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6.7 Environmental Statement



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REVIEWER LIST

Name	Role
Andy McIlwraith	Principal Ecologist

APPROVALS

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Peter Farrer			March 2017	1

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Version:		
Issued: August 2017	i	•

CONTENTS

Executive Summary

1	Introduction	4
1.1 1.2 1.3	Scheme BackgroundReport RationaleDefinitions	4
1.4 1.5	Legislative and Biodiversity Framework Background Biodiversity Framework	5
2	Methodology	7
2.1 2.2	Objectives Desk Study	7
2.3 2.4 2.5	Field Survey Evaluation of Ecological Features Limitations	10
3	Baseline	14
3.1 3.2 3.3	Desk StudyField SurveyIncidental Observations	16
4	Evaluation	29
4.2 4.3 4.4	Section A (Morpeth to Felton)	31
5	References	35
Figu	ıres	37
Арр	endix A: Legislation, Planning Policy and Biodiversity Background	38
Арр	endix B: Field Survey Visit Dates, Times, Weather Conditions and Observers	42
App	endix C: British Trust for Ornithology (BTO) Bird Species Codes	48
App	endix D: Desk Study Results	50
App	endix E: Wintering Bird Survey Results	59
	endix F: Population Status of Wintering Birds of Conservation Concern in	67

EXECUTIVE SUMMARY

This technical report provides a summary of ecological information obtained from a desk study and the findings of wintering bird surveys that were undertaken between early October 2016 and early February 2017 by Jacobs UK Ltd. (Jacobs) on behalf of Highways England. The aim of the surveys was to establish an ecological baseline for wintering birds to inform an Environmental Impact Assessment (EIA) for the proposed upgrade to dual carriageway of the A1 between Morpeth and Ellingham ('the scheme'). The proposals comprised two discrete sections:

- Section A Morpeth to Felton, and;
- Section B Alnwick to Ellingham.

Surveys were based on current best practice guidance (the British Trust for Ornithology (BTO) Wintering Farmland Bird Survey methodology (Gillings *et al.* 2008) and generic wintering bird monitoring methods detailed in Gilbert *et al.* (1998)). Surveyors walked transect routes covering areas of suitable habitat within a 500 m buffer zone of the proposals, where accessible. Five survey visits were made to each transect monthly between October – February 2017.

Section A – Morpeth to Felton

Within 2 km of the proposals for Section A, desk study records were obtained for 100 bird species representative of a wide range of different habitats. Species associated with farmland, woodland and gardens were particularly well-represented. The dataset included 57 species of conservation concern.

Including incidental records, a total of 80 species were recorded within the Section A survey area during the baseline surveys detailed within this report, including 46 species of conservation concern.

Based on the results of the 2016-17 wintering bird surveys, the wintering bird assemblage within the survey area is generally considered to be of **County Importance** overall due to populations of 15 species of conservation concern that represented more than 1 % of their respective Northumbria populations. These species represented a variety of habitats and taxonomic groups.

The survey area also supported golden plover which is a non-qualifying species of interest for the Northumbria Coast SPA and Ramsar site.

Section B – Alnwick to Ellingham

Within 2 km of the proposals for Section B, desk study records were obtained for 103 bird species representative of a wide range of different habitats. The assemblage of species within the dataset was similar to that for Section A. The dataset included 63 species of conservation concern.

Including incidental records, a total of 82 species were recorded within the Section B survey area during the surveys detailed within this report, including 46 species of conservation concern.

Based on the results of the 2016-17 wintering bird surveys, the wintering bird assemblage within the survey area is generally considered to be of **County Importance** overall due to populations of 18 species of conservation concern that represented more than 1 % of their respective Northumbria populations. These species represented a variety of habitats and taxonomic groups.

The survey area also supported golden plover which is a non-qualifying species of interest for the Northumbria Coast SPA and Ramsar site.

______ Version: 1 3 Issued: August 2017

1 INTRODUCTION

1.1 Scheme Background

- 1.1.1 Following the outcomes of the 2014 A1 North of Newcastle Feasibility Study, the Department for Transport confirmed in its first Roads Investment Strategy the intention to upgrade 21 km of the existing A1 to a dual carriageway between Morpeth and Ellingham in Northumberland. This comprised two discreet sections:
 - Section A Morpeth to Felton; and
 - Section B Alnwick to Ellingham.
- 1.1.2 At this stage (PCF Stage 2) of the project three options are under consideration for Section A and one option is under consideration for Section B; these are briefly described below and illustrated in Figures 1.1 and 1.2 respectively:

Section A - Morpeth to Felton

- Online Option this option follows the line of the existing A1.
- Hybrid Option this option has a similar arrangement to the online option. However, a short offline section would provide a smoother curve between Causey Park Bridge and Bockenfield Bridge. A short section of the existing A1 would be detrunked (i.e. handed over to be maintained by Northumberland County Council rather than Highways England) and form part of a local road network.
- Offline Option this option would be online at its north and south ends, but a large central section would form a new bypass to the west of the existing A1 between the Floodgate Burn crossing and Bockenfield Bridge. The existing A1 would be detrunked and form part of a local road network, which would separate local and strategic traffic.

Section B - Alnwick to Ellingham

- Online Option this option follows the route of the existing A1. This option includes
 the construction of a single compact grade separated junction accommodating all
 movements, with an overbridge, at Charlton Mires, linking the A1 with the B6347; all
 other junctions would be closed off, and a number of accommodation bridges would
 be provided to improve connectivity and allow access to farm units.
- 1.1.3 Collectively, the options described above are henceforth referred to as 'the scheme' within this report. Distinctions are made between the two areas of the scheme Section A and Section B throughout, and the survey results for each section are treated separately.
- 1.1.4 An offline option was also under consideration for Section B at the time breeding bird surveys were conducted. The 500 m buffer zone around the offline option included a wider area than that for the online option only in the northern half of Section B, to the west of the A1. This additional area was included in the desk study and breeding bird survey results, but not in the wintering bird survey results considered in this report.

1.2 Report Rationale

1.2.1 The aim of this report is to present the results of the wintering bird surveys undertaken in relation to the scheme between early October 2016 and early February 2017 by Jacobs (UK) Ltd. ('Jacobs') for Highways England. The information presented will be used to inform the selection and design of the preferred option and identify any requirements for additional surveys to be completed at PCF Stage 3. The data will ultimately inform the Environmental Impact assessment (EIA) for the preferred option.

_____ Version: 1
4 Issued: August 2017

- 1.2.2 Separate reports will be prepared for the scheme in respect of breeding birds and barn owl (*Tyto alba*).
- 1.2.3 This report is solely concerned with establishing population baselines for wintering bird species. As such, legislation specific to breeding birds such as Schedule 1 of the Wildlife and Countryside Act 1981, and species which are listed under breeding designations for statutory or non-statutory sites will not be considered in this report. These species are dealt with in the breeding bird report (Jacobs 2017).

1.3 Definitions

- 1.3.1 'The scheme' refers to the proposed options described in Section 1.1. A distinction is made between the two separate areas of the scheme: Section A (Morpeth to Felton) and Section B (Alnwick to Ellingham) (see Section 1.1).
- 1.3.2 'The 2 km desk study area' and 'the 5 km desk study area' relate respectively to a 2 km or 5 km buffer around the potential scheme options, within which desk study information was collated via online and third party sources. A distinction is made between the desk study areas for Section A and those for Section B.
- 1.3.3 'The survey area' refers to a 500 m buffer around the potential scheme options, within which wintering bird surveys were undertaken. A distinction is made between the survey area for Section A and that for Section B. The 500 m buffer zones surrounding the potential route options currently under consideration are shown in Figures 2.1 (Section A) and 3.1 (Section B).

1.4 Legislative and Biodiversity Framework Background

1.4.1 The legislative and biodiversity frameworks for bird species are summarised below. Further details on these frameworks are provided in Appendix A.

Legislation

- 1.4.2 Many UK bird species and their habitats are protected by legislation. The key articles of relevance to this scheme include:
 - Council Directive 2009/147/EC (as amended) on the conservation of wild birds (the 'Birds Directive');
 - Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive');
 - Wildlife and Countryside Act 1981 (WCA) (as amended);
 - Countryside and Rights of Way (CRoW) Act 2000; and,
 - Natural Environment and Rural Communities (NERC) Act 2006.

The Birds Directive

1.4.3 The Birds Directive requires the designation of Special Protection Areas (SPAs) for rare or vulnerable species, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance. Annex 1 of the Directive lists bird species to be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

Wildlife and Countryside Act 1981 (as amended)

1.4.4 All wild birds, their nests and eggs are protected under subsection 1(1) of the WCA. It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.

_____ Version: 1 5 Issued: August 2017

1.4.5 In addition, certain species of wild bird, listed within Schedule 1 of the WCA, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.

1.5 Biodiversity Framework

Habitats and Species of Principal Importance

1.5.1 In addition to species protected by law, the Natural Environment and Rural Communities (NERC) Act 2006 requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. These 'species of principal importance' are listed on Section 41 of the NERC Act 2006. There are 1150 'species of principal importance' which were identified as requiring conservation action under the UK Biodiversity Action Plan (BAP) and which continue to be regarded as priorities under the UK Post-2010 Biodiversity Framework. The UK list contains a total of 59 bird species/subspecies, of which 53 are relevant to England¹.

Local Biodiversity Action Plan (LBAP)

1.5.2 The UKBAP was implemented at the county level through Local BAPs (LBAPs), which targeted certain species. Although the UKBAP has been superseded, LBAPs are still widely used as the species of principal importance remain the same. However, the LBAP for Northumberland was revised in 2016 to reflect changes in the conservation statuses of bird species². This revision resulted in the inclusion of a number of species which are not listed as 'species of principal importance' under Section 41 of the NERC Act 2006, due to declines in the populations of these species since the Act was brought into force. The revised Northumberland list of priority bird species includes a total of 67 species, which are listed in Appendix A. Twenty-six of these species are listed as 'species of principal importance' under Section 41 of the NERC Act 2006.

Birds of Conservation Concern Red and Amber Lists

1.5.3 The most recent update to a widely adopted review of the status of UK birds, *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man* (Eaton *et al.* 2015), is followed within this report in relation to conservation status' of UK bird species. Birds are assessed against criteria to place each species on one of three alert lists: Red, Amber or Green. BoCC Red listed species are considered to be of high conservation concern and BoCC Amber listed species are considered to be of medium conservation concern. BoCC Green listed species are considered to be of low conservation concern and as such are not considered in detail within this report.

¹ http://jncc.defra.gov.uk/page-5163

² http://neenp.org.uk/natural-environment/northumberland-priority-species/

2 METHODOLOGY

2.1 Objectives

- 2.1.1 The key objectives of the surveys detailed within this report were to provide data to:
 - Identify seasonal patterns of habitat utilisation within the survey area (*i.e.* land within 500 m of the scheme) by wintering birds;
 - Evaluate the ecological importance of the wintering bird populations and assemblage in the survey area;
 - Inform the assessment of potential impacts on wintering birds associated with the scheme (as detailed within the Environmental Statement (ES) for the scheme); and
 - Inform the development of appropriate mitigation if necessary (as detailed in the ES).

2.2 Desk Study

- 2.2.1 A desk study exercise was undertaken in 2016 to obtain ecological information about the study area and surrounding landscape. This included information on habitats and the presence of any statutory and non-statutory sites (see the Extended Phase 1 Habitat Survey report for the scheme (Jacobs 2016) for further details), and bird records within the 2 km desk study area. The search area was extended to 5 km (*i.e.* the 5 km desk study area) for nationally and internationally designated sites and records of bird species for which those sites are designated. The desk study was updated in September 2016 to reflect changes to the potential scheme options, which resulted in minor extensions to the desk study search areas.
- 2.2.2 Records were primarily sought for bird species included within:
 - Annex 1 of the Birds Directive ('Annex 1 species');
 - Schedule 1 of the WCA 1981 (as amended) ('Schedule 1 species'):
 - Section 41 of the NERC Act 2006 ('species of principal importance');
 - The Northumberland LBAP (Refer to Appendix A for further information); and,
 - The Birds of Conservation Concern (BoCC) Red and Amber lists (Eaton et al. 2015).
- 2.2.3 These designated species are referred to in this report as species of conservation concern. Species which were not listed under any of these designations (*e.g.* birds listed only on the BoCC Green list) were not considered in detail as part of the desk study.
- 2.2.4 Data were obtained from the following online and third party data sources:
 - National Biodiversity Network NBN Gateway³;
 - the Multi Agency Geographic Information for the Countryside website⁴;
 - Google Maps (satellite photography was used to assess the layout of the scheme and provide context for the preliminary ecological walkover survey, in addition to a broad assessment of habitat types and locations)⁵;
 - Alnwick Wildlife Group;
 - The Environmental Records Information Centre North East (ERIC North East); and,

³ https://data.nbn.org.uk/

⁴ http://www.magic.gov.uk/

⁵ https://www.google.co.uk/maps

- Northumberland and Tyneside Bird Club (NTBC).
- 2.2.5 The data provided by NTBC were the summarised results from the British Trust for Ornithology (BTO)/NTBC atlas survey of breeding and wintering birds of Northumbria (2007-2011) (Dean *et al.* 2015). Data were provided for each species recorded in each tetrad within the desk study areas, in the form of numbers of individuals.
- 2.2.6 Wintering bird records, which were taken as those sighted between the months of September to February (inclusive), were selected within the data set provided by ERIC North East. Records more than 10 years old (*i.e.* 2005 or earlier) were considered to be historical and were discarded from the analysis. Where records were not associated with a specific date a conservative approach was adopted, and those birds were assumed to have been recorded during the winter season.
- 2.2.7 In addition to the data obtained from the above sources, a review of data collected during independently commissioned surveys of part of the survey area for Section A (land around Causey Park Farm, to the west of the A1) was undertaken (Cadwallender & Cadwallender 2016).

2.3 Field Survey

Survey Area

- 2.3.1 A variety of suitable habitats for wintering birds were identified in proximity to the scheme during the desk study exercise. Open farmland dominated the landscape surrounding the scheme, and comprised a mosaic of arable and pastoral farmland with associated hedgerows, and patches of woodland. Other habitats present within the survey area included amenity grassland (e.g. a golf course and an airfield), parkland, small waterbodies and water courses (notably including the River Coquet, at the northern end of Section A). Such habitats were particularly prevalent in the northern half of Section A, whilst Section B was largely dominated by farmland throughout.
- 2.3.2 A number of farm complexes and residential properties, which were mostly isolated or in small settlements, were distributed across the survey area. Several minor roads were located within the survey area, often associated with these properties, and generally formed junctions with the A1.
- 2.3.3 Woodland, wetland, scrub and linear habitats identified within the survey area during the Extended Phase 1 Habitat Survey are presented in Figures 2.2-2.23 (Section A) and 3.2-3.15 (Section B), in relation to the survey transects and scheme options. Further details on the habitats present can be found in the Extended Phase 1 Habitat Survey report for the scheme (Jacobs 2016).
- 2.3.4 Surveys were undertaken within a 500 m buffer of the scheme ('the survey area'). Transects were designed to cover accessible land within the survey area, with a focus on areas closer to the potential scheme options. The transect route design also aimed to include a representative sample of the habitat types present. Twelve transect routes were used to survey Section A (see Figures 2.1 and 2.2-2.23), and seven for Section B (see Figures 3.1 and 3.2-3.15).
- 2.3.5 The transects were based on those used during the breeding bird surveys (Jacobs 2017), but routes were modified and transects added to cover areas which were not accessible during the breeding season. On Section A Transects 1, 4, 6, 9 and 10 were extended, and two new transects (Transects 18 and 17) were added. On Section B Transect 15 was extended, and Transect 19 was added. In addition to these changes, the routes for Transects 13 and 14 were altered following the December survey (Visit 3), to take account of changes to the proposed scheme route, which resulted in a reduced survey area around these two transects (see Figures 3.7-3.9 and 3.11-3.14 respectively). Prior to this, the routes

_____ Version: 1 8 Issued: August 2017

followed for Transects 13 and 14 were the same as those used during the breeding bird surveys (see Jacobs 2017).

Survey Methodology

- 2.3.6 Wintering bird surveys were undertaken between early October 2016 and early February 2017 inclusive, at approximately monthly intervals. Five survey visits were deemed sufficient to detect most, if not all, species regularly occurring within the areas surveyed during the winter season.
- 2.3.7 Due to the large size of the survey area each survey visit was split over a period of four to five days. Up to two teams of surveyors covered separate transects concurrently in order to minimise the time taken to complete each visit. A summary of survey dates is provided below in Table 1 (see Appendix B for full details of survey dates, times and weather conditions).

Table 1: Wintering bird survey dates

Visit Number	Data	Transects Surveyed			
visit number	Date	Section A	Section B		
	4 th October 2016	2, 3, 4, 6, 8, 9, 17			
	5 th October 2016	1*, 18, 5, 7, 10*	15, 16		
1	6 th October 2016	1*, 10*	13, 19		
	7 th October 2016	1*	11, 12, 14		
	8 th November 2016	3*, 4, 5, 10	12, 14*, 16		
	9 th November 2016	1*, 18, 2, 3*	14*, 19*		
2	10 th November 2016	6, 17	11, 13, 15, 19*		
	11 th November 2016	1*, 7, 8, 9			
	12 th December 2016	7, 8	13		
	13 th December 2016	1, 18, 2, 17	19		
3	14 th December 2016	10	11, 12, 14, 16		
	15 th December 2016	3, 4, 6, 9	15*		
	16 th December 2016	5	15*		
	9 th January 2017	3	16		
	10 th January 2017	1, 5, 17	15, 19		
4	11 th January 2017	2, 4, 10	11, 12		
	12 th January 2017	8, 9	13, 14		
	13 th January 2017	18, 6, 7			
	6 th February 2017	3, 4, 6			
	7 th February 2017	2, 5, 7, 10, 17	16		
5	8 th February 2017	1, 18	11, 19		
	9 th February 2017	8	12, 14, 15		
	10 th February 2017	9	13		

^{*}Transects split over consecutive survey days.

2.3.8 Surveys were carried out in accordance with current good practice guidance survey methodology: the British Trust for Ornithology (BTO) Wintering Farmland Bird Survey methodology (Gillings *et al.* 2008) and generic wintering bird monitoring methods detailed in Gilbert *et al.* (1998). Surveys commenced from around dawn and lasted for approximately six to eight hours. Where possible, survey visits were planned to avoid adverse weather conditions such as heavy rain and strong wind (but see Section 2.5.8), as this can reduce bird activity and detectability.

- 2.3.9 During each visit surveyors walked along each pre-determined transect route at a slow walking pace. Survey route directions, survey timings and surveyors were varied throughout the visits in order to reduce survey bias.
- 2.3.10 Surveyors recorded all birds heard or seen, with the aid of binoculars. Registrations, which are records of individual birds (identified either by call, song or visually), were recorded on field maps using standard British Trust for Ornithology (BTO) species codes (Appendix C). Care was taken to avoid double counting. Longer periods of observations were made in areas of high bird activity.
- 2.3.11 During each of the survey visits the following details were recorded:
 - Bird numbers, species, age and sex; and
 - Bird behaviour *e.g.* in flight, singing, calling or alarm calling.
- 2.3.12 Bird registrations are shown on Figures 4.1-4.36 (Visit 1), Figures 5.1-5.36 (Visit 2), Figures 6.1-6.36 (Visit 3), Figures 7.1-7.36 (Visit 4) and Figures 8.1-8.36 (Visit 5).

2.4 Evaluation of Ecological Features

- 2.4.1 Ecological Impact Assessment (EcIA) uses a hierarchical geographic framework to assign importance to ecological features. This is based on an understanding of how the ecological feature may contribute to the conservation status or distribution of the species or habitat at a particular geographical scale. It involves an assessment of the biodiversity importance of ecological features and also involves consideration of other factors that can be attached to ecological features including ecosystem services and natural capital (CIEEM 2016).
- 2.4.2 Current good practice guidance for resource valuation in EcIA includes the Highways Agency's Interim Advice Note (IAN) 130/10 (Highways Agency 2010) and the Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition (CIEEM 2016). The following frame of reference is therefore used to assess the value of wintering birds within the survey area:
 - International:
 - National:
 - Regional (North East);
 - County (Northumberland);
 - District (Section A Castle Morpeth (and Alnwick, for land north of the River Coquet);
 Section B Alnwick (and Berwick-upon-Tweed, for land north of South Charlton));
 - Local and:
 - Less than Local (within the scheme footprint).
- 2.4.3 In order to assess the value of wintering birds within the survey area comparisons have been made between the results of the wintering bird surveys detailed within this report and population estimates at relevant geographical levels (where available). A population has been deemed significant if it exceeds 1 % of the population of that species at a given geographical level (1 % is a commonly used threshold for the designation of sites of ornithological importance at a variety of geographical levels (Bainbridge *et al.* 2013)). Where population estimates were unavailable a combination of professional judgment, local knowledge and comparisons with population estimates at higher geographical levels has been used to inform the evaluation. Population data were not available to enable comparative quantification of bird populations at the District level and below. Population data for Northumbria and the UK are presented in Appendix F, for each of the species of conservation concern recorded during the wintering bird surveys. Wintering population data

_____ Version: 1
10 Issued: August 2017

were unavailable for certain species; for these species, breeding population estimates were used for the evaluation. Although many of these species' populations are largely resident, and are considered unlikely to undergo large fluctuations between the breeding and winter seasons, it is important to note that this is not necessarily the case.

2.4.4 The function of the survey area in relation to designated sites within the desk study area was also evaluated based on data provided in the site citations. Where population estimates for wintering birds present within those sites were provided, the survey data were assessed against those estimates using the 1 % criterion for significance (Fuller 1980), following the same approach used to assess geographical significance. Where no population data were provided a combination of desk study data, professional judgement, local knowledge and comparisons with relevant geographical population estimates (e.g. national estimates for nationally designated sites such as Sites of Special Scientific Interest (SSSIs), and county estimates for locally designated sites such as LWSs) were used to inform the evaluation.

2.5 Limitations

Access Constraints

- 2.5.1 Access restrictions resulted in some incomplete coverage of the survey areas for both Section A and Section B during one or more of the survey visits (see Figures 2.1-2.23 and 3.1-3.15 respectively for transect coverage). However, the majority of the survey area was covered, and the areas to which access was restricted throughout the survey period were mostly small and relatively isolated. Access restrictions are therefore not considered a significant limitation on the survey results.
- 2.5.2 Health and safety considerations (e.g. lack of safe parking or physical boundaries such as streams that were unsafe to cross) also influenced transect routes. However, such considerations are not generally considered to have had a significant impact on survey coverage.
- 2.5.3 In addition to constraints which prevented access throughout the survey period, other constraints temporarily affected areas of the scheme which were covered during the wintering bird surveys. As a result, certain sections of transects were excluded during one or more of the planned survey visits. This occurred for a number of reasons, including lack of landowner permission, presence of sensitive or potentially dangerous livestock, or shooting on parts of the transect routes. Such constraints also entailed minor deviations from a number of the transect routes which were originally planned, and precluded survey coverage of other small areas of land. This resulted in less comprehensive coverage of the survey area. However, since five survey visits were conducted during the survey period, it is considered likely that species regularly overwintering in significant numbers in the affected areas would have been detected during the other survey visits.
- 2.5.4 Excluded parts of the survey transects are listed below:

Section A

- Transect 1 (Figures 2.2-2.6): approximately 10 % of the transect route, in the south of the transect, was excluded from Visits 1, 3 and 4, and approximately 30 % of the transect route, in the centre of the transect, was excluded from Visit 2;
- Transect 9 (Figures 2.9-2.13): approximately 25 % of the transect route, in the south of the transect, was excluded from Visit 1 and approximately 75 % of the transect route, in the north and centre of the transect, was excluded from Visit 2;
- Transect 10 (Figures 2.2-2.7): approximately 15 % of the transect route, in the north of the transect, was excluded from Visit 1;

_____ Version: 1
11 Issued: August 2017

Section B

- Transect 15 (Figures 3.12-3.15): approximately 70 % of the transect route, in the north and centre of the transect, was excluded from Visit 1;
- Transect 19 (Figures 3.6-3.12): approximately 10 % of the transect route, in the east of the transect, was excluded from Visit 1.

Survey Timing

- 2.5.5 Surveys commenced in early October and concluded in early February. Coverage of the survey area during the spring and autumn passage migration periods was therefore limited. Surveys took place during the spring passage period in 2016, but spatial coverage was reduced during those surveys (Jacobs 2017). As a result, certain species which occur primarily during the spring or autumn passage periods may have been under-recorded. This may include certain species for which nearby designated sites are notified, such as golden plover (Pluvialis apricaria) (see Sections 3.1.3 and 3.1.9). It is possible that this may have influenced the evaluation of the importance of Section A or Section B for such species, or of certain parts of their respective survey areas. However, since the first wintering bird survey visit took place in early October, covering the late autumn passage period, and the survey area was partially covered during spring 2016, it is considered likely that passage species occurring regularly in large numbers would have been detected during the surveys, albeit potentially in reduced numbers. A conservative approach has been taken when evaluating the importance of the survey area for such species to account for the potential limitations arising from reduced survey coverage during the spring and autumn passage periods.
- 2.5.6 Due to the size of the survey area surveys were carried out over a period of four to five days. This increased the likelihood of birds moving into or out of the survey area or between different parts of the survey area during a visit and may have resulted in over- or undercounting of birds depending on the direction of their movements. A similar effect may also have arisen when surveys of certain transects were split over several days (Table 1), which primarily arose due to shooting on parts of those transects on certain dates. Consequently, the evaluation aims to account for this variability by focusing on identifying those areas which supported species of conservation concern most consistently during the survey season.
- 2.5.7 Since surveys took place throughout daylight hours, and bird activity varies throughout the day, peaking in the morning (Marchant 1983), the time of day at which each transect was completed may have influenced the survey results. In particular, during Visits 1 and 2 there was a clear peak in activity of passage migrants through the survey area which subsided by the afternoon. However, survey timings were varied between visits in order to reduce potential bias resulting from the effect of time of day.

Weather

2.5.8 Although surveys were planned to avoid adverse weather where possible, surveys were occasionally undertaken in suboptimal conditions (see Appendix B). In general, this was not considered to have significantly affected the survey results, with bird activity remaining relatively constant. However, poor weather is considered to have affected the results for transects completed on certain dates, notably on 13th December and 8th February when rain reduced bird activity during surveys of Transects 1, 2 and 19 (13th December) and Transects 1, 10 and 19 (8th February). In addition, on 11th January high winds reduced bird activity and detectability during surveys of Transects 2, 4, 10 and 12. However, since five survey visits were conducted during the survey period, it is considered likely that species regularly overwintering in significant numbers in the affected areas would have been detected during other survey visits. Furthermore, where surveys were considered to have been affected by suboptimal weather, subsequent surveys of the affected transects were planned to take

place in optimal conditions, thereby aiming to reduce the effects of bias due to weather and ensure that changes in bird activity during the winter season were captured accurately by the surveys. Suboptimal weather is therefore not considered to have had a significant effect on the overall evaluation.

______ Version: 1
13 Issued: August 2017

3 BASELINE

3.1 Desk Study

Section A

Designated Sites

- 3.1.1 There are ten designated sites within the 2 km desk study area, of which five are statutory and five non-statutory. There are no other statutory designated sites within the 5 km desk study area. Further information on designated sites can be found in the Extended Phase 1 Habitat Survey report for the scheme (Jacobs 2016).
- 3.1.2 Two of the statutory designated sites of national importance or greater The River Coquet and Coquet Valley Woodlands SSSI, and Longhorsley Moor SSSI are partly designated for breeding birds (see Jacobs 2017 for further details). However, no statutory designated sites of national importance or greater which are designated for wintering birds were identified within the 5 km desk study area.
- 3.1.3 In addition to the designated sites listed above, the Northumbria Coast SPA and Ramsar site is situated approximately 10 km northeast of the scheme. The SPA is designated for its breeding population of little tern (*Sterna albifrons*) and wintering populations of purple sandpiper (*Calidris maritima*) and turnstone (*Arenaria interpres*). It also supports nationally important populations of wintering sanderling (*Calidris alba*), ringed plover and redshank (*Tringa totanus*). In addition, the SPA supports a number of Annex 1 birds below the 1 % qualifying level, including arctic tern (*Sterna paradisaea*) in summer and golden plover in winter. The Ramsar site is designated for little tern during the breeding season, and for purple sandpiper and turnstone in winter. It also supports nationally important breeding populations of cormorant (*Phalacrocorax carbo*), kittiwake (*Rissa tridactyla*) and arctic tern, and golden plover during spring/autumn. During the winter, the Ramsar site supports nationally important populations of eider (*Somateria mollissima*) and sanderling.

Wintering Birds

- 3.1.4 A total of 47 records of birds from the winter season were provided by ERIC North East, comprising 17 species within the 2 km desk study area (refer to Appendix D for details, including scientific names). Records of 97 species in tetrads within the 2 km desk study area were obtained from NTBC (refer to Appendix D). When combined records of 100 species were identified, of which 57 were species of conservation concern, including:
 - seven species listed on Annex 1 of the Birds Directive;
 - twelve species listed on Schedule 1 of the WCA 1981 (as amended);
 - twenty-one species of principal importance (NERC Act 2006);
 - twenty-eight of the 67 species listed in the Northumberland LBAP;
 - twenty-three species on the BoCC Red list; and
 - twenty-six species on the BoCC Amber list.
- 3.1.5 It should be noted that bird species can appear on one or more of the schedules/lists identified above.
- 3.1.6 The bird records received were species from a range of habitats, with those typically associated with farmland, woodland and gardens being particularly well-represented. Birds typically associated with farmland were well distributed across the 2km desk study area, although numbers were generally unexceptional. However, several species commonly associated with farmland were occasionally recorded in relatively large flocks: these

included linnet (*Linaria cannabina*), yellowhammer (*Emberiza citrinella*), starling (*Sturnus vulgaris*),grey partridge (*Perdix perdix*), lapwing (*Vanellus vanellus*) and golden plover. Other species of conservation concern which occurred in relatively large flocks included gulls and winter thrushes. Water bird records were infrequent within the dataset, and species did not generally occur in large numbers. Although several other specialist species were recorded, however numbers and, to a lesser extent, the distributions of such species were generally sparse.

3.1.7 The report produced by Cadwallender Ornithology (Cadwallender & Cadwallender 2016), based on independently commissioned surveys of part of the survey area for Section A (land around Causey Park Farm, to the west of the A1) carried out between November 2015 and June 2016, recorded 16 species from the BoCC Red list. All of these species were present within the datasets provided by NTBC and/or ERIC North East. The report states that a further 13 species from the BoCC Amber list were recorded. The report highlighted that smaller fields with well-established boundaries tend to support concentrations of passerines, and that concentrations of birds were found in such areas.

Section B

Designated Sites

- 3.1.8 Hulne Park LNR is the only designated site within the 2 km desk study area. No other statutory designated sites lie within the 5 km desk study area. Further information on designated sites can be found in the Extended Phase 1 Habitat Survey report for the scheme (Jacobs 2016).
- 3.1.9 No statutory designated sites of national importance or greater which are designated for wintering birds were identified within the 5 km desk study area.
- 3.1.10 In addition to the designated sites listed above, the Northumbria Coast SPA and Ramsar site lies approximately 10 km northeast of the scheme. The SPA is designated for its breeding population of little tern and wintering populations of purple sandpiper and turnstone. It also supports nationally important populations of wintering sanderling, ringed plover and redshank, and Annex 1 birds including arctic tern in summer and golden plover in winter. The Ramsar site is designated for little tern during the breeding season, and for purple sandpiper and turnstone in winter. It also supports nationally important breeding populations of cormorant, kittiwake and arctic tern, and golden plover during spring/autumn. During the winter, the Ramsar site supports nationally important populations of eider and sanderling.

Wintering Birds

- 3.1.11 A total of 61 records of birds from the winter period were provided by ERIC North East, comprising 15 species within the 2 km desk study area (refer to Appendix D for details, including scientific names). Records of 102 species in tetrads within the 2 km desk study area were obtained from NTBC (refer to Appendix D). When combined, records of 103 species were identified, of which 63 were species of conservation concern, including:
 - nine species listed on Annex 1 of the Birds Directive;
 - fifteen species listed on Schedule 1 of the WCA 1981 (as amended);
 - twenty-one species of principal importance (NERC Act 2006);
 - thirty-one of the 67 species in the Northumberland LBAP;
 - · twenty-three species on the BoCC Red list; and
 - thirty species on the BoCC Amber list.

_____ Version: 1

15 Issued: August 2017

- 3.1.12 It should be noted that bird species can appear on one or more of the schedules/lists identified above.
- 3.1.13 The assemblage of species within the dataset was similar to that for Section A, with records of species from a wide range of habitats. The numbers and distributions of birds recorded were also similar; most species were recorded in low to moderate numbers, with occasional large flocks of farmland specialists, gulls and winter thrushes recorded. However, numbers of farmland birds were generally lower than expected given the prevalence of farmland habitat within Section B.

3.2 Field Survey

Section A

- 3.2.1 A total of 79 bird species were recorded within the survey area during survey Visits 1-5. These included 45 species of conservation concern⁶ including:
 - four species listed on Annex 1 of the Birds Directive;
 - seven species listed on Schedule 1 of the WCA 1981 (as amended);
 - seventeen species of principal importance (NERC Act 2006);
 - twenty-three of the 67 species in the Northumberland LBAP;
 - nineteen species on the BoCC Red list; and
 - twenty species on the BoCC Amber list.
- 3.2.2 All bird species listed on the BoCC Red list and Amber list are referred to as either 'Red listed' or 'Amber listed' throughout the remainder of this report.
- 3.2.3 All species recorded during each of the survey visits, their numbers and conservation statuses are presented in Appendix E. The locations of the registrations of all species of conservation concern are presented in Figures 4.1-4.22, 5.1-5.22, 6.1-6.22, 7.1-7.22 and 8.1-8.22.
- 3.2.4 Further detail in relation to the species of conservation concern recorded is provided below.

Wildfowl

3.2.5 Five species of wildfowl of conservation concern were recorded during the surveys (Table 2). Mute swan (*Cygnus olor*) and teal (*Anas crecca*) were recorded in low numbers relative to the size of the survey area, whilst greylag goose (*Anser anser*), mallard (*Anas platyrhynchos*) and pink-footed goose (*Anser brachyrhynchus*) were mostly recorded in moderate numbers.

Table 2: Counts of wildfowl of conservation concern recorded in Section A

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Greylag Goose	Anser anser		2	37	32	77
Mallard	Anas platyrhynchos	60	255	225	84	146
Mute Swan	Cygnus olor		2	2		2
Pink-footed Goose	Anser brachyrhynchus	253		17	600	
Teal	Anas crecca	2	21			

3.2.6 Greylag geese (Amber listed) were observed on a small number of occasions in small to medium sized flocks of approximately 10 to 30 birds, with the majority of records made

Version: 1 Issued: August 2017

16

⁶ The total number of species of conservation concern recorded takes into consideration species that are listed under multiple conservation designations.

between December and February. Flocks were recorded in arable fields in the south of Transect 9 and Transect 4 during several survey visits. Greylag geese were also observed flying over: these records mainly involved singles or pairs, although a flock of 62 birds – the largest recorded during the surveys – was observed flying over Transect 9 during Visit 4 (Figure 8.8).

- 3.2.7 Mallard (Amber listed) were observed during each survey visit, at several locations across the survey area, generally in proximity to waterbodies and watercourses. Records mostly involved single birds or small flocks of fewer than 10 individuals, although larger flocks were consistently observed in the centre and north of Transect 1. However, these birds are thought to have been introduced for hunting. Besides the larger flocks on Transect 1, numbers were generally low to moderate.
- 3.2.8 Mute swan (Amber listed) was observed during three of the survey visits. All records were of pairs flying over the survey area.
- 3.2.9 Several flocks of pink-footed geese (Amber listed; Northumberland LBAP) were observed flying over the survey area during Visit 1 in October, with the largest flock involving 143 birds (Figure 4.5). Pink-footed geese were recorded on two occasions during subsequent survey visits. A single flock of 17 birds was observed flying over during Visit 3, a flock of 600 was observed on arable land to the south of Transect 17 during Visit 4 (Figure 7.12). This was the largest flock recorded during the surveys, and constitutes the only record of pink-footed goose using the habitats within the survey area.
- 3.2.10 Teal (Amber listed) were recorded during Visits 1 and 2 only, in low numbers, and at a small number of locations. Most records involved birds flying over, with the largest flock involving 14 birds (Figure 5.11).

Waders

3.2.11 Five wader species of conservation concern were recorded within the survey area (Table 3). Numbers were generally low, with the exceptions of golden plover and lapwing.

Table 3: Counts of waders of conservation concern recorded in Section A

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Curlew	Numenius arquata	7		1		
Golden Plover	Pluvialis apricaria	193	63		20	87
Lapwing	Vanellus vanellus	226	70	13	46	801
Snipe	Gallinago gallinago	4	3		2	
Woodcock	Scolopax rusticola	1	7		2	2

- 3.2.12 A flock of six curlew (*Numenius arquata*) (species of principal importance; Red listed; Northumberland LBAP) was recorded in improved grassland in the centre of Transect 1 during Visit 1 (Figure 4.2). Two other observations of the species were made within the survey area, both involving single birds.
- 3.2.13 Golden plover (Annex 1; Northumberland LBAP;) was recorded during all but one of the survey visits, mostly in small to medium sized flocks (the largest comprising 58 birds (Figure 4.18)). Most records were of birds flying over, although the species was observed using arable farmland on several occasions, with flocks regularly observed in the south of Transect 4, and the south and centre of Transect 10. The number of golden plover recorded during Visit 1 was notably higher than in other months, with many more records of the species made across the survey area. The data suggest a pattern of decreasing abundance from October, rising again from January.

_____ Version: 1
17 Issued: August 2017

- 3.2.14 Numbers of lapwing (species of principal importance; Red listed; Northumberland LBAP) varied through the season, with high numbers recorded during Visits 1 and 5. The seasonal pattern of lapwing occurrence was similar to that for golden plover, although the peak count was made during Visit 5. The species was observed across the survey area, generally in and around arable farmland such as on Transects 1, 2, 4, 7, 10 and 17. Medium sized flocks of around 50 birds were recorded relatively frequently, with flocks of over 100 birds (the largest comprising 140 birds (Figure 8.18)) recorded on several occasions. Although many of the records of lapwing involved birds in flight, flocks were regularly observed using arable habitats within the survey area.
- 3.2.15 Snipe (*Gallinago gallinago*) (Amber listed; Northumberland LBAP) were recorded infrequently, at scattered locations across the survey area. The species was recorded in low numbers, with almost all records involving single birds usually flushed from arable or improved grassland fields.
- 3.2.16 Low numbers of woodcock (*Scolopax rusticola*) (Red listed) were recorded within the survey area, generally from areas of woodland. Observations were made at various locations across the survey area, and generally involved single birds. The species was most frequently recorded on Transect 3.

Gulls

3.2.17 Five species of gull of conservation concern were recorded within the survey area (Table 4). Most were recorded in relatively high numbers given the nature of the habitats present within the survey area, although great black-backed gull (*Larus marinus*) and lesser black-backed gull (*Larus fuscus*) were recorded in low numbers. Numbers of gulls were generally lower during the second half of the survey season, in January and February 2017.

Table 4: Counts of gulls of conservation concern recorded in Section A

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Black-headed Gull	Chroicocephalus ridibundus	305	139	174	201	4
Common Gull	Larus canus	114	345	258	82	53
Great Black-backed Gull	Larus marinus				1	8
Herring Gull	Larus argentatus	76	235	650	73	177
Lesser Black-backed Gull	Larus fuscus	1	1	1		1

- 3.2.18 Black-headed gulls (*Chroicocephalus ridibundus*) (Amber listed) were predominantly observed singly or in small flocks of fewer than 10 birds, although larger flocks were occasionally observed. Most of these involved between 10 and 40 birds, although two flocks of 100 or more were observed flying over the survey area during Visit 1 (Figures 4.8 and 4.18). Although the majority of records were of birds flying over, flocks of black-headed gulls were also observed using arable and improved grassland fields within the survey area. Records were distributed widely across the survey area, although the species was regularly observed using fields on certain transects, for example on the golf course on Transect 3, and in the south and centre of Transect 1.
- 3.2.19 Similarly, to black-headed gull, common gulls (*Larus canus*) (Amber listed) were predominantly observed singly or in small flocks of fewer than 10 birds, although larger flocks of up to approximately 50 birds were observed relatively regularly. A particularly noteworthy flock of 166 birds, together with smaller numbers of black-headed and herring gulls (*Larus argentatus*), was recorded in arable farmland in the south of Transect 2 during Visit 2 (Figure 5.11). The majority of records were of birds flying over, although the species was widely observed using fields within the survey area, often in association with small flocks of black-headed gulls in improved grassland. Although common gulls were observed

_____ Version: 1 ______ 18 Issued: August 2017

throughout the survey area, certain transects supported the species with greater regularity, including Transects 10 and 17, the southern parts of Transects 1 and 9.

- 3.2.20 Great black-backed gull (Amber listed) was recorded on two occasions, with both records involving birds in flight. One bird was recorded during Visit 4 (Figure 7.19), and a flock of eight during Visit 5 (Figure 8.12).
- 3.2.21 Herring gull (species of principal importance; Red listed) was recorded frequently, throughout the survey area. As with black-headed and common gull, records of herring gull predominantly involved singles or small flocks of fewer than 10 birds flying over the survey area, with occasional medium sized to large flocks (the largest comprising 200 birds (Figure 6.11)). Herring gulls were also observed using fields within the survey area, although most of these records were relatively isolated, with no areas supporting flocks of more than 10 birds on a regular basis. In the majority of instances where flocks of this size were recorded, other species of gulls were also present, forming mixed flocks.
- 3.2.22 Single lesser black-backed gulls (Amber listed) were observed during each survey visit, with the exception of Visit 4. All records were of birds flying over the survey area.

Other Non-passerines

3.2.23 Other non-passerine species of conservation concern comprised raptors, owls and other species associated with farmland and waterbodies (Table 5). These species mostly occurred in low to moderate numbers, with farmland species observed most commonly, reflecting the availability of suitable habitat across the survey area.

Table 5: Counts of other non-passerines of conservation concern recorded in Section A

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Barn Owl	Tyto alba		1		1	
Cormorant	Phalacrocorax carbo	1	1	1	1	
Grey Partridge	Perdix perdix	2	31	2	20	15
Kestrel	Falco tinnunculus	8	8	4	9	16
Kingfisher	Alcedo atthis			1		
Peregrine	Falco peregrinus	2	2	1		
Short-eared owl	Asio flammeus				1	
Stock Dove	Columba oenas	17	5	3	11	2

- 3.2.24 Barn owl (Schedule 1; Northumberland LBAP) was recorded on two occasions, both from similar areas on Transect 3. A bird was flushed from a roost in a Sitka spruce (*Picea sitchensis*) plantation during Visit 2 (Figure 5.16). Another roost site was identified nearby during Visit 4, in an ivy-clad elm (*Ulmus* spp.) (Figure 7.16). The latter roost site was located approximately 75 m from the scheme development footprint. These records suggest that a barn owl held territory in this area during winter 2016-17. In addition to these records, numerous fresh pellets were observed incidentally around a barn owl box in the south of Transect 2 on 7th February.
- 3.2.25 Single cormorants (Northumberland LBAP) were observed flying over the survey area during each of the first four survey visits. The majority of these records were at the northern end of the survey area, in the vicinity of the River Coquet; however, the species was not observed using the habitats within the survey area.
- 3.2.26 Grey partridge (Red listed; species of principal importance; Northumberland LBAP) was generally recorded in moderate numbers. Most records involved singles or pairs, although several larger groups were recorded, up to a maximum of 13 birds (Figure 5.8). The species

______ Version: 1
19 Issued: August 2017

was recorded primarily on arable farmland, with records scattered across the survey area: observations were made on most transects during the course of the surveys. Grey partridge was observed most regularly on Transect 10, but larger groups or regular observations were also recorded on Transects 4, 7, 8 and 9.

- 3.2.27 Moderate numbers of kestrel (Falco tinnunculus) (Amber listed; Northumberland LBAP) were recorded during most survey visits, although it should be noted that due to the mobile nature of the species some duplication of records is likely, with the same bird recorded on multiple occasions during survey visits. Kestrels were observed across most of the survey area in a variety of habitats, but predominantly in arable farmland. Almost all records were of single birds, although three birds were observed together during Visit 5 (Figure 8.12).
- 3.2.28 The only record of kingfisher (Alcedo atthis) (Annex 1: Schedule 1: Amber listed::) made during the surveys was along a stream on Transect 3, during Visit 3 (Figure 6.16). However, the species was also observed incidentally in early September 2016, during a survey for otter (Lutra lutra) and water vole (Arvicola amphibius): single birds were observed on three occasions on the River Coquet to the west of the A1, flying along the river and calling.
- Peregrine (Falco peregrinus) (Annex 1; Schedule 1; Northumberland LBAP;;) was observed 3.2.29 during the first three survey visits. Most records were made around Transect 17, suggesting that these observations may relate to the same individual. However, a male and a female were recorded during Visit 1, indicating that at least two birds were present within the survey area during that survey visit.
- 3.2.30 A short-eared owl (Asio flammeus) (Annex 1; Amber listed;) was recorded within arable farmland on Transect 18 during Visit 4. This was the only observation of the species made during the surveys.
- 3.2.31 Stock doves (Columba oenas) (Amber listed) were recorded in relatively low numbers, with a maximum of six birds observed together. Records were spread across the survey area, and the species was observed most regularly on Transects 1, 7 and 9. The majority of observations were in arable farmland.

Passerines

3.2.32 In total 22 passerines of conservation concern were recorded (Table 6). The assemblage was representative of the variety of habitats present within the Section A survey area, including woodland, farmland and gardens. The majority of species were Red listed, and many were also listed on Section 41 and/or the Northumberland LBAP.

Table 6: Counts of passerines of conservation concern recorded in Section A

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Brambling	Fringilla montifringilla	5	17	1	1	1
Bullfinch	Pyrrhula pyrrhula	11	36	47	28	40
Common Crossbill	Loxia curvirostra		13		6	4
Dipper	Cinclus cinclus		1	1		
Dunnock	Prunella modularis	135	182	88	61	91
Fieldfare	Turdus pilaris	3	629	331	350	1505
Grey Wagtail	Motacilla cinerea	9	8	6	7	3
House Martin	Delichon urbicum	1				
House Sparrow	Passer domesticus	124	144	163	64	128
Lesser Redpoll	Acanthis cabaret	34	64	4	29	8
Linnet	Linaria cannabina	131	131	11	29	199
Marsh Tit	Poecile palustris	2	2	3		1
Meadow Pipit	Anthus pratensis	60	114		5	46
Mistle Thrush	Turdus viscivorus	27	25	19	18	50

Version: 1

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Redwing	Turdus iliacus	309	972	283	438	992
Reed Bunting	Emberiza schoeniclus	12	4	39	8	80
Skylark	Alauda arvensis	111	170	17	20	202
Song Thrush	Turdus philomelos	64	80	13	29	57
Starling	Sturnus vulgaris	335	1228	961	502	1008
Tree Sparrow	Passer montanus	25	55	121	30	75
Willow Tit	Poecile montana	2	7		5	3
Yellowhammer	Emberiza citrinella	54	104	61	50	215

- 3.2.33 In general, passerine species of conservation concern were widely distributed throughout the survey area. The numbers of birds observed were mostly congruent with what would be expected in the context of the habitats available, although several occurred in numbers significant in the county context (see Section 2.3.27 below). The more ubiquitous species such as house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*), starling, redwing (*Turdus iliacus*) and fieldfare (*Turdus pilaris*), which are typically associated with a number of habitats, were amongst the most abundant, although several farmland specialists, including linnet, skylark (*Alauda arvensis*), yellowhammer and tree sparrow (*Passer montanus*), also occurred in high numbers due to the prevalence of suitable arable farmland habitat. Woodland species of conservation concern were generally less abundant, with the most frequently recorded being those associated with several habitat types, such as song thrush (*Turdus philomelos*). However, the number of willow tits (*Poecile montana*) recorded was a noteworthy exception (see Section 2.3.27 below).
- 3.2.34 In general, numbers of passerines of conservation concern were relatively stable across the winter season. However, populations of many species are augmented by passage migrants during the autumn, and typical passage migrants, such as brambling (*Fringilla montifringilla*), meadow pipit (*Anthus pratensis*), skylark and redwing were more abundant during Visit 2, when overhead 'visible migration' was observed during the surveys (Figures 5.1-5.22 and Table 6). Numbers of several species were lower in mid-winter, during Visits 3 and 4, following the cessation of autumn migration, before they increased again in February (Visit 5).
- 3.2.35 Spatial patterns of abundance for passerines of conservation concern varied considerably throughout the season (Figures 4-8). This is likely to be due to a number of factors. However, certain patterns were evident from the data. In open areas, passerines of conservation concern were generally more abundant during the first two survey visits. Subsequently, they were more aggregated in pockets, and were generally restricted to edge habitats and areas where habitat mosaics were present, including around houses and farmsteads. This pattern is considered likely in part to be a response to food availability declining during the winter, but also to be an artefact of the cessation in passage migration, with fewer records of birds flying over open areas. Edge habitats in certain areas of arable farmland, particularly those with well-developed hedgerows and fallows, supported flocks of passerines, particularly later in the season. Extensive patches of woodland often supported more birds consistently across the season in comparison with other, more exposed habitats, although the proportion of species of conservation concern relative to Green listed species was often lower.
- 3.2.36 Although passerines of conservation concern were widely distributed across the survey area, with many areas supporting concentrations, the following parts of the survey area were identified as particularly important:

21

The south of Transect 1;

- Transect 2:
- Transect 3;
- The southern half of Transect 4;
- Transect 7:
- The northern half of Transect 8:
- The southern and northern sections of Transect 9.
- 3.2.37 In addition to the areas of general importance for passerines of conservation concern, the survey area supported high numbers of several species. Numbers of willow tit, redwing and fieldfare were particularly noteworthy, with starling and tree sparrow also significant in the context of their county populations (see Section 4.2 for discussion). All of these species were recorded widely across the survey area. However, willow tit was most consistently recorded in the south of Transect 2, in the east of Transect 3 and in the north of Transect 8. Tree sparrow was recorded regularly at a number of discreet locations, but occurred in particularly high numbers in the south of Transect 2. Redwing, fieldfare and starling were recorded throughout the survey area, and often occurred in flocks together. However, certain parts held larger numbers consistently, including the south and centre of Transect 1, the southern half of Transect 2, the south of Transect 9, the northern half of Transect 10, and Transect 17.
- 3.2.38 Common crossbill (*Loxia curvirostra*) records were also of particular note as the species has a variable breeding season (Cramp & Simmons 2004), and is listed on Schedule 1. The species was recorded more abundantly in certain areas than during the winter than during the breeding season, notably in woodland to the north of the River Coquet and woodland in the far south of Transect 9, where the species was recorded singing (Figure 5.8).

Section B

- 3.2.39 A total of 82 bird species were recorded within the survey area during survey visits 1-5. These included 46 species of conservation concern⁷ including:
 - two species listed on Annex 1 of the Birds Directive;
 - seven species listed on Schedule 1 of the WCA 1981 (as amended);
 - eighteen species of principal importance (NERC Act 2006);
 - twenty-three of the 67 species in the Northumberland LBAP;
 - twenty species on the BoCC Red list; and
 - nineteen species on the BoCC Amber list.
- 3.2.40 All species recorded during each of the survey visits, their numbers and conservation statuses are presented in Appendix E. The locations of the registrations of all species of conservation concern are presented in Figures 4.23-4.36, 5.23-5.36, 6.23-6.36, 7.23-7.36 and 8.23-8.36.
- 3.2.41 Further detail in relation to the species of conservation concern recorded is provided below.

Wildfowl

3.2.42 Six species of wildfowl of conservation concern were recorded during the surveys. The peak counts of several species (see Table 7) were relatively high. With the exception of mallard

⁷ The total number of species of conservation concern recorded takes into consideration species that are listed under multiple conservation designations.

and greylag goose, numbers were generally higher on Section B than on Section A. Seasonal patterns of abundance were variable, although it should be noted that changes to the transect route following Visit 3 (see Section 2.3.5) resulted in the inclusion of a waterbody on the transect route of Transect 14, in the north of the survey area, which was found to support relatively high numbers of ducks, including all four species of conservation concern recorded during the survey period. Numbers and species present in this area during survey Visits 1-3 are unknown, but are considered likely to be higher than those indicated by the survey data.

Table 7: Counts of wildfowl of conservation concern recorded in Section B

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Greylag Goose	Anser anser				5	33
Mallard	Anas platyrhynchos	63	22	69	62	69
Pink-footed Goose	Anser brachyrhynchus	1227	174			
Shoveler	Anas clypeata				1	1
Teal	Anas crecca	2		57	187	279
Wigeon	Anas penelope				10	27

- 3.2.43 Greylag geese (Amber listed) were observed around Transects 13, 15 and 19, during survey Visits 4 and 5. One bird was present on the ponds in the south of Transect 13 during Visit 4 (Figure 7.28), with three observed in flight in this area during Visit 5 (Figure 8.28). Two pairs were present there during the breeding season (Jacobs 2017), thus it is considered likely that these birds were part of the 'feral' breeding population of greylag geese in Northumberland. However, this population is augmented in winter by wild migratory Icelandic birds (Dean et al. 2015). It is considered likely that the records of birds on Transects 15 and 19, which included a flock of 21 birds in a field in the south of Transect 19 (Figure 8.29), involved birds from this migratory winter population.
- 3.2.44 Records of Mallard (Amber listed) were relatively localised, with the majority of birds observed on ponds on Transects 13 and 14. However, small flocks were observed across the survey area. Medium-sized flocks (up to 56 birds (Figure 4.28)) were recorded during most survey visits, especially on the ponds on Transects 13 and 14.
- 3.2.45 Pink-footed geese (Amber listed; Northumberland LBAP) were observed during Visits 1 and 2, in relatively large numbers. Flocks generally comprised between 40 and 220 birds, although several smaller flocks were also recorded. The majority of records were of birds flying over the survey area on passage. However, a flock of 400 birds the largest observed during the surveys was recorded in an arable field between Transects 14 and 15, in the north of the survey area, during Visit 1 (Figure 4.34), and 54 birds were recorded in an arable field just outside the survey area, to the north of Transect 16, during Visit 2 (Figure 5.27).
- 3.2.46 A male shoveler (*Anas clypeata*) was recorded on the waterbody on Transect 14 during both survey Visits 4 and 5 (Figures 7.32 and 8.32). These were the only records of the species within the survey area.
- 3.2.47 Teal (Amber listed) were recorded infrequently during the first three survey visits, but relatively large numbers were recorded during Visits 4 and 5. Although the increase in numbers observed during Visits 4 and 5 is partly an artefact of the inclusion of the pond on Transect 14 during these surveys, larger numbers were also recorded at other locations relative to Visits 1-3, with 70 birds observed on the ponds on Transect 13 during Visit 5 (Figure 8.28), for example. Most records were aggregated on a small number of ponds within the survey area, particularly those on Transects 13 and Transect 14 (where a maximum of 152 birds were observed together during Visit 4 (Figure 7.32)), although an exceptional record of a flock of 150 birds was recorded on flooded grassland on Transect 19 during Visit 5 (Figure 8.29).

3.2.48 Wigeon (*Anas penelope*) (Amber listed) was only recorded on the waterbody on Transect 14. The species was recorded during both survey Visits 4 and 5, with a maximum of 27 birds (Figures 7.32 and 8.32).

Waders

3.2.49 Wader numbers in Section B were mostly similar to those in Section A, although lapwing was generally more numerous. Six species were recorded within the survey area (Table 8), all of which are of conservation concern. As in Section A, most of these were recorded in low numbers, with the exceptions of lapwing and golden plover, which occurred in relatively high numbers.

Table 8: Counts of waders of conservation concern recorded in Section B

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Golden Plover	Pluvialis apricaria	383	68	41		
Lapwing	Vanellus vanellus	847	1009	616	215	146
Oystercatcher	Haematopus ostralegus			1		
Redshank	Tringa totanus		4	1	4	6
Snipe	Gallinago gallinago	6	1		6	5
Woodcock	Scolopax rusticola		4		5	2

- 3.2.50 Golden plover (Annex 1; Northumberland LBAP) was recorded only during Visits 1-3. In contrast to the results for Section A, there was no rise in numbers during the second half of the survey period; no birds were recorded in January or February. Numbers during Visits 1-3 were moderate to high, although relatively few flocks were recorded, mostly of between 10 and 30 birds. Several larger flocks were recorded during Visit 1, with 91 birds on Transect 11 and 80 in the south of Transect 16 (Figure 4.23), both using arable farmland habitats within the survey area. A flock of 130 birds circling over arable fields was recorded nearby, to the north of Transect 11 (Figure 4.24). Besides these flocks, the only other record of birds using the habitats within the survey area rather than flying over was on Transect 19, where 30 birds were present, also during Visit 1 (Figure 4.29).
- 3.2.51 Numbers of lapwing (species of principal importance; Red listed; Northumberland LBAP) were high across most of the winter season, but declined after Visit 2. Records were distributed across the survey area, with large flocks (often over 100 birds) recorded on most transects. Records were mostly from arable farmland, found across much of the survey area, with most of the largest flocks using fields on Transects 15, 16 and 19. Fewer, smaller flocks were recorded later in the season as numbers across the survey area declined.
- 3.2.52 Oystercatcher (*Haematopus ostralegus*) (Amber listed) was recorded once during the surveys, on a flooded area in the south of Transect 11 during Visit 3 (Figure 6.23).
- 3.2.53 Redshank (Amber listed, Northumberland LBAP) was recorded in low numbers during Visits 2-5. Most records were from a flooded area in the south of Transect 11 (Figures 5.23, 6.23, 7.23 and 8.23), where numbers increased from one to four birds during the course of the survey season. Of the remaining three records, two were from the pool on Transect 14 which was included in the transect route following Visit 3: one bird was recorded there during Visit 4 (Figure 7.32), and two birds during Visit 5 (Figure 8.32). The only other record was of three birds in an arable field in the south of Transect 19, during Visit 2 (Figure 5.27).
- 3.2.54 Snipe (Amber listed; Northumberland LBAP) were recorded infrequently, at scattered locations across the survey area. Records were of one to four birds, mostly flushed from wetter areas in arable land or pasture, although snipe were also recorded on the pool on Transect 14 which was included in the transect route following Visit 3.
- 3.2.55 Low numbers of woodcock (Red listed) were recorded during the surveys, at scattered locations across the survey area. All records involved single birds, mostly flushed from field edges or stands of woodland.

24

Gulls

3.2.56 Five species of gull of conservation concern were recorded within Section B (Table 9). As in Section A, numbers of black-headed, common and herring gulls were relatively high, although they remained so across the survey period. Great black-backed gull and lesser black-backed gull were recorded in low numbers. Gull activity in general was high across most of the survey area, but especially in the north around Transects 13, 14 and 15.

Table 9: Counts of gulls of conservation concern recorded in Section B

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Black-headed Gull	Chroicocephalus ridibundus	20	191	124	178	252
Common Gull	Larus canus	250	218	370	125	539
Great Black-backed Gull	Larus marinus	4			4	2
Herring Gull	Larus argentatus	219	2064	958	251	543
Lesser Black-backed Gull	Larus fuscus	4				

- 3.2.57 Records of all five species mostly involved single birds or small groups of fewer than 10 individuals and, as on Section A, these were distributed throughout the survey area. Many of these were of birds flying over, although gulls were regularly observed loafing or feeding in fields as well, generally in small to medium-sized flocks of up to 30 birds. Flocks were recorded in fields across the survey area, and were generally not restricted to certain areas. Relative to herring gull, a greater proportion of black-headed and common gull records were of birds using fields rather than flying over, and the two species were often observed in together or in isolation; conversely, herring gulls in fields were generally observed as part of mixed-species flocks.
- 3.2.58 Large flocks of gulls were observed loafing and feeding within the survey area on several occasions. Particularly noteworthy occurrences included: a mixed flock of 100 black-headed gulls, 100 common gulls and 500 herring gulls in an arable field to the north of Transect 16 (Figure 5.27) and 430 herring gulls on Transect 15 (Figure 5.36) during Visit 2, and several flocks in close proximity on Transect 12 during Visit 5, totalling 210 black-headed gulls, 88 herring gulls and three common gulls (Figure 8.26). Large numbers were also observed on Transect 15 during Visit 5, although many were just outside the survey area (Figure 8.36). Large gull flocks were recorded just outside the survey area on several occasions, for example at the southern end of Transect 12 (Figure 5.24) and the centre of Transect 13 (Figure 5.30) during Visit 2.
- 3.2.59 Within the survey area, maximum flock sizes of each of the three commonly-recorded gull species were 133 black-headed gulls, 185 common gulls, and 500 herring gulls.
- 3.2.60 Similarly, to the results from Section A, great black-backed gull and lesser black-backed gull were recorded rarely, with almost all records comprising single birds flying over the site. Neither species was recorded using the habitats within the survey area.

Other Non-passerines

3.2.61 Other non-passerine species of conservation concern occurred in relatively low numbers, comparable to those recorded in Section A. The assemblage of species recorded was also similar, and comprised raptors, owls and other species associated with farmland (Table 5).

Table 10: Counts of other non-passerines of conservation concern recorded in Section B

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Barn Owl	Tyto alba		1			

Version: 1

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Goshawk	Accipiter gentilis			1		
Grey Partridge	Perdix perdix		5	2	10	6
Kestrel	Falco tinnunculus	3	4	8	6	5
Peregrine	Falco peregrinus		1	3	1	
Stock Dove	Columba oenas	23	10	5	12	23

- 3.2.62 The only record of barn owl (Schedule 1; Northumberland LBAP) made during the surveys was of a bird on Transect 16 (Figure 5.25). A roost was identified in a tree nearby, with field signs indicating regular usage.
- 3.2.63 A female goshawk (*Accipiter gentilis*) (Schedule 1) was recorded in the north of the survey area, on Transect 15, during Visit 3 (Figure 6.34). A goshawk was also recorded just outside the survey area, on Transect 16 in the south, during Visit 4 (Figure 7.25).
- 3.2.64 Grey partridge (Red listed; Northumberland LBAP) was recorded infrequently, and records involved a maximum of four birds together. Numbers were low relative to the abundance of suitable habitat within the survey area, and were lower than on Section A. The species was generally recorded in the same areas, in the north of Transect 16/south of Transect 19, on Transect 13, and on Transects 15 and 14.
- 3.2.65 Kestrels (Amber listed; Northumberland LBAP) were observed widely across the survey area. The species was regularly recorded on Transects 11, 15, 16 and 19. All records involved single birds, with the exception of two birds together on Transect 16 during Visit 3.
- 3.2.66 Peregrines (Annex 1; Schedule 1; Northumberland LBAP) were mainly recorded in the north of the survey area, especially around Transect 15, with the exception of a record in the centre of Transect 12 during Visit 4 (Figure 7.26). An immature male was recorded in the far north of Transect 15 during Visit 2 (Figure 5.36), and three observations were made around Transect 15 during Visit 3: males were observed on Transects 14 and 15, nearby but on different days, and a female was observed on Transect 15 (Figure 6.34). Although it is unknown whether the records of a male relate to the same birds, at least two different peregrines were therefore confirmed.
- 3.2.67 Records of stock dove (Amber listed) mostly involved single birds, although small flocks of up to nine individuals were recorded. The species was associated with areas of arable farmland, with most records in the north of the survey area, from Transect 15 and the northern half of Transect 14, and also in the south, from Transects 16 and 11.

Passerines

3.2.68 In total 23 passerines of conservation concern, representing a variety of habitat types, were recorded in Section B (Table 11). The majority of species were Red listed, and many were also listed on Section 41 of the NERC Act 2006 and/or the Northumberland LBAP. The assemblage was similar to that recorded on Section A, with species mostly representative of farmland, gardens and woodland. However, species associated with gardens and woodland, especially those which are woodland specialists, were less abundant in Section B. Conversely, peak counts of farmland specialists were generally higher. This was considered to reflect the overall differences in habitat composition between the two Sections.

Table 11: Counts of passerines of conservation concern recorded in Section B

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Brambling	Fringilla montifringilla	5	3	5	8	16
Bullfinch	Pyrrhula pyrrhula	3	8	21	10	7
Common Crossbill	Loxia curvirostra		1	2	1	

Version: 1

Issued: August 2017

Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5
Dunnock	Prunella modularis	105	100	83	63	76
Fieldfare	Turdus pilaris	71	124	140	215	284
Grey Wagtail	Motacilla cinerea	1	4	3	5	3
House Sparrow	Passer domesticus	131	65	80	79	36
Lesser Redpoll	Acanthis cabaret	1	6	6		
Linnet	Linaria cannabina	507	15	65	28	125
Marsh Tit	Poecile palustris	1				
Meadow Pipit	Anthus pratensis	46	48	11	19	17
Mistle Thrush	Turdus viscivorus	21	17	25	32	26
Redwing	Turdus iliacus	582	685	724	1244	403
Reed Bunting	Emberiza schoeniclus	22	16	22	54	21
Ring ouzel	Turdus torquatus	1	1			
Skylark	Alauda arvensis	130	142	32	8	15
Song Thrush	Turdus philomelos	83	25	47	29	37
Starling	Sturnus vulgaris	591	1170	1301	563	507
Swallow	Hirundo rustica	4				
Tree Sparrow	Passer montanus	150	46	30	42	24
Twite	Linaria flavirostris			14	4	
Willow Tit	Poecile montana					1
Yellowhammer	Emberiza citrinella	101	203	88	404	77

- 3.2.69 As for Section A, the most abundant species were farmland specialists, particularly those which form flocks in winter, such as linnet, skylark, tree sparrow and yellowhammer. Other species which occurred in large numbers were generally the more ubiquitous species such as house sparrow and dunnock, which are typically associated with a variety of habitats. Starling and redwing were recorded in particularly high numbers, being flock-forming species associated with a variety of habitats. Woodland species of conservation concern were generally much less abundant, with many being recorded in single figures during most survey visits. This pattern was considered to be more exaggerated in Section B than in Section A, because of the more limited availability of woodland habitat in Section B.
- 3.2.70 In general, numbers of species of conservation concern associated with gardens and woodland were relatively stable across the winter season. Numbers of farmland species were often more variable, likely due to their flocking behaviour: as the season progressed fewer records were made but more records involved larger flocks of birds. The data later in the season could therefore be influenced considerably by whether or not a flock was encountered. In addition to these patterns, populations of many species are augmented by passage migrants during the autumn, and typical passage migrants, such as meadow pipit, skylark and dunnock were consequently more abundant during the first two visits. However, in contrast to the results of surveys on Section A, this was not the case for redwing, suggesting that the survey area was of greater importance for resident flocks of the species later in the season. With the exception of winter flocking species, numbers of passerines of conservation concern were generally lower after Visits 1 and 2, following the cessation of autumn migration. In contrast to the results on Section A, numbers remained low, with no general increase observed in February (Visit 5).
- 3.2.71 As on Section A, spatial patterns of abundance for passerines of conservation concern varied considerably throughout the season (Figures 4-8). This is likely to be due to a number of factors, including variation in the times of day at which different areas were surveyed, weather conditions and surveyor bias (see Sections 2.5.7-2.5.9). However, certain patterns were evident from the data. In open areas, passerines of conservation concern were generally more widespread during the first two survey visits. Subsequently they were more aggregated in pockets: birds were generally restricted to edge habitats and areas where

habitat mosaics were present, including around houses and farmsteads, although farmland specialists and other flocking species such as starlings and winter thrushes were often found in flocks in arable fields as well. This pattern is considered likely in part to be a response to food availability declining during the winter, but also to be an artefact of the cessation in passage migration, with fewer records of birds flying over open areas. As on Section A, extensive patches of woodland often supported more birds consistently across the season in comparison with other, more exposed habitats, although the proportion of species of conservation concern relative to Green listed species was often lower.

- 3.2.72 Although passerines of conservation concern were widely distributed across the survey area, with many areas supporting concentrations, the following parts of the survey area were identified as particularly important:
 - The northern half of Transect 15;
 - Transect 16, especially the north;
 - The north of Transect 19.
- 3.2.73 In addition to the areas of general importance for passerines of conservation concern, the survey area supported high numbers of several species. Numbers of redwing were particularly noteworthy, with starling, fieldfare, willow tit, tree sparrow and linnet also significant in the context of their county populations (see Section 4.2 for discussion). Yellowhammer numbers were also high, although they did not exceed 1 % of the county population. Redwing occurred throughout much of the survey area, often at the interface between arable farmland and areas of trees or woodland, and generally in association with fieldfare and starling. Their spatial distribution varied between visits, but Transects 11, 12, 16 and 19 (especially the north) supported larger numbers most consistently. Transect 15 was also important for starling. Similarly, tree sparrow, linnet and yellowhammer were found throughout most of the survey area, often in the same areas, their distribution coinciding with areas of arable farmland, well-developed hedgerows, and farmsteads. Transect 16 was the best part of the survey area for these species, with large flocks regularly recorded, although other areas were also relatively important, including Transects 15 and 11. Willow tit was observed once, during Visit 5, when a single bird was present in woodland in the centre of Transect 16 (Figure 8.25).

3.3 Incidental Observations

3.3.1 Incidental observations made during other surveys carried out in relation to the scheme which involved species of conservation concern not recorded during the surveys detailed within this report are detailed below.

Section A

3.3.2 A marsh harrier (Amber listed; Northumberland LBAP; Schedule 1; Annex 1) was recorded near Fenrother during early September, foraging over an arable field that was being harvested. This represents the only record of the species in Section A; it is considered likely that this bird was passing through on migration.

4 EVALUATION

- 4.1.1 A summary of the results of the wintering bird surveys carried out during winter 2016-17, together with an evaluation of the importance of Sections A and B for wintering birds is provided below. The evaluation for each species has been based on a comparison of the numbers of birds recorded during the wintering bird survey with their populations at a range of spatial scales.
- 4.1.2 An assessment of impacts and any mitigation measures required in relation to adverse effects on wintering birds will be presented as part of the ongoing environmental assessment work for the scheme.

4.2 Section A (Morpeth to Felton)

- 4.2.1 The results of the wintering bird surveys carried out in 2016-17 generally reflected the findings of the desk study, both in terms of the assemblage of species and the numbers of birds recorded. Including incidental records, a total of 80 bird species were recorded within the survey area. These included 46 species of conservation concern⁸ including:
 - five species listed on Annex 1 of the Birds Directive;
 - eight species listed on Schedule 1 of the WCA 1981 (as amended);
 - seventeen species of principal importance (NERC Act 2006);
 - twenty-four of the 67 species in the Northumberland LBAP;
 - nineteen species on the BoCC Red List of Birds of Conservation Concern; and
 - twenty-one species on the BoCC Amber List of Birds of Conservation Concern.
- 4.2.2 The species assemblage was typical of the habitats present, which formed a mosaic across much of the survey area, particularly the northern half. These habitats predominantly comprised a mixture of improved grassland and arable farmland with associated farmsteads, patches of woodland, and occasional other habitats such as amenity land, small waterbodies and water courses.
- 4.2.3 Species of conservation concern were recorded widely across the survey area, and most parts of the survey area were utilized by wintering birds. However, certain parts supported particularly higher concentrations than others. These areas were primarily arable farmland and hedgerows, and habitat mosaics (particularly where other habitats interfaced with arable farmland, for example around farmsteads). Areas of arable farmland, for example Transect 4, and the south of Transects 9 and 10, often supported the larger flocks of farmland passerines, winter thrushes, waders and geese, whilst habitat mosaics supported a wide variety of species. Extensive areas of woodland (for example around Felton Park and the River Coquet in the north of the survey area (Transects 5 and 6)), tended to support high numbers of birds, but relatively few species of conservation concern.
- 4.2.4 One bird species associated with designated sites was recorded: golden plover. Golden plover is a non-qualifying species of interest for the Northumbria Coast SPA and Ramsar site. The SPA supports significant numbers of this species in winter, whilst the Ramsar site supports nationally important numbers of the species in spring/autumn. The peak count within the survey area (193 birds) represents a small proportion of both of these populations. The peak count was made in October, coinciding with late autumn migration, and was equivalent to 6.63 % of the Ramsar site population of 2,911 birds⁹. Although many of these records were of birds flying over, the number of birds recorded using the habitats within the

⁸ The total number of species of conservation concern recorded takes into consideration species that are listed under multiple conservation designations.

⁹ http://incc.defra.gov.uk/pdf/RIS/UK11049.pdf

survey area also represented more than 1 % of the Ramsar site population. Although no population data for golden plover are provided in the SPA citation, the winter population in Northumbria – within which the SPA is situated – is estimated at 7,400 birds (Dean *et al.* 2015; see Appendix F). The peak count within the survey area was equivalent to 2.61 % of the Northumbria population, and therefore can be considered to represent at least 2.61 % of the SPA population. Although later survey visits recorded fewer birds (63 in November, 20 in January and 87 in February), these totals were still moderate to high in the context of the county winter population (0.85 %, 0.27 % and 1.18 %).

- 4.2.5 Although many of the species of conservation concern observed within the survey area during the 2016-17 wintering bird surveys were recorded in unexceptional or low numbers in the context of their county populations, a relatively high proportion occurred in numbers that either exceeded or were close to 1 % of their Northumbria populations (see Appendix F for population data). Amongst these were representatives of a variety of habitats and taxonomic groups. Consequently, as a whole, the wintering bird assemblage within the survey area is considered to be of **County Importance**. No species occurred in numbers greater than 1 % of their national populations.
- 4.2.6 The following 15 species occurred in numbers exceeding 1 % of their Northumbria populations. Peak counts and corresponding percentages of the species' Northumbria populations (see Appendix F) are presented in brackets:
 - Redwing (992 birds, 9.92 % of the Northumbria population);
 - Pink-footed goose (600 birds, 9.84 % of the Northumbria population);
 - Lapwing (801 birds, 9.42 % of the Northumbria population);
 - Fieldfare (1505 birds, 8.85 % of the Northumbria population);
 - Willow tit (7 birds, 7.78 % of the Northumbria population);
 - Herring gull (650 birds, 4.64 % of the Northumbria population);
 - Peregrine (2 birds, 3.13 % of the Northumbria population);
 - Greylag goose (77 birds, 2.96 % of the Northumbria population);
 - Mallard (255 birds, 2.90 % of the Northumbria population);
 - Golden plover (193 birds, 2.61 % of the Northumbria population);
 - Lesser black-backed gull (1 bird, 2.04 % of the Northumbria population);
 - Starling (1228 birds, 1.57 % of the Northumbria population);
 - Kingfisher (1 bird, 1.47 % of the Northumbria population);
 - Common gull (345 birds, 1.23 % of the Northumbria population); and
 - Tree sparrow (121 birds, 1.10 % of the Northumbria population).
- 4.2.7 Several other species, including black-headed gull, barn owl and short-eared owl, also occurred in notable numbers in the context of the county but did not exceed the 1 % threshold.
- 4.2.8 Although species of conservation concern were distributed widely across the survey area, with many areas supporting concentrations, the following areas were identified as particularly important for wintering birds based on the results of the wintering bird surveys carried out in 2016-17.
 - Transect 1. Important for a variety of species, primarily farmland birds including lapwing, gulls, farmland passerines and winter thrushes. The south and centre were most important.

______ Version: 1 30 Issued: August 2017

- Transect 2. One of the most important areas for passerines of conservation concern in general, and notably for tree sparrow and willow tit, particularly in the southern half. Also important for lapwing and barn owl.
- Transect 3. Important for barn owl and its variety of passerines of conservation concern, notably willow tit.
- Transect 4. Important for farmland birds, including geese, waders and other nonpasserines, and flocks of farmland passerines. The southern half was particularly important.
- Transect 7. Supported a variety of farmland species of conservation concern, including lapwing, other non-passerines and passerines, particularly in the northern half.
- Transect 8. The habitat mosaic in the north, particularly fallow areas, was important for a variety of passerines of conservation concern, including farmland passerines and willow tit.
- Transect 9. Important for a variety of species but particularly farmland birds, especially in the south. These included geese, gulls and farmland non-passerines, and passerines, including farmland passerines and winter thrushes. Common crossbill was heard singing in woodland on the southern boundary.
- Transect 10. The south and centre were particularly important for waders and grey partridge, whilst the north supported large numbers of winter thrushes.
- Transect 17. Supported flocks of non-passerines, including lapwing, common gull, pink-footed goose and winter thrushes.

4.3 Section B (Alnwick to Ellingham)

- 4.3.1 The results of the wintering bird surveys carried out in 2016-17 generally reflect the findings of the desk study in terms of the assemblage of species. However, the numbers of birds recorded during the surveys were often higher than those recorded in the desk study data, particularly for farmland species (including waders and passerines) and wildfowl. Including incidental records, a total of 82 bird species were recorded within the survey area. This included 46 species of conservation concern¹⁰ including:
 - two species listed on Annex 1 of the Birds Directive;
 - seven species listed on Schedule 1 of the WCA 1981 (as amended);
 - eighteen species of principal importance (NERC Act 2006);
 - twenty-three of the 67 species in the Northumberland LBAP;
 - twenty species on the BoCC Red List of Birds of Conservation Concern; and
 - nineteen species on the BoCC Amber List of Birds of Conservation Concern.
- 4.3.2 The species assemblage was typical of the habitats present. These habitats predominantly comprised arable farmland with patches of improved grassland, farmsteads, occasional patches of woodland and small waterbodies. In contrast to Section A, the habitats present in Section B were more homogenous, with more continuous tracts of farmland. In comparison with Section A, the assemblage of species recorded in Section B was similar, with most of the differences involving numbers of birds: peak counts of farmland passerines, lapwing, and several species of waterfowl were higher on Section B than on Section A,

Issued: August 2017

31

¹⁰ The total number of species of conservation concern recorded takes into consideration species that are listed under multiple conservation designations.

whilst species associated with gardens and woodland, especially those which are woodland specialists, were less abundant. These patterns are considered to reflect differences in the habitats types present in the two Sections.

- 4.3.3 Species of conservation concern were recorded widely across the survey area, and most parts of the survey area were utilized by wintering birds. However, certain parts supported particularly high concentrations. These areas were primarily arable farmland and hedgerows, for example on Transects 11, 15, 16 and 19, which supported a variety of species including farmland passerines, winter thrushes, waders and geese. However, habitat mosaics were also important particularly where other habitats interfaced with arable farmland for example in the north of Transect 19. Waterbodies on Transects 13, and especially Transect 14, were also important for wildfowl.
- 4.3.4 Two bird species associated with nearby designated sites were recorded: golden plover and redshank. Golden plover is a non-qualifying species of interest for the Northumbria Coast SPA and Ramsar site. The SPA supports significant numbers of this species in winter, whilst the Ramsar site supports nationally important numbers of the species in spring/autumn. The peak count within the survey area (383 birds) represents a small proportion of both of these populations. The peak count was made in October, coinciding with late autumn migration, and was equivalent to 13.16 % of the Ramsar site population of 2,911 birds¹¹.
- 4.3.5 Although no population data for golden plover are provided in the SPA citation, the winter population in Northumbria within which the SPA is situated is estimated at 7,400 birds (Dean *et al.* 2015; see Appendix F). The peak count within the survey area was equivalent to 5.18 % of the Northumbria population. Although later survey visits recorded fewer birds (68 in November and 41 in December), both of these totals were still moderate to high in the context of the county winter population (0.92 % and 0.55 %).
- 4.3.6 Redshank is listed as a non-qualifying species of interest for the Northumbria Coast SPA in winter only. A maximum of six redshank were recorded within the survey area, whereas the species is often found in large concentrations in coastal areas in winter. The Northumbria Coast SPA population is nationally significant, representing greater than 1 % of the national population of 120,000 birds (Dean *et al.* 2015; see Appendix F), and therefore comprises at least 1,200 birds. Six birds are equivalent to 0.5 % of this number (*i.e.* less than 1 %), thus the population of redshank wintering within the survey area is not considered to represent a significant proportion of the SPA population.
- 4.3.7 Although many of the species of conservation concern observed within the survey area during the 2016-17 wintering bird surveys were recorded in unexceptional or low numbers in the context of their county populations, a relatively high proportion occurred in numbers that either exceeded or were close to 1 % of their Northumbria populations (see Appendix F for population data). Amongst these were representatives of a variety of habitats and taxonomic groups. Consequently, as a whole, the wintering bird assemblage within the survey area is considered to be of **County Importance**. No species occurred in numbers greater than 1 % of their national populations.
- 4.3.8 The following 18 species occurred in numbers exceeding 1 % of their Northumbria populations. Peak counts and corresponding percentages of the species' Northumbria populations (see Appendix F) are presented in brackets:
 - Twite (14 birds, 116.67 % of the Northumbria population¹²);

_____ Version: 1 32 Issued: August 2017

¹¹ http://jncc.defra.gov.uk/pdf/RIS/UK11049.pdf

¹² Wintering population estimates were unavailable for twite, thus the Northumbria breeding population estimate was used for this evaluation. However, twite are generally much more numerous in winter than

- Pink-footed goose (1127 birds, 20.11 % of the Northumbria population);
- Herring gull (2064 birds, 14.74 % of the Northumbria population);
- Redwing (1244 birds, 12.44 % of the Northumbria population);
- Lapwing (1009 birds, 11.87 % of the Northumbria population);
- Lesser black-backed gull (4 birds, 8.16 % of the Northumbria population);
- Teal (279 birds, 7.54 % of the Northumbria population);
- Golden plover (383 birds, 5.18 % of the Northumbria population);
- Peregrine (3 birds, 4.69 % of the Northumbria population);
- Goshawk (1 bird, 2.38 % of the Northumbria population);
- Shoveler (1 bird, 2.33 % of the Northumbria population);
- Common gull (539 birds, 1.93 % of the Northumbria population);
- Linnet (507 birds, 1.69 % of the Northumbria population);
- Fieldfare (284 birds, 1.67 % of the Northumbria population);
- Starling (1301 birds, 1.67 % of the Northumbria population);
- Tree sparrow (150 birds, 1.36 % of the Northumbria population);
- Greylag goose (33 birds, 1.27 % of the Northumbria population);
- Willow tit (1 bird, 1.11 % of the Northumbria population).
- 4.3.9 Several other species, including yellowhammer, barn owl and mallard, also occurred in notably high numbers in the context of the county but did not exceed the 1 % threshold.
- 4.3.10 Although species of conservation concern were distributed widely across the survey area, with many areas supporting concentrations, the following areas were identified as particularly important for wintering birds based on the results of the wintering bird surveys carried out in 2016-17.
 - Transect 11. Important for farmland species of conservation concern, including passerines, waders and other non-passerines. Also important for winter thrushes.
 - Transect 12. The southern areas were important for winter thrushes and gulls.
 - Transect 13. Ponds in the south were important for wildfowl, and arable farmland in the northwest for gulls.
 - Transect 14. The waterbody in the east was particularly important for wildfowl. Arable farmland in the north supported flocks of geese and gulls.
 - Transect 15. Important for farmland species of conservation concern, including passerines, waders and other non-passerines. Also important for flocks of geese and gulls.

during the breeding season (Dean *et al.* 2015), so this figure is considered to overestimate the importance of the survey area population in the context of the Northumbria population of twite. However, the UK wintering population is estimated at 10,000 birds (Musgrove *et al.* 2013), and the Northumbria population is relatively abundant in the UK context (Balmer *et al.* 2013). Thus, a conservative approach has been taken and the survey area population has been assessed as of County Importance.

- Transect 16. One of the most important areas for farmland species of conservation concern, including large flocks of passerines and waders, and a variety of other nonpasserines. Also important for winter thrushes.
- Transect 19. Arable farmland was important for waders and flocks of geese, particularly in the southern half. In the north, the habitat mosaic was important for winter thrushes and passerines of conservation concern.

4.4 Conclusion

- 4.4.1 Based on the results of the wintering bird surveys carried out in relation to the scheme during 2016-17 the wintering bird assemblages in both Section A and Section B have been evaluated as of **County Importance**. In total 15 species of conservation concern in Section A exceeded the 1 % criterion for significance at the county level, and 18 in Section B. It should be noted that several species occurred in numbers which may exceed the 1 % threshold for Regional significance, although regional population data were not available to facilitate this assessment. No species in either Section A or Section B occurred in numbers of national importance.
- 4.4.2 Additionally, both Section A and Section B supported significant numbers of golden plover in the context of the Northumbria Coast SPA winter population, as well as the Northumbria Coast Ramsar site population. However, it is unknown whether, or to what extent, these birds are associated with the Northumbria Coast SPA and Ramsar site.

Version: 1

34 Issued: August 2017

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_____ Version: 1 35 Issued: August 2017

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Version: 1

36 Issued: August 2017

APPENDIX A: LEGISLATION, PLANNING POLICY AND BIODIVERSITY BACKGROUND

Legislation

International Legislation

Many bird populations within the UK, including those that are resident, over wintering and migratory are protected under European legislation.

The Birds Directive 2009/147/EC (as amended) requires the designation of Special Protection Areas (SPAs) for rare or vulnerable species, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance. Annex I of the Directive lists bird species to be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

The Council Directive 92/43/EEC on the Conservation of Natural habitats and of wild fauna and flora, known as the Habitats Directive, was adopted in 1992. The Directive is the means by which the European Union meets its obligations under the Bern Convention and highlights a legal obligation to protect over 500 wild plants and over 1000 wild animal species. The directive is implemented in UK law through the Wildlife and Countryside Act 1981 (as amended).

The Bonn Convention on Conservation of Migratory Species of Wild Animals, 1979, aims to achieve effective management of migratory species across national or jurisdictional boundaries. It is implemented in the UK by the Environmental Protection Act 1990.

National Legislation

The Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principal mechanism for the legislative protection of wildlife in Great Britain.

All bird species are protected under elements of Section 9 of the WCA and the Countryside and Rights of Way (CROW) Act 2000. This legislation taken together prohibits the following on any wild bird species:

- Deliberately, intentionally or recklessly, injuring, killing and capturing any wild bird (although for some pest species licensed exemptions apply);
- Deliberately, intentionally or recklessly taking or destroying eggs or nests of any wild bird;
- Keeping, transporting, selling or exchanging, offering for sale or advertising any wild bird.

A special penalty is levied against any of the above offences being committed in conjunction with a bird listed on Schedule 1 of the WCA, such that it is an offence to intentionally or recklessly disturb any bird listed on Schedule 1 while it is building a nest or is on or near a nest containing young, or to intentionally or recklessly disturb dependent young of any bird listed on Schedule 1. Species included on Schedule 1 are those of high nature conservation priority or otherwise in greater need of legal protection.

______ Version: 1 38 Issued: August 2017

National Planning Policy Framework 2012 (NPPF)

The National Planning Policy Framework (NPPF) 2012 and Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 place a duty on all public bodies, including local planning authorities, to consider habitats and species of 'Principal Importance' when considering a planning application.

It is recognised by the NPPF that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, recognising the benefits of ecosystem services, minimising impacts on biodiversity and providing net gain where possible by establishing coherent and resilient wildlife networks.

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and Species of Principal Importance in England

The England Biodiversity List has been developed to meet the requirements of Section 41 of the Natural Environment and Rural Communities Act (2006). This legislation requires the Secretary of State to publish a list of species of flora, fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. A total of 59 bird species/subspecies are listed on Section 41 of the NERC Act 2006, of which 53 are relevant to England¹³.

The Section 41 list will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 "to have regard" to the conservation of biodiversity in England, when carrying out their normal functions. In particular:

- National Planning Bodies and Local Planning Authorities will use it to identify the species and habitats that should be afforded priority when applying the requirements of the NPPF to maintain, restore and enhance species and habitats.
- Local Planning Authorities will use it to identify the species and habitats that require specific
 consideration in dealing with planning and development control, recognising that under NPPF
 the aim of planning decisions should be to avoid harm to all biodiversity.
- All Public Bodies will use it to identify species or habitats that should be given priority when implementing the NERC Act 2006 Section 40 duty.

Conservation Status

Northumberland Local Biodiversity Action Plan (LBAP)

The UK Biodiversity Action Plan (UKBAP) was published in January 1994 in response to the Convention on Biological Diversity, which was signed by the UK at the 1992 Rio Earth Summit. The 'species of principal importance' listed on Section 41 of the NERC Act 2006 were initially identified as requiring conservation action under the UK Biodiversity Action Plan, which was published in response to the Convention on Biological Diversity. The UKBAP was implemented at the county level through Local Biodiversity Action Plans (LBAPs), which targeted certain species.

Although the UKBAP has been superseded by the UK Post-2010 Biodiversity Framework, LBAPs are still widely used as the species of principal importance remain the same. The LBAP for Northumberland was revised in 2016 to reflect changes in the conservation statuses of bird species 14. This revision resulted in the inclusion of a number of species which are not listed as 'species of principal importance' under Section 41 of the NERC Act 2006, due to declines in the populations of these species since the Act was brought into force. The revised Northumberland list

Version: 1 Issued: August 2017

¹³ http://jncc.defra.gov.uk/page-5163

¹⁴ http://neenp.org.uk/natural-environment/northumberland-priority-species/

of priority bird species includes a total of 67 species, of which 26 are listed as 'species of principal importance' (Table A1).

Table A1: Revised Northumberland Priority Bird Species List

Species	'Species of Principal Importance'	Species	'Species of Principal Importance'
Arctic tern		Merlin	
Avocet		Mistle thrush	
Barn owl		Peregrine	
Bar-tailed godwit		Pied flycatcher	
Bittern	Y	Pink-footed goose	
Black grouse	Y	Pochard	
Black-necked grebe		Puffin	
Brent goose (pale-bellied)		Purple sandpiper	
Common tern		Razorbill	
Cormorant		Red kite	
Corn bunting	Y	Redshank	
Cuckoo	Y	Reed bunting	Υ
Curlew	Y	Ringed plover	
Dunlin		Roseate tern	Υ
Eider		Sanderling	
Fulmar		Sandwich tern	
Golden plover		Shag	
Goldeneye		Shelduck	
Grasshopper warbler	Y	Skylark	Υ
Grey partridge	Y	Snipe	
Guillemot		Song thrush	Υ
Hen harrier	Y	Spotted flycatcher	Υ
House martin		Starling	Υ
House sparrow	Y	Swallow	
Kestrel		Swift	
Kittiwake		Tree pipit	Υ
Lapwing	Y	Tree sparrow	Υ
Lesser redpoll	Y	Turnstone	
Linnet	Y	Twite	Υ
Little ringed plover		Willow tit	Υ
Little tern		Willow warbler	
Marsh harrier		Yellow wagtail	Υ
Marsh tit	Y	Yellowhammer	Υ
Marsh warbler	Y		•

	Version: 1
40	Issued: August 2017

Birds of Conservation Concern (Eaton et al. 2015)

The UK's leading bird conservation organisations have worked together on the fourth quantitative review of the status of the birds that occur regularly in the UK, updating the last review in 2009. The status' of birds within the UK have been regularly monitored through a series of surveys, including the national Breeding Bird Survey, Common Bird Census, sea bird monitoring programs and wetland monitoring programs. The result of this review and continued monitoring is Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man (Eaton *et al.* 2015).

Birds are assessed against criteria to place each species on one of three alert lists: Red, Amber or Green. Red list species are considered to be of high conservation concern, being either globally threatened, having historical UK population declines, having a rapid population decline or breeding range contraction of 50% or more in the last 25 years.

Amber list species are considered to be of medium conservation concern as they meet one or more of the following criteria (but none of the Red list criteria): Red listed for historical decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years), a UK breeding range contraction of between 25% and 49%, a reduction of breeding or non-breeding population of 25-49% in the last 25 years, a 5-year mean of 1-300 breeding pairs in the UK, an unfavourable European conservation status, at least 50% of the UK breeding population found in 10 or fewer sites, or where the breeding population in the UK represents 20% or more of the European breeding populations.

Green list species are considered to be of low conservation concern. They include all regularly occurring species that do not qualify under any of the Red list or Amber list criteria. The Green list also includes those species listed as recovering from historical decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Version: 1
41 Issued: August 2017

APPENDIX B: FIELD SURVEY VISIT DATES, TIMES, WEATHER CONDITIONS AND OBSERVERS

Observers (lead surveyors shown in bold):

JG – James Grundy, PC – Paul Cook, AB – Alistair Blackshaw, FT – Fran Tobin, MC – Michael Christie, JC – James Charlton, SP – Stef Pearse, AP – Alice Palmer, EF – Emma Fambely, CB – Catherine Burton, DW – Dan Wildsmith, AT – Ana Togridou, MR – Matthew Robson

Section A

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
		05/10/16	07:15 – 10:00	PC/MC	7/8 – 8/8	E-ESE	3	13	None
	1	06/10/16	07:10 - 10:00	PC/MC	3/8 - 8/8	E-ESE	1 - 3	8 - 14	None
		07/10/16	12:05 – 12:40	PC/MC	8/8	E	3	12	None
	2	09/11/16	13:05 – 15:35	JG /CB	6/8 - 8/8	NNE-SSE	0 - 1	5	Occasional light drizzle @ 13:05 – 14:30
1	2	11/11/16	07:55 – 09:45	JG /CB	1/8 – 7/8	WNW- WSW	0 - 1	5	None
	3	13/12/16	08:30 – 13:50	AB /SP	8/8	-	0	6 - 8	Light to heavy rain @ 08:30 - 10:30
	4	10/01/17	10:05 – 14:50	FT/SP	7/8	W	2 - 3	7	None
	5	08/02/17	08:30 - 14:00	AB /DW	8/8	=	0	3 - 4	Light rain
	1	05/10/16	07:10 – 12:00	AB/JC	3/8 - 7/8	E-SE	3	10	None
18	2	09/11/16	12:20 – 15:35	PC/EF	6/8 - 8/8	NNE-SSE	0 - 1	5	Occasional light drizzle @ 12:20 – 14:30
10	3	13/12/16	08:30 – 11:17	FT/EF	8/8	NW	2	8	Light drizzle/rain showers
	4	13/01/17	08:45 - 11:02	FT/MR	7/8	W-NW	3 - 5	2	None; Snow on ground

Version: 1
Issued: August 2017

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
	5	08/02/17	14:30 – 15:30	AB/DW JG/AT	8/8	ESE-E	0 - 2	3 - 4	Light rain
	1	04/10/16	11:00 – 14:50	AB/JC	7/8	SSE-SE	3 - 4	14	None
	2	09/11/16	08:45 – 12:10	PC/EF	5/8 - 8/8	S-SSE-S	0 - 1	3 - 4	Light rain @ 08:45 – 10:45
2	3	13/12/16	12:02 – 14:50	FT/EF	8/8	-	0	8	Drizzle/rain showers initially
	4	11/01/17	11:00 – 15:15	JG /CB	1/8 - 4/8	W	2 - 7	7	None
	5	07/02/17	08:20 – 14:35	JG /AT	5/8 - 8/8	SSE	0 - 2	4	Occasional light rain @ 08:20 – 08:45
	1	04/10/16	07:10 - 10:45	PC/MC	3/8 - 8/8	SSE-S	1 - 4	8 – 14	Mist @ 07:10 - 07:55
	0	08/11/16	14:55 – 15:45	JG /CB	8/8	-	0	5	None
2	3	09/11/16	07:40 – 12:25	JG /CB	8/8	-	0	2 - 4	Occasional light drizzle
3	3	15/12/16	08:34 - 10:49	FT/EF	8/8	S	1 - 2	6	None
	4	09/01/17	12:14 – 15:00	AB /DW	5/8	W	2 - 3	8	None
	5	06/02/17	12:15 – 14:30	AB /DW	3/8	SE	2 - 3	3 -4	None
	1	04/10/16	11:10 – 13:30	PC/MC	5/8 - 8/8	SSE-SE	3 - 4	14	None
	2	08/11/16	07:50 – 12:30	AB /AP	7/8	N	2 - 3	2 - 3	None
4	3	15/12/16	08:10 - 11:40	PC/CB	6/8 - 8/8	S	5	5 - 7	None
	4	11/01/17	12:45 – 16:00	AB /DW	4/8	W	5 - 7	5	None
	5	06/02/17	12:05 – 16:30	JG/AT	4/8	SE	0 - 3	5	Dry
	1	05/10/16	13:40 – 14:30	JG /SP	1/8	SSE	2	15	None
5	2	08/11/16	07:20 - 09:00	PC/EF	7/8	E-NNE	2 - 3	2 - 3	Occasional rain showers
	3	16/12/16	08:30 – 10:15	AB /SP	8/8	-	0	4	None
	4	10/01/17	14:20 – 16:00	AB /DW	6/8	W	1 - 2	4	Light drizzle

Version: 1 Issued: August 2017

43

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
	5	07/02/17	14:00 – 15:30	AB /DW	5/8	W	1 - 2	7	Dry
	1	04/10/16	12:45 – 15:40	JG /SP	6/8	E-SE	1 - 3	15	None
	2	10/11/16	07:30 - 10:45	PC/EF	0/8 - 8/8	S-NW	0 - 3	5	None
6	3	15/12/16	11:43 – 14:15	FT/EF	8/8	S	1 - 2	9	None
	4	13/01/17	08:30 - 11:30	AB /DW	7/8	W	4 - 5	2 - 3	None; Snow on ground
	5	06/02/17	11:30 – 15:00	PC/CB	1/8 — 6/8	S-SSW- SSE	2 - 4	5 - 6	None
	1	05/10/16	12:40 - 15:05	PC/MC	2/8 - 3/8	ESE-E	4 - 5	17	None
_	2	11/11/16	07:45 – 10:15	PC/EF	1/8 – 7/8	WNW- WSW	0 - 1	5	None
7	3	12/12/16	12:05 – 14:00	AB /SP	1/8	SSE	0 - 1	5	None
	4	13/01/17	08:50 - 11:15	JG /CB	2/8 - 6/8	NW-NNW	2 - 5	3	None; Snow on ground
	5	07/02/17	13:50 – 15:40	PC/CB	3/8 - 4/8	SSE-S	1 - 2	6 - 7	None
	1	04/10/16	07:10 - 10:45	AB/JC	0/8 - 7/8	E-SE	0 - 3	10 - 13	Mist @ 07:10 - 08:30
	2	11/11/16	07:45 – 11:15	AB /AP	5/8	-	0	4	None
8	3	12/12/16	11:40 – 15:20	PC/CB	2/8 - 8/8	N-NNW	0 - 1	5	None
	4	12/01/17	08:35 – 12:30	JG /CB	5/8	W-NW	1 - 3	2 - 6	Light snow
	5	09/02/17	08:30 - 11:20	FT/CB	8/8	ESE	0 - 2	2	None
	1	04/10/16	07:20 - 11:50	JG /SP	2/8 - 8/8	E-SE	0 – 3	11 - 15	Mist @ 07:20 - 08:30
	2	11/11/16	09:55 – 11:20	JG/CB PC/EF	1/8	SSW	0 - 1	5	None
9	3	15/12/16	08:30 - 15:38	AB /SP	8/8	SSE	1 - 2	4	None
	4	12/01/17	08:35 - 13:20	FT/MR	2/8 - 8/8	W-NW	1 - 3	1 - 3	Light snow
	5	10/02/17	08:45 – 11:45	AB/DW FT/CB	8/8	E	0 - 2	2	Occasional light showers
10	1	05/10/16	10:20 - 12:10	PC/MC	4/8 - 7/8	ESE	3 – 4	14 - 16	None

Version: 1

Issued: August 2017

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (°C)	Precipitation
		06/10/16	10:10 – 12:10	PC/MC	2/8 - 3/8	ESE	3 – 4	10 - 14	None
	2	08/11/16	07:35 – 14:40	JG /CB	7/8 – 8/8	-	0	2 - 5	None
	3	14/12/16	08:40 - 14:30	AB /SP	3/8	SSE	3	6 - 8	None
	4	11/01/17	08:50 - 13:30	FT/SP	2/8	W	3 - 4	6	None
		07/02/17	10:00 – 13:30	PC/CB	6/8 - 8/8	SSW-SSE	2 - 3	5 - 7	Drizzle
	5	08/02/17	08:30 – 11:55	JG /AT	8/8	ESE	0 - 2	3	Light rain @ 08:30 - 10:00
	1	04/10/16	15:00 – 16:00	PC/MC	3/8	SE	4 - 5	13	None
	2	10/11/16	07:45 - 09:35	JG /CB	1/8 – 4/8	WSW	0 - 3	5	None
17	3	13/12/16	14:00 – 15:00	AB /SP	8/8	SE	1	8	None
	4	10/01/17	08:43 - 09:44	FT/SP	2/8	W	3	6 - 9	None
	5	07/02/17	08:15 – 09:45	PC/CB	8/8	SW	3	4 - 5	Light drizzle

Section B

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
	1	07/10/16	07:10 - 09:40	PC/MC	7/8 — 8/8	E	2 – 3	8 - 12	None
	2	10/11/16	11:10 – 13:40	AB /AP	5/8	NW	1 - 4	5 - 7	None
11	3	14/12/16	12:15 – 15:05	PC/CB	1/8	SW	0 - 3	9 - 11	None
	4	11/01/17	08:35 – 10:40	JG /CB	1/8	W	2 - 4	7	None
	5	08/02/17	14:30 – 15:50	FT/CB	8/8	ESE-E	0 - 2	4	Occasional light rain showers

Version: 1
Issued: August 2017

45

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
	1	07/10/16	07:20 – 10:40	AB/JC	7/8	E	1 - 3	8 - 12	Light rain/drizzle @ 10:30 – 10:40
	2	08/11/16	13:40 – 15:50	PC/EF	8/8	N	0 - 1	4 - 5	Occasional rain showers
12	3	14/12/16	12:57 – 15:04	FT/EF	2/8	SW	2	12	None
	4	11/01/17	08:30 - 12:15	AB /DW	1/8	W	2 - 6	6	None
	5	09/02/17	08:20 - 12:10	JG/AT	8/8	ESE	0 - 2	2	Occasional very light snow
	1	06/10/16	07:30 - 11:50	AB/JC	6/8	SE	1 - 3	8 - 14	None
	2	10/11/16	11:15 – 15:15	PC/EF	3/8 - 8/8	NW	2 - 3	5 - 7	Occasional rain showers
13	3	12/12/16	11:30 - 15:00	FT/EF	2/8	E	1	8	None
	4	12/01/17	08:30 - 12:10	AB /DW	2/8	W	3 - 5	-1	None
	5	10/02/017	08:40 - 11:55	JG/AT	8/8	E	0 - 1	1 - 2	Snow @ 08:40 - 09:10
	1	07/10/16	07:25 – 11:35	JG/SP/ PC/MC	7/8 - 8/8	E	0 - 3	8 - 12	Light rain/drizzle @ 10:40 – 11:05
	2	08/11/16	13:00 – 15:15	AB /AP	8/8	N	0 - 1	4 - 5	Occasional rain showers
14		09/11/16	07:30 - 10:45	AB /AP	6/8 - 8/8	NW	0 - 1	3	Light rain
	3	14/12/16	08:10 - 12:00	PC/CB	2/8 - 8/8	S	2-3	7 - 9	None
	4	12/01/17	13:05 – 15:00	JG/CB AB/DW	6/8 - 7/8	W	1 - 3	1 - 6	Occasional light snow
	5	09/02/17	13:55 – 15:30	JG/AB/FT	8/8	SE	0 - 1	1	Light snow
	1	05/10/16	13:05 – 14:45	AB/JC	1/8	SSE	3 - 5	13	None
15	2	10/11/16	10:05 – 15:45	JG /CB	3/8 - 8/8	WSW- WNW	1 - 4	5 - 7	Rain showers @ 13:00 - 15:45
	3	15/12/16	08:20 - 10:10	PC/CB	6/8 - 8/8	WSW	2 - 3	5 - 6	None

Version: 1

Issued: August 2017

Transect Number	Visit Number	Date	Time	Observers	Cloud	Wind Direction	Wind Speed (Beaufort Scale)	Temp (℃)	Precipitation
			12:10 – 14:50	PC/CB	7/8 – 8/8	S-SW	3	5 - 7	None
		16/12/16	08:52 - 10:10	FT/EF	8/8	SW	1 - 2	8	None
	4	10/01/17	08:30 - 13:45	AB/DW	3/8	W	3	4	None
	5	09/02/17	08:30 - 13:00	AB /DW	7/8	-	0	2	Dry
	1	05/10/16	07:30 – 12:55	JG /SP	1/8 - 7/8	E-SE	1 - 4	12 - 15	None
	2	08/11/16	09:25 – 13:15	PC/EF	7/8 – 8/8	ENE-NNE	2 - 3	3 - 5	Occasional showers
16	3	14/12/16	08:29 - 12:17	FT/EF	8/8	SSE-S	0 - 2	10	None
	4	09/01/17	12:10 – 14:50	FT/JG/CB	3/8 - 5/8	W	2 - 5	7	None
	5	07/02/17	08:30 - 13:00	AB /DW	7/8 – 8/8	W	2 - 3	5 - 8	Rain @ 08:50 - 10:15
	1	06/10/16	07:30 - 12:45	JG /SP	3/8	SE-SSE	1 - 3	10	None
	2	09/11/16	11:15 - 15:30	AB /AP	8/8	NW	0 - 1	4	None
	2	10/11/16	07:45 - 10:30	AB /AP	0/8 - 5/8	NW	0 - 3	5	None
19	3	13/12/16	08:15 – 15:05	PC/CB	8/8	NE-NW	0 - 1	6 - 7	Occasional light to moderate rain
	4	10/01/17	08:35 – 15:20	JG /CB	2/8 - 6/8	W	1 - 4	5	None
	5	08/02/17	08:30 – 14:02	FT/CB	8/8	ESE	0 - 2	3	Light rain @ 08:30 – 10:30, 13:00 – 13:20 and 13:40 – 14:02

______ Version: 1 47 Issued: August 2017

APPENDIX C: BRITISH TRUST FOR ORNITHOLOGY (BTO) BIRD SPECIES CODES

		вто	Bird Species Codes		
AC	Arctic Skua	G.	Green Woodpecker	NK	Red-necked
AE	Arctic Tern	GR	Greenfinch	RH	Phalarope Red-throated Diver
AV	Avocet	GK	Greenshank	LR	Redpoll
BY	Barnacle Goose	H.	Grey Heron	RK	Redshank
ВО	Barn Owl	GJ	Greylag Goose	RT	Redstart
BA	Bar-tailed Godwit	P.	Grey Partridge	RE	Redwing
BR	Bearded Tit	GV	Grey Plover	RB	Reed Bunting
BS	Bewick's Swan	GL	Grey Wagtail	RW	Reed Warbler
BI	Battens	GU	Guillemot	RZ	Ring Ouzel
BK	Black Grouse	HF	Hawfinch	RI	Ring-necked Parakeet
BH	Black-headed Gull	HH	Hen Harrier	RP	Ringed Plover
BW	Black-tailed Godwit	HG	Herring Gull	R.	Robin
DV	Black-throated Diver	HY	Hobby	DV	Rock Dove
BX	Black Redstart	HZ	Honey Buzzard	RC	Rock Pipit
B.	Blackbird	HC	Hooded Crow	RO	Rook
BC	Blackcap	HP	Hoopoe	RS	Roseate Tern
TY	Black Guillemot	HM	House Martin	RY	Ruddy Duck
BN	Black-necked Grebe	HS	House Sparrow	RU	Ruff
BJ	Black Tern	JD	Jackdaw	SM	Sand Martin
BU	Bluethroat	JS	Jack Snipe	SS	Sanderling
BT	Blue Tit	J.	Jay	TE	Sandwich Tern
BL	Brambling	K.	Kestrel	VI	Savi's Warbler
BG	Brent Goose	KF	Kingfisher	SQ	Scarlet Rosefinch
BF	Bullfinch	KI	Kittiwake	SP	Scaup
BZ	Buzzard	KN	Knot	CY	Scottish Crossbill
C.	Carrion Crow	LA	Lapland Bunting	SW	Sedge Warbler
CG	Canada Goose	L.	Lapwing	NS	Serin
CP	Capercaillie	TL	Leach's Petrel	SA	Shag
CW	Cetti's Warbler	LB	Lesser Black-backed Gull	SU	Shelduck
СН	Chaffinch	LS	Lesser Spotted Woodpecker	SX	Shorelark
CC	Chiffchaff	LW	Lesser Whitethroat	SF	Short-eared Owl
CI	Chough	LI	Linnet	SV	Shoveler
CL	Cirl Bunting	ET	Little Egret	SK	Siskin
CT	Coat Tit	LG	Little Grebe	S.	Skylark
CD	Collared Dove	LU	Little Gull	SZ	Slavonian Grebe
CM	Common Gull	LO	Little Owl	SN	Snipe
CS	Common Sandpiper	LP	Little Ringed Plover	SB	Snow Bunting
CX	Common Scoter	AF	Little Tern	ST	Song Thrush
CN	Common Tern	LE	Long-eared Owl	SH	Sparrowhawk
CE	Corncrake	IT	Long-tailed Tit	AK	Spotted Crake
CO	Coot	MG	Magpie	SF	Spotted Flycatcher
CA	Cormorant	MA	Mallard	SG	Starling
СВ	Corn Bunting	MN	Mandarin	SD	Stock Dove

48

Version: 1

Issued: August 2017

	BTO Bird Species Codes											
СТ	Crested Tit	MX	Manx Shearwater	SC	Stonechat							
CR	Crossbill	MR	Marsh Harrier	TN	Stone-curlew							
CK	Cuckoo	МТ	Marsh Tit	TM	Storm Petrel							
CU	Curlew	MW	Marsh Warbler	SL	Swallow							
DW	Dartford Warbler	MP	Meadow Pipit	SI	Swift							
DI	Dipper	MU	Mediterranean Gull	ТО	Tawny Owl							
DO	Dotterel	ML	Merlin	T.	Teal							
DN	Dunlin	M.	Mistle Thrush	TK	Temminck's Stint							
D.	Dunnock	МН	Moorhen	TP	Tree Pipit							
EG	Egyptian Goose	МО	Montagu's Harrier	TS	Tree Sparrow							
E.	Eider	MS	Mute Swan	TC	Treecreeper							
FP	Feral Pigeon	N.	Nightingale	TU	Tufted Duck							
FF	Fieldfare	NJ	Nightjar	TT	Turnstone							
FC	Firecrest	NH	Nuthatch	TD	Turtle Dove							
F.	Fulmar	OP	Osprey	TW	Twite							
GA	Gadwall	ОС	Oystercatcher	WA	Water Rail							
GX	Gannet	PE	Peregrine	W.	Wheatear							
GW	Garden Warbler	PH	Pheasant	WM	Whimbrel							
GY	Garganey	PF	Pied Flycatcher	WC	Whinchat							
GC	Goldcrest	PW	Pied Wagtail	WO	White-fronted Goose							
EA	Golden Eagle	PT	Pintail	WH	Whitethroat							
OL	Golden Oriole	PO	Pochard	WS	Whooper Swan							
GF	Golden Pheasant	PG	Pink-footed Goose	WN	Wigeon							
GP	Golden Plover	PM	Ptarmigan	WT	Willow Tit							
GN	Goldeneye	PU	Puffin	WW	Willow Warbler							
GO	Goldfinch	PS	Purple Sandpiper	WO	Wood Warbler							
GD	Goosander	Q.	Quail	WK	Woodcock							
GI	Goshawk	RN	Raven	WL	Woodlark							
GH	Grasshopper Warbler	RA	Razorbill	WP	Woodpigeon							
GB	Great Black-backed Gull	RG	Red Grouse	OD	Wood Sandpiper							
GG	Great Crested Grebe	ED	Red-backed Shrike	WR	Wren							
ND	Great Northern Diver	RM	Red-breasted Merganser	WX	Waxwing							
GS	Great Spotted Woodpecker	RQ	Red-crested Pochard	WY	Wryneck							
NX	Great Skua	FV	Red-footed Falcon	YB	Yellow-browed Warbler							
GT	Great Tit	KT	Red Kite	YW	Yellow Wagtail							
GE	Green Sandpiper	RL	Red-legged Partridge	Y.	Yellowhammer							

Version: 1 Issued: August 2017

APPENDIX D: DESK STUDY RESULTS

ERIC North East Data

Key

Amber and Red Lists - Birds of Conservation Concern 4 (Eaton *et al.* 2015)
LBAP – Northumberland Local Biodiversity Action Plan
NERC - Natural Environment & Rural Communities Act 2006: Section 41 List of Species of Principal Importance
Schedule 1 - Schedule 1 Wildlife and Countryside Act 1981 (as amended)
Annex 1 – Annex 1 of the Birds Directive

Version: 1
50 Issued: August 2017

Section A

					Co	nservation Stat	us / Legal Prote	ection	
Species	Scientific name	No. Records	Maximum Count	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba	4	1			Υ		Y	
Bullfinch	Pyrrhula pyrrhula	2	1	Y			Υ		
Corn Bunting	Miliaria calandra	1	N/A		Υ	Υ	Υ		
Cuckoo	Cuculus canorus	1	N/A		Υ	Υ	Υ		
Curlew	Numenius arquata	7	200+	Y		Υ	Υ		
Grey Partridge	Perdix perdix	1	N/A		Υ	Υ	Υ		
Hen Harrier	Circus cyaneus	1	N/A		Υ	Υ	Υ	Y	Υ
Herring Gull	Larus argentatus	4	6		Υ		Υ		
House Sparrow	Passer domesticus	2	6		Υ	Υ	Υ		
Lapwing	Vanellus vanellus	7	1000+		Υ	Υ	Υ		
Marsh Tit	Poecile palustris	2	2		Υ	Υ	Υ		
Reed Bunting	Emberiza schoeniclus	2	1	Y		Υ	Υ		
Skylark	Alauda arvensis	1	N/A		Υ	Υ	Υ		
Song Thrush	Turdus philomelos	2	7		Υ	Υ	Υ		
Starling	Sturnus vulgaris	7	500+		Υ	Υ	Υ		
Yellow Wagtail	Motacilla flava	1	N/A		Υ	Υ	Υ		
Yellowhammer	Emberiza citrinella	2	3		Υ	Υ	Υ		
TOTAL - 17 species		47		3	13	15	16	2	1

Section B

					Co	nservation Stat	us / Legal Prote	ection	
Species	Scientific name	No. Records	Maximum Count	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba	1	N/A			Υ		Y	
Bar-tailed Godwit	Limosa lapponica	5	50+	Y		Υ			Υ
Black-tailed Godwit	Limosa limosa	3	1		Y		Υ	Y	
Bullfinch	Pyrrhula pyrrhula	2	4	Y			Υ		
Curlew	Numenius arquata	11	100+	Y		Υ	Υ		
Dunnock	Prunella modularis	8	12+	Y			Υ		
Grey Partridge	Perdix perdix	2	10		Υ	Υ	Υ		
Herring Gull	Larus argentatus	7	12		Υ		Υ		
House Sparrow	Passer domesticus	6	50+		Υ	Υ	Υ		
Lapwing	Vanellus vanellus	2	6		Υ	Υ	Υ		
Reed Bunting	Emberiza schoeniclus	1	3	Y		Υ	Υ		
Song Thrush	Turdus philomelos	1	2		Υ	Υ	Υ		
Starling	Sturnus vulgaris	7	300+		Υ	Υ	Υ		
Tree Sparrow	Passer montanus	2	12		Y	Υ	Υ		
Yellowhammer	Emberiza citrinella	3	32		Υ	Υ	Υ		
TOTAL - 15 species		61		5	9	11	13	2	1

_____ Version: 1 52 Issued: August 2017

A1 in Northumberland	
Wintering Bird Survey Report	

Northumberland & Tyneside Bird Club Data

Key

Amber and Red Lists - Birds of Conservation Concern 4 (Eaton *et al.* 2015)
LBAP – Northumberland Local Biodiversity Action Plan
NERC - Natural Environment & Rural Communities Act 2006: Section 41 List of Species of

Principal Importance
Schedule 1 - Schedule 1 Wildlife and Countryside Act 1981 (as amended)

Annex 1 – Annex 1 of the Birds Directive

Section A

														Numb	per of	Birds i	in Tetı	rad												C	onserv	ation Sta	atus / Leç	gal Protectio	n
Species	Scientific name	NU10K	NU10L	NU10Q	NU10R	NU10V	NU10W	NZ18T	NZ18U	NZ18Y	NZ18Z	NZ19N	NZ19P	NZ19Q	NZ19R	NZ19S	NZ19T	NZ19U	NZ19V	NZ19W	NZ19X	NZ19Y NZ19Z	NZ28D	NZ28E	NZ29A	NZ29B	NZ29C	NZ29D	NZ29E	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba			1					1	1		1		1	1	1		1		1	1	1					1	1				Υ		Υ	
Blackbird	Turdus merula	35	17	38	36	44	56	20	19	31	12	28	17	9	16	8	8	12	10	8	9	8 11	16	9	11	8	10	40	13						
Blackcap	Sylvia atricapilla					1																													
Black-headed Gull	Chroicocephalus ridibundus	5	N/A	130			50		N/A	60		1						14	18			10 3	10	431	74	8	7	50		Υ					
Blue Tit	Cyanistes caeruleus	14	19	9	23	15	14	28	14	40	7	16	24	12	5	9	6	9	6	7	5	2 7	9	4	5	9	6	18	2						
Brambling	Fringilla montifringilla	6			4	N/A			1	2		8			7										4			6						Y	
Bullfinch	Pyrrhula pyrrhula	1	3	1	4	7	10	1	1	5	8	8	10	2	5	2	5	6			1		1		2		1	6		Υ			Υ		
Buzzard	Buteo buteo	1	1	2			4	2	3	1	1	2	2		2	1	1	2	2	1	2	3 2	1	2	2	1		3	3						
Canada Goose	Branta canadensis											2										1		10											
Carrion Crow	Corvus corone	20	16	12	33	5	43	2	10	6	3	7	5	5	11	12	3	4	13	6	5	7 12	33	8	36	6	20	31	17						
Chaffinch	Fringilla coelebs	27	52	18	56	25	42	14	60	10	38	55	7	2	21	41	2	13	1	3	10	12 1	4	4	12	43	10	20	30						
Chiffchaff	Phylloscopus collybita											1																							
Coal Tit	Periparus ater	5	20	7	2	3	2	1	3	7	3	10	4	2	2	8	15	6			2	2 1	3	2	2	2		10							
Collared Dove	Streptopelia decaocto				15	14	2	1	4	1	6	2		2					1	3		2	2			4		2							
Common Crossbill	Loxia curvirostra											4					5	1																Y	
Common Gull	Larus canus	60	36	55	175	12	4	600	100	1	2	56	2	30	47		15	3	10			2 3	220	30	15		1	60		Υ					
Common Redpoll	Acanthis flammea											1																		Υ					
Coot	Fulica atra																							7											
Cormorant	Phalacrocorax carbo									2		2	2									1	1		2							Υ			
Corn Bunting	Miliaria calandra											1																			Υ	Υ	Υ		
Curlew	Numenius arquata																							2							Υ	Υ	Υ		
Dipper	Cinclus cinclus					3				1										1			2							Υ					
Dunnock	Prunella modularis	1	2	2	4	4	6	2	4	4	4	7	2	2	4	4	1	3	5	2	6	2 4	5	1	5	6	N/A	3	6	Υ			Υ		
Fieldfare	Turdus pilaris	10	16	34			35	10	51		25	150	20		32	59	120	N/A	21		185	8 27				10		200	85		Υ			Υ	
Gadwall	Anas strepera																					1		18						Υ					
Goldcrest	Regulus regulus		5	7	1					1	1	12	2	1	2		6	2				1		3		1		6	1						
Golden Plover	Pluvialis apricaria											83				8					37			200								Υ			Υ
Goldeneye	Bucephala clangula											1																		Y		Υ			
Goldfinch	Carduelis carduelis		8		28	16		7	14	6	6	13	2	4		9	1	3				1 4		12	1	40	10	40	20						

Version: 1 Issued: August 2017

														Numb	er of Bird	s in Te	trad												(Conserv	vation St	atus / Le	gal Protectic	on
Species	Scientific name	NU10K	NU10L	NU10Q	NU10R	NU10V	NU10W	NZ18T	NZ18U	NZ18Y	NZ18Z	NZ19N	NZ19P	NZ19Q	NZ19R NZ19S	NZ19T	NZ19U	NZ19V	NZ19W	NZ19X	NZ19Z	NZ28D	NZ28E	NZ29A	NZ29B	NZ29C	NZ29D	NZ29E	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Goosander	Mergus merganser			3		2				5			2		1		N/A				1	3												
Goshawk	Accipiter gentilis																				1												Υ	
Great Black-backed Gull	Larus marinus						3														1								Υ					
Great Spotted Woodpecker	Dendrocopos major	1	2	2	1		1	2	1	2		4	1	2	2	1	N/A	3				1		1	1		3							
Great Tit	Parus major	8	11	1	5	5	5	26	5	20	10	18	7	1	1 4	1	4	5	1	1	1	5	1	2	7	3	12	1						
Green Sandpiper	Tringa ochropus														1														Υ				Y	
Green Woodpecker	Picus viridis									1						1								1										
Greenfinch	Chloris chloris	N/A		2	9	8	2		24	10	9	25	1		16	2	1		4		1				12	3	6							
Grey Heron	Ardea cinerea	1		1	1	2	1		1	1		1	2	1			1			1 1	2	1	1	1	2		1							
Grey Partridge	Perdix perdix						4		6		7	10	5		27	1	4	17			6	7	6	22			9	16		Υ	Υ	Υ		
Grey Wagtail	Motacilla cinerea			1		2				1		2	2							1		1					1			Υ				
Greylag Goose	Anser anser																						11				91		Υ					
Herring Gull	Larus argentatus	210	2	3	5		104		5		2	22		2			150	36	4			8		5	40		80			Υ		Υ		
Hooded Crow	Corvus cornix											1																						
House Sparrow	Passer domesticus	7	6	5	60	38	14	17	9	8	22	33	8		12 35	2	5	4	36	25	13	3 7		20	15	5	34	10		Υ	Υ	Υ		
Jack Snipe	Lymnocryptes minimus																										2							
Jackdaw	Corvus monedula	40	44	138	93	62	83	6	100	2	9	77	22	2	12 41	3	20	80	22	1	0 66	21	18	162	100	5	30	8						
Jay	Garrulus glandarius	3	3	1		2		5		2		5	3		2	1	1	1		1	1	1	1				2							
Kestrel	Falco tinnunculus	2	1	2	1	1	2	2	1	1	1	1	1	2	2 1	1	2		1	1 2	2 2	2		1		2	1	1	Υ		Υ			
Kingfisher	Alcedo atthis					1				1												2							Υ				Υ	Υ
Lapwing	Vanellus vanellus								42		80	23			1		9		2		1		80	50			160			Υ	Υ	Υ		
Lesser Redpoll	Acanthis cabaret		6						11			7	1	1									3				1			Υ	Υ	Υ		
Linnet	Linaria cannabina			2			42		2		45	50			60							12	14	7			200	150		Υ	Υ	Υ		
Little Grebe	Tachybaptus ruficollis					1				2												2												
Little Owl	Athene noctua								1	2					1								1											
Long-tailed Tit	Aegithalos caudatus			7	6			12		17	5	16	2		2	8	5	4		5	5 4	7	6	13	1		8							
Magpie	Pica pica	6	8	1	5	4	2		4	1	2	4	2	1	1 3	1	2	4	5	1 1	5	8	5	6	1	3	1							
Mallard	Anas platyrhynchos	3		2		20			2	20		6	13	650							30	6	13	10			38		Υ					
Marsh Tit	Poecile palustris		1			2		1		3		3	2			2	1		2			2								Υ	Υ	Υ		
Meadow Pipit	Anthus pratensis					5										4	1					1					4		Υ					
Merlin	Falco columbarius			N/A											1					1										Υ	Υ		Υ	Υ
Mistle Thrush	Turdus viscivorus		2	12	2	8	5	4	1	2		7	1	9	1 2	17	3	1		3 1	5	7	1	1	2	2	1	1		Υ	Υ			
Moorhen	Gallinula chloropus	4	2			2				6		14				3					3	2		1	2									
Mute Swan	Cygnus olor	4								8		4	2								2	2	2	3					Υ					
Nuthatch	Sitta europaea	2	2	1	N/A	2	2	3	1	6		8	2	3	1		1				1	2			1		1							L
Oystercatcher	Haematopus ostralegus																					1	37						Y					
Peregrine	Falco peregrinus		1									2					1						1								Υ		Υ	Υ
Pheasant	Phasianus colchicus	24	5	66	N/A	2	13	9	2			11	4	34	12 9	2	2	10	2	9 2	2 8	1	4	12	3	2	3	18						
Pied Wagtail	Motacilla alba yarrellii	1	1			3		2				1	1				1				1		2	4	1		2							

														Numb	er of Bird	s in Te	trad													C	Conserv	ation St	atus / Le	gal Protectio	n
Species	Scientific name	NU10K	NU10L	NU10Q	NU10R	NU10V	NU10W	NZ18T	NZ18U	NZ18Y	NZ18Z	NZ19N	NZ19P	NZ19Q	NZ19R NZ19S	NZ19T	NZ19U	NZ19V	NZ19W	NZ19X	NZ19Y	NZ19Z	NZ28D	NZ28E	NZ29A	NZ29B	NZ29C	NZ29D	NZ29E	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Pink-footed Goose	Anser brachyrhynchus																							2						Y		Υ			
Red-legged Partridge	Alectoris rufa			43			2	3	55					19				2	1		2			2		10		5							
Redwing	Turdus iliacus	35	75	104	21	7	83	20	71	15	16	129	200	2	32 28	N/A	12			6	2	4	38			20	3	4	1		Υ			Υ	
Reed Bunting	Emberiza schoeniclus		2			2						8			4	5				2			1	6				1		Υ		Υ	Υ		
Robin	Erithacus rubecula	7	12	7	9	15	16	15	7	14	8	18	8	7	4 4	4	3	3	5	6	3	6	5	2	1	6	4	6	4						
Rock Dove / Feral Pigeon	Columba livia		1	3	19	1	5			1		3							20			30	8		30			N/A	15						
Rook	Corvus frugilegus	80	78	225	77	48	111	28	35	50	20	55	32	70	12 57	20	20	150	74		35	20	6	23	50	50	60	35	51						
Siskin	Spinus spinus			45	10	N/A				20		35	30			20	1						12	23	6			13							
Skylark	Alauda arvensis											62	8		1 1		1				1	2	1	35	1		1	1	2		Υ	Υ	Υ		
Snipe	Gallinago gallinago					1	1				1	3				3												11		Y		Υ			
Song Thrush	Turdus philomelos	1				1		1	1	2	2	4	2	1	1	1	3	1	1	3		2	1	1	1			1	1		Υ	Υ	Υ		
Sparrowhawk	Accipiter nisus		1	1			1	1	1	1	1	1			1	1			1	1	1	1	1	2	1			1	1						
Squacco Heron	Ardeola ralloides									1													1												Y
Starling	Sturnus vulgaris	120	1	130	125	149	26	40	36		7	33	69		82 22	60	200		12			5	20	93	125		1	258			Υ	Υ	Υ		
Stock Dove	Columba oenas						1			1		8			27 3													10		Υ					
Stonechat	Saxicola rubicola					1									2			1																	
Tawny Owl	Strix aluco									2	1	3			1 1		1													Υ					
Teal	Anas crecca											1													12			14		Υ					
Tree Sparrow	Passer montanus				11				6		1	30			7		1					4			6	20		3			Υ	Υ	Υ		
Treecreeper	Certhia familiaris	2						3		2		2	2			3	2						2	1		1		1							
Tufted Duck	Aythya fuligula											11										4	1	4											
Waxwing	Bombycilla garrulus					30				31	2	10											30			15									
Whooper Swan	Cygnus cygnus																												3	Υ				Υ	Y
Wigeon	Anas penelope																								2					Υ					
Willow Tit	Poecile montana							2				3				1							1								Υ	Υ	Υ		
Woodcock	Scolopax rusticola									2		2			4	1							1				1				Υ				
Woodpigeon	Columba palumbus	91	53	50	29	41	545	2	2500	16	256	250	15	35	60 60	19	15	15	15	48	65	32	22	21	92	300	160	700	500						
Wren	Troglodytes troglodytes		4		1	4	2	4		5	3	8	4	1	7 2	2	2		1	1	1		5	2	14	8	11	4	4						
Yellowhammer	Emberiza citrinella	3	19		18		5	5	20			130	1		42 6	4	3	2	2	10	12	34	5	4	14	10	2	3			Υ	Υ	Υ		
TOTAL - 97 species		36	39	41	35	46	39	36	43	54	36	73	45	31	38 39	44	49	28	29	26	32	48	57	50	46	36	27	59	27	25	21	25	18	11	6

Section B

													Numb	er of E	Birds in	Tetra	d													Conser	vation St	atus / Leg	al Protection	n
Species	Scientific name	NU11P	NU11S	NU11T	NU11U	NU11V	NU11W	NU11X	NU11Y	NU11Z	NU12K	NU12L	NU12M	NU12Q	NU12R	NU12S	NU12V	NU12W	NU12X	NU21A	NU21B	NU21C	NU21D	NU21E	NU21F	NOZIG	NU21H	NU22A	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba						1	1	1	1				1	1	1	1	N/A	1		1	2			3	1	1				Υ		Y	
Blackbird	Turdus merula	11	15	7	4	7	31	18	26	10	1	3	4	6	11	23	10	23	32	46	27	8	20	9	38 2	25	82	31						
Blackcap	Sylvia atricapilla						1																		1									
Black-headed Gull	Chroicocephalus ridibundus	76	N/A			45	36	65		9		7	1		55	6		10	3	19	8	:	23		50	5	45		Υ					
Black-tailed Godwit	Limosa limosa																								5					Υ		Υ	Y	
Blue Tit	Cyanistes caeruleus	3	17	7	11	2	23	14	22	10	1		5	5	10	17	11	2	14	19	8	7	4	4	14	ŝ	7	14						
Brambling	Fringilla montifringilla						2							1	4	1									4								Υ	
Bullfinch	Pyrrhula pyrrhula					3	2			1					4	7		2	11	9	2	1			4		2		Υ			Υ		
Buzzard	Buteo buteo	1	6	3	2	2	3	2	2	3	1	2	1	1	2	2	2	4	4	1	3	2	3	2	1	2	4	1						
Canada Goose	Branta canadensis																								1									
Carrion Crow	Corvus corone	2	7	1	4	2	2	1	6	2	3	23	1	3	8	3	4	6	7	12	6	21	3		5	2	1	3						
Chaffinch	Fringilla coelebs	4	2	27	62	9	36	13	17	17	3	137	28	102	21	45	14	51	26	80	30	17	39	9	54	0	19	26						
Chiffchaff	Phylloscopus collybita						1																		1									
Coal Tit	Periparus ater		14	3	1	N/A	2	3	2	1	1	2	2	2	2	15	1	2	3	2	4	2	4		10	4	4	2						
Collared Dove	Streptopelia decaocto				2		9			1		1	4	14	4	22	2	5	1		4	3			30		2	2						
Common Crossbill	Loxia curvirostra		15																														Y	
Common Gull	Larus canus	100	36		581	98	10			2	18			1	5			2		28			2		350	9	2		Υ					
Common Redpoll	Acanthis flammea						1																						Υ					
Coot	Fulica atra																	4																
Cormorant	Phalacrocorax carbo		1				1							1						1	3				1		1				Υ			
Curlew	Numenius arquata													1			1			11	43				120 1	2				Υ	Υ	Υ		
Dipper	Cinclus cinclus		10			1	1	2													2				1	1			Υ					
Dunlin	Calidris alpina																								8				Υ		Υ			
Dunnock	Prunella modularis	2	2	4	3	1	2	12	8	8		N/A	1	4	5	6	3	10	3	5	13	4	9	2	12	3	17	9	Υ			Υ		
Fieldfare	Turdus pilaris	500			200		2	100	109		1	N/A	80	4	3			10		4	6	28	1	7	2 2	20	4	18		Υ			Y	
Goldcrest	Regulus regulus		9			N/A	1	1	2	2		N/A		1			1		2	6	4		4		1	1	5							
Golden Plover	Pluvialis apricaria									400			20		15		25										2	220			Υ			Υ
Goldeneye	Bucephala clangula						2														4				N/A				Υ		Υ			
Goldfinch	Carduelis carduelis	4	35		4	N/A	34	5	2				8	6	45	5			11	4	3		2		22	5	4	5						
Goosander	Mergus merganser		8																	1	2				4	1	2							
Goshawk	Accipiter gentilis										1																						Y	
Great Black- backed Gull	Larus marinus				2									1	1		1	1							1				Υ					
Great Spotted Woodpecker	Dendrocopos major	1	3	1		1	1	4						1	1	3	1	N/A	2	2	1				1	1	1	1						
Great Tit	Parus major	1	8	3	3		1	7	1	1				1	4	3	3	7	9	3	4	2	2		6	4	2	2						
Great White Egret	Ardea alba						1	1																										Υ
Green Woodpecker	Picus viridis		1																															
Greenfinch	Chloris chloris		5	2	23	N/A	24	5			4			35	50	12		1	2		3	2	23		1	7	3	3						

Version: 1 Issued: August 2017

													Numb	er of E	Birds in	Tetrac	d												Conserv	ation St	atus / Leg	gal Protection	1
Species	Scientific name	NU11P	NU11S	NU11T	NU11U	NU11V	NU11W	NU11X	NU11Y	NU11Z	NU12K	NU12L	NU12M	NU12Q	NU12R	NU12S	NU12V	NU12W	NU12X	NU21A	NU21B	NU21C	NU21E	NIP1E	NU21G	NU21H	NU22A	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Grey Heron	Ardea cinerea		2	1		1	2	1						2					1	4	1	1		3	1	2							
Grey Partridge	Perdix perdix	2	1				9	7	12	3							3				8	1	2 2	2	23	4	5		Υ	Υ	Υ		
Grey Wagtail	Motacilla cinerea					1	2					N/A	1			1				1	6		1 1	1	1	1			Υ				
Greylag Goose	Anser anser							2							1	1		15										Υ					
Hen Harrier	Circus cyaneus										1										1								Υ	Υ	Υ	Υ	Y
Herring Gull	Larus argentatus	12			2	N/A	3	1			1	33	6	1	6	130		5	2		1			22	2	1	64		Υ		Υ		
House Sparrow	Passer domesticus	12	3	4	8	N/A	34	15	16	27		20	12	18	32	36	2	20	13	10		9 1	0 22	50) 1	16	22		Υ	Υ	Υ		
Jackdaw	Corvus monedula	112	56	12	13	11	68	26	7	2	2	173	17	9	7	20	2	25	14	25	25	3	3	26	36	115	20						
Jay	Garrulus glandarius		4		1			2						1					1	3	1	1		1									
Kestrel	Falco tinnunculus	1	1	1	1	2	1	1	3	3		1	1	1	1	1	1		3	4	3	2	1 2	1	1	3	1	Υ		Υ			
Kingfisher	Alcedo atthis																				1			1				Υ				Y	Y
Lapwing	Vanellus vanellus				4	10				150											100	20	2 70	1	1	1	157		Υ	Υ	Υ		
Lesser Redpoll	Acanthis cabaret						1													1	1		1			3			Υ	Υ	Υ		
Linnet	Linaria cannabina					24			50											7				30)	21			Υ	Υ	Υ		
Little Grebe	Tachybaptus ruficollis						2											3						1		1	2						
Long-eared Owl	Asio otus																									1							
Long-tailed Tit	Aegithalos caudatus		20			16	9	7		3						10	16		5	1	12		1	16	3 14	1							
Magpie	Pica pica	2	N/A			1	7			1				2					2	8	5		1	2	1		2						
Mallard	Anas platyrhynchos		13				19	10		5						2	1	60	1	7	16	8	8	2	2	10	31	Υ					
Marsh Tit	Poecile palustris																							1					Υ	Υ	Υ		
Meadow Pipit	Anthus pratensis								2		1												2					Υ					
Merlin	Falco columbarius									1						1													Υ	Υ		Y	Υ
Mistle Thrush	Turdus viscivorus	2	20	2	2	5	10	20	2	2		3	4	1	6	6	1	5	5	3	4	2	3	3	2	3	2		Υ	Υ			
Moorhen	Gallinula chloropus		12	1	2		13											14		2	6		4	2	1	2	4						
Mute Swan	Cygnus olor		3				2								1			8			5	2	1	6		6		Υ					
Nuthatch	Sitta europaea		3				1	3							1	1	1		3		1					1	3						
Oystercatcher	Haematopus ostralegus													2														Υ					
Peregrine	Falco peregrinus		1													1			1			1	1	1			1			Υ		Υ	Υ
Pheasant	Phasianus colchicus	21	47	1	2		2	32	11	2	3	5	10	7	1	18	12	30	9	37	3	5	3 21	8	2	10	21						
Pied Wagtail	Motacilla alba yarrellii			1			1									4	1			1			2	1	1								
Pink-footed Goose	Anser brachyrhynchus														150	55												Υ		Y			
Pochard	Aythya ferina																									1			Υ	Υ			
Red Grouse	Lagopus lagopus		11																									Υ			Υ		
Red Kite	Milvus milvus							1																						Υ		Y	Y
Red-legged Partridge	Alectoris rufa	10								2			1			1		5		6	9	2			6		2						
Redshank	Tringa totanus							1																1	-			Υ		Υ			1
Redwing	Turdus iliacus		4		2		100	10	36	11		N/A			2				3	56	21	-	1	4	_	22	8		Υ	1		Y	1
Reed Bunting	Emberiza schoeniclus		1																1				3 1	3	_	2		Υ		Υ	Υ		<u> </u>
Robin	Erithacus rubecula	3	21	4	2	1	15	6	2	9	3	1	2	5	5	9	2	13	7	10	6	5	3 5	2	5	16	8						
Rock Dove / Feral Pigeon	Columba livia		1		7	27	38	1		2	8	N/A	22	9	6	40	3	6		2	7	1	3 25	i		4	10						

													Numb	er of B	irds in	Tetra	d													Conserv	ation Sta	atus / Leg	al Protection	
Species	Scientific name	NU11P	NU11S	NU11T	NU11U	NU11V	NU11W	NU11X	NU11Y	NU11Z	NU12K	NU12L	NU12M	NU12Q	NU12R	NU12S	NU12V	NU12W	NU12X	NU21A	NU21B	NU21C	NU21D	NU21E	NU21F	NU21G	NU21H	NU22A	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Rook	Corvus frugilegus	500	12	26	225	77	13	68	39	48	105	170	166	142	270	90	12	30	20	103	44	25	55	65	52	39	35	35						
Scaup	Aythya marila																										3			Υ		Υ	Υ	
Shelduck	Tadorna tadorna																								N/A				Υ		Υ			
Siskin	Spinus spinus		100				28	2		2			2							25	2				1		16							
Skylark	Alauda arvensis				7	1		7	5	1	1		15		3	2	3	8							12		5	2		Υ	Υ	Υ		
Snipe	Gallinago gallinago	5			3				1				2						1					1			1		Υ		Υ			
Snow bunting	Plectrophenax nivalis																								1				Υ				Υ	
Song Thrush	Turdus philomelos		5	2		2	1	8	1	5				1	1		1	6	3	6	3	2	1	4	1	5	4	1		Υ	Υ	Υ		
Sparrowhawk	Accipiter nisus		2			1	1						1					1	1	1	1				1		1							
Starling	Sturnus vulgaris	12		200	153	11	2000	1		1	50	70	12	501	270	15		2	2	8	7	23		70	94	15		94		Υ	Υ	Υ		
Stock Dove	Columba oenas	2				1	1	3								1		4	8	1	2					1	2		Υ					
Stonechat	Saxicola rubicola										1														1									
Tawny Owl	Strix aluco		1				1								N/A	2		N/A		1					1		1		Υ					
Teal	Anas crecca									55									9						N/A	1			Υ					
Tree Sparrow	Passer montanus	24			2			1		6			1	5		1			2	2	2		6		16	2		8		Υ	Υ	Υ		
Treecreeper	Certhia familiaris		3	1		1	2	3							1				1		1	1			2	2		1						
Tufted Duck	Aythya fuligula						24											10									125							
Twite	Linaria flavirostris																								50					Υ	Υ	Υ		
Waxwing	Bombycilla garrulus						6								2										22									
Whooper Swan	Cygnus cygnus																					6			13				Υ				Υ	Υ
Wigeon	Anas penelope																	2			15				15				Υ					
Woodcock	Scolopax rusticola										1		1		1	1		4	1						2	2	1	1		Υ				
Woodpigeon	Columba palumbus	5	38	17	3	1000	10	193	100	619	6	77	144	600	63	365	651	65	150	93	80	45	68	400	111	27	17	806						
Wren	Troglodytes troglodytes	1	5	5	1	2	10	1	3	6	4	1	1	2	3	2	4	7	1	5	7	3	6	1	17	8	11	7						
Yellowhammer	Emberiza citrinella	4		4	15		15	1	15		6	35	8	43	2	4	5	14		13	19	3	31	14	10	20	16	3		Υ	Υ	Υ		
TOTAL – 102 spec	cies	30	47	26	34	37	60	45	29	39	25	25	33	39	44	44	33	44	44	48	57	34	34	29	77	47	58	42	28	24	30	21	15	8

Version: 1

58

APPENDIX E: WINTERING BIRD SURVEY RESULTS

Key

Amber and Red Lists - Birds of Conservation Concern 4 (Eaton et al. 2015)

LBAP - Northumberland Local Biodiversity Action Plan

NERC - Natural Environment & Rural Communities Act 2006: Section 41 List of Species of

Principal Importance

Schedule 1 - Schedule 1 Wildlife and Countryside Act 1981 (as amended)

Annex 1 – Annex 1 of the Birds Directive

Section A

				Numb	per of Bir	ds			Conser	vation Stat	us / Legal	Protection	
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba		1		1		1			Υ		Υ	
Blackbird	Turdus merula	62	406	225	231	285	406						
Blackcap	Sylvia atricapilla	2					2						
Black-headed Gull	Chroicocephalus ridibundus	305	139	174	201	4	305	Υ					
Blue Tit	Cyanistes caeruleus	154	154	133	101	176	176						
Brambling	Fringilla montifringilla	5	17	1	1	1	17					Υ	
Bullfinch	Pyrrhula pyrrhula	11	36	47	28	40	47	Υ			Υ		
Buzzard	Buteo buteo	43	33	29	27	42	43						
Carrion Crow	Corvus corone	258	248	229	267	272	272						
Chaffinch	Fringilla coelebs	316	655	336	207	273	655						
Chiffchaff	Phylloscopus collybita	23	1				23						
Coal Tit	Periparus ater	41	55	37	38	53	55						
Collared Dove	Streptopelia decaocto	12	28	23	8	5	28						
Common Crossbill	Loxia curvirostra		13		6	4	13					Υ	

Version: 1

Issued: August 2017

				Numl	per of Bir	ds			Conserv	vation Stat	tus / Legal	Protection	
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Common Gull	Larus canus	114	345	258	82	53	345	Y					
Cormorant	Phalacrocorax carbo	1	1	1	1		1			Υ			
Curlew	Numenius arquata	7		1			7		Υ	Υ	Υ		
Dipper	Cinclus cinclus		1	1			1	Υ					
Dunnock	Prunella modularis	135	182	88	61	91	182	Υ			Υ		
Feral Pigeon	Columba livia	3	70	24	8	3	70						
Fieldfare	Turdus pilaris	3	629	331	350	1505	1505		Υ			Υ	
Goldcrest	Regulus regulus	127	151	40	63	42	151						
Golden Plover	Pluvialis apricaria	193	63		20	87	193			Υ			Υ
Goldfinch	Carduelis carduelis	116	254	64	168	155	254						
Goosander	Mergus merganser	1					1						
Great Black-backed Gull	Larus marinus				1	8	8	Υ					
Great Spotted Woodpecker	Dendrocopos major	5	18	10	4	9	18						
Great Tit	Parus major	42	74	32	43	83	83						
Greenfinch	Chloris chloris	7	16	9	5	21	21						
Grey Heron	Ardea cinerea	3	6	9	5	6	9						
Grey Partridge	Perdix perdix	2	31	2	20	15	31		Y	Υ	Υ		
Grey Wagtail	Motacilla cinerea	9	8	6	7	3	9		Υ				
Greylag Goose	Anser anser		2	37	32	77	77	Υ					
Herring Gull	Larus argentatus	76	235	650	73	177	650		Y		Υ		
House Martin	Delichon urbicum	1					1	Υ		Υ			
House Sparrow	Passer domesticus	124	144	163	64	128	163		Υ	Υ	Υ		
Jackdaw	Corvus monedula	581	396	489	358	821	821						
Jay	Garrulus glandarius	17	22	9	6	6	22						
Kestrel	Falco tinnunculus	8	8	4	9	16	16	Υ		Υ			

_____ Version: 1

60 Issued: August 2017

				Numl	per of Bir	ds			Conserv	vation Stat	tus / Legal	Protection	
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Kingfisher	Alcedo atthis			1			1	Υ				Υ	Υ
Lapwing	Vanellus vanellus	226	70	13	46	801	801		Υ	Υ	Υ		
Lesser Black-backed Gull	Larus fuscus	1	1	1		1	1	Υ					
Lesser Redpoll	Acanthis cabaret	34	64	4	29	8	64		Υ	Υ	Υ		
Linnet	Linaria cannabina	131	131	11	29	199	199		Υ	Υ	Υ		
Long-tailed Tit	Aegithalos caudatus	136	67	50	28	39	136						
Magpie	Pica pica	22	35	24	30	29	35						
Mallard	Anas platyrhynchos	60	255	225	84	146	255	Υ					
Marsh Tit	Poecile palustris	2	2	3		1	3		Υ	Υ	Υ		
Meadow Pipit	Anthus pratensis	60	114		5	46	114	Υ					
Mistle Thrush	Turdus viscivorus	27	25	19	18	50	50		Υ	Υ			
Moorhen	Gallinula chloropus	1	1	1			1						
Mute Swan	Cygnus olor		2	2		2	2	Υ					
Nuthatch	Sitta europaea	2	4	1		1	4						
Peregrine	Falco peregrinus	2	2	1			2			Υ		Υ	Υ
Pheasant	Phasianus colchicus	62	423	107	55	74	423						
Pied Wagtail	Motacilla alba yarrellii	58	19	21	7	3	58						
Pink-footed Goose	Anser brachyrhynchus	253		17	600		600	Υ		Υ			
Red-legged Partridge	Alectoris rufa	1	7	8		14	14						
Redwing	Turdus iliacus	309	972	283	438	992	992		Υ			Υ	
Reed Bunting	Emberiza schoeniclus	12	4	39	8	80	80	Υ		Υ	Υ		
Robin	Erithacus rubecula	326	320	116	139	220	326						
Rook	Corvus frugilegus	617	375	736	177	847	847						
Short-eared owl	Asio flammeus				1		1	Υ					Y
Siskin	Spinus spinus	66	107	22	62	124	124						

_____ Version: 1
61 Issued: August 2017

				Numb	per of Bir	ds			Conser	vation Stat	tus / Legal	Protection	
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Skylark	Alauda arvensis	111	170	17	20	202	202		Υ	Υ	Υ		
Snipe	Gallinago gallinago	4	3		2		4	Υ		Υ			
Song Thrush	Turdus philomelos	64	80	13	29	57	80		Υ	Υ	Υ		
Sparrowhawk	Accipiter nisus	5	2	6	5	4	6						
Starling	Sturnus vulgaris	335	1228	961	502	1008	1228		Υ	Υ	Υ		
Stock Dove	Columba oenas	17	5	3	11	2	17	Υ					
Teal	Anas crecca	2	21				21	Υ					
Tree Sparrow	Passer montanus	25	55	121	30	75	121		Υ	Υ	Υ		
Treecreeper	Certhia familiaris	4	17	5	4	9	17						
Waxwing	Bombycilla garrulus		569				569						
Willow Tit	Poecile montana	2	7		5	3	7		Υ	Υ	Υ		
Woodcock	Scolopax rusticola	1	7		2	2	7		Υ				
Woodpigeon	Columba palumbus	943	2254	1022	822	1614	2254						
Wren	Troglodytes troglodytes	115	175	101	84	85	175						
Yellowhammer	Emberiza citrinella	54	104	61	50	215	215		Υ	Υ	Υ		
TOTAL - 79 species	•	70	71	64	63	63		20	19	23	17	7	4

_____ Version: 1
62 Issued: August 2017

Section B

		Number of Birds						Conservation Status / Legal Protection					
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Barn Owl	Tyto alba		1				1			Υ		Υ	
Blackbird	Turdus merula	134	338	195	227	276	338						
Black-headed Gull	Chroicocephalus ridibundus	20	191	124	178	252	252	Υ					
Blue Tit	Cyanistes caeruleus	45	56	80	81	53	81						
Brambling	Fringilla montifringilla	5	3	5	8	16	16					Υ	
Bullfinch	Pyrrhula pyrrhula	3	8	21	10	7	21	Υ			Υ		
Buzzard	Buteo buteo	16	23	24	27	20	27						
Carrion Crow	Corvus corone	67	127	135	136	72	136						
Chaffinch	Fringilla coelebs	200	303	391	202	166	391						
Chiffchaff	Phylloscopus collybita	2					2						
Coal Tit	Periparus ater	24	11	19	27	19	27						
Collared Dove	Streptopelia decaocto	11		4	12	9	12						
Common Crossbill	Loxia curvirostra		1	2	1		2					Υ	
Common Gull	Larus canus	250	218	370	125	539	539	Υ					
Coot	Fulica atra				1		1						
Dunnock	Prunella modularis	105	100	83	63	76	105	Υ			Υ		
Feral Pigeon	Columba livia	60	194	1	156	93	194						
Fieldfare	Turdus pilaris	71	124	140	215	284	284		Υ			Υ	
Goldcrest	Regulus regulus	61	27	31	18	21	61						
Golden Plover	Pluvialis apricaria	383	68	41			383			Υ			Υ
Goldfinch	Carduelis carduelis	93	86	51	23	74	93						
Goshawk	Accipiter gentilis			1			1					Υ	
Great Black-backed Gull	Larus marinus	4			4	2	4	Υ					
Great Spotted Woodpecker	Dendrocopos major	2	5	11	4	6	11						

Version: 1

Issued: August 2017

		Number of Birds					Conservation Status / Legal Protection						
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Great Tit	Parus major	8	18	14	29	35	35						
Green Woodpecker	Picus viridis			2			2						
Greenfinch	Chloris chloris	23	4	4		6	23						
Grey Heron	Ardea cinerea	2	4	3	4		4						
Grey Partridge	Perdix perdix		5	2	10	6	10		Υ	Υ	Υ		
Grey Wagtail	Motacilla cinerea	1	4	3	5	3	5		Υ				
Greylag Goose	Anser anser				5	33	33	Υ					
Herring Gull	Larus argentatus	219	2064	958	251	543	2064		Υ		Υ		
House Sparrow	Passer domesticus	131	65	80	79	36	131		Υ	Υ	Υ		
Jack snipe	Lymnocryptes minimus	1	1				1						
Jackdaw	Corvus monedula	70	420	815	212	744	815						
Jay	Garrulus glandarius	4	1	2		1	4						
Kestrel	Falco tinnunculus	3	4	8	6	5	8	Υ		Υ			
Lapwing	Vanellus vanellus	847	1009	616	215	146	1009		Υ	Υ	Υ		
Lesser Black-backed Gull	Larus fuscus	4					4	Υ					
Lesser Redpoll	Acanthis cabaret	1	6	6			6		Υ	Υ	Υ		
Linnet	Linaria cannabina	507	15	65	28	125	507		Υ	Υ	Υ		
Long-tailed Tit	Aegithalos caudatus	24	43	20	2	11	43						
Magpie	Pica pica	2	7	2	5	9	9						
Mallard	Anas platyrhynchos	63	22	69	62	69	69	Υ					
Marsh Tit	Poecile palustris	1					1		Υ	Υ	Υ		
Meadow Pipit	Anthus pratensis	46	48	11	19	17	48	Y					
Mistle Thrush	Turdus viscivorus	21	17	25	32	26	32		Υ	Υ			
Moorhen	Gallinula chloropus	3	1	1	8	3	8						
Nuthatch	Sitta europaea	2		1		3	3						

_____ Version: 1

64 Issued: August 2017

		Number of Birds						Conservation Status / Legal Protection					
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Oystercatcher	Haematopus ostralegus			1			1	Υ					
Peregrine	Falco peregrinus		1	3	1		3			Υ		Υ	Υ
Pheasant	Phasianus colchicus	305	354	86	152	168	354						
Pied Wagtail	Motacilla alba yarrellii	18	16	5	20	6	20						
Pink-footed Goose	Anser brachyrhynchus	1227	174				1227	Υ		Υ			
Red-legged Partridge	Alectoris rufa	19	30	39	19	20	39						
Redshank	Tringa totanus		4	1	4	6	6	Υ		Υ			
Redwing	Turdus iliacus	582	685	724	1244	403	1244		Υ			Υ	
Reed Bunting	Emberiza schoeniclus	22	16	22	54	21	54	Υ		Υ	Υ		
Ring ouzel	Turdus torquatus	1	1				1		Υ		Υ		
Robin	Erithacus rubecula	182	114	49	129	99	182						
Rook	Corvus frugilegus	500	932	4374	308	921	4374						
Shoveler	Anas clypeata				1	1	1	Υ					
Siskin	Spinus spinus	11	12	19	3	4	19						
Skylark	Alauda arvensis	130	142	32	8	15	142		Υ	Υ	Υ		
Snipe	Gallinago gallinago	6	1		6	5	6	Υ		Υ			
Song Thrush	Turdus philomelos	83	25	47	29	37	83		Y	Υ	Υ		
Sparrowhawk	Accipiter nisus	2	1	7	4		7						
Starling	Sturnus vulgaris	591	1170	1301	563	507	1301		Υ	Υ	Υ		
Stock Dove	Columba oenas	23	10	5	12	23	23	Υ					
Swallow	Hirundo rustica	4					4			Υ			
Teal	Anas crecca	2		57	187	279	279	Υ					
Tree Sparrow	Passer montanus	150	46	30	42	24	150		Υ	Υ	Υ		
Treecreeper	Certhia familiaris	4	1	3	5	4	5						
Twite	Linaria flavirostris			14	4		14		Υ	Υ	Υ		

______ Version: 1
65 Issued: August 2017

				Numb	per of Bir	ds			Conser	vation Sta	tus / Legal	Protection	
Species	Scientific name	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Max	Amber List	Red List	LBAP	NERC	Schedule 1	Annex 1
Waxwing	Bombycilla garrulus		1	1			1						
Wigeon	Anas penelope				10	27	27	Y					
Willow Tit	Poecile montana					1	1		Υ	Υ	Υ		
Woodcock	Scolopax rusticola		4		5	2	5		Υ				
Woodpigeon	Columba palumbus	1950	3270	4780	2222	1907	4780						
Wren	Troglodytes troglodytes	77	78	42	79	63	79						
Yellow-browed warbler	Phylloscopus inornatus	2					2						
Yellowhammer	Emberiza citrinella	101	203	88	404	77	404		Υ	Υ	Υ		
TOTAL - 82 species	•	66	64	65	64	61		19	20	23	18	7	2

_____ Version: 1

66 Issued: August 2017

APPENDIX F: POPULATION STATUS OF WINTERING BIRDS OF CONSERVATION CONCERN IN NORTHUMBRIA

All population data are taken from Dean, T., Myatt, D., Cadwallender, M. & Cadwallender, T. (2015) *Northumbria Bird Atlas 2007-11*. Northumberland & Tyneside Bird Club, Newcastle upon Tyne. Population data relate to the recording area of Northumbria (*i.e.* the administrative districts of Northumberland, North Tyneside and Newcastle upon Tyne). Comparisons are made for all species recorded during the wintering bird surveys undertaken by Jacobs during winter 2016-17.

		Jacobs win survey 201 cou	6-17 peak	% of Nort		Great Britain wintering	
Species	Scientific Name	Northumbria wintering population estimate 2007-11 (single birds) ¹⁵	Section A	Section B	Section A	Section B	population estimate (single birds) ¹⁵
Barn Owl*	Tyto alba	120	1	1	0.83	0.83	8,000
Black-headed Gull	Chroicocephalus ridibundus	34,000	305	252	0.90	0.74	2,200,000
Brambling	Fringilla montifringilla	6,100	17	16	0.28	0.26	920,000
Bullfinch*	Pyrrhula pyrrhula	6,600	47	21	0.71	0.32	380,000
Common Crossbill*	Loxia curvirostra	7,600	13	2	0.17	0.03	78,000
Common Gull	Larus canus	28,000	345	539	1.23	1.93	700,000
Cormorant	Phalacrocorax carbo	590	1	N/A	0.17	N/A	35,000
Curlew	Numenius arquata	3,200	7	N/A	0.22	N/A	140,000
Dipper*	Cinclus cinclus	740	1	N/A	0.14	N/A	22,000
Dunnock*	Prunella modularis	88,000	182	105	0.21	0.12	4,600,000

Wintering population estimates were not provided for certain species (marked '*'). For these species, breeding population estimates are presented instead. Many of these species' populations are largely resident, and are considered unlikely to undergo large fluctuations between the breeding and winter seasons; however, it should be noted that this is not necessarily the case (Musgrove et al. 2013). Notably, twite are generally present in much larger numbers in winter (Dean et al. 2015). As the population estimates of breeding birds in Northumbria during 2007-11 and for Great Britain are based upon numbers of breeding pairs, territories or nests, the figures provided have been multiplied by two to obtain a total count for the number of birds to allow comparison with the Jacobs wintering bird survey peak counts.

				tering bird 6-17 peak unt	% of Nor		Great Britain wintering	
Species	Scientific Name	Northumbria wintering population estimate 2007-11 (single birds) ¹⁵	Section A	Section B	Section A	Section B	population estimate (single birds) ¹⁵	
Fieldfare	Turdus pilaris	17,000	1505	284	8.85	1.67	680,000	
Golden Plover	Pluvialis apricaria	7,400	193	383	2.61	5.18	400,000	
Goshawk*	Accipiter gentilis	42	N/A	1	N/A	2.38	700	
Great Black-backed Gull	Larus marinus	3,100	8	4	0.26	0.13	76,000	
Grey Partridge*	Perdix perdix	4,200	31	10	0.74	0.24	86,000	
Grey Wagtail*	Motacilla cinerea	2,200	9	5	0.41	0.23	70,000	
Greylag Goose	Anser anser	2,600	77	33	2.96	1.27	220,000	
Herring Gull	Larus argentatus	14,000	650	2064	4.64	14.74	730,000	
House Martin*	Delichon urbicum	22,000	1	N/A	<0.01	N/A	1,020,000	
House Sparrow*	Passer domesticus	200,000	163	131	0.08	0.07	10,200,000	
Kestrel*	Falco tinnunculus	2,200	16	8	0.73	0.36	90,000	
Kingfisher*	Alcedo atthis	68	1	N/A	0.01	N/A	9,800	
Lapwing	Vanellus vanellus	8,500	801	1009	9.42	11.87	620,000	
Lesser Black- backed Gull	Larus fuscus	49	1	4	2.04	8.16	120,000	
Lesser Redpoll*	Acanthis cabaret	24,000	64	6	0.27	0.03	380,000	
Linnet*	Linaria cannabina	30,000	199	507	0.66	1.69	820,000	
Mallard	Anas platyrhynchos	8,800	255	69	2.90	0.78	680,000	
Marsh Tit*	Poecile palustris	660	3	1	0.45	0.15	82,000	
Meadow Pipit*	Anthus pratensis	164,000	114	48	0.07	0.03	3,800,000	
Mistle Thrush*	Turdus viscivorus	9,400	50	32	0.53	0.34	320,000	
Mute Swan	Cygnus olor	1,300	2	N/A	0.15	N/A	74,000	
Oystercatcher	Haematopus ostralegus	2,500	N/A	1	N/A	0.04	320,000	

_____ Version: 1
68 Issued: August 2017

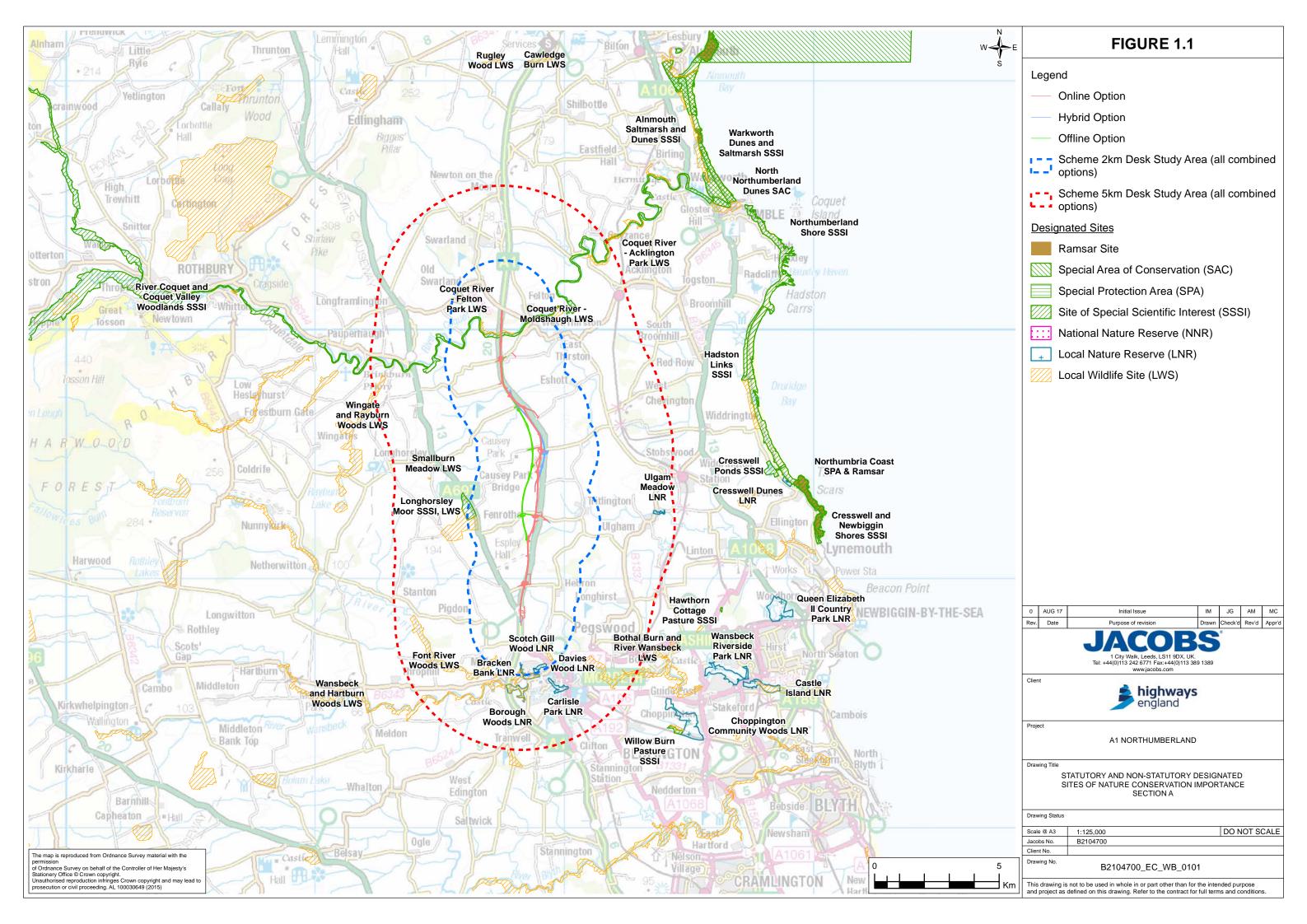
			Jacobs win survey 201 cou	16-17 peak	% of Nort		Great Britain wintering	
Species	Scientific Name	Northumbria wintering population estimate 2007-11 (single birds) ¹⁵	Section A	Section B	Section A	Section B	population estimate (single birds) ¹⁵	
Peregrine*	Falco peregrinus	64	2	3	3.13	4.69	2,800	
Pink-footed Goose	Anser brachyrhynchus	6,100	600	1227	9.84	20.11	360,000	
Redshank	Tringa totanus	2,100	N/A	6	N/A	0.29	120,000	
Redwing	Turdus iliacus	10,000	992	1244	9.92	12.44	650,000	
Reed Bunting*	Emberiza schoeniclus	14,200	80	54	0.56	0.38	460,000	
Ring ouzel*	Turdus torquatus	196	N/A	1	N/A	0.51	13,800	
Short-eared owl*	Asio flammeus	130	1	N/A	0.77	N/A	2,800	
Shoveler	Anas clypeata	43	N/A	1	N/A	2.33	18,000	
Skylark*	Alauda arvensis	104,000	202	142	0.19	0.14	2,800,000	
Snipe	Gallinago gallinago	12,000	4	6	0.03	0.05	1,000,000	
Song Thrush*	Turdus philomelos	46,000	80	83	0.17	0.18	2,200,000	
Starling*	Sturnus vulgaris	78,000	1228	1301	1.57	1.67	3,600,000	
Stock Dove*	Columba oenas	4,600	17	23	0.37	0.50	520,000	
Swallow*	Hirundo rustica	46,000	N/A	4	N/A	0.01	1,520,000	
Teal	Anas crecca	3,700	21	279	0.57	7.54	210,000	
Tree Sparrow*	Passer montanus	11,000	121	150	1.10	1.36	360,000	
Twite*	Linaria flavirostris	12	N/A	14	N/A	116.67	10,000	
Wigeon	Anas penelope	6,500	N/A	27	N/A	0.42	440,000	
Willow Tit*	Poecile montana	90	7	1	7.78	1.11	6,800	
Woodcock	Scolopax rusticola	27,000	7	5	0.03	0.02	1,400,000	
Yellowhammer*	Emberiza citrinella	44,000	215	404	0.49	0.92	1,400,000	

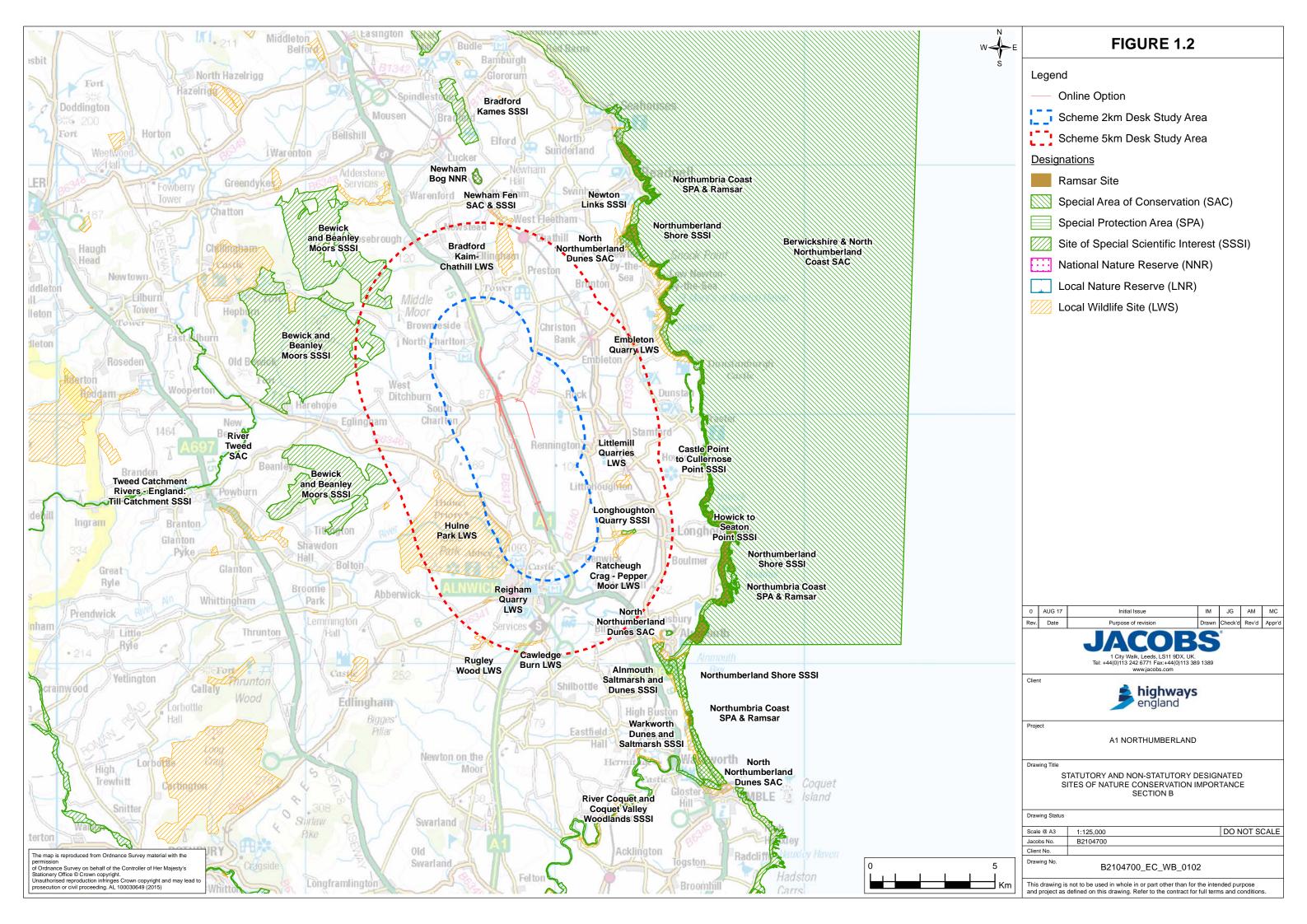
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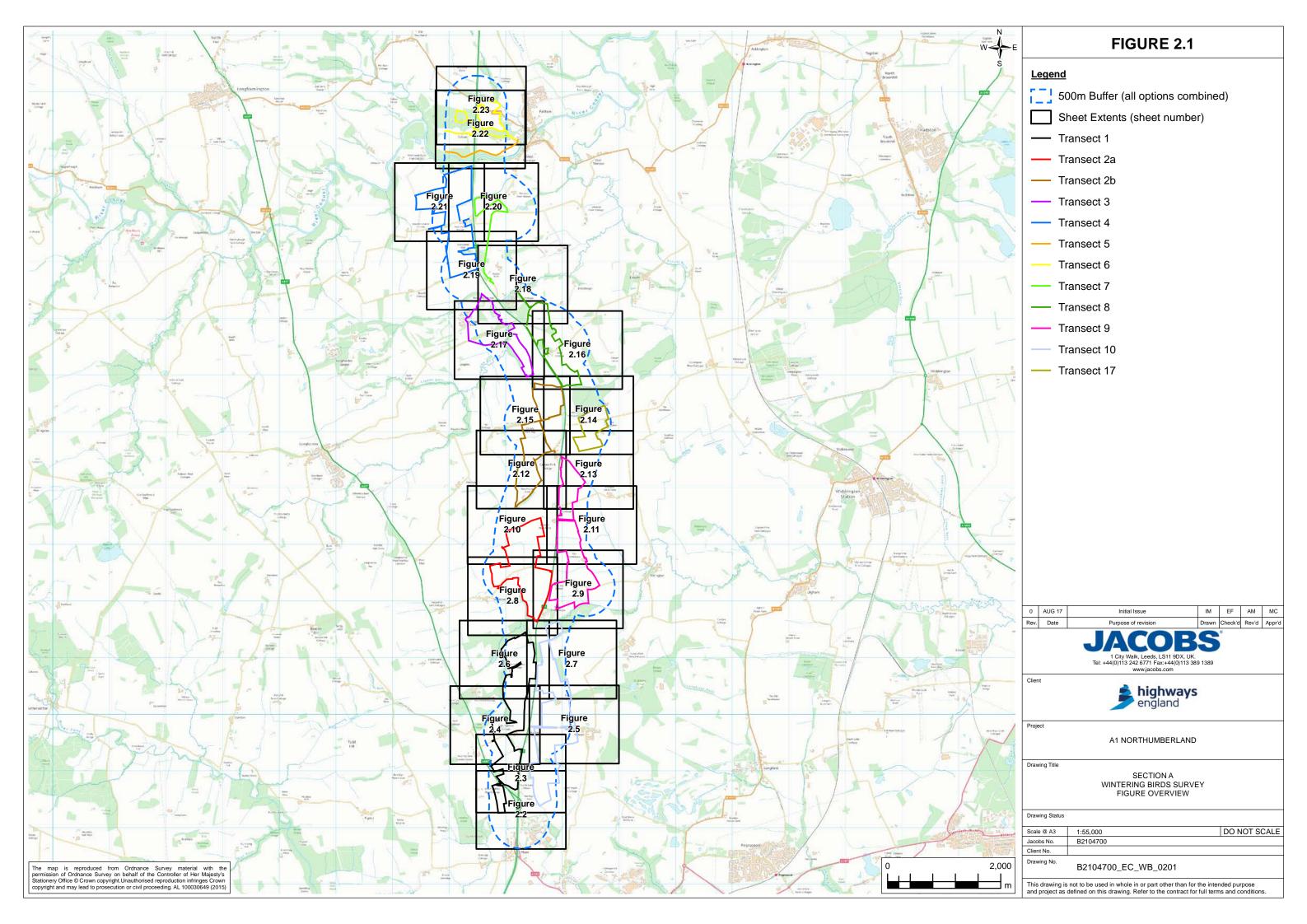
FIGURES

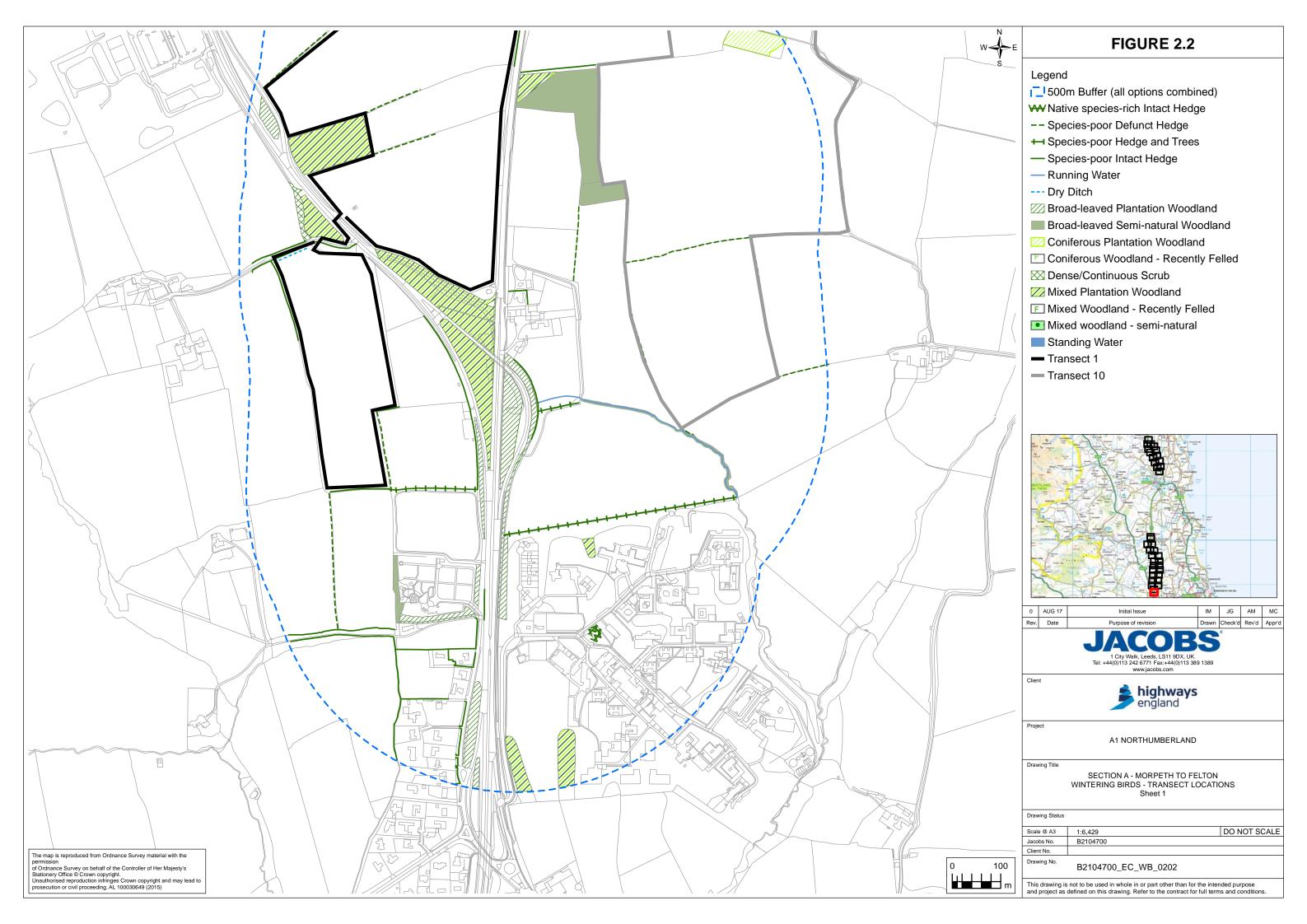
Figure 1.1	Statutory and Non-Statutory Designated Sites of Nature Conservation Importance – Section A
Figure 1.2	Statutory and Non-Statutory Designated Sites of Nature Conservation Importance – Section B
Figure 2.1	Section A – Wintering Birds Survey Figure Overview
Figures 2.2-2.23	Section A – Morpeth to Felton: Wintering Birds – Transect Locations
Figure 3.1	Section B – Wintering Birds Survey Figure Overview
Figures 3.2-3.15	Section B – Alnwick to Ellingham: Wintering Birds – Transect Locations
Figures 4.1-4.22	Wintering Bird Survey Results 2016/2017 Visit 1 (October 2016): Section A – Morpeth to Felton
Figures 4.23-4.36	Wintering Bird Survey Results 2016/2017 Visit 1 (October 2016): Section B – Alnwick to Ellingham
Figures 5.1-5.22	Wintering Bird Survey Results 2016/2017 Visit 2 (November 2016): Section A – Morpeth to Felton
Figures 5.23-5.36	Wintering Bird Survey Results 2016/2017 Visit 2 (November 2016): Section B – Alnwick to Ellingham
Figures 6.1-6.22	Wintering Bird Survey Results 2016/2017 Visit 2 (December 2016): Section A – Morpeth to Felton
Figures 6.23-6.36	Wintering Bird Survey Results 2016/2017 Visit 2 (December 2016): Section B – Alnwick to Ellingham
Figures 7.1-7.22	Wintering Bird Survey Results 2016/2017 Visit 2 (January 2017): Section A – Morpeth to Felton
Figures 7.23-7.36	Wintering Bird Survey Results 2016/2017 Visit 2 (January 2017): Section B – Alnwick to Ellingham
Figures 8.1-8.22	Wintering Bird Survey Results 2016/2017 Visit 2 (February 2017): Section A – Morpeth to Felton
Figures 8.23-8.36	Wintering Bird Survey Results 2016/2017 Visit 2 (February 2017): Section B – Alnwick to Ellingham

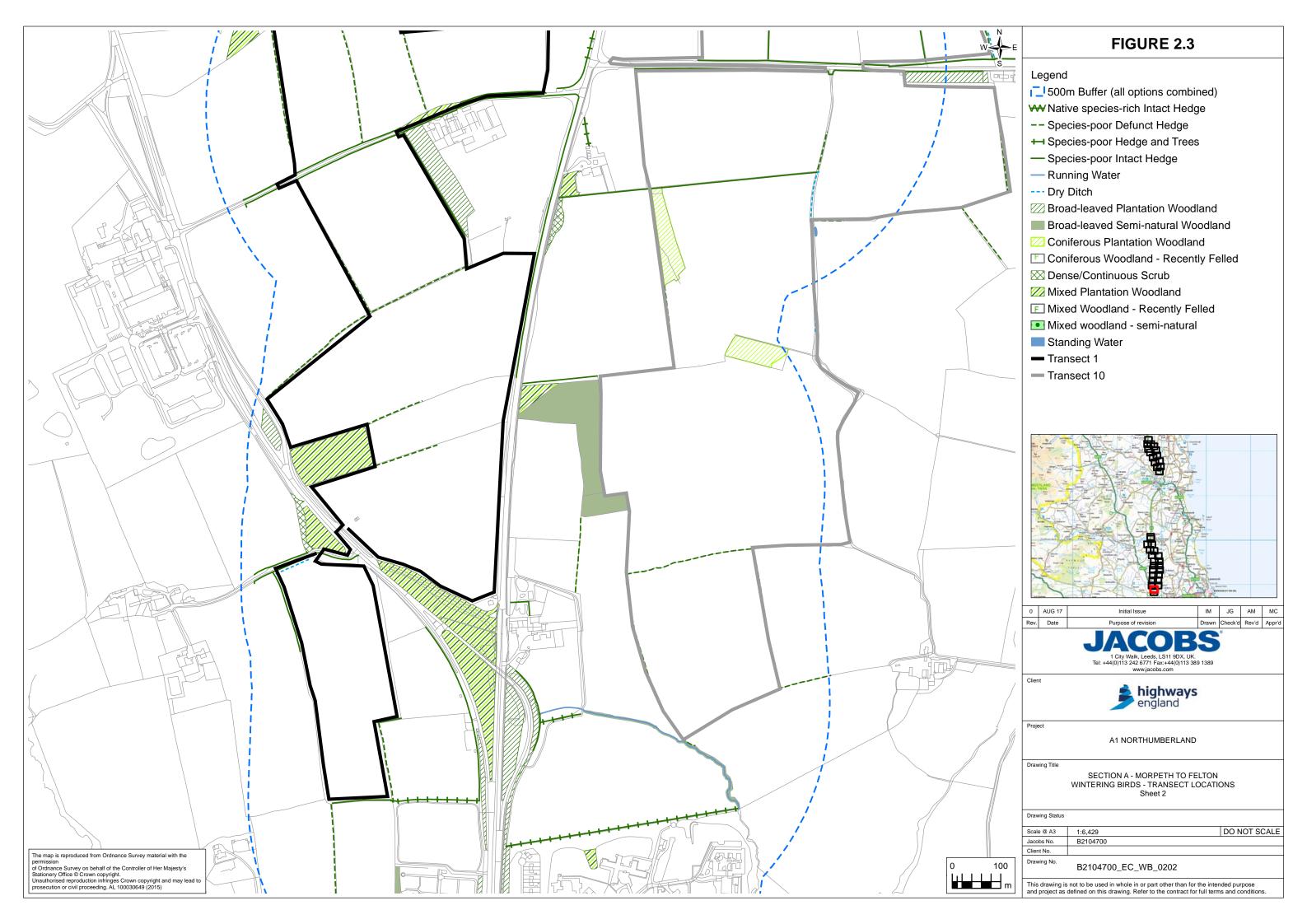
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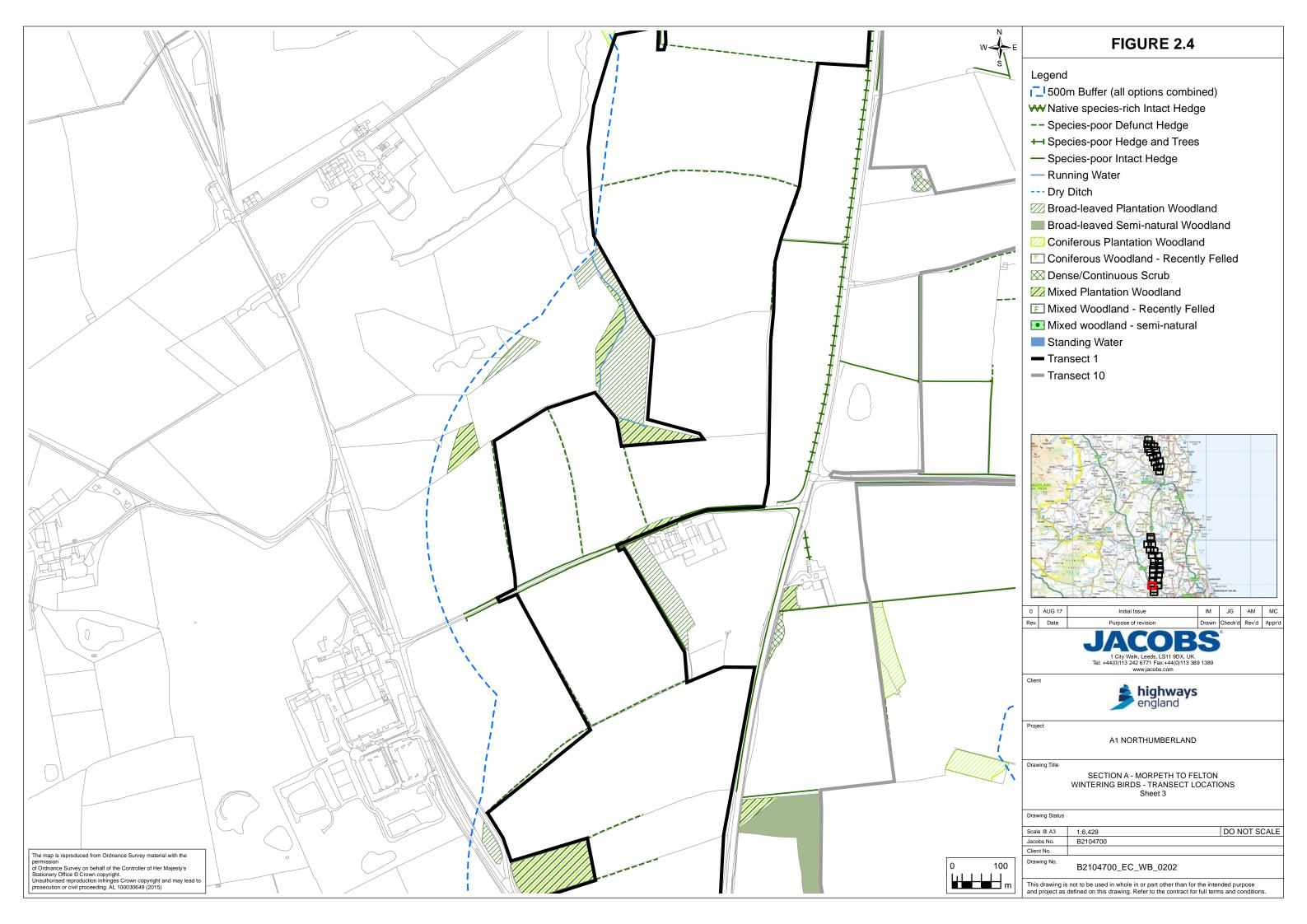


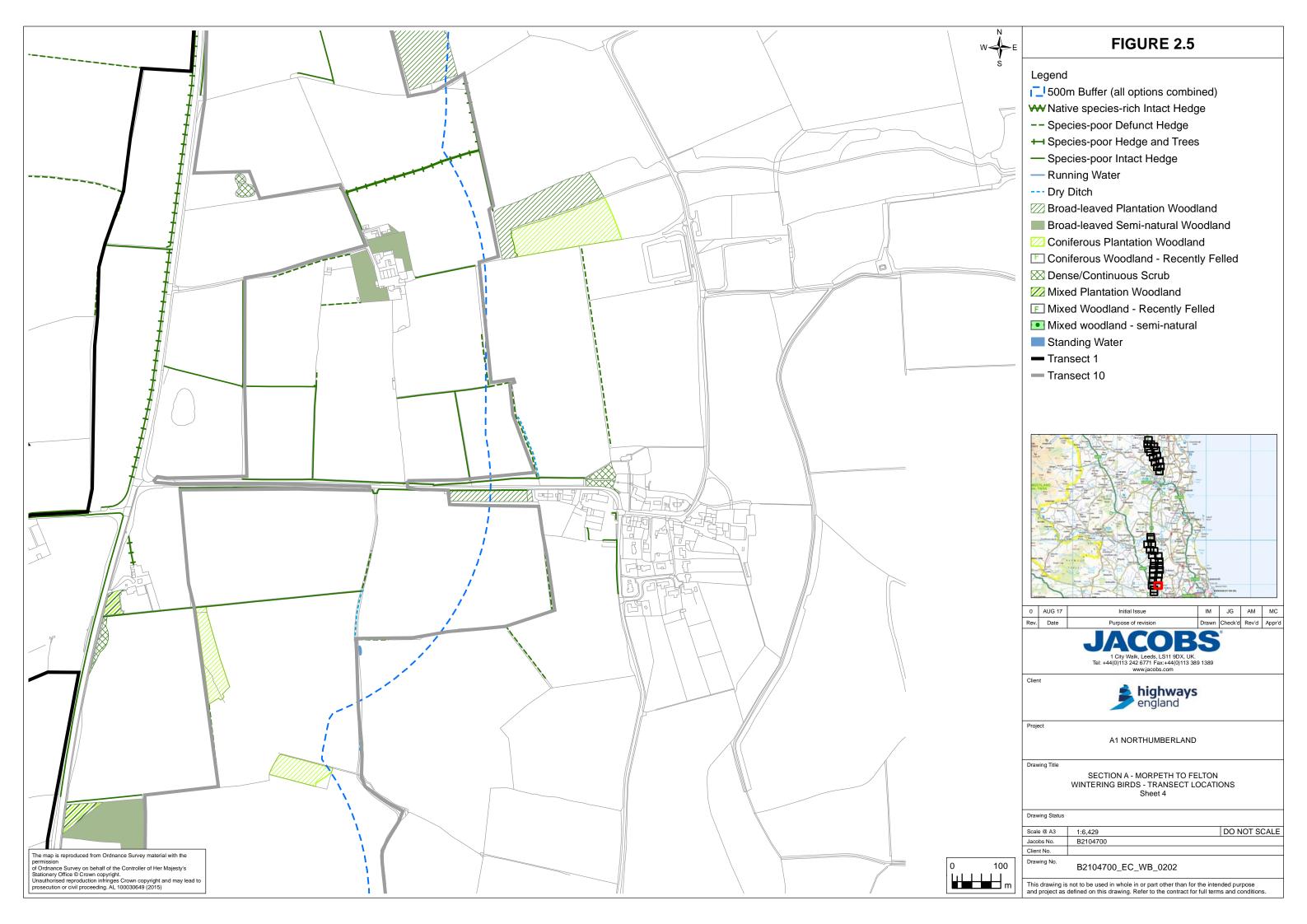


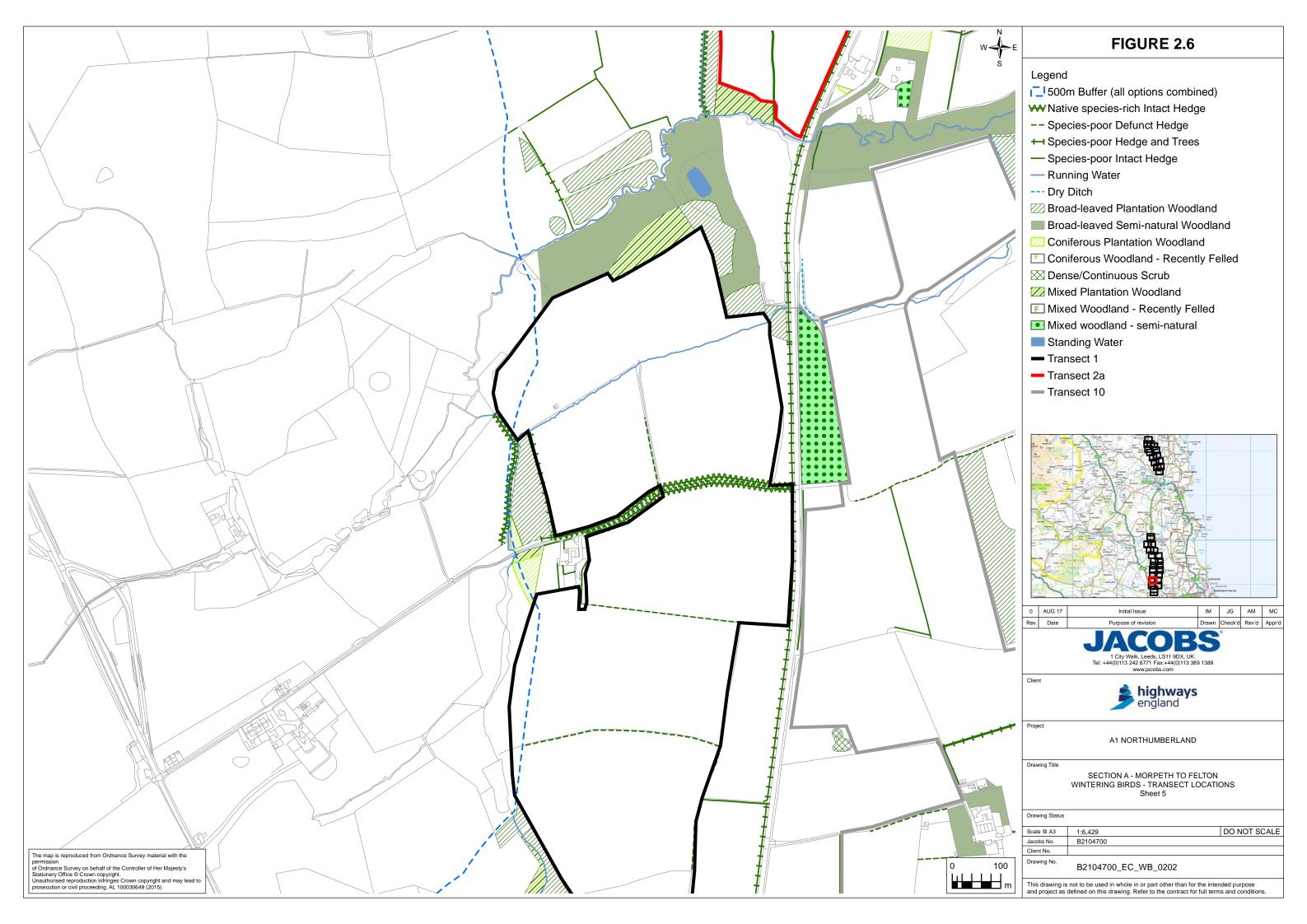


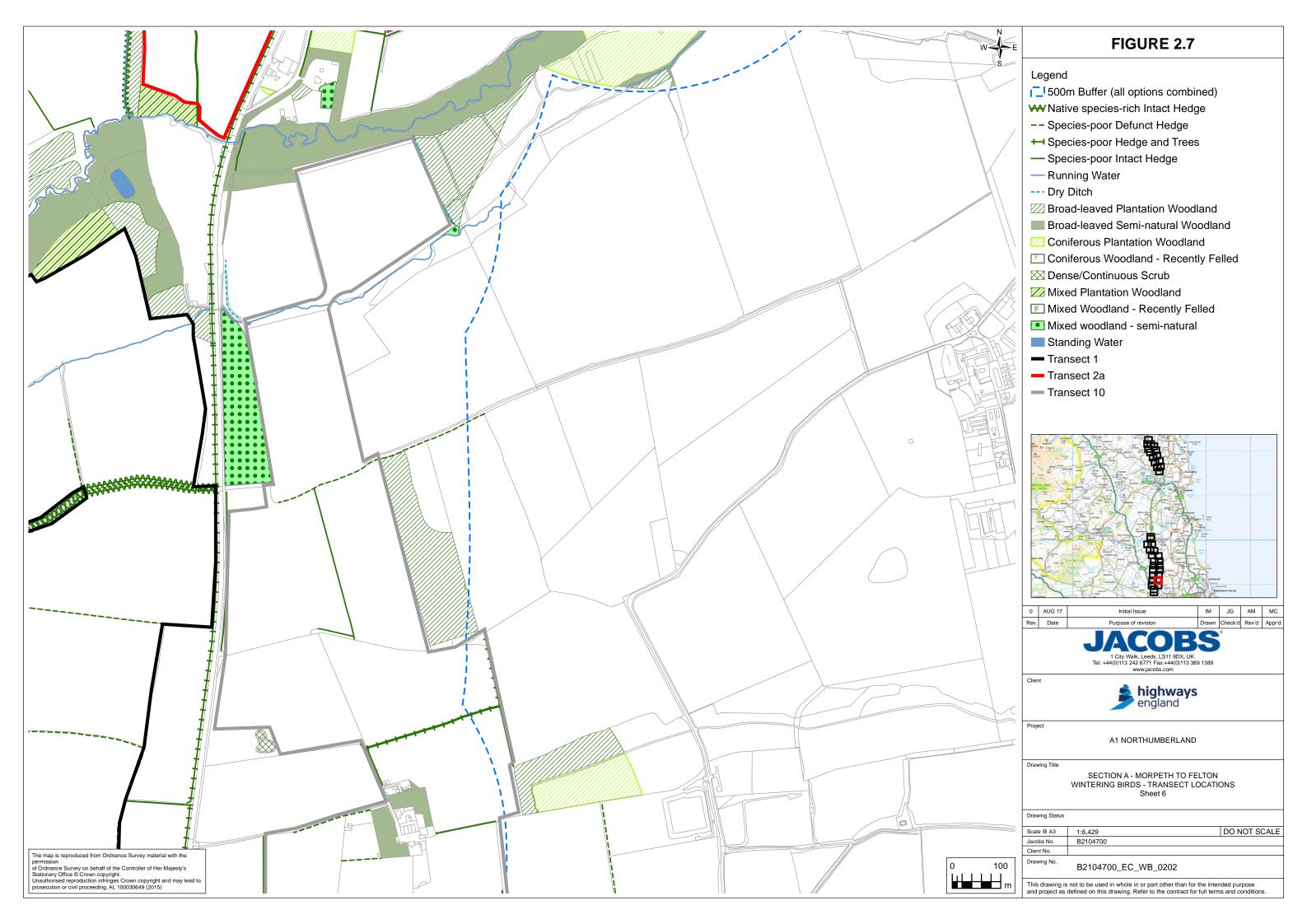


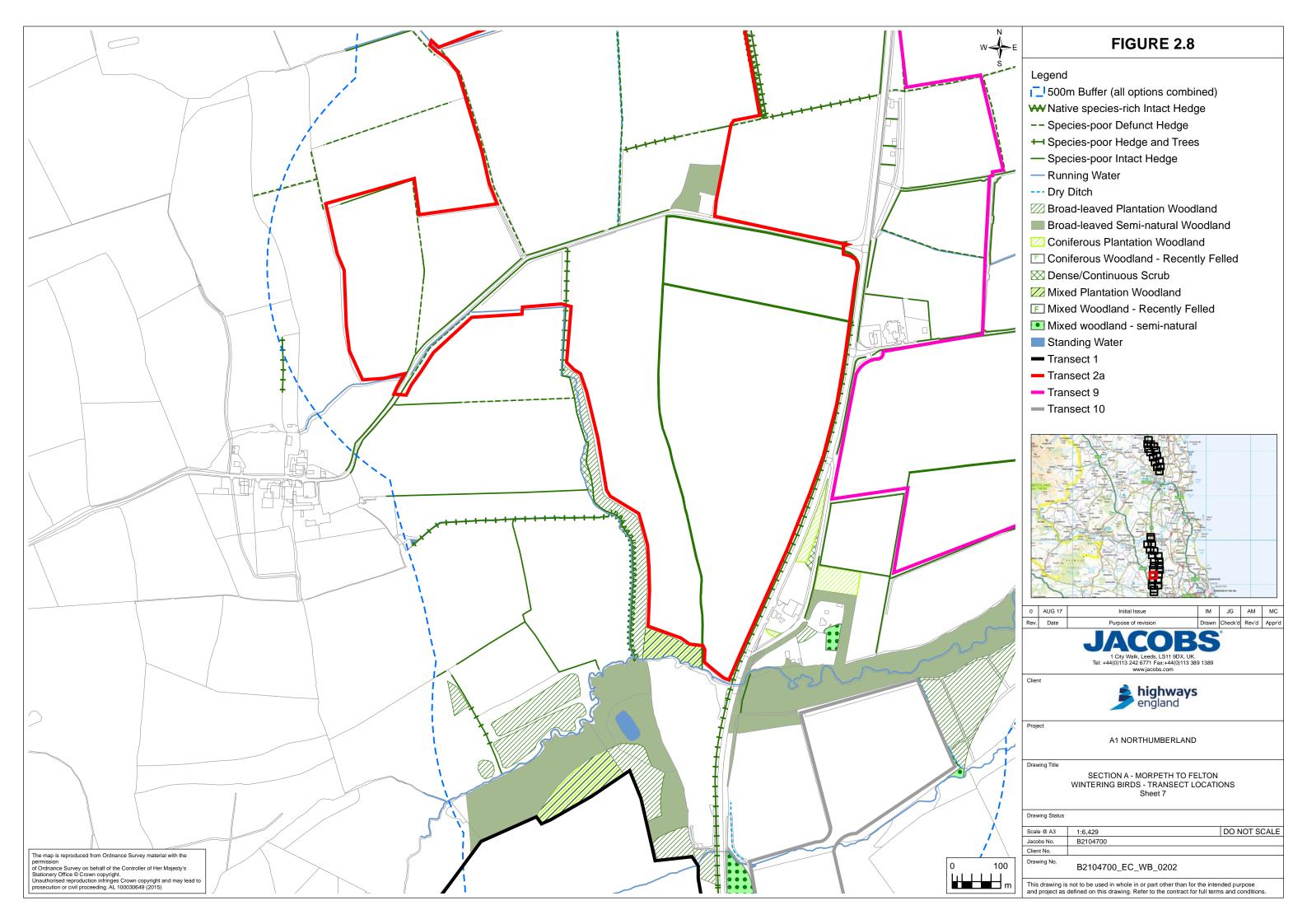


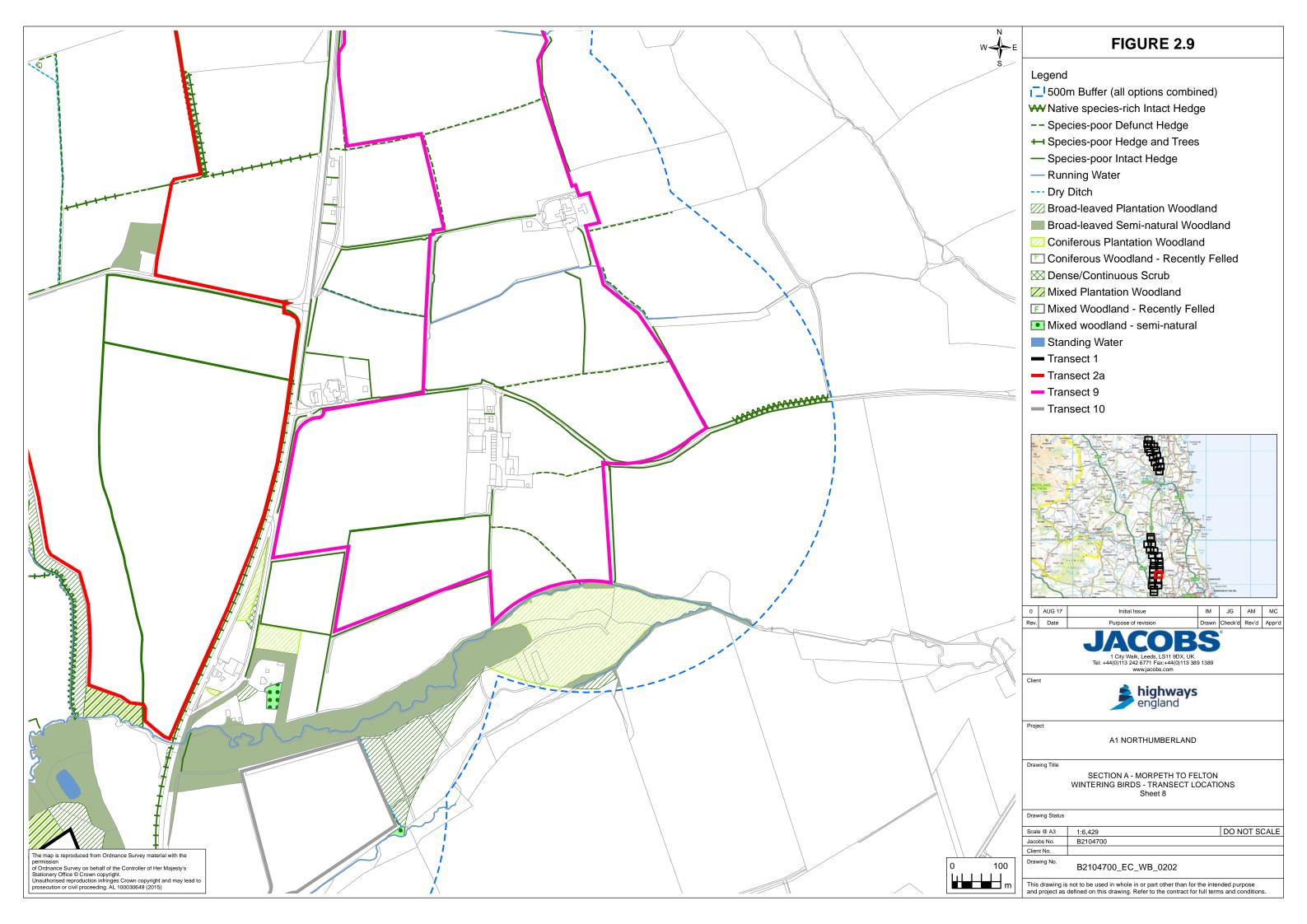


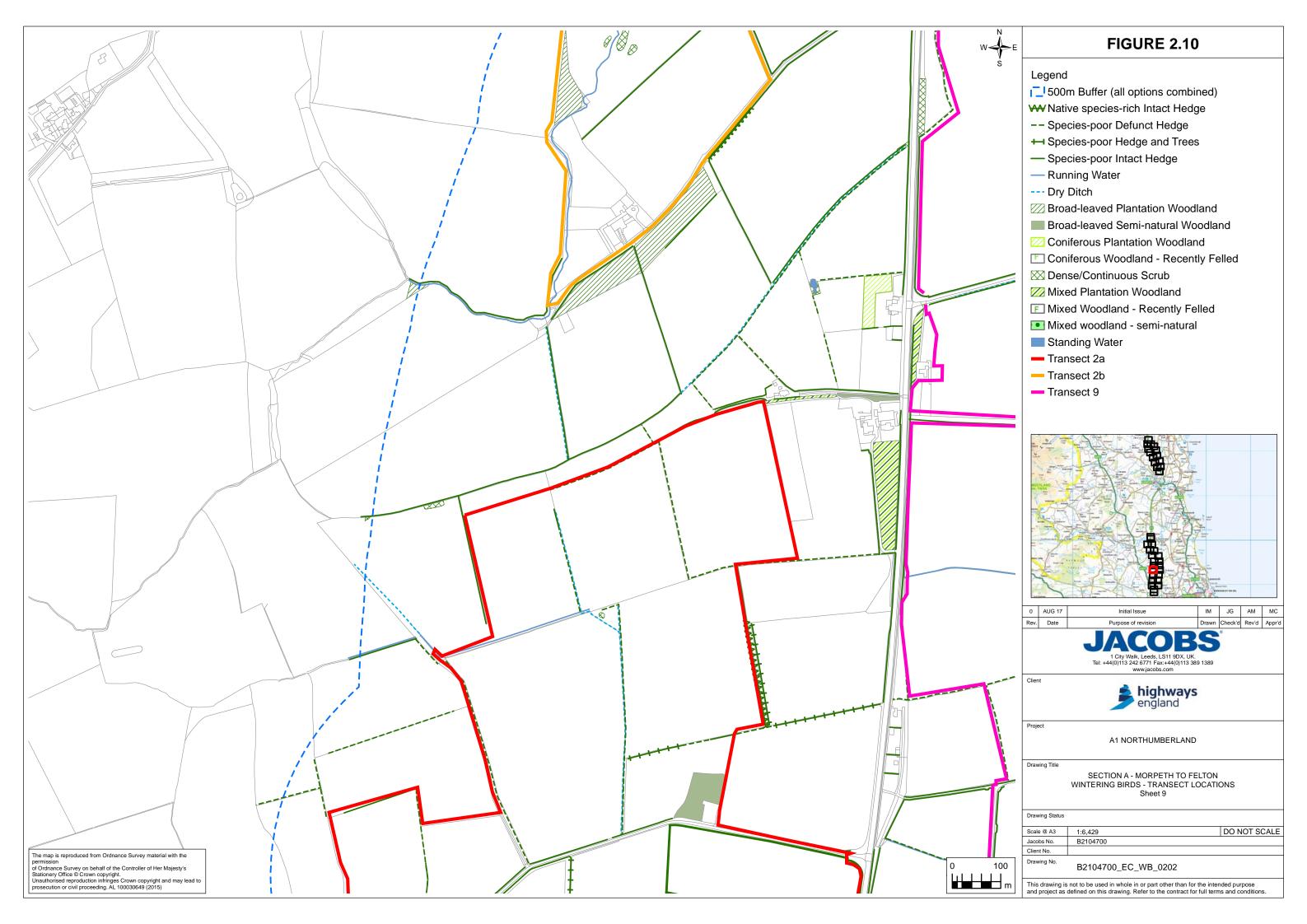


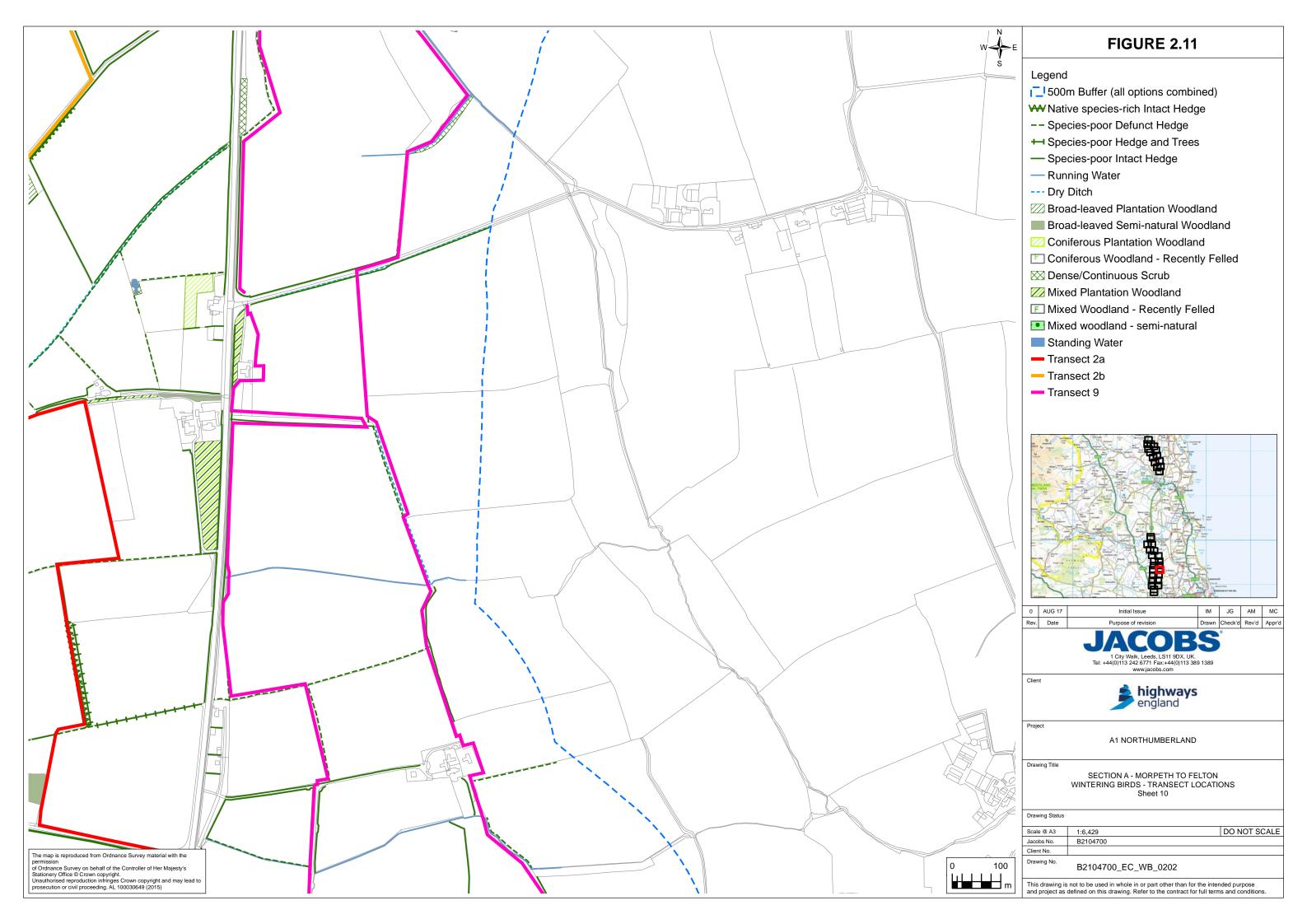


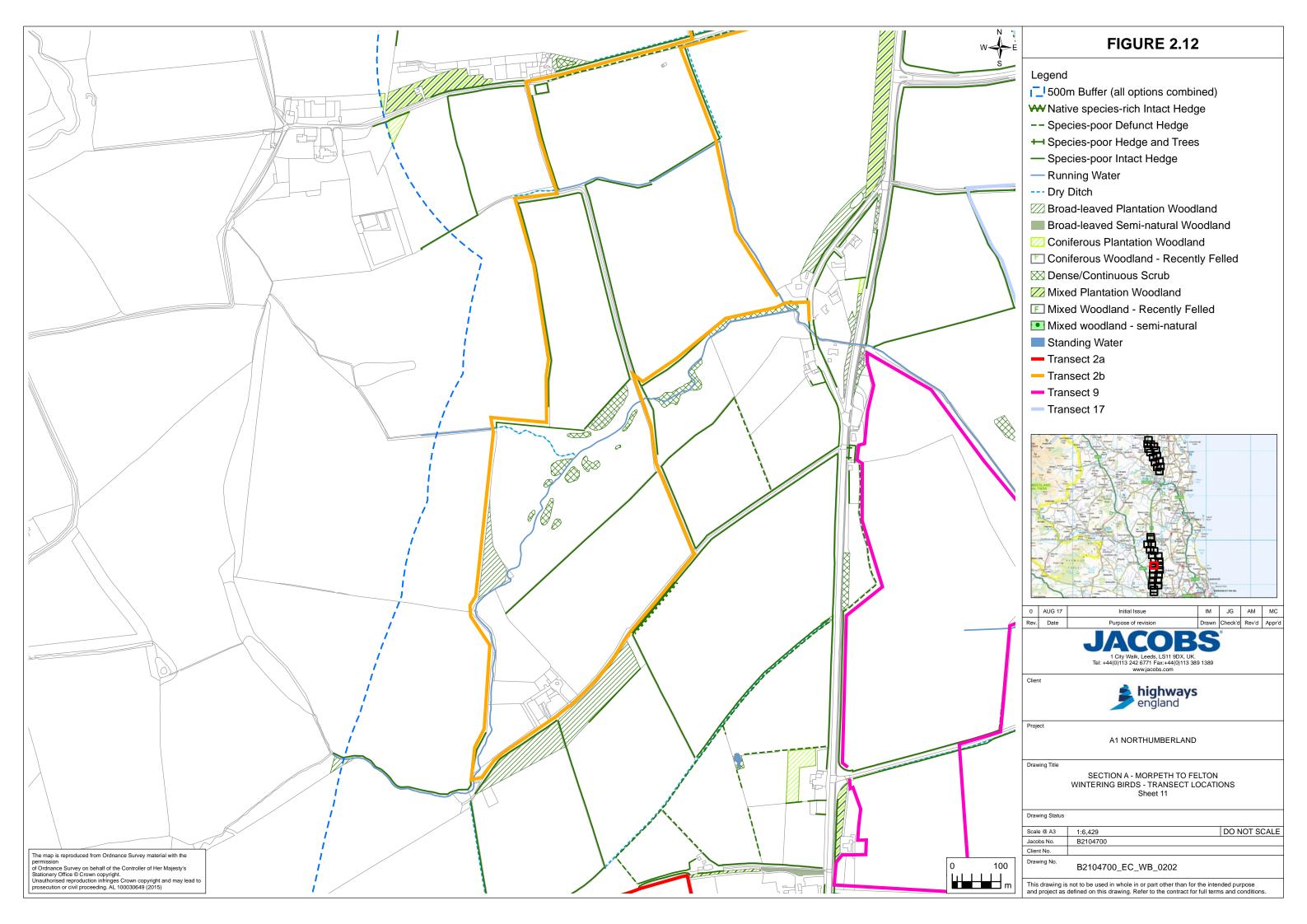


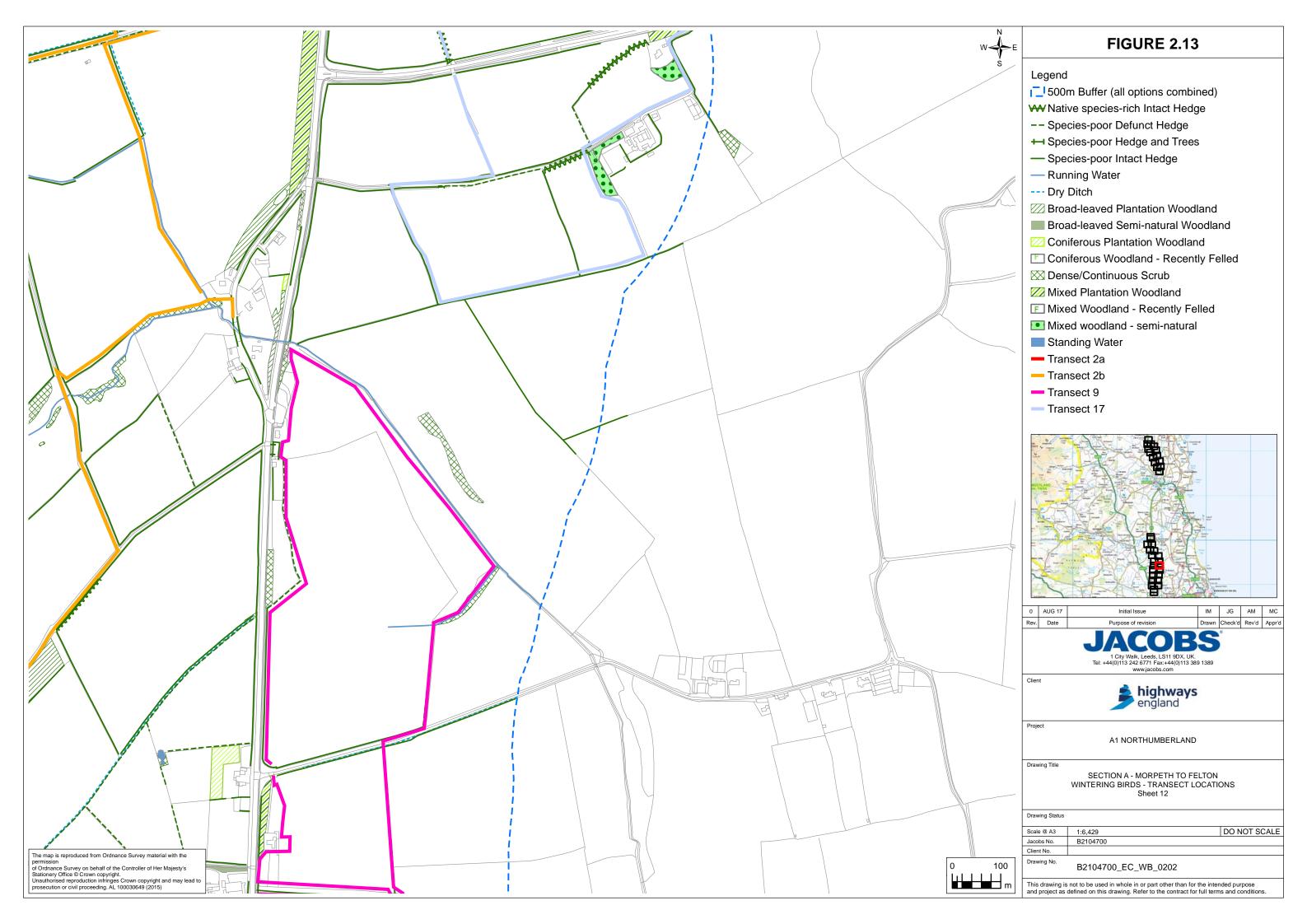


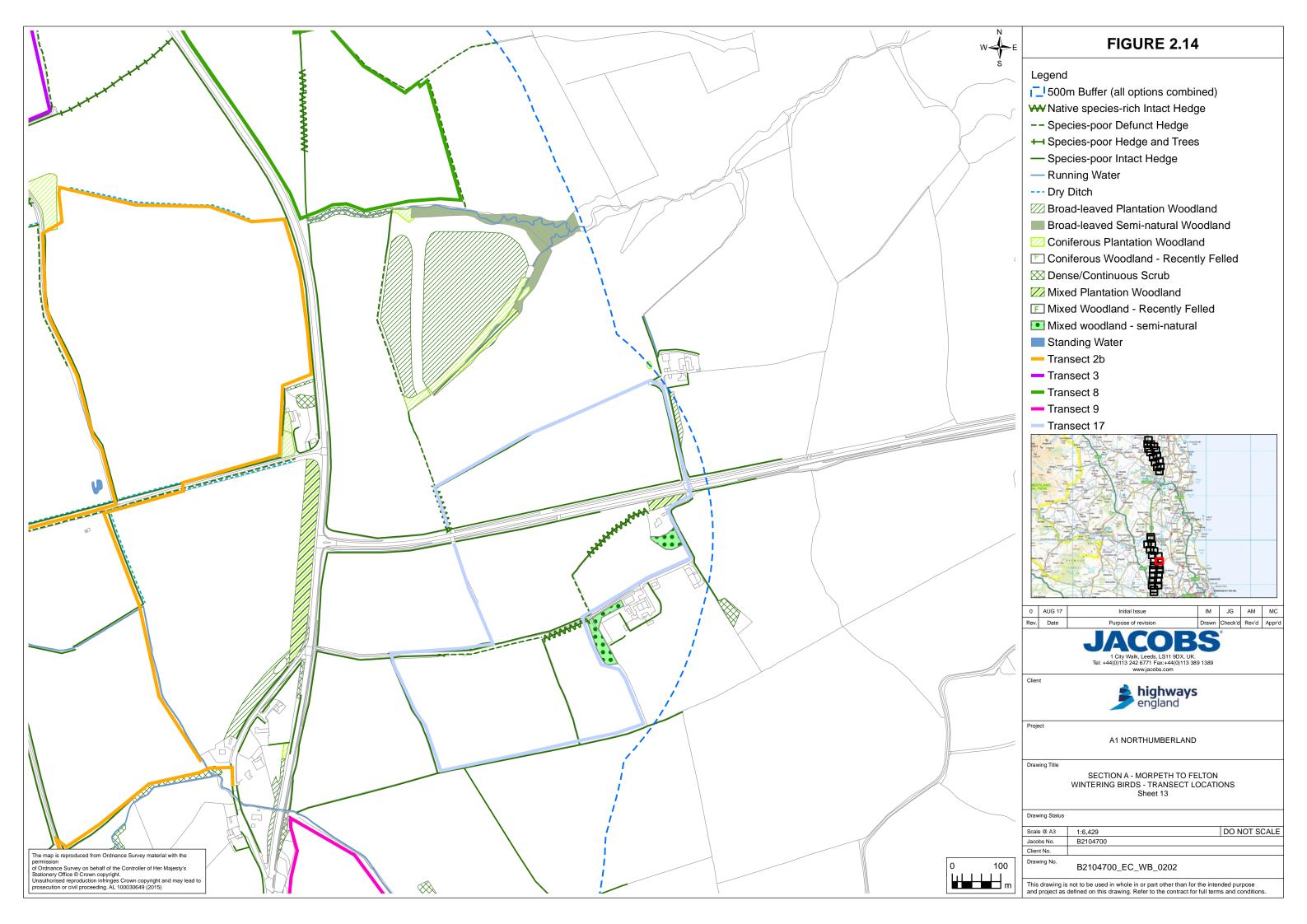


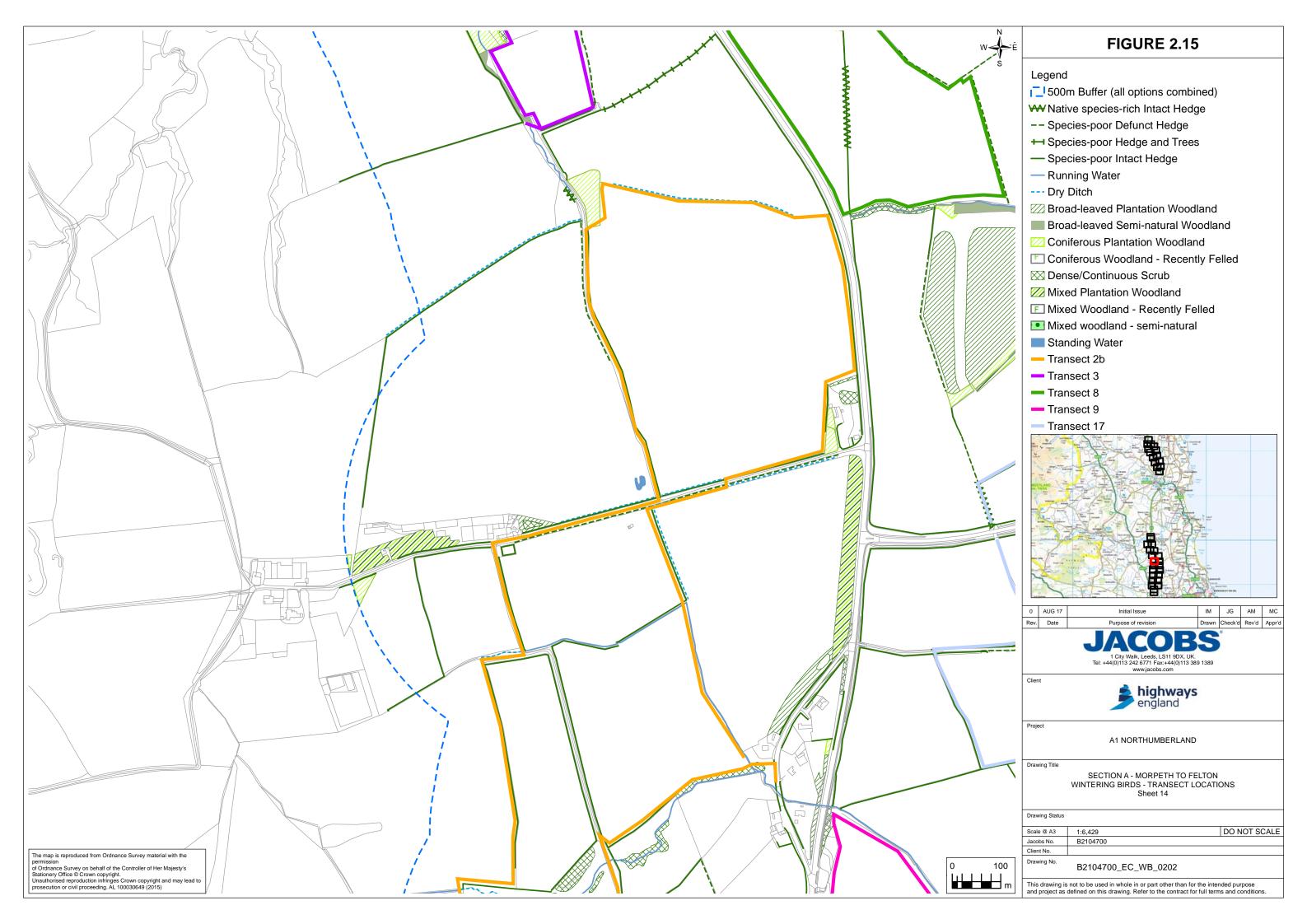


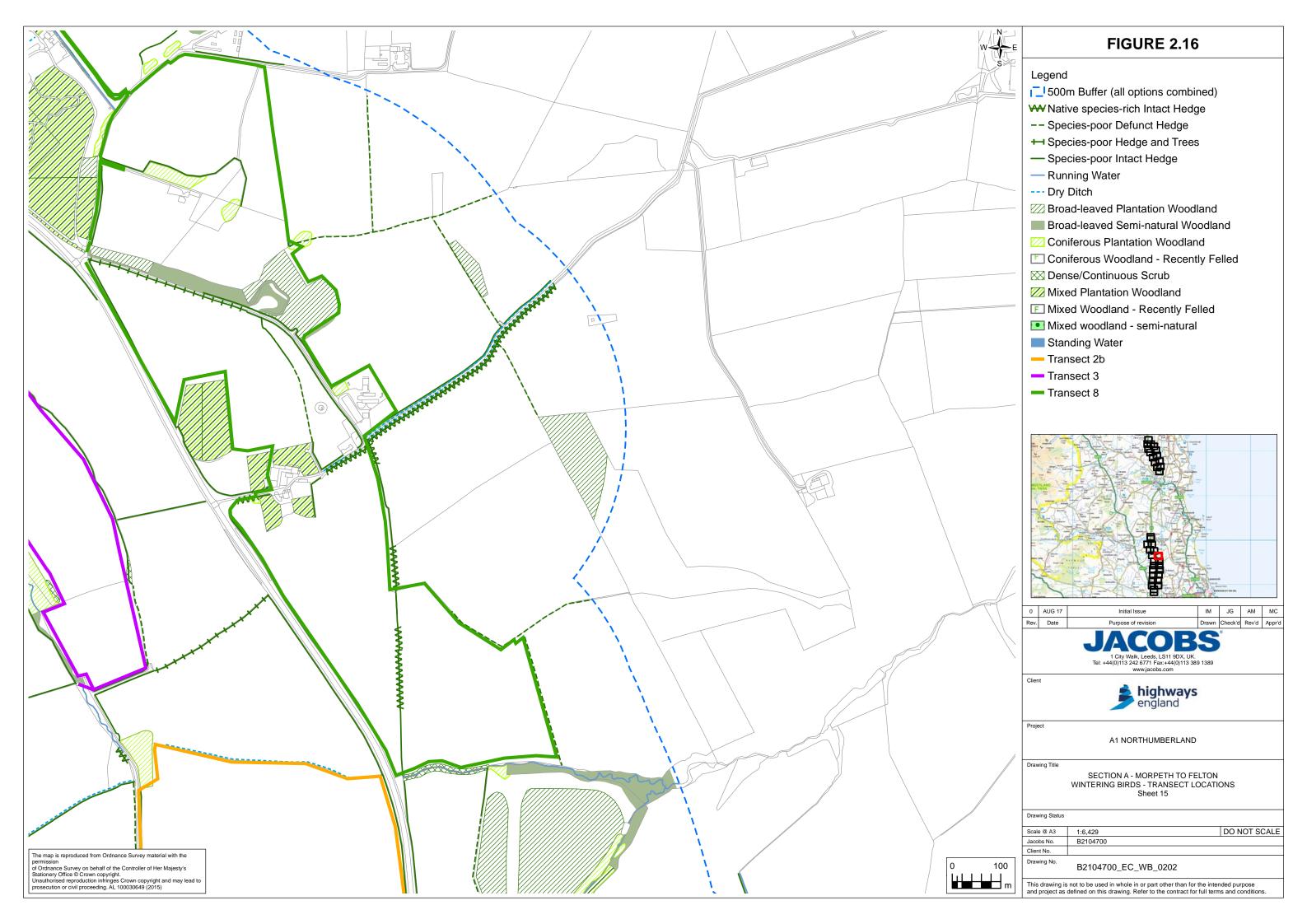


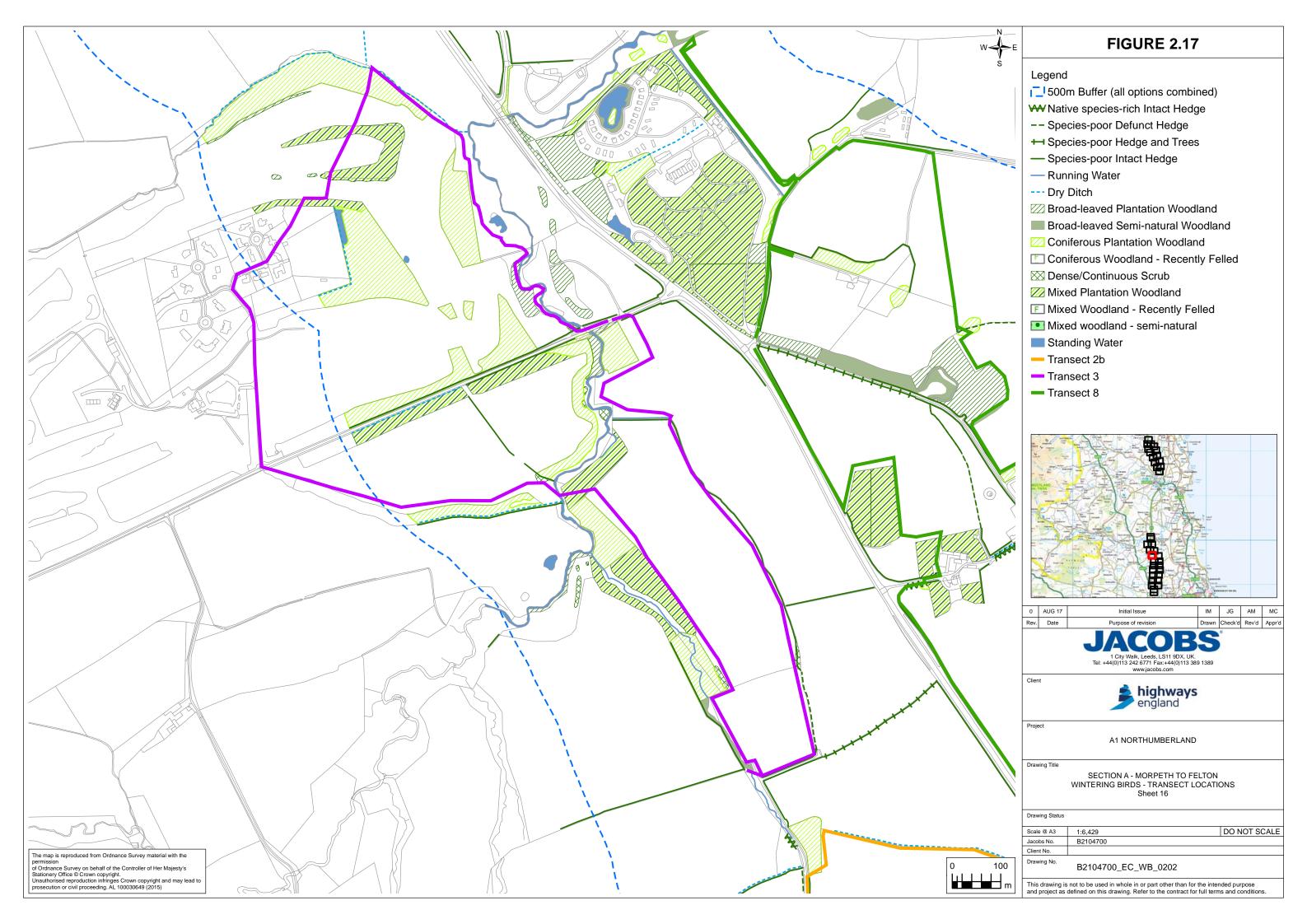


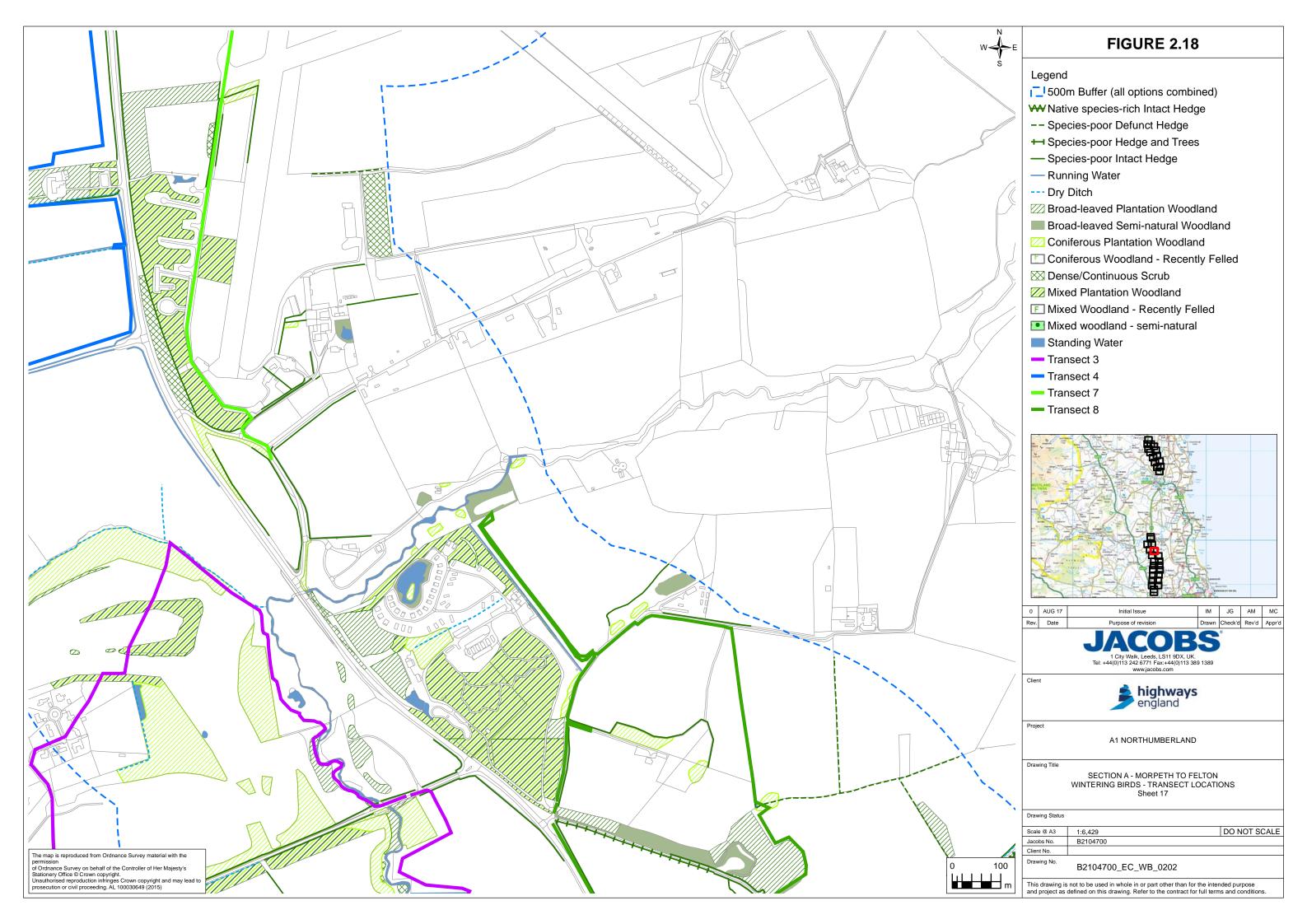


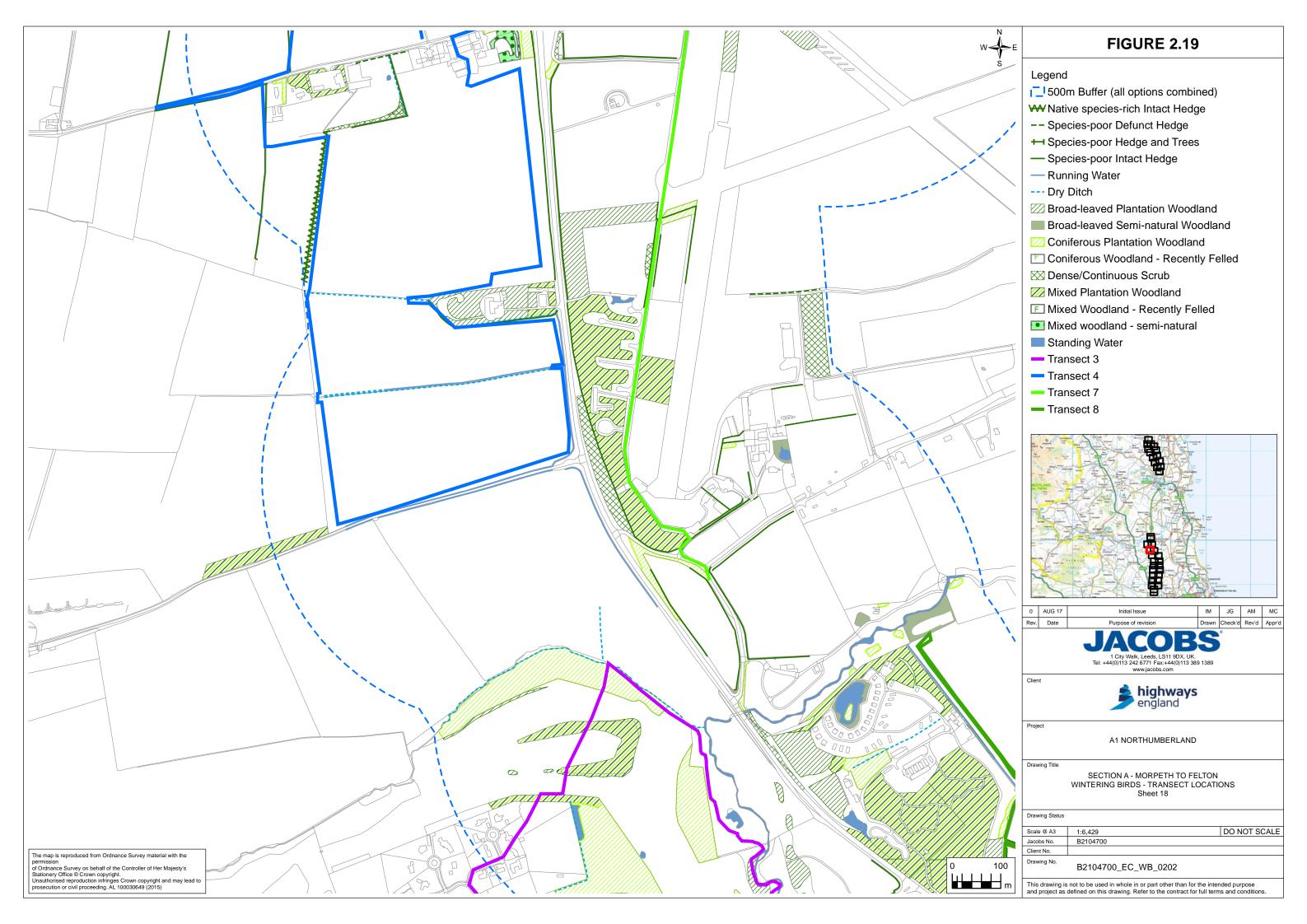


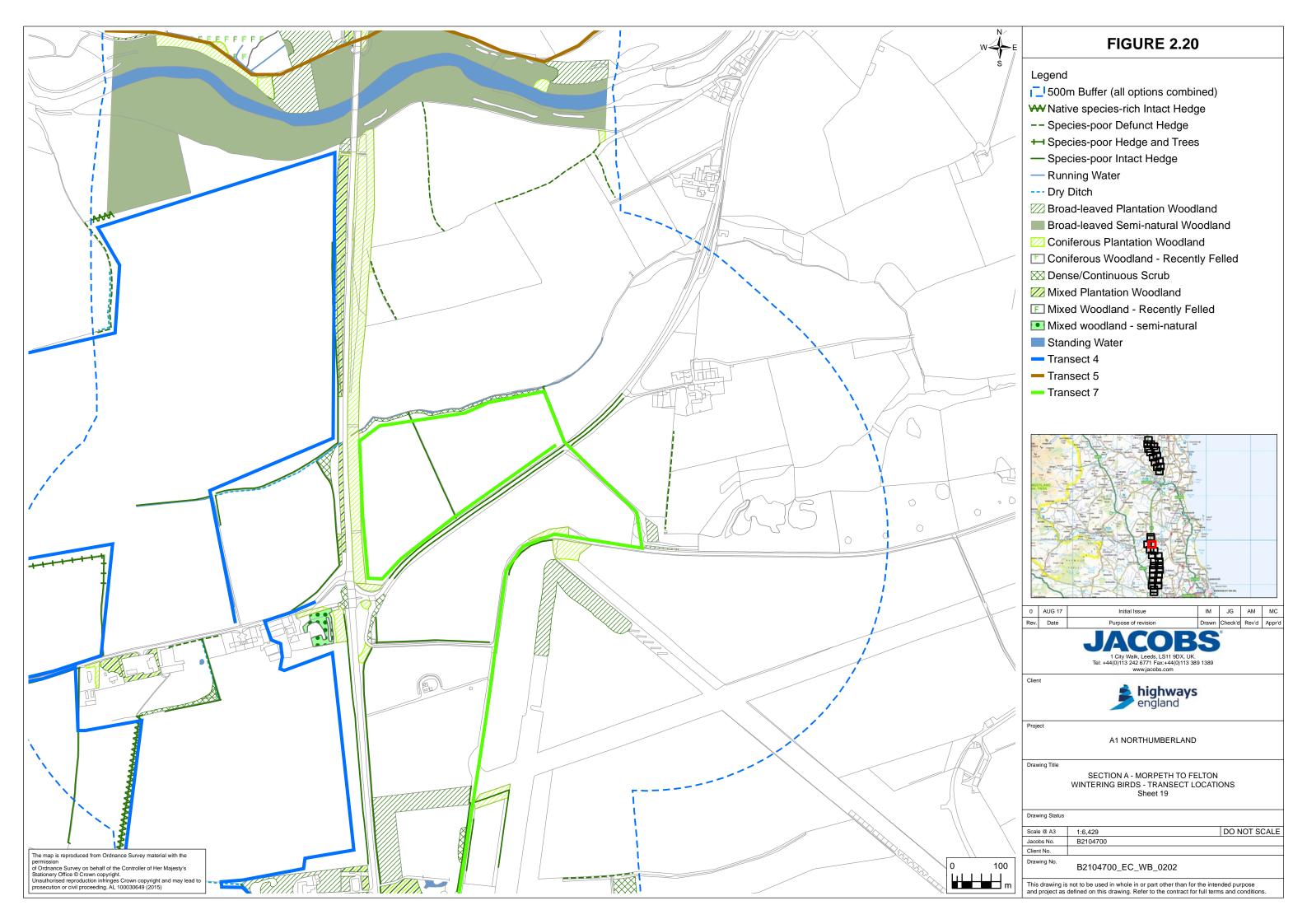


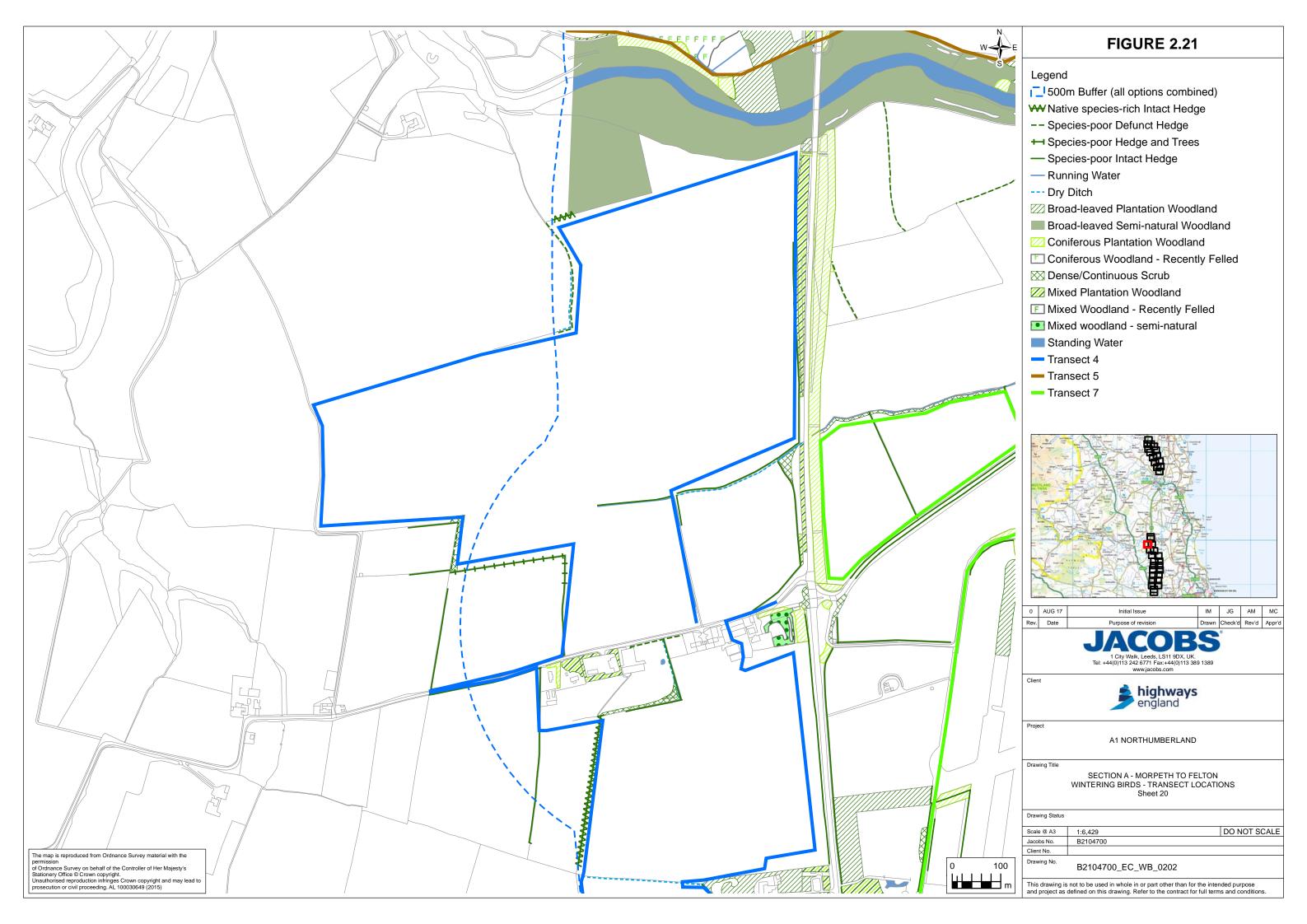


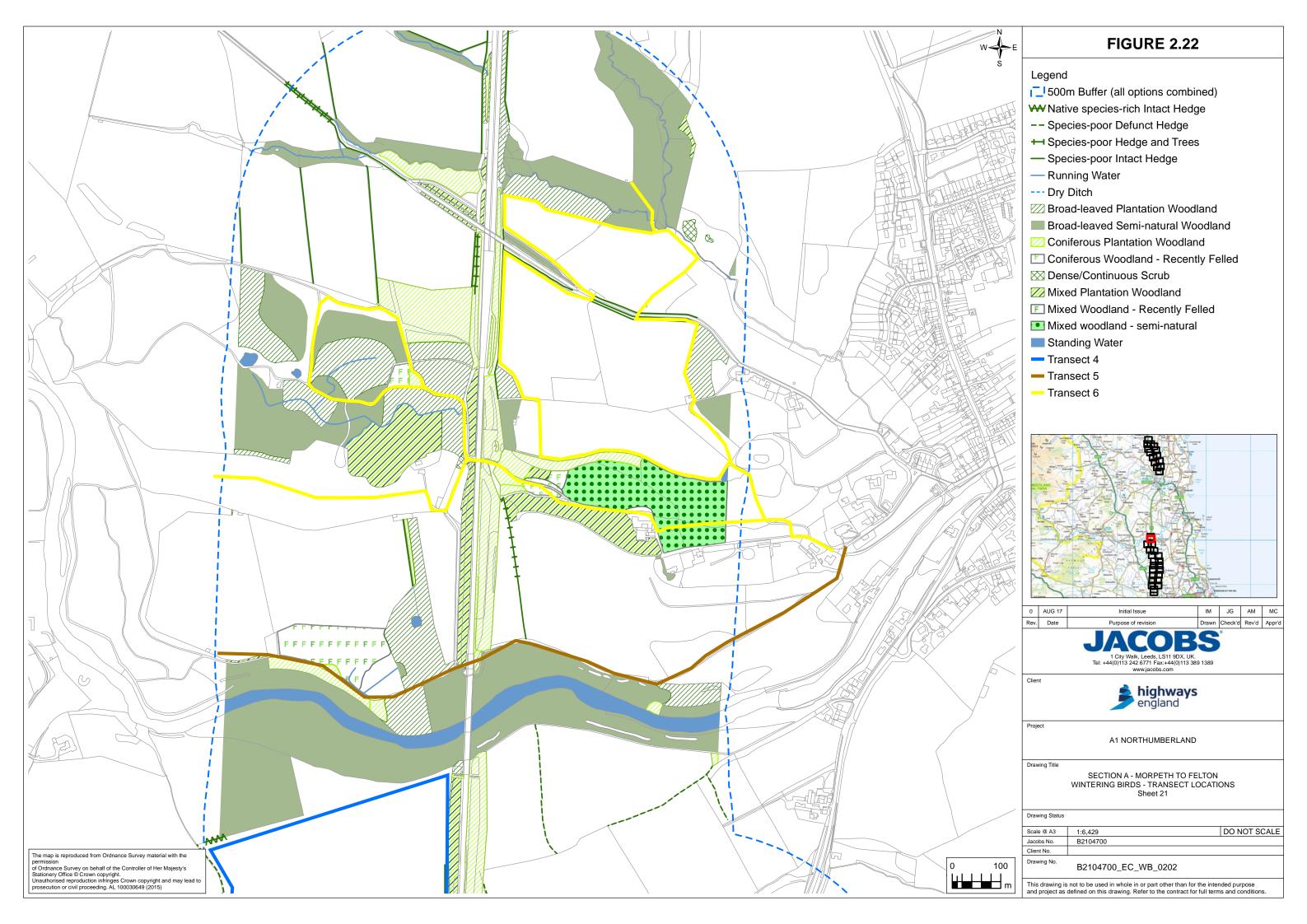


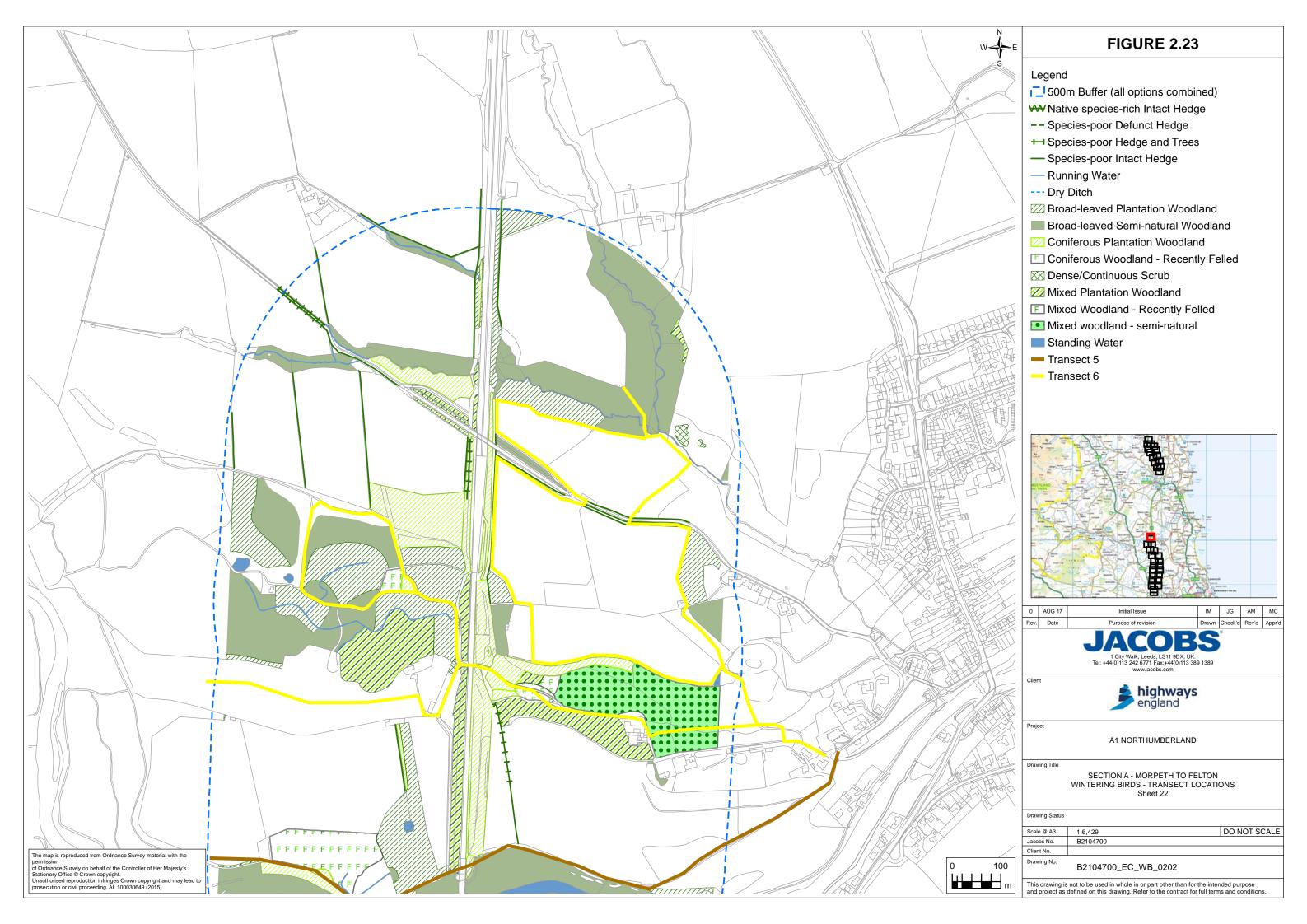


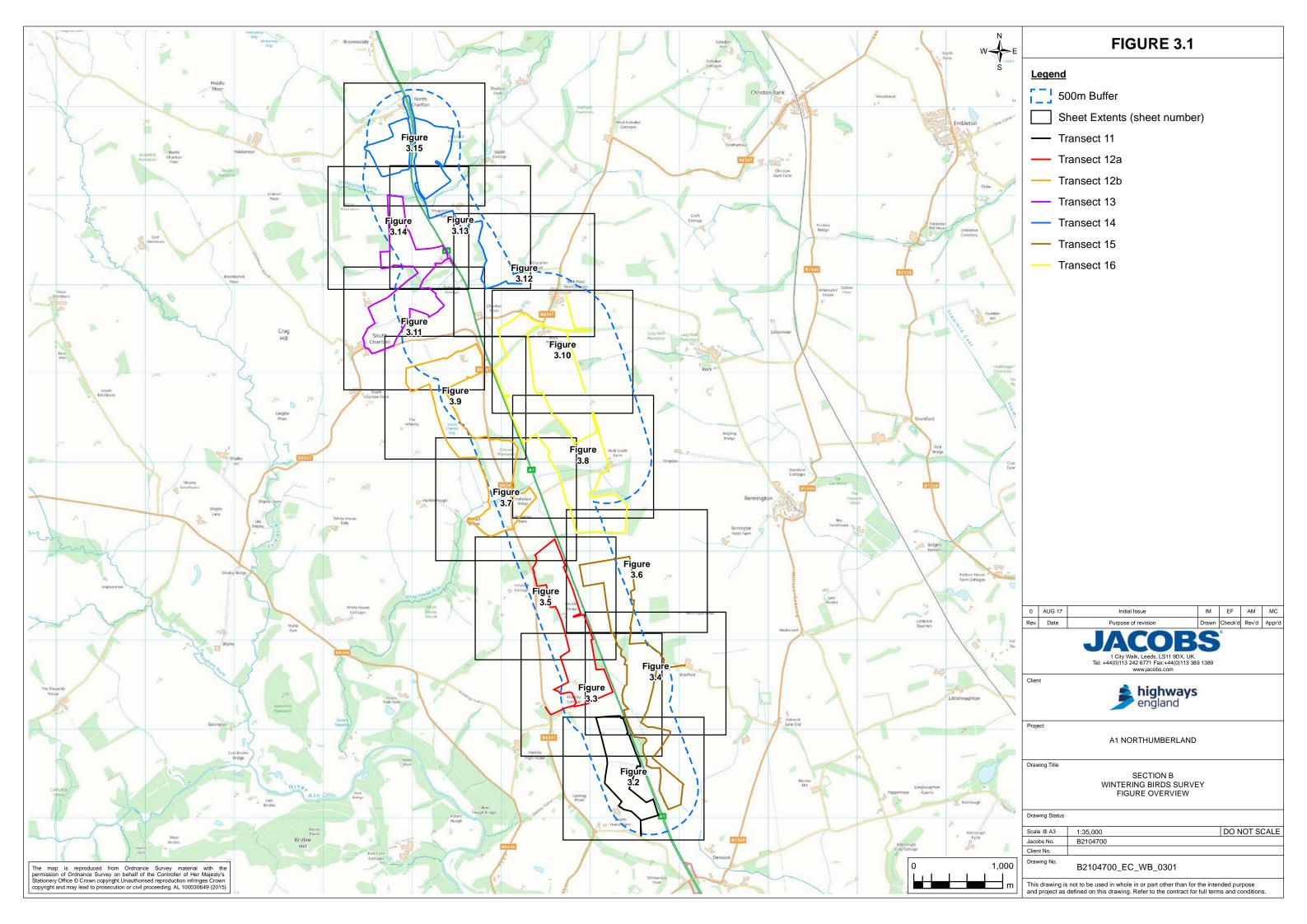


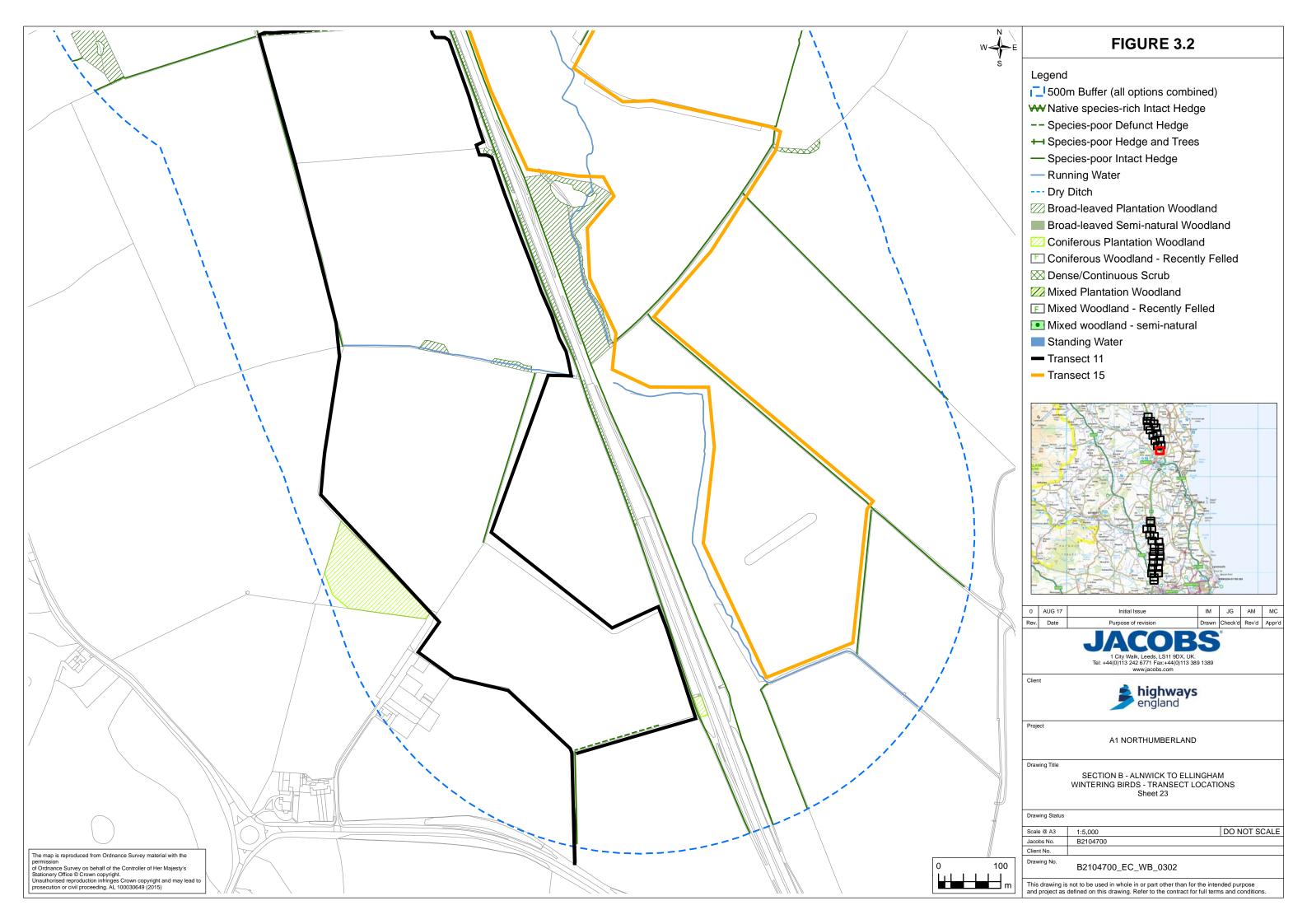


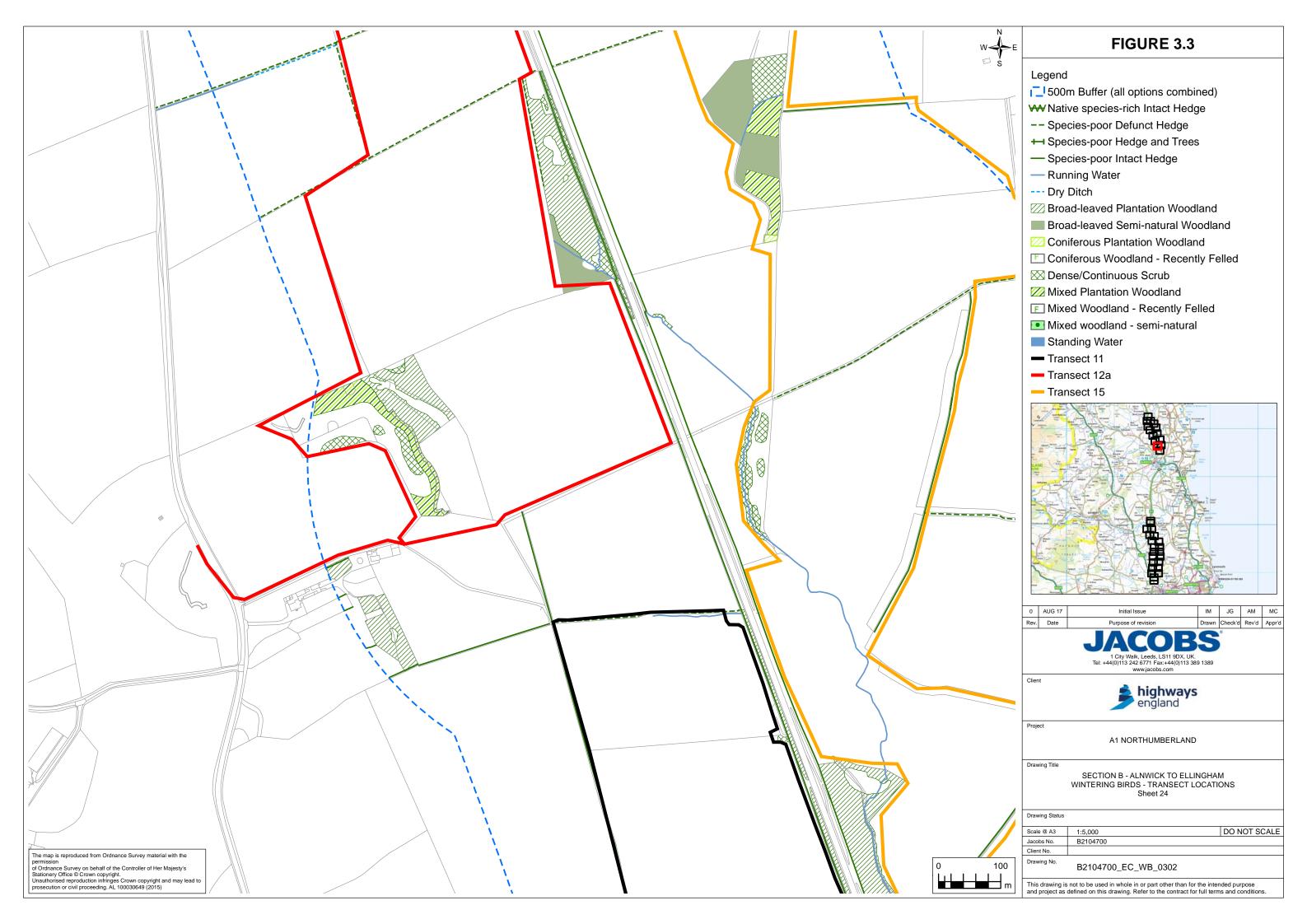


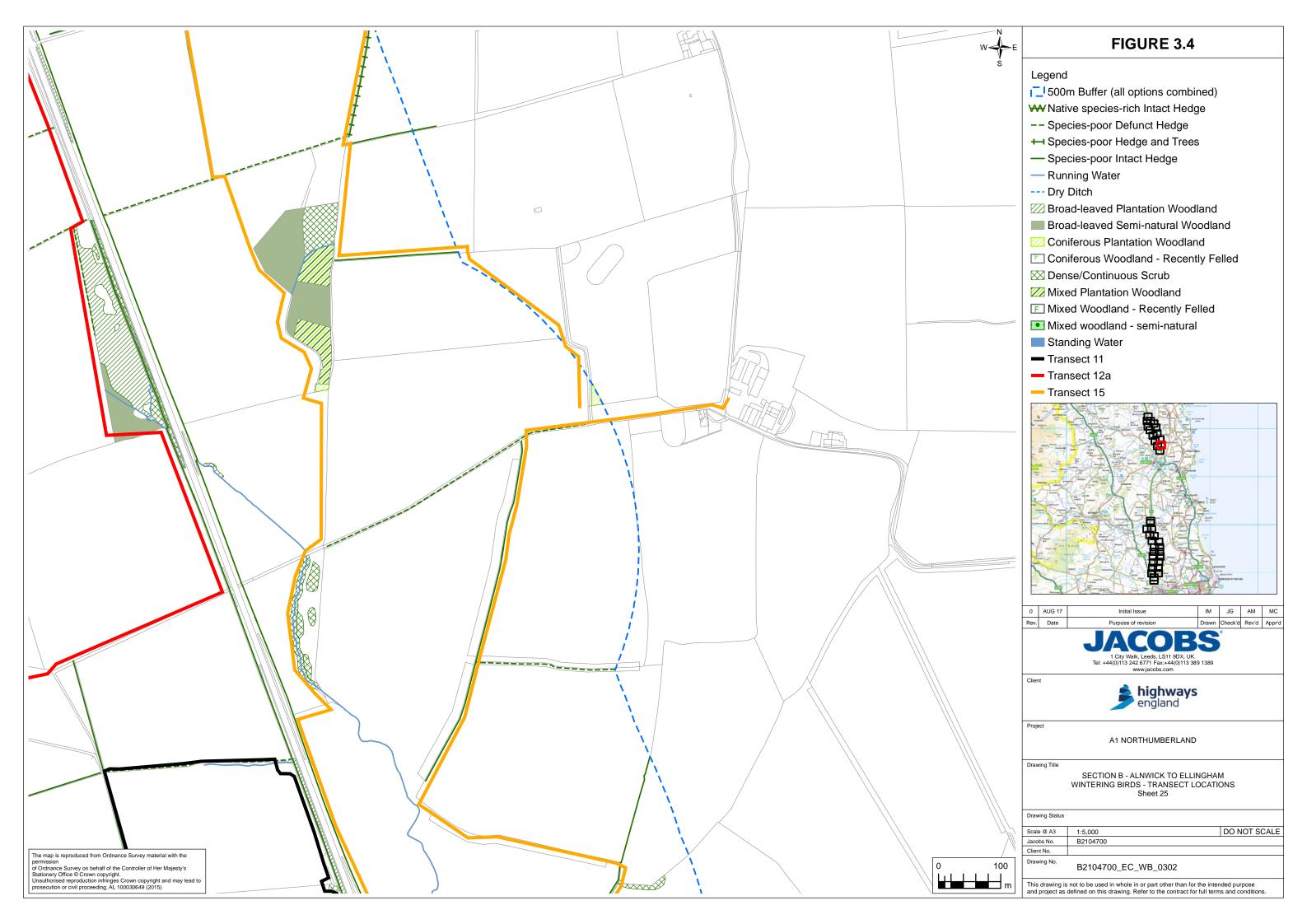


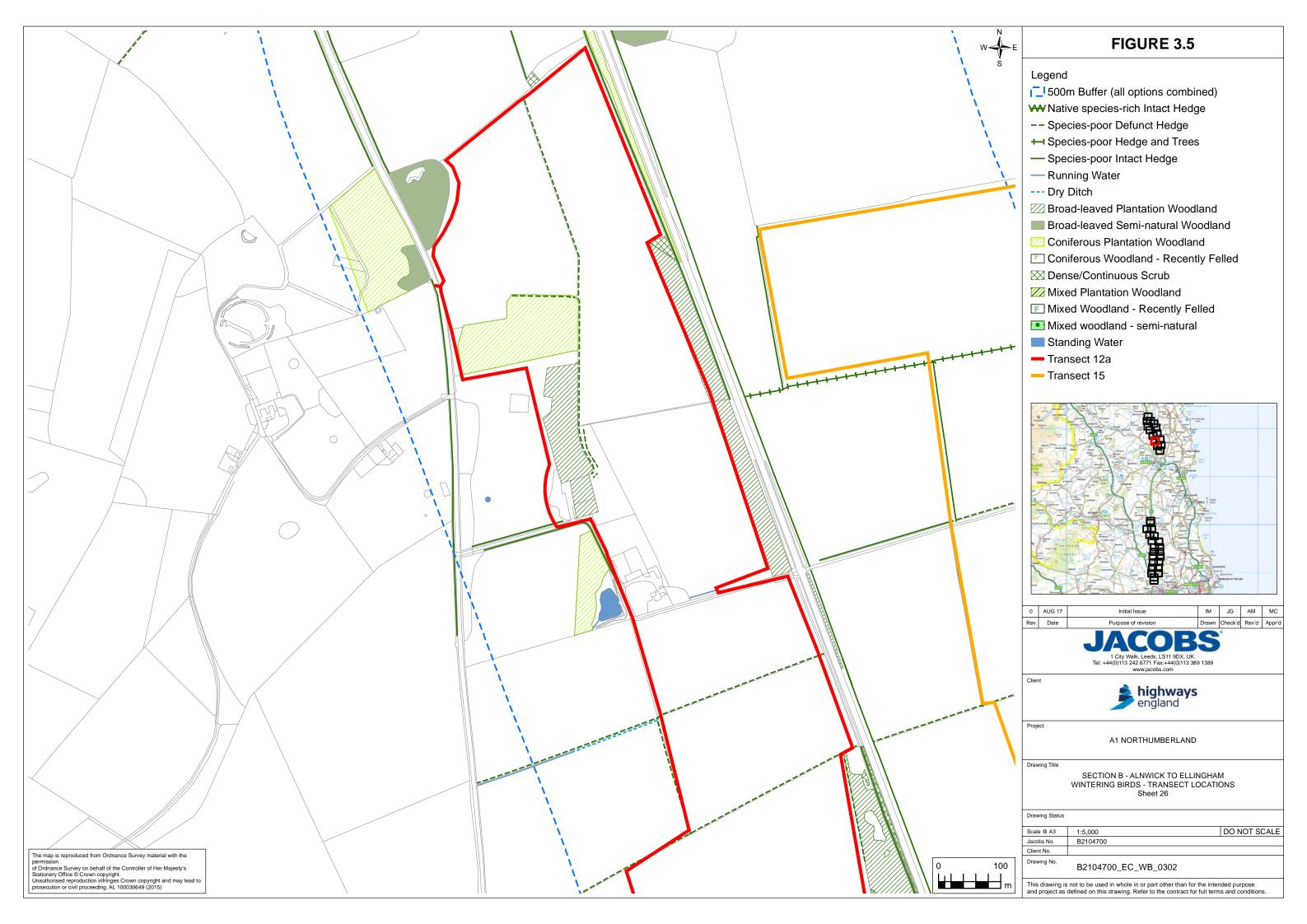


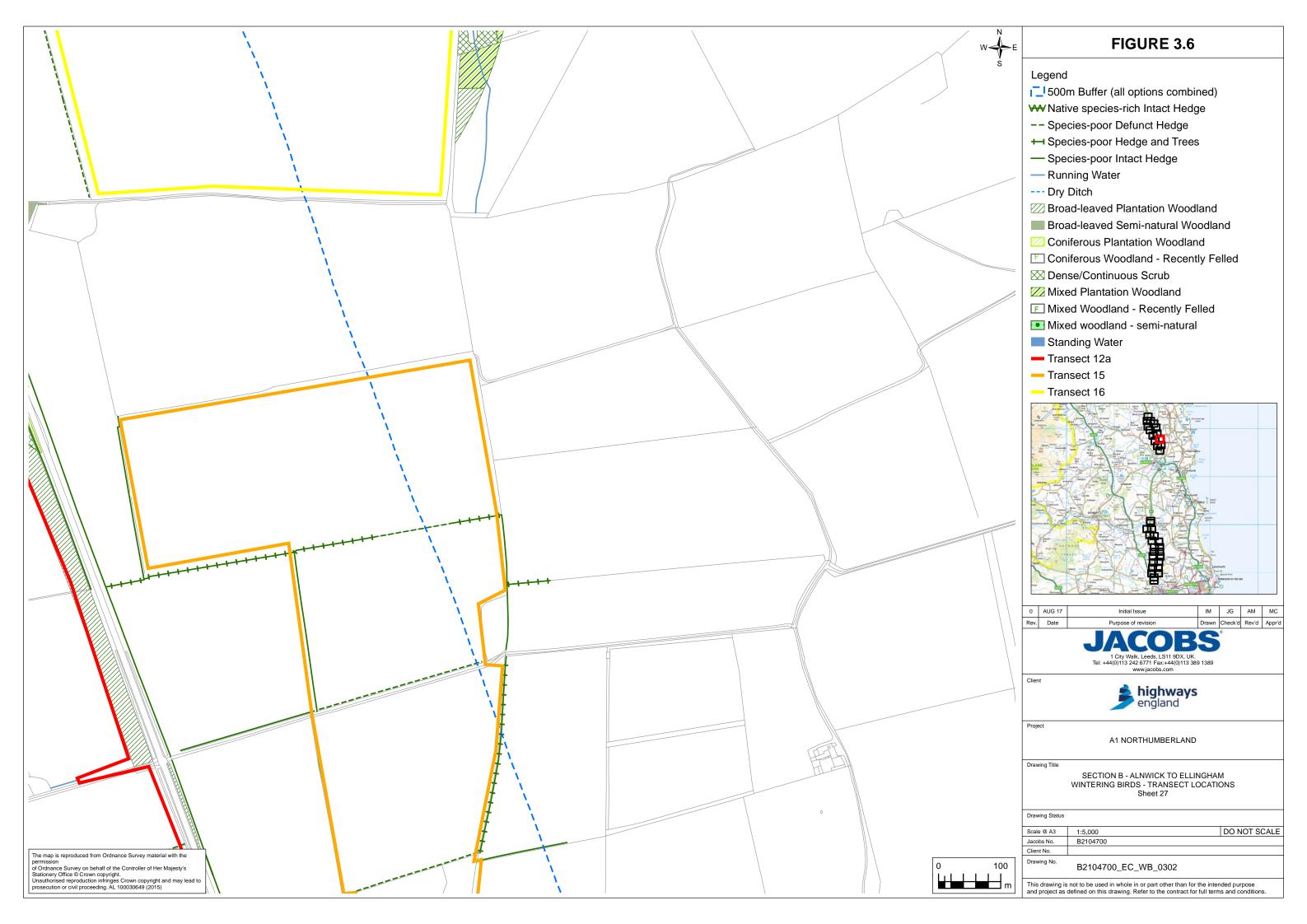


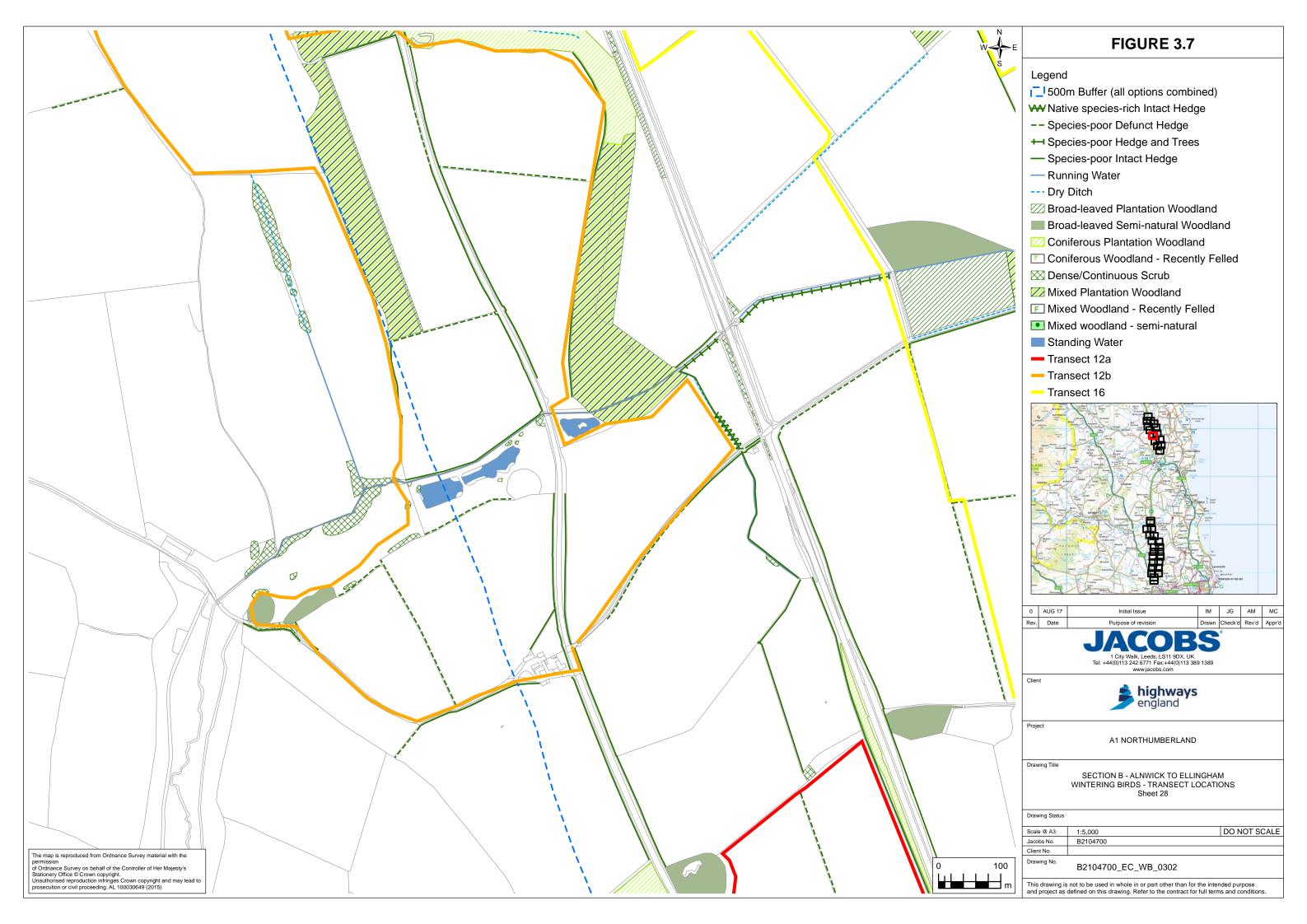


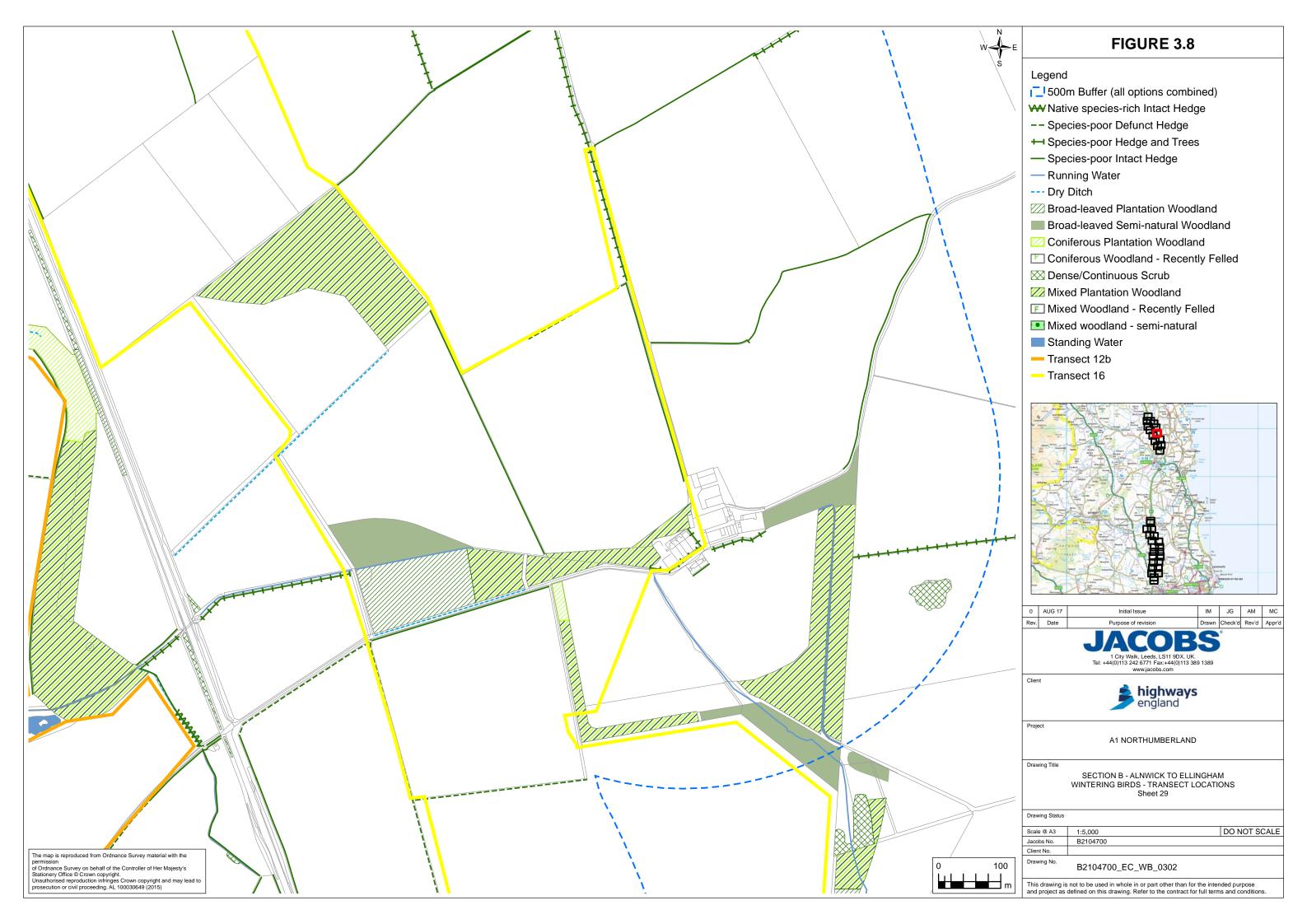


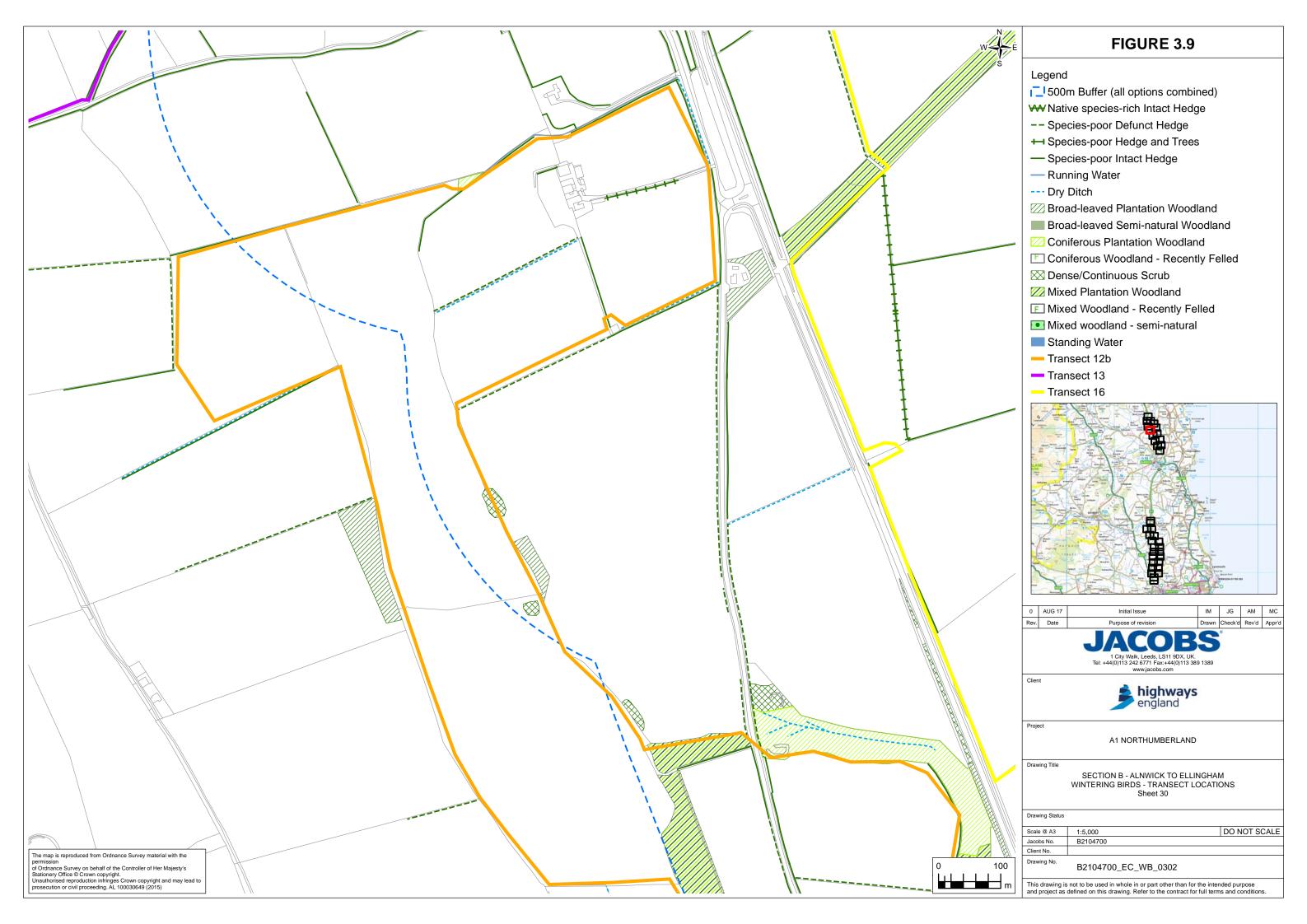


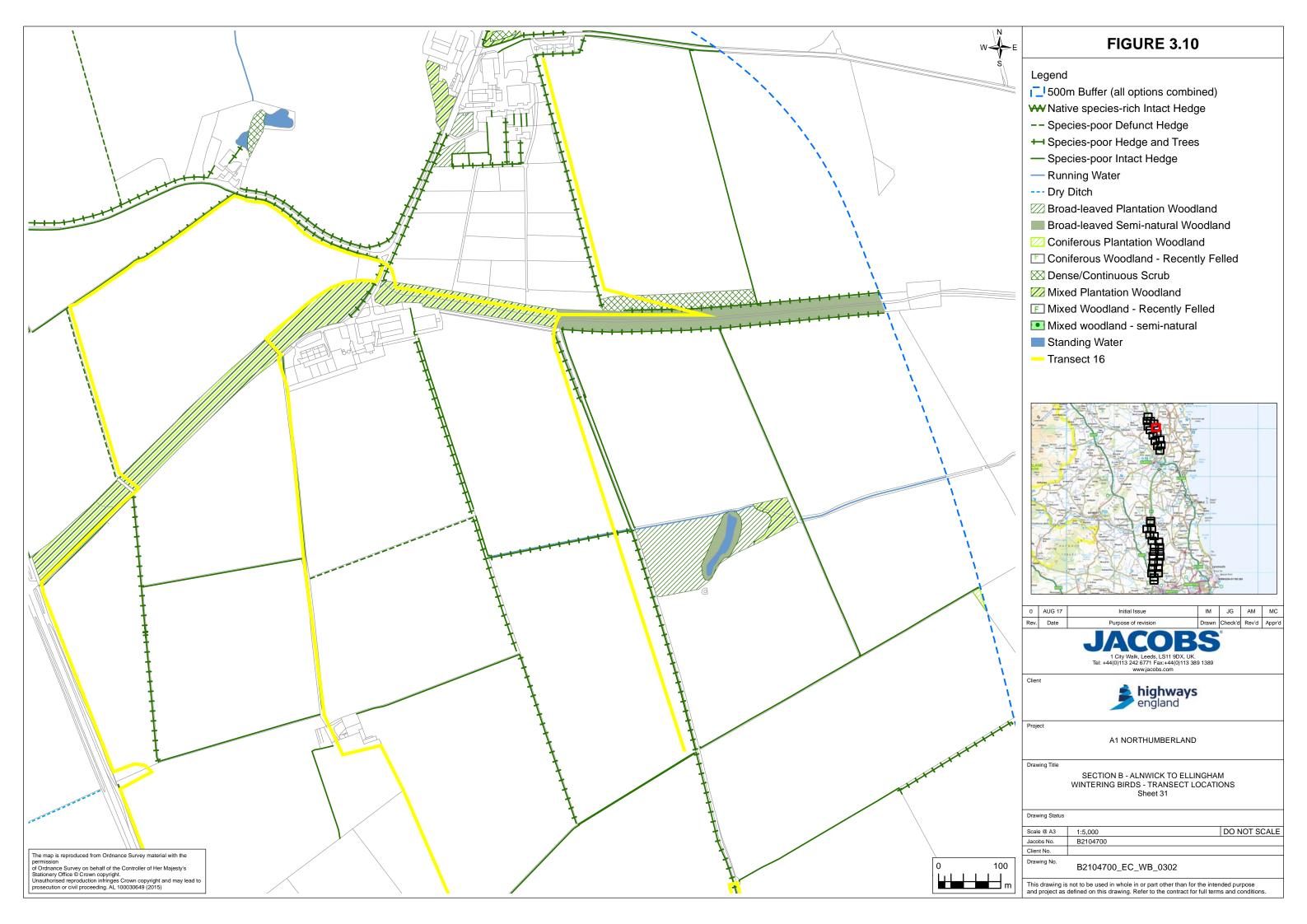


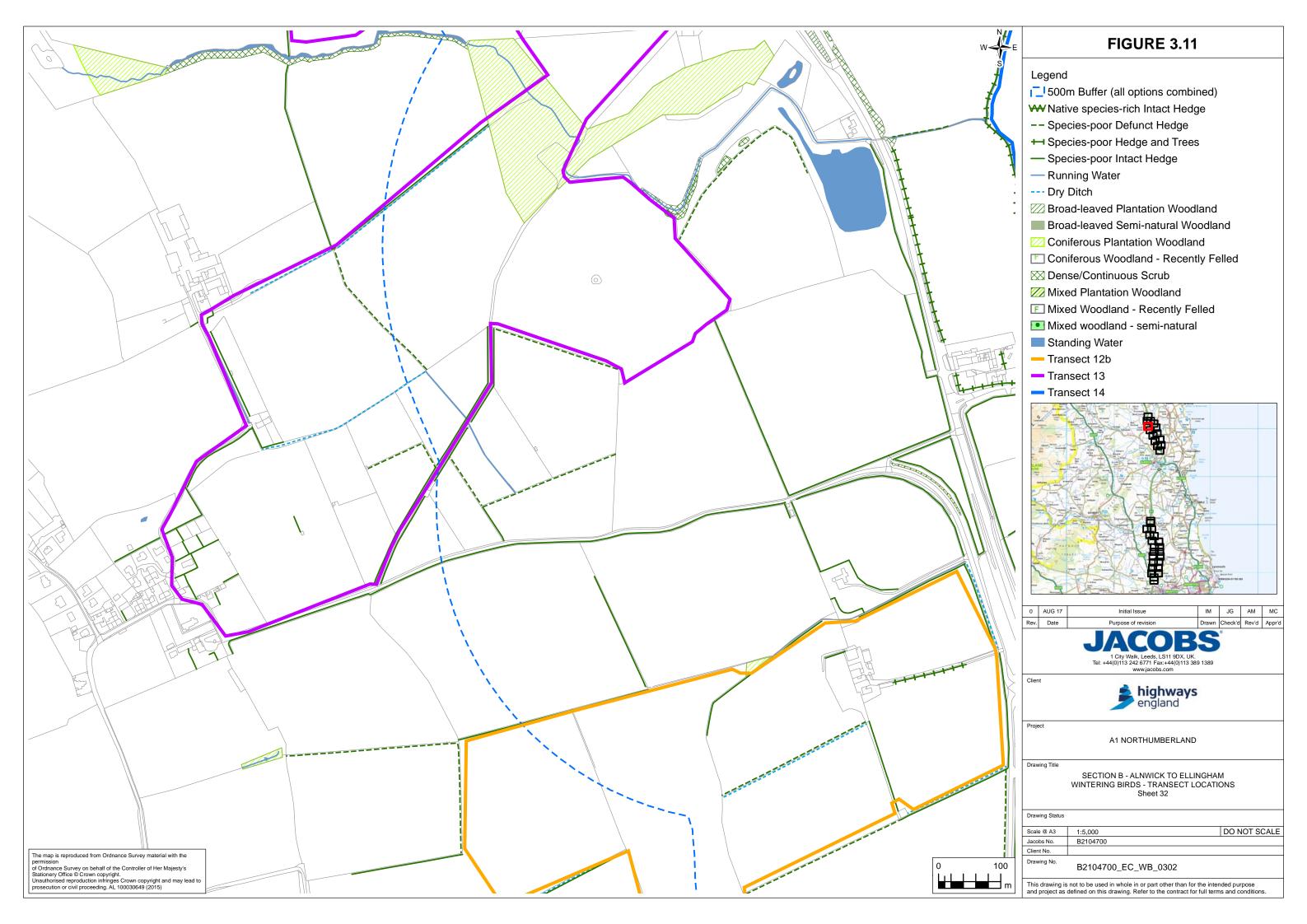


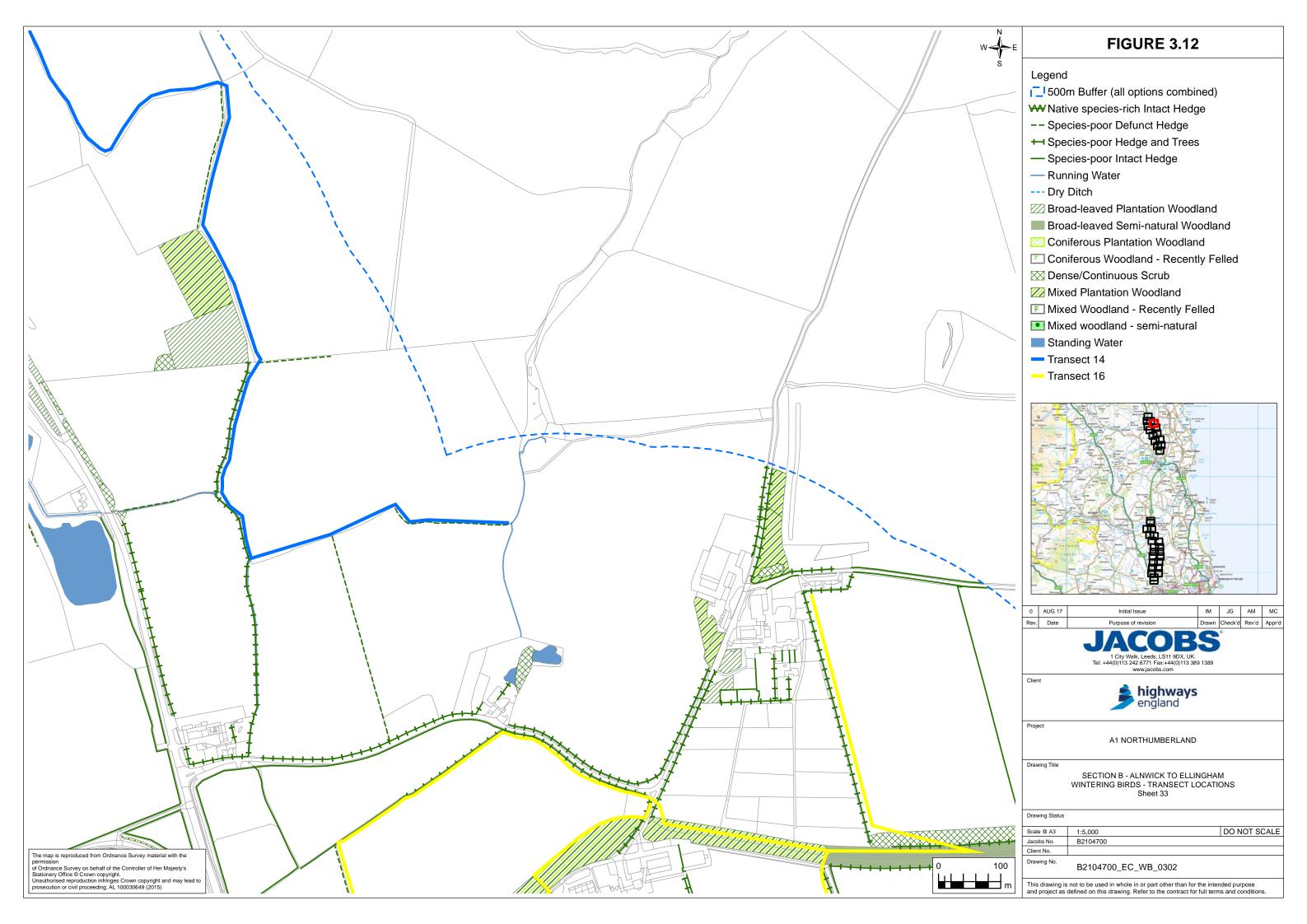


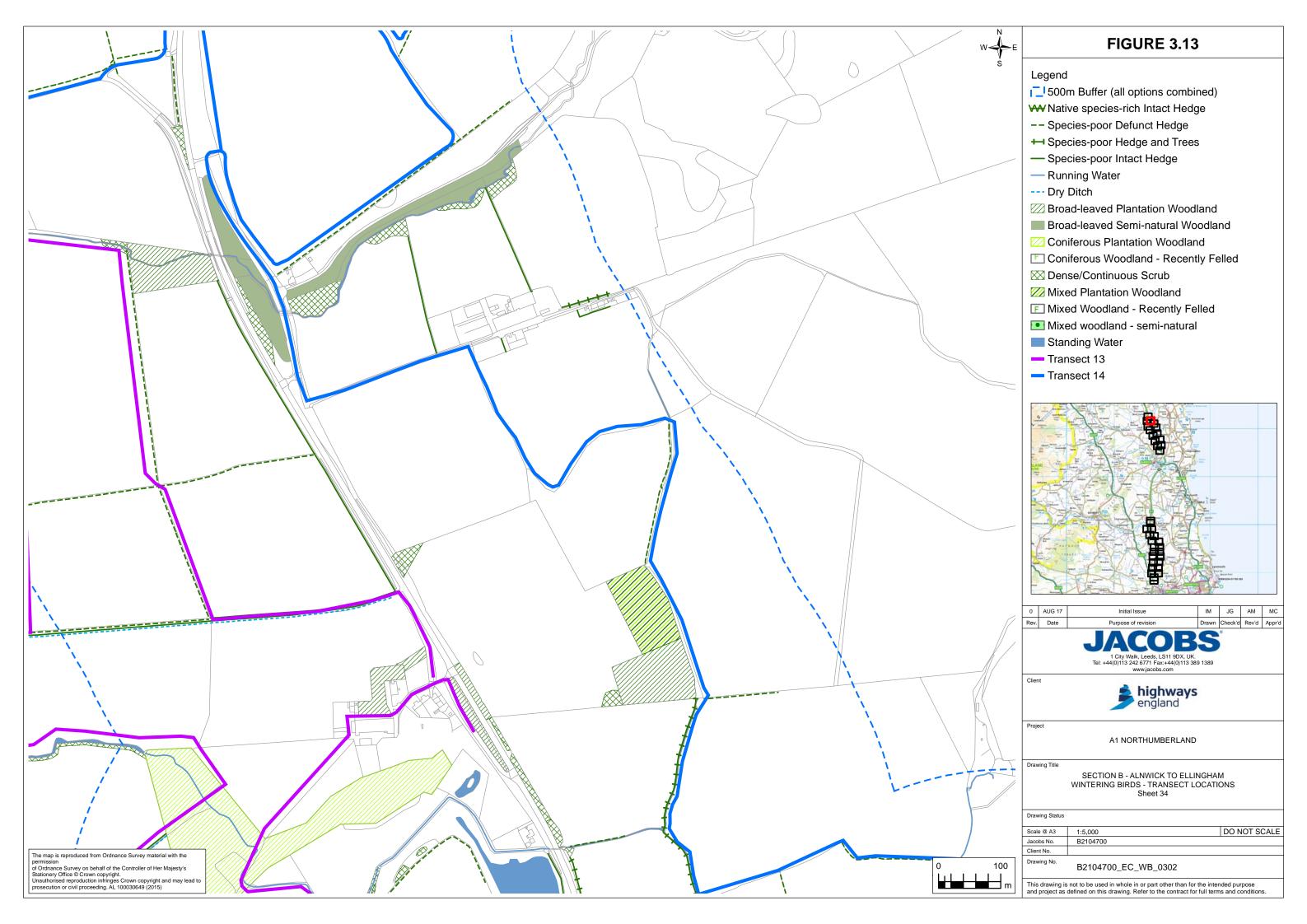


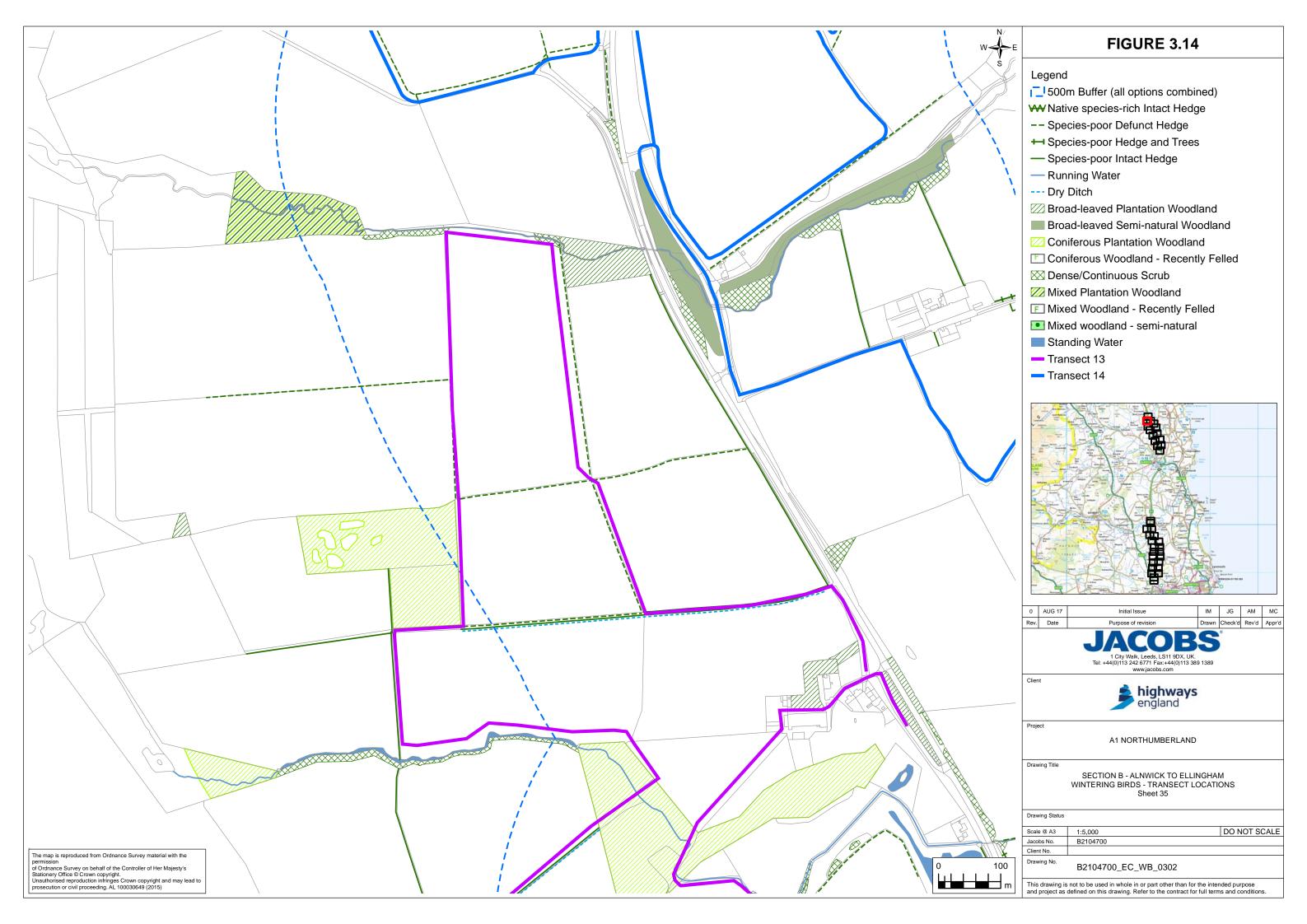


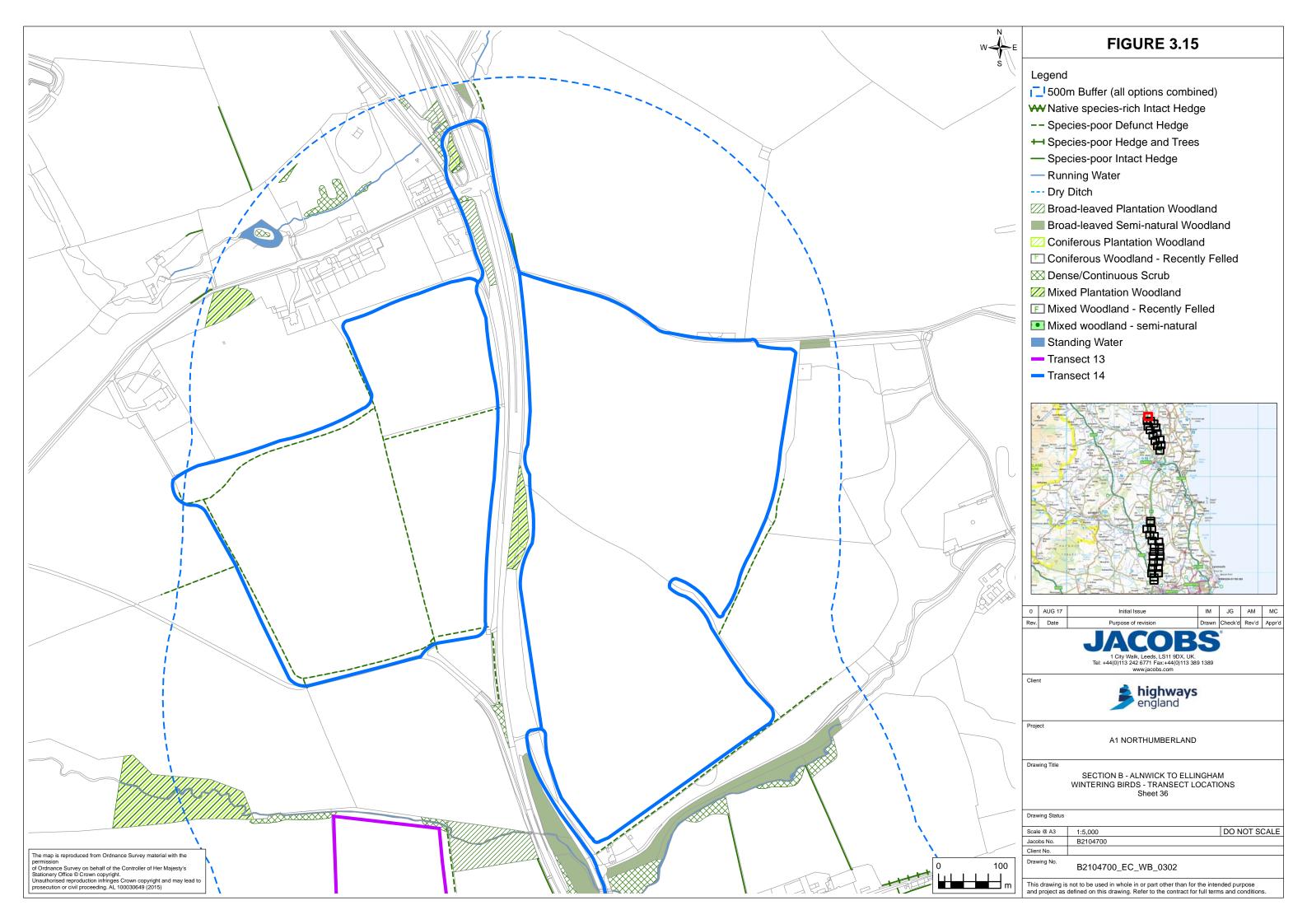


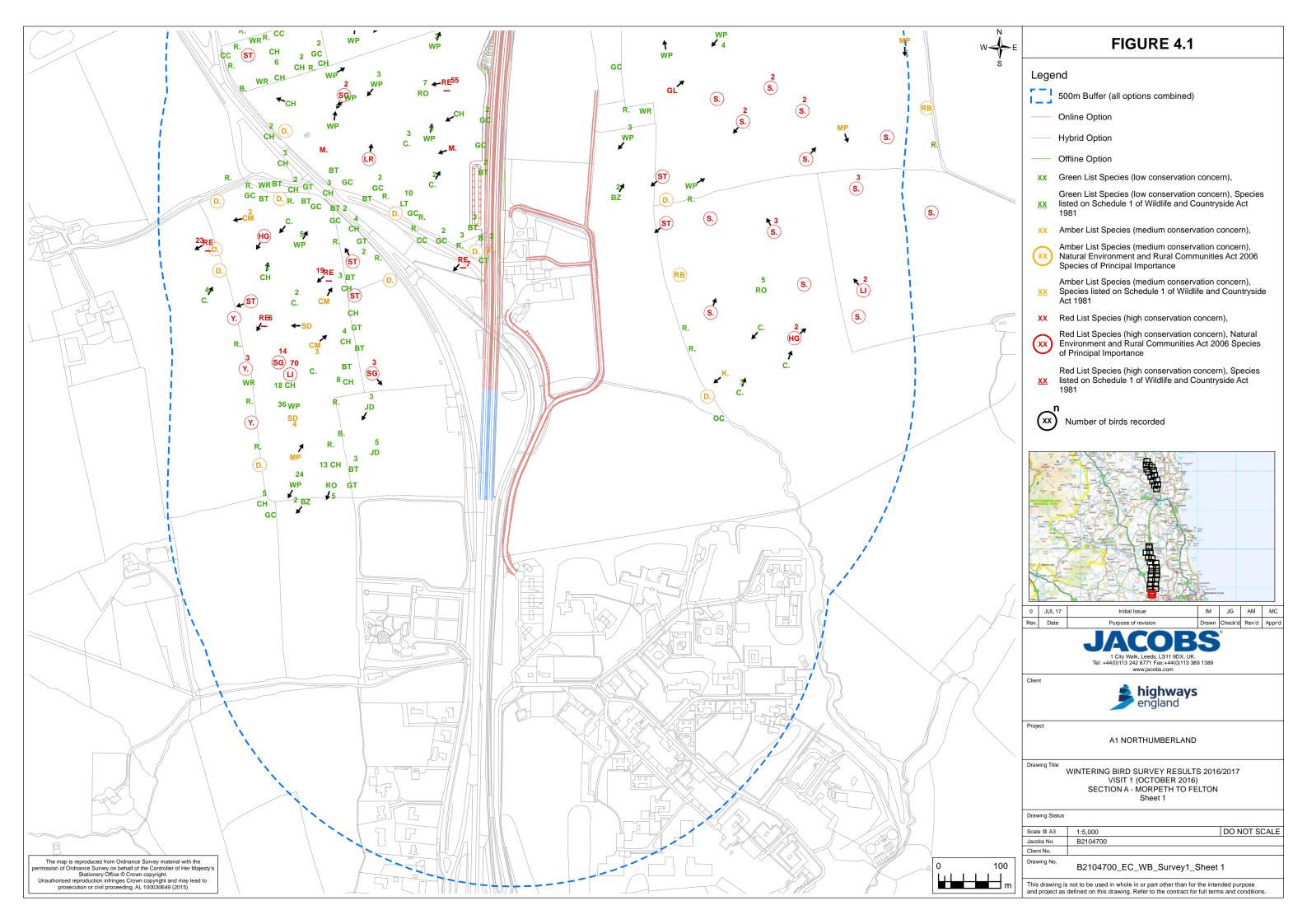


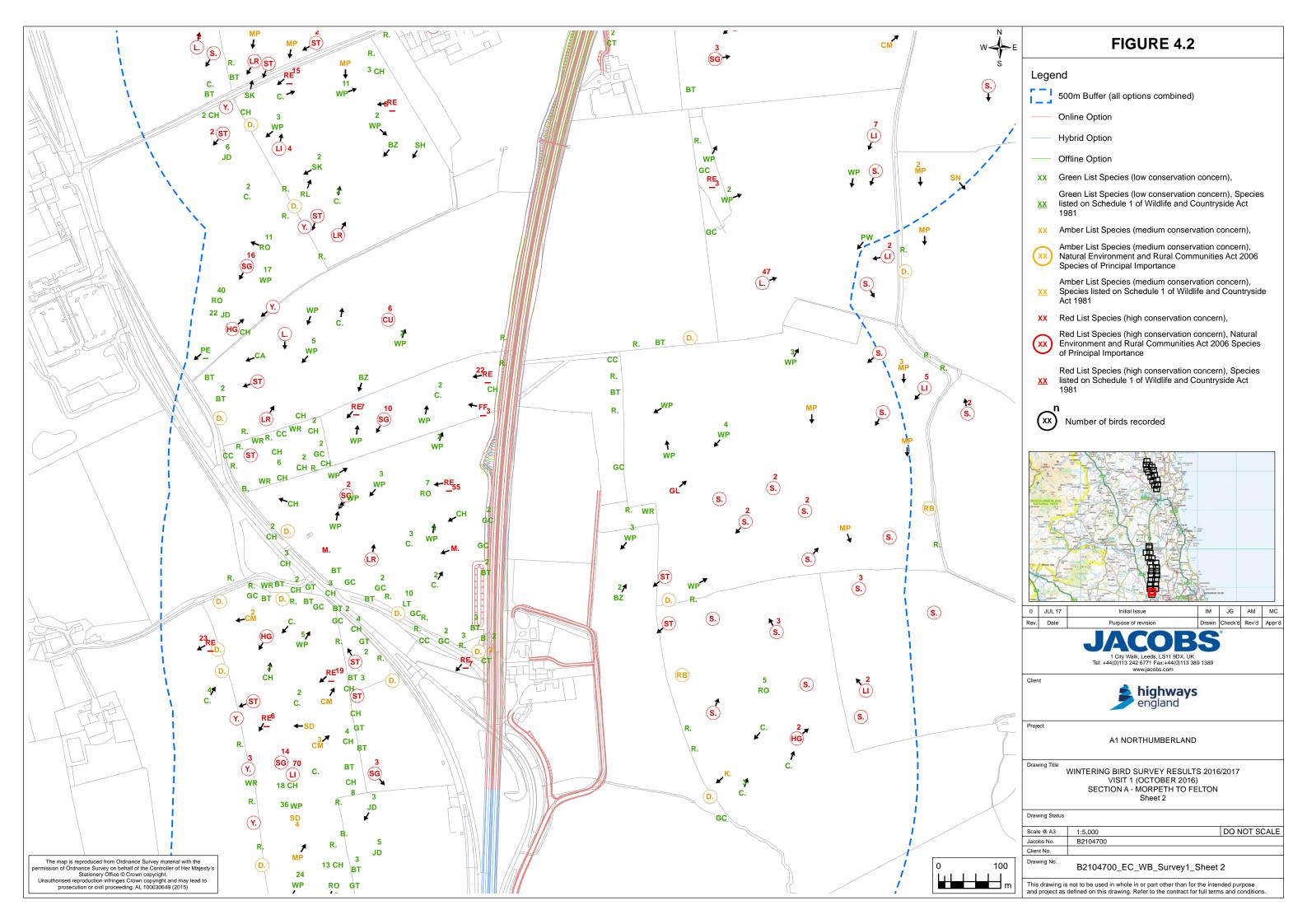


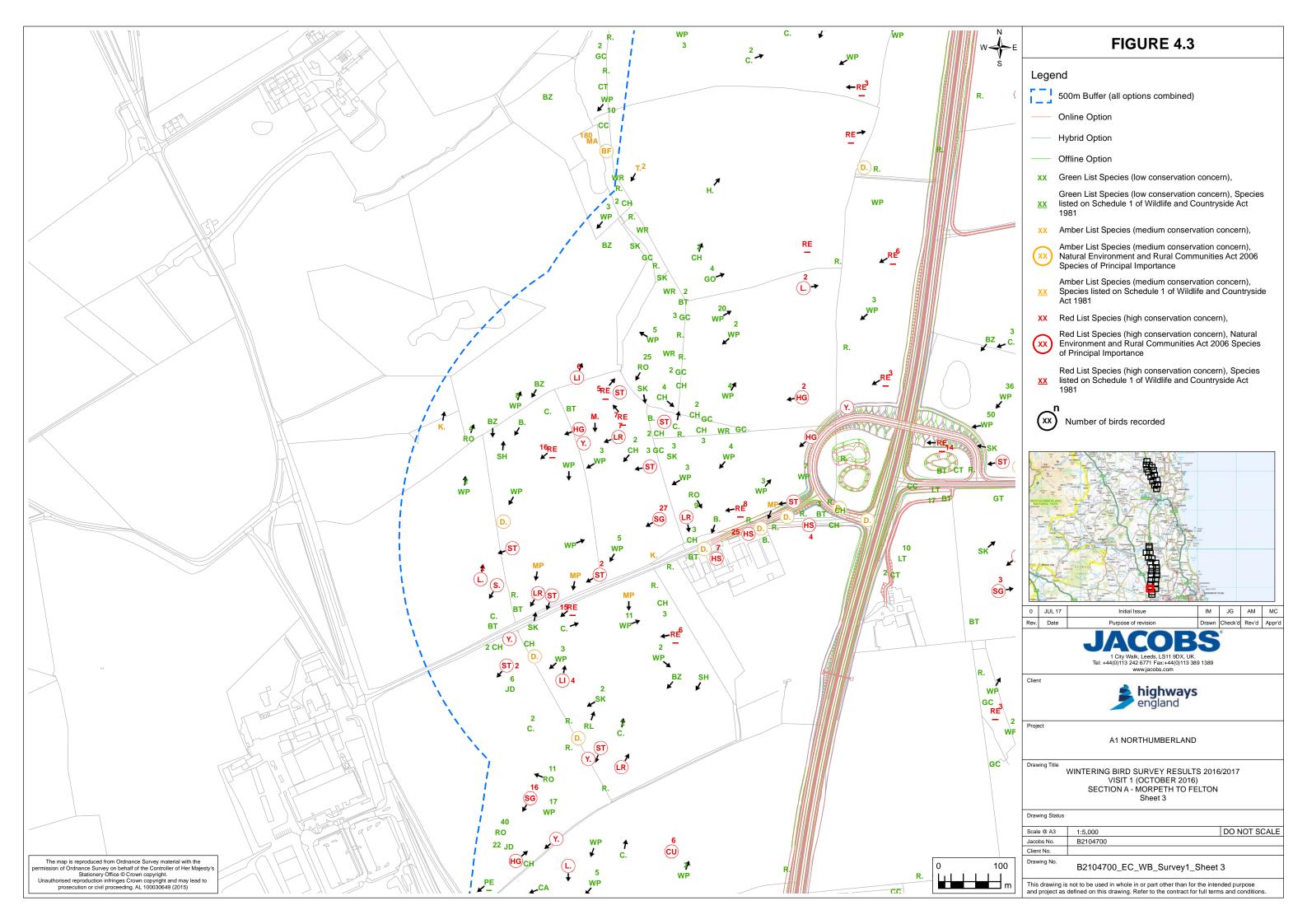


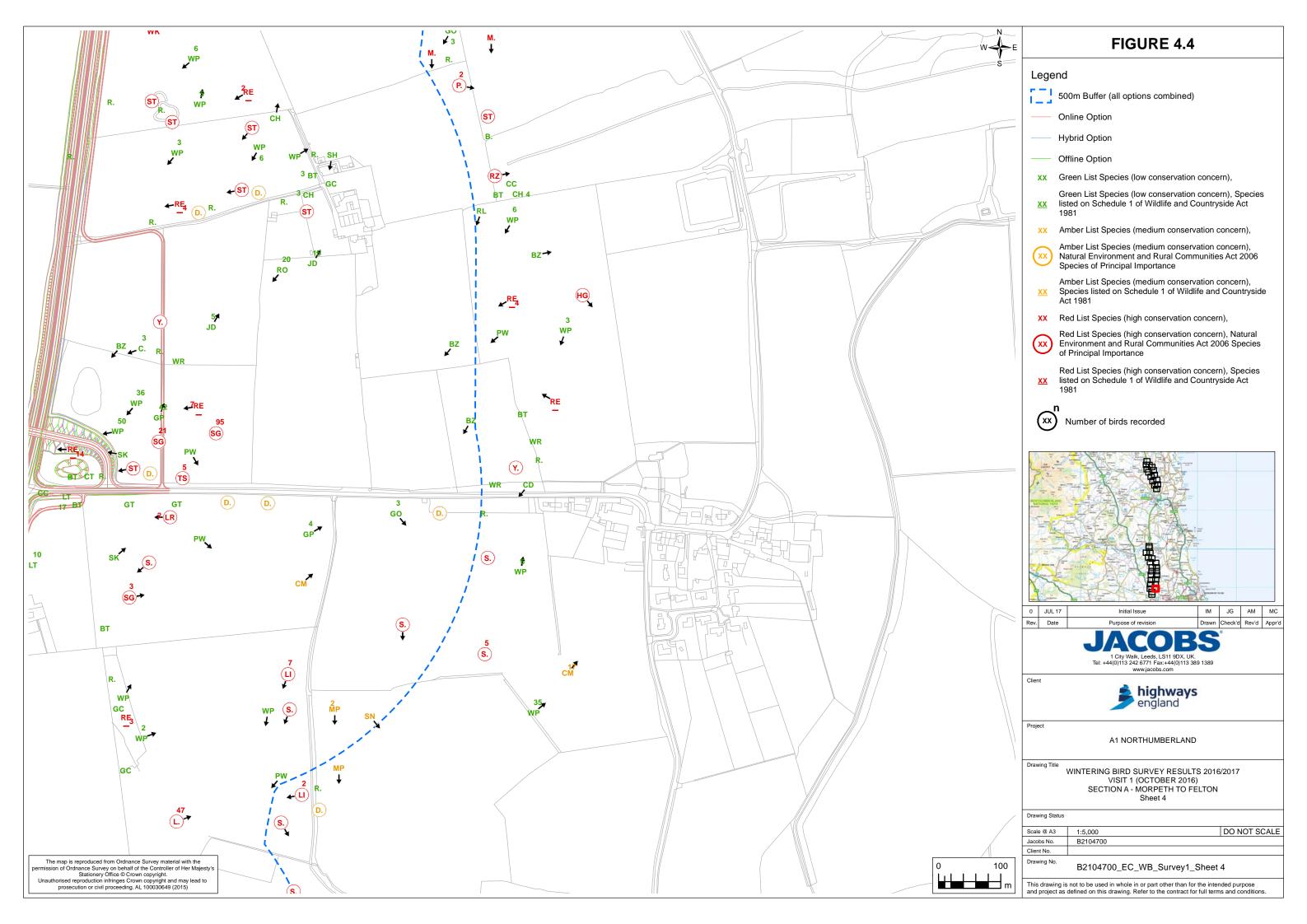


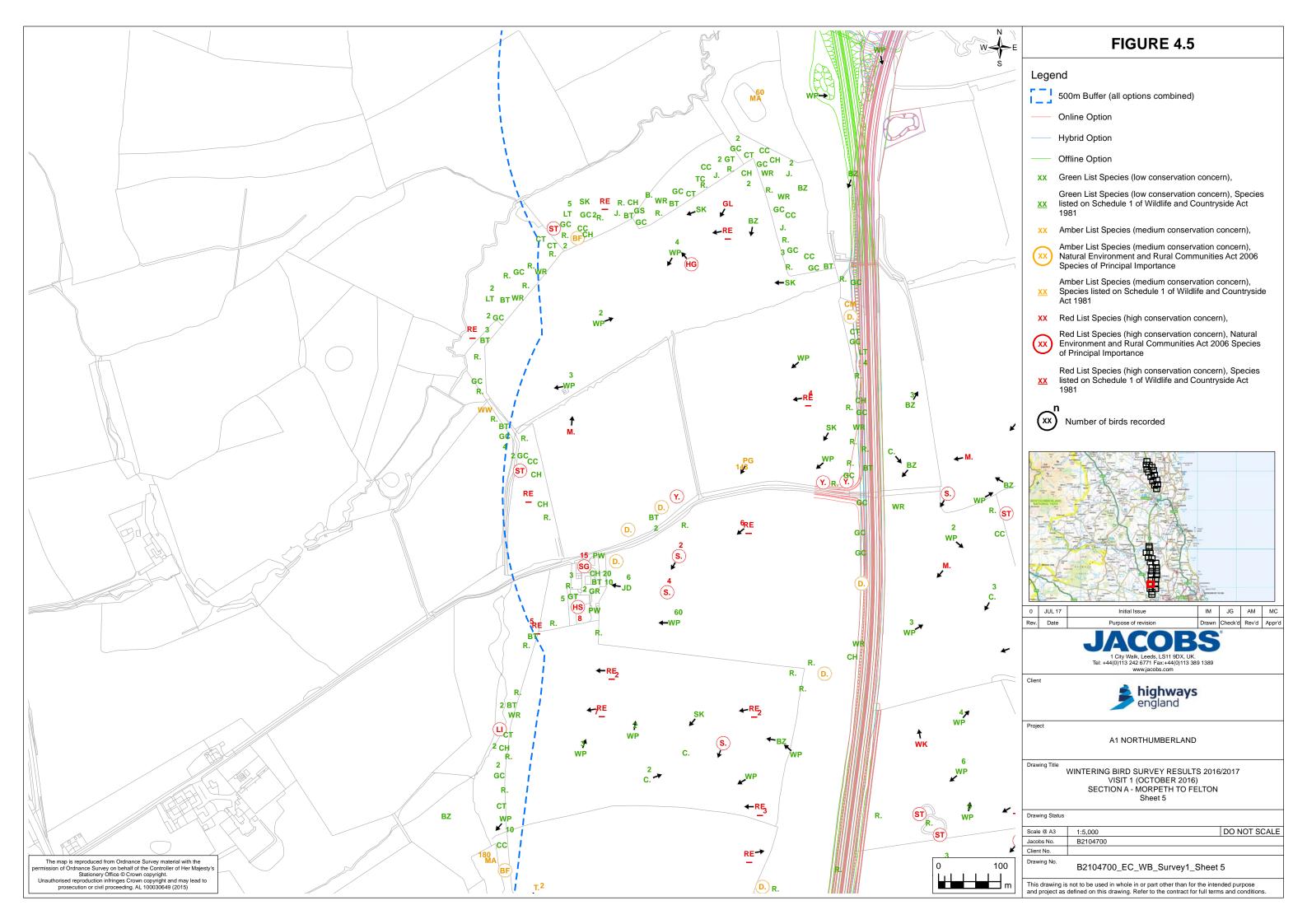


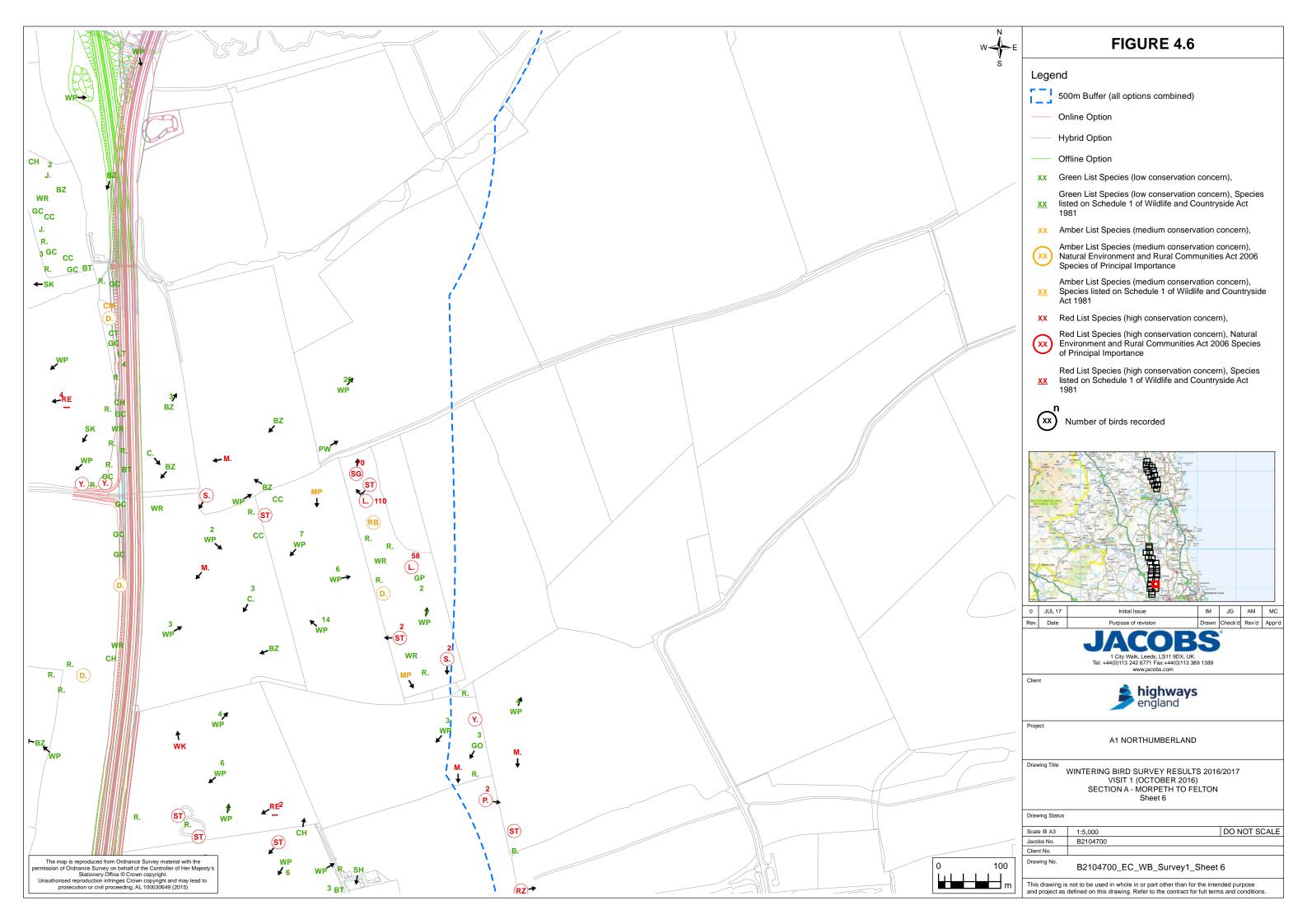


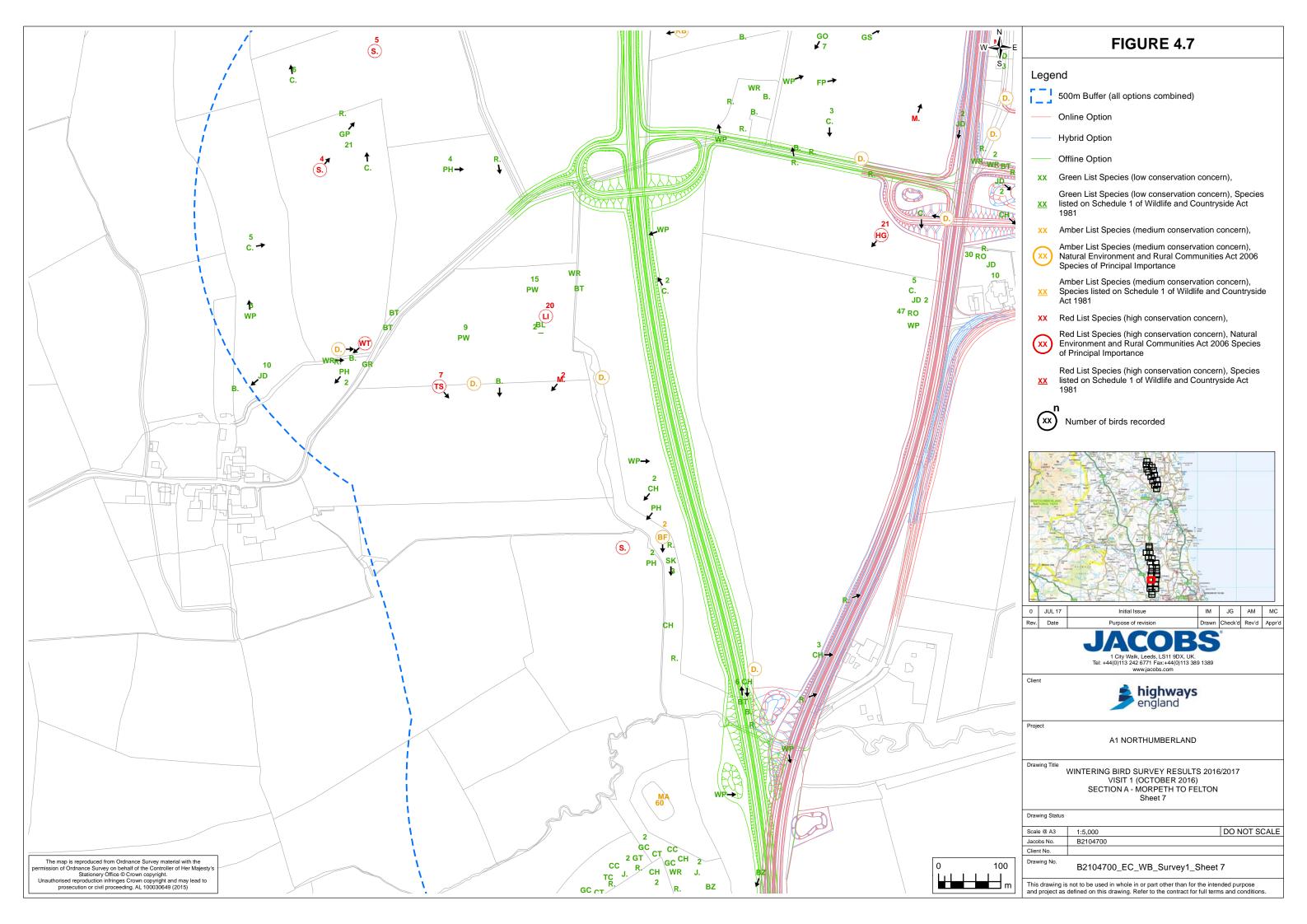


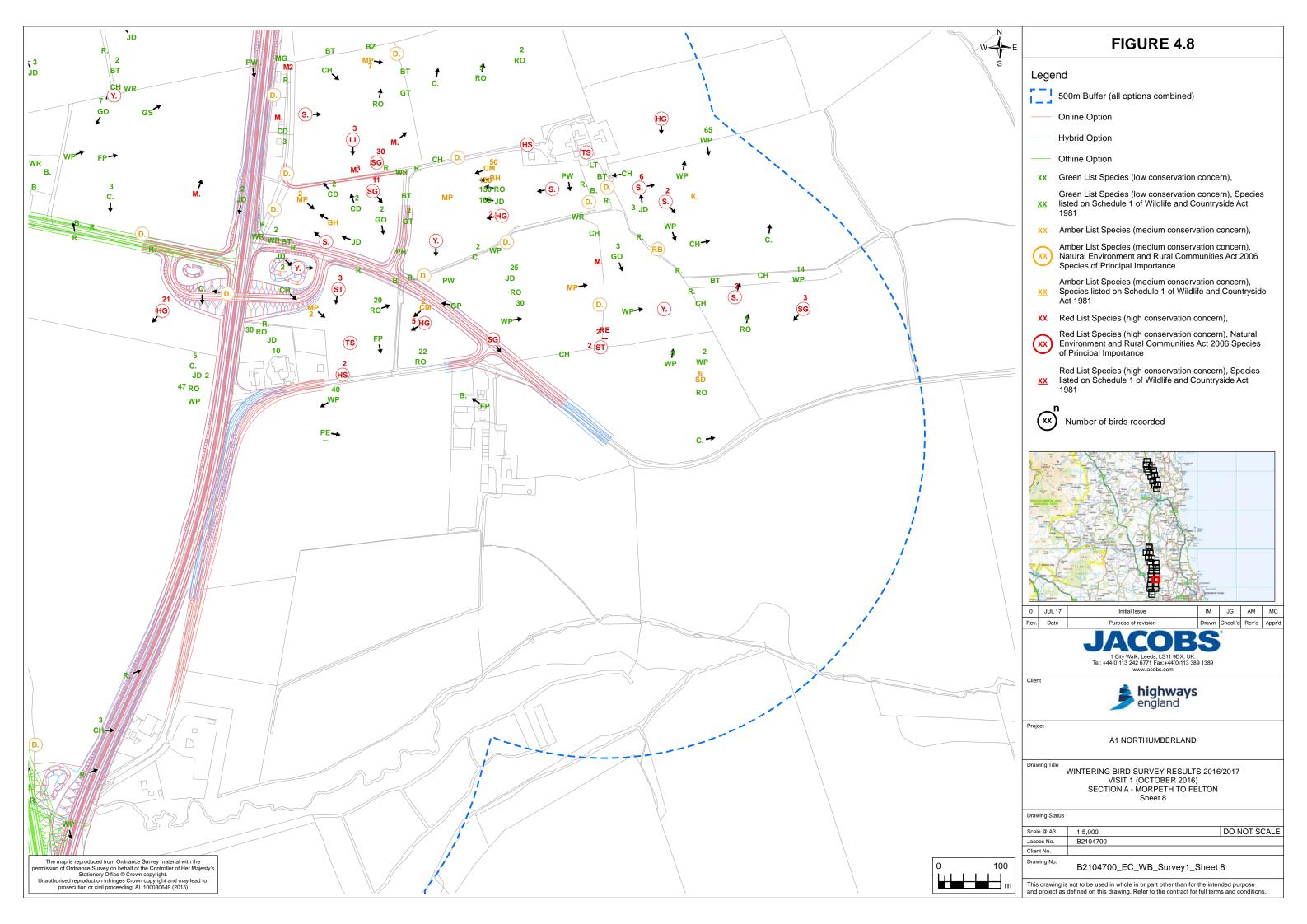


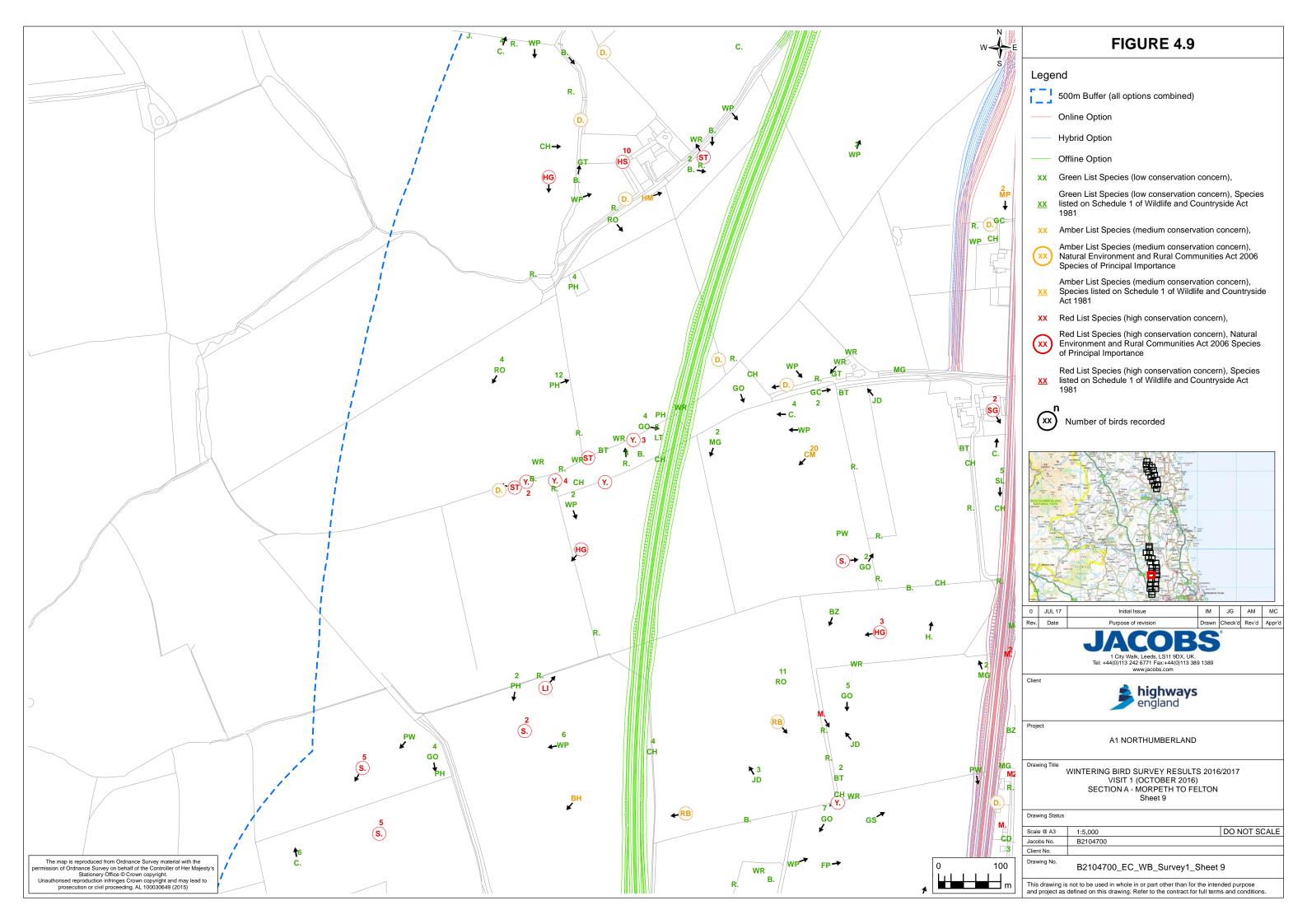


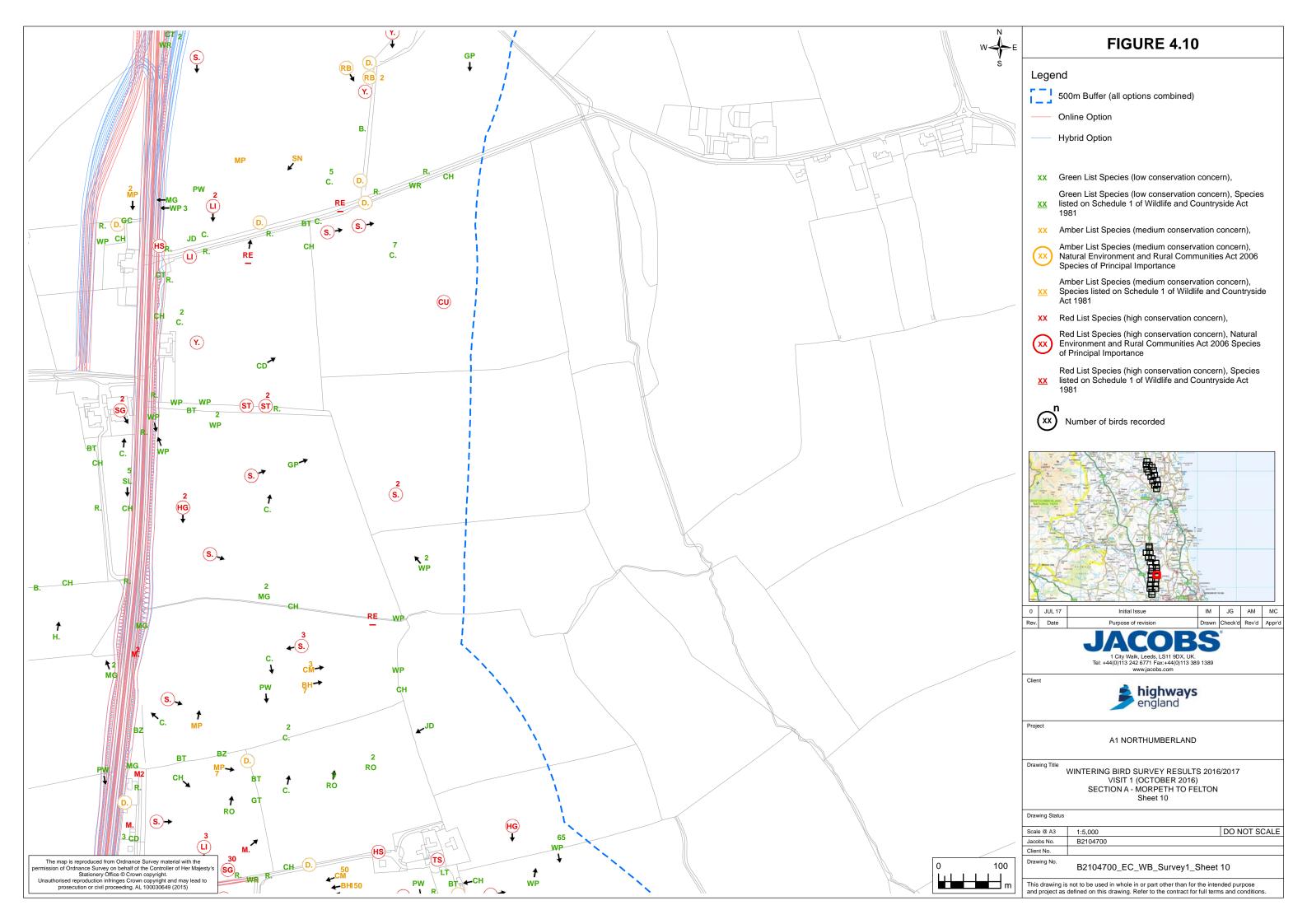


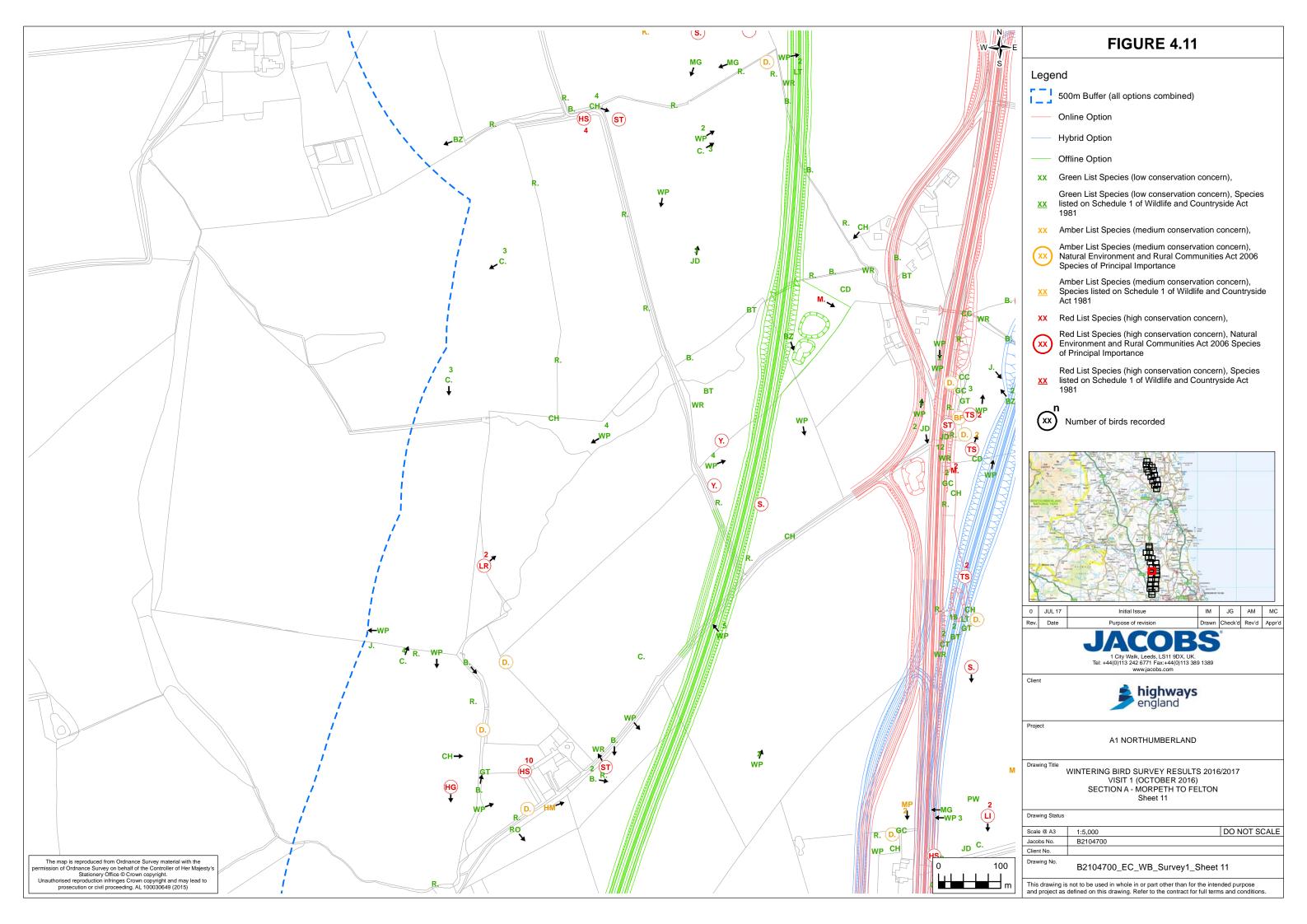


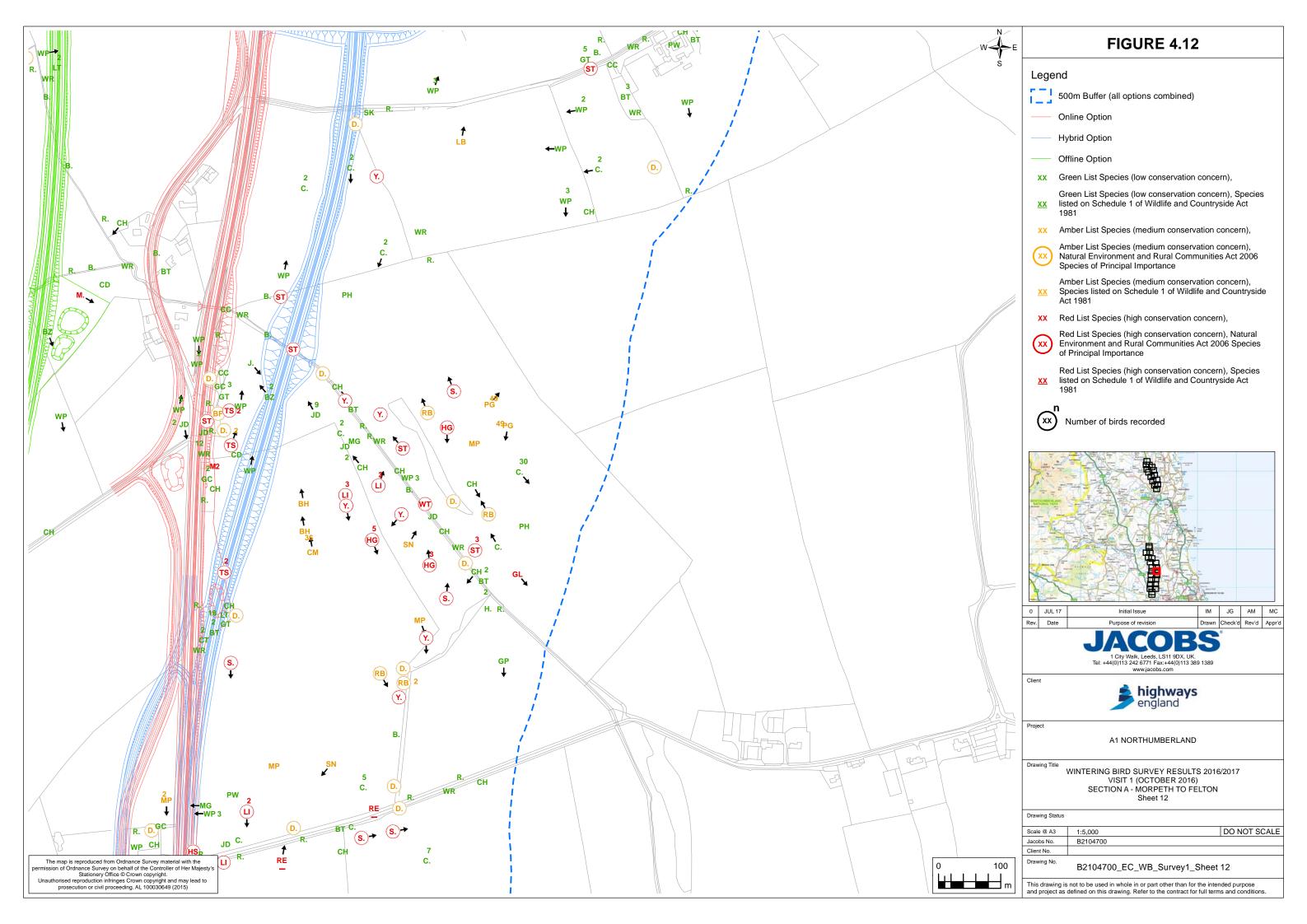


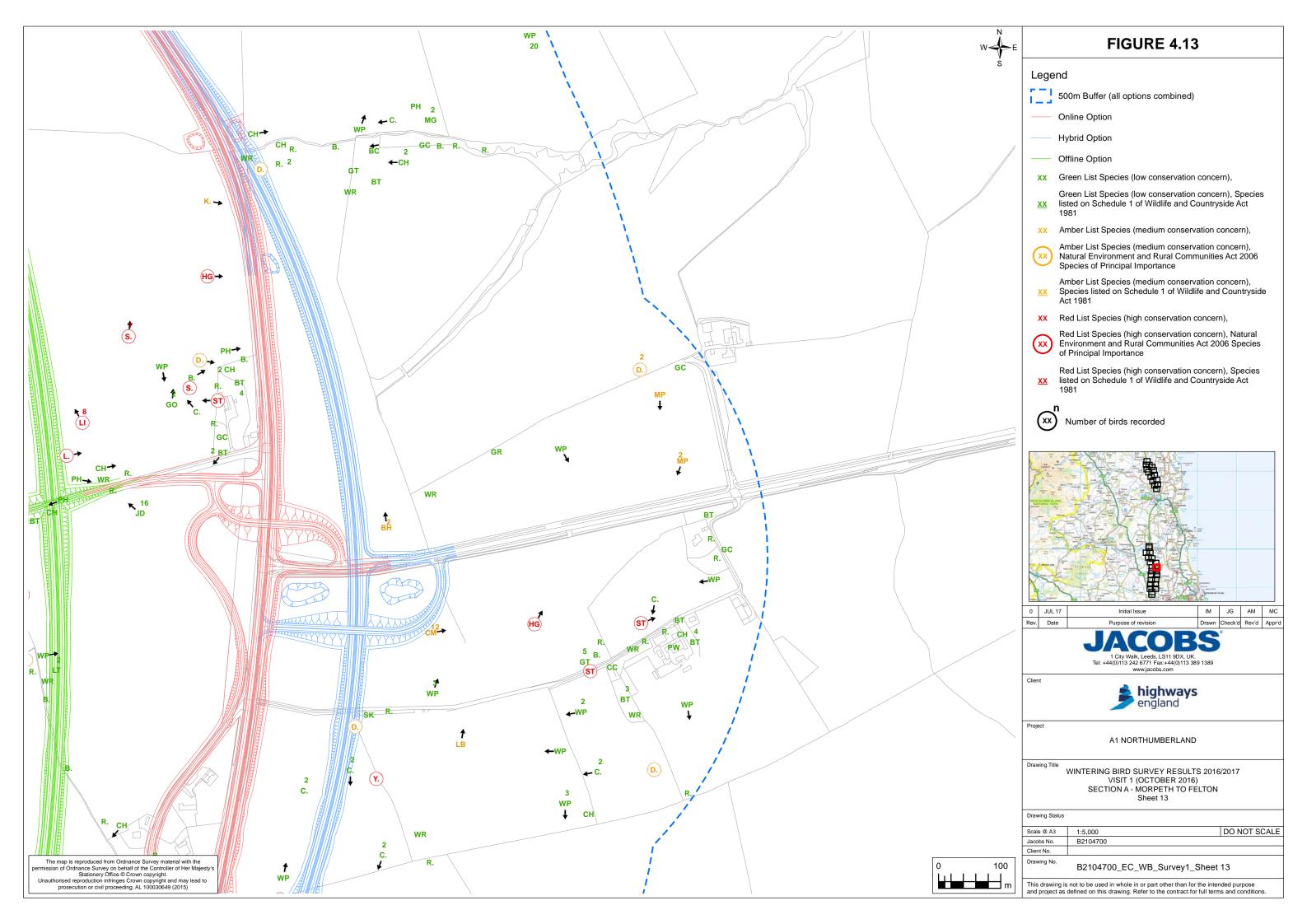


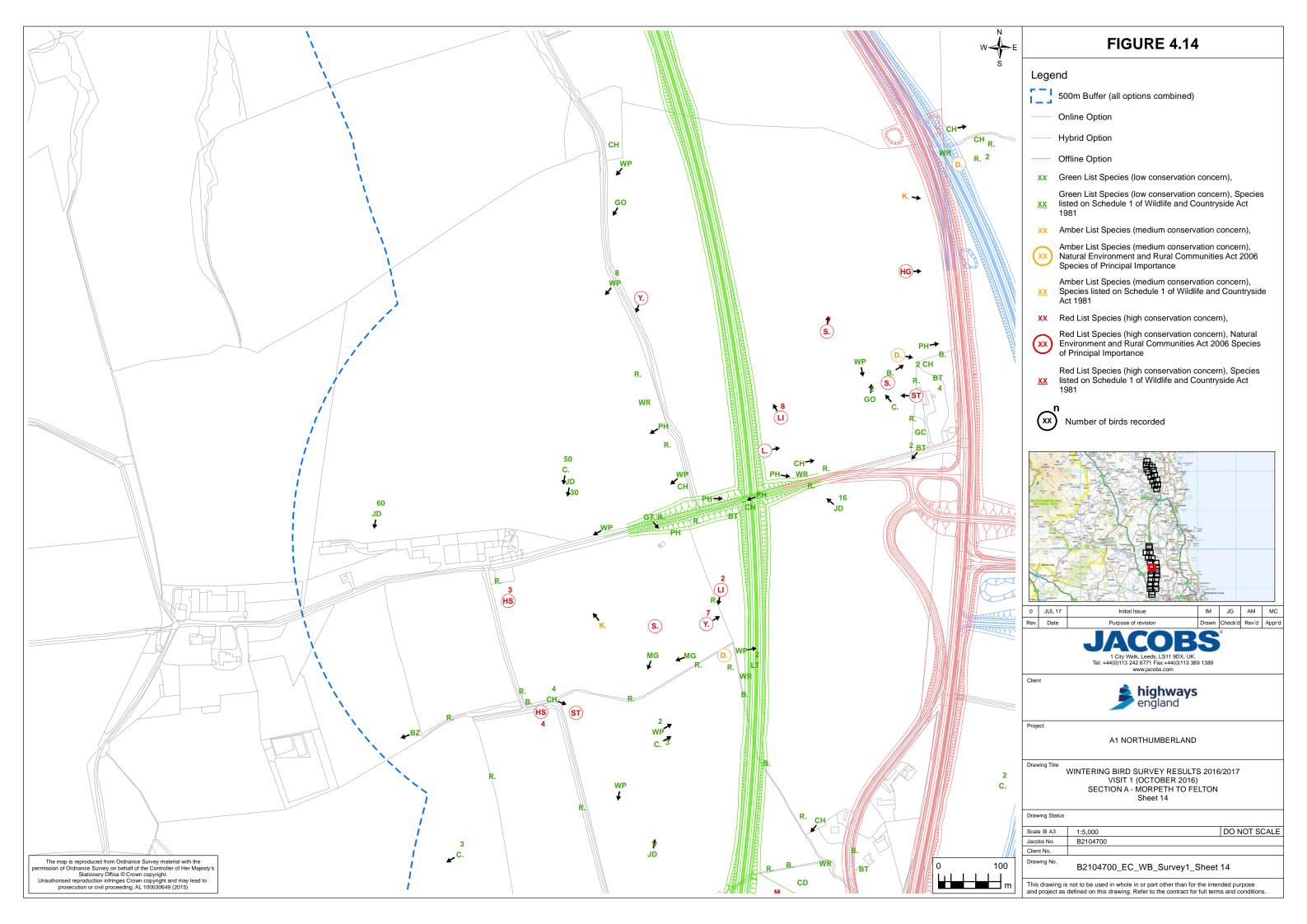


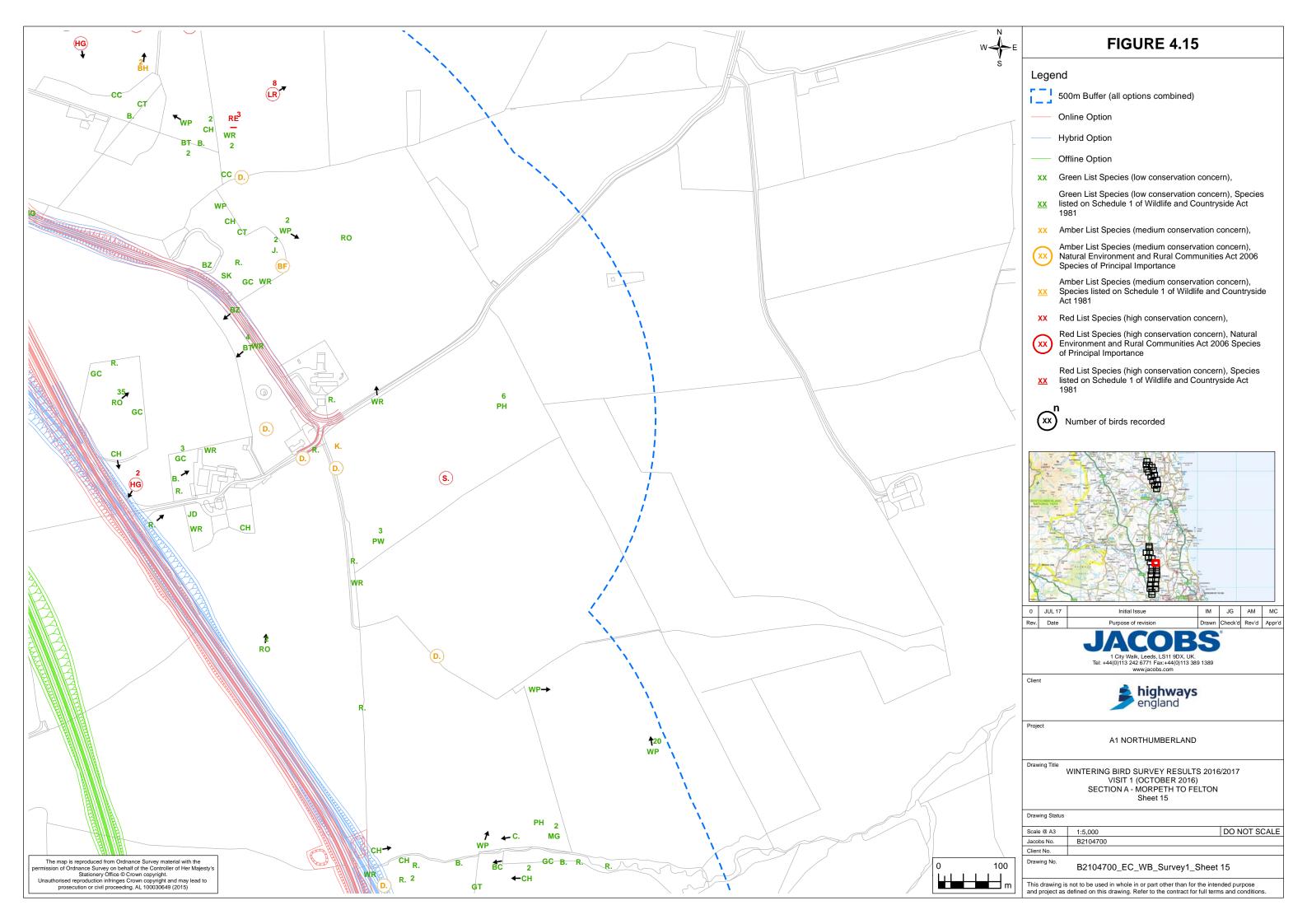


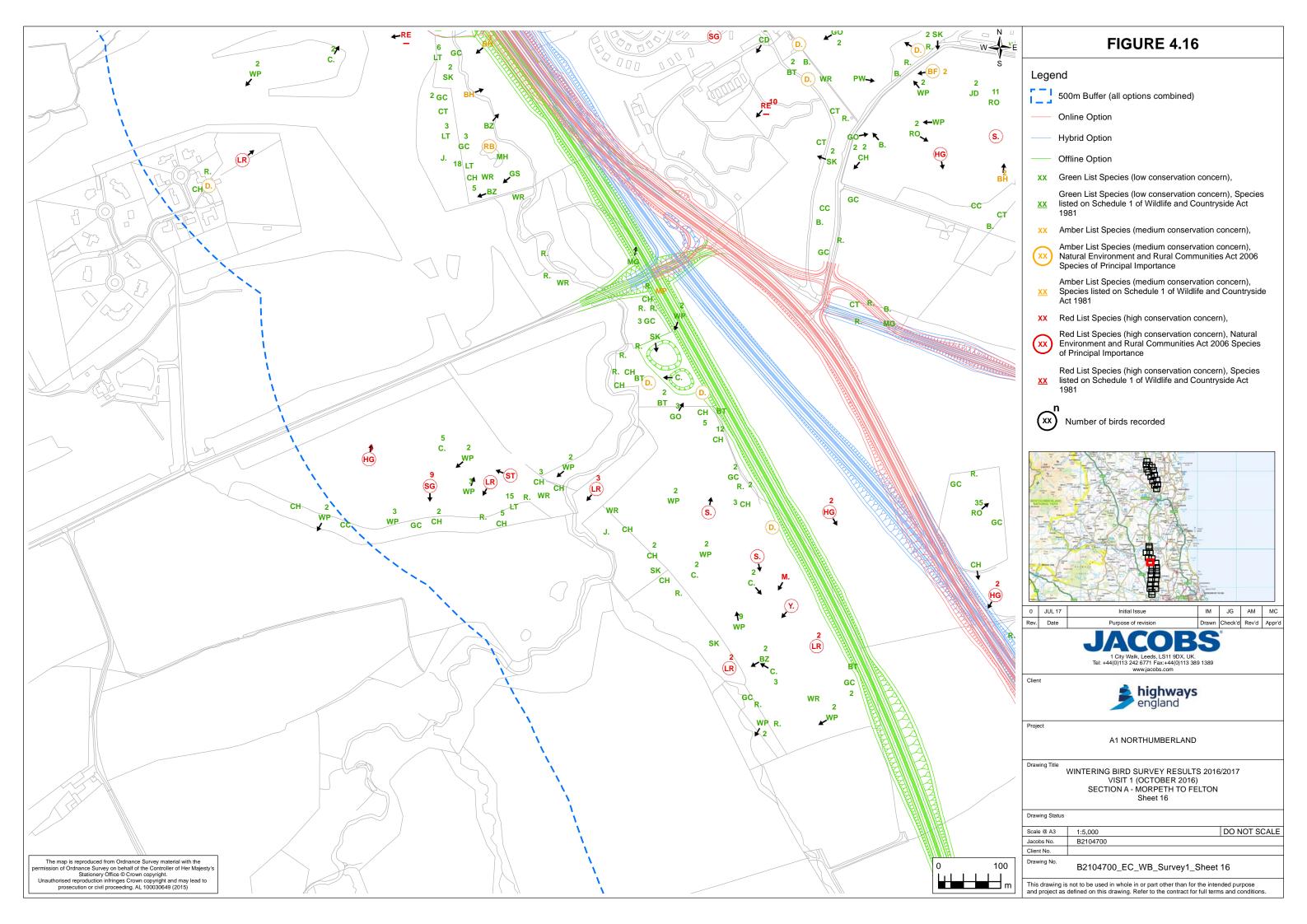


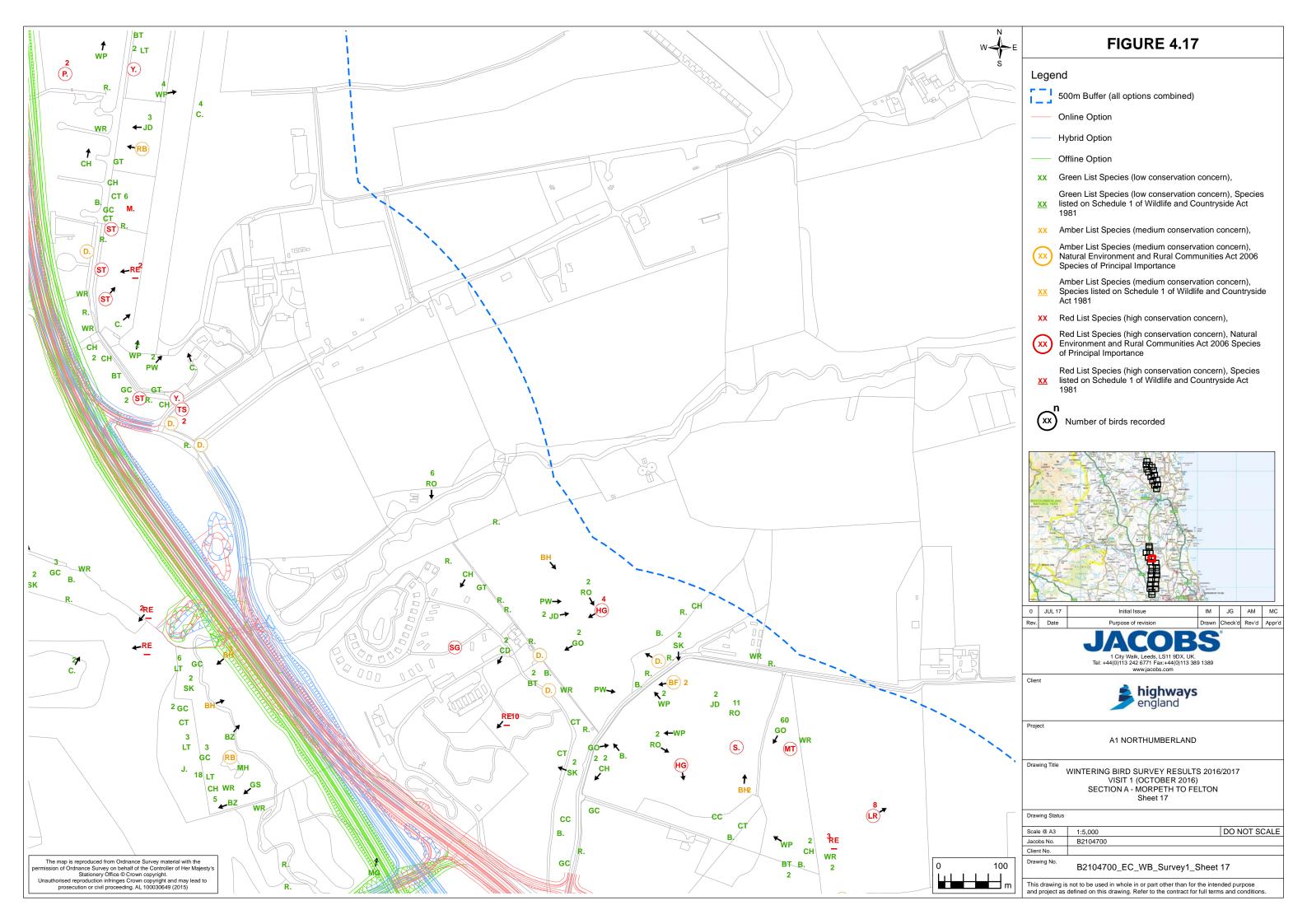


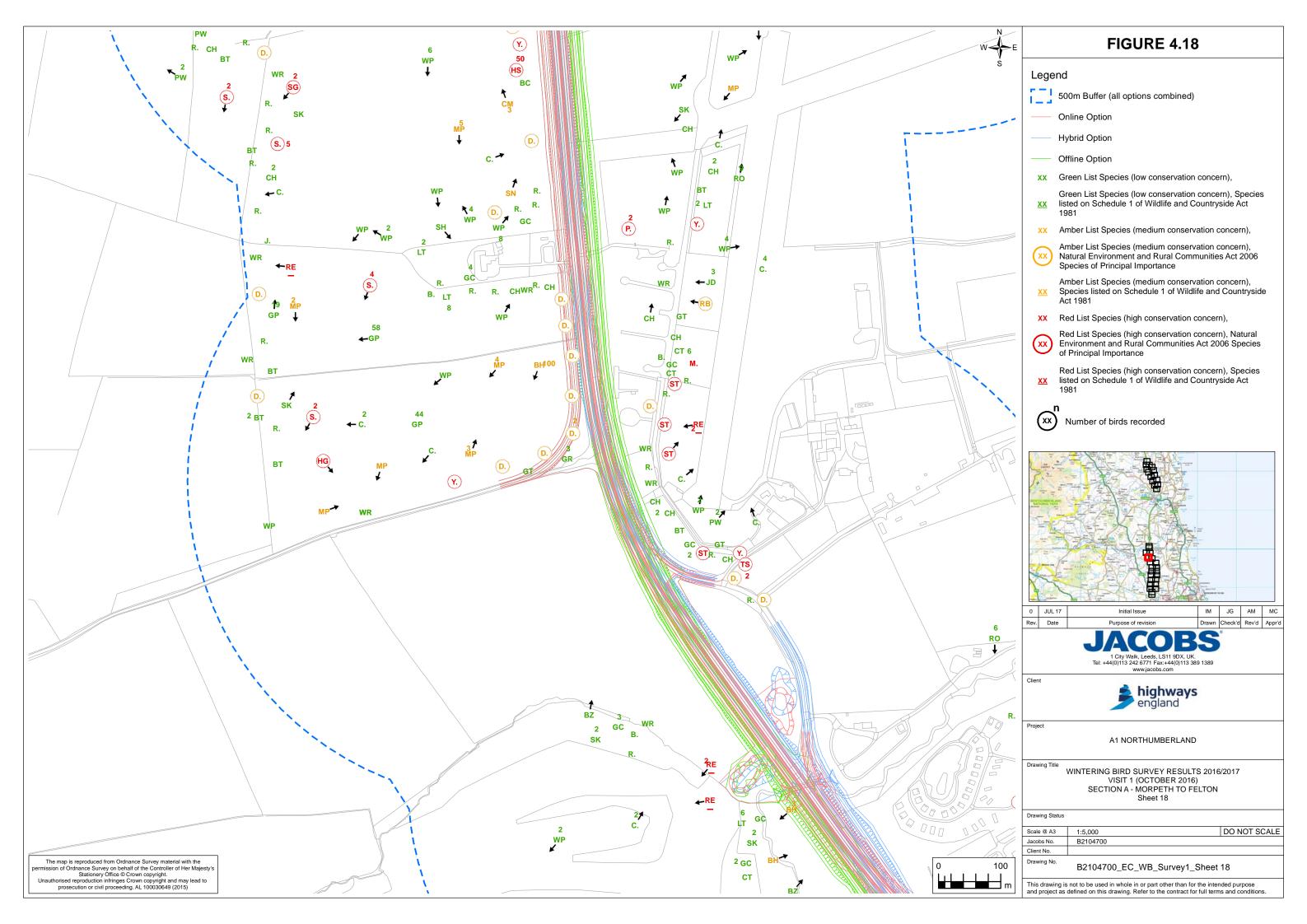


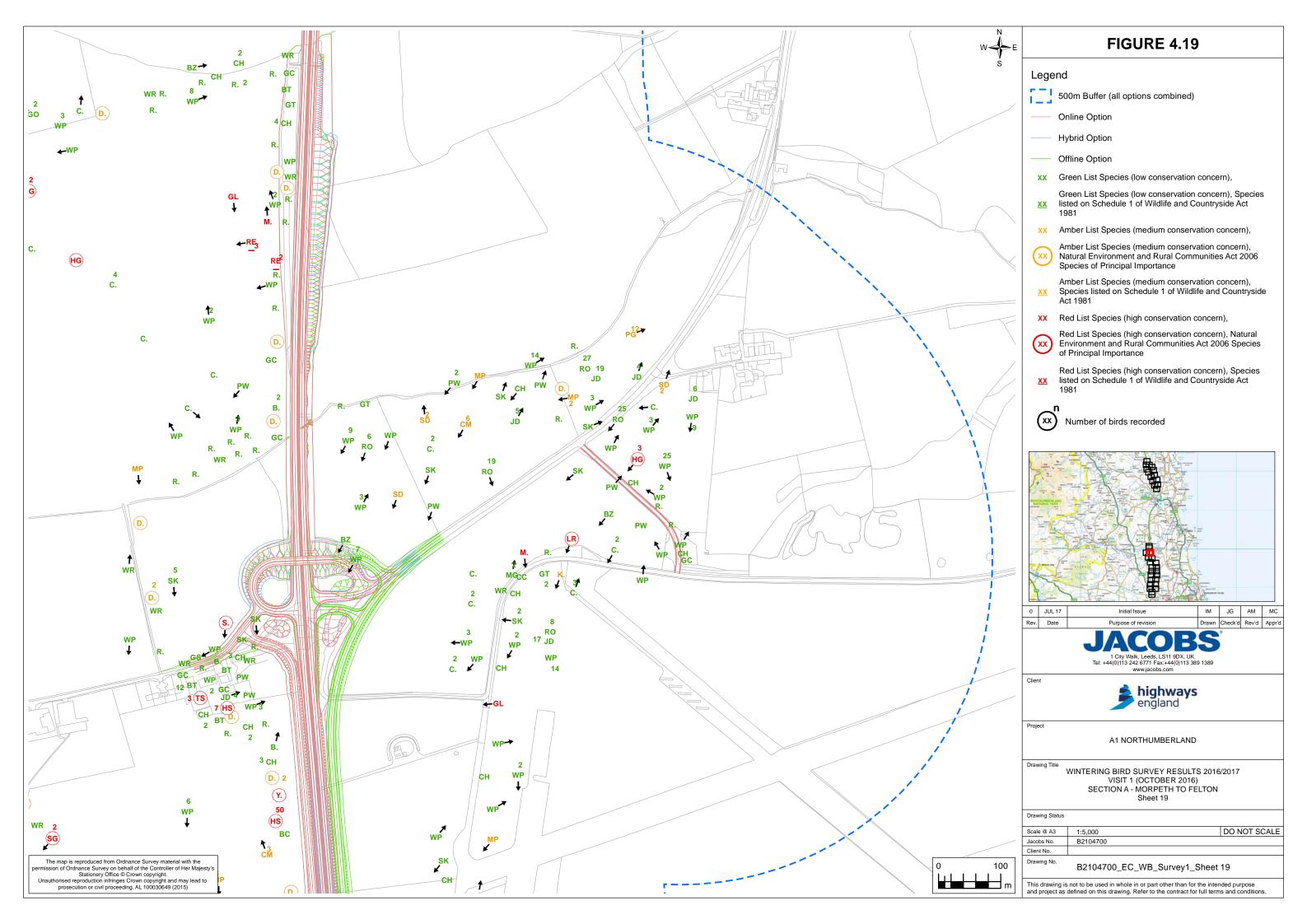


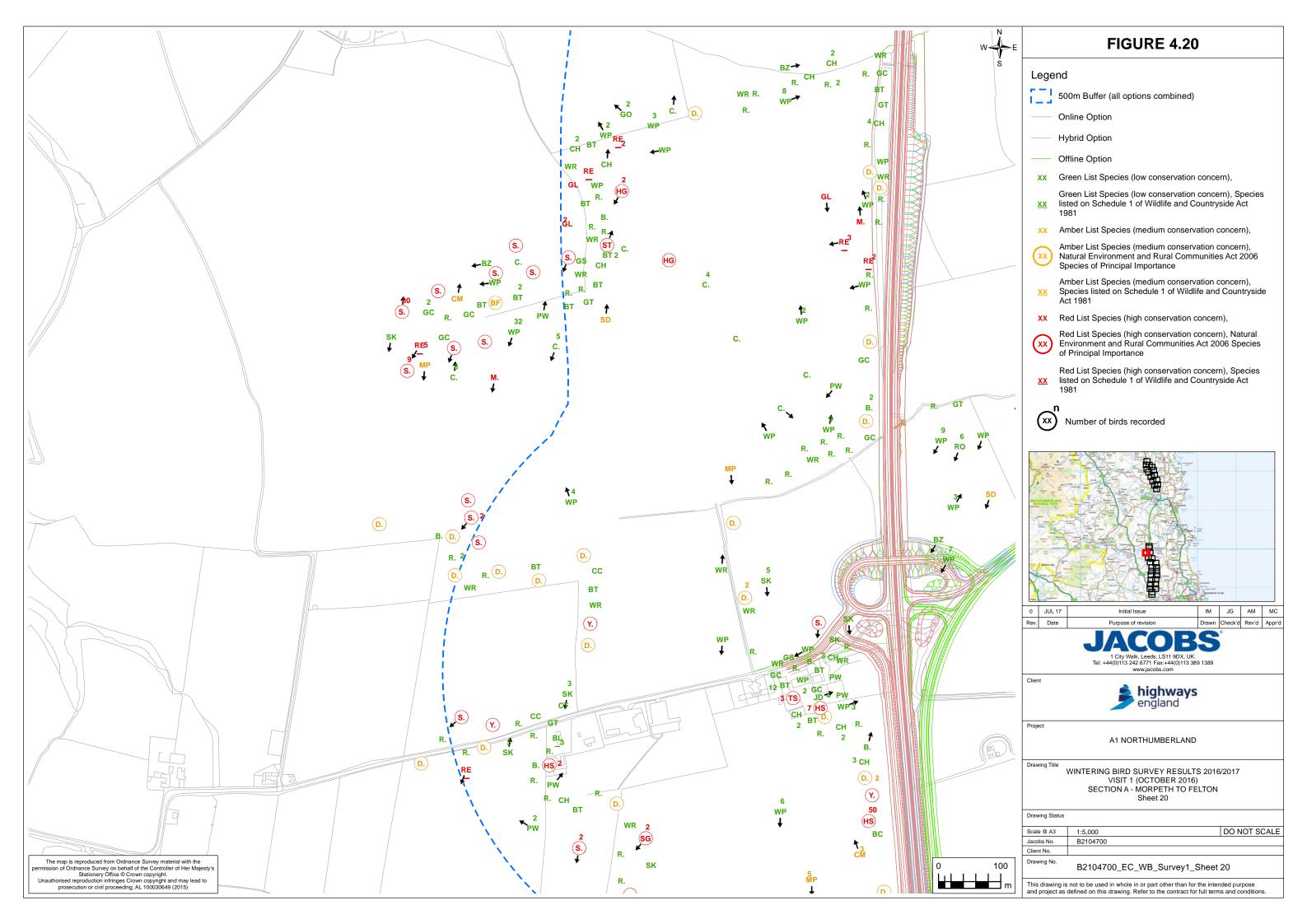


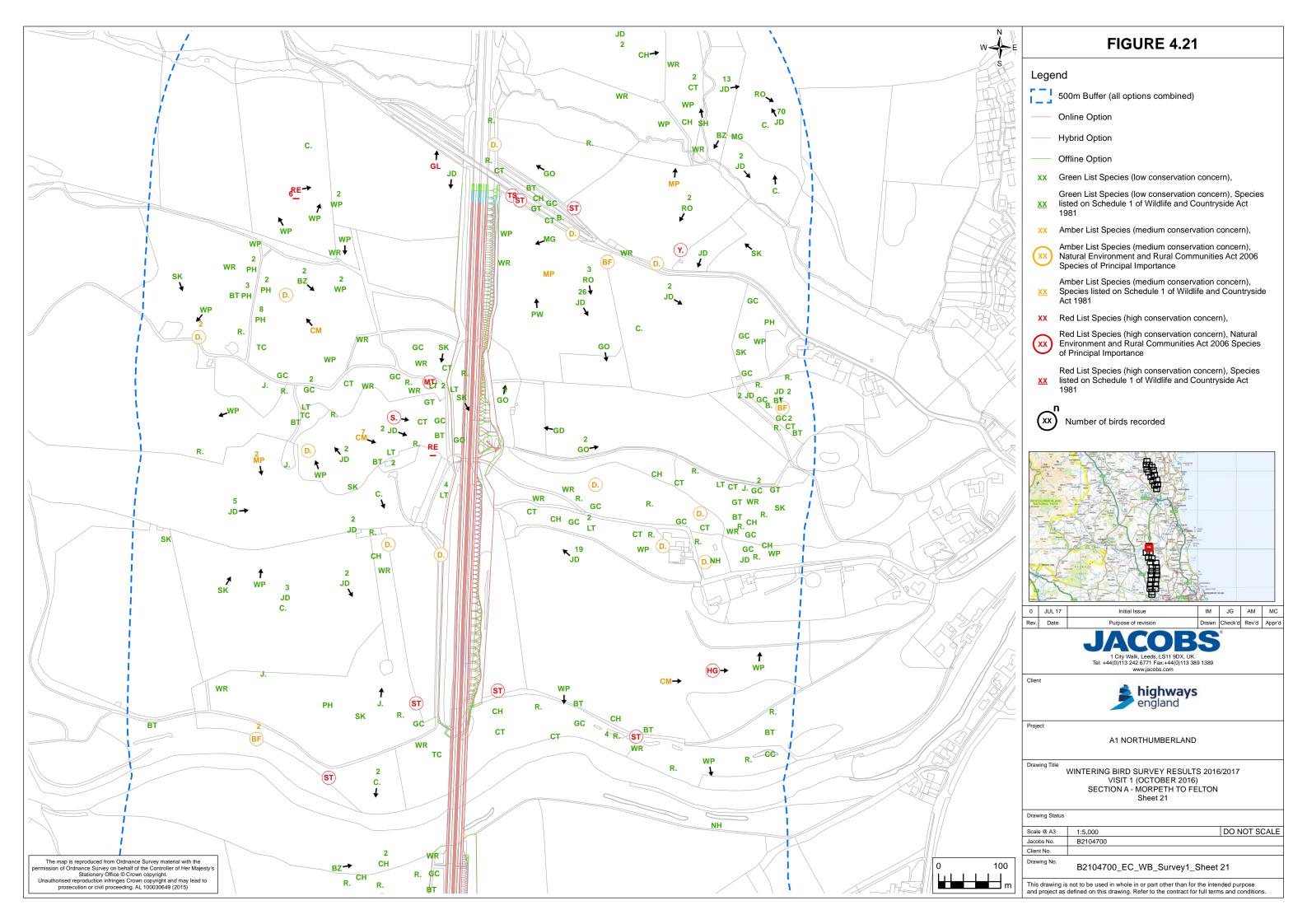


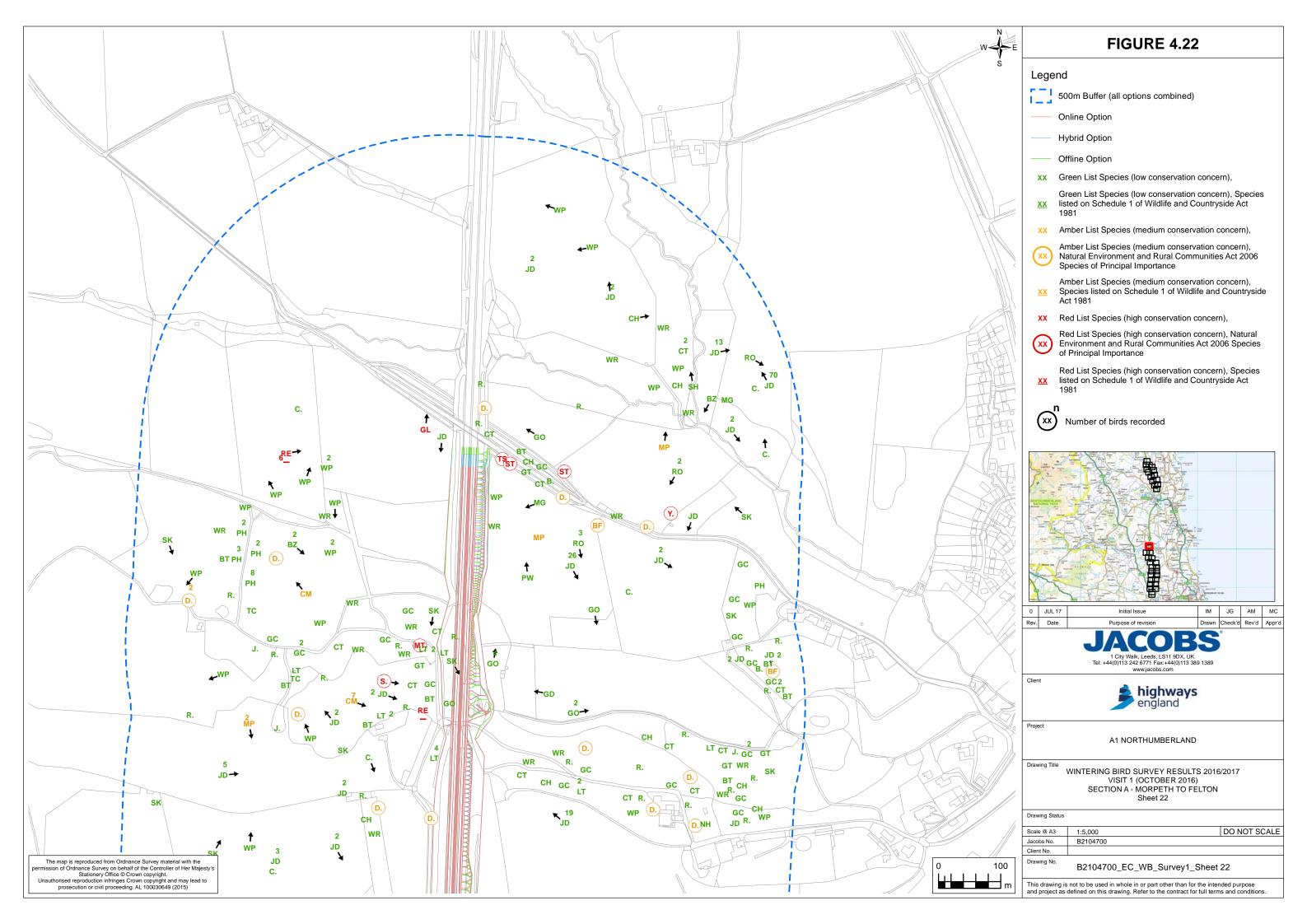


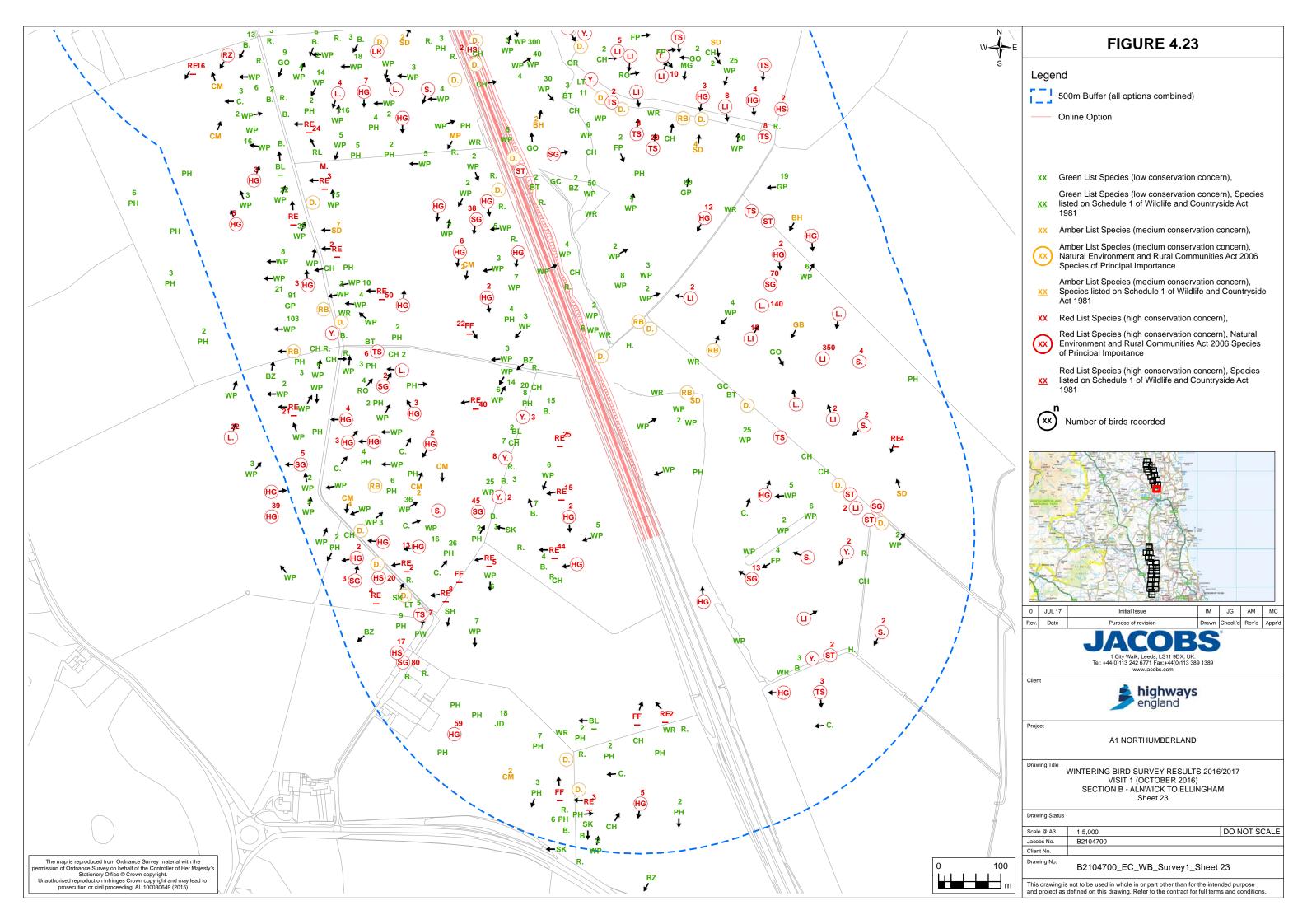


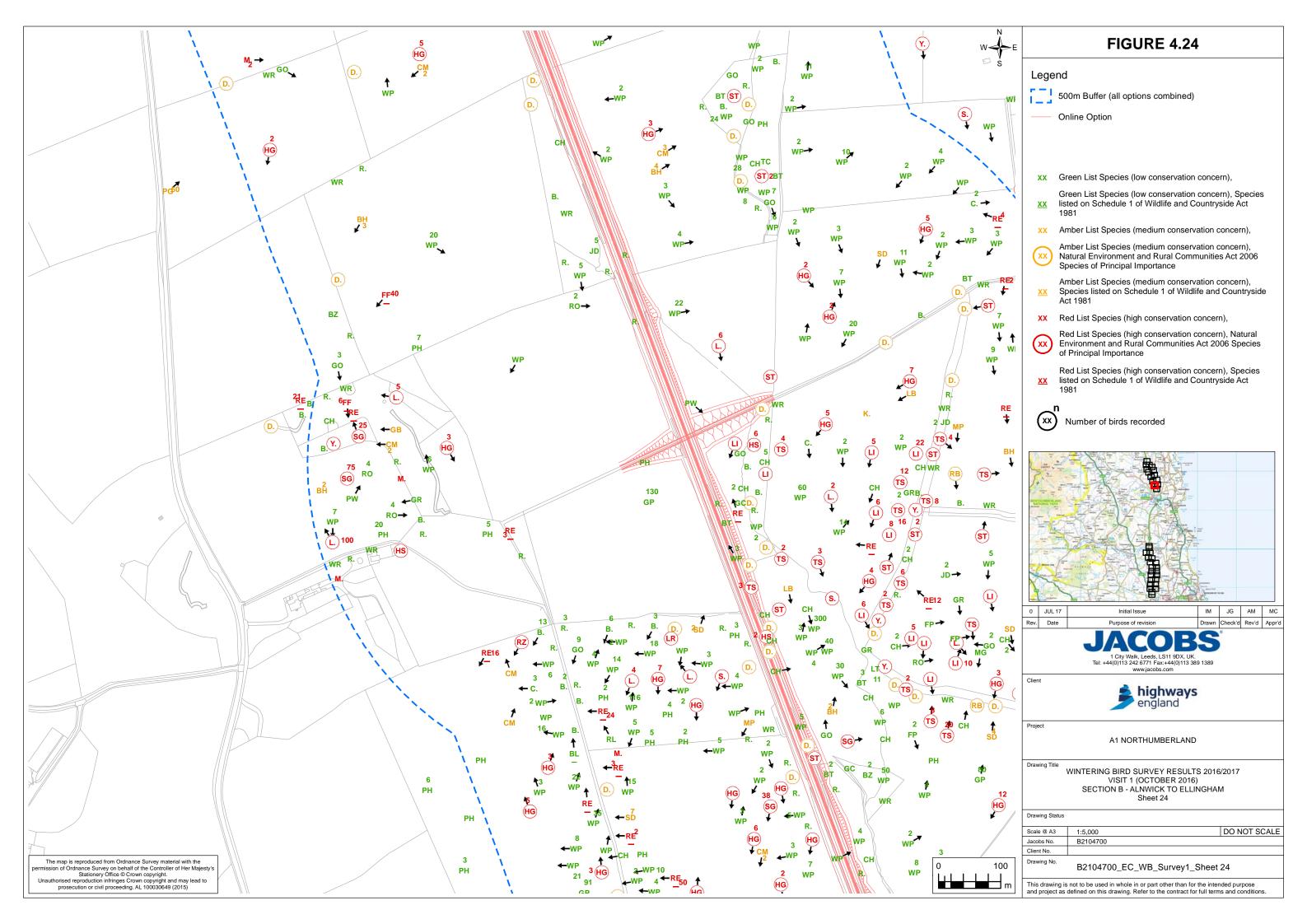


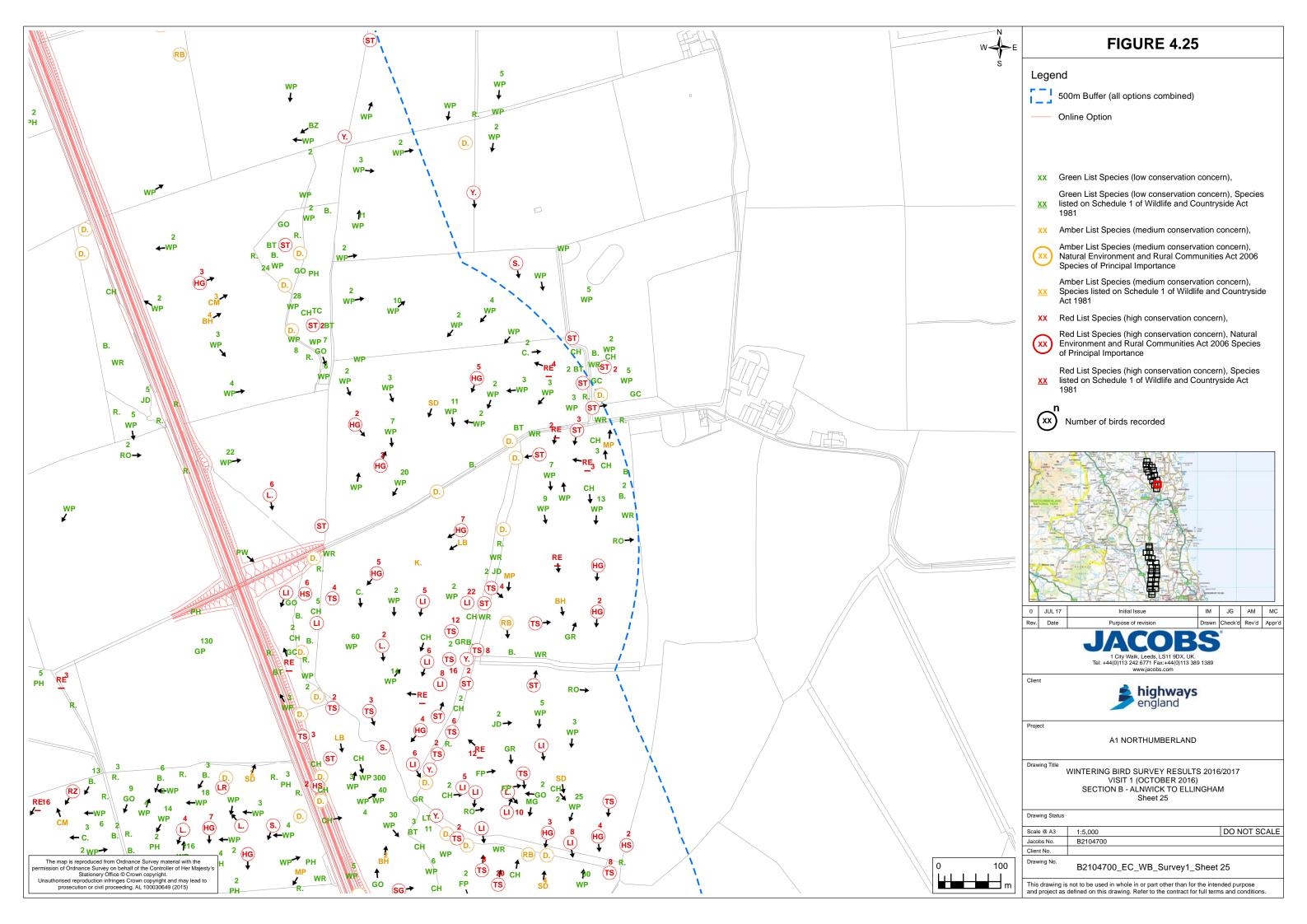


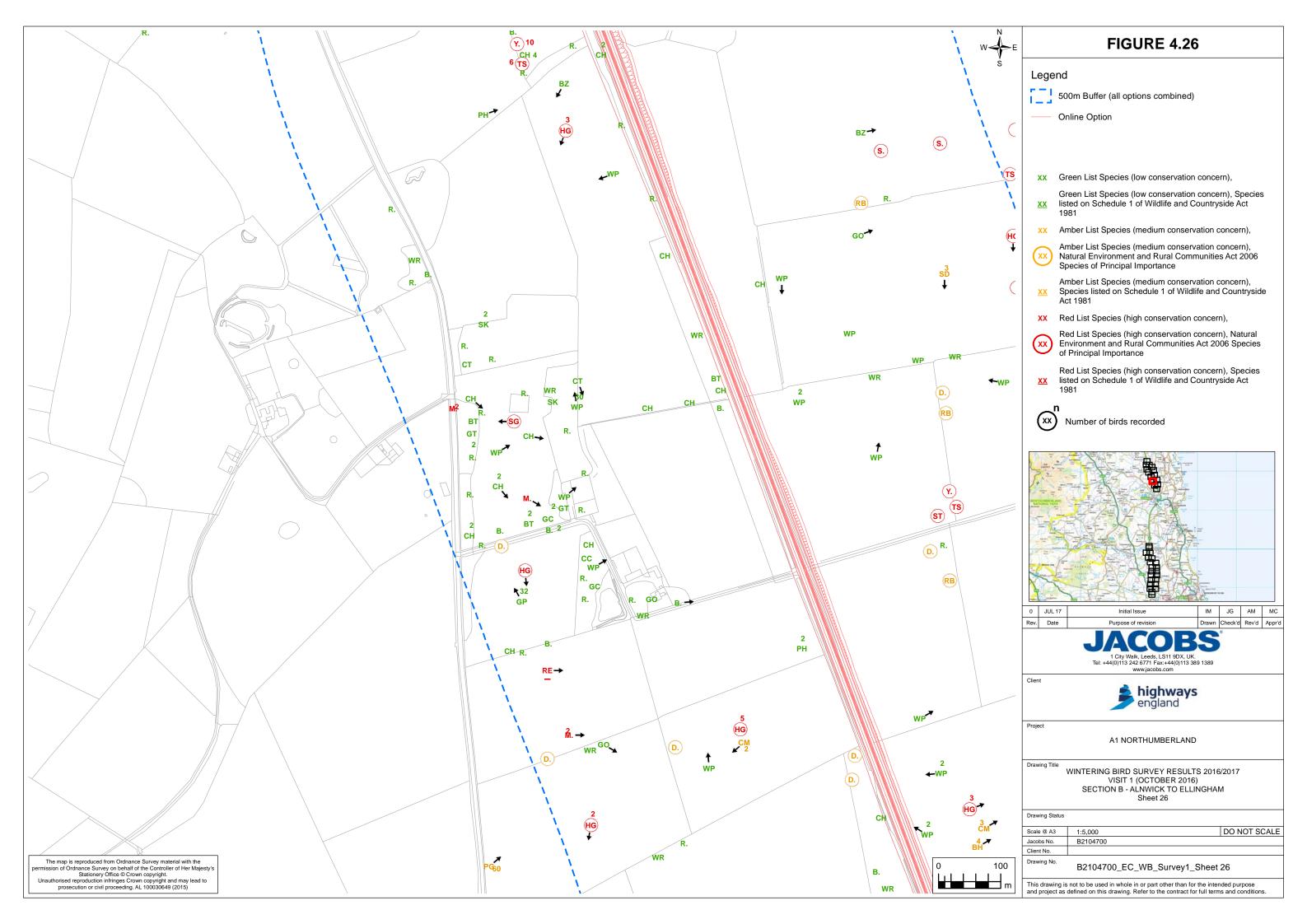


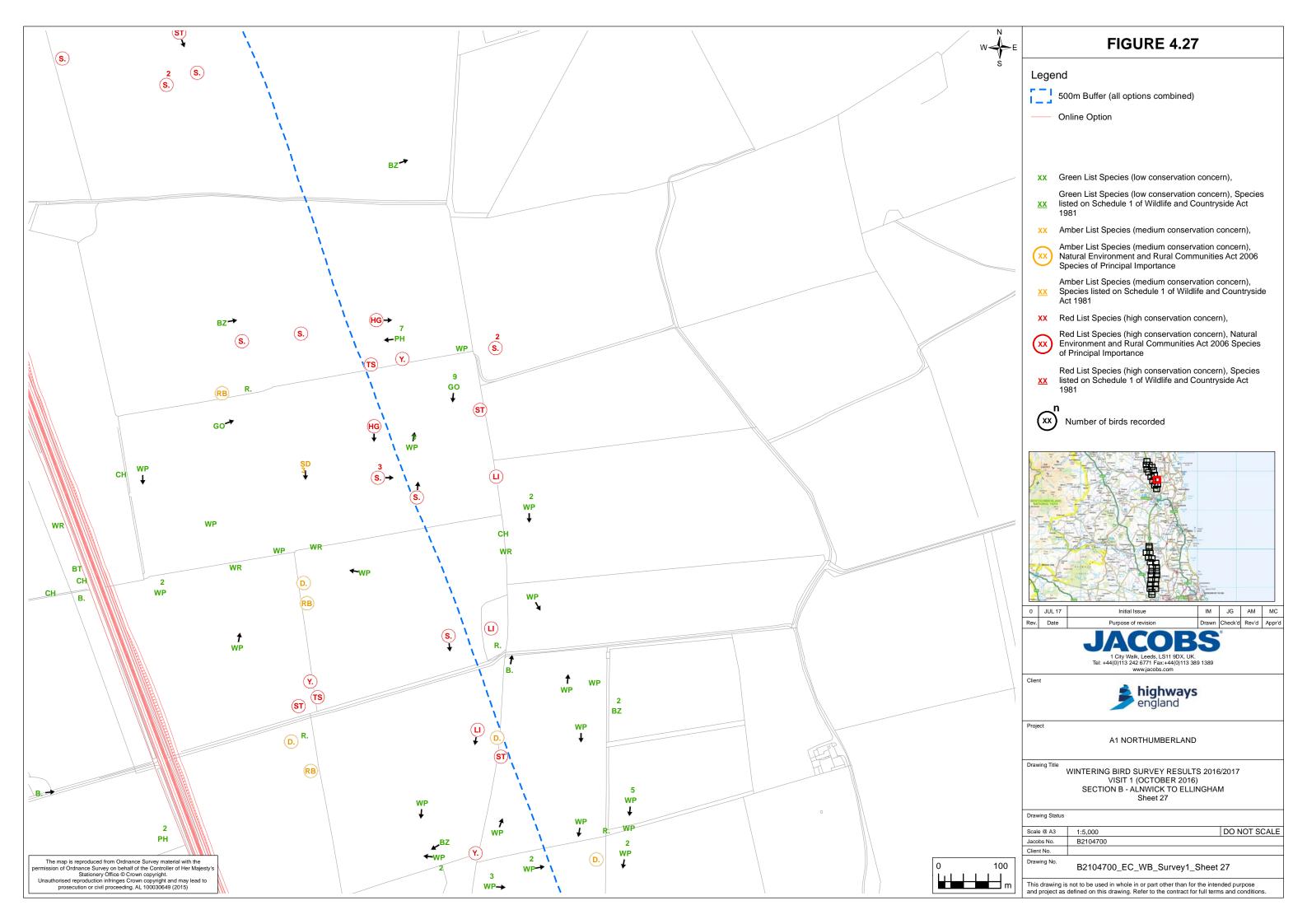


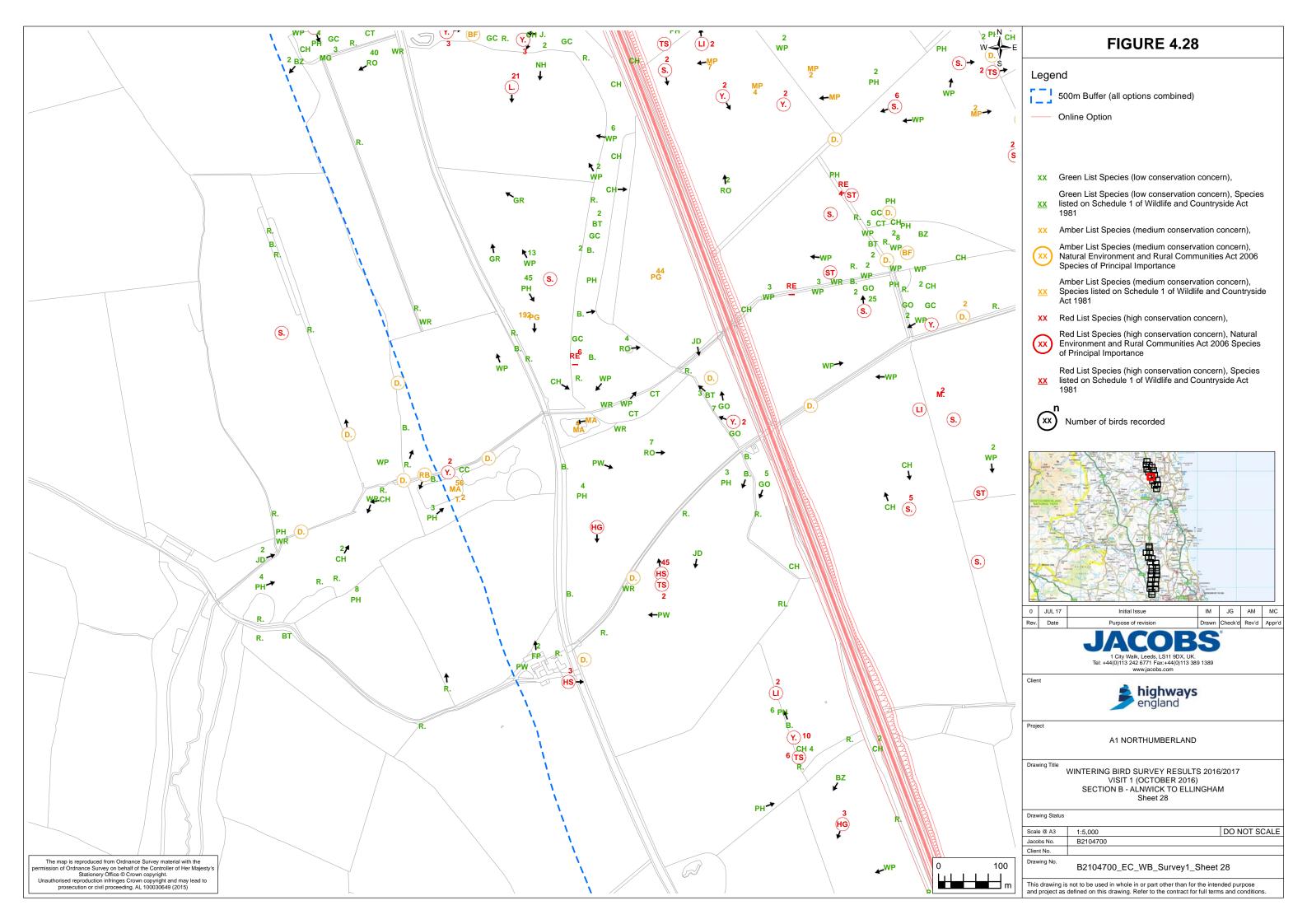


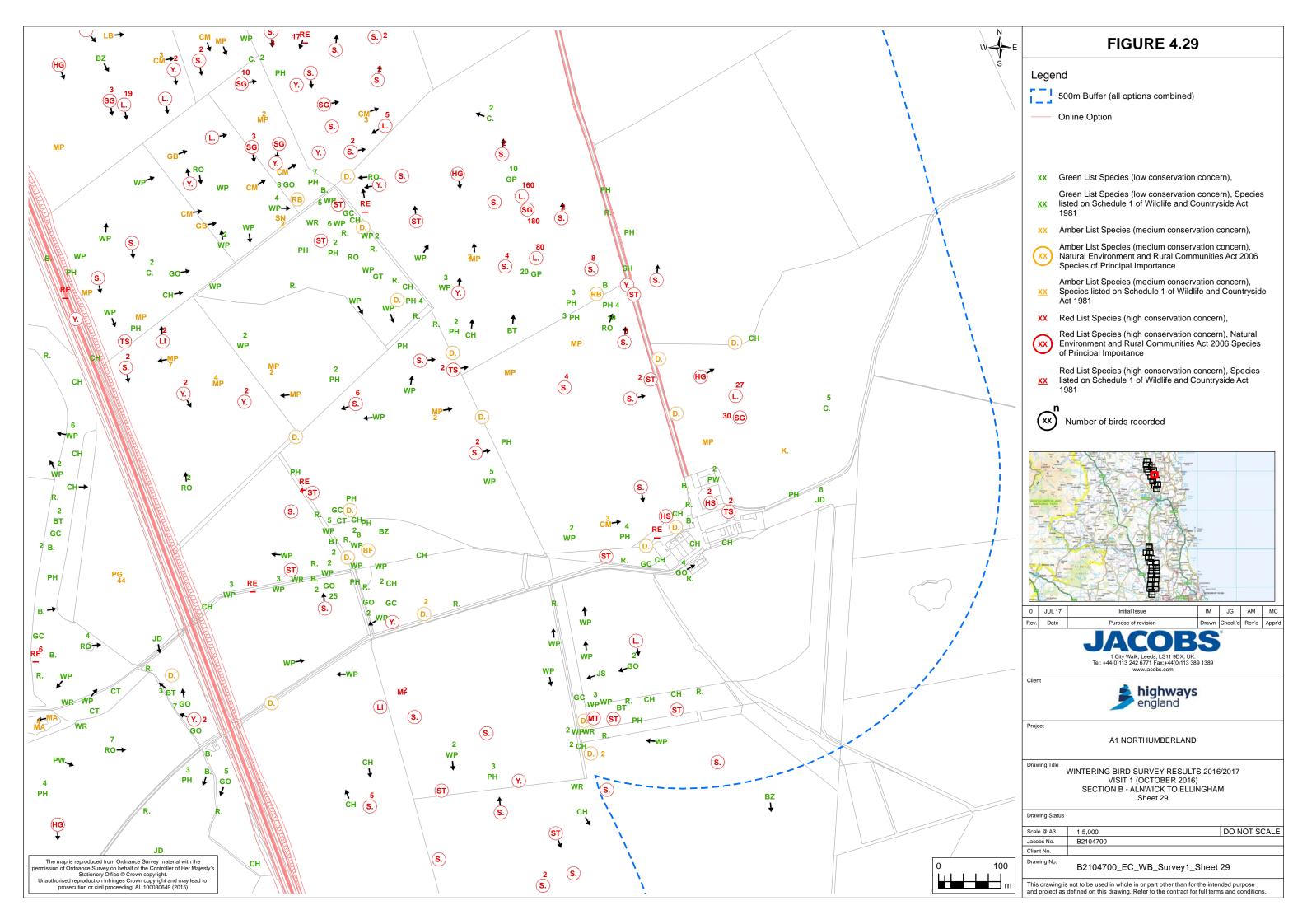


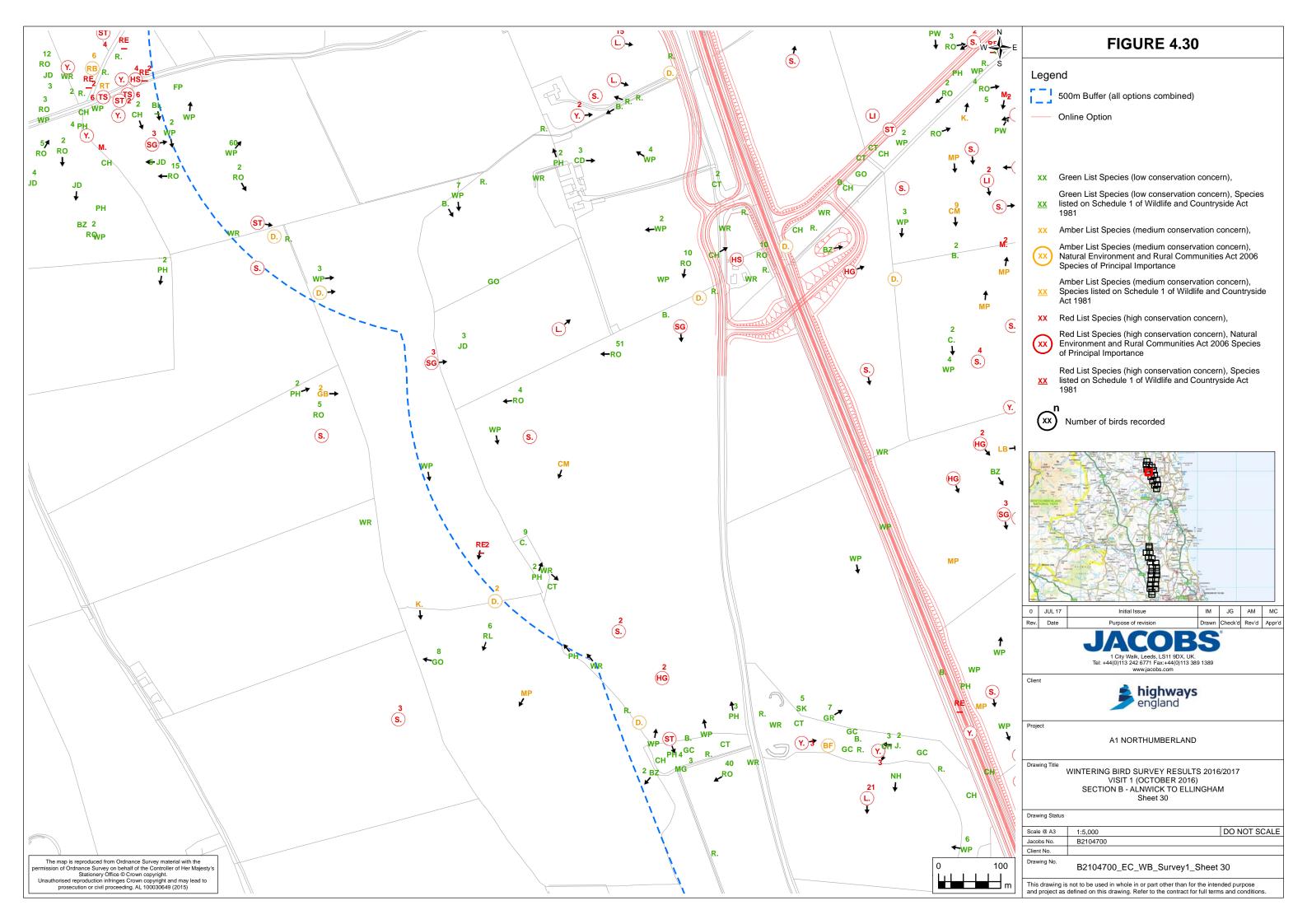


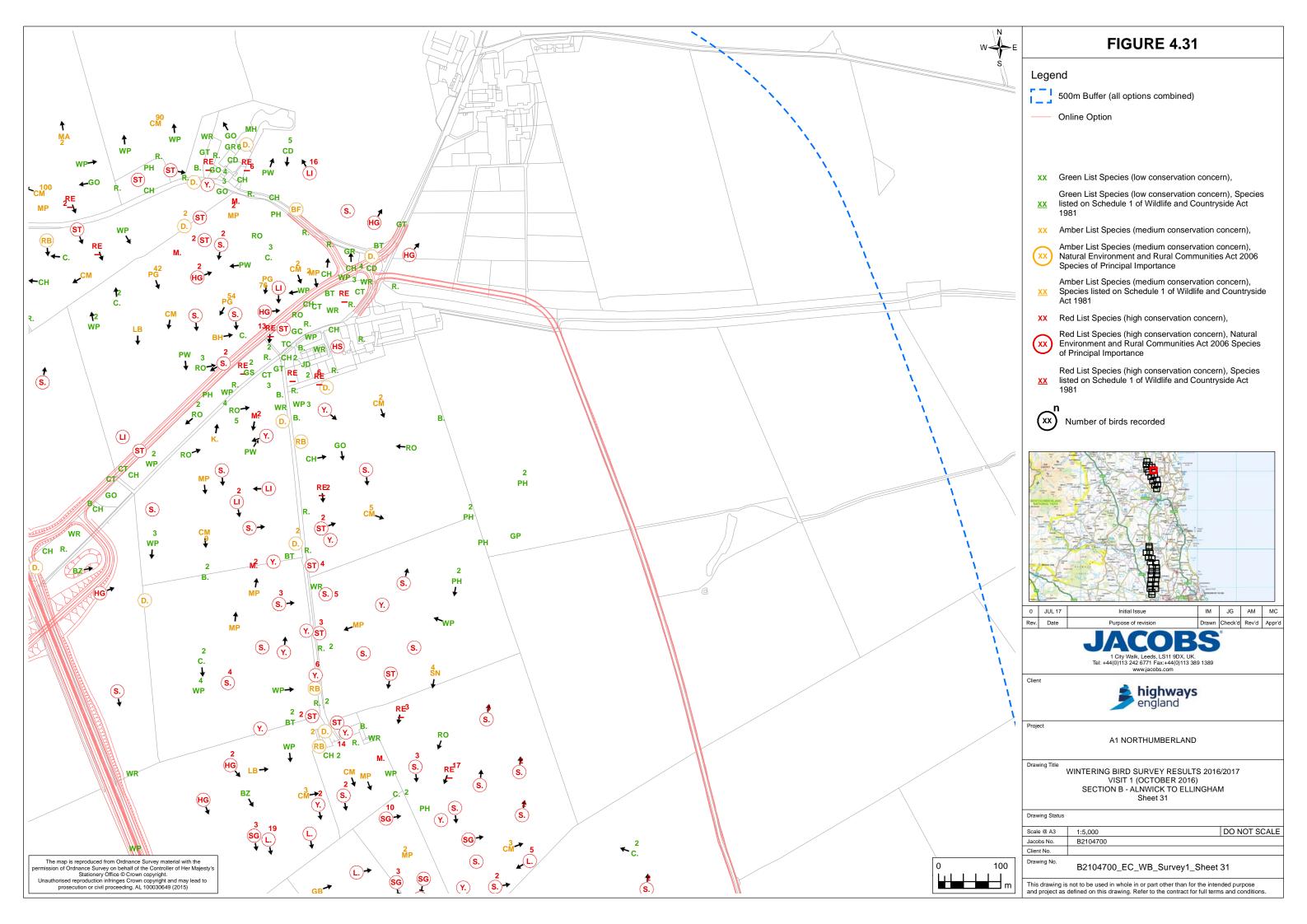


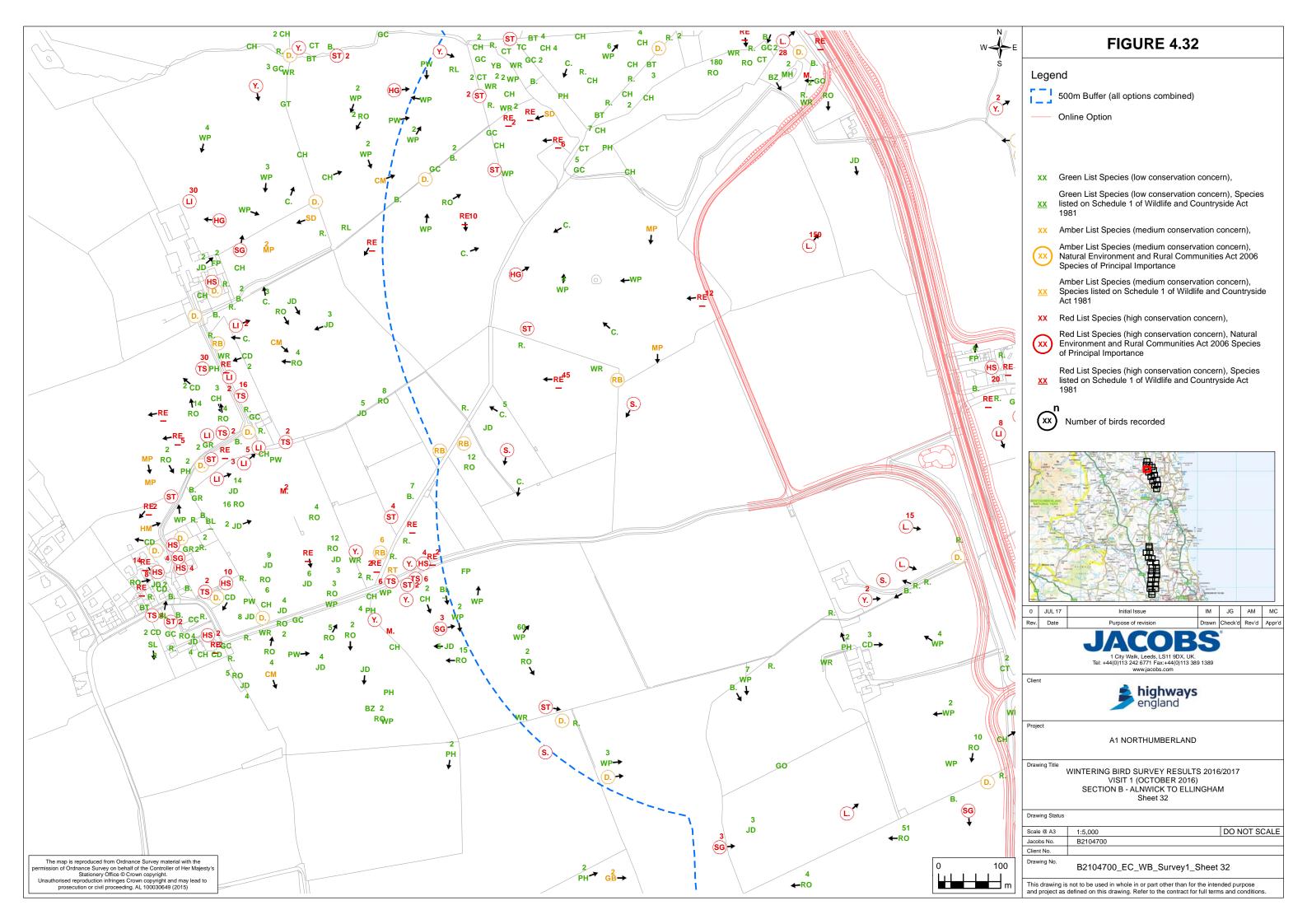


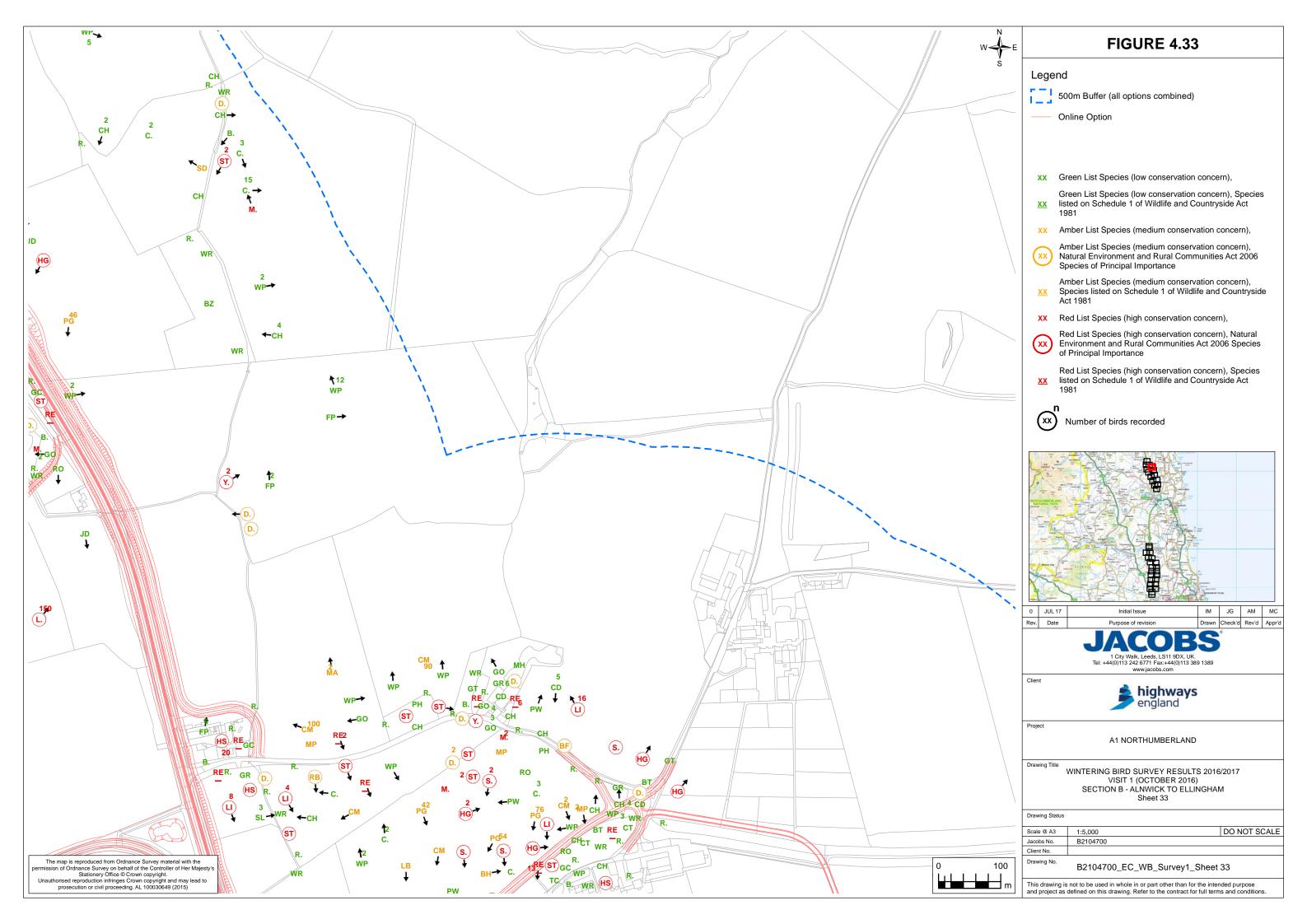


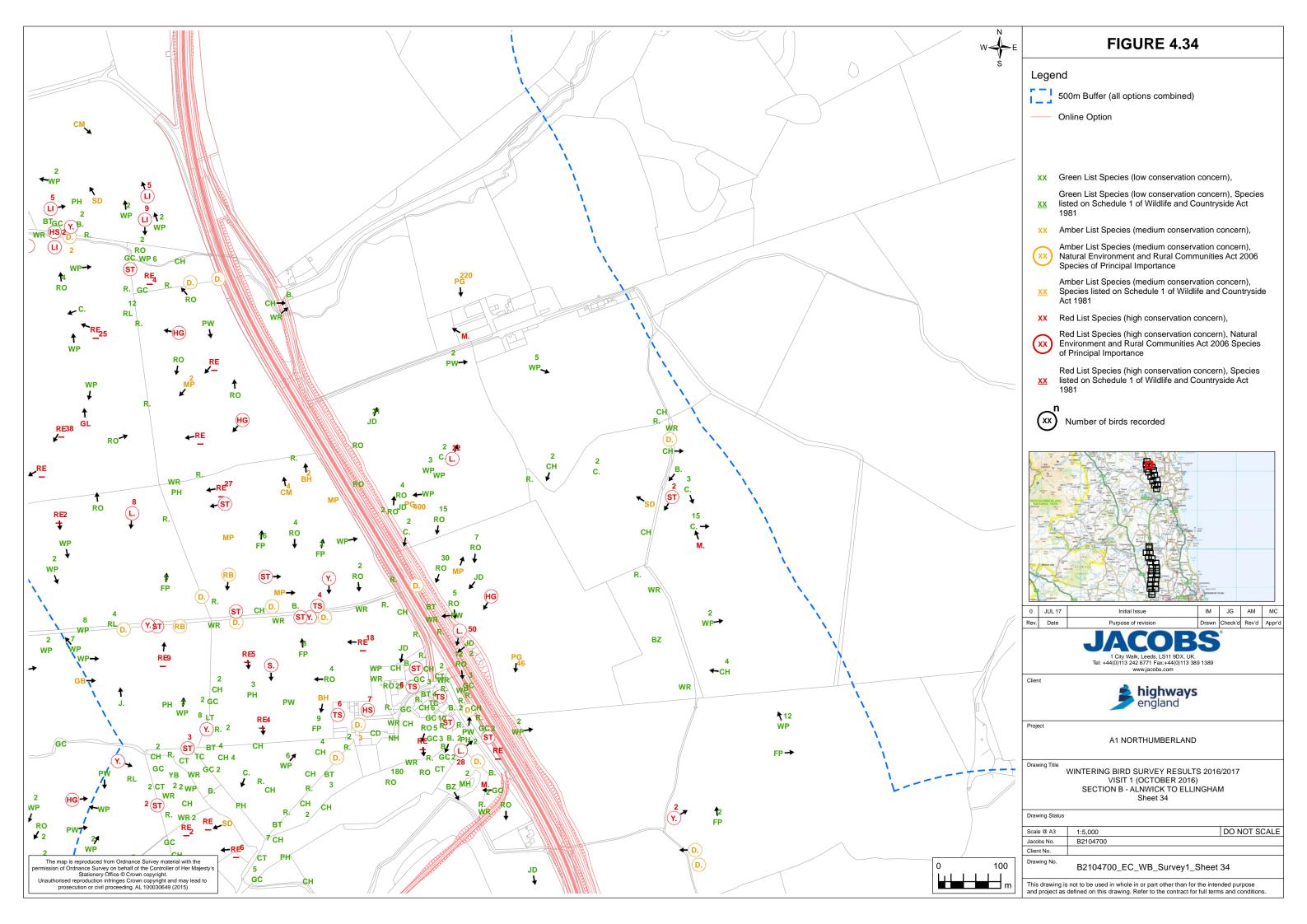


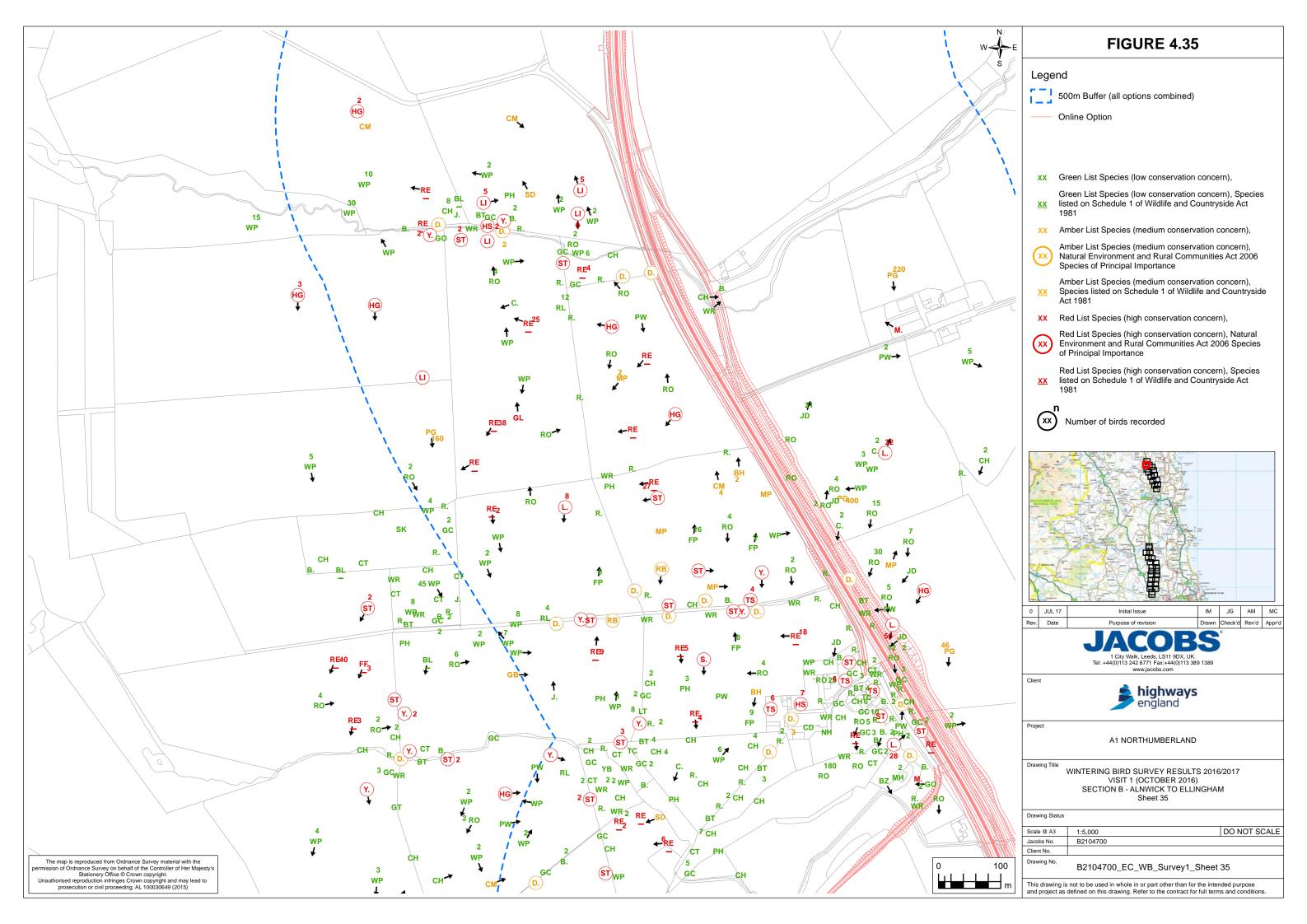


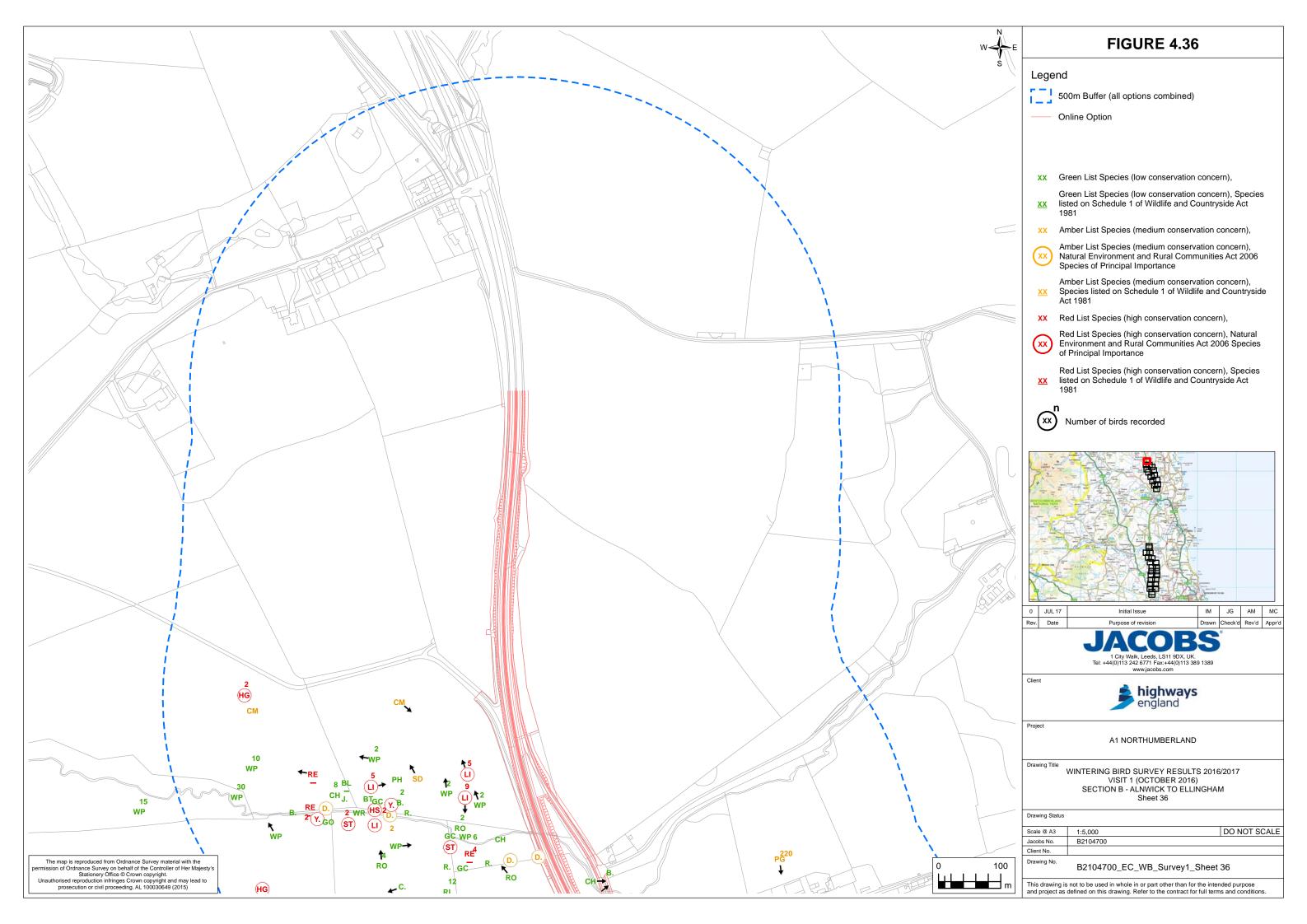


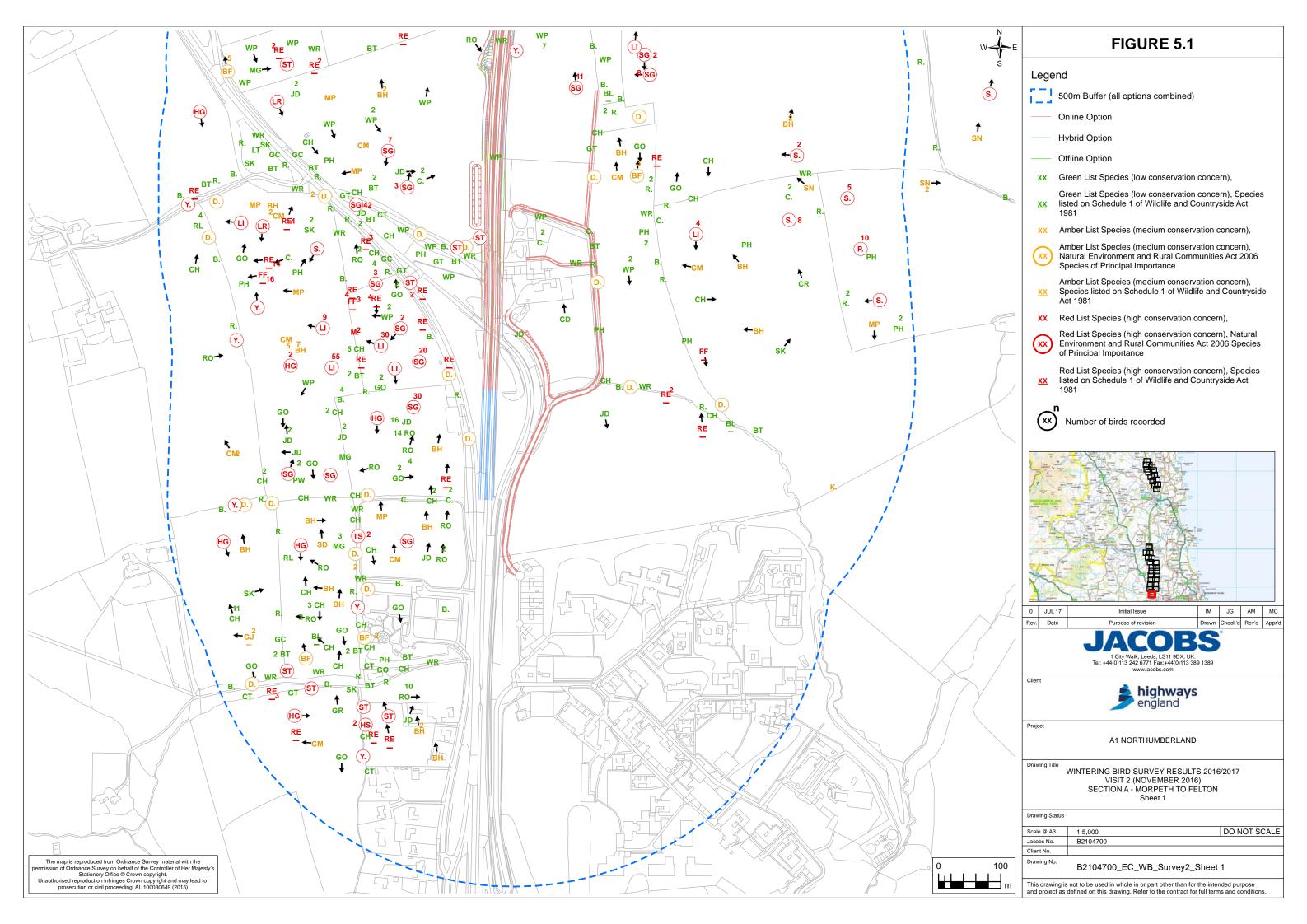


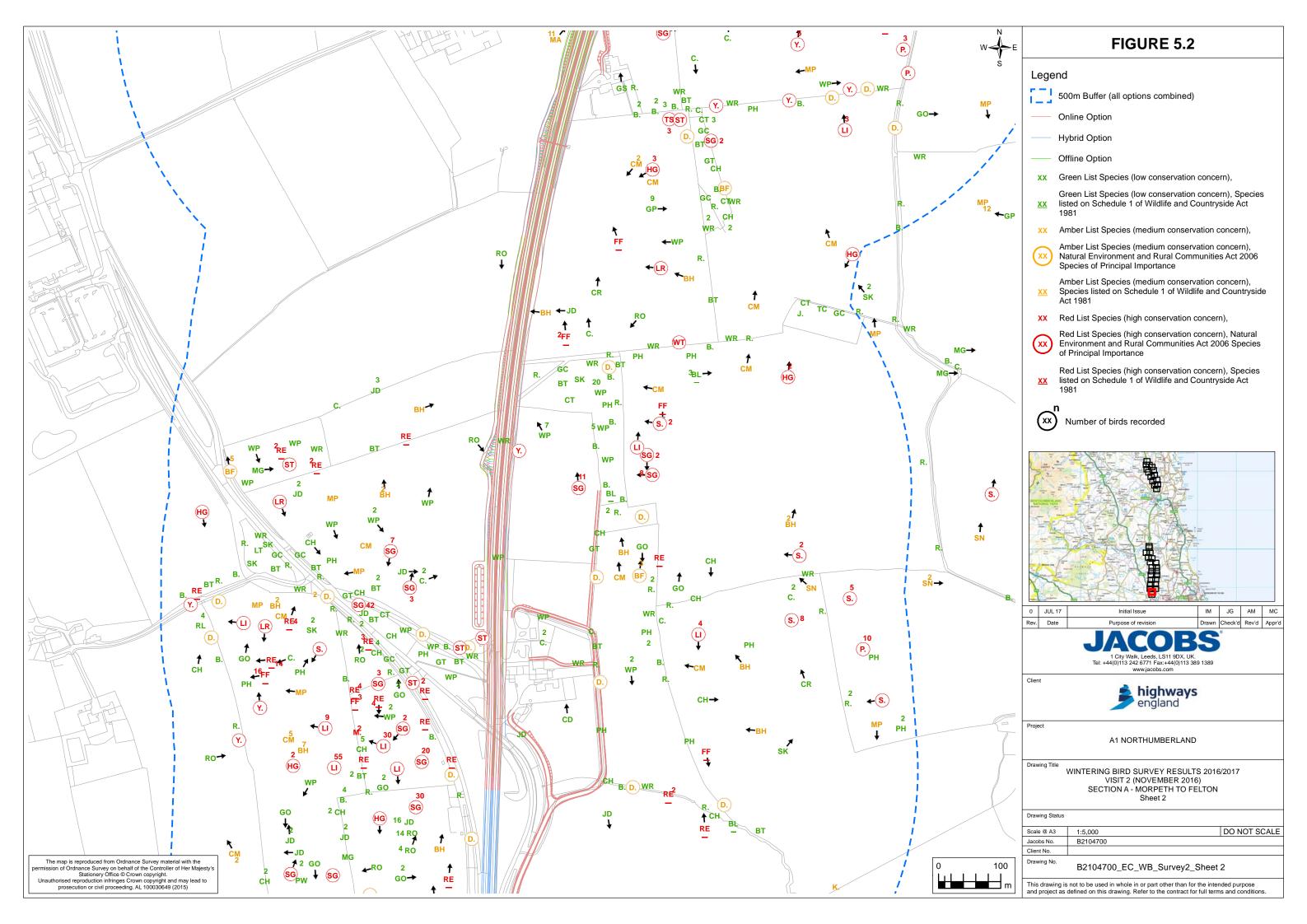


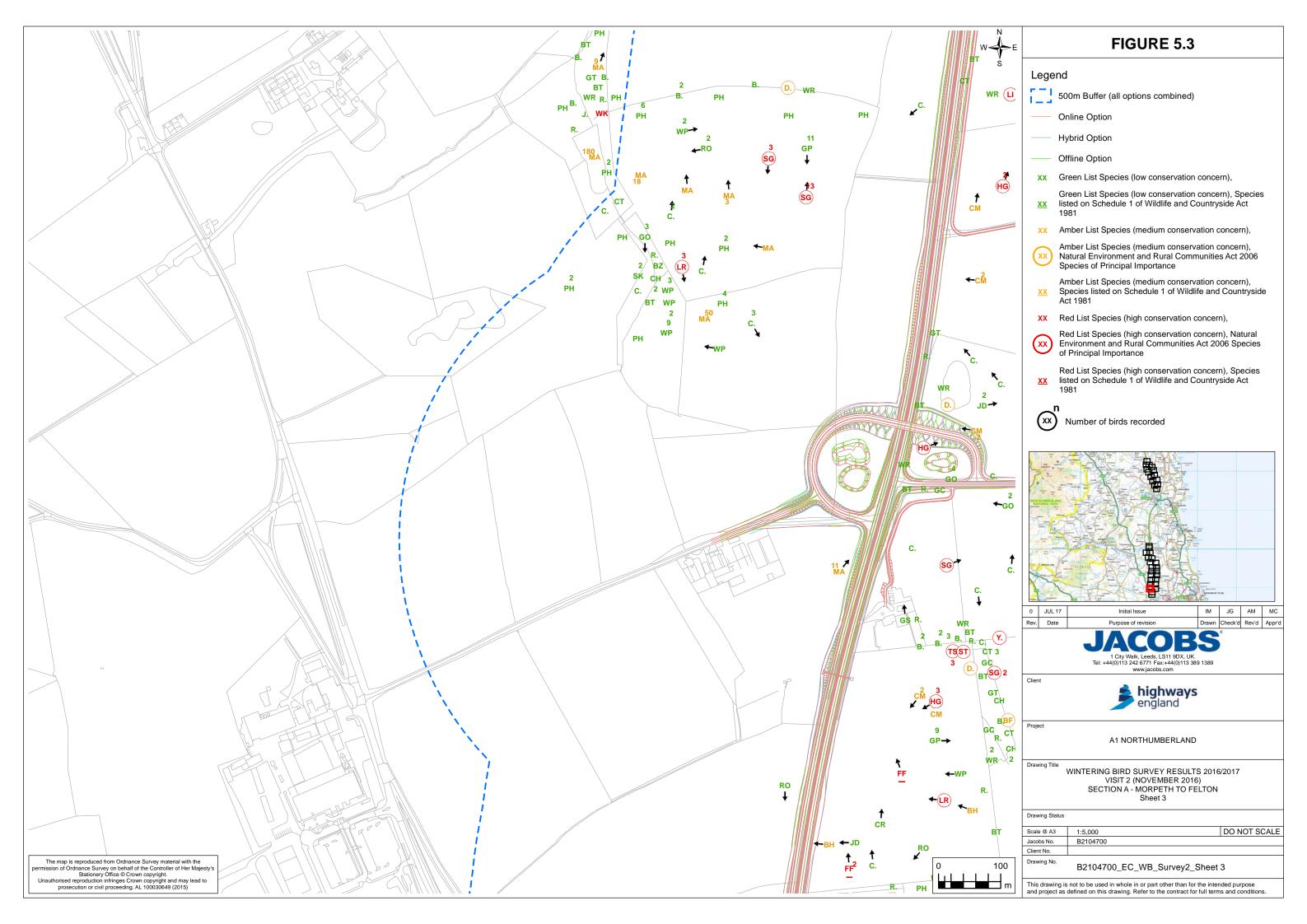


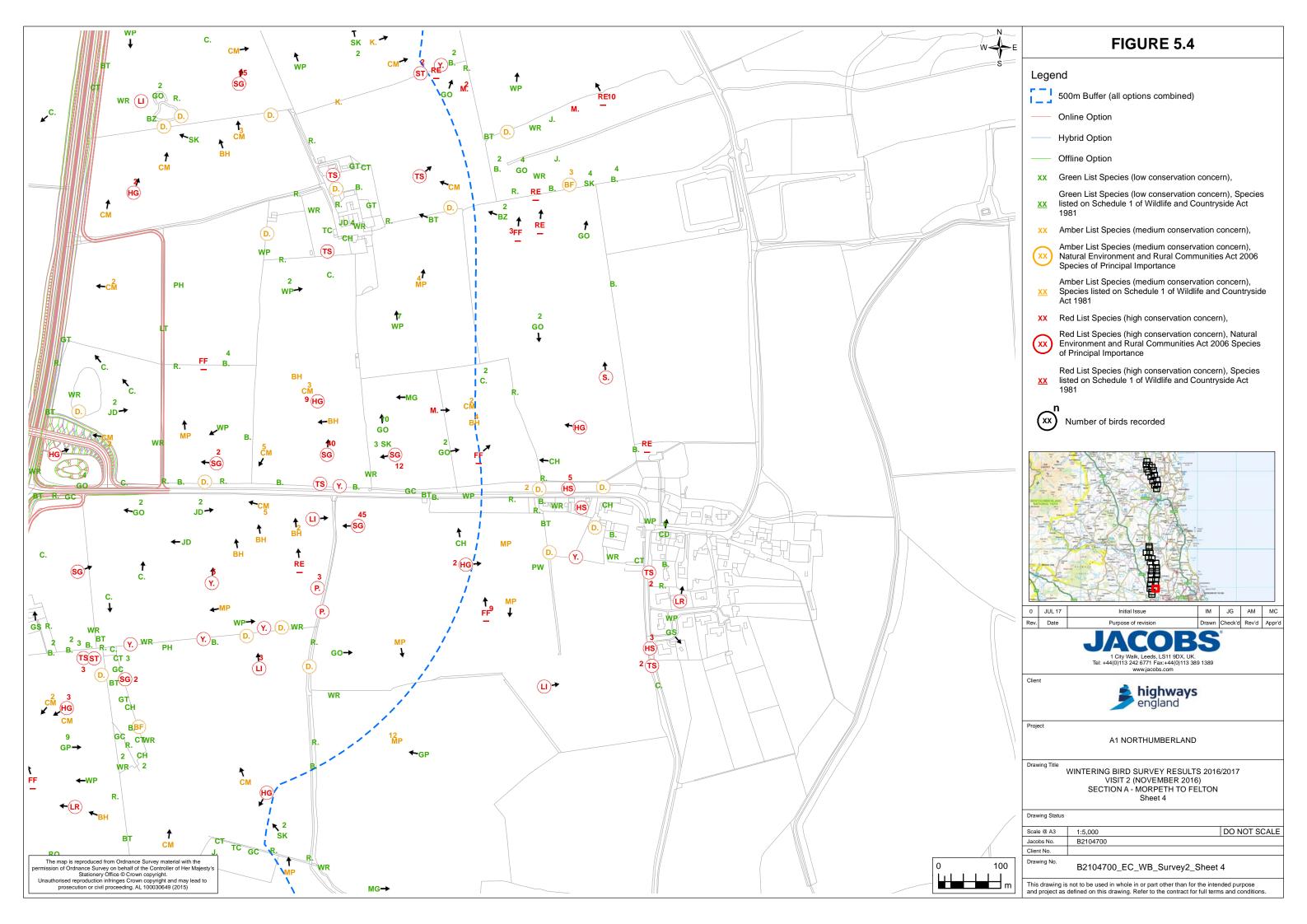


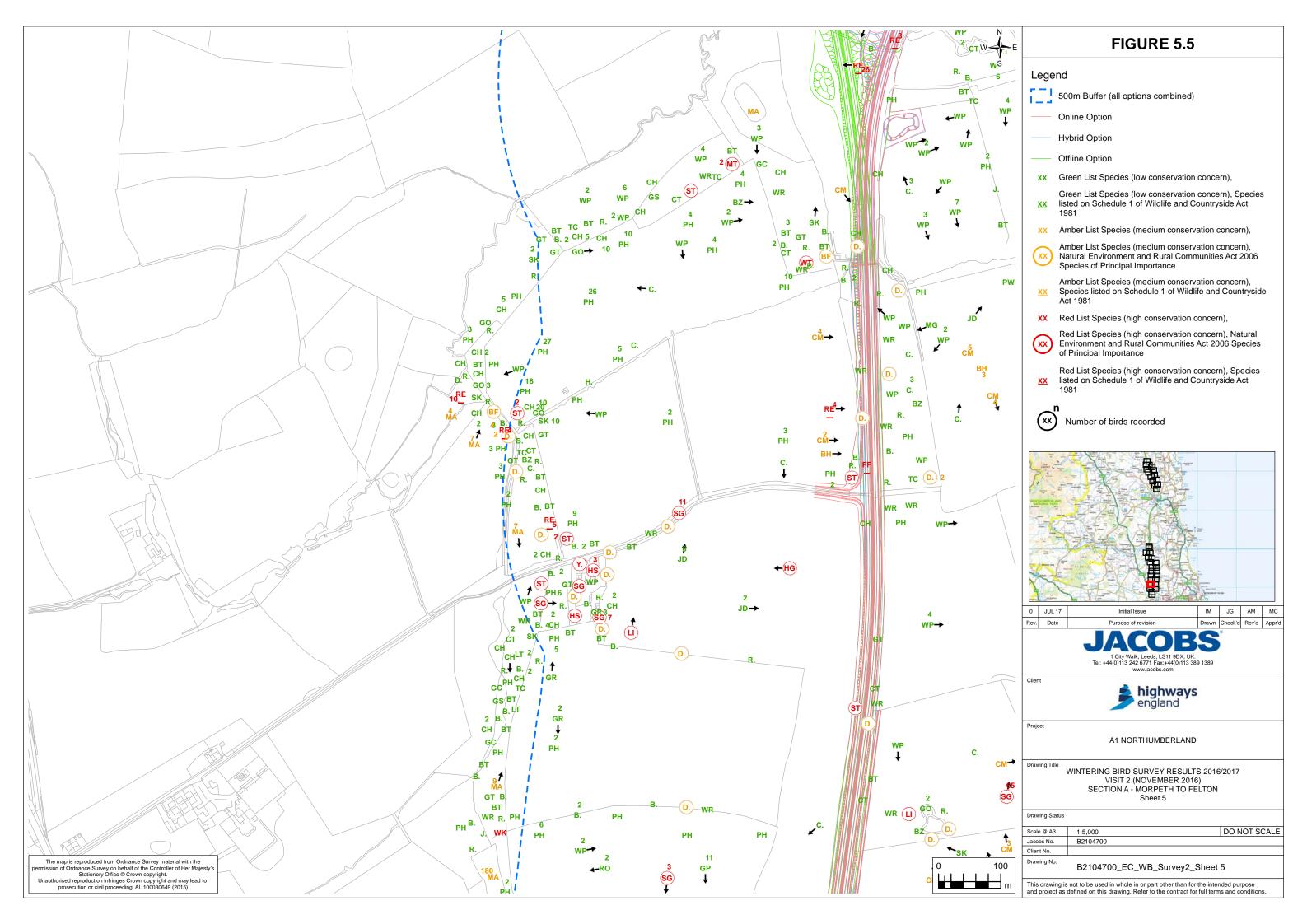


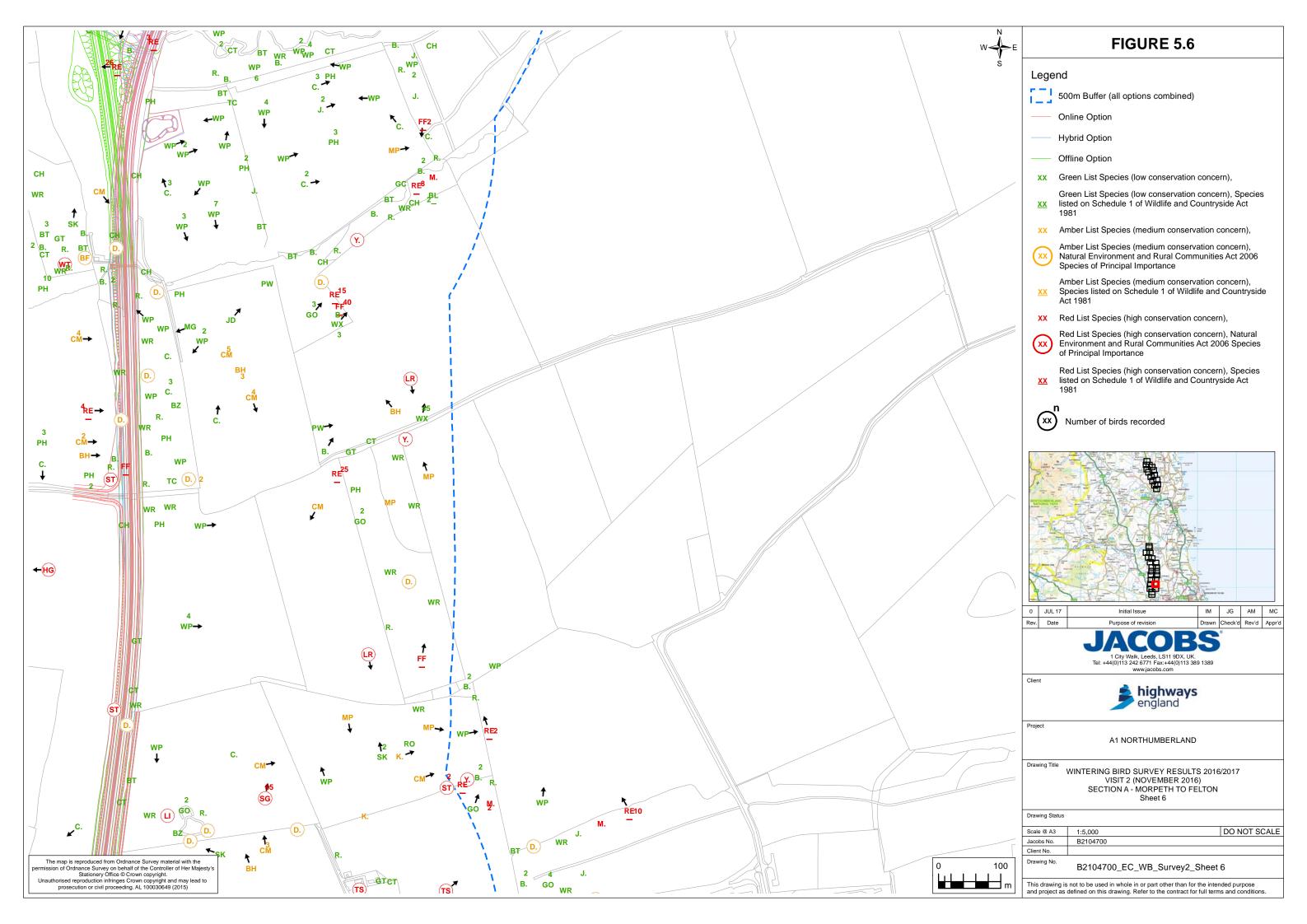


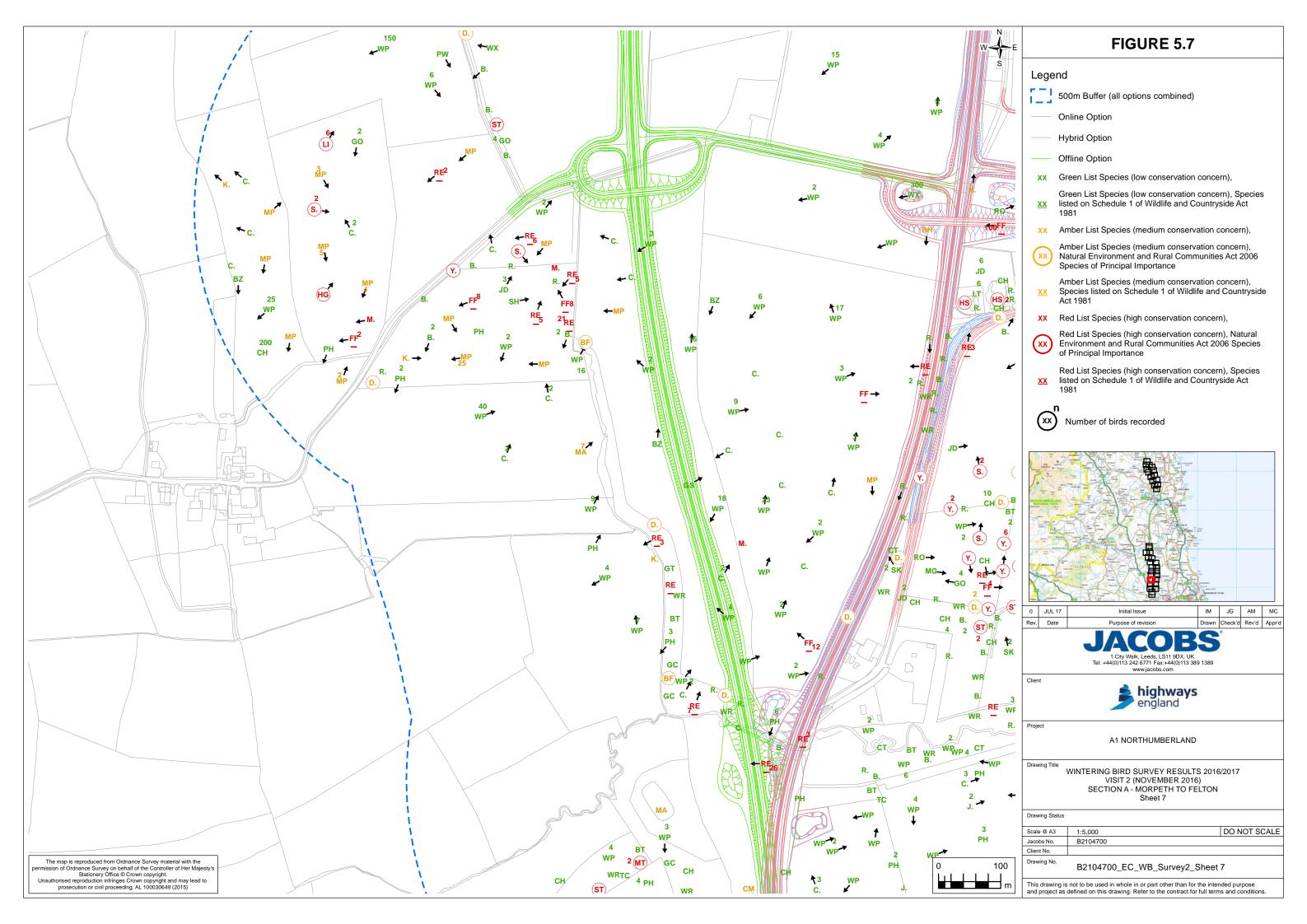


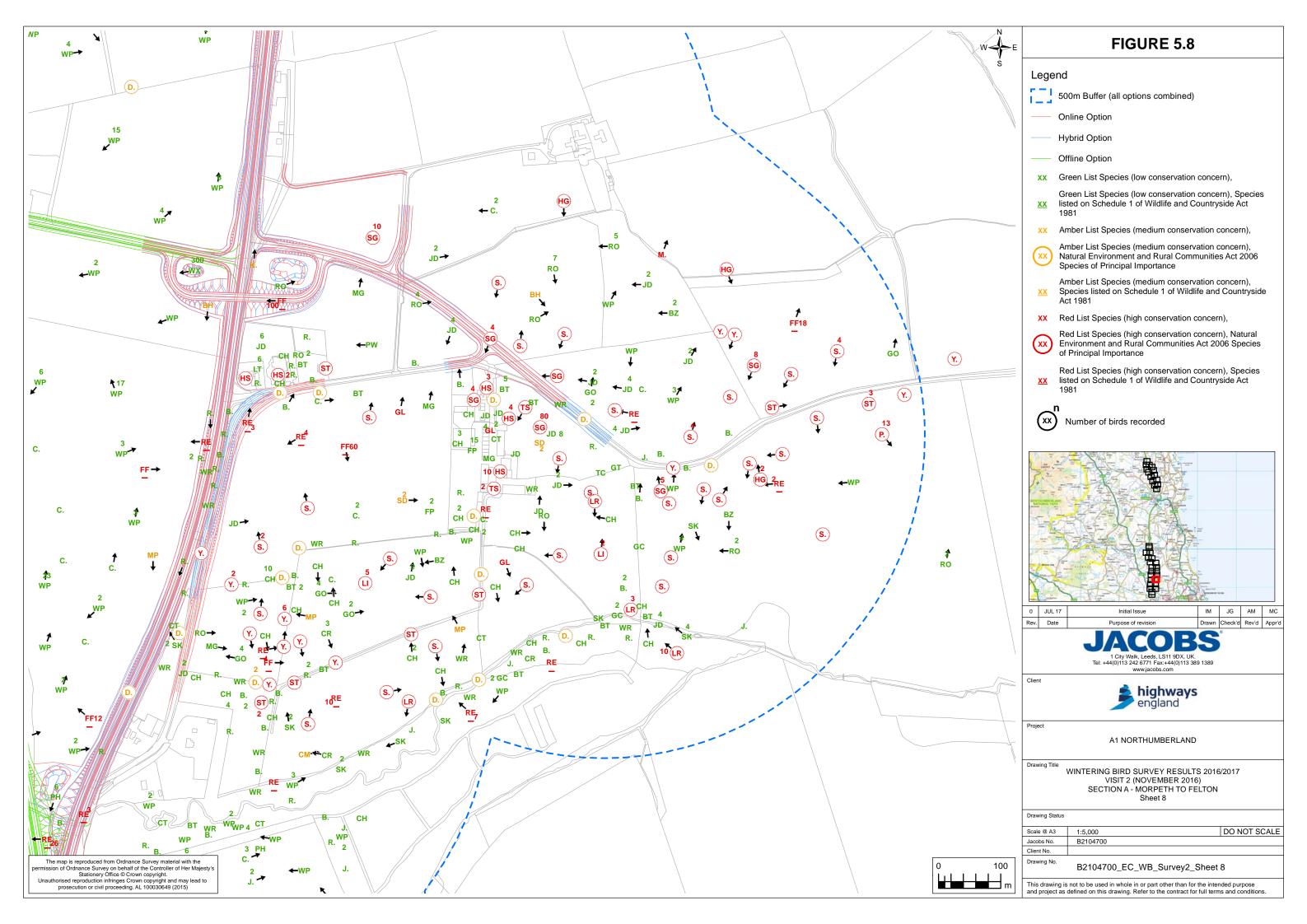


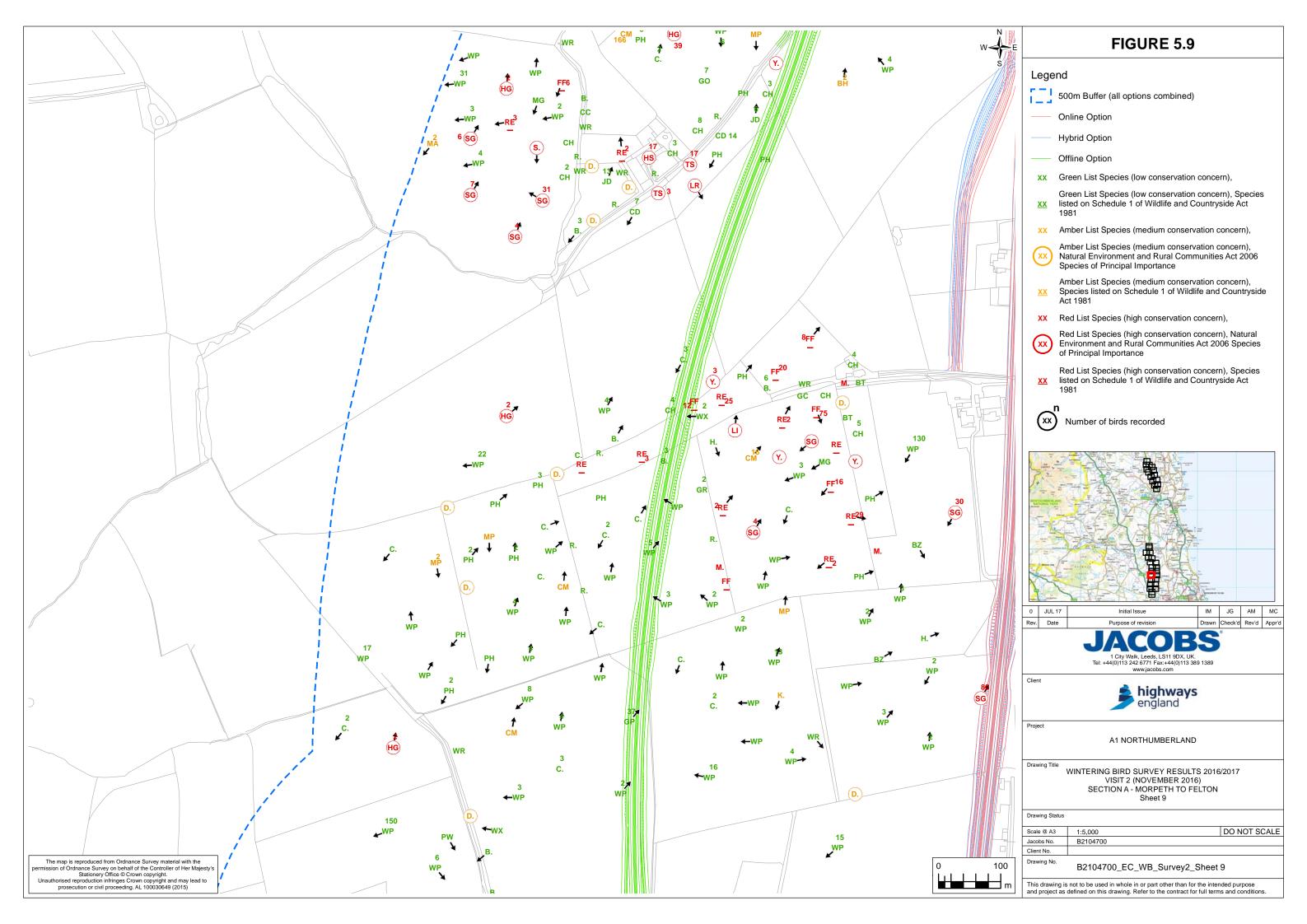












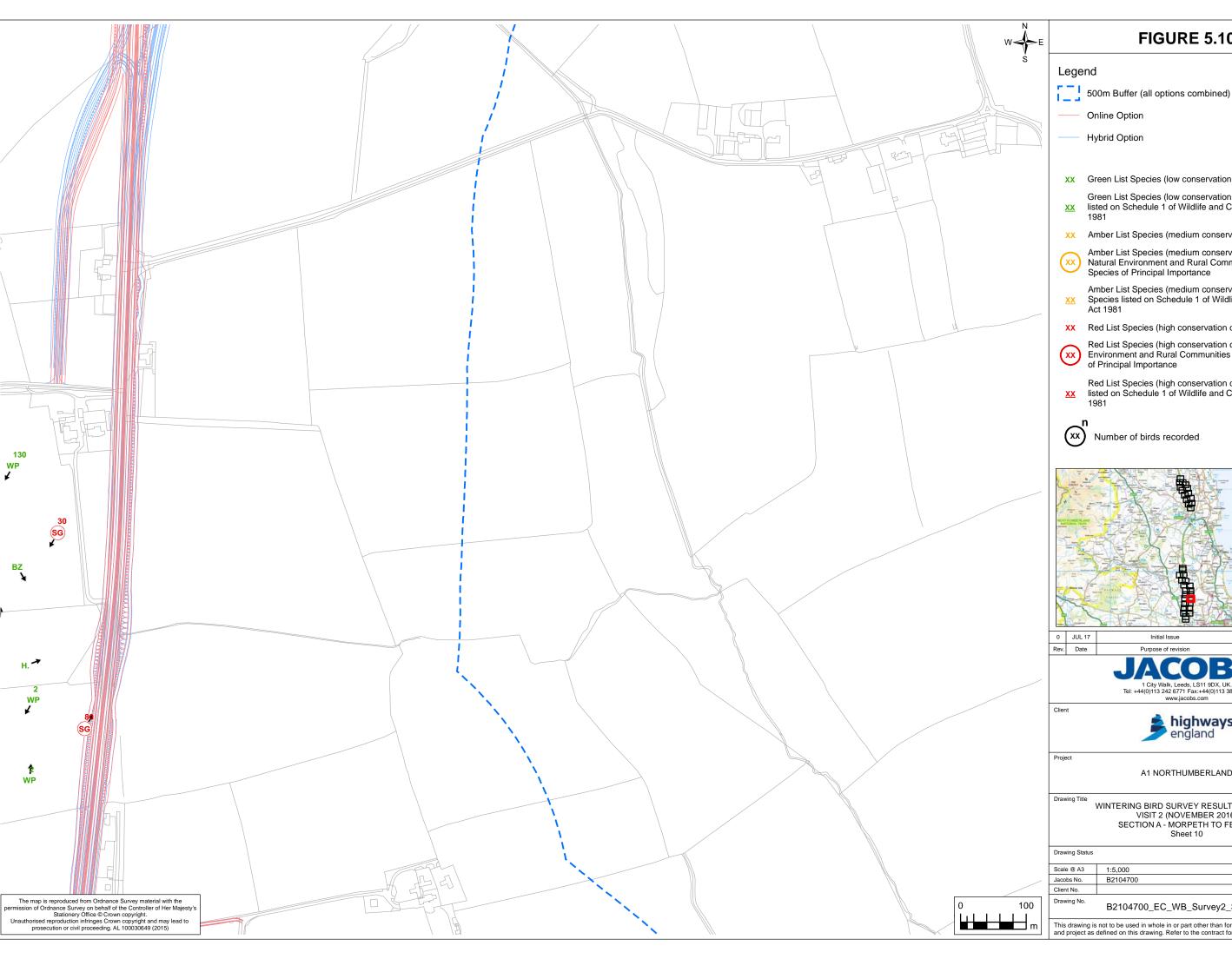
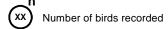


FIGURE 5.10

Hybrid Option

- xx Green List Species (low conservation concern),
 - Green List Species (low conservation concern), Species listed on Schedule 1 of Wildlife and Countryside Act
- XX Amber List Species (medium conservation concern),
- Amber List Species (medium conservation concern), Natural Environment and Rural Communities Act 2006 Species of Principal Importance
- Amber List Species (medium conservation concern), Species listed on Schedule 1 of Wildlife and Countryside
- XX Red List Species (high conservation concern),
- Red List Species (high conservation concern), Natural Environment and Rural Communities Act 2006 Species of Principal Importance
- Red List Species (high conservation concern), Species
 XX listed on Schedule 1 of Wildlife and Countryside Act





JG AM MC



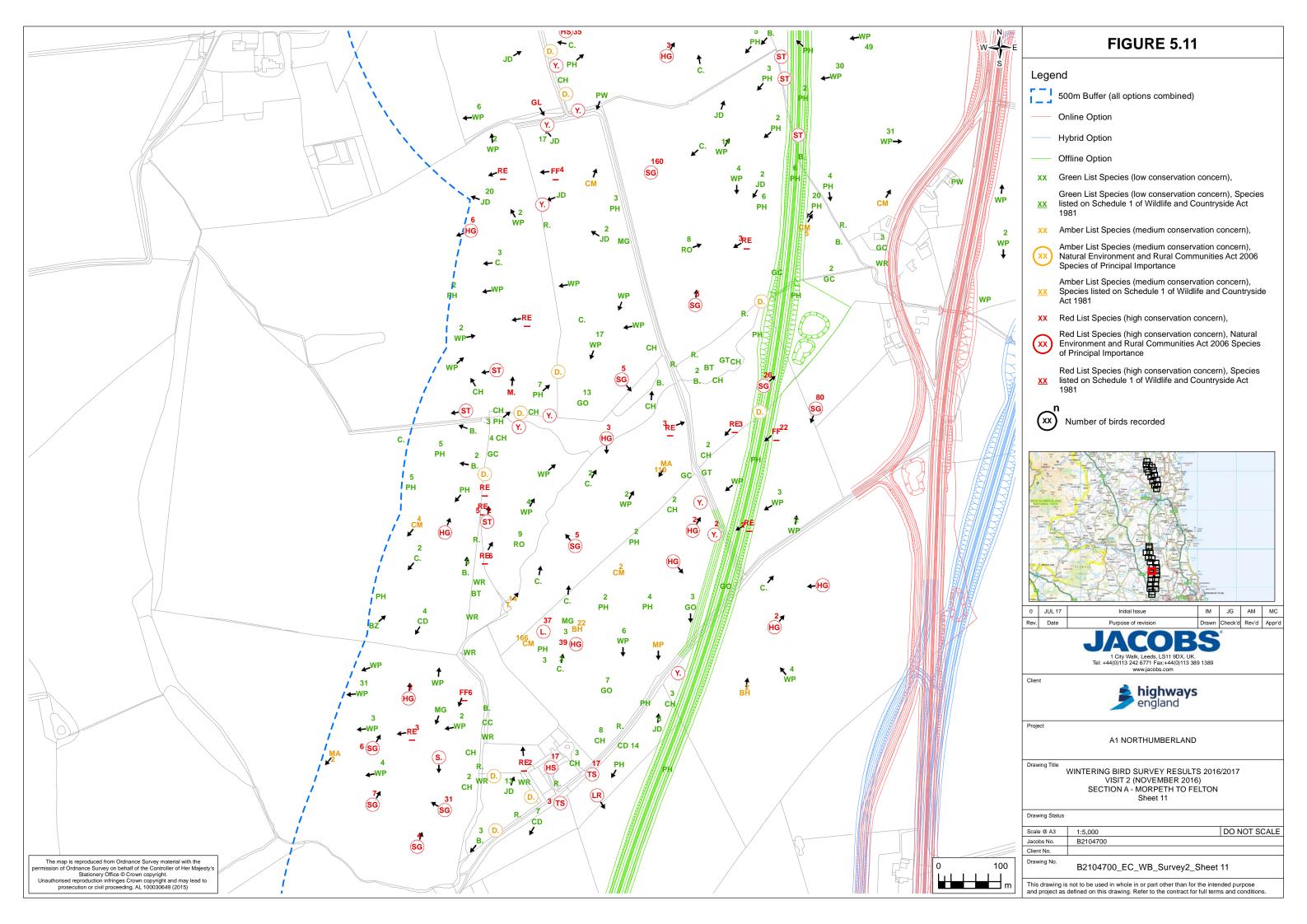
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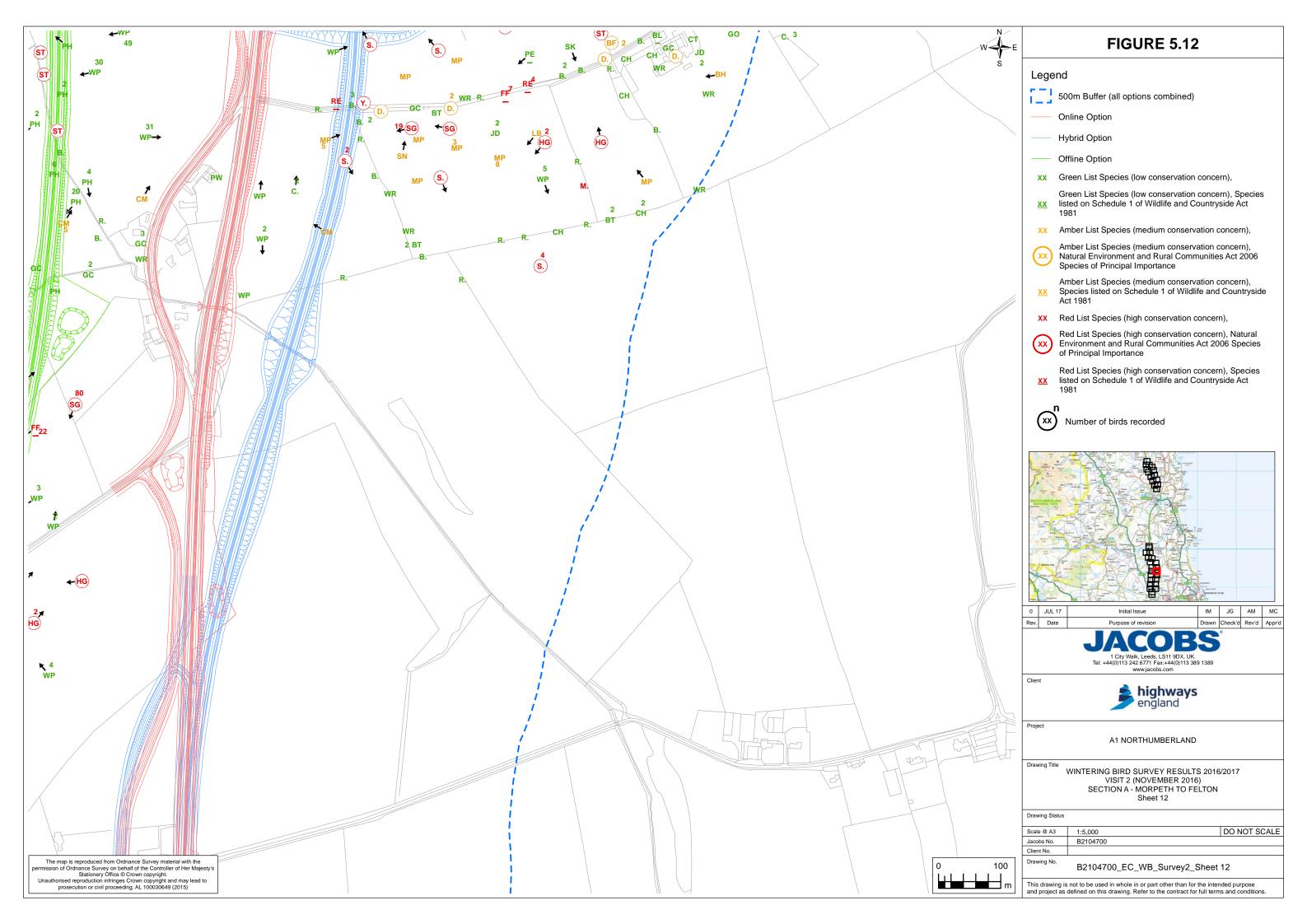
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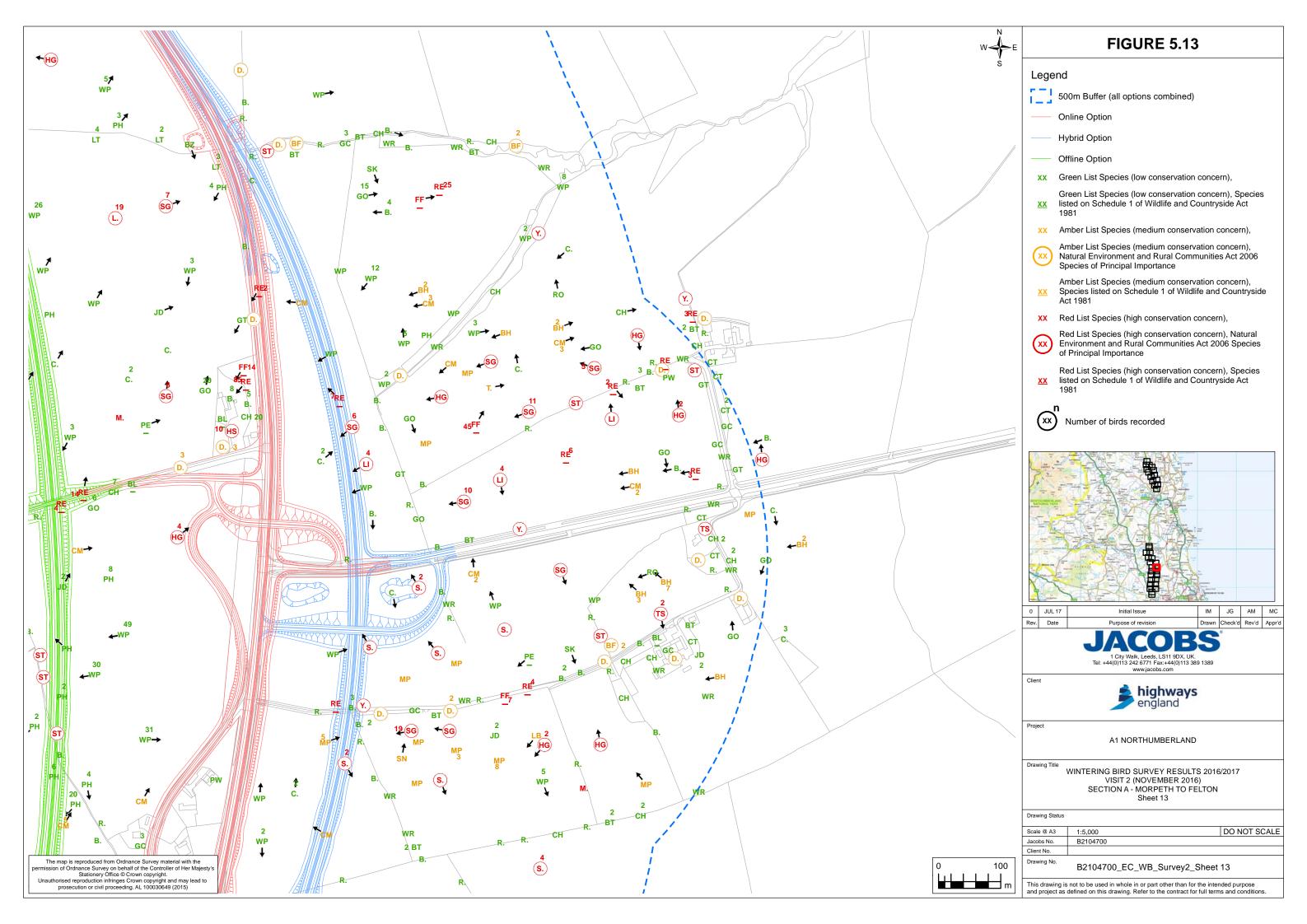
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	Jacobs No.	B2104700		
	Client No.			

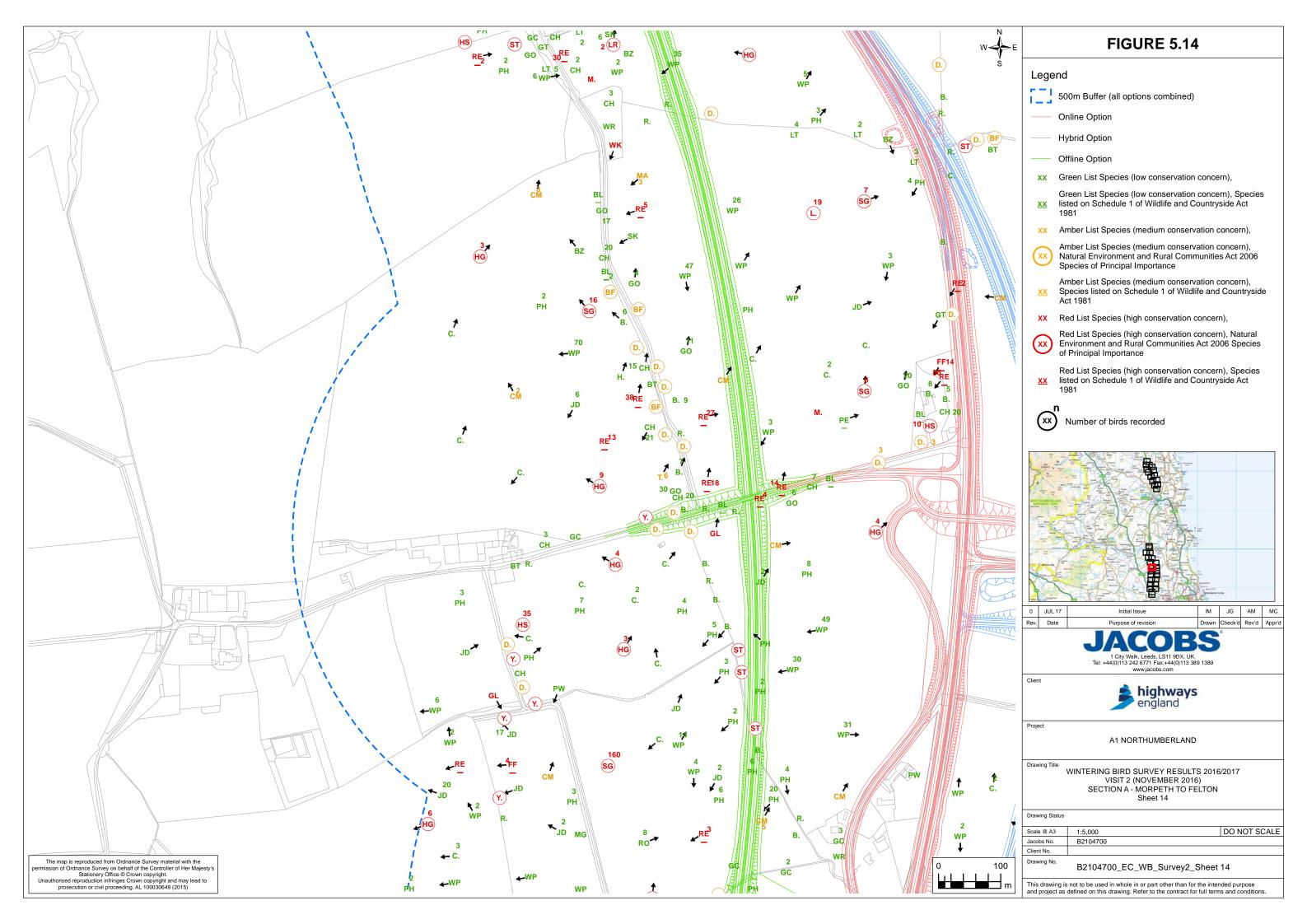
B2104700_EC_WB_Survey2_Sheet 10

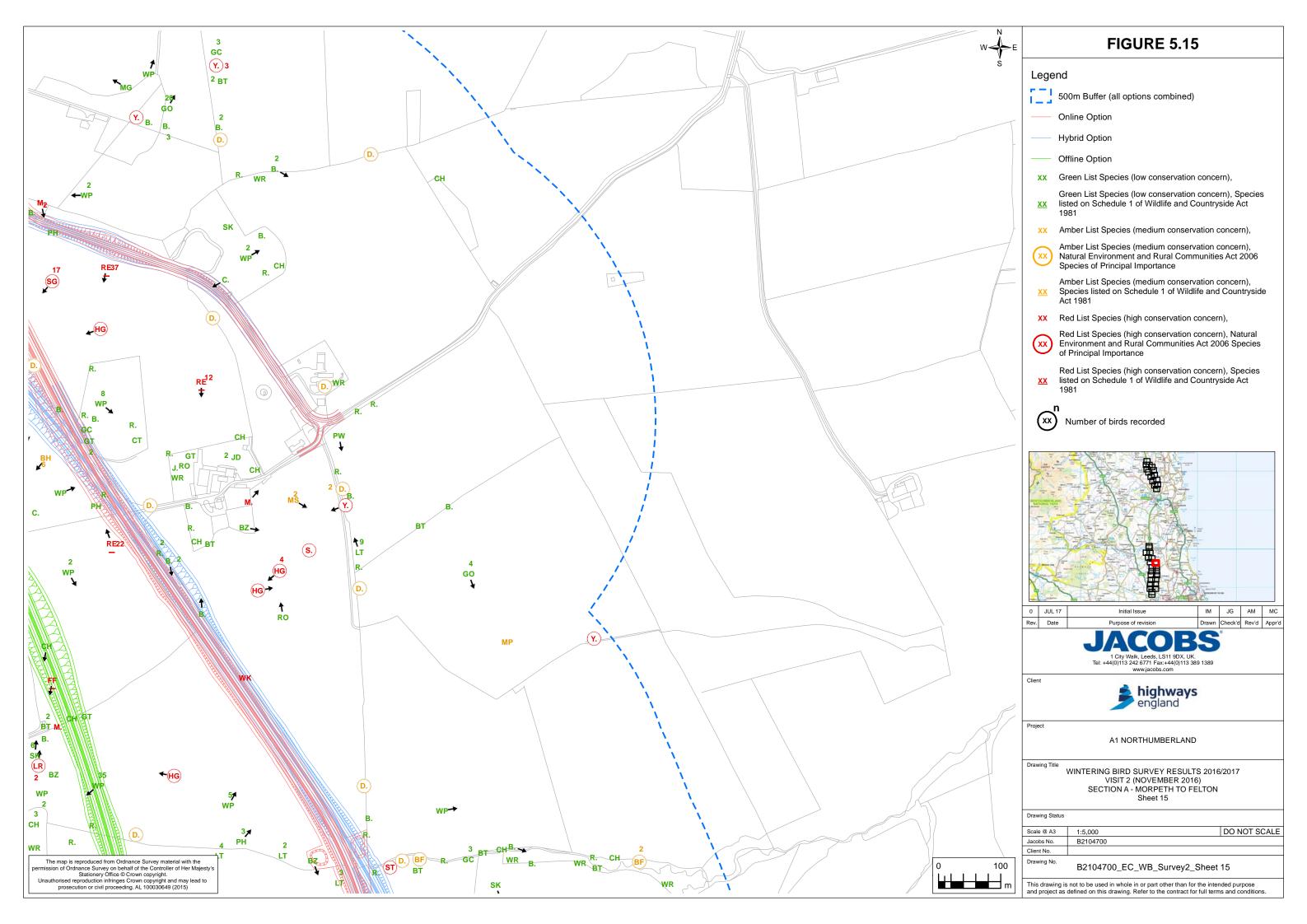
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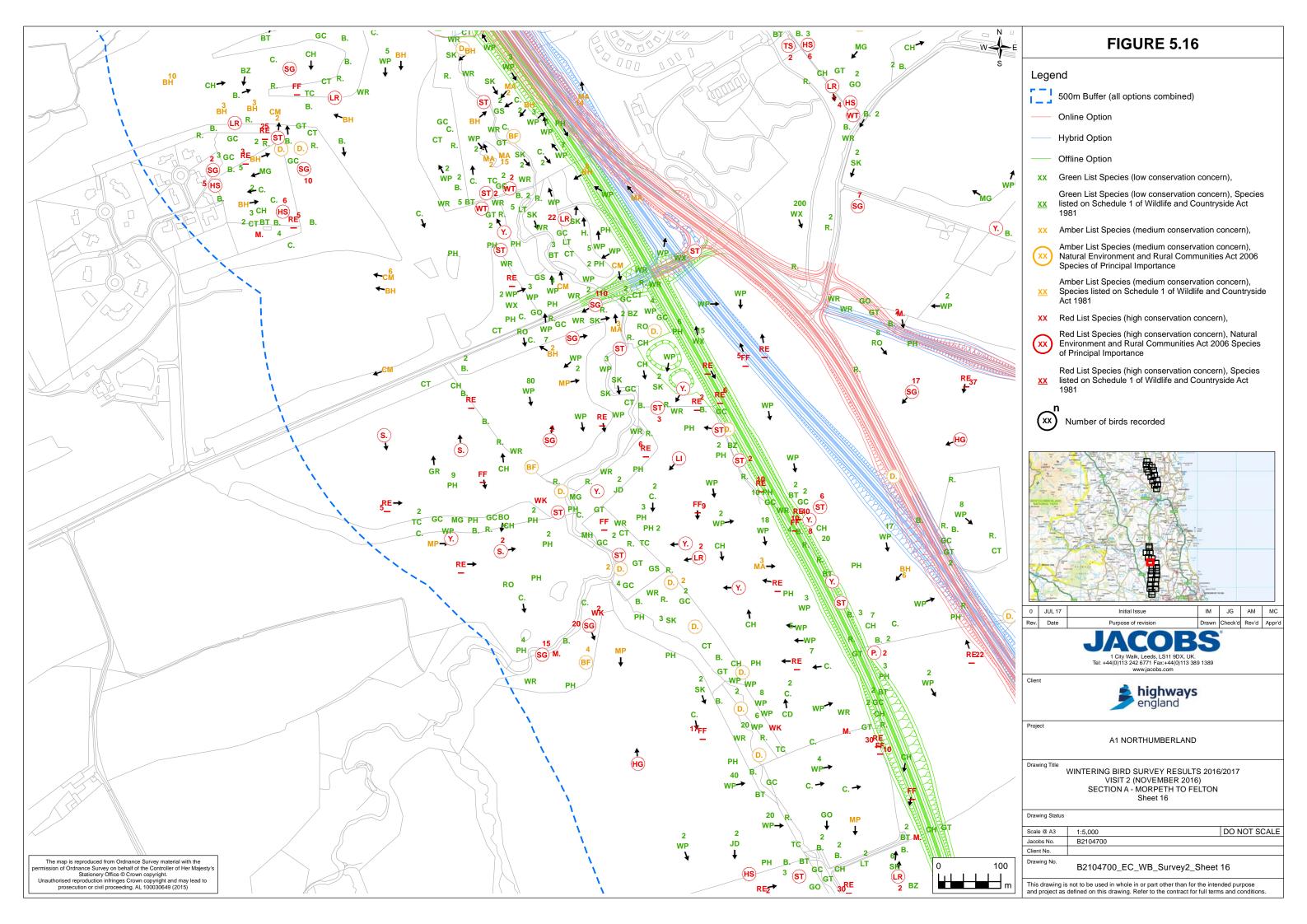


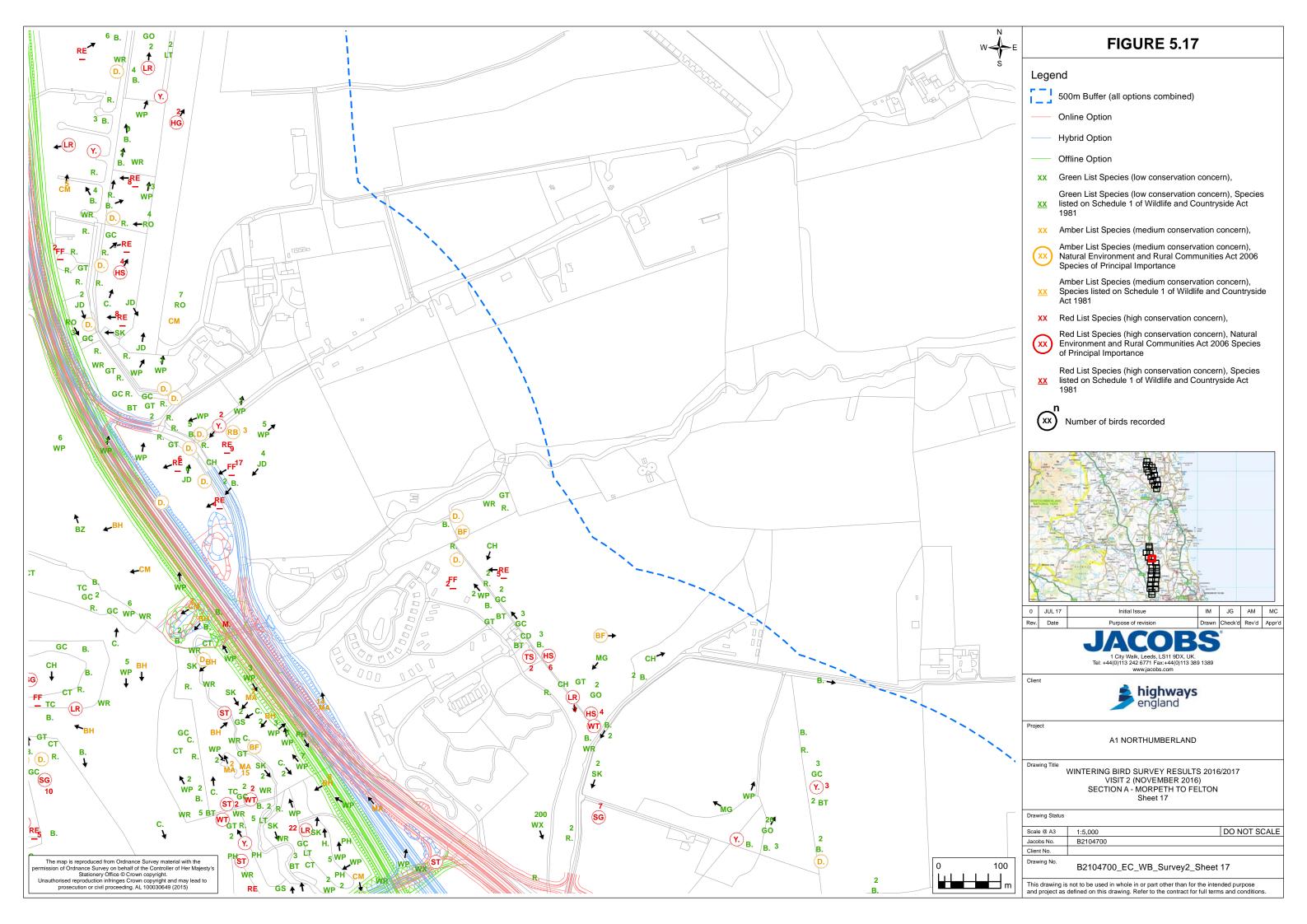


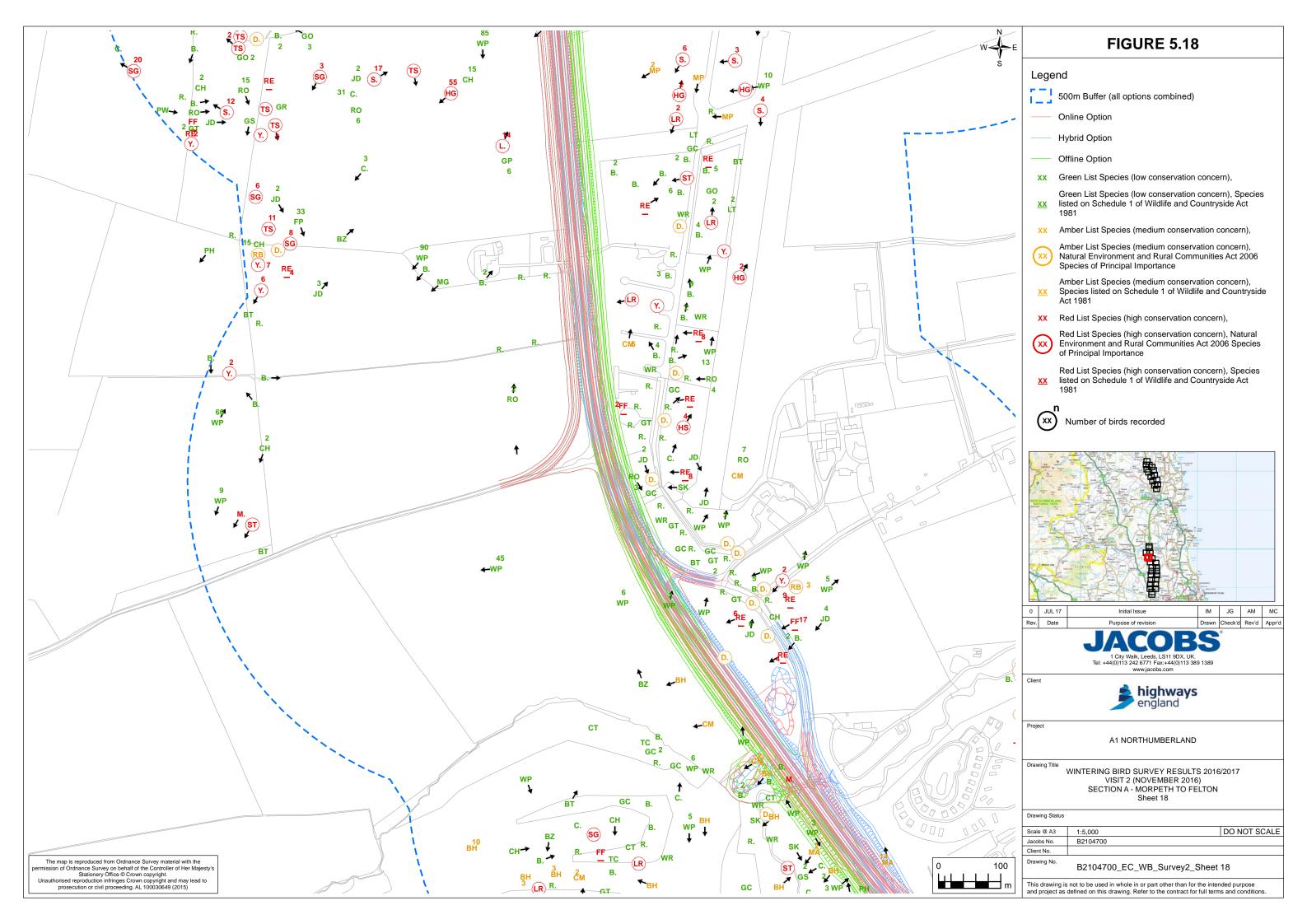


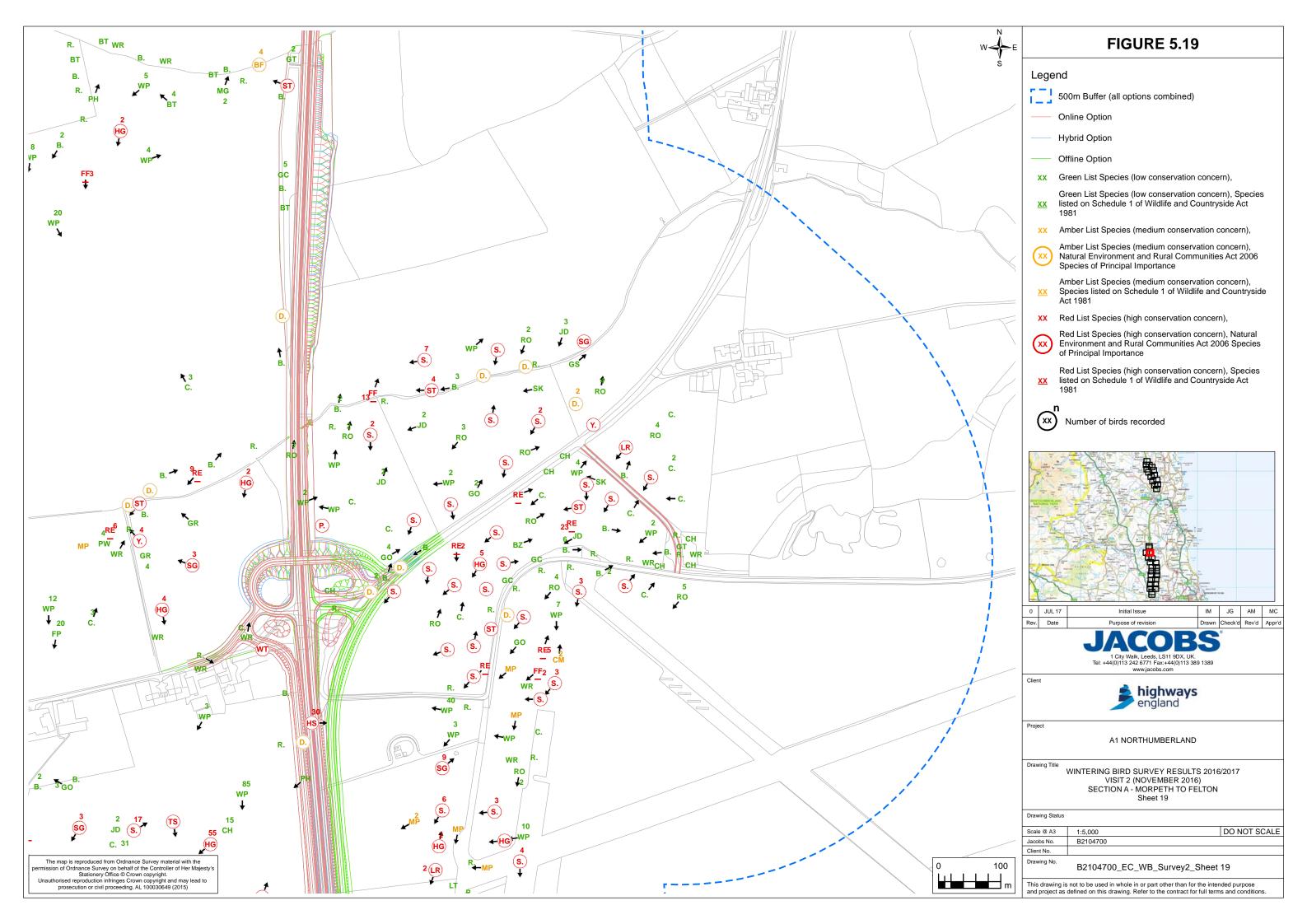


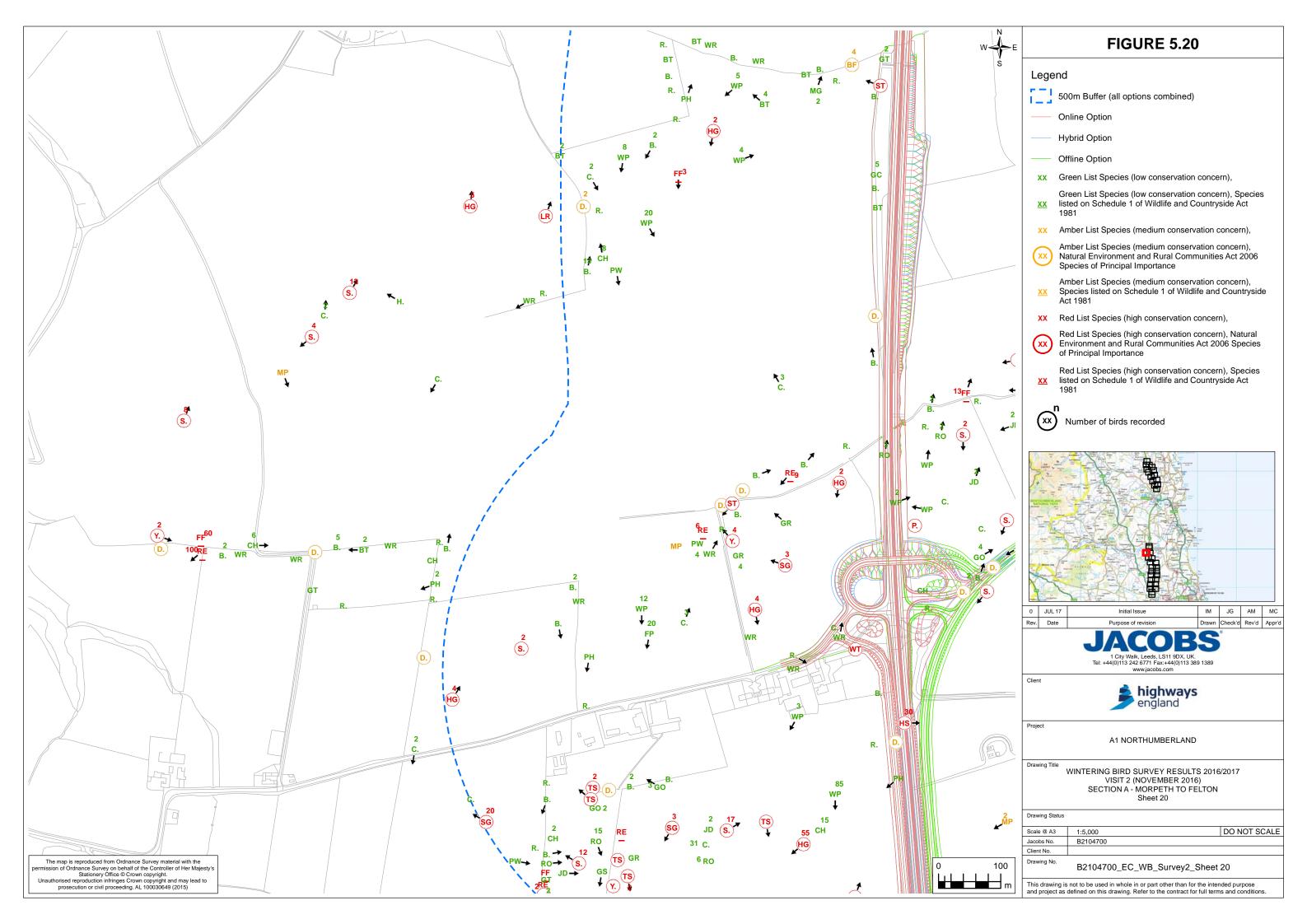


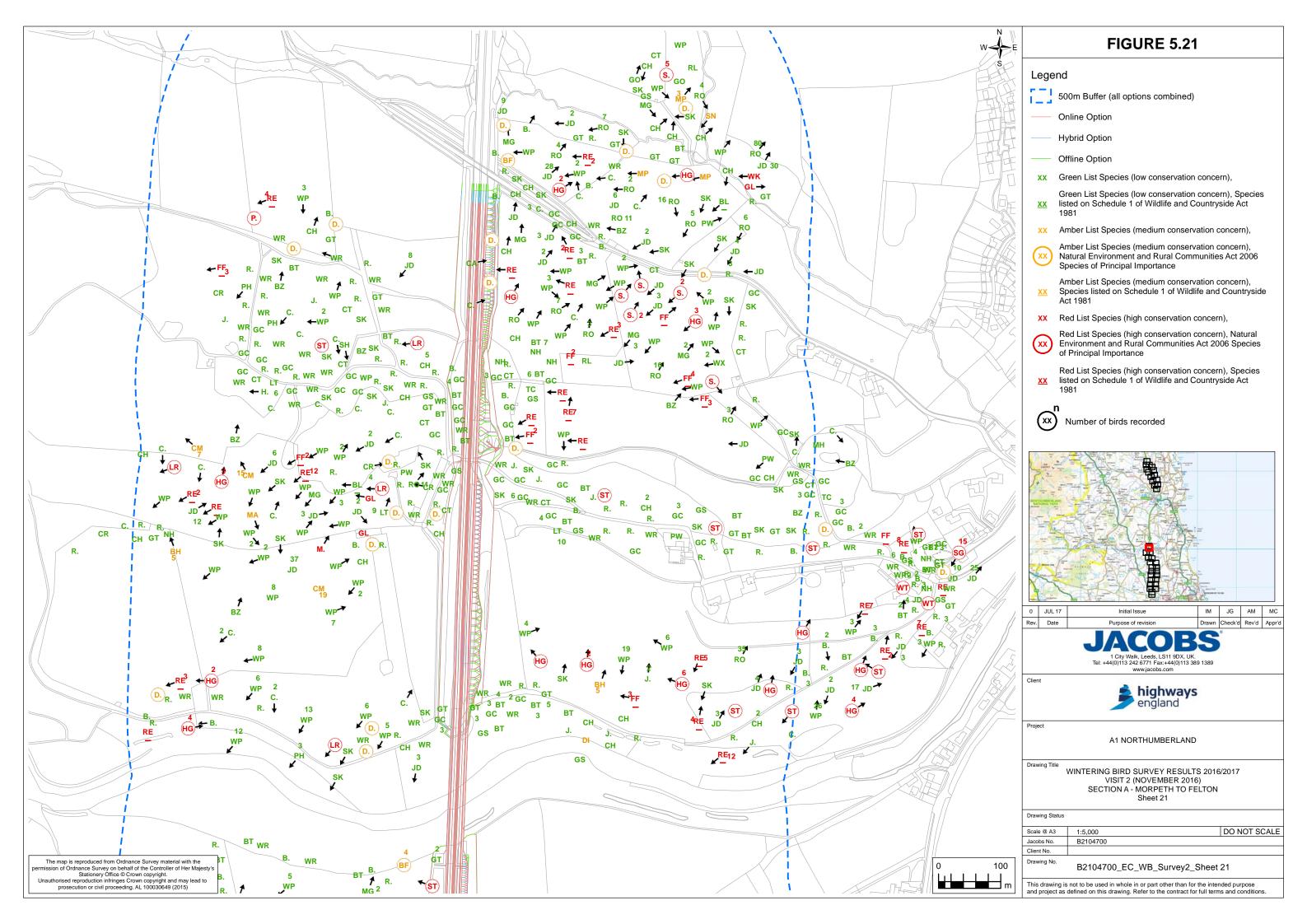


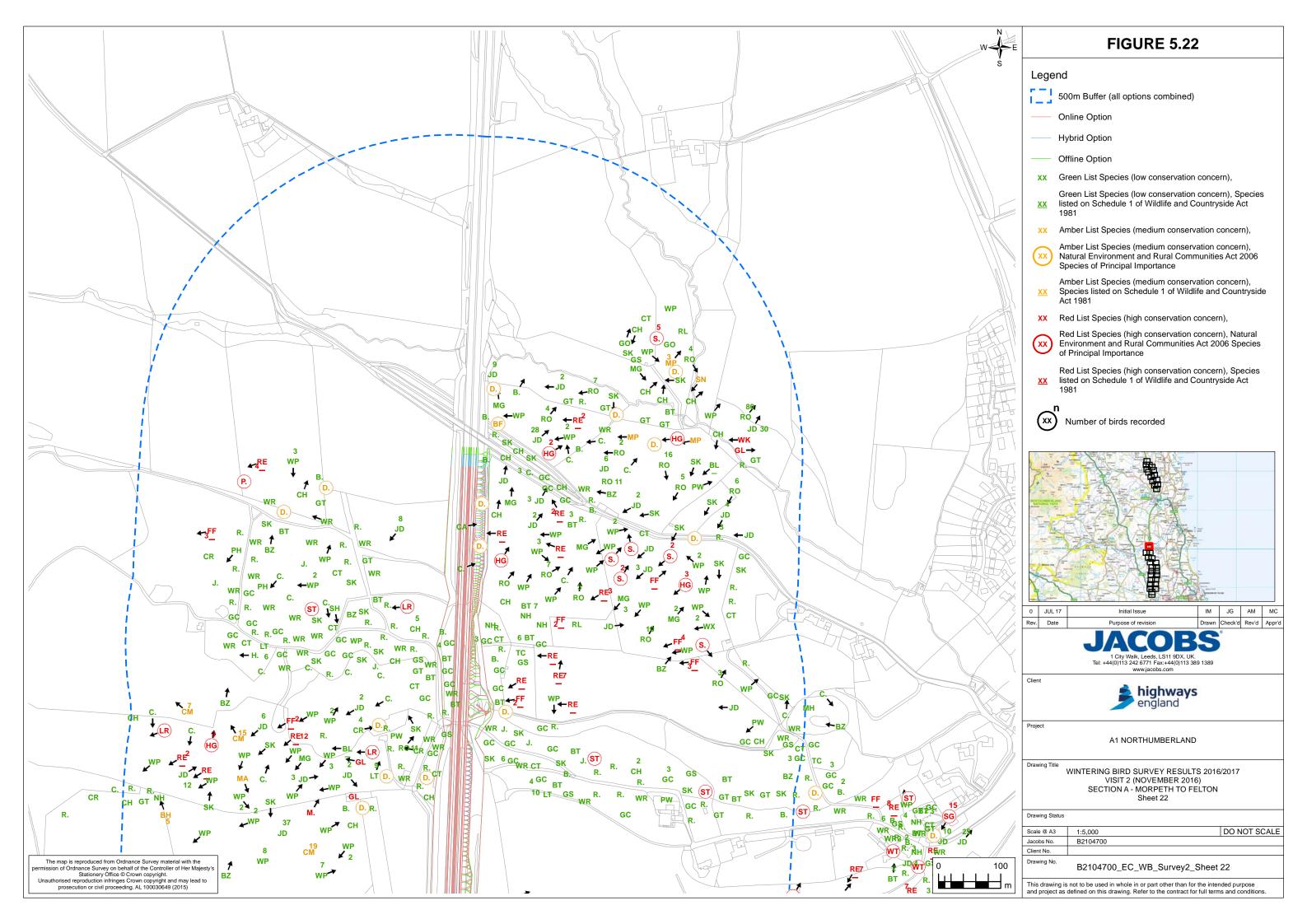


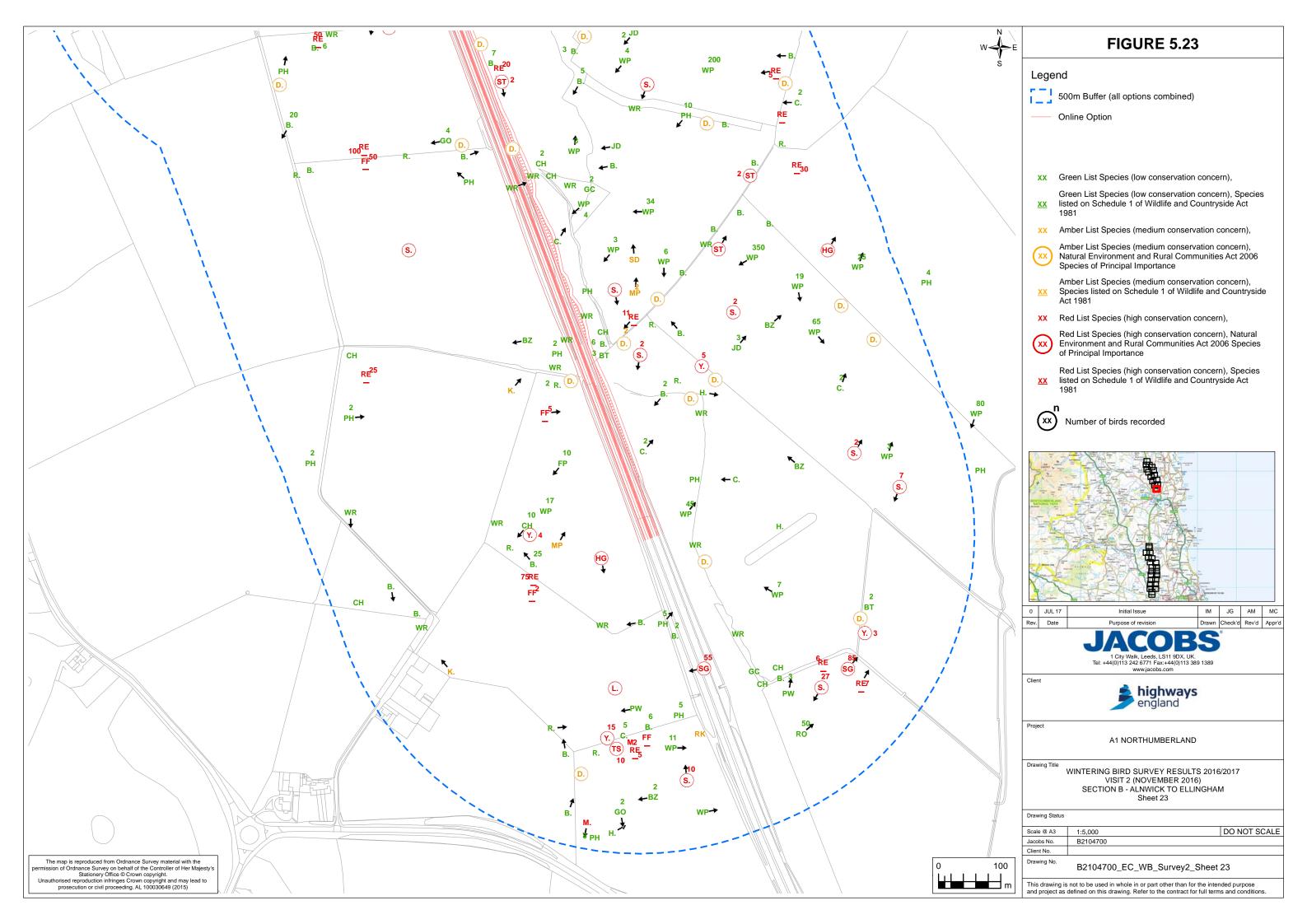


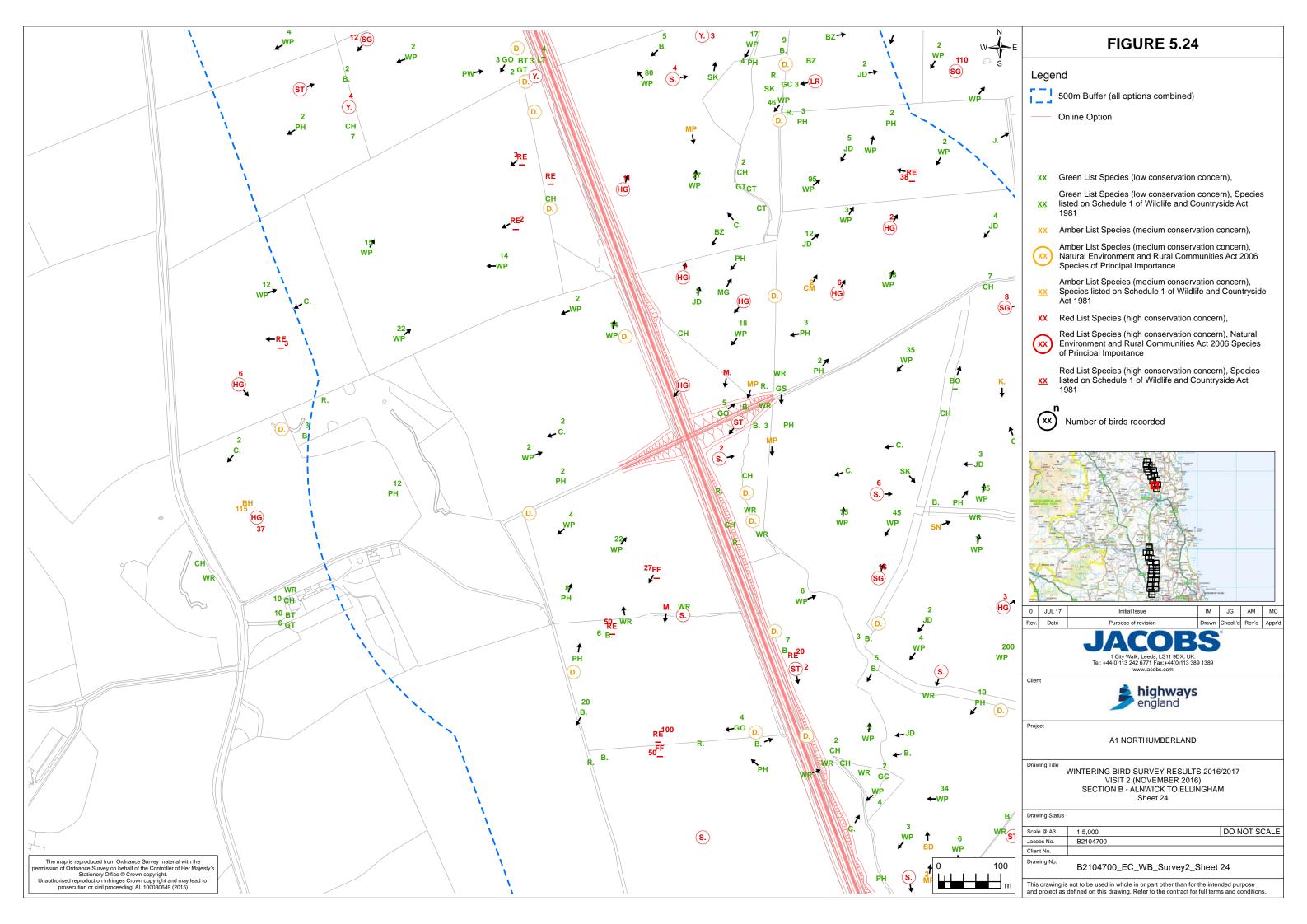


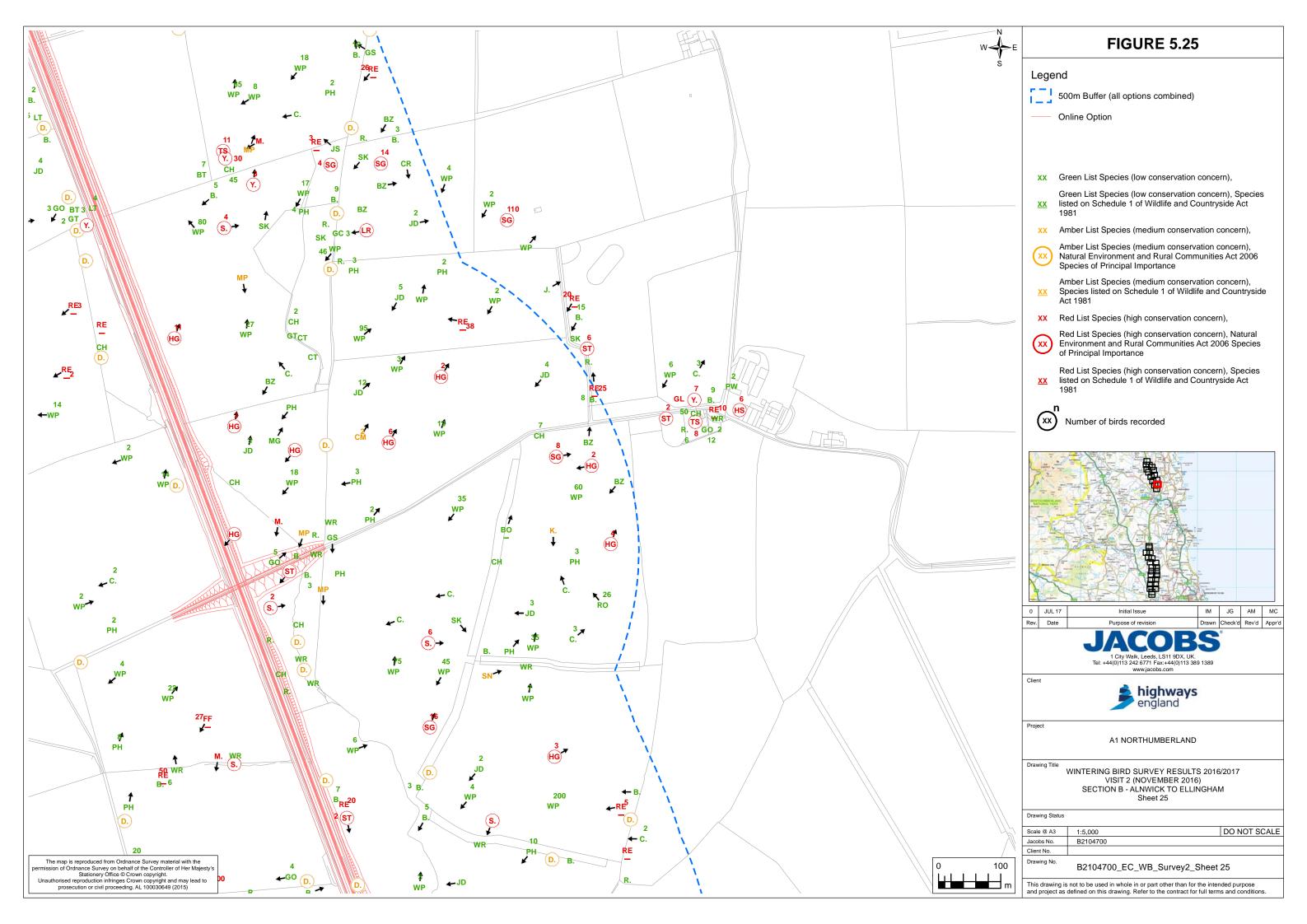


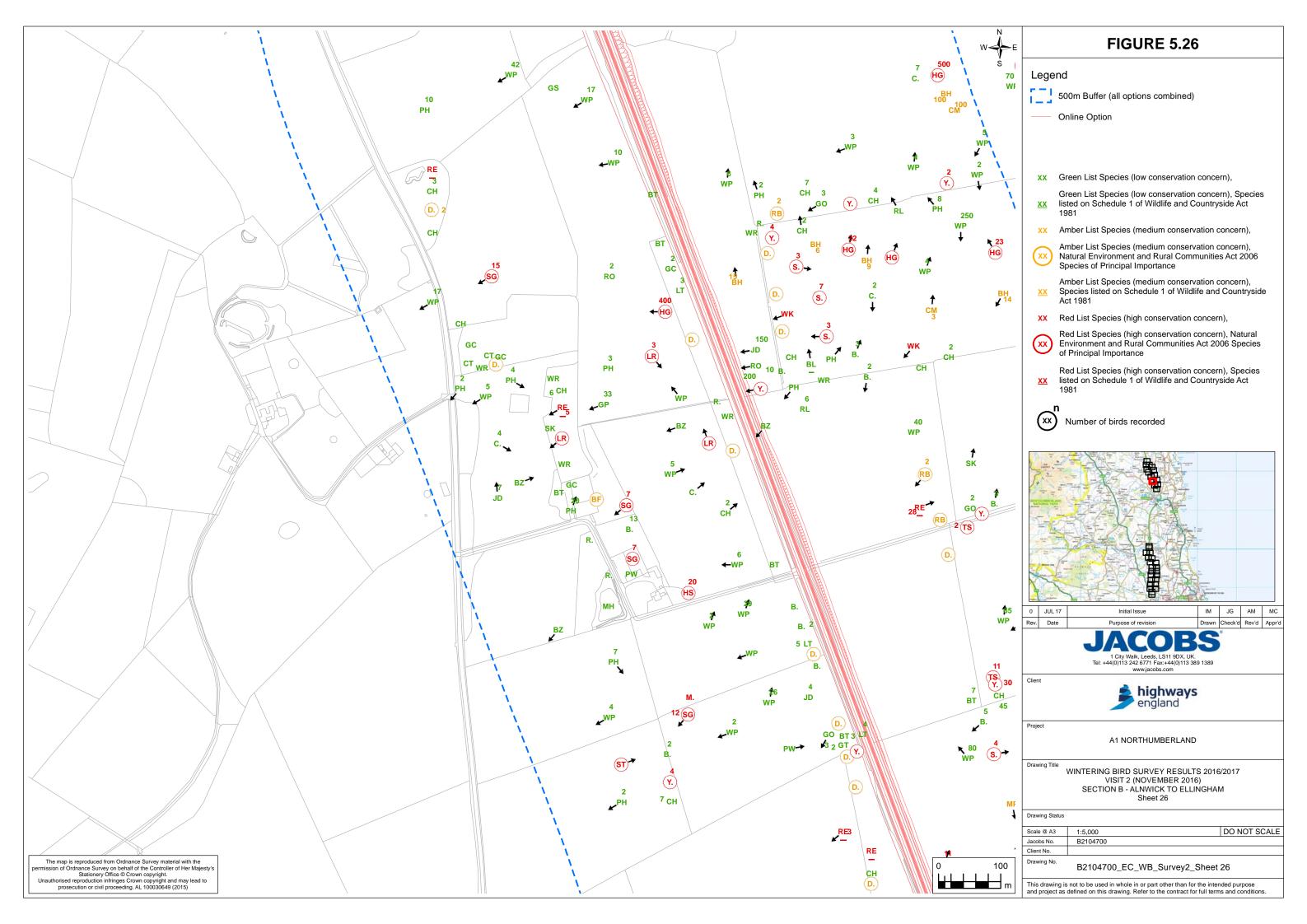


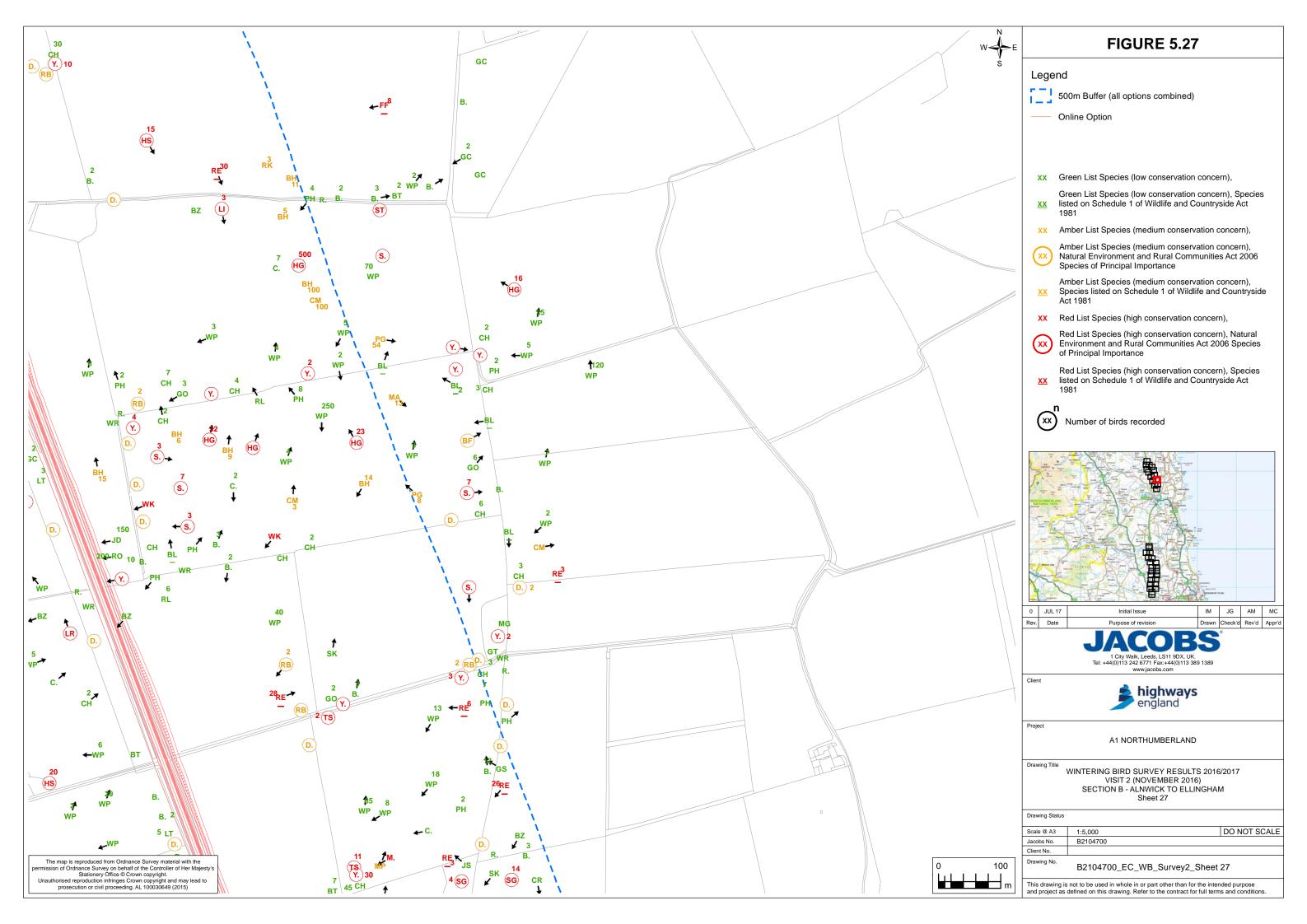


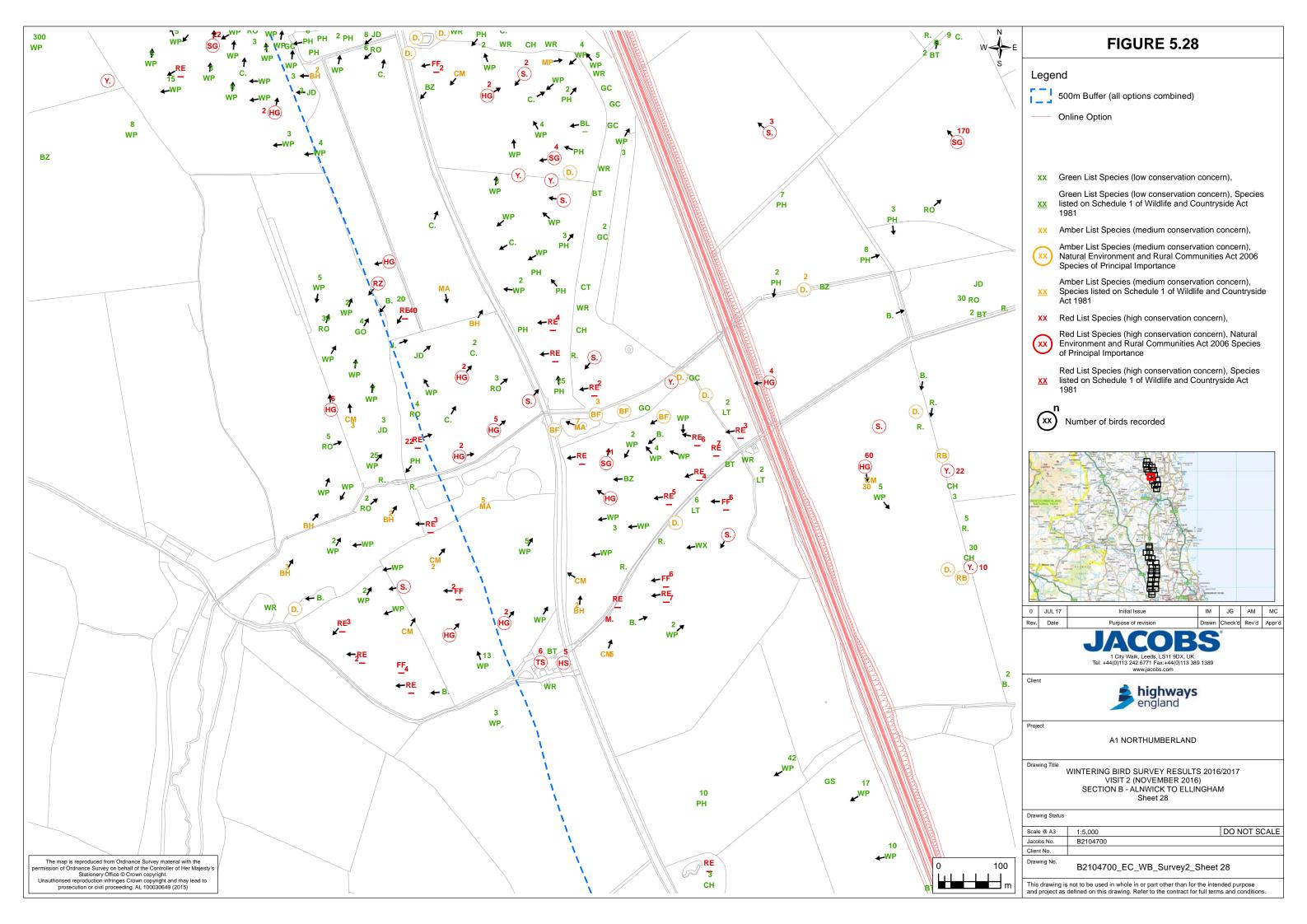


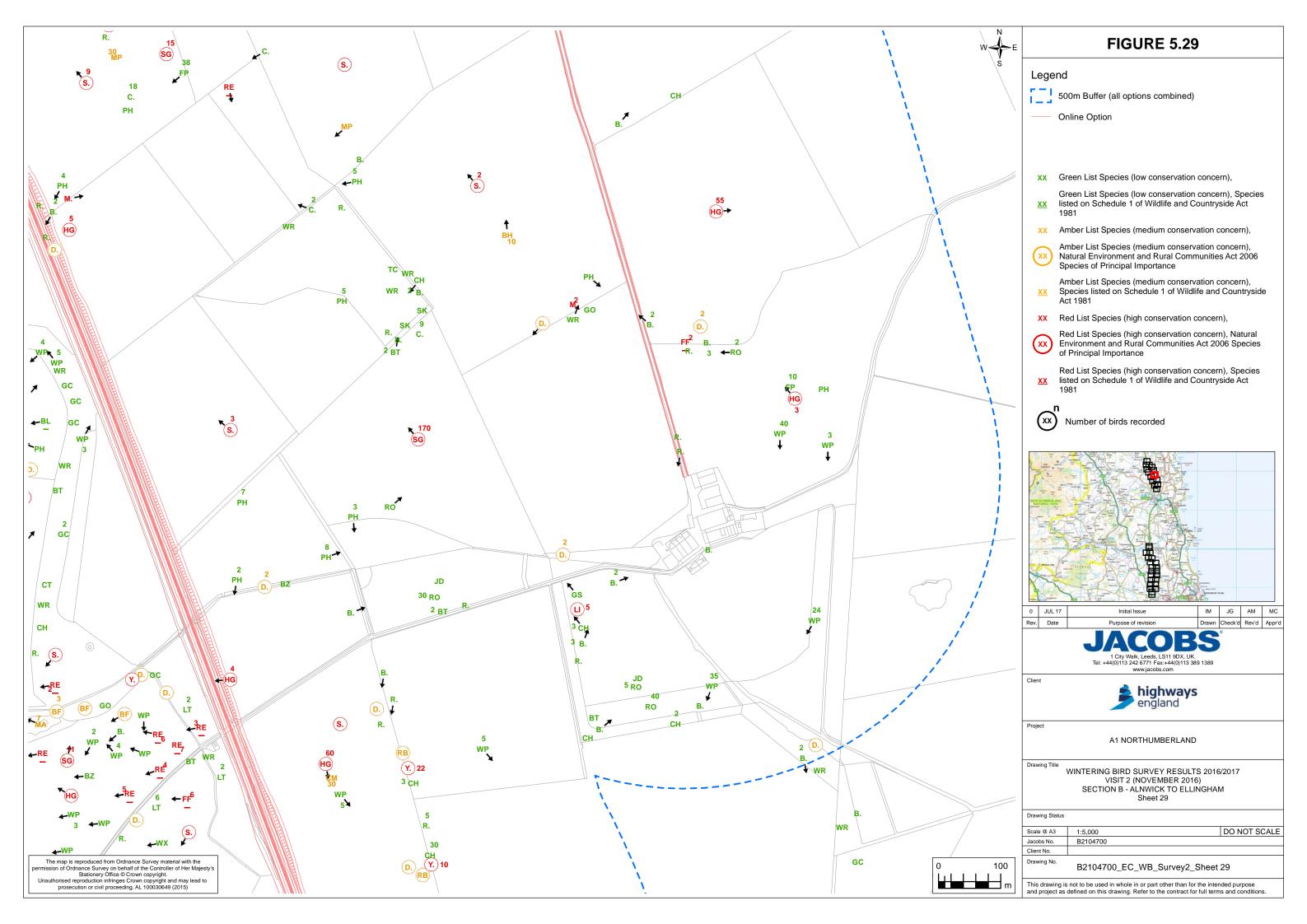


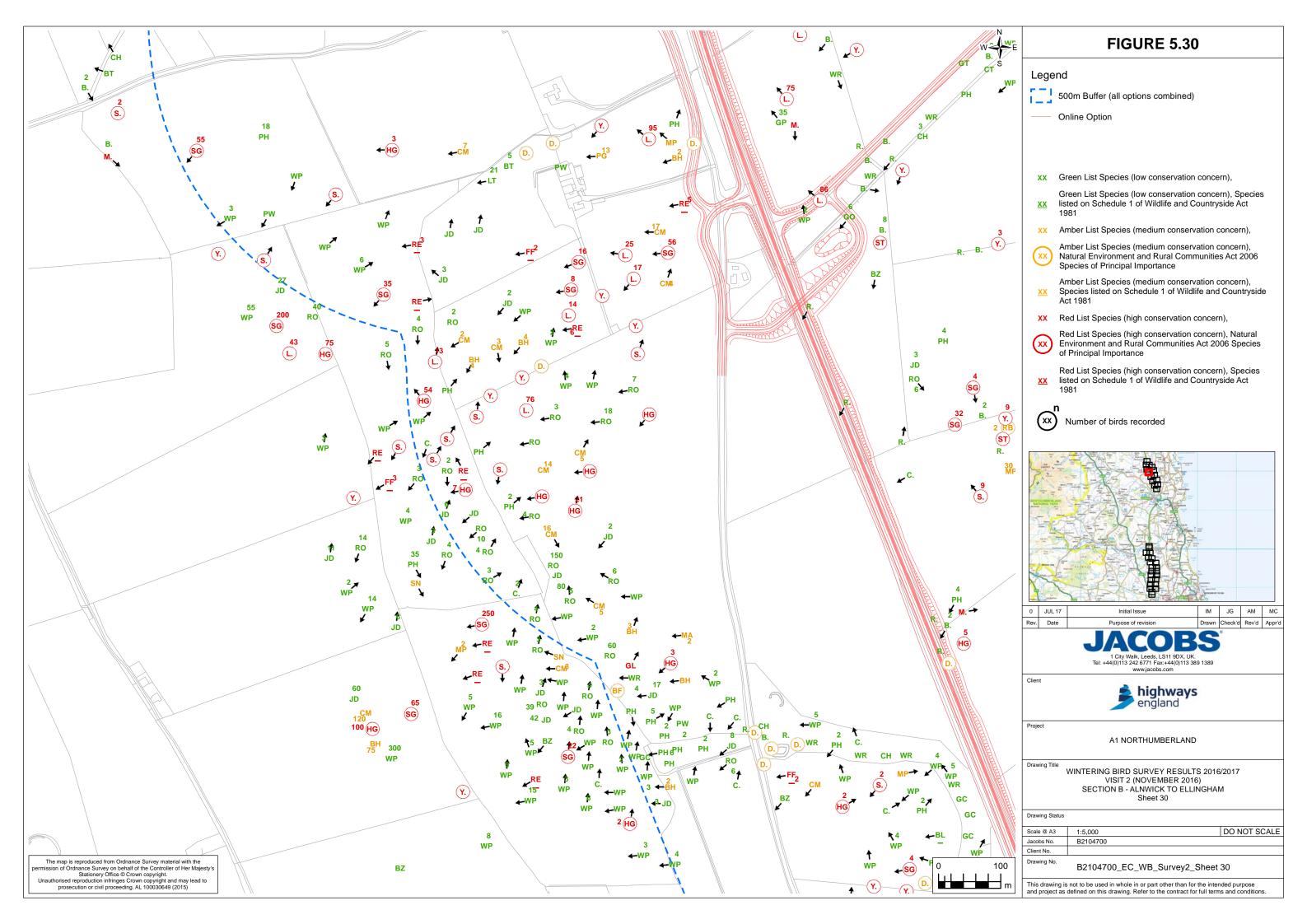


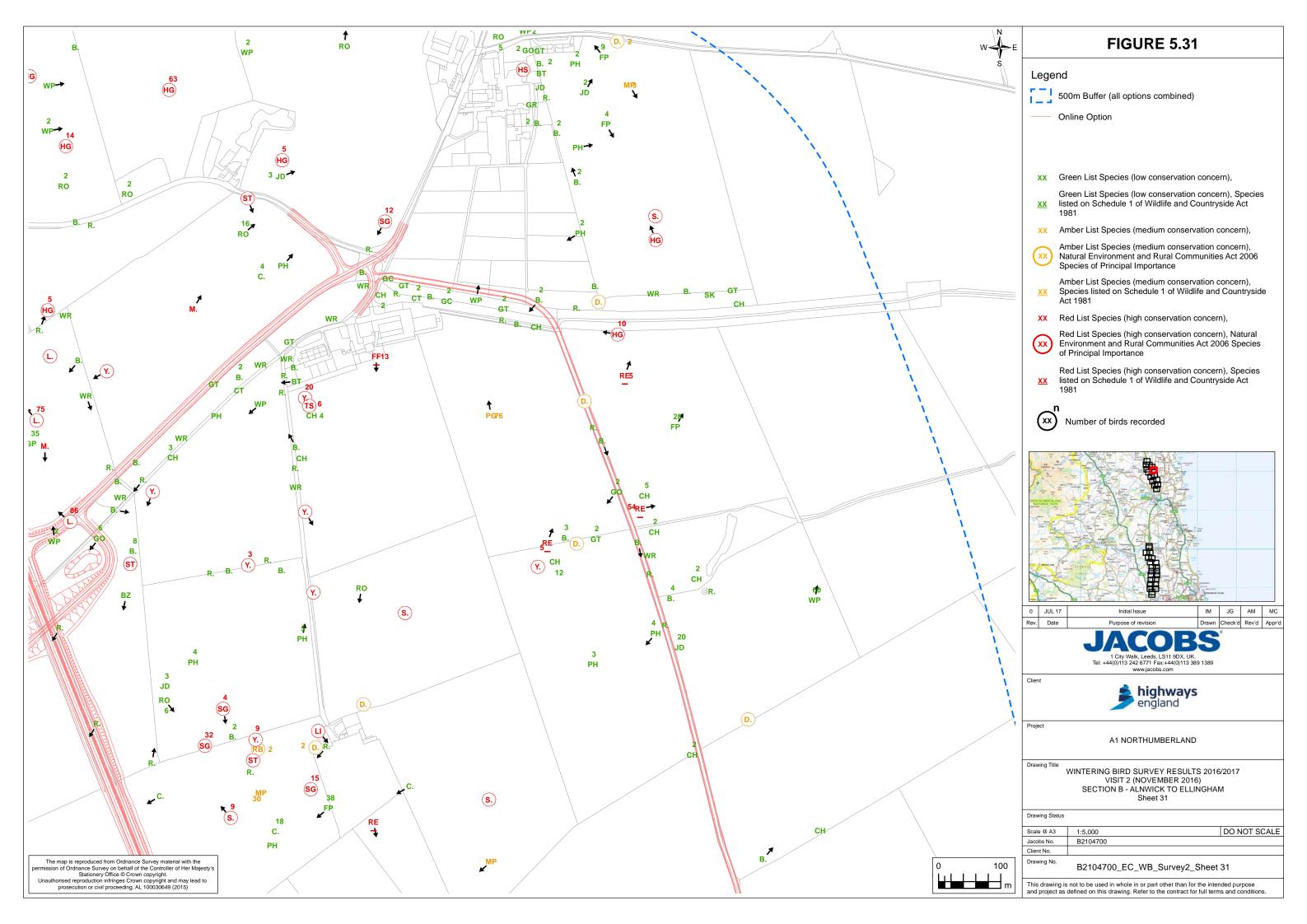


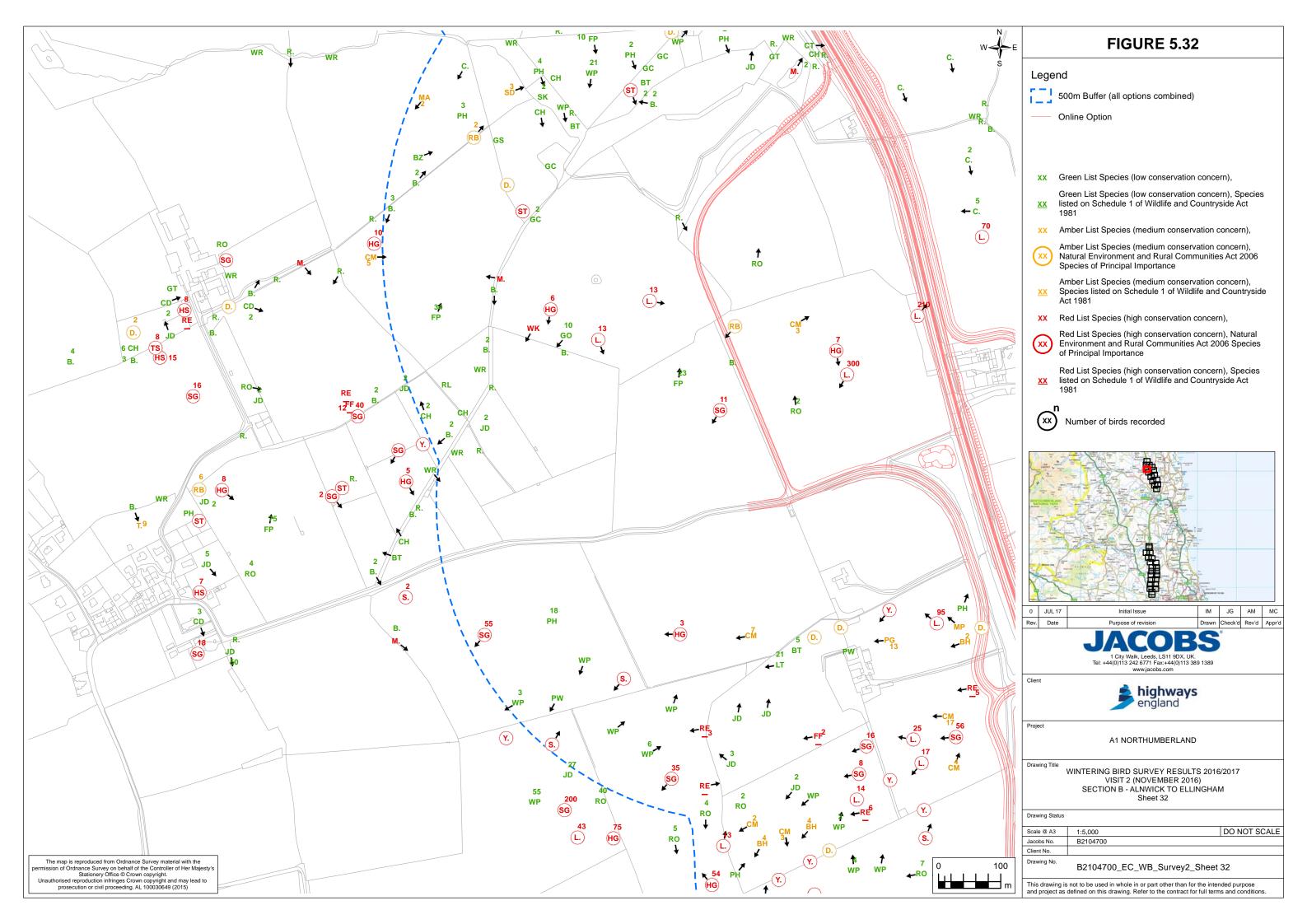


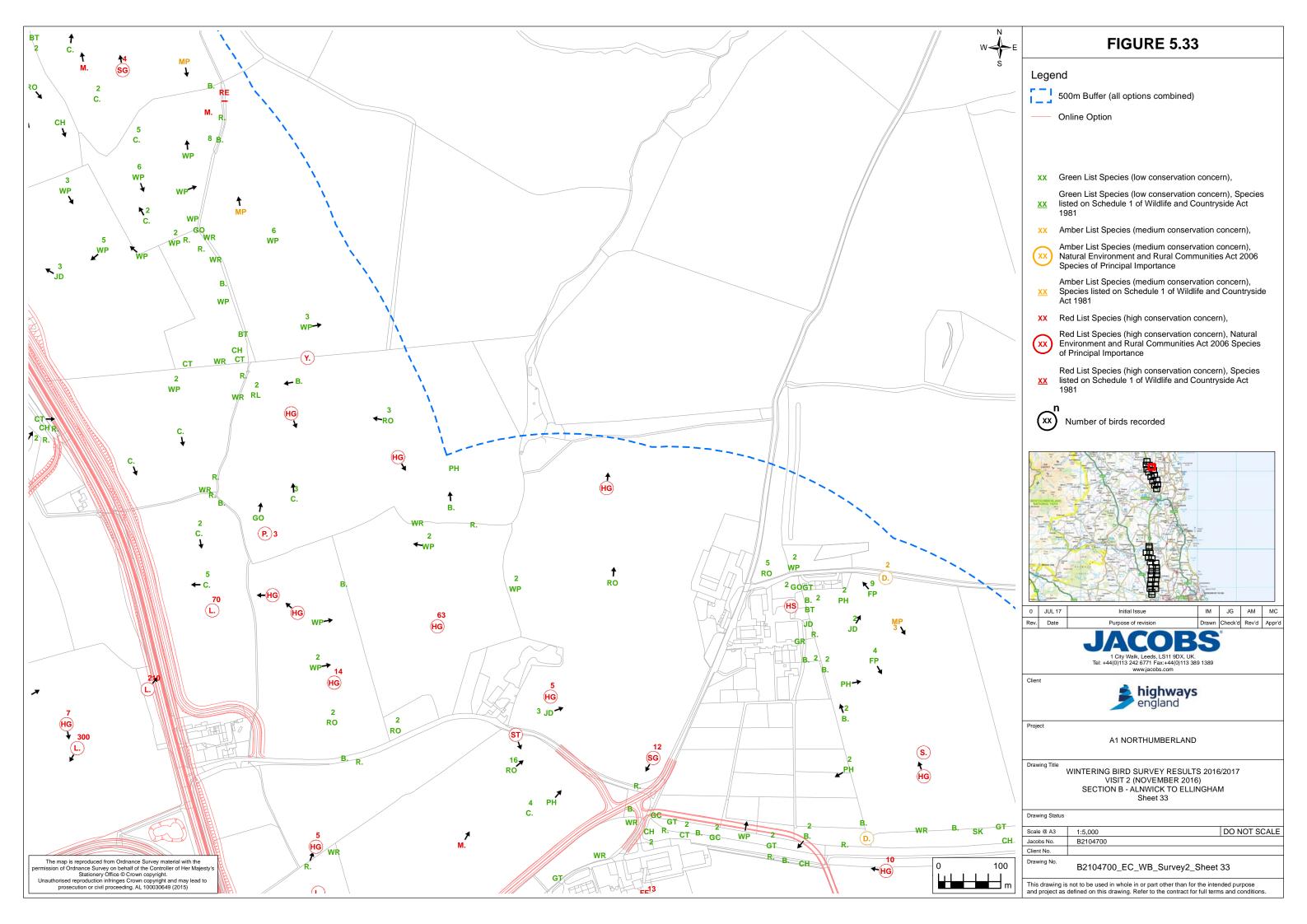


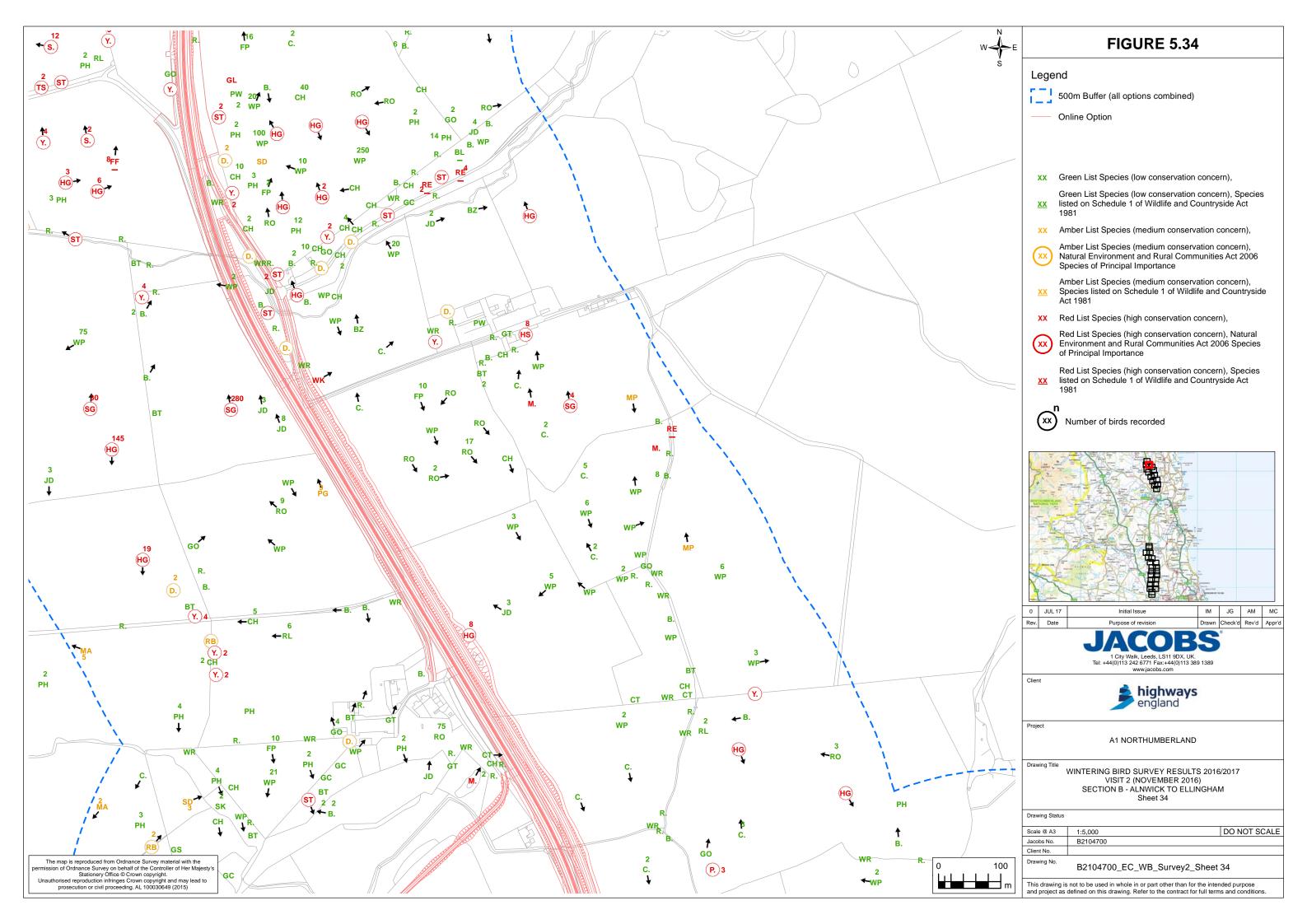


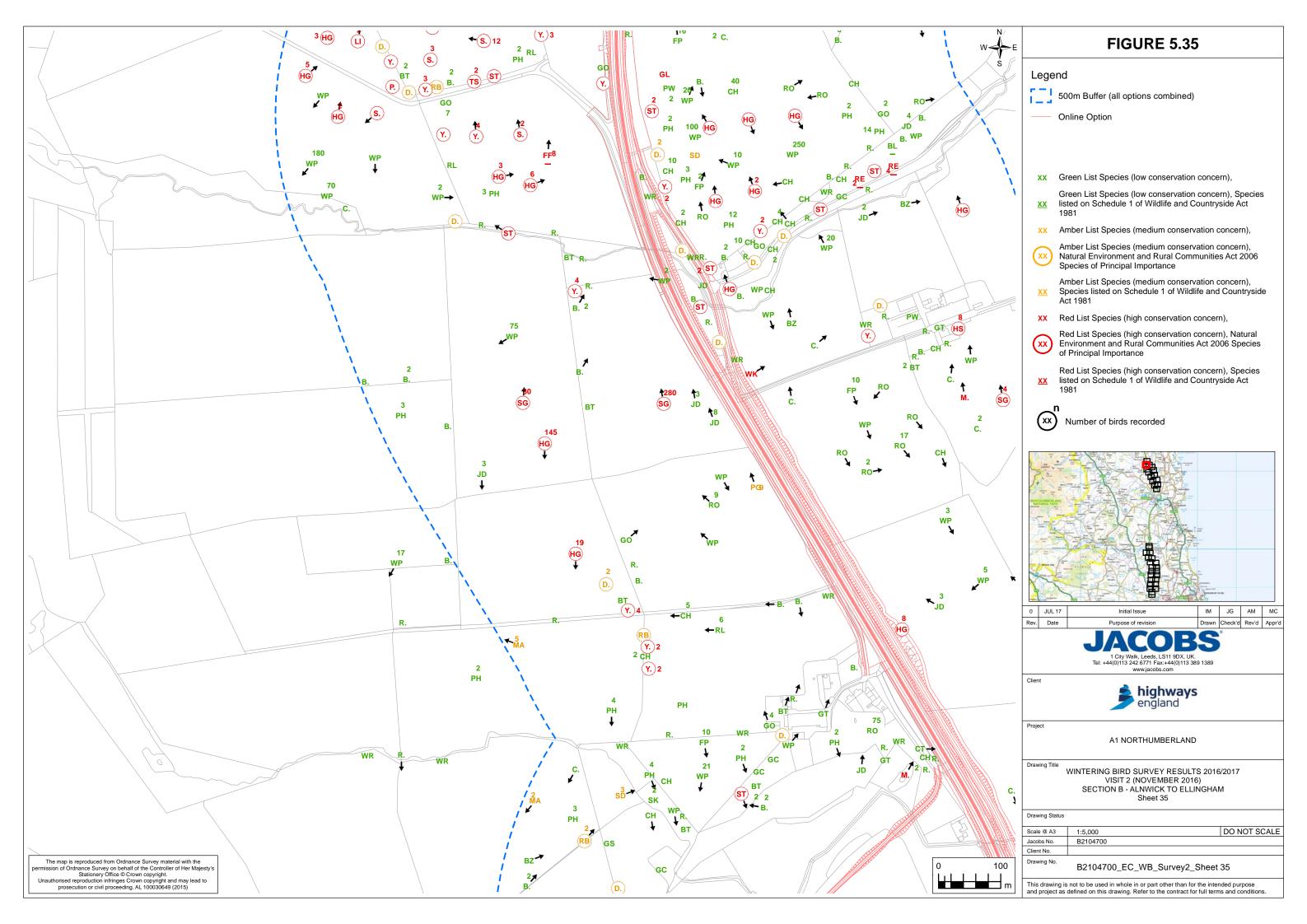


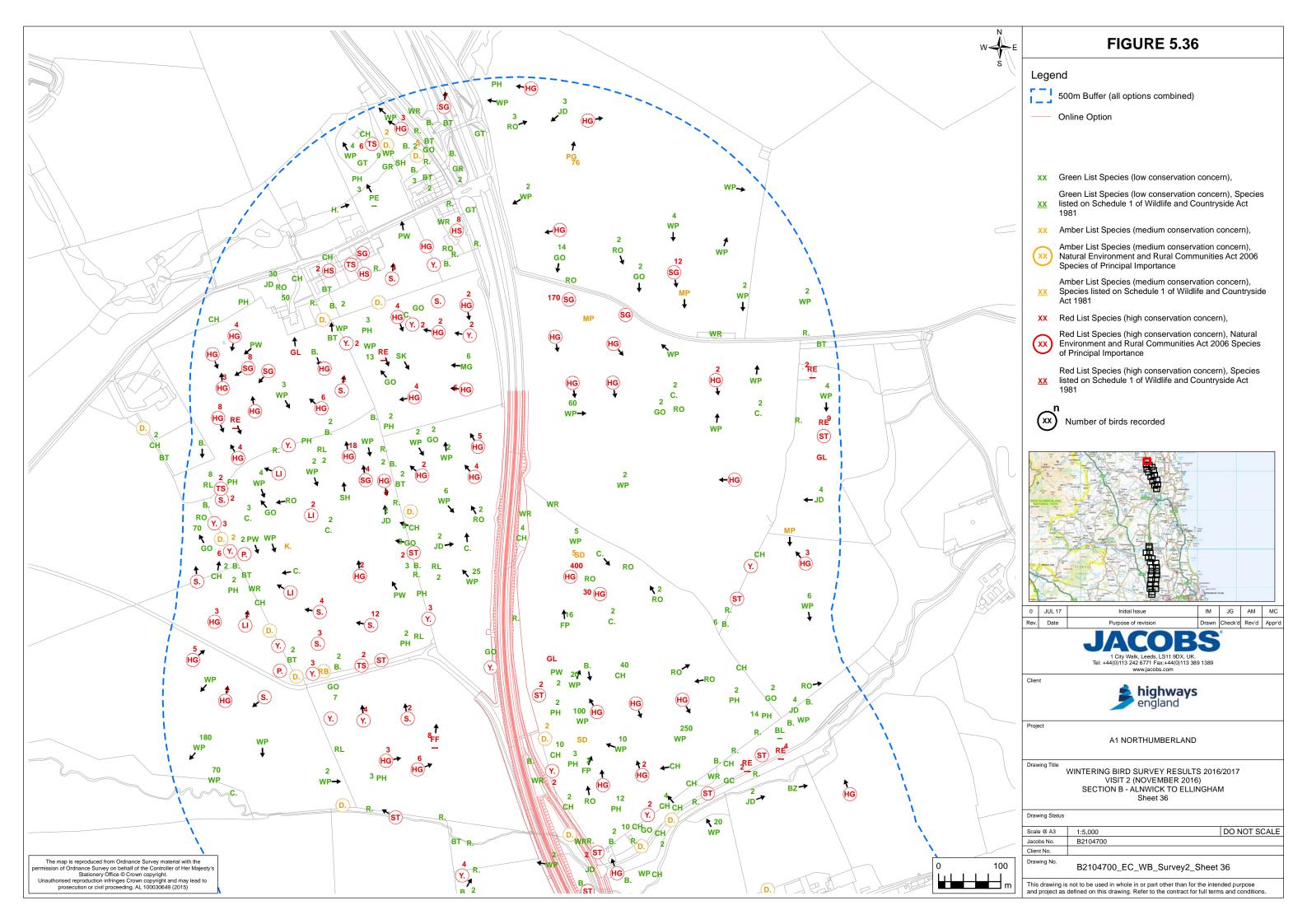


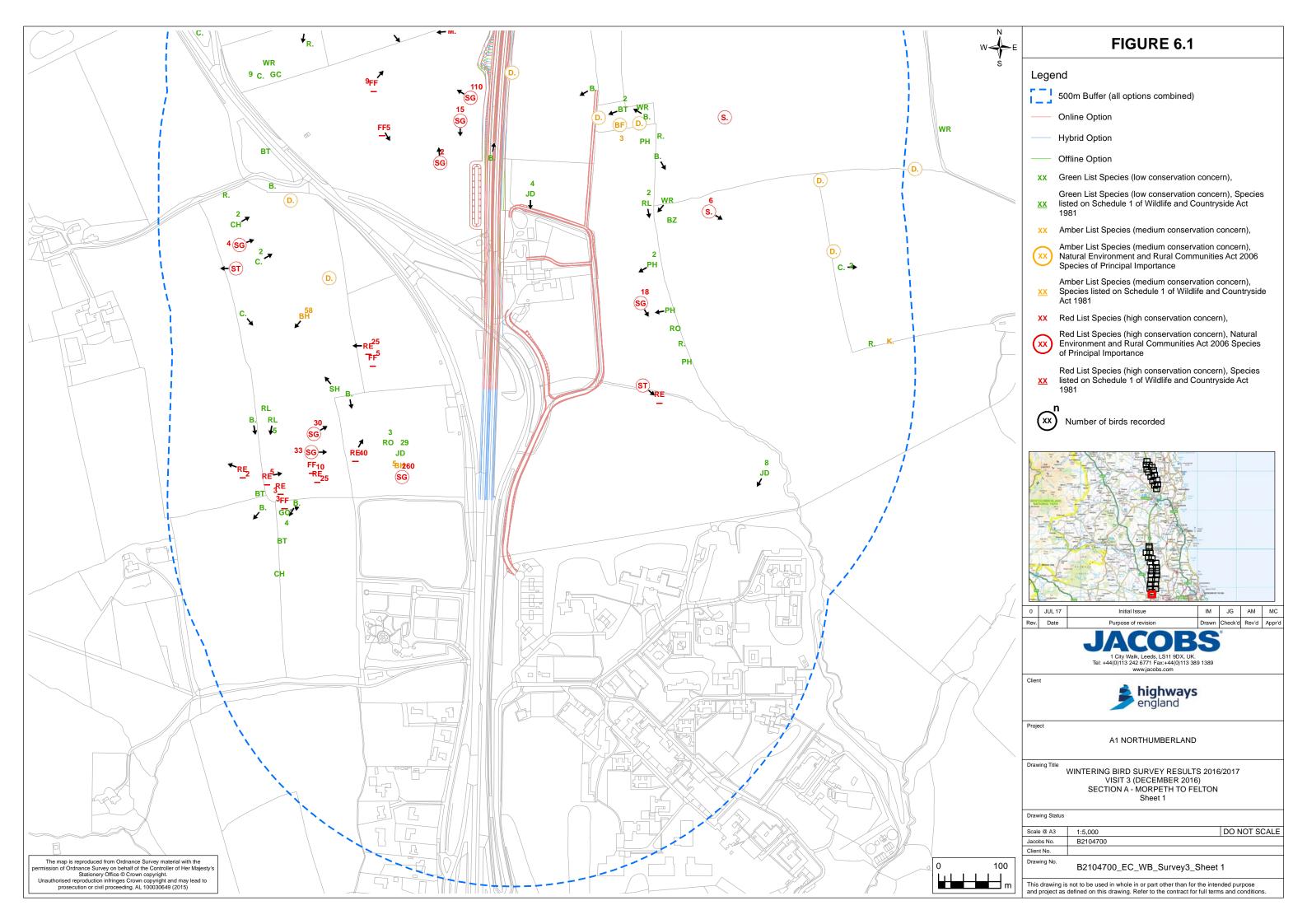


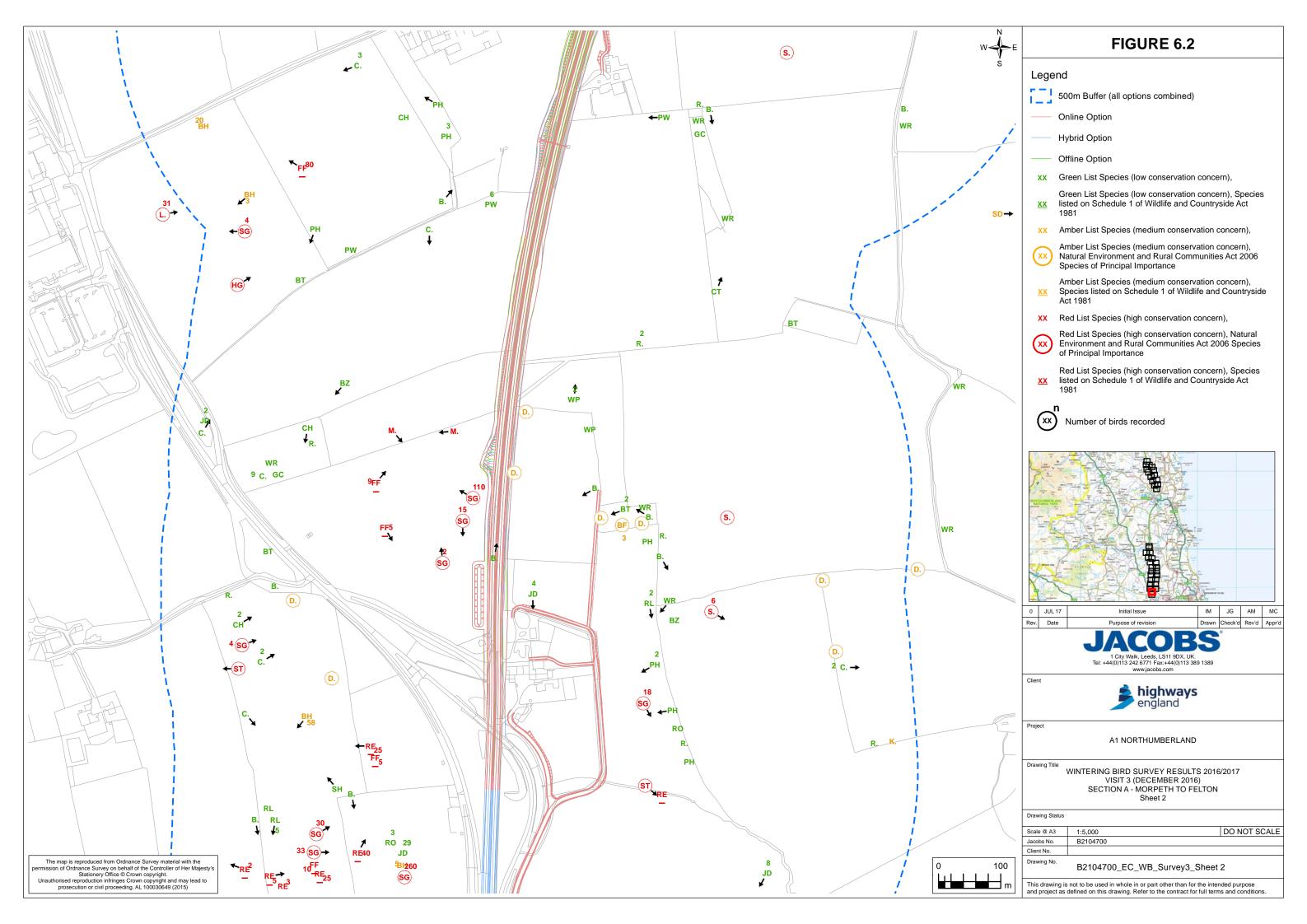


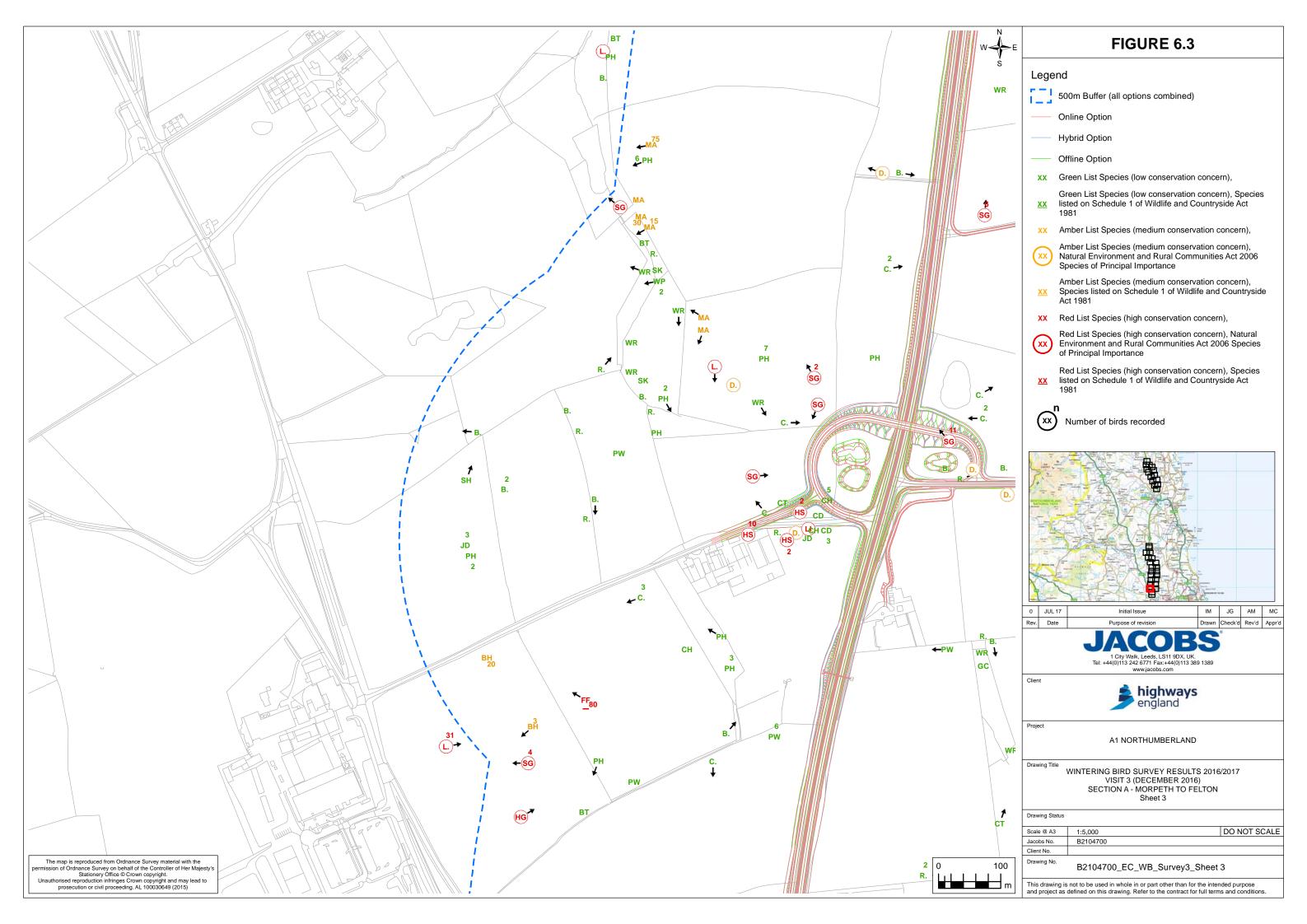


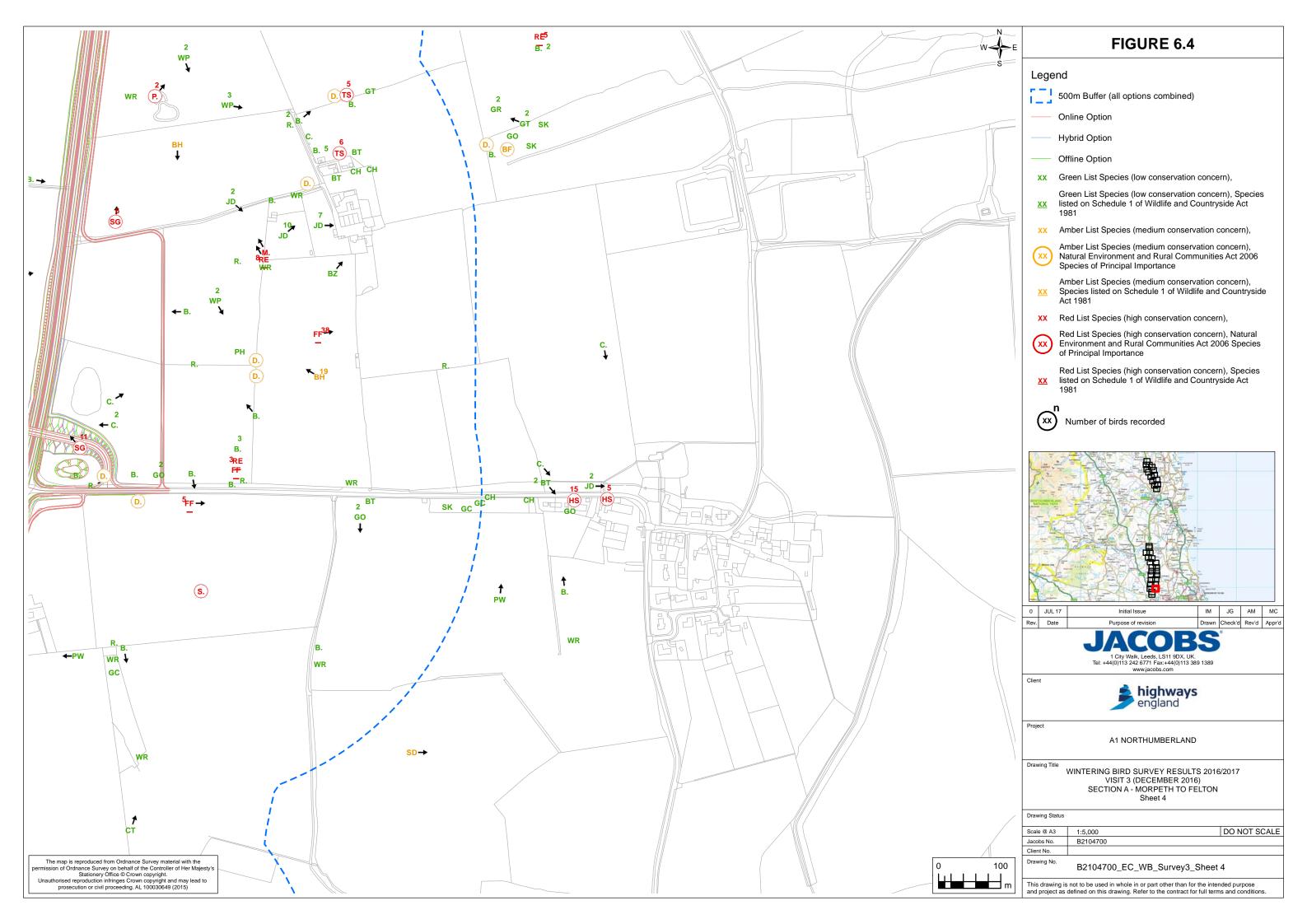


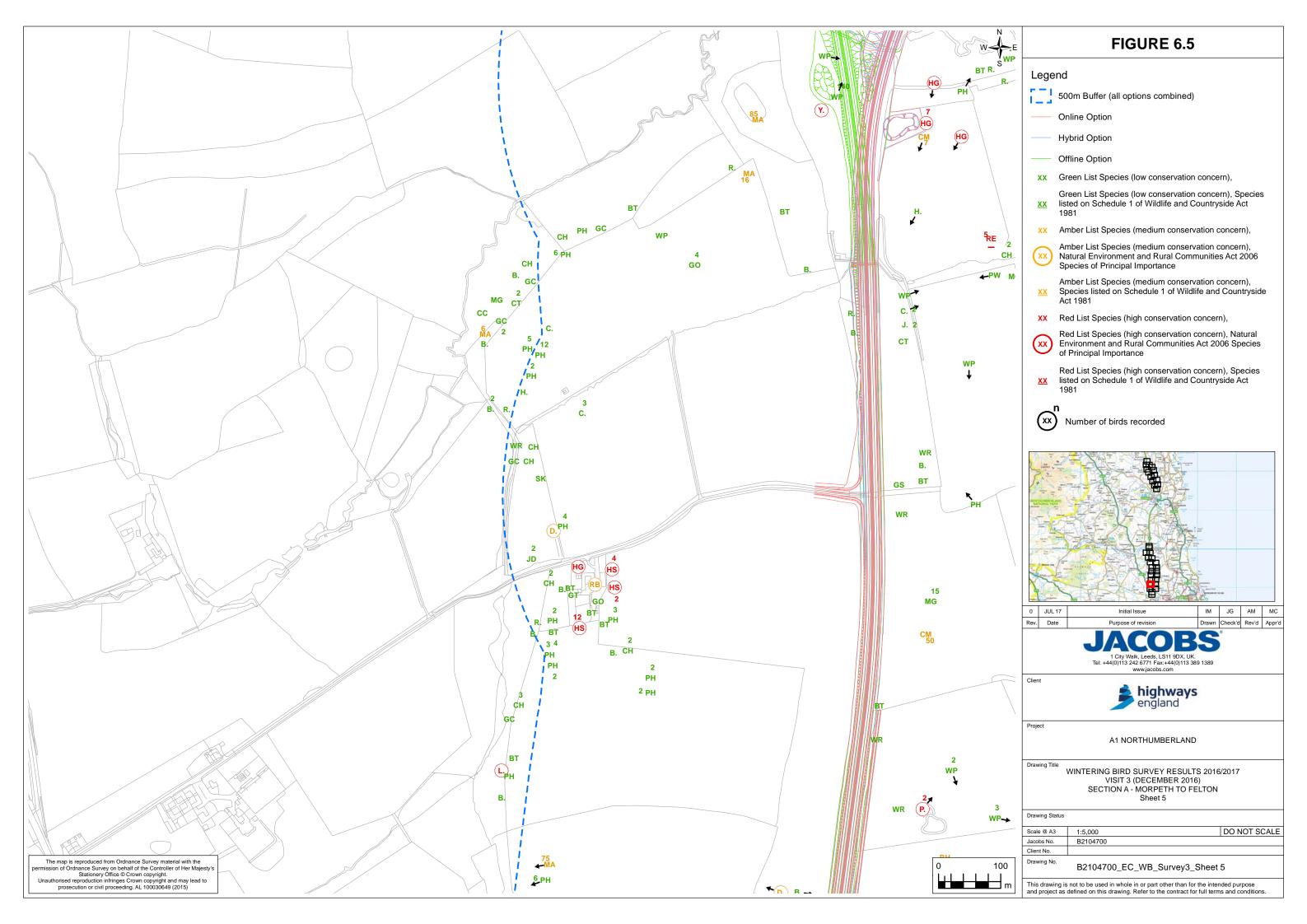


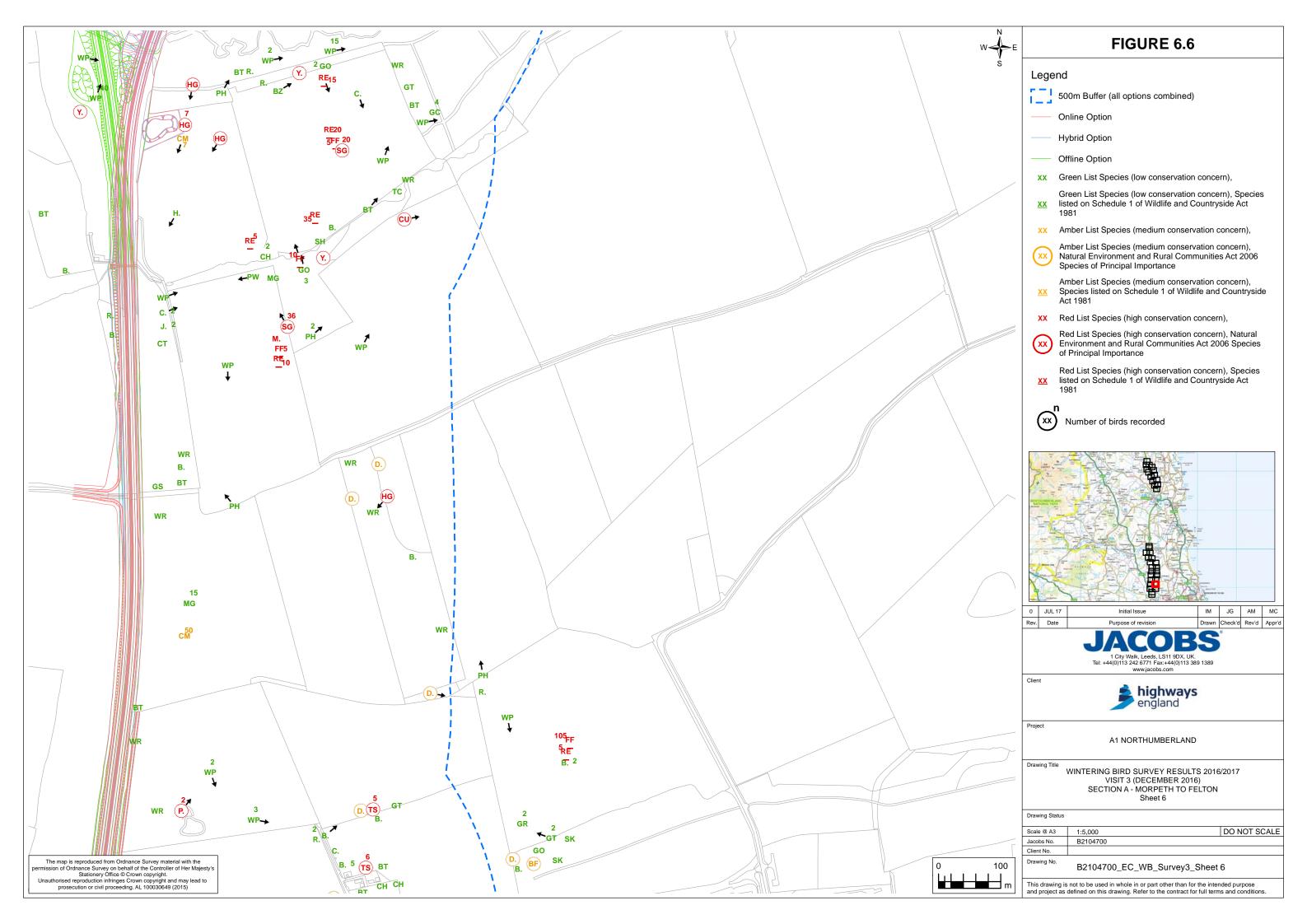


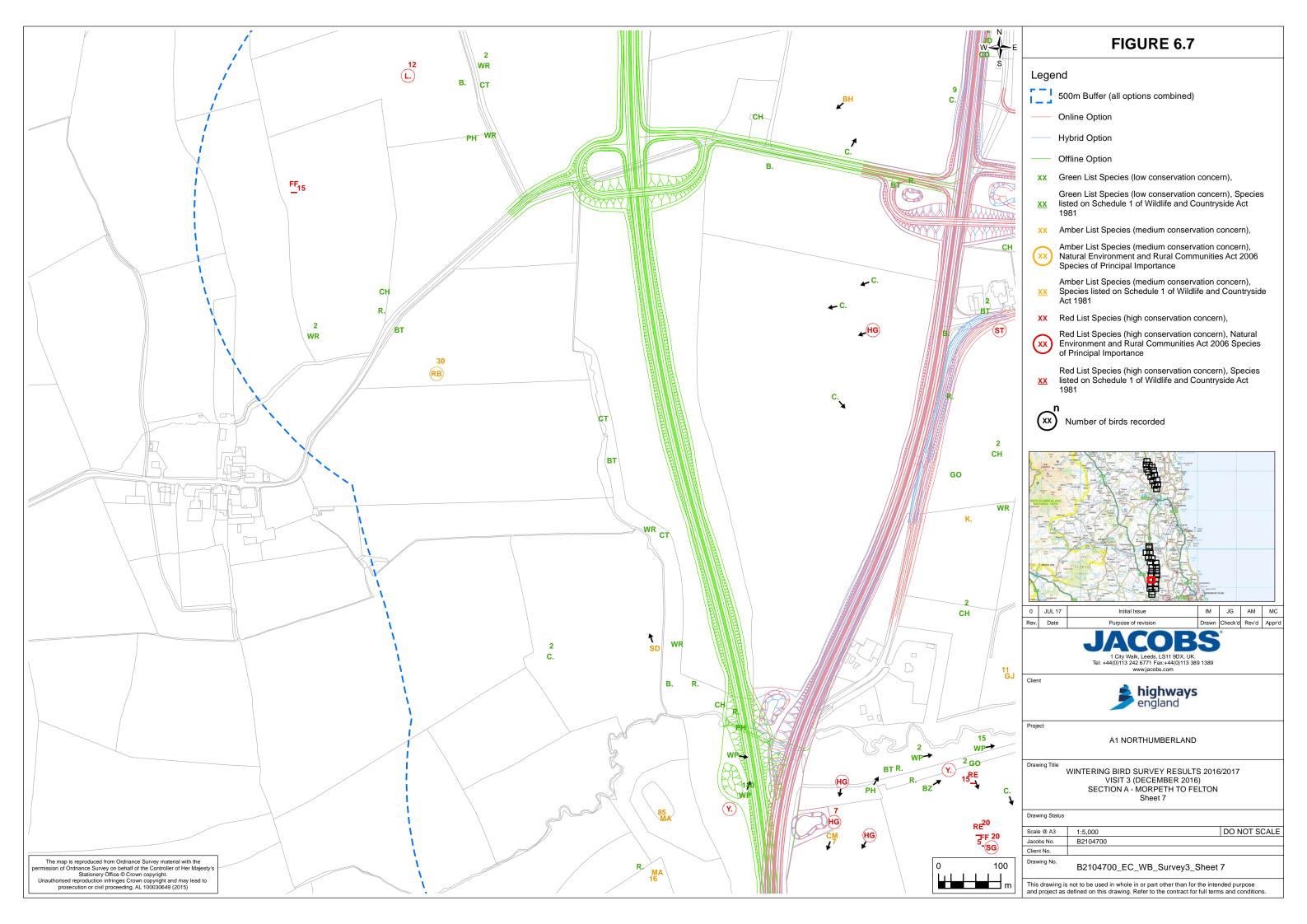


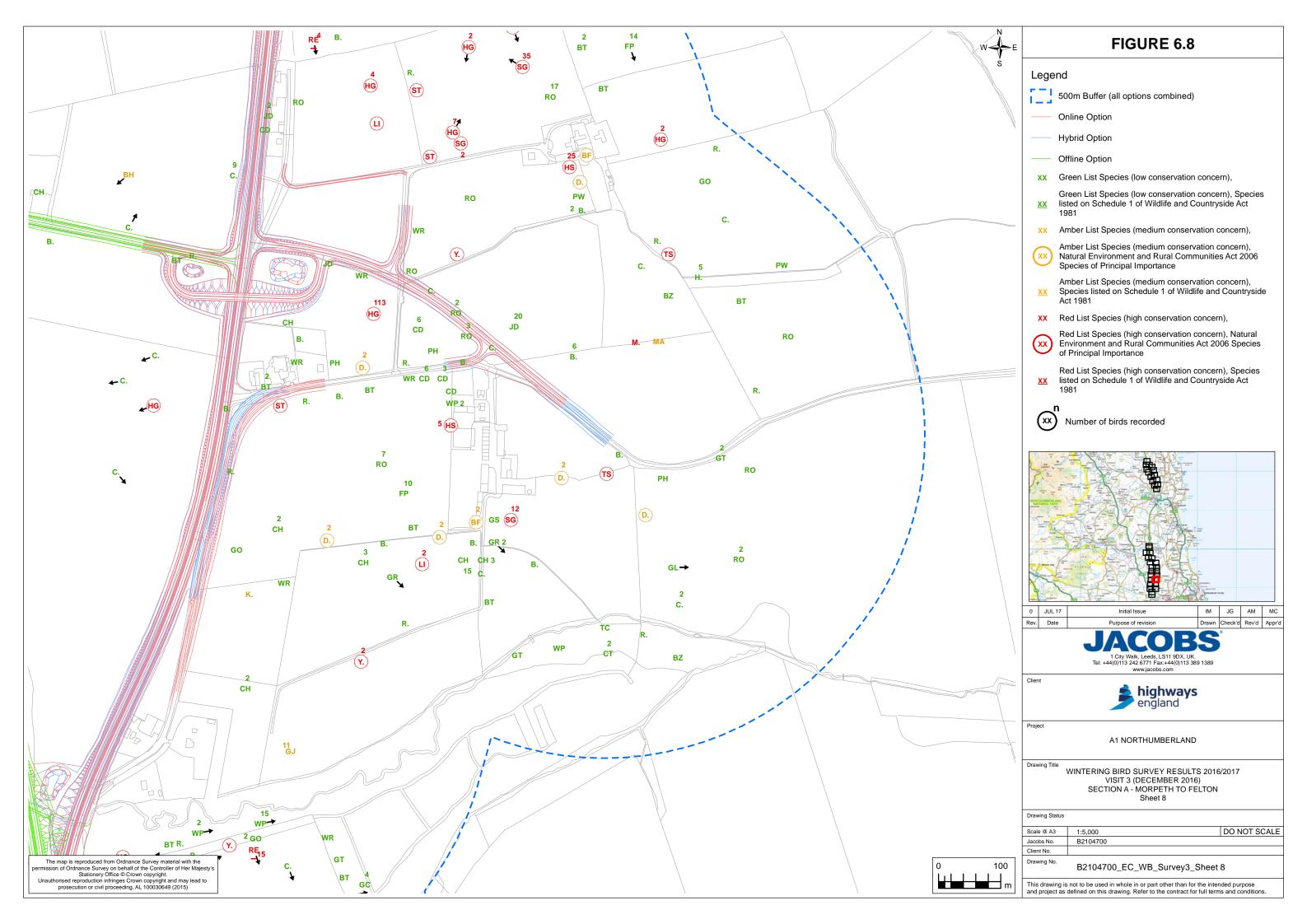


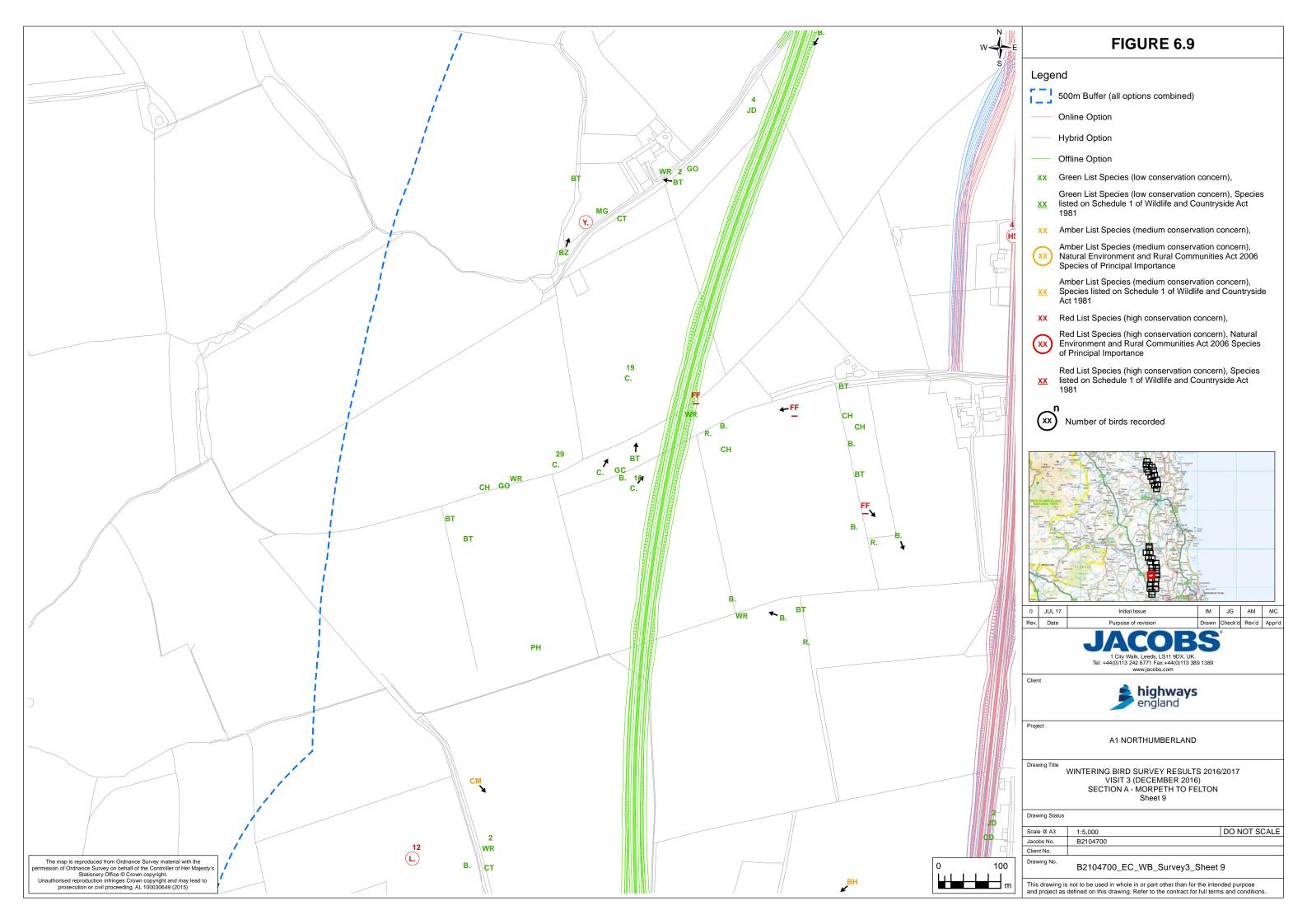


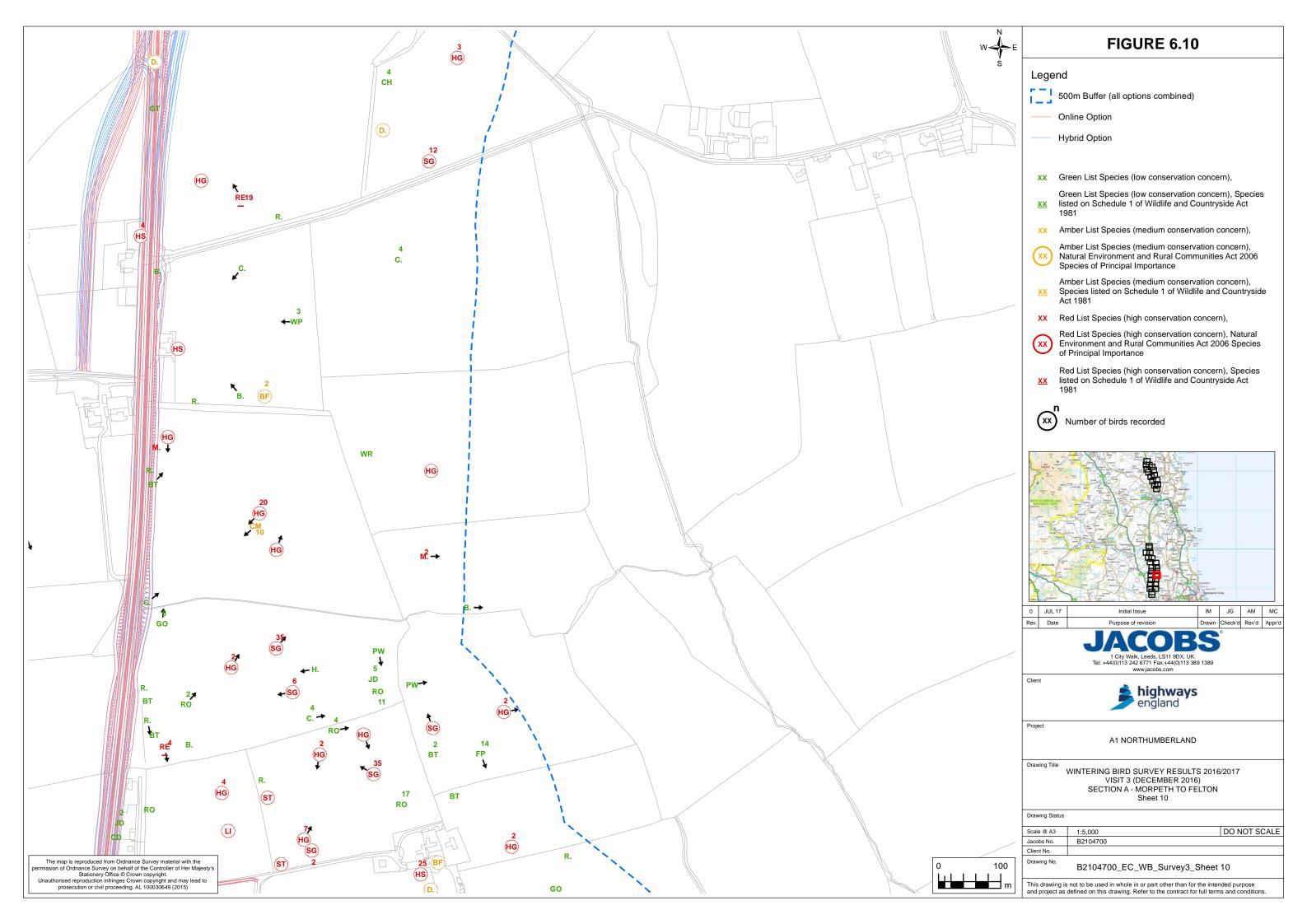


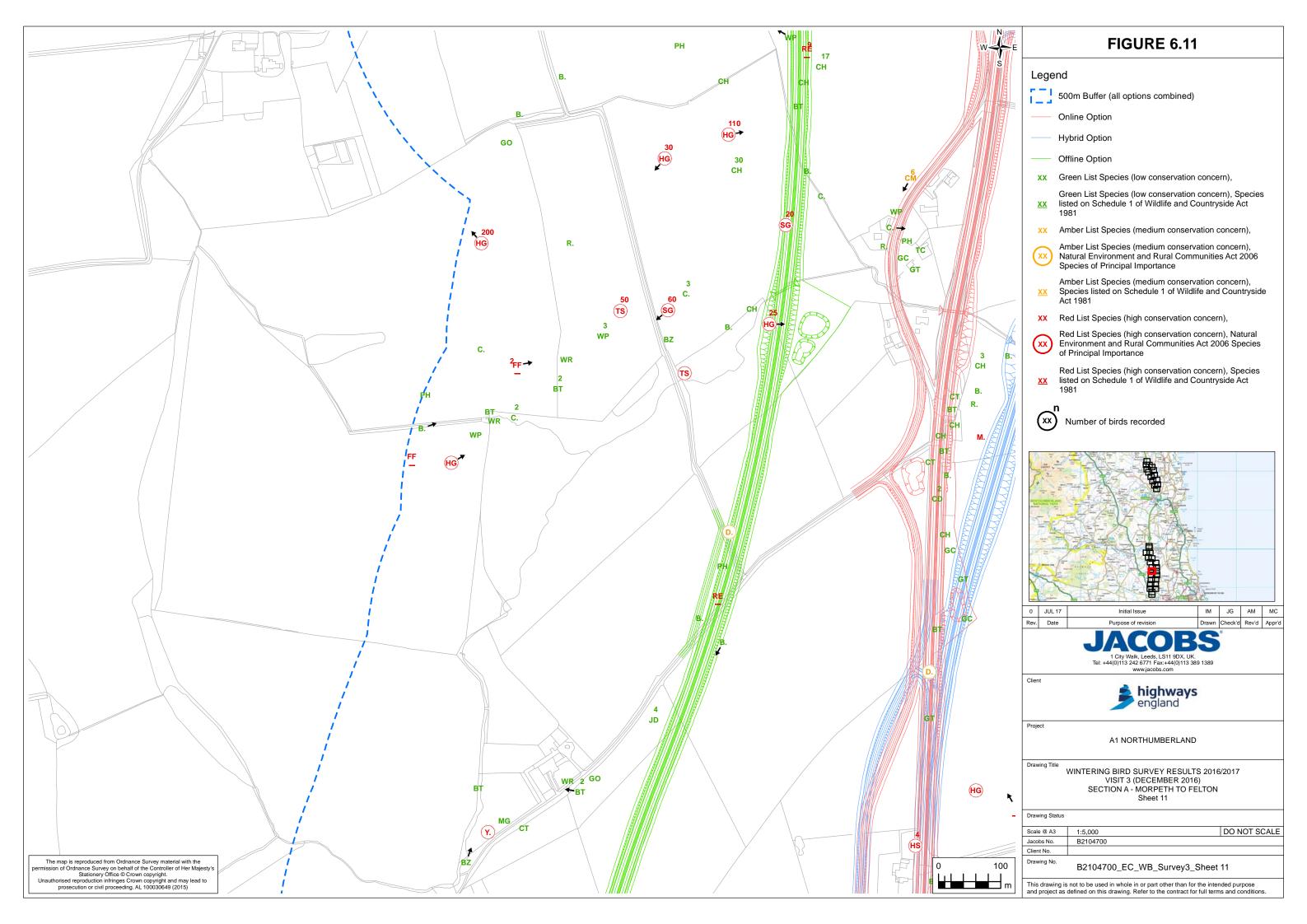


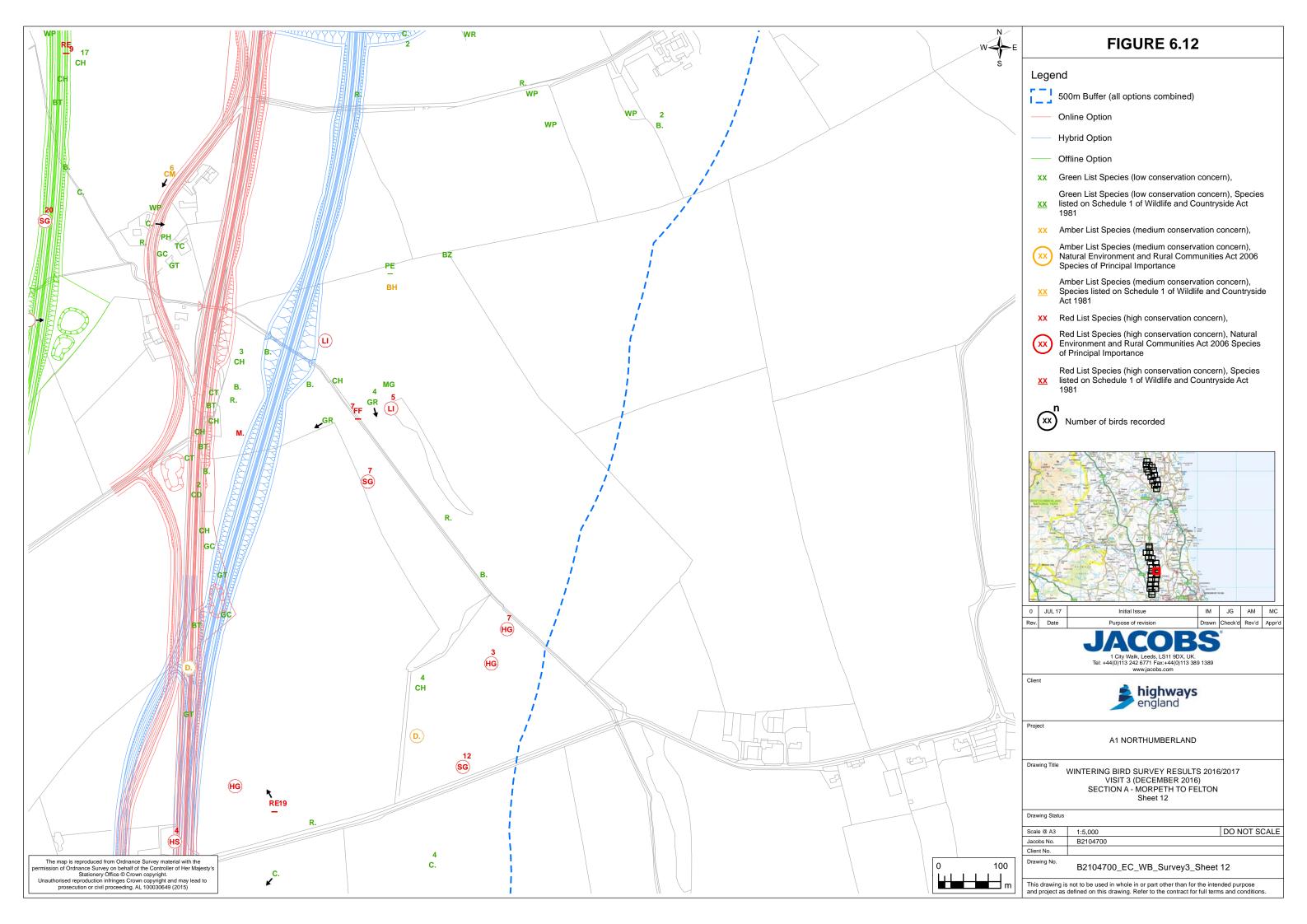


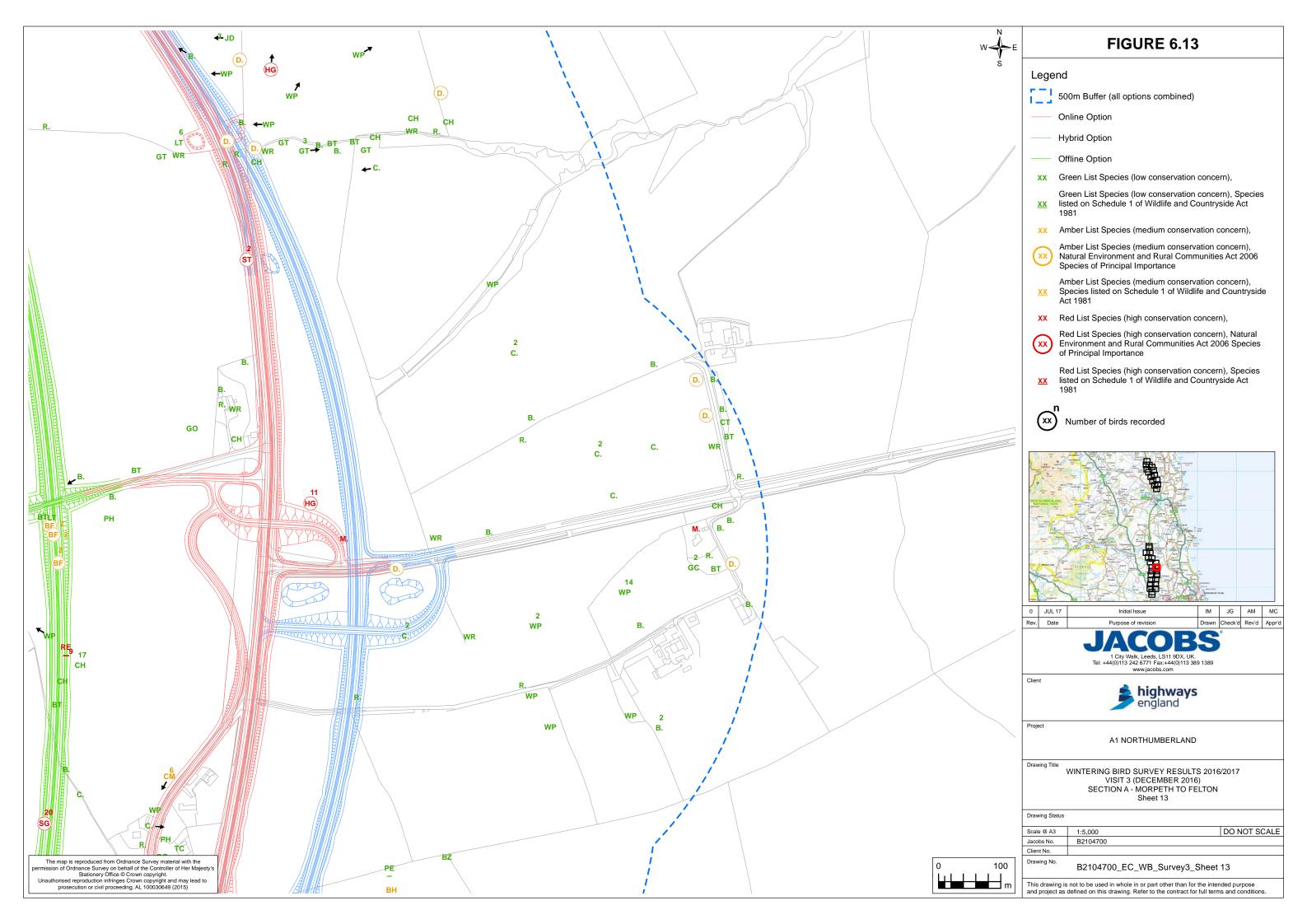


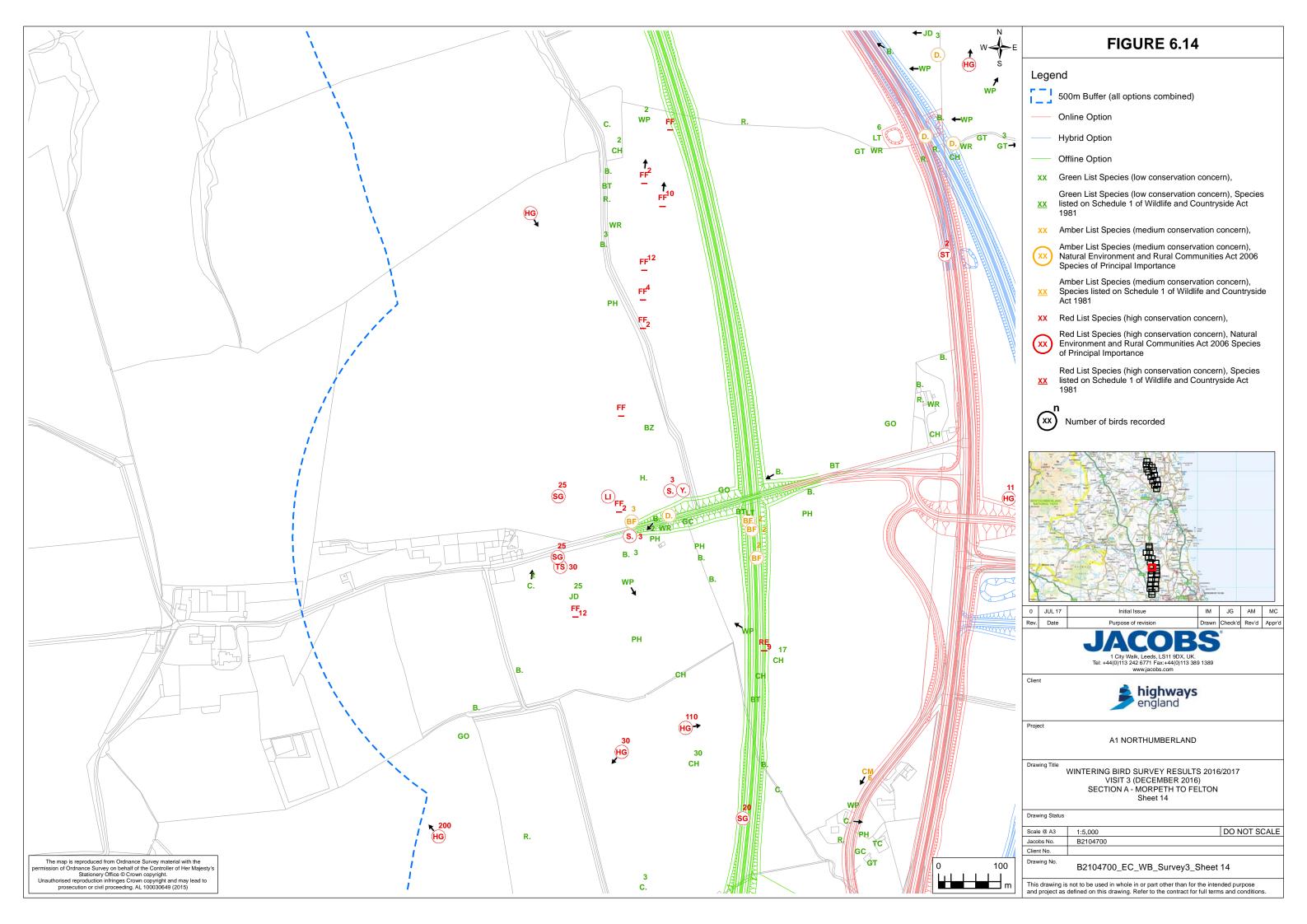


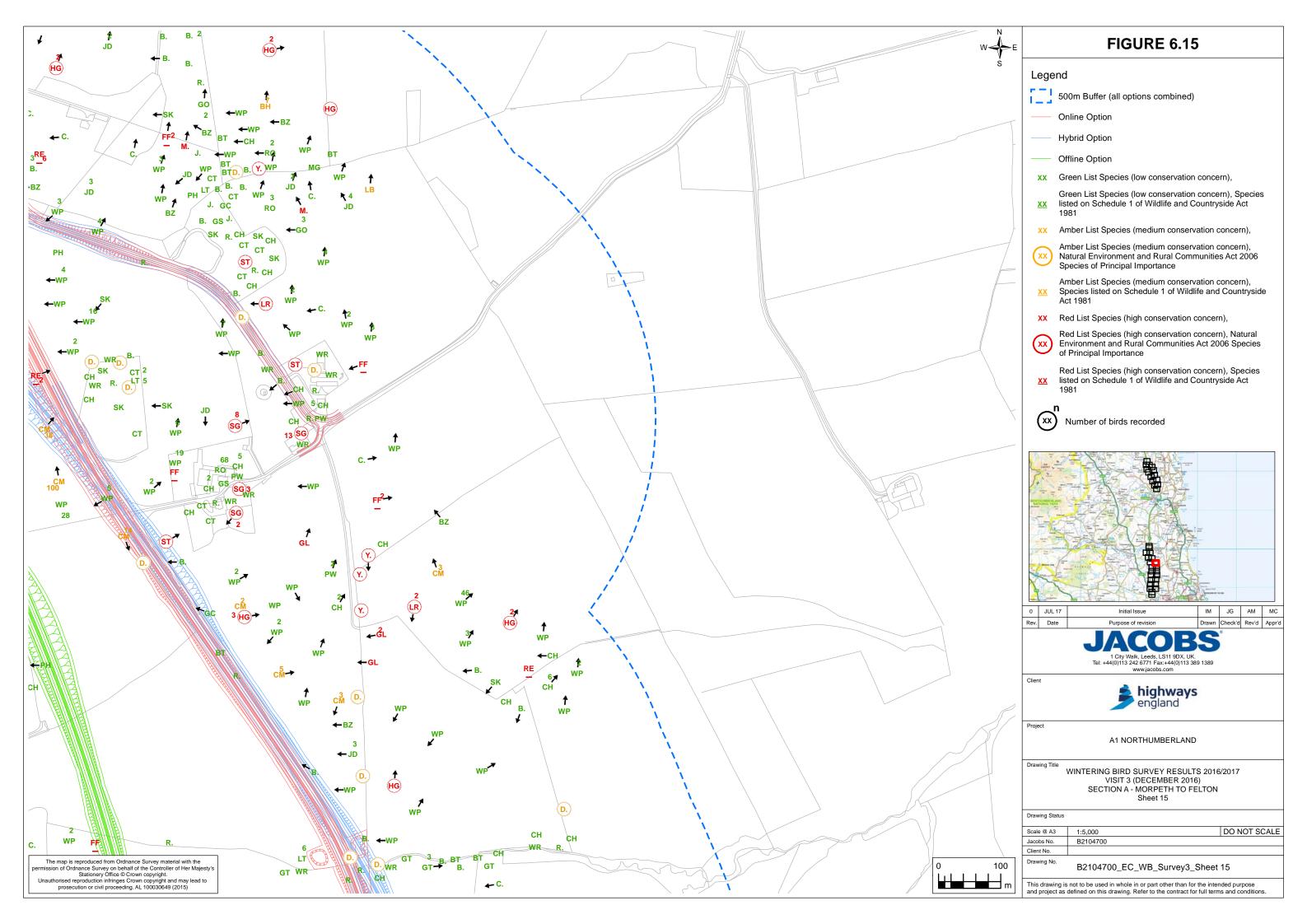


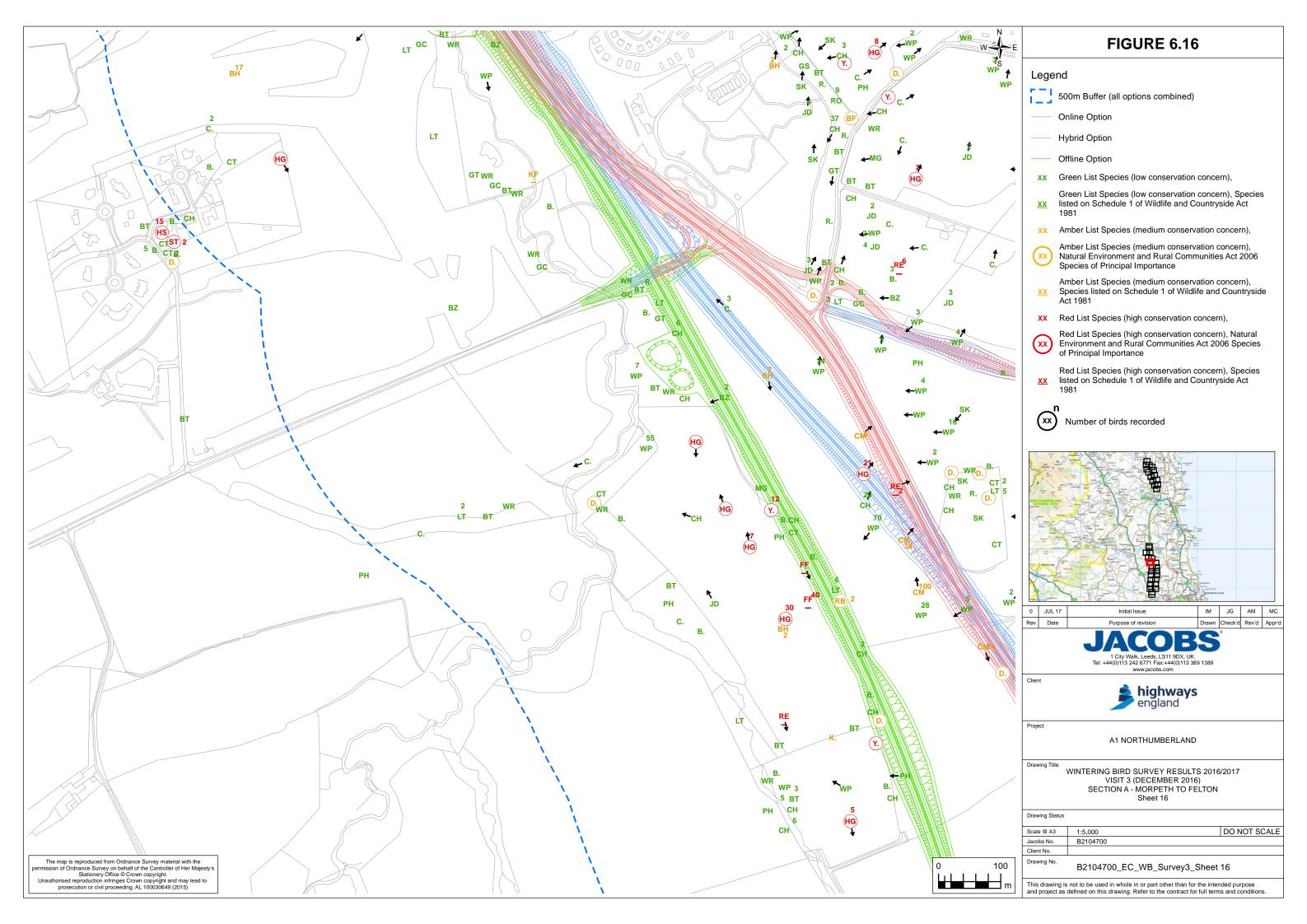


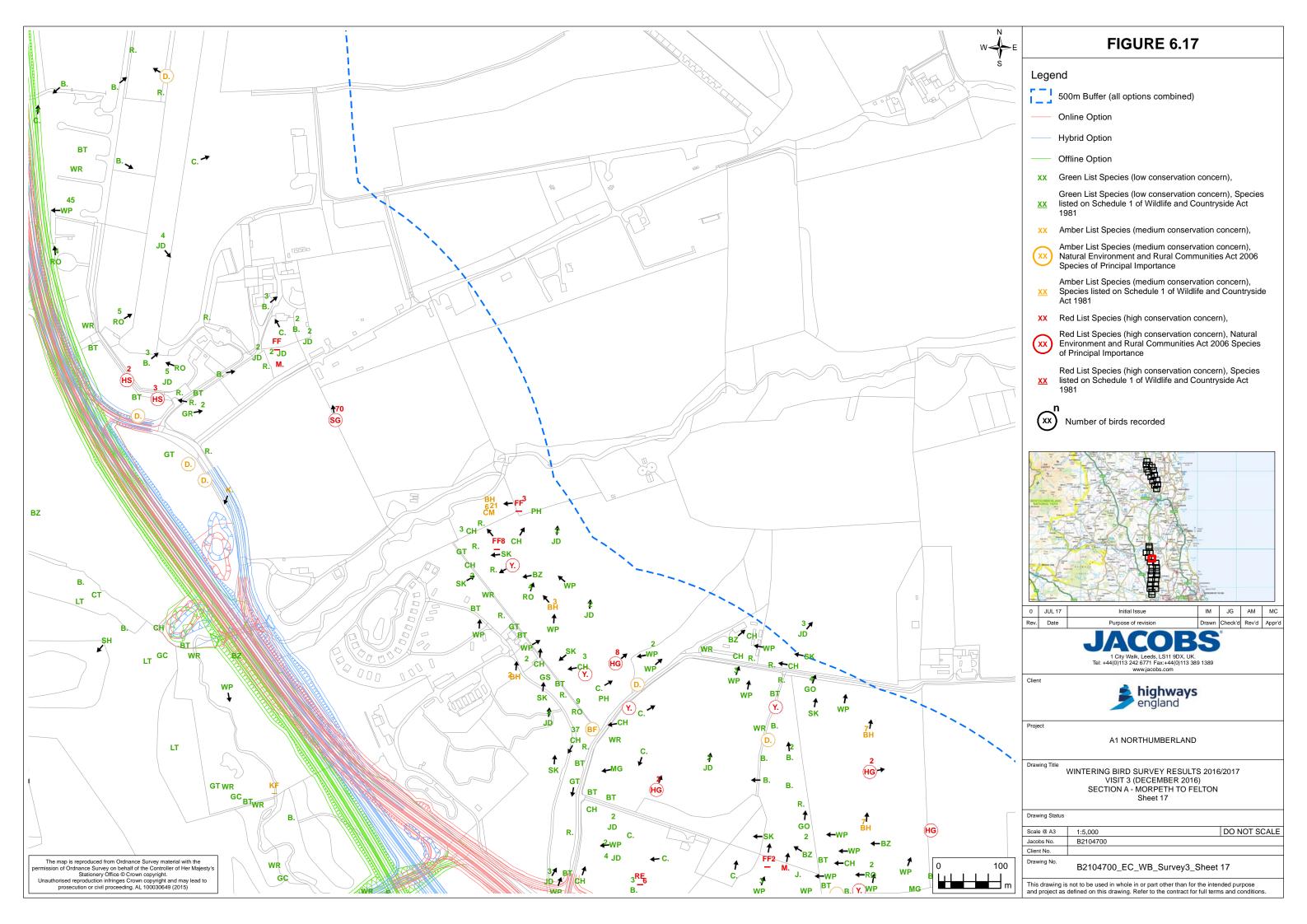


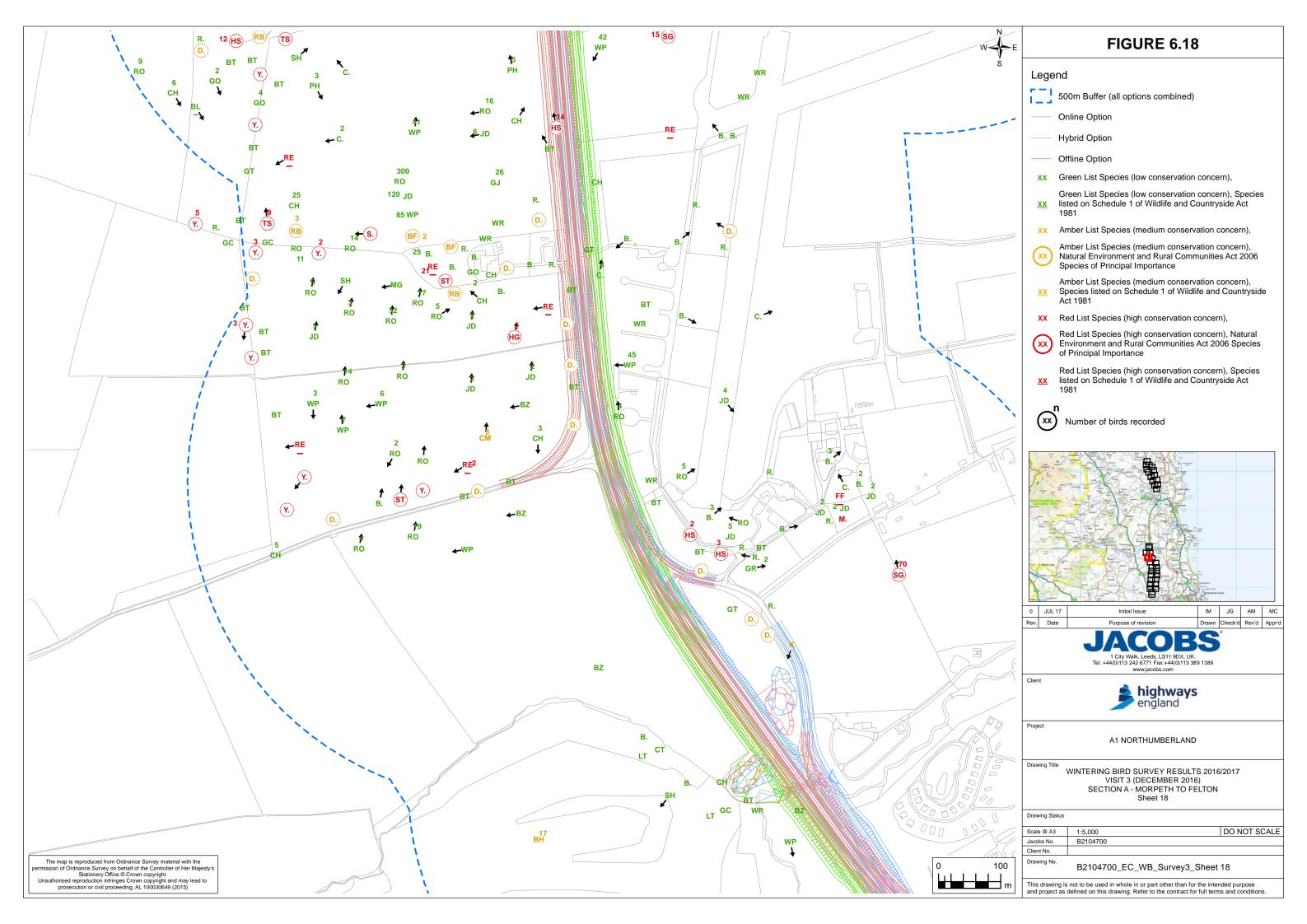


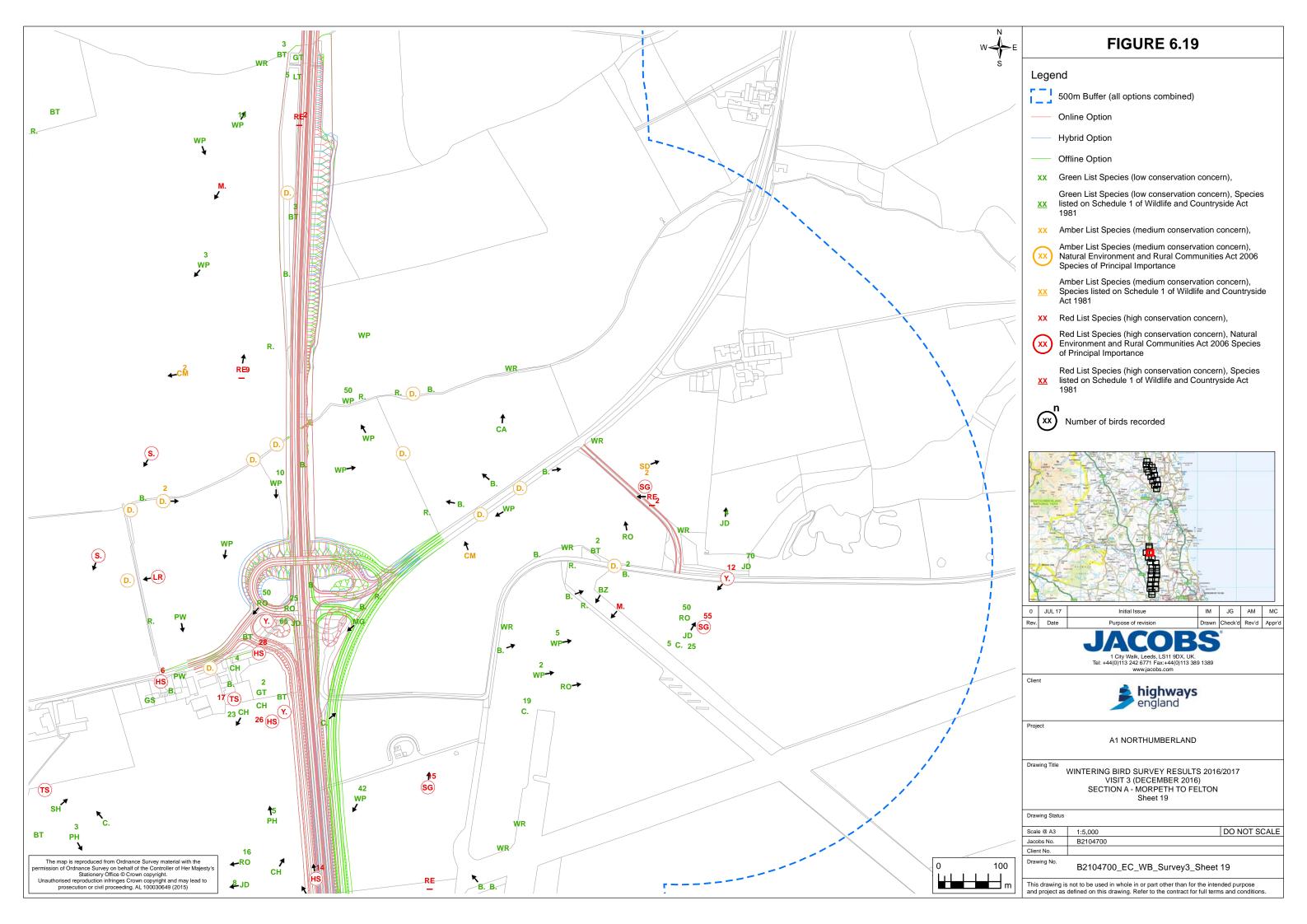


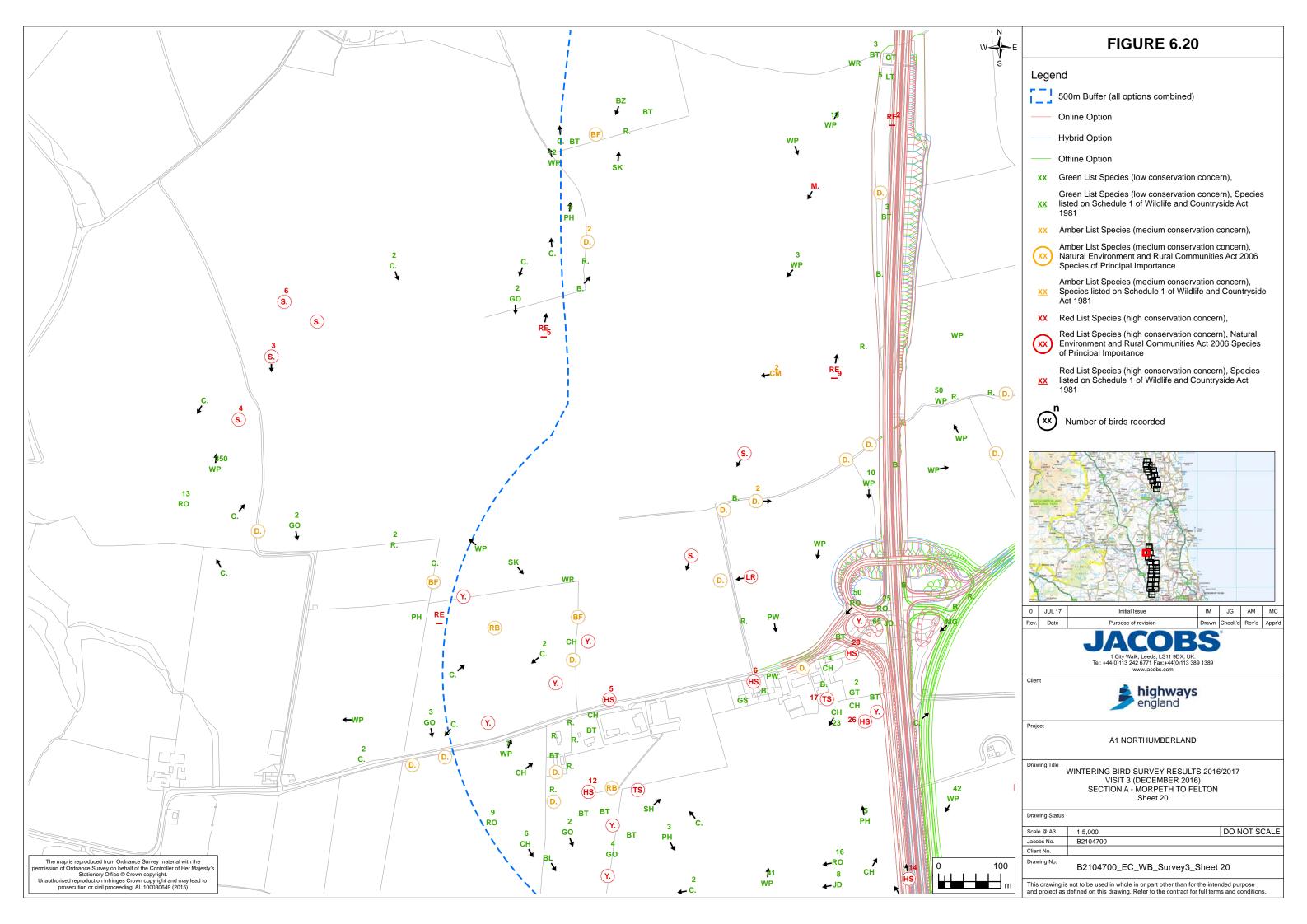


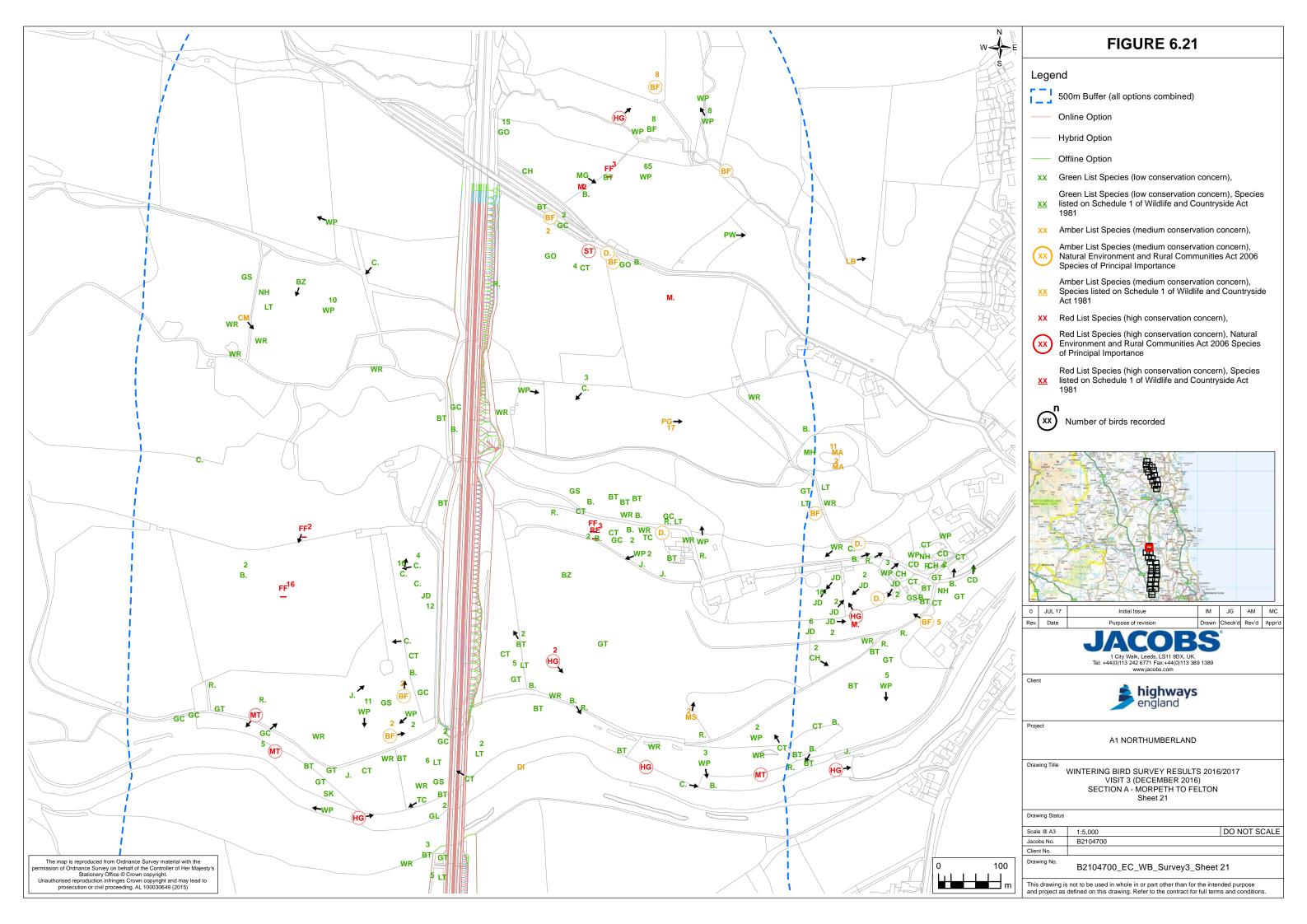


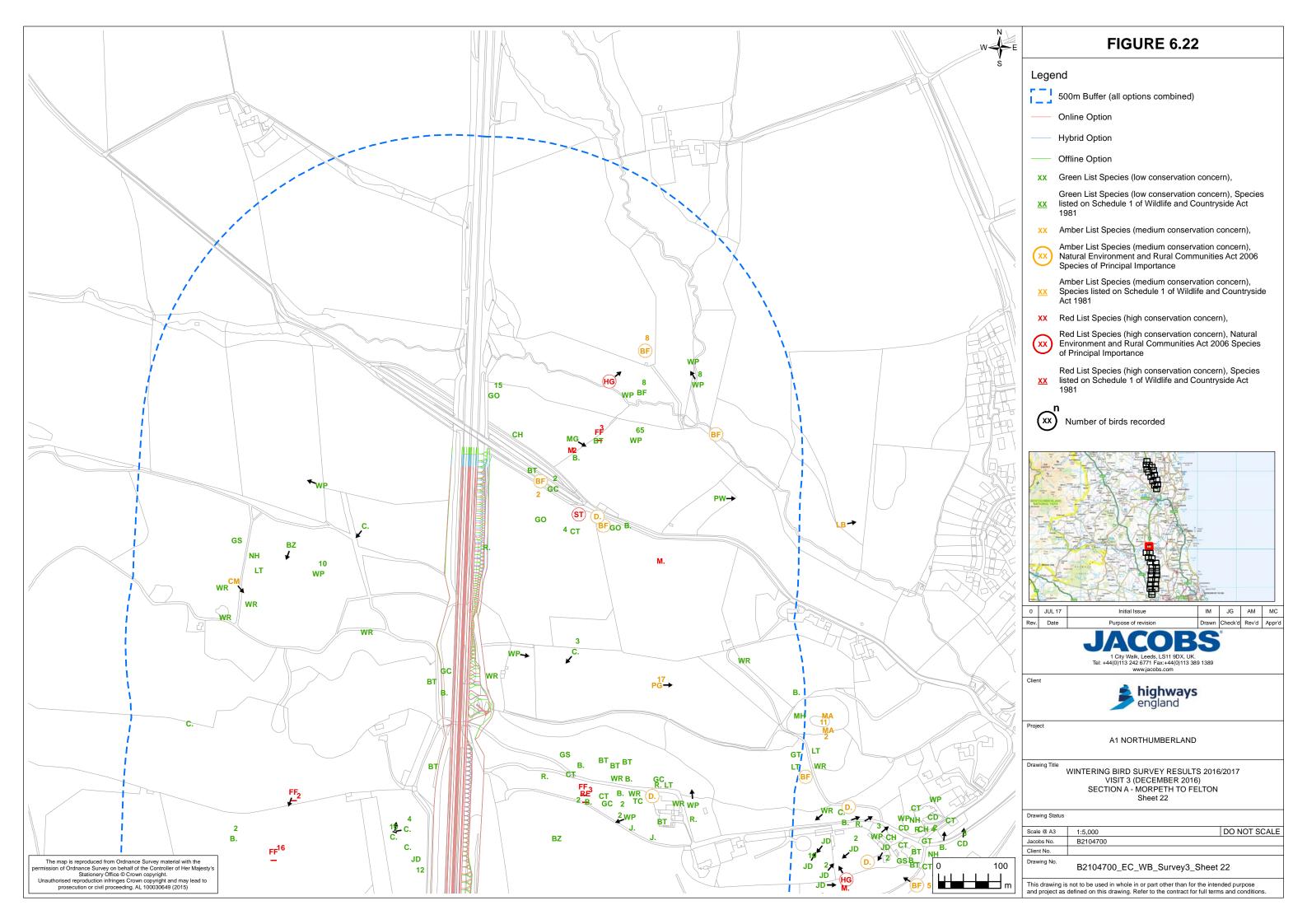


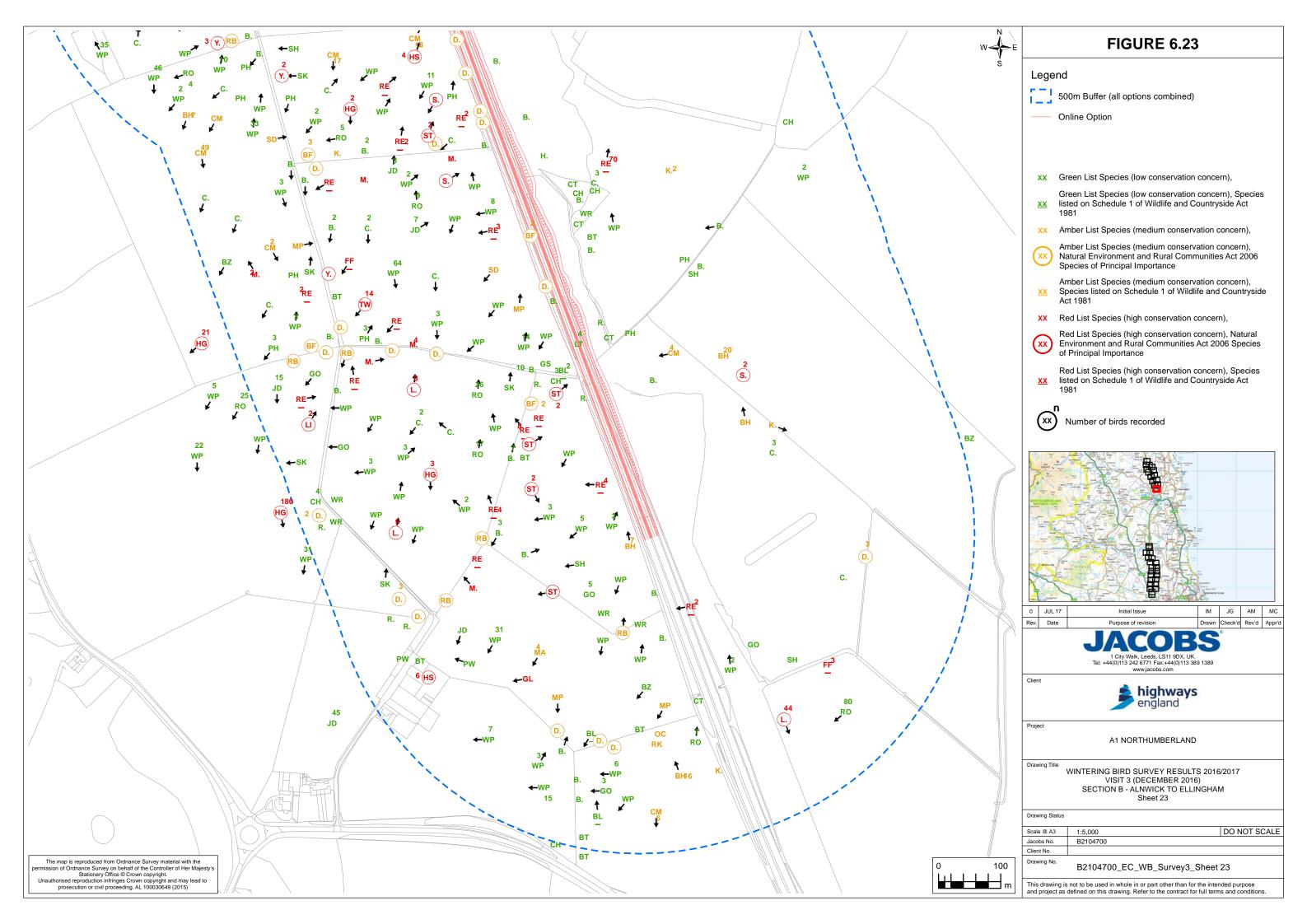


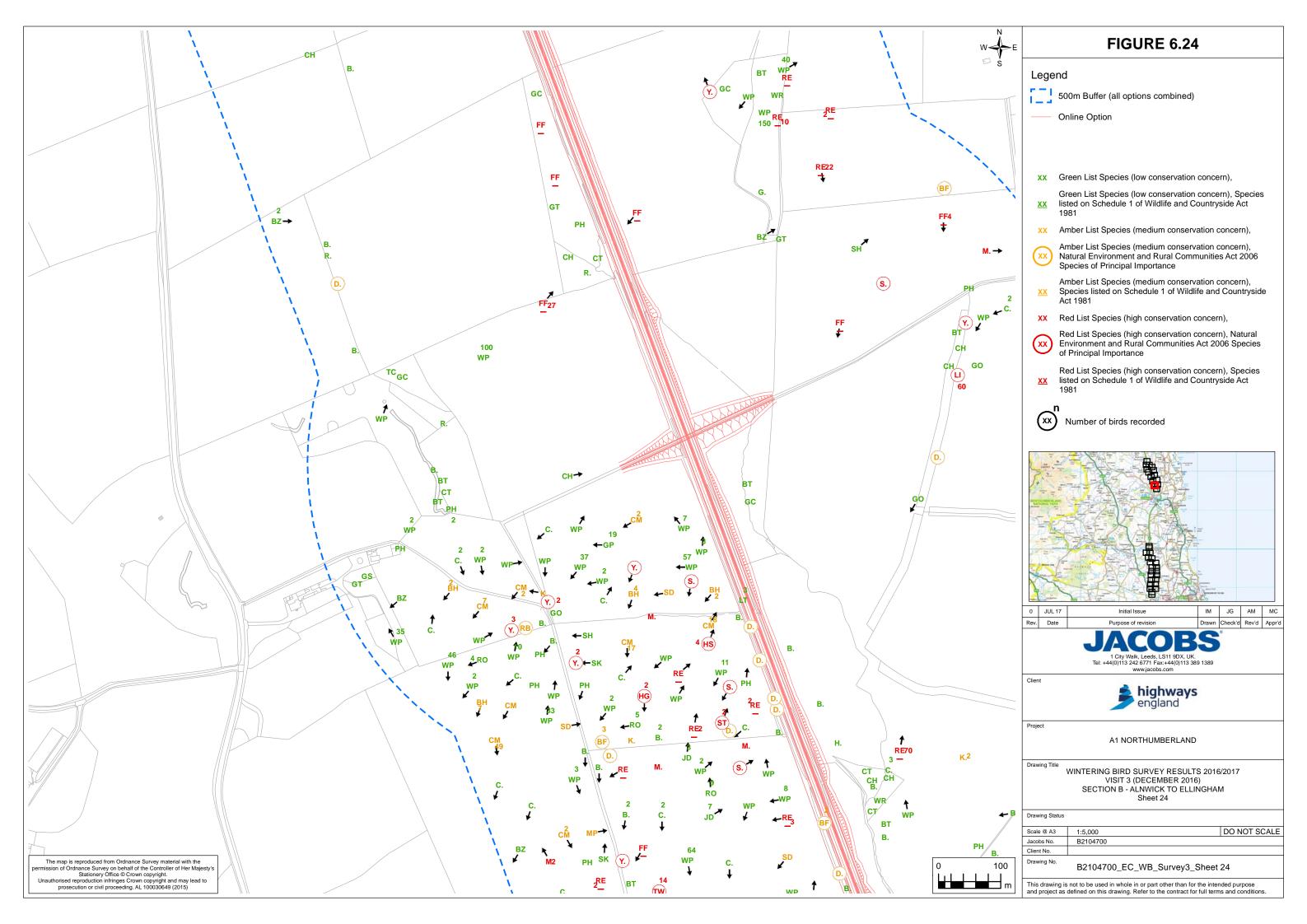


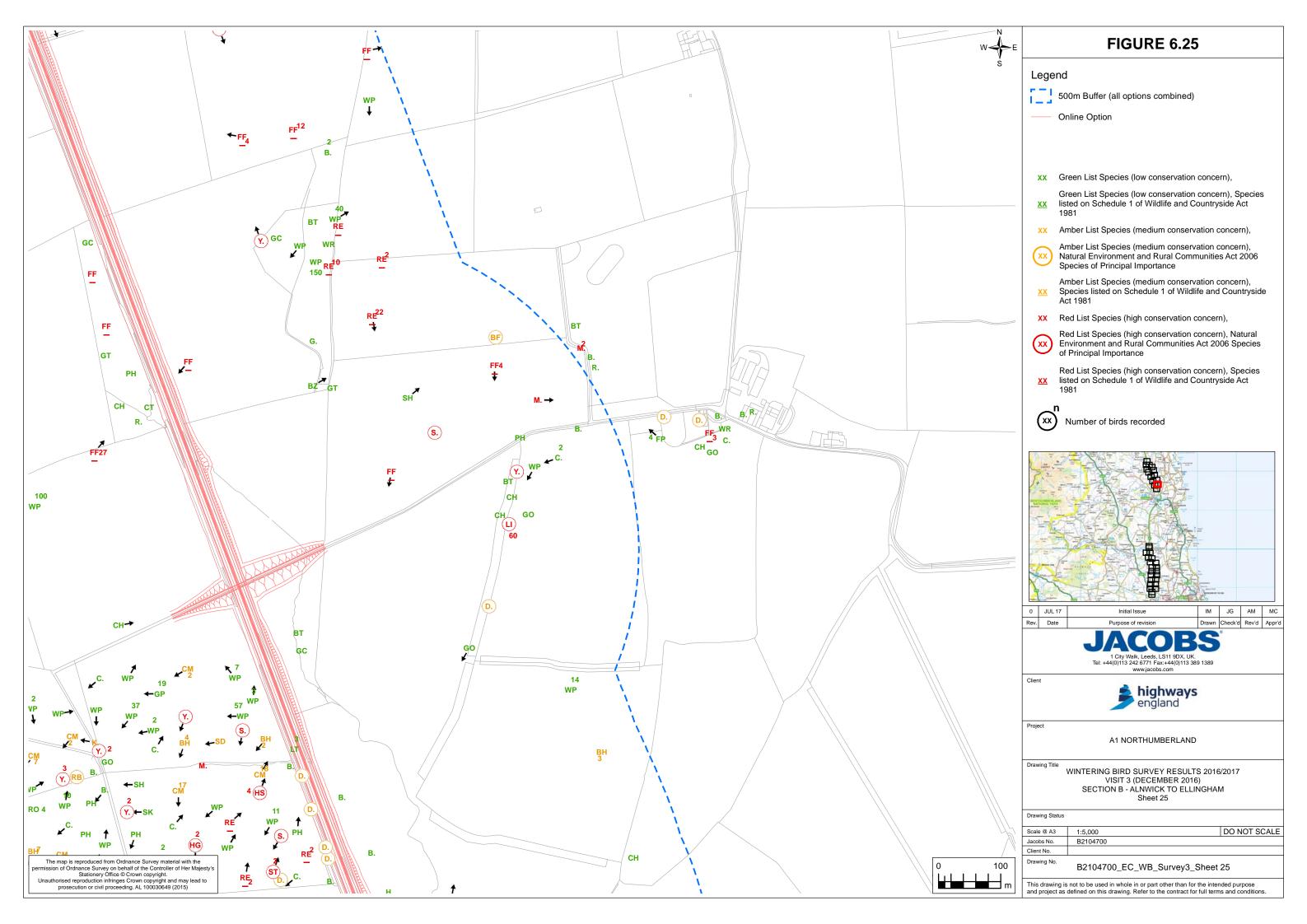


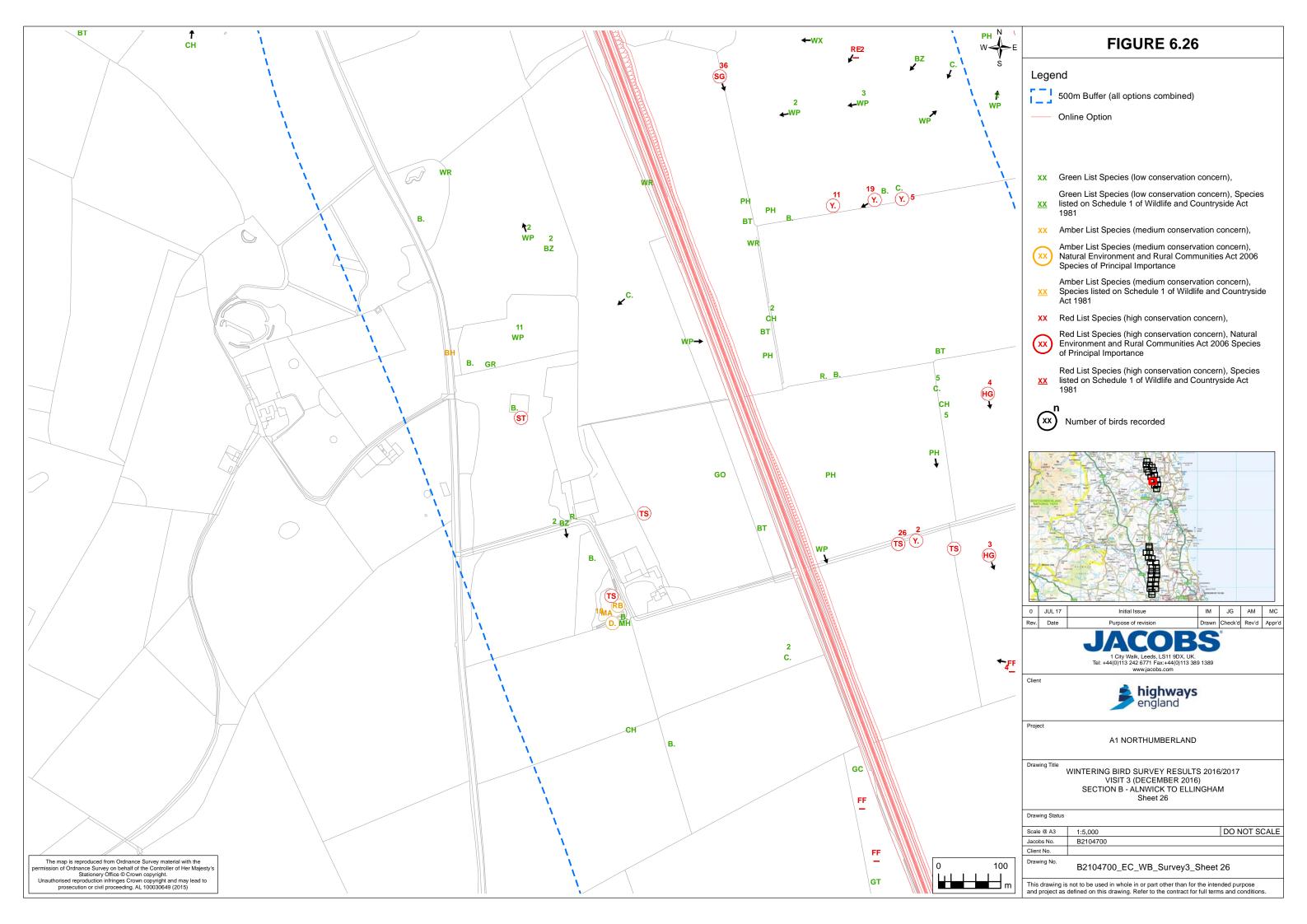


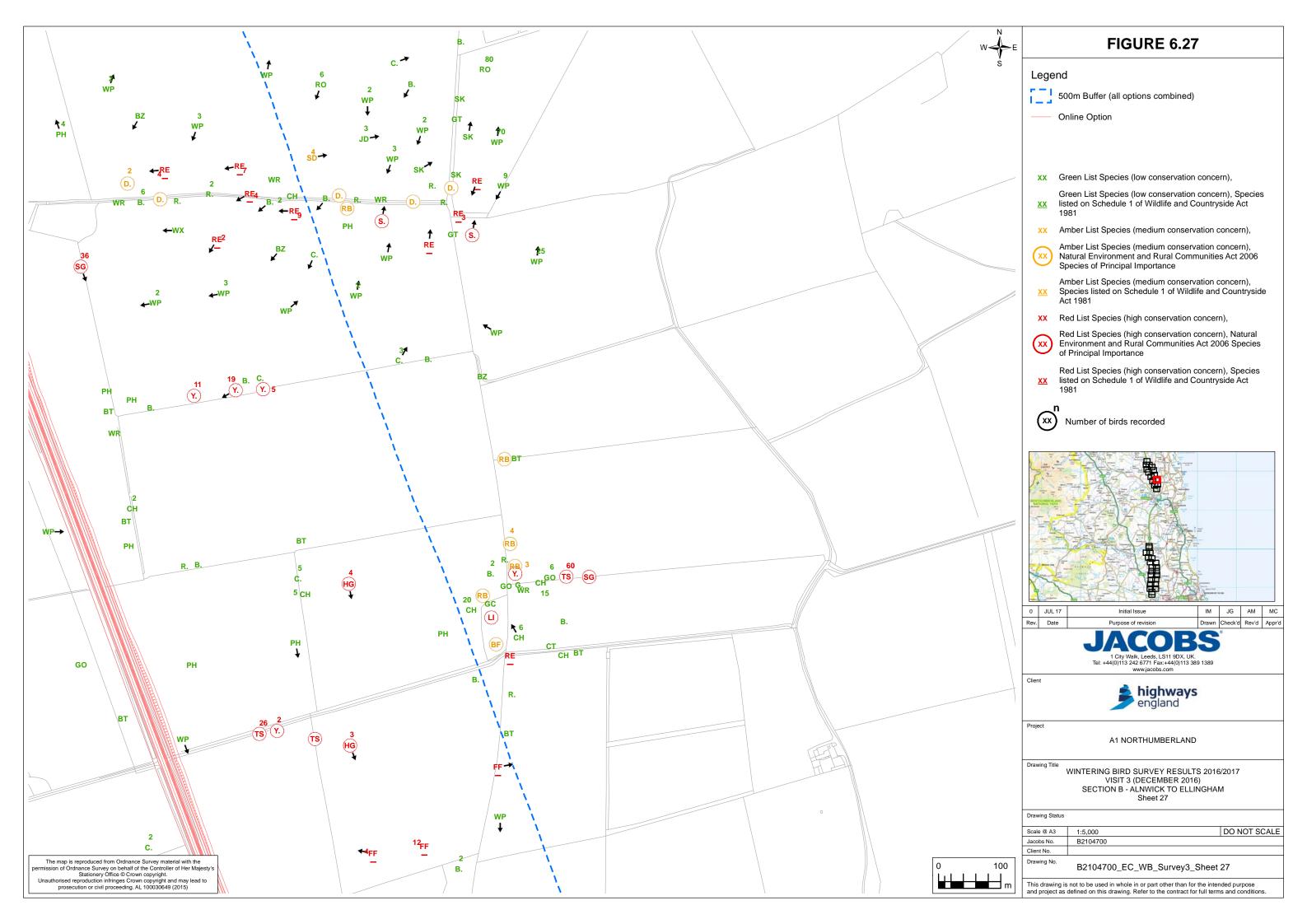


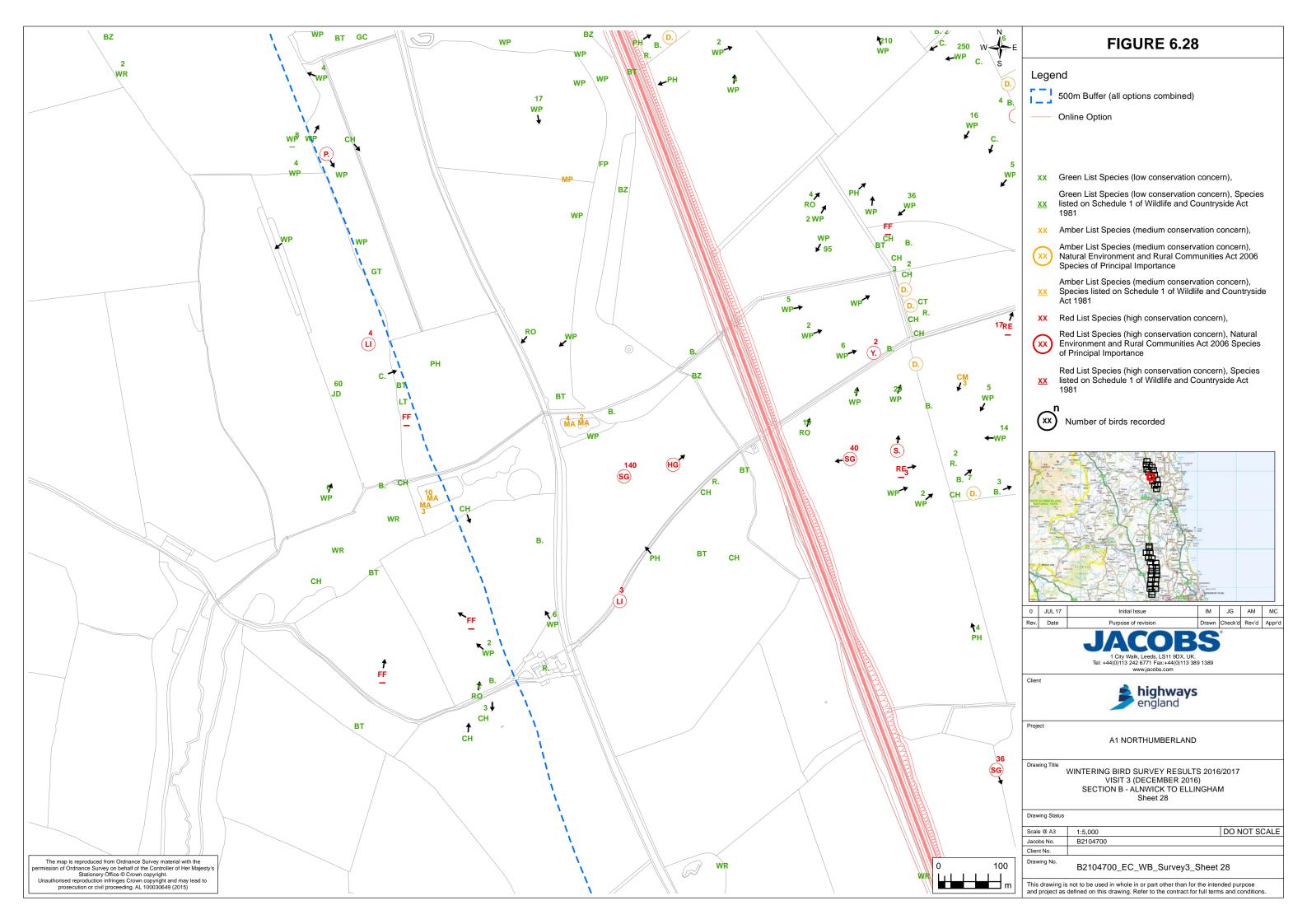


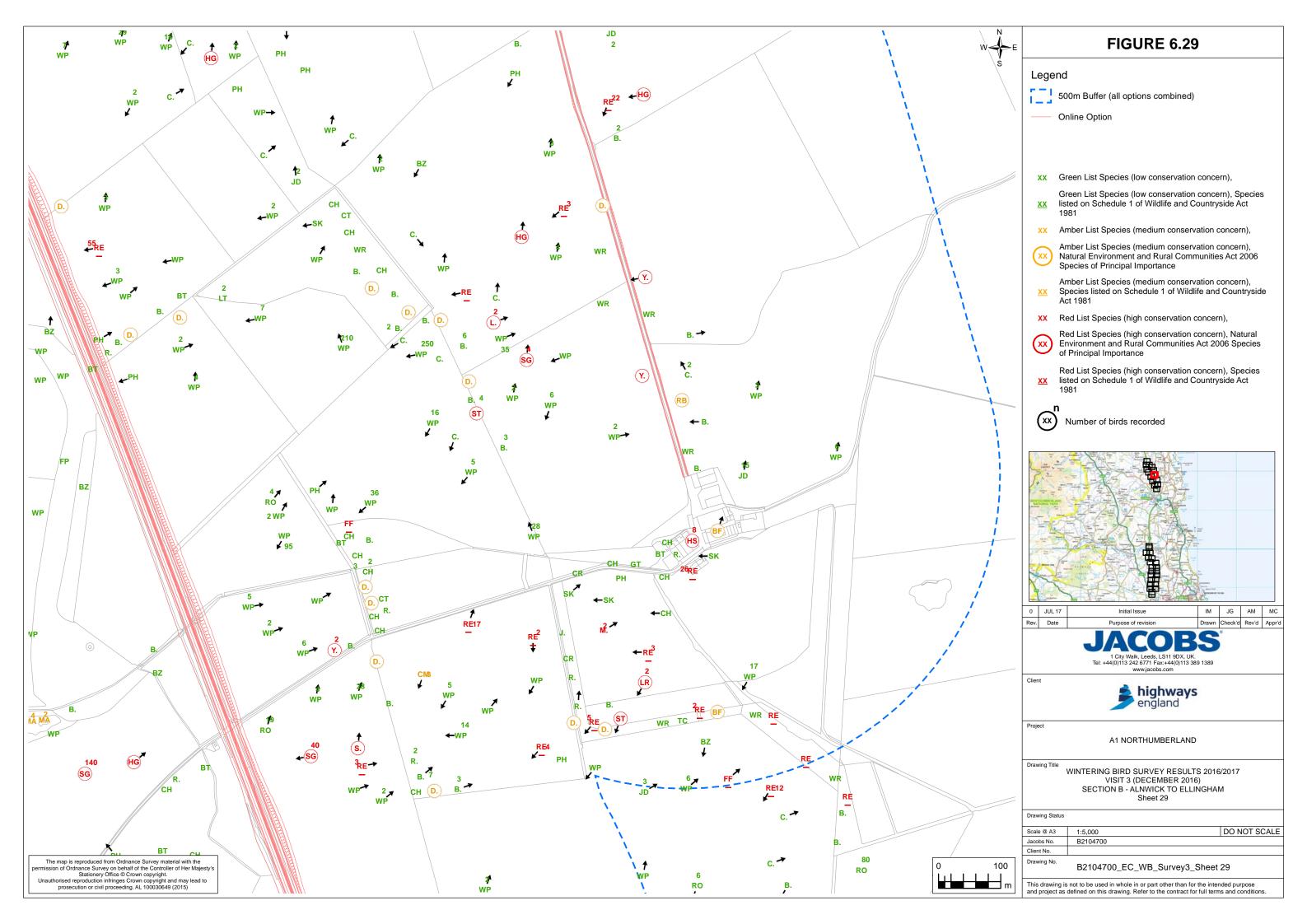


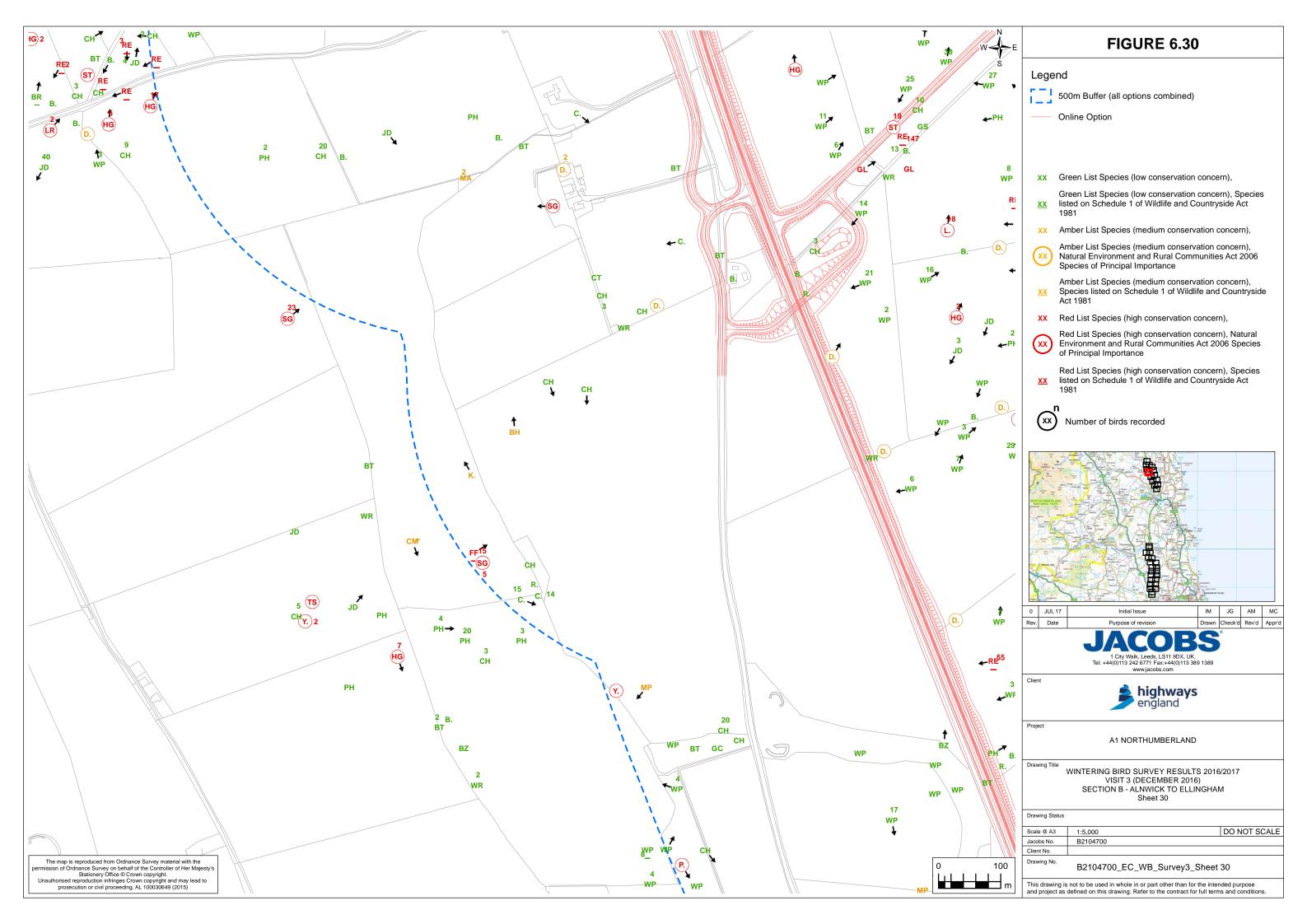


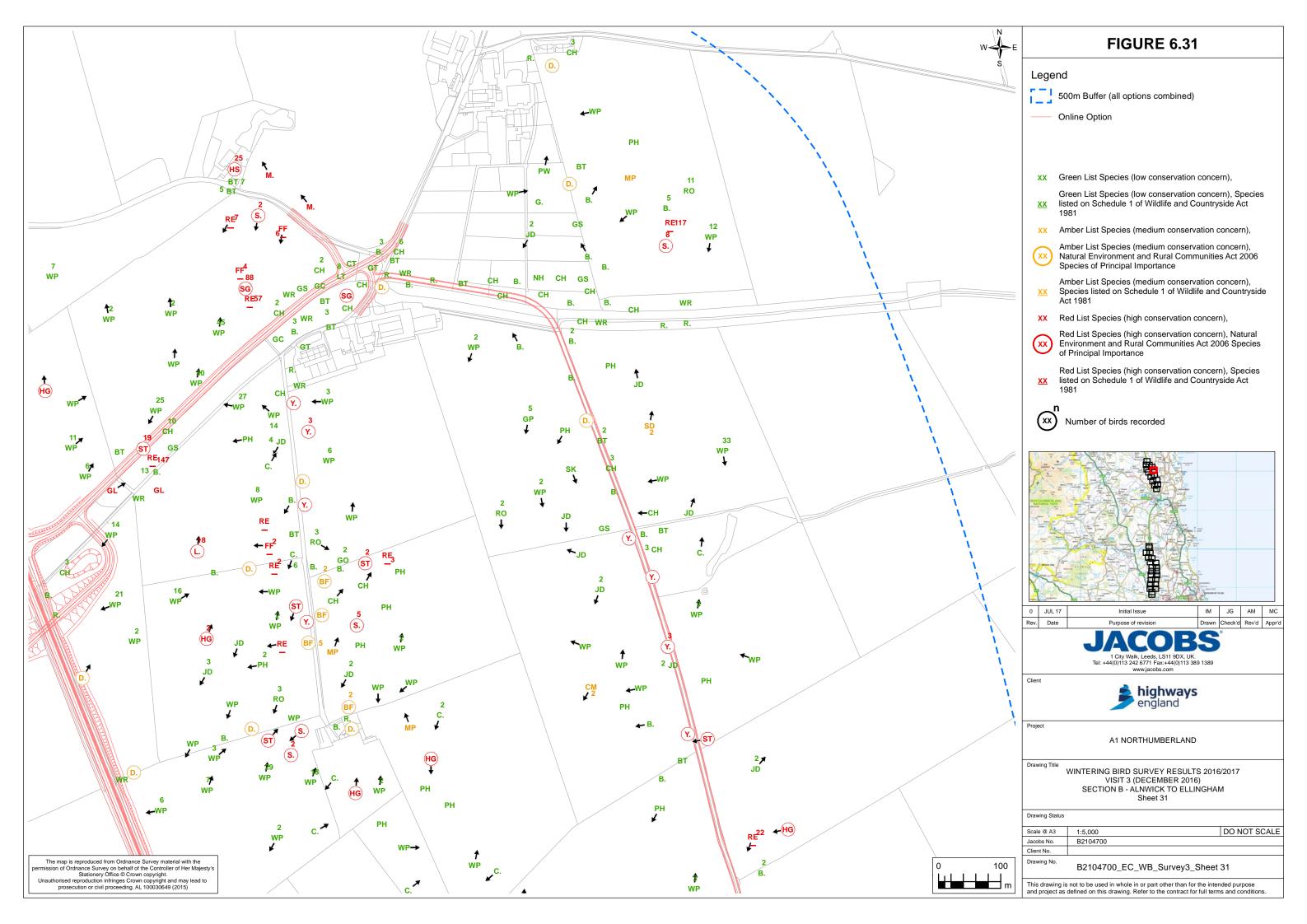


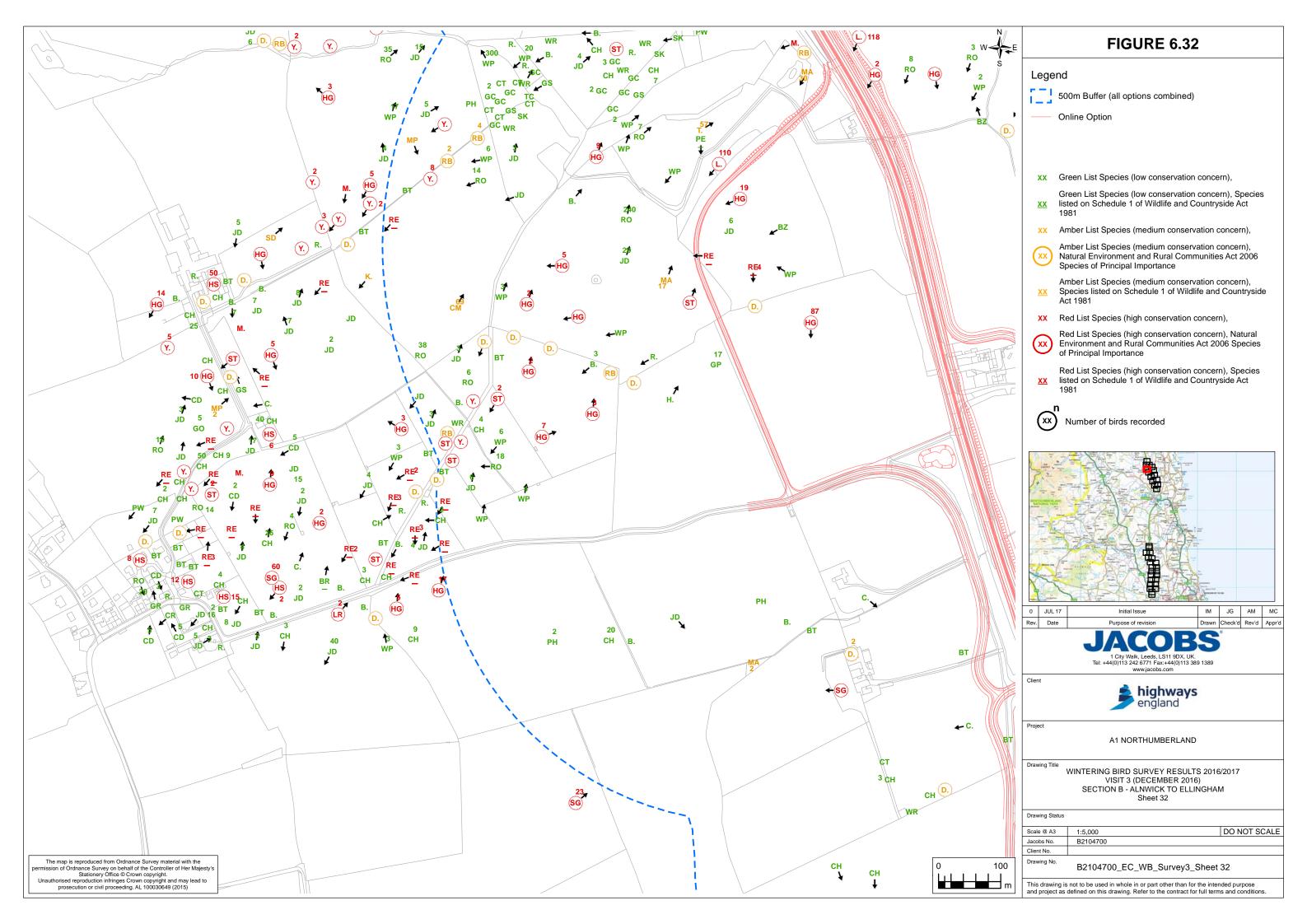


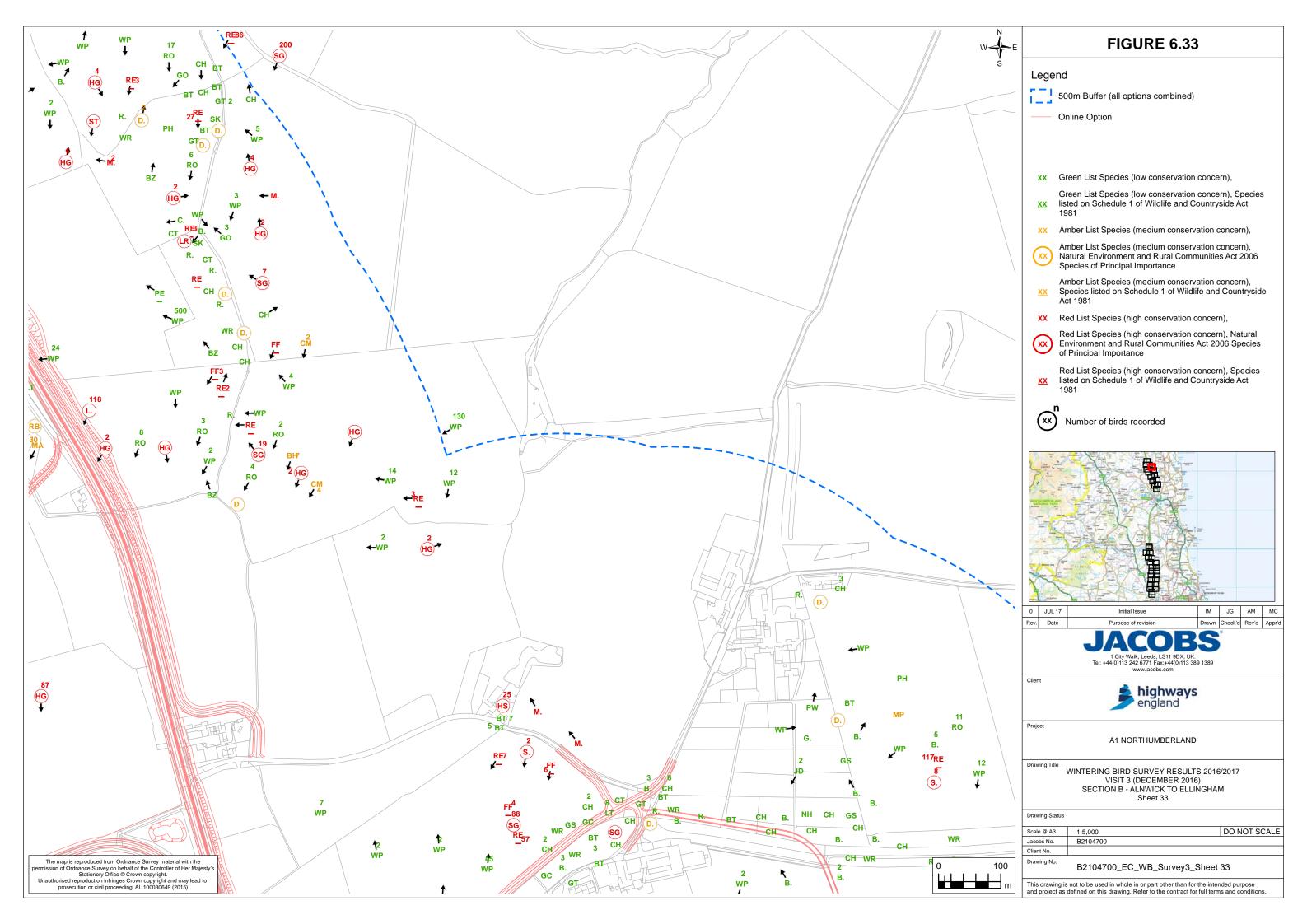


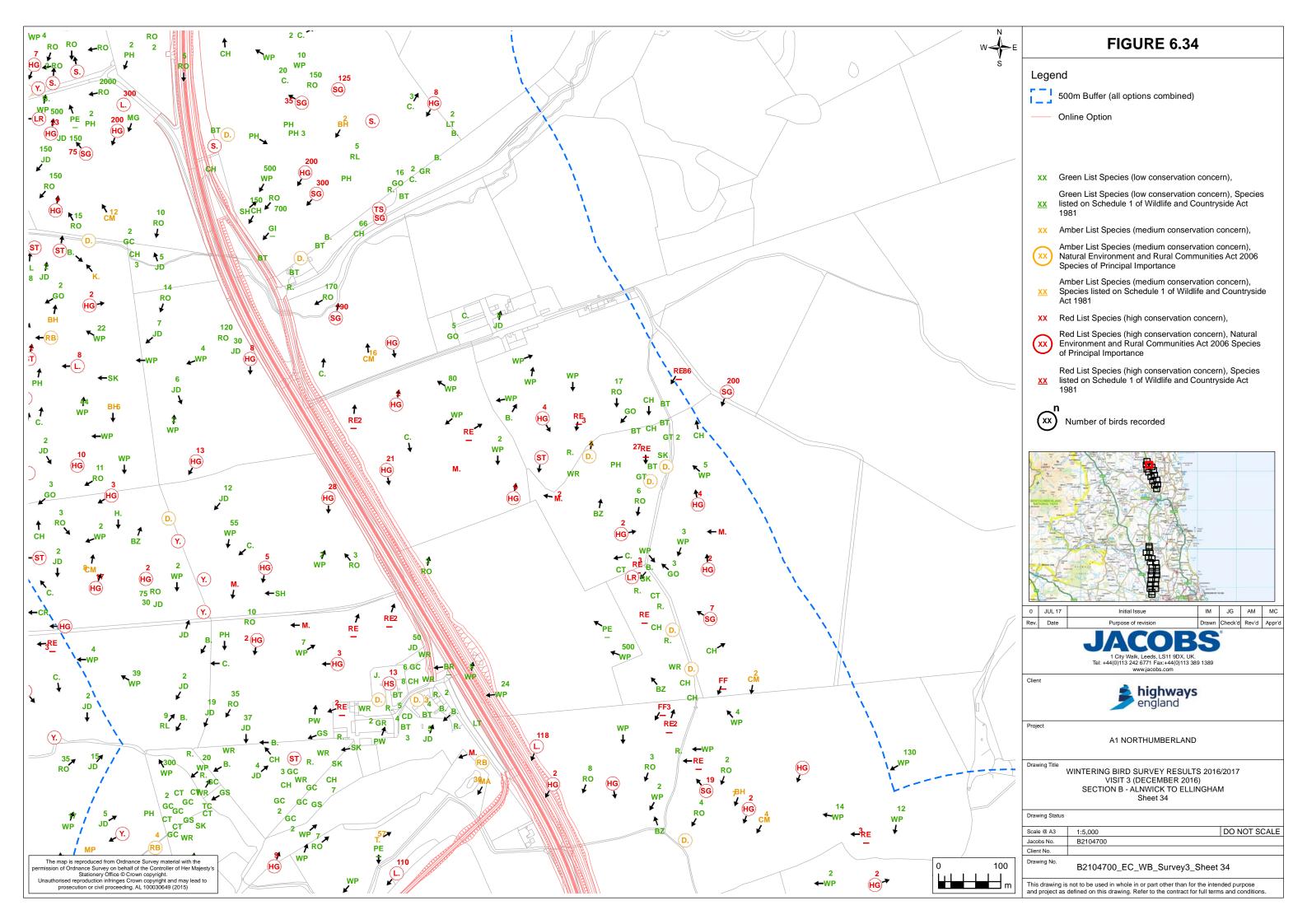


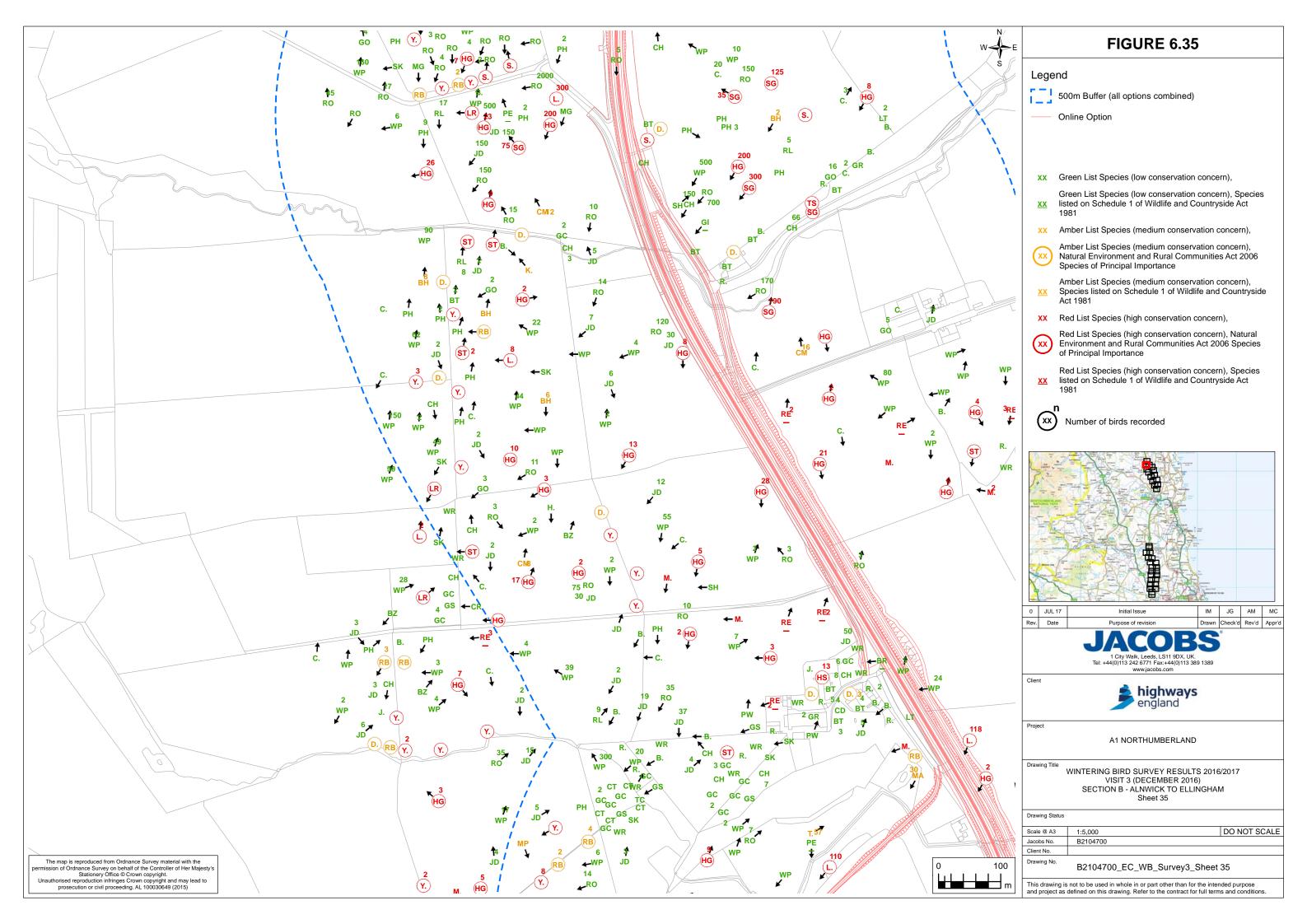


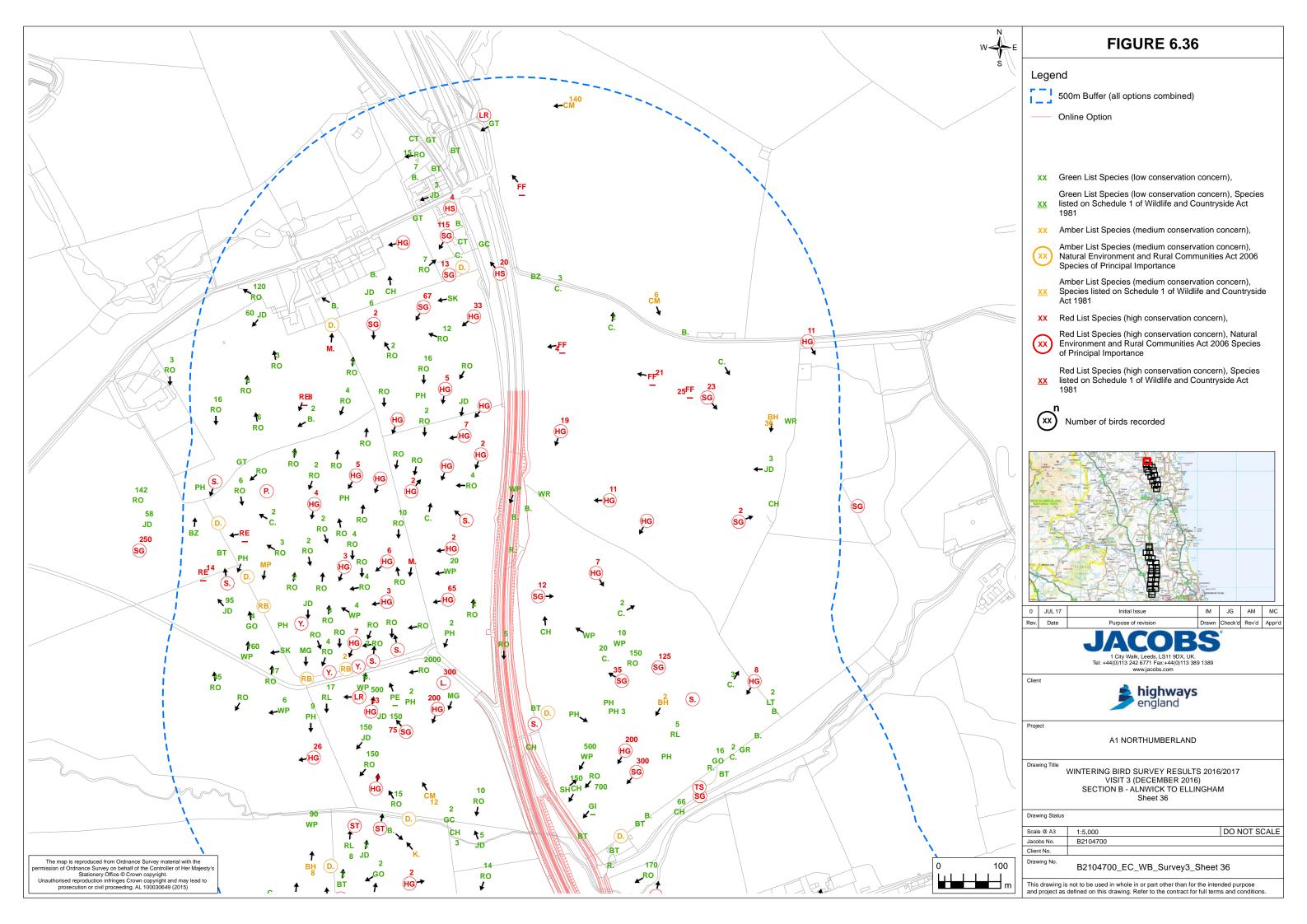


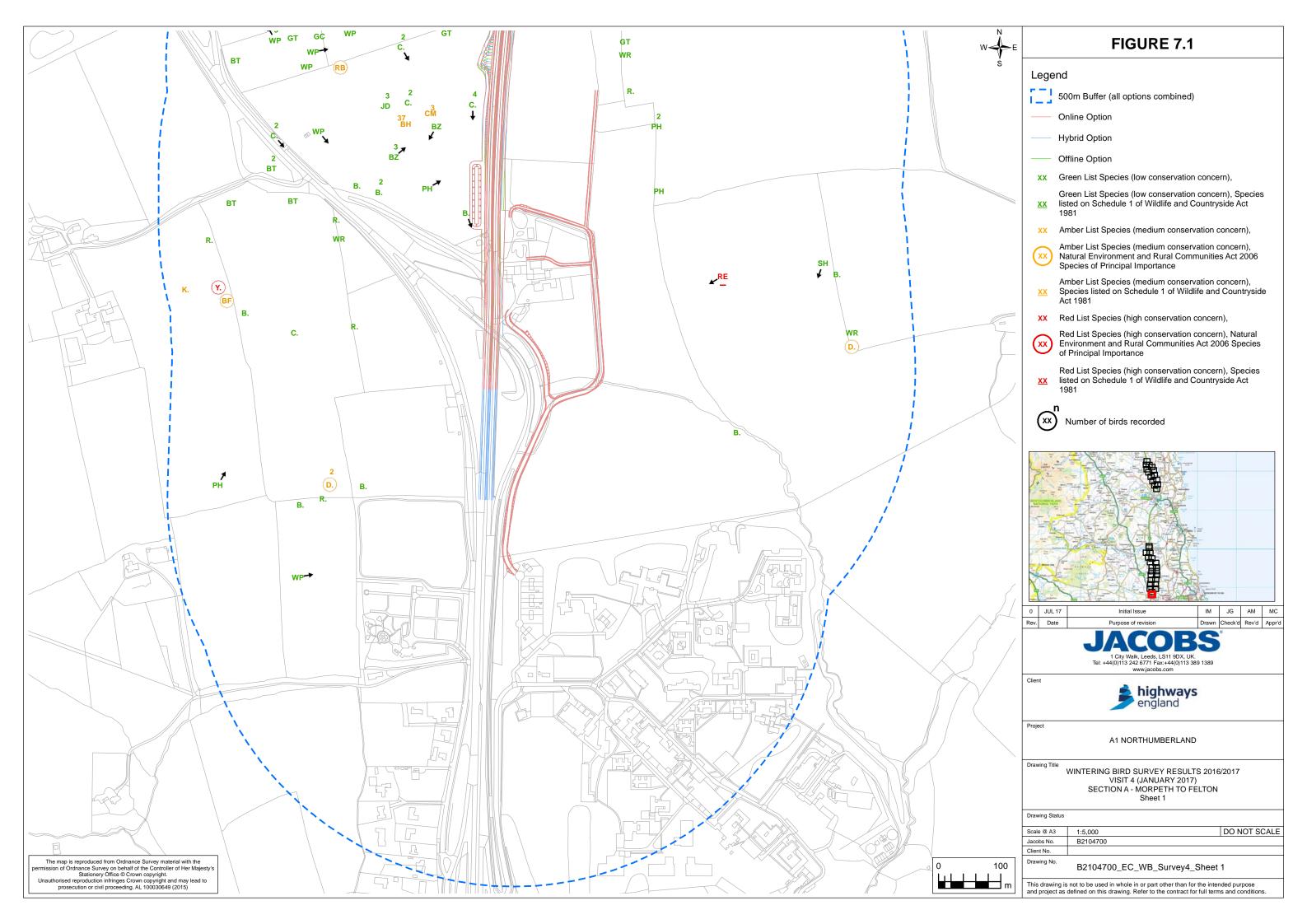


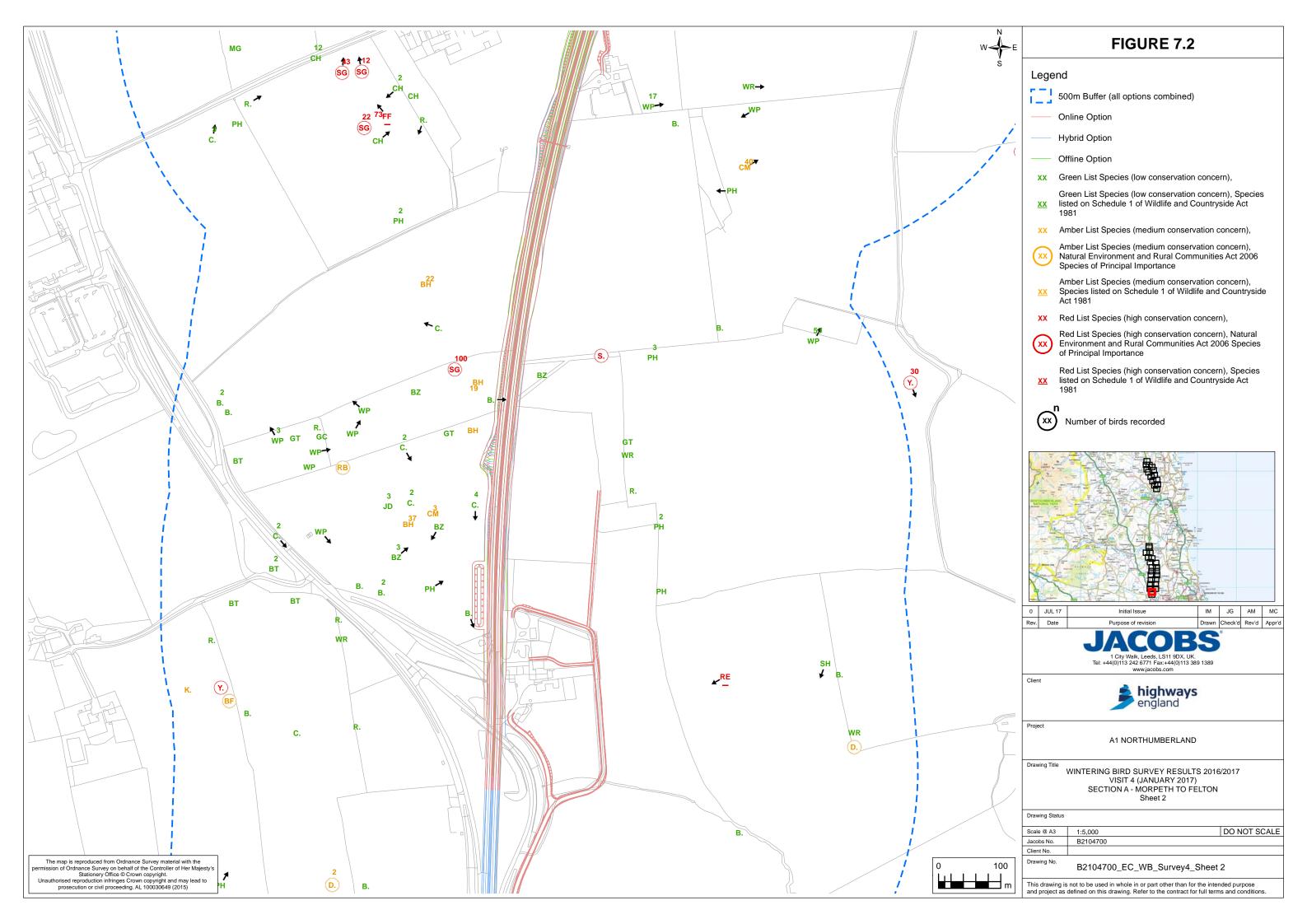


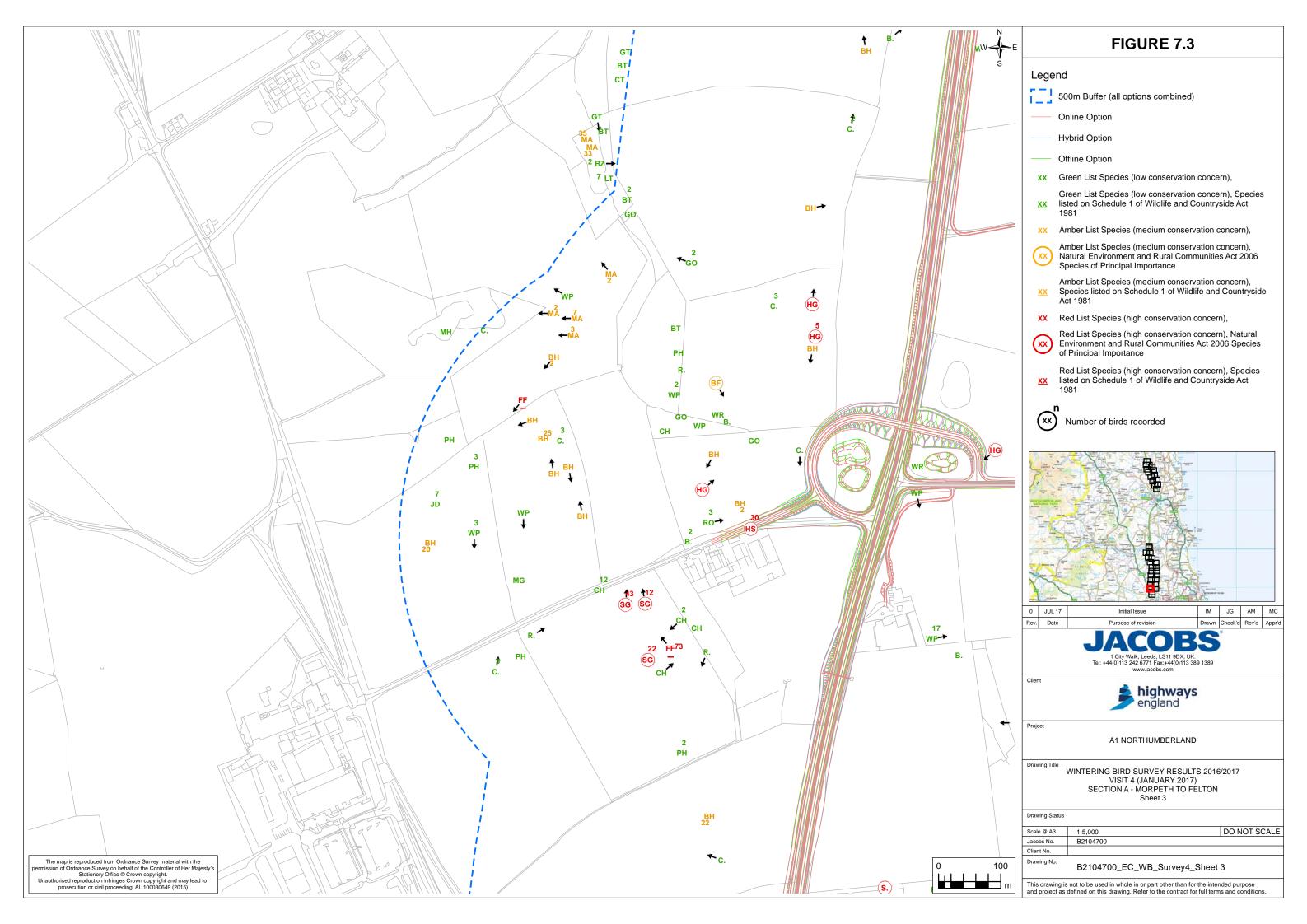


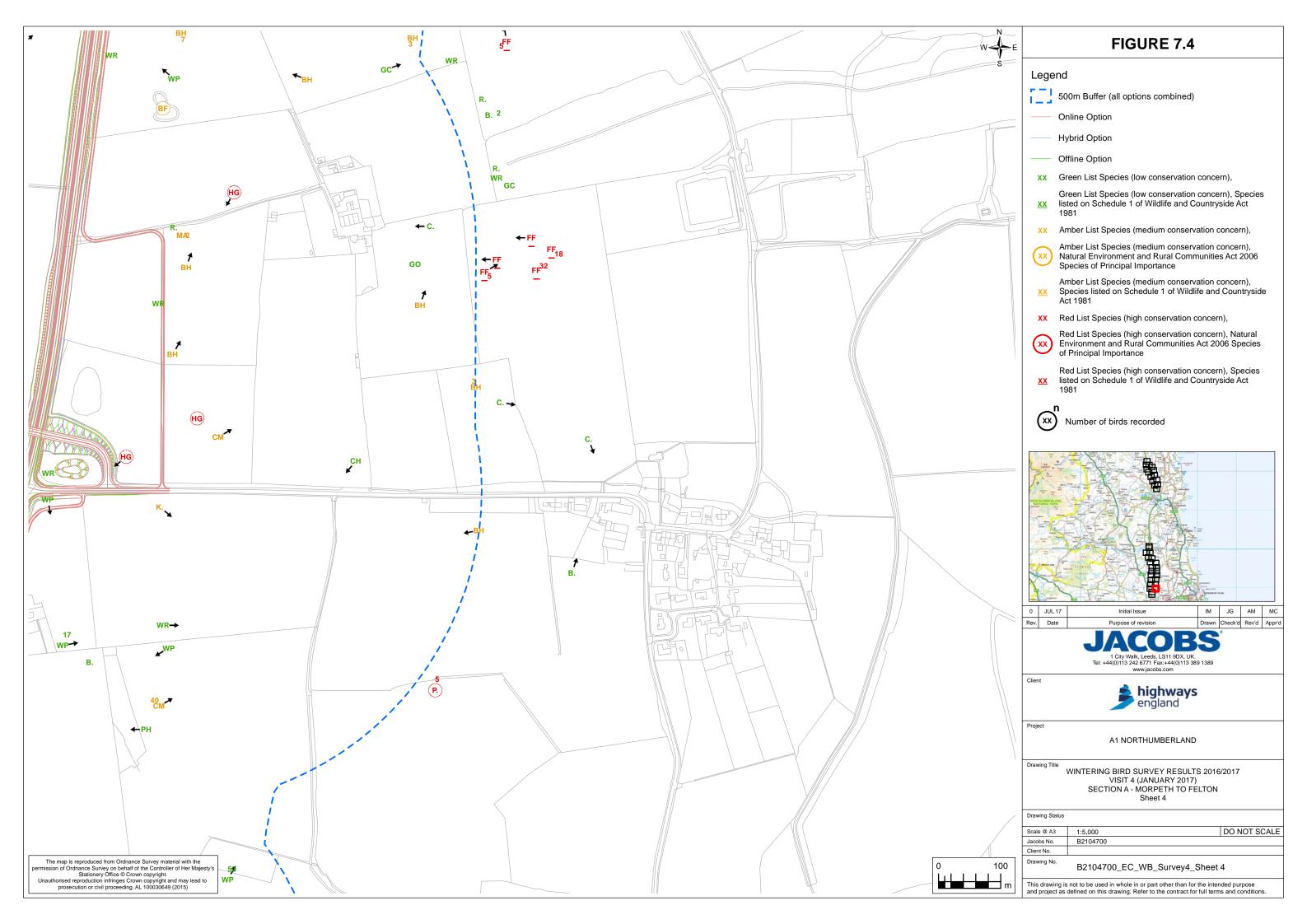


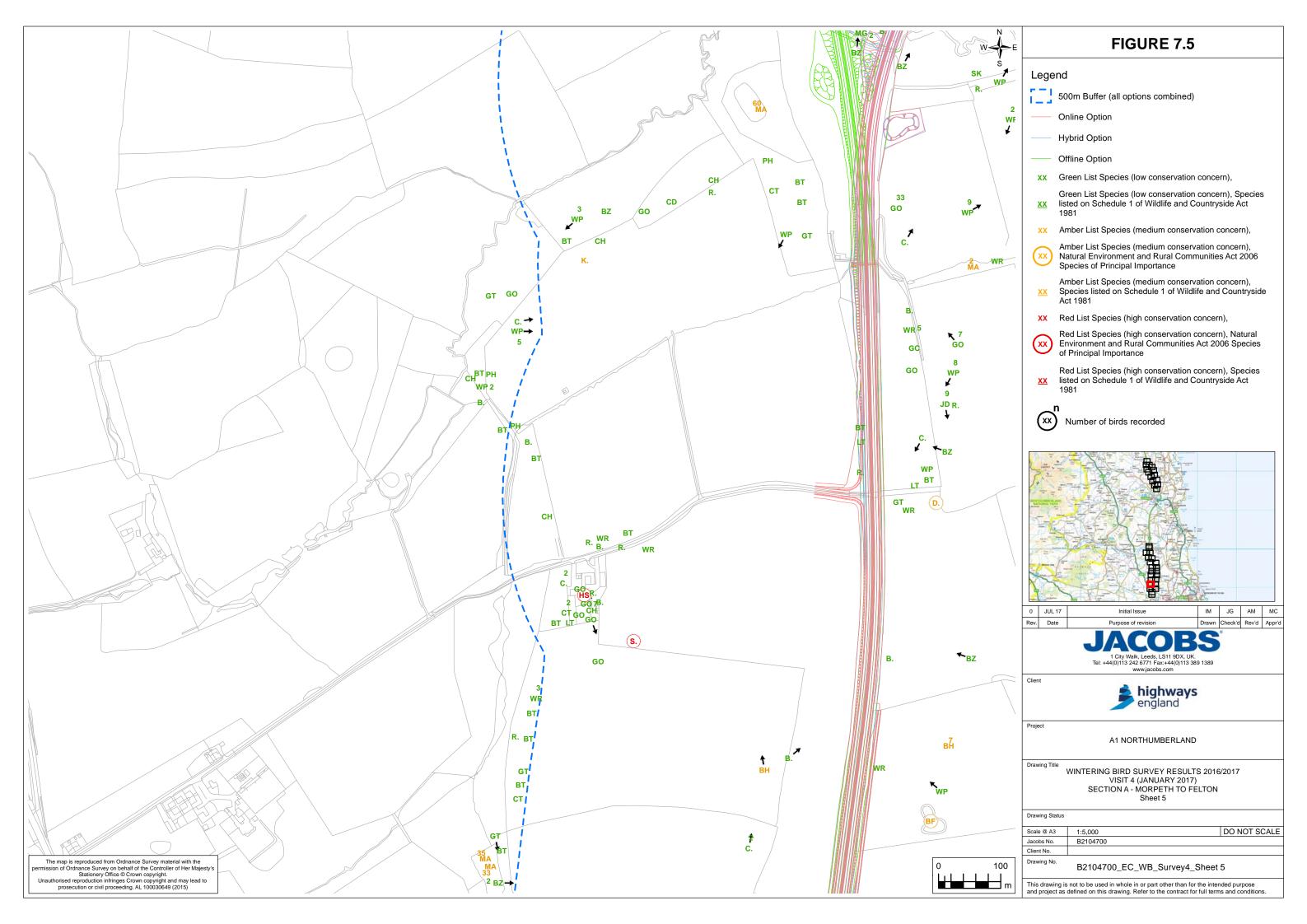


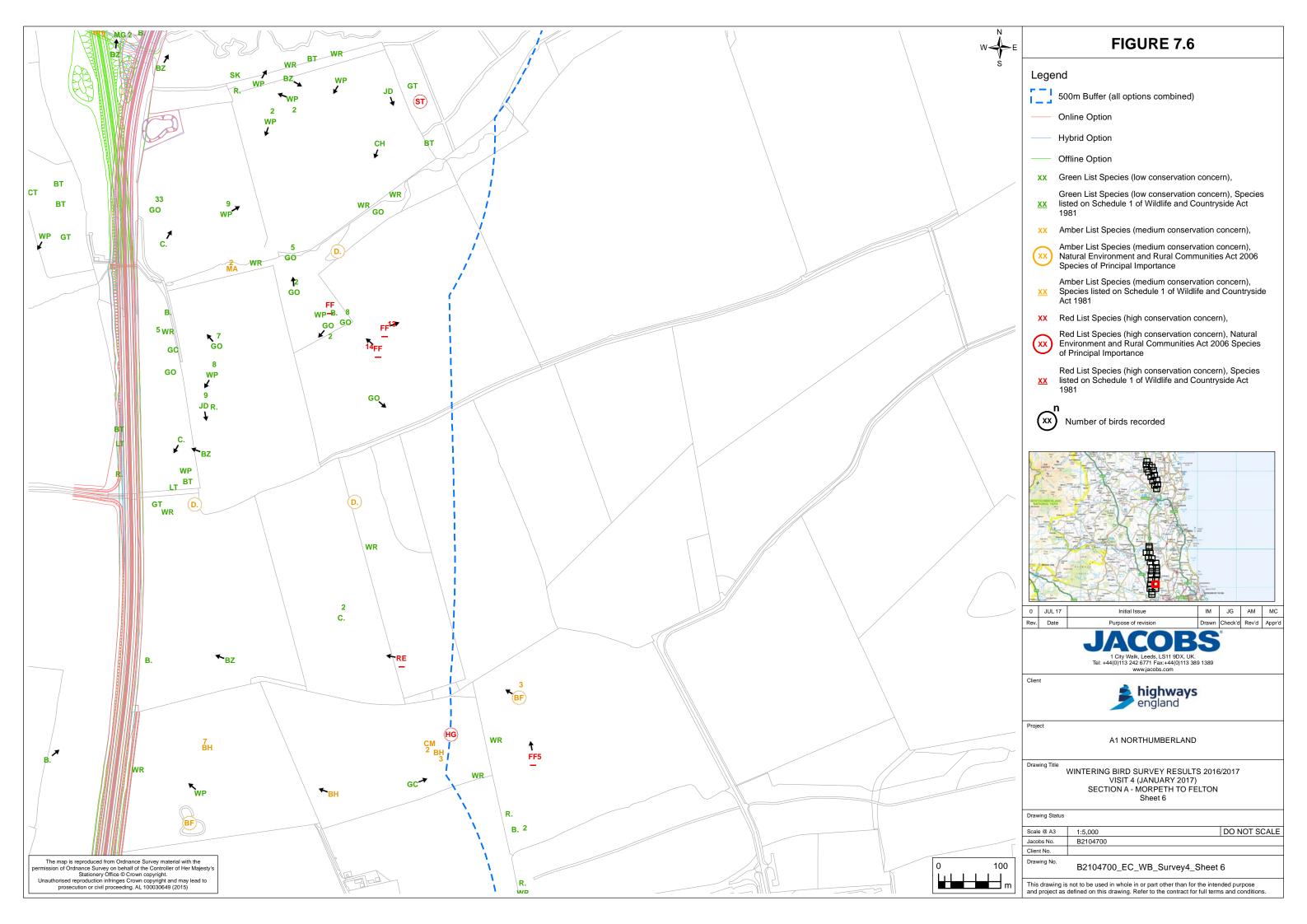


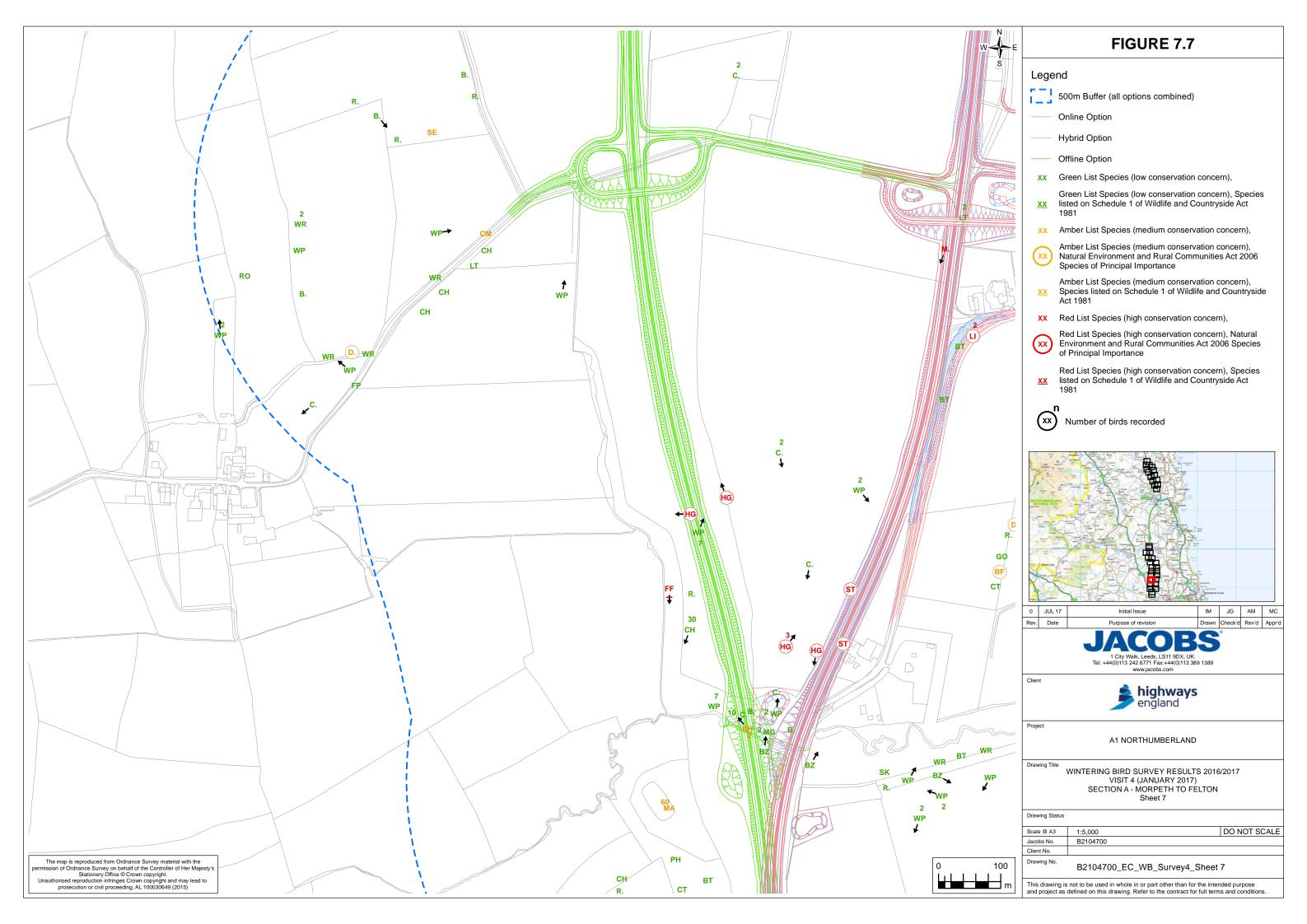


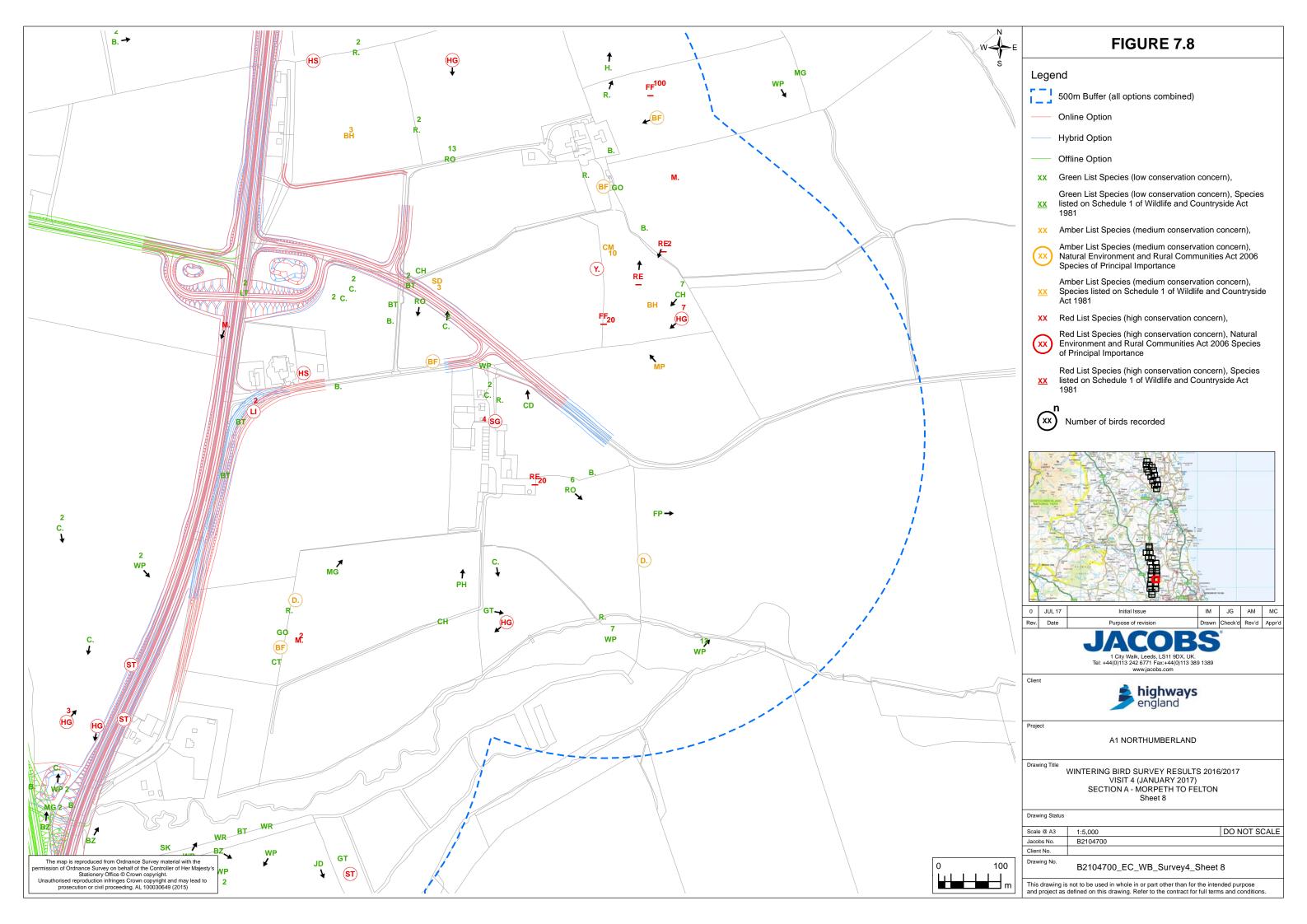


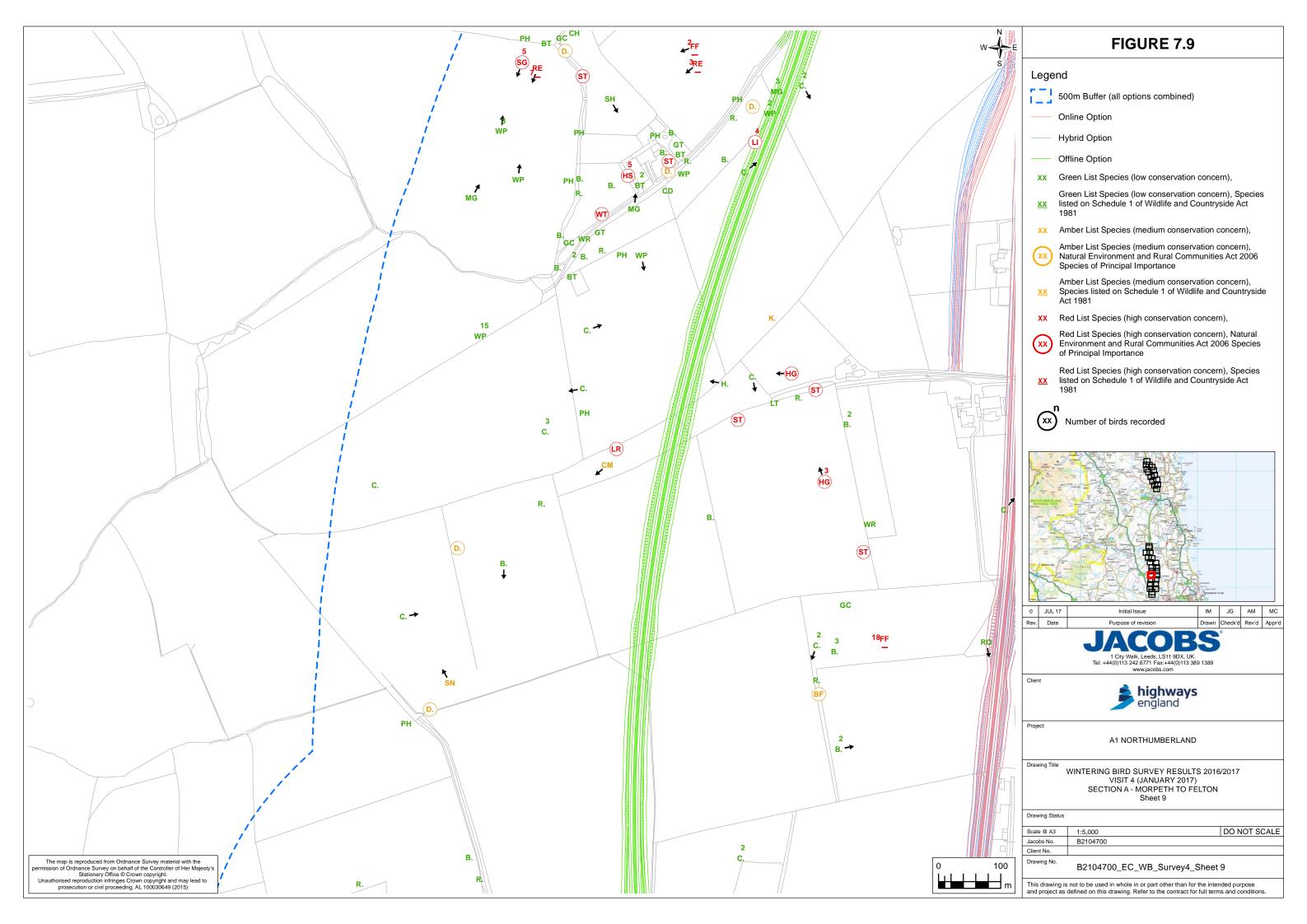












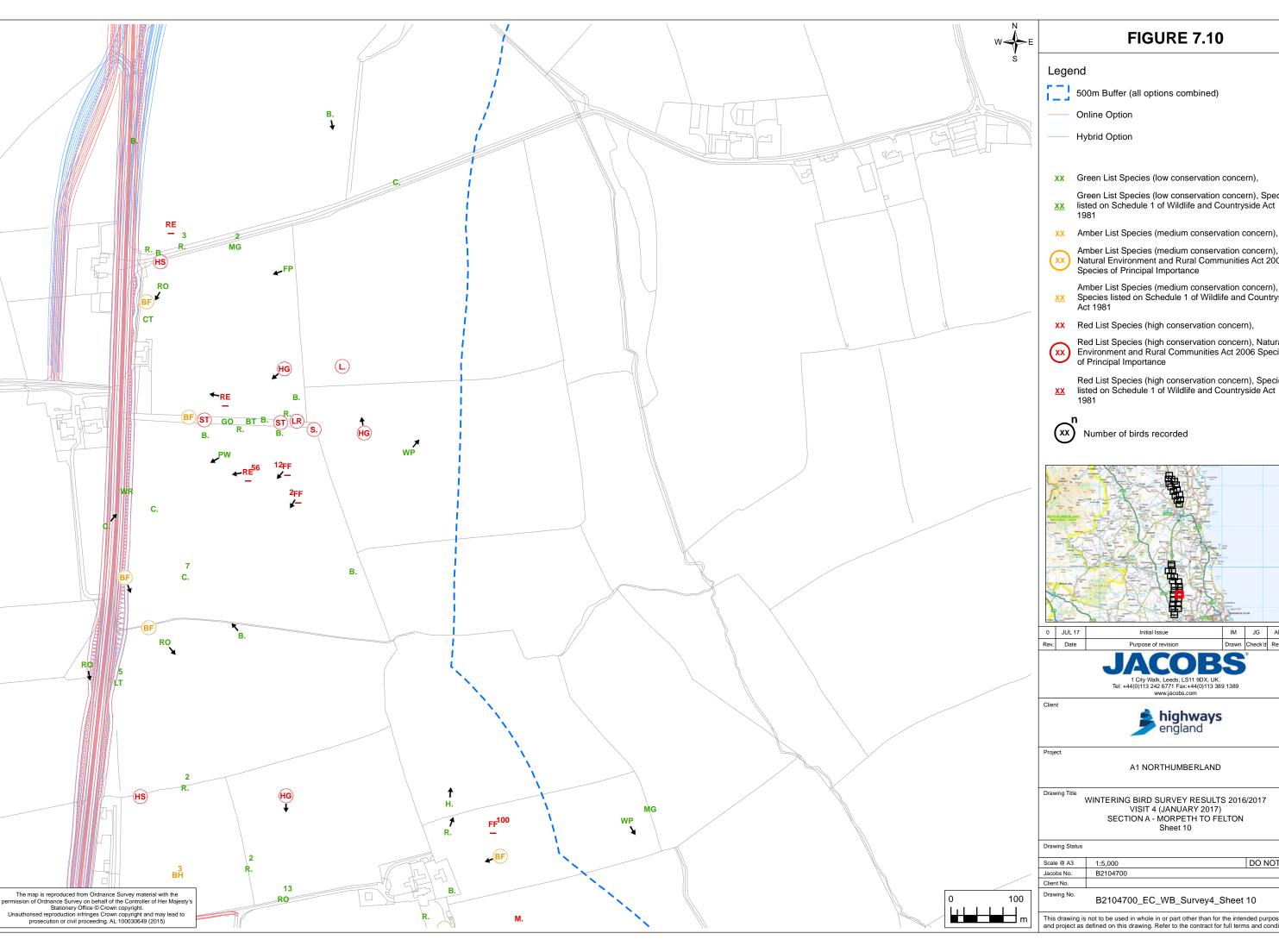


FIGURE 7.10

- xx Green List Species (low conservation concern),
- Green List Species (low conservation concern), Species listed on Schedule 1 of Wildlife and Countryside Act
- Amber List Species (medium conservation concern), Natural Environment and Rural Communities Act 2006
- Amber List Species (medium conservation concern), Species listed on Schedule 1 of Wildlife and Countryside
- Red List Species (high conservation concern), Natural Environment and Rural Communities Act 2006 Species of Principal Importance
- Red List Species (high conservation concern), Species
 XX listed on Schedule 1 of Wildlife and Countryside Act



JG AM MC



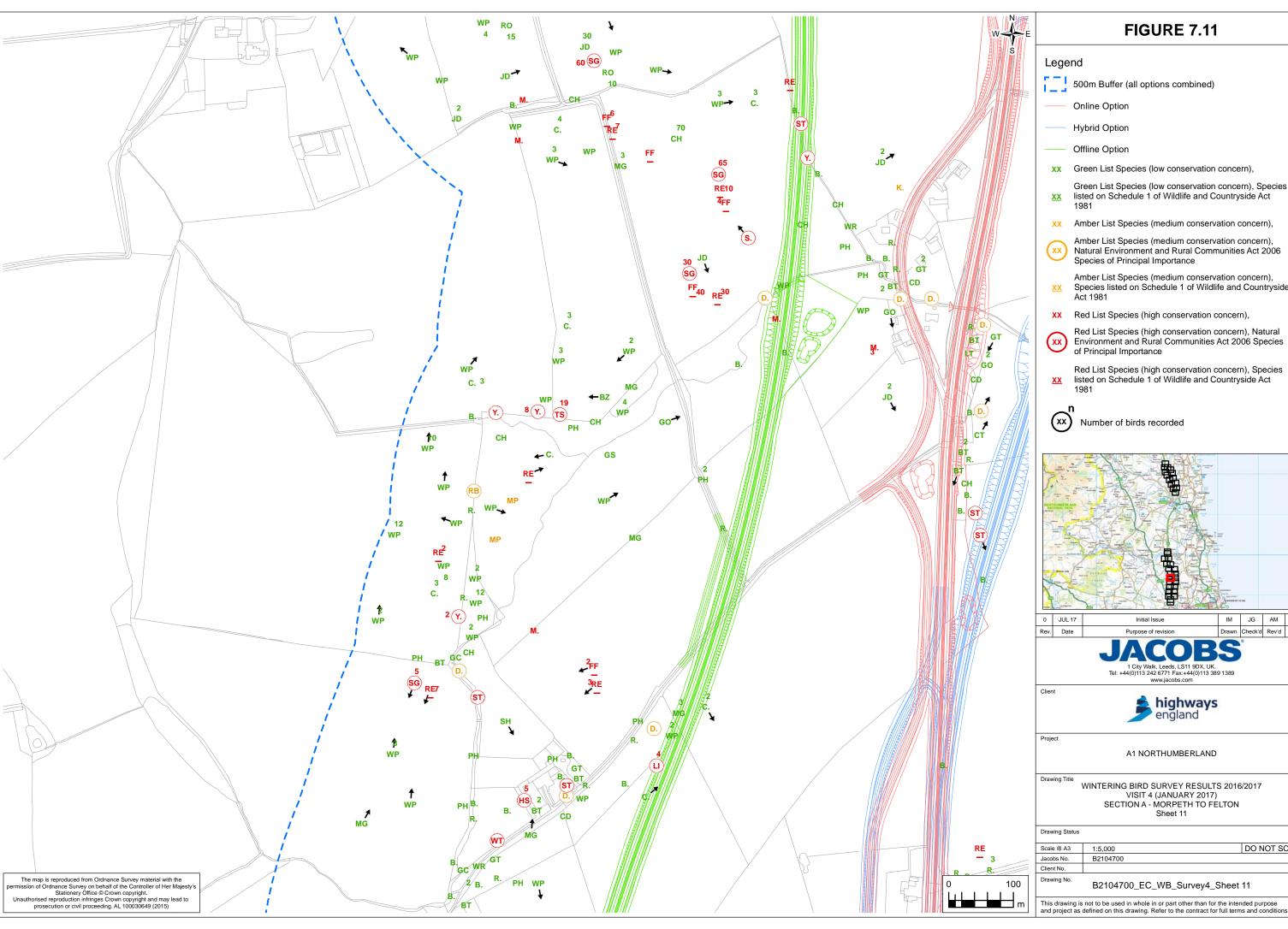
A1 NORTHUMBERLAND

VISIT 4 (JANUARY 2017) SECTION A - MORPETH TO FELTON

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B2104700	·
Client No.		

B2104700_EC_WB_Survey4_Sheet 10

This drawing is not to be used in whole in or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.



XX Green List Species (low conservation concern),

listed on Schedule 1 of Wildlife and Countryside Act

Amber List Species (medium conservation concern), Natural Environment and Rural Communities Act 2006

Amber List Species (medium conservation concern), Species listed on Schedule 1 of Wildlife and Countryside

Red List Species (high conservation concern), Natural Environment and Rural Communities Act 2006 Species of Principal Importance

Red List Species (high conservation concern), Species listed on Schedule 1 of Wildlife and Countryside Act



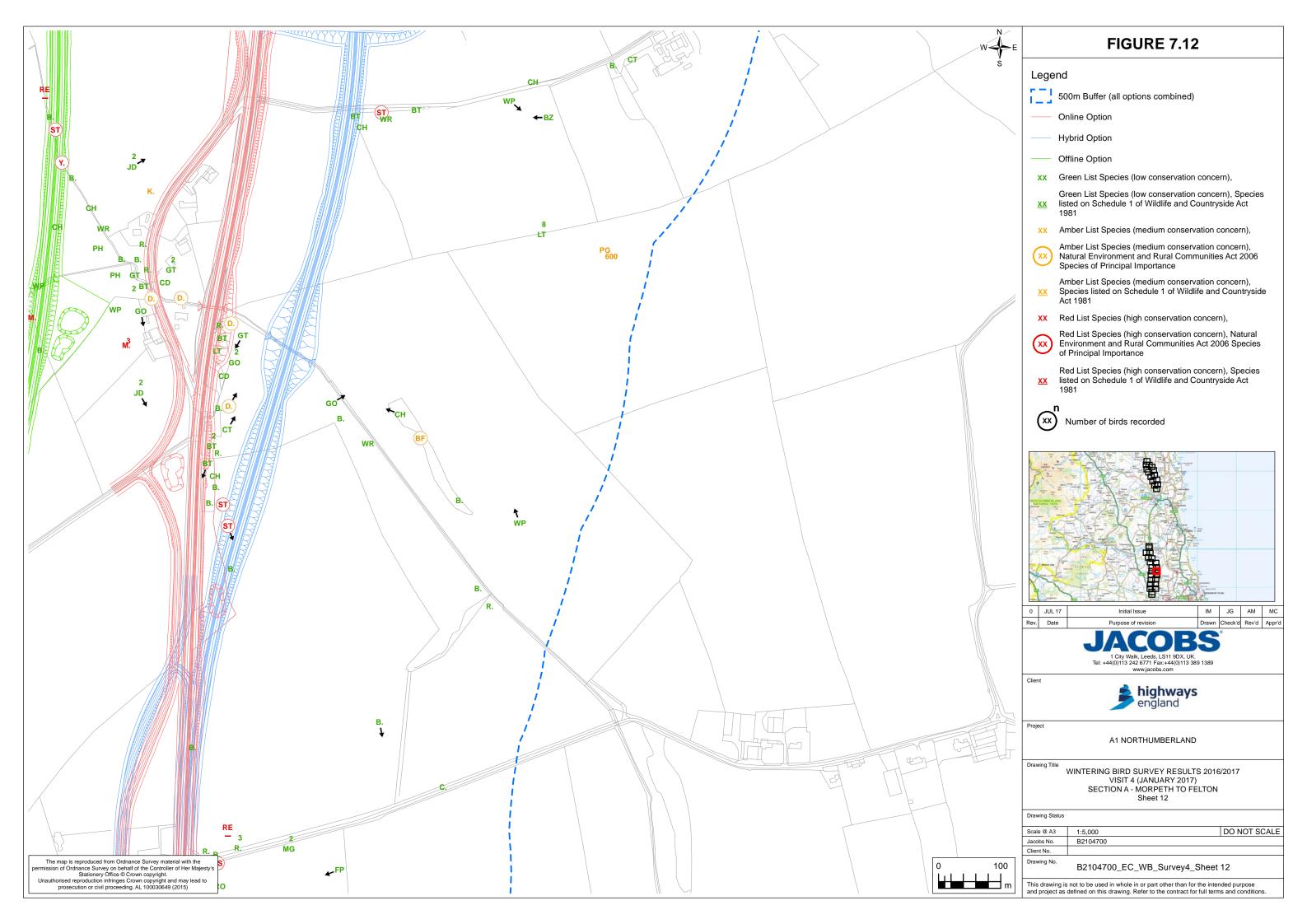
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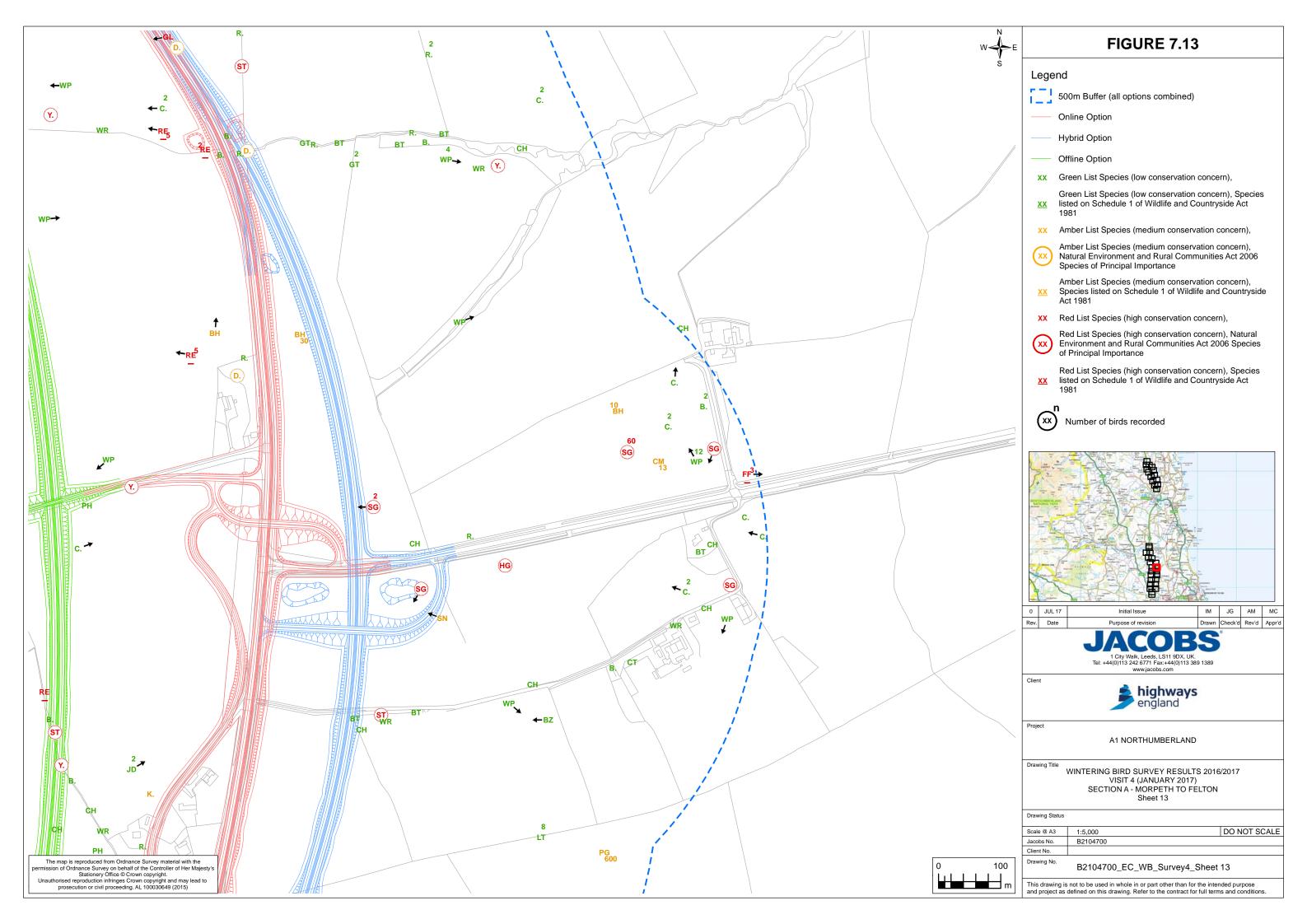


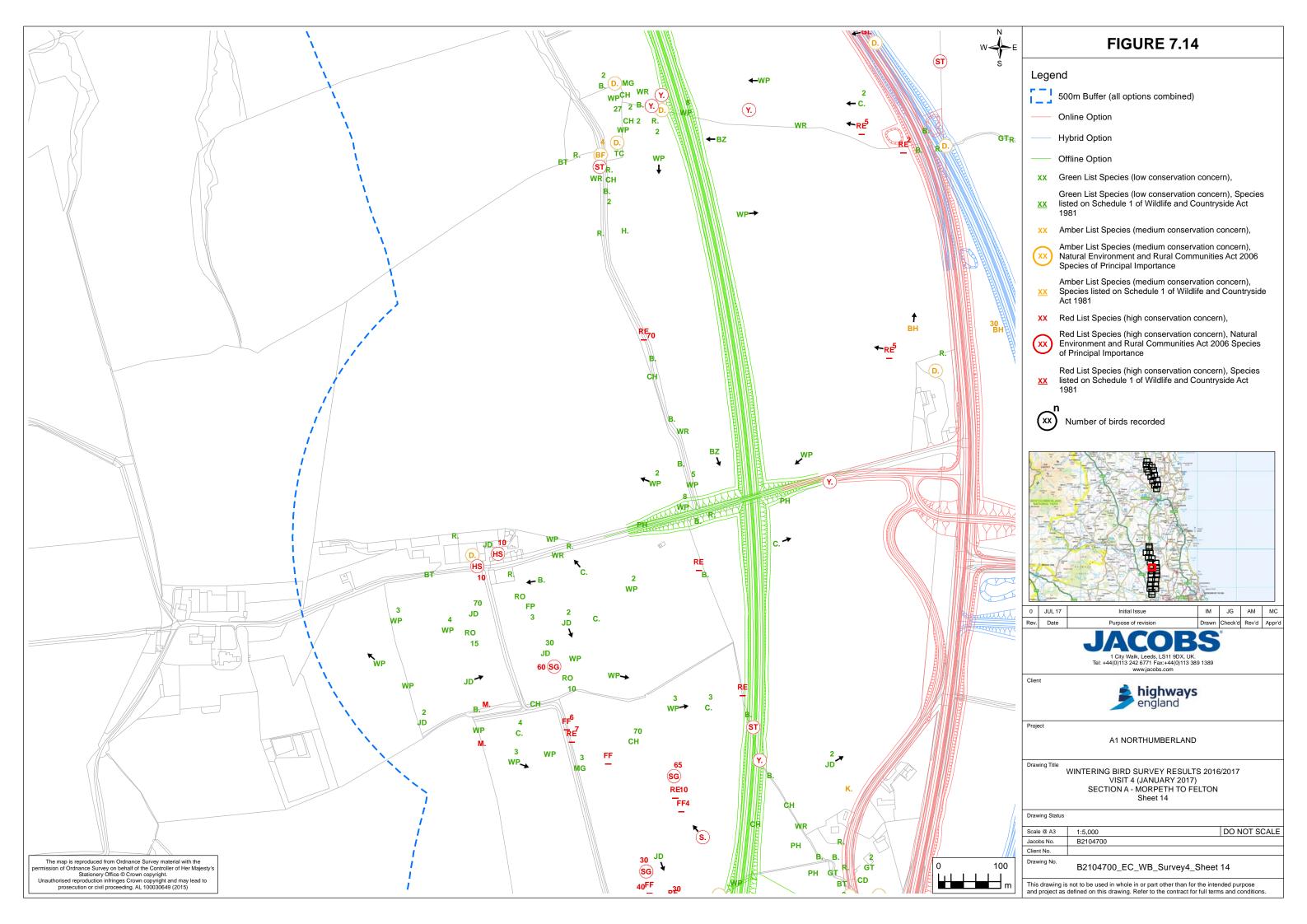
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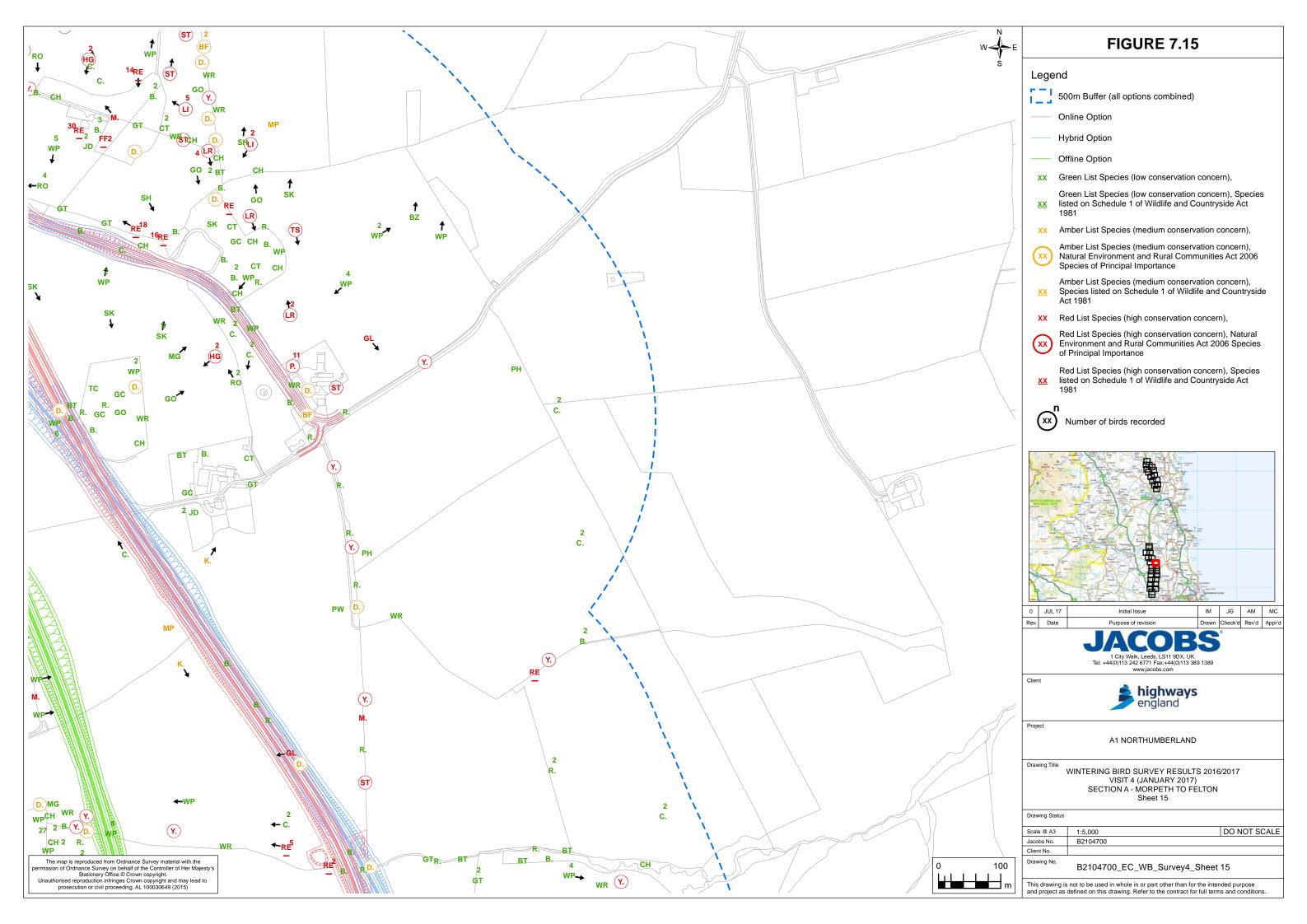
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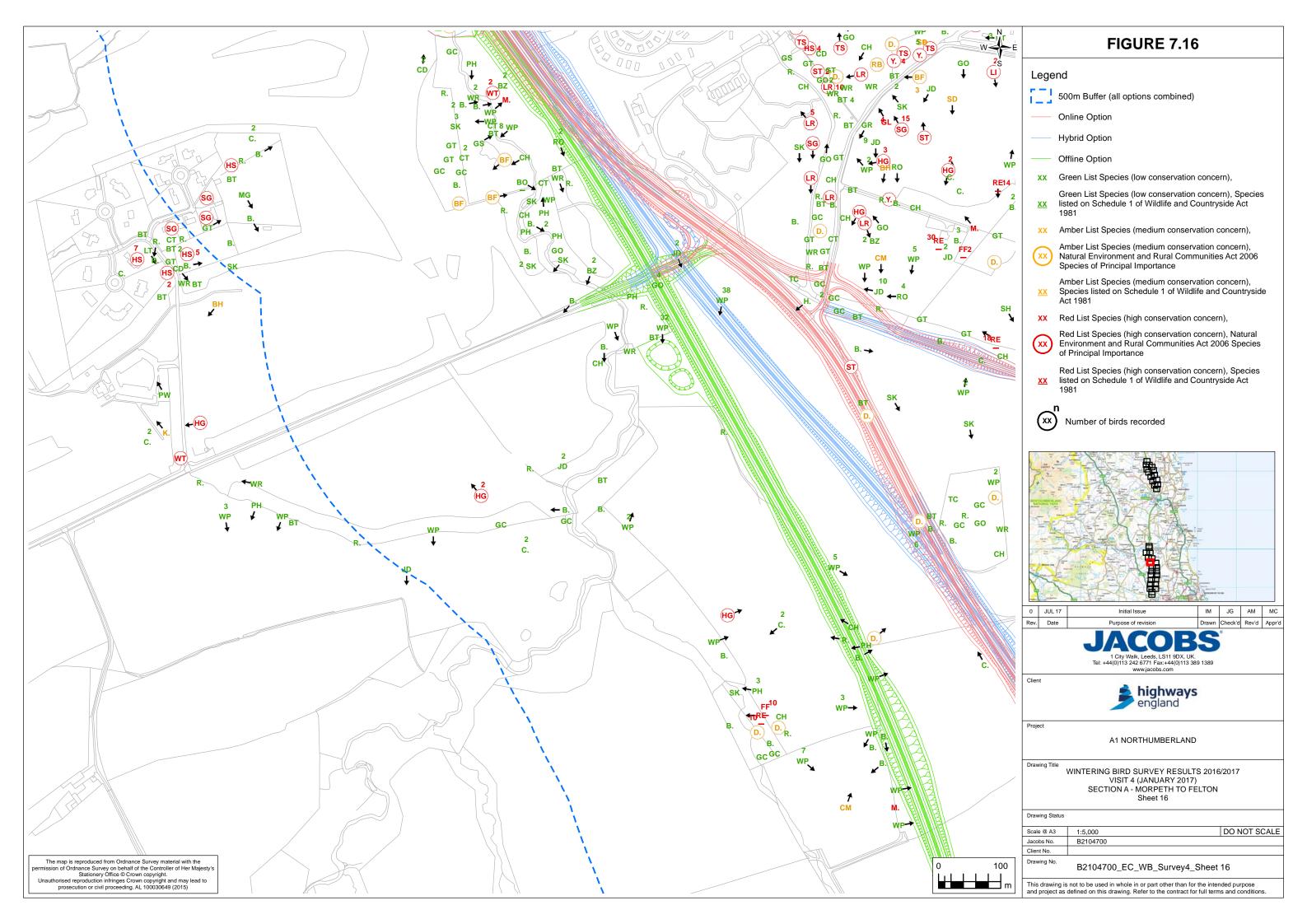
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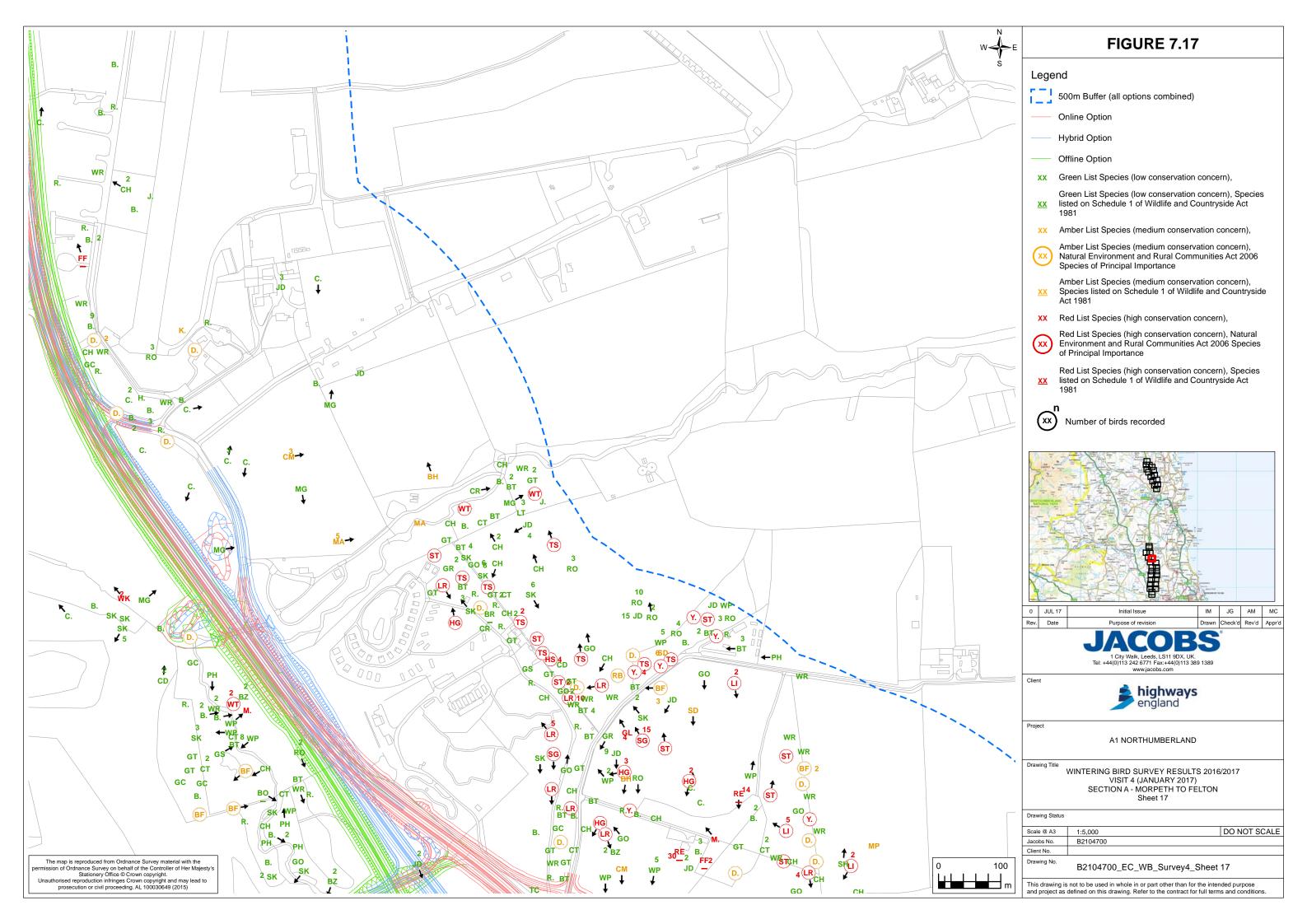


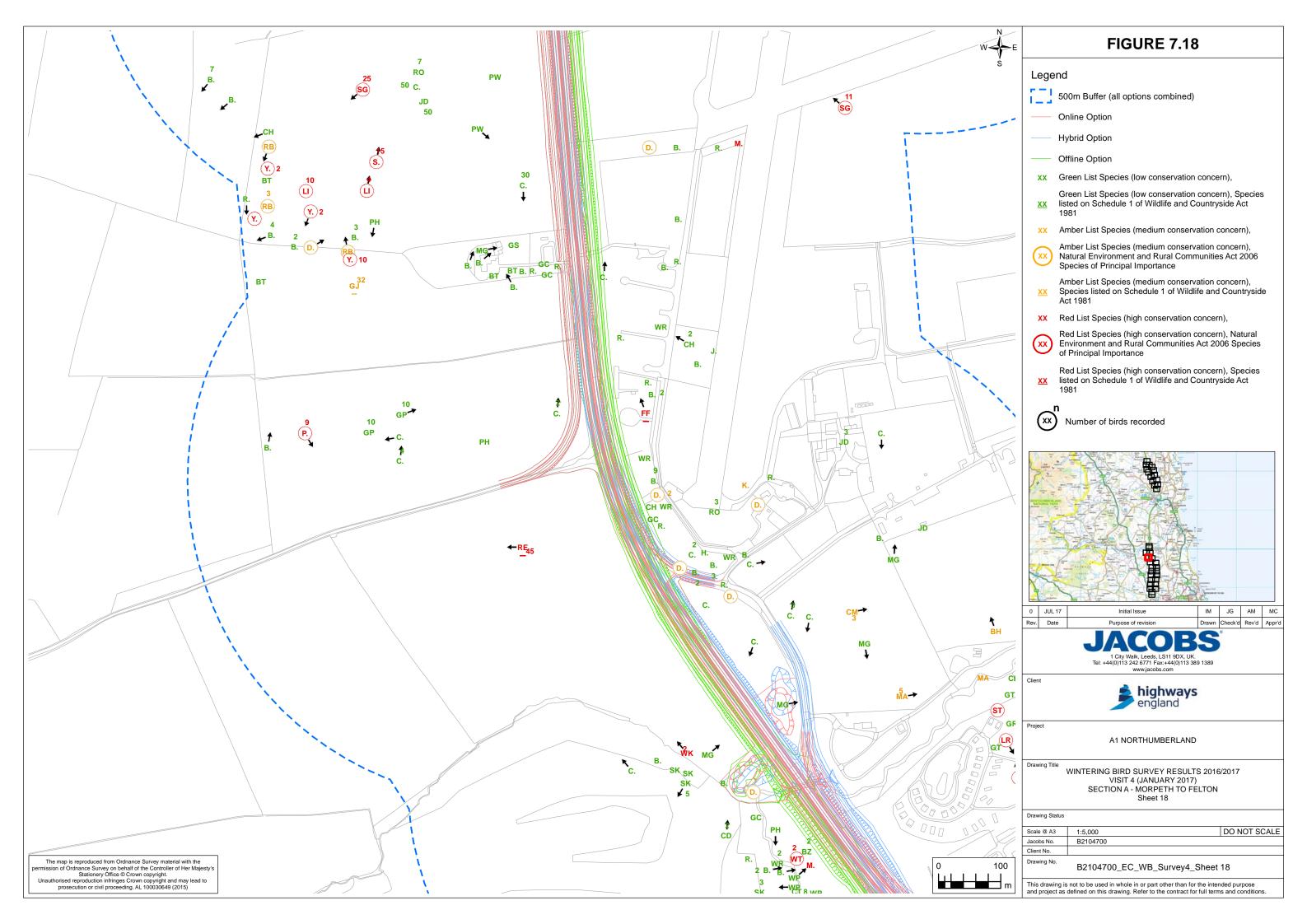


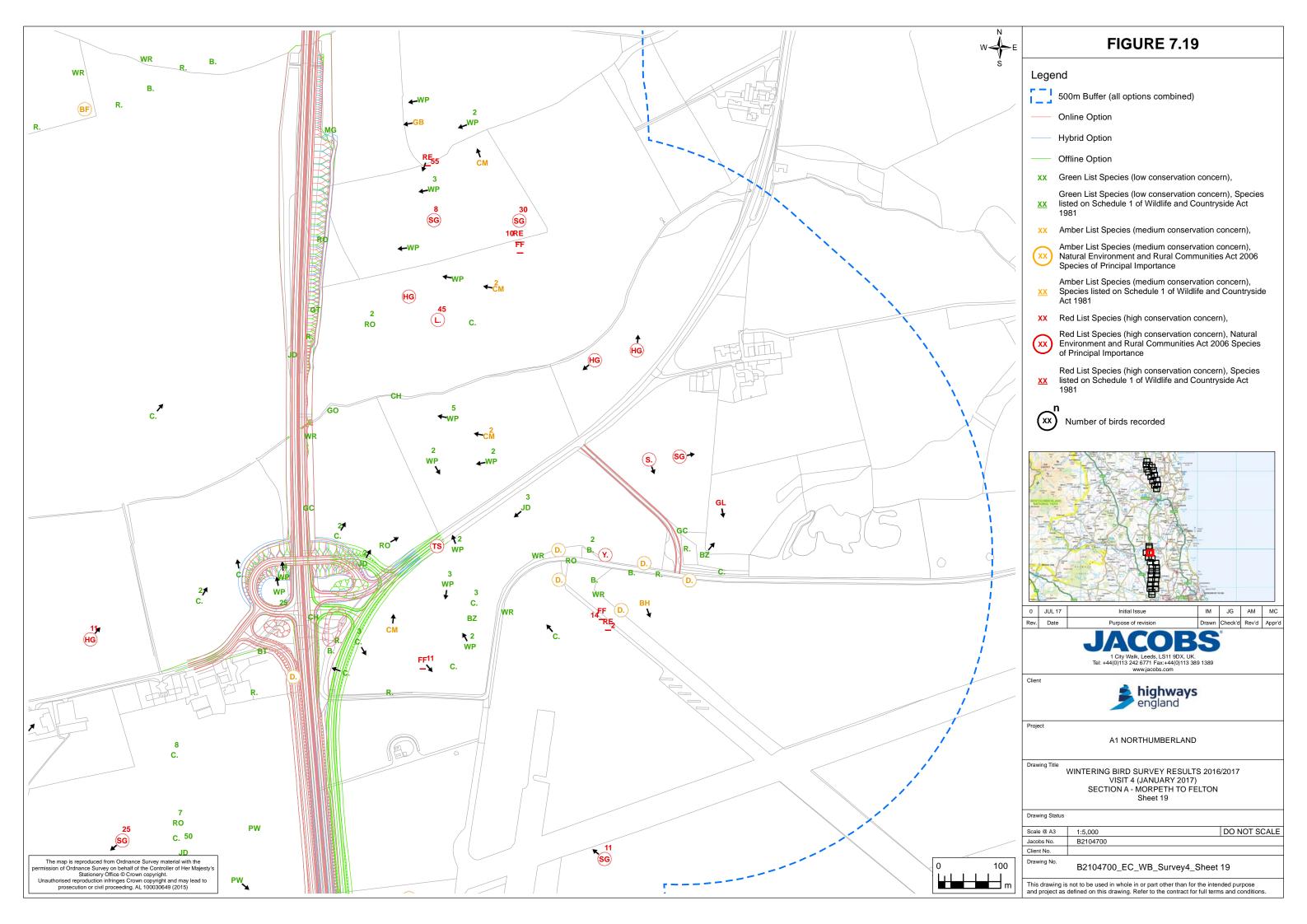


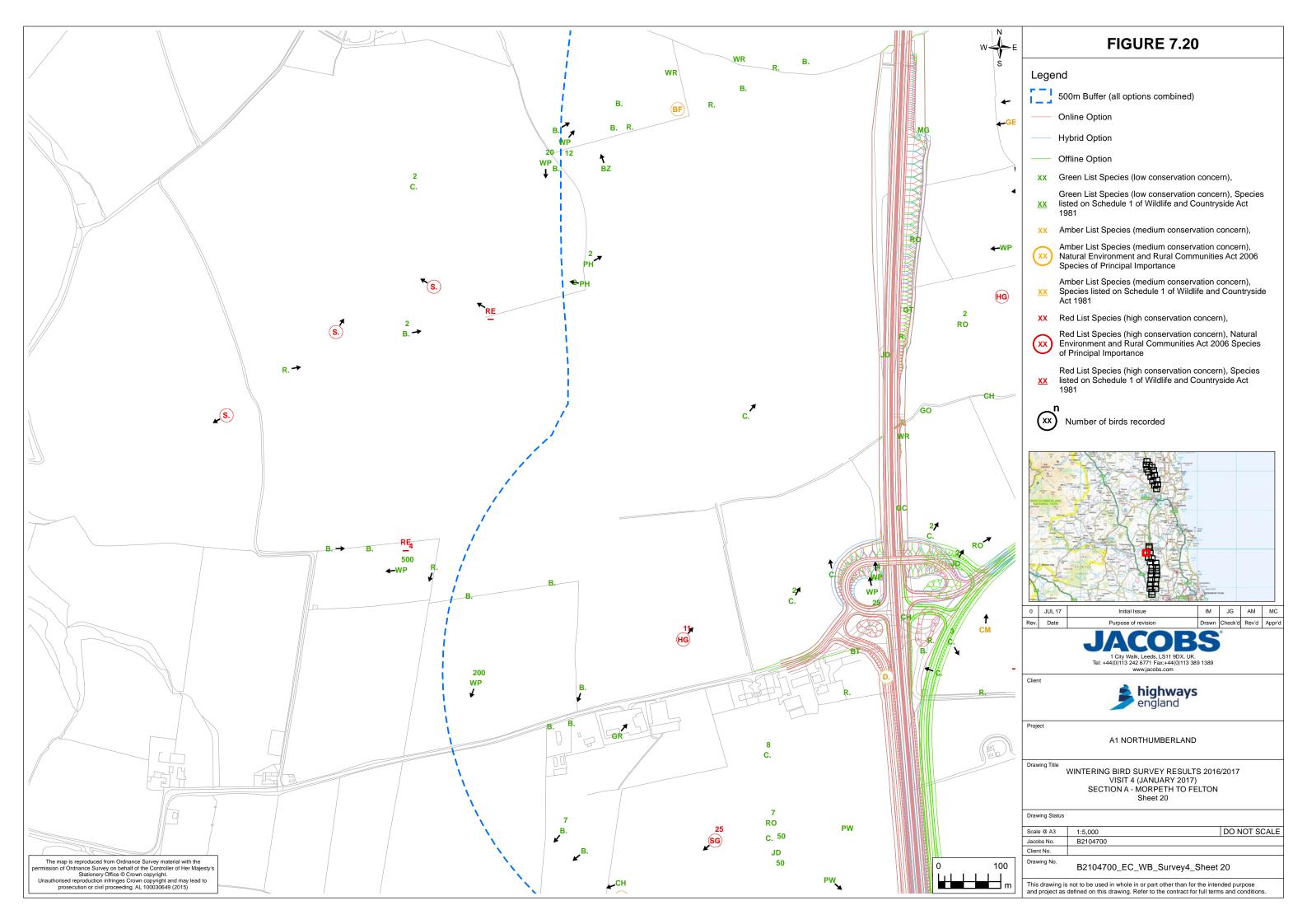


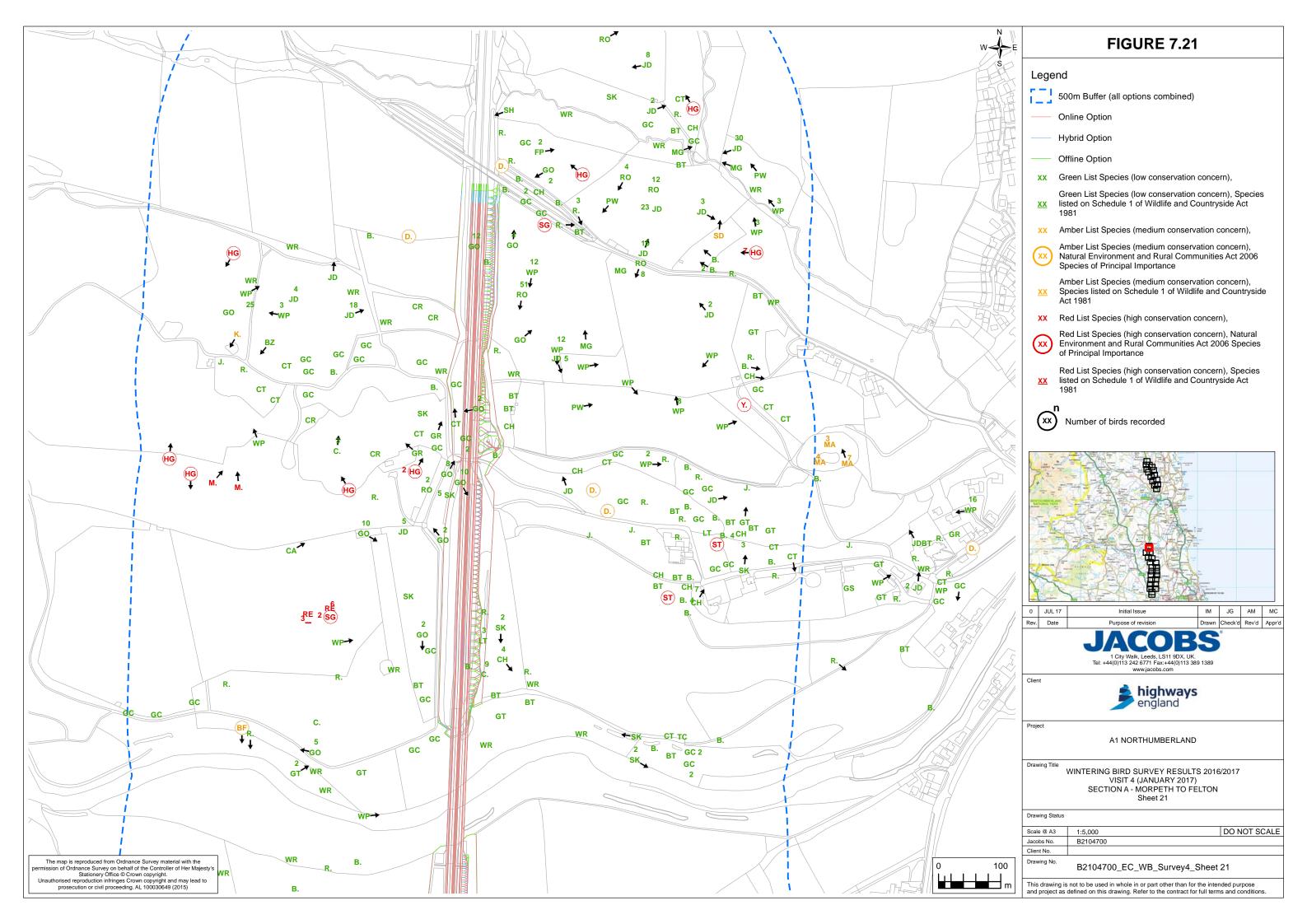


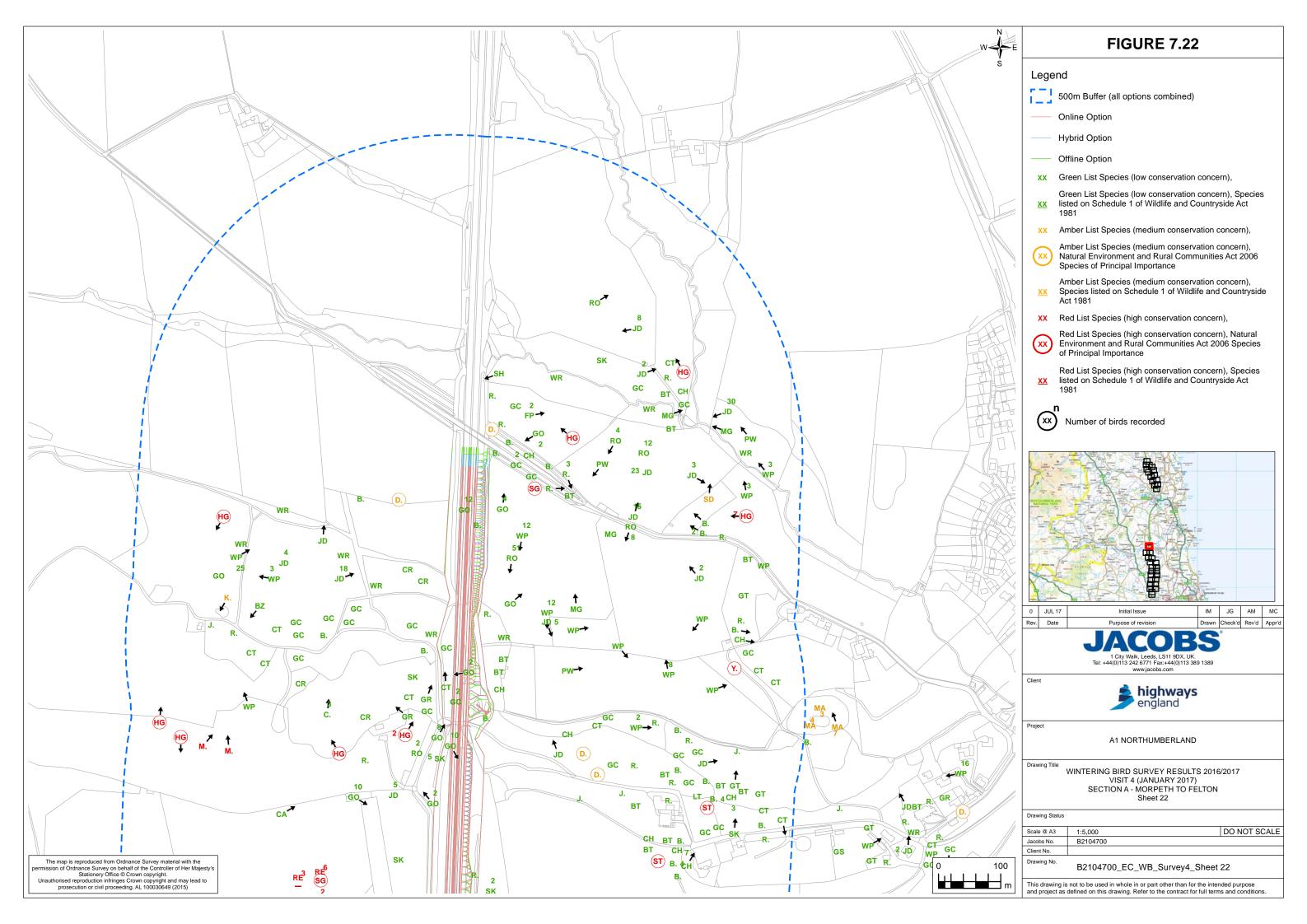


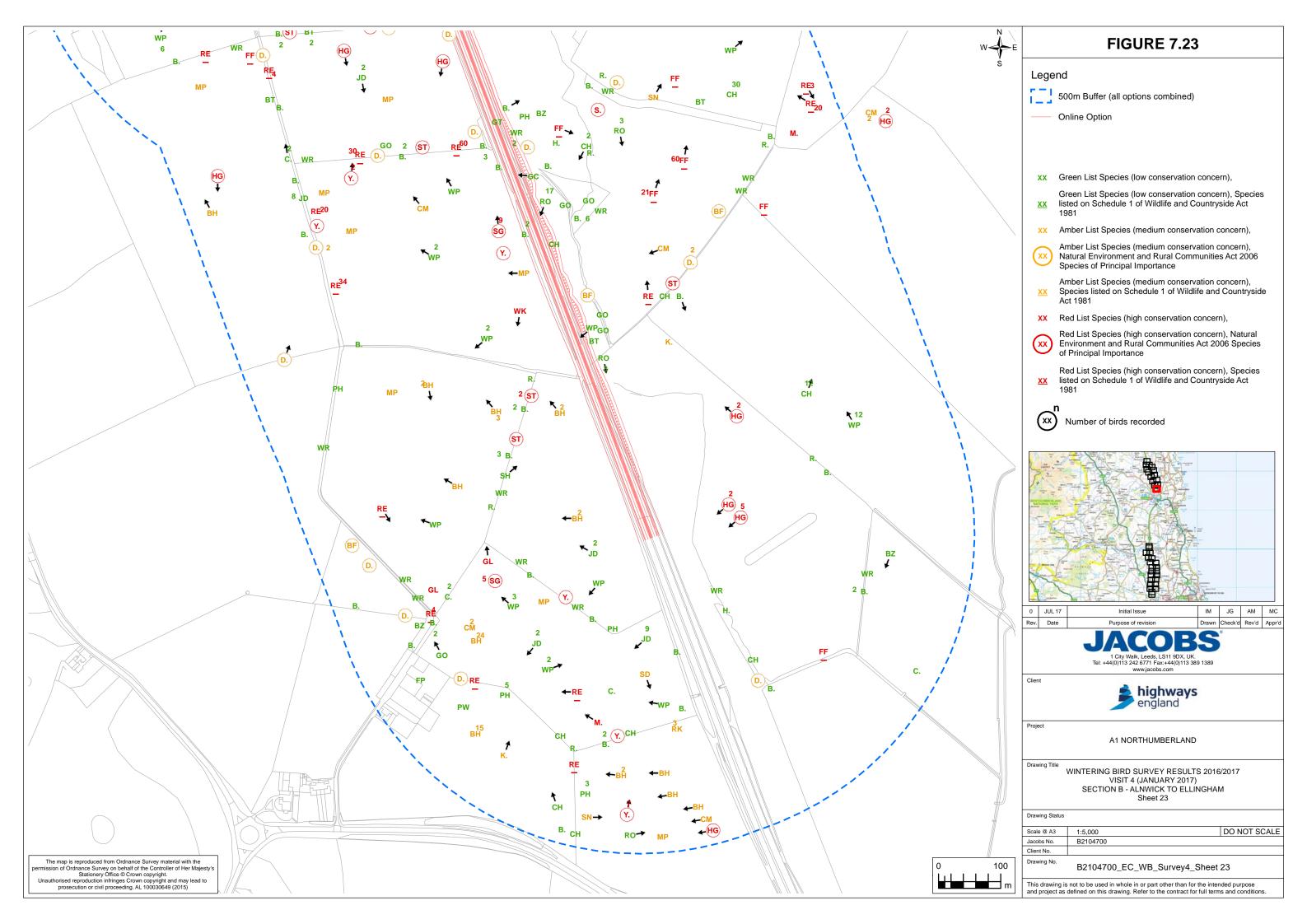


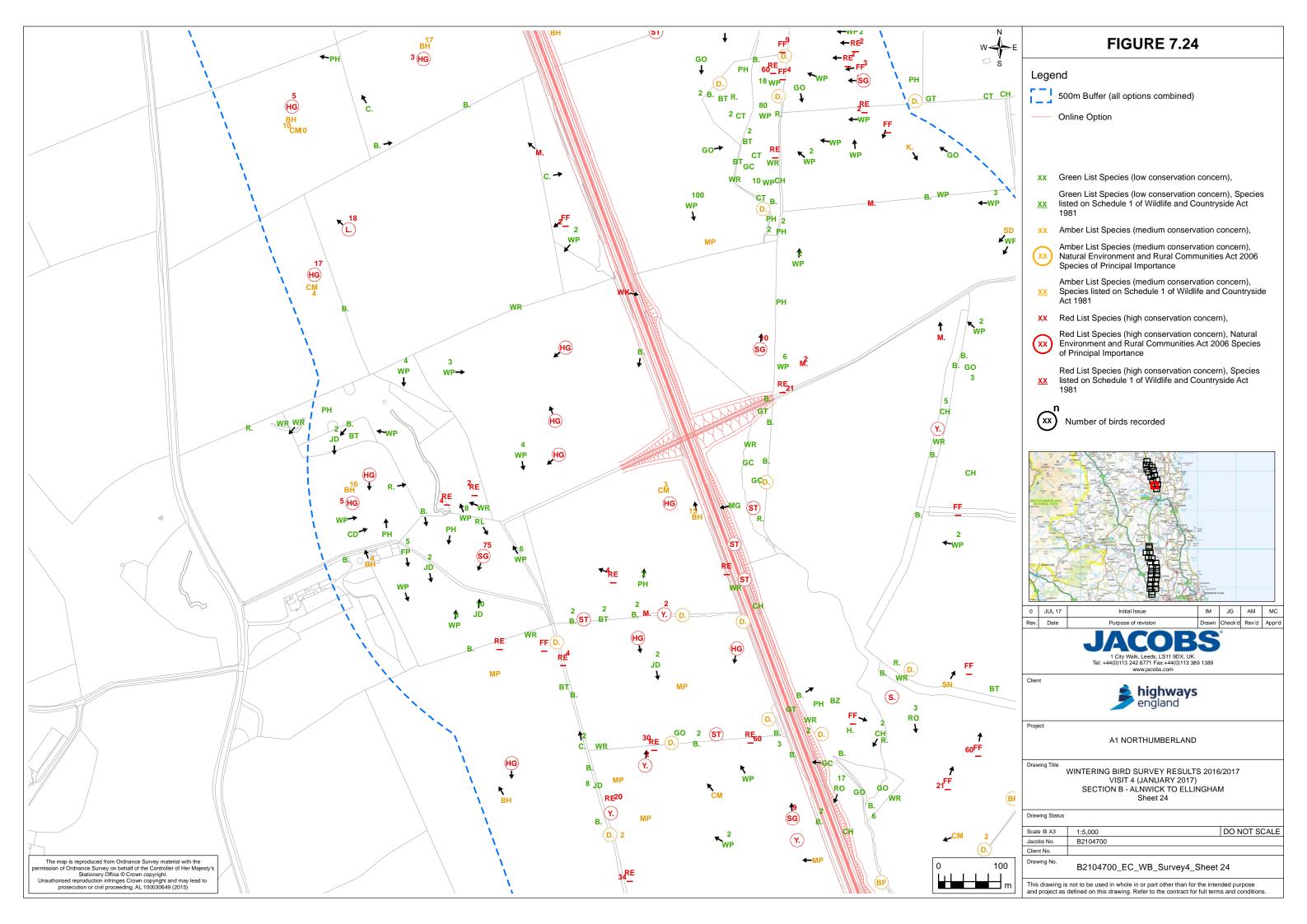


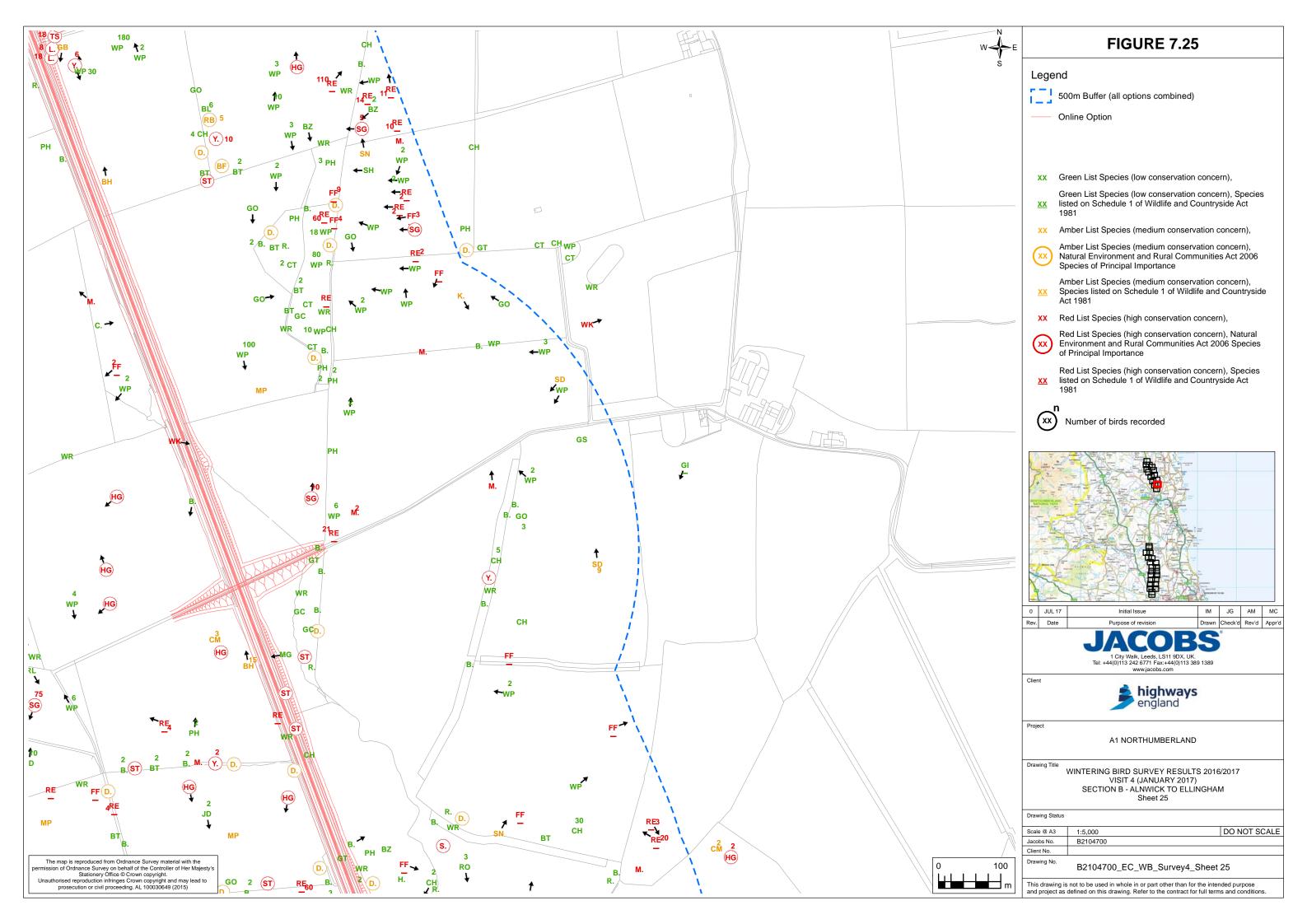


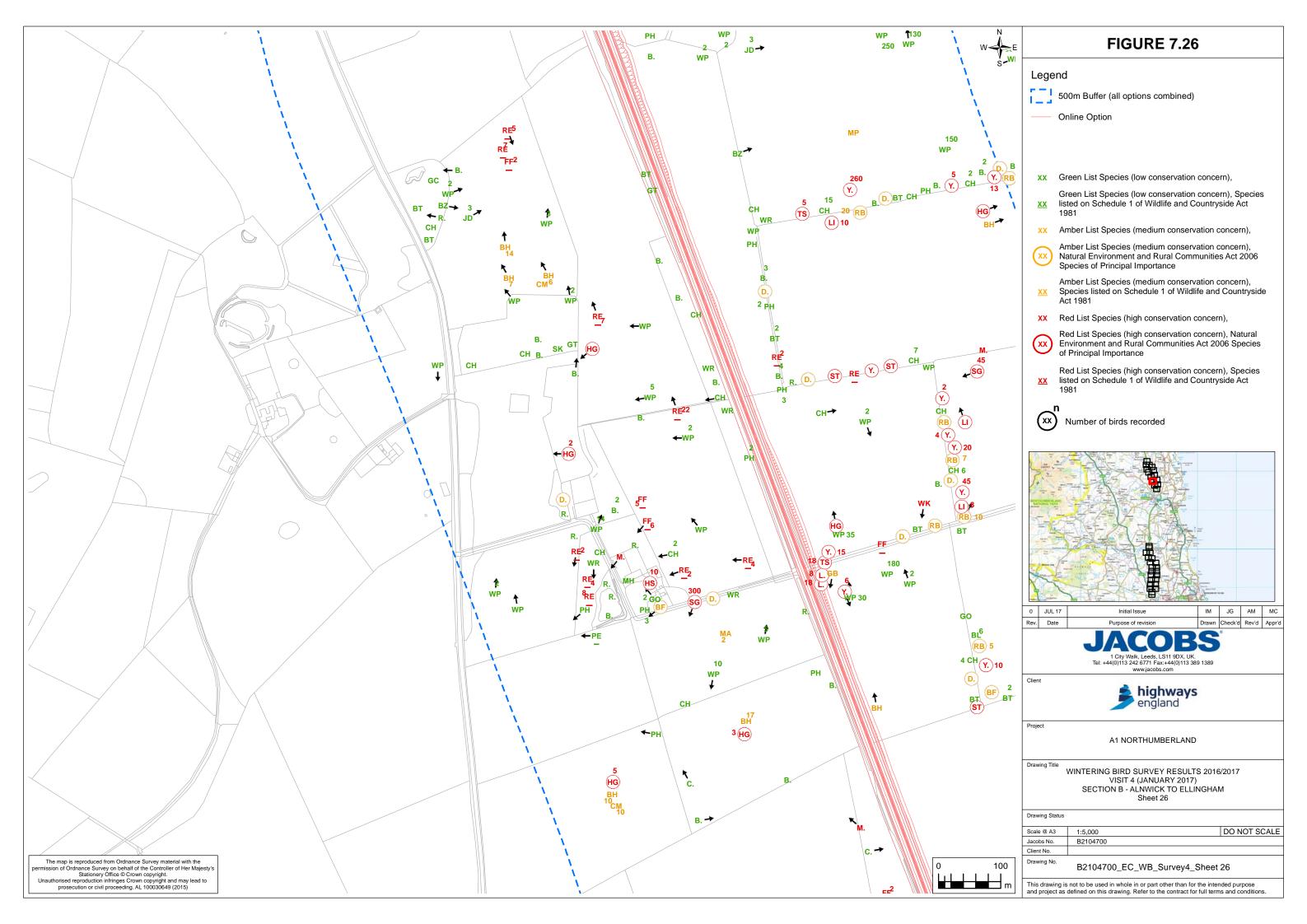


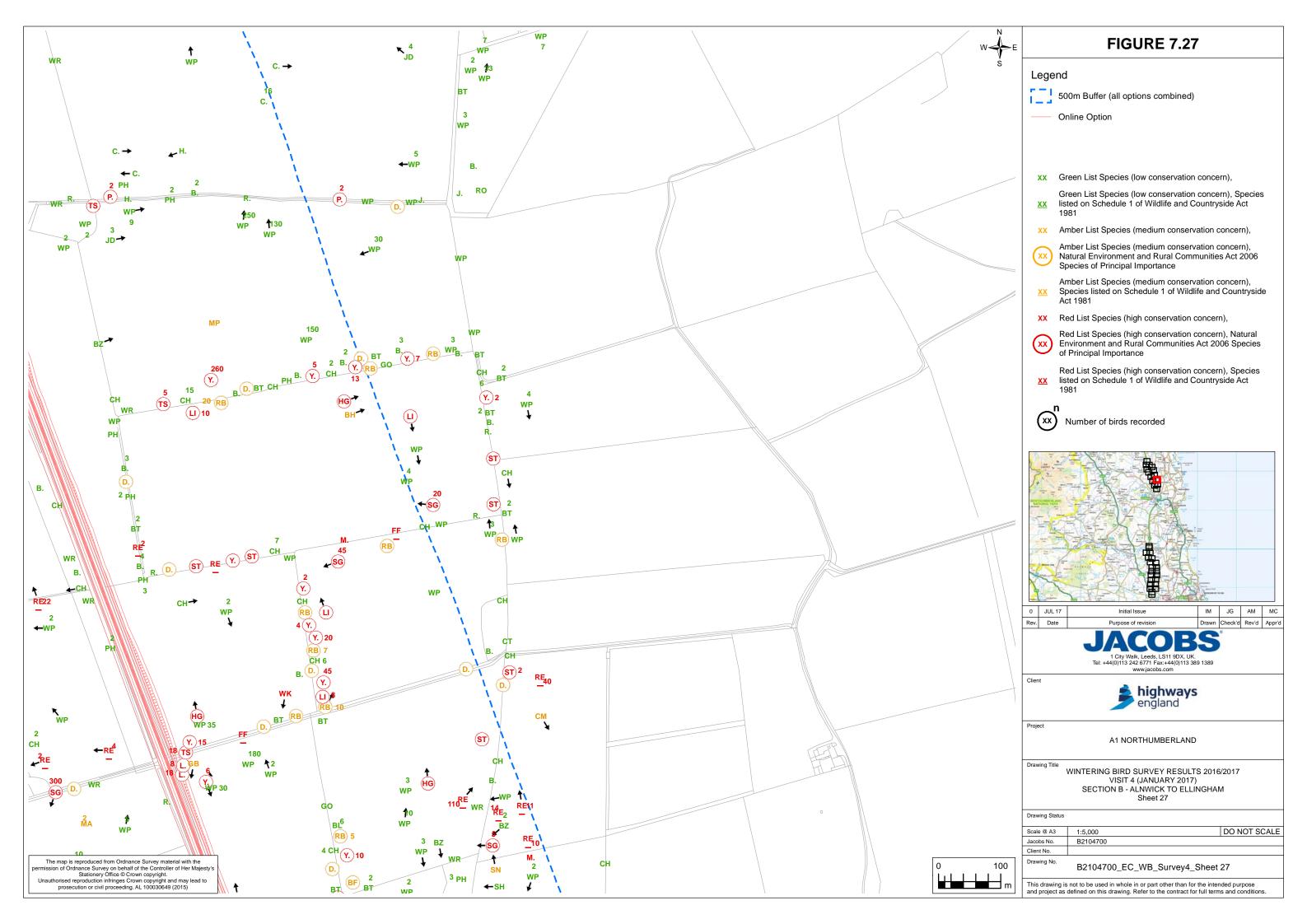


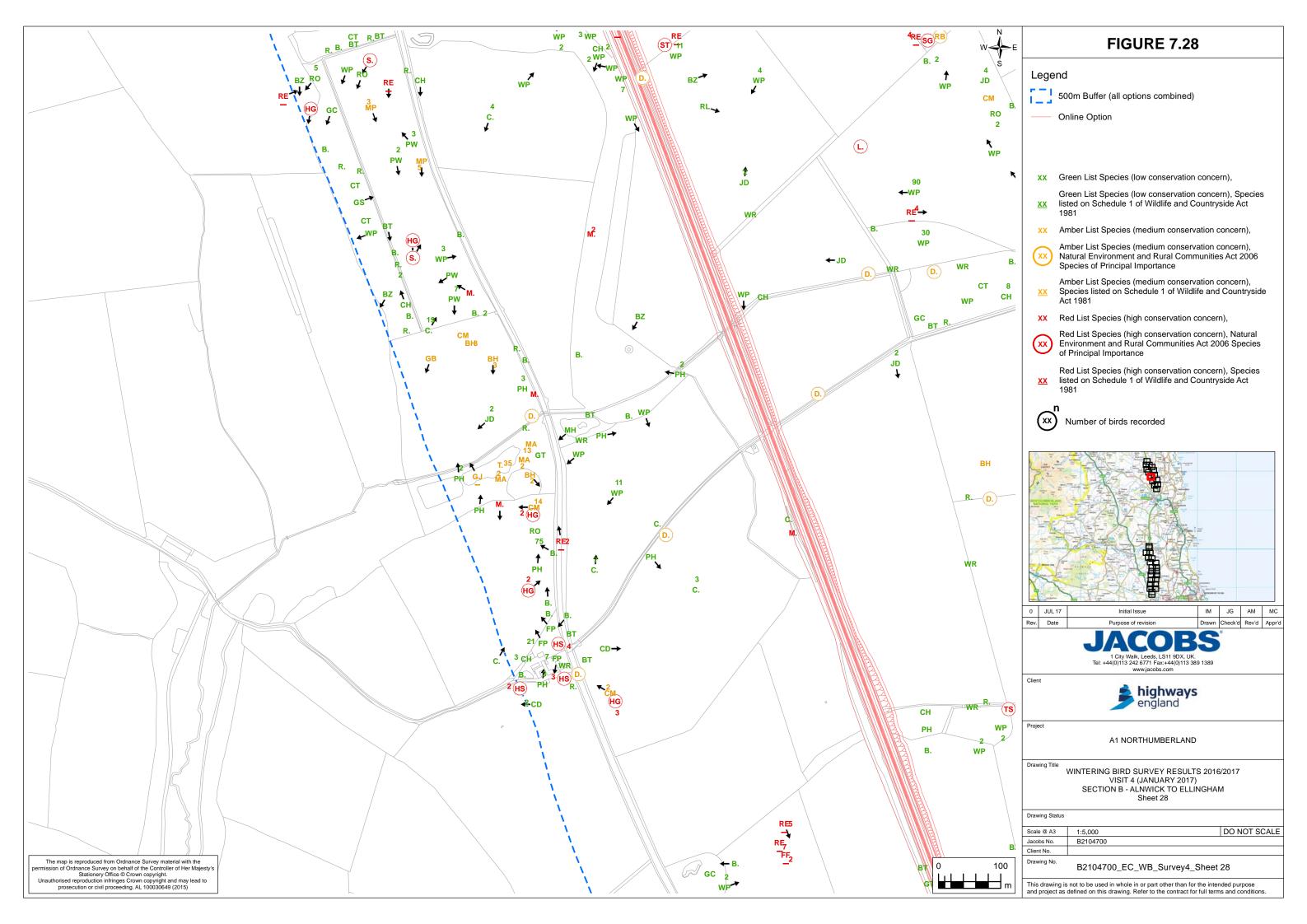


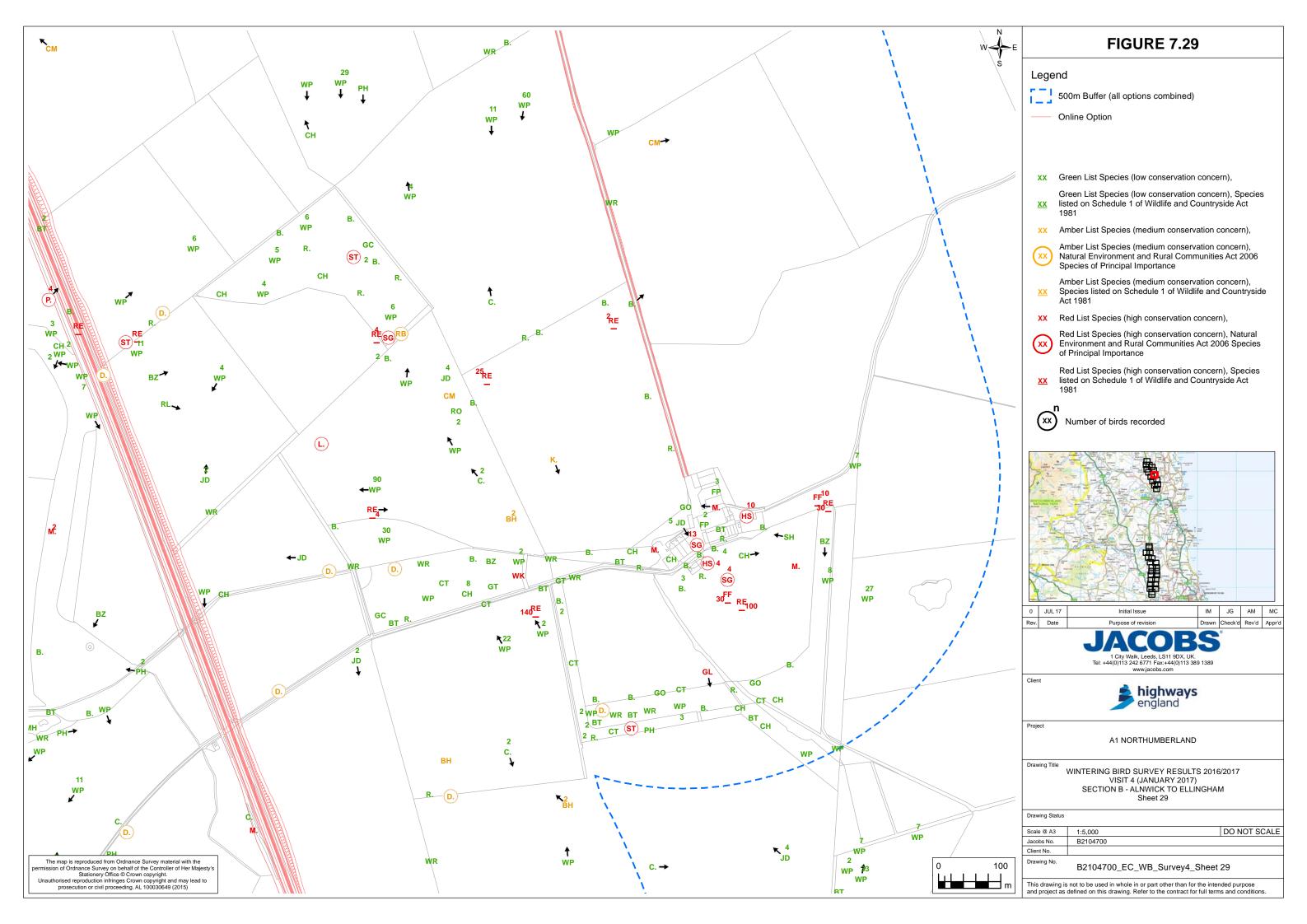


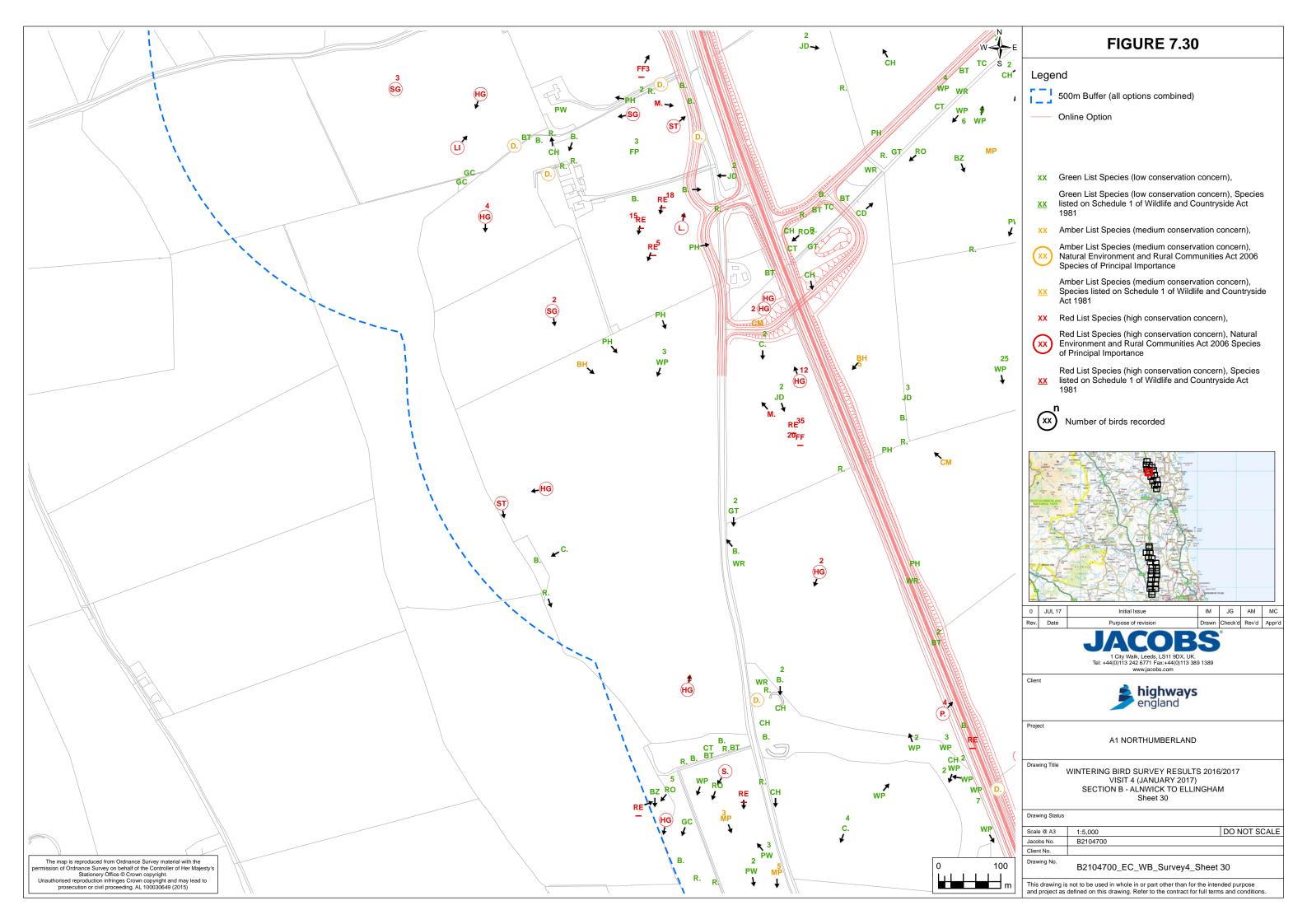


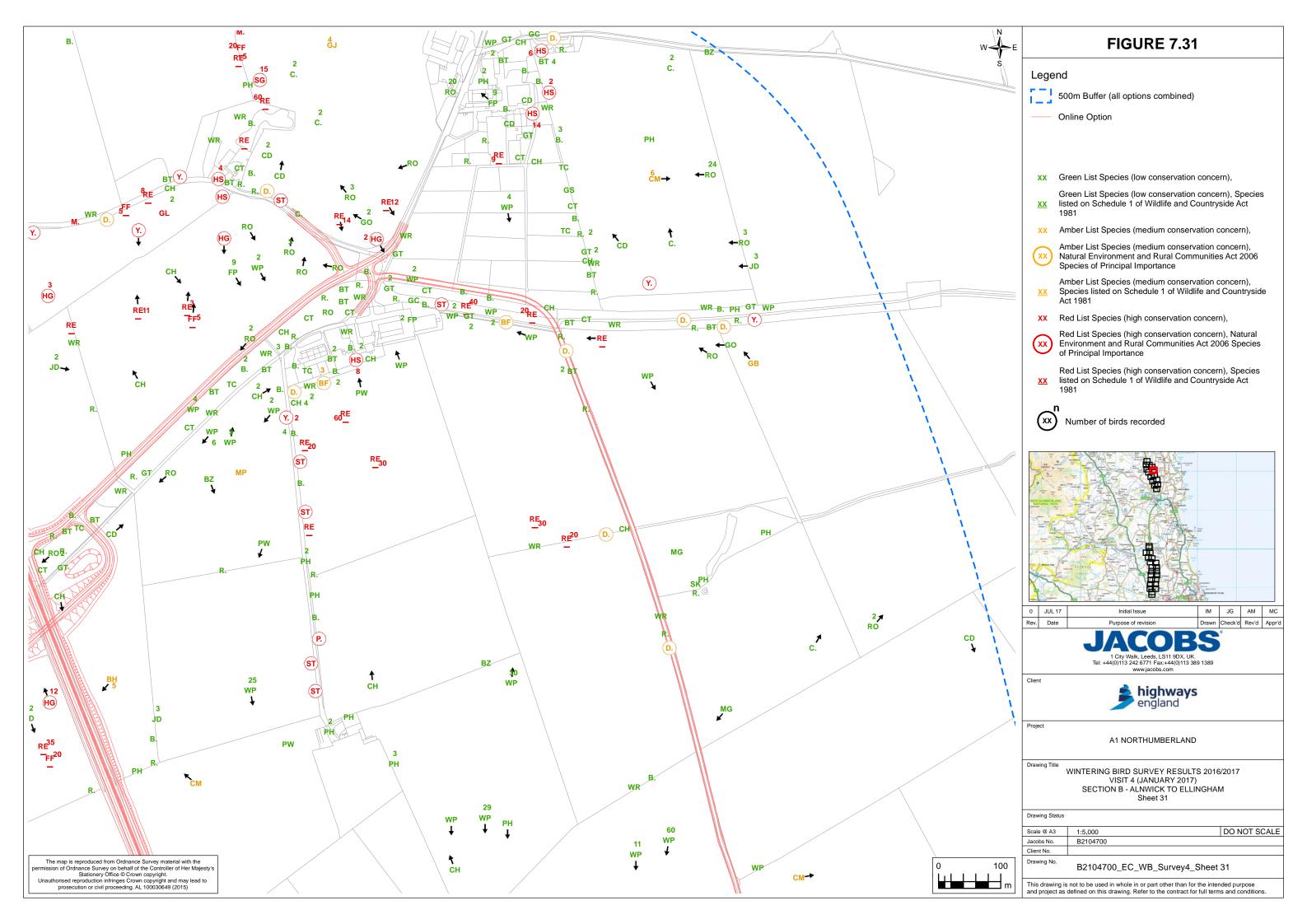


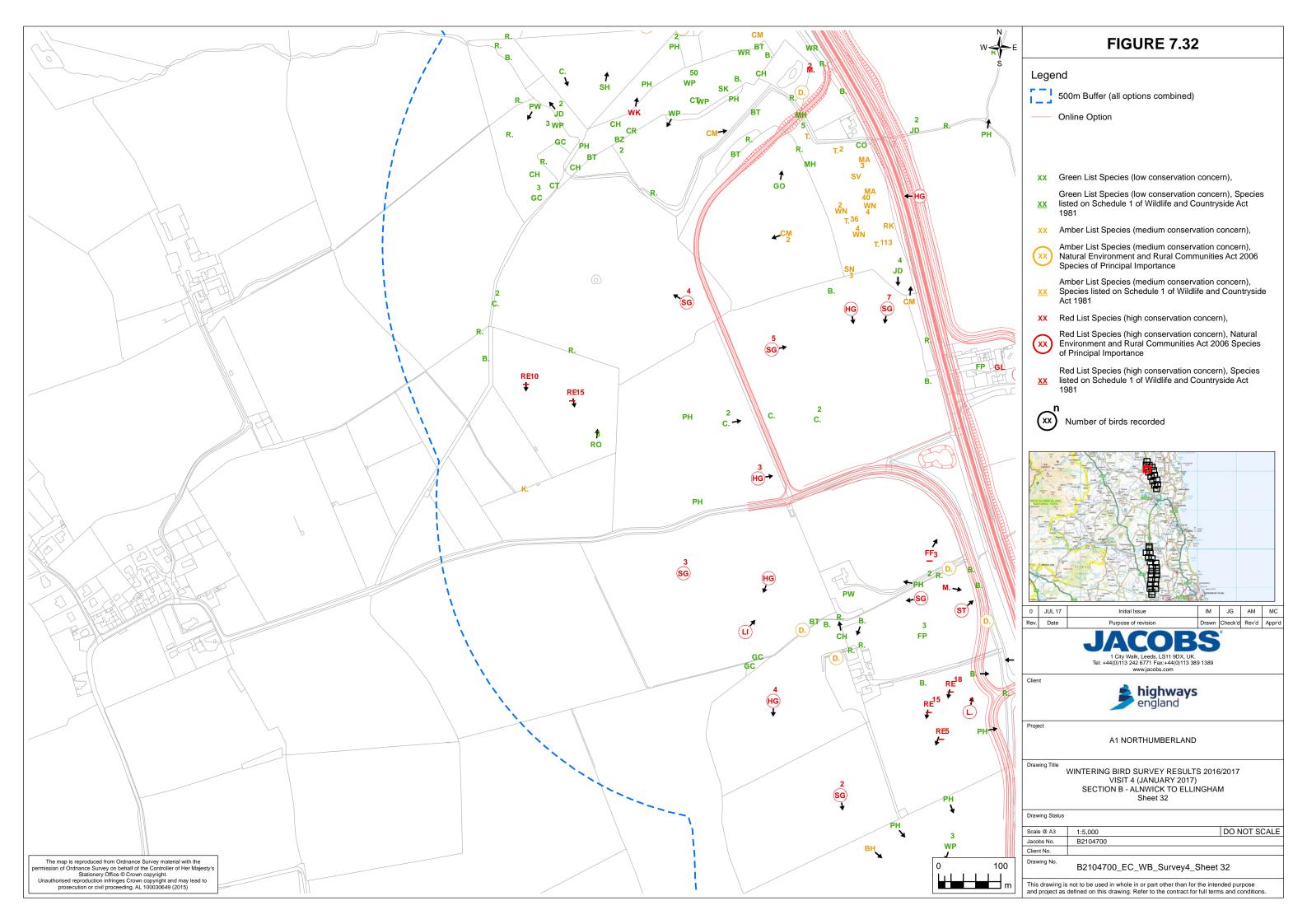


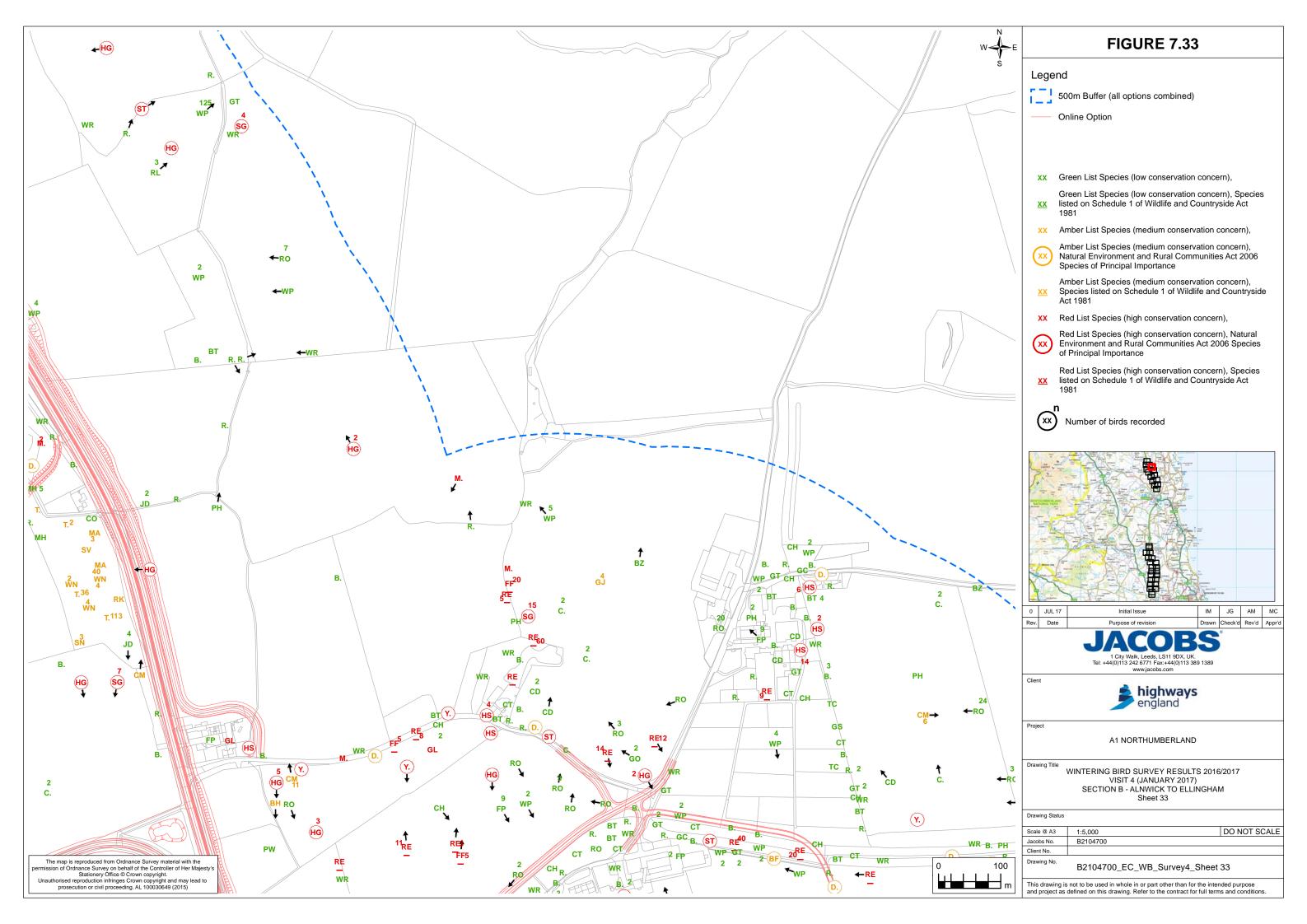


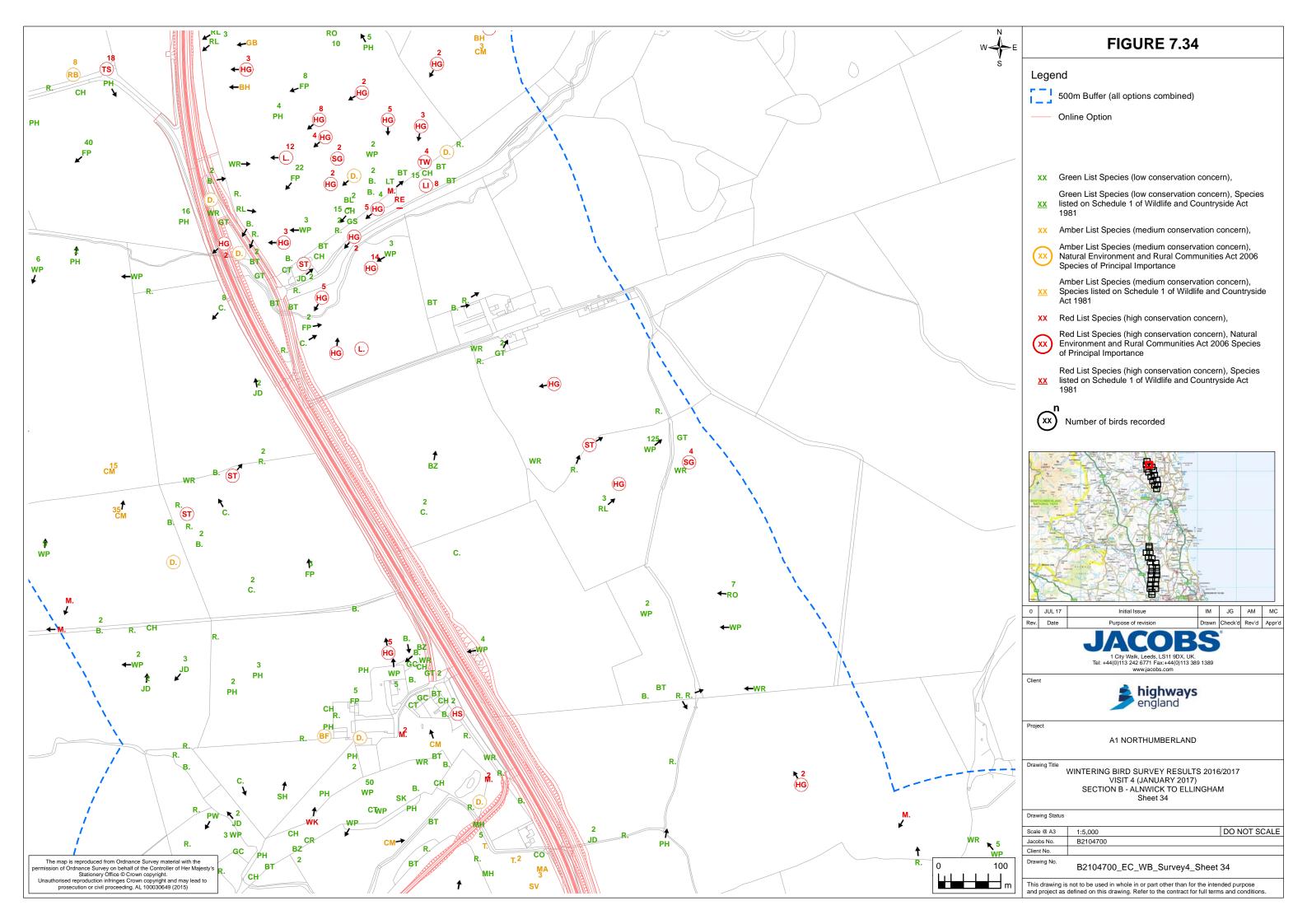


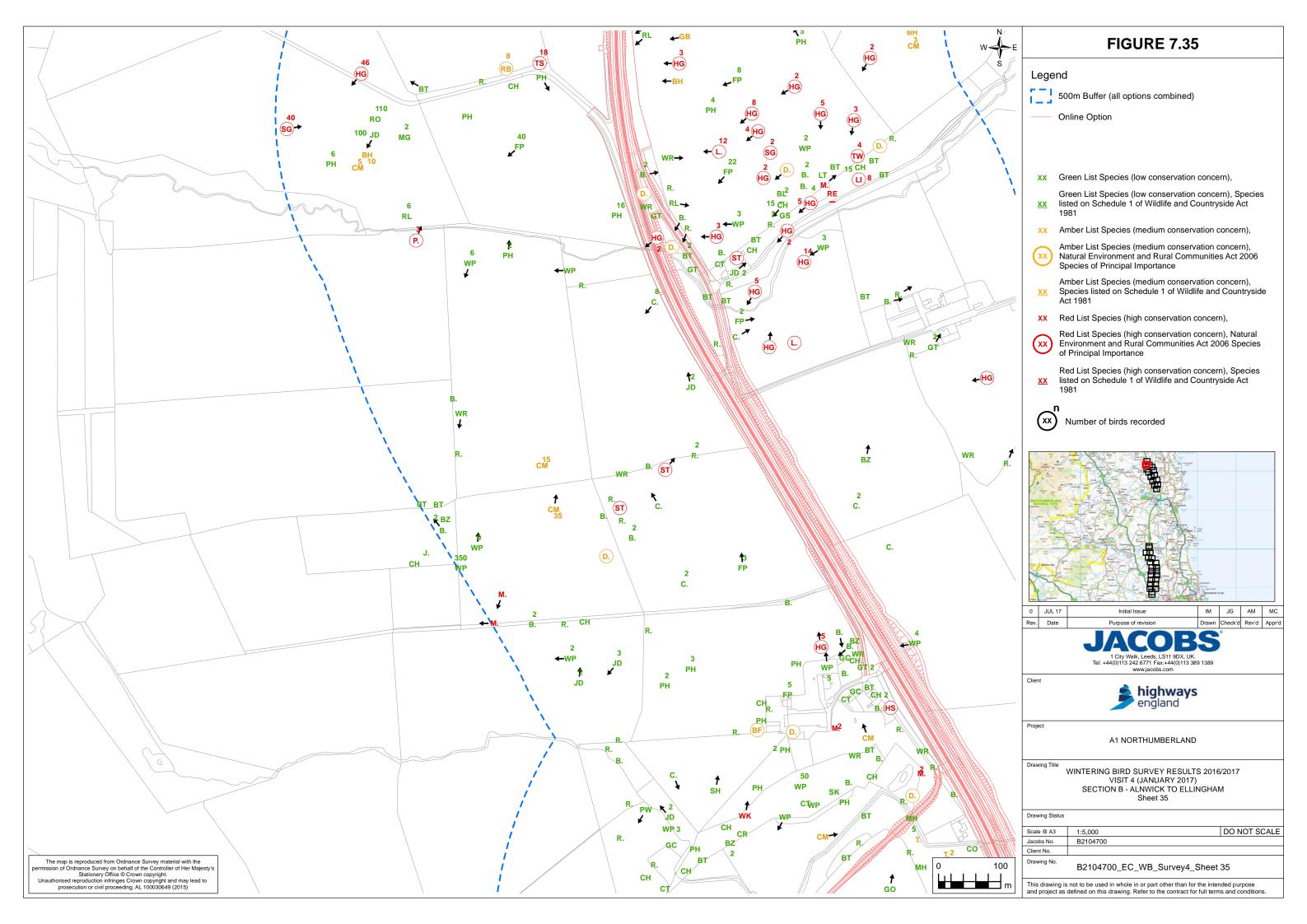


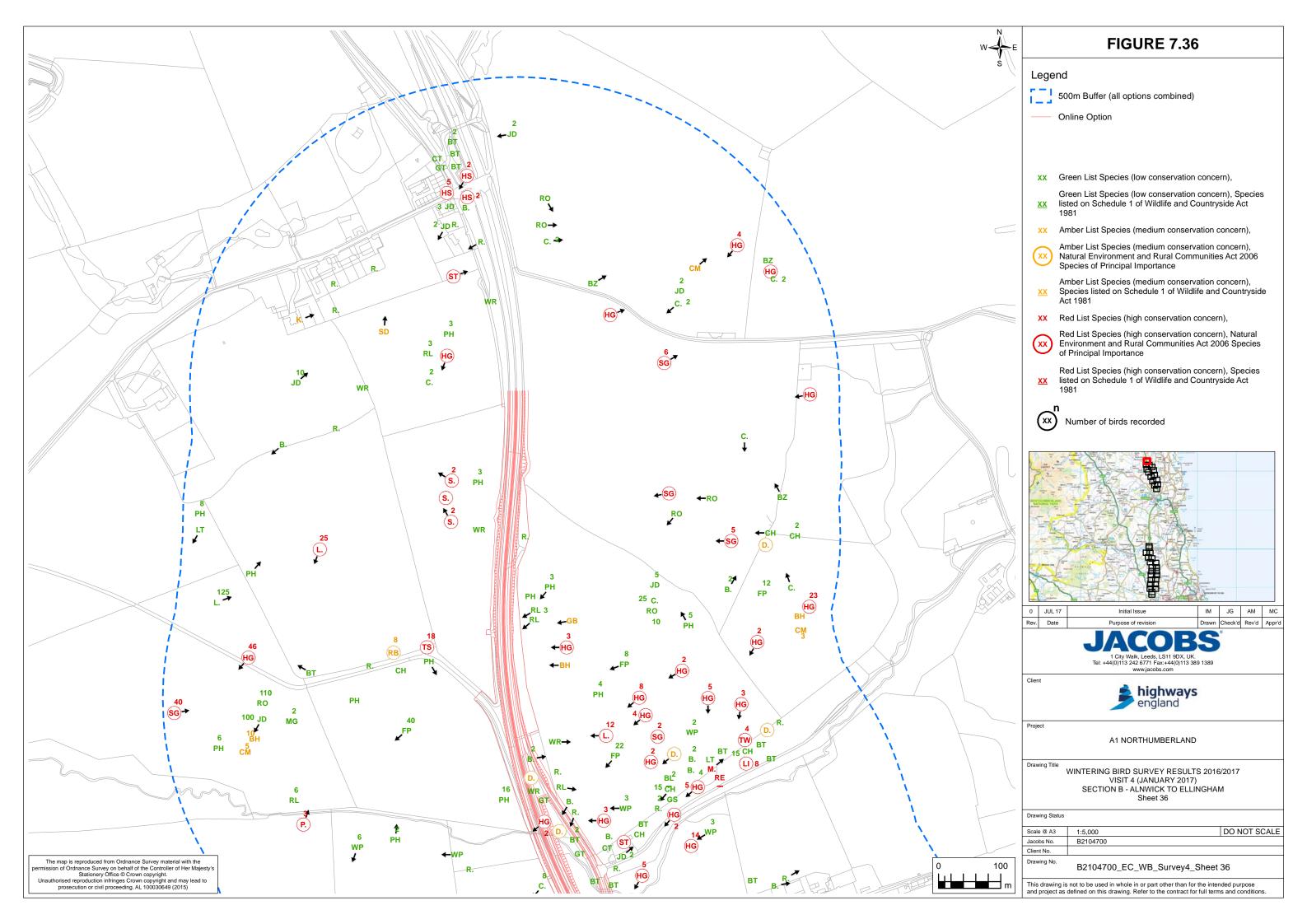


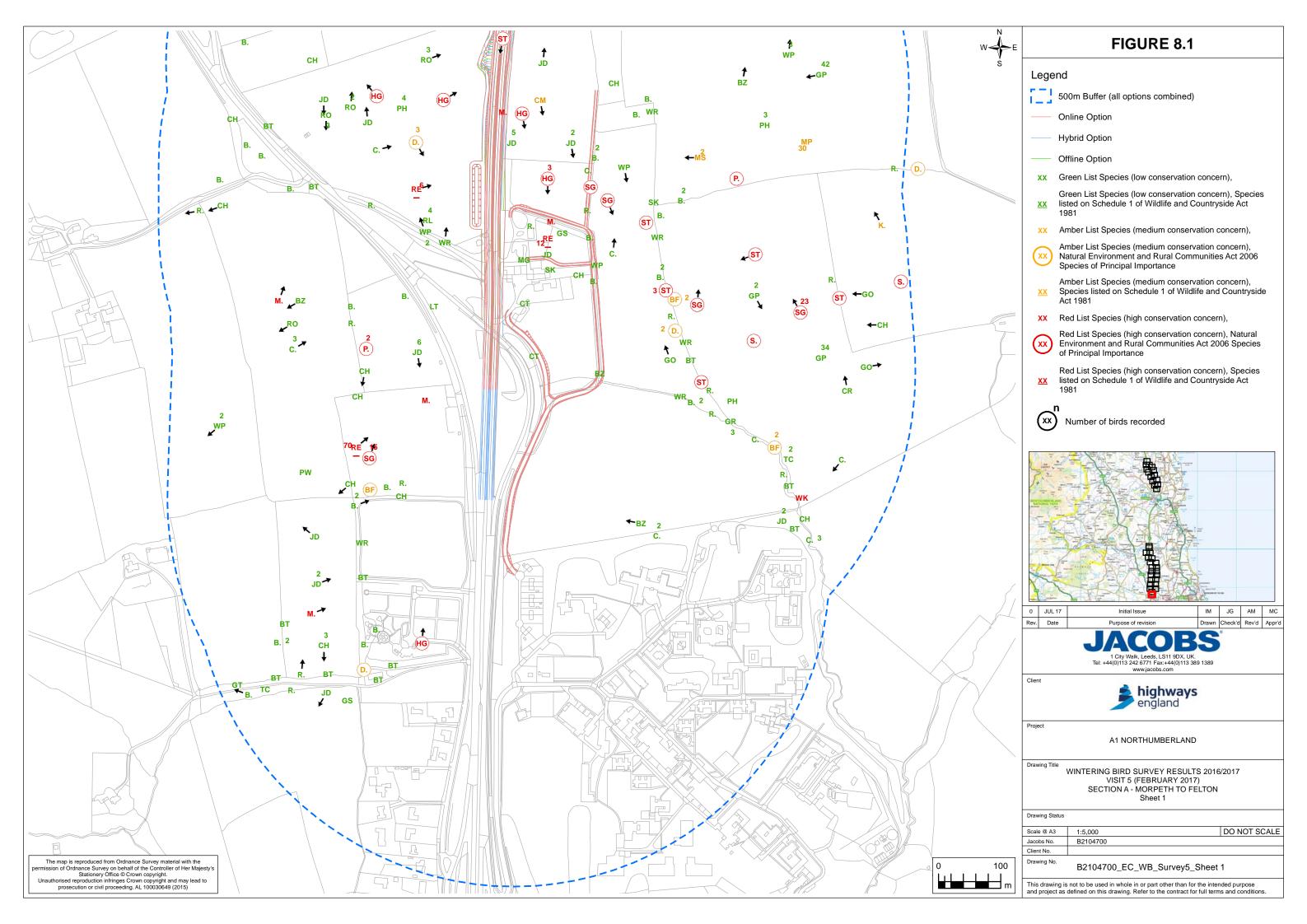


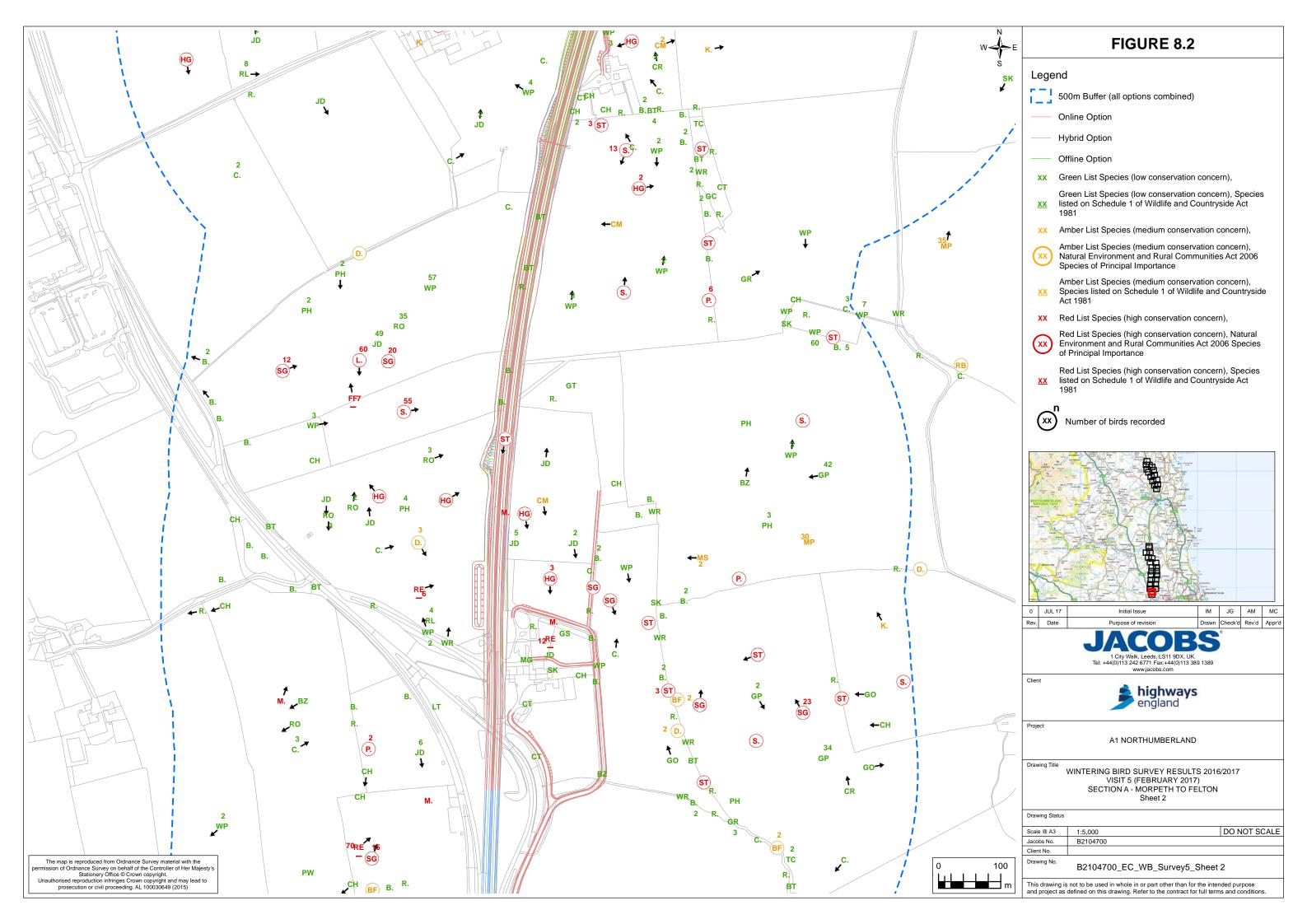


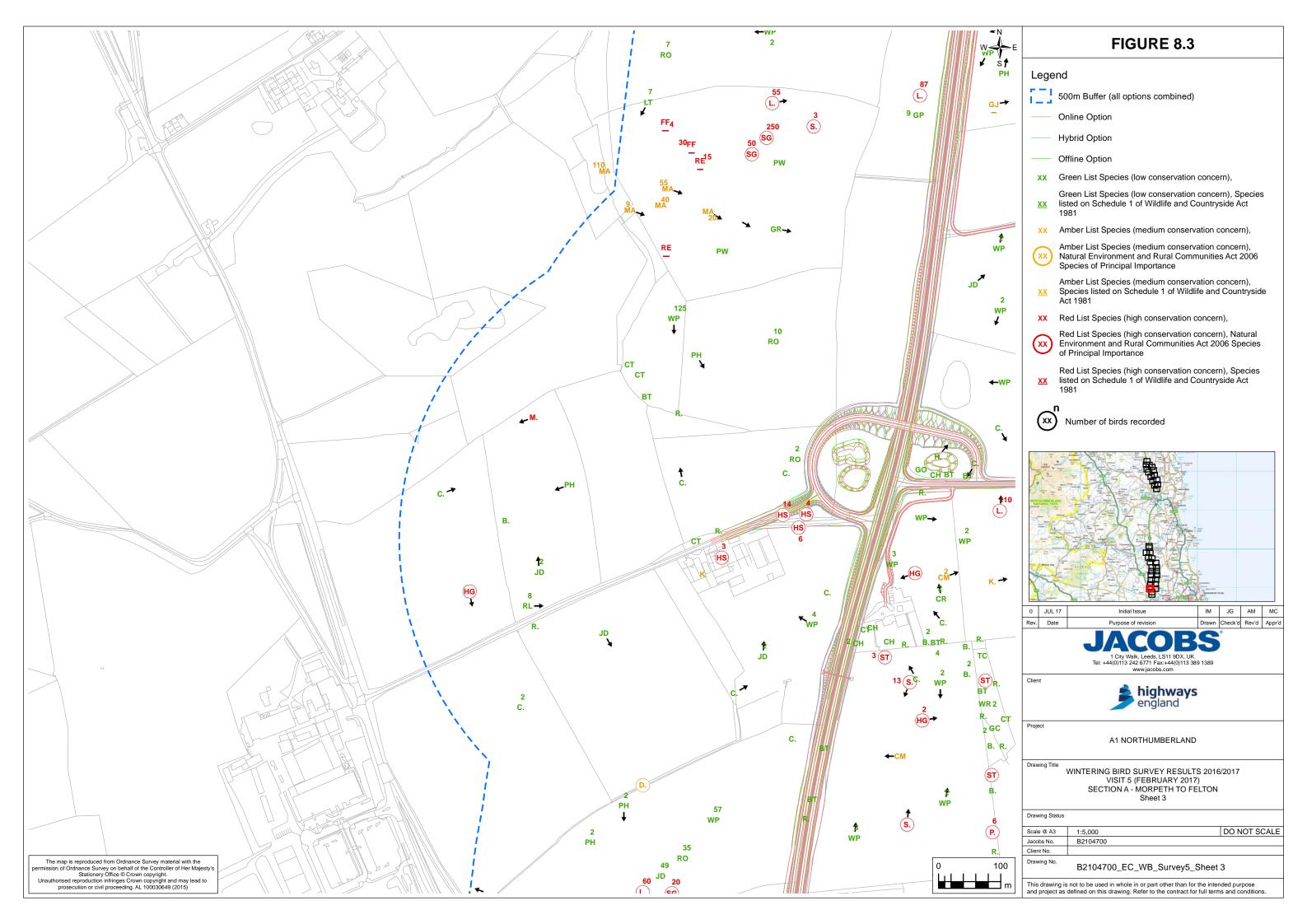


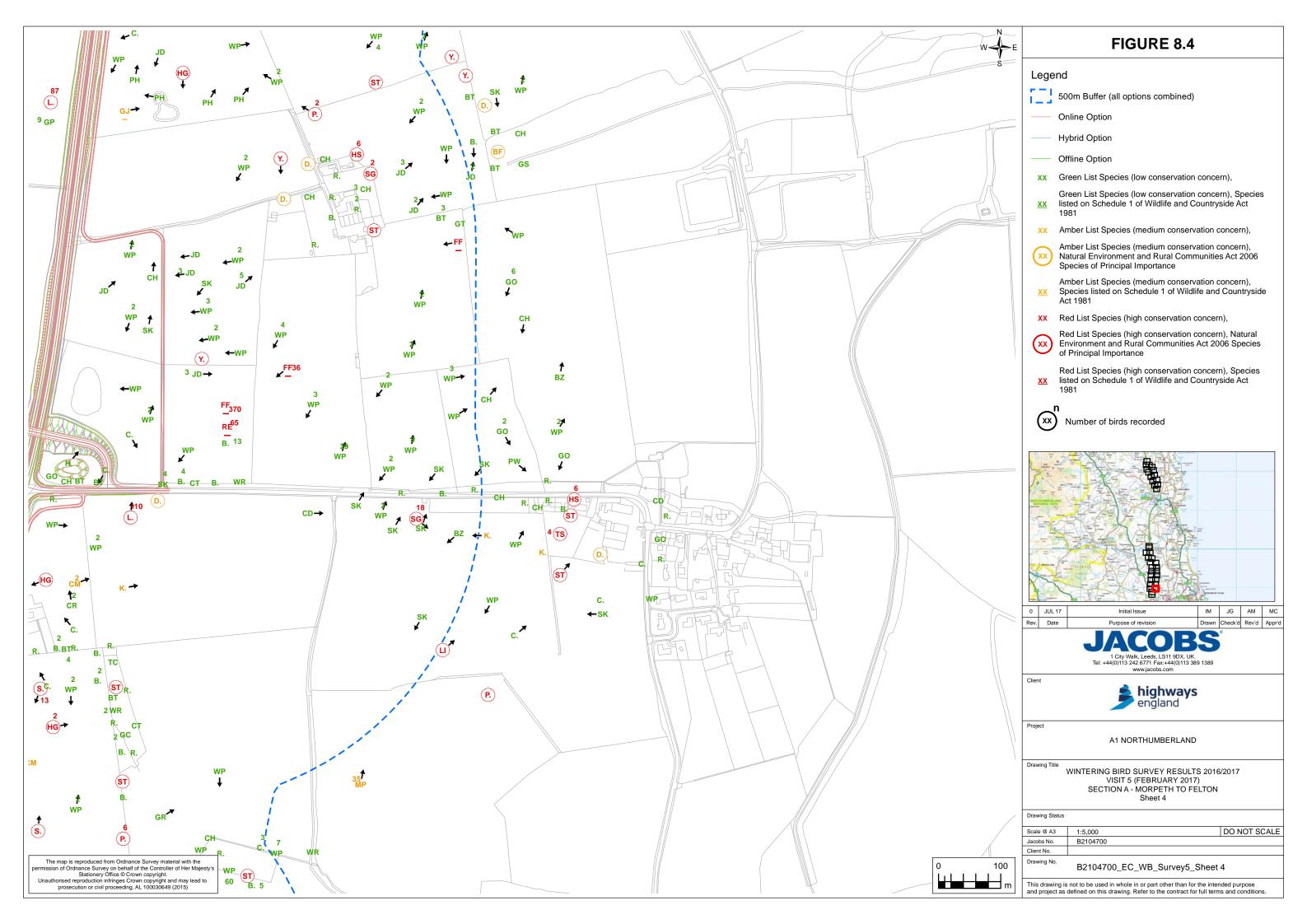


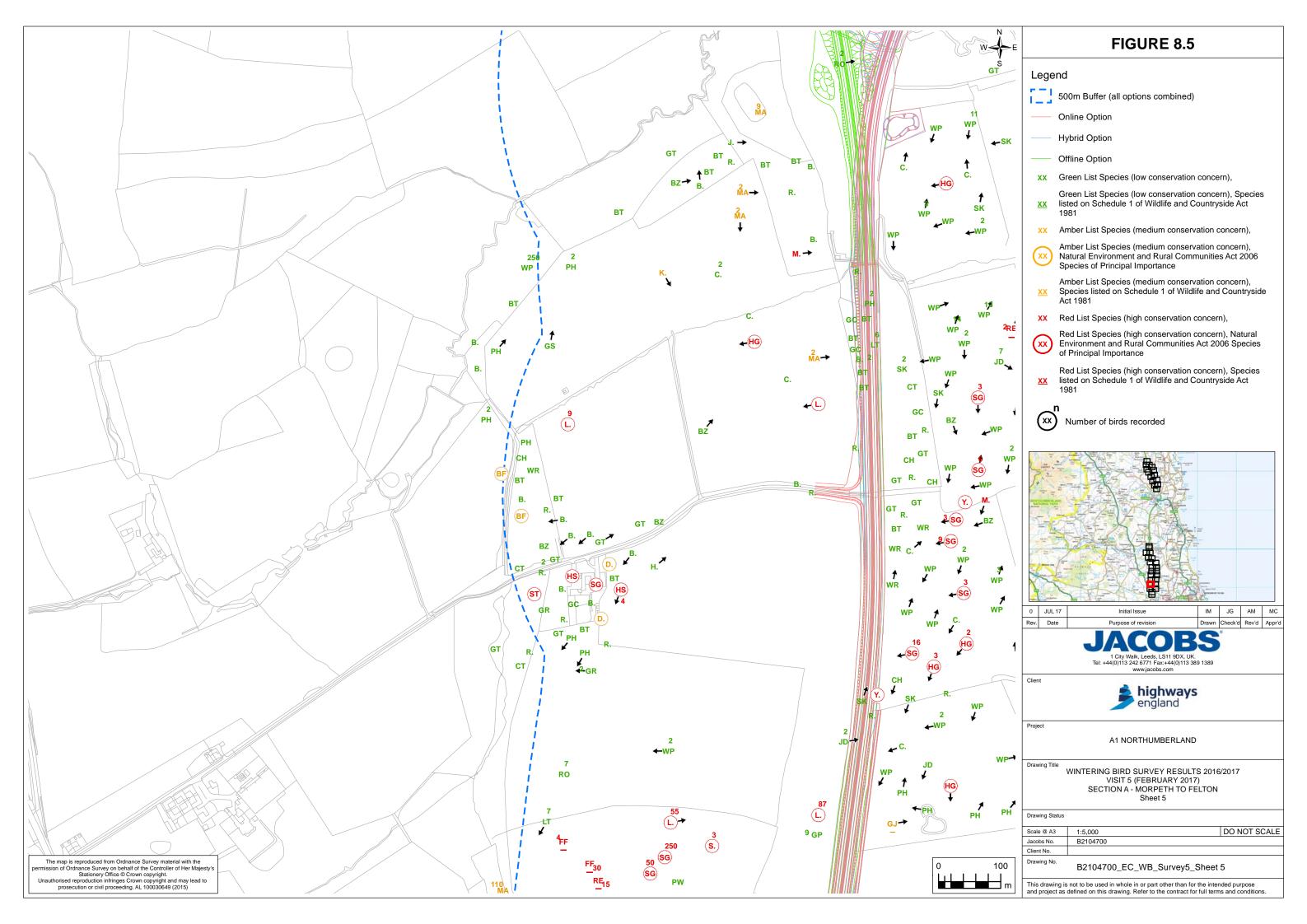


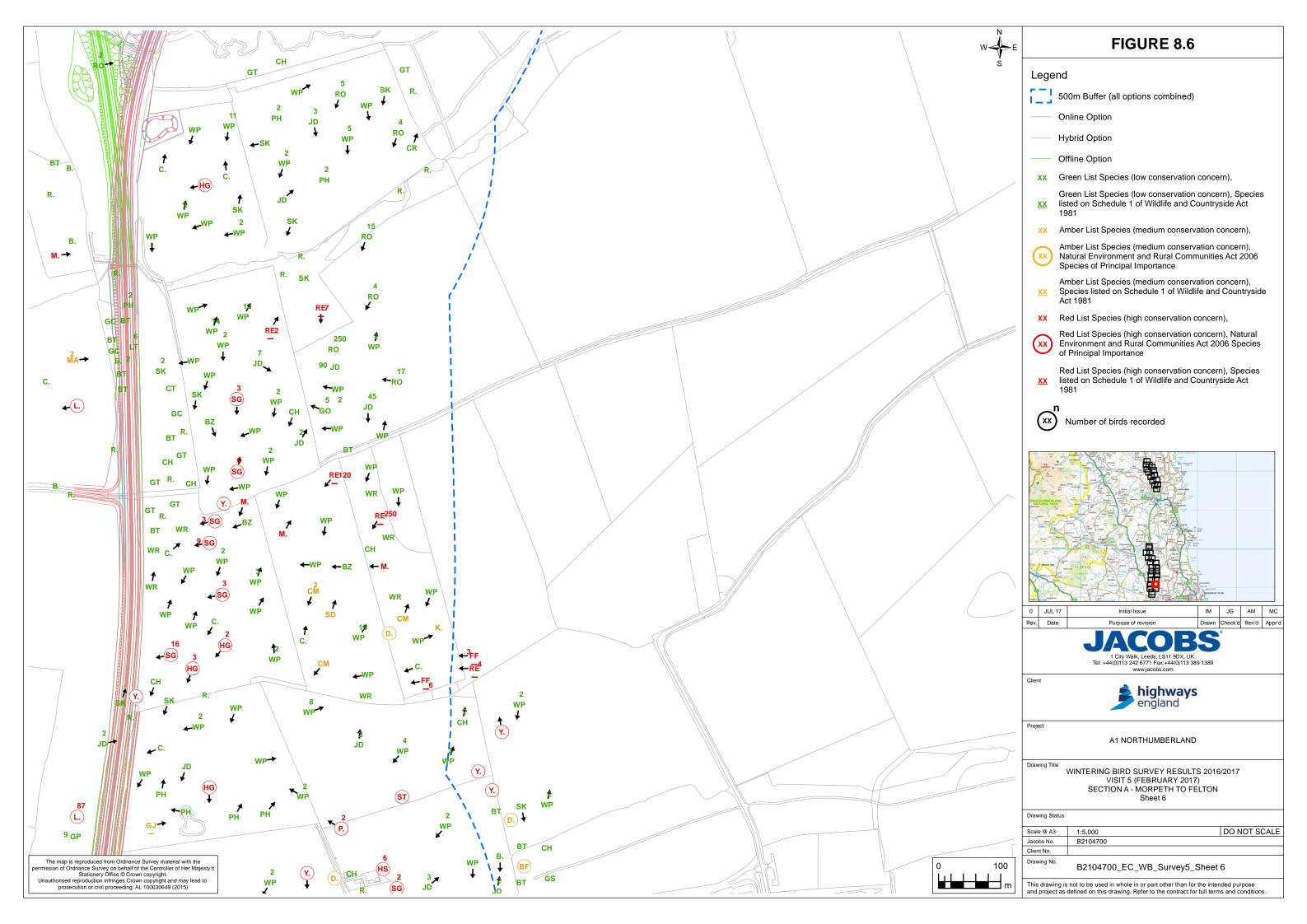


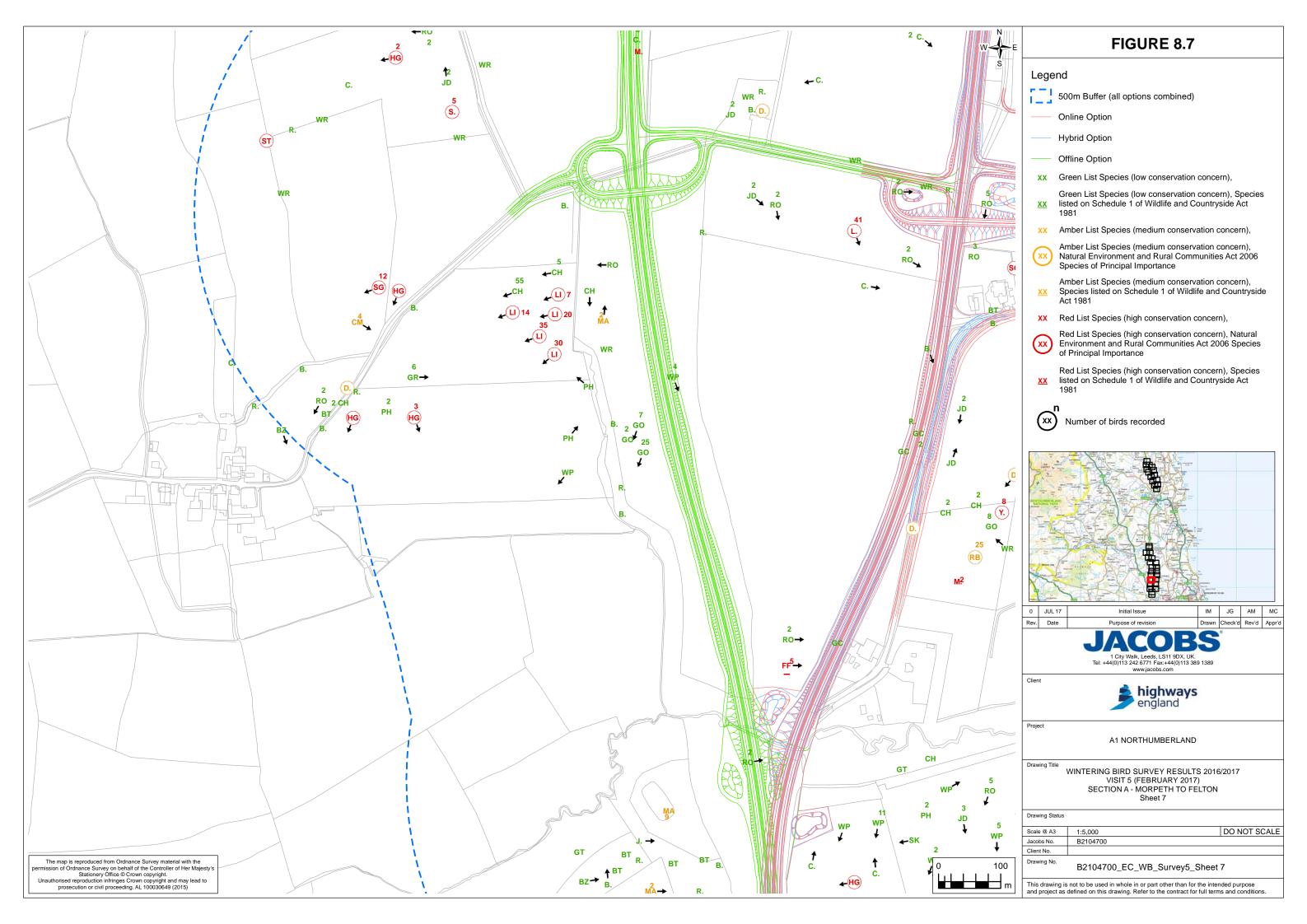


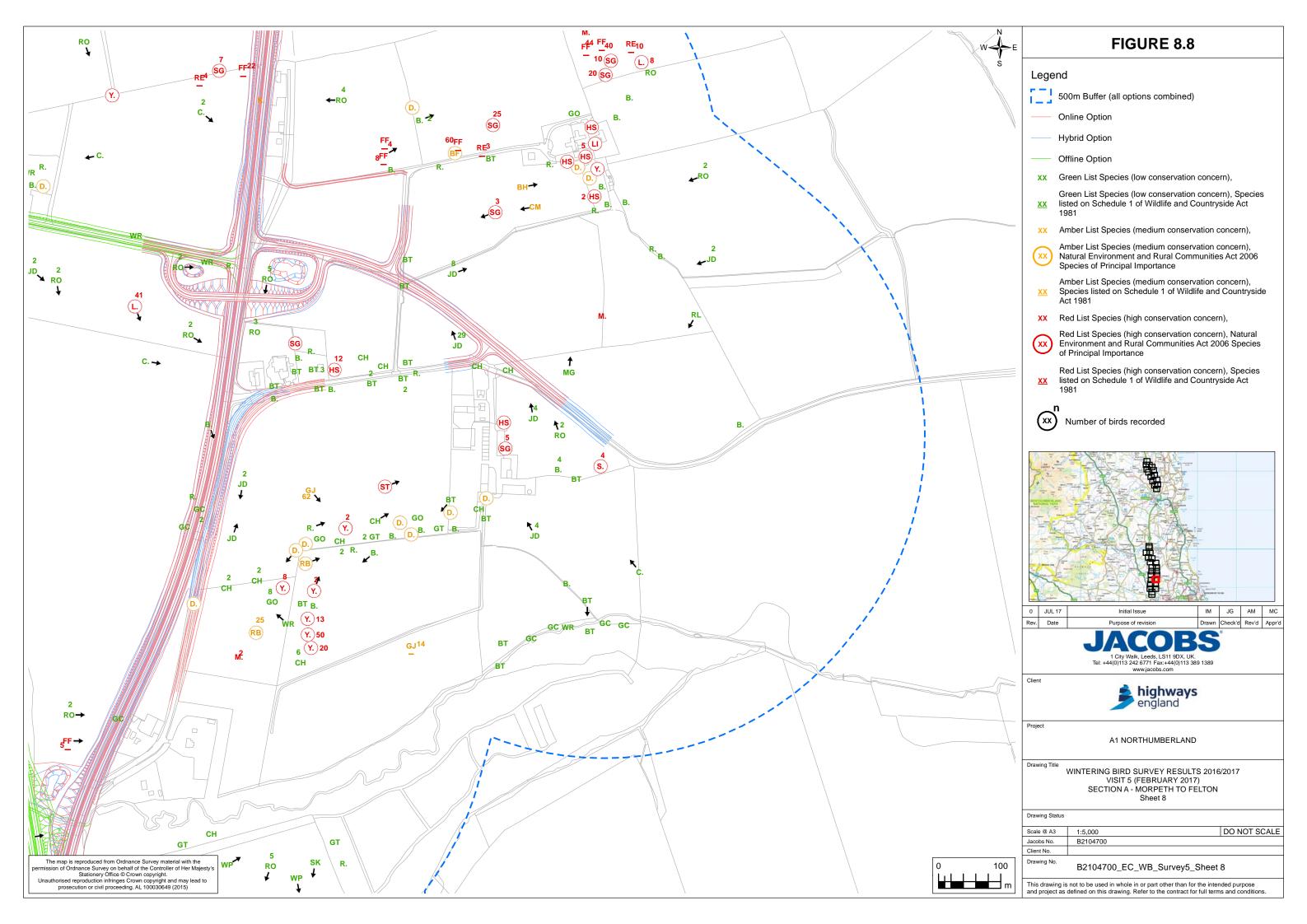


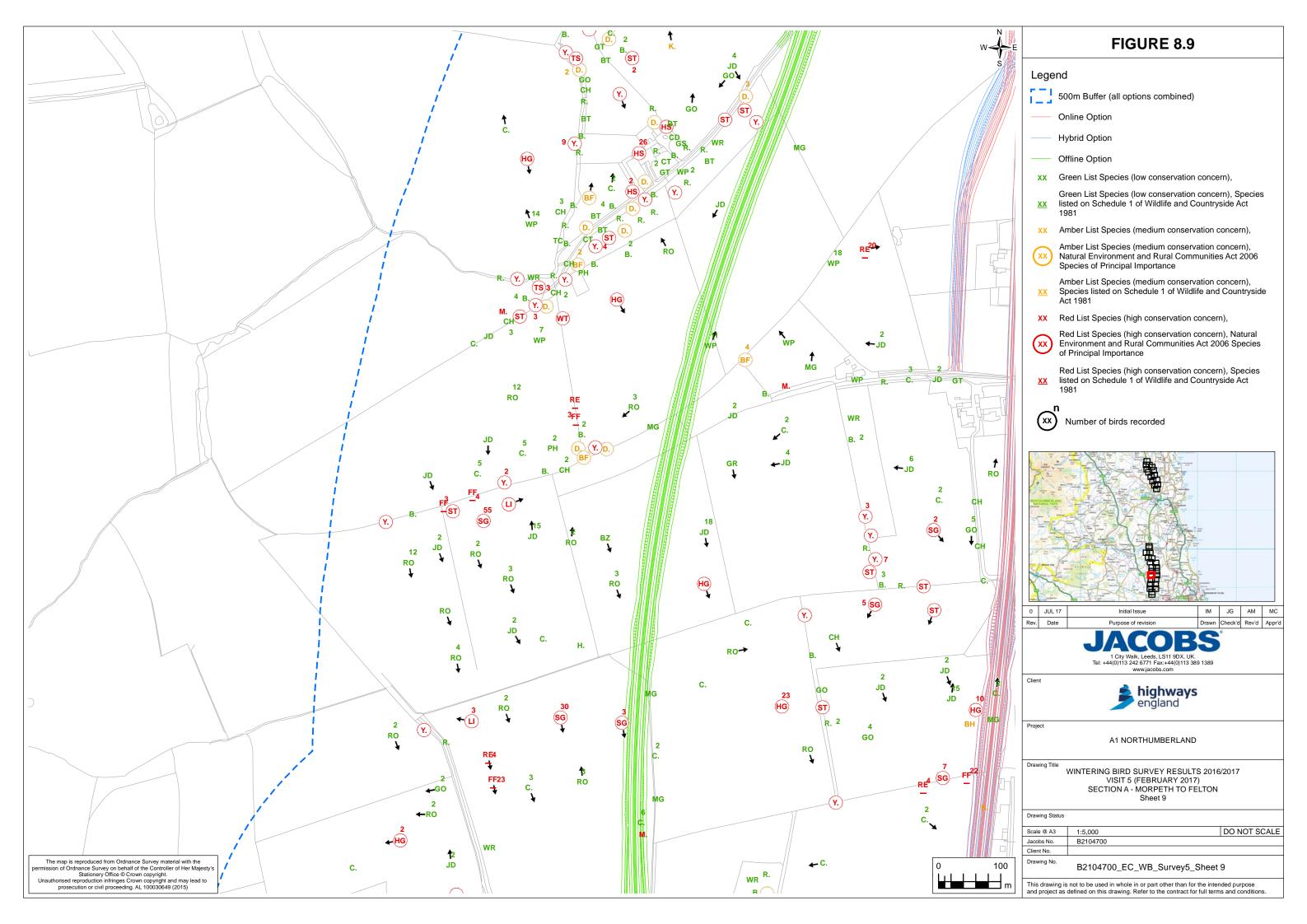


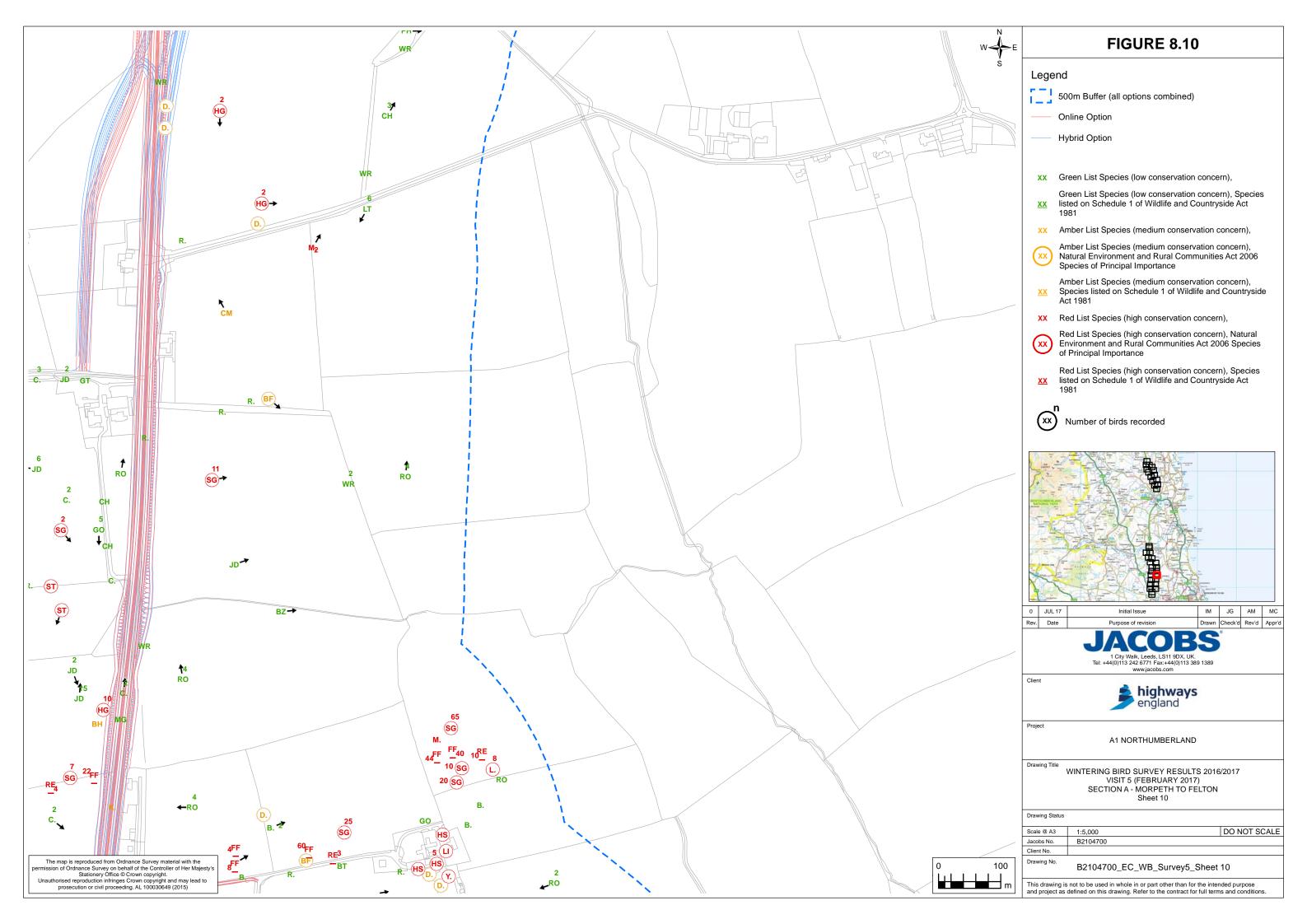


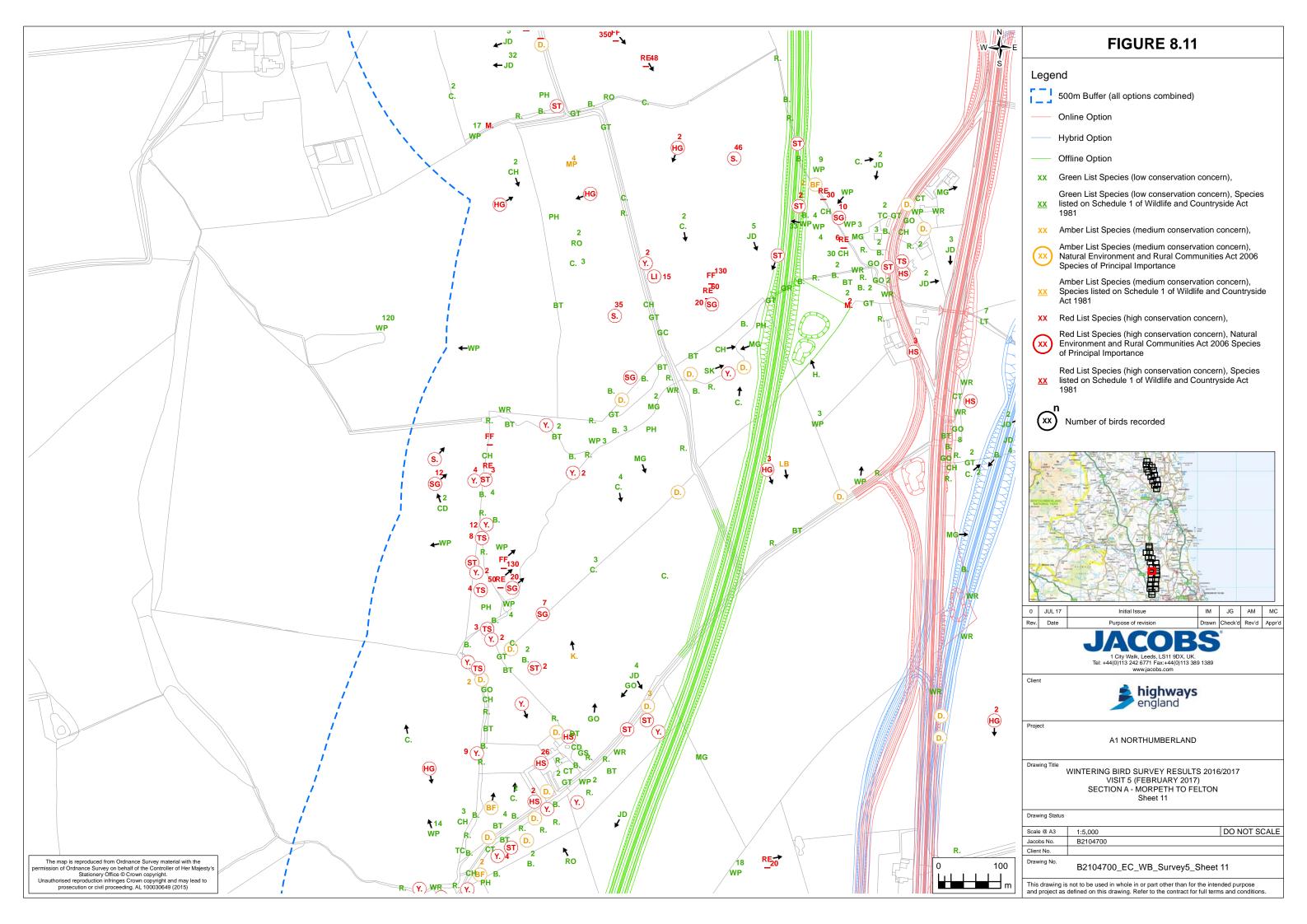


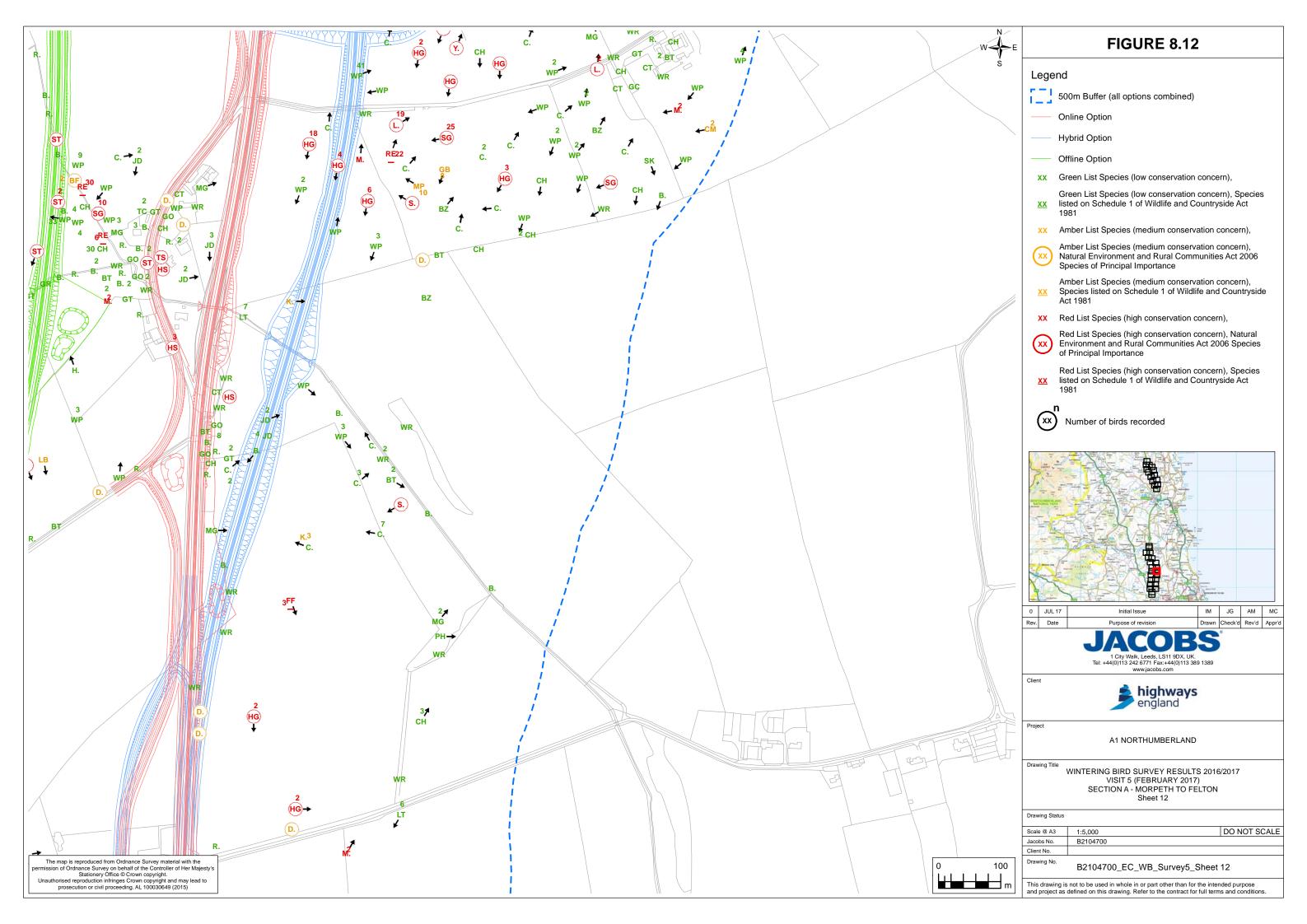


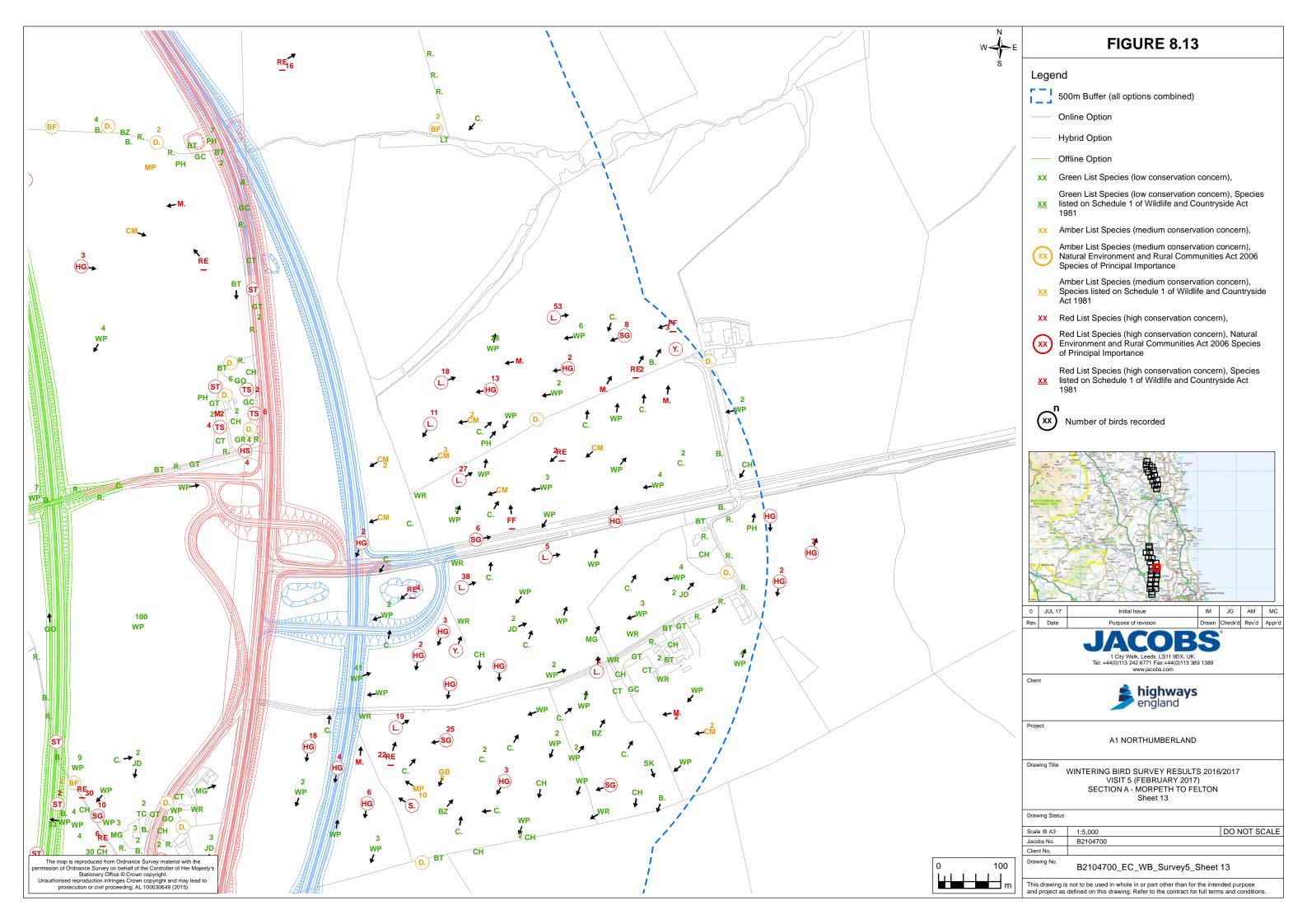


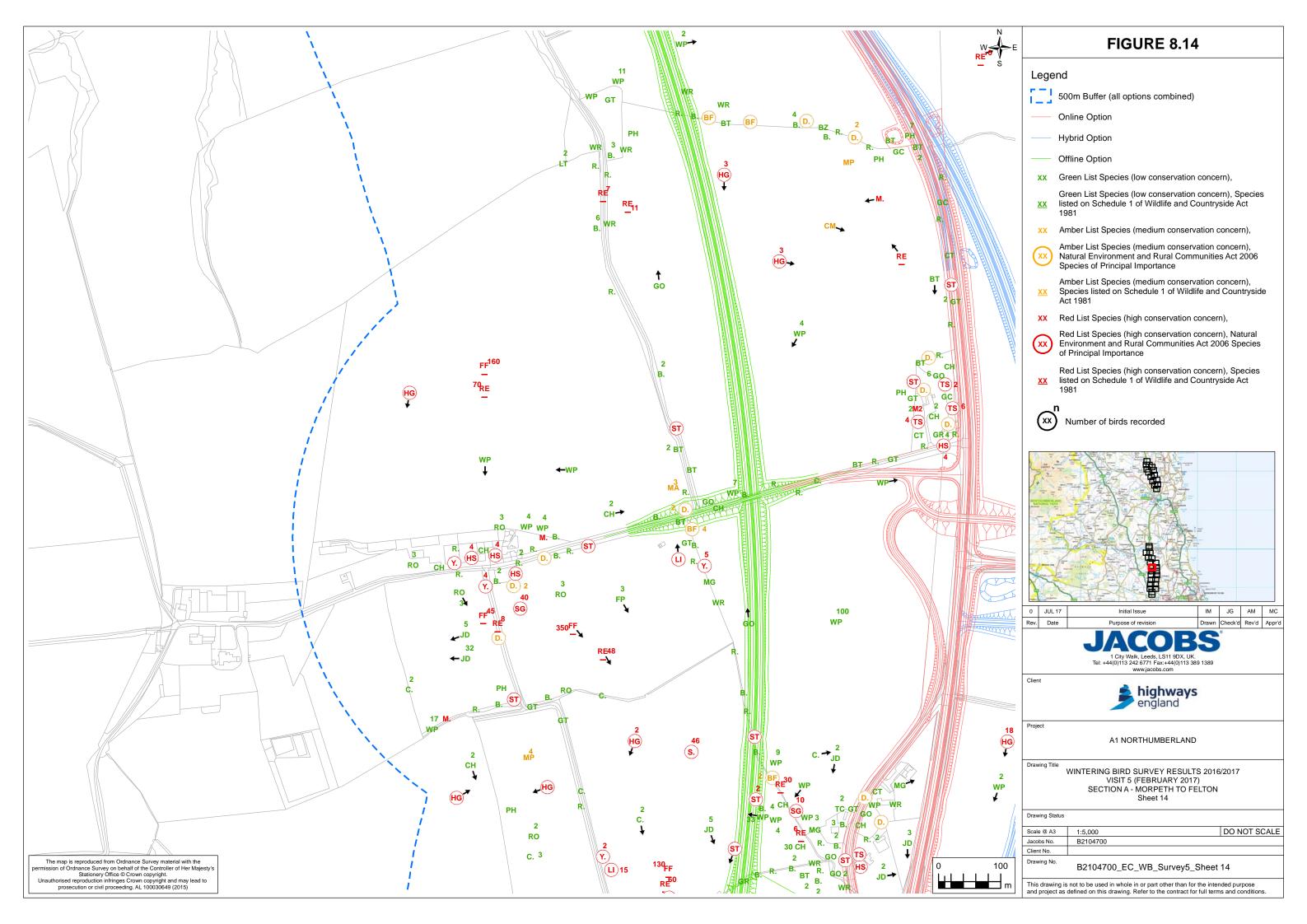


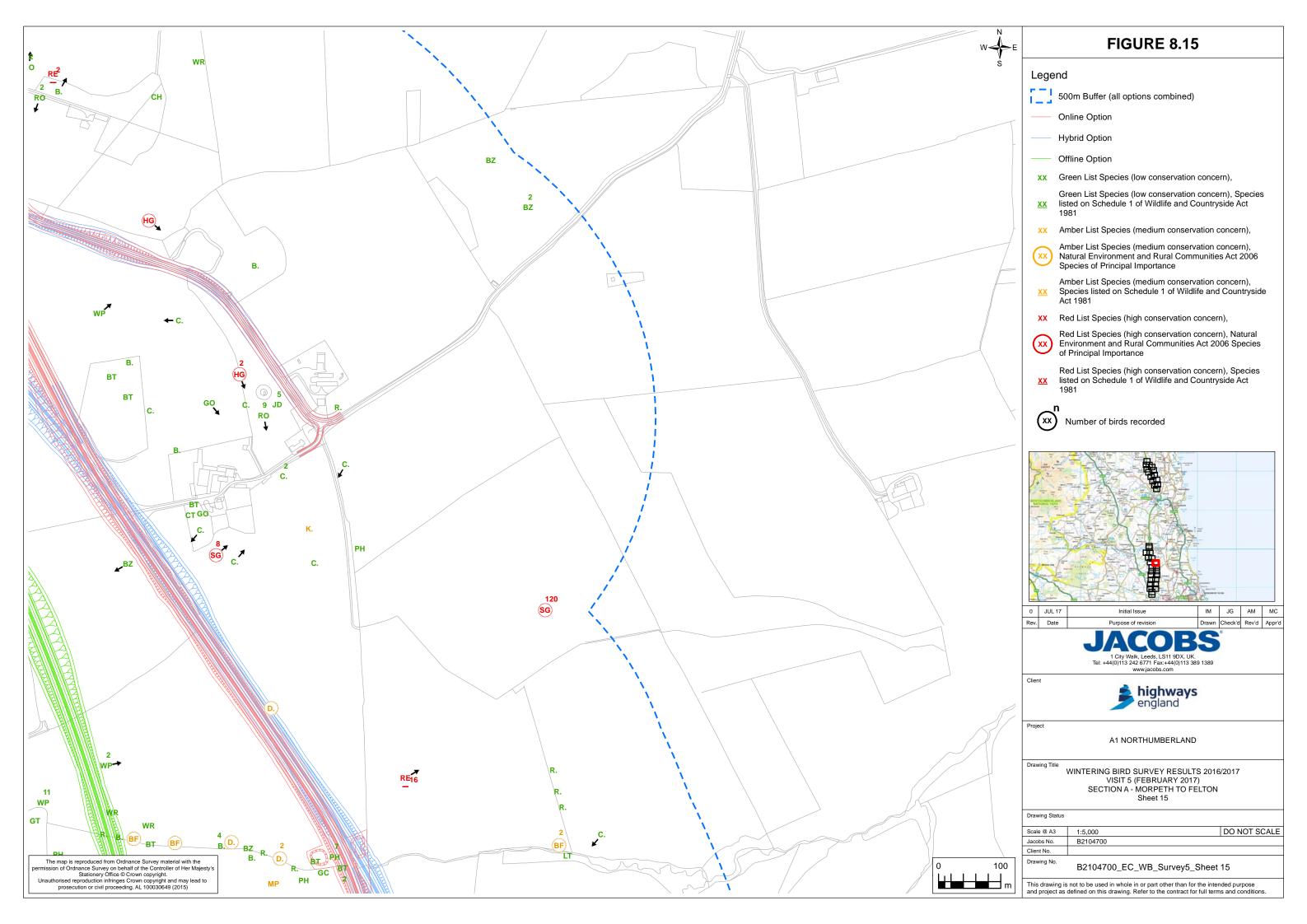


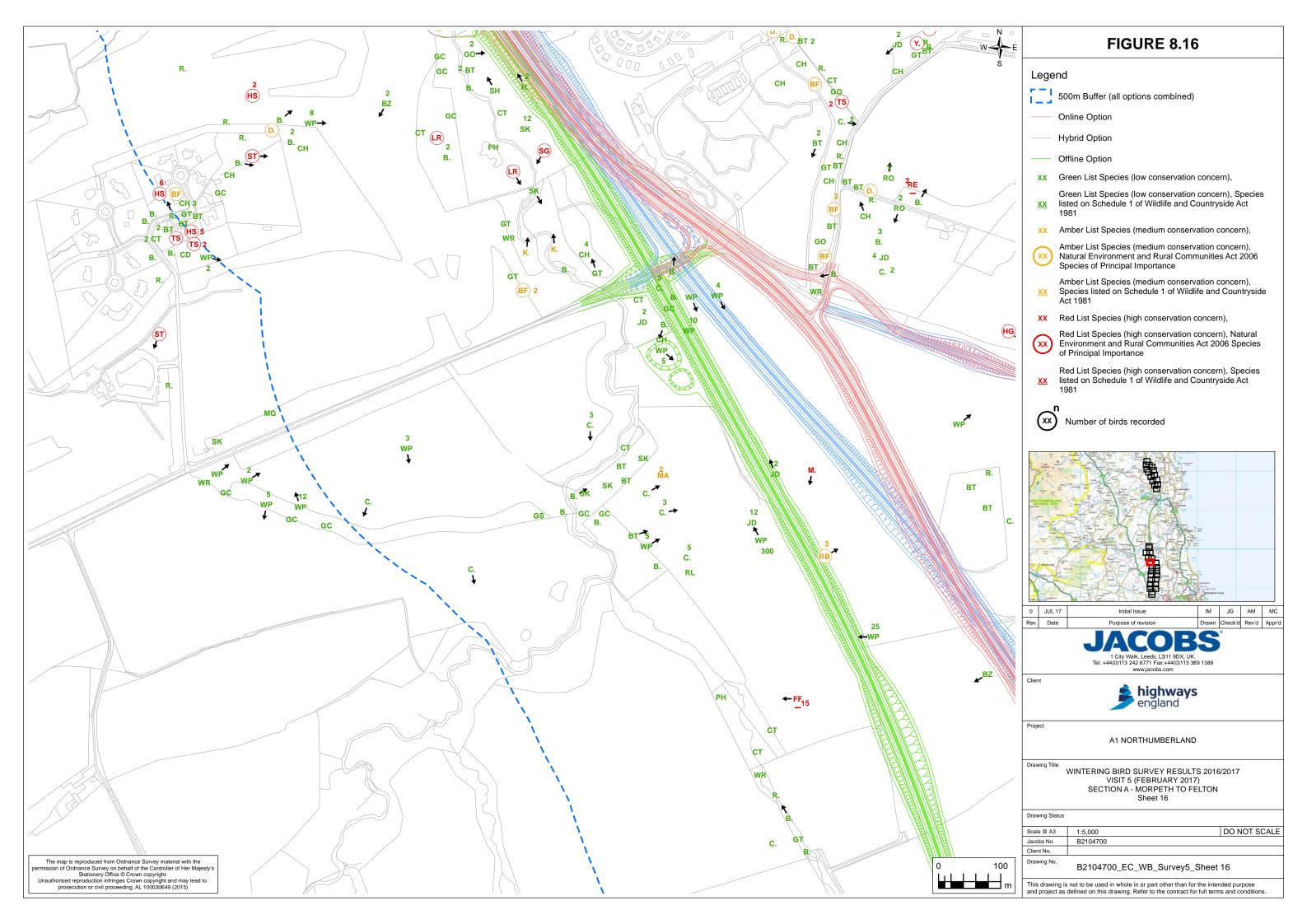


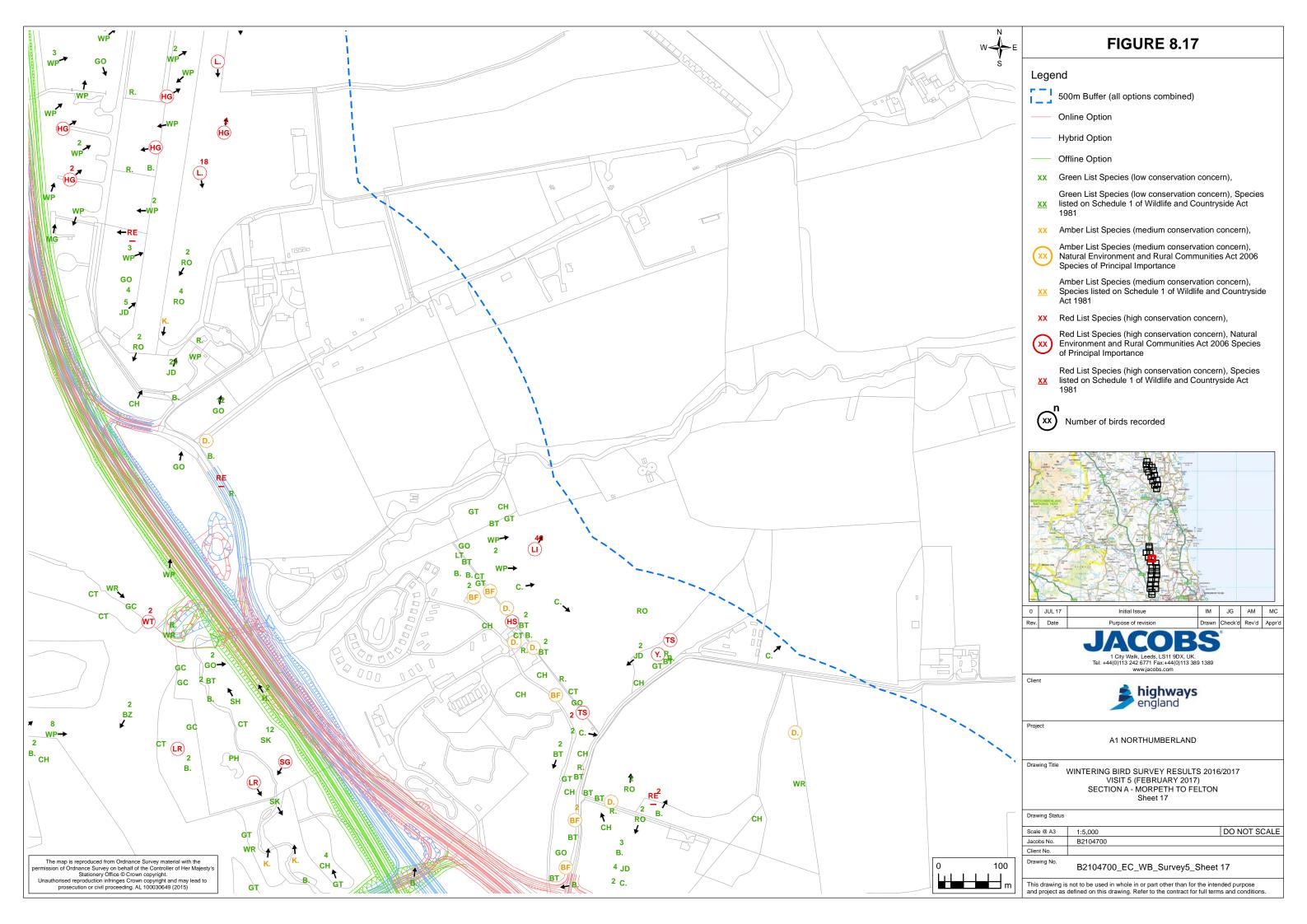


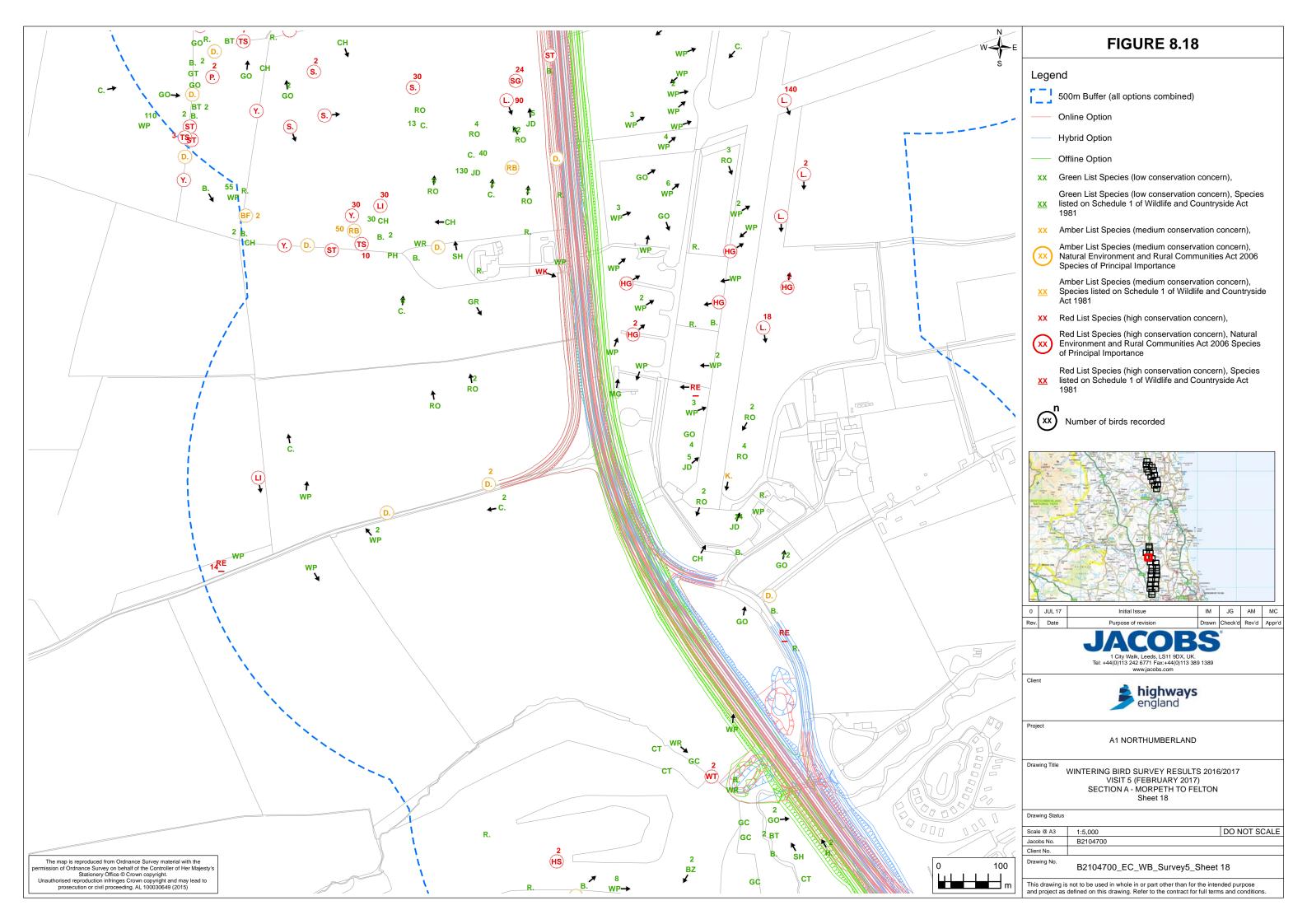


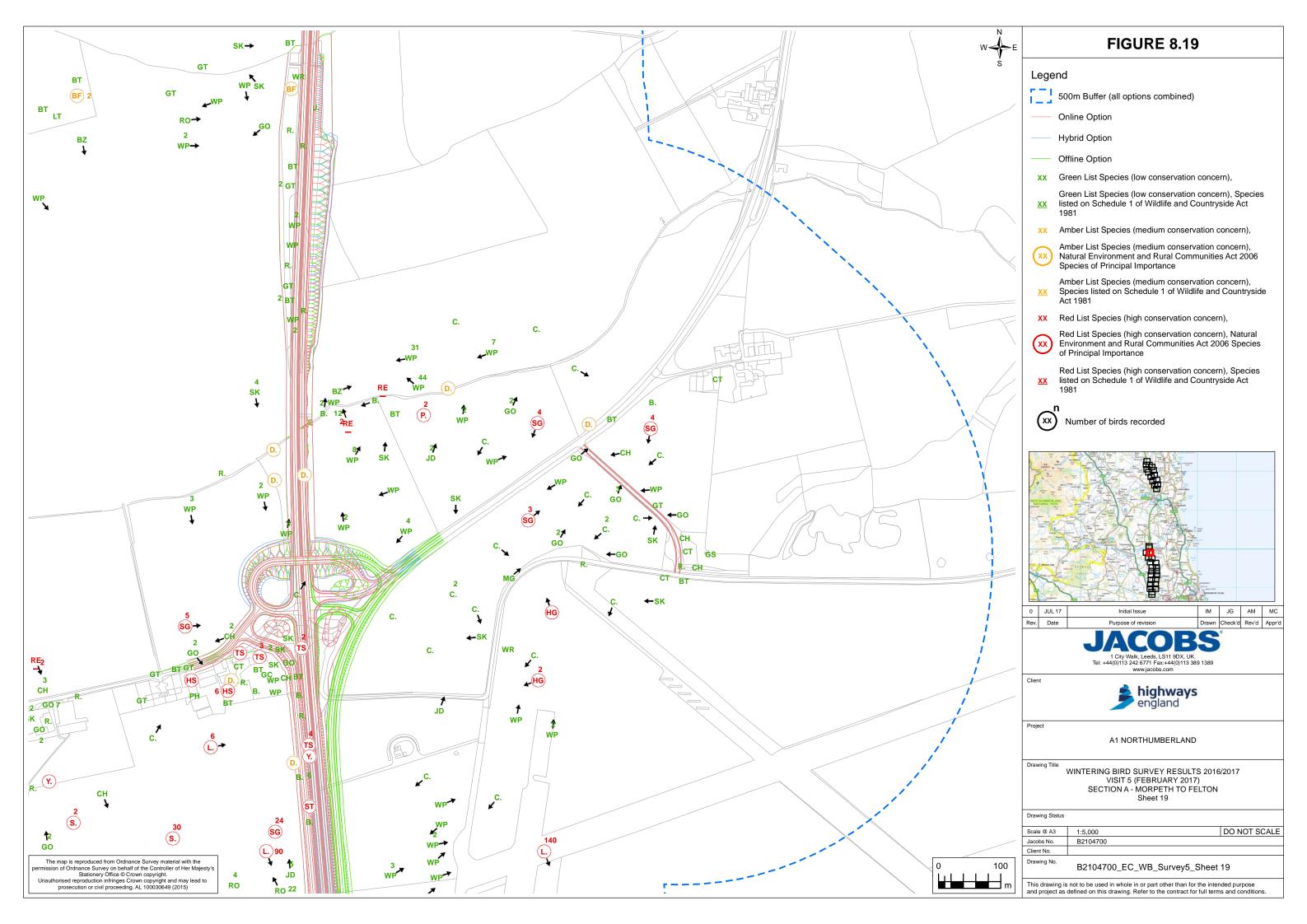


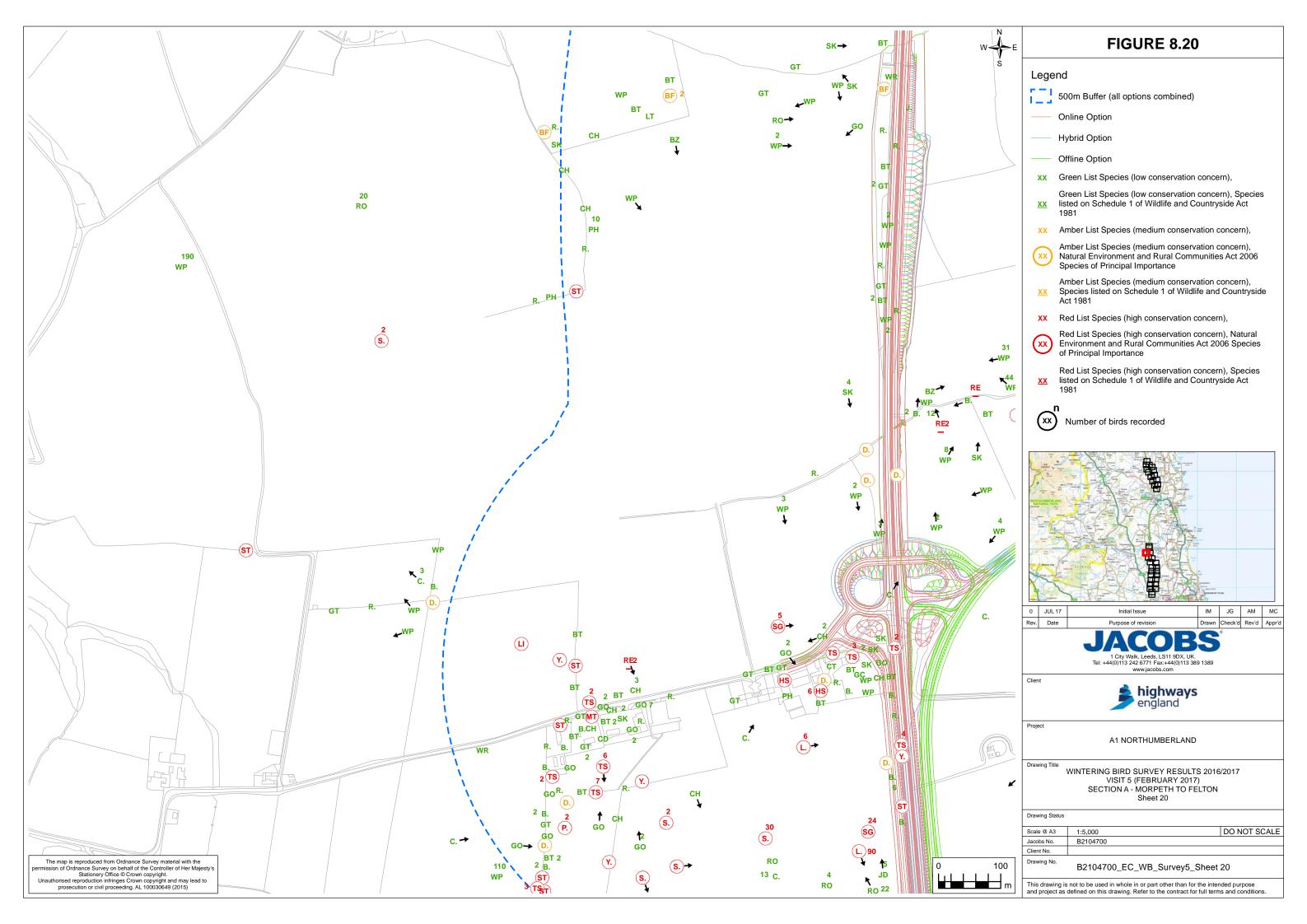


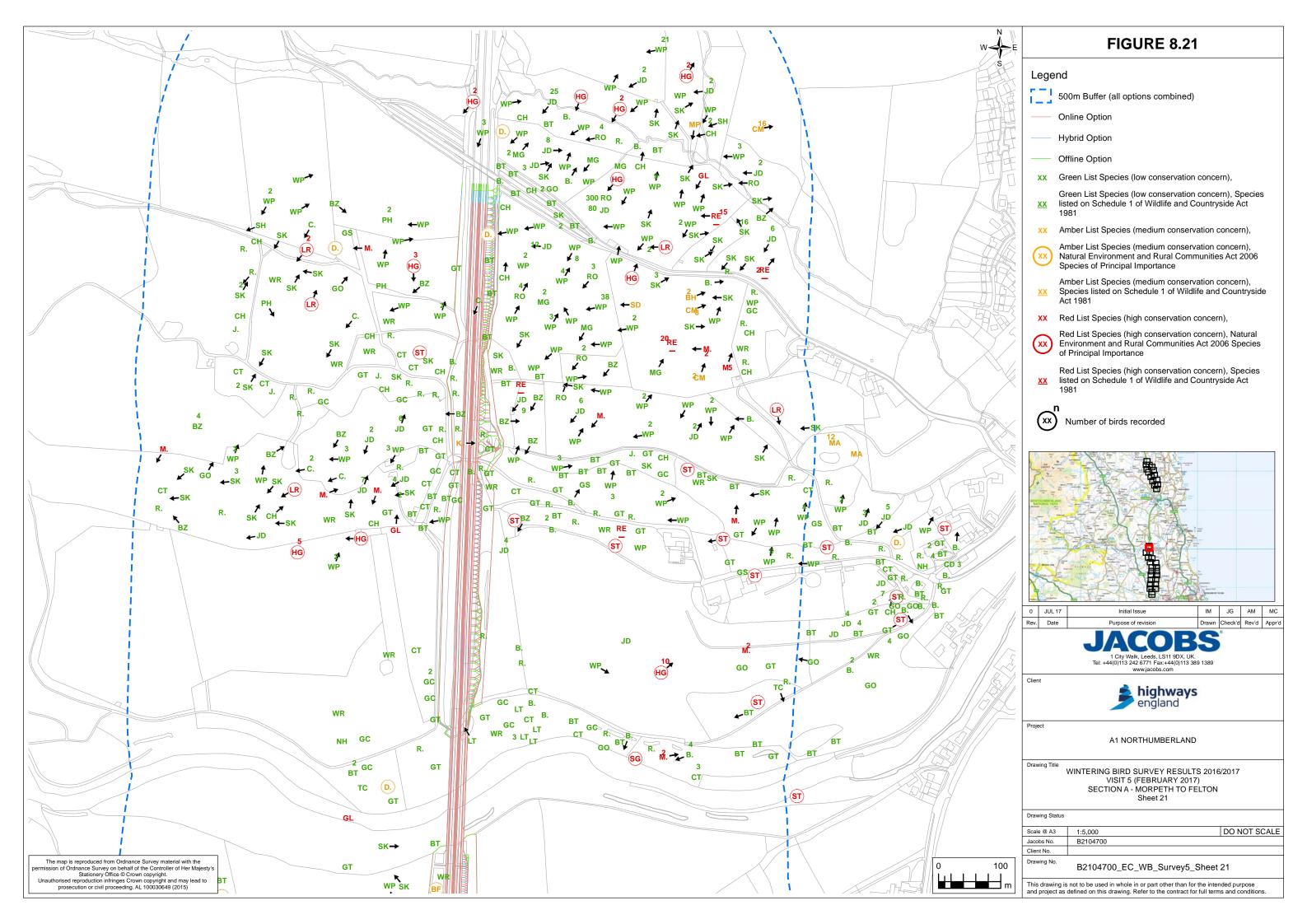


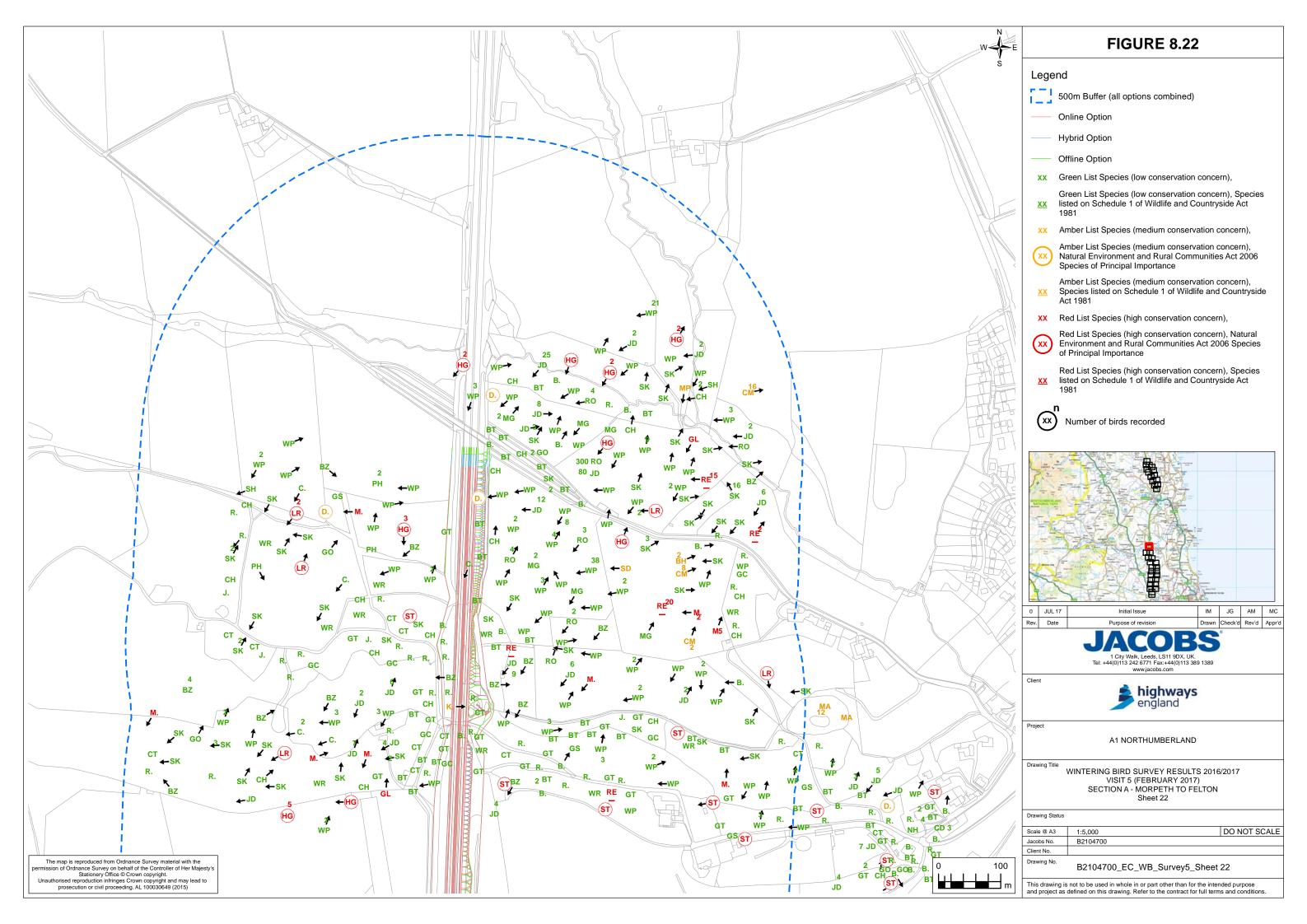


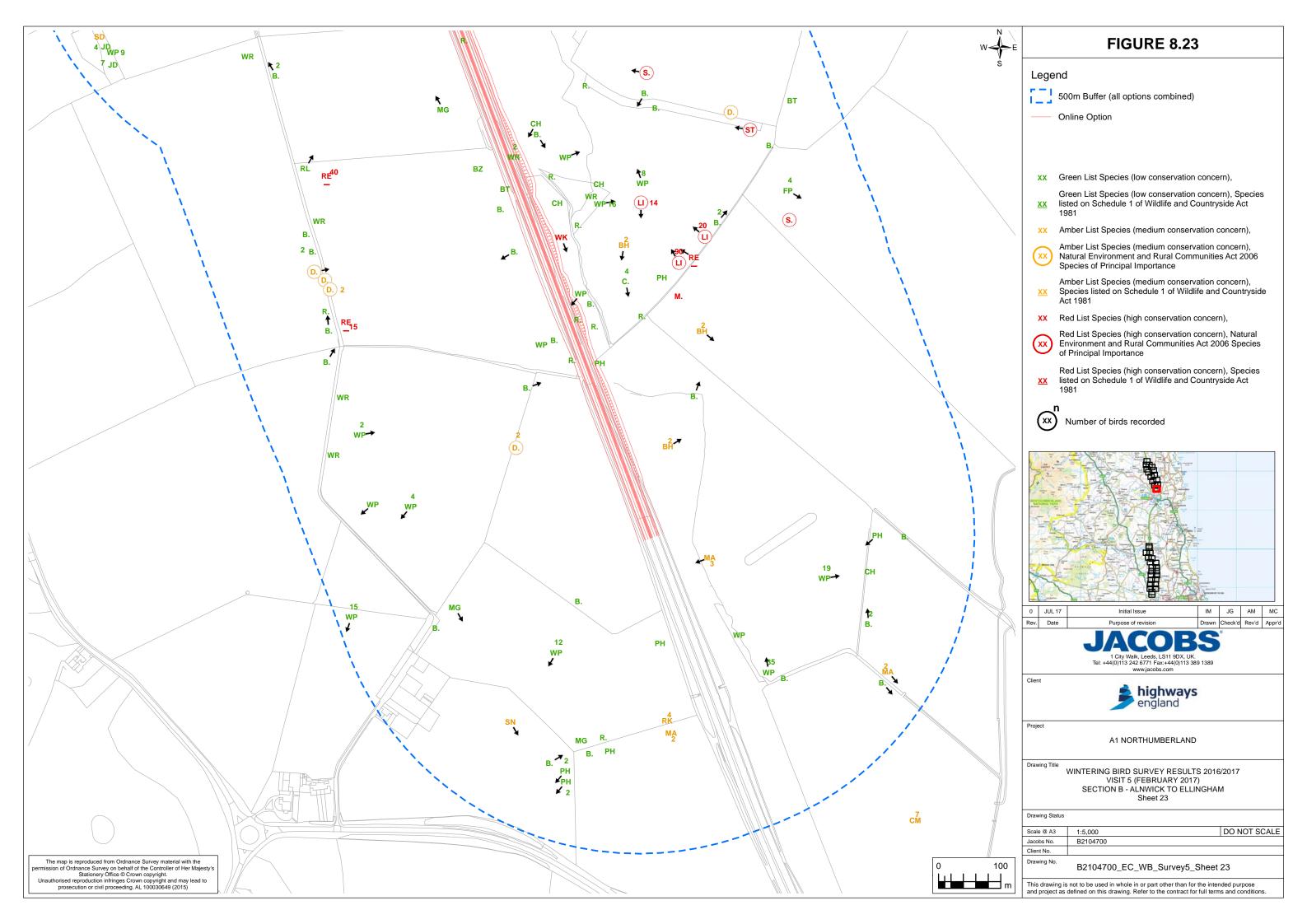


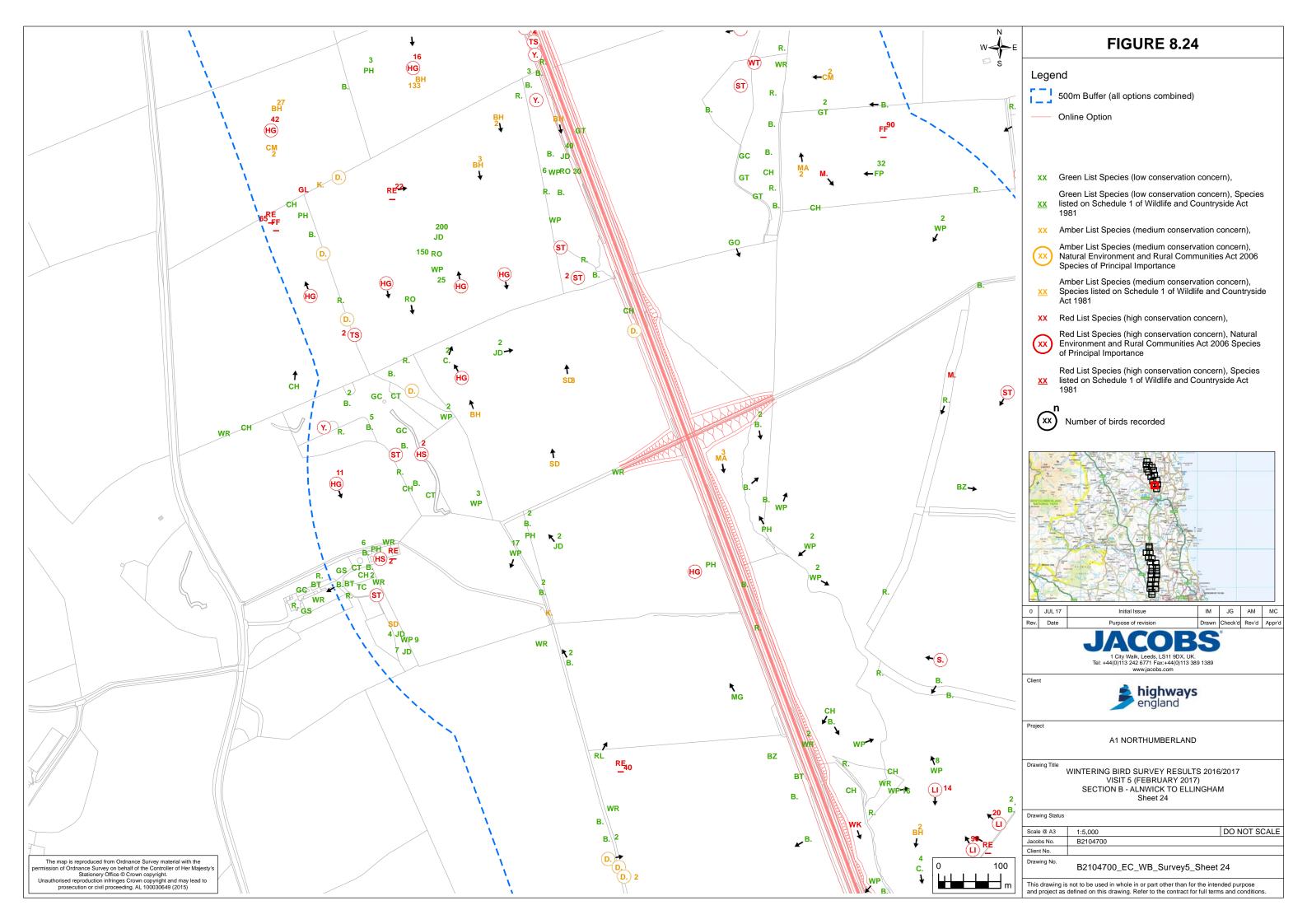


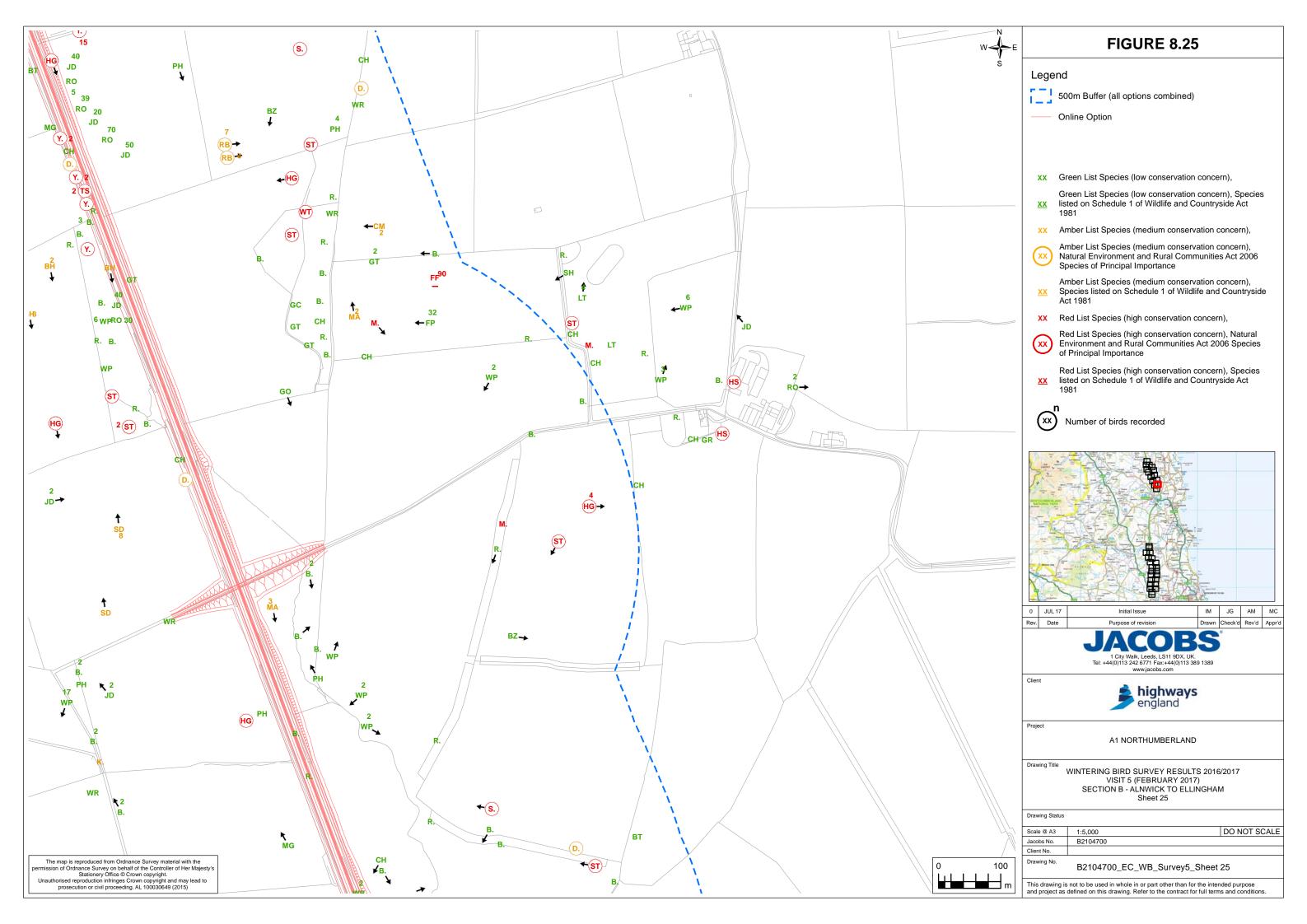


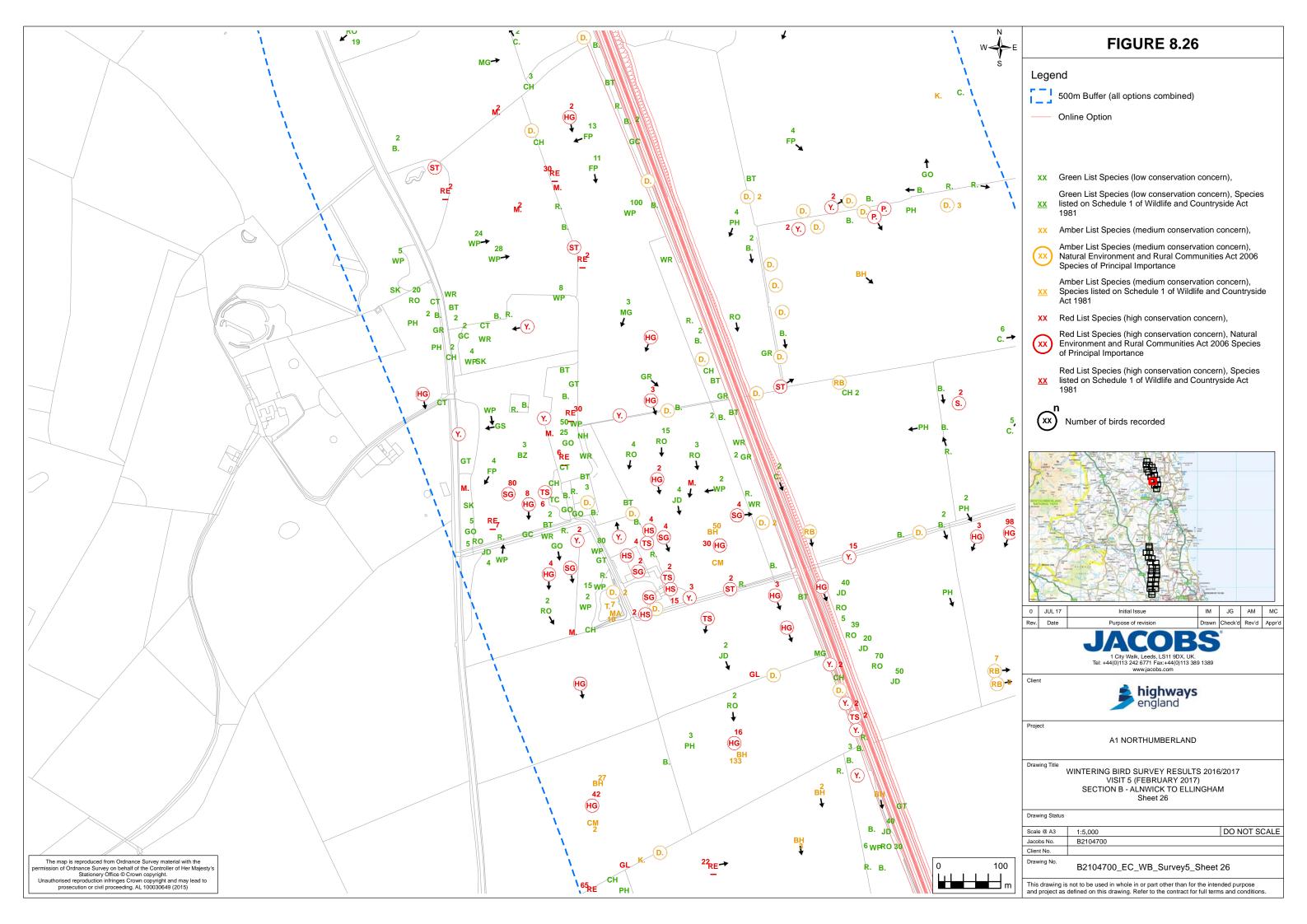


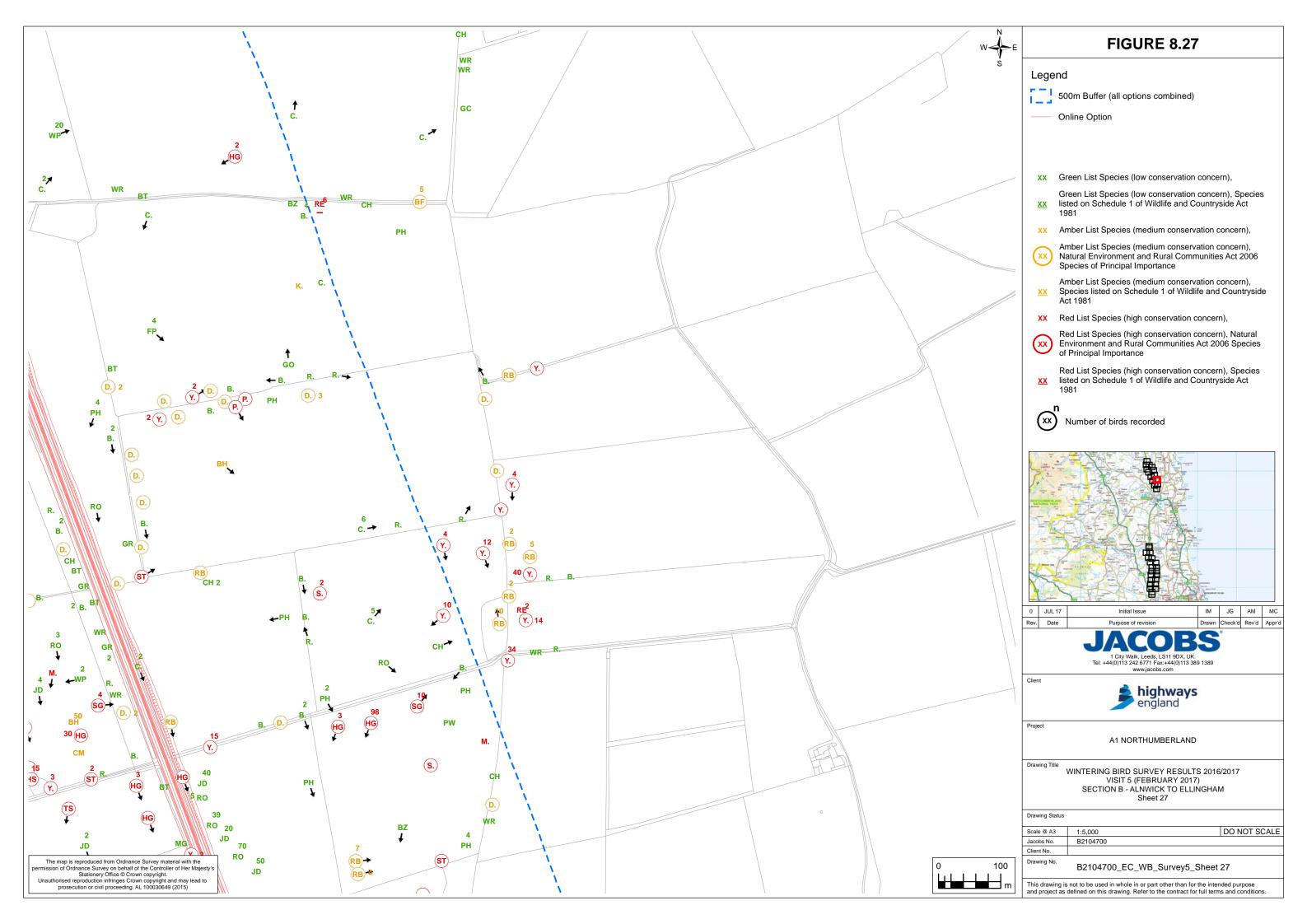


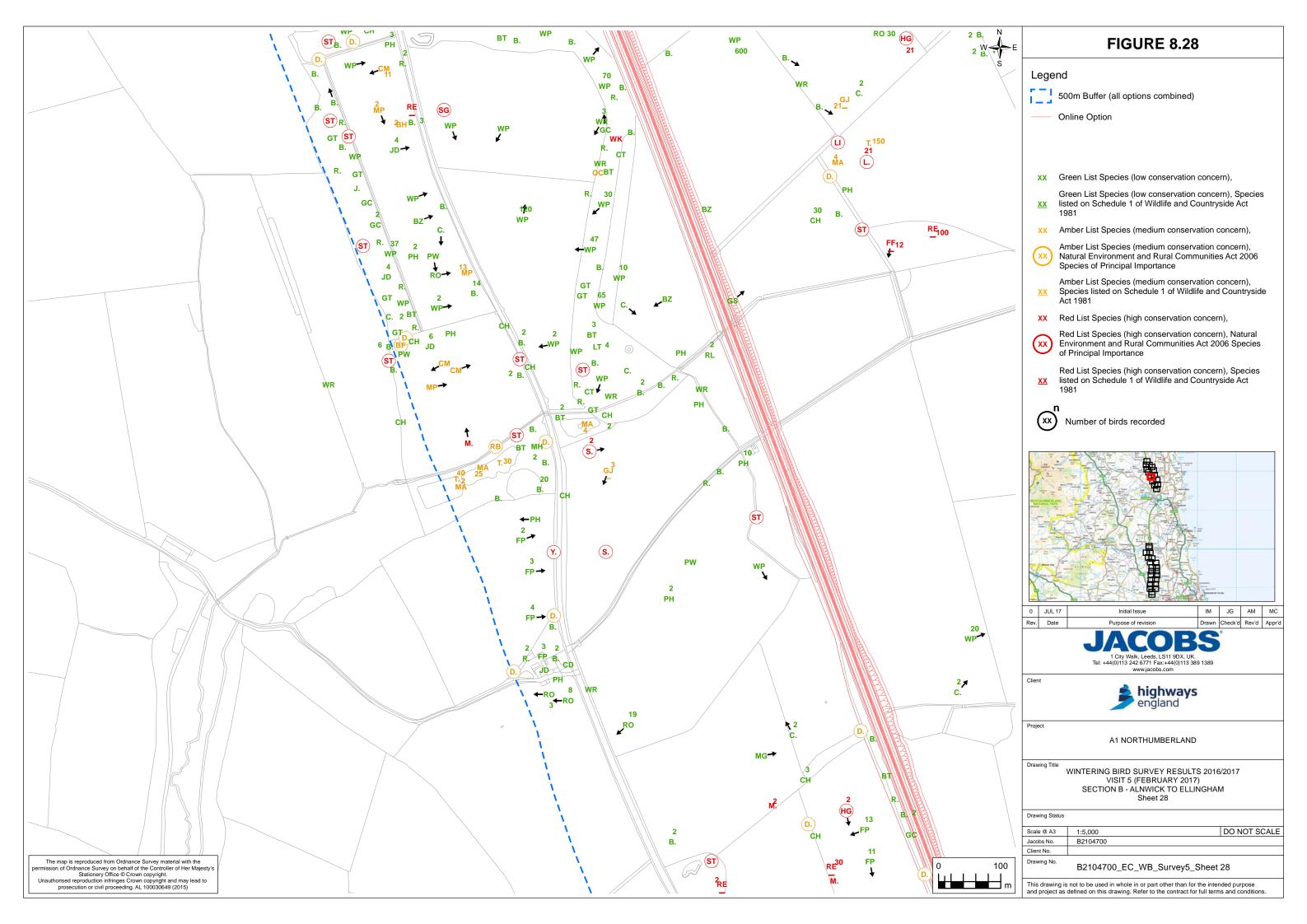


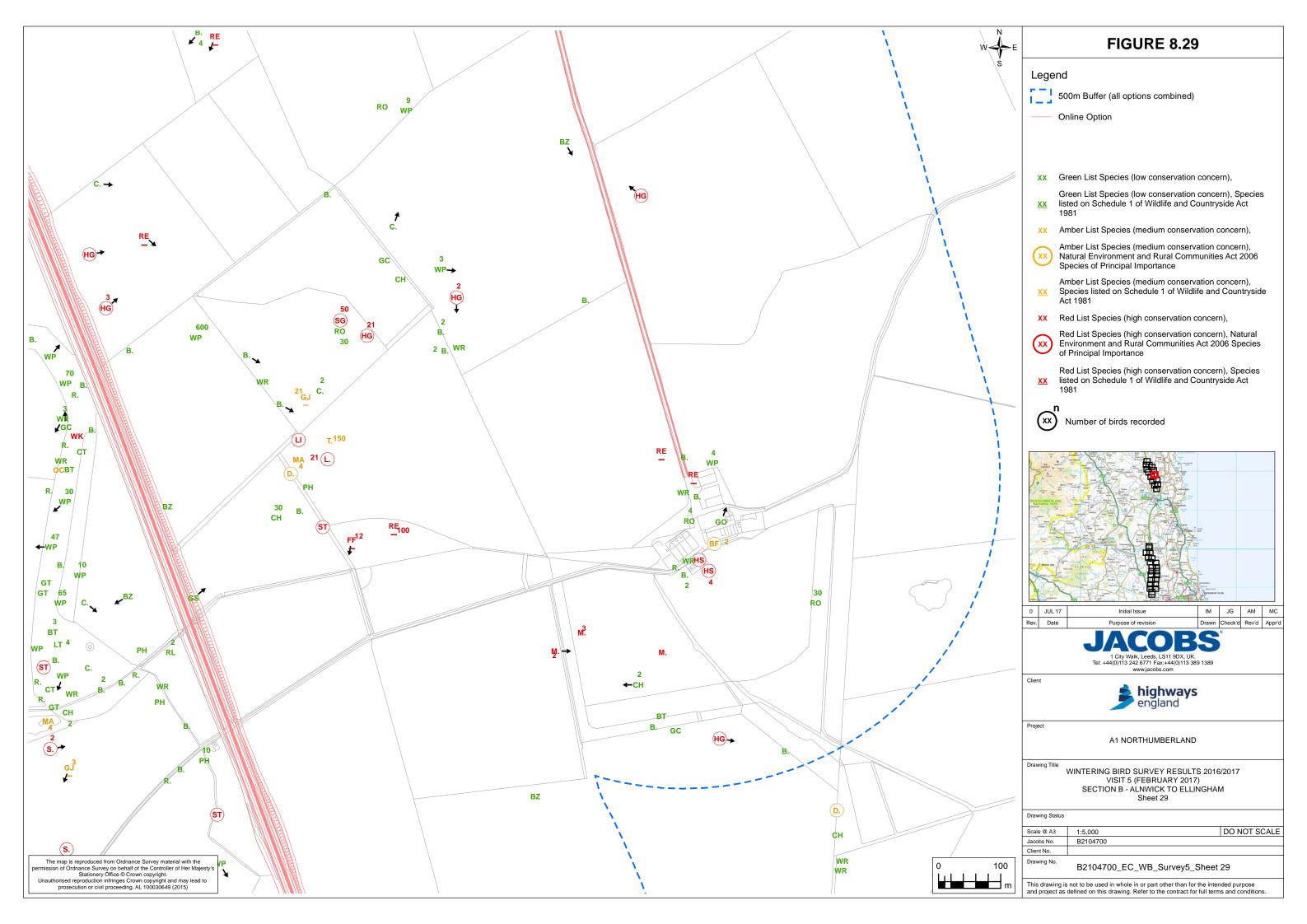


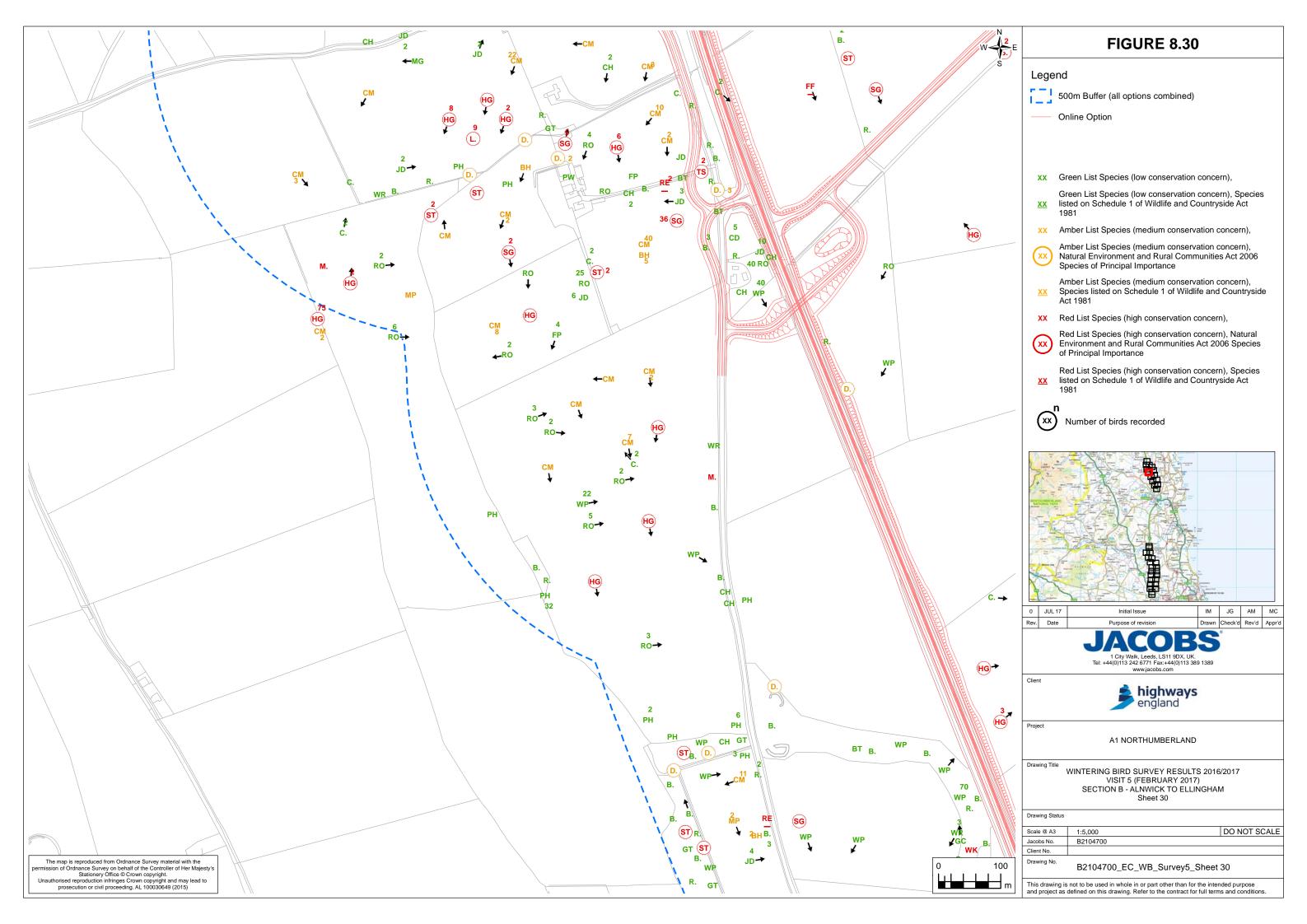


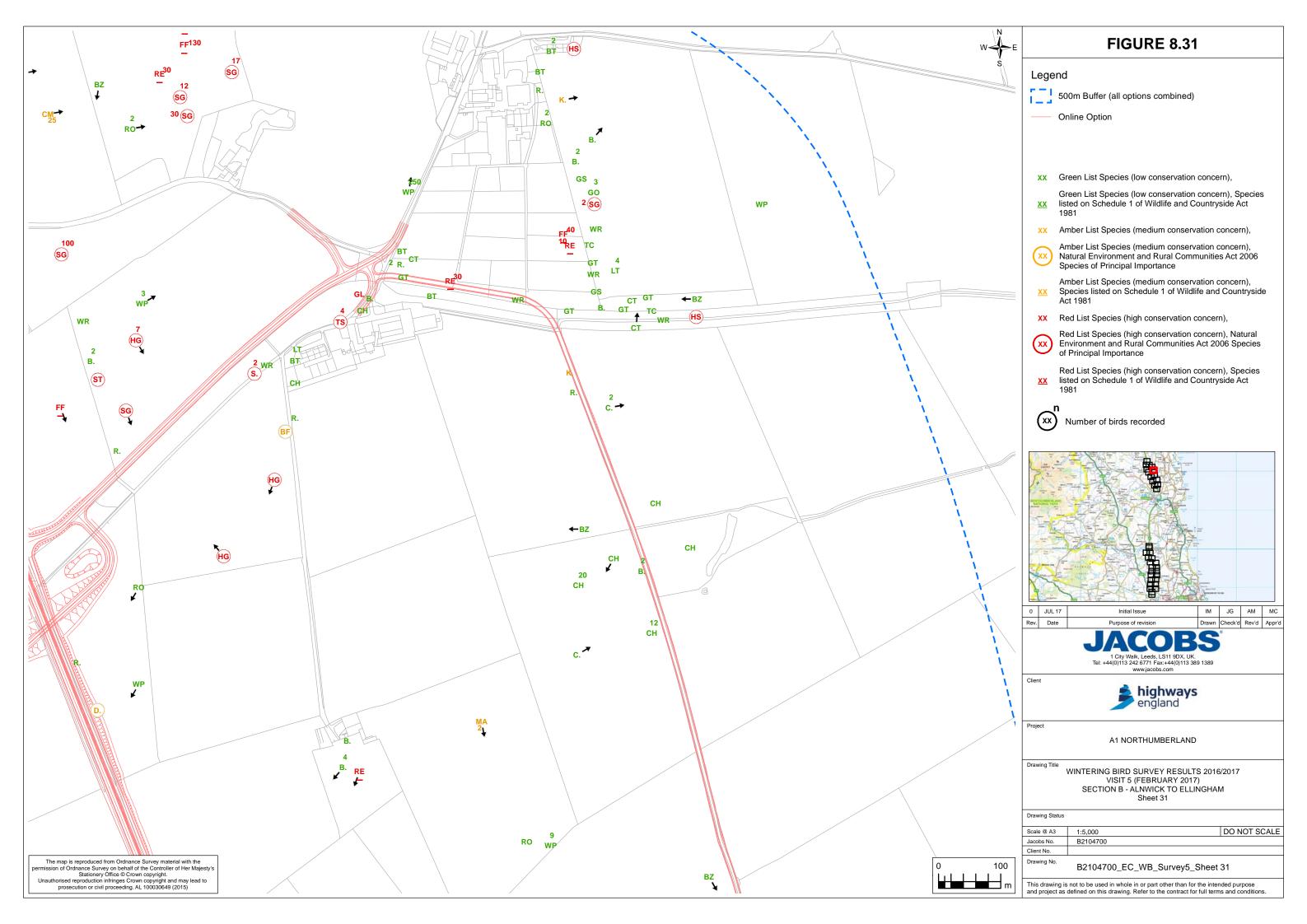


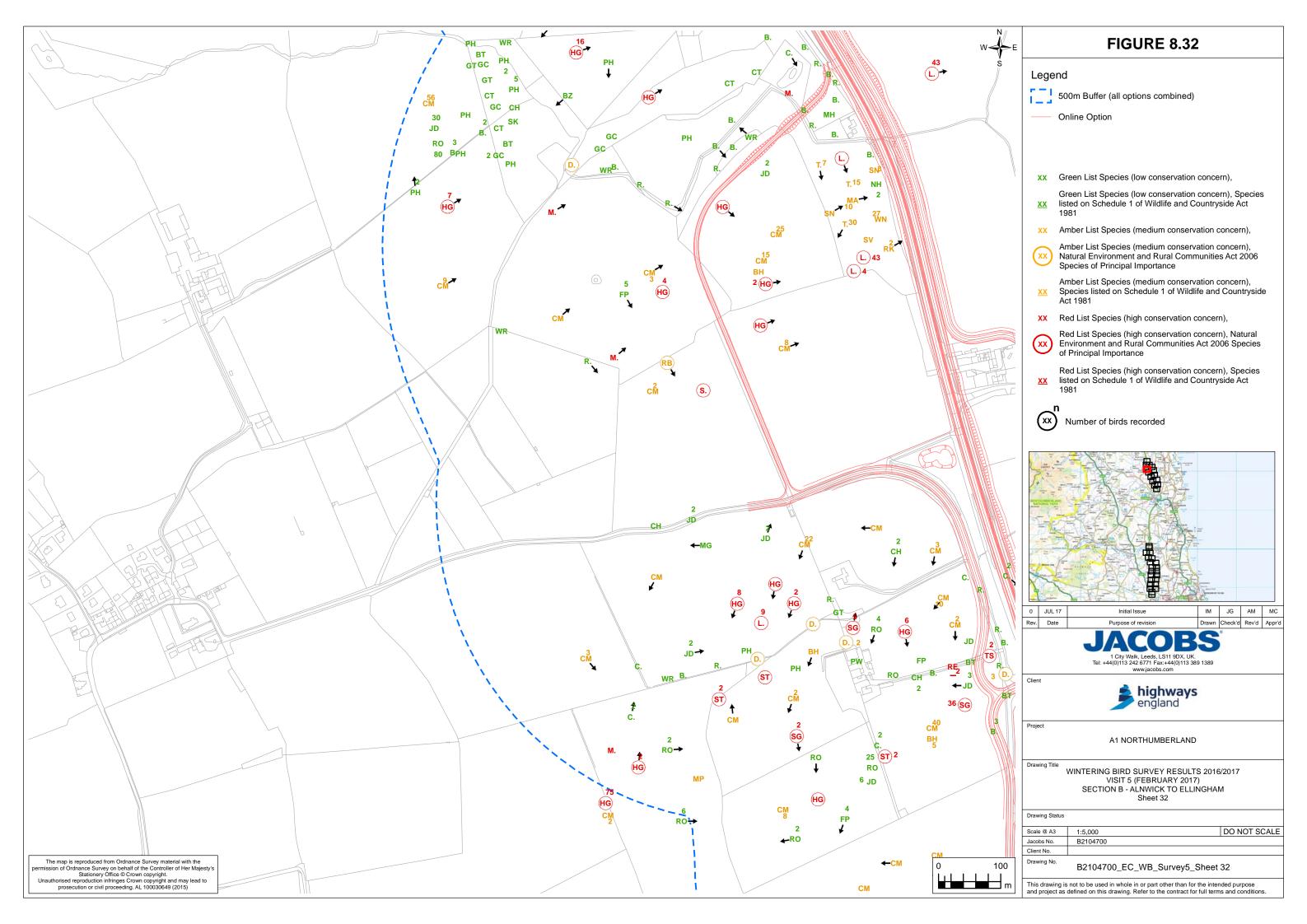


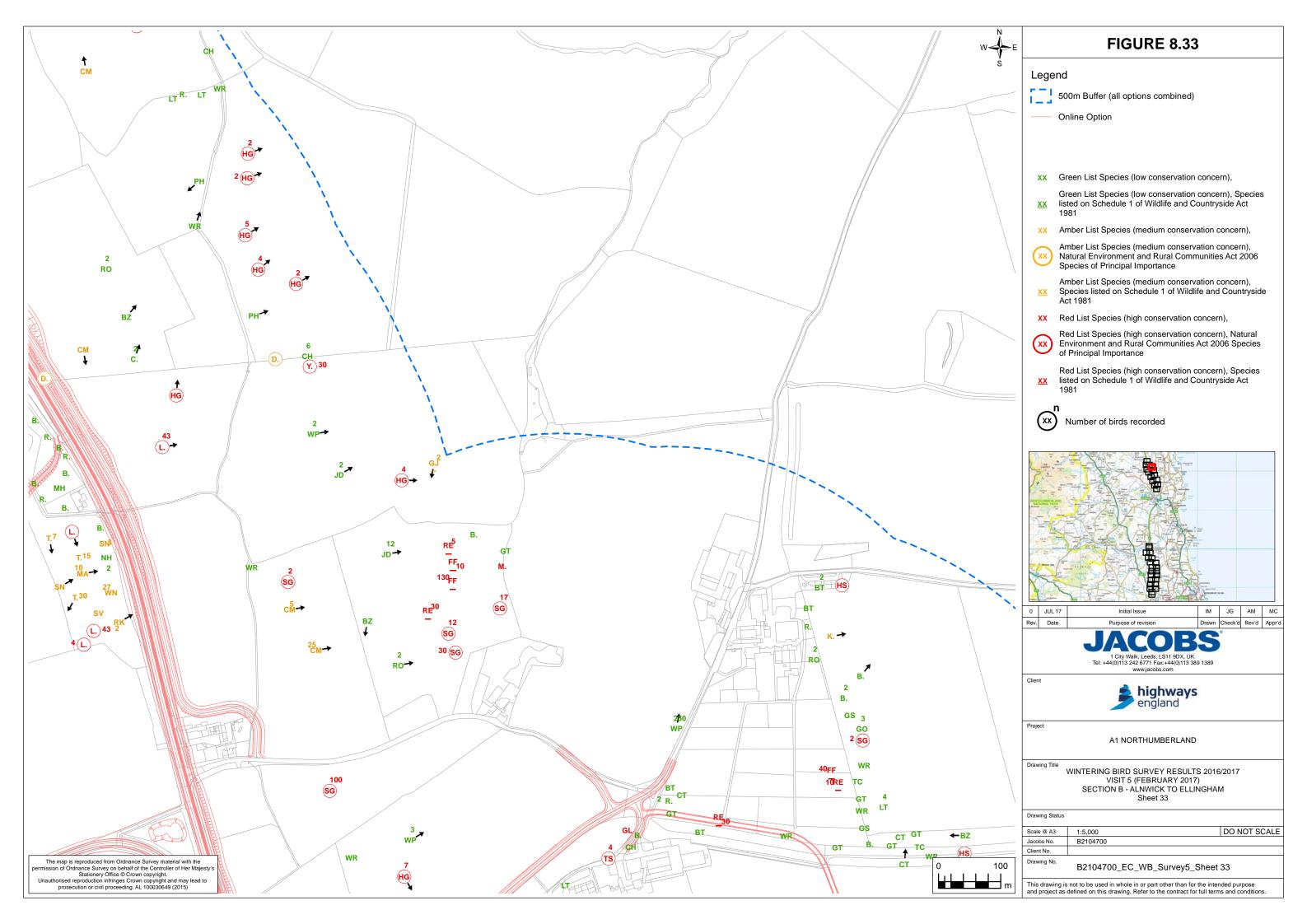


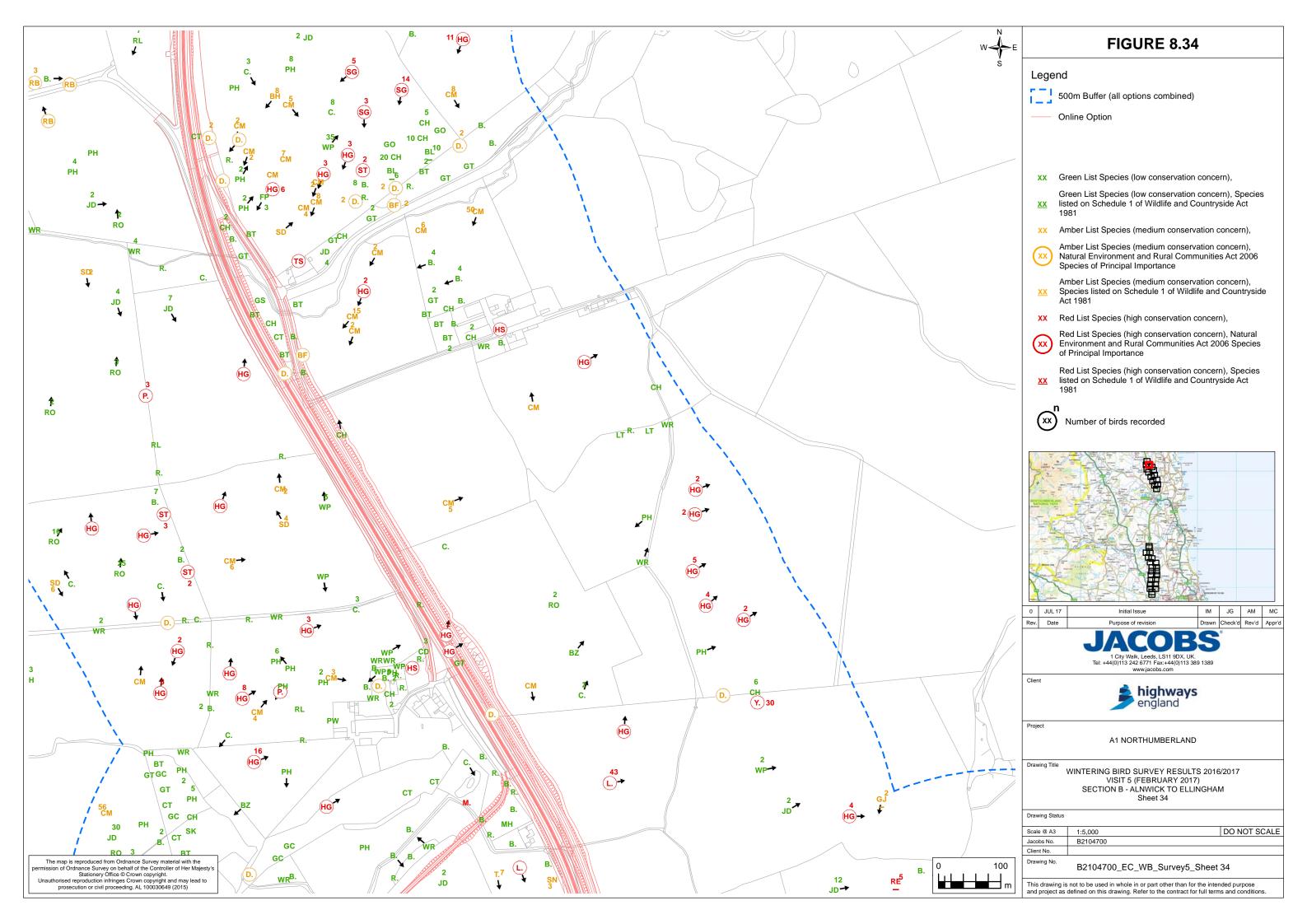


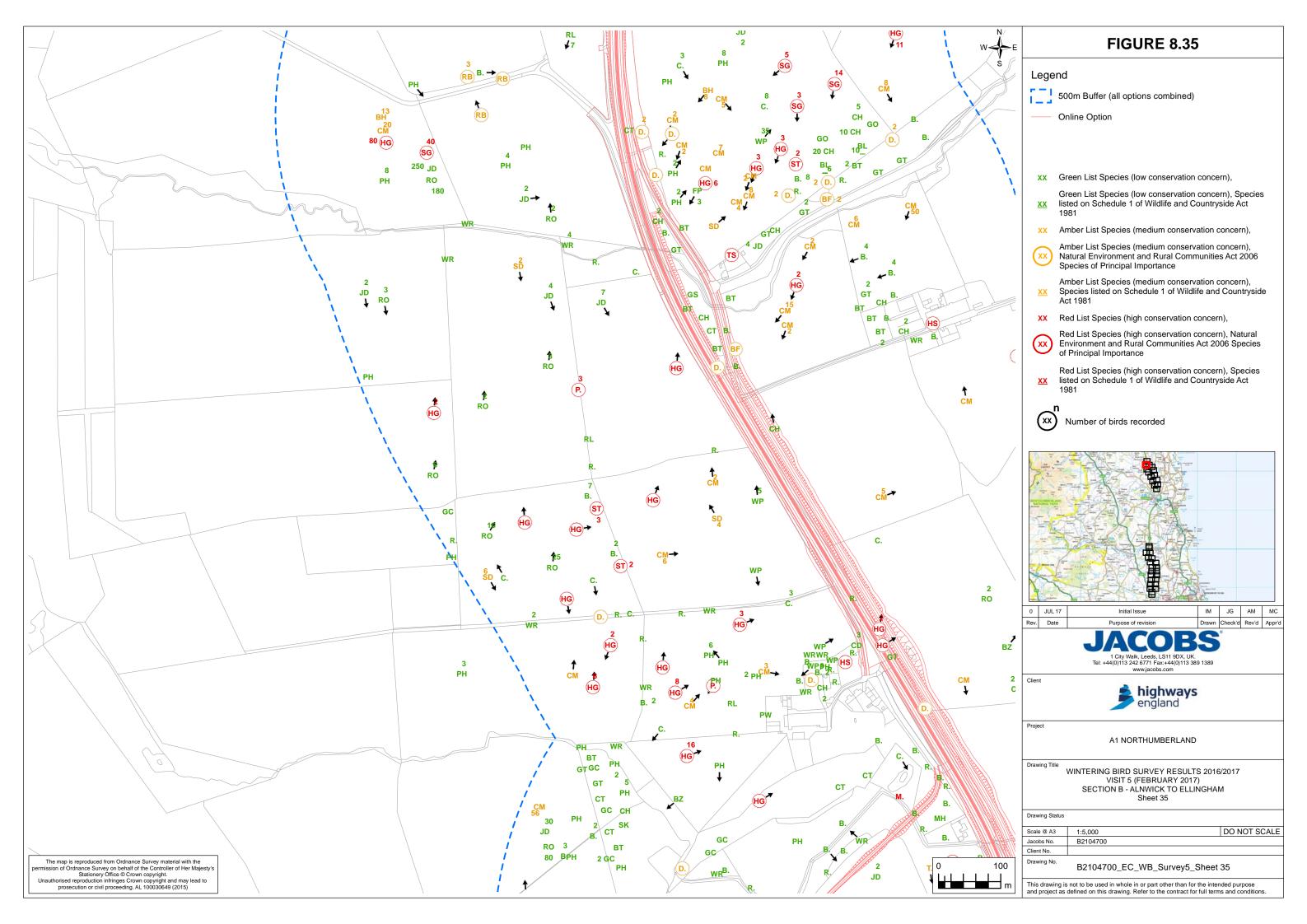


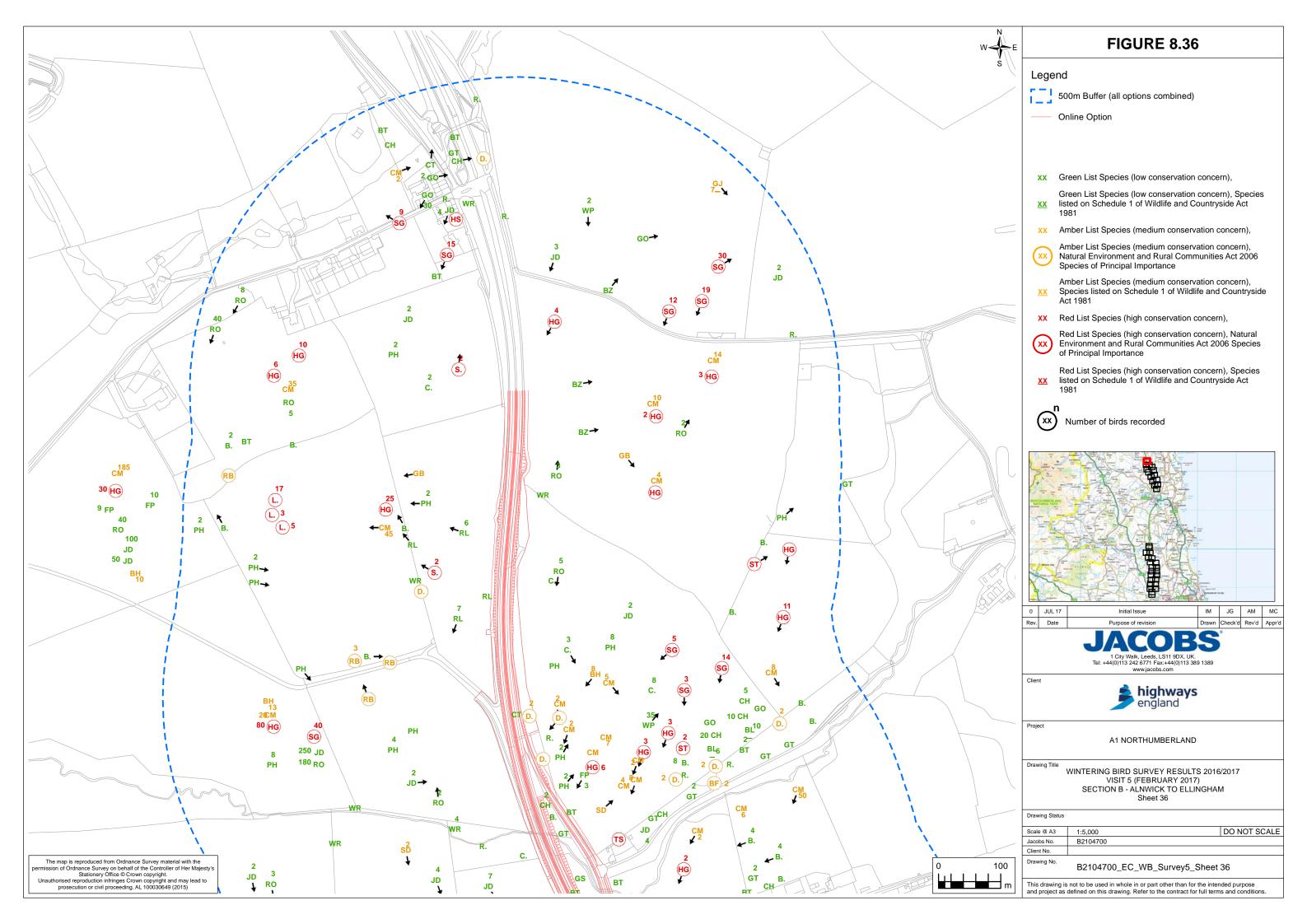












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