

Limerick WWTP Upgrade and Regional Bioresource Centre

Appendix 13.1 - Winter Bird Survey Report

June 2026



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Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Google Earth

Formerly JB Barry Partners who became part of Egis in 2023

Winter Bird Survey Report

Bunlicky Wastewater
Treatment Plant Upgrade
Project, Co. Limerick, Co.
Limerick





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1.

INTRODUCTION

MKO has been appointed by JB Barry Ltd. to undertake winter bird surveys for the period October 2020 to March 2021 inclusive, for the proposed upgrade works at Limerick Wastewater Treatment Plant, Bunlicky, Dock Road, Co. Limerick and at Corcanree Pumping Station, Corcanree Business Park, Dock Road, Co. Limerick.

The proposed WWTP Upgrade works are located within the Severn Trent Response Wastewater Treatment Plant, Dock Road, Bunlicky, Co. Limerick. Bunlicky wastewater treatment plant is located approximately 2.5km west of Limerick City Centre (Grid reference: R 54623 55688). The site is accessed via a local road off the Dock Road (R510) roundabout. Bunlicky wastewater treatment plant is located adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

The proposed pumping station upgrade works are located within a field adjacent to the Corcanree Pump Station, Corcanree Business Park, Dock Road, Limerick (grid ref: R 55457 56224). The pump station is accessed via the Dock Road (N69) and local access roads within Corcanree Business Park. The proposed pumping station upgrade works site is also adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

A site location map is provided as Figure 1.1.

The objective of the winter surveys was to assess the suitability of the proposed development site to support a variety of wintering wildfowl and waders, including the bird species listed as Special Conservation Interests (SCIs) for the River Shannon and River Fergus Estuaries SPA.

The assessment objectives can be summarised as follows:

- To undertake field surveys to assess for the presence of suitable habitat and the occurrence of wintering bird species within and adjacent to the development site.
- The study seeks to determine the distribution of the species within and adjacent to the proposed development site and to determine the presence of feeding/roosting areas within/adjacent to the proposed development site.

Section two of this report provides the methodology, constraints, survey information, weather conditions and survey coverage. The results of the desk study and field surveys are presented in section three of this report. An evaluation and discussion of the results is provided in Section four. The concluding section of the report considers the findings and potential impacts of the proposed development on SCI listed species of the River Shannon and River Fergus Estuaries SPA.

1.1

Statement of Authority

Wintering bird surveys were undertaken between October 2020 and March 2021 by Julie O’Sullivan (B.Sc, M.Sc). Julie is an experienced ornithologist with over six years professional experience. This report has been prepared by Julie O’Sullivan.



Map Legend

Site Boundary

Designated Sites

Special Protection Area (SPA)



Drawing Title

Site Location

Project Title

Limerick WWTP Upgrade

Drawn By

JOS

Checked By

PR

Project No.

200826

Drawing No.

Figure 1.1

Scale

1:20000

Date

27.07.2021



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2. METHODOLOGY

2.1 Desk Study

A number of sources were assessed to determine the likely usage of both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NDBC), Birdwatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for the nearby River Shannon and River Fergus Estuaries SPA. Results of the desk study are provided in section 3.1.

2.2 Field Survey Methodology

During the initial field visit the site was assessed and suitable vantage points were identified. The survey area covered the development site at Bunlicky WWTP and Corcanree Pumping station, and areas of potentially suitable supporting habitat in proximity to the proposed development site including areas of agricultural grassland adjacent to Bunlicky WWTP, Bunlicky Lake, the estuarine habitat adjacent to the outfall at Bunlicky and the estuarine habitat adjacent to Corcanree Pumping station.

The surveys were undertaken monthly in October and November 2020, and the survey effort was increased to bimonthly from December 2020 - March 2021. Due to limited access, the initial bird survey carried out in October 2020 only covered the area within the Bunlicky WWTP boundary, and the immediately adjacent agricultural fields, which were scanned from a vantage point from the access road. It was not possible to gain access to the outfall location during this initial survey in October. The development site at Corcanree was not initially considered to be part of the proposed development until late November, therefore this site was not included in the initial October bird survey area.

Surveys were undertaken at alternate high/low tides, within two hours of high/low tide. A combination of low and high tide counts has been used due to the differences in behaviour and site use between tidal states, with different species likely to be foraging and roosting in different areas of River Shannon and River Fergus Estuaries SPA and the surrounding terrestrial habitats, depending on the stage of the tidal cycle.

The surveys were undertaken by an appropriately qualified ornithologist. All observations were recorded, and detailed point data was gathered for each species observation, with all bird species denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. The species recorded in the surveys were those covered by Irish Wetlands Bird Survey (I-WeBS) counts, i.e. all divers, grebes, cormorant, shag, herons, swans, geese, ducks, rails, crakes, waders, gulls and kingfisher. However, in addition to this, all other bird species, including all common and widespread passerines, were also recorded from within the proposed development site.

2.2.1 I-WeBS Surveys

The winter bird surveys at the nearby SPA followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 1998; Birdwatch Ireland, 2018). The surveys were carried out at suitable vantage points within the site, additional vantage points located overlooking the section of the River Shannon and River Fergus Estuaries SPA in close proximity to the proposed development site. Vantage points were chosen to have as large as possible a view of the proposed development site, adjacent wetland habitats and potential adjacent daytime foraging habitat in the vicinity of the proposed development site. Vantage points focused on areas which were deemed to be of likely significance to wintering waterbirds of River Shannon and River Fergus Estuaries SPA.

Details of the surveys carried out including date, time, duration, location and weather conditions are provided in Table 2.2. A map of the vantage point locations used during the surveys is presented in Figure 2.1.

2.2.2

Transects

Walked transects were undertaken within the site boundary. During the surveys species of note were recorded both within and adjacent to the development site. All bird species were denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. Transects walked during the survey are shown in Figure 2.2. During the surveys species of note were recorded both within and adjacent to the development site.



Map Legend

-  Site Boundary
-  Vantage points



Drawing Title
Vantage Point Locations

Project Title
Limerick WWTP Upgrade

Drawn By JOS	Checked By PR
Project No. 200826	Drawing No. Figure 2.1
Scale 1:8000	Date 27.07.2021

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Map Legend

 Site Boundary

 Transects



Drawing Title

Bird Survey Transects

Project Title

Limerick WWTP Upgrade

Drawn By

JOS

Checked By

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Project No.

200826

Drawing No.

Figure 2.2

Scale

1:8000

Date

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2.2.3

Survey Details

Details of the surveys including survey dates, weather conditions and survey duration are provided in Table 2.1.

Table 2-1 Survey Effort

Date	Survey duration	Tide	Weather conditions
08/10/2020	3 hours	High Tide	Wind speed: Gentle breeze Cloud cover: approx.10-20% Visibility: Good (> 2km) Rain: No Frost: None Snow: None
30/11/2020	5 hours	Low Tide	Wind speed; Calm Cloud cover: 100% Visibility: Good (>2km) Rain: Light rain showers Frost: None Snow: None
18/12/2020	5 hours	Low tide	Wind speed; Calm Cloud cover: 20-30% Visibility: Good (>2km) Rain: None Frost: None Snow: None
21/12/2020	5 hours	High Tide	Wind speed: Calm Cloud cover: approx. 60% Visibility: Good (> 2km) Rain: Light misty rain Frost: None Snow: None
15/01/2021	5 hours	Low Tide	Wind speed: Gentle breeze Cloud cover: 100% Visibility: Good (> 2km) Rain: None Frost: None Snow: None
25/01/2021	5 hours	High tide	Wind speed: Calm Cloud cover: 25-40% Visibility: Good (> 2km) Rain: None Frost: None Snow: None
17/02/2021	5 hours	High tide	Wind speed: Gentle Breeze Cloud cover: 50% Visibility: Good (> 2km) Rain: None Frost: None Snow: None
23/02/2021	5 hours	Low tide	Wind speed: Light breeze Cloud cover: approx. 80-90% Visibility: Good (>2km) Rain: Light rain showers Frost: No Snow: No

Date	Survey duration	Tide	Weather conditions
16/03/2021	5 hours	High Tide	Wind speed: Calm Cloud cover: 100% Visibility: Good Rain: Light misty rain Frost: No Snow: No
29/03/2021	5 hours	Low Tide	Wind speed: Moderate breeze Cloud cover: 66-100% Visibility: Good Rain: No Frost: No Snow: No

2.2.4 Survey Constraints

No significant survey constraints limited the survey approach, and a comprehensive assessment was undertaken. All surveys were undertaken during optimal weather conditions as poor weather conditions and high wind can lead to decreased bird movements and hinder surveyor visibility.

The Corcanree Pumping station was not considered part of the project until late November, therefore this site was not surveyed during the initial survey carried out during October. Not all of the land within the Corcanree proposed development site boundary were accessible during the survey visits. The existing Corcanree pumping station was accessible during the surveys, however the area of grassland outside of the palisade fencing to the north, where the upgrade works are proposed, were not accessible until the final survey carried out on the 29th of March. However, this area of the site was scanned through the fence and the lack of access is not considered to be a significant constraint.

Due to access issues, it was not possible to survey the outfall during the initial survey in October. However, the section of the estuary in which the outfall is located was surveyed from a vantage point on the opposite bank of the Shannon Estuary. Therefore, this is not considered to be a significant constraint. Surrounding private lands were scanned using a spotting scope from elevated vantage points. Any significant flocks of wintering wildfowl or waders would be recorded using such an approach.

3. RESULTS

3.1 Desk Study

A number of sources were assessed to determine the likely usage of the site by both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NBDC), BirdWatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for nearby Special Protection Areas (SPAs).

3.1.1 Breeding and Wintering Bird Atlases

The Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland (Balmer et al., 2013) provides the most up-to-date information regarding the distribution and relative abundance of bird species in Britain and Ireland, based on surveys carried out between 2007 and 2011. The atlases show data for breeding and wintering birds respectively in individual 10 km x 10 km squares (hectads). Table 3.1 shows those species found in the relevant hectad (R55) which are recorded as breeding in the most recent atlas.

This dataset also provides species that have been recorded within the relevant 2km tetrads (R55N and R55M) on National Biodiversity Data Centre (NBDC) datasets as well as those listed in Annex I of the EU Birds Directive recorded on the BoCCI Red List. Birds listed under Annex I are offered special protection by the EU Birds Directive. Those listed on the Birds of Conservation Concern in Ireland (BoCCI) Red List meet one or more of the following criteria:

- IUCN: Global conservation status (Critically Endangered (CE), Endangered (E) or Vulnerable (V), but not Near Threatened. These species are recognised as the highest priorities for action at a global scale and are thus priorities at an all-Ireland level.
- European conservation status. The conservation status of all European species was assessed most recently by Birdlife International (2004), one of the main changes in the revision being to include the IUCN criteria. These species are those of global conservation concern (including those classified as Near Threatened) and are Red-listed.
- The Irish breeding population has undergone significant historical decline since 1800.
- The Irish non-breeding population has undergone a significant decline of 50% in the last 25 years.
- The Irish breeding range has undergone a decline of 70% or more in the last 25 years.

Two species listed under Annex I of the EU Birds Directive have been recorded within the tetrad R55N Little Egret (*Egretta garzetta*) and Northern Lapwing (*Vanellus vanellus*). A further three red-listed birds of conservation concern have been recorded within this tetrad: Northern Shoveler (*Anas clypeata*), Swift (*Apus apus*) and Scaup (*Anas marila*).

One species listed under Annex I of the EU Birds Directive has been recorded within the tetrad R55M: Dunlin. A further eleven red-listed birds of conservation concern have been recorded within this tetrad: Common Goldeneye (*Bucephala clangula*), Common Kestrel (*Falco tinnunculus*), Common Redshank (*Tringa totanus*), Common Snipe (*Gallinago gallinago*), Common Swift (*Apus apus*), Eurasian Curlew (*Numenius arquata*), Grey Wagtail (*Motacilla cinerea*), Meadow Pipit (*Anthus pratensis*), Northern Lapwing (*Vanellus vanellus*), Redwing (*Turdus iliacus*) and Stock Pigeon (*Columba oenas*).

Table 3-1 NBDC Bird data and Bird Atlas data (Hectad R55)

Common Name	Scientific name	Designation
Barn Owl	<i>Tyto alba</i>	Protected EU Birds Directive Annex I Bird Species
Black-headed Gull	<i>Larus ridibundus</i>	
Common Kingfisher	<i>Alcedo atthis</i>	
Common Redshank	<i>Tringa totanus</i>	
Corn Crake	<i>Crex crex</i>	
Dunlin	<i>Calidris alpina</i>	
European Golden Plover	<i>Pluvialis apricaria</i>	
Hen Harrier	<i>Circus cyaneus</i>	
Herring Gull	<i>Larus argentatus</i>	
Little Egret	<i>Egretta garzetta</i>	
Mediterranean Gull	<i>Larus melanocephalus</i>	
Merlin	<i>Falco columbarius</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	
Sandwich Tern	<i>Sterna sandvicensis</i>	
Short-eared Owl	<i>Asio flammeus</i>	
Whooper Swan	<i>Cygnus cygnus</i>	
Yellowhammer	<i>Emberiza citrinella</i>	
Common Goldeneye	<i>Bucephala clangula</i>	Birds of Conservation Concern – Red list
Common Pochard	<i>Aythya ferina</i>	
Common Snipe	<i>Gallinago gallinago</i>	
Common Swift	<i>Apus apus</i>	

Common Name	Scientific name	Designation
Eurasian Curlew	<i>Numenius arquata</i>	
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	
Eurasian Woodcock	<i>Scolopax rusticola</i>	
Greater Scaup	<i>Aythya marila</i>	
Northern Lapwing	<i>Vanellus vanellus</i>	
Northern Shoveler	<i>Anas clypeata</i>	
Common Goldeneye	<i>Bucephala clangula</i>	
Common Pochard	<i>Aythya ferina</i>	
Common Redshank	<i>Tringa totanus</i>	
Kestrel	<i>Falco tinnunculus</i>	

3.1.2

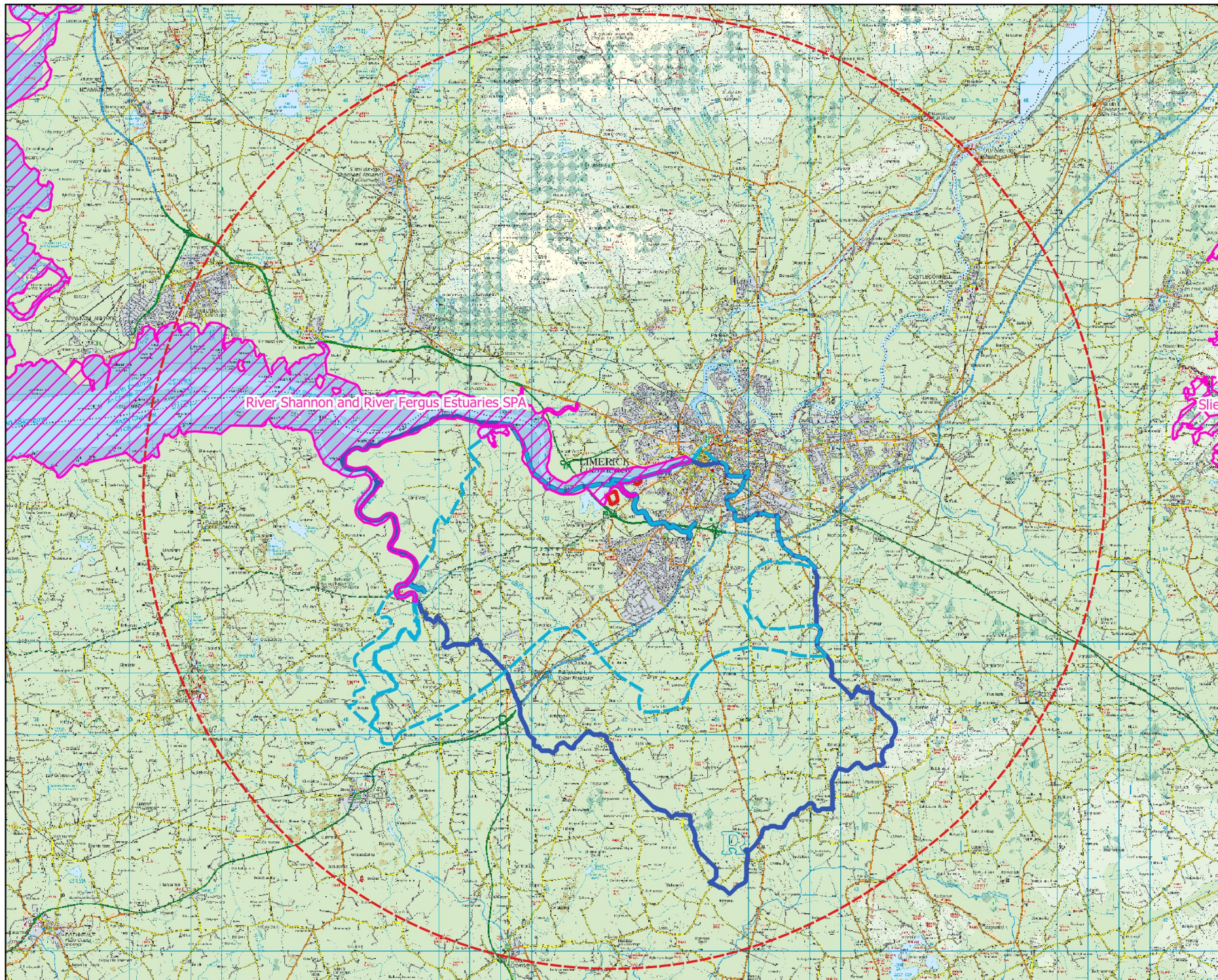
Sites designated for Wintering Bird Species within 15km of the Proposed Development Site

Using QGIS Software (Version 3.16.5) designated sites within a 15km radius of the proposed development site were identified. Only one special protection area was identified within the 15km radius. The site synopses and conservation objectives of this site, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report. Details of this sites, including its distance from the proposed development site, are provided in Table 3.2. Figure 3.1 shows the location of the proposed development site in relation to designated Special Protection Areas within 15 km.

Table 3-2 EU Designated sites within 15km of the proposed works

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 27/07/2021)	Conservation Objective
River Shannon and River Fergus Estuaries SPA	Adjacent to the northern boundary of the proposed development	› Cormorant (<i>Phalacrocorax carbo</i>) [A017] › Whooper Swan (<i>Cygnus cygnus</i>) [A038] › Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] › Shelduck (<i>Tadorna tadorna</i>) [A048] › Wigeon (<i>Anas penelope</i>) [A050] › Teal (<i>Anas crecca</i>) [A052] › Pintail (<i>Anas acuta</i>) [A054] › Shoveler (<i>Anas clypeata</i>) [A056] › Scaup (<i>Aythya marila</i>) [A062] › Ringed Plover (<i>Charadrius hiaticula</i>) [A137] › Golden Plover (<i>Pluvialis apricaria</i>) [A140] › Grey Plover (<i>Pluvialis squatarola</i>) [A141] › Lapwing (<i>Vanellus vanellus</i>) [A142] › Knot (<i>Calidris canutus</i>) [A143] › Dunlin (<i>Calidris alpina</i>) [A149]	Detailed conservation objectives for this site (Version 1, September 2012) were reviewed as part of the assessment and are available at www.npws.ie. Each of the listed SCI species has the conservation objective to maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. The wetlands and waterbirds SCI has the conservation objective “To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it”

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 27/07/2021)	Conservation Objective
		> Black-tailed Godwit (<i>Limosa limosa</i>) [A156] > Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] > Curlew (<i>Numenius arquata</i>) [A160] > Redshank (<i>Tringa totanus</i>) [A162] > Greenshank (<i>Tringa nebularia</i>) [A164] > Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] > Wetland and Waterbirds [A999]	



Map Legend

- Site Boundary
- 15km buffer

EU Designated Sites

- River Shannon and River Fergus Estuaries SPA

Hydrological Catchments

- Ballynaclogh subcatchment
- Limerick City Southwest Groundwater Catchment



Drawing Title
Special Protection Areas within 15km

Project Title
Limerick WWTP Upgrade

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3.1.3 Irish Wetland Bird Survey (I-WeBS) Data

Irish Wetland Bird Survey (I-WeBS) data was obtained from BirdWatch Ireland on 29th of April 2021, following a formal data request. This data includes the most up to date information on the species present at the most proximal IWeBS site i.e. Limerick City (0I477) and Bunlicky Lake (0I003).

Data for each subsite is set out in the sections below. The data also shows where Nationally or Internationally important numbers of each species have been recorded in the past, with all important flocks highlighted in red. A site is considered nationally important if it supports 1% or more of the all-Ireland population, based on the most recent estimates for Ireland, namely Crowe and Holt (2013). A site is classified as internationally important if it regularly supports in excess of 20,000 waterbirds or 1% or more of the flyway population estimate of a species, based on Wetlands International (2017).

3.1.3.1 Limerick City Subsite (0I477)

Details of I-WeBS data for the Limerick City subsite (0I477) are presented in Table 3-3 and includes annual peak counts for the period 2014-2018. There is no IWeBS data available for the monitoring period 2015/16, 2018/19 or 2019/20 for this monitoring site.

Table 3-3 IWeBS data for Limerick City subsite in close proximity to the proposed development site.

Species	1% National	1% International	2014/15	2016/17	2017/18	Peak
Mute Swan	90	0	68	6	6	68
Whooper Swan	150	340			26	26
Greylag Goose	35	980	82			82
Wigeon	560	14000		4	6	6
Teal	360	5000	22	15		22
Mallard	280	53000	115	45	5	115
Shoveler	20	650	33		29	33
Pochard	110	2000	11		16	16
Tufted Duck	270	8900	51	37	58	58
Goldeneye	40	11400		4		4
Goosander	-	-		3	2	3
Great Northern Diver	20	50		1		1
Little Grebe	20	4700	6		6	6
Cormorant	110	1200	29	9	1	29
Little Egret	20	1100		1		1
Grey Heron	25	5000	4	2	1	4

Species	1% National	1% International	2014/15	2016/17	2017/18	Peak
Water Rail	-	-			2	2
Moorhen	-	-	17		4	17
Coot	190	15500	78		93	93
Oystercatcher	610	8200	104		97	104
Lapwing	850	72300	5	60	57	60
Dunlin	460	13300		1		1
Jack Snipe	-	-		1		1
Snipe	-	-		3	10	10
Common Sandpiper	-	-		3		3
Redshank	240	2400	2	6	1	6
Black-headed Gull	-	-	1390	500		1390
Ring-billed Gull	-	-	2		2	2
Common Gull	-	-	20	30		30
Lesser Black-backed Gull	-	-	22	50		50
Herring Gull	-	-	66	55		66
Iceland Gull	-	-	1	2	6	6
Glaucous Gull	-	-				0
Great Black-backed Gull	-	-	5	20		20
Kingfisher	-	-		1		1

3.1.3.2 Bunlicky Lake (0I003) Subsite

Details of I-WeBS data for the Bunlicky Lake subsite (0I003) are presented in Table 3-4 and includes annual peak counts for the period 2014-2018. There is no IWeBS data available for this site for the monitoring period 2016/17 or 2017/18. Bunlicky Lake was not surveyed fully in 2018/19 or 2019/20, but individual Greylag Goose counts were sourced as part of a separate project under I-WeBS.

Table 3-4 IWeBS data for Bunlicky Lake subsite west of the proposed development site.

Species	1% National	1% International	2014/15	2018/19	2019/20	Peak
Mute Swan	90	100	13			13
Greylag Goose	35	980	88	15	97	97
Tufted Duck	270	8900	38			38
Cormorant	110	1200	71			71
Grey Heron	25	5000	1			1
Black-headed Gull	-	-	29			29

3.1.4

River Shannon and River Fergus Estuaries SPA (004077)

A detailed conservation objectives document is available for River Shannon and River Fergus Estuaries SPA (www.npws.ie, accessed on 27/07/2021). The Special Conservation Interests of this SPA and their conservation objective are listed in Table 3.5.

Table 3-5 Special Conservation Interest and Conservation Objectives (Version 01, 2012, NPWS)

Special Conservation Interest (SCI)	Conservation Objective
Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it.
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	To maintain the favourable conservation condition of Cormorant in the River Shannon and River Fergus Estuaries SPA.
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	To maintain the favourable conservation condition of Whooper Swan in the River Shannon and River Fergus Estuaries SPA.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in the River Shannon and River Fergus Estuaries SPA.
Shelduck (<i>Tadorna tadorna</i>) [A048]	To maintain the favourable conservation condition of Shelduck in the River Shannon and River Fergus Estuaries SPA.
Wigeon (<i>Anas penelope</i>) [A050]	To maintain the favourable conservation condition of Wigeon in the River Shannon and River Fergus Estuaries SPA.
Teal (<i>Anas crecca</i>) [A052]	To maintain the favourable conservation condition of Teal in the River Shannon and River Fergus Estuaries SPA.
Pintail (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition of Pintail in the River Shannon and River Fergus Estuaries SPA.
Shoveler (<i>Anas clypeata</i>) [A056]	To maintain the favourable conservation condition of Shoveler in the River Shannon and River Fergus Estuaries SPA.

Special Conservation Interest (SCI)	Conservation Objective
Scaup (<i>Aythya marila</i>) [A062]	To maintain the favourable conservation condition of Scaup in the River Shannon and River Fergus Estuaries SPA.
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	To maintain the favourable conservation condition of Ringed Plover in the River Shannon and River Fergus Estuaries SPA.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	To maintain the favourable conservation condition of Golden Plover in the River Shannon and River Fergus Estuaries SPA.
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of Grey Plover in the River Shannon and River Fergus Estuaries SPA.
Lapwing (<i>Vanellus vanellus</i>) [A142]	To maintain the favourable conservation condition of Lapwing in the River Shannon and River Fergus Estuaries SPA.
Knot (<i>Calidris canutus</i>) [A143]	To maintain the favourable conservation condition of Knot in the River Shannon and River Fergus Estuaries SPA.
Dunlin (<i>Calidris alpina</i>) [A149]	To maintain the favourable conservation condition of Dunlin in the River Shannon and River Fergus Estuaries SPA.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	To maintain the favourable conservation condition of Black-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition of Bar-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Curlew (<i>Numenius arquata</i>) [A160]	To maintain the favourable conservation condition of Curlew in the River Shannon and River Fergus Estuaries SPA.
Redshank (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition of Redshank in the River Shannon and River Fergus Estuaries SPA.
Greenshank (<i>Tringa nebularia</i>) [A164]	To maintain the favourable conservation condition of Greenshank in the River Shannon and River Fergus Estuaries SPA.
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	To maintain the favourable conservation condition of Black-headed Gull in the River Shannon and River Fergus Estuaries SPA.

3.1.4.1 Special Conservation Interests

A review of desktop literature pertaining to the SPA was conducted including the site-specific conservation document, conservation objectives supporting documents, site synopsis and the most recent available Article 12 reports.

3.1.4.1.1 Wetlands and Waterbirds

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

“The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry.

The site has vast expanses of intertidal flats which contain a diverse macro invertebrate community, e.g. Macoma-Scrobicularia-Nereis, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Whooper Swan, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Pintail, Shoveler, Scaup, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank and Black-headed Gull.

It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds”.

The wetland habitat designated as part of the River Shannon and River Fergus Estuaries SPA has the target that the permanent area occupied by the wetland habitat should be stable and not significantly less than 32,261ha other than that occurring from natural patterns of variation.

3.1.4.1.2 **Cormorant (*Phalacrocorax carbo*) [A017]**

This species has been designated for its wintering and breeding population within the SPA. According to the site species conservation objectives document Cormorant colonies are usually sited on flat or rocky islets or sea stack tops, less often on cliffs but they can also nest in trees (Walsh et al., 1995). According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Cormorant (*Phalacrocorax carbo*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 245 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining 1.0 –24.9% and the current conservation condition of this species is undetermined.

3.1.4.1.3 **Whooper Swan (*Cygnus cygnus*) [A038]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Whooper Swan (*Cygnus cygnus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 118 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as increasing and the current conservation condition of this species is favourable.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2002 - 2010) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.1.4 **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Light-bellied Brent Goose (*Branta*

bernicle hrota). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 494 individuals.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.15 **Shelduck (*Tadorna tadorna*) [A048]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,025 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is Fluctuating and the long-term trend (since circa 1980) is stable.

3.1.4.16 **Wigeon (*Anas penelope*) [A050]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Wigeon (*Anas penelope*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,761 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is highly unfavourable.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is also decreasing.

3.1.4.17 **Teal (*Anas crecca*) [A052]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Teal (*Anas crecca*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,260 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is decreasing.

3.1.4.18 **Pintail (*Anas acuta*) [A054]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is fluctuating and the long-term trend (since circa 1980) is unknown.

3.1.4.1.9 **Shoveler (*Anas clypeata*) [A056]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.10 **Scaup (*Aythya marila*) [A062]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.11 **Ringed Plover (*Charadrius hiaticula*) [A137]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (*Charadrius hiaticula*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 223 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2011) for this species is stable and the long-term trend (since circa 1980) is unknown.

3.1.4.1.12 **Golden Plover (*Pluvialis apricaria*) [A140]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Golden Plover (*Pluvialis apricaria*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 5,664 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2010) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.13 **Grey Plover (*Pluvialis squatarola*) [A141]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 558 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.14 **Lapwing (*Vanellus vanellus*) [A142]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Lapwing (*Vanellus vanellus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,126 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.15 **Knot (*Calidris canutus*) [A143]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site

regularly supports 1% or more of the all-Ireland population of Knot (*Calidris canutus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,015 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.16 **Dunlin (*Calidris alpina*) [A149]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographic population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,131 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.17 **Black-tailed Godwit (*Limosa limosa*) [A156]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,035 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.18 **Bar-tailed Godwit (*Limosa lapponica*) [A157]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Bar-tailed Godwit (*Limosa lapponica*). The mean peak number within the SPA during the baseline period (1995/96 – 1999/00) was 460 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.19 **Curlew (*Numenius arquata*) [A160]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Curlew (*Numenius arquata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,396 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.20 **Redshank (*Tringa totanus*) [A162]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,645 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.21 **Greenshank (*Tringa nebularia*) [A164]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Greenshank (*Tringa nebularia*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 61 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is increasing.

3.1.4.1.22 **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012). This species has been

identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2002 - 2012) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.2 Field Survey Results

The following section provides the results of the site visits undertaken between October 2020-March 2021, inclusive.

3.2.1 Species records within the proposed development site

Table 3.6 lists of the target species of conservation interest recorded from within (or flying over) the proposed development site boundary during the surveys carried out between October 2020 and March 2021. These records, along with records of target species of conservation interest recorded in adjacent lands outside the proposed development site boundary, are presented in Figures 3.2 – Figures 3.11.

Non-target bird species recorded within the development site are presented in Appendix 1.

Only one SCI species of the nearby River Shannon and River Fergus Estuaries SPA was recorded roosting or feeding within the proposed development site boundary; black headed gulls were recorded roosting on the wastewater treatment plant site infrastructure during each of the surveys carried out. The number of black-headed gulls recorded roosting ranged between 24 and 118, with an average of 71 individuals. This species was recorded roosting on the storm tank, aeration tanks and settlement tanks within the WWTP. No works are proposed on these elements of the site infrastructure. The black-headed gulls appear to be habituated to the activity within the WWTP and were not disturbed by human activity and noise generated by the plant.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development site. This species was not recorded using the habitats within the proposed development site boundary during any of the surveys undertaken.

Two red listed bird species were recorded from within the proposed development site at Bunlicky WWTP. An individual snipe was recorded on a single occasion, flushed from wet grassland in the western section of the site. A kestrel was also recorded on two occasions hunting over the wet grassland in the western section of the site during the initial October 2020 survey.

The remaining target species recorded flying over the site included common gull and Mallard. Neither species landed in the habitats within the proposed development site. Neither of these species are listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

Table 3-6 Target bird survey recorded from within or flying over the proposed development site at Bunlicky WWTP and Corcanree pump station

Species	Number of Individuals recorded	Location	Date of survey	Conservation Status
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	81 black-headed gulls roosting on the wastewater treatment plant infrastructure. 11 black-headed gulls were recorded flying over the site.	Bunlicky WWTP	08/10/2020	Protected EU Birds Directive Annex I Bird Species. SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
	112 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	30/11/2020	
	78 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	18/12/2020	
	118 Black-headed gulls roosting on site infrastructure. 3 Black-headed gulls fly over site.	Bunlicky WWTP	21/12/2020	
	26 Black-headed gulls roosting on site infrastructure. 6 Black-headed gulls fly over site.	Bunlicky WWTP	15/01/2021	
	101 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	25/01/2021	
	87 Black headed gulls roosting on site infrastructure. 14 Black-headed gulls fly over site.	Bunlicky WWTP	23/02/2021	
	77 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	17/02/2021	
	20 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	16/03/2021	
	24 Black-headed gulls roosting on site infrastructure.	Bunlicky WWTP	29/03/2021	
	2 Black-headed gulls in flight over site.	Corcanree	15/01/2021	
	4 Black-headed gulls in flight over site.	Corcanree	25/01/2021	
	3 Black-headed gulls in flight over site.	Corcanree	17/02/2021	
	3 Black-headed gulls in flight over site.	Corcanree	29/03/2021	
Mallard (<i>Anas platyrhynchos</i>)	1 individual flies over site towards Bunlicky Lake.	Bunlicky WWTP	21/12/2021	BoCCI Amber listed
	2 individuals fly over site	Corcanree	17/02/2021	

Species	Number of Individuals recorded	Location	Date of survey	Conservation Status
Cormorant (<i>Phalacrocorax carbo</i>)	A flock of six cormorant were recorded flying over the proposed development site during the survey.	Bunlicky WWTP	08/10/2020	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
	1 Cormorant flies over the site towards the River Shannon.	Bunlicky WWTP	30/11/2020	
	1 Cormorant flies over the site towards the River Shannon.	Corcanree Pump Station	30/11/2020	
	1 Cormorant flies over the site towards the River Shannon.	Corcanree Pump Station	18/12/2020	
	1 Cormorant in flight over the site.	Corcanree Pump Station	16/03/2021	
Kestrel (<i>Falco tinnunculus</i>)	1 individual hunting over wet grassland in the western section of the site.	Bunlicky WWTP	08/10/2020	BoCCI Red listed
	1 individual hunting briefly over wet grassland in the north-western section of the site.	Bunlicky WWTP	17/02/2021	
Snipe (<i>Gallinago gallinago</i>)	Flushed from wet grassland in western section of the site	Bunlicky WWTP	08/10/2020	BoCCI Red listed
Common Gull (<i>Larus canus</i>)	1 individual flying over the site towards the River Shannon.	Corcanree Pump Station	18/12/2020	BoCCI Amber listed
	1 individual flying over the site.	Corcanree Pump Station	25/01/2021	
	1 individual flying over the site.	Corcanree Pump Station	17/02/2021	
Curlew (<i>Numenius arquata</i>)	3 individuals fly over site	Corcanree Pump Station	29/03/2021	BoCCI Red listed

BoCCI – Birds of Conservation Concern in Ireland 2020 - 2026



Map Legend

 Site Boundary

Flightlines

 Kestrel

 Mallard

 Snipe

Flocks

 Black-headed gull



Drawing Title

Bird Survey 08/10/2020

Project Title

Limerick WWTP Upgrade

Drawn By

JOS

Checked By

PR

Project No.

200826

Drawing No.

Figure 3.2

Scale

1:8000

Date

30.07.2021



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Map Legend

Species

- Black Headed Gull (5)
- Black-headed gull (15)
- Cormorant (2)
- Mute swan (1)
- Mute swan (2)
- Mute swan (4)

Flocks

- Black-headed gull (35)
- Black-headed gull (77)
- Cormorant (15)

Flightlines

- Black-headed Gull
- Common Gull
- Cormorant
- Heron
- Kestrel
- Mallard
- Mute Swan
- Peregrine



Drawing Title

Bird Survey 30/11/2020

Project Title

Limerick WWTP Upgrade

Drawn By

JOS

Checked By

PR

Project No.

200826

Drawing No.

Figure 3.3

Scale

1:10000

Date

30.07.2021



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Map Legend

Species

- Black-headed gull (12)
- Grey Heron (1)
- Mute swan (1)
- Mute swan (2)
- Mute swan (3)

Flightlines

- Black-headed Gull (2)
- Black-headed Gull (3)
- Common Gull (1)
- Cormorant (1)

Flocks

- Black-headed gull (10)
- Black-headed gull (17)
- Black-headed gull (32)
- Black-headed gull (36)
- Cormorant (37)
- Greylag (7)
- Greylag goose (15)
- Greylag goose (32)



Drawing Title

Bird Survey 18/12/2020

Project Title

Limerick WWTP Upgrade

Drawn By
JOS

Checked By
PR

Project No.
200826

Drawing No.
Figure 3.4

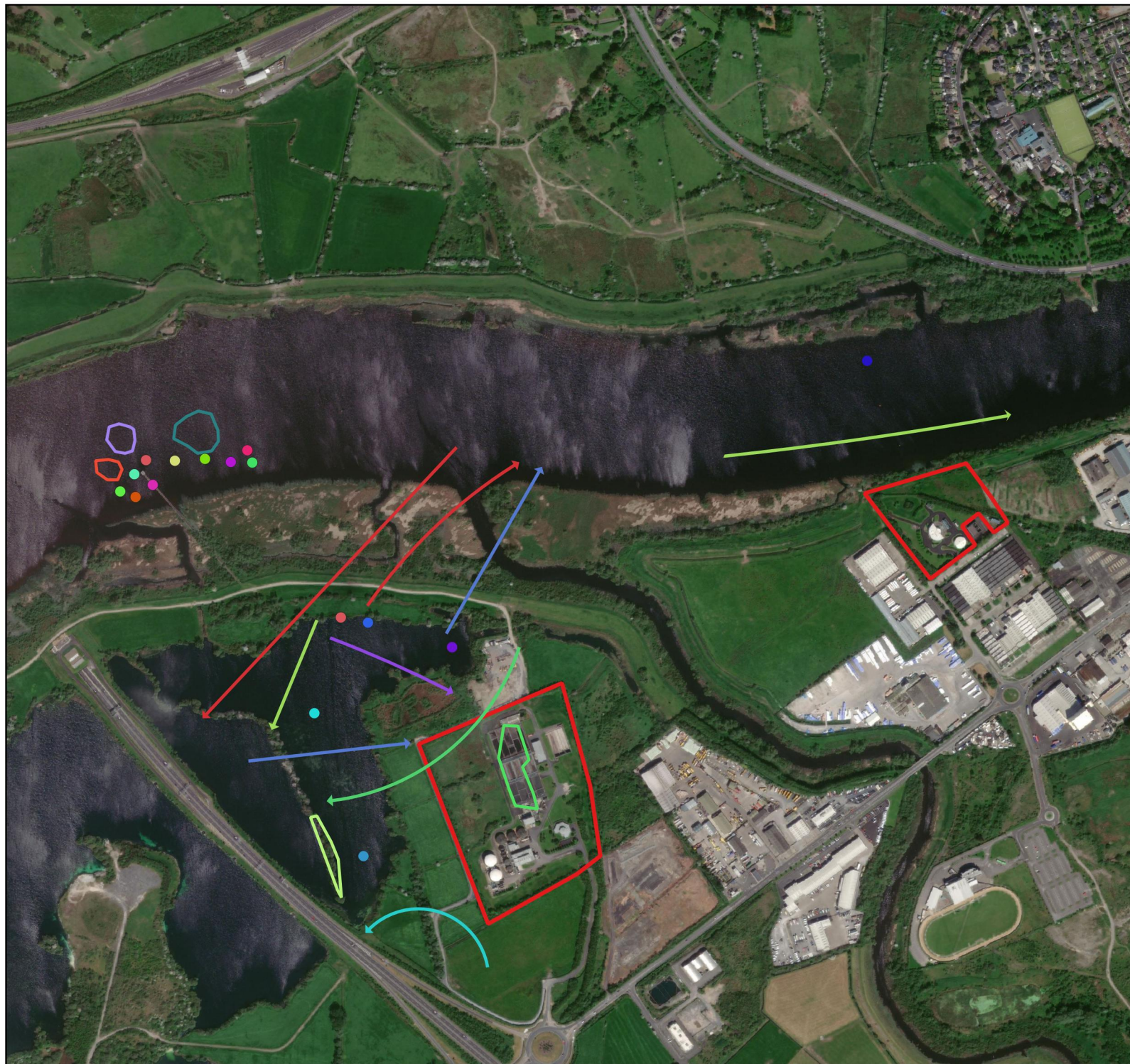
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1:9000

Date
30.07.2021



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Map Legend

Flightlines

- Black-headed Gull (2)
- Black-headed Gull (3)
- Black-headed Gull (4)
- Cormorant
- Cormorant (1)
- Cormorant (2)
- Mallard (3)

Flocks

- Black-headed gull (118)
- Black-headed gull (23)
- Black-headed gull (31)
- Cormorant (13)
- Teal (27)

Species

- Black-headed Gull (1)
- Black-headed Gull (4)
- Cormorant (1)
- Dunlin (10)
- Great Black-backed gull (1)
- Grey Heron (1)
- Lesser Black-back Gull (3)
- Mallard (1)
- Mallard (2)
- Mute Swan (2)
- Mute Swan (8)
- Ringed Plover (3)
- Shelduck (2)
- Teal (6)
- Tufted Duck (5)



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Bird Survey 21/12/2020

Project Title

Limerick WWTP Upgrade

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Drawing No.

Figure 3.5

Scale

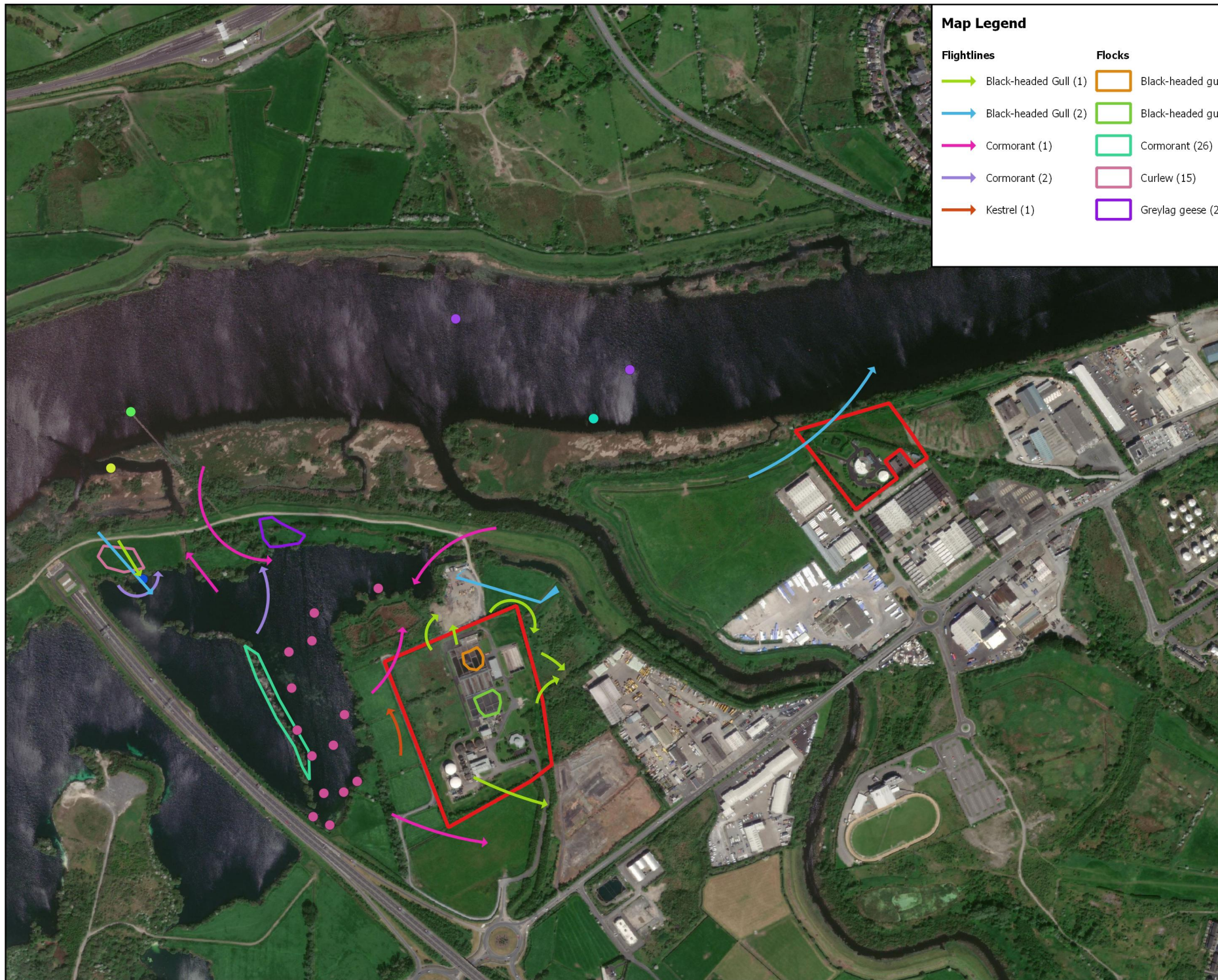
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Date

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Map Legend

Flightlines

- Black-headed Gull (1)
- Black-headed Gull (2)
- Cormorant (1)
- Cormorant (2)
- Kestrel (1)

Flocks

- Black-headed gull (10)
- Black-headed gull (16)
- Cormorant (26)
- Curlew (15)
- Greylag geese (28)

Species

- Black-headed gull (14)
- Black-headed gull (3)
- Grey heron (1)
- Mallard (2)
- Mute swan (1)
- Shelduck (2)



Drawing Title

Bird Survey 15/01/2021

Project Title

Limerick WWTP Upgrade

Drawn By

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Project No.

200826

Drawing No.

Figure 3.6

Scale

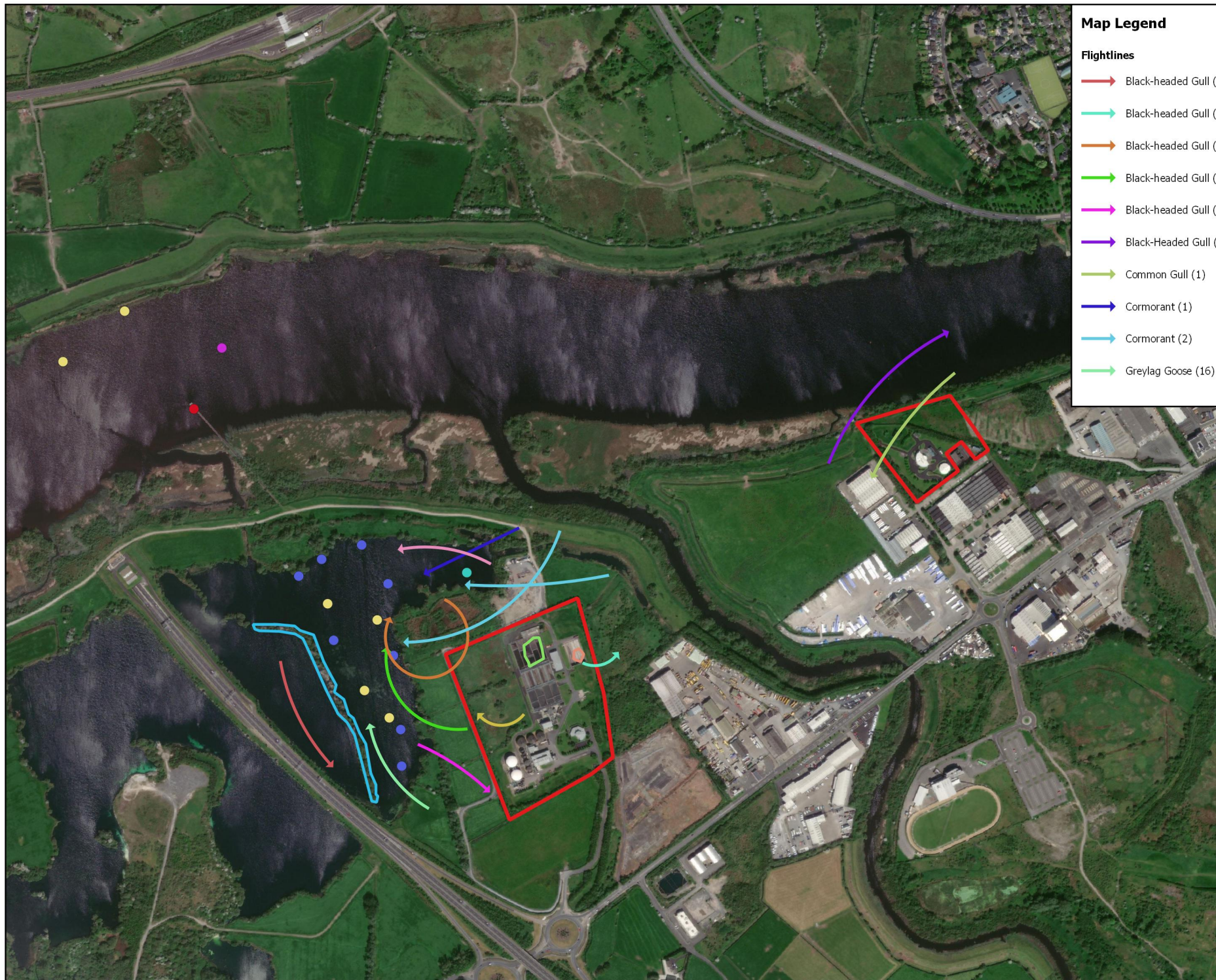
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Map Legend

Flightlines

- Black-headed Gull (15)
- Black-headed Gull (2)
- Black-headed Gull (24)
- Black-headed Gull (3)
- Black-headed Gull (4)
- Black-headed Gull (4)
- Common Gull (1)
- Cormorant (1)
- Cormorant (2)
- Greylag Goose (16)

Species

- Black-headed gull (23)
- Black-headed gull (5)
- Cormorant (1)
- Grey Heron (1)
- Mute swan (1)

Flocks

- Black-headed gull (11)
- Black-headed gull (90)
- Cormorant (118)



Drawing Title

Bird Survey 25/01/2021

Project Title

Limerick WWTP Upgrade

Drawn By

JOS

Checked By

PR

Project No.

200826

Drawing No.

Figure 3.7

Scale

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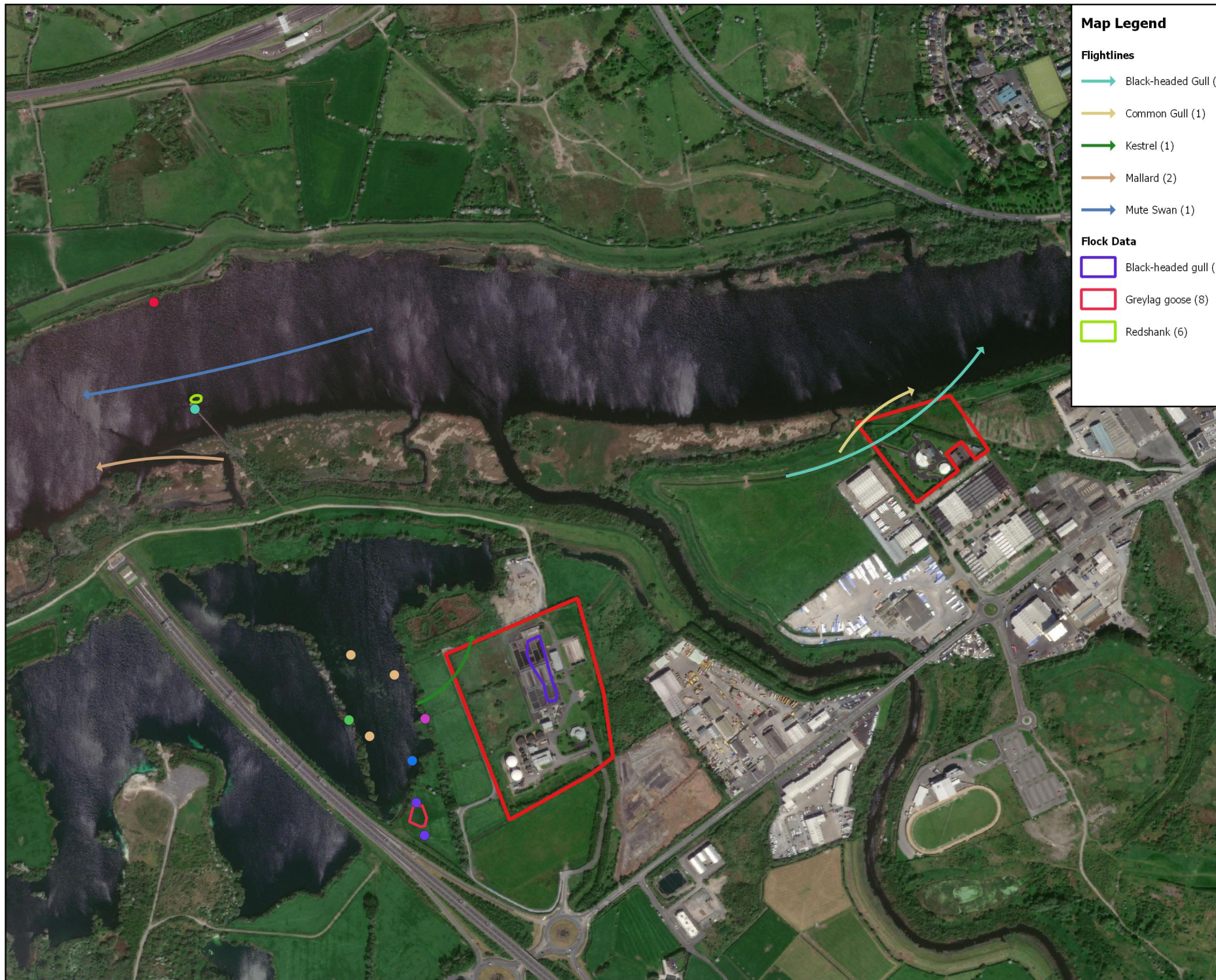
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Map Legend

Flightlines

- Black-headed Gull (3)
- Common Gull (1)
- Kestrel (1)
- Mallard (2)
- Mute Swan (1)

Species

- Black-headed gull (15)
- Cormorant (1)
- Domestic goose (1)
- Little egret (1)
- Mallard (2)
- Mute swan (1)
- Mute swan (2)

Flock Data

- Black-headed gull (77)
- Greylag goose (8)
- Redshank (6)



Drawing Title

Bird Survey 17/02/2021

Project Title

Limerick WWTP Upgrade

Drawn By
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Project No.
200826

Drawing No.
Figure 3.8

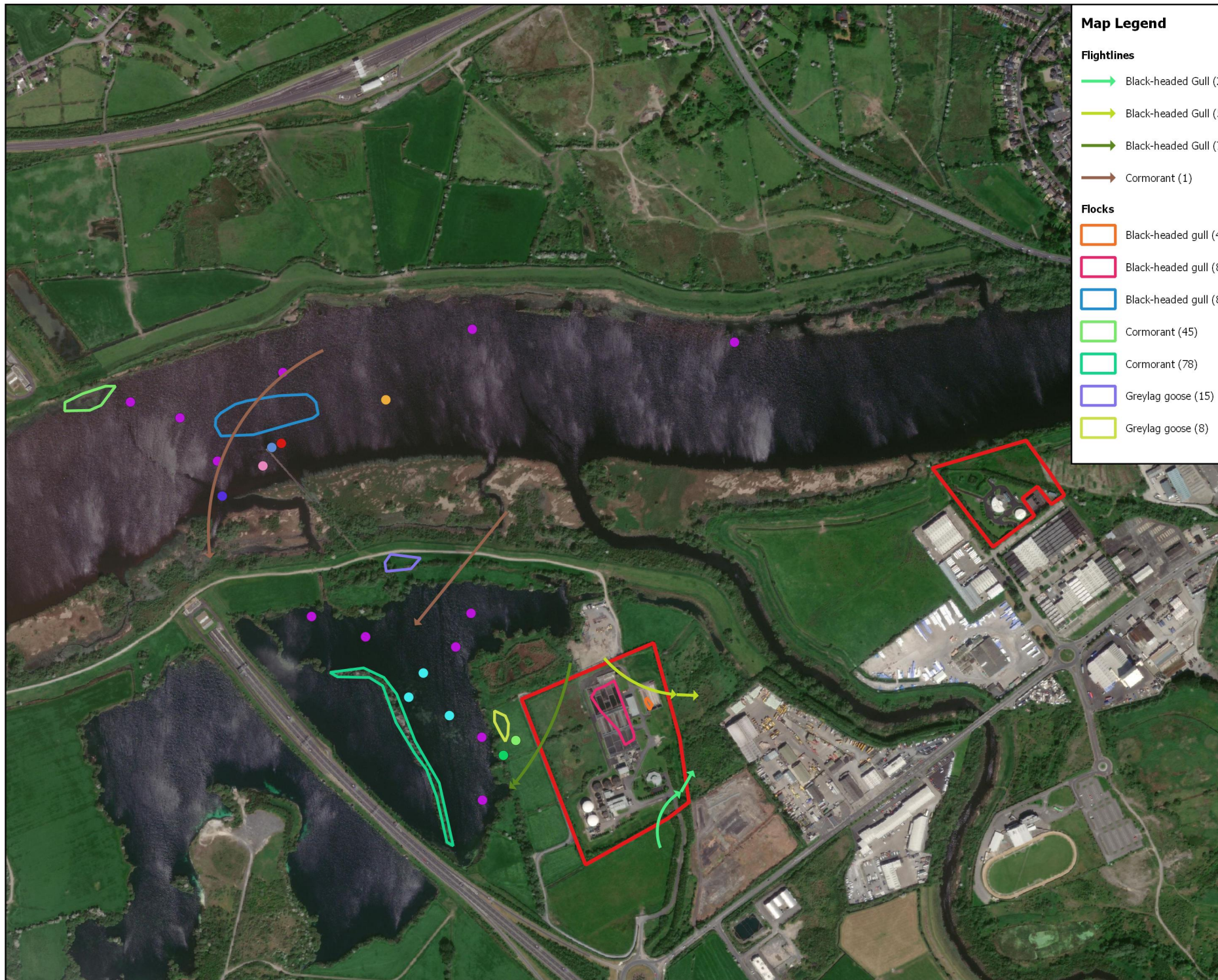
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Map Legend

Flightlines

- Black-headed Gull (2)
- Black-headed Gull (5)
- Black-headed Gull (7)
- Cormorant (1)

Flocks

- Black-headed gull (4)
- Black-headed gull (83)
- Black-headed gull (85)
- Cormorant (45)
- Cormorant (78)
- Greylag goose (15)
- Greylag goose (8)

Species

- Cormorant (1)
- Domestic goose (1)
- Mallard (1)
- Mallard (6)
- Mute Swan (2)
- Redshank (8)
- Shelduck (1)
- Teal (6)
- Tufted Duck (1)



Drawing Title

Bird Survey 23/02/2021

Project Title

Limerick WWTP Upgrade

Drawn By
JOS

Checked By
PR

Project No.
200826

Drawing No.
Figure 3.9

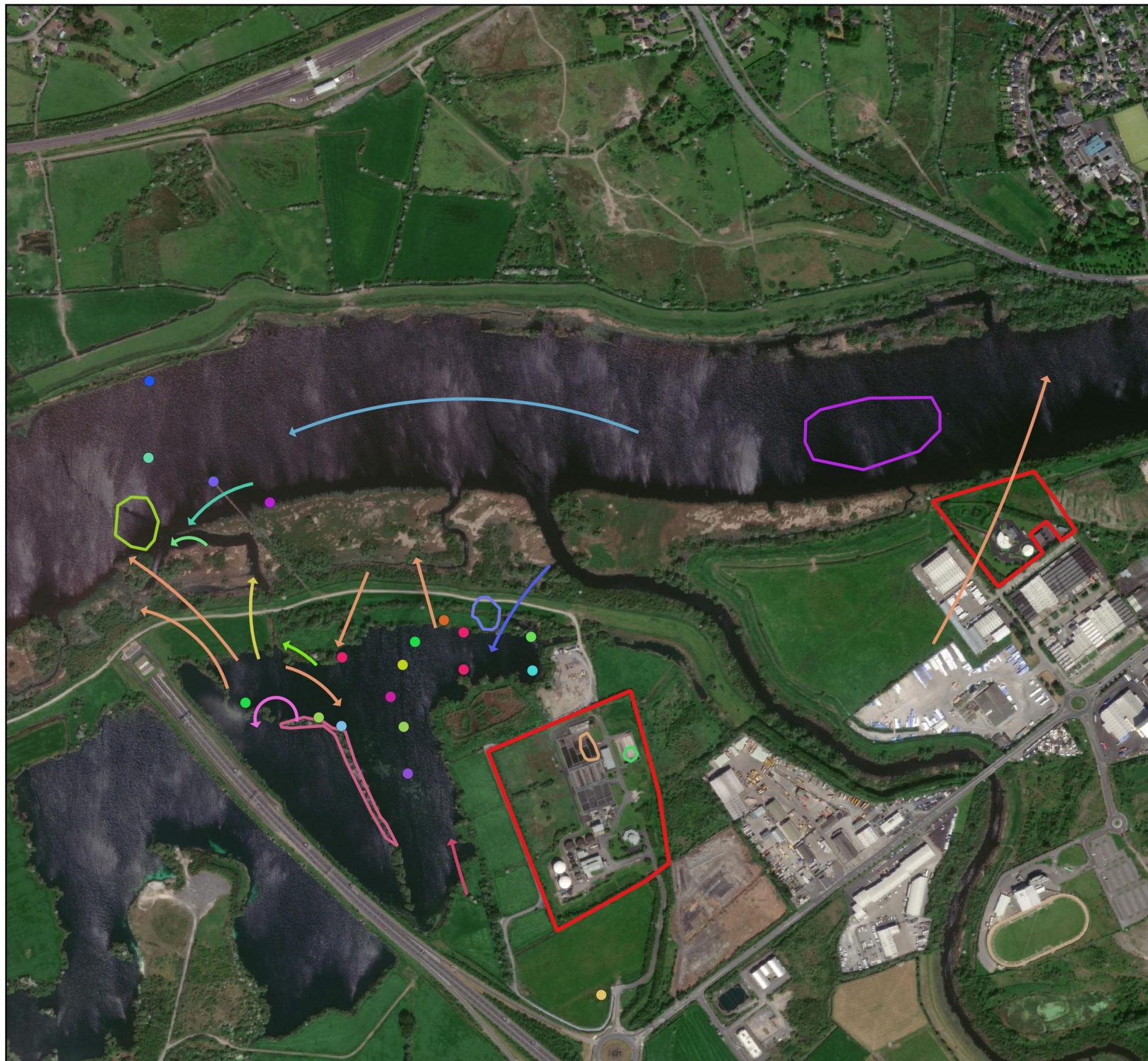
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Map Legend

Flightlines

- Black-headed Gull (1)
- Cormorant (1)
- Greylag Goose (1)
- Mallard (1)
- Mallard (2)
- Mallard (3)
- Redshank (1)
- Teal (5)
- Teal (7)

Species

- Black-headed gull (14)
- Cormorant (1)
- Grey heron (1)
- Greylag goose (1)
- Greylag goose (2)
- Greylag goose (3)
- Greylag goose (4)
- Mallard (1)
- Mallard (2)
- Mallard (3)
- Mute swan (1)
- Mute Swan (2)
- Redshank (1)
- Shelduck (4)
- Tufted duck (1)

Flocks

- Black headed gull (40)
- Black headed gull (5)
- Black-headed gull (15)
- Black-headed gull (32)
- Cormorant (43)
- Greylag goose (18)



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Drawing Title

Bird Survey 16/03/2021

Project Title

Limerick WWTP Upgrade

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Project No.

200826

Drawing No.

Figure 3.10

Scale

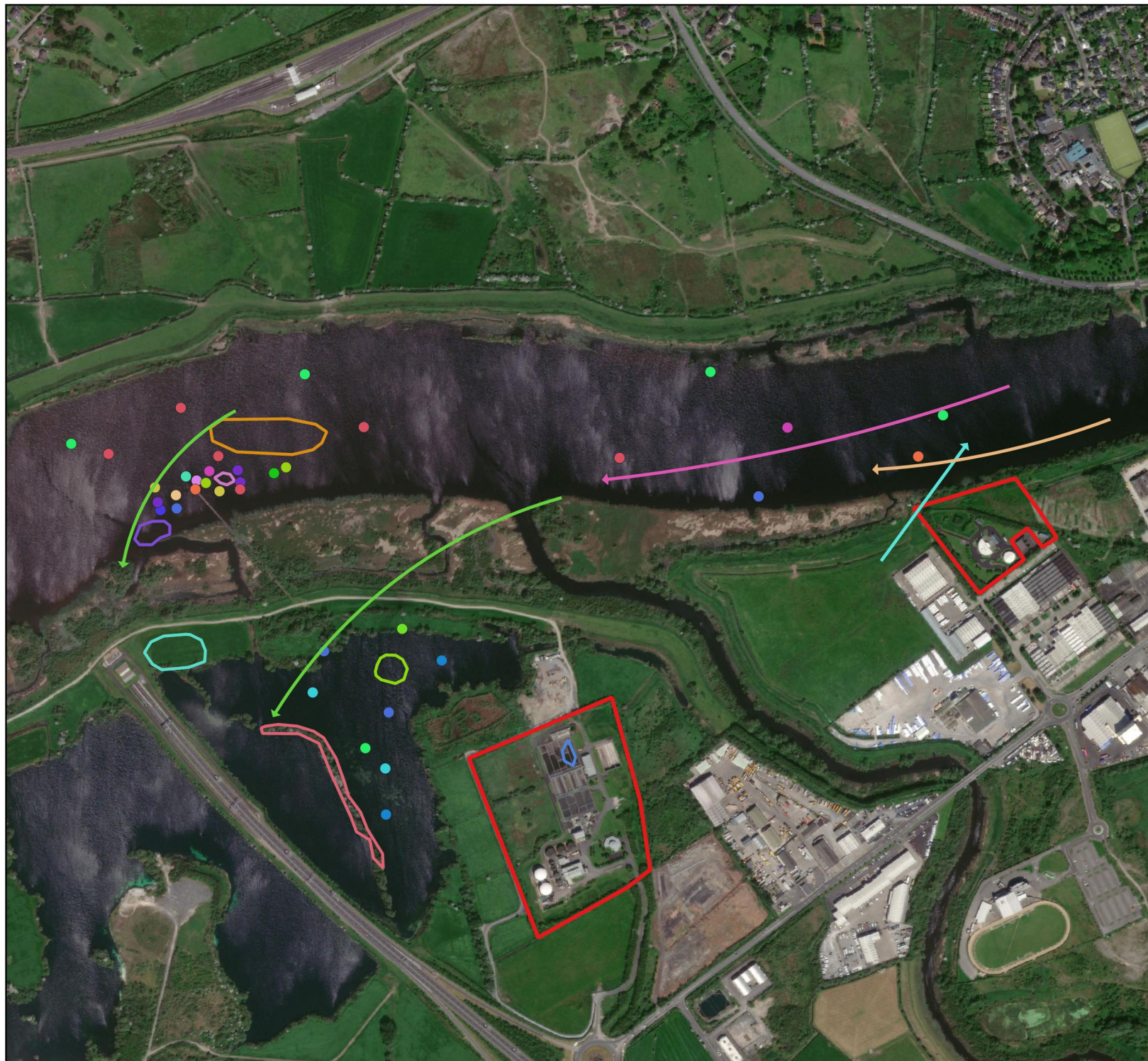
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Date

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Map Legend

Species

- Black-headed gull (1)
- Black-headed gull (3)
- Black-tailed godwit (1)
- Common gull (1)
- Cormorant (1)
- Greylag goose (1)
- Greylag goose (3)
- Herring gull (1)
- Mallard (2)
- Mallard (3)
- Mute Swan (2)
- Redshank (1)
- Redshank (5)
- Shelduck (1)
- Shelduck (2)
- Teal (2)

Flocks

- Black-headed gull (24)
- Black-headed gull (30)
- Cormorant (120)
- Greylag goose (13)
- Greylag goose (6)
- Teal (29)
- Teal (8)

Flightlines 29.03.2021

- Black-headed Gull (3)
- Cormorant (1)
- Cormorant (2)
- Curlew (3)



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Project Title

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4.

SUMMARY OF FIELD SURVEY AND DISCUSSION

The surveys undertaken over the period winter period October 2020 to March 2021 provide an understanding of the usage of the proposed development site by wintering bird species. A total of six target bird species were recorded within or flying over the proposed development site boundary during the winter site visits. The majority of the birds recorded within the development site boundary during the site visit were an assemblage of common birds that are typical of the amenity grassland, agricultural grassland and urban habitats found within the wider area.

Only one Annex I SCI listed species of the River Shannon and River Fergus Estuaries SPA, black-headed gull, was recorded using the habitats within the site boundary, with flocks of this species recorded roosting on site infrastructure at Bunlicky WWTP during each of the winter surveys undertaken. The number of black-headed gulls recorded roosting ranged between 24 and 118, with an average of 71 individuals. This species was recorded roosting on the storm tank, aeration tanks and settlement tanks within the WWTP. No works are proposed on these elements of the site infrastructure. The black-headed gulls appear to be habituated to the activity within the WWTP and were not disturbed by human activity and noise generated by the plant.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development site. This species was not recorded using the habitats within the proposed development site boundary during any of the surveys undertaken. No other SCI species of the River Shannon and River Fergus Estuaries SPA was recorded within or flying over the site boundary during the surveys.

Two species listed as a red list species on the Bird of Conservation Concern in Ireland (BoCCI) (Gilbert et al., 2021) were recorded from within the proposed development site at Bunlicky WWTP. An individual snipe was recorded on a single occasion, flushed from wet grassland in the western section of the site. A kestrel was also recorded on two occasions hunting over the wet grassland in the western section of the site.

The remaining target species recorded flying over the site included common gull and mallard. Neither species landed in the habitats within the proposed development site. Neither of these species are listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

5.

CONCLUSION

Based on the wintering bird assemblages recorded over the six surveys carried out between October 2020 and March 2021, it can be concluded that the site does not support important assemblages of wintering wildfowl, waders or SCI species for which the River Shannon and River Fergus estuaries SPA has been designated.

Small flocks of the SCI species black-headed gull were recorded roosting on site infrastructure at Bunlicky WWTP, all of which will be retained as part of the proposed development. There is no potential for loss of supporting habitat for the SCI species of River Shannon and River Fergus Estuaries SPA.

Habitats within the site primarily consist of amenity grassland, wet grassland, buildings and artificial surfaces, and treeline. Species listed as SCIs for the River Shannon and River Fergus Estuaries SPA are unlikely to depend on these habitats within the proposed development site.

According to the site-specific conservation objectives document the SCI species of the River Shannon and River Fergus Estuaries SPA, are primarily associated with intertidal sheltered and shallow subtidal, sand and mud flats habitats. None of these habitats occur within the development boundary or in the immediate surrounding habitats.

6.

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NPWS (2012) River Shannon and River Fergus Estuaries SPA 004077 Conservation Objectives Supporting Document Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

NPWS (2012) Appendix 8. River Shannon and River Fergus Estuaries SPA 004077 Conservation Objectives Supporting Document Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

NPWS (2012) Appendix 9. River Shannon and River Fergus Estuaries SPA 004077 Conservation Objectives Supporting Document Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht



APPENDIX 1

NON- TARGET BIRD SPECIES

Species	Scientific name	BoCCI Status	Date recorded
Magpie	<i>Pica pica</i>	Green	30/11/2020 21/12/2020 15/01/2021 17/02/2021 23/02/2021 16/03/2021
Robin	<i>Erithacus rubecula</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Dunnock	<i>Prunella modularis</i>	Green	18/12/2020 15/01/2021 16/03/2021
Wood pigeon	<i>Columba palumbus</i>	Green	30/11/2020 21/12/2020 15/01/2021 17/02/2021 23/02/2021 29/03/2021
Wren	<i>Troglodytes troglodytes</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Great tit	<i>Parus major</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Hooded crow	<i>Corvus cornix</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021

Species	Scientific name	BoCCI Status	Date recorded
			25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Blackbird	<i>Turdus merula</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	30/11/2020
Starling	<i>Sturnus vulgaris</i>	Amber (breeding population)	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Pied wagtail	<i>Motacilla alba yarrellii</i>	Green	30/11/2020 29/03/2021
Mistle thrush	<i>Turdus viscivorus</i>	Green	25/01/2021 23/02/2021
Jackdaw	<i>Corvus monedula</i>	Green	08/10/2020 30/11/2020 15/01/2021 16/03/2021
Chaffinch	<i>Fringilla coelebs</i>	Green	08/10/2020 30/11/2020 18/12/2020 21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Rook	<i>Corvus frugilegus</i>	Green	30/11/2020
Blue tit	<i>Cyanistes caeruleus</i>	Green	08/10/2020 30/11/2020 18/12/2020

Species	Scientific name	BoCCI Status	Date recorded
			21/12/2020 15/01/2021 25/01/2021 17/02/2021 23/02/2021 16/03/2021 29/03/2021
Goldfinch	<i>Carduelis carduelis</i>	Green	08/10/2020 25/01/2021 29/03/2021
Greenfinch	<i>Carduelis chloris</i>	Amber (breeding population)	30/11/2020 29/03/2021
Long tailed tit	<i>Aegithalus caudatus</i>	Green	30/11/2020 15/01/2021 23/02/2021 16/03/2021
Goldcrest	<i>Regulus regulus</i>	Green	16/03/2021

Winter Bird Survey Report

Bunlicky Wastewater
Treatment Plant Upgrade
Project, Co. Limerick





DOCUMENT DETAILS

Client: **JB Barry Ltd.**

Project Title: **Bunlicky Wastewater Treatment Plant Upgrade Project, Co. Limerick**

Project Number: **210710**

Document Title: **Winter Bird Survey Report**

Document File Name: **BSR – F1 – 2024.02.27- 210710**

Prepared By: **MKO
Tuam Road
Galway
Ireland
H91 VW84**



Rev	Status	Date	Author(s)	Approved By
01	Draft	10/10/2023	NOD	RW
02	Final	08/02/2024	NOD	RW
02	Final	27/02/2024	NOD	RW

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Appendix 1 – Non target bird species

1.

INTRODUCTION

MKO has been appointed by JB Barry Ltd. to undertake winter bird surveys for the period October 2022 to March 2023 inclusive, for the proposed upgrade works at Limerick Wastewater Treatment Plant, Bunlicky, Dock Road, Co. Limerick and at Corcanree Pumping Station, Corcanree Business Park, Dock Road, Co. Limerick.

The proposed WwTP Upgrade works are located within the Severn Trent Response Wastewater Treatment Plant, Dock Road, Bunlicky, Co. Limerick. Bunlicky Wastewater Treatment Plant is located approximately 2.5km west of Limerick City Centre (Grid reference: R 54623 55688). The site is accessed via a local road off the Dock Road (R510) roundabout. Bunlicky Wastewater Treatment Plant is located adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

The proposed pumping station upgrade works are located within a field adjacent to the Corcanree Pump Station, Corcanree Business Park, Dock Road, Limerick (grid ref: R 55457 56224). The pump station is accessed via the Dock Road (N69) and local access roads within Corcanree Business Park. The proposed pumping station upgrade works site is also adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

A site location map is provided as Figure 1.1.

The objective of the winter surveys is to assess the suitability of the proposed development sites to support a variety of wintering wildfowl and waders, including the bird species listed as Special Conservation Interests (SCIs) for the River Shannon and River Fergus Estuaries SPA.

The assessment objectives can be summarised as follows:

- To undertake field surveys to assess for the presence of suitable habitat and the occurrence of wintering bird species within and adjacent to the development sites.
- The study seeks to determine the distribution of the species within and adjacent to the proposed development sites and to determine the presence of feeding/roosting areas within/adjacent to the proposed development sites.

Section two of this report provides the methodology, constraints, survey information, weather conditions and survey coverage. The results of the desk study and field surveys are presented in section three of this report. An evaluation and discussion of the results is provided in Section four. The concluding section of the report considers the findings and potential impacts of the proposed development on SCI listed species of the River Shannon and River Fergus Estuaries SPA.

1.1

Statement of Authority

Wintering bird surveys were undertaken between October 2022 and March 2023 by Neansaí O'Donovan (B.Sc, Wildlife Biology). This report has been prepared by Neansaí O'Donovan (B.Sc. Wildlife Biology) who has over 3 years' experience in ecological consultancy. This report has been reviewed by Rachel Walsh (B.Sc. Env.), who has extensive experience in ecological assessment.



Map Legend

- Site Boundary
- Special Protected Area (SPA)



Drawing Title

Site Location

Project Title

Limerick WwTP Upgrade

Drawn By	NOD	Checked By	RW
Project No.	210710	Drawing No.	Figure 1.1
Scale	1:26,000	Date	13.12.2023



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2. METHODOLOGY

2.1 Desk Study

A number of sources were assessed to determine the likely usage of both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NDBC), Birdwatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for the nearby River Shannon and River Fergus Estuaries SPA. Results of the desk study are provided in section 3.1.

2.2 Field Survey Methodology

During the initial field visit the sites were assessed and suitable vantage points were identified in line with previous years wintering bird surveys undertaken at the proposed development sites during the 2020/2021. Surrounding private lands were scanned using a spotting scope from elevated vantage points. Any significant flocks of wintering wildfowl or waders were recorded using such an approach. The survey area covered the development site at Bunlicky WwTP and Corcanree Pumping Station, and areas of potentially suitable supporting habitat in proximity to the proposed development site including areas of agricultural grassland adjacent to Bunlicky WwTP, Bunlicky Lake, the estuarine habitat adjacent to the outfall at Bunlicky and the estuarine habitat adjacent to Corcanree Pumping station.

The surveys were undertaken monthly in October to December 2022, and the survey effort was increased to bi-monthly for January to March 2023. Surveys were undertaken at alternate high/low tides, within two hours of high/low tide. A combination of low and high tide counts has been used due to the differences in behaviour and site use between tidal states, with different species likely to be foraging and roosting in different areas of River Shannon and River Fergus Estuaries SPA and the surrounding terrestrial habitats, depending on the stage of the tidal cycle.

The surveys were undertaken by an appropriately qualified Ecologist. All observations were recorded, and detailed point data was gathered for each species observation, with all bird species denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. The species recorded in the surveys were those covered by Irish Wetlands Bird Survey (I-WeBS) counts, i.e., all divers, grebes, cormorant, shag, herons, swans, geese, ducks, rails, crakes, waders, gulls, and kingfisher. However, in addition to this, all other bird species, including raptors and all common and widespread passerines, were also recorded from within the proposed development sites.

2.2.1 I-WeBS Surveys

The winter bird surveys at the nearby SPA followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 1998; Bibby, C.J., 2000; Birdwatch Ireland, 2018). The surveys were carried out at suitable vantage points within the sites, additional vantage points located overlooking the section of the River Shannon and River Fergus Estuaries SPA in close proximity to the proposed development sites. Vantage points were chosen to have as large as possible a view of the proposed development sites, adjacent wetland habitats and potential adjacent daytime foraging habitat in the vicinity of the proposed development sites. The chosen vantage points were stopped at for 15-minute intervals each, along the transect walk on each survey day. Vantage points focused on areas which were deemed to be of likely significance to wintering waterbirds of River Shannon and River Fergus Estuaries SPA.

Details of the surveys carried out including date, time, duration, location, and weather conditions are provided in Table 2.2. A map of the vantage point locations used during the surveys is presented in Figure 2.1.

2.2.2

Transects

Walked transects were undertaken within the site boundaries in conjunction with vantage point surveys. During the surveys species of note were recorded both within and adjacent to the development sites. All bird species were denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. Transects walked during the survey are shown in Figure 2.2. During the surveys species of note were recorded both within and adjacent to the development sites.



Map Legend

-  Site Boundary
-  Vantage Points



Drawing Title

Vantage Point Locations

Project Title

Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No. 210710	Drawing No. Figure 2.1
Scale 1:8,000	Date 13.12.2023



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Map Legend

-  Site Boundary
-  Transects



Drawing Title

Bird Survey Transects

Project Title

Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No. 210710	Drawing No. Figure 2.2
Scale 1:8,000	Date 13.12.2023



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2.2.3

Survey Details

Details of the surveys including survey dates, weather conditions and survey duration are provided in Table 2.1.

Table 2-1 Survey Effort

Date	Survey duration	Tide	Weather conditions
28/10/2022	6 hours	High Tide	Wind speed: Strong breeze Cloud cover: 20-30% Visibility: Good (> 2km) Rain: No Frost: None Snow: None
25/11/2022	6 hours	Low Tide	Wind speed: Fresh breeze Cloud cover: 10-20% Visibility: Excellent Rain: No Frost: None Snow: None
15/12/2022	6 hours	High Tide	Wind speed: Gentle breeze Cloud cover: 10-20% Visibility: Excellent until thick band of fog came in the late afternoon. Rain: None Frost: Yes Snow: None
17/01/2023	6 hours	High Tide	Wind speed: Fresh breeze Cloud cover: approx. 60% Visibility: Good (> 2km) Rain: None Frost: Yes Snow: None
31/01/2023	6 hours	High Tide	Wind speed: Strong breeze Cloud cover: approx. 60% Visibility: Good (> 2km) Rain: None Frost: None Snow: None
14/02/2023	5 hours	High tide	Wind speed: Strong breeze Cloud cover: approx. 50% Visibility: Good (> 2km) Rain: Scattered showers Frost: None Snow: None
24/02/2023	6 hours	Low tide	Wind speed: Moderate breeze Cloud cover: approx. 60% Visibility: Excellent Rain: No Frost: No Snow: No
07/03/2023	6 hours	Low Tide	Wind speed: Moderate breeze Cloud cover: approx. 30% Visibility: Excellent Rain: No Frost: No

Date	Survey duration	Tide	Weather conditions
			Snow: No
24/03/2023	6 hours	Low Tide	Wind speed: Strong breeze Cloud cover: 100% Visibility: Good Rain: Heavy scattered showers Frost: No Snow: No

2.2.4

Survey Constraints

During the survey effort on January 17th, 2023, a helicopter intermittently flew along the River Shannon which may have affected bird activity outside the development sites along the River Shannon. Apart from this activity, no significant survey constraints limited the survey approach, and a comprehensive assessment was undertaken. All surveys were undertaken during optimal weather conditions as poor weather conditions and high wind can lead to decreased bird movements and hinder surveyor visibility.

3. RESULTS

3.1 Desk Study

A number of sources were assessed to determine the likely usage of the sites by both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NBDC), BirdWatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for nearby Special Protection Areas (SPAs).

3.1.1 Breeding and Wintering Bird Atlases

The Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland (Balmer et al., 2013) provides the most up-to-date information regarding the distribution and relative abundance of bird species in Britain and Ireland, based on surveys carried out between 2007 and 2011. The atlases show data for breeding and wintering birds respectively in individual 10 km x 10 km squares (hectads). Table 3.1 shows those species found in the relevant hectad (R55) which are recorded as breeding in the most recent atlas.

This dataset also provides species that have been recorded within the relevant 2km tetrads (R55N and R55M) on National Biodiversity Data Centre (NBDC) datasets as well as those listed in Annex I of the EU Birds Directive recorded on the BoCCI Red List. Birds listed under Annex I are offered special protection by the EU Birds Directive. Those listed on the Birds of Conservation Concern in Ireland (BoCCI) Red List meet one or more of the following criteria:

- IUCN: Global conservation status (Critically Endangered (CE), Endangered (E) or Vulnerable (V), but not Near Threatened. These species are recognised as the highest priorities for action at a global scale and are thus priorities at an all-Ireland level.
- European conservation status. The conservation status of all European species was assessed most recently by Birdlife International (2004), one of the main changes in the revision being to include the IUCN criteria. These species are those of global conservation concern (including those classified as Near Threatened) and are Red listed.
- The Irish breeding population has undergone significant historical decline since 1800.
- The Irish non-breeding population has undergone a significant decline of 50% in the last 25 years.
- The Irish breeding range has undergone a decline of 70% or more in the last 25 years.

Two species listed under Annex I of the EU Birds Directive have been recorded within the tetrad R55N: Little Egret (*Egretta garzetta*) and Northern Lapwing (*Vanellus vanellus*). A further three red-listed birds of conservation concern have been recorded within this tetrad: Northern Shoveler (*Anas clypeata*), Swift (*Apus apus*) and Scaup (*Anas marila*).

Two species listed under Annex I of the EU Birds Directive has been recorded within the tetrad R55M: Dunlin (*Calidris alpina*) and Kingfisher (*Alcedo atthis*). A further eleven red-listed birds of conservation concern have been recorded within this tetrad: Common Goldeneye (*Bucephala clangula*), Common Kestrel (*Falco tinnunculus*), Common Redshank (*Tringa totanus*), Common Snipe (*Gallinago gallinago*), Common Swift (*Apus apus*), Eurasian Curlew (*Numenius arquata*), Grey Wagtail (*Motacilla cinerea*), Meadow Pipit (*Anthus pratensis*), Northern Lapwing (*Vanellus vanellus*), Redwing (*Turdus iliacus*) and Stock Pigeon (*Columba oenas*).

Table 3-1 NBDC Bird data and Bird Atlas data (Hectad R55)

Common Name	Scientific name	Designation
Common Kingfisher	<i>Alcedo atthis</i>	Protected EU Birds Directive Annex I Bird Species
Corn Crake	<i>Crex crex</i>	
European Golden Plover	<i>Pluvialis apricaria</i>	
Hen Harrier	<i>Circus cyaneus</i>	
Little Egret	<i>Egretta garzetta</i>	
Mediterranean Gull	<i>Larus melanocephalus</i>	
Merlin	<i>Falco columbarius</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	
Sandwich Tern	<i>Sterna sandvicensis</i>	
Short-eared Owl	<i>Asio flammeus</i>	
Whooper Swan	<i>Cygnus cygnus</i>	
Barn Owl	<i>Tyto alba</i>	Birds of Conservation Concern – Red list
Black-headed Gull	<i>Larus ridibundus</i>	
Common Goldeneye	<i>Bucephala clangula</i>	
Common Pochard	<i>Aythya ferina</i>	
Common Redshank	<i>Tringa totanus</i>	
Common Snipe	<i>Gallinago gallinago</i>	
Common Swift	<i>Apus apus</i>	
Dunlin	<i>Calidris alpina</i>	
Eurasian Curlew	<i>Numenius arquata</i>	
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	

Common Name	Scientific name	Designation
Eurasian Woodcock	<i>Scolopax rusticola</i>	
Greater Scaup	<i>Aythya marila</i>	
Herring Gull	<i>Larus argentatus</i>	
Northern Lapwing	<i>Vanellus vanellus</i>	
Northern Shoveler	<i>Anas clypeata</i>	
Common Goldeneye	<i>Bucephala clangula</i>	
Common Pochard	<i>Aythya ferina</i>	
Common Redshank	<i>Tringa totanus</i>	
Yellowhammer	<i>Emberiza citrinella</i>	
Kestrel	<i>Falco tinnunculus</i>	

3.1.2

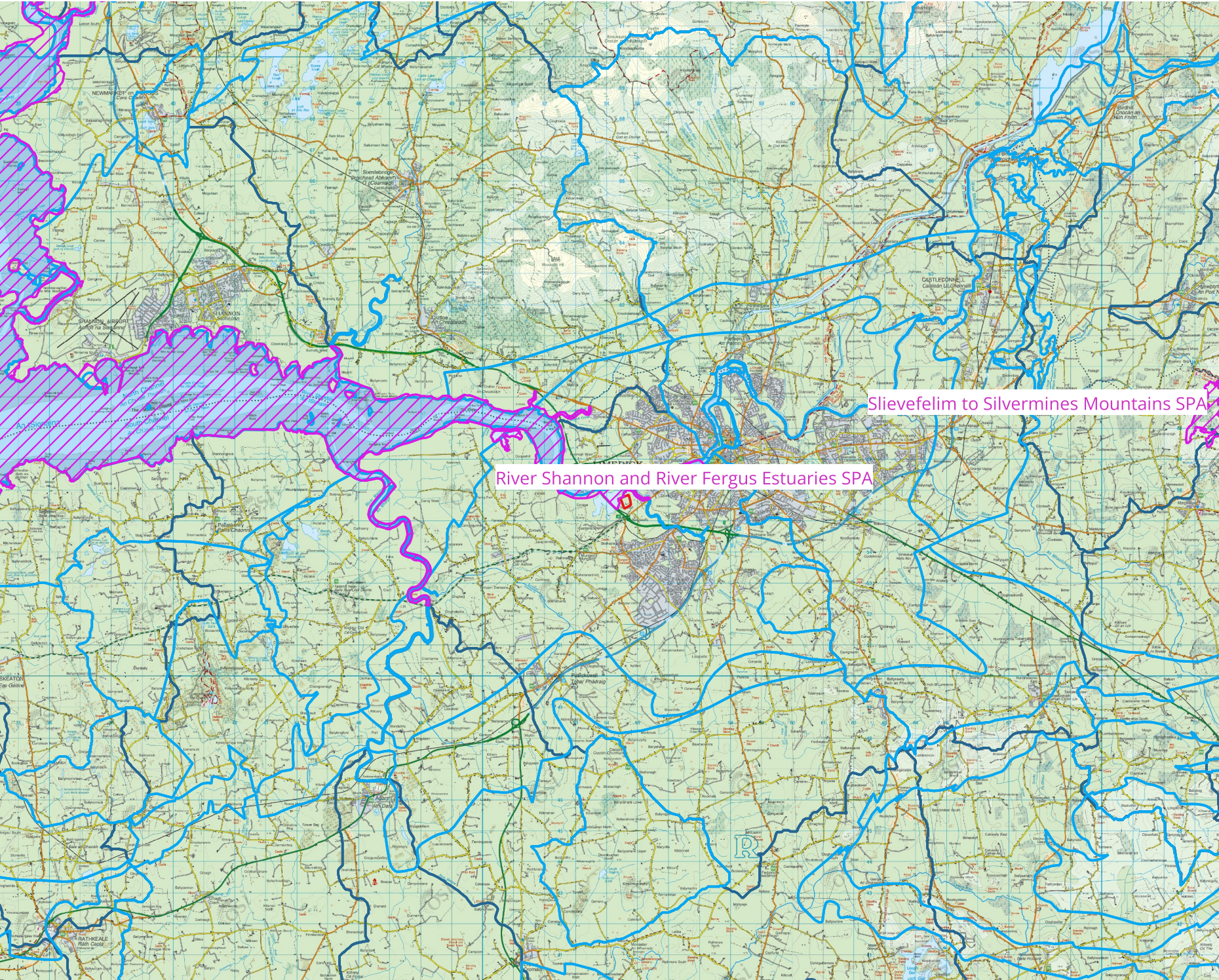
Sites designated for Wintering Bird Species within the vicinity of the Proposed Development Sites

Using QGIS Software (Version 3.28.6) designated sites within the vicinity of the proposed development sites were identified. Only one special protection area was identified within the vicinity of the proposed development sites. The site synopses and conservation objectives of this site, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report. Details of this sites, including its distance from the proposed development sites, are provided in Table 3.2. Figure 3.1 shows the location of the proposed development sites in relation to designated Special Protection Areas within the vicinity.

Table 3-2 EU Designated sites within the vicinity of the proposed works

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 20/11/2023)	Conservation Objective
River Shannon and River Fergus Estuaries SPA	Adjacent to the northern boundary of the proposed development	➤ Cormorant (<i>Phalacrocorax carbo</i>) [A017] ➤ Whooper Swan (<i>Cygnus cygnus</i>) [A038] ➤ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] ➤ Shelduck (<i>Tadorna tadorna</i>) [A048] ➤ Wigeon (<i>Anas penelope</i>) [A050] ➤ Teal (<i>Anas crecca</i>) [A052] ➤ Pintail (<i>Anas acuta</i>) [A054] ➤ Shoveler (<i>Anas clypeata</i>) [A056] ➤ Scaup (<i>Aythya marila</i>) [A062] ➤ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ➤ Golden Plover (<i>Pluvialis apricaria</i>) [A140] ➤ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ➤ Lapwing (<i>Vanellus vanellus</i>) [A142] ➤ Knot (<i>Calidris canutus</i>) [A143] ➤ Dunlin (<i>Calidris alpina</i>) [A149]	Detailed conservation objectives for this site (Version 1, September 2012) were reviewed as part of the assessment and are available at www.npws.ie. Each of the listed SCI species has the conservation objective to maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. The wetlands and waterbirds SCI has the conservation objective “To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it”

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 20/11/2023)	Conservation Objective
		➤ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ➤ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ➤ Curlew (<i>Numenius arquata</i>) [A160] ➤ Redshank (<i>Tringa totanus</i>) [A162] ➤ Greenshank (<i>Tringa nebularia</i>) [A164] ➤ Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] ➤ Wetland and Waterbirds [A999]	



Map Legend

- Site Boundary
- Special Protected Area (SPA)
- Groundwater Catchment
- Water Framework Directive (WFD) Subcatchments



Drawing Title

Special Protected Areas

Project Title

Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No. 210710	Drawing No. Figure 3.1
Scale 1:160,000	Date 13.12.2023



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3.1.3 Irish Wetland Bird Survey (I-WeBS) Data

Irish Wetland Bird Survey (I-WeBS) data was obtained from BirdWatch Ireland on the 23rd of November 2023, following a formal data request. This data includes the most up to date information on the species present at the most proximal IWeBS site i.e. Limerick City (0I477) and Bunlicky Lake (0I003).

Data for each subsite is set out in the sections below. The data also shows where Nationally or Internationally important numbers of each species have been recorded in the past, with all important flocks highlighted in red. A site is considered nationally important if it supports 1% or more of the all-Ireland population, based on the most recent estimates for Ireland, namely Crowe and Holt (2013). A site is classified as internationally important if it regularly supports in excess of 20,000 waterbirds or 1% or more of the flyway population estimate of a species, based on Wetlands International (2017).

3.1.3.1 Limerick City Subsite (0I477)

Details of I-WeBS data for the Limerick City subsite (0I477) are presented in Table 3-3 and includes annual peak counts for the period 2017-2023. There are no IWeBS data available for the monitoring period 2018/19 or 2019/20 for this monitoring site.

Table 3-3 IWeBS data for Limerick City subsite in close proximity to the proposed development site.

Species	1% National	1% International	2017/18	2020/21	2011/2022	2022/23	Peak
Mute Swan	90	100	6	67	42	45	67
Whooper Swan	150	340	26	9	-	-	26
Greylag Goose	35	980		165	109	171	171
Wigeon	560	14000	6	10	16	-	16
Gadwall	20	1200	-	-	34	8	34
Teal	360	5000	-	-	34	7	34
Mallard	280	53000	5	58	87	68	87
Shoveler	20	650	29	3	20	8	29
Pochard	110	2000	16	-	7	2	16
Tufted Duck	270	8900	58	41	21	28	58
Goosander	-	-	2	-	1	-	2
Little Grebe	20	4700	6	5	11	-	11
Cormorant	110	1200	1	14	74	29	74
Grey Heron	25	5000	1	4	3	4	4
Water Rail	-	-	2	3	1	-	3

Species	1% National	1% International	2017/18	2020/21	2011/2022	2022/23	Peak
Moorhen	-	-	4	19	24	16	24
Coot	190	15500	93	30	43	32	93
Oystercatcher	610	8200	97	45	68	45	97
Lapwing	850	72300	57	37	67	4	67
Snipe	-	-	10	69	4	-	69
Redshank	240	2400	1	3	2	-	3
Greenshank	20	3300	-	-	1	-	1
Kingfisher	-	-	-	1	2	-	2
Black-headed Gull	-	-		1204	1286	292	1286
Ring-billed Gull	-	-	2	1	-	-	2
Common Gull	-	-	-	48	75	10	75
Lesser Black-backed Gull	-	-	-	44	180	146	180
Herring Gull	-	-	-	189	243	17	243
Mediterranean Gull	-	-	-	1	1	-	1
Iceland Gull	-	-	6	2	1	2	6
Glaucous Gull	-	-	-	1	-	-	1
Great Black-backed Gull	-	-	-	7	13	4	13

3.1.3.2 Bunlicky Lake Subsite (0I003)

Details of I-WeBS data for the Bunlicky Lake subsite (0I003) are presented in Table 3-4 and includes annual peak counts for the period 2018-2020. There are no IWeBS data available for this site for the monitoring period 2021/2022 or 2022/2023. Bunlicky Lake was not surveyed in full since January 2015, but individual Greylag Goose counts were sourced as part of a separate request under I-WeBS.

Table 3-4 IWeBS data for Bunlicky Lake subsite west of the proposed development site.

Species	1% National	1% International	2018/19	2019/20	Peak
Greylag Goose	35	980	18	112	112

3.1.4

River Shannon and River Fergus Estuaries SPA (004077)

A detailed conservation objectives document is available for River Shannon and River Fergus Estuaries SPA (www.npws.ie, accessed on 20/11/2023). The Special Conservation Interests of this SPA and their conservation objective are listed in Table 3.5.

Table 3-5 Special Conservation Interest and Conservation Objectives (Version 01, 2012, NPWS)

Special Conservation Interest (SCI)	Conservation Objective
Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it.
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	To maintain the favourable conservation condition of Cormorant in the River Shannon and River Fergus Estuaries SPA.
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	To maintain the favourable conservation condition of Whooper Swan in the River Shannon and River Fergus Estuaries SPA.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in the River Shannon and River Fergus Estuaries SPA.
Shelduck (<i>Tadorna tadorna</i>) [A048]	To maintain the favourable conservation condition of Shelduck in the River Shannon and River Fergus Estuaries SPA.
Wigeon (<i>Anas penelope</i>) [A050]	To maintain the favourable conservation condition of Wigeon in the River Shannon and River Fergus Estuaries SPA.
Teal (<i>Anas crecca</i>) [A052]	To maintain the favourable conservation condition of Teal in the River Shannon and River Fergus Estuaries SPA.
Pintail (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition of Pintail in the River Shannon and River Fergus Estuaries SPA.
Shoveler (<i>Anas clypeata</i>) [A056]	To maintain the favourable conservation condition of Shoveler in the River Shannon and River Fergus Estuaries SPA.
Scaup (<i>Aythya marila</i>) [A062]	To maintain the favourable conservation condition of Scaup in the River Shannon and River Fergus Estuaries SPA.
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	To maintain the favourable conservation condition of Ringed Plover in the River Shannon and River Fergus Estuaries SPA.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	To maintain the favourable conservation condition of Golden Plover in the River Shannon and River Fergus Estuaries SPA.
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of Grey Plover in the River Shannon and River Fergus Estuaries SPA.
Lapwing (<i>Vanellus vanellus</i>) [A142]	To maintain the favourable conservation condition of Lapwing in the River Shannon and River Fergus Estuaries SPA.
Knot (<i>Calidris canutus</i>) [A143]	To maintain the favourable conservation condition of Knot in the River Shannon and River Fergus Estuaries SPA.

Special Conservation Interest (SCI)	Conservation Objective
Dunlin (<i>Calidris alpina</i>) [A149]	To maintain the favourable conservation condition of Dunlin in the River Shannon and River Fergus Estuaries SPA.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	To maintain the favourable conservation condition of Black-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition of Bar-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Curlew (<i>Numenius arquata</i>) [A160]	To maintain the favourable conservation condition of Curlew in the River Shannon and River Fergus Estuaries SPA.
Redshank (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition of Redshank in the River Shannon and River Fergus Estuaries SPA.
Greenshank (<i>Tringa nebularia</i>) [A164]	To maintain the favourable conservation condition of Greenshank in the River Shannon and River Fergus Estuaries SPA.
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	To maintain the favourable conservation condition of Black-headed Gull in the River Shannon and River Fergus Estuaries SPA.

3.1.4.1 Special Conservation Interests

A review of desktop literature pertaining to the SPA was conducted including the site-specific conservation document, conservation objectives supporting documents, site synopsis and the most recent available Article 12 reports.

3.1.4.1.1 Wetlands and Waterbirds

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

“The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry.

The site has vast expanses of intertidal flats which contain a diverse macro invertebrate community, e.g. Macoma-Scrobicularia-Nereis, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Whooper Swan, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Pintail, Shoveler, Scaup, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank and Black-headed Gull.

It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds”.

The wetland habitat designated as part of the River Shannon and River Fergus Estuaries SPA has the target that the permanent area occupied by the wetland habitat should be stable and not significantly less than 32,261ha other than that occurring from natural patterns of variation.

3.1.4.1.2 **Cormorant (*Phalacrocorax carbo*) [A017]**

This species has been designated for its wintering and breeding population within the SPA. According to the site species conservation objectives document Cormorant colonies are usually sited on flat or rocky islets or sea stack tops, less often on cliffs but they can also nest in trees (Walsh et al., 1995). According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Cormorant (*Phalacrocorax carbo*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 245 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining 1.0 –24.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2019) the short-term population trend (for the period of 2002 - 2018) for this species is increasing and the long-term trend (for the period of 2002 1985-2018) is also increasing.

3.1.4.1.3 **Whooper Swan (*Cygnus cygnus*) [A038]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Whooper Swan (*Cygnus cygnus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 118 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as increasing and the current conservation condition of this species is favourable.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2002 - 2010) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.1.4 **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Light-bellied Brent Goose (*Branta bernicla hrota*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 494 individuals.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.1.5 **Shelduck (*Tadorna tadorna*) [A048]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,025 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is Fluctuating and the long-term trend (since circa 1980) is stable.

3.1.4.1.6 **Wigeon (*Anas penelope*) [A050]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Wigeon (*Anas penelope*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,761 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is highly unfavourable.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is also decreasing.

3.1.4.1.7 **Teal (*Anas crecca*) [A052]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Teal (*Anas crecca*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,260 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.8 **Pintail (*Anas acuta*) [A054]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is fluctuating and the long-term trend (since circa 1980) is unknown.

3.1.4.1.9 **Shoveler (*Anas clypeata*) [A056]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus

Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.10 **Scaup (*Aythya marila*) [A062]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.11 **Ringed Plover (*Charadrius hiaticula*) [A137]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (*Charadrius hiaticula*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 223 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2011) for this species is stable and the long-term trend (since circa 1980) is unknown.

3.1.4.1.12 **Golden Plover (*Pluvialis apricaria*) [A140]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Golden Plover (*Pluvialis apricaria*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 5,664 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2010) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.13 **Grey Plover (*Pluvialis squatarola*) [A141]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 558 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.14 **Lapwing (*Vanellus vanellus*) [A142]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Lapwing (*Vanellus vanellus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,126 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.15 **Knot (*Calidris canutus*) [A143]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Knot (*Calidris canutus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,015 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.16 **Dunlin (*Calidris alpina*) [A149]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographic population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,131 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.17 **Black-tailed Godwit (*Limosa limosa*) [A156]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,035 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.18 **Bar-tailed Godwit (*Limosa lapponica*) [A157]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Bar-tailed Godwit (*Limosa lapponica*). The mean peak number within the SPA during the baseline period (1995/96 – 1999/00) was 460 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.19 **Curlew (*Numenius arquata*) [A160]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Curlew (*Numenius arquata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,396 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.20 **Redshank (*Tringa totanus*) [A162]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,645 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.21 **Greenshank (*Tringa nebularia*) [A164]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Greenshank (*Tringa nebularia*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 61 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is increasing.

3.1.4.1.22 **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012). This species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2019) the short-term population trend (for the period of 2002 - 2018) for this species is increasing and the long-term trend (for the period of 1985 - 2018) is increasing.

3.2 Field Survey Results

The following section provides the results of the Bird Surveys undertaken between October 2022 and March 2023, inclusive.

3.2.1 Species records within the proposed development sites

Table 3.6 lists of the target species of conservation interest recorded from within (or flying over) the proposed development site boundaries during the surveys carried out between October 2022 and March 2023. These records, along with records of target species of conservation interest recorded in adjacent lands outside the proposed development site boundaries, are presented in Figures 3.2 to Figures 3.10.

Non-target bird species recorded within the development sites are presented in Appendix 1.

Only one SCI species of the nearby River Shannon and River Fergus Estuaries SPA was recorded roosting or feeding within the proposed development site boundary at Bunlicky; black headed gulls were recorded roosting on the wastewater treatment plant site infrastructure during the majority of the surveys carried out. The number of Black-headed gulls recorded roosting ranged between 1 and 204, with an average of 67 individuals. This species was recorded roosting on the storm tank, aeration tanks and settlement tanks within the WwTP. Black-headed gulls appear to be habituated to the activity within the WwTP and were not disturbed by human activity and noise generated by the plant.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken.

Four red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Gilbert et, al., 2021) were recorded from within the proposed development sites at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland in the western section Bunlicky WwTP and once on one occasion from the grassland in the north-east of the Corcanree pumping station. A single redwing was recorded on one occasion roosting on vegetation in the western section of the site at Bunlicky WwTP. An individual grey wagtail was recorded on one occasion roosting in the north of the Bunlicky WwTP and a pair were recorded on a separate occasion again in the north before taking flight and flying north out of the site boundary. A Kestrel was recorded within the proposed development at Corcanree pumping station in flight along the northern section of the site and hunting over the wet grassland to the north and to the west of the site.

The remaining target species recorded flying over the sites included a Mallard flying over Bunlicky WwTP and a Herring Gull flying over Corcanree pumping station. Neither species landed in the habitats within the proposed development sites. Neither of these species are listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

3.2.2

Species records within habitats adjacent to the proposed development sites

Table 3.7 lists the target species of conservation interest recorded in habitats adjacent to the proposed development sites during the surveys carried out between October 2022 and March 2023.

Non-target bird species recorded within the development sites are presented in Appendix 1.

Six SCI species of the nearby River Shannon and River Fergus Estuaries SPA, three of which are red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Dunlin, Curlew, Redshank) were recorded roosting or feeding within habitats adjacent to the proposed development sites. Dunlin, Redshank and Teal were recorded utilising the mudflats and sandflats north of Bunlicky lake. Curlew was recorded in flight over Bunlicky Lake. High numbers of Cormorants were recorded roosting in nests on an island in Bunlicky Lake on almost every visit. The number of Cormorants recorded roosting ranged between 16 and 200, with an average of 98 individuals. Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. Black-headed gulls were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, the Ballinacurra stream and commuting over wet grasslands.

One further red listed bird species on the BoCCI (Gilbert et, al., 2021) was recorded utilising habitats adjacent to the proposed development sites at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland between the River Shannon and Bunlicky Lake and from grassland north-east of Bunlicky WwTP site boundary.

The remaining target species recorded included Mute swans roosting in Bunlicky Lake, the Ballinacurra Stream and the mudflats and sandflats north of Bunlicky Lake. Greylag geese were recorded feeding in wet grasslands between the River Shannon and Bunlicky Lake and in wet grasslands south of Bunlicky Lake, they were also recorded roosting in Bunlicky Lake. Lastly, Mallards were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, and commuting over several grasslands adjacent to both Bunlicky WwTP and Corcanree pumping station.

Table 3-6 Target bird survey recorded from within or flying over the proposed development sites at Bunlicky WwTP and Corcanree Pump Station.

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	99 Black-headed gulls roosting on the wastewater treatment plant infrastructure. 23 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.2	28/10/2022	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
	101 Black-headed gulls roosting on site infrastructure. 9 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.3	25/11/2022	
	141 Black-headed gulls roosting on site infrastructure. 15 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.4	12/12/2022	
	195 Black-headed gulls roosting on site infrastructure. 9 Black-headed gulls fly over site.	Bunlicky WwTP	3.5	17/01/2023	
	81 Black headed gulls roosting on site infrastructure. 28 Black-headed gulls fly over site.	Bunlicky WwTP	3.6	31/01/2023	
	67 Black headed gulls roosting on site infrastructure. 11 Black-headed gulls fly over site.	Bunlicky WwTP	3.7	14/02/2023	
	20 Black headed gulls roosting on site infrastructure. 5 Black-headed gulls fly over site.	Bunlicky WwTP	3.8	24/02/2023	
	24 Black headed gulls roosting on site infrastructure. 24 Black-headed gulls fly over site.	Bunlicky WwTP	3.9	07/03/2023	
	5 Black-headed gulls fly over site.	Bunlicky WwTP	3.10	24/03/2023	
	1 Black-headed gull in flight over site.	Corcanree	3.2	28/10/2022	
	2 Black-headed gulls in flight over site.	Corcanree	3.4	12/12/2022	
	2 Black-headed gulls in flight over site.	Corcanree	3.6	31/01/2023	
	1 Black-headed gull in flight over site.	Corcanree	3.9	07/03/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Cormorant (<i>Phalacrocorax carbo</i>)	2 Cormorants flew over the site, 1 circled the site before flying towards the River Shannon. 1 flew towards Bunlicky.	Corcanree Pump Station	3.2	28/10/2022	
	2 Cormorants flew over the site, 1 flew towards the River Shannon. 1 flew towards Bunlicky.	Corcanree Pump Station	3.6	31/01/2023	
	1 Cormorant flew over the site, towards the River Shannon.	Corcanree Pump Station	3.7	14/02/2023	
	4 Cormorants flew over the site, 1 flew towards the River Shannon. 3 flew towards Bunlicky.	Corcanree Pump Station	3.8	24/02/2023	
Mute Swan (<i>Cygnus olor</i>)	1 Mute swan flew over the site, towards the River Shannon.	Corcanree Pump Station	3.8	24/02/2023	BoCCI Amber listed
Kestrel (<i>Falco tinnunculus</i>)	1 Kestrel over the site, before briefly hunting in the wet grasslands to the south and west.	Corcanree Pump Station	3.10	24/03/2023	BoCCI Red listed
Snipe (<i>Gallinago gallinago</i>)	1 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.2	28/10/2022	
	1 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.3	25/11/2022	
	2 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.4	12/12/2022	
	2 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.6	31/01/2023	
	5 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.7	14/02/2023	
	3 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.8	24/02/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	2 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.9	07/03/2023	
	2 Snipes flushed from wet grassland in western section of the site.	Corcanree Pump Station	3.9	07/03/2023	
	2 Snipes flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.10	24/03/2023	
Redwing (<i>Turdus iliacus</i>)	1 Redwing roosting in western section of the site.	Bunlicky WwTP	3.3	28/10/2022	BoCCI Red listed
	1 Redwing roosting in western section of the site.	Bunlicky WwTP	3.3	25/11/2022	
Grey Wagtail (<i>Motacilla cinerea</i>)	2 Grey wagtails roosting in northern section of the site.	Bunlicky WwTP	3.8	24/02/2023	
	1 Grey wagtail roosting in western section of the site.	Bunlicky WwTP	3.4	12/12/2023	
Common Gull (<i>Larus canus</i>)	4 Common gulls flying over the site.	Bunlicky WwTP	3.3	28/10/2022	BoCCI Amber listed
	2 Common gulls flying over the site.	Corcanree Pump Station	3.8	24/02/2023	
Herring Gull (<i>Larus argentatus</i>)	1 Common gull flying over the site.	Corcanree Pump Station	3.8	24/02/2023	

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Table 3-7 Target bird survey recorded from within adjacent habitats of the Bunlicky WwTP and Corcanree Pump Station.

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Little egret (<i>Egretta garzetta</i>)	1 Little egret roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.8	24/02/2023	Annex I listed species of the EU Birds Directive
	3 Little egret roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.10	24/03/2023	
Dunlin (<i>Calidris alpina</i>)	10 Dunlin roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.9	07/03/2023	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Red listed
Curlew (<i>Numenius arquata</i>)	25 Curlew flew over Bunlicky lake in a westerly direction	Bunlicky Lake	3.6	31/01/2023	
Redshank (<i>Tringa totanus</i>)	3 Redshank flew in an easterly direction from in the mudflats/sandflats north of Bunlicky Lake up the River Shannon	Mudflats/Sandflats north of Bunlicky Lake	3.4	12/12/2022	
	17 Redshank roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.5	17/01/2023	
	10 Redshank roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.10	07/03/2023	
	15 Redshank roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.10	24/03/2023	
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	6 Black-headed gulls were recorded flying over the site.	Wet grassland west of the Corcanree Pump Station	3.2	28/10/2022	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
	6 Black-headed gulls roosting in the Ballinacurra Creek Stream.	Ballinacurra Creek Stream.	3.2	28/10/2022	
	9 Black-headed gulls were recorded flying over wet grassland adjacent to Bunlicky WwTP.	Wet grassland east of Bunlicky WwTP	3.4	12/12/2022	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	5 Black-headed gulls roosting on the water in Bunlicky Lake.	Bunlicky Lake	3.5	17/01/2023	
	5 Black-headed gulls flew over wet grassland south of Bunlicky Lake.	Wet grassland south of Bunlicky lake	3.8	24/02/2023	
	15 Black-headed gulls roosting in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.10	24/03/2023	
Cormorant (<i>Phalacrocorax carbo</i>)	12 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.2	28/10/2022	
	10 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.3	25/11/2023	
	16 Cormorants roosting in the eastern section of Bunlicky Lake.	Bunlicky Lake	3.3	25/11/2023	
	5 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.4	12/12/2022	
	3 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.5	17/01/2023	
	113 Cormorants roosting on the island vegetation in Bunlicky Lake. 2 Cormorants roosting on the water in Bunlicky Lake.	Bunlicky Lake	3.5	17/01/2023	
	8 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.6	31/01/2023	
	82 Cormorants roosting on the island vegetation in Bunlicky Lake.	Bunlicky Lake	3.6	31/01/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	2 Cormorants flew over wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake in a southerly direction.	Wet grassland south of Bunlicky lake	3.6	31/01/2023	
	34 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.7	14/02/2023	
	3 Cormorants flying in Bunlicky Lake.	Bunlicky Lake	3.7	14/02/2023	
	81 Cormorants roosting on the island vegetation in Bunlicky Lake.	Bunlicky Lake	3.7	14/02/2023	
	54 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.8	24/02/2023	
	173 Cormorants roosting on the island vegetation in Bunlicky Lake.	Bunlicky Lake	3.8	24/02/2023	
	38 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.7	07/03/2023	
	173 Cormorants roosting on the island vegetation in Bunlicky Lake. 27 Cormorants roosting on the water in Bunlicky Lake	Bunlicky Lake	3.9	07/03/2023	
	1 Cormorant flew north over the Ballinacurra Steam towards the River Shannon	Ballinacurra Steam	3.10	24/03/2023	
	14 Cormorant flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.10	24/03/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Teal (<i>Anas crecca</i>)	121 Cormorants roosting on the island vegetation in Bunlicky Lake	Bunlicky Lake	3.10	24/03/2023	
	25 Teal flew from in the mudflats/sandflats north of Bunlicky Lake north towards the River Shannon	Mudflats/Sandflats north of Bunlicky Lake	3.8	24/02/2023	
	30 Teal roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.9	07/03/2023	
Mute Swan (<i>Cygnus olor</i>)	3 Mute swans roosting in Bunlicky Lake	Bunlicky Lake	3.2	28/10/2022	BoCCI Amber listed
	2 Mute swans flew in a southerly direction from in the mudflats/sandflats north of Bunlicky Lake towards Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.4	12/12/2022	
	6 Mute swans roosting in Bunlicky Lake	Bunlicky Lake	3.7	14/02/2023	
	14 Mute swans roosting in Bunlicky Lake	Bunlicky Lake	3.8	24/02/2023	
	6 Mute swans roosting in Bunlicky Lake	Bunlicky Lake	3.9	07/03/2023	
	1 Mute swan roosting in the Ballinacurra Creek Stream	Ballinacurra Creek Stream.	3.10	24/03/2023	
	1 Mute swan roosting in Bunlicky Lake	Bunlicky Lake	3.10	24/03/2023	
Snipe (<i>Gallinago gallinago</i>)	1 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.4	12/12/2022	BoCCI Red listed
	4 Snipe flushed from grassland north-east of the Bunlicky WwTP site boundary.	Grassland north-east of Bunlicky WwTP site boundary.	3.5	17/01/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	13 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.6	31/01/2023	
	8 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.7	14/02/2023	
	1 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.8	24/02/2023	
	2 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.9	07/03/2023	
	1 Snipe flushed from grassland between the River Shannon and Corcanree Pumping Station.	Grassland between the River Shannon and Corcanree Pumping Station.	3.10	24/03/2023	
Greylag Goose (<i>Anser anser</i>)	6 Greylag geese roosting in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake	3.4	12/12/2022	BoCCI Amber listed
	8 Greylag geese roosting in grassland between the River Shannon and Bunlicky Lake. 3 Greylag geese flew from grassland between the River Shannon and Bunlicky Lake towards the River Shannon	Grassland between the River Shannon and Bunlicky Lake	3.5	17/01/2023	
	10 Greylag geese roosting in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake	3.5	17/01/2023	
	6 Greylag geese roosting in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake	3.6	31/01/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	10 Greylag geese roosting in grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.8	24/02/2023	
	6 Greylag geese roosting in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake	3.8	24/02/2023	
	1 Greylag flew from Bunlicky Lake north towards the River Shannon	Bunlicky Lake	3.9	07/03/2023	
	2 Greylag geese roosting in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake	3.9	07/03/2023	
	8 Greylag geese roosting in grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.10	24/03/2023	
Mallard (<i>Anas platyrhynchos</i>)	2 Mallards roosting in the eastern section of Bunlicky Lake.	Bunlicky Lake	3.2	28/10/2022	
	2 Mallards flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake	3.4	12/12/2022	
	5 Mallards flew over the grassland east of Corcanree, in a southerly direction.	Grassland east of Corcanree Pump Station	3.7	14/02/2023	
	2 Mallards roosting in Bunlicky Lake.	Bunlicky Lake	3.7	14/02/2023	
	5 Mallards roosting in Bunlicky Lake.	Bunlicky Lake	3.8	24/02/2023	
	3 Mallards flew in a northerly direction over the grassland west of Bunlicky between the WwTP and Bunlicky Lake	Grassland west of Bunlicky between the WwTP and Bunlicky Lake	3.8	24/02/2023	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	5 Mallards roosting/feeding in the mudflats/sandflats north of Bunlicky Lake	Mudflats/Sandflats north of Bunlicky Lake	3.9	07/03/2023	

BoCCI – Birds of Conservation Concern in Ireland 2020 - 2026



Map Legend

Site Bounday	Species	Flight lines
	Cormorant Species	Snipe
	1	1
	Black headed gull	Cormorant
12	1	1
46		3
21		7
34		Black headed gull
Cormorant		1
16		3



Drawing Title

Bird Survey 25.11.2022

Project Title

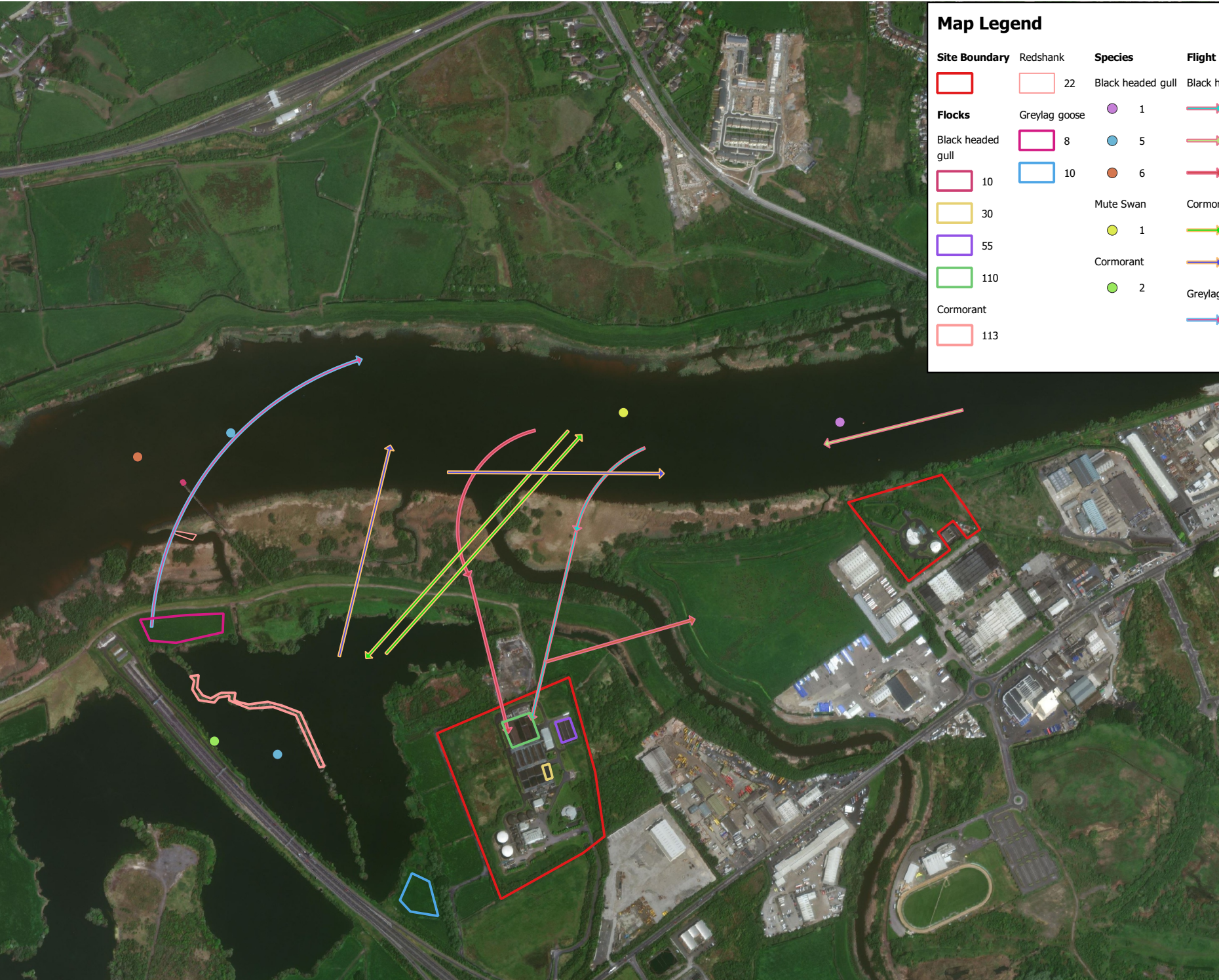
Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No.	Drawing No.
210710	Figure 3.3
Scale	Date
1:10,000	13.12.2023



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Map Legend

Site Boundary	Redshank	Species	Flight lines	Snipe Flight
	22	Black headed gull	1	4
Flocks	Greylag goose	1	1	
Black headed gull	8	5	3	
10	10	6	8	
30		Mute Swan	Cormorant	
55		1	1	
110		Cormorant	2	
Cormorant		2	Greylag goose	
113			3	



Drawing Title

Bird Survey 17.01.2023

Project Title

Limerick WwTP Upgrade

Drawn By

NOD

Checked By

RW

Project No.

210710

Drawing No.

Figure 3.5

Scale

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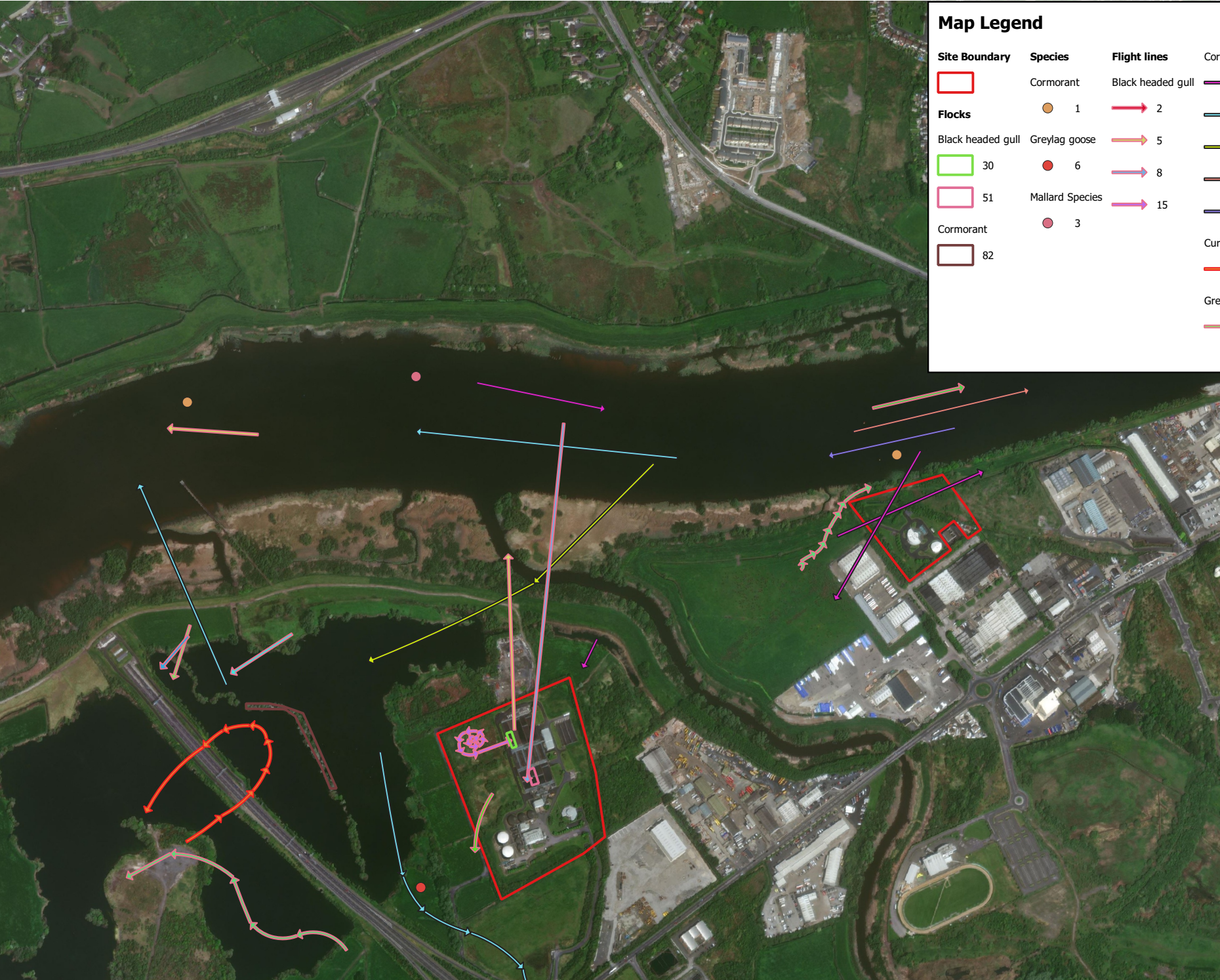
Date

13.12.2023



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Map Legend

Site Boundary	Species	Flight lines	Cormorant	Herring gull
	Cormorant	Black headed gull	1	2
Flocks	1	2	2	Snipe
Black headed gull	Greylag goose	5	5	2
30	6	8	10	5
51	Mallard Species	15	11	8
Cormorant	3			Sparrow hawk
82			Curlew	1
			25	
			Greylag goose	
			2	



Drawing Title

Bird Survey 31.01.2023

Project Title

Limerick WwTP Upgrade

Drawn By

NOD

Checked By

RW

Project No.

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Drawing No.

Figure 3.6

Scale

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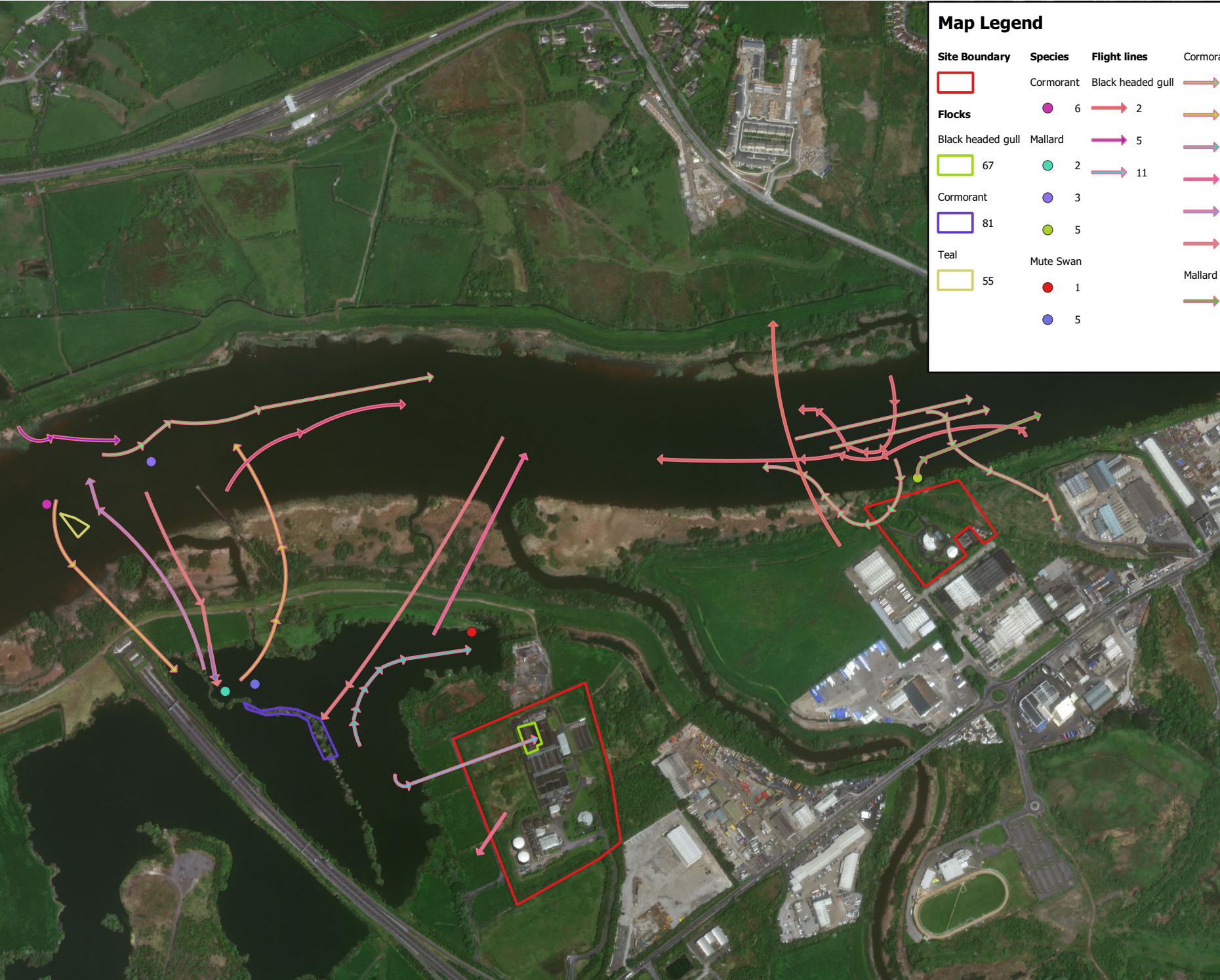
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13.12.2023



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Map Legend

Site Boundary	Species	Flight lines	Cormorant	Snipe
	Cormorant	Black headed gull	1	5
Flocks	6	2	2	8
Black headed gull	Mallard	5	3	Sparrow hawk
67	2	11	5	1
Cormorant	3		7	Teal
81	5		9	15
Teal	Mute Swan			
55	1		Mallard	
	5		5	



Drawing Title

Bird Survey 14.02.2023

Project Title

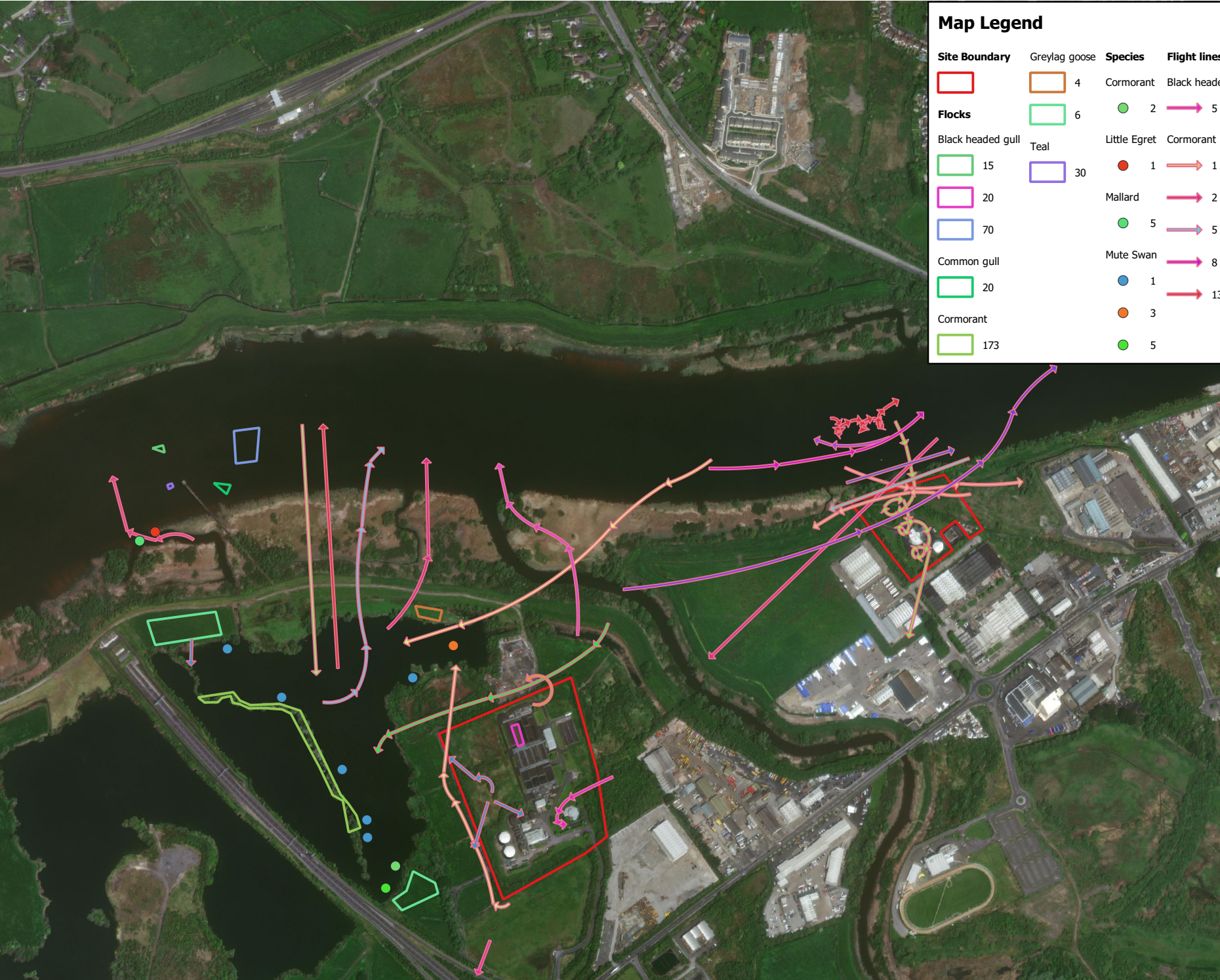
Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No.	Drawing No.
210710	Figure 3.7
Scale	Date
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Map Legend

Site Boundary	Greylag goose	Species	Flight lines		
	4	Cormorant	5	15	5
Flocks	6	Black headed gull	16	16	Mallard Flight
Black headed gull	30	Little Egret	17	21	2
15		Mallard	1	31	Mute Swan
20		1	2	31	1
70		5	5	2	Grey wagtail
Common gull		Mute Swan	8	2	Snipe
20		1	13	2	1
Cormorant		3	3	2	Herring gull
173		5	3	3	Teal
				25	



Drawing Title

Bird Survey 24.02.2023

Project Title

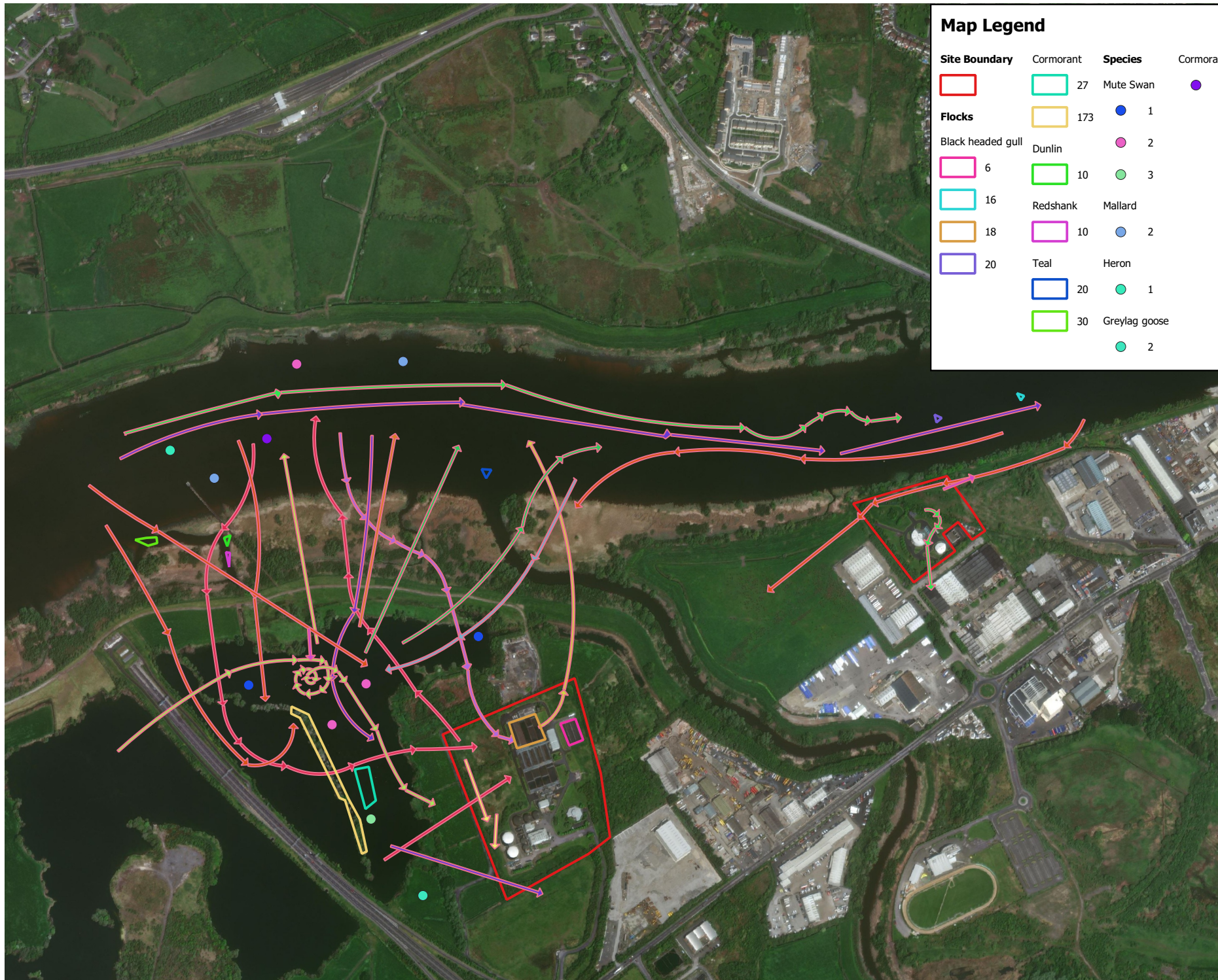
Limerick WwTP Upgrade

Drawn By	Checked By
NOD	RW
Project No.	Drawing No.
210710	Figure 3.8
Scale	Date
1:10,000	13.12.2023



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Map Legend

Site Boundary	Cormorant	Species	Cormorant	Flight lines	
	27	Mute Swan	2	1	15
Flocks	173	1		3	1
Black headed gull	Dunlin	2		5	1
6	10	3		10	1
16	Redshank	Mallard		Cormorant	1
18	10	2		1	2
20	Teal	Heron		2	
	20	1		4	
	30	Greylag goose		8	
		2			



Drawing Title

Bird Survey 07.03.2023

Project Title

Limerick WwTP Upgrade

Drawn By

NOD

Checked By

RW

Project No.

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Drawing No.

Figure 3.9

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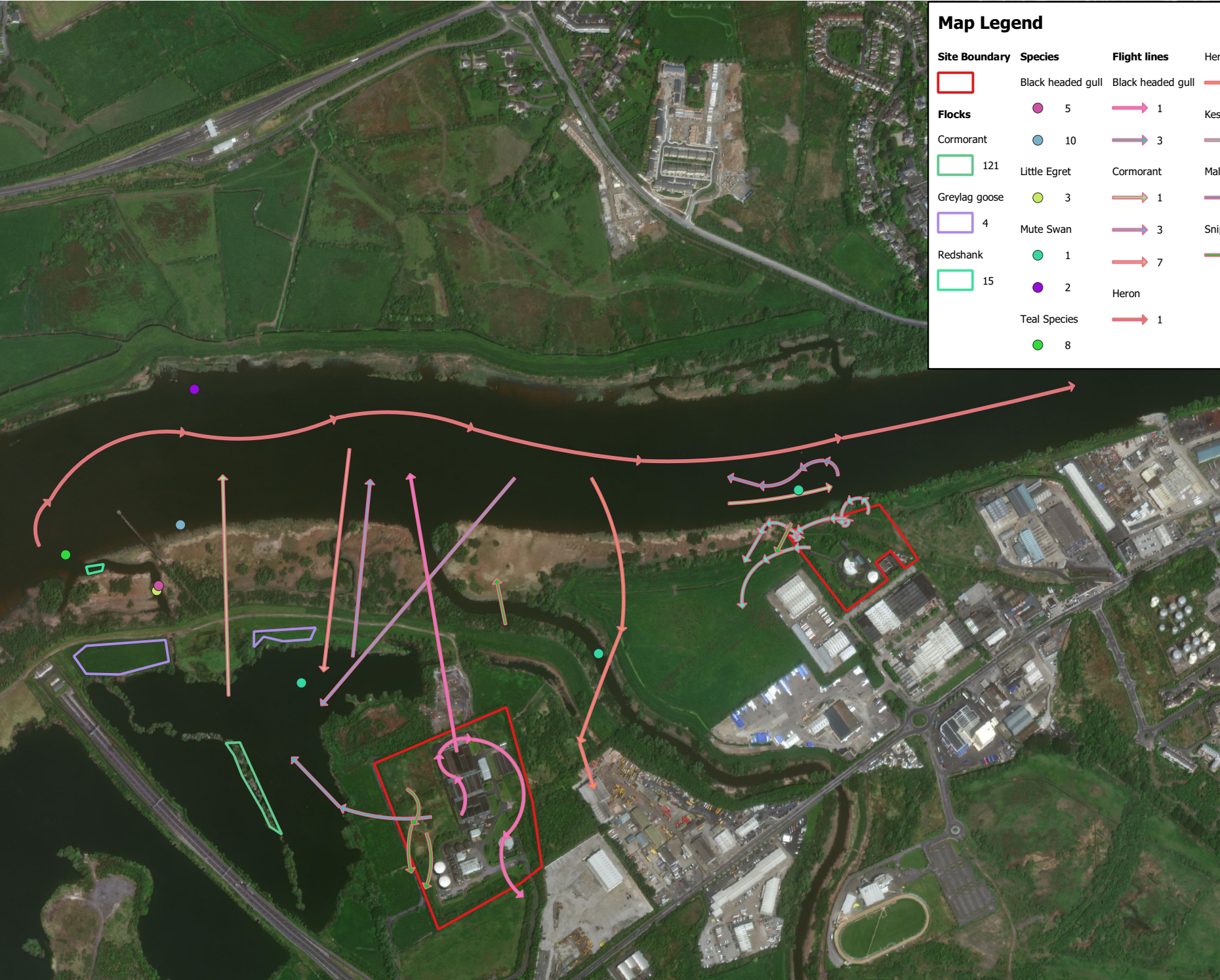
Date

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Map Legend

Site Boundary	Species	Flight lines	Herring gull
	Black headed gull	Black headed gull	2
Flocks	5	1	Kestrel
Cormorant	10	3	1
121	Little Egret	Cormorant	Mallard
Greylag goose	3	1	3
4	Mute Swan	3	Snipe
Redshank	1	7	1
15	2	Heron	
	Teal Species	1	
	8		



Drawing Title

Bird Survey 24.03.2023

Project Title

Limerick WwTP Upgrade

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210710

Drawing No.

Figure 3.10

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4.

SUMMARY OF FIELD SURVEY AND DISCUSSION

The surveys undertaken over the period winter period October 2022 to March 2023 provide an understanding of the usage of the proposed development sites and adjacent habitats by wintering bird species. A total of eight target bird species were recorded within or flying over the proposed development site boundaries, while a total of ten target bird species were recorded within or flying over habitats adjacent to the proposed development sites during the winter site visits.

The majority of the birds recorded within the development site boundaries during the surveys were an assemblage of common birds that are typical of amenity grassland, agricultural grassland and urban habitats found within the wider area. The majority of birds recorded within habitats adjacent to the sites were wetland and waterbirds.

No Annex I SCI listed species of the River Shannon and River Fergus Estuaries SPA, were recorded using the habitats within the site boundaries. One Annex I species, the Little egret which is not a SCI listed species of the River Shannon and River Fergus Estuaries SPA was recorded in the wider area in mudflat and sandflat habitats.

The number of SCI listed species, Black-headed gulls recorded roosting within the Bunlicky WwTP site boundary ranged between 1 and 204, with an average of 67 individuals. The population estimate for this species in Ireland is approximately 48,821 (Lewis et al., 2019), international and national thresholds for this species are not currently available, as demonstrated in Table 3.3. However, when comparing the population estimate to the species count recorded roosting on the storm tank, aeration tanks and settlement tanks within the WwTP, the habitats within the site boundary does not appear to support an important bird assemblage of Black-headed gulls. These gulls appear to be habituated to the activity within the WwTP and were not disturbed by human activity and noise generated by the plant. Black-headed gulls were also recorded utilising several habitats adjacent to the site boundaries such as, mudflats and sandflats, the Ballinacurra stream and Bunlicky Lake.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken. However, high numbers of Cormorants were recorded roosting in nests on an island in Bunlicky Lake on almost every visit. The number of Cormorants recorded roosting ranged between 16 and 200, with an average of 98 individuals. As shown in Table 3.3 the threshold for wintering cormorant is 110 birds (Lewis et al., 2019). Therefore, this breeding colony in Bunlicky Lake is of high importance because roosting numbers during winter exceed the threshold for a population which is 1% of the national total (following NRA, 2009). Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. No other SCI species of the River Shannon and River Fergus Estuaries SPA was recorded within or flying over the site boundaries during the surveys.

Six SCI species of the nearby River Shannon and River Fergus Estuaries SPA, three of which are red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Dunlin, Curlew, Redshank) were recorded roosting or feeding within habitats adjacent to the proposed development sites. Dunlin, Redshank and Teal were recorded utilising the mudflats and sandflats north of Bunlicky lake while Curlew was recorded in flight over Bunlicky Lake.

Four red listed bird species on the BoCCI (Gilbert et al., 2021) were recorded from within the proposed development site at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland in the western section Bunlicky WwTP and once on one occasion from the grassland in the north-east of the Corcanree pumping station. Snipes

were also recorded utilising adjacent habitats, flushed from wet grassland between the River Shannon and Bunlicky Lake and from grassland north-east of Bunlicky WwTP site boundary. A single redwing was recorded on one occasion roosting on vegetation in the western section of the site at Bunlicky WwTP. An individual grey wagtail was recorded on one occasion roosting in the north of the Bunlicky WwTP and a pair were recorded on a separate occasion again in the north before taking flight and flying north, out of the site boundary. A Kestrel was recorded within the proposed development at Corcanree pumping station in flight along the northern section of the site and hunting over the wet grassland to the north and to the west of the site.

The remaining target species recorded flying over the sites included, a Mallard flying over Bunlicky WwTP and a Herring Gull flying over Corcanree pumping station. Neither species landed in the habitats within the proposed development sites. Neither of these species are listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

The remaining target species recorded within habitats adjacent to the site boundaries included Mute swans roosting in Bunlicky Lake, the Ballinacurra Stream and the mudflats and sandflats north of Bunlicky Lake. Greylag geese were recorded feeding in wet grasslands between the River Shannon and Bunlicky Lake and in wet grasslands south of Bunlicky Lake, they were also recorded roosting in Bunlicky Lake. Lastly, Mallards were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, and commuting over several grasslands adjacent to both Bunlicky WwTP and Corcanree pumping station.

5.

CONCLUSION

Based on the wintering bird assemblages recorded over the nine surveys carried out between October 2022 and March 2023, it can be concluded that neither Bunlicky WwTP or Corcanree Pumping Station support important assemblages of wintering wildfowl, waders, or SCI species for which the River Shannon and River Fergus estuaries SPA has been designated due to the low population counts within the site boundaries when compared with the national population count. These flocks of the SCI species Black-headed gulls were recorded roosting on site infrastructure at Bunlicky WwTP. There is no potential for loss of supporting habitat for the SCI species of River Shannon and River Fergus Estuaries SPA.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken. However, there is a breeding colony of Cormorant situated in Bunlicky Lake, adjacent to the Bunlicky WwTP which is a colony of high importance. Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. No other SCI species of the River Shannon and River Fergus Estuaries SPA was recorded within or flying over the site boundaries during the surveys.

Habitats within the site primarily consist of amenity grassland, wet grassland, buildings and artificial surfaces, hedges, and treelines. Species listed as SCIs for the River Shannon and River Fergus Estuaries SPA are unlikely to depend on these habitats within the proposed development site.

According to the site-specific conservation objectives document the SCI species of the River Shannon and River Fergus Estuaries SPA, are primarily associated with intertidal sheltered and shallow subtidal, sand and mud flats habitats. These habitats are located within the vicinity of the project area however, they do not occur within the development boundaries.

6.

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APPENDIX 1

NON- TARGET BIRD SPECIES

Species	Scientific name	BoCCI Status	Date recorded
Magpie	<i>Pica pica</i>	Green	28/10/2022 25/11/2022 12/12/2022 14/02/2023 24/02/2023 24/03/2023
Robin	<i>Erithacus rubecula</i>	Green	28/10/2022 25/11/2022 12/12/2022 17/01/2023 12/12/2022 31/01/2023 14/02/2023 24/02/2023 07/03/2023
Wood pigeon	<i>Columba palumbus</i>	Green	28/10/2022 25/11/2022 31/01/2023 24/03/2023
Wren	<i>Troglodytes troglodytes</i>	Green	28/10/2022 25/11/2022 12/12/2022 17/01/2023 31/01/2023 14/02/2023 24/02/2023 07/03/2023 24/03/2023
Hooded crow	<i>Corvus cornix</i>	Green	28/10/2022 25/11/2022 12/12/2022 17/01/2023 31/01/2023 14/02/2023 24/02/2023 07/03/2023 24/03/2023
Blackbird	<i>Turdus merula</i>	Green	28/10/2022 25/11/2022 31/01/2023 14/02/2023 24/02/2023 07/03/2023 24/03/2023
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	28/10/2022 31/01/2023 24/02/2023 24/03/2023
Starling	<i>Sturnus vulgaris</i>	Amber (breeding population)	12/12/2022 24/02/2023 07/03/2023 24/03/2023

Species	Scientific name	BoCCI Status	Date recorded
Pied wagtail	<i>Motacilla alba yarrellii</i>	Green	28/10/2022 14/02/2023 07/03/2023 24/03/2023
Mistle thrush	<i>Turdus viscivorus</i>	Green	28/10/2022 12/12/2022 31/01/2023
Jackdaw	<i>Corvus monedula</i>	Green	28/10/2022 17/01/2023 24/03/2023
Chaffinch	<i>Fringilla coelebs</i>	Green	28/10/2023 25/11/2023 14/02/2023 24/02/2023 24/03/2023
Rook	<i>Corvus frugilegus</i>	Green	28/10/2022 25/11/2022 31/01/2023 24/02/2023 07/03/2023 24/03/2023
Blue tit	<i>Cyanistes caeruleus</i>	Green	25/12/2022 25/11/2022 12/12/2022 17/01/2023 14/02/2023
Goldfinch	<i>Carduelis carduelis</i>	Green	28/10/2022 25/11/2022 31/01/2023 24/02/2023 24/03/2023
Long tailed tit	<i>Aegithalus caudatus</i>	Green	25/11/2022 12/12/2022 17/01/2023 31/01/2023 24/02/2023 07/03/2023 24/03/2023
Goldcrest	<i>Regulus regulus</i>	Green	28/10/2023
Siskin	<i>Carduelis spinus</i>	Green	31/01/2023

Winter Bird Survey Report

Bunlicky Wastewater
Treatment Plant Upgrade
Project, Co. Limerick





DOCUMENT DETAILS

Client: **Egis**

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1.

INTRODUCTION

MKO has been appointed by Egis to undertake winter bird surveys for the period November 2024 to March 2025 inclusive, for the proposed upgrade works at Limerick Wastewater Treatment Plant, Bunlicky, Dock Road, Co. Limerick and at Corcanree Pumping Station, Corcanree Business Park, Dock Road, Co. Limerick.

The proposed WwTP Upgrade works are located within the Severn Trent Response Wastewater Treatment Plant, Dock Road, Bunlicky, Co. Limerick. Bunlicky Wastewater Treatment Plant is located approximately 2.5km west of Limerick City Centre (Grid reference: R 54623 55688). The site is accessed via a local road off the Dock Road (R510) roundabout. Bunlicky Wastewater Treatment Plant is located adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

The proposed pumping station upgrade works are located within a field adjacent to the Corcanree Pump Station, Corcanree Business Park, Dock Road, Limerick (grid ref: R 55457 56224). The pump station is accessed via the Dock Road (N69) and local access roads within Corcanree Business Park. The proposed pumping station upgrade works site is also adjacent to the River Shannon and River Fergus Estuaries SPA [004077] along its northern boundary.

A site location map is provided as Figure 1.1.

The objective of the winter surveys is to assess the suitability of the proposed development sites to support a variety of wintering wildfowl and waders, including the bird species listed as Special Conservation Interests (SCIs) for the River Shannon and River Fergus Estuaries SPA.

The assessment objectives can be summarised as follows:

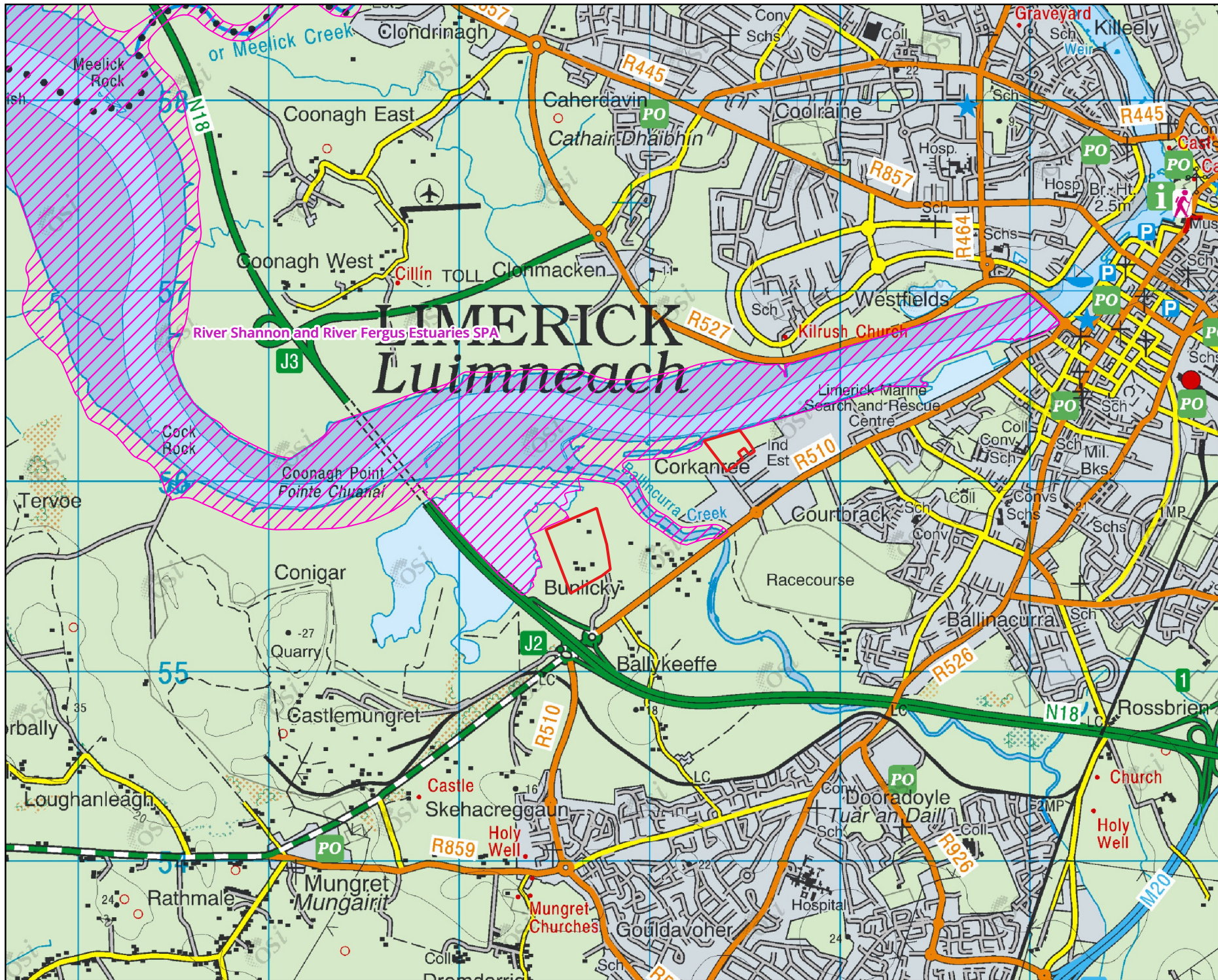
- To undertake field surveys to assess for the presence of suitable habitat and the occurrence of wintering bird species within and adjacent to the development sites.
- The study seeks to determine the distribution of the species within and adjacent to the proposed development sites and to determine the presence of feeding/roosting areas within/adjacent to the proposed development sites.

Section two of this report provides the methodology, constraints, survey information, weather conditions and survey coverage. The results of the desk study and field surveys are presented in section three of this report. An evaluation and discussion of the results is provided in Section four. The concluding section of the report considers the findings and potential impacts of the proposed development on SCI listed species of the River Shannon and River Fergus Estuaries SPA.

1.1

Statement of Authority

Wintering bird surveys were undertaken between November 2024 and March 2025 by Kieran Sugrue (B.Sc. Zoology). This report has been prepared by Kieran Sugrue. This report has been reviewed by Rachel Walsh (B.Sc. Env., MCIEEM), who has 5 years' experience in professional ecological consultancy and has undertaken Appropriate Assessments and Ecological Impact Assessments for a wide range of projects.



Map Legend

-  Site Boundary
-  Special Protection Area (SPA)



Drawing Title

Site Location

Project Title	
Limerick WwTP Upgrade	
Drawn By	Checked By
KS	RW
Project No.	Drawing No.
210710	Fig 1-1
Scale	Date
1:26,000	17.04.2025



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2. METHODOLOGY

2.1 Desk Study

A number of sources were assessed to determine the likely usage of both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NDBC), Birdwatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for the nearby River Shannon and River Fergus Estuaries SPA. Results of the desk study are provided in Section 3.1.

2.2 Field Survey Methodology

During the initial field visit the sites were assessed and suitable vantage points were identified in line with previous years wintering bird surveys undertaken at the proposed development sites during the 2020/2021 & 2022/2023 survey periods. Surrounding private lands were scanned using a spotting scope from elevated vantage points. Any significant flocks of wintering wildfowl or waders were recorded using such an approach.

The survey area covered the development site at Bunlicky WwTP and Corcanree Pumping Station, and areas of potentially suitable supporting habitat in proximity to the proposed development site including areas of agricultural grassland adjacent to Bunlicky WwTP, Bunlicky Lake, the estuarine habitat adjacent to the outfall at Bunlicky and the estuarine habitat adjacent to Corcanree Pumping station.

The surveys were undertaken monthly from November 2024 to March 2025. Surveys were undertaken at alternate high/low tides, within two hours of high/low tide. A combination of low and high tide counts has been used due to the differences in behaviour and site use between tidal states, with different species likely to be foraging and roosting in different areas of River Shannon and River Fergus Estuaries SPA and the surrounding terrestrial habitats, depending on the stage of the tidal cycle.

The surveys were undertaken by an appropriately qualified Ecologist. All observations were recorded, and detailed point data was gathered for each species observation, with all bird species denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. The species recorded in the surveys were those covered by Irish Wetlands Bird Survey (I-WeBS) counts, i.e., all divers, grebes, cormorant, shag, herons, swans, geese, ducks, rails, crakes, waders, gulls, and kingfisher. However, in addition to this, all other bird species, including raptors and all common and widespread passerines, were also recorded from within the proposed development sites.

2.2.1 I-WeBS Surveys

The winter bird surveys at the nearby SPA followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 1998; Bibby, C.J., 2000; Birdwatch Ireland, 2018). The surveys were carried out at suitable vantage points within the sites, additional vantage points located overlooking the section of the River Shannon and River Fergus Estuaries SPA in close proximity to the proposed development sites. Vantage points were chosen to have as large as possible a view of the proposed development sites, adjacent wetland habitats and potential adjacent daytime foraging habitat in the vicinity of the proposed development sites. The chosen vantage points were stopped at for 15-minute intervals each, along the transect walk on each survey day. Vantage points focused on areas which were deemed to be of likely significance to wintering waterbirds of River Shannon and River Fergus Estuaries SPA.

Details of the surveys carried out including date, time, duration, location, and weather conditions are provided in Table 2.2. A map of the vantage point locations used during the surveys is presented in Figure 2.1.

2.2.2 **Transects**

Walked transects were undertaken within the site boundaries in conjunction with vantage point surveys. During the surveys species of note were recorded both within and adjacent to the development sites. All bird species were denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. Transects walked during the survey are shown in Figure 2.2. During the surveys species of note were recorded both within and adjacent to the development sites.



Map Legend

- Site Boundary
- Vantage Points



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Drawing Title	
Vantage Point Locations	
Project Title	
Limerick WwTP Upgrade	
Drawn By	Checked By
KS	AvdGM
Project No.	Drawing No.
210710	Fig 2-1
Scale	Date
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Map Legend

-  Site Boundary
-  Transects



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Drawing Title	
Bird Survey Transects	
Project Title	
Limerick WwTP Upgrade	
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2.2.3

Survey Details

Details of the surveys including survey dates, weather conditions and survey duration are provided in Table 2.1.

Table 2-1 Survey Effort

Date	Survey duration	Tide	Weather conditions
25/11/2024	6 hours	High	Wind speed: Calm Cloud cover: 60% Visibility: Good Rain: Dry Frost: No Snow: No
12/12/2024	6 hours	Low	Wind speed: Light breeze Cloud cover: 100% Visibility: Good Rain: Dry Frost: No Snow: No
23/01/2025	6 hours	High	Wind speed: Light breeze (Increased to a Strong breeze as day progressed) Cloud cover: 100% Visibility: Good Rain: Dry (Heavy Rain prior to starting survey) Frost: No Snow: No
24/02/2025	6 hours	Low	Wind speed: Light breeze Cloud cover: 15% Visibility: Good Rain: Dry (Light Rain prior to starting survey) Frost: No Snow: No
24/03/2025	6 hours	High	Wind speed: Light breeze Cloud cover: >5% Visibility: Good Rain: Dry Frost: No Snow: No

2.2.4

Survey Constraints

During the survey effort on November 25th, 2024, cattle blocked access to the southwestern area of the site, however this area was able to be surveyed from a vantage point. Apart from this activity, no significant survey constraints limited the survey approach, and a comprehensive assessment was undertaken. All surveys were undertaken during optimal weather conditions as poor weather conditions and high wind can lead to decreased bird movements and hinder surveyor visibility.

3. RESULTS

3.1 Desk Study

A number of sources were assessed to determine the likely usage of the sites by both breeding and wintering bird species, including Bird Atlases, National Biodiversity Data Centre (NBDC), BirdWatch Ireland and Conservation Objectives Supporting Documents from the National Parks and Wildlife Service (NPWS) for nearby Special Protection Areas (SPAs).

3.1.1 Breeding and Wintering Bird Atlases

The Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland (Balmer et al., 2013) provides the most up-to-date information regarding the distribution and relative abundance of bird species in Britain and Ireland, based on surveys carried out between 2007 and 2011. The atlases show data for breeding and wintering birds respectively in individual 10 km x 10 km squares (hectads). Table 3.1 shows those species found in the relevant hectad (R55) which are recorded as breeding in the most recent atlas.

This dataset also provides species that have been recorded within the relevant 2km tetrads (R55N and R55M) on National Biodiversity Data Centre (NBDC) datasets as well as those listed in Annex I of the EU Birds Directive recorded on the BoCCI Red List. Birds listed under Annex I are offered special protection by the EU Birds Directive. Those listed on the Birds of Conservation Concern in Ireland (BoCCI) Red List meet one or more of the following criteria:

- IUCN: Global conservation status (Critically Endangered (CE), Endangered (E) or Vulnerable (V), but not Near Threatened. These species are recognised as the highest priorities for action at a global scale and are thus priorities at an all-Ireland level.
- European conservation status. The conservation status of all European species was assessed most recently by Birdlife International (2004), one of the main changes in the revision being to include the IUCN criteria. These species are those of global conservation concern (including those classified as Near Threatened) and are Red listed.
- The Irish breeding population has undergone significant historical decline since 1800.
- The Irish non-breeding population has undergone a significant decline of 50% in the last 25 years.
- The Irish breeding range has undergone a decline of 70% or more in the last 25 years.

One species listed under Annex I of the EU Birds Directive have been recorded within the tetrad R55N Little Egret (*Egretta garzetta*). A further seven red-listed birds of conservation concern have been recorded within this tetrad: Meadow Pipit (*Anthus pratensis*), Stock Dove (*Columba oenas*), Common Kestrel (*Falco tinnunculus*), Northern Lapwing (*Vanellus vanellus*), Northern Shoveler (*Anas clypeata*), Common Swift (*Apus apus*) and Scaup (*Anas marila*).

Two species listed under Annex I of the EU Birds Directive has been recorded within the tetrad R55M: Dunlin (*Calidris alpina*) and Kingfisher (*Alcedo atthis*). A further eleven red-listed birds of conservation concern have been recorded within this tetrad: Common Goldeneye (*Bucephala clangula*), Common Kestrel (*Falco tinnunculus*), Common Redshank (*Tringa totanus*), Common Snipe (*Gallinago gallinago*), Common Swift (*Apus apus*), Eurasian Curlew (*Numenius arquata*), Grey Wagtail (*Motacilla cinerea*), Meadow Pipit (*Anthus pratensis*), Northern Lapwing (*Vanellus vanellus*), Redwing (*Turdus iliacus*) and Stock Dove (*Columba oenas*).

Table 3-1 NBDC Bird data and Bird Atlas data (Hectad R55)

Common Name	Scientific name	Designation
Common Kingfisher	<i>Alcedo atthis</i>	Protected EU Birds Directive Annex I Bird Species
European Golden Plover	<i>Pluvialis apricaria</i>	
Hen Harrier	<i>Circus cyaneus</i>	
Little Egret	<i>Egretta garzetta</i>	
Mediterranean Gull	<i>Larus melanocephalus</i>	
Merlin	<i>Falco columbarius</i>	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	
Short-eared Owl	<i>Asio flammeus</i>	
Whooper Swan	<i>Cygnus cygnus</i>	
Barn Owl	<i>Tyto alba</i>	Birds of Conservation Concern – Red list
Black-headed Gull	<i>Larus ridibundus</i>	
Common Goldeneye	<i>Bucephala clangula</i>	
Common Snipe	<i>Gallinago gallinago</i>	
Common Swift	<i>Apus apus</i>	
Dunlin	<i>Calidris alpina</i>	
Eurasian Curlew	<i>Numenius arquata</i>	
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	
Eurasian Woodcock	<i>Scolopax rusticola</i>	
Greater Scaup	<i>Aythya marila</i>	
Herring Gull	<i>Larus argentatus</i>	
Northern Lapwing	<i>Vanellus vanellus</i>	
Northern Shoveler	<i>Anas clypeata</i>	

Common Name	Scientific name	Designation
Common Goldeneye	<i>Bucephala clangula</i>	
Common Pochard	<i>Aythya ferina</i>	
Common Redshank	<i>Tringa totanus</i>	
Yellowhammer	<i>Emberiza citrinella</i>	
Kestrel	<i>Falco tinnunculus</i>	
Stock Dove	<i>Columba oenas</i>	
Black-tailed Godwit	<i>Limosa limosa</i>	
Grey Wagtail	<i>Motacilla cinerea</i>	
Redwing	<i>Turdus iliacus</i>	
Meadow Pipit	<i>Anthus pratensis</i>	

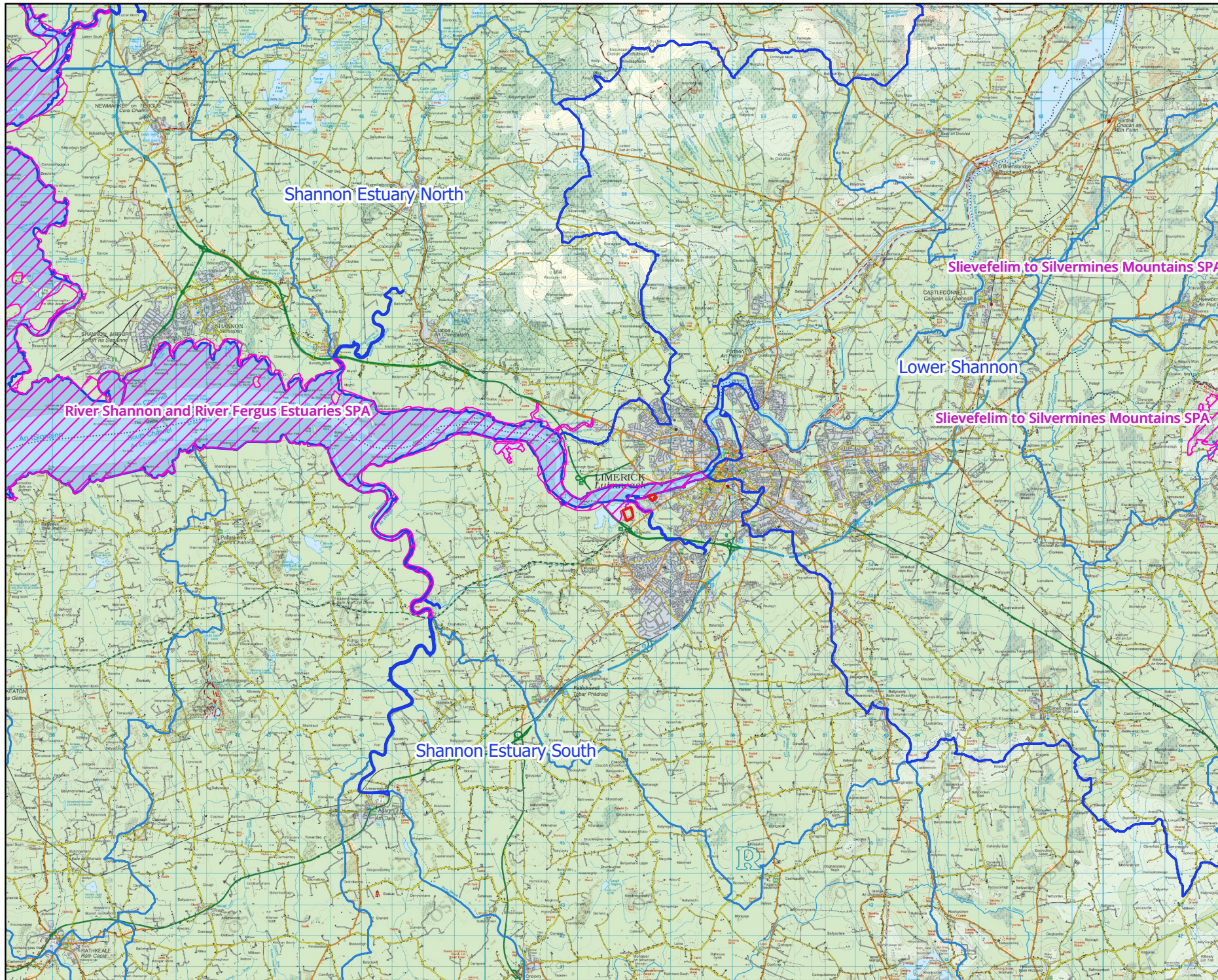
3.1.2 Sites designated for Wintering Bird Species within the vicinity of the Proposed Development Sites

Using QGIS Software, designated sites within the vicinity of the proposed development sites were identified. Only one special protection area was identified within the vicinity of the proposed development sites. The site synopsis and conservation objectives of this site, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report. Details of this sites, including its distance from the proposed development sites, are provided in Table 3.2. Figure 3.1 shows the location of the proposed development sites in relation to designated Special Protection Areas within the vicinity.

Table 3-2 EU Designated sites within the vicinity of the proposed works

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 02/04/2025)	Conservation Objective
River Shannon and River Fergus Estuaries SPA	Adjacent to the northern boundary of the proposed development	➤ Cormorant (<i>Phalacrocorax carbo</i>) [A017] ➤ Whooper Swan (<i>Cygnus cygnus</i>) [A038] ➤ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] ➤ Shelduck (<i>Tadorna tadorna</i>) [A048] ➤ Wigeon (<i>Anas penelope</i>) [A050] ➤ Teal (<i>Anas crecca</i>) [A052] ➤ Pintail (<i>Anas acuta</i>) [A054] ➤ Shoveler (<i>Anas clypeata</i>) [A056] ➤ Scaup (<i>Aythya marila</i>) [A062] ➤ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ➤ Golden Plover (<i>Pluvialis apricaria</i>) [A140] ➤ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ➤ Lapwing (<i>Vanellus vanellus</i>) [A142] ➤ Knot (<i>Calidris canutus</i>) [A143] ➤ Dunlin (<i>Calidris alpina</i>) [A149] ➤ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ➤ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ➤ Curlew (<i>Numenius arquata</i>) [A160]	Detailed conservation objectives for this site (Version 1, September 2012) were reviewed as part of the assessment and are available at www.npws.ie. Each of the listed SCI species has the conservation objective to maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. The wetlands and waterbirds SCI has the conservation objective “To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it”

EU Designated Site	Distance from Proposed development site (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 02/04/2025)	Conservation Objective
		➤ Redshank (<i>Tringa totanus</i>) [A162] ➤ Greenshank (<i>Tringa nebularia</i>) [A164] ➤ Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] ➤ Wetland and Waterbirds [A999]	



Map Legend

-  Site Boundary
-  Special Protection Area (SPA)
-  WFD Hydrological Catchments
-  WFD Hydrological Subcatchments



Drawing Title

Special Protected Areas

Project Title

Limerick WwTP Upgrade

Drawn By

KS

Checked By

RW

Project No.

210710

Drawing No.

Fig 3-1

Scale

1:160,000

Date

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3.1.3 Irish Wetland Bird Survey (I-WeBS) Data

Irish Wetland Bird Survey (I-WeBS) data was obtained from BirdWatch Ireland on the 13th of May 2025, following a formal data request. This data includes the most up to date information on the species present at the most proximal IWeBS site i.e. Limerick City (0I477) and Bunlicky Lake (0I003).

Data for each subsite is set out in the sections below. The data also shows where Nationally or Internationally important numbers of each species have been recorded in the past, with all important flocks highlighted in red. A site is considered nationally important if it supports 1% or more of the all-Ireland population, based on the most recent estimates for Ireland, namely Crowe and Holt (2013). A site is classified as internationally important if it regularly supports in excess of 20,000 waterbirds or 1% or more of the flyway population estimate of a species, based on Wetlands International (2017).

3.1.3.1 Limerick City Subsite (0I477)

Details of I-WeBS data for the Limerick City subsite (0I477) are presented in Table 3-3 and includes annual peak counts for the period 2020-2024.

Table 3-3 IWeBS data for Limerick City subsite in close proximity to the proposed development site.

Species	1% National	1% International	2020/21	2021/2022	2022/23	2023/24	Peak
Mute Swan	90	100	67	42	45	62	67
Whooper Swan	150	340	9	-	-	24	26
Greylag Goose	35	980	165	109	171	49	171
Wigeon	560	14000	10	16	-	15	16
Gadwall	20	1200	-	34	8	21	34
Teal	360	5000	-	34	7	66	34
Mallard	280	53000	58	87	68	125	87
Shoveler	20	650	3	20	8	18	29
Pochard	110	2000	-	7	2	8	16
Tufted Duck	270	8900	41	21	28	25	58
Goosander	-	-	-	1	-	62	2
Goldeneye	40	11400	-	-	-	1	4
Little Grebe	20	4700	5	11	-	7	11
Cormorant	110	1200	14	74	29	31	74
Grey Heron	25	5000	4	3	4	2	4
Water Rail	-	-	3	1	-	6	3

Species	1% National	1% International	2020/21	2021/2022	2022/23	2023/24	Peak
Moorhen	-	-	19	24	16	36	24
Coot	190	15500	30	43	32	39	93
Oystercatcher	610	8200	45	68	45	98	97
Lapwing	850	72300	37	67	4	-	67
Jack Snipe	-	-	-	-	-	1	1
Snipe	-	-	69	4	-	27	69
Redshank	240	2400	3	2	-	4	3
Greenshank	20	3300	-	1	-	-	1
Kingfisher	-	-	1	2	-	-	2
Black-headed Gull	-	-	1204	1286	292	788	1286
Ring-billed Gull	-	-	1	-	-	-	2
Common Gull	-	-	48	75	10	52	75
Lesser Black-backed Gull	-	-	44	180	146	62	180
Herring Gull	-	-	189	243	17	230	243
Mediterranean Gull	-	-	1	1	-	-	1
Iceland Gull	-	-	2	1	2	1	6
Glaucous Gull	-	-	1	-	-	-	1
Great Black-backed Gull	-	-	7	13	4	9	13
Yellow-legged Gull	-	-	-	-	-	1	1

3.1.3.2 Bunlicky Lake Subsite (0I003)

Details of I-WeBS data for the Bunlicky Lake subsite (0I003) are presented in Table 3-4 and includes annual peak counts for the period 2018-2020. There are no IWeBS data available for this site for the monitoring period 2021/2022, 2022/2023 or 2023/24. Bunlicky Lake was not surveyed in full since January 2015, but individual Greylag Goose counts were sourced as part of a separate request under I-WeBS.

Table 3-4 IWeBS data for Bunlicky Lake subsite west of the proposed development site.

Species	1% National	1% International	2018/19	2019/20	Peak
Greylag Goose	35	980	18	112	112

3.1.4

River Shannon and River Fergus Estuaries SPA (004077)

A detailed conservation objectives document is available for River Shannon and River Fergus Estuaries SPA (www.npws.ie, accessed on 20/11/2023). The Special Conservation Interests of this SPA and their conservation objective are listed in Table 3.5.

Table 3-5 Special Conservation Interest and Conservation Objectives (Version 01, 2012, NPWS)

Special Conservation Interest (SCI)	Conservation Objective
Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly- occurring migratory waterbirds that utilise it.
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	To maintain the favourable conservation condition of Cormorant in the River Shannon and River Fergus Estuaries SPA.
Whooper Swan (<i>Cygnus cygnus</i>) [A038]	To maintain the favourable conservation condition of Whooper Swan in the River Shannon and River Fergus Estuaries SPA.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in the River Shannon and River Fergus Estuaries SPA.
Shelduck (<i>Tadorna tadorna</i>) [A048]	To maintain the favourable conservation condition of Shelduck in the River Shannon and River Fergus Estuaries SPA.
Wigeon (<i>Anas penelope</i>) [A050]	To maintain the favourable conservation condition of Wigeon in the River Shannon and River Fergus Estuaries SPA.
Teal (<i>Anas crecca</i>) [A052]	To maintain the favourable conservation condition of Teal in the River Shannon and River Fergus Estuaries SPA.
Pintail (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition of Pintail in the River Shannon and River Fergus Estuaries SPA.
Shoveler (<i>Anas clypeata</i>) [A056]	To maintain the favourable conservation condition of Shoveler in the River Shannon and River Fergus Estuaries SPA.
Scaup (<i>Aythya marila</i>) [A062]	To maintain the favourable conservation condition of Scaup in the River Shannon and River Fergus Estuaries SPA.
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	To maintain the favourable conservation condition of Ringed Plover in the River Shannon and River Fergus Estuaries SPA.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	To maintain the favourable conservation condition of Golden Plover in the River Shannon and River Fergus Estuaries SPA.

Special Conservation Interest (SCI)	Conservation Objective
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of Grey Plover in the River Shannon and River Fergus Estuaries SPA.
Lapwing (<i>Vanellus vanellus</i>) [A142]	To maintain the favourable conservation condition of Lapwing in the River Shannon and River Fergus Estuaries SPA.
Knot (<i>Calidris canutus</i>) [A143]	To maintain the favourable conservation condition of Knot in the River Shannon and River Fergus Estuaries SPA.
Dunlin (<i>Calidris alpina</i>) [A149]	To maintain the favourable conservation condition of Dunlin in the River Shannon and River Fergus Estuaries SPA.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	To maintain the favourable conservation condition of Black-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition of Bar-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.
Curlew (<i>Numenius arquata</i>) [A160]	To maintain the favourable conservation condition of Curlew in the River Shannon and River Fergus Estuaries SPA.
Redshank (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition of Redshank in the River Shannon and River Fergus Estuaries SPA.
Greenshank (<i>Tringa nebularia</i>) [A164]	To maintain the favourable conservation condition of Greenshank in the River Shannon and River Fergus Estuaries SPA.
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	To maintain the favourable conservation condition of Black-headed Gull in the River Shannon and River Fergus Estuaries SPA.

3.1.4.1 Special Conservation Interests

A review of desktop literature pertaining to the SPA was conducted including the site-specific conservation document, conservation objectives supporting documents, site synopsis and the most recent available Article 12 reports.

3.1.4.1.1 Wetlands and Waterbirds

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

“The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry.

The site has vast expanses of intertidal flats which contain a diverse macro invertebrate community, e.g. Macoma-Scrobicularia-Nereis, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Whooper Swan, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Pintail, Shoveler, Scaup, Ringed Plover, Golden Plover, Grey

Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank and Black-headed Gull.

It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds”.

The wetland habitat designated as part of the River Shannon and River Fergus Estuaries SPA has the target that the permanent area occupied by the wetland habitat should be stable and not significantly less than 32,261ha other than that occurring from natural patterns of variation.

3.1.4.1.2 **Cormorant (*Phalacrocorax carbo*) [A017]**

This species has been designated for its wintering and breeding population within the SPA. According to the site species conservation objectives document Cormorant colonies are usually sited on flat or rocky islets or sea stack tops, less often on cliffs but they can also nest in trees (Walsh et al., 1995). According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Cormorant (*Phalacrocorax carbo*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 245 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining 1.0 –24.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2019) the short-term population trend (for the period of 2002 - 2018) for this species is increasing and the long-term trend (for the period of 2002 1985-2018) is also increasing.

3.1.4.1.3 **Whooper Swan (*Cygnus cygnus*) [A038]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Whooper Swan (*Cygnus cygnus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 118 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as increasing and the current conservation condition of this species is favourable.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2002 - 2010) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.1.4 **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Light-bellied Brent Goose (*Branta bernicla hrota*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 494 individuals.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is also increasing.

3.1.4.1.5 **Shelduck (*Tadorna tadorna*) [A048]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,025 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is Fluctuating and the long-term trend (since circa 1980) is stable.

3.1.4.1.6 **Wigeon (*Anas penelope*) [A050]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Wigeon (*Anas penelope*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 3,761 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is highly unfavourable.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is also decreasing.

3.1.4.1.7 **Teal (*Anas crecca*) [A052]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Teal (*Anas crecca*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,260 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.8 **Pintail (*Anas acuta*) [A054]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is fluctuating and the long-term trend (since circa 1980) is unknown.

3.1.4.1.9 **Shoveler (*Anas clypeata*) [A056]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.10 **Scaup (*Aythya marila*) [A062]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), this species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.11 **Ringed Plover (*Charadrius hiaticula*) [A137]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (*Charadrius hiaticula*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 223 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2011) for this species is stable and the long-term trend (since circa 1980) is unknown.

3.1.4.1.12 **Golden Plover (*Pluvialis apricaria*) [A140]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Golden Plover (*Pluvialis apricaria*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 5,664 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 2000 - 2010) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.13 **Grey Plover (*Pluvialis squatarola*) [A141]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 558 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.14 **Lapwing (*Vanellus vanellus*) [A142]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Lapwing (*Vanellus vanellus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,126 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.15 **Knot (*Calidris canutus*) [A143]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Knot (*Calidris canutus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,015 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is unknown.

3.1.4.1.16 **Dunlin (*Calidris alpina*) [A149]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site

regularly supports 1% or more of the biogeographic population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 15,131 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.17 **Black-tailed Godwit (*Limosa limosa*) [A156]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the biogeographical population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,035 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is increasing.

3.1.4.1.18 **Bar-tailed Godwit (*Limosa lapponica*) [A157]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of the Annex I species Bar-tailed Godwit (*Limosa lapponica*). The mean peak number within the SPA during the baseline period (1995/96 – 1999/00) was 460 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists the current conservation condition of this species as undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is increasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.19 **Curlew (*Numenius arquata*) [A160]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Curlew (*Numenius arquata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,396 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.20 **Redshank (*Tringa totanus*) [A162]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,645 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining >50% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1991 - 2008) for this species is decreasing and the long-term trend (since circa 1980) is decreasing.

3.1.4.1.21 **Greenshank (*Tringa nebularia*) [A164]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), during winter the site regularly supports 1% or more of the all-Ireland population of Greenshank (*Tringa nebularia*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 61 individuals.

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the Article 12 reporting (NPWS, 2012) the short-term population trend (for the period of 1999 - 2011) for this species is stable and the long-term trend (since circa 1980) is increasing.

3.1.4.1.22 **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]**

This species has been designated for its wintering population within the SPA. According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012). This species has been identified as additional Special Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries SPA as it was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00).

According to the Conservation Objectives Supporting Document (NPWS, Version 1, 2012), the site population status assessment lists this species as declining -25.0% to -49.9% and the current conservation condition of this species is undetermined.

According to the most recent Article 12 reporting (NPWS, 2019) the short-term population trend (for the period of 2002 - 2018) for this species is increasing and the long-term trend (for the period of 1985 - 2018) is increasing.

3.2 Field Survey Results

The following section provides the results of the Bird Surveys undertaken between November 2024 and March 2025, inclusive.

3.2.1 Species records within the proposed development sites

Table 3.6 lists the target species of conservation interest recorded from within (or flying over) the proposed development site boundaries during the surveys carried out between November 2024 and March 2025. These records, along with records of target species of conservation interest recorded in adjacent lands outside the proposed development site boundaries, are presented in Figures 3.2 to Figures 3.6.

Non-target bird species recorded within the development sites are presented in Appendix 1.

Only one SCI species of the nearby River Shannon and River Fergus Estuaries SPA was recorded roosting or feeding within the proposed development site boundary at Bunlicky; black headed gulls were recorded roosting on the wastewater treatment plant site infrastructure during the majority of the surveys carried out. The number of Black-headed gulls recorded roosting ranged between 4 and 50. This species was recorded roosting on the storm tank, aeration tanks and settlement tanks within the WwTP. Black-headed gulls appear to be habituated to the activity within the WwTP and were not disturbed by human activity and noise generated by the plant.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken.

Two red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Gilbert et al., 2021) were recorded from within the proposed development sites at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland in the western section Bunlicky WwTP and once on one occasion from the grassland in the north-east of the Corcanree pumping station. Two Grey wagtails were recorded utilising trees and other vegetation in the western section of the site at Bunlicky WwTP.

The remaining target species recorded flying over the sites included a Common gull flying over Bunlicky WwTP. This individual did not land in the habitats within the proposed development sites. This species is not a listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

3.2.2 Species records within habitats adjacent to the proposed development sites

Table 3.7 lists the target species of conservation interest recorded in habitats adjacent to the proposed development sites during the surveys carried out between November 2024 and March 2025.

Non-target bird species recorded within the development sites are presented in Appendix 1.

Six SCI species of the nearby River Shannon and River Fergus Estuaries SPA, two of which are red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Lapwing & Redshank) were recorded roosting or feeding within habitats adjacent to the proposed development sites. Lapwing & Redshank were recorded utilising the mudflats and sandflats north of Bunlicky lake, along the River Shannon. High numbers of Cormorants were recorded roosting in nests on an island in Bunlicky Lake on every visit. The number of Cormorants recorded roosting ranged between 19 and 150. Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. Black-headed gulls were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, the Ballinacurra stream and commuting over wet grasslands.

Three further red listed bird species on the BoCCI (Gilbert et, al., 2021) were recorded utilising habitats adjacent to the proposed development sites at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland between the River Shannon and Bunlicky Lake and from grassland north-east of Bunlicky WwTP site boundary. A Kestrel was recorded hunting in the wet grassland located to the west of the Bunlicky WwTP, and a Grey wagtail was also recorded utilising this area.

The remaining target species recorded included Mute swans roosting in Bunlicky Lake, the Ballinacurra Creek Stream, the mudflats and sandflats north of Bunlicky Lake and the River Shannon. Greylag geese were recorded feeding in wet grasslands between the River Shannon and Bunlicky Lake and in wet grasslands south of Bunlicky Lake, they were also recorded roosting in Bunlicky Lake. Mallards were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, and commuting over several grasslands adjacent to both Bunlicky WwTP and Corcanree pumping station.

Coot and Moorhen were recorded utilising the reedbeds along the edge of the River Shannon, as well as those in the Ballinacurra Creek Stream. Additionally, Great black-backed gulls, Lesser black-backed gulls & Common gulls were recorded in flight over the River Shannon on several occasions. Lastly, Grey heron and Little egret were recorded utilising the channel edges of the River Shannon, and roosting on the islands located in Bunlicky Lake.

Table 3-6 Target bird survey recorded from within or flying over the proposed development sites at Bunlicky WwTP and Corcanree Pump Station.

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	50 Black-headed gulls roosting on the wastewater treatment plant infrastructure. 15 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.2	25/11/2024	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
	4 Black-headed gulls roosting on site infrastructure. 17 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.3	12/12/2024	
	14 Black-headed gulls roosting on site infrastructure. 6 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.4	23/01/2025	
	3 Black-headed gulls were recorded flying over the site.	Corcanree Pump Station			
	45 Black-headed gulls were recorded flying over the site.	Bunlicky WwTP	3.5	24/02/2025	
	1 Black-headed gull were recorded flying over the site.	Corcanree Pump Station			
	2 Black-headed gulls fly over site.	Bunlicky WwTP	3.6	24/03/2025	
	2 Black-headed gulls fly over site.	Corcanree Pump Station			
Cormorant (<i>Phalacrocorax carbo</i>)	11 Cormorants flew over the site, flying towards Bunlicky.	Corcanree Pump Station	3.3	12/12/2024	
	1 Cormorant flew over the site.	Corcanree Pump Station	3.4	23/01/2025	
	1 Cormorant flew over the site, towards the River Shannon.	Bunlicky WwTP	3.6	24/03/2024	
Grey wagtail (<i>Motacilla cinerea</i>)	2 Grey wagtails recorded within Bunlicky WwTP	Bunlicky WwTP	3.6	24/03/2024	BoCCI Red Listed

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Snipe (<i>Gallinago gallinago</i>)	18 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.2	25/11/2025	BoCCI Red Listed
	2 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.3	12/12/2024	
	10 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.4	23/01/2025	
	2 Snipe flushed from wet grassland and flew through eastern section of the site.	Corcanree Pump Station			
	10 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.5	24/02/2025	
	5 Snipe flushed from wet grassland in western section of the site.	Bunlicky WwTP	3.6	24/03/2025	
	1 Snipe flushed from wet grassland in western section of the site.	Corcanree Pump Station	3.6	24/03/2025	
Common Gull (<i>Larus canus</i>)	1 Common gull recorded flying southwest over the site.	Corcanree Pump Station	3.3	12/12/2024	BoCCI Amber listed

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Table 3-7 Target bird survey recorded from within adjacent habitats to the Bunlicky WwTP and Corcanree Pump Station.

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Lapwing (<i>Vanellus vanellus</i>)	40 Lapwing foraging on the mudflats/sandflats of the River Shannon.	Mudflats/sandflats of the River Shannon.	3.3	12/12/2024	SCI listed species of the River Shannon and River Fergus Estuaries SPA BoCCI Red listed
Redshank (<i>Tringa totanus</i>)	1 Redshank calling at riverbank of the River Shannon. 1 Redshank foraging on mudflats/sandflats at channel edge.	River Shannon	3.3	12/12/2024	
	8 Redshank foraging on the mud mudflats/sandflats at channel edge in a side channel of the River Shannon.	River Shannon	3.5	24/02/2024	
	3 Redshank flushed from channel edge and flew along bank/across channel of the River Shannon.	River Shannon			
Mallard (<i>Anas platyrhynchos</i>)	2 Mallard flew south over Bunlicky Lake	Bunlicky Lake	3.2	25/11/2024	BoCCI Amber Listed
	1 Mallard flew along the surface of the River Shannon.	River Shannon			
	5 Mallard along shoreline of Bunlicky Lake (flushed and flew north)	Bunlicky Lake	3.3	12/12/2024	
	4 Mallard foraged along the channel edges of the River Shannon.	River Shannon			
	8 Mallard recorded in flight over Bunlicky Lake	Bunlicky Lake			
	1 Mallard recorded in flight over Wet grassland to the northeast of Bunlicky WwTP.	Wet grassland northeast of Bunlicky WwTP.			
	2 Mallards roosting in the eastern section of River Shannon.	River Shannon			
	2 Mallards on the River Shannon.	River Shannon	3.4	23/01/2025	
	6 Mallards recorded in flight over Bunlicky Lake	Bunlicky Lake	3.5	24/02/2025	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	5 Mallards flushed from Ballinacurra Creek and flew west/northwest.	Ballinacurra Creek Stream			
	3 Mallard flushed from side channel of the River Shannon and flew west. 3 Mallard flushed from channel edge and flew north across the River Shannon.	River Shannon			
	2 Mallards feeding on Bunlicky Lake.	Bunlicky Lake	3.6	24/03/2025	
	4 Mallards feeding on the River Shannon.	River Shannon			
Grey heron (<i>Ardea cinerea</i>)	1 Grey heron flew east along River Shannon.	River Shannon	3.2	25/11/2024	-
	1 Grey heron foraging at the edge of the channel of the River Shannon.	River Shannon	3.3	12/12/2024	
	1 Grey heron recorded flying west over Wet grassland to the north of Bunlicky WwTP	Wet grassland north of Bunlicky WwTP	3.4	23/01/2025	
	1 Grey heron foraging at the edge of the channel of the River Shannon.	River Shannon	3.6	24/03/2025	
Coot (<i>Fulica atra</i>)	1 Coot present at edge of channel of the River Shannon.	River Shannon	3.2	25/11/2024	BoCCI Amber Listed
	1 Coot flushed and flew west across Bunlicky Lake	Bunlicky Lake	3.3	12/12/2024	
	1 Coot present within Ballinacurra Creek	Ballinacurra Creek	3.4	23/01/2025	
Great black-backed gull (<i>Larus marinus</i>)	2 Great black-backed gulls sitting on buoys in the River Shannon.	River Shannon	3.2	25/11/2024	-
	1 Great black-backed gull sitting on buoy in the River Shannon.	River Shannon	3.6	24/03/2025	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
Moorhen (<i>Numenius arquata</i>)	1 Moorhen present within Ballinacurra Creek	Ballinacurra Creek	3.2	25/11/2024	-
Lesser black-backed gull (<i>Larus fuscus</i>)	1 Lesser black-backed gull recorded flying west over the River Shannon	River Shannon	3.5	24/02/2025	BoCCI Amber Listed
Common gull (<i>Larus canus</i>)	2 Common gulls recorded flying was along River Shannon	River Shannon	3.3	12/12/2024	BoCCI Amber listed
	2 Common gulls in flight over River Shannon	River Shannon	3.6	24/03/2024	
Grey wagtail (<i>Motacilla cinerea</i>)	1 Grey wagtail recorded flying west over Wet grassland to the north of Bunlicky WwTP	Wet grassland north of Bunlicky WwTP	3.4	23/01/2025	BoCCI Red Listed
Ringed plover (<i>Charadrius hiaticula</i>)	1 Ringed plover calling reedbed along River Shannon	River Shnanon	3.5	24/02/2024	SCI listed species of the River Shannon and River Fergus Estuaries SPA. BoCCI Amber listed
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	15 Black-headed gulls roosting on WwTP outfall pipe. 30 Black-headed gulls feeding on surface of the River Shannon. 10 Black-headed gulls were recorded flying over River Shannon.	River Shannon north of the Corcanree Pump Station	3.2	25/11/2024	
	27 Black-headed gulls flying over wet grassland to the north/northeast of Bunlicky WwTP	Wet grassland northeast of Bunlicky WwTP	3.2		
	4 Black-headed gulls were recorded flying over Bunlicky Lake	Bunlicky Lake	3.2		
	9 Black-headed gulls recorded in flight over Bunlicky Lake.	Bunlicky Lake	3.3	12/12/2024	
	7 Black-headed gulls recorded in flight over River Shannon. 80 Black-headed gulls on mudflats/sandflats exposed by low tide	River Shannon/River Shannon mudflats/sandflats			
	2 Black-headed gulls were recorded flying over wet grassland south of Bunlicky WwTP	Wet grassland south of Bunlicky WwTP			

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	2 Black-headed gulls were recorded flying over Bunlicky Lake	Bunlicky Lake	3.4	23/01/2025	
	2 Black-headed gulls were recorded flying over River Shannon. 10 Black-headed gulls roosting on the River Shannon	River Shannon			
	9 Black-headed gulls flying over wet grassland to the north/northeast of Bunlicky WwTP	Wet grassland northeast of Bunlicky WwTP			
	4 Black-headed gulls were recorded flying over Bunlicky Lake. 1 Black-headed gull roosting on lake.	Bunlicky Lake	3.5	24/02/2024	
	17 Black-headed gulls were recorded flying over River Shannon	River Shannon			
	3 Black-headed gulls were recorded in flight over the Wet grasslands west of Bunlicky WwTP.	Wet grasslands west of Bunlicky WwTP			
	5 Black-headed gulls were recorded in flight over the Wet grasslands northeast of Bunlicky WwTP.	Wet grasslands northeast of Bunlicky WwTP			
	4 Black-headed gulls recorded in flight over the River Shannon. 24 Black-headed gulls recorded flocking/feeding over the River Shannon.	River Shannon	3.6	24/03/2025	
Cormorant(<i>Phalacrocorax carbo</i>)	19 Cormorants roosting on the island vegetation in Bunlicky Lake. 10 Cormorants flew over Bunlicky Lake.	Bunlicky Lake	3.2	25/11/2024	
	3 Cormorants flew over the grassland between the Site and the River Shannon.	Grassland between the Site and River Shannon	3.2		
	4 Cormorants flew over River Shannon.	River Shannon	3.2		

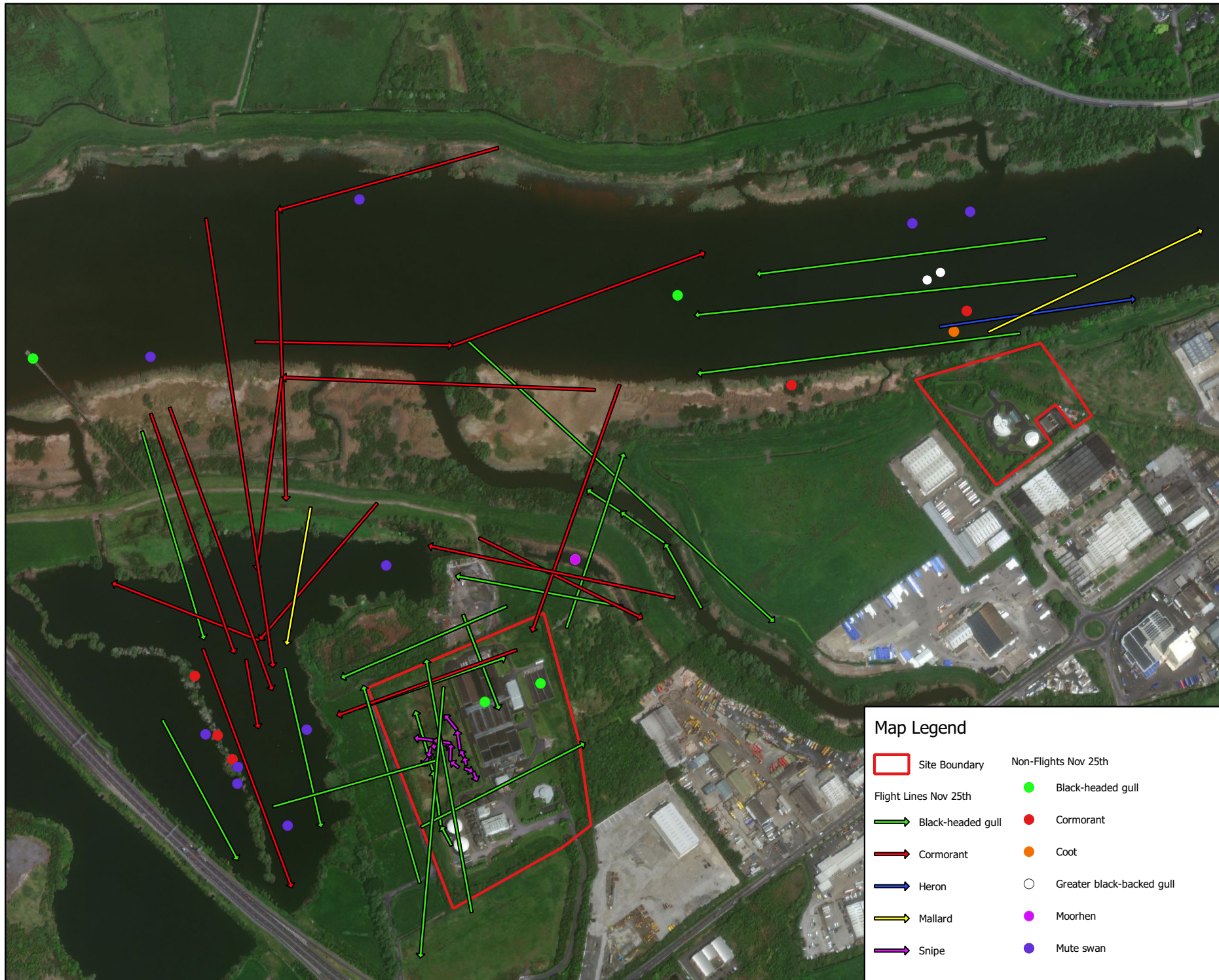
Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	19 Cormorants roosting on the island vegetation in Bunlicky Lake. 29 Cormorants recorded in flight over Bunlicky Lake.	Bunlicky Lake	3.3	12/12/2024	
	22 Cormorants recorded in flight over the River Shannon. 2 Cormorants recorded roosting on the surface of the River Shannon	River Shannon			
	5 Cormorants recorded in flight over the River Shannon	River Shannon	3.4	23/01/2025	
	37 Cormorants roosting on the island vegetation in Bunlicky Lake. 1 Cormorant recorded in flight over Bunlicky Lake.	Bunlicky Lake			
	9 Cormorants flew over the Wet grassland between the Bunlicky Lake and the River Shannon.	Wet grassland between the Bunlicky Lake and the River Shannon			
	6 Cormorants flew over River Shannon.	River Shannon	3.5	24/02/2025	
	1 Cormorants flew over the Wet grassland northeast of Bunlicky WwTP.	Wet grassland northeast of Bunlicky WwTP			
	150 Cormorants roosting on the island vegetation in Bunlicky Lake. 8 Cormorant recorded in flight over Bunlicky Lake.	Bunlicky Lake			
	11 Cormorants flew over the grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake			
	3 Cormorants on water's surface within the River Shannon	River Shannon			
	5 Cormorants recorded in flight over River Shannon	River Shannon	3.6	24/03/2025	

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	26 Cormorants in flight over Bunlicky Lake	Bunlicky Lake			
	2 Cormorants flew over the Wet grassland between the Bunlicky Lake and the River Shannon.	Wet grassland between the Bunlicky Lake and the River Shannon			
Teal (<i>Anas crecca</i>)	12 Teal flushed and flew out of side channel onto the River Shannon. 75 Teal flushed and flew west along the River Shannon	River Shannon	3.3	12/12/2024	
	17 Teal roosting/feeding in the mudflats/sandflats at channel edges of the River Shannon.	Mudflats/Sandflats of River Shannon	3.4	23/01/2025	
	27 teal feeding in the main channel of the River Shannon. 3 Teal feeding in a side channel of the River Shannon.	River Shannon	3.5	24/02/2025	
	6 teal present within the main channel of the River Shannon. 9 Teal recorded flying into side channel of the River Shannon and landing on waters surface.	River Shannon	3.6	24/03/2025	
Mute Swan (<i>Cygnus olor</i>)	4 Mute swans present on River Shannon.	River Shannon	3.2	25/11/2024	BoCCI Amber listed
	7 Mute swans present on Bunlicky Lake.	Bunlicky Lake			
	5 Mute swans foraging on Bunlicky Lake. 4 Mute swan on islands within Bunlicky Lake.	Bunlicky Lake	3.3	12/12/2024	
	8 Mute swans swimming/foraging in River Shannon/side channel of river.	River Shannon			
	3 Mute Swans in back channel to the northeast of Bunlicky WwTP.	Northeast of Bunlicky WwTP			

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	1 Mute swan recorded in flight over Bunlicky Lake. 5 Mute swans recorded roosting on Bunlicky Lake.	Bunlicky Lake	3.3	12/12/2024	
	4 Mute swans foraging along the River Shannon.	River Shannon			
	3 Mute swans recorded roosting in the Ballinacurra Steam.	Ballinacurra Steam			
	5 Mute swans roosting in Bunlicky Lake.	Bunlicky Lake	3.4	23/01/2025	
	5 Mute swans foraging on the River Shannon.	River Shannon			
	2 Mute swans foraging in Bunlicky Lake	Bunlicky Lake	3.5	24/02/2024	
	7 Mute swans foraging along River Shannon	River Shannon			
	4 Mute swans recorded flying west over Bunlicky Lake. 2 Mute swans recorded feeding on Bunlicky Lake.	Bunlicky Lake	3.6	24/03/2025	
	3 Mute swans feeding on the River Shannon	River Shannon			
	3 Mute swans feeding in the Ballinacurra Creek Stream	Ballinacurra Creek Stream			
Snipe (<i>Gallinago gallinago</i>)	1 Snipe flushed from grassland between the River Shannon and Bunlicky Lake	Grassland between the River Shannon and Bunlicky Lake	3.4	23/01/2025	BoCCI Red listed
	1 Snipe flushed from grassland north-east of the Bunlicky WwTP site boundary.	Grassland north-east of Bunlicky WwTP site boundary.			
	1 Snipe recorded flying west across Bunlicky Lake.	Bunlicky Lake			
	1 Snipe flushed from reedbed at edge of the River Shannon.	River Shannon			

Species	Number of Individuals recorded	Location	Figure Number	Date of survey	Conservation Status
	1 Snipe flushed from Wet grassland east of Corcanree Pumping Station.	Wet grassland east of Corcanree Pumping Station	3.6	23/03/2025	
	1 Snipe flushed from reedbed at edge of the River Shannon.	River Shannon			
Little egret (<i>Egretta garzetta</i>)	1 Little egret roosting on the island vegetation in Bunlicky Lake	River Shannon	3.6	24/03/2024	-
Kestrel (<i>Falco tinnunculus</i>)	1 Kestrel recorded hunting in the Wet grassland west of Bunlicky WwTP	Wet grassland west of Bunlicky WwTP	3.6	24/03/2024	BoCCI Red listed
Greylag Goose (<i>Anser anser</i>)	1 Greylag geese flew north across Bunlicky Lake.	Bunlicky Lake	3.5	23/01/2025	BoCCI Amber listed
	1 Greylag geese flew south across Bunlicky Lake. 6 Greylag geese feeding on Bunlicky Lake.	Bunlicky Lake	3.6	24/03/2024	
	4 Greylag geese feeding in wet grassland south of Bunlicky Lake between the Bunlicky WwTP site boundary and the lake.	Wet grassland south of Bunlicky lake			
	9 Greylag geese feeding in grassland between the River Shannon and Bunlicky Lake.	Grassland between the River Shannon and Bunlicky Lake			

BoCCI – Birds of Conservation Concern in Ireland 2020 - 2026



Map Legend

- | | |
|-----------------------|---------------------------|
| Site Boundary | Non-Flights Nov 25th |
| Flight Lines Nov 25th | Black-headed gull |
| Black-headed gull | Cormorant |
| Cormorant | Coot |
| Heron | Greater black-backed gull |
| Mallard | Moorhen |
| Snipe | Mute swan |



Drawing Title

Bird Survey 25.11.2024

Project Title

Limerick WwTP Upgrade

Drawn by

KS

Checked by

AvdGM

Project No.

210710

Drawing No.

Fig 3-2

Scale

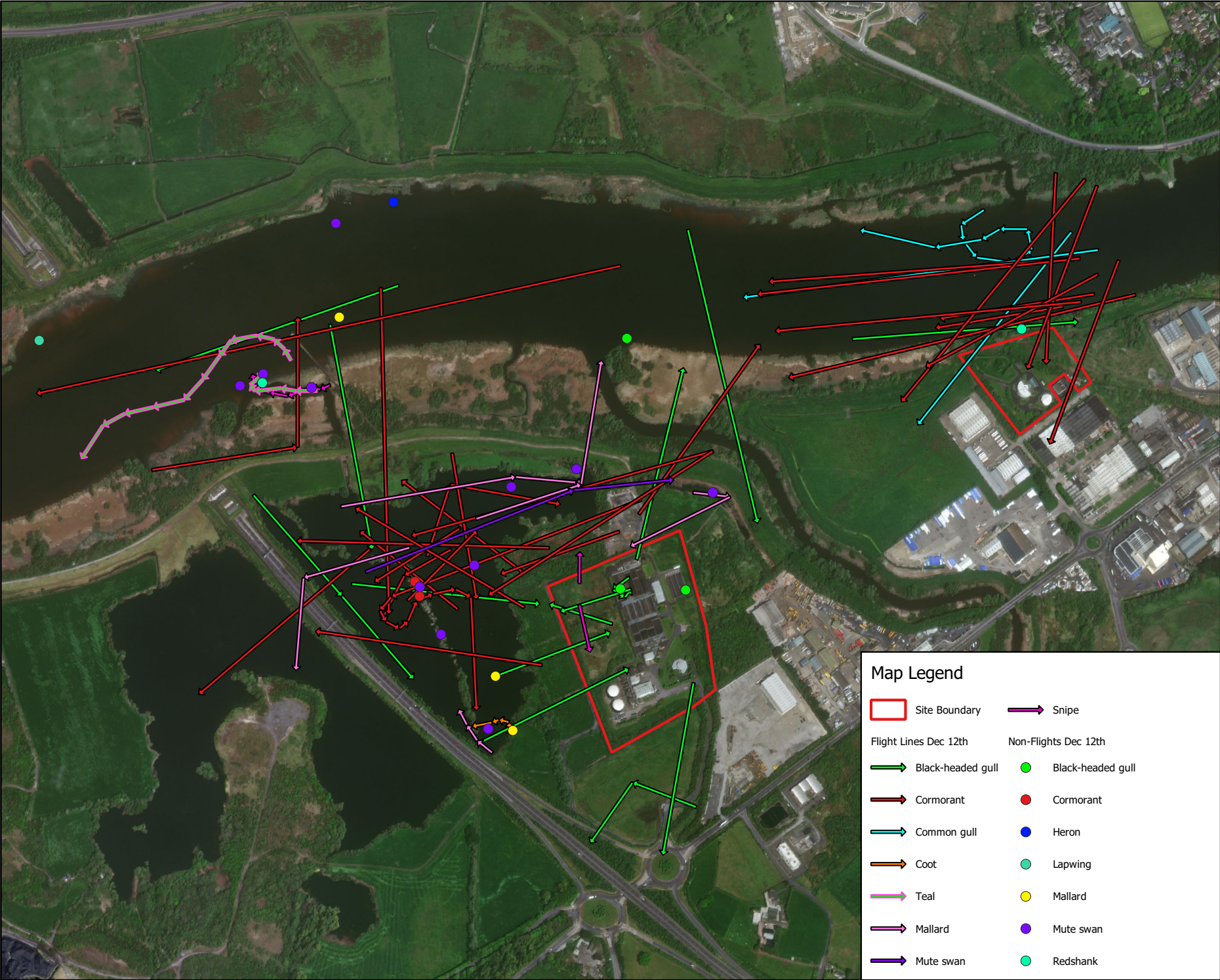
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Date

03.06.2025



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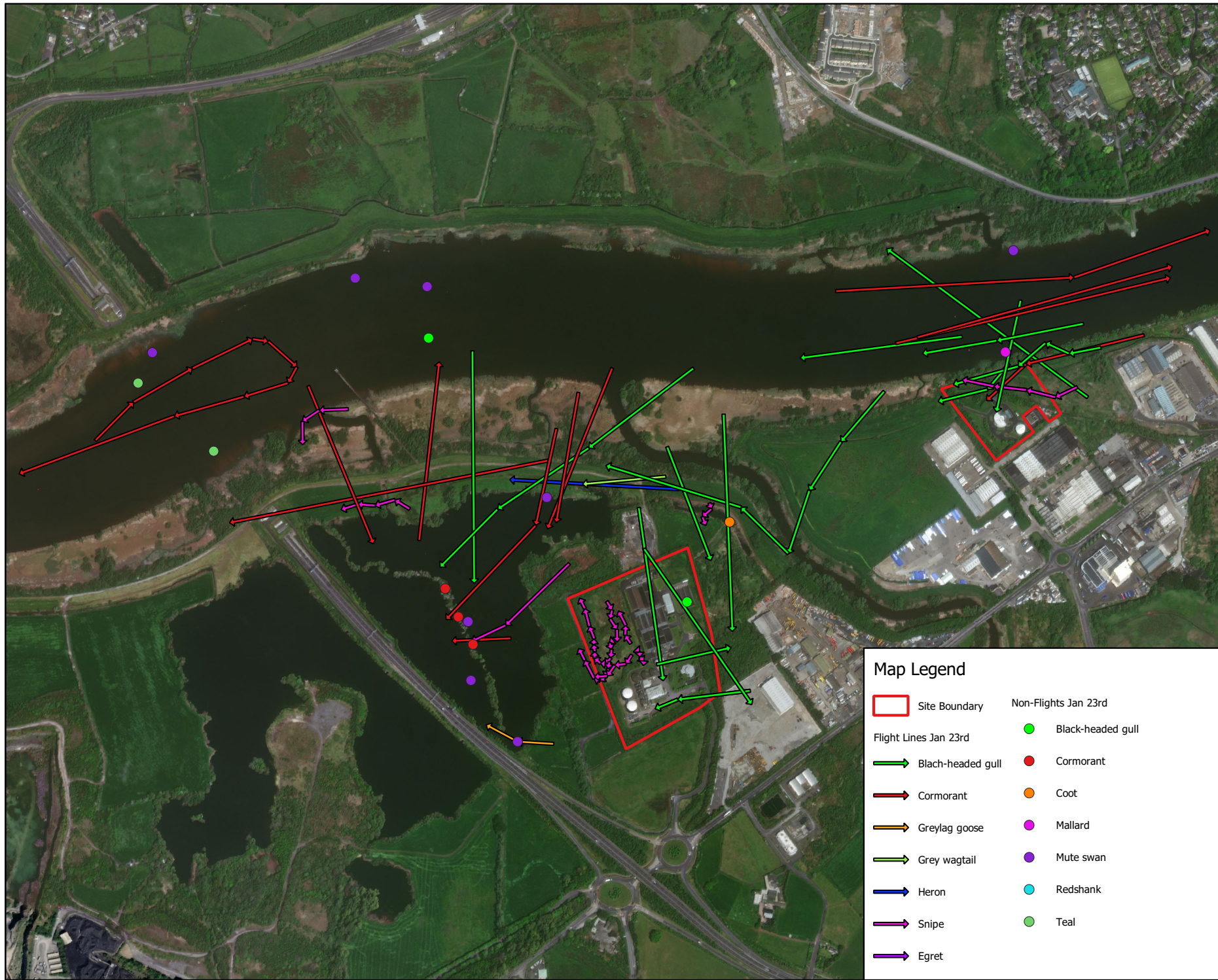


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| Site Boundary | Snipe | | |
| Flight Lines Dec 12th | | Non-Flights Dec 12th | |
| Black-headed gull | Black-headed gull | Cormorant | |
| Cormorant | Heron | | |
| Common gull | Lapwing | | |
| Coot | Mallard | | |
| Teal | Mute swan | | |
| Mallard | Redshank | | |
| Mute swan | | | |



Drawing Title	
Bird Survey 12.12.2024	
Project Title	
Limerick WwTP Upgrade	
Drawn By	Checked By
KS	AvdGM
Project No.	Drawing No.
210710	Fig 3-3
Scale	Date
1:10,000	03.06.2025
MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW84 +353 (0) 91 735611 email: info@mkofireland.ie Website: ww.mkofireland.ie	



Map Legend

Site Boundary

Flight Lines Jan 23rd

Black-headed gull

Cormorant

Greylag goose

Grey wagtail

Heron

Snipe

Egret

Non-Flights Jan 23rd

Black-headed gull

Cormorant

Coot

Mallard

Mute swan

Redshank

Teal



Bird Survey 23.01.2025

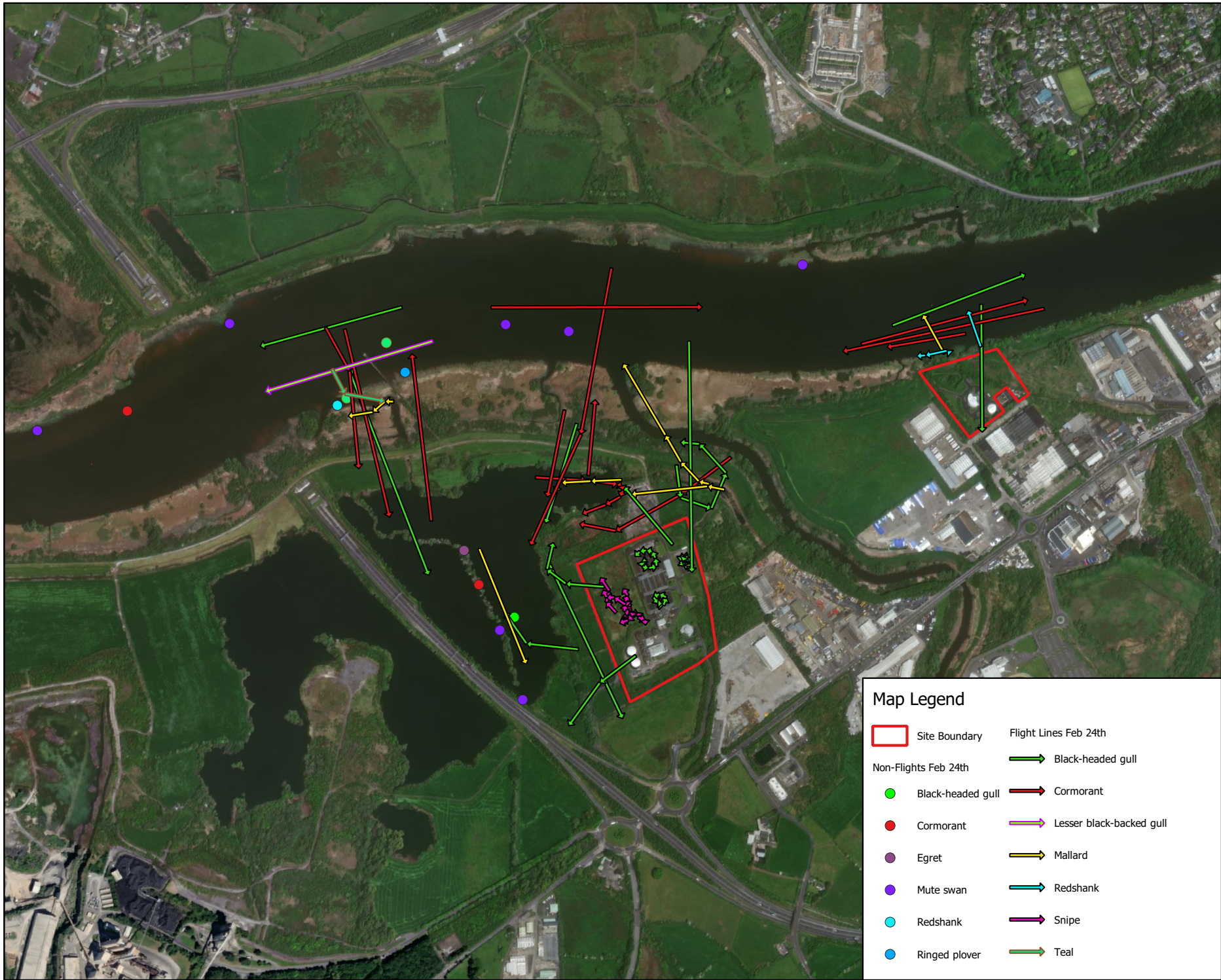
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Drawn by KS	Checked by AvdGM
Project No. 210710	Drawing No. Fig 3-4
Scale 1:11,000	Date 03.06.2025



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Map Legend

- | | |
|----------------------|--------------------------|
| Site Boundary | Flight Lines Feb 24th |
| Non-Flights Feb 24th | Black-headed gull |
| Black-headed gull | Cormorant |
| Cormorant | Lesser black-backed gull |
| Egret | Mallard |
| Mute swan | Redshank |
| Redshank | Snipe |
| Ringed plover | Teal |



Drawing Title
Bird Survey 24.02.2025

Project Title
Limerick WwTP Upgrade

Drawn by
KS

Checked by
AvdGM

Project No.
210710

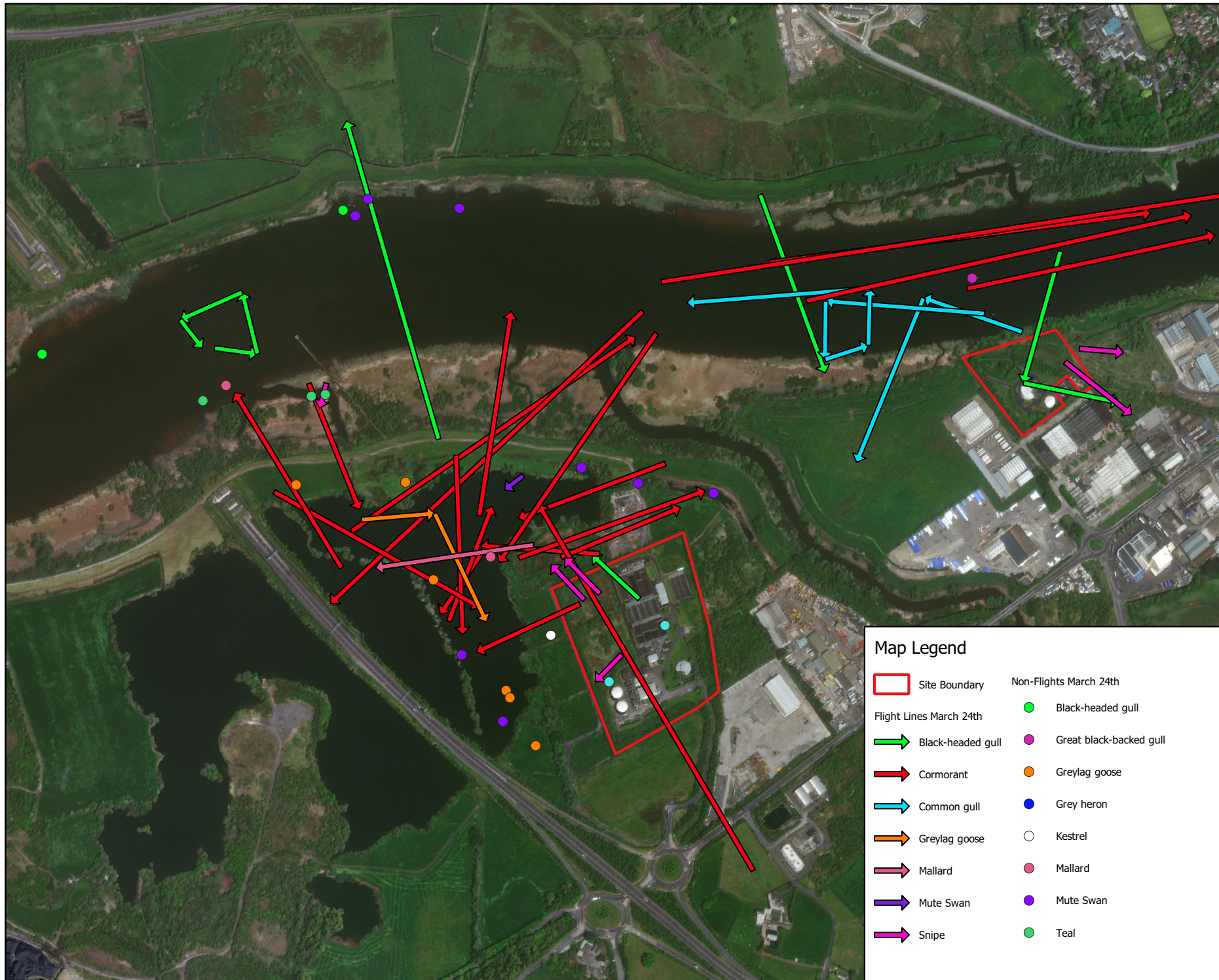
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Fig 3-5

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Date
03.06.2025



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Bird Survey 24.03.2025

Project Title
Limerick WwTP Upgrade

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Project No. 210710	Drawing No. Fig 3-6
Scale 1:10,000	Date 03.06.2025

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4.

SUMMARY OF FIELD SURVEY AND DISCUSSION

The surveys undertaken over the period winter period November 2024 to March 2025 provide an understanding of the usage of the proposed development sites and adjacent habitats by wintering bird species. A total of five target bird species were recorded within or flying over the proposed development site boundaries, while a total of nineteen target bird species were recorded within or flying over habitats adjacent to the proposed development sites during the winter site visits.

The majority of the birds recorded within the development site boundaries during the surveys were an assemblage of common birds that are typical of amenity grassland, agricultural grassland and urban habitats found within the wider area. The majority of birds recorded within habitats adjacent to the sites were wetland and waterbirds.

No Annex I SCI listed species of the River Shannon and River Fergus Estuaries SPA, were recorded using the habitats within the site boundaries. One Annex I species, the Little egret which is not a SCI listed species of the River Shannon and River Fergus Estuaries SPA was recorded in the wider area on the islands within Bunlicky Lake.

The number of SCI listed species, Black-headed gulls recorded roosting within the Bunlicky WwTP site boundary ranged between 4 and 50. The population estimate for this species in Ireland is approximately 48,821 (Lewis et al., 2019), international and national thresholds for this species are not currently available, as demonstrated in Table 3.3. However, when comparing the population estimate to the species count recorded roosting on the storm tank, aeration tanks and settlement tanks within the WwTP, the habitats within the site boundary does not appear to support an important bird assemblage of Black-headed gulls. These gulls appear to be habituated to the activity within the WwTP and were not disturbed by human activity and noise generated by the plant. Black-headed gulls were also recorded utilising several habitats adjacent to the site boundaries such as, mudflats and sandflats, the Ballinacurra stream and Bunlicky Lake.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken. However, high numbers of Cormorants were recorded roosting in nests on an island in Bunlicky Lake on almost every visit. The number of Cormorants recorded roosting ranged between 19 and 150. As shown in Table 3.3 the threshold for wintering cormorant is 110 birds (Lewis et al., 2019). Therefore, this breeding colony in Bunlicky Lake is of high importance because roosting numbers during winter exceed the threshold for a population which is 1% of the national total (following NRA, 2009). Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. No other SCI species of the River Shannon and River Fergus Estuaries SPA was recorded within or flying over the site boundaries during the surveys.

Six SCI species of the nearby River Shannon and River Fergus Estuaries SPA, two of which are red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Lapwing & Redshank) were recorded roosting or feeding within habitats adjacent to the proposed development sites. Lapwing & Redshank were recorded utilising the mudflats and sandflats north of Bunlicky lake, along the River Shannon.

Two red listed bird species on the Bird of Conservation Concern in Ireland (BoCCI) (Gilbert et al., 2021) were recorded from within the proposed development sites at Bunlicky WwTP and at the Corcanree pumping station. Snipes were recorded on several occasions, flushed from wet grassland in the western section Bunlicky WwTP and once on one occasion from the grassland in the north-east of the Corcanree pumping station. Two Grey wagtails were recorded utilising trees and other vegetation in the western section of the site at Bunlicky WwTP.

The remaining target species recorded flying over the sites included a Common gull flying over Bunlicky WwTP. This individual did not land in the habitats within the proposed development sites. This species is not listed SCI species of the nearby River Shannon and River Fergus Estuaries SPA.

The remaining target species recorded included Mute swans roosting in Bunlicky Lake, the Ballinacurra Creek Stream, the mudflats and sandflats north of Bunlicky Lake and the River Shannon. Greylag geese were recorded feeding in wet grasslands between the River Shannon and Bunlicky Lake and in wet grasslands south of Bunlicky Lake, they were also recorded roosting in Bunlicky Lake. Mallards were recorded utilising several adjacent habitats, such as, mudflats and sandflats, Bunlicky Lake, and commuting over several grasslands adjacent to both Bunlicky WwTP and Corcanree pumping station.

Coot and Moorhen were recorded utilising the reedbeds along the edge of the River Shannon, as well as those in the Ballinacurra Creek Stream. Additionally, Great black-backed gulls, Lesser black-backed gulls & Common gulls were recorded in flight over the River Shannon on several occasions. Lastly, Grey heron and Little egret were recorded utilising the channel edges of the River Shannon, and roosting on the islands located in Bunlicky Lake.

5.

CONCLUSION

Based on the wintering bird assemblages recorded over the nine surveys carried out between November 2024 and March 2025, it can be concluded that neither Bunlicky WwTP or Corcanree Pumping Station support important assemblages of wintering wildfowl, waders, or SCI species for which the River Shannon and River Fergus estuaries SPA has been designated due to the low population counts within the site boundaries when compared with the national population count. These flocks of the SCI species Black-headed gulls were recorded roosting on site infrastructure at Bunlicky WwTP. There is no potential for loss of supporting habitat for the SCI species of River Shannon and River Fergus Estuaries SPA.

Cormorant, also a listed SCI species, of the nearby River Shannon and River Fergus Estuaries SPA, was recorded on several occasions in flight over the proposed development sites at Bunlicky and Corcanree. This species was not recorded using the habitats within the proposed development site boundaries during any of the surveys undertaken. However, there is a breeding colony of Cormorant situated in Bunlicky Lake, adjacent to the Bunlicky WwTP which is a colony of high importance. Cormorants were also recorded in flight over grasslands between Bunlicky Lake and the River Shannon. No other SCI species of the River Shannon and River Fergus Estuaries SPA was recorded within or flying over the site boundaries during the surveys.

Habitats within the site primarily consist of amenity grassland, wet grassland, buildings and artificial surfaces, hedges, and treelines. Species listed as SCIs for the River Shannon and River Fergus Estuaries SPA are unlikely to depend on these habitats within the proposed development site.

According to the site-specific conservation objectives document the SCI species of the River Shannon and River Fergus Estuaries SPA, are primarily associated with intertidal sheltered and shallow subtidal, sand and mud flats habitats. These habitats are located within the vicinity of the project area however; they do not occur within the development boundaries.

6.

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APPENDIX 1

NON-TARGET BIRD SPECIES

Species	Scientific name	BoCCI Status	Date recorded
Magpie	<i>Pica pica</i>	Green	25/11/24 12/12/24 24/03/25
Robin	<i>Erithacus rubecula</i>	Green	12/12/24 23/01/25 24/03/25
Wood pigeon	<i>Columba palumbus</i>	Green	25/11/24 12/12/24 23/01/25 24/02/25
Wren	<i>Troglodytes troglodytes</i>	Green	25/11/24 12/12/24 23/01/25 24/02/25 24/03/25
Hooded crow	<i>Corvus cornix</i>	Green	25/11/24 12/12/24 23/01/25 24/02/25 24/03/25
Blackbird	<i>Turdus merula</i>	Green	25/11/24 12/12/24 23/01/25 24/02/25 24/03/25
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	25/11/24 12/12/24
Starling	<i>Sturnus vulgaris</i>	Amber (breeding population)	23/01/25 24/03/25
Pied wagtail	<i>Motacilla alba yarrellii</i>	Green	12/12/24 23/01/25
Greenfinch	<i>Chloris chloris</i>	Amber	25/11/24 24/02/25
Jackdaw	<i>Corvus monedula</i>	Green	25/11/24 12/12/24 23/01/25
Chaffinch	<i>Fringilla coelebs</i>	Green	25/11/24 23/01/25 24/02/25 24/03/25
Rook	<i>Corvus frugilegus</i>	Green	25/11/24 23/01/25 24/02/25
Blue tit	<i>Cyanistes caeruleus</i>	Green	24/02/25 24/03/25
Goldfinch	<i>Carduelis carduelis</i>	Green	25/11/24 24/03/25
Long tailed tit	<i>Aegithalus caudatus</i>	Green	12/12/24 24/02/25
Dunnock	<i>Prunella modularis</i>	Green	25/11/24 12/12/24

Species	Scientific name	BoCCI Status	Date recorded
			24/02/25
Sparrow	<i>Passer domesticus</i>	Amber	12/12/24 23/01/25
Song thrush	<i>Turdus philomelos</i>	Green	25/11/24 12/12/24
Great tit	<i>Parus major</i>	Green	25/11/24 12/12/24 23/01/25 24/02/25 24/03/25
Goldcrest	<i>Regulus regulus</i>	Amber	24/03/25
Chiffchaff	<i>Phylloscopus collybita</i>	Green	24/03/25
Willow warbler	<i>Phylloscopus trochilus</i>	Amber	24/03/25

