M5 Junction 10 Improvements Scheme

Environmental Statement
Appendix 7.8 Breeding Bird surveys
TR010063 – APP 6.15

Regulation 5 (2) (a)

Planning Act 2008





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Infrastructure Planning Planning Act 2008

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

M5 Junction 10 Improvements Scheme

Development Consent Order 202[x]

6.15 Environmental Statement:

Appendix 7.8 Breeding Bird surveys

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1. Introduction

1.1. Terms of Reference

- 1.1.1. Atkins, a member of the SNC Lavalin Group, was commissioned by Gloucestershire County Council (GCC) to undertake breeding bird surveys to inform the Environmental Statement (ES) for the M5 Junction 10 Improvements Scheme (hereafter referred to as the Scheme).
- 1.1.2. The purpose of the breeding bird surveys was to determine the species and numbers of breeding birds present within the Scheme and where possible the breeding status; provide recommendations to enable compliance with legislation and policy; and, if necessary, identify the need for avoidance, mitigation, compensation, or enhancement measures.
- 1.1.3. This Technical Appendix summarises the results of the breeding bird surveys undertaken, including the methods used, results of the field surveys, and provides an evaluation of the nature conservation value of breeding birds within the survey area.
- 1.1.4. This report provides information to support the ES, which will accompany the planning application for the Scheme.

1.2. Legislative and Conservation Concern Status

Legislation

1.2.1. Relevant legislation in relation to breeding birds is provided in Table 1-1 below.

Table 1-1 - Summary of Relevant Legislation

Legislation	Offences	Licensing Procedures and Guidance
Wildlife and Countryside Act 1981 (as amended)	Intentionally kill, injure, or take any wild bird; intentionally take, damage, or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird. Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. Guidance documents: NE & DEFRA Standing Advice for protected species 2022.
The Birds Directive 79/409/EEC Annex 1	N/A	Bird species listed under Annex 1 of the Birds Directive 79/409/EEC are considered endangered or important migratory species in Europe. These species have been protected by the establishment of a coherent network of Special Protection Areas (SPAs).



Legislation	Offences	Licensing Procedures and Guidance
Conservation of Habitats and Species Regulations 2017 (as amended)	N/A	Regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) defines SPAs as European Sites. SPAs are designated based on populations of Annex 1 species that they support, and thus comprise the most suitable habitats to ensure the survival and/or reproduction of these species in their area of distribution.
		Regulation 9 places a duty on public authorities to have regard to the requirements of the Birds Directive in the exercise of their functions.
		Regulation 10 places a duty on public authorities to take steps in the exercise of their functions to contribute to the achievement of the preservation, maintenance and reestablishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom.
Ramsar	N/A	Ramsar sites are wetlands of international importance designated under the Ramsar Convention. The majority of UKs sites are established for internationally important populations of non-breeding waterfowl though some sites have no qualifying ornithological interest.

Conservation Concern Status

- 1.2.2. The UK's leading bird conservation organisations have worked together on the latest review of the status of the birds that occur regularly in the UK (Stanbury et al., 2021¹). Bird species have been assessed against a set of objective criteria to place each on one of three lists green, amber, and red indicating an increasing level of conservation concern. The criteria used in assessments are intended to ensure that Birds of Conservation Concern (BoCC⁵) listings reflect each species' global and European status as well as that within the UK, and additionally measure the importance of the UK population in international terms.
- 1.2.3. Section 41 of 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; this is known as the England Biodiversity List².
- 1.2.4. The UK Biodiversity Action Plan (UK BAP), as updated by the UK Biodiversity Partnership in 2007, was used to draw up the England Biodiversity List. The UK BAP has been succeeded by the UK Post-2010 Biodiversity Framework in 2012, due to a change in government strategy by all UK countries, focusing on managing the environment as a whole rather than dealing with different aspects of biodiversity and environment

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¹ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

² https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england



- separately³. However, the UK BAP list of priority habitats and species continue to be regarded as conservation priorities in the UK Post-2010 Biodiversity Framework.
- 1.2.5. Forty-nine bird Species of Principal Importance (SPI) are included on the England Biodiversity List. These include 48 of the 53 bird species listed for England in the UK BAP⁴, with the addition of hen harrier whose population in England is at very low levels and is unlikely to increase without continued conservation action. The England Biodiversity List is used as a guide for decision makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006 to have regard to the conservation of biodiversity in England when carrying out their normal functions.

³ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. UK Post-2010 Biodiversity Framework. (http://jncc.defra.gov.uk/pdf/UK Post2010 Bio-Fwork.pdf: accessed 13 November 2013).

⁴ Arctic skua, black-throated diver, red-backed shrike, red-necked phalarope, and wryneck are listed for England in the UK BAP but are not included in the England biodiversity list



2. Methodology

2.1. Introduction

- 2.1.1. Unless otherwise stated, the term 'Scheme Boundary' refers to the Order limits, excluding areas of the Order limits that extend approximately 2 km north and 2 km south of the Scheme alignment, along the M5. In these locations, the Scheme Boundary is the Scheme alignment. The Order limits and the Scheme alignment are shown on Figures 7-8A 7-8D.
- 2.1.2. Within the areas of the Order limits that extend north and south of the Scheme alignment, the only works proposed are the installation of signs in discrete locations, which will require vegetation clearance of up to approximately 20 m² plus some minor trimming back of vegetation up to a distance of 180 m in front of the sign to ensure visibility. These signage locations can be micro sited to avoid/minimise ecological impacts. These small-scale works are consistent with routine highway maintenance works. The results of desk study and field surveys here would not have any bearing on the impact assessment for the Scheme, and these areas have been excluded from assessments to inform the ES. Pre-construction surveys of the discrete signage locations and working with the contractor to micro site locations where appropriate to avoid or minimise ecological impacts will be untaken, and is considered to be proportionate.

2.2. Desk Study

- 2.2.1. The geographical area for obtaining ecological data through desk studies has been determined using professional judgement. Baseline data has been gathered from a range of sources through data requests and using online resources as outlined below. This includes data gathering in relation to statutory and non-statutory designated sites and protected and priority species.
- 2.2.2. The MAGIC website⁵ was reviewed to identify relevant statutory designated nature conservation sites (i.e. where birds are the reason or part of the reason for designation) within 2 km of the Scheme or with a direct hydrological connection.
- 2.2.3. Species of principal importance (SPI) for the conservation of biodiversity listed in accordance with Section 41 of the Natural Environment & Rural Communities Act (NERC) 2006⁶, the Red and Amber lists of BoCC5⁷ and the Gloucestershire Local Biodiversity Action Plan⁸ were reviewed as part of the data gathering exercise to identify relevant bird species considered to be important for biodiversity at the site. The Gloucestershire Bird Report⁹

⁵ https://magic.defra.gov.uk/MagicMap.aspx

⁶ Section 40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England. Habitats and species of principal importance for the conservation of biodiversity as identified by the Secretary of State for England, in consultation with Natural England, are referred to in Section 41 of the NERC Act 2006 for England. The list of habitats and species was updated in 2008 and is known as the England Biodiversity List.

⁷ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

Gloucestershire Local Nature Partnership (2000) Biodiversity Action Plan for Gloucestershire Available from: https://www.gloucestershirenature.org.uk/biodiversity-action-plan-bap

⁹ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee



and Gloucestershire Breeding Bird Atlas¹⁰ were reviewed to ascertain the population status of certainspecies within the county.

- 2.2.4. Gloucestershire Centre for Environmental Records (GCER) was contacted in September 2019 and again in April 2021 and July 2022 to obtain recent records¹¹ of:
 - Non-statutory designated nature conservation sites within 1 km of the Scheme Boundary (where birds are the reason or part of the reason for designation); and
 - Priority¹² bird species within 1 km of the Scheme Boundary.

2.3. Field Survey

- 2.3.1. Surveys were led by suitably experienced ecologists considered competent to undertake breeding bird surveys in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) competencies¹³. The lead surveyor is an experienced ornithologist with over 15 years of professional bird survey and assessment experience.
- 2.3.2. The method employed for breeding bird surveys broadly conformed to that used for the Common Bird Census (CBC) survey, devised, and run between 1962 and 2000 by the British Trust for Ornithology (BTO) as detailed in Gilbert et al. (1998)¹⁴ and Bibby et al. (2000)¹⁵. CBC uses a mapping method in which a series of visits are made to a site during the breeding season, and observations of birds, by sight or sound, are recorded on a map during a walked transect.
- 2.3.3. The Survey Area comprised all areas within the Scheme Boundary and accessible land within 250 m. The Survey Area was designed to ensure that the assessment considered all potential impacts on all species present in the area within which an impact may occur (i.e. the Ecological Zone of Influence (EZoI)). This included consideration of species which may be sensitive to disturbance over large distances during the breeding season, such as certain raptor species. The extent of the Survey Area also allowed for some degree of design changes to the Scheme to be accommodated.
- 2.3.4. Four survey visits were carried out (June and July 2019, May 2020, and April 2021), which was considered proportionate for a relatively localised road improvement Scheme, allowing sufficient observations of birds to produce clusters of registrations, and minimising the risk of overlooking scarce and/or priority species. A total of nine representative transects of varying lengths were surveyed, which gave suitable coverage of the Survey Area and the range of habitats present. This was reduced to six transects in May 2020 and April 2021 due to refinement the Scheme design. The direction in which the transects were walked was varied between visits to optimise detection and minimise recording bias. The transects are shown on Figures 7-8A to 7-8D in Appendix A.
- 2.3.5. Walked transects generally commenced between 45 to 90 minutes after dawn and finished by 11 am to coincide with peak bird activity. Surveys were not carried out in heavy

¹⁰ Kirk, G. and Phillips, J. (2013) The Birds of Gloucestershire. Liverpool University Press

¹¹ Records of observations within the last 10 years

¹² In this context, priority birds include those listed as species of principal importance for the conservation of biodiversity in England, those identified as Red or Amber on BoCC5, Annex I listed species on Directive 2009/147/EC (the Birds Directive), those listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed on the Gloucestershire Biodiversity Action Plan, qualifying features of the Severn Estuary SPA and/or features of interests of the Severn Estuary Ramsar site, qualifying features of Walmore Common SPA.

Gilbert, G., Gibbon, D.W. and Evans J. (1998). Bird Monitoring Methods: A Manual of Techniques for Key UK Species.
 Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire
 Bibby C.J. Burgess, N.D. Hill D.A. Mustoe S. and Lambton S. (2000). Bird Census Techniques. Academic Press London



rain, poor visibility or strong wind, as birds are under-recorded in such conditions. Dates and times of each survey visit are shown in Appendix B along with weather conditions.

2.3.6. The surveyor, with the aid of binoculars, recorded all observations of birds by either sight or sound by walking through the Survey Area at a slow and steady pace. The positions of the recorded birds were plotted as accurately as possible on a suitably scaled base map, (i.e. a 'visit map'). Standard BTO codes and symbols¹⁶ were used for mapping species (including sex and age, e.g. juvenile, immature, or adult) and bird activity, where relevant (including singing, alarm calling, nest-building, carrying food and faecal sacs, territorial disputes and aggressive interactions, copulation, foraging, loafing and in flight).

2.4. Assessment

Breeding Status

- 2.4.1. Registrations of birds during the surveys were judged to be 'breeding', 'probable breeding', 'possible breeding', or 'non-breeding' according to the criteria in Table 2-1 below. Breeding behaviour includes displaying, singing, territorial activity, agitated or defensive behaviour or pairs of adults together.
- 2.4.2. The data captured during the survey visits were analysed to provide an estimate of the number of pairs of priority species within the Survey Area.

Table 2-1 - Breeding Criteria

Category	Criteria
Breeding	Adults observed at nest. Nest with eggs. Unfledged young. Carrying nest material, food, or faecal sac. Present in one location (within normal territory range) on at least two occasions in one breeding season and displaying behaviour indicative of breeding on at least one occasion.
Probable Breeding	Present in suitable breeding habitat in the same location (within normal territory range) in one breeding season on more than one occasion. Displaying breeding behaviour on one occasion only.
Possible Breeding	Present in suitable breeding habitat on one occasion.
Non-Breeding	Present in non-suitable habitat for breeding. Immature birds.

Defining Important Bird Species

2.4.3. For the purpose of this assessment, priority bird species are defined as those which are listed as species of principal importance (SPI) for the conservation of biodiversity in

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¹⁶BTO (2009) BTO Species Codes. BTO, Thetford



England, those identified as Red or Amber on BoCC5¹⁷, Annex I listed species on Directive 2009/147/EC (the Birds Directive), species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed on the Gloucestershire Local Biodiversity Action Plan, qualifying features of the Severn Estuary SPA and/or features of interest of the Severn Estuary Ramsar site, and qualifying features of Walmore Common SPA/Ramsar site.

Determination of Bird Community Importance

2.4.4. The priority populations of breeding birds have been valued in a geographical context following the framework provided in LA 108¹⁸. The evaluation is based on the information gathered from the desk study and field surveys, using a combination of professional judgement and accepted criteria¹⁹ (e.g. diversity, rarity, and naturalness).

2.5. Limitations

- 2.5.1. Due to the timing of commissioning of the surveys, the field work started in early June 2019 with subsequent visits undertaken in July 2019, May 2020, and April 2021. Visits were not undertaken during March or April 2020 due to the Coronavirus pandemic. Surveys undertaken in May 2020 and April 2021 started later than recommended due to health and safety restrictions, including not being able to stay overnight close to the survey location as a result of the Coronavirus pandemic.
- 2.5.2. Territorial analysis of priority species could not be undertaken as only two visits were undertaken in any one year. A minimum of four visits during the breeding season in one year is recommended²⁰,²¹,²² to obtain sufficient registrations so that an approximate estimation of the numbers and distribution of breeding bird territories within the survey area can be established.
- 2.5.3. The breeding status of some species may have been classified at a lower level, e.g. classified as probable breeding as opposed to breeding, than if three or four visits were undertakenin one year.
- 2.5.4. The M5 and A4019 was subject to a high volume of traffic towards the end of each survey visit due to increases in commuter traffic volume, which resulted in significant noise pollution surrounding the road network. Birds are generally sensitive to noise pollution; therefore, it is not considered that any significant assemblages of priority species would be present in the areas of vegetation immediately surrounding the road network that were subject to the highest levels of noise pollution during the surveys.
- 2.5.5. Access to all land parcels within 250 m of the Scheme Boundary was not granted by the time the surveys were undertaken. As such, surveys of certain areas, particularly at the

¹⁷ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

¹⁸ Highways England (2020). Design Manual for Roads and Bridges. LA 108 Biodiversity (formerly Volume 11, Section 3, Part 4 Ecology and Nature Conservation and IAN 130/10). (March 2020, version 1). Online:

¹⁹ Set out in Ratcliffe, D.A (1977). A Nature Conservation Review. Cambridge University Press.

²⁰ Hill, D., Fasham, M., Tucker, G., Shewry, M. and Shaw, P. (2005) Handbook of biodiversity methods: survey, evaluation and monitoring. Cambridge University Press: Cambridge

²¹ Hinsley, S.A., Bellamy, P.E., Newton, I., and Sparks, T.H. (1995) Habitat and landscape factors influencing the presence of individual species in woodland fragments. Journal of Avian Biology: 26, 94-104.

²² Amar, A., Hewson, C., Thewlis, R.M., Smith, K.W., Fuller, R. J., Lindsell, J. A., Conway, G., Butler, S. And MacDonald, M. A. (2008) What's happening to our woodland birds? BTO Research Report Number 169.



north east extent of the Scheme, could only be undertaken from Public Rights of Way (PRoWs), which were up to 250 m from the Scheme in places.

- 2.5.6. Ornithological surveys are affected by a variety of factors which affect the presence of birds such as season, weather, climate, migration patterns, food availability, species behaviour and the presence of predators. Therefore, bird surveys for this Scheme may not have produced a complete bird list and the absence of evidence of any particular species within the Survey Area (or a part of the Survey Area), should not be taken as conclusive proof that the species is not present or that it will not be present in the future.
- 2.5.7 Nevertheless, it is considered that the results of these bird surveys and the subsequent assessment provide a representative indication of the use of the EZoI by breeding bird species during the survey period.



3. Results

3.1. Desk Study

Designated Sites

- 3.1.1. There is one statutory designated site with birds as a feature of interest within 2 km of the Scheme. This is Coombe Hill Canal SSSI, located approximately 1.9 km to the north west. This site is designated partly for its diverse breeding bird assemblage, particularly resident and migrant warblers which make use of the scrub and withy bed habitats, and waders such as curlew (*Numenius arquata*) and snipe (*Gallinago gallinago*) which frequent the wetter areas of the fen and ditch margins.
- 3.1.2. The closest statutory designated sites that have been specifically designated with respect to their ornithological importance are Walmore Common SPA and Ramsar site, and the Severn Estuary SPA and Ramsar site, located approximately 17.5 km and 22.7 km to the south west of the Site respectively. The Severn Estuary SPA/Ramsar site is hydrologically connected to the Scheme.
- 3.1.3. Walmore Common SPA is designated under Articles 4.1 of the EC Directive 79/409/EEC for regularly supporting populations of European importance of Bewick's swan (*Cygnus columbianus*) over winter.
- 3.1.4. The Severn Estuary SPA is designated under Article 4.1 of the EC Directive 79/409/EEC for supporting populations of European importance of wintering wildfowl and waders and under Article 4.2 for regularly supporting at least 20,000 waterfowl over winter.
- 3.1.5. There are no non-statutory designated sites within 2 km of the Scheme.

Species Records

- 3.1.6. The Gloucestershire Local BAP includes action plans for 13 bird species in total, namely bittern (*Botaurus stellaris*), nightjar (*Caprimulgus europaeus*), woodlark (*Lullula arborea*), spotted flycatcher (*Muscicapa striata*) and 'farmland birds' (bullfinch (*Pyrrhula pyrrhula*), corn bunting (*Emberiza calandra*), grey partridge (*Perdix perdix*), linnet (*Linaria cannabina*), reed bunting (*Emberiza schoeniclus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), tree sparrow (*Passer montanus*) and turtle dove (*Streptopelia turtur*)).
- 3.1.7. The desk study identified recent records (i.e. since 2012) of 40 priority bird species within 1 km of the Scheme, of which 32 species were recorded within the breeding season (i.e. March to August inclusive²³). This includes:
 - Two species on Schedule 1 of the Wildlife and Countryside Act 1981 (kingfisher (*Alcedo atthis*) and red kite (*Milvus milvus*)).
 - Twelve species on the BoCC5 Red List (cuckoo (*Cuculus canorus*), greenfinch (*Chloris chloris*), herring gull (*Larus argentatus*), house martin (*Delichon urbicum*), house sparrow (*Passer domesticus*), linnet, mistle thrush (*Turdus viscivorus*), skylark, starling (*Sturnus vulgaris*), swift (*Apus apus*), yellowhammer (*Emberiza citronella*) and lapwing (*Vanellus vanellus*));

²³ Where month recorded has not been provided or a date range has been provided which includes months within the breeding season, records have been included as a precaution.



- Eighteen species on the BoCC5 Amber List (black-headed gull (Chroicocephalus ridibundus), common gull (Larus canus), dunnock (Prunella modularis), great black-backed gull (Larus marinus), grey wagtail (Motacilla cinerea), kestrel (Falco tinnunculus), lesser black-backed gull (Larus fuscus), mallard (Anas platyrhynchos), moorhen (Gallinula chloropus), redstart (Phoenicurus phoenicurus), rook (Corvus frugilegus), song thrush, sparrowhawk (Accipiter nisus), stock dove (Columba oenas), whitethroat (Curruca communis), willow warbler (Phylloscopus trochilus), woodpigeon (Columba palumbus) and wren (Troglodytes troglodytes).
- Ten species listed as species of principal importance for the conservation of biodiversity in England (cuckoo, dunnock, herring gull, house sparrow, lapwing, linnet, skylark, song thrush, starling, and yellowhammer);
- Two species listed on Annex 1 of the Birds Directive (kingfisher and red kite);
- Three species listed on the Gloucestershire Local BAP (linnet, skylark, and song thrush);
- · Two qualifying species of the Severn Estuary SPA (mallard and lapwing); and
- Two species identified on the Severn Estuary Ramsar Information Sheet (herring gull, identified as noteworthy fauna regularly supported during the breeding season, and lesser-back backed gull, identified as a species subsequent to designation for possible future consideration under criterion 6) which are regularly supported during the breeding season.

3.2. Field Survey

- 3.2.1. A total of 62 species were recorded within the Survey Area, of which 34 are priority species. The recorded priority species include:
 - Three species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (hobby (Falco Subbuteo), kingfisher and red kite);
 - Eleven species on the BoCC5 Red List (greenfinch, herring gull, house martin, house sparrow, linnet, mistle thrush, skylark, starling, swift, yellow wagtail (Motacilla flava) and yellowhammer);
 - Nineteen species on the BoCC5 Amber List (black-headed gull, bullfinch, dunnock, grey wagtail, kestrel, lesser black-backed gull, mallard, meadow pipit (Anthus pratensis), moorhen, reed bunting, rook, sedge warbler (Acrocephalus schoenobaenus), song thrush, sparrowhawk, stock dove, common whitethroat, willow warbler, woodpigeon and wren);
 - Eleven species listed as species of principal importance for the conservation of biodiversity in England (bullfinch, dunnock, herring gull, house sparrow, linnet, reed bunting, skylark, song thrush, starling, yellow wagtail, and yellowhammer);
 - Three species listed on Annex 1 of the Birds Directive (kingfisher, little egret (Egretta garzetta) and red kite);
 - Five species listed on the Gloucestershire Local BAP (bullfinch, linnet, reed bunting, skylark, and song thrush);
 - One qualifying feature of the Severn Estuary SPA (mallard); and
 - Three species identified on the Severn Estuary Ramsar Information (herring gull and little egret are identified as noteworthy fauna and lesser-black backed gull is identified as a species subsequent to designation for possible future consideration under criterion 6).
- 3.2.2. Of the 62 species recorded, 33 species are confirmed as breeding or considered to have bred, 15 species are probable breeders, and 10 species are possible breeders within the Survey Area. Four species are considered to be non-breeders.



3.2.3. All priority species recorded, along with peak counts within the EZoI, legal protection and conservation status, are set out in Table 3-1 to Table 3-3 below according to their breeding status. The full survey results are provided in Appendix C and the results are shown on Figures 7-8A to 7-8D in Appendix A.

Table 3-1 - Breeding Priority Species

Species	Number/ peak count	Location	Status
Dunnock	5	Recorded throughout the Survey Area, associated with hedgerows, scrub and woodland.	Amber List BoCC5, SPI
Greenfinch	21	Recorded in low numbers in agricultural areas throughout most of the Survey Area.	Red List BoCC5
Grey Wagtail	7	Generally associated with the River Chelt near Butler's Court and Millhouse Farm.	Amber List BoCC5
House Martin	36	Recorded breeding in Hardwicke and foraging throughout the Survey Area.	Red List BoCC5
House Sparrow	116	Associated with urban areas, residential properties, and farmyards (e.g., Uckington and Butler's Court)	Red List BoCC5, SPI
Kestrel	3	Recorded in low numbers, at or near Colmans Farm, Butlers' Court and Millhouse Farm.	Amber List BoCC5
Song Thrush	15	Breeding birds were recorded throughout the Survey Area associated with semi-natural and plantation woodland, hedgerows, scattered trees, and gardens	Amber List BoCC5, SPI
Sparrowhawk	3	Recorded carrying food at the north of the Survey Area, and individuals recorded in flight throughout the Survey Area.	Amber List BoCC5
Starling	50	Generally associated with urban areas, residential properties, and farmyards, and foraging throughout the Survey Area on improved grassland.	Red List BoCC5, SPI
Stock Dove	47	Recorded breeding in a mature tree in a hedgerow at Millhouse Farm. Recorded foraging, loafing and in flight throughout the survey area in agricultural habitats.	Amber List BoCC5
Common Whitethroat	14	Breeding birds were recorded throughout the Survey Area, generally associated with hedgerows and scrub in agricultural areas.	Amber List BoCC5



Species	Number/ peak count	Location	Status
Wood pigeon	387	Breeding birds were recorded throughout the Survey Area, generally associated with hedgerows, trees and scrub in agricultural and residential areas.	Amber List BoCC5
Wren	92	Breeding birds were recorded throughout the Survey Area, generally associated with hedgerows, trees and scrub in agricultural and residential areas.	Amber List BoCC5
Yellow Wagtail	10	Generally associated with arable habitat, particularly at Butler's Court and north of Withybridge.	Red List BoCC5, SPI
Yellowhammer	18	Breeding birds were recorded throughout the Survey Area, generally associated with hedgerows and scrub in agricultural areas.	Red List BoCC5, SPI

Table 3-2 - Probable Breeding Priority Species

Species	Number/ peak count	Location	Status
Bullfinch	2	One pair recorded in scrub at Stanboro.	Amber List BoCC5
Lesser Black-backed Gull	57	Gallagher retail park.	Amber List BoCC5
Linnet	7	Recorded in low numbers in agricultural areas throughout most of the Survey Area.	Red List BoCC5, SPI
Mallard	13	Recorded in low numbers in flight, and at the moat at Moat House and the River Chelt.	Amber List BoCC5
Mistle Thrush	4	Recorded in low numbers, particularly at or near Boddington Manor Farm, Butlers' Court and Millhouse Farm.	Red List BoCC5
Moorhen	3	Recorded in low numbers near Moat House and at the River Chelt.	Amber List BoCC5
Reed Bunting	1	One individual recorded in tall ruderal vegetation north of Withybridge.	Amber List BoCC5, SPI
Sedge Warbler	1	One individual recorded singing adjacent to the River Chelt.	Amber List BoCC5
Skylark	31	Arable and pasture throughout the Survey Area.	Red List BoCC5, SPI
Swift	13	Recorded foraging in low numbers over agricultural areas	Red List BoCC5



Species	Number/ peak count	Location	Status
		throughout most of the Survey Area.	

Table 3-3 - Possible Breeding Priority Species

Species	Number/ peak count	Location	Status
Herring Gull	18	Gallagher retail park.	Red List BoCC5, SPI
Hobby	1	Recorded in flight at Hayden Hill Fruit Farm. Possibly breeding in a mature tree at any location within the Survey Area or the wider area but likely within a woodland or copse.	Schedule 1
Kingfisher	3	River Chelt at Butlers' Court and Millhouse Farm.	Schedule 1, Annex 1
Meadow Pipit	30	Generally low numbers recorded foraging in on grasslands and arable fields throughout most of the Survey Area, with larger numbers recorded at Pilgrove Farm.	Amber List BoCC5
Red Kite	1	Recorded in flight at Barn Farm. Possibly breeding in a large mature tree at any location within the Survey Area or the wider area, but likely within a woodland or copse.	Schedule 1, Annex 1
Rook	14	Low numbers recorded in agricultural areas within the Survey Area.	Amber List BoCC5
Willow Warbler	1	One individual recorded in gardens at the west of Uckington.	Amber List BoCC5

Table 3-4 - Non-Breeding Priority Species

Species	Number/ peak count	Location	Status
Black-headed Gull	8	Recorded on fields within the Survey Area.	Amber List BoCC5
Little Egret	4	Recorded flying over agricultural fields south of Uckington.	Annex 1

3.3. Incidental Records

3.3.1. Two additional species, barn owl and tawny owl (*Strix aluco*), were recorded during other ecology surveys undertaken during the breeding period (March to August inclusive) that were not observed during the Breeding Bird Surveys.



- 3.3.2. Barn owl was observed on six separate occasions during 2019 to 2021 inclusive. This species was observed at the same location on two separate occasions in the same breeding season (June and July 2020) and is therefore considered to be probably breeding.
- 3.3.3. Tawny owl was observed on one occasion in suitable breeding habitat during the breeding season and is considered to be possibly breeding.

3.4. Description of Bird Assemblages

- 3.4.1. The assemblage of breeding birds is considered to be largely typical of agricultural areas, woodland and scrub and built-up areas within Gloucestershire.
- 3.4.2. The presence of agricultural habitats such as arable fields, hedgerows and improved grassland within the Survey Area has resulted in the recording of associated priority species including grey wagtail, kestrel, linnet, skylark, starling, stock dove, yellow wagtail, and yellowhammer.
- 3.4.3. Notable species associated with semi-natural broadleaved woodland include mistle thrush, song thrush and tawny owl; and those associated with built-up areas include house martin, house sparrow, swallow (*Hirundo rustica*) and starling.



4. Evaluation

- 4.1.1. Five species are identified in a county or equivalent authority area plan or strategy, i.e. within the Gloucestershire Local BAP (under 'farmland birds'): bullfinch (peak count of two), linnet (peak count of seven), reed bunting (peak count of one), skylark (peak count of 31) and song thrush (peak count of 15).
- 4.1.2. Fifty-six of the 62 species recorded during the Breeding Bird Survey or as an incidental observation have a Gloucestershire breeding population status that is abundant (i.e. breeding numbers of 10,000+), common (i.e. breeding numbers of 1,000 to 9,999), or fairly common (i.e. breeding numbers of 100 to 999)²⁴.
- 4.1.3. Seven species recorded during the Breeding Bird Survey or as an incidental observation have a Gloucestershire breeding population status that is uncommon (i.e. breeding numbers of 10-99), or scarce (i.e. breeding numbers of one to nine)²⁵:
 - Barn owl (uncommon or scarce breeding resident). Incidental observations of one
 or two individuals (two separate observations on the same date at locations
 approximately 1 km apart) were recorded in June 2020.
 - Grey wagtail (uncommon breeding resident). Peak count of five individuals recorded in May 2020.
 - Herring gull (uncommon breeding resident). Peak count of 18 individuals recorded in May 2020.
 - Hobby (uncommon breeding resident). One individual recorded in June 2019.
 - Lesser whitethroat (*Curruca curruca*) (uncommon breeding summer visitor). Peak count of four individuals recorded in June 2019.
 - Red kite (uncommon but increasing visitor, now breeding in the county). One individual recorded in July 2019.
 - Yellow wagtail (uncommon breeding summer visitor). Peak count of 10 individuals recorded in June 2019.
- 4.1.4. One qualifying species of the Severn Estuary SPA has been recorded; i.e. mallard (peak count of ten). Given the low numbers of mallard recorded, they are unlikely to be a significant component of the SPA population. Furthermore, at this distance from the SPA (located over 20 km south west of the Scheme at the nearest point), it is considered highly unlikely that the individuals recorded within the study area are part of the SPA qualifying feature population. This is supported by a recent study²⁶ which identifies functionally linked land associated with the Severn Estuary SPA. The maps which accompany this study do not identify that this species regularly moves between the SPA and the Survey Area.
- 4.1.5. Two features identified on the Severn Estuary Ramsar Information Sheet have been recorded. Herring gull (identified as noteworthy fauna) and lesser black-backed gull (identified as a species subsequent to designation for possible future consideration under criterion 6) were generally recorded in low numbers (peak counts of 18 and 57 respectively). It is considered that these individuals are likely to be breeding within urban

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²⁴ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee

²⁵ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee

²⁶ Link Ecology Ltd (September 2020) Identification of land with proven or possible functional linkages with the Severn Estuary SSSI/SPA Phase 5 (Gloucestershire and Worcestershire) A report to Natural England.



areas such as Cheltenham and/or Gloucester, as opposed to the Ramsar site breeding colonies at Steep Holm and Flat Holm²⁷ (located approximately 90 km south west). Cheltenham Borough Council states that "Herring Gulls and Lesser Black-Backed Gulls nest in the residential areas of Cheltenham and on industrial units in the Kingsditch area"²⁸. The JNCC Seabird Monitoring Programme online database states that the Gloucestershire Urban Gulls Cheltenham site (85627) supported 46 herring gull apparently occupied territories and 273 lesser black-backed gull apparently occupied territories in 2011 (year of last count) and the Gloucester City: Gloucester site (86737) supported 657 herring gull apparently occupied nests and 2230 lesser black-backed gull apparently occupied nests in 2009 (year of last count)²⁹.

- 4.1.6. The habitats within the Survey Area are not considered to provide a role in maintaining the SPA or Ramsar populations or to be functionally linked to any SPAs or Ramsar sites.
- 4.1.7. Although five species are listed on the Gloucestershire Local BAP, these species are currently listed as either common or fairly common resident breeders within Gloucestershire. The peak counts for these species (see section 3.1) within the survey area are not considered to be of county importance in relation to breeding numbers for Gloucestershire.
- 4.1.8. Therefore, taken as a whole, the breeding bird assemblage is considered to appreciably enrich the habitat resource within the local context. The assemblage of breeding birds is therefore considered to be of Local importance for biodiversity.

https://democracy.cheltenham.gov.uk/documents/s27390/2018_12_04_CAB_Urban_Gulls_scrutiny_report.pdf

Burton, N.H.K., Musgrove, A.J., Rehfisch, M.M., and Clark N.A. (2010) Birds of the Severn Estuary and Bristol Channel:
 Their current status and key environmental issues. Marine Pollution Bulletin 61 (2010) 115–123
 Cheltenham Borough Council (2018) Urban Gulls Scrutiny Task Group Report. Available at

Appendices



Appendix A. Schedule of figures included in this application document

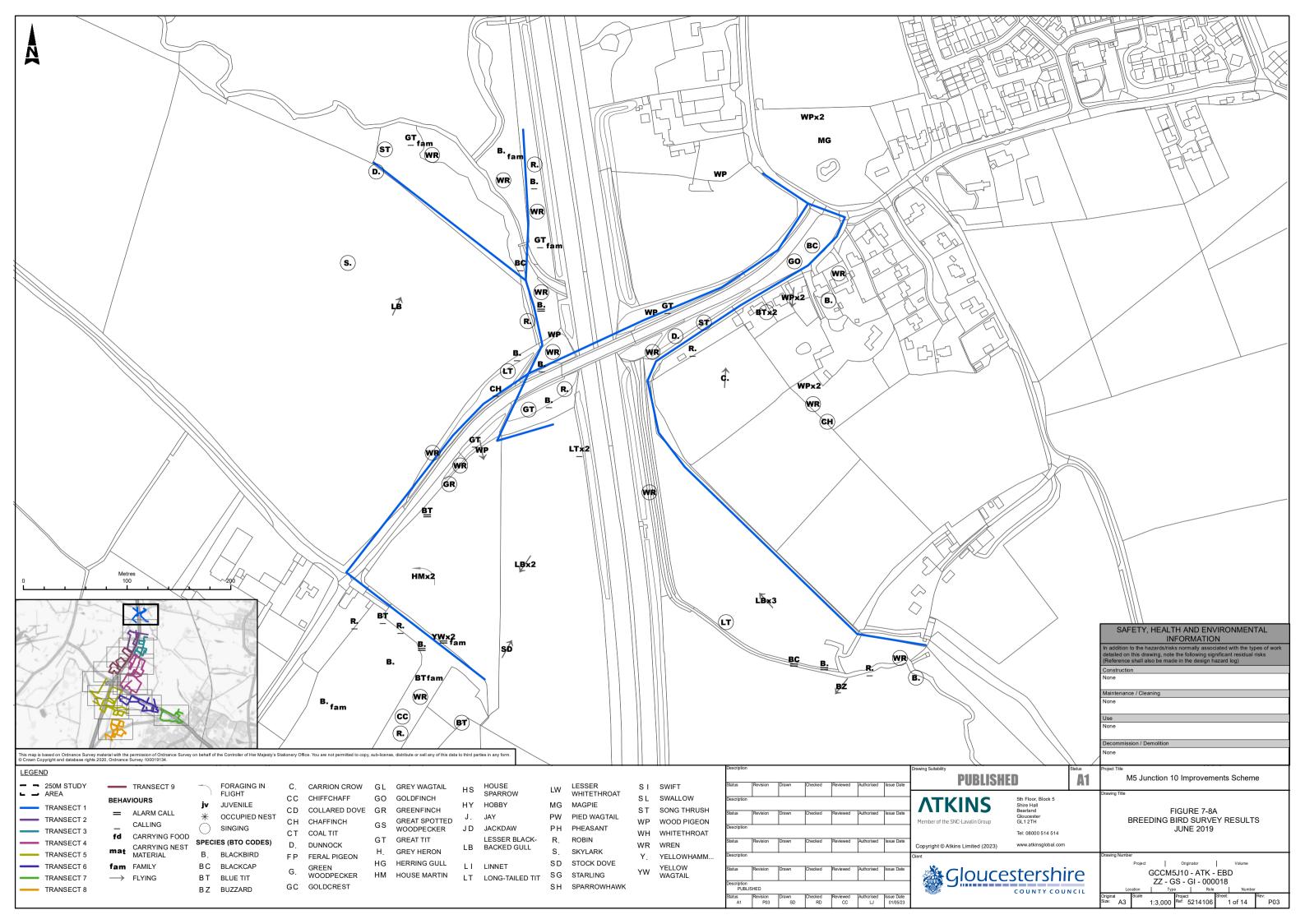
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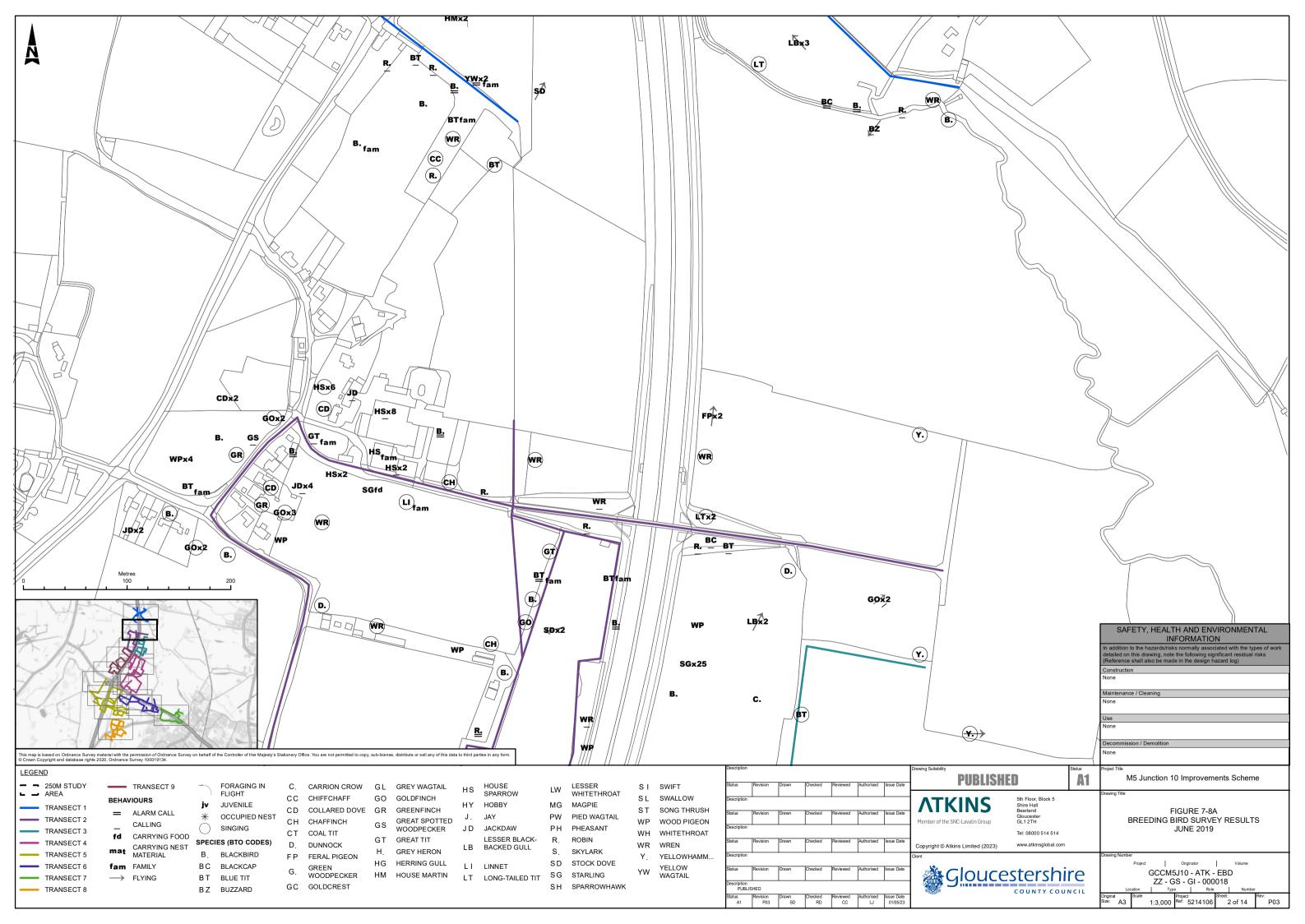


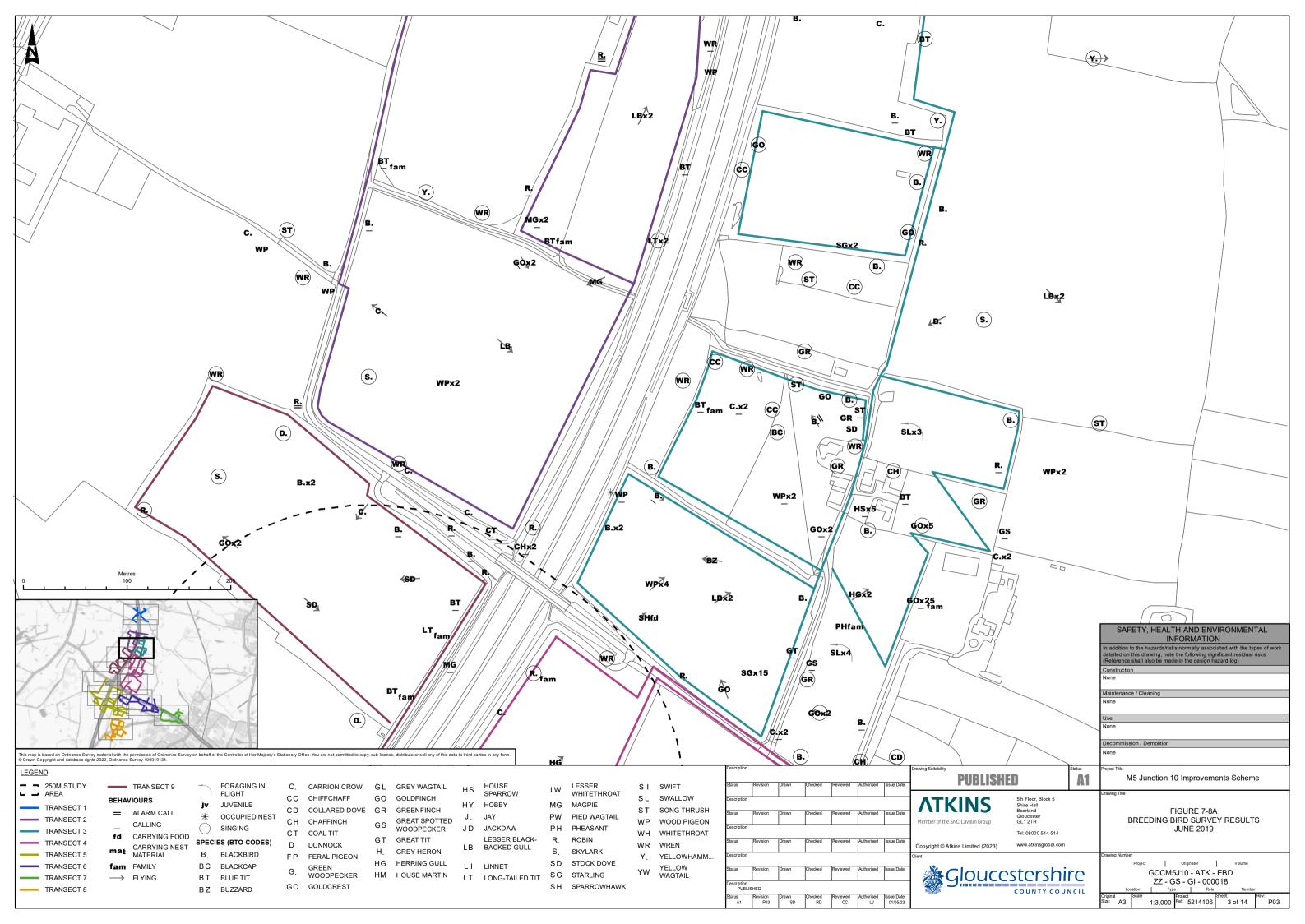
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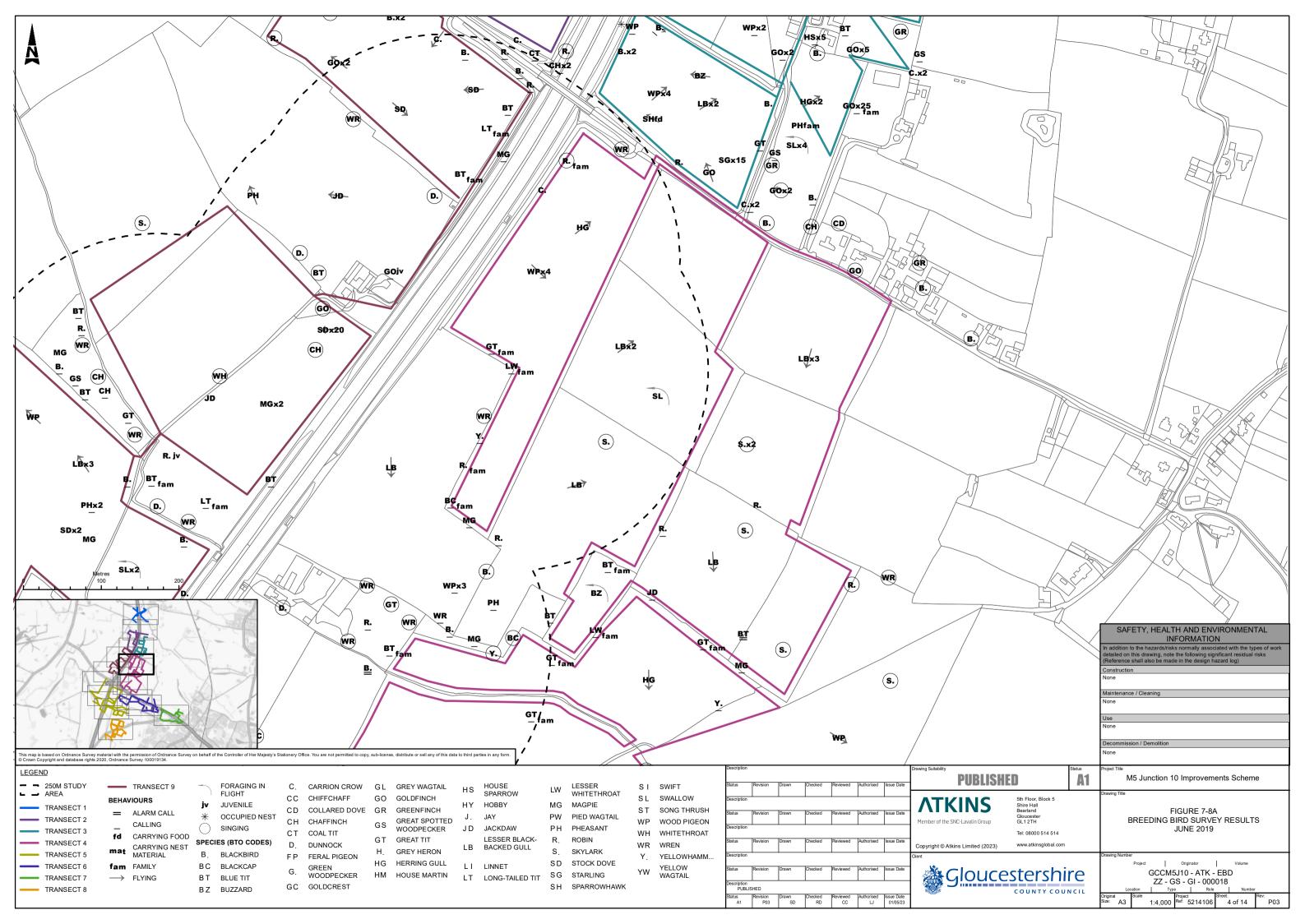


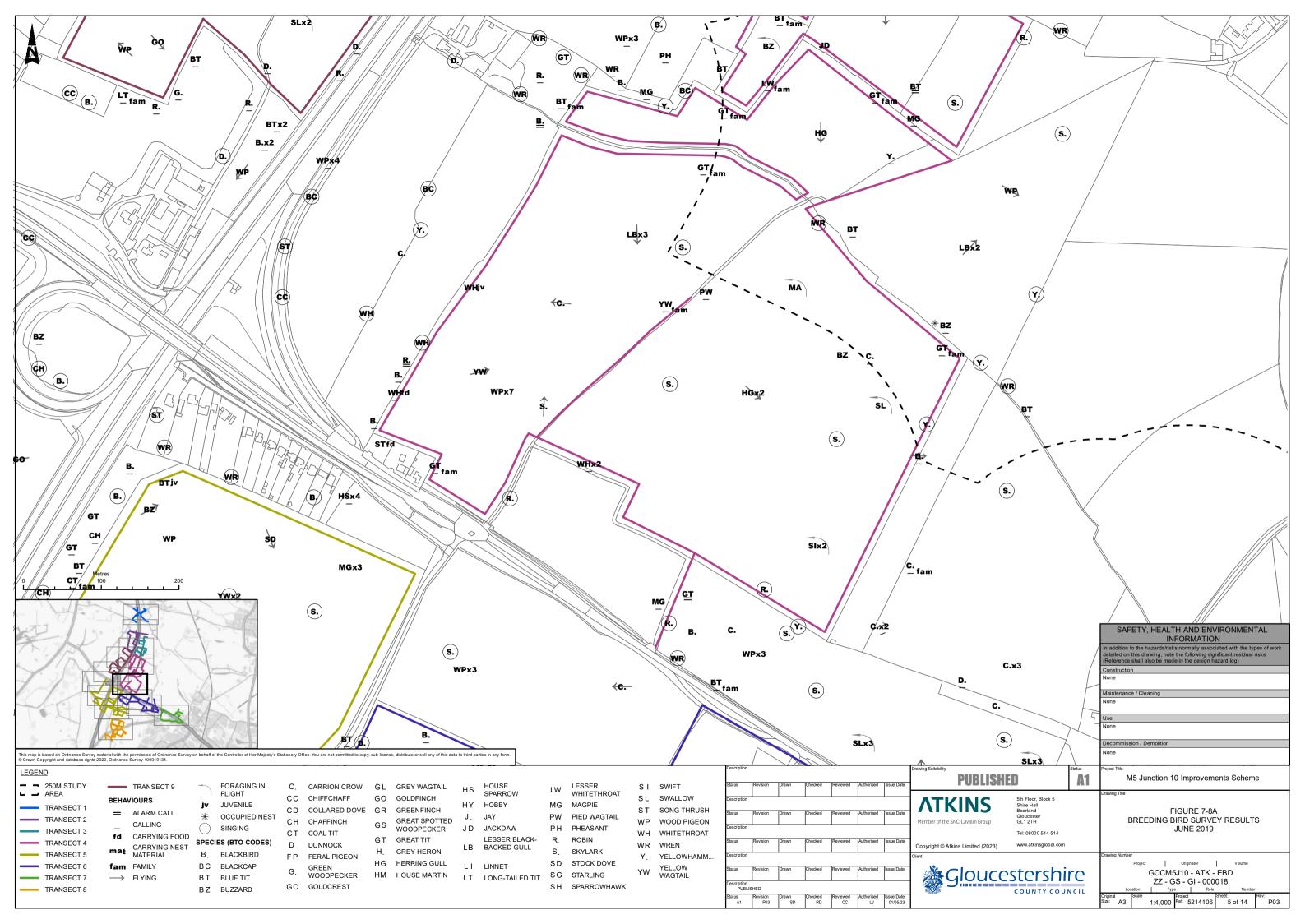
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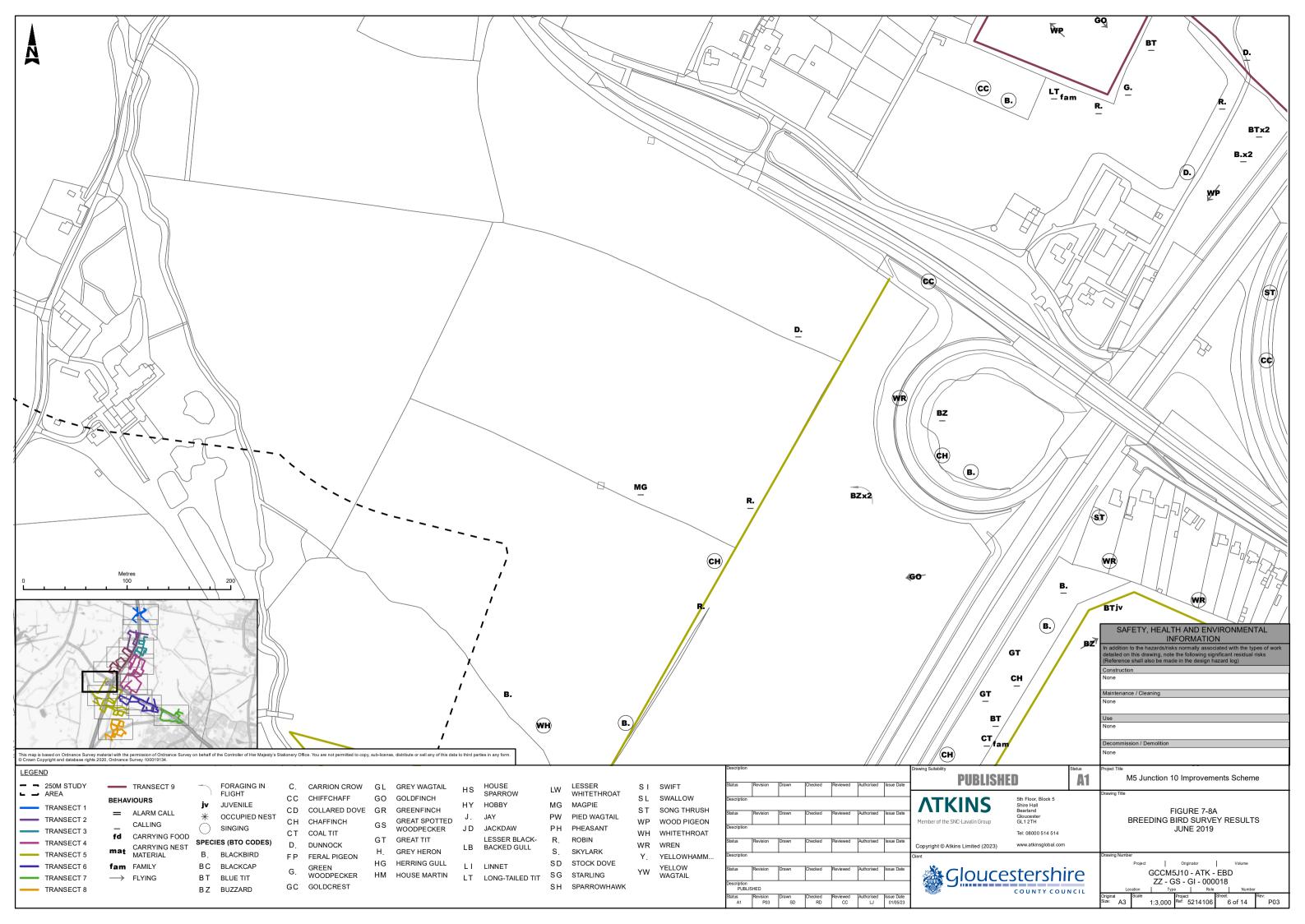


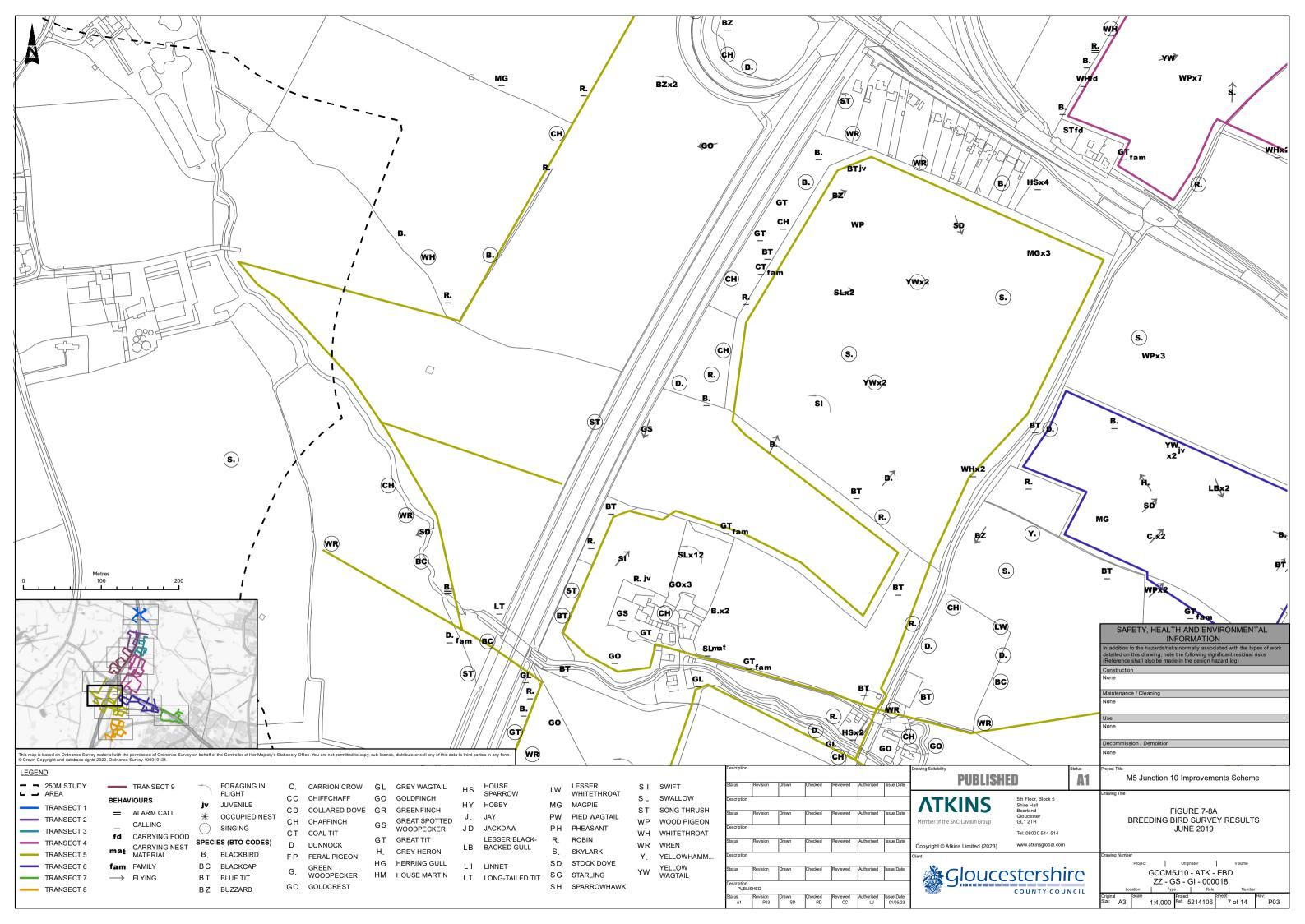


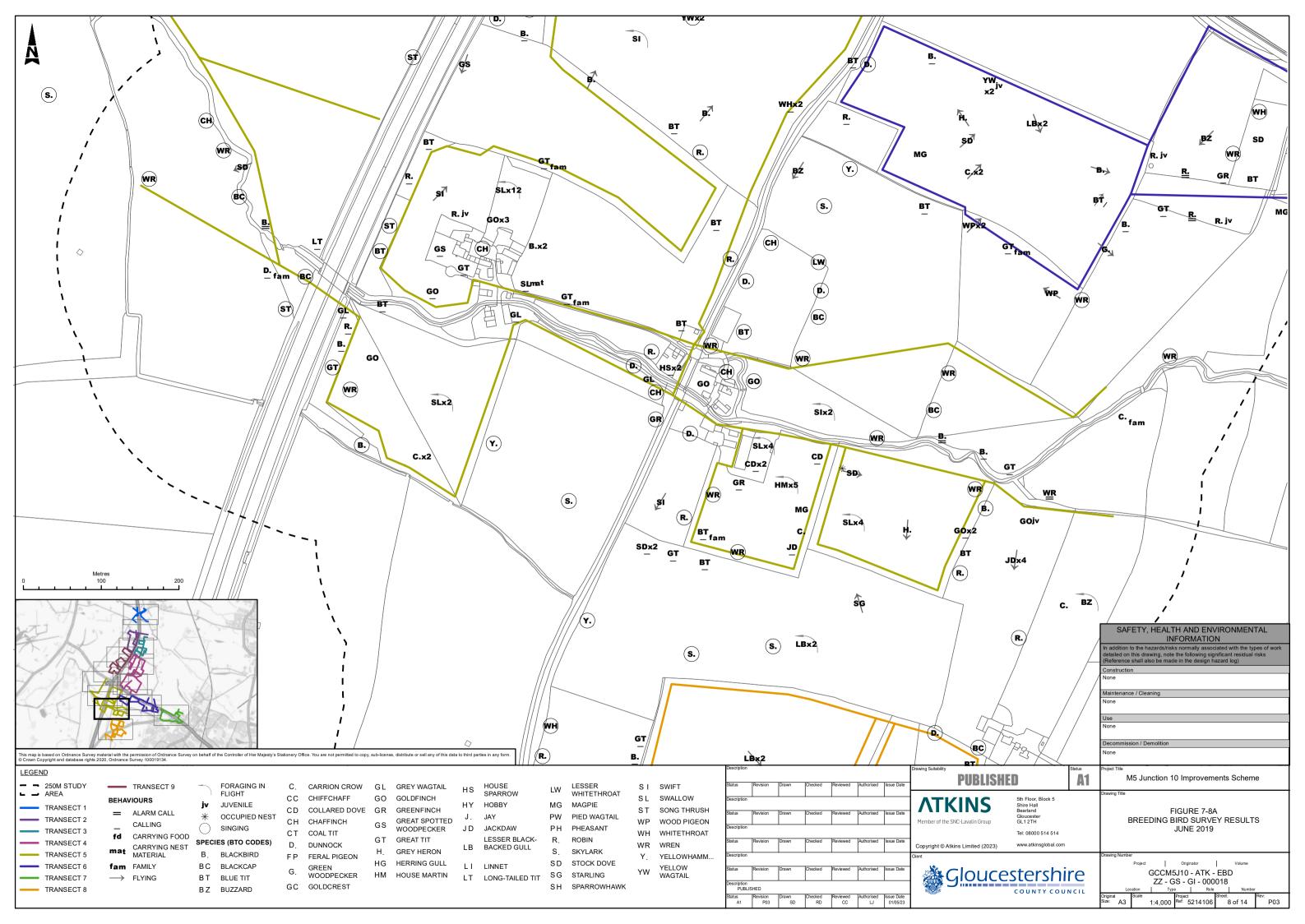


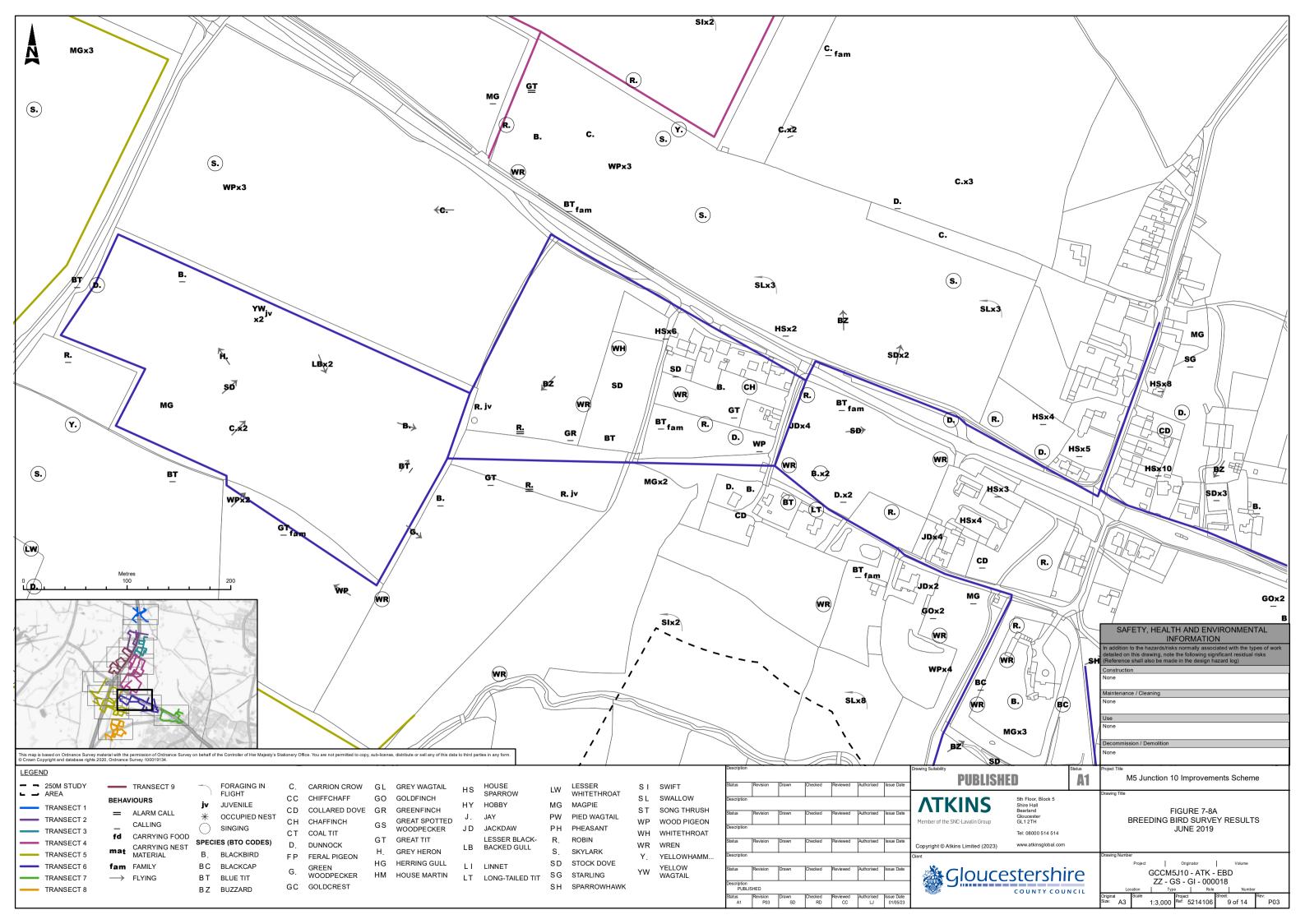


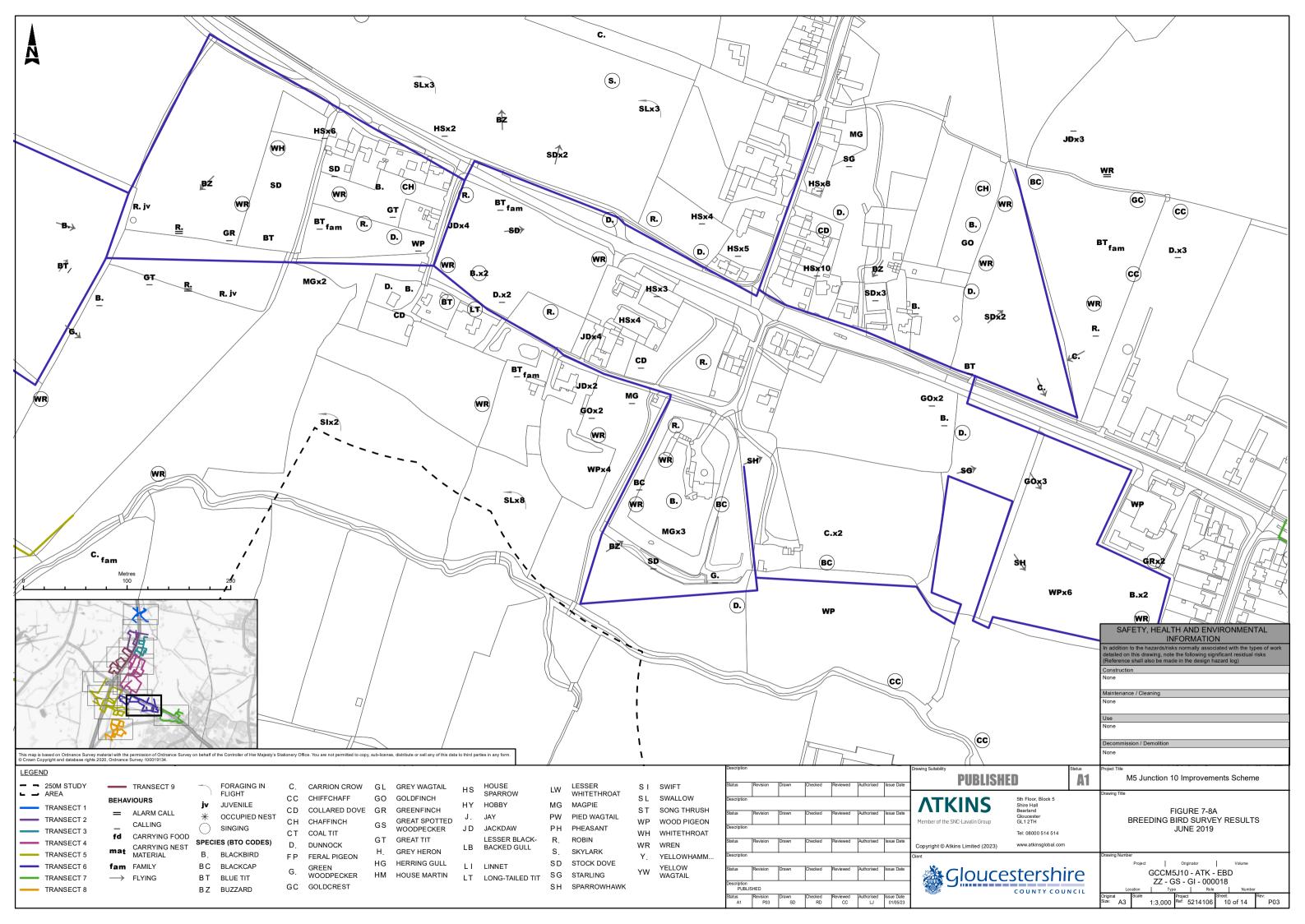


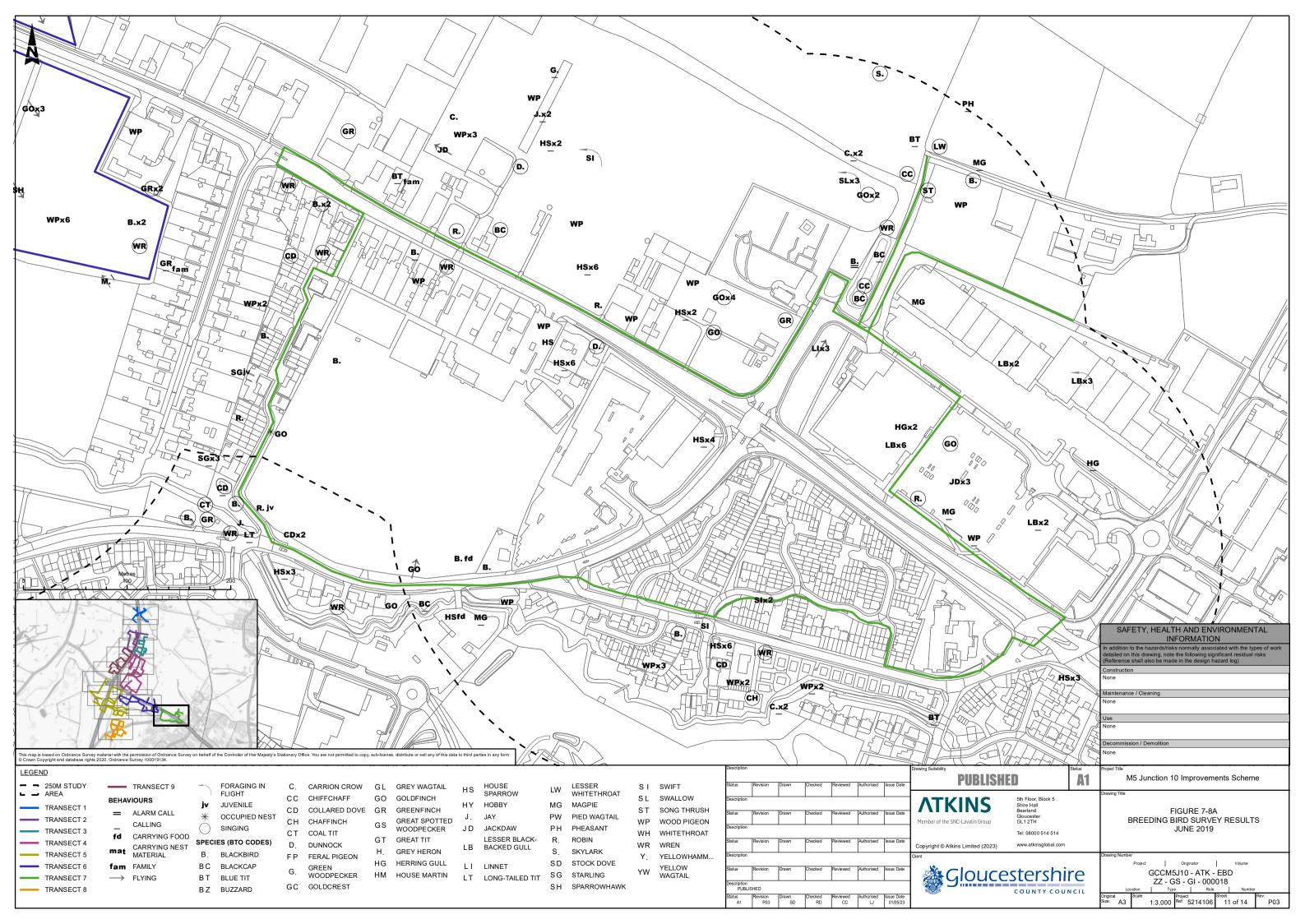


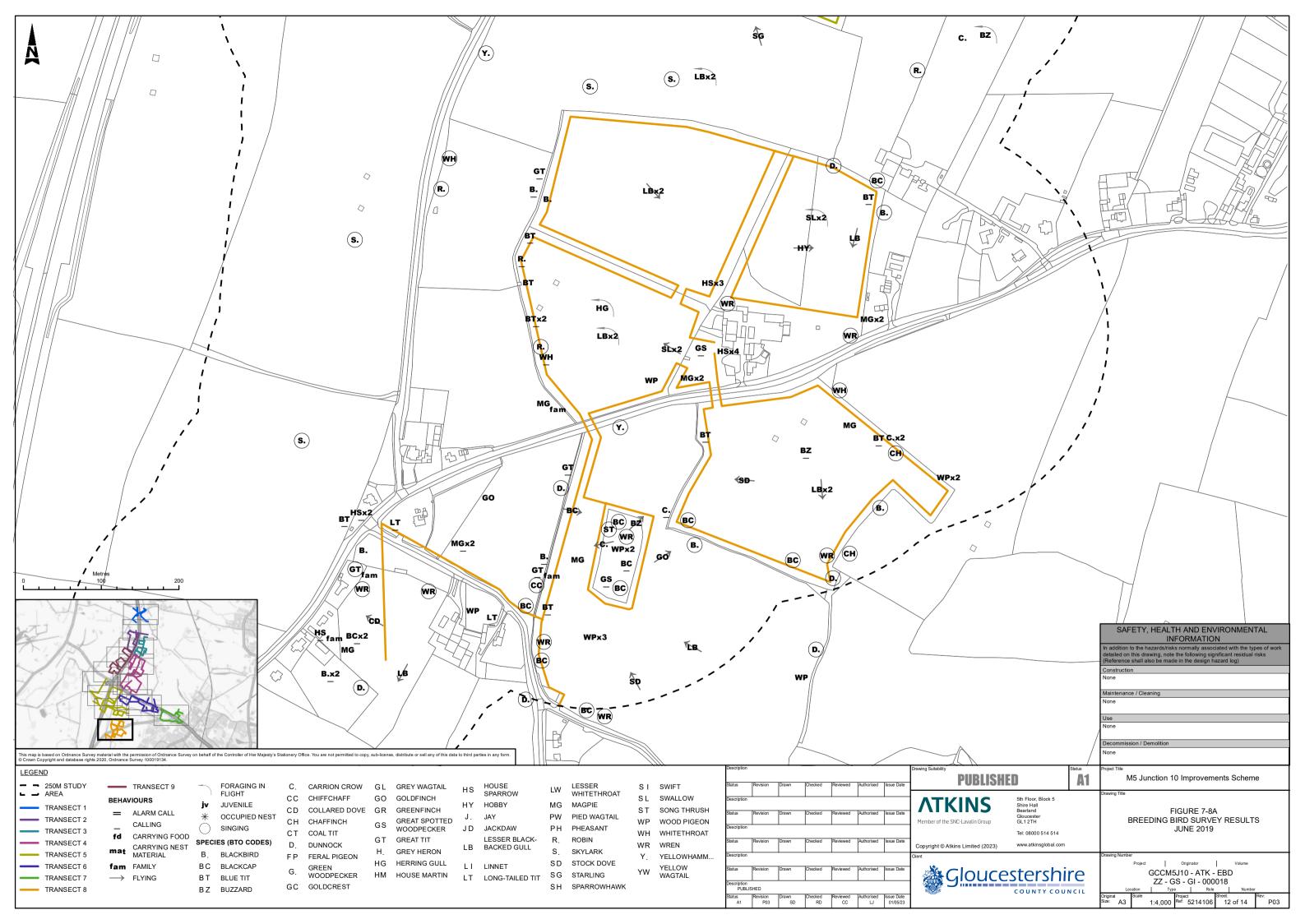


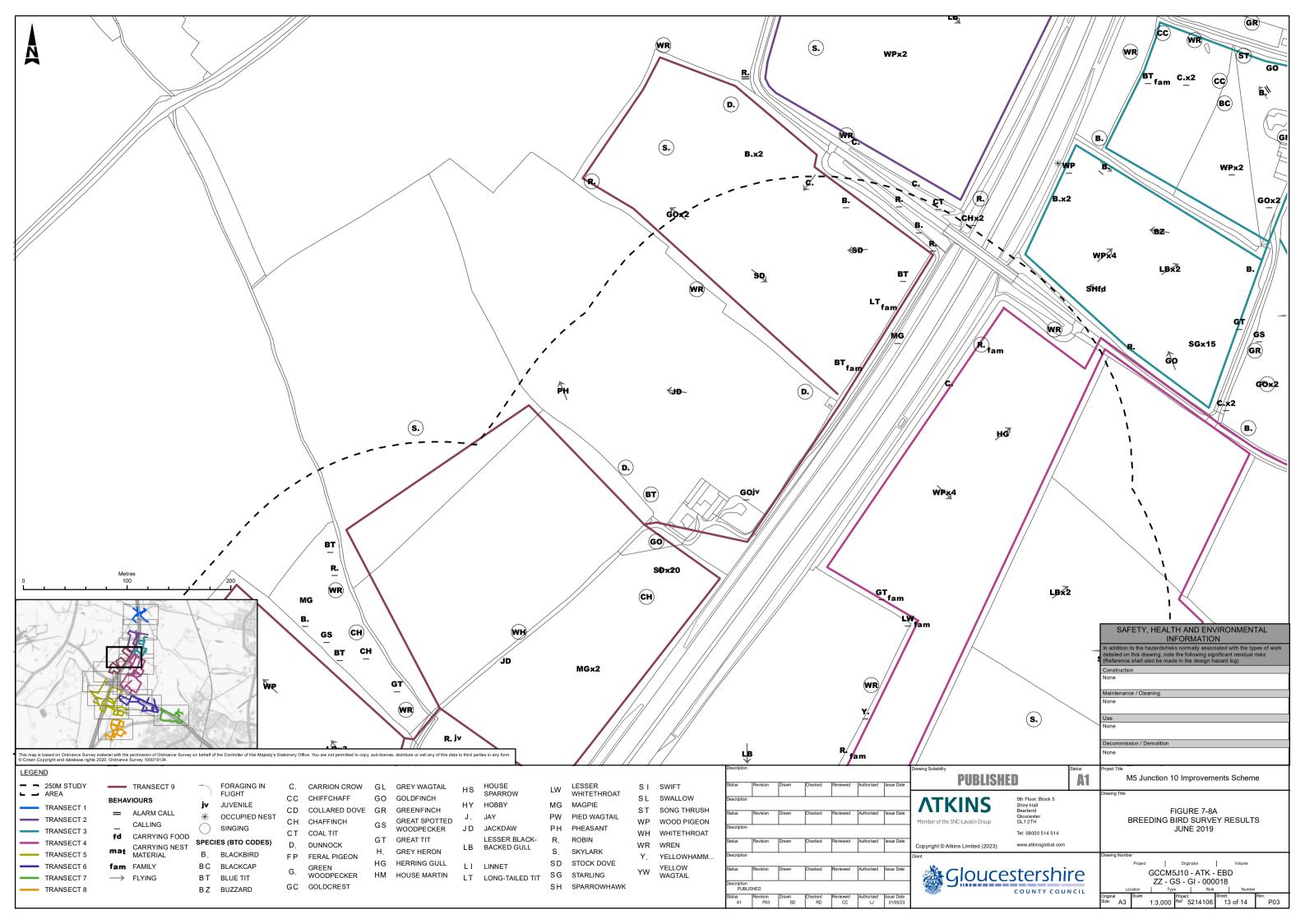


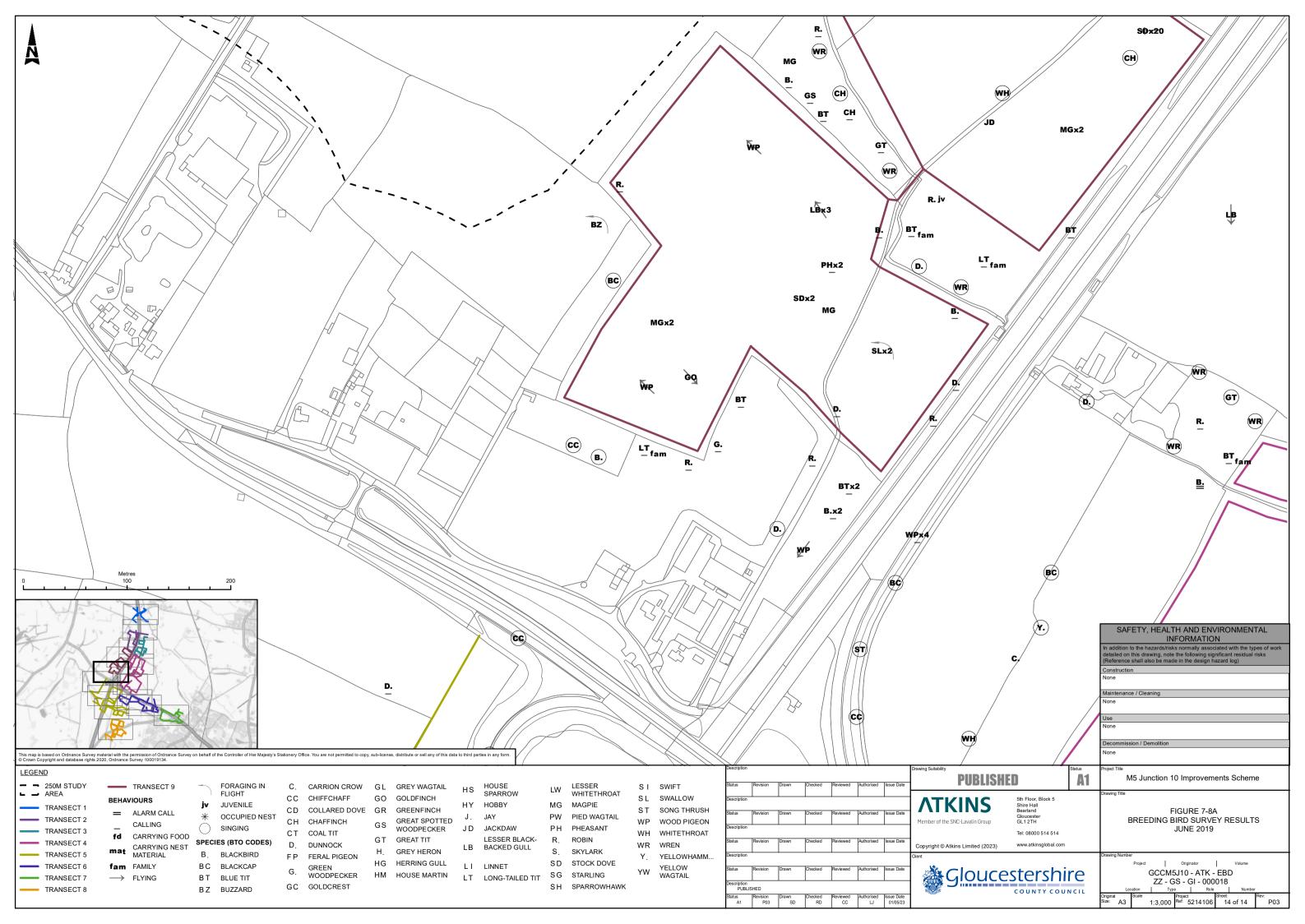


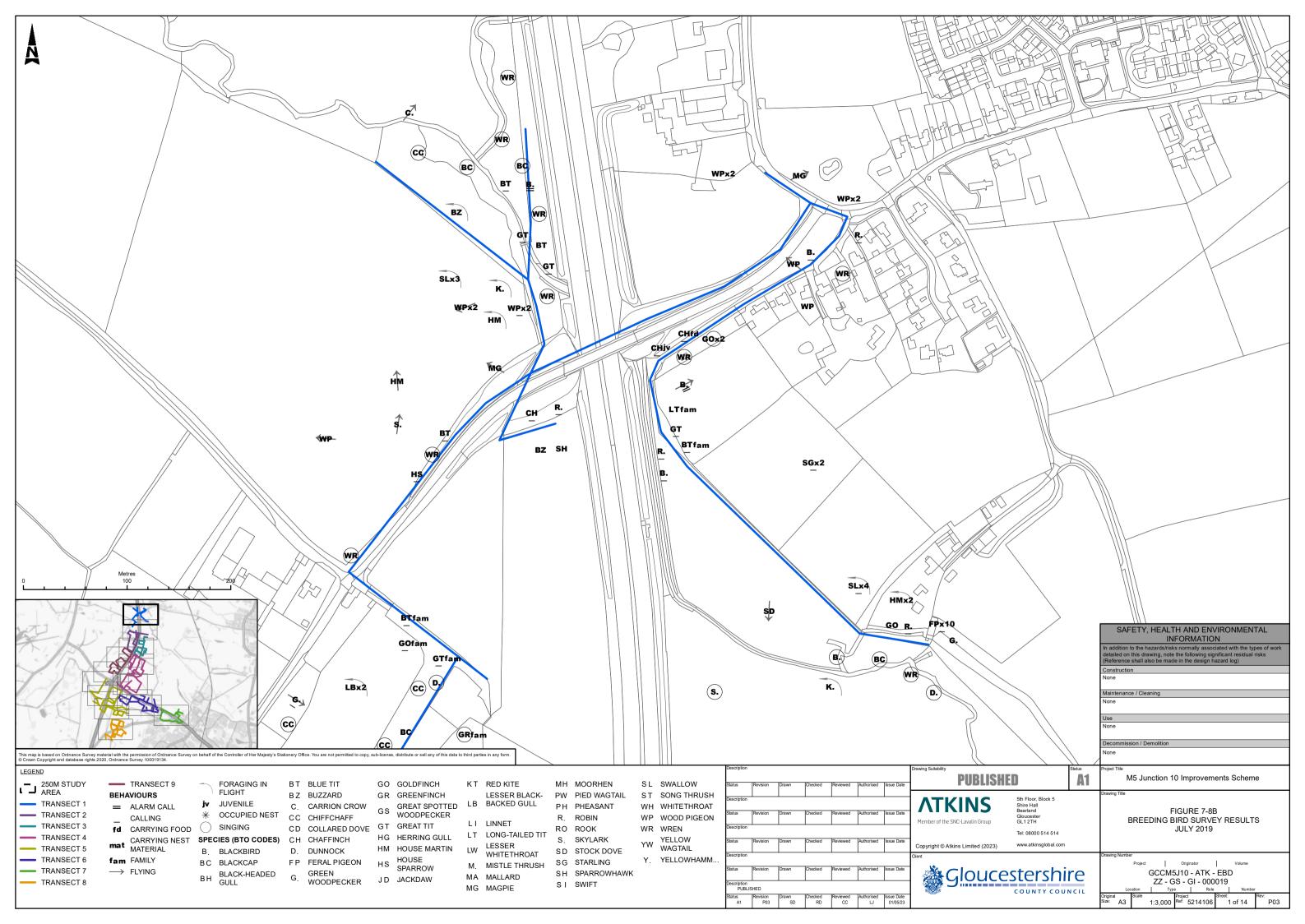


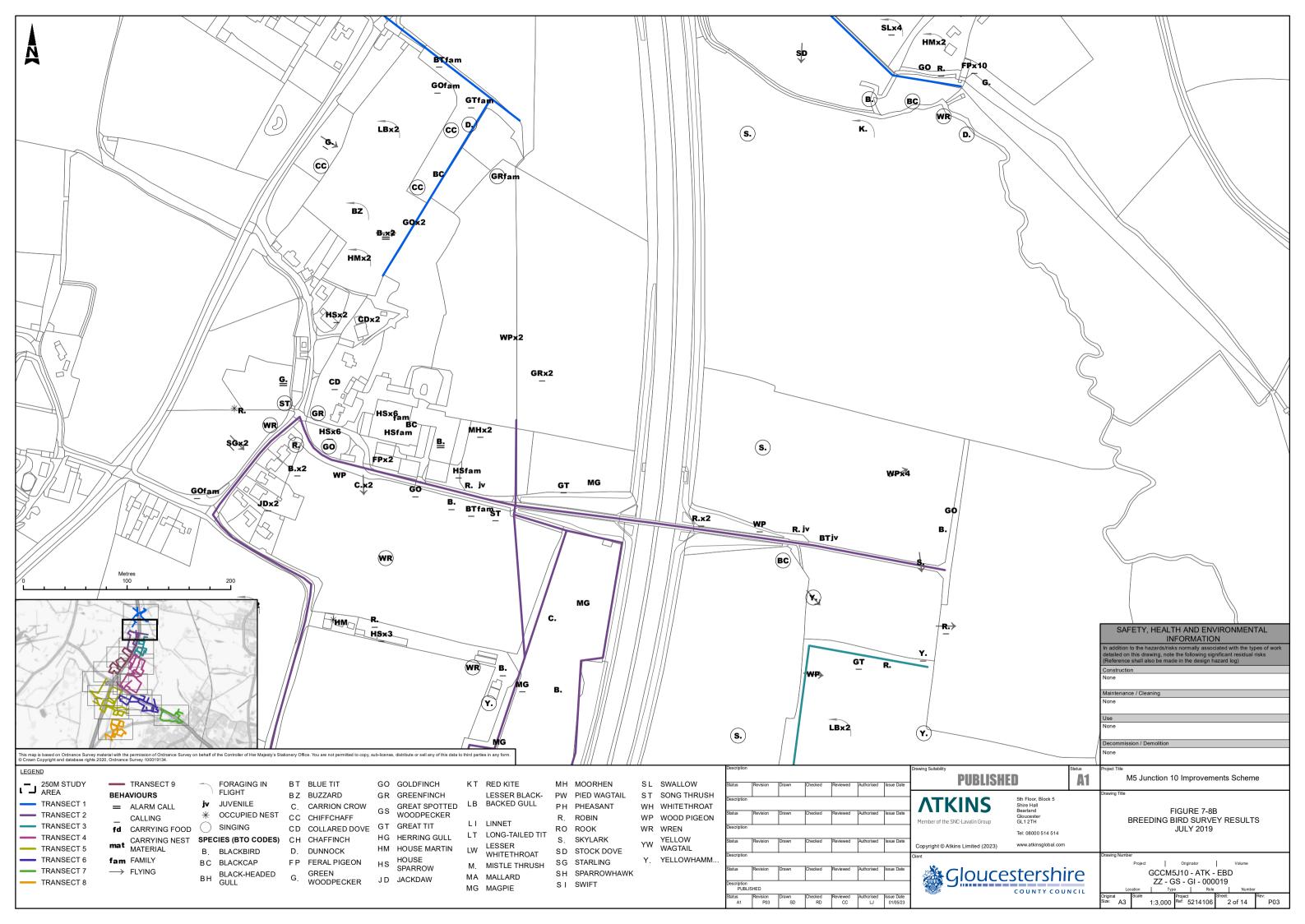


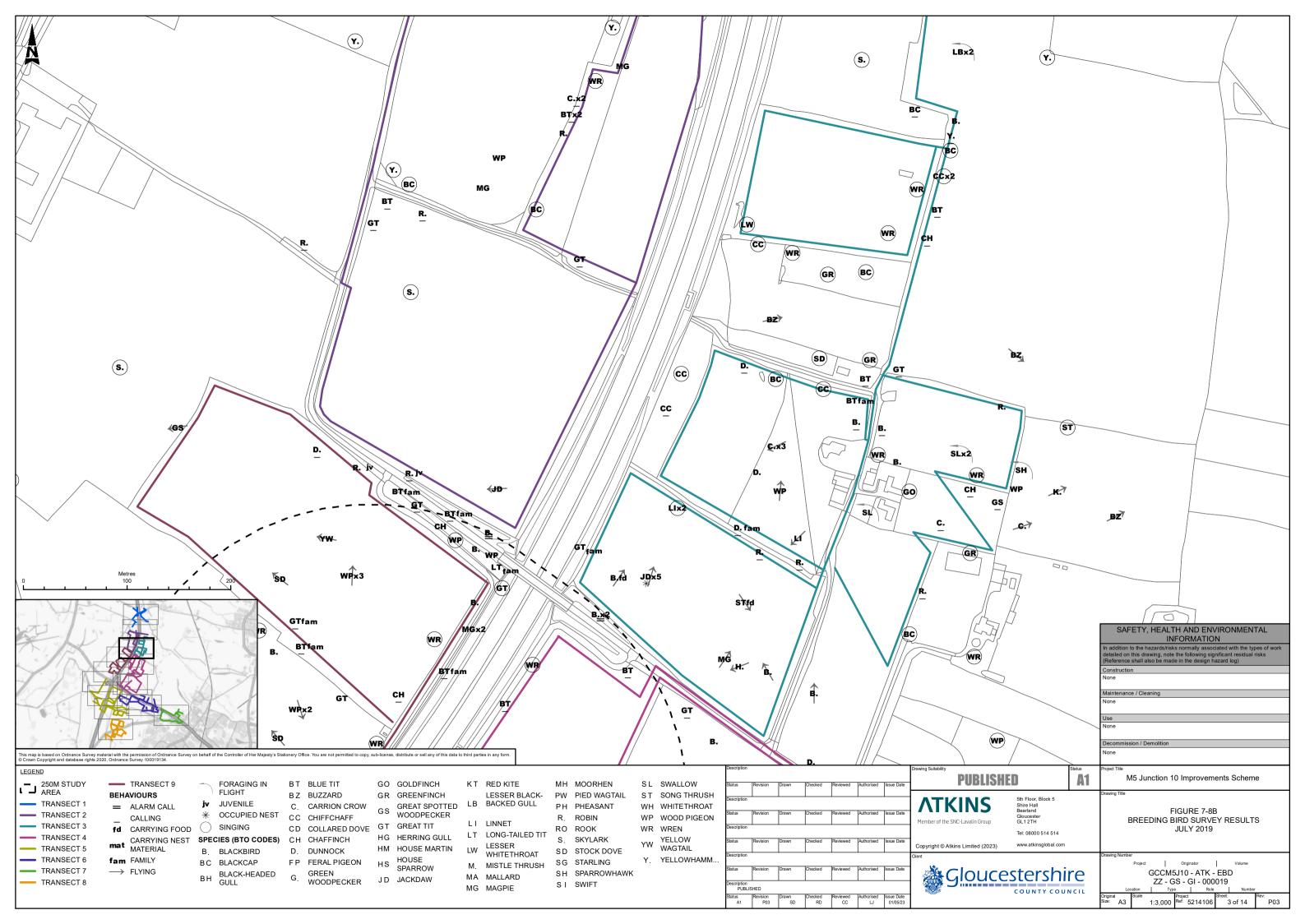


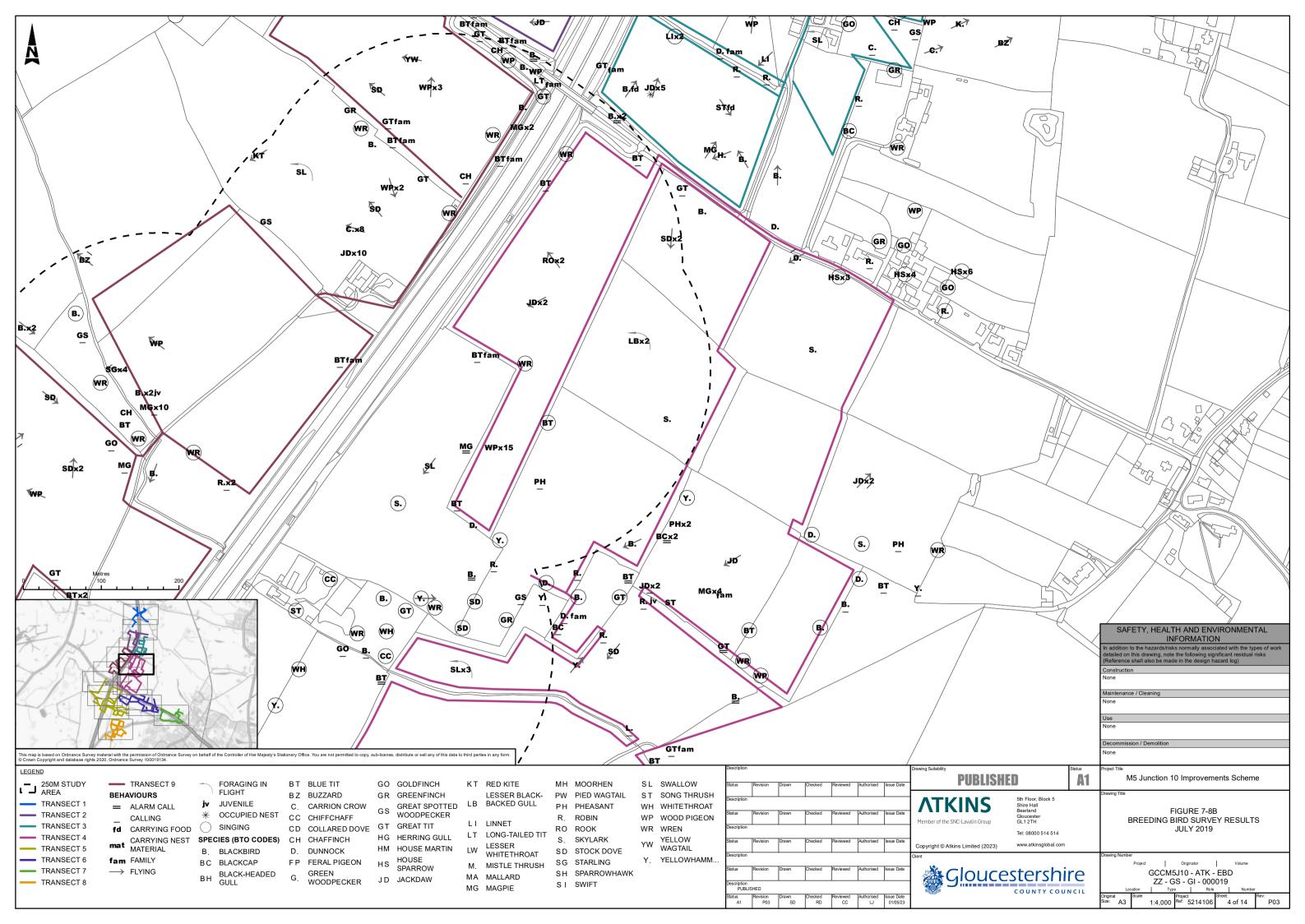


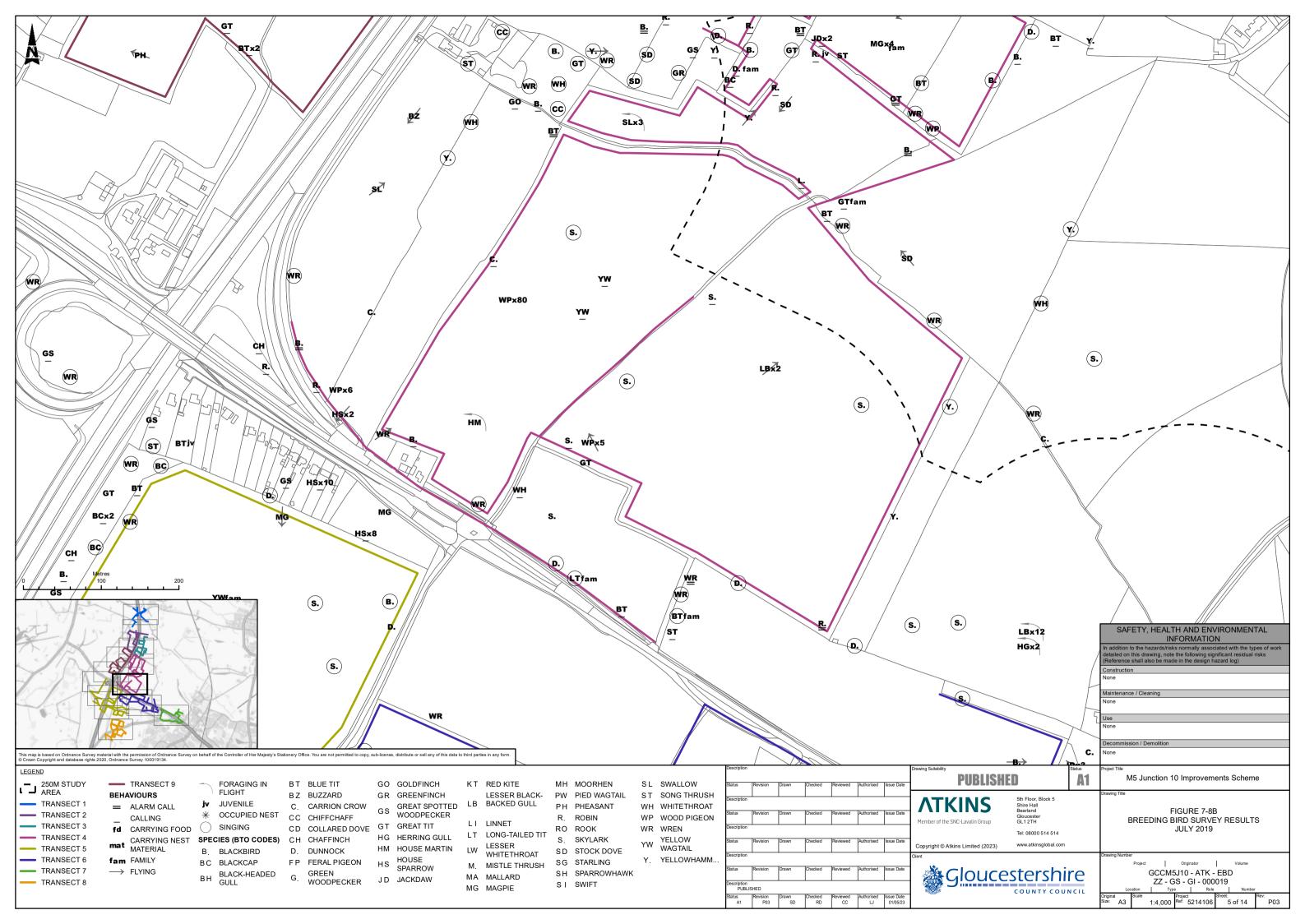


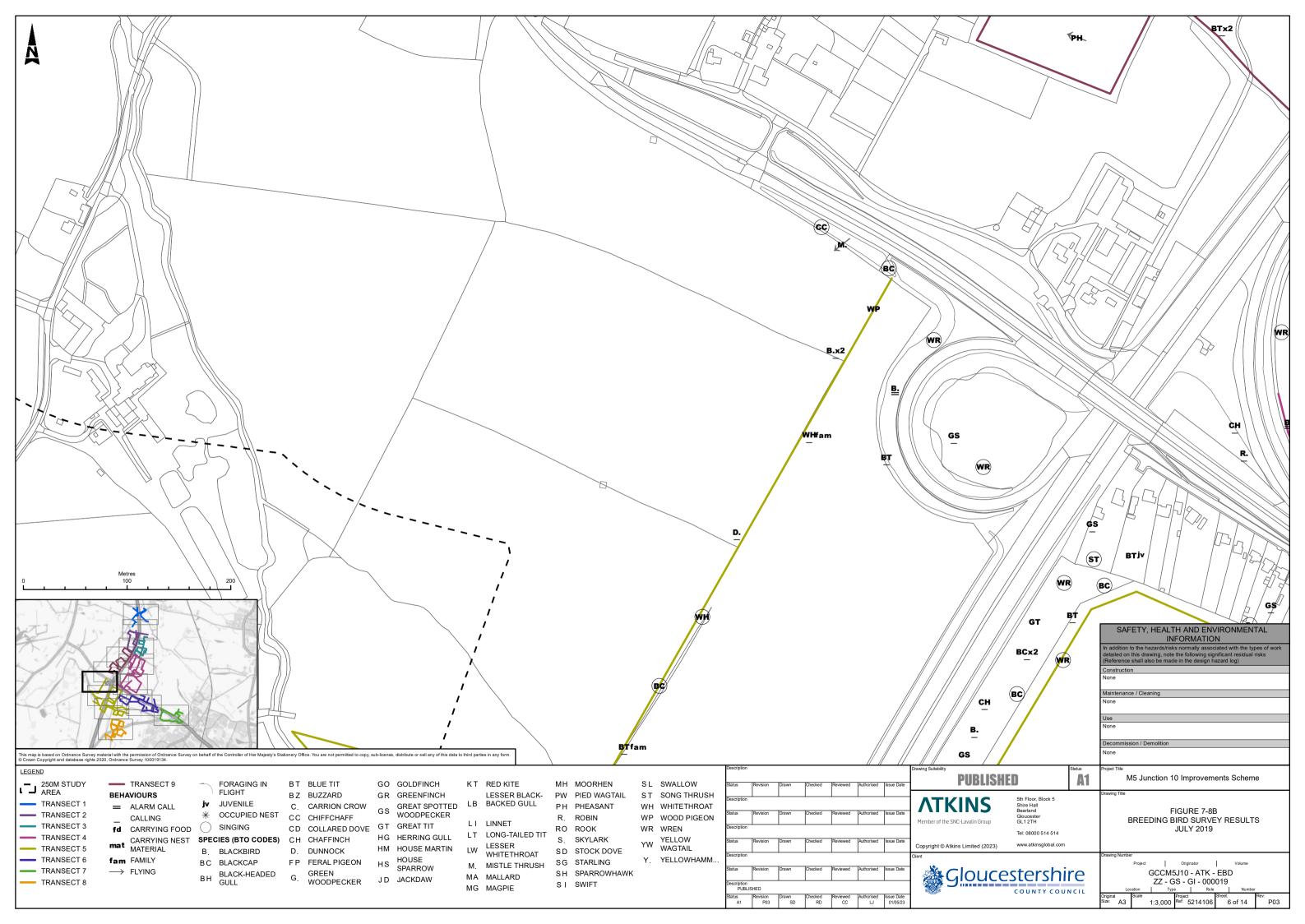


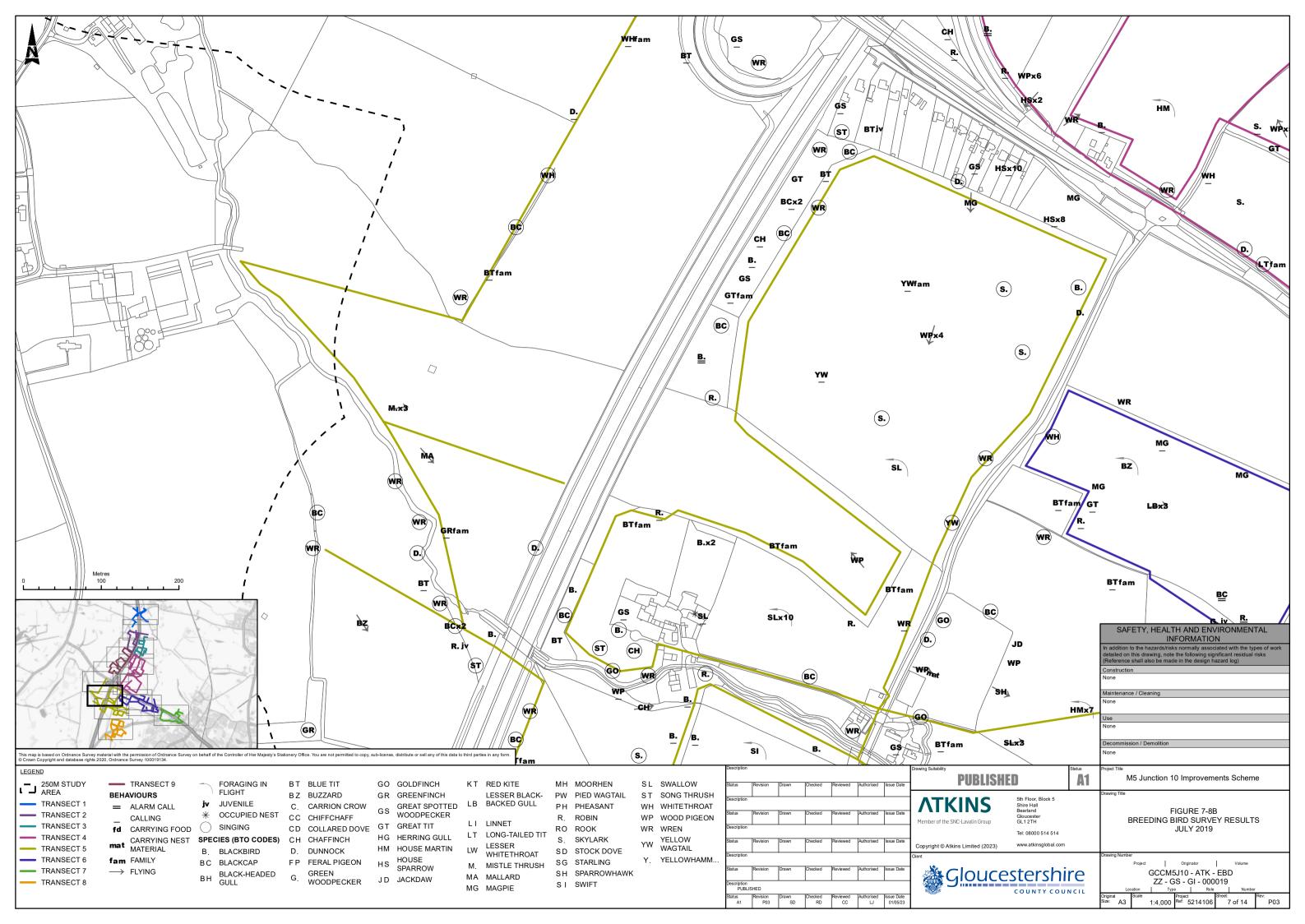


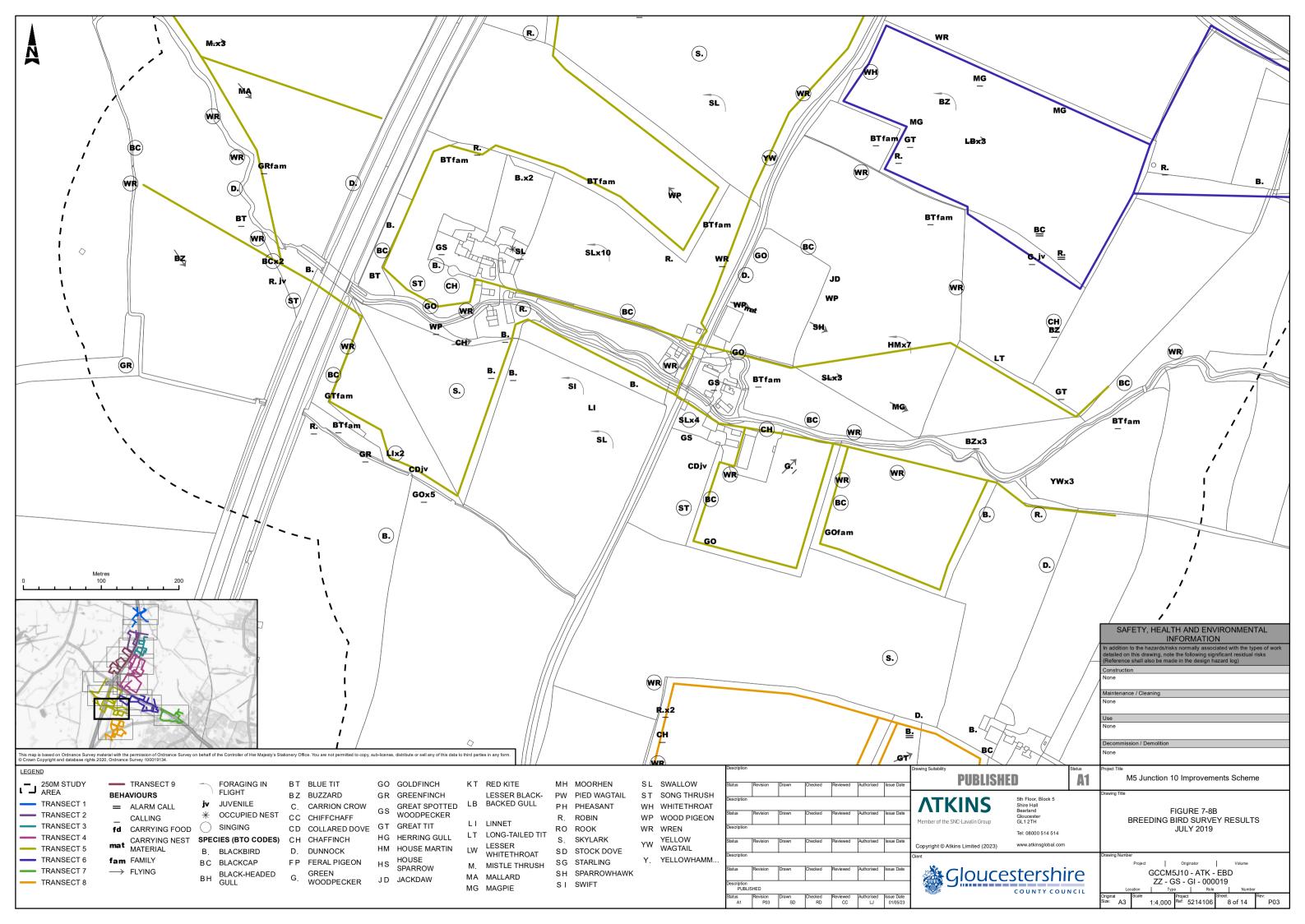


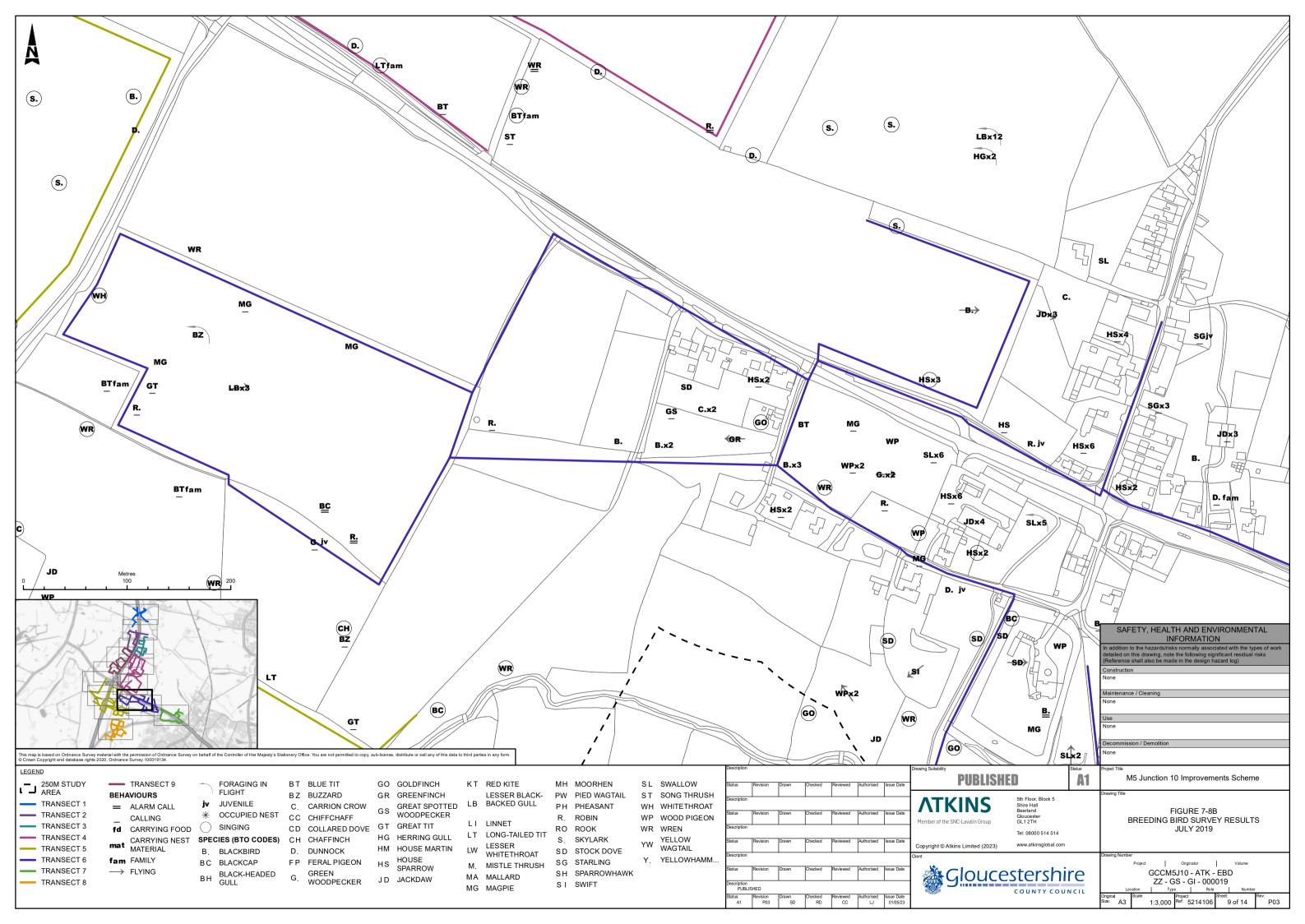


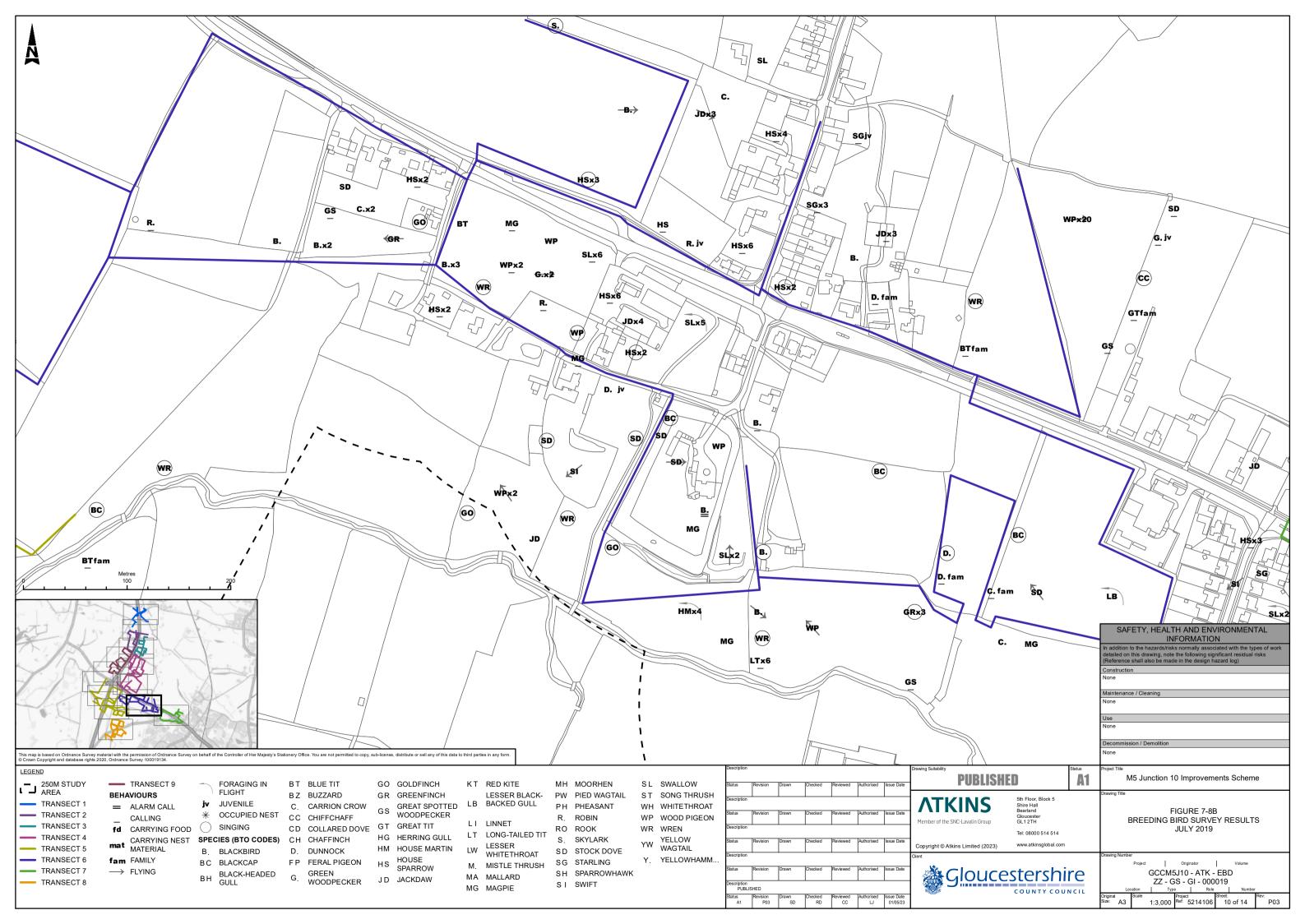


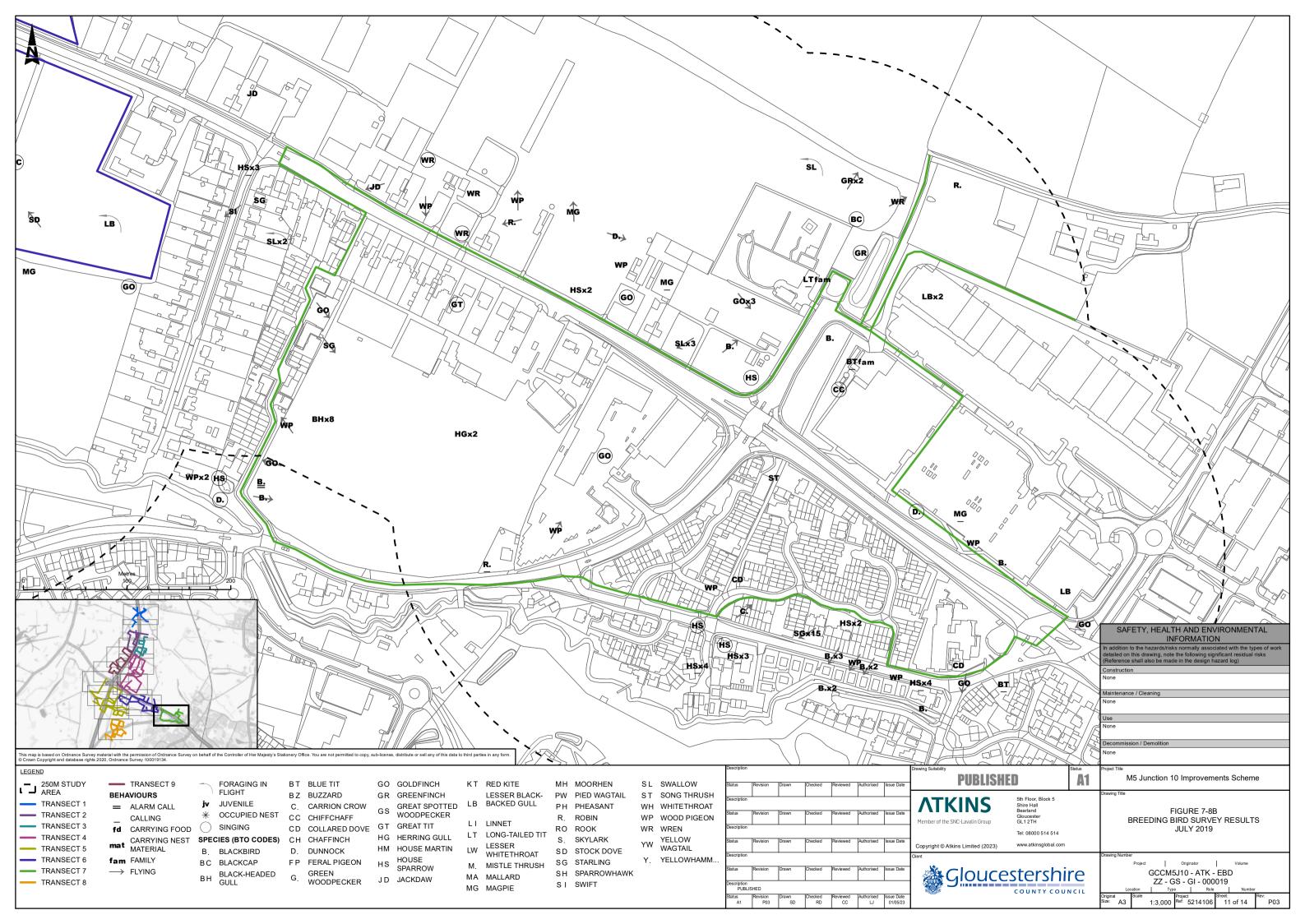


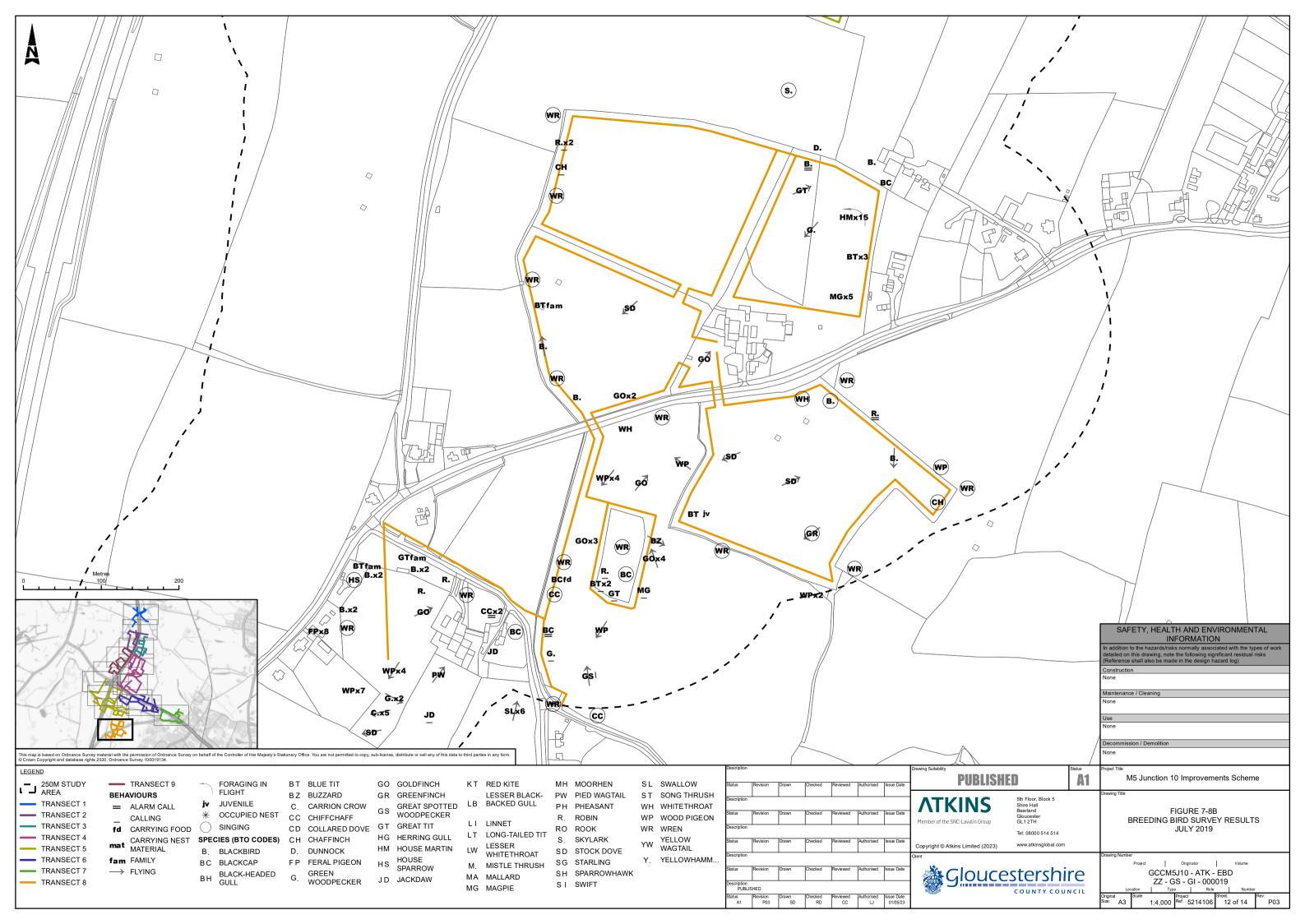


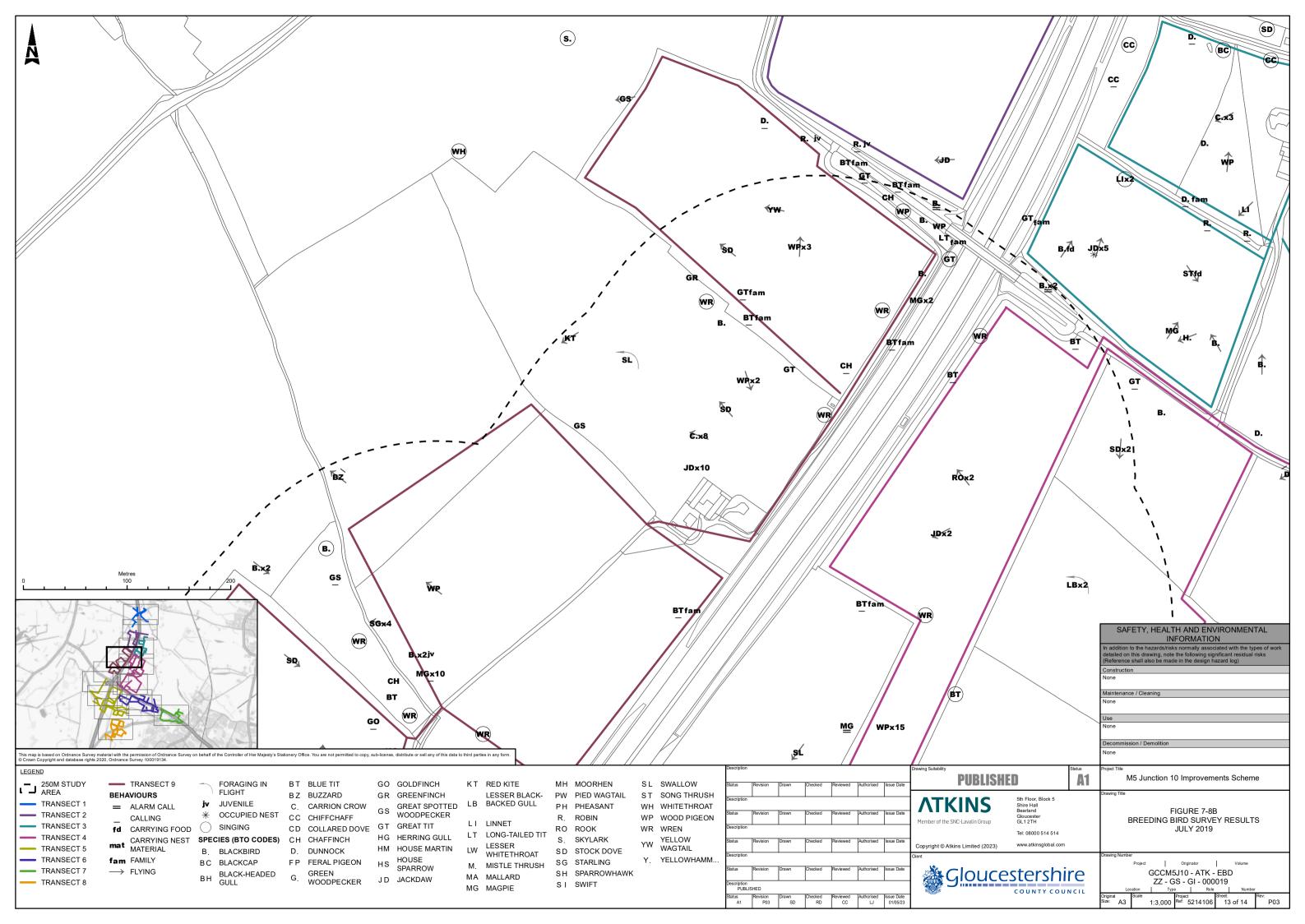


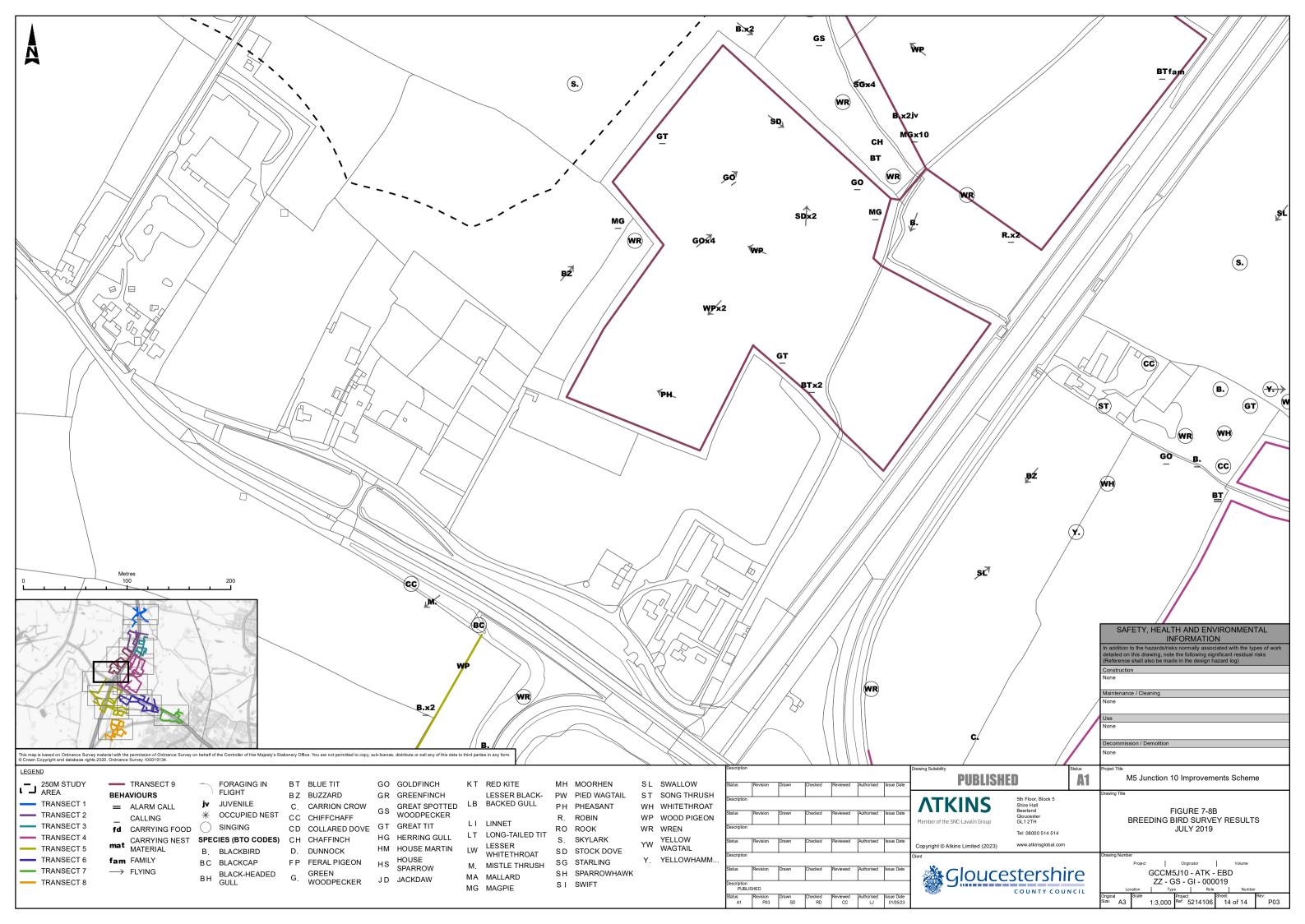


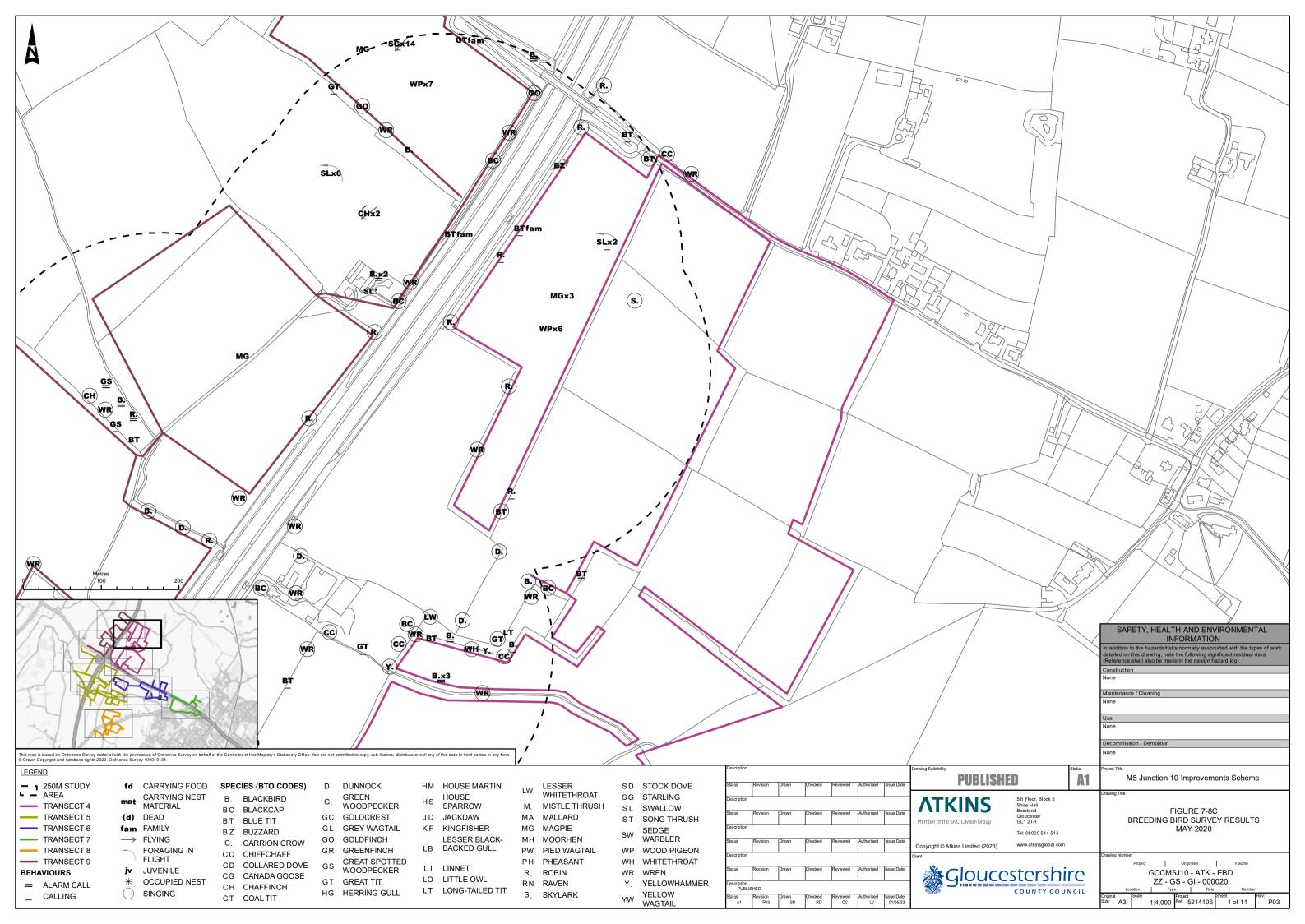


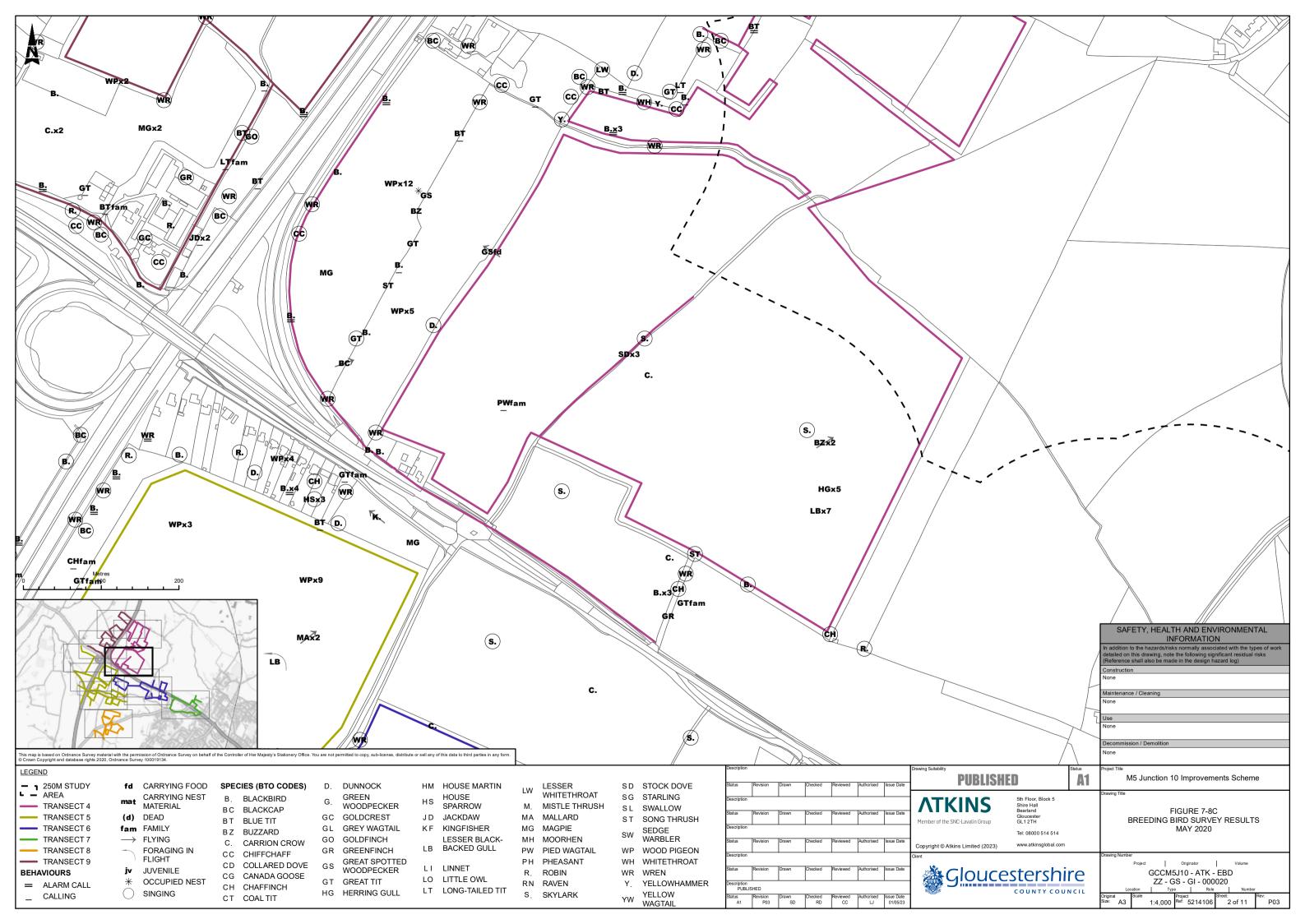


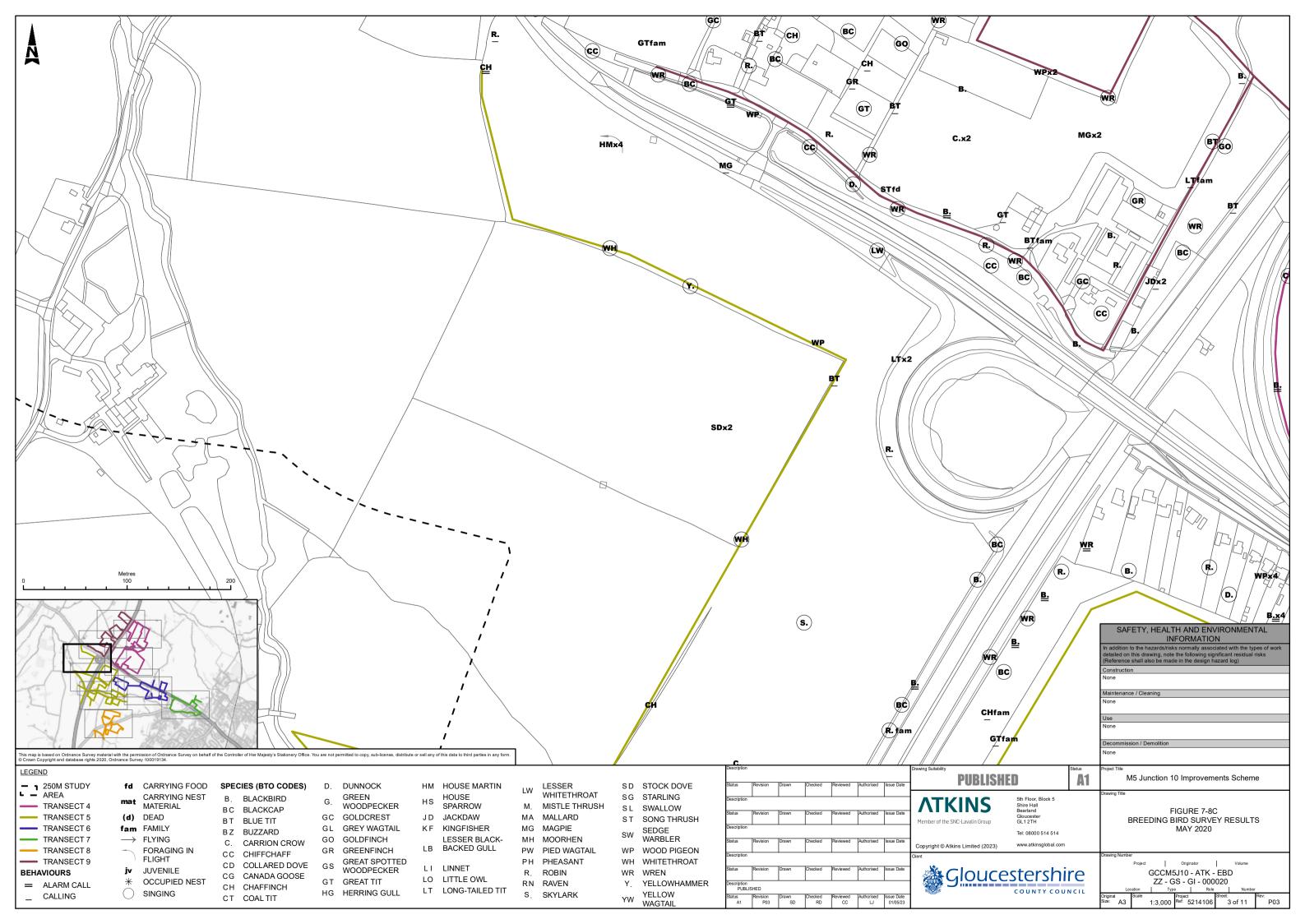


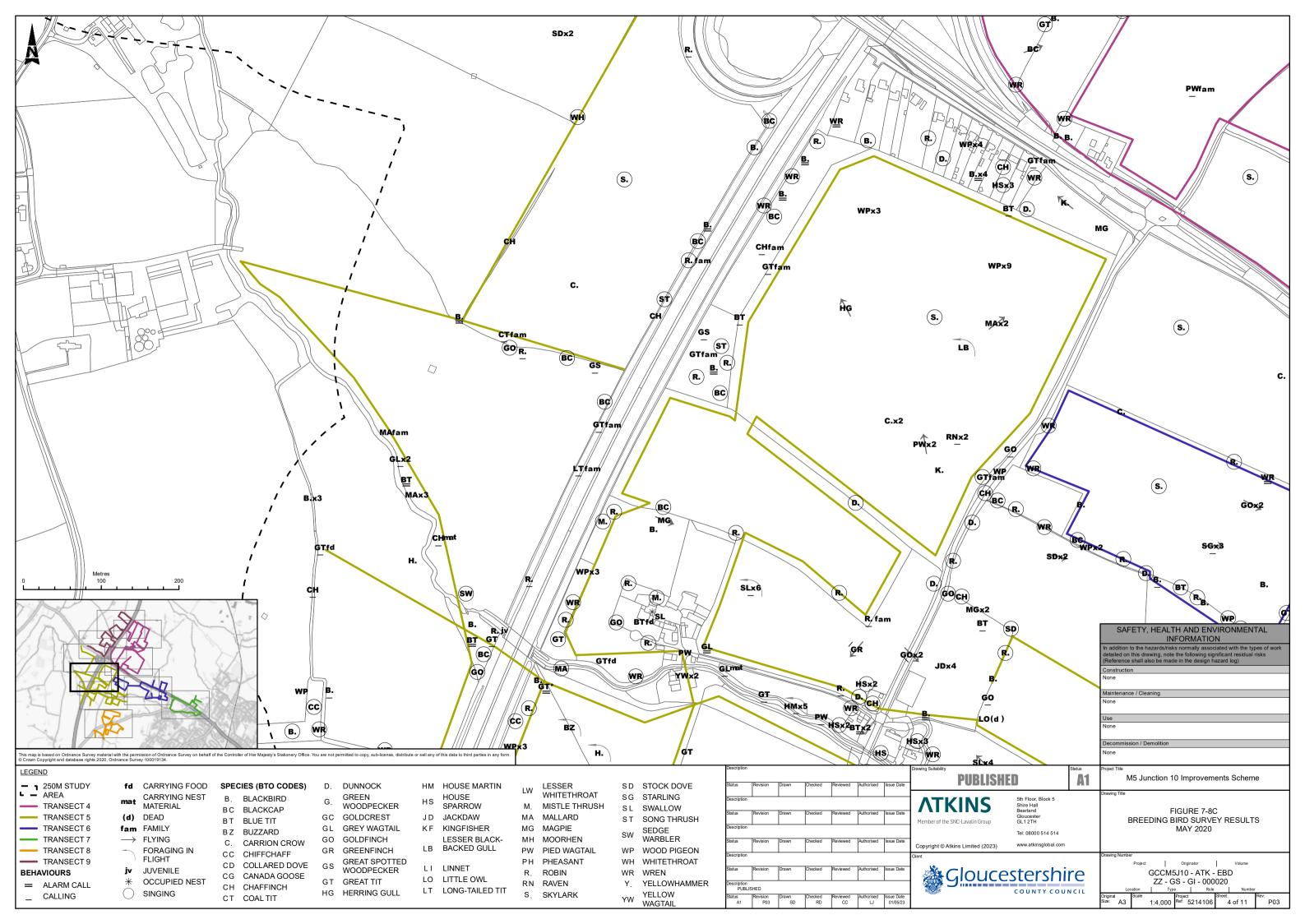


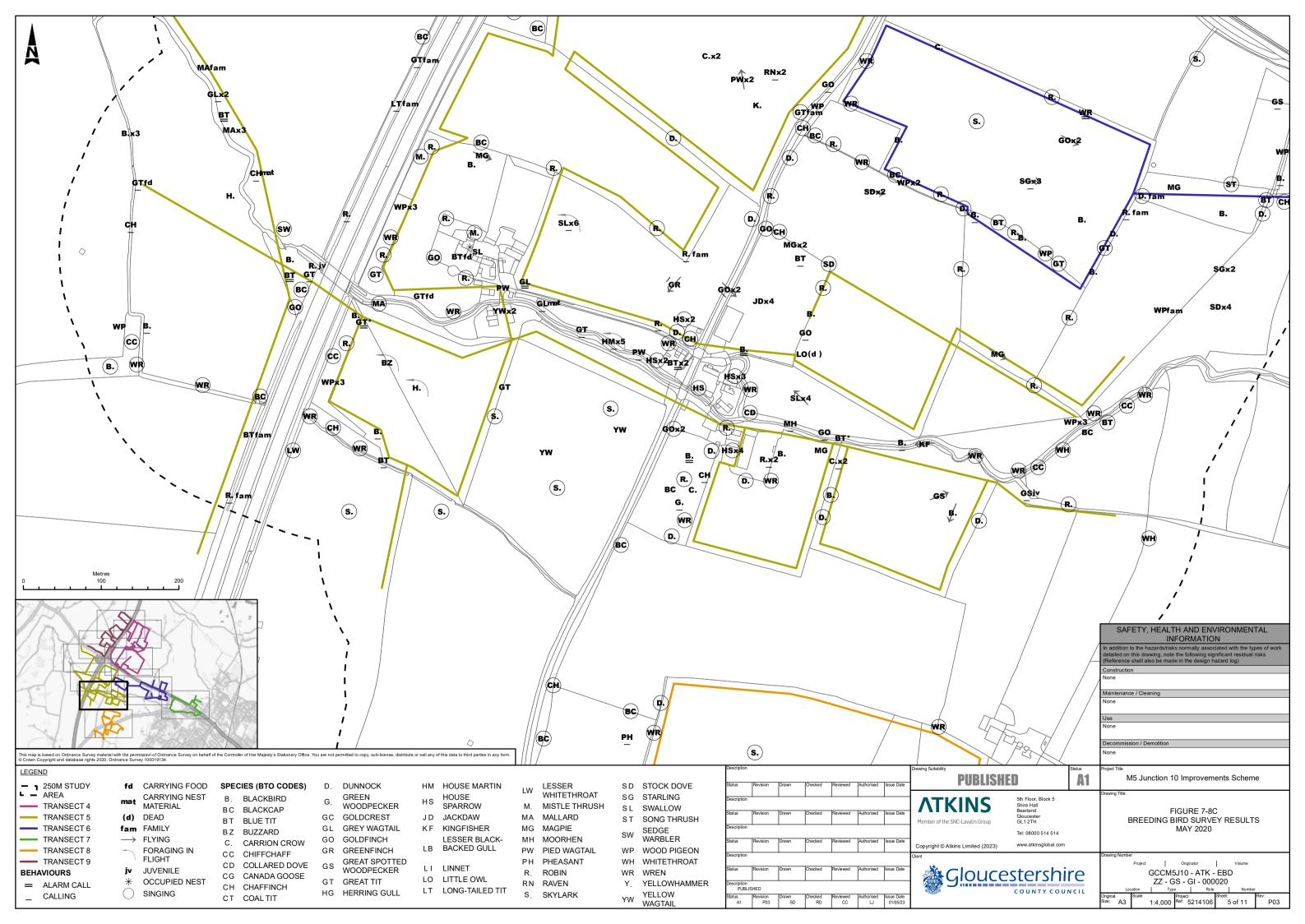


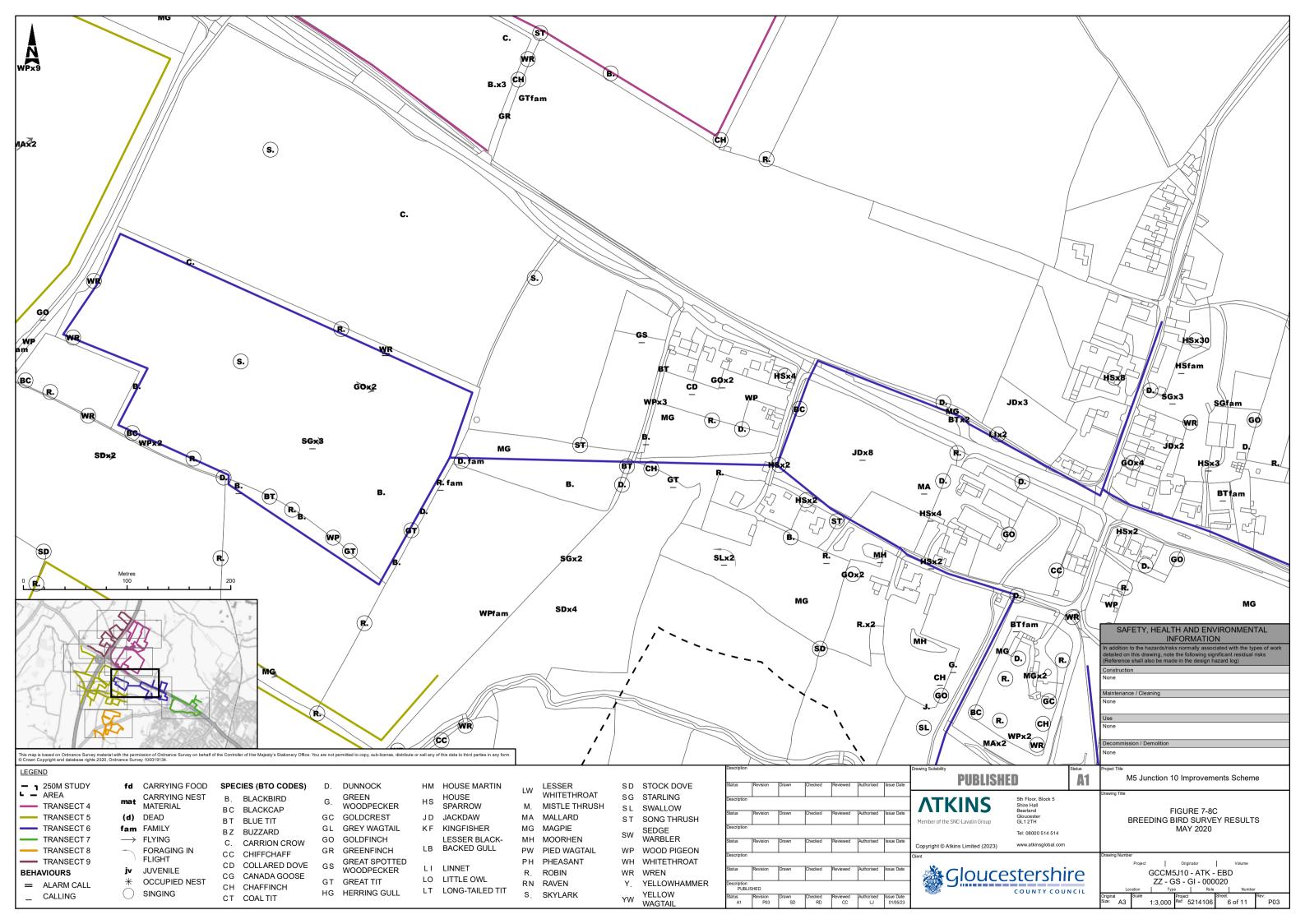


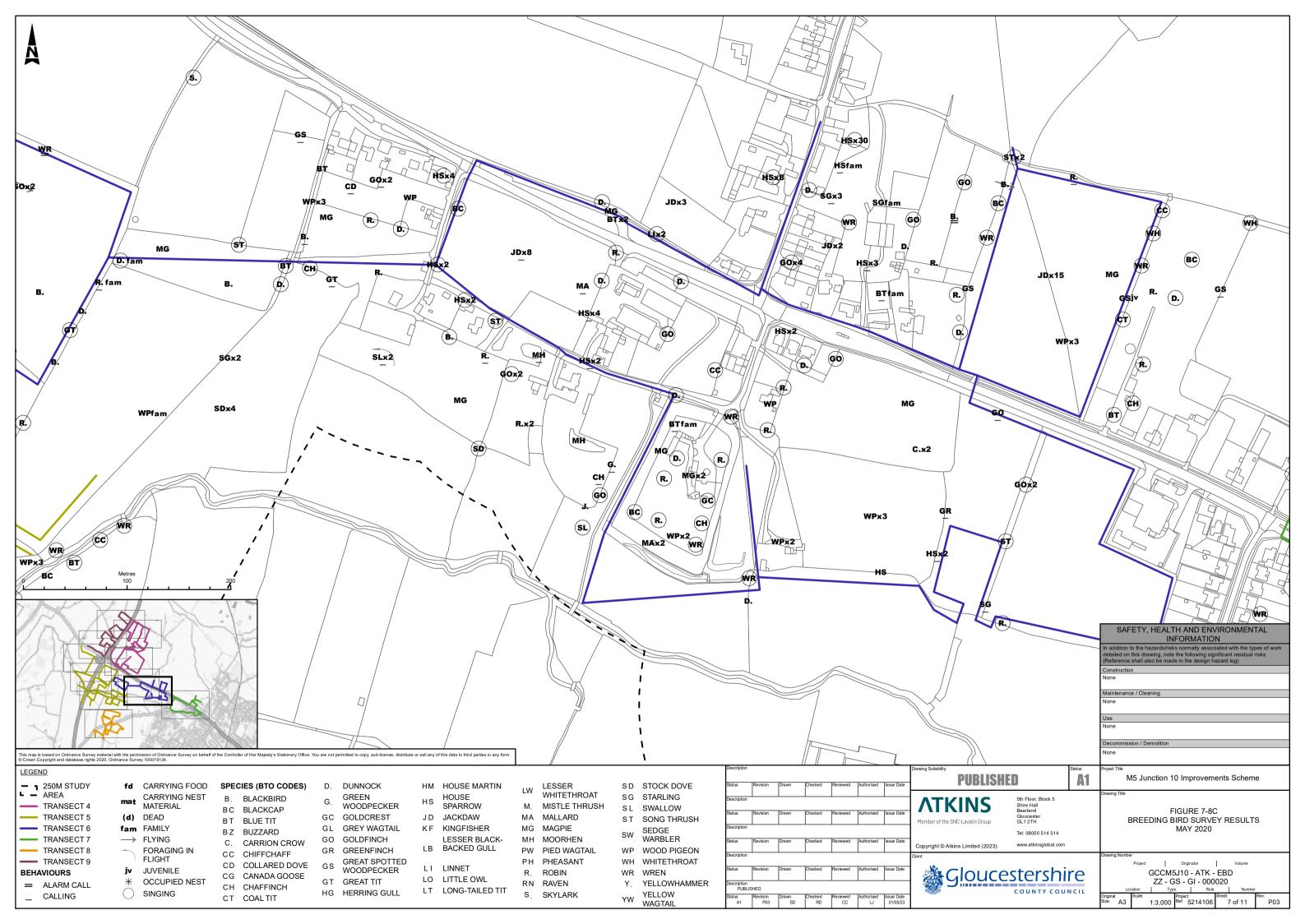


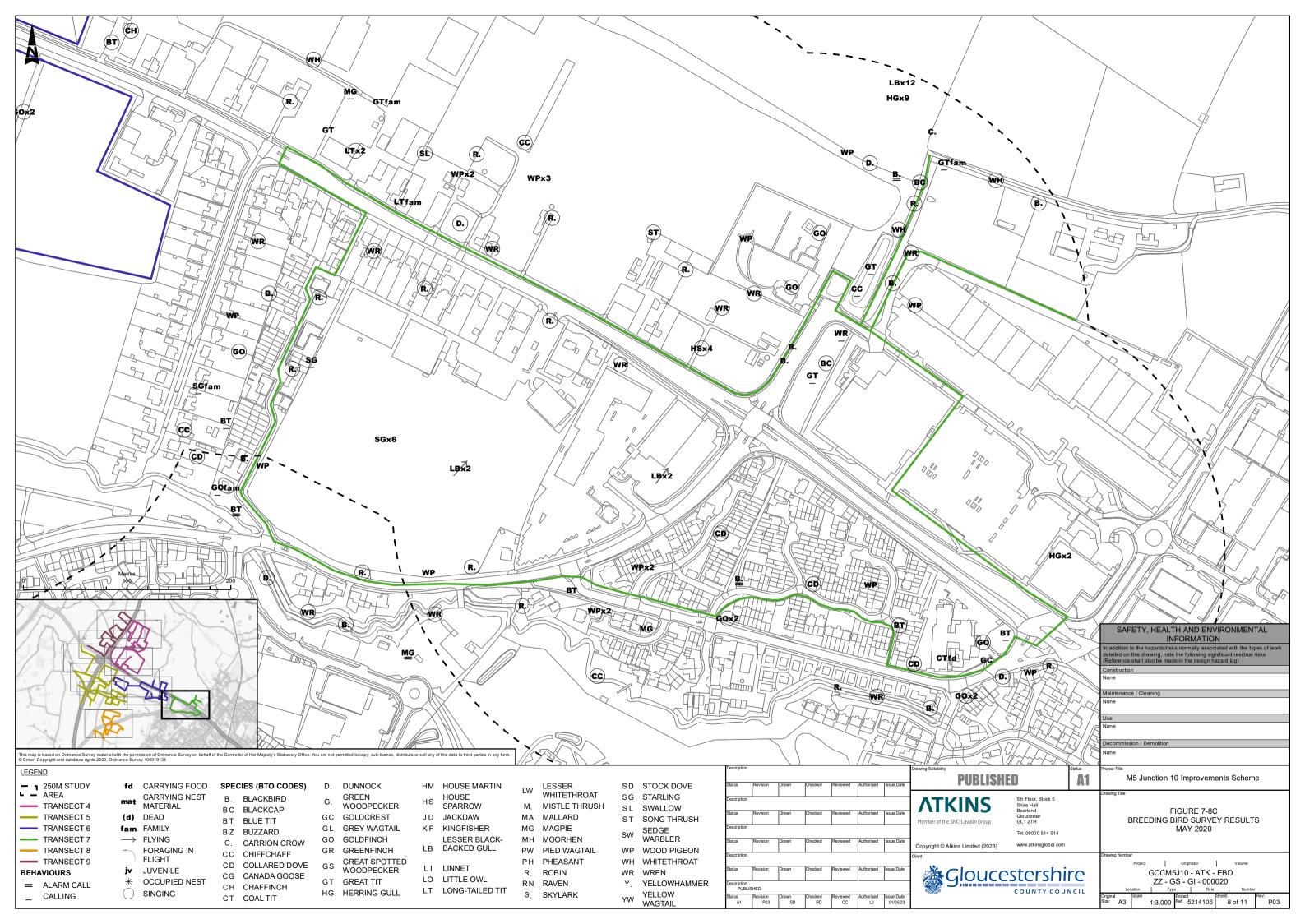


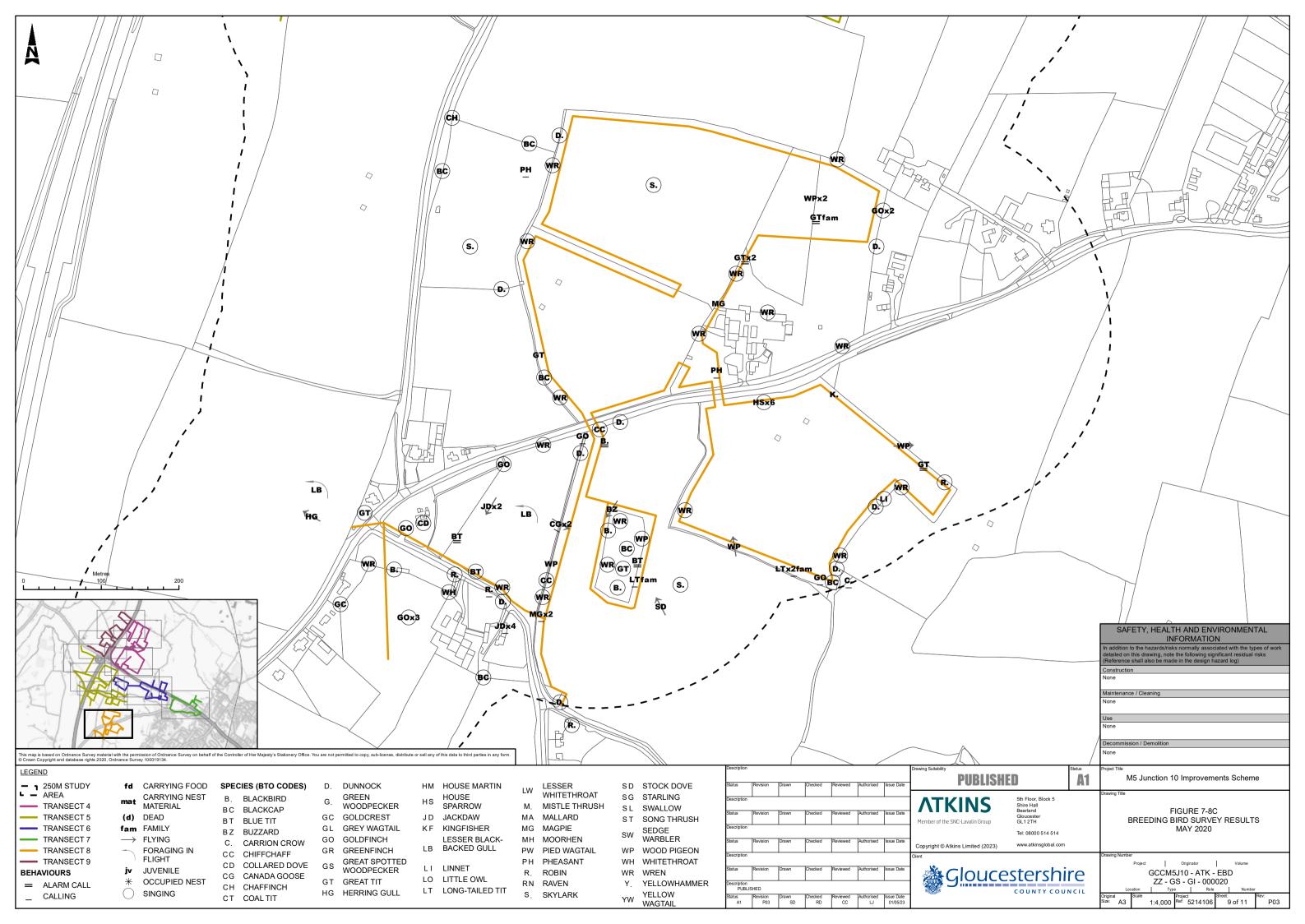


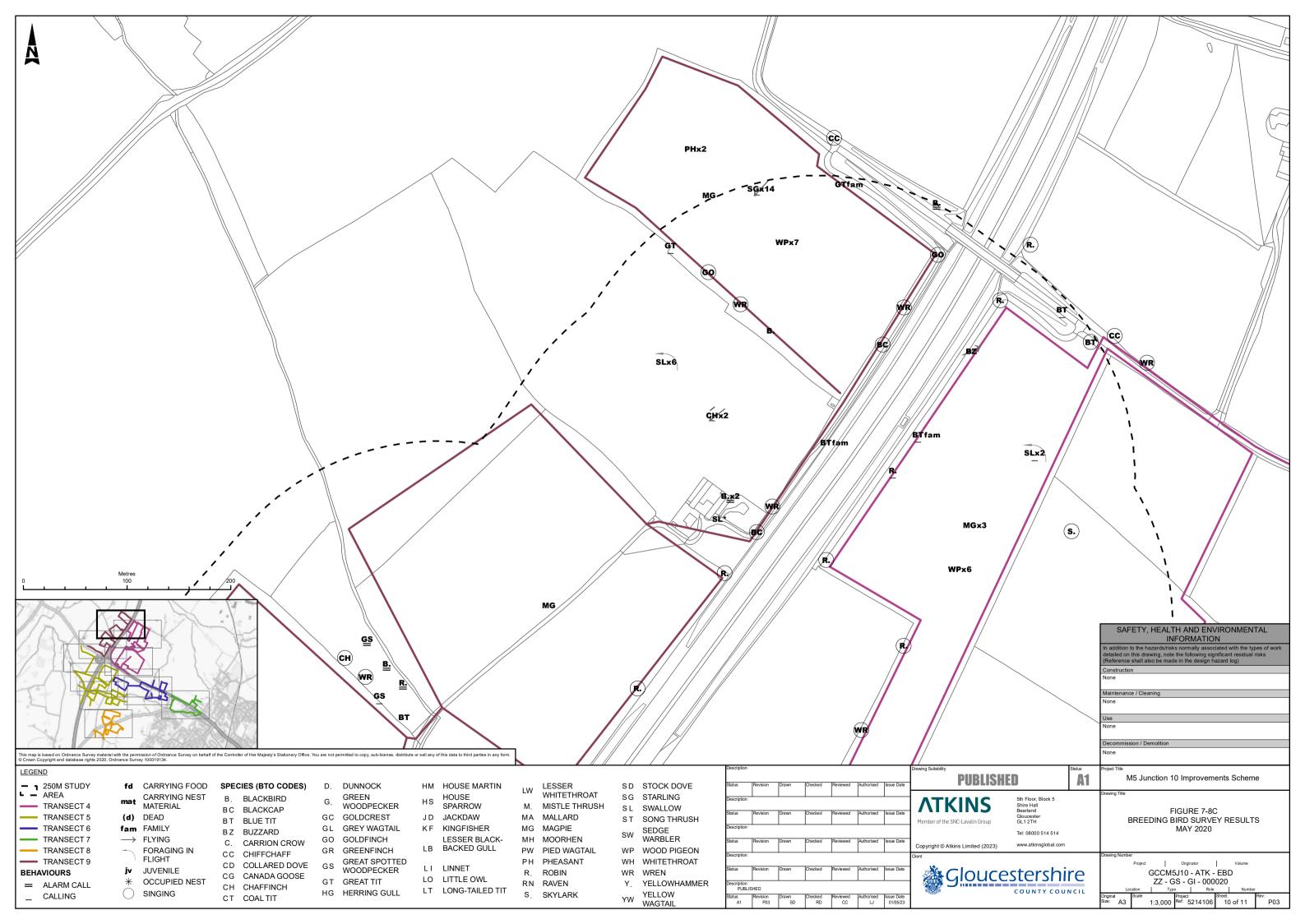


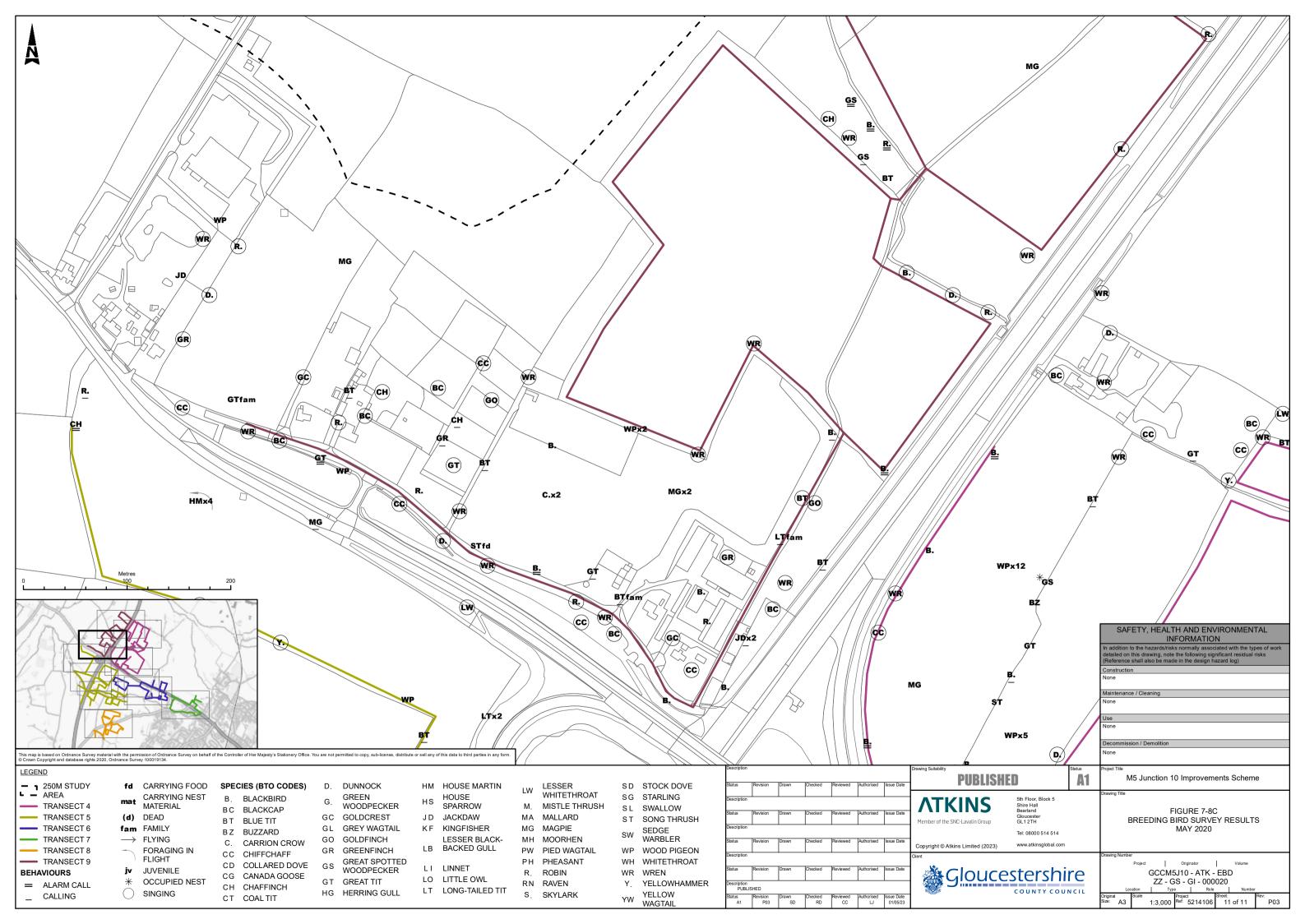


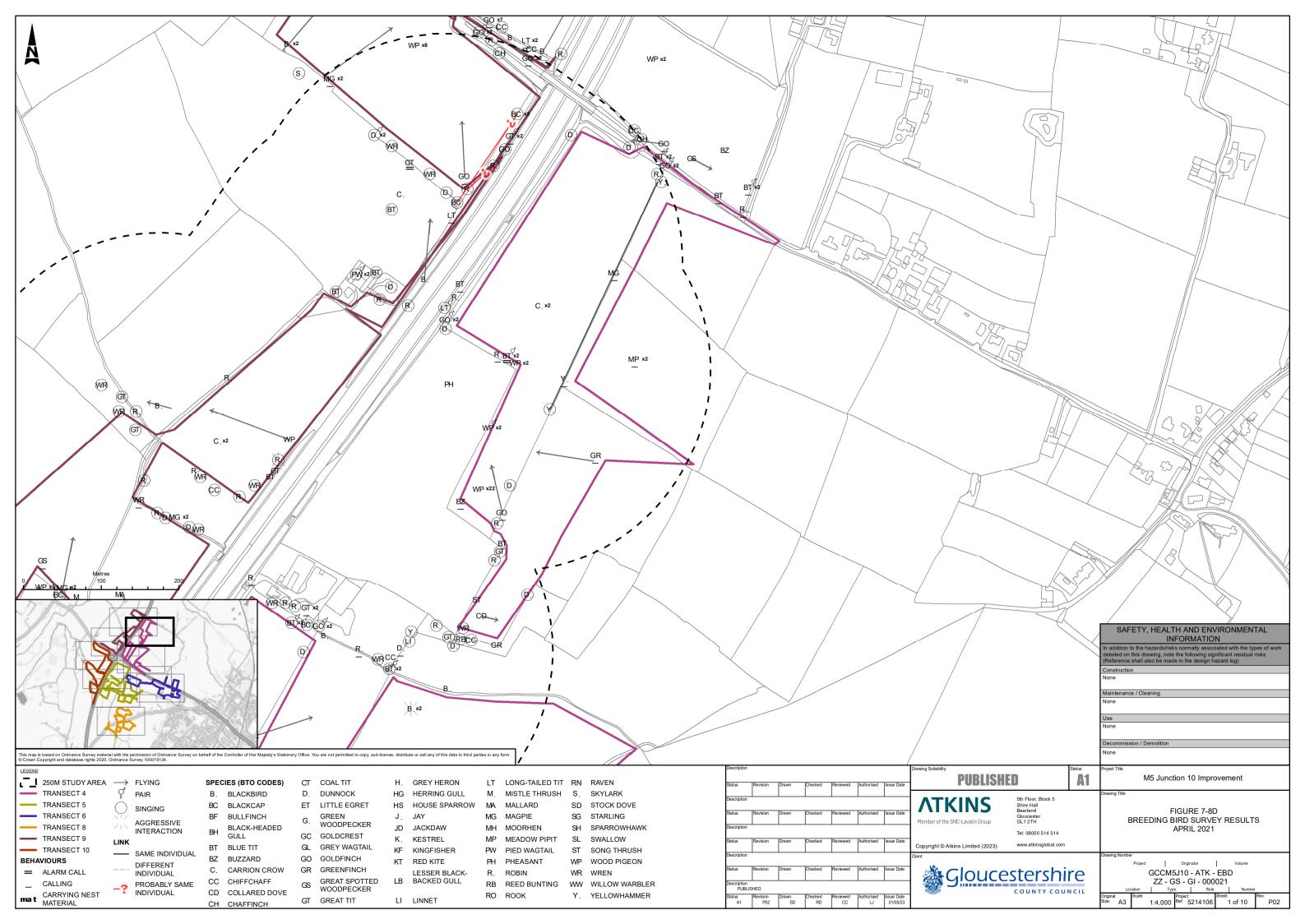


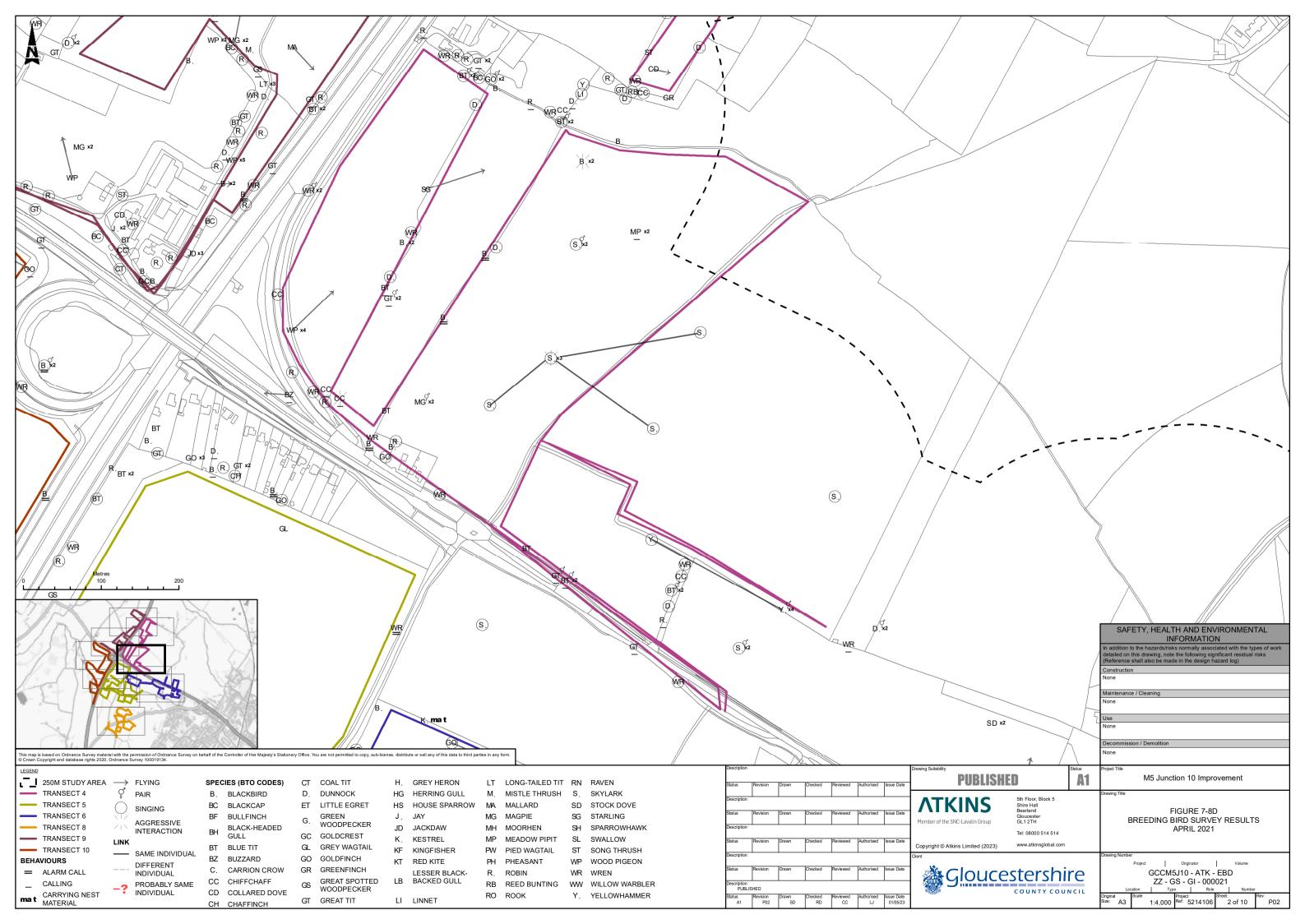


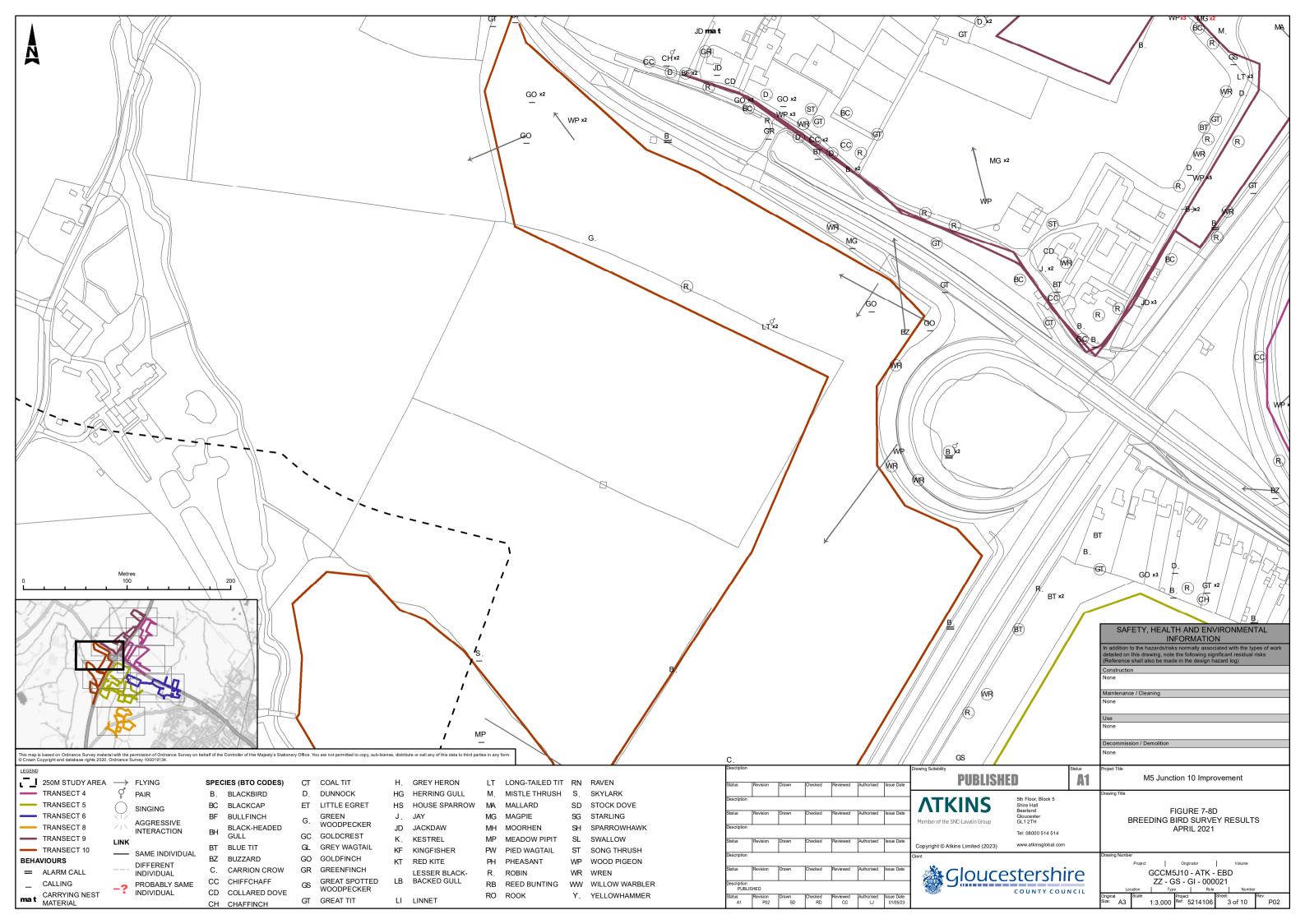


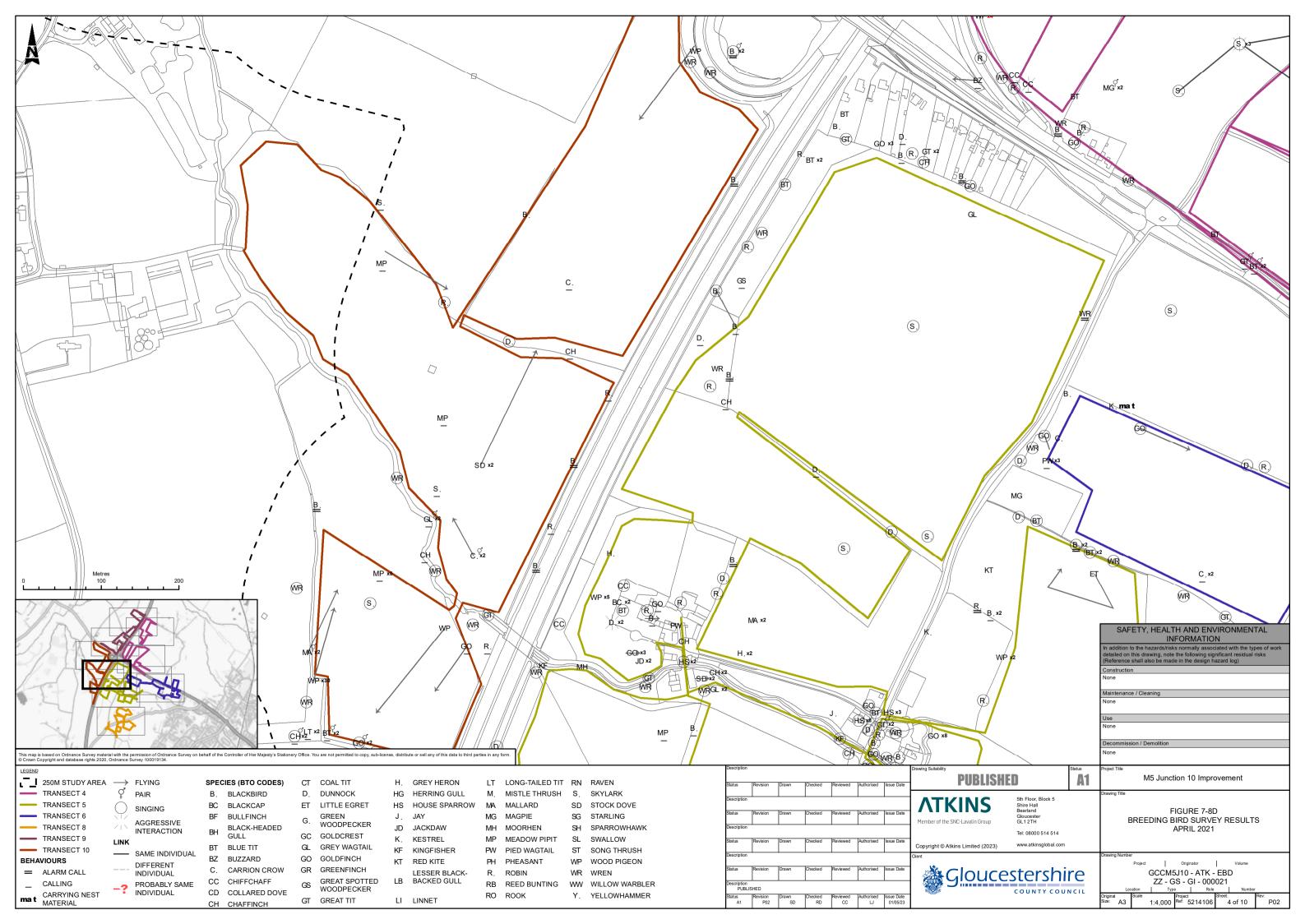


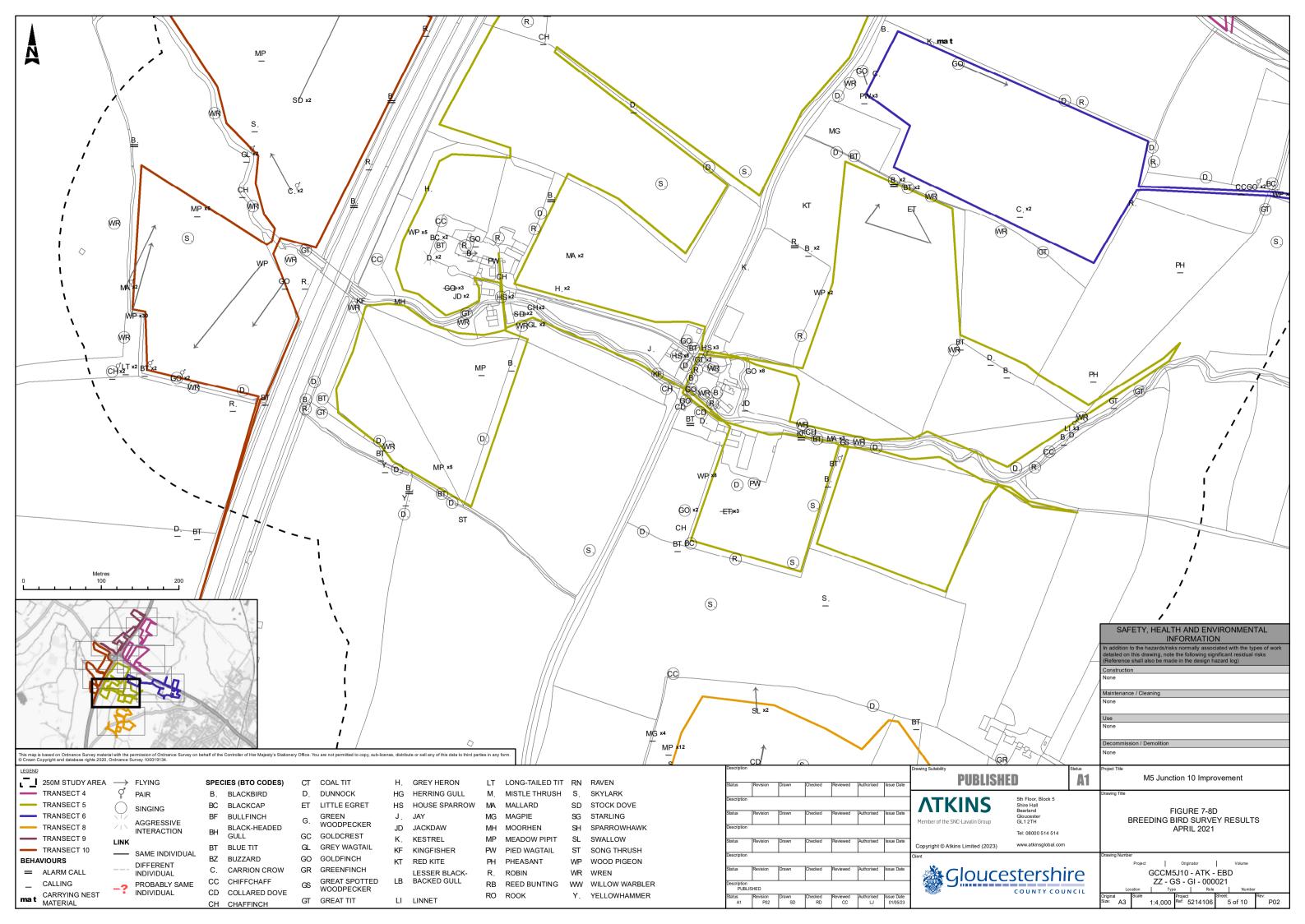


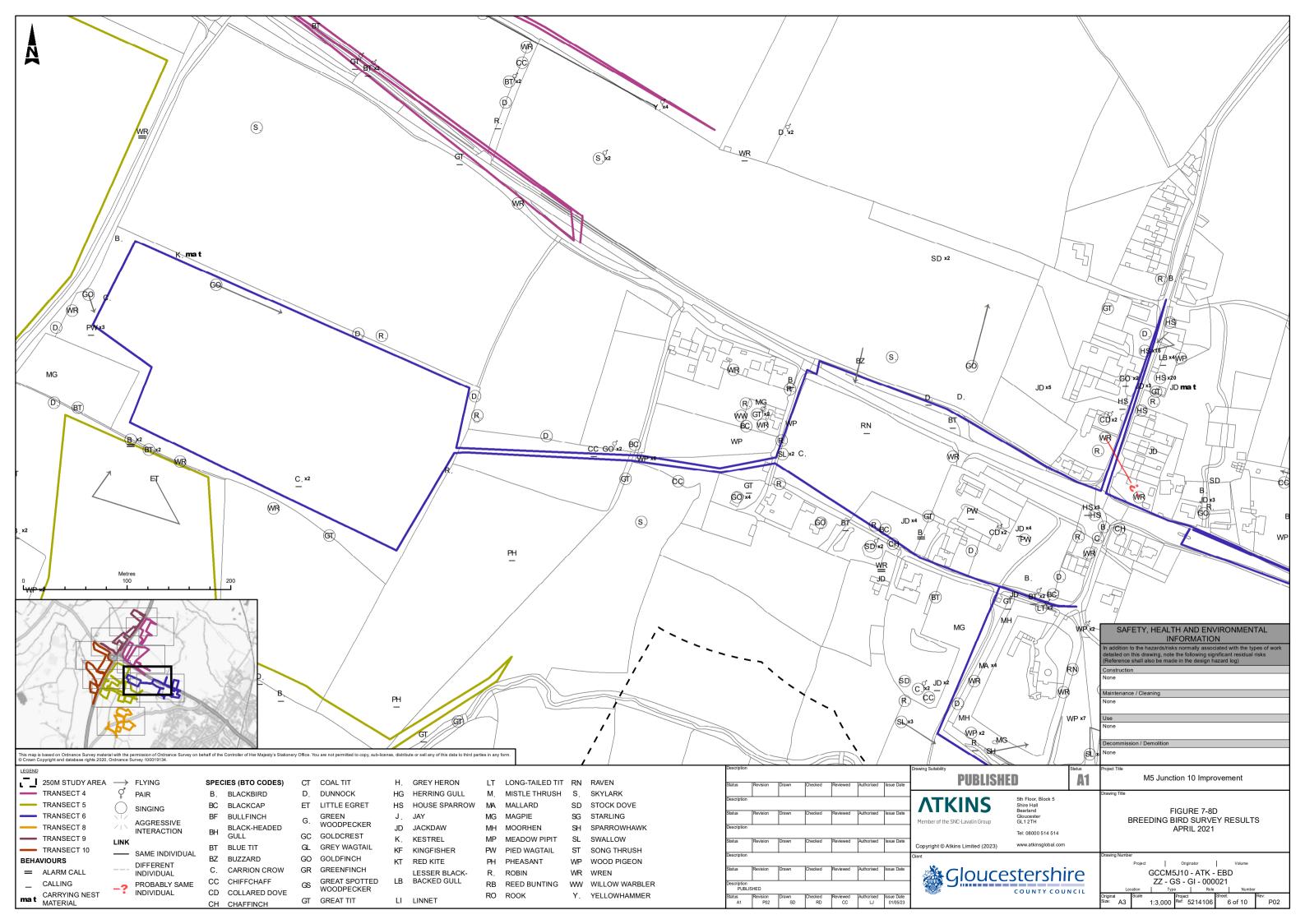


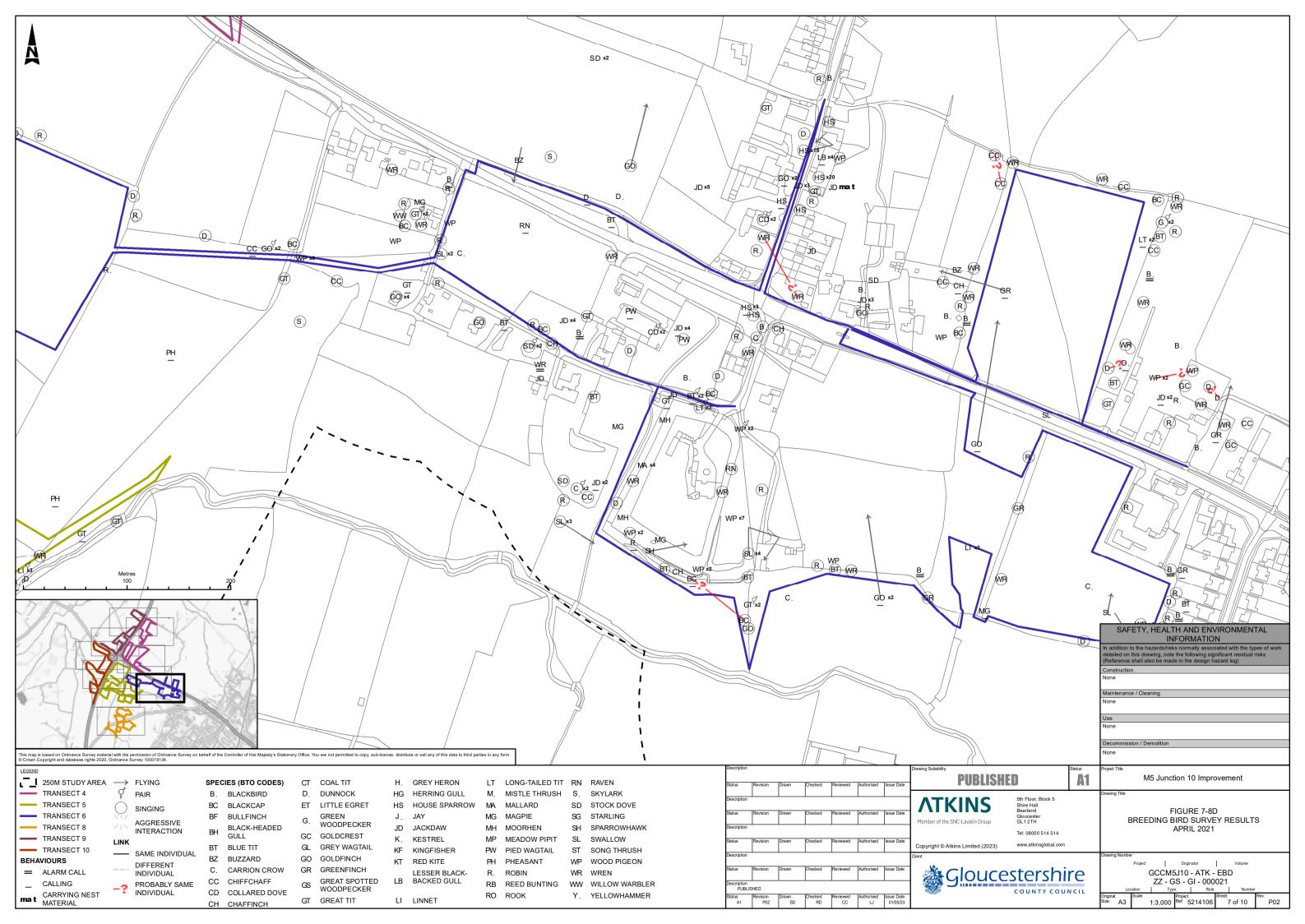


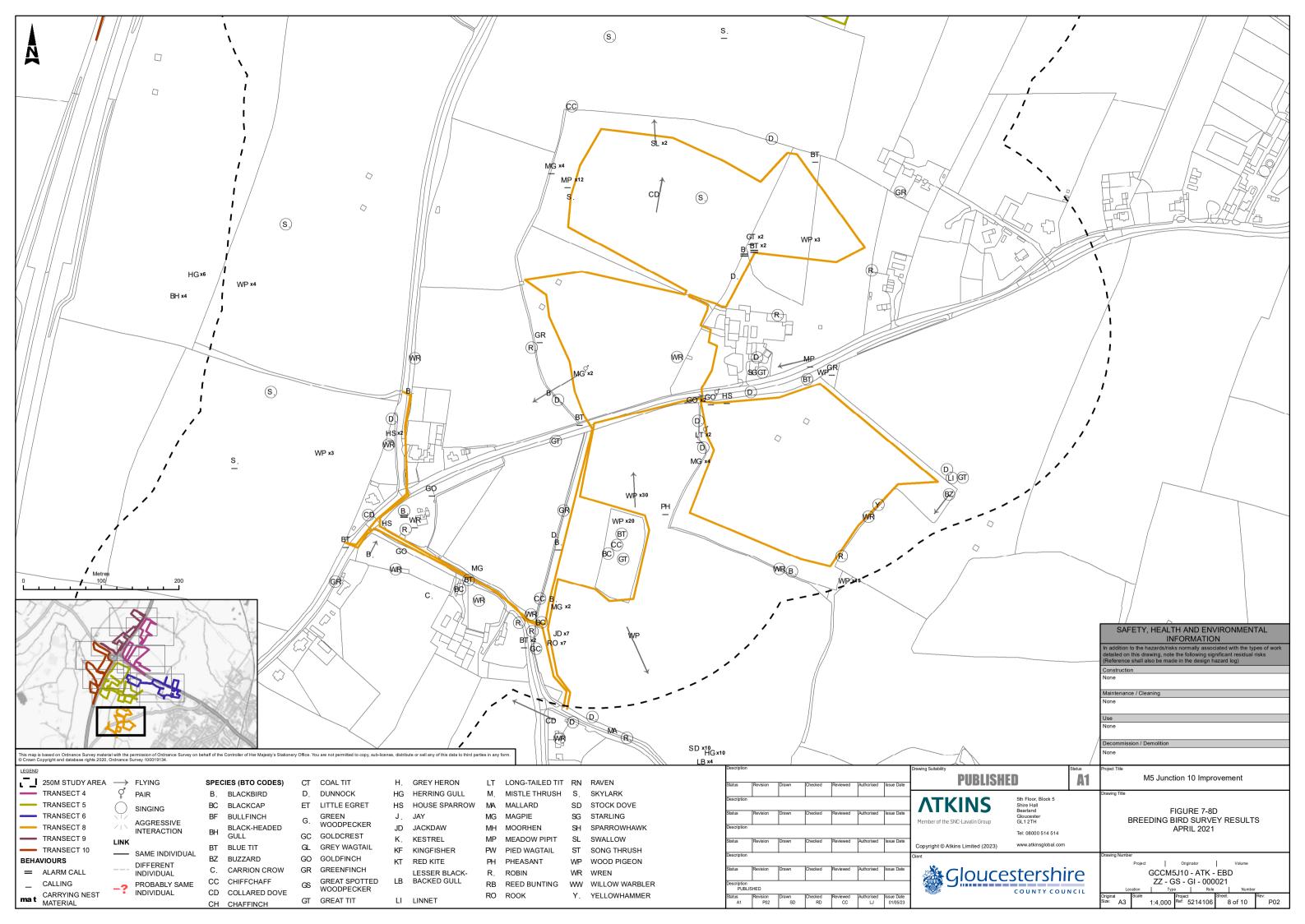


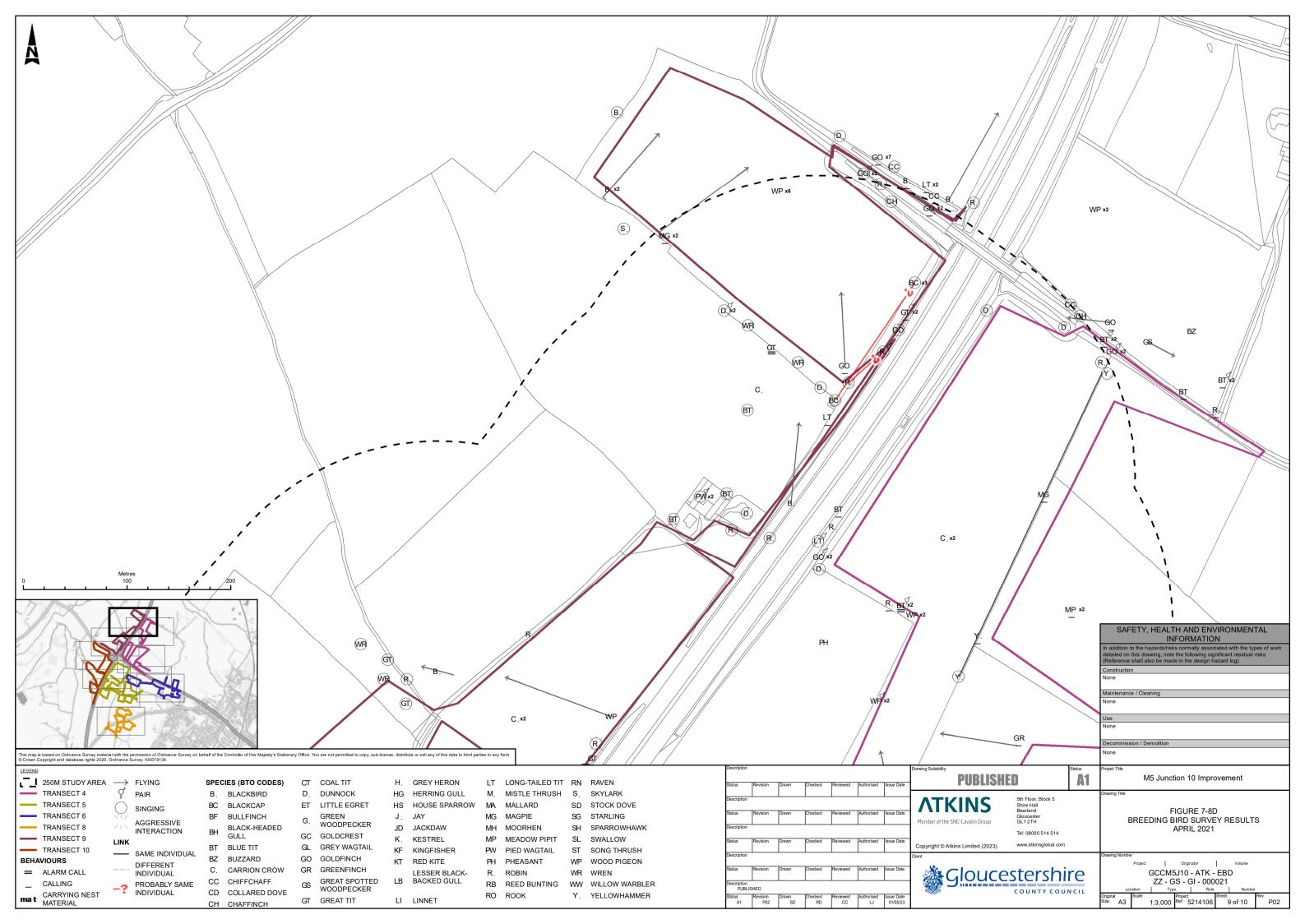


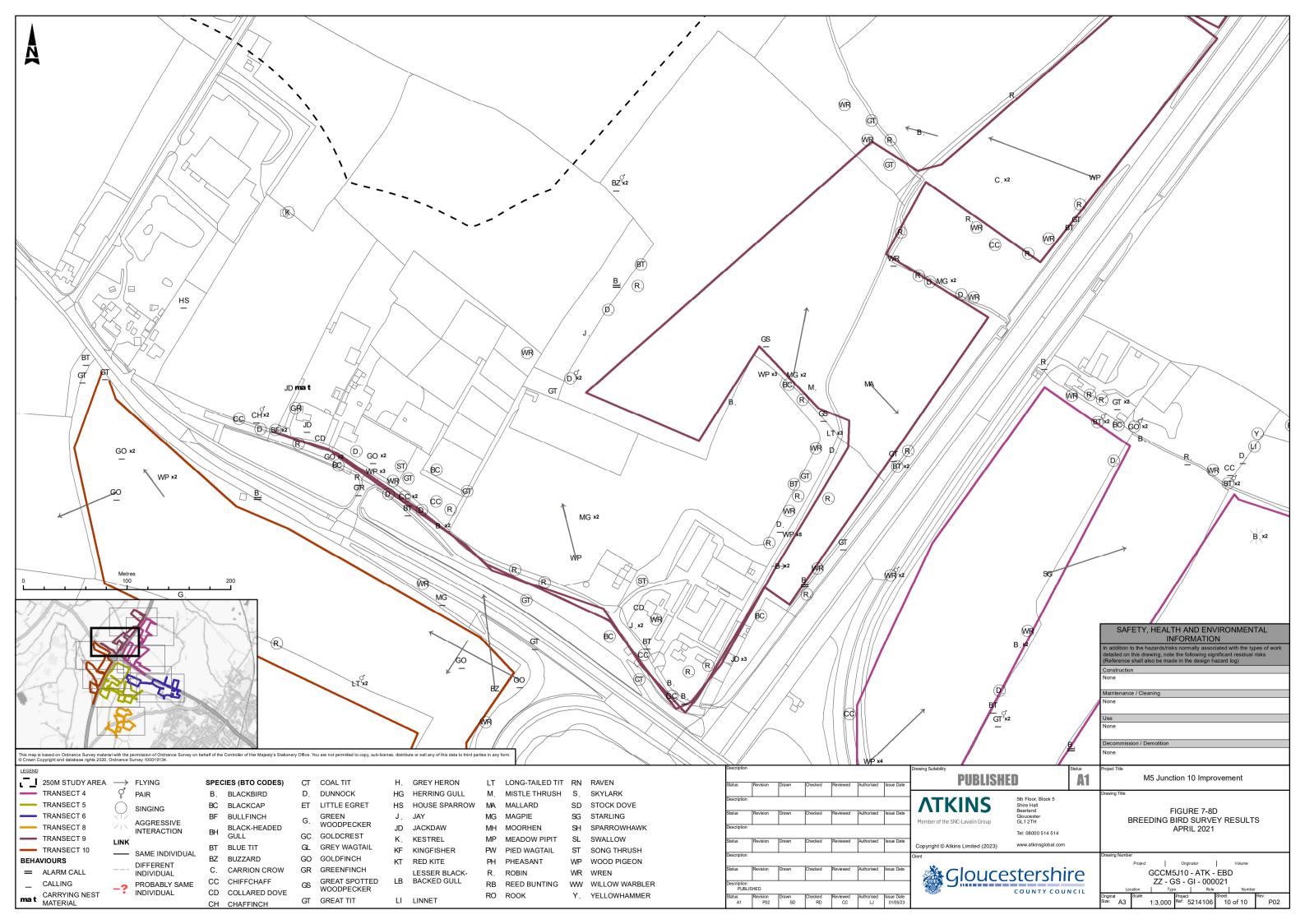














Appendix B. Survey dates, time, and weather

Date	Start/endtime	Temperature (°C)	Wind (Beaufort) ³⁰	Rain ³¹	Cloud (Octas) ³²				
June 2019									
11/06/2019	06:45-11:00	7-9	4	0-1	8				
12/06/2019	06:15-10:20	10-13	3	1	8				
18/06/2019	05:50-10:15	11	1	0	0-1				
19/06/2019	06:25-11:00	13-19	0-1	0	4-8				
20/06/2019	05:50-10:30	19	2	0	0-2				
21/06/2019	06:25-08:05	9	0	0	0				
July 2019			·						
02/07/2019	05:45-07:50	10	2	0	0-1				
03/07/2019	05:40-10:10	10-17	2	0	0-1				
04/07/2019	05:45-10:35	8-25	1	0	0				
05/07/2019	05:45-10:20	13	2	0	2				
09/07/2019	05:50-10:30	15-17	2	0	8				
10/07/2019	05:45-07:45	15-17	0	0	7				
May 2020									
20/05/2020	06:30-10:00	11-19	2	0	8				
21/05/2020	06:30-10:40	12-18	2	0	6				
22/05/2020	06:30-10:10	14-15	3-4	0-1	4-7				
27/05/2020	06:30-10:15	14-16	2	0	6				
April 2021									
06/04/2021	07:30-11:30	3-7	2	0	1				
07/04/2021	07:30-10:30	1-3	1-2	0	7				
09/04/2021	07:30-10:45	1-5	2-3	0	2				
13/04/2021	07:30-10:15	3-6	0	0	1				
21/04/2021	07:20-10:20	9-11	2	0	4				

Planning Inspectorate Scheme Reference: TR010063 Application Document Reference: TR010063/APP/6.15

³⁰ Wind speed score of 0-12 against Beaufort scale: 0 = calm, 2 = light breeze, 4 = Moderate breeze, 6 = strong breeze, 7 = High wind, 9 = Strong gale, 12 = Hurricane
³¹ Precipitation intensity on scale of 0-5: 0 = Dry, 1 = Light drizzle, 2 = Light rain, 3 = Moderate rain, 4 = Heavy rain, 5 =

Torrential rain.

³² Cloud cover on a scale of 0-8: 0 = Sky completely clear, 4 = Sky half cloudy, 8 = Sky completely cloudy



Appendix C. Survey Results

Species	Conservation/legal status	Number per v	Peak Count			
		June 2019	July 2019	May 2020	April 2021	
Blackbird (<i>Turdus merula</i>)		101	109	81	109	109
Blackcap (Sylvia atricapilla)		34	44	37	44	44
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Amber List BoCC5		8		8	8
Blue tit (Cyanistes caeruleus)		68	59	43	68	68
Bullfinch (<i>Pyrrhula pyrrhula</i>)	Amber List BoCC5, SPI				2	2
Buzzard (Buteo buteo)		18	16	6	18	18
Canada goose (Branta canadensis)				2	2	2
Carrion crow (Corvus corone)		46	33	16	46	46
Chaffinch (<i>Fringilla coelebs</i>)		26	16	24	26	26
Chiffchaff (Phylloscopus collybita)		15	19	23	26	26
Coal tit (Periparus ater)		3		3	3	3
Collared dove (Streptopelia decaocto)		17	7	7	17	17
Dunnock (Prunella modularis)	Amber List BoCC5, SPI	42	31	47	85	85
Feral pigeon (<i>Columba livia</i>)		2	20		20	20
Goldcrest (Regulus regulus)		1		5	5	5
Goldfinch (Carduelis carduelis)		89	55	51	89	89
Great spotted woodpecker (<i>Dendrocopos major</i>)		8	16	12	16	16
Great tit (<i>Parus major</i>)		32	32	38	54	54

Planning Inspectorate Scheme Reference: TR010063 Application Document Reference: TR010063/APP/6.15



Species	Conservation/legal status	Number per visit				Peak Count
		June 2019	July 2019	May 2020	April 2021	
Green woodpecker (Picus viridis)		4	12	2	12	12
Greenfinch (Chloris chloris)	Red List BoCC5	18	21	6	21	21
Grey heron (Ardea cinerea)		2	1	2	3	3
Grey wagtail (Motacilla cinerea)	Amber List BoCC5	3		4	7	7
Herring gull (Larus argentatus)	Red List BoCC5, SPI, RAM nf	10	4	18	32	32
Hobby (Falco subbuteo)	Schedule 1	1			1	1
House martin (Delichon urbicum)	Red List BoCC5	7	36	9	36	36
House sparrow (Passer domesticus)	Red List BoCC5, SPI	116	104	86	116	116
Jackdaw (Coloeus monedula)		32	41	41	49	49
Jay (<i>Garrulus glandarius</i>)		3		1	4	4
Kestrel (Falco tinnunculus)	Amber List BoCC5		3	3	3	3
Kingfisher (Alcedo atthis)	Schedule 1, Annex 1			1	3	3
Lesser black-backed gull (<i>Larus</i> fuscus)	Amber List BoCC5, RAM fc	57	27	26	57	57
Lesser whitethroat (Curruca curruca)		4	1	3	4	4
Linnet (<i>Linaria cannabina</i>)	Red List BoCC5, SPI, GBAP	4	6	3	7	7
Little egret (Egretta garzetta)	Annex 1				4	4
Little owl (Athene noctua)				1	1	1
Long-tailed tit (Aegithalos caudatus)		16	11	11	22	21
Magpie (<i>Pica pica</i>)		42	47	31	47	47
Mallard (<i>Anas platyrhynchos</i>)	Amber List BoCC5, SPA	1	1	10	16	16
Meadow pipit (Anthus pratensis)	Amber List BoCC5				46	46



Species	Conservation/legal status	Number per visit				Peak Count
		June 2019	July 2019	May 2020	April 2021	
Mistle thrush (Turdus viscivorus)	Red List BoCC5	1	4	2	4	4
Moorhen (Gallinula chloropus)	Amber List BoCC5		2	3	3	3
Pheasant (Phasianus colchicus)		6	5	4	6	6
Pied wagtail (<i>Motacilla alba</i>)		1	1	5	9	9
Raven (Corvus corax)				2	2	2
Red kite (<i>Milvus milvus</i>)	Schedule 1, Annex 1		1		1	1
Reed bunting (Emberiza schoeniclus)	Amber List BoCC5, SPI				1	1
Robin (<i>Erithacus rubecula</i>)		72	54	86	95	95
Rook (Corvus frugilegus)	Amber List BoCC5		2		14	14
Sedge warbler (<i>Acrocephalus</i> schoenobaenus)	Amber List BoCC5			1		1
Skylark (<i>Alauda arvensis</i>)	Red List BoCC5, SPI, GBAP	31	27	17	31	31
Song thrush (<i>Turdus philomelos</i>)	Amber List BoCC5, SPI, GBAP	15	12	11	15	15
Sparrowhawk (Accipiter nisus)	Amber List BoCC5	3	3		3	3
Starling (Sturnus vulgaris)	Red List BoCC5, SPI	50	29	32	50	50
Stock dove (Columba oenas)	Amber List BoCC5	47	24	14	47	47
Swallow (<i>Hirundo rustica</i>)		57	62	24	62	62
Swift (Apus apus)	Red List BoCC5	13	3		13	13
Common whitethroat (<i>Curruca</i> communis)	Amber List BoCC5	14	10	11	14	14
Willow warbler (<i>Phylloscopus trochilus</i>)	Amber List BoCC5				1	1
Wood pigeon (Columba palumbus)	Amber List BoCC5	138	221	104	387	387



Species	Conservation/legal status	Number per visit				Peak Count
		June 2019	July 2019	May 2020	April 2021	
Wren (Troglodytes troglodytes)	Amber List BoCC5	86	84	82	92	92
Yellow wagtail (<i>Motacilla flava</i>)	Red List BoCC5, SPI	10	9	4	10	10
Yellowhammer (Emberiza citronella)	Red List BoCC5, SPI	17	18	3	18	18

Key:

Annex I: species listed on Annex I of the Directive 2009/147/EC (the Birds Directive)

Red List BoCC5: species on the Red List of Birds of Conservation Concern 5

Amber List BoCC5: species on the Amber List of Birds of Conservation Concern 5

SPI: species of principal importance for the conservation of biodiversity in England

GBAP: Species listed on the Gloucestershire Biodiversity Action Plan

SPA: Severn Estuary SPA qualifying feature (wintering assemblage species)

Ram: Severn Estuary Ramsar site feature of interest

fc: species/populations identified subsequent to designation for possible future consideration under criterion 6

nf: noteworthy fauna



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