

Cardiff Council

Cardiff International Sports Village

Breeding Bird Survey Report 2023

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Ove Arup & Partners Limited
63 St Thomas Street
Bristol
BS1 6JZ
United Kingdom
arup.com

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			Prepared by	Checked by	Approved by
		Name	Meg Cotterrell	Adam Cross	Paul Clack
		Signature			
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			Prepared by	Checked by	Approved by
		Name	Meg Cotterrell	Adam Cross	Paul Clack
		Signature	<i>M. L. Cotterrell</i>	<i>Adam Cross</i>	<i>Paul Clack</i>
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

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Executive Summary

Ove Arup and Partners Limited (hereafter referred to as “Arup”) has been commissioned by Cardiff Council to undertake breeding bird surveys to provide information to inform the design of the proposed development/redevelopment of land at Cardiff International Sport Village.

As a result of an extended Phase 1 habitat survey and a desk study of available records, it was considered that there was the potential for valuable populations of birds to be present, including nesting within the site and therefore detailed breeding bird surveys were required.

This report summarises work undertaken between April to June 2023. The survey methods were derived from current best practice and guidance and involved completion of four visits using a transect-based survey approach.

A total of 37 species were recorded during the breeding bird surveys. Of the 37 species, 25 (68 %) were considered to be likely breeding on site, based upon their behaviour and habitats present.

One species, whimbrel, was recorded on site that is included on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA), although this was a passage migrant bird, not breeding on site. A total of six bird species were recorded that are placed on the UK Red List and six species that are recorded on the Welsh Red List. Nine species were recorded on the UK Amber List and seven species on the Welsh Amber List. The remaining species are Green Listed. Six species of principal importance were recorded. No species were recorded which are listed on the Cardiff LBAP. Six species were listed as of County Importance, with regards to the designation of Wildlife Sites.

In general, the species recorded on site are a typical assemblage of breeding birds associated with woodland, scattered trees, tall ruderal, scrub, and wetland habitats. The most important habitats for breeding birds on site were deemed to be the areas of vegetation interspersed amongst the urban hardstanding across the site, including the woodland area to the north-west, the ‘swamp’/reedbed area in the north-east of the site, as well as patches of scattered trees, scrub and tall ruderal habitat. These are considered the most important due to the high density of notable species and breeding territories in these locations. The site is also considered to be potentially of importance for migratory birds on passage, given the single observation of whimbrel using the site.

A large number of registrations and potential breeding territories were also recorded outside of the redline boundary in Cardiff Bay itself, as well as the green corridor on the edge of Cardiff Bay immediately north-east of the site boundary, the building to the north-east, and the scrub habitat to the south-east. This included one potential breeding territory for Cetti’s warbler, which is listed on Schedule 1 of the WCA. Many birds considered to be breeding off site are likely to be using the site for foraging, and therefore loss of habitat and impacts to foraging opportunities is likely to result in the loss of these species breeding adjacent to the site, including Cetti’s warbler and many other species of conservation concern.

Impacts to designated sites from the proposed works will be discussed fully in the Ecological Impact Assessment (EcIA) to support the planning application following appropriate guidelines¹.

It is recommended that habitat retention, protection and, if necessary, replacement measures, are implemented during the design process. Opportunities to improve the quality of habitats on site should also be taken into consideration in the design.

¹ Chartered Institute of Ecology and Environmental Management (CIEEM), 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal. Second Edition. CIEEM, Winchester.

1. Introduction

1.1 Background

Ove Arup & Partners has been commissioned by Cardiff Council to undertake a range of design and consultancy services, including environmental services, to inform the proposed development/redevelopment of land at Cardiff International Sport Village (ISV). Services provided include the completion of an Extended Phase 1 Habitat survey and production of a Preliminary Ecological Appraisal (PEA) report².

An extended Phase 1 habitat survey was undertaken to establish the habitats present on site and to assess the potential for legally protected species to be present. As a result of that survey and a desk study of available records, it was considered that there was the potential for a range of bird species to be present nesting within the site and therefore detailed breeding bird surveys were required, due to proposed habitat loss.

This report presents the methods and findings of a desk study and breeding bird surveys undertaken within the site and on the adjacent Cardiff Bay. It determines the presence of breeding birds within the site, to inform project design and any additional survey or mitigation measures that may be required.

1.2 Site Context

The site is located in Cardiff Bay, Cardiff. The site area equates to 16ha with a central National Grid Reference of ST 18070 73031. The site boundary is shown in Figure 1.

The site is within an urban setting and comprises of existing International Sport Village facilities, former retail premises, car parking facilities associated with residential premises, brownfield parcels to the east and west of Olympian Drive, and amenity areas associated with commercial and residential facilities within and surrounding the site.

The existing ISV infrastructure includes Cardiff International Pool & Gym and Ice Arena Wales on the east of Olympian Drive, and commercial development in form of the former Toys R Us building to the west. Large areas of hard standing in the form of roads and car parking for the existing infrastructure are present within the site. Areas of amenity grassland and introduced shrub are associated with the existing developed land.

The brownfield parcels east and west of Olympian Drive consists of a mosaic of habitats including short perennial, neutral grassland, tall ruderal, reedbed and scrub with areas of bare ground. An area of semi-natural broadleaved woodland borders the northwest of the site located between the site and the A4055 road.

1.3 The Proposed Development

The proposed development would likely come forward in the form of a hybrid planning application to include:

- Full details in relation to the proposed closed road cycling circuit, activity zones, highway changes and public realm works (hard and soft landscaping);
- Change of use of the former Toys R Us building; and
- Outline details for a future Multi-Storey Car Park (MSCP).

These works form the final stages of the proposed 'Sport Zone' as part of the wider vision for the ISV and following permission which was granted in 2022 for the proposed outdoor velodrome.

Each of the application elements is described in the next sections of this report.

² Arup, 2022. Preliminary Ecological Appraisal (PEA), Cardiff International Sport Village. 10 November 2022.

1.3.1 Full Application

The full element of the application would include several proposals which seek to add to the sporting offer within this part of the ISV, or bring together existing and proposed uses, creating a high-quality public space at the centre of the sports zone. The proposals include:

- Closed road circuit – proposed around the perimeter of the sports zone, this facility would provide a traffic-free cycling circuit for training and race events;
- Off-road bike track – providing opportunities for mountain bike and BMX style riding within a safe, designed environment; and
- Public realm works – including soft and hard landscaping, biodiversity enhancements and the installation of informal sporting spaces/urban parks.

1.3.2 Change Of Use

The former Toys R Us building is located in the centre of the site and to the south of the proposed velodrome. The building has more recently been used as a COVID-19 vaccination centre, but this use has now ceased.

Exact proposals for the building are currently being finalised with discussions ongoing with potential end users. The vision for the building includes the introduction of more sport related activities, some retail space as well as office provision to serve sporting governing bodies.

1.3.3 Outline Application

The outline element of the application would include proposals for a MSCP in the northeast corner of the masterplan site. The car park would have a capacity of circa 1,000 spaces and would be located to service the ISV development with access proposed off International Drive.

1.4 Aims and Objectives

This report presents the baseline survey results recorded during breeding bird surveys undertaken in 2023. The breeding bird surveys were conducted with the following objectives:

- To gain an understanding of the breeding bird assemblage present using a transect survey methodology within representative habitats within the study area, assessing the species present and relative abundance within different habitat types;
- To highlight any key species of particular conservation value that may influence the design of the project; and
- To provide recommendations for potential mitigation and enhancement opportunities, in line with relevant nature conservation legislation and planning policy.

1.5 Relevant Legislation and Biodiversity Framework

All wild birds in the United Kingdom are subject to protection in accordance with Section 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage, or destroy the nest (whilst being built or in use) or its eggs.

In addition, bird species listed under Schedule 1 of the Act receive extra protection. The Act states that ‘it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young or disturb the dependent young of such a bird’.

Some bird species are listed as features of European designated sites, notably Special Protection Areas (SPAs) and Ramsar sites. SPAs are classified in accordance with Article 4 of the EC Birds Directive (2009/147/EC). The provisions of the Birds Directive are implemented and transposed to UK legislation through the WCA and the Conservation of Habitats and Species Regulations 2017. The Conservation of Habitats and Species Regulations 2017 transposes EC Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna and flora into UK national law. Ramsar sites are also afforded protection

under the Ramsar Convention 1971. As a result, appropriate consideration needs to be made of the potential effects on the populations of birds which are features of SPAs or Ramsar sites caused by development plans or projects.

These designations are applied to areas that support nationally important numbers of birds, the conservation of which is necessary for the maintenance of the range of that species across Europe. A site may be designated as an SPA based on its importance to breeding, wintering, or migratory birds. In the UK, SPA designations are underpinned by national legislation which identifies them as SSSI.

Annex 1 of the EU Birds Directive 1972 and Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) list species that are protected at all times because of their rarity and nature conservation value.

Section 6 of the Environment (Wales) Act 2016 includes a duty on all public authorities to “seek to maintain and enhance biodiversity” so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to “promote the resilience of ecosystems”. This duty applies to government bodies, local authorities, and statutory undertakers. To assist in complying with this duty, public authorities must have regard to relevant evidence provided in the State of Natural Resources Report and any relevant area statement for an area in which the authority exercises functions, as well as having regard to the list of living organisms and habitats published under Section 7 of the Act. Species and habitats listed on Section 7 are considered to be of principal importance for the conservation of biological diversity.

Local Biodiversity Action Plans (LBAPs) continue to provide a list of habitats and species of conservation significance for their relevant area. Particular attention has been paid to the Cardiff LBAP³ and the Species Action Plans listed within this, which includes two species of bird (hawfinch *Coccothraustes coccothraustes* and pied flycatcher *Ficedula hypoleuca*).

Some bird species are listed on Schedule 9 of the WCA and/or The Invasive Alien Species (Enforcement and Permitting) Order 2019 and subject to strict legal control. Schedule 9 of the WCA lists certain plants and animals that are not native to Great Britain and could pose a threat to our native species and habitats. The Invasive Alien Species (Enforcement and Permitting) Order 2019 allows for the enforcement of the EU Invasive Alien Species Regulation 1143/2014 on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species. Species on this list are no longer listed on Schedule 9 of the WCA.

1.6 Conservation Status of Birds

The conservation status of birds in the UK is set out in Birds of Conservation Concern 5 (BoCC5)⁴ in which birds are classified in three lists described as follows:

- Red List: species that are globally threatened, whose population or range has declined rapidly in recent years, and those whose populations have declined historically and not exhibited any signs of recovery. Species that have experienced a population decline or breeding range decline of >50%;
- Amber List: species with an unfavourable conservation status in Europe, whose populations have declined moderately in recent years, including species that show a historical decline but whose populations have shown a substantial increase, species that are rare, with localised populations and those species of international importance with UK populations and species that have experienced a population decline or breeding range decline of 25% to 49%; and,
- Green list: All regularly occurring species that do not qualify under any of the Red or Amber criteria are green listed. The Green list also includes those species listed as recovering from historical

³ Cardiff Council, 2008. Cardiff Local Biodiversity Action Plan.

⁴ 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, pp. 723 – 747.

decline in the last review that have continued to recover and do not qualify under any of the other criteria.

The Population Status of Birds in Wales 4 (BoCCW4)⁵ also sets out the revised population status of birds regularly found in Wales, assessing their status on data specific to Wales, where possible.

⁵ Johnstone, I.G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. & Taylor, R.C. (2022) Birds of Conservation Concern Wales 4: the population status of birds in Wales, *Milvus: the Journal of the Welsh Ornithological Society*. Available at: <https://tinyurl.com/BoCCW4>

2. Methodology

2.1 Desk Study

A desk study has been undertaken and reported in the PEA report². Protected and notable species, and non-statutory site data within 2km were obtained from South East Wales Biodiversity Records Centre (SEWBRc) on 18 August 2022. Online searches for statutory designated sites within 5km for European sites and 2km for national sites from the site boundary were carried out using the Multi Agency Geographic Information Centre (MAGIC)⁶ website. These results are shown on Figure 2 and Appendix A that accompany this report.

2.2 Survey Methods

The survey methods were derived from current best practice as described in Bird Census Techniques⁷, Bird Monitoring Methods⁸, and Bird Survey Guidelines for assessing ecological impacts⁹ and conform to the recommendations of the Royal Society for the Protection of Birds (RSPB), the British Trust for Ornithology (BTO) and the Joint Nature Conservation Committee (JNCC). Surveys consisted of walking pre-defined transect routes in all accessible habitat types, as described within the Breeding Bird Survey methodology contained within the above references. The survey transect route is shown in Figure 1.

All breeding bird surveys were carried out by a team of two surveyors, with at least one experienced surveyor, competent in undertaking ornithological survey work and able to identify birds by calls and songs, as well as visually. The transect route was walked at a slow pace, pausing briefly at intervals to listen for song and to scan for birds flying overhead or taking flight from the surrounding area. All birds seen and heard were mapped in accordance with the BTO standard activity recording codes.

Survey results were captured using tablet devices in order to improve data collection efficiency and mapping precision, and include details of weather data, species present, numbers of individuals and their behaviour.

Survey were undertaken on four occasions across April, May and June 2023, with at least two weeks between surveys. The specific dates of the surveys and weather conditions are provided in Appendix B. The transect route was walked in the morning, between dawn and 10am, when levels of avian activity (particularly singing) are likely to be at their highest. The transect was walked in the opposite direction on alternative visits, to balance any temporal variation in behaviour levels. Despite updated Bird Survey Guidelines⁹ advising that six visits are undertaken across the survey period, it is considered that fewer survey visits may be justified for projects with very limited impacts, or sites with habitats of low value for birds. Given the high levels of disturbance and the relatively small size of the site, as well as the relatively larger areas of hardstanding and buildings, it is considered that four visits were sufficient to gain a representative coverage of breeding birds on site.

Birds were considered to be breeding in line with the British Trust for Ornithology (BTO)¹⁰ breeding evidence definitions for possible breeding, probable breeding, and confirmed breeding categories, where they were recorded if any of the following applied:

⁶ MAGIC. <http://magic.defra.gov.uk/> Accessed online 24/10/17.

⁷ Bibby, B. B. (2000). *Bird Census Techniques*. London: Academic Press.

⁸ Gilbert, G. G. (1998). *Bird Monitoring Methods: A manual of techniques*. Bedfordshire: RSPB.

⁹ Bird Survey & Assessment Steering Group. (2023) *Bird Survey Guidelines for assessing ecological impacts, v.0.1.6*. Available at: <https://birdsurveyguidelines.org/> (Accessed: 13/08/2023).

¹⁰ BTO (2022) Breeding evidence. Available at: <https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence> (Accessed: 18/08/2023)

- Species observed in breeding season in suitable nesting habitat;
- Birds were heard singing with habitat suitable for that species to breed within;
- A pair of birds were recorded in or near habitat suitable for that species to breed within;
- Birds exhibited territorial behaviour e.g., displaying or prolonged agitation;
- Birds were seen carrying food, nest material or the faecal sacs of young; or
- Nests, eggs and/or young were found to be present.

Where breeding signs were recorded, it is assumed that a potential breeding bird ‘territory’ was present and this term is used from this point forward within this report. However, professional judgement was used when determining whether a species was likely to be holding a potential territory within the site based on the number of signs of breeding across repeat visits, species distributions and local abundance as well as anthropogenic effects such as nesting disturbance from roads, public rights of way and other site uses.

Determination of the number of territories on site is reported as a range, reflecting the precautionary approach adopted given multiple registrations or signs of breeding across survey visits within suitable breeding habitat.

2.3 Transect Selection

The transect route was devised to encompass a range of representative habitats on site which had the potential to support breeding birds. Primary predominant habitats for selection included ephemeral, tall ruderal, scrub, an area of semi-natural broadleaved woodland, and the adjacent Cardiff Bay waterbody. The transect route covered the majority of all breeding bird habitat on site and it is likely that all calling breeding birds would have been heard; therefore, it is considered that the number of breeding birds reported provides an accurate representation of the bird population on site.

The total length of the transect route was approximately 3km. The transect route is shown in Figure 1.

2.4 Reporting Methods

The data gathered during field survey work has been displayed on Figure 3 – Figure 6, combining that obtained from each survey visit in order to reveal patterns of breeding bird activity. Figure 7 shows the likely territory locations of breeding birds of conservation concern, based upon the criteria in Section 2.2. These results are then discussed within the results section of this report. Results are discussed in the following order:

- An initial overview of all results gathered, including total species recorded within the study area;
- Results are then discussed in relation to the conservation status of the birds present and whether they are considered to be within the Zone of Influence¹¹ with regards to potential impacts of protected site populations, namely:
 - Individual breeding features of the SPA/Ramsar site with a Zone of Influence considered to be 5 km from the designated site boundary. Species designated as winter features are not considered in this report and are to be discussed in the winter bird survey report;
 - Breeding bird features of SSSI with a Zone of Influence considered to be 2km from the designated site boundary;

¹¹ The ‘zone of influence’ for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond site boundaries. Determining the zone of influence of the project and which important ecological features could be significantly affected is a key activity of the Scoping process (taken from CIEEM, 2016 – Chartered Institute of Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater and Coastal (Second edition January 2016)).

- Breeding birds listed on Schedule 1 of the WCA;
- Other species which are Red or Amber listed within BoCC5 and BoCCW4, but not included in the above groups; and,
- A summary of Section 7 species of principal importance.

It should be noted that the likely territory locations included within Figure 7 and Appendix B, as well as detailed within Section 3.2.2 of this report, include only the birds registered within habitats on site. A summary of bird registrations in habitats outside of the redline boundary, including the adjacent Cardiff Bay waterbody, buildings, and vegetation which could be observed from the site, and may be impacted by the proposed development, are included within Section 3.2.3.

2.5 Evaluation

Notable bird species are those which are listed on:

- Annex 1 of the Birds Directive;
- Schedule 1 of the WCA;
- Section 7 of the Environment (Wales) Act 2006 (species of principal importance);
- BoCC5 (UK Red and Amber List species);
- BoCCW4 (Welsh Red and Amber List species);
- Cardiff LBAP; and
- Breeding birds of importance in South Wales were determined based upon the *Guidelines for the Selection of Wildlife Sites in South Wales* selection criteria for Wildlife Sites of county importance¹².

2.6 Limitations and Assumptions

Given that surveys were undertaken on four occasions a precautionary approach has been taken when assuming likely breeding of species. When any bird was recorded showing signs of breeding as defined above, it was assumed to represent a likely breeding attempt. This may have led to over-estimation of likely breeding numbers on the transect if any such birds were on migration, but this precautionary approach is considered appropriate given the spacing of the survey effort.

Given the coastal nature of the site, some birds may be considered to be migrants. The presence of migrant birds may increase the numbers of potential territories and/or signs of breeding on site, however it is not considered likely that migrant birds would significantly affect the conclusion of this report. Furthermore, most migrant species should not have been present by the survey in the second half of May at least.

The breeding bird surveys were carried out at appropriate times of the year and weather conditions on all visits were considered suitable. The dates of the surveys and weather conditions are shown in Appendix B.

The findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of species, such as weather conditions, migration patterns and behaviour.

Nevertheless, these surveys were conducted at the optimal survey periods. Every effort has been made to ensure that the findings of the study present as accurate an interpretation as possible of the status of breeding birds within the study area.

¹² The South Wales Wildlife Sites Partnership (2008) *Guidelines for the Selection of Wildlife Sites in South Wales*. Available at: <https://www.monmouthshire.gov.uk/app/uploads/2019/06/South-Wales-Wildlife-Sites-Complete-Doc.pdf> (Accessed: 13/08/2023)

It should be noted that this breeding bird survey did not include specific searches for species that are typically crepuscular or nocturnal, notably owls. Barn owl *Tyto alba.*, a Schedule 1 species on the WCA, is listed as a notable species of two non-statutory designated sites within 2 km of the site. Nevertheless, no suitable nesting locations have been identified for barn owl on site. Consideration should be given to barn owl should any trees (or structures) be subsequently identified as potentially suitable.

3. Results

3.1 Desk Study

3.1.1 Designated Sites

The search using MAGIC highlighted one European site and one national statutory designated site within 5km and 2km of the site boundary, respectively (Figure 2), with designations related to birds. The search also highlighted five local non-statutory designated sites within 2km of the site boundary, all of which are designated as Sites of Importance for Nature Conservation (SINC). Details of these sites are provided in Table 1 below.

Table 1: Statutory designated sites within 10km and 2km, for European and national sites, respectively.

Site Name	Distance & Orientation from Site	Reason for Notification
European sites		
Severn Estuary Ramsar	1.5km, East	<p>The Ramsar site is designated due to many of the SAC/SPA features, including the internationally important waterfowl populations largely during winter, and on passage and summer¹³.</p> <p>Designated for:</p> <ul style="list-style-type: none"> Species with peak counts in winter (waterfowl) (Ramsar criterion 5). Species/populations occurring at levels of international importance with peak counts in winter (Ramsar criterion 6). <p>Bewick's swan <i>Cygnus columbianus bewickii</i>, white-fronted goose <i>Anser albifrons</i>, shelduck <i>Tadorna tadorna</i>, gadwall <i>Mareca strepera</i>, dunlin <i>Calidris alpina</i> and redshank <i>Tringa totanus</i>.</p> <p>Future species for consideration:</p> <ul style="list-style-type: none"> During the breeding season: lesser black backed gull <i>Larus fuscus graelsii</i>. With peak counts in spring/autumn: ringed plover <i>Charadrius hiaticula</i>. With peak counts in winter: teal <i>Anas crecca</i> and pintail <i>Anas acuta</i>. The estuary as a whole supports about 10.5% of the British wintering population of dunlin and is the single most important wintering ground of dunlin in Britain.
Severn Estuary SPA	1.5km, East	<p>The SPA is designated due to supporting internationally important populations of regularly occurring Annex 1 and migratory assemblages of wildfowl bird species.</p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <ul style="list-style-type: none"> Over winter: Bewick's swan <p>This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> On passage: ringed plover. Over winter: dunlin, gadwall, redshank, shelduck, and white-fronted goose. <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl over winter, including gadwall, shelduck, pintail, dunlin, curlew, redshank, Bewick's swan, wigeon <i>Mareca penelope</i>, lapwing <i>Vanellus vanellus</i>, teal, mallard <i>Anas platyrhynchos</i>, shoveler <i>Anas clypea</i>, pochard <i>Aythya farina</i>, tufted duck <i>Aythya fuligula</i>, grey plover <i>Pluvialis squatarola</i>, white-fronted goose and whimbrel <i>Numenius phaeopus</i>.</p>

¹³ JNCC, 2008. Information Sheet on Ramsar Wetlands, Severn Estuary

Site Name	Distance & Orientation from Site	Reason for Notification
Nationally designated sites		
Severn Estuary SSSI	1.5km, East	<p>The SSSI is of international importance for wintering and passage wading birds, with total winter populations averaging about 44,000 birds¹⁴. The SSSI holds most of the estuary's internationally important curlew and redshank populations, and most of its nationally important ringed plover and grey plover populations. Other waders which occur in significant numbers within the SSSI are common snipe <i>Gallinago gallinago</i>, knot <i>Calidris canutus</i>, whimbrel and turnstone <i>Arenaria interpres</i>.</p> <p>The SSSI is internationally important for dunlin and supports about 7.5% of the British wintering population of this species.</p> <p>In late winter and early spring, the SSSI supports nationally important numbers of shelduck. There are also significant numbers of wigeon.</p>
Non-statutory designated sites		
River Ely SINC	0.1km, West/South	One of the three main rivers within Cardiff, flowing through the city and into Cardiff Bay. The river acts as a major wildlife corridor and is important for wildfowl. Numerous species have been recorded along the river Ely including kingfisher <i>Alcedo atthis</i> and barn owl.
Grangemore Park SINC	0.5km, Northwest	Former landfill site now covered by rough unimproved grassland, scrub, plantations, two ponds and some damp ditches. It supports a wide range of animals and plants including skylark <i>Alauda arvensis</i> .
River Taff SINC	0.5km, North	One of the three main rivers within Cardiff, flowing through the city and into Cardiff Bay. Important for wildfowl and acts as a major wildlife corridor. Kingfisher is amongst the diverse species recorded in and around the River Taff SINC.
Factory Wood SINC	0.8km, Northwest	This is an extensive area of dry calcareous woodland occupying a series of steep slopes and stream valleys below Leckwith. Notable species include, barn owl, kestrel <i>Falco tinnunculus</i> , common nightingale <i>Luscinia megarhynchos</i> and green woodpecker <i>Picus viridis</i> .
Cardiff Bay Wetland & Reserve SINC	0.9km, Northeast	A former salt marsh and a complex of grassland and shallow lagoons which provides feeding and nesting opportunities for many birds including bearded tit <i>Panurus biarmicus</i> , Cetti's warbler <i>Cettia cetti</i> and little egret <i>Egretta garzetta</i> ; important populations of wintering birds including snipe and teal.

3.1.2 Bird Records

The data search returned 127 records of protected and notable bird species, of which 36 are Schedule 1 species, 33 are Section 7 species, 36 are BoCC5 Red List species, and 34 are BoCCW4 Red List species. There are two records of bird species listed on Cardiff's LBAP³, these are pied flycatcher recorded 1406m from the site and hawfinch recorded 2088m from the site. Due to the volume of records, the Schedule 1 records returned from the data search are detailed in Appendix A.

There are records of six non-native Schedule 9 bird species (species that are established in the wild). These include: Canada goose *Branta canadensis*, black swan *Cygnus atratus*, Egyptian goose *Alopochen aegyptiaca*, ring-necked parakeet *Psittacula krameri*, snow goose *Anser caerulescens* and mandarin duck *Aix galericulata*. There are records of one non-native bird species listed on the Invasive Alien Species (Enforcement and Permitting) Order 2019: Egyptian goose.

Bird species recorded during the Phase 1 Habitat survey included house martin *Delichon urbicum*, sand martin *Riparia riparia*, swallow *Hirundo rustica* and starling *Sturnus vulgaris*. The woodland, scrub, grassland, reedbed and open mosaic habitats found on the site are likely to provide nesting habitat for a range

¹⁴ Countryside Council For Wales, 1989. Site of Special Scientific Interest Citation, Severn Estuary

of bird species, as could the old Toys R us building and A4055 Flyover structure. Given the proximity to the Severn Estuary, there is potential that the site could support overwintering and passage birds that form part of the designation feature of the Severn estuary SAC, SPA, Ramsar site.

3.2 Field Study

3.2.1 Summary of Results

Full survey results are shown in Figure 3 – Figure 6. The results table in Appendix C collates all results, showing the species recorded from the four visits, and the likely number of breeding territories on site. Figure 7 shows the likely territory locations of breeding birds, based upon the criteria in Section 2.2. It should be noted that the likely territory locations included within Figure 7 and Appendix C as well as detailed within the below sections of this report, include only the habitats on site. A summary of bird registrations in habitats outside of the redline boundary, including the adjacent Cardiff Bay waterbody, buildings, and vegetation which could be observed from the site, and may be impacted by the proposed development, are included within Section 3.2.3. The survey transect route is shown on Figure 1.

A total of 37 species were recorded during the four breeding bird surveys across April to June. 25 species were considered to have bred on site.

No species were recorded on site during the breeding season, which are listed as qualifying features of nearby designated SPA and Ramsar sites. Lesser black-backed gulls were recorded on site, however, are only considered for future consideration on the Severn Estuary Ramsar site.

Only whimbrel was noted on site which is listed as a wintering species of the Severn Estuary SSSI.

One species, whimbrel, was recorded that is included on Schedule 1 of the WCA, although whimbrel is a migrant species and was not breeding on site.

A total of six bird species were recorded that are placed on the UK Red List and six species that are recorded on the Welsh Red List. Nine species were recorded on the UK Amber List and seven species on the Welsh Amber List. The remaining species are Green Listed. Six species were recorded which are listed on Section 7 of the Environment (Wales) Act as species of principal importance.

No species were recorded, which are listed on the Cardiff LBAP. Six species were listed as of County Importance, with regards to the designation of Wildlife Sites.

Results are now discussed in detail by conservation status.

3.2.2 Results by Conservation Status

3.2.2.1 SPA/Ramsar Features

No qualifying features of the Severn Estuary SPA or Ramsar site were recorded on site.

Three species were recorded on site during the breeding season, which are listed under the assemblage features of nearby designated SPA and Ramsar sites. These species included: mallard, whimbrel, and lesser black-backed gull.

3.2.2.2 SSSI Features

Only whimbrel was noted on site which is listed as a wintering and passage species of the Severn Estuary SSSI.

3.2.2.3 Schedule 1 Species

One species, whimbrel, was recorded on site that is included on Schedule 1 of the WCA. However, whimbrel is predominantly a passage species and was not breeding on site.

3.2.2.4 Red and Amber List Species

A total of six bird species were recorded that are placed on the BoCC5 Red List. These are discussed individually below:

- Greenfinch *Chloris chloris*: Two individuals observed in song in April and June in areas of vegetation in the east of the site. Two breeding territories are assumed on site given the habitat present.
- Herring gull *Larus argentatus*: One individual observed on the swimming pool building and gym building in June, which was potentially nesting on top of this building. Herring gull were further observed in flight on several occasions, including a flock of 10 at the north-east edge of site in late April. One breeding territory on site.
- House sparrow *Passer domesticus*: A pair was observed in June in the south-east corner of the site. There was one breeding territory considered to be present on site.
- Linnet *Linaria cannabina*: Two singing individuals were observed in the east and south-east of the site in April and May, associated with scrub and scattered trees. In addition, two individuals were observed flying from the south-east in May. Two breeding territories are assumed on site.
- Starling: Four starlings observed in May adjacent to the arena building on site, which may be nesting on this building. Additionally, a large flock of 55 individuals (including juveniles) was observed feeding in June in the north-east corner of the site. It is considered that there is at least one potential breeding territory on site, although there may be at least one other territory given the large flock observed foraging on site.
- Whimbrel: Two individuals observed in the south-east corner of the site, to the east of the sports village in late April. This species is a migratory species and is therefore considered to be using the site on passage as a resting place and for foraging.

A total of six bird species were recorded that are placed on the BoCCW4 Red List. These are discussed individually below:

- Lesser black-backed gull: Several individuals observed on top of buildings across the site, where they may be nesting. Also observed flying over the site several times, including a flock of 10 flying over the north-east corner in late April. Between three and four breeding territories are assumed on site.
- Whitethroat *Curruca communis*: Numerous registrations across the site from late April onwards. Predominantly observed in the north of the site, in scrub habitats and around the reed/swamp area. Also associated with the green corridor at the edge of the bay. Most whitethroats were registered as singing. Given the habitats present on site and breeding behaviour, five to seven breeding territories were assumed.
- Linnet, greenfinch, herring gull, starling, as above.

A total of nine bird species were recorded that are placed on the BoCC5 Amber List. These are discussed individually below:

- Dunnock *Prunella modularis*: Numerous registrations on all survey dates across the site, associated with scrub and scattered trees/parkland habitat. 3-5 breeding territories were assumed on site.
- Grey wagtail *Motacilla cinerea*: An individual observed in both April and May in a similar location, just north of Cardiff International white water to the south of the site. One also seen in flight in a central area of the site. One breeding territory assumed on site.
- Mallard: Observed across April and May on the eastern edge of the site, particularly in the area of 'swamp' habitat in the north-east, including a pair and a flock of seven. Two of pairs of mallards were also observed flying over the site on separate occasions. Two breeding territories are assumed on site.

- Reed bunting *Emberiza schoeniclus*: An individual reed bunting was registered calling within the north-east corner of the site in late April, adjacent to the ‘swamp’ habitat and associated reeds. One breeding territory was therefore assumed on site.
- Swift *Apus apus*: Observed flying around the eastern edge of the site, including four swifts in April and eleven in June. The species is not considered to be breeding on site, but is likely to be using it for foraging.
- Song thrush *Turdus philomelos*: Two individuals observed in April and May, in the south-east and north-east corners of the site, associated with scrub habitat. One to two breeding territories are assumed on site.
- Woodpigeon *Columba palumbus*: Numerous registrations across the site during each month. Mostly associated with scattered trees, scrub and the patch of woodland. It was estimated that there are two to seven breeding territories on site.
- Wren *Troglodytes troglodytes*: One individual noted in song in the woodland to the west of the site. Therefore, it is considered that there is one breeding territory on site.
- Lesser black backed gull, as above.

A total of seven bird species were recorded that are placed on the BoCCW4 Amber List. These are discussed individually below:

- Grey heron *Ardea cinerea*: One observed on ‘swamp’ area in the north-east corner of site. One individual also seen flying to the north-east of the site. No breeding territories on site.
- Magpie *Pica pica*: Observed during each survey across the site, particularly associated with scrub habitat, including observations of a pair leaving a nest in the south-west corner of the site and an individual carrying nest material in the north-east of the site. It is considered that there are three magpie breeding territories on site.
- Dunnock, grey wagtail, house sparrow, reeding bunting and whimbrel, as above.

3.2.2.5 *Species of Principal Importance*

There are six species of principal importance that were recorded on site. The aforementioned species are also included on the BoCC5 or BoCCW4 Red or Amber list and have been described in previous sections.

Species of principal importance recorded on site include: dunnock, herring gull, linnet, reed bunting, starling, and song thrush.

3.2.2.6 *Cardiff Species Action Plan*

No species were recorded that have a Species Action Plan within the Cardiff LBAP.

3.2.2.7 *Species of County Importance*

Using the Guidelines for the Selection of Wildlife Sites in South Wales, six species were observed on site, which are considered to be of conservation significance within South Wales. Species which would contribute to the designation of a Wildlife Site that were recorded potentially breeding on site include reed bunting, herring gull, linnet, house sparrow, starling and song thrush. No species of breeding bird on site were of such significance to allow the designation of a Wildlife Site, however, when including habitats outside of the redline boundary, it is considered that one breeding territory of Cetti’s warbler is present in immediate proximity to the site, which is a species of significance potentially allowing the designation of a Wildlife Site. Cetti’s warbler are however relatively common throughout south-east Wales in suitable habitat.

3.2.3 Species Off Site

A large number of registrations and potential breeding territories were also recorded outside of the redline boundary in Cardiff Bay itself, as well as the green corridor on the edge of Cardiff Bay immediately north-east of the site boundary, the building to the north-east, and the scrub habitat to the south-east. This included one potential breeding territory for Cetti's warbler, which is listed on Schedule 1 of the WCA, and listed as a breeding assemblage species of Cardiff Bay Wetland & Reserve SINC, which is within 2 km of the site boundary.

In addition to Cetti's warbler, potential breeding territories of birds considered to be present within the vegetation off site, in the north-east corner on Cardiff Bay include chiffchaff, reed warbler, wren and whitethroat.

Breeding birds associated with the waterbody of Cardiff Bay itself included mute swan, mallard, coot and great crested grebe. This included observations of one occupied coot nest and one occupied mute swan nest, which confirmed breeding of these species.

Species which indicated breeding behaviour off site, in scrub in the south-east corner, included dunnoek, song thrush, whitethroat, wren, magpie and linnet.

Within the building to the north-east of the site, at least four house sparrow nests were confirmed in April, located under the fascia of the building to the north-east of site. Flocks of house sparrow were recorded in each month, observed leaving their nests and carrying food to the nesting location. Additionally, one starling nest was confirmed under the fascia of this building. Larger numbers of starlings are likely to be nesting in the buildings off site, given the large flock of 55 observed using the site for foraging.

4. Conclusions

A total of 37 species were recorded during the breeding bird surveys between April and June 2023. Of the 37 species recorded, 25 (68 %) were considered to be likely breeding on site, based upon their behaviour and habitats present.

One species, whimbrel, was recorded that is included on Schedule 1 of the Wildlife and Countryside Act 1981, although it was not breeding on site.

A total of six bird species were recorded that are placed on the BoCC5 Red List and six species that are recorded on the BoCCW4 Red List. Nine species were recorded on the BOCC5 Amber List and seven species on the BoCCW4 Amber list. The remaining species are Green listed. Six species of principal importance were recorded.

No species were recorded, which are listed on the Cardiff LBAP.

Six species were recorded which are considered to be of conservation significance within South Wales. No species of breeding bird present on site were of such significance to allow the designation of a Wildlife Site, although one such species, Cetti's Warbler, was registered as breeding in close proximity to the site.

In general, the species recorded on site are a typical assemblage of breeding birds associated with woodland, scattered trees, tall ruderal, scrub, and wetland habitats.

The most important habitats for breeding birds on site were deemed to be the areas of vegetation interspersed amongst the urban hardstanding across the site, including the woodland area to the north-west, the 'swamp'/reedbed area in the north-east of the site, as well as patches of scattered trees, scrub and tall ruderal habitat. These are considered the most important due to the high density of notable species and breeding territories in these locations. The site is also considered to be potentially of importance for migratory birds on passage, given the single observation of whimbrel using the site.

A large number of registrations and potential breeding territories were also recorded outside of the redline boundary in Cardiff Bay itself, as well as the green corridor on the edge of Cardiff Bay immediately north-east of the site boundary, the building to the north-east, and the scrub habitat to the south-east. This included one potential breeding territory for Cetti's warbler, which is listed on Schedule 1 of the WCA.

Many birds considered to be breeding off site are likely to be using the site for foraging, and therefore loss of habitat and impacts to foraging opportunities is likely to result in the loss of these species breeding adjacent to the site, including Cetti's warbler and many other species of conservation concern.

5. Recommendations

Impacts to designated sites from the proposed works will be discussed fully in the Ecological Impact Assessment (or Environmental Statement, as appropriate) to support the planning application following appropriate guidelines¹⁵.

The proposed development will potentially have a significant negative effect on the assemblage of breeding bird species within and adjacent to the site, if impacts are not mitigated. Therefore, it is recommended that a diversity of habitats are retained, protected and, if necessary, replaced and enhanced within the design process. Opportunities should be sought during the design process to specifically enhance habitats of importance for notable bird species, particularly in relation to the small pocket of woodland in the north-west, areas of vegetation along the green corridor at the edge of the bay, and areas of scrub and scattered trees across the site.

In addition, it is advised that habitat creation is prioritised during the design process, to improve the value of the site for both migratory and breeding birds, whilst enhancing the amenity and recreational value of the site for local residents and visitors. Given the small and isolated extent of the swamp/reeds and scrub habitats in the north-east, extension of the area of green corridor along the eastern boundary along the Cardiff Bay edge through planting of trees and/or creation of a reedbed would provide habitat connectivity and promote the enhancement of the site for birds, whilst providing a suitable buffer habitat to reduce impacts of the proposed development on birds nesting on the bay itself. In addition, planting more trees to extend and connect the isolated area of woodland to the north-west of the site and installing nest boxes in this area would be a valuable addition to the design.

Furthermore, standard construction mitigation should be adopted following best practice guidance, in particular avoiding vegetation clearance when birds are most likely to be nesting (between March and August), where possible. If this is not possible, then an ecologist who is experienced in searching for bird nests will be required to provide advice about how and when vegetation clearance should take place.

¹⁵ Chartered Institute of Ecology and Environmental Management (CIEEM), 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal. Second Edition. CIEEM, Winchester.

Figures

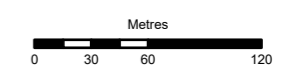
Figure 1: Site Boundary and Transect Route



Legend

- Redline Boundary
- BBS Transect Route

Coordinate System: British National Grid



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Red Line Boundary And Site Transect

Scale at A3
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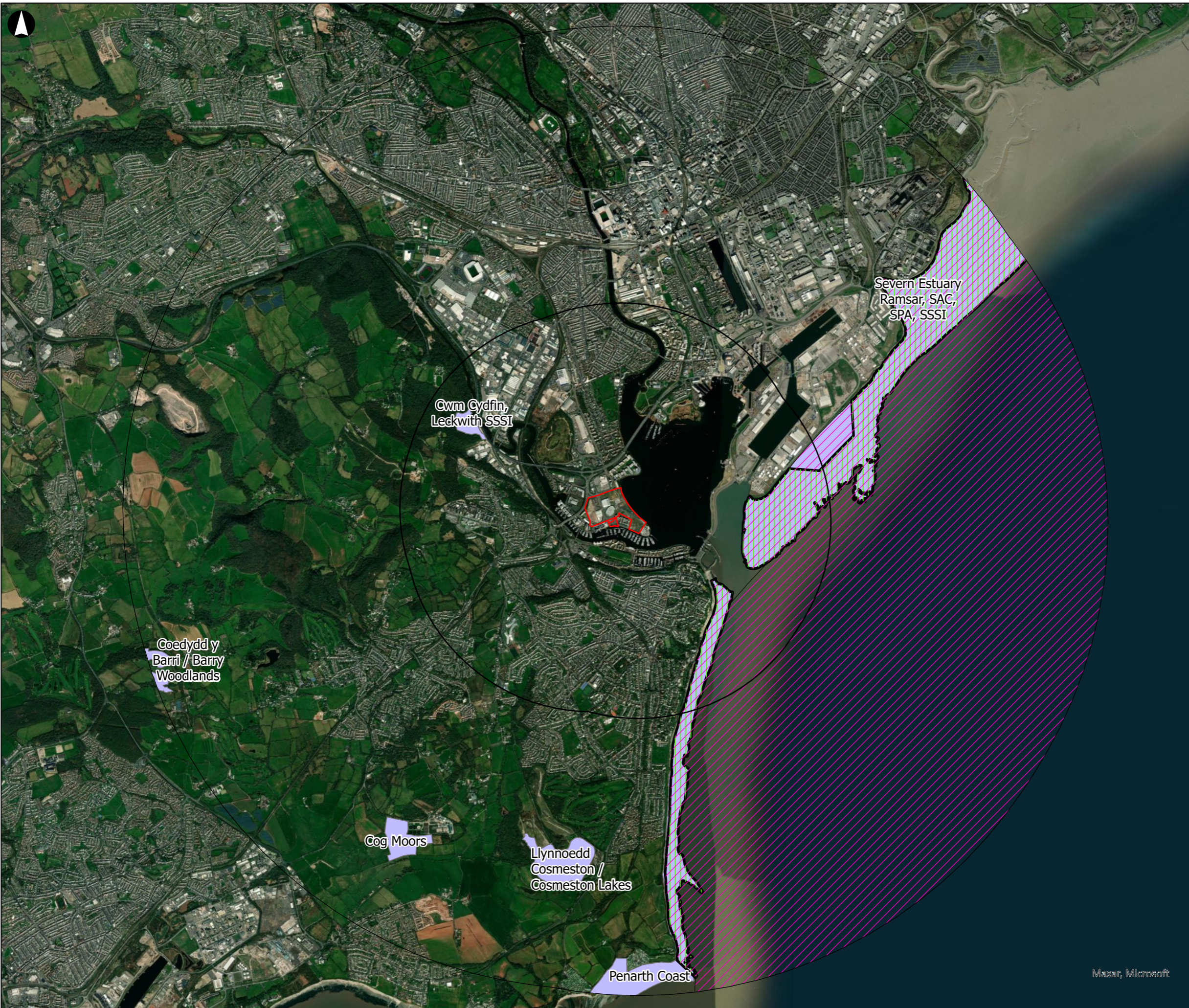
Suitability
Suitable for Review

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Drawing Number
Figure 1

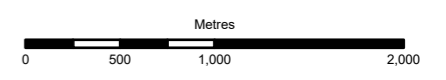
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 2: Statutory Designated Sites for European and National Sites Within 2km and 10km of the Site Boundary, Respectively



- Site boundary
- 2km
- 5km
- Site of Specific Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar site

Coordinate System: British National Grid



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Internationally and Nationally Designated Sites

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Drawing Number
Figure 2

Maxar, Microsoft

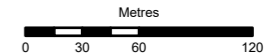
Figure 3: Breeding Bird Survey Results: April Visit 1



Code	Species
B.	Blackbird
BT	Blue Tit
CC	Chiffchaff
CD	Collared Dove
CO	Coot
CW	Cetti's Warbler
D.	Dunnock
FP	Feral Pigeon
GG	Great Crested Grebe
GO	Goldfinch
H.	Grey Heron
HG	Herring Gull
HS	House Sparrow
JD	Jackdaw
LB	Lesser Black-backed Gull
MA	Mallard
MG	Magpie
PW	Pied Wagtail
R.	Robin
SG	Starling
ST	Song Thrush
WP	Woodpigeon
WR	Wren

- Legend**
- Redline Boundary
 - Flight Lines
 - NEST Nesting
 - Calling
 - Sighting
 - In Song

Coordinate System: British National Grid



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Breeding Bird Survey Results : April - Visit 1

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Drawing Number
Figure 3

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

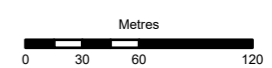
Figure 4: Breeding Bird Survey Results: April Visit 2



Code	Species
B.	Blackbird
BC	Blackcap
CO	Coot
D.	Dunnock
FP	Feral Pigeon
GG	Great Crested Grebe
GL	Grey Wagtail
GO	Goldfinch
GR	Greenfinch
H	Grey Heron
HG	Herring Gull
HM	House Martin
HS	House Sparrow
JD	Jackdaw
LB	Lesser Black-backed Gull
LI	Linnet
MA	Mallard
MG	Magpie
MS	Mute Swan
PW	Pied Wagtail
R.	Robin
RB	Reed Bunting
RN	Raven
SI	Swift
SL	Swallow
SM	Sand Martin
ST	Song Thrush
WH	Whitethroat
WM	Whimbrel
WP	Woodpigeon
WR	Wren

- Legend**
- Redline Boundary
 - Flight Lines
 - NEST Nesting
 - Calling
 - Sighting
 - In Song

Coordinate System: British National Grid



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Breeding Bird Survey Results : April - Visit 2

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Drawing Number
Figure 4

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

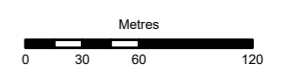
Figure 5: Breeding Bird Survey Results: May



Code	Species
B.	Blackbird
C.	Carrion Crow
CW	Cetti's Warbler
CO	Coot
D.	Dunnock
FP	Feral Pigeon
GO	Goldfinch
GL	Grey Wagtail
HG	Herring Gull
HS	House Sparrow
JD	Jackdaw
LB	Lesser Black-backed Gull
LI	Linnet
MG	Magpie
MA	Mallard
PW	Pied Wagtail
RW	Reed Warbler
ST	Song Thrush
SG	Starling
WH	Whitethroat
WP	Woodpigeon
WR	Wren

- Legend**
- Redline Boundary
 - Flight Lines
 - NEST Nesting
 - B. Calling
 - B. Sighting
 - In Song

Coordinate System: British National Grid



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Breeding Bird Survey Results : May

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Role

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288353-03

Rev
P01

Drawing Number
Figure 5

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

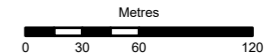
Figure 6: Breeding Bird Survey Results: June



Code	Species
B.	Blackbird
BT	Blue Tit
C.	Carrion Crow
CO	Coot
D.	Duncock
FP	Feral Pigeon
GG	Great Crested Grebe
GL	Grey Wagtail
GO	Goldfinch
HG	Herring Gull
HS	House Sparrow
LB	Lesser Black-backed Gull
LI	Linnet
MA	Mallard
MG	Magpie
MS	Mute Swan
PW	Pied Wagtail
R.	Robin
SG	Starling
SI	Swift
SM	Sand Martin
WH	Whitethroat
WP	Woodpigeon

- Legend**
- Redline Boundary
 - Flight Lines
 - NEST Nesting
 - Calling
 - Sighting
 - In Song

Coordinate System: British National Grid



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Breeding Bird Survey Results : June

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Suitability
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Drawing Number
Figure 6

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

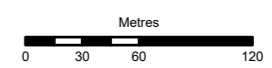
Figure 7: Likely Territory Locations of Breeding Red and Amber Listed Birds of Conservation Concern



Code	Species
D.	Dunnock
GL	Grey Wagtail
GR	Greenfinch
HG	Herring Gull
HS	House Sparrow
LB	Lesser Black-backed Gull
LI	Linnet
MA	Mallard
MG	Magpie
RB	Reed Bunting
SG	Starling
ST	Song Thrush
WH	Whitethroat
WP	Woodpigeon
WR	Wren

- Legend
- BBS Transect Route
 - Redline Boundary
 - Potential Breeding Bird Territory

Coordinate System: British National Grid



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Drawing Title
Breeding Birds Of Red and Amber Conservation Concern

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Suitability
Suitable for Review

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Drawing Number
Figure 7

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Appendix A

Schedule 1 Birds Records Within 2km Of Site, From Previous 10 Years

Species	Scientific Name	Distance From Site	Number of Records
Scaup	<i>Aythya marila</i>	258	13 – Newest 2021
Gyr falcon	<i>Falco rusticolus</i>	269	1 – Newest 2022
Long-tailed duck	<i>Clangula hyemalis</i>	289	13 – Newest 2021
Kingfisher	<i>Alcedo atthis</i>	323	25 – Newest 2021
Mediterranean gull	<i>Ichthyaetus melanocephalus</i>	357	9 – Newest 2022
Common scoter	<i>Melanitta nigra</i>	398	2 – Newest 2020
Peregrine	<i>Falco peregrinus</i>	416	12 – Newest 2021
Greenshank	<i>Tringa nebularia</i>	487	3 – Newest 2017
Black Redstart	<i>Phoenicurus ochruros</i>	487	15 – Newest 2021
Cetti's warbler	<i>Cettia cetti</i>	544	39 – Newest 2021
Redwing	<i>Turdus iliacus</i>	596	19 – Newest 2021
Fieldfare	<i>Turdus pilaris</i>	596	8 – Newest 2020
Hen harrier	<i>Circus cyaneus</i>	659	1 – Newest 2018
Quail	<i>Coturnix coturnix</i>	668	1 – Newest 2015
Common crossbill	<i>Loxia curvirostra</i>	668	4 – Newest 2018
Black-necked grebe	<i>Podiceps nigricollis</i>	716	11 – Newest 2019
Firecrest	<i>Regulus ignicapilla</i>	750	3 – Newest 2020

Species	Scientific Name	Distance From Site	Number of Records
Little ringed plover	<i>Charadrius dubius</i>	750	2 – Newest 2018
Eurasian bittern	<i>Botaurus stellaris</i>	750	5 – Newest 2019
Whooper swan	<i>Cygnus cygnus</i>	750	3 - Newest 2017
Goshawk	<i>Accipiter gentilis</i>	750	1 – Newest 2015
Garganey	<i>Spatula querquedula</i>	750	1 – Newest 2020
Red kite	<i>Milvus milvus</i>	750	5 – Newest 2020
Pintail	<i>Anas acuta</i>	758	5 – Newest 2017
Little gull	<i>Hydrocoloeus minutus</i>	968	3 – Newest 2019
Brambling	<i>Fringilla montifringilla</i>	1062	5 – Newest 2021
Green sandpiper	<i>Tringa ochropus</i>	1064	3 – Newest 2020
Great norther diver	<i>Gavia immer</i>	1064	3 – Newest 2015
Goldeneye	<i>Bucephala clangula</i>	1064	3 – Newest 2015
Black-tailed godwit	<i>Limosa limosa</i>	1203	2 - Newest 2015
Lapland bunting	<i>Calcarius lapponicus</i>	1331	2 – Newest 2018
Osprey	<i>Pandion haliaetus</i>	1387	3 – Newest 2020
Wryneck	<i>Jynx torquilla</i>	1556	1 – Newest 2016
Eurasian whimbrel	<i>Numenius phaeopus</i>	1640	1 – Newest 2017
Hobby	<i>Falco subbuteo</i>	1640	2 – Newest 2018

Appendix B

Weather Conditions

Visit	Date	Temp (°C)	Wind Speed (Beaufort Scale)	Cloud Cover (Oktas)	Conditions
1	04/04/2023	2	2	0	Dry
2	26/04/2023	6	2	8	Dry
3	18/05/2023	11	1	4	Dry
4	19/06/2023	16	1	4	Dry

Appendix C

BBS Survey Results

Species Name		Species Code	Status* UK / Wales	Potentially Breeding on Site (Y/N) and Estimated Number of Breeding Territories	Comment
Vernacular Name	Scientific Name				
Mute swan	<i>Cygnus olor</i>	MS	Amber	N	An occupied nest was observed on the bay off site to the north-east, and three mute swans were registered to the south-east of the site in the bay. No territories observed on site.
Mallard	<i>Anas platyrhynchos</i>	MA	Amber / Green	Y, 2	Observed across April and May on the eastern edge of the site, particularly in the area of 'swamp' habitat in the north-east, including a pair and a flock of seven. A couple of pairs of mallards were also observed flying over the site on separate occasions. There are considered to be two breeding territories on site. There are likely to be more territories in close proximity to the site beyond the redline boundary.
Swift	<i>Apus apus</i>	SI	Amber / Green	N	Observed flying around the eastern edge of the site, including four swifts in April and eleven in June.
Feral pigeon	<i>Columba livia domestica</i>	FP	Green / not listed	Y, 1-2	Three feral pigeons observed to the south of Olympian Drive at the south of the site in April, as well as a pair observed in the south-east corner of the site in June. In addition, a couple of individuals were noted flying over the site.
Woodpigeon	<i>Columba palumbus</i>	WP	Amber / Green	Y, 2-7	Numerous registrations across the site during each month. Mostly associated with scattered trees, scrub and the patch of woodland.
Collared Dove	<i>Streptopelia decaocto</i>	CD	Green	N	Just one individual observed flying across the eastern edge of the site.
Coot	<i>Fulica atra</i>	CO	Green / Amber	N	A family of coots was observed during early April to the north-east of the site, at the edge of Cardiff Bay. A pair was also observed in late April to the east of the site, with an occupied nest later observed in this same location in June. Although no breeding territories are present on site, there are likely to be at least two nests adjacent to the site, with one confirmed,

Species Name		Species Code	Status* UK / Wales	Potentially Breeding on Site (Y/N) and Estimated Number of Breeding Territories	Comment
Vernacular Name	Scientific Name				
Great crested grebe	<i>Podiceps cristatus</i>	GG	Green	N	Several registrations in Cardiff Bay to the east of the site across April and June, including two pairs observed to the north-east of the site in late April. No breeding territories present on site, although several may be located within close proximity.
Whimbrel	<i>Numenius phaeopus</i>	WM	Red / Amber, Schedule 1	N	Two individuals observed in the south-east corner of the site, to the east of the sports village, in late April.
Herring gull	<i>Larus argentatus</i>	HG	Red, S7, LBAP	Y, 1	One individual observed on the pool and gym building in June, which may have been nesting on top of this building. Observed in flight on several occasions, including a flock of 10 at the north-east edge of site in late April.
Lesser black-backed gull	<i>Larus fuscus</i>	LB	Amber / Red	Y, 3-4	Several individuals observed on top of buildings across the site, where they may be nesting. Also observed flying over the site several times, including a flock of 10 flying over the north-east corner in late April.
Grey heron	<i>Ardea cinerea</i>	H.	Green / Amber	N	One observed on 'swamp' area in the north-east corner of site. Unlikely to be nesting here due to risk of predation. One individual also seen flying to the north-east of the site.
Magpie	<i>Pica pica</i>	MG	Green / Amber	Y, 3	Observed during each survey across the site, particularly associated with scrub habitat, including observations of a pair leaving a nest in the south-west corner of the site and an individual carrying nest material in the north-east of the site.
Jackdaw	<i>Corvus monedula</i>	JD	Green	Y, 1	One individual observed on former Toys R Us building to the west in early April, along with a group of four jackdaws observed flying in the direction of this same building later in April.
Carrion crow	<i>Corvus corone</i>	C.	Green	Y, 1	Two individuals observed across May and June, in the south-east corner of the site. Potentially nesting on one of the buildings in the adjacent sports village.
Raven	<i>Corvus corax</i>	RN	Green	N	One individual observed flying over the site in late April.
Blue tit	<i>Cyanistes caeruleus</i>	BT	Green	Y, 1	A calling individual and a pair were observed on the edge of the woodland at the north-west boundary in early April and June. Another individual observed to the east of the site outside the redline boundary in June, associated with scrub habitat.

Species Name		Species Code	Status* UK / Wales	Potentially Breeding on Site (Y/N) and Estimated Number of Breeding Territories	Comment
Vernacular Name	Scientific Name				
Sand martin	<i>Riparia riparia</i>	SM	Green	N	Observed flying around the eastern edge of the site, including five April and one individual in June.
Swallow	<i>Hirundo rustica</i>	SL	Green	N	Two swallows observed flying around eastern edge of site in late April.
Cetti's warbler	<i>Cettia cetti</i>	CW	Green, Schedule 1	N	One individual observed both singing and calling in early April and May, associated with the green corridor at the edge of Cardiff Bay, to the north-east of the site, outside of the redline boundary. No breeding territories observed within the site itself.
Chiffchaff	<i>Phylloscopus collybita</i>	CC	Green	Y, 1-2	A pair of calling chiffchaffs were observed in early April in addition to an individual in song, associated with woodland habitat on the western boundary.
Reed Warbler	<i>Acrocephalus scirpaceus</i>	RW	Green	N	One individual registered in song off site in vegetation to the north-east
Blackcap	<i>Sylvia atricapilla</i>	BC	Green	Y, 2	Two individuals observed on the second survey in April, both in song. One was observed in the woodland on the western boundary the other was associated with scrub habitat on the north-east boundary.
Whitethroat	<i>Curruca communis</i>	WH	Green / Red	Y, 5-7	Numerous registrations across the site from late April onwards. Predominantly observed in the north of the site, in scrub habitats and around the reed/swamp area. Also associated with the green corridor at the edge of the bay. Most whitethroats were registered to be singing.
Wren	<i>Troglodytes troglodytes</i>	WR	Amber / Green	Y, 1	One individual noted in song in the woodland to the west of the site. There are also likely to be breeding territories in the green corridor at the edge of the bay outside the redline boundary, as two individuals were noted calling and singing to the north-east and south-east of the site.
Starling	<i>Sturnus vulgaris</i>	SG	Red, S7	Y, 1	Four starlings observed in May adjacent to the arena building on site, which may be nesting on this building. Additionally, a large colony of 55 individuals (including juveniles) was observed feeding in June in the north-east corner of the site. Outside of the redline boundary but adjacent to the site, one nest was confirmed under the fascia of the building to the north-east of the site in April. However, larger numbers

Species Name		Species Code	Status* UK / Wales	Potentially Breeding on Site (Y/N) and Estimated Number of Breeding Territories	Comment
Vernacular Name	Scientific Name				
					of starlings are likely to be nesting in the buildings off site, given the large flock observed using the site for foraging.
Song thrush	<i>Turdus philomelos</i>	ST	Amber / Green, S7	Y, 1-2	Two individuals observed in April and May, in the south-east and north-east corners of the site, associated with scrub habitat.
Blackbird	<i>Turdus merula</i>	B.	Green	Y, 2-6	Several registrations across the eastern extent of the site predominantly, associated with scrub habitat as well as the small pocket of woodland to the north-west. Included a sight record of a pair and a bird in song.
Robin	<i>Erithacus rubecula</i>	R.	Green	Y, 1-2	Three registrations across April and June, associated with the woodland and scrub habitats in the north and north-west of the site.
House sparrow	<i>Passer domesticus</i>	HS	Red / Amber, S7	Y, 1	A pair was observed in June in the south-east corner of the site. There was one breeding territory considered to be present on site. outside the redline boundary, at least four nests were confirmed in April, located under the fascia of the building to the north-east of site. Flocks of house sparrow were recorded in each month, observed leaving their nests and carrying food to the nesting location.
Dunnock	<i>Prunella modularis</i>	D.	Amber, S7	Y, 3-5	Numerous registrations on all survey dates across the site, associated with scrub and scattered trees/parkland habitat.
Grey wagtail	<i>Motacilla cinerea</i>	GL	Amber	Y, 1	An individual observed in both April and May in a similar location, just north of Cardiff International white water to the south of the site. One also seen in flight in a central area of the site.
Pied wagtail	<i>Motacilla alba yarelli</i>	PW	Green	Y, 1-3	Observed in low numbers during each month across the site, including a pair and a juvenile bird in June. Particularly associated with more open habitats.
Greenfinch	<i>Chloris chloris</i>	GR	Red	Y, 2	Two individuals observed in song in April and June in areas of vegetation in the east of the site.
Linnet	<i>Linaria</i>	LI	Red, S7	Y, 2	Two singing individuals were observed in the east and south-east of the site in April and May, associated with scrub and scattered trees. In addition, a couple of

Species Name		Species Code	Status* UK / Wales	Potentially Breeding on Site (Y/N) and Estimated Number of Breeding Territories	Comment
Vernacular Name	Scientific Name				
	<i>cannabina</i>				individuals were observed flying from the south-east in May. A pair was also observed calling outside of the redline boundary to the south-east of the site, which may indicate the presence of at least one additional nest adjacent to the site.
Goldfinch	<i>Carduelis carduelis</i>	GO	Green	Y, 4-6	Numerous registrations across the site across all surveys, particularly associated with scrub, scattered trees and tall ruderal habitats. Most noted as singing or calling and included one sight record of a pair.
Reed bunting	<i>Emberiza schoeniclus</i>	RB	Amber, S7	Y, 1	An individual reed bunting was registered calling within the north-east corner of the site in late April, adjacent to the 'swamp' habitat and associated reeds.
Total species likely to be breeding:				25 species	

* Status: Red, Amber, Green = Status of each species on the BoCC5 / BoCCW4; S7 = Species of principal importance, listed on Section 7 of the Environment (Wales) Act 2016; Schedule 1 = species listed on Schedule 1 of the WCA; LBAP = listed as a local priority for conservation in the Cardiff LBAP 2008.