

A30 Chiverton to Carland Cross Environmental Statement

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Wintering Birds Survey Report**

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WINTERING BIRD REPORT

CONFIDENTIAL

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Highways England

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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 WSP was commissioned by Highways England to undertake Phase 2 ecological surveys for the A30 Chiverton Cross to Carland Cross Improvement Scheme (hereafter referred to as 'the proposed Scheme') based upon recommendations within the Phase 1 Habitat Verification Survey¹. The proposed Scheme involves a new dual carriageway to run alongside the existing single carriageway road to relieve traffic pressures within the area. Surveys are required in order to inform an Ecological Impact Assessment (EclA) forming part of an Environmental Statement (ES) supporting a Development Consent Order (DCO) Application for the proposed Scheme.
- 1.1.2 The presence of habitat suitable to support wintering birds within the proposed Scheme footprint was established during the Phase 1 Habitat Survey. In addition, desk study records confirmed the presence of wintering bird species within the 5 km search area. Accordingly a wintering bird survey was recommended.
- 1.1.3 The purpose of the survey was to identify the presence or absence of wintering bird species of conservation concern within suitable habitats to be affected by the proposed Scheme. If presence were found, the study would support the assessment of potential effects of the proposed Scheme on the local populations and the measures required to mitigate or compensate any significant adverse effects.

1.2 SITE CONTEXT

- 1.2.1 The A30 is a major trunk road running through the centre of Cornwall from west to east. The A30 forms an important route through the county of Cornwall and is under pressure during the summer months due to the high number of tourists. The section of road between Chiverton Cross and Carland Cross is a traffic pinch point, where the dual carriageway narrows to single carriageway in both directions between the two junctions. The single carriageway sits between grid references SW 74759 46978 at the western end and SW 84665 53957 at the eastern end.
- 1.2.2 The area assessed for its suitability to support wintering birds consisted of the 100 m area either side of the 12.7 km length of the proposed Scheme to cover all areas of potential loss and disturbance as a result of construction and operational phases. Within this footprint, six transects were identified for the survey (hereafter referred to as the 'survey area'), see Figure 1. It should be noted that at the early stage of the survey design, the preferred Scheme option had not been finalised. As such, the survey area incorporated additional Scheme options and variations that have been subsequently removed.
- 1.2.3 The proposed Scheme area covers a variety of habitats including heathland, farmland and woodland. The existing soft estate along this section of road contains hedgerows in some areas but also includes wide grass verges in others. The road at times is raised up offering panoramic views, at others it is cut into the bed rock with steep banks above.

¹ WSP|PB (2015). A30 Carland Cross to Chiverton Cross Phase 1 Habitat Verification Survey. A Report to Highways England

1.3 WINTERING BIRD ECOLOGY

- 1.3.1 The UK is important to a number of migrant bird species in the winter. It also supports a number of resident species. Outside of the breeding season, birds are either solitary or gregarious, focusing most of their intentions on finding enough food to sustain them through the winter months. Some will migrate south from the UK, others south into the UK.
- 1.3.2 Different foraging habits will be deployed, based upon the bird species. Some will form large flocks and feed on the ground, whilst others use the cover of hedgerows and woodlands. The habitats within the wider area of breeding territories can be crucial to survival and subsequent breeding success in the spring. Nationally, population trends typically illustrate that changes in farming practices have resulted in the loss of wintering forage for many species and as such declines have been noted. In addition, direct habitat loss of stubble fields and wilder areas have impacted some species.

1.4 LEGISLATION

- 1.4.1 The Wildlife and Countryside Act (WCA) (1981, as amended) afford protection to all wild birds at all times of the year from intentional killing, injuring, or taking of any wild bird. This protection includes taking or destroying an egg or nest during the breeding season. Some birds are listed on Schedule 1 of the WCA (1981, as amended) which provides additional protection against reckless disturbance during the nesting season.
- 1.4.2 The Birds Directive (2009/147/EC) is implemented with the UK in order to maintain populations of wild birds across their natural range. Species of importance are listed on Annex 1. These species are considered rare or vulnerable and help to classify Special Protection Areas (SPAs)
- 1.4.3 The Natural Environment and Rural Communities Act (NERC), 2006 identified species of conservation importance in England, which are listed on Section 41. These species are of principal importance for the conservation of biodiversity in England.
- 1.4.4 The UK law does not afford wintering birds any special protection; however the species listed within the different legislative frameworks provide information on species of conservation concern. Identification of wintering grounds of these species can help to protect and enhance the breeding success, due to the birds maintaining a better body condition ready for the breeding season.

2 METHODOLOGY

2.1 DESK STUDY

- 2.1.1 A desk study was completed in 2015 as part of the Phase 1 Habitat Verification Survey. A search for any statutory or non-statutory designated sites where birds are the interest feature within 2 km of the proposed Scheme was undertaken.
- 2.1.2 Records of birds were requested from the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) within 5 km of the proposed Scheme, hereafter referred to as the 'study area'.
- 2.1.3 The ecological desk study provides background information on the biodiversity interest of the survey area, which complements data collected in the field by providing additional context for the survey area and its surroundings. It should be noted that an absence of desk study records for particular species or habitats does not necessarily convey an absence of such species or habitats in that area, but may be indicative of under-recording.

2.2 SCOPING

- 2.2.1 During scoping, the survey area was assessed for the types of habitat present within 100 m of the proposed alignments. At the stage of scoping, three options were still present and as such the habitats were assessed across all of these options. The habitats identified were:
- Arable farmland;
 - Pastoral farmland;
 - Woodland (belts and copses);
 - Heathland;
 - Hedgerows;
 - Farms;
 - Wet areas such as small ponds and streams; and
 - Gardens.
- 2.2.2 The length of the proposed Scheme was divided into six transects and covered all of the habitats present within the Site (see Figure 1), with focus upon those that were likely to be directly affected by the proposals. Land access was considered and transects were designed to make use of gateways and side roads as well as the habitats described above.

2.3 FIELD SURVEY

- 2.3.1 The field survey was carried out along the length of the proposed Scheme over the wintering bird season. The surveys were carried out over six sessions between October and March to also include the migratory periods. Surveys were carried out over two days, covering six transects between two teams of two, with each team including an experienced ornithologist capable of identifying a wide range of European bird species by sight and sound.

- 2.3.2 The surveys were designed to follow the breeding bird surveys and carried out in conjunction with the Common Bird Census and Breeding Bird Survey methodology². The routes were circular or linear to take into account all areas potentially affected by the proposed Scheme.
- 2.3.3 Wherever possible the surveys were carried out in suitable weather conditions and within daylight hours. Each transect lasted approximately three hours in length. The routes were reversed during each visit in order to reduce the potential for time bias.
- 2.3.4 The surveys were carried out on the following dates:
- 20/21 October 2016;
 - 24/25 November 2016;
 - 19/20 December 2016;
 - 24/25 January 2017;
 - 20/21 February 2017; and
 - 13/14 March 2017.
- 2.3.5 During each survey, the bird species and behaviour were recorded using the standard British Trust for Ornithology (BTO) codes:
- Foraging;
 - Roosting;
 - Alarm calling;
 - Song; or
 - Aggressive encounter.

2.4 DATA EVALUATION

- 2.4.1 An assessment of the ornithological importance of the study area was made by evaluating the species recorded using the following criteria:
- Listed on Annex 1 of the EU Birds Directive (Directive 79/409/EEC);
 - Listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended);
 - Listed in Schedule 41 of the Natural Environment and Rural Communities (NERC) Act, 2006;
 - Included in Birds of Conservation Concern (BoCC4) Red List³; and
 - Included in Birds of Conservation Concern (BoCC4) Amber List³
- 2.4.2 Birds that are listed within BoCC4 are assessed using the following criteria:
- Red list (high conservation concern) species are those that are Globally Threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in

² Gilbert, G., Gibbons, D. W., & Evans, J. (1998). *Bird Monitoring Methods*. RSPB, Bedfordshire.

³ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708–746

recent years; and those that have declined historically and not shown a substantial recent recovery.

- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
- Green list (low conservation concern) species fulfil none of the above criteria.

2.4.3 Species that were of conservation importance were mapped to illustrate the 'hotspots' within the survey area for wintering species.

2.4.4 Each transect was summarised to provide a species list and relative use of the habitats found within each transect.

2.5 LIMITATIONS

2.5.1 The wintering bird surveys were carried out within one season across six dates. It was also not possible to survey all transects within one day, they were instead surveyed on consecutive days. Therefore, there is potential for some species to have been missed or potentially recorded twice on the consecutive days. As such the results presented within this report represent a sample of the species present within the survey area and are indicative of the diversity and abundance of wintering birds within the survey area.

2.5.2 During the first wintering bird survey, Transect 3 was subject to a route change due to access being restricted within Nancarrow Farm. As a result, this transect followed the road past Nancarrow's eastern access track through Killivose and Chynoweth to link back up with this transect as it moved towards Nanteague Farm. This diversion was only used on the first transect and the original transects were then reinstated from the November survey onwards. Whilst some activity through Nancarrow may have been missed as a result, it was considered that this would not significantly change the transect species composition recorded across the survey period.

2.5.3 The surveys were primarily carried out in clear and dry weather with low wind and good visibility. During the February transects, the weather was inclement and visibility was poor. Poor weather, including fog and rain, was prominent during the week of surveys, and the timings of surveys was altered as necessary particularly on the western transects near Chybucca in order to maintain surveyor safety. It is possible during this survey that the activity levels were decreased due to the weather conditions and that the surveyors may not have detected all of the species present. Despite this, the surveyors still recorded comparable levels of bird activity to other visits and was not deemed to be a significant limitation. The weather conditions are identified within Table 1 below.

Table 1: Weather conditions during the wintering bird surveys

SURVEY DATE	WEATHER CONDITIONS
20/21 October 2016	Dry, 7-12°C, cloud cover 2/8, wind 0-1 BF, visibility - good
24/25 November 2016	Dry, 5-4°C, cloud cover 2/8 – 4/8, wind 0-1 BF, visibility - good
19/20 December 2016	Dry, 9°C, cloud cover 8/8, wind 1 BF, visibility - good
24/25/ January 2017	Dry, 4-8°C, cloud cover 4/8 – 7/8, wind 0-3 BF, visibility - good
20/21 February 2017	Mist and drizzle, 10°C, cloud cover 8/8, wind 1-3 BF, visibility – poor - moderate
13/14 March 2017	Light drizzle at start, then dry, 10°C, cloud cover 8/8 - 2/8, wind 0-2 BF, visibility - good

3 RESULTS

3.1 DESK STUDY

3.1.1

The desk study results returned 2,751 records of birds within the study area within the last 10 years (state period 2006 – 2015). This included 103 species of which 78 were considered to be resident or wintering species. These species are listed in Table 2 below.

Table 2: Wintering species identified within the desk study from the last 10 years.

LATIN NAME	COMMON NAME	LATIN NAME	COMMON NAME
<i>Accipiter nisus</i>	Sparrowhawk	<i>Haematopus ostralegus</i>	Oystercatcher
<i>Aegithalos caudatus</i>	Long-tailed Tit	<i>Larus argentatus</i>	Herring Gull
<i>Alauda arvensis</i>	Skylark	<i>Larus canus</i>	Common Gull
<i>Alcedo atthis</i>	Kingfisher	<i>Larus glaucooides</i>	Iceland Gull
<i>Alectoris rufa</i>	Red-Legged Partridge	<i>Larus hyperboreus</i>	Glaucous Gull
<i>Anas platyrhynchos</i>	Mallard	<i>Larus melanocephalus</i>	Mediterranean Gull
<i>Anthus petrosus</i>	Rock Pipit	<i>Mergus serrator</i>	Red-Breasted Merganser
<i>Anthus pratensis</i>	Meadow Pipit	<i>Motacilla alba</i>	Pied Wagtail
<i>Ardea cinerea</i>	Grey Heron	<i>Motacilla cinerea</i>	Grey Wagtail
<i>Bombycilla garrulus</i>	Waxwing	<i>Parus major</i>	Great Tit
<i>Branta canadensis</i>	Canada Goose	<i>Passer domesticus</i>	House Sparrow
<i>Bubulcus ibis</i>	Cattle Egret	<i>Periparus ater</i>	Coal Tit
<i>Buteo buteo</i>	Buzzard	<i>Phalacrocorax carbo</i>	Cormorant
<i>Carduelis carduelis</i>	Goldfinch	<i>Phasianus colchicus</i>	Pheasant
<i>Chloris chloris</i>	Greenfinch	<i>Phylloscopus collybita</i>	Chiffchaff
<i>Cinclus cinclus</i>	Dipper	<i>Pica pica</i>	Magpie
<i>Columba livia</i>	Rock Pigeon	<i>Picus viridis</i>	Green Woodpecker
<i>Columba oenas</i>	Stock Dove	<i>Plectrophenax nivalis</i>	Snow Bunting
<i>Columba palumbus</i>	Woodpigeon	<i>Pluvialis apricaria</i>	Golden Plover
<i>Corvus corax</i>	Raven	<i>Podiceps cristatus</i>	Great Crested Grebe
<i>Corvus corone</i>	Carrion Crow	<i>Poecile palustris</i>	Marsh Tit
<i>Corvus frugilegus</i>	Rook	<i>Prunella modularis</i>	Dunnock
<i>Corvus monedula</i>	Jackdaw	<i>Pyrrhula pyrrhula</i>	Bullfinch
<i>Cyanistes caeruleus</i>	Blue Tit	<i>Rallus aquaticus</i>	Water Rail
<i>Dendrocopos major</i>	Great Spotted Woodpecker	<i>Regulus regulus</i>	Goldcrest
<i>Egretta garzetta</i>	Little Egret	<i>Scolopax rusticola</i>	Woodcock
<i>Emberiza citrinella</i>	Yellowhammer	<i>Sitta europaea</i>	Nuthatch
<i>Emberiza schoeniclus</i>	Reed Bunting	<i>Streptopelia decaocto</i>	Collared Dove
<i>Erithacus rubecula</i>	Robin	<i>Strix aluco</i>	Tawny Owl
<i>Falco columbarius</i>	Merlin	<i>Sturnus vulgaris</i>	Starling
<i>Falco peregrinus</i>	Peregrine Falcon	<i>Sylvia atricapilla</i>	Blackcap
<i>Falco tinnunculus</i>	Kestrel	<i>Troglodytes troglodytes</i>	Wren

LATIN NAME	COMMON NAME	LATIN NAME	COMMON NAME
<i>Fringilla coelebs</i>	Chaffinch	<i>Turdus iliacus</i>	Redwing
<i>Fringilla montifringilla</i>	Brambling	<i>Turdus merula</i>	Blackbird
<i>Fulica atra</i>	Coot	<i>Turdus philomelos</i>	Song Thrush
<i>Fulmarus glacialis</i>	Northern Fulmar	<i>Turdus pilaris</i>	Fieldfare
<i>Gallinago gallinago</i>	Snipe	<i>Turdus viscivorus</i>	Mistle Thrush
<i>Gallinula chloropus</i>	Moorhen	<i>Tyto alba</i>	Barn Owl
<i>Garrulus glandarius</i>	Jay	<i>Vanellus vanellus</i>	Lapwing

3.1.2 This set of desk study results identifies the diversity of the area for wintering birds. Some of those recorded were sea birds such as the fulmar, and are unlikely to be seen within the survey area. However, the majority of the birds identified could be found within the habitats within the proposed Scheme.

3.2 FIELD SURVEY

3.2.1 The field survey identified a total of 66 species using the length of the survey area across the winter season. Of these there were three Annex 1 species, four Schedule 1 species, and 10 Section 41 species. 14 of the species were on the Red list of BoCC and 13 were on the Amber list of BoCC. A full list of the species identified across the site in alphabetical order is presented in Table 3 below.

Table 3: Species list showing the conservation status and transects within which each of the species was identified

COMMON NAME	LATIN NAME	CONSERVATION STATUS ⁴	T1	T2	T3	T4	T5	T6
Blackbird	<i>Turdus merula</i>		x	x	x	x	x	x
Blackcap	<i>Sylvia atricapilla</i>			x				
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A	x		x	x	x	x
Blue Tit	<i>Cyanistes caeruleus</i>		x	x	x	x	x	x
Bullfinch	<i>Pyrrhula pyrrhula</i>	A, S41	x	x	x	x	x	x
Buzzard	<i>Buteo buteo</i>		x	x	x	x	x	x
Canada Goose	<i>Branta canadensis</i>		x					
Carrion Crow	<i>Corvus corone</i>		x	x	x	x	x	x
Chaffinch	<i>Fringilla coelebs</i>		x	x	x	x	x	x
Chiffchaff	<i>Phylloscopus collybita</i>			x	x			

⁴ A1: Annex 1 species; S1: Schedule 1 species; S41: Section 41 Priority species; R: Red list species (BoCC4); A: Amber list species (BoCC4)

COMMON NAME	LATIN NAME	CONSERVATION STATUS ⁴	T1	T2	T3	T4	T5	T6
Coal tit	<i>Periparus ater</i>						x	
Collared Dove	<i>Streptopelia decaocto</i>			x	x			x
Common Gull	<i>Larus canus</i>	A		x		x		
Dunlin	<i>Calidris alpina</i>	A	x					
Dunnock	<i>Prunella modularis</i>	A	x	x	x	x	x	x
Feral Pigeon	<i>Columba livia</i>			x	x	x		
Fieldfare	<i>Turdus pilaris</i>	R, S1	x	x	x	x	x	x
Goldcrest	<i>Regulus regulus</i>		x	x	x	x	x	x
Golden Plover	<i>Pluvialis apricaria</i>	A1	x			x	x	x
Goldfinch	<i>Carduelis carduelis</i>		x	x	x	x	x	x
Great Black-backed Gull	<i>Larus marinus</i>	A	x				x	
Great Spotted Woodpecker	<i>Dendrocopos major</i>				x			
Great Tit	<i>Parus major</i>		x	x	x	x	x	x
Green Woodpecker	<i>Picus viridis</i>					x		
Greenfinch	<i>Carduelis chloris</i>		x		x		x	
Grey wagtail	<i>Motacilla cinerea</i>	R					x	
Grey Heron	<i>Ardea cinerea</i>			x		x		
Herring Gull	<i>Larus argentatus</i>	R, S41	x	x	x	x	x	x
House Sparrow	<i>Passer domesticus</i>	R, S41	x	x	x	x	x	x
Jackdaw	<i>Corvus monedula</i>		x	x	x	x	x	x
Jay	<i>Garrulus glandarius</i>			x	x			x
Kestrel	<i>Falco tinnunculus</i>	A		x			x	x
Lapwing	<i>Vanellus vanellus</i>	R, S41	x	x	x	x	x	x
Lesser Black-Backed Gull	<i>Larus fuscus</i>	A	x	x	x	x	x	
Linnet	<i>Carduelis cannabina</i>	R, S41	x	x	x	x	x	x
Long-tailed Tit	<i>Aegithalos caudatus</i>		x	x	x	x	x	x
Magpie	<i>Pica pica</i>		x	x	x	x	x	x

COMMON NAME	LATIN NAME	CONSERVATION STATUS ⁴	T1	T2	T3	T4	T5	T6
Mallard	<i>Anas platyrhynchos</i>	A		x		x		
Meadow Pipit	<i>Anthus pratensis</i>	A	x	x	x	x	x	x
Merlin	<i>Falco columbarius</i>	R, S1, A1					x	x
Mistle Thrush	<i>Turdus viscivorus</i>		x	x	x		x	
Moorhen	<i>Gallinula chloropus</i>					x		
Partridge sp.			x					
Peregrine falcon	<i>Falco peregrinus</i>	S1, A1		x			x	
Pheasant	<i>Phasianus colchicus</i>		x	x	x	x	x	x
Pied Wagtail	<i>Motacilla alba</i>		x	x	x	x	x	x
Raven	<i>Corvus corax</i>		x	x	x	x	x	x
Red legged partridge	<i>Alectoris rufa</i>						x	
Redwing	<i>Turdus iliacus</i>	R, S1	x	x	x	x	x	x
Reed Bunting	<i>Emberiza schoeniclus</i>	A, S41	x					
Robin	<i>Erithacus rubecula</i>		x	x	x	x	x	x
Rook	<i>Corvus frugilegus</i>		x	x	x	x	x	x
Siskin	<i>Carduelis spinus</i>				x	x		
Skylark	<i>Alauda arvensis</i>	R, S41	x	x	x	x	x	x
Snipe	<i>Gallinago gallinago</i>	A	x			x	x	x
Song Thrush	<i>Turdus philomelos</i>	R, S41	x	x		x	x	x
Sparrowhawk	<i>Accipiter nisus</i>				x	x	x	x
Starling	<i>Sturnus vulgaris</i>	R, S41	x	x	x	x	x	x
Stock Dove	<i>Columba oenas</i>	A	x	x	x		x	x
Stonechat	<i>Saxicola torquata</i>			x	x	x	x	x
Swallow	<i>Hirundo rustica</i>			x				
Treecreeper	<i>Certhia familiaris</i>				x		x	
Whinchat	<i>Saxicola ruberta</i>	R						x
Woodcock	<i>Lullus arborea</i>	R					x	

COMMON NAME	LATIN NAME	CONSERVATION STATUS ⁴	T1	T2	T3	T4	T5	T6
Woodpigeon	<i>Columba palumbus</i>		x	x	x	x	x	x
Wren	<i>Troglodytes troglodytes</i>		x	x	x	x	x	x
Yellowhammer	<i>Emberiza citrinella</i>	R, S41	x	x			x	x

TRANSECT SUMMARIES

3.2.2 The different transects identified different species within their habitats across the majority of the survey area. However, the habitats were largely consistent. Habitats included arable farmland, pasture fields, woodland blocks, hedgerows, and residential and farm areas. A small pocket of heathland was located to the eastern end of the proposed Scheme and was considered a remnant of the larger Newlyn Downs heathland to the north of Carland Cross. Summaries of the species found within each transect are described below.

Transect 1

3.2.3 Transect 1 passed through the eastern end of the survey area around Carland Cross. The route passed through, or adjacent to, arable farmland, pastoral farmland, woodland, heathland, hedgerows and gardens. The transect was designed in order to cover open areas as well as field boundaries in order to sample all species types, such as those that avoid field boundaries. During the course of the surveys, 43 species were identified within the associated habitats, 21 of those were of conservation concern as detailed in Table 2.

3.2.4 This transect identified large numbers of fieldfare and redwing flying over in October, with the largest flock of 390 being recorded to the east of Carland Cross Services, and a total recorded on that day of 817. It was considered that these birds were likely to still be migrating, and passing through the area, as numbers of this magnitude were not recorded through the rest of the season.

3.2.5 The field to the south west of Carland Cross and south east of the heathland remnant provided foraging areas for a number of species across the season, including meadow pipits, snipe, golden plover, dunlin and gulls.

3.2.6 The two square arable stubble fields between Newlyn Downs and the current A30 next to Journey's End provided a good wintering habitat for a number of small passerines. Species identified on every survey visit included skylark, meadow pipit, chaffinch, yellowhammer, linnets, and goldfinch. On one occasion reed bunting was also recorded here. The birds were seen feeding within the stubble, taking refuge in the hedgerows and using the scrub alongside Newlyn Downs. Lapwing (43) were also recorded in this area in February.

Transect 2

3.2.7 Transect 2 passed through farmland surrounding Ventonteague and Trevalso Farms. The route passed through or adjacent to arable and pastoral farmland, hedgerows, farm buildings and small woodland copses. The transect was designed to cover open areas as well as field boundaries in order to sample all species types, such as those that avoid field boundaries. During the course of the surveys, 49 species were identified within the associated habitats, 19 of those were of conservation concern as detailed in Table 2.

3.2.8 This transect identified regular use of the land by gulls such as herring gull, lesser black-backed gull and black-headed gull. They were prominent in the larger pastoral fields.

- 3.2.9 The thick hedgerows and woodland copses and belts provided habitat for forage and refuge for a number of passerines, including tits, bullfinch and dunnock.

Transect 3

- 3.2.10 Transect 3 passed through farmland and woodland to the west of Zelah around Chyverton Park and Nancarrow Farm. The route passed through arable and pastoral farmland, woodland, residential properties, hedgerows within fields and along quiet lanes, and also passed along the current A30 in some stretches. During the course of the surveys 43 species were identified of which 14 were of conservation concern as detailed in Table 2.

- 3.2.11 The transect was dominated by small passerine species such as finches, tits, robins and dunnocks within the hedgerows and woodland areas. Siskin was recorded in the small field network to the east of Nancarrow farmhouse in February. Redwing and fieldfare were recorded throughout the survey period across this transect. Large groups of corvids were recorded using the arable fields adjacent to the solar farm at Nanteague Farm. This primarily included rooks and jackdaw.

Transect 4

- 3.2.12 Transect 4 passed through farmland from Nanteague Farm, down through Hillview Farm and towards the Chybucca Junction. The route passed through or adjacent to arable and pastoral farmland, hedgerows, and farm buildings. The transect was designed to cover open areas as well as field boundaries in order to sample all species types, such as those that avoid field boundaries. During the course of the surveys, 43 species were identified within the associated habitats, 18 of those were of conservations concern as detailed in Table 2.

- 3.2.13 This transect recorded high levels of activity throughout its length, with records of species such as golden plover, lapwing, snipe, skylark, meadow pipits and stonechat.

- 3.2.14 The area around Nanteague Farm was used regularly by flocks of corvids and small flocks of gulls. Redwing were recorded flying over this area and using the thick hedgerows throughout the survey season.

- 3.2.15 The arable fields around Hillview Farm provided good wintering grounds for a number of species and the area was regularly used. Species recorded within these fields included golden plover, lapwing, snipe, skylark, linnets, meadow pipit, stonechat, and corvids such as jackdaw and carrion crows. Flocks of up to 72 skylark and meadow pipit were recorded within these fields, and the wading bird species were seen to use the area for foraging.

Transect 5

- 3.2.16 Transect 5 passed through farmland south of the current A30 from the Chybucca Junction down to Chyverton Cross roundabout. The route passed through, or adjacent to, arable and pastoral farmland, hedgerows, farm buildings and small woodland copses. The transect was designed to cover open areas as well as field boundaries in order to sample all species types, such as those that avoid field boundaries. During the course of the surveys, 49 species were identified within the associated habitats, 24 of those were of conservation concern as detailed in Table 2.

- 3.2.17 This transect showed patches of higher activity and areas of lower activity of all species (relative to the results as a whole for the proposed Scheme). Higher activity was recorded within the fields around Four Burrows Windfarm and in the fields to the east of the Four Burrows tumuli, to the west of this, the activity was comparatively low.

- 3.2.18 In the areas of lower activity, species were predominantly associated with hedgerows such as dunnock and blackbird. However, redwing were still recorded using this area.

- 3.2.19 The area around Four Burrows Windfarm was an important foraging and roosting area for gulls with high counts of over 350 on regular occasions. These flocks were often associated with starling, with a peak count of 800 in November, woodpigeon, with a peak count of 250 also in November, and numerous skylark. Linnets were also prevalent in this area, along with pied wagtails. A flock of 56 lapwing were recorded in the fields adjacent to the eastern edge of the windfarm in January, they were foraging in the pastoral fields.
- 3.2.20 Around the Four Burrows tumuli, two arable stubble fields provide foraging areas for skylark and meadow pipits, with flocks up to 60 birds across the season. Partridge and golden plover were also seen in these fields.
- 3.2.21 A single merlin was seen flying through the lane between the Four Burrows tumuli in March.

Transect 6

- 3.2.22 Transect 6 passed through farmland north of the current A30 from the Chybucca Junction down to Chyverton Cross roundabout. The route passed primarily through arable farmland and its associated hedgerows. The transect was designed to cover open areas as well as field boundaries in order to sample all species types, such as those that avoid field boundaries. During the course of the surveys, 42 species were identified within the associated habitats, 20 of those were of conservation concern as detailed in Table 2.
- 3.2.23 This transect identified high levels of activity within the arable fields north of the Four Burrows tumuli throughout the season. Species identified within this area included lapwing, golden plover, linnets, skylark, meadow pipit, starling, fieldfare and redwing. Flocks of these species were recorded foraging in the potato fields along with snipe, corvids and kestrel.
- 3.2.24 The fields to the west alongside the A3075 were largely uninteresting. However, meadow pipit, starling, and snipe were seen using the fields, and redwing and fieldfare were recorded passing over.
- 3.2.25 A single merlin, the same bird as recorded in transect 5, was recorded perched on a fence post in the potato fields in March.

SPECIES OF CONSERVATION CONCERN

- 3.2.26 Species of conservation concern were analysed and their locations within the survey area are recorded in Figure 2 identifying the locations of activity of these species. A summary is provided below. An account of the total counts for these species is included in Appendix A.

Gulls (black-headed gull, great black-backed gull, lesser black-backed gull, herring gull, and common gull)

- 3.2.27 Gulls were identified throughout the survey area on all transects, with herring gull being the most common species. Smaller numbers of the other gull species identified were present, with black-headed gulls on all transects except for T2 and lesser black-backed gulls on all transects except T6. Greater black-backed gulls were present only in T1 and T5, and common gulls in T2 and T4 only. Particular hotspots were noted within T1 within the large pasture fields directly south west of Carland Cross roundabout on regular occasions. Large groups of gulls were also present in T2 in the fields at Ventonteague Farm and Trevalso Farm on regular occasions. A group of 265 herring gull were present in T3 to the north of Chynoweth on the 20th October 2016. The fields to the south of the Chybucca junction around the four burrows wind farm provided roosting and foraging grounds for gulls on a number of occasions with a peak of 375 gulls in November 2016. The fields to the north east of the current A30 around the four burrows tumuli also provided foraging opportunity for herring gulls.

Dunlin

- 3.2.28 Four dunlin were present in T1 within the pasture field directly south west of Carland Cross in October, they flew west-south-west.

Golden Plover

- 3.2.29 Golden plover were identified at either end of the survey area. At the eastern end in T1, small flocks of eight, five, and 23 were seen respectively in October, January and February. These were all flying around Carland Cross.
- 3.2.30 Towards the west, they were identified using the fields in T4, T5 and T6. In T4 a small flock (eight) was seen passing over north in November. Two slightly larger flocks of 37 and 21 were recorded foraging in the fields immediately east of the Chybucca Junction in March. In T5 and T6, a flock of five and 28 was seen flying over the fields to the south west of the woodland block west of Chybucca Junction in October and December respectively. A further two birds were seen in the fields to the north of the current A30 in the same area in October.
- 3.2.31 A flock of approximately 280 golden plover were recorded 1 km north of transect 2 during the March survey. These were flying east to west to the north west of Newlyn Downs.

Lapwing

- 3.2.32 Lapwing were recorded using all of the survey area across all six transects. In T1, 43 were seen flying around the edge of Newlyn Downs to the north of the current A30 in February. During March, two were recorded flying north over fields south of Penny-come-quick in T2. In T3, during November, eight birds were seen flying within the fields to the south east of Marazanvose. T4 showed two groups of lapwing within November, with 11 in east of Chybucca Junction and 17 in the fields to the north of Hillview Farm, a group of 11 were recorded in the same fields in February.

Snipe

- 3.2.33 Snipe were recorded in T1, T4, T5 and T6 within the survey area. These were largely individual birds that were flushed whilst walking through the routes. In T1, three records were made in the fields to the south west of Carland Cross in October, December and January. In T4, six records were made of groups up to three birds in the fields around Hillview Farm in November, December and February. One record was made in T5 in March in the fields between Four Burrows and the woodland block to the east. Four records were made in T6 in the fields to the north of Four Burrows and the large fields to the north of the A3075 in November, December and January.

Woodcock

- 3.2.34 A single woodcock was present in T5 in February flying over the woodland block to the south west of the Chybucca Junction.

Grey wagtail

- 3.2.35 A single grey wagtail was identified within Roscarnick Farm in February.

Starling

- 3.2.36 Starling were identified across the survey area with larger flocks noted in some locations, often associated with larger flocks of gulls. Key locations included the pasture fields within T1 to the south west of Carland Cross adjacent to the remnant heathland. Fields around Ventonteague, Trevalso and Nanteague Farms were well used on regular occurrences, and large flocks were

noted within the fields surrounding the Four Burrows wind farm at the Chybucca junction. Fairly mobile flocks were also noted in the fields to the north of the Four Burrows tumuli and in the adjacent fields towards Chyverton Cross roundabout.

Stock dove

- 3.2.37 Small numbers of stock dove were seen across the survey area within all transects except T4. They were recorded as mobile individuals or pairs flying across the survey area.

Kestrel

- 3.2.38 Individual birds were seen hunting throughout transects T2, T5 and T6.

Merlin

- 3.2.39 An individual bird was seen in the western end of the survey area in the March survey and was considered to probably be a migrant bird passing through. It was seen on T5 and T6 in fairly close proximity near to the Four Burrows tumuli.

Peregrine falcon

- 3.2.40 Two individuals were identified within the survey area in T2 and T5, they were seen passing through.

Thrushes (fieldfare, redwing and song thrush)

- 3.2.41 Redwing, fieldfare and song thrush were recorded throughout the survey area across the whole season. The largest flocks of nearly 400 birds were seen in October in T1, primarily composed of redwing with a few fieldfare in amongst them. During the rest of the season, smaller flocks of up to 50 were seen throughout the survey area.

Farmland passerines (linnet, meadow pipit, skylark and yellowhammer)

- 3.2.42 Linnet, meadow pipit and skylark were recorded across the entire survey area, in small or larger flocks throughout the season, yellowhammer were seen in similar areas in T1, T2, T5 and T6. The flocks were often mixed between the four species and included other species such as chaffinch. They were recorded primarily within arable and sometimes pastoral fields. Large flocks were recorded in T1 in the stubble fields to the north of the A30 adjacent to Newlyn Downs, in the fields around Hillview Farm, and around Four Burrows.

Hedgerow passerines (bullfinch, dunnock, and house sparrow)

- 3.2.43 These three species were recorded across the whole survey area and were associated with hedgerows and gardens. House sparrows were primarily recorded in small flocks adjacent to buildings, however were also noted in hedgerows along the A3075. Bullfinch and dunnock were normally recorded as individual or paired birds, and true to their nature were largely shy and took refuge in the vegetation as surveyors approached.

Reed bunting

- 3.2.44 A single reed bunting was recorded in the hedgerow between the fields between the A30 and Newlyn Downs, within a mixed flock of other passerines such as yellowhammer, linnet and chaffinch.

Whinchat

- 3.2.45 Three whinchat were recorded in October in T6 in the fields off the Chybucca Junction adjacent to the B3284. These birds were considered to be migrant birds that were still present late within the season.

Mallard

- 3.2.46 Mallard were recorded in T1, T2 and T4 flying across the survey area. A single flight of 4 birds was recorded in T1 in October, these birds were seen flying north towards the pond in the quarry within the remnant heathland near to Carland Cross. A flight of 13 birds was recorded in T2 during December in the fields to the Ventonteague Farm over the ponds. Two birds were seen to leave the ponds at Nanteague Farm in T4 in January and fly east.

3.3 SUMMARY

- 3.3.1 The proposed Scheme runs through the centre of Cornwall through largely arable and pastoral farmland, interspersed with woodland copses and bisected by hedgerows, many of them Cornish hedges. The eastern end of the proposed Scheme also provides heathland habitat. These habitats offer a range of foraging and roosting opportunities for wintering birds.
- 3.3.2 This study identified a large number of desk study records, covering 103 different species, many of which were considered to be wintering or resident species. The field survey identified a total of 66 species actively using the survey area within the survey period. Of these a number were of conservation concern including three Annex 1 species and four Schedule 1 species.
- 3.3.3 Each transect identified between 42 and 49 species, with 18 to 24 species of conservation concern listed.
- 3.3.4 Areas identified as being important to wintering birds included: the arable fields surrounding Four Burrows tumuli, on both sides of the existing A30; the arable fields south of the Chybucca junction around Four Burrows wind farm; arable fields to the north of Hillview Farm; the stubble fields west of Carland Cross adjacent to Newlyn Downs; and the pasture fields west of Carland Cross adjacent to the remnant heathland. All of these areas identified high levels of use of a number of wintering species such as skylark, meadow pipit, gulls and waders such as golden plover and lapwing.

Appendix A

**TOTAL COUNTS OF SPECIES OF CONSERVATION CONCERN THROUGH
THE SURVEY AREA**

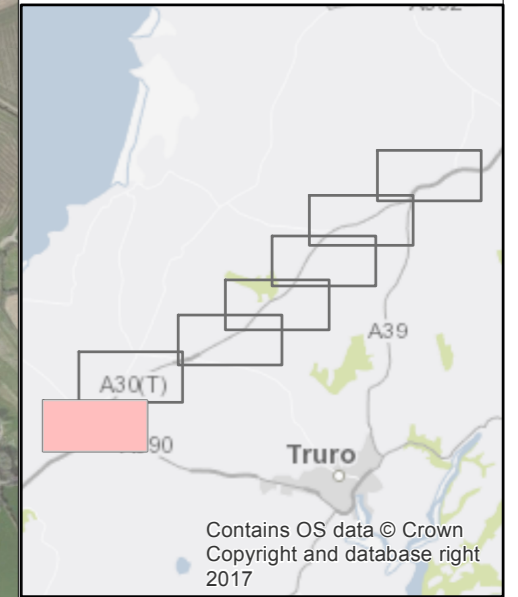
		MAXIMUM COUNTS ACROSS ALL TRANSECTS					
Common Name	Latin Name	October	November	December	January	February	March
Black-headed gull	<i>Chroicocephalus ridibundus</i>	0	3	27	16	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	9	5	2	3	5	4
Common gull	<i>Larus canus</i>	0	3	0	0	0	0
Dunlin	<i>Calidris alpina</i>	4	0	0	0	0	0
Dunnock	<i>Prunella modularis</i>	32	55	36	37	31	50
Fieldfare	<i>Turdus pilaris</i>	202	150	23	83	33	0
Great black-backed gull	<i>Larus marinus</i>	0	3	0	0	0	0
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	0	1	0
Golden plover	<i>Pluvialis apricaria</i>	15	8	28	5	23	0
Herring gull	<i>Larus argentatus</i>	932	910	271	269	95	224
House sparrow	<i>Passer domesticus</i>	32	54	60	45	23	42
Kestrel	<i>Falco tinnunculus</i>	2	0	1	2	0	0
Lapwing	<i>Vanellus vanellus</i>	39	36	14	56	52	2
Lesser black-backed gull	<i>Larus fuscus</i>	5	14	1	3	0	4
Linnet	<i>Carduelis cannabina</i>	109	98	119	93	19	26
Mallard	<i>Anas platyrhynchos</i>	4	0	13	2	0	0
Merlin	<i>Falco columbarius</i>	0	0	0	0	0	2
Meadow pipit	<i>Anthus pratensis</i>	154	184	309	135	45	38
Peregrine falcon	<i>Falco peregrinus</i>	0	0	0	2	0	0
Redwing	<i>Turdus iliacus</i>	1159	106	213	96	153	98
Reed bunting	<i>Emberiza schoeniclus</i>	0	0	0	0	0	1
Skylark	<i>Alauda arvensis</i>	154	237	251	272	50	57
Stock dove	<i>Columba oenas</i>	1	59	0	2	0	2
Starling	<i>Sturnus vulgaris</i>	12	1952	542	346	156	1
Snipe	<i>Gallinago gallinago</i>	1	5	4	1	0	1
Whinchat	<i>Saxicola ruberta</i>	1	0	0	0	0	0
Woodcock	<i>Lullus arborea</i>	0	0	0	0	1	0
Yellowhammer	<i>Emberiza citrinella</i>	26	5	0	4	1	15

Appendix B

FIGURES



- Option 7A
- 100m Buffer
- T1
- T2
- T3
- T4
- T5
- T6



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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 BS2 0HQ

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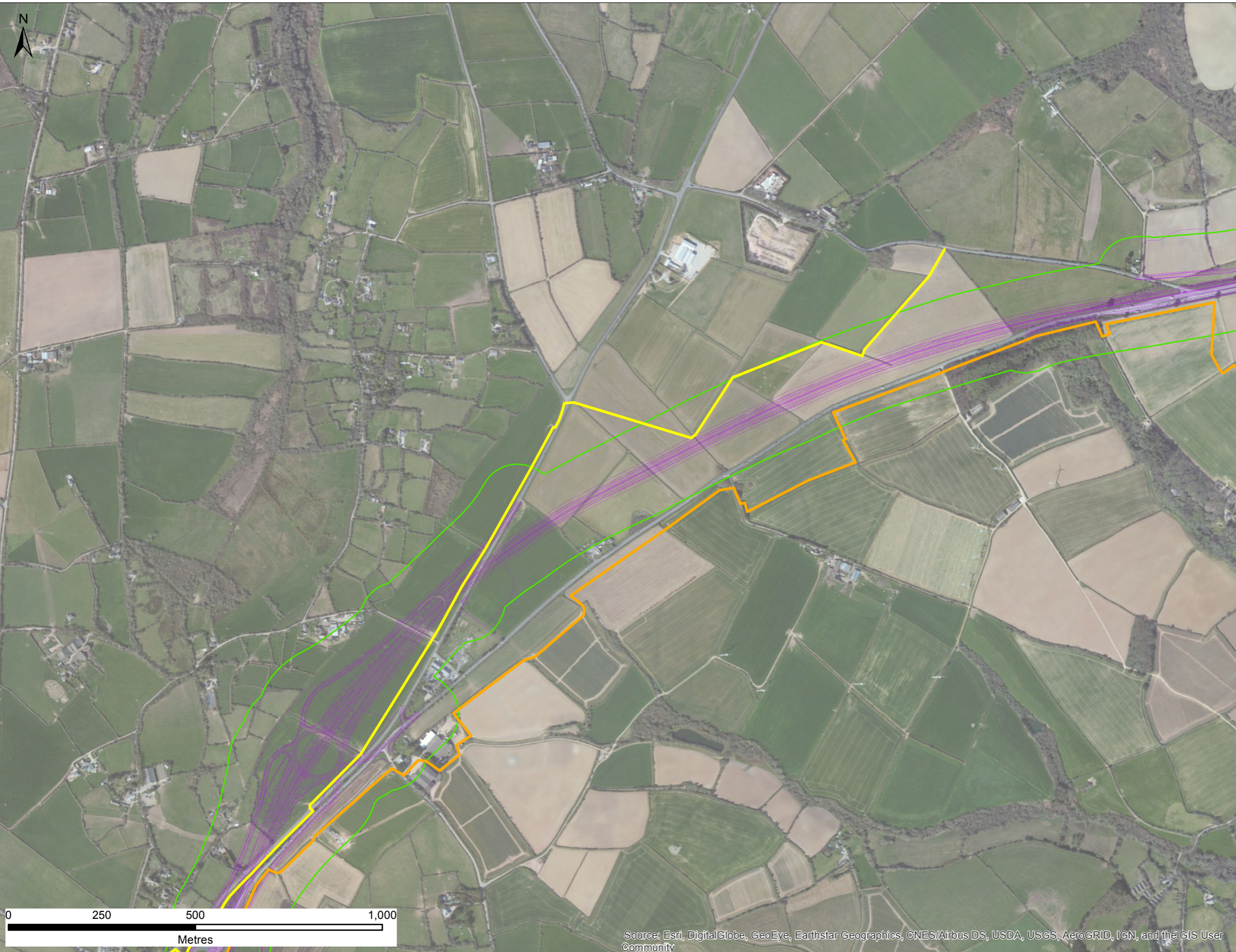
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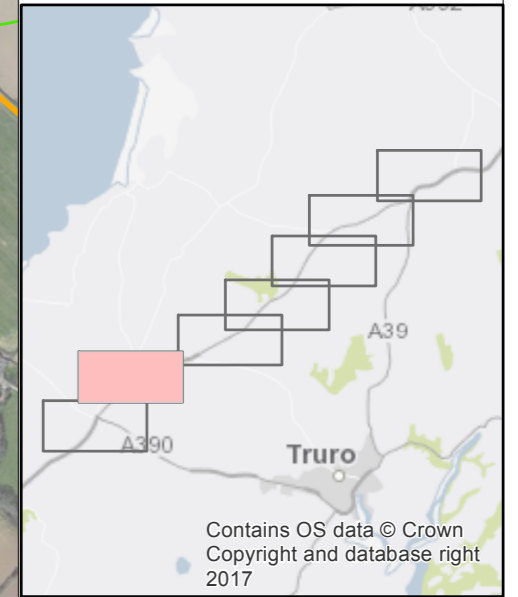
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PAGE 1 OF 7

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Revision:	

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- Option 7A
- 100m Buffer
- T1
- T2
- T3
- T4
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- T6



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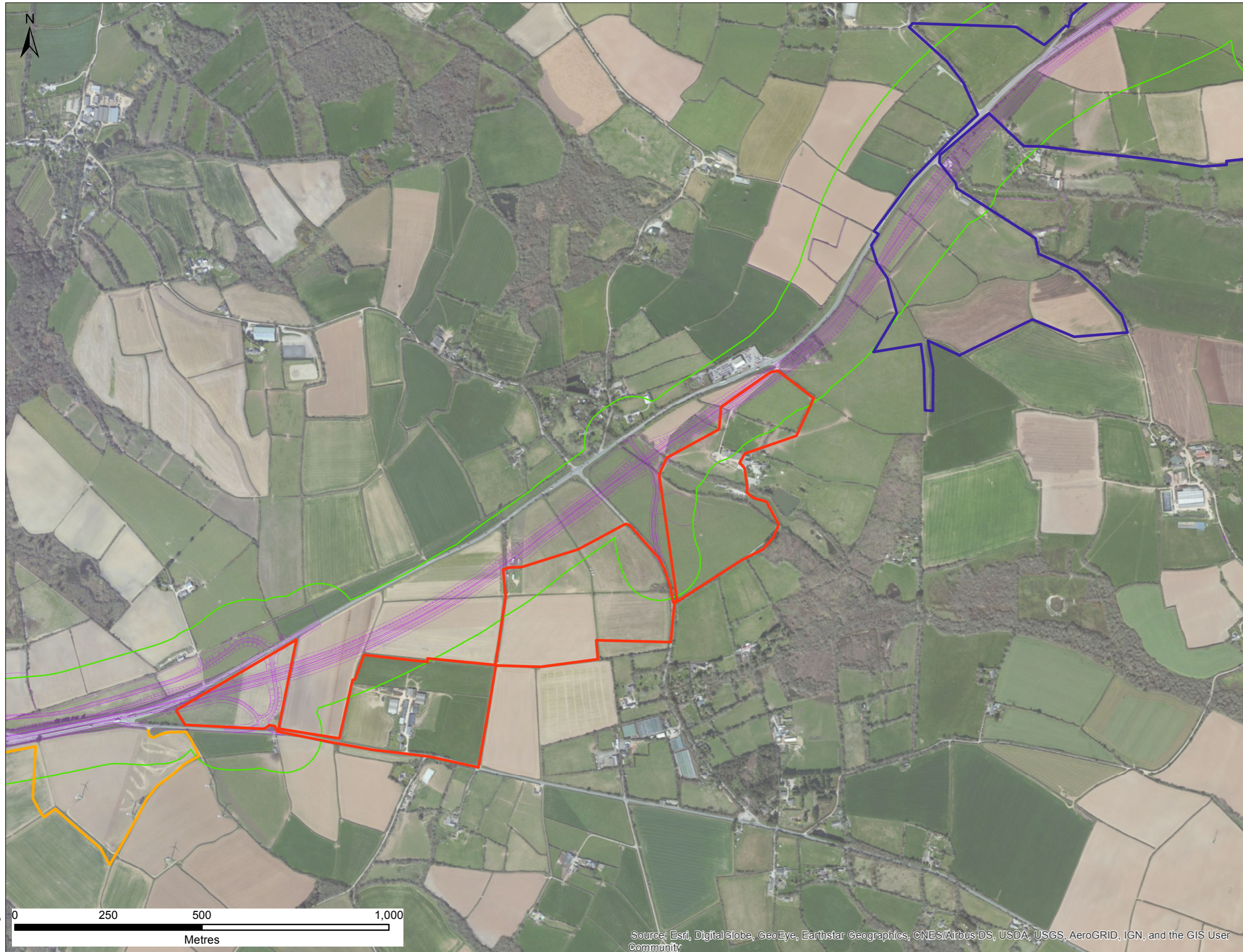
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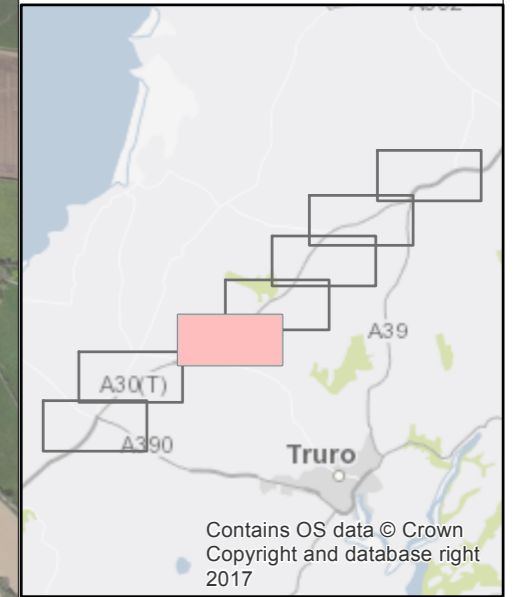
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PAGE 2 OF 7

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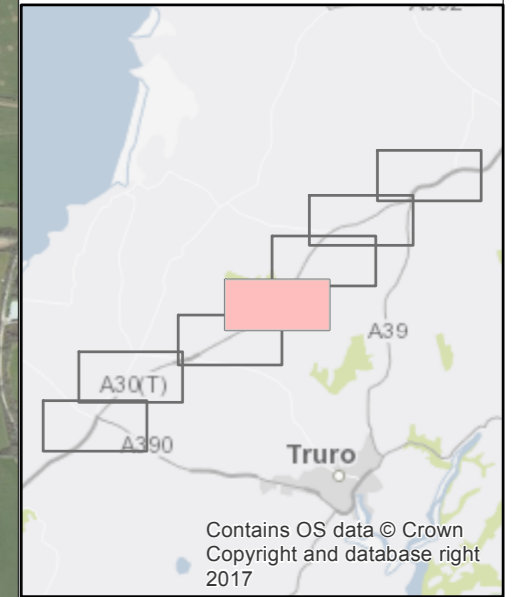
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PAGE 3 OF 7

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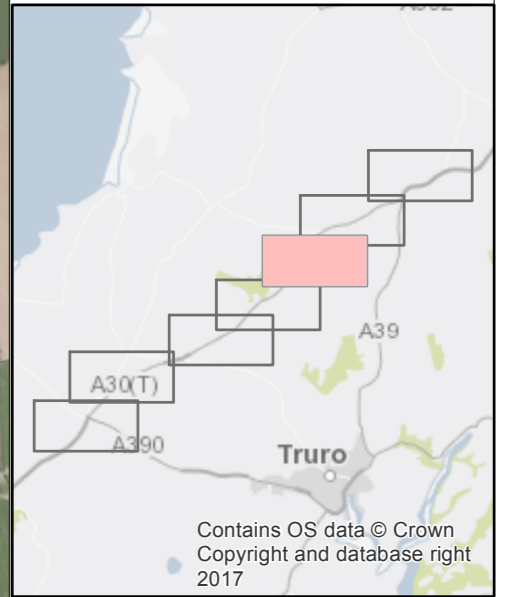
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- Option 7A
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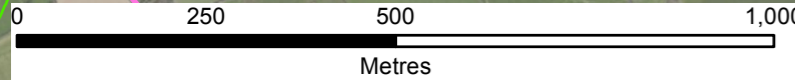
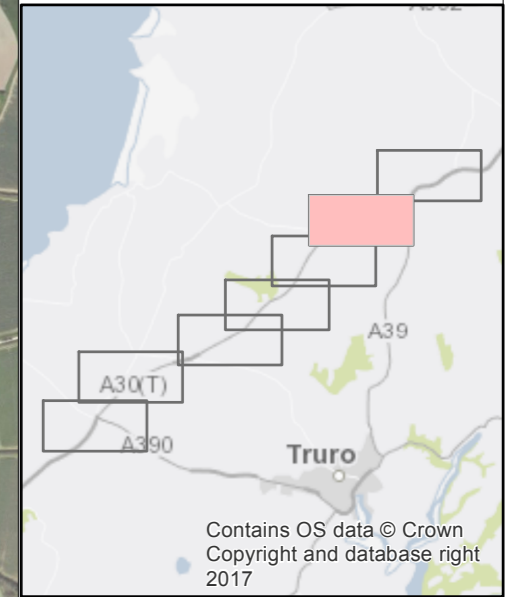
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- Option 7A
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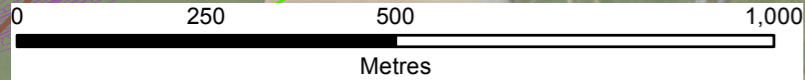
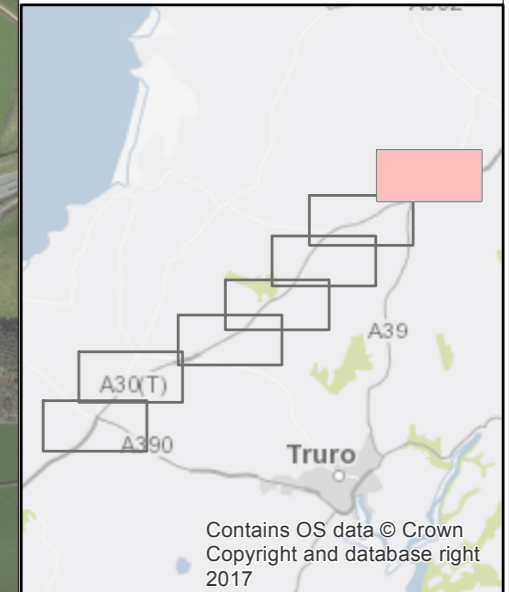
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PAGE 6 OF 7

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PAGE 7 OF 7**

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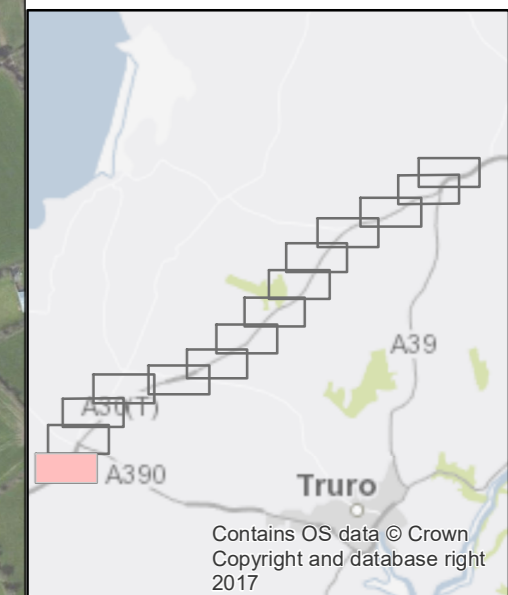


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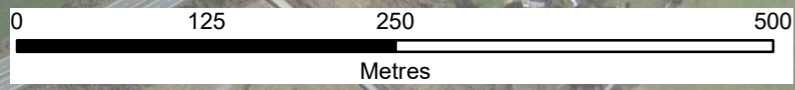
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BZ	Buzzard
C	Carrion crow
CH	Chaffinch
DN	Dunlin
FF	Fieldfare
GB	Great black-backed gull
GL	Grey wagtail
GO	Goldfinch
GP	Golden plover
HG	Herring gull
JD	Jackdaw
K	Kestrel
L	Lapwing
LB	Lesser black-backed gull
LI	Linnet
ML	Merlin
MP	Meadow pipit
PW	Pied wagtail
RE	Redwing
RN	Raven
RO	Rook
S	Skylark
SC	Stonechat
SD	Stock dove
SG	Starling
SH	Sparrowhawk
SK	Siskin
SN	Snipe
WP	Woodpigeon
Y	Yellowhammer

Codes coloured by date surveyed:
 20/21 October 2016
 24/25 November 2016
 19/20 December 2016
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 13/14 March 2017

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 Project: **A30 CHIVERTON TO CARLAND CROSS**

Title: **WINTERING BIRD SURVEY RESULTS**
PAGE 1 OF 14

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Project Number: 70004582	Drawing Number: FIGURE 2
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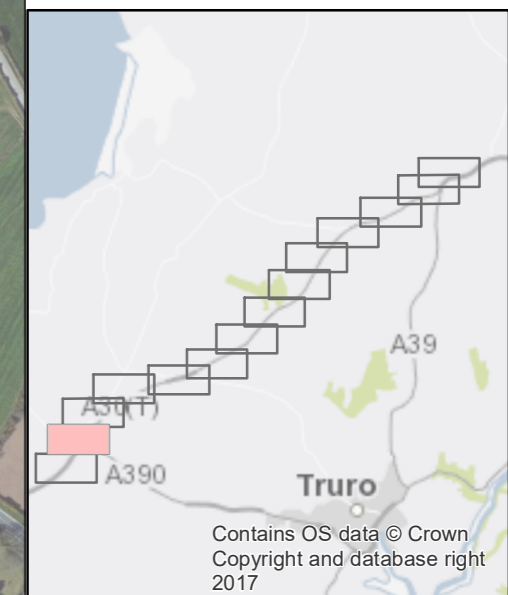


Option 7A
100m Buffer

Species code	Species
BH	Black-headed gull
BZ	Buzzard
C	Carrion crow
CH	Chaffinch
DN	Dunlin
FF	Fieldfare
GB	Great black-backed gull
GL	Grey wagtail
GO	Goldfinch
GP	Golden plover
HG	Herring gull
JD	Jackdaw
K	Kestrel
L	Lapwing
LB	Lesser black-backed gull
LI	Linnet
ML	Merlin
MP	Meadow pipit
PW	Pied wagtail
RE	Redwing
RN	Raven
RO	Rook
S	Skylark
SC	Stonechat
SD	Stock dove
SG	Starling
SH	Sparrowhawk
SK	Siskin
SN	Snipe
WP	Woodpigeon
Y	Yellowhammer

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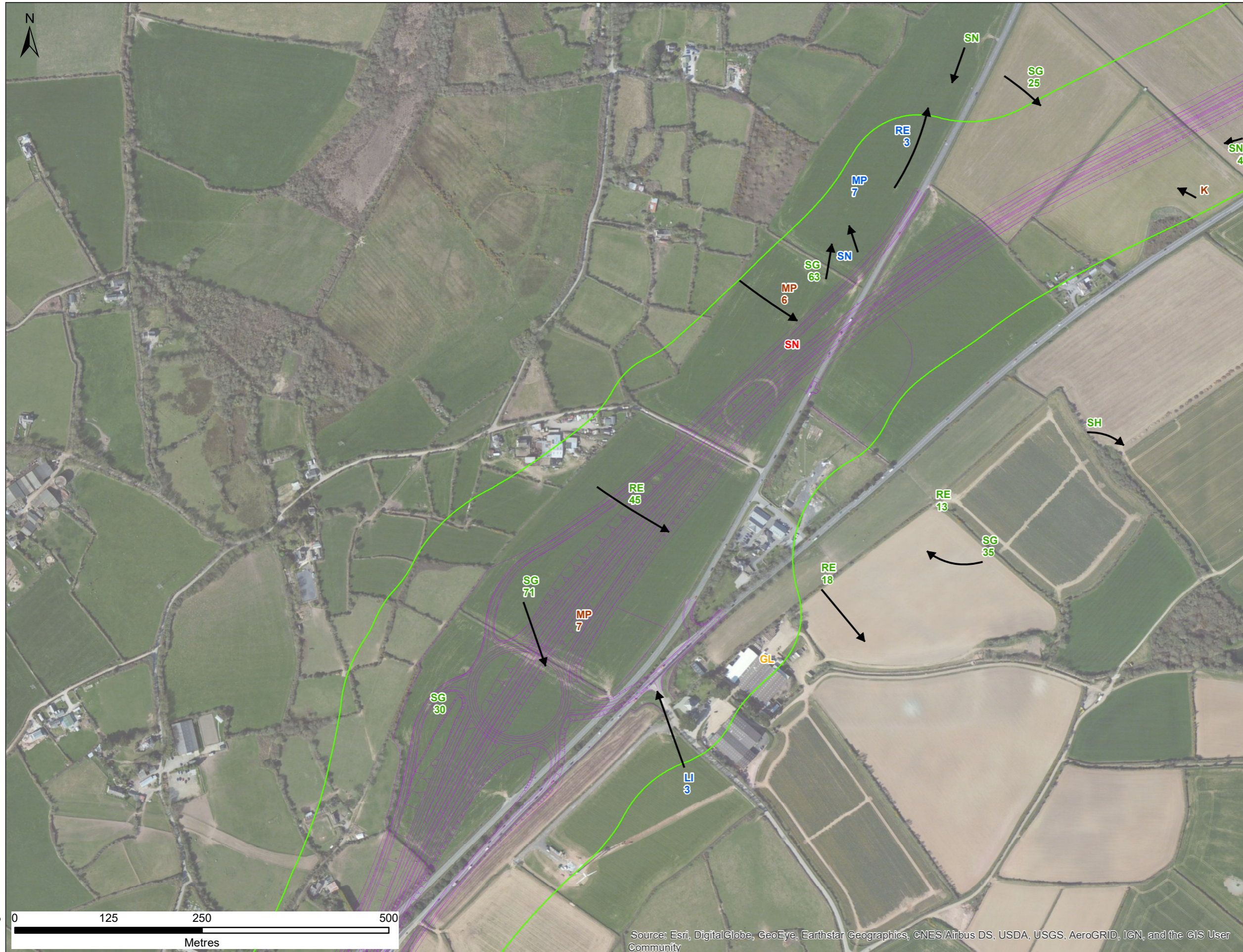
 Kings Orchard,
 1 Queen Street, Bristol
 BS2 0HQ
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Client: 
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Title: **WINTERING BIRD SURVEY RESULTS**
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Project Number: 70004582	Drawing Number: FIGURE 2
	Revision:

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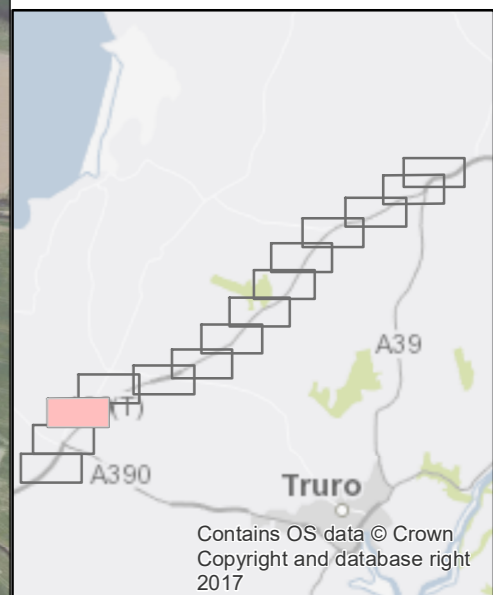


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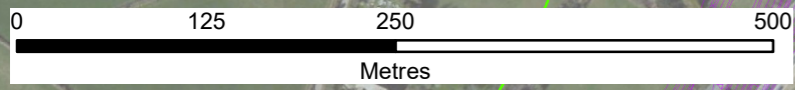
Species code	Species
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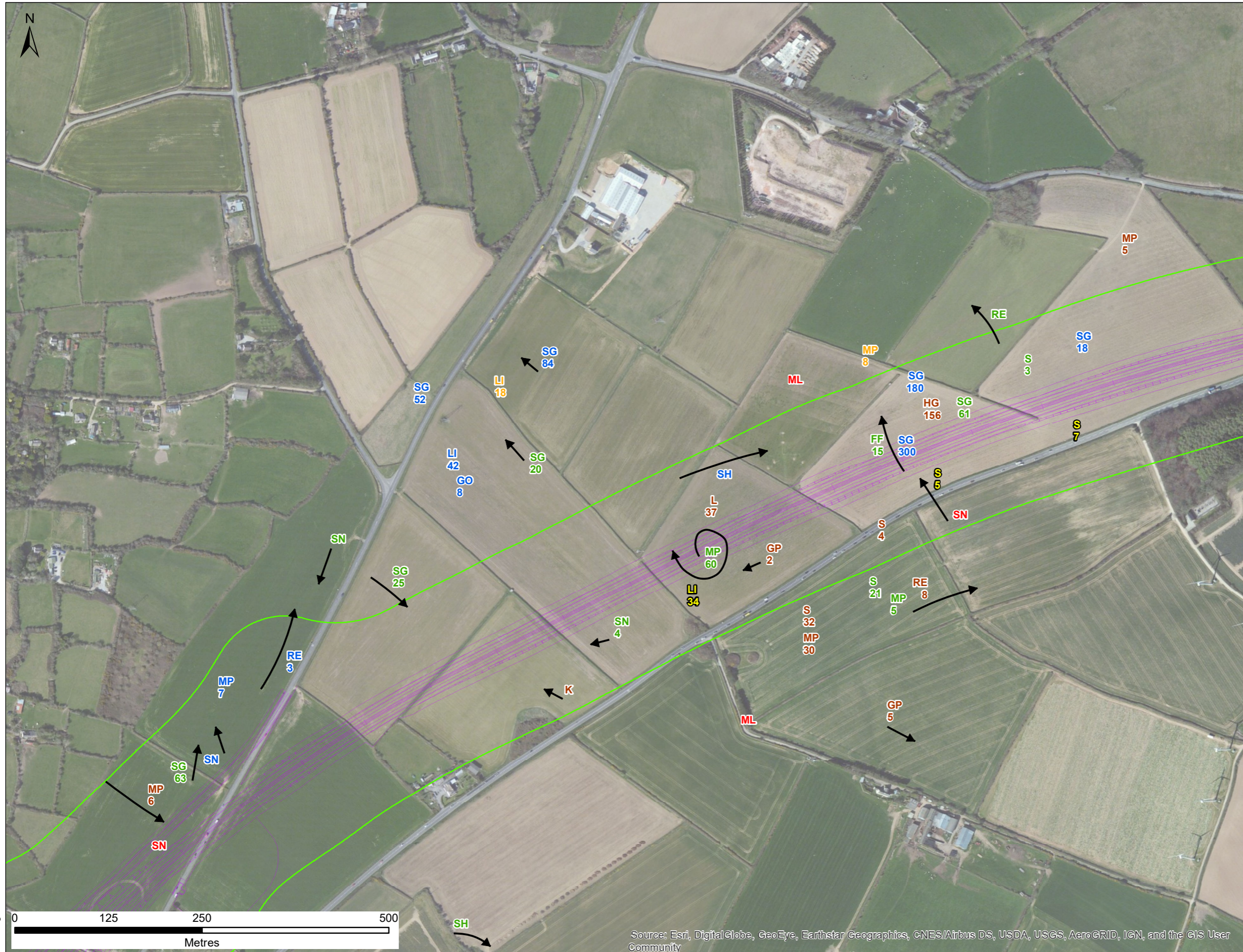
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Project Number: 70004582	Drawing Number: FIGURE 2
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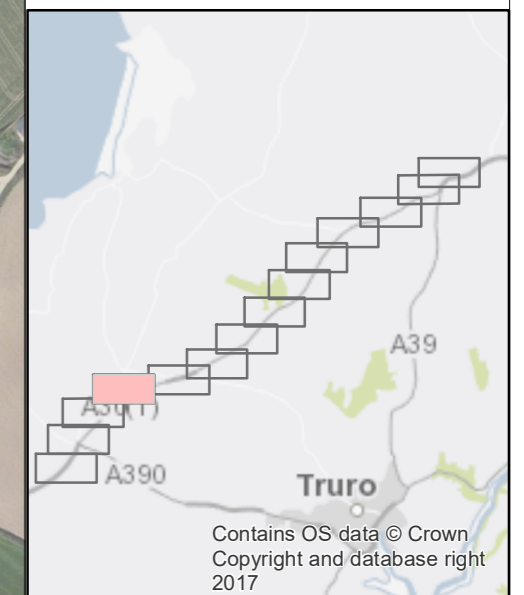


Option 7A
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Species code	Species
BH	Black-headed gull
BZ	Buzzard
C	Carrion crow
CH	Chaffinch
DN	Dunlin
FF	Fieldfare
GB	Great black-backed gull
GL	Grey wagtail
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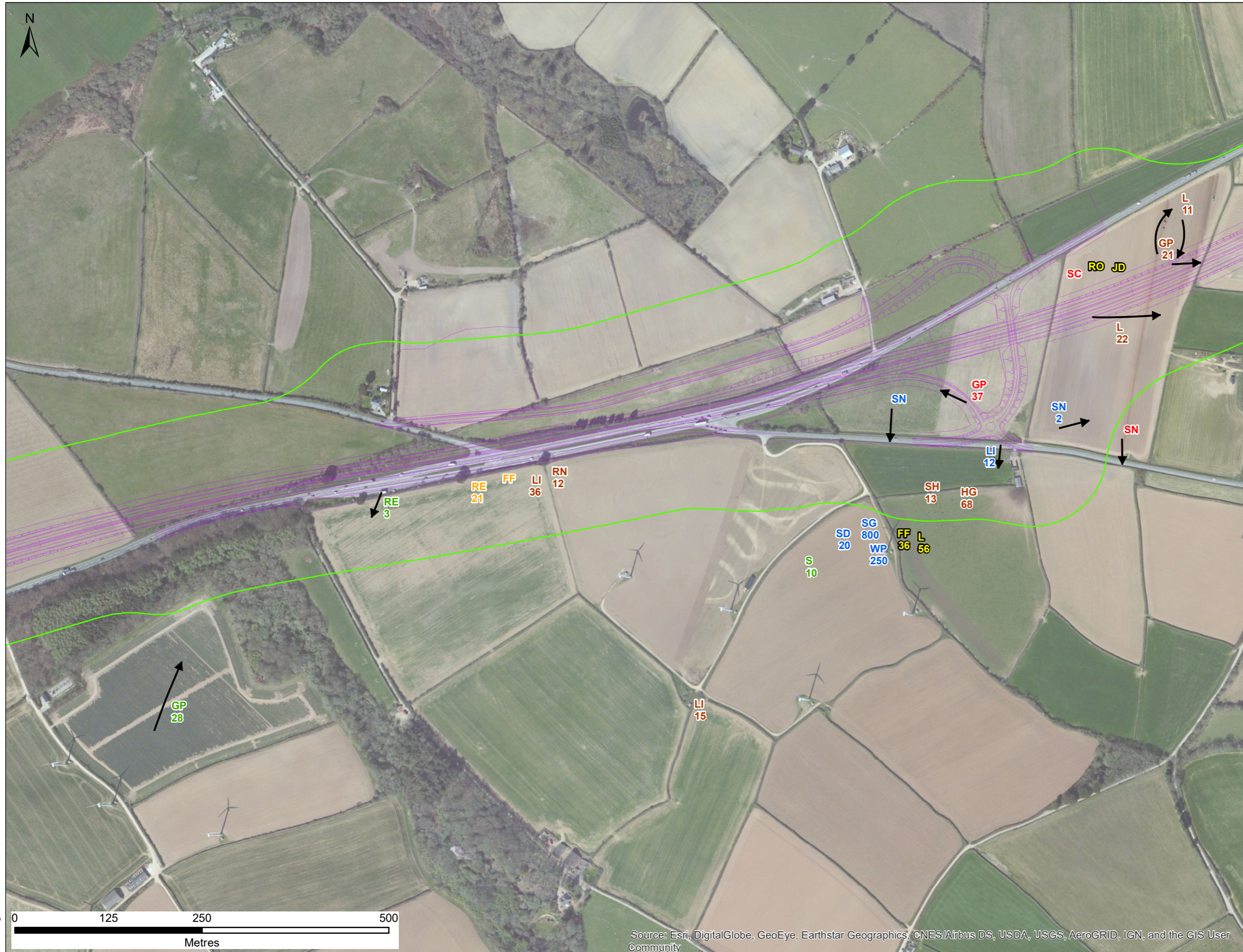
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Project Number: 70004582	Drawing Number: FIGURE 2
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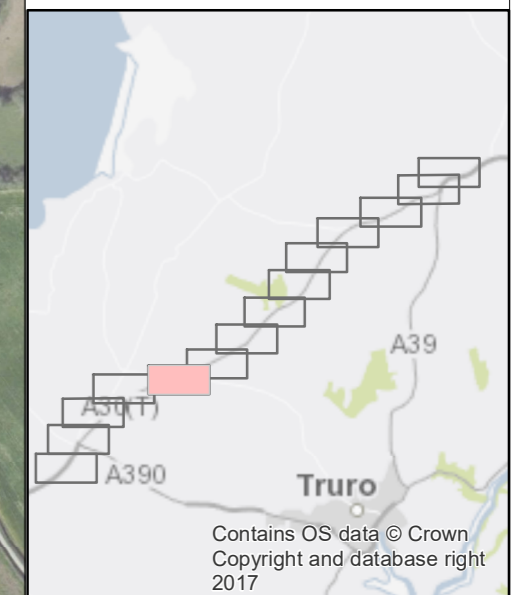


Option 7A
100m Buffer

Species code	Species
BH	Black-headed gull
BZ	Buzzard
C	Carrion crow
CH	Chaffinch
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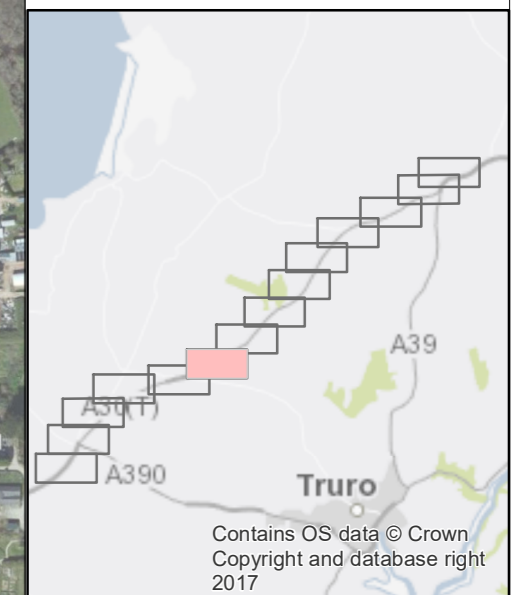


Option 7A
100m Buffer

Species code	Species
BH	Black-headed gull
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SK	Siskin
SN	Snipe
WP	Woodpigeon
Y	Yellowhammer

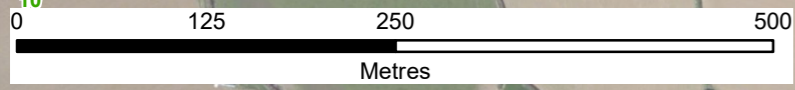
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	Revision:

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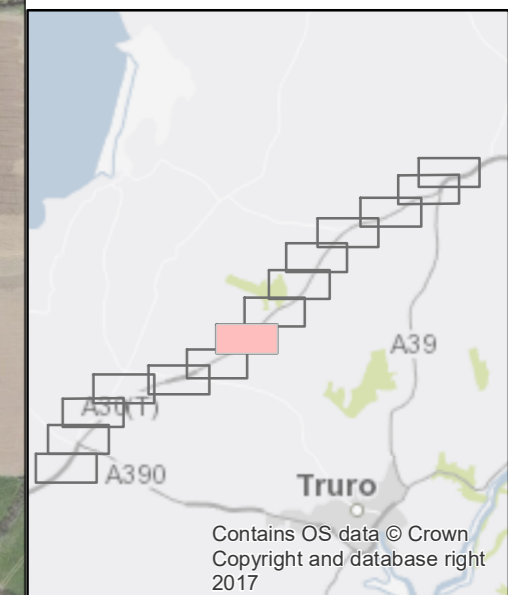


Option 7A
100m Buffer

Species code	Species
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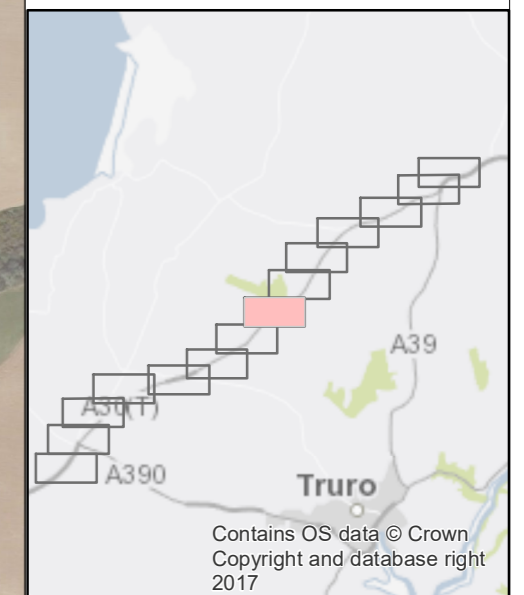
Option 7A
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Species code	Species
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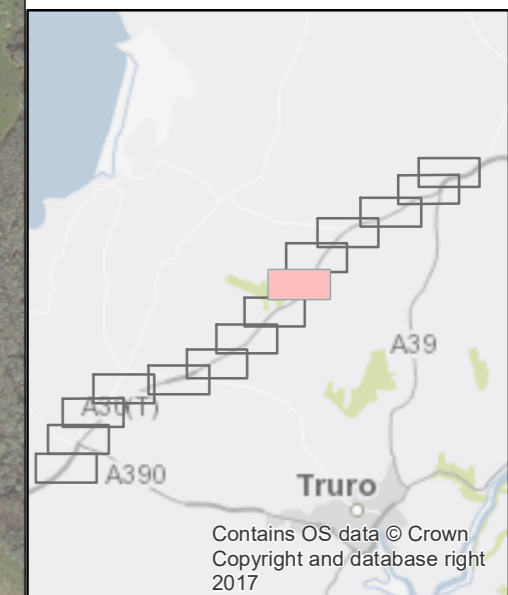


Option 7A
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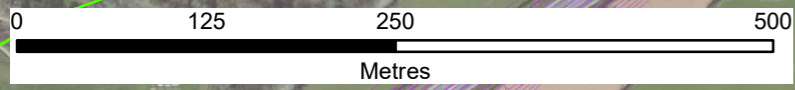
Species code	Species
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	Revision:

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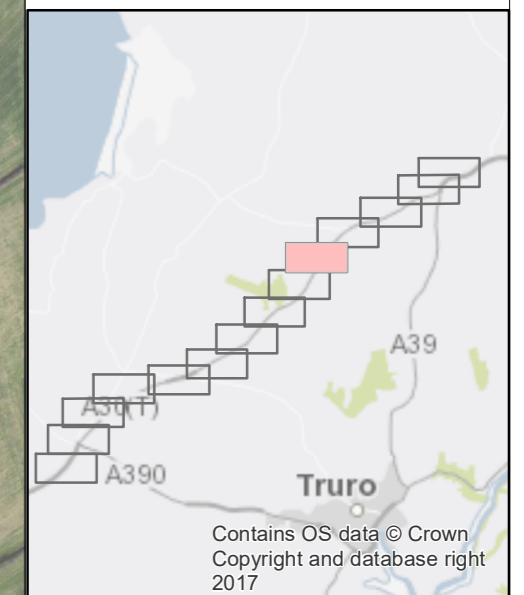


Option 7A
100m Buffer

Species code	Species
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Option 7A

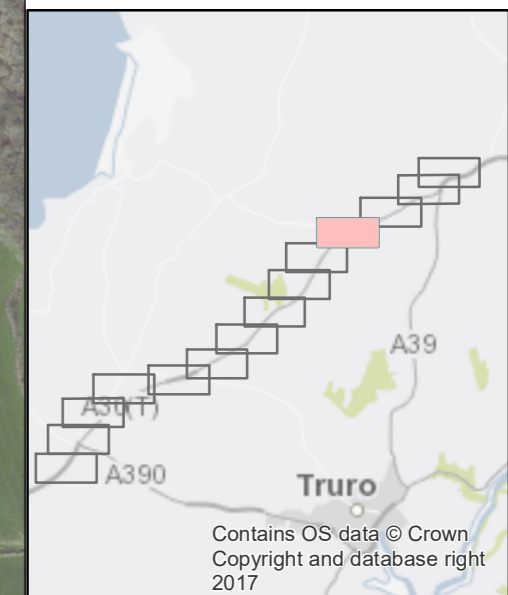
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Species code	Species
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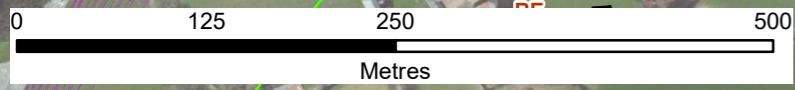
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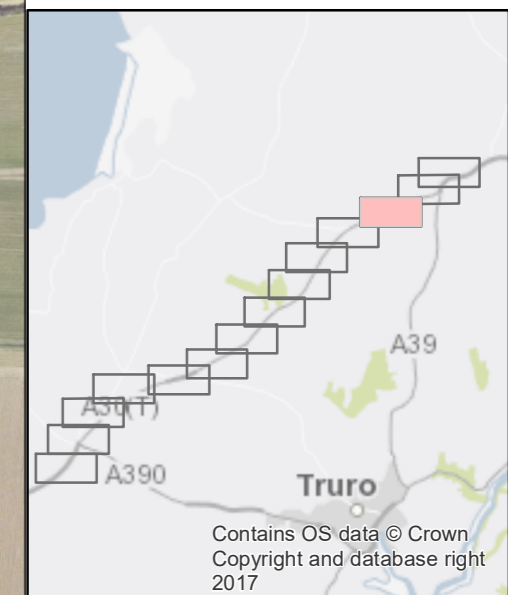


Option 7A
100m Buffer

Species code	Species
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Option 7A

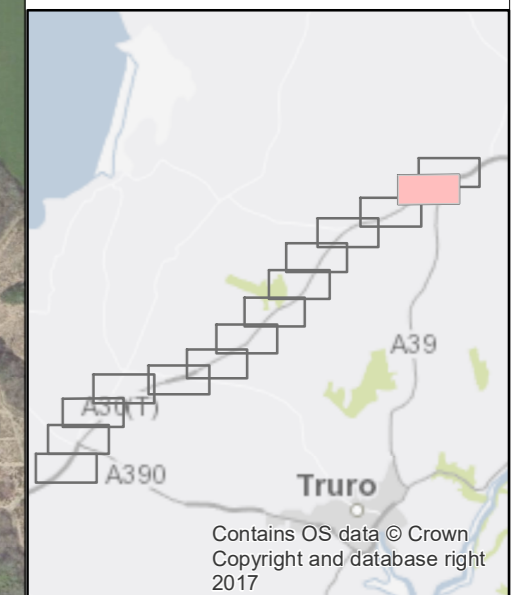
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PW	Pied wagtail
RE	Redwing
RN	Raven
RO	Rook
S	Skylark
SC	Stonechat
SD	Stock dove
SG	Starling
SH	Sparrowhawk
SK	Siskin
SN	Snipe
WP	Woodpigeon
Y	Yellowhammer

Codes coloured by date surveyed:

- 20/21 October 2016
- 24/25 November 2016
- 19/20 December 2016
- 24/25 January 2017
- 20/21 February 2017
- 13/14 March 2017

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plot Date: 05/10/2017 Login: UKBAS003

Rev	Date	Description	By	Chk	App	Notes



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Client: 
 Project: **A30 CHIVERTON TO CARLAND CROSS**

Title: **WINTERING BIRD SURVEY RESULTS**
PAGE 13 OF 14

Drawn: BS	Checked: JSdS
Designed: LM	Approved: UD
Date: 05/10/2017	Scale: 1:5,000 A3 Sheet:
Project Number: 70004582	Drawing Number: FIGURE 2
	Revision:

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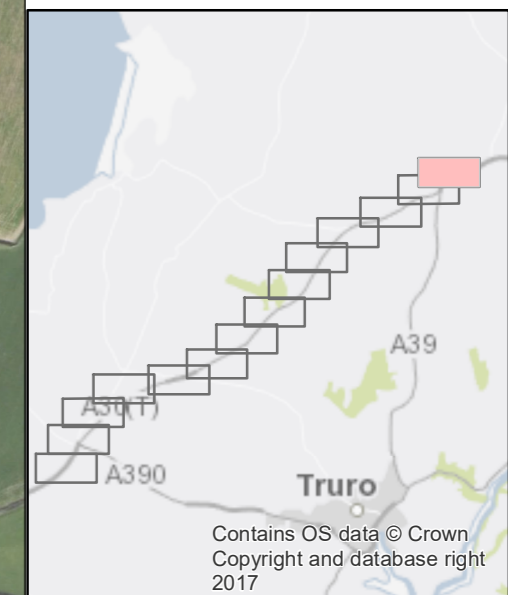


Option 7A
100m Buffer

Species code	Species
BH	Black-headed gull
BZ	Buzzard
C	Carrion crow
CH	Chaffinch
DN	Dunlin
FF	Fieldfare
GB	Great black-backed gull
GL	Grey wagtail
GO	Goldfinch
GP	Golden plover
HG	Herring gull
JD	Jackdaw
K	Kestrel
L	Lapwing
LB	Lesser black-backed gull
LI	Linnet
ML	Merlin
MP	Meadow pipit
PW	Pied wagtail
RE	Redwing
RN	Raven
RO	Rook
S	Skylark
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