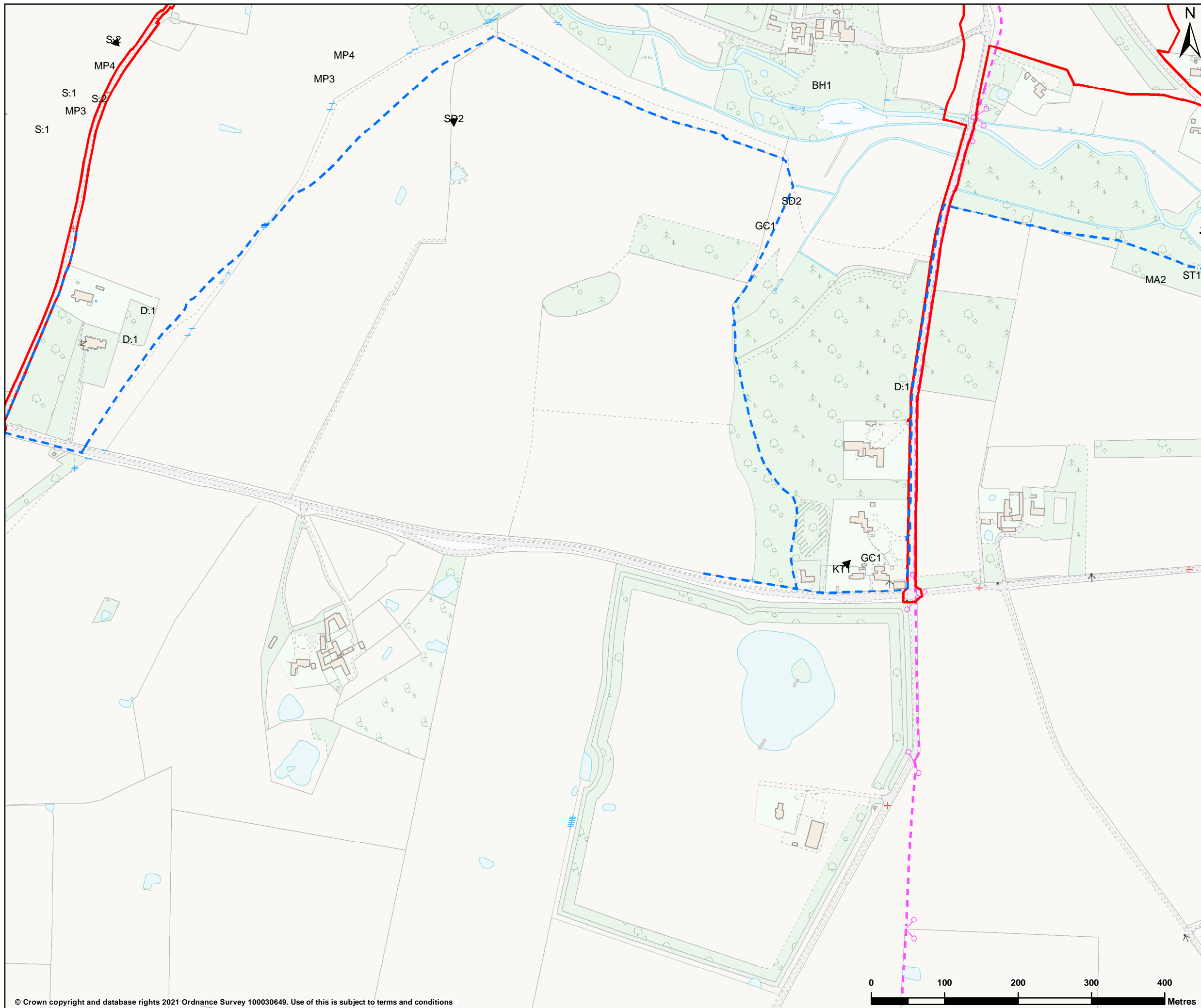
DRAWING NUMBER

HE551489-GTY-EBD-000-DR-LB-30075



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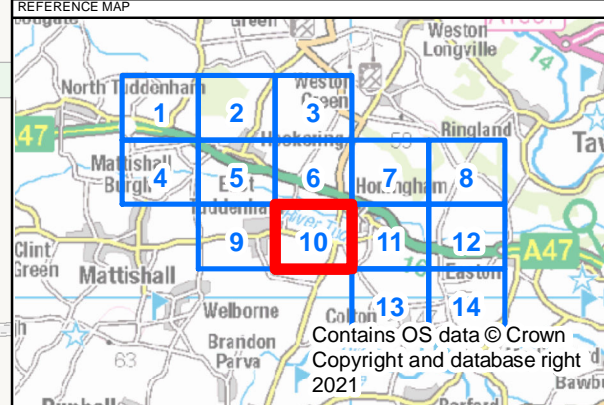
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

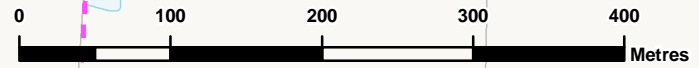
DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 10 OF 14
TR010038/APP/6.2

SUITABILITY
FOR INFORMATION

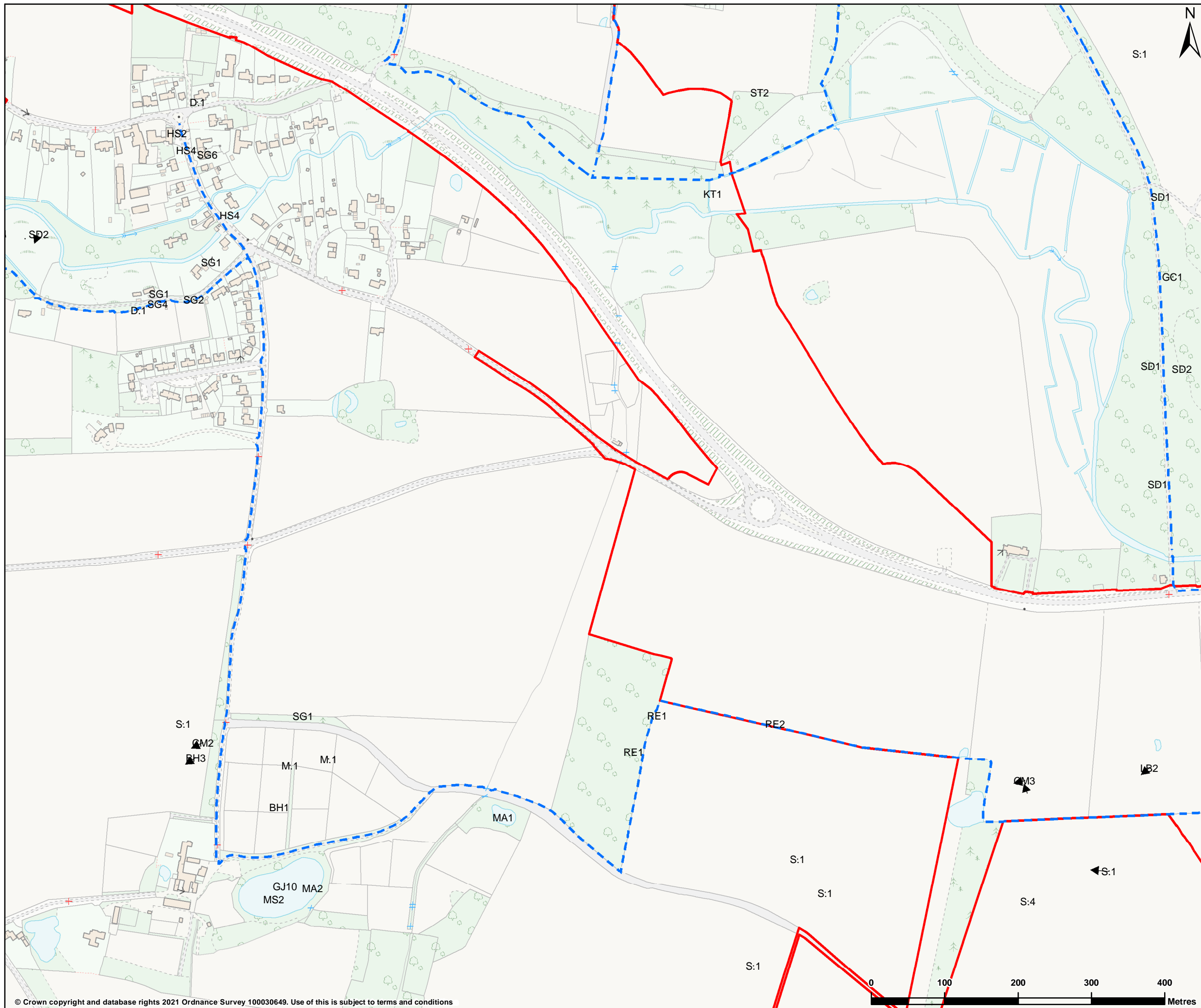
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DRAWING NUMBER
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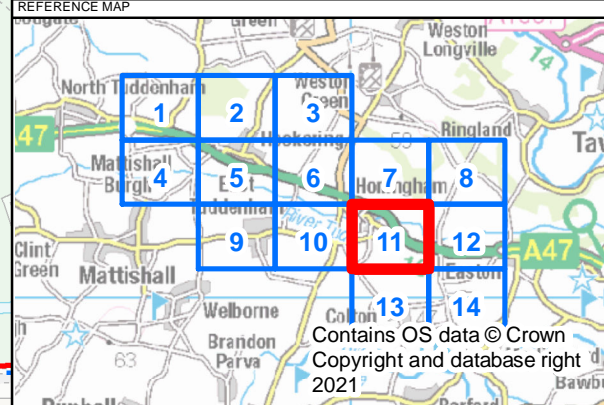
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- f food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- Occupied Nest -Provided
- Flight Path

Sex

- ♀ Female
- ♂ Male
- juv Juvenile
- ♂♀ Pair



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DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 11 OF 14
TR010038/APP/6.2

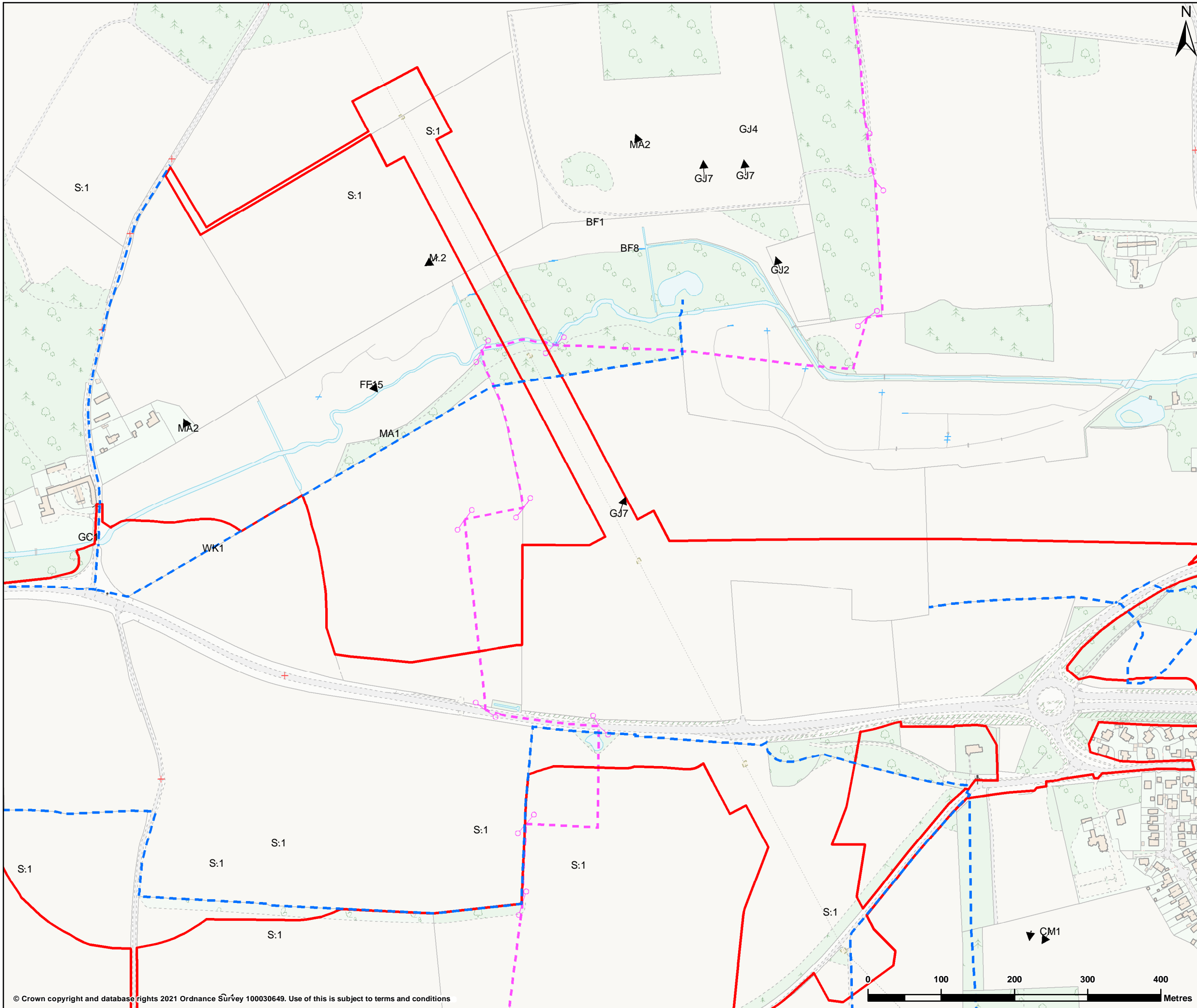
SUITABILITY
FOR INFORMATION

SHEET SIZE	SCALE	STATUS
A3	1:5,000	S2

DRAWING NUMBER
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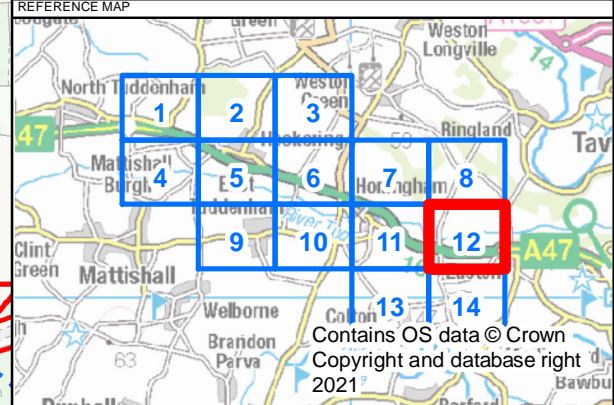
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✳ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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REV	DATE	REVISION NOTE	ORG	CHK'D	APP'D

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 12 OF 14
TR010038/APP/6.2

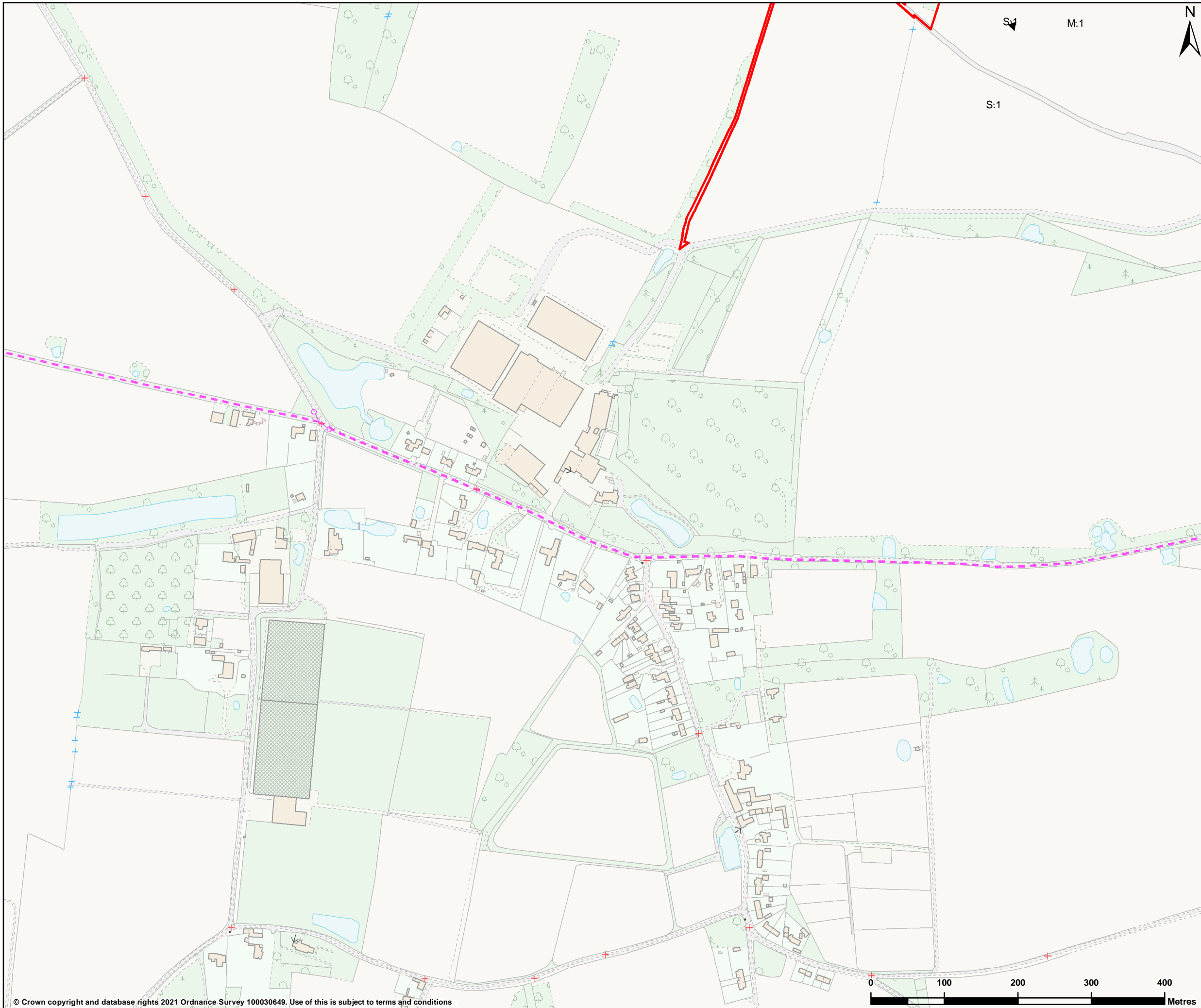
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FOR INFORMATION

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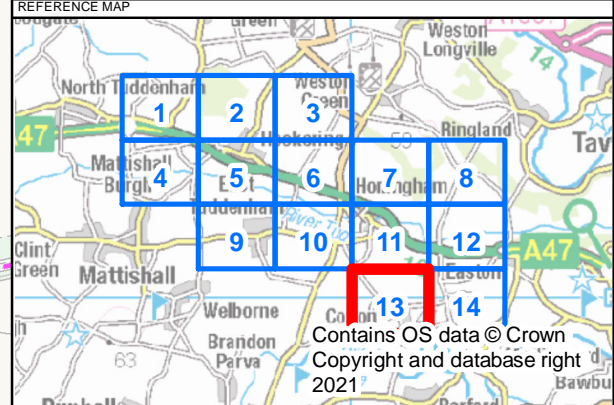
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✱ Aggressive Encounter
- Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- ✱ Occupied Nest
- Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair



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REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

SWECO

CONTRACTOR

GallifordTry

CLIENT

**highways
england**

PROJECT TITLE

A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 13 OF 14
TR010038/APP/6.2

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FOR INFORMATION

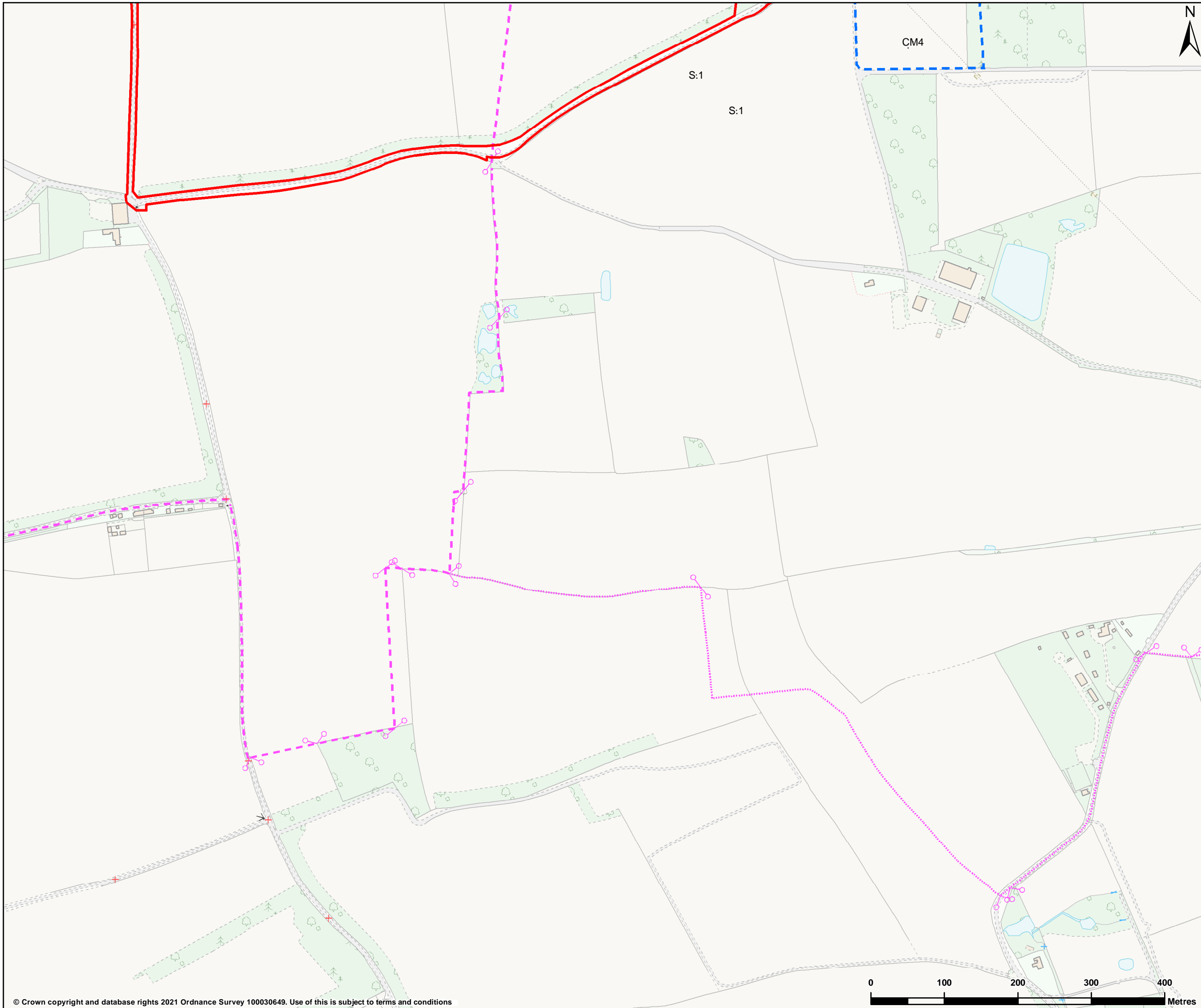
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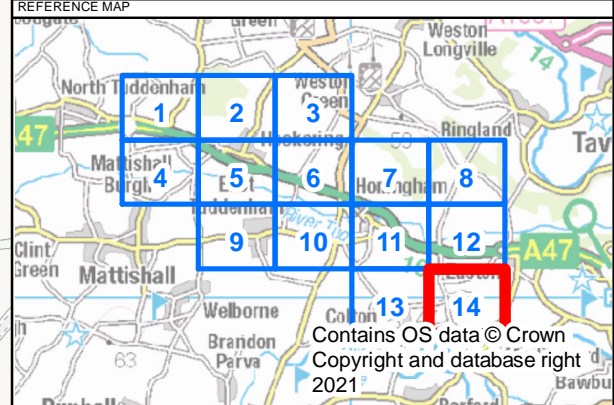
- DCO boundary
- Survey transects

Bird Activity

- on Adult Sitting
- ✳ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- food Carrying Food
- mat Carrying Nest Mat
- In Song
- * Occupied Nest
- ☒ Occupied Nest -Provided
- ➔ Flight Path

Sex

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair



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DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE
A47 NORTH TUDDENHAM TO EASTON

PROJECT STAGE
PCF STAGE 3

DRAWING TITLE
APPENDIX C:
WINTERING BIRD SURVEY - FEBRUARY
SHEET 14 OF 14
TR010038/APP/6.2

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FOR INFORMATION

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A3	1:5,000	S2

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