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Éimer Godsil

Environmental Licensing Programme

Office of Climate, Licensing & Resource Use

Environmental Protection Agency

Inniscarra

Co. Cork.

IW-ER-LT0169

27th November 2014

RE: Whitegate Aghada Waste Water Discharge Licence Application D0423-01

Dear Éimer Godsil,

In response to the Regulation 18(3)(b)-1 request for further information notice dated the 6th of October 2014, please see below relevant information.

Provide the effluent monitoring results for BOD, COD, suspended solids, orthophosphate and total ammonia and other parameters, as appropriate, in respect of the Primary Discharge for 2013.

Effluent monitoring results are not available for 2013. Samples have been taken at P.S No.2 and are currently being analysed for BOD, COD, and SS. The results will be sent to the Agency when available.

Confirm the normal and daily maximum effluent volumes emitted from the Primary Discharge, expressed as m³/day.

The maximum daily effluent volume is not measured. Based on the estimated current P.E. of 2,016 and a daily dry weather flow per P.E. of 225 l/P.E./day, the estimated daily flow rate discharge is 453.6m³/day. The estimated flow in 2020, based on a P.E. of 2,092, is 470m³/day.

In Section C1.1 of your application you have stated that there is a storm water overflow in the agglomeration and in Section G.4 Storm Water Overflow you have stated that there are no Storm water overflows. Clarify if there are storm water overflows in the agglomeration. If present indicate the frequency of discharge, if appropriate and supply the grid references for the discharge of each storm water overflow.

There is a 900 mm culvert which takes stormwater overflows from the hydrobrake chamber as well as the overflow manhole upstream of P.S. No.2. This culvert discharges at the sea front in Whitegate village at grid ref 184035E, 63813N.

In Section C 1.1 of the application you state that there are 2 pump station (PS). Indicate if there are emergency overflows at each of these PS.

Note that emergency overflows include overflow mechanisms constructed as part of pump sump infrastructure, whereby a power failure, essential maintenance or other similar interruption in normal operations results in a discharge of untreated waste water from the sump as a consequence of the pumps being disabled - discharges resulting from insufficient hydraulic capacity within the system are not regarded as emergency discharges.

A small localised pumphouse (P.S. No.1) is located at Corkbeg Terrace and takes effluent from a handful of adjacent houses. There are 2 no. pumps operating on a duty/standby basis. These pump into the existing sewerage network through a short rising main. There is no flow meter on this rising main. There is an emergency overflow pipe into an adjacent tidal area, which is fitted with a flap valve to prevent seawater infiltration. The Emergency Overflow Grid Reference is: 183842E, 63502N.

The main pumphouse (P.S. No.2) is located adjacent to the sea front near the "Anchor" ornament. There is not an emergency overflow at P.S. No.2. There are 2 no. pumps operating on a duty/standby basis. These pump through a 150mm rising main to discharge through an outfall pipe at Long Point, beyond the ESB Generating Station. A stormwater overflow manhole, upstream of P.S. No. 2, discharges to a 900mm culvert which outfalls at the sea front (location as detailed in item 3 above). This overflow also operates as an emergency overflow for the pumping station.

A screening for Appropriate Assessment was undertaken on 2nd October 2014 and the Agency determined that an Appropriate Assessment of the activity is required.

You are thereby required to submit a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011).

The Natura Impact Statement undertaken for Irish Water in 2014 is attached.

Best Regards,



Gerry Galvin
Chief Technical Advisor

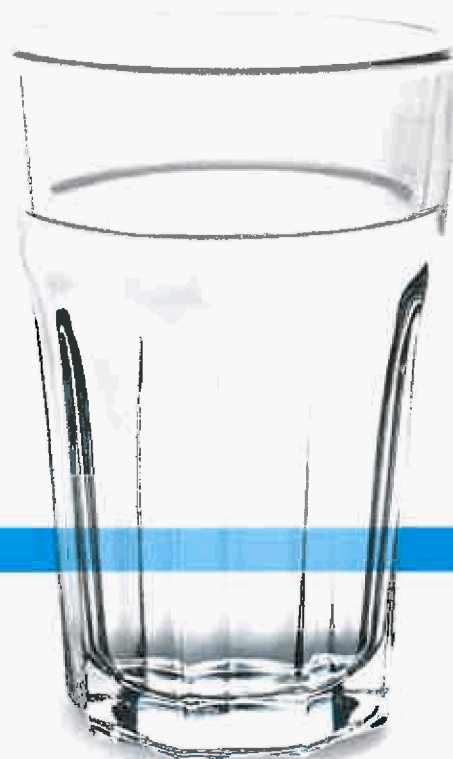
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Irish Water Report

Natura Impact Statement as part of the Whitegate Aghada Waste
Water Discharge Licence Application: D0423-01

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Appendices

Appendix A: NPWS Site Synopsis: Cork Harbour SPA.

Appendix B: IWeBS and Field Survey Data.

Introduction

This Natura Impact Statement provides information in support of an Appropriate Assessment (AA) of the existing effluent discharge from the Whitegate/ Aghada agglomeration, located at Whitegate, County Cork. An AA is required for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007), as amended. It assesses whether the on-going discharge of the effluent, alone or in combination with other plans and projects, is likely to have significant effects on a European Site(s) in view of best scientific knowledge and the conservation objectives of the site(s). European Sites are those identified as sites of European Community importance designated as Special Areas of Conservation under the Habitats Directive (92/43/EEC) or as Special Protection Areas under the Birds Directive (79/409/ECC as codified by Directive 2009/147/EC).

This report follows the guidance for AA published by the Environmental Protection Agency's (EPA) 'Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)' (EPA, 2009); and takes account of the Department of the Environment, Heritage and Local Government's guidelines 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities' (DoEHLG, 2009) and Circular L8/08 'Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments' (DoEHLG, 2008).

This report was completed by RPS on behalf of Irish Water.

Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment (AA):

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Article 6(4) states:

If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

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Methodology

Guidance Followed

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has had regard to the following guidance:

- **Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).** Environmental Protection Agency, (EPA, 2009).
- **Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.** Department of Environment, Heritage and Local Government, (DoEHLG, 2010).
- **Circular L8/08 – Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments.** Department of Environment, Heritage and Local Government, (DoEHLG, 2008).
- **Communication from the Commission on the Precautionary Principle.** Office for Official Publications of the European Communities, Luxembourg, (EC, 2000a).
- **Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.** Office for Official Publications of the European Communities, Luxembourg, (EC, 2000b).
- **Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.** Office for Official Publications of the European Communities, Brussels (EC, 2001).
- **Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission.** Office for Official Publications of the European Communities, Luxembourg, (EC, 2007).
- **Nature and biodiversity cases: Ruling of the European Court of Justice.** Office for Official Publications of the European Communities, Luxembourg (EC, 2006).
- **Interpretation Manual of European Union Habitats. Version EUR 28.** European Commission (EC, 2013).

Stages Involved in the Appropriate Assessment Process

Stage 1: Screening / Test of Significance

This process identifies whether the effluent from the Whitegate/ Aghada agglomeration is directly connected to or necessary for the management of a European Site(s) and identifies whether the discharge is likely to have significant impacts upon a European Site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European Site(s) of: not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

Stage 2: Appropriate Assessment

This stage considers the impact of the effluent on the integrity of a European Site(s), either alone or in combination with other projects or plans, with respect to (1) the site's conservation objectives; and (2) the site's structure and function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts is undertaken.

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the Competent Authority (in this case the EPA) to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European Site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European sites then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment Where Adverse Impacts Remain

This stage involves the identification of compensatory measures where, in the context of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

Identification of Qualifying Species and Habitats for Stage 2 Appropriate Assessment

Field Walkover Surveys

Field survey was undertaken on 14th of March 2014 by ornithologist Mr David Rees to identify the potential for qualifying species in the surrounding environs of the Whitegate/ Aghada discharge.

Consultation

The EPA, as the competent authority, will seek NPWS advice as may be required in reaching their decision on a waste water discharge. The NPWS can only communicate with the applicant (i.e. Irish Water) on request from the competent authority, when the formal application process to the competent authority has already commenced.

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Stage 1: Screening

Screening for Appropriate Assessment was undertaken by the EPA on 02/10/2014. It was determined that an Appropriate Assessment of the existing discharge from the Whitegate / Aghada agglomeration would be required due to the potential adverse impact on the qualifying interests of Cork Harbour SPA (Site Code 004030). This determination was based on the following:

- The discharge of untreated effluent from the agglomeration directly to Cork Harbour SPA;
- The Water Framework Directive (WFD) status of the receiving water is 'Moderate'; and
- Monitoring of the receiving water indicates that the discharge is having an impact for Dissolved Inorganic Nitrogen

Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, the current waste water discharge at Whitegate/ Aghada will be brought forward for a Stage 2 Appropriate Assessment.

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Stage 2: Appropriate Assessment

There are three Natura 2000 sites located within 15 km of the effluent discharge location as listed below:

- Great Island Channel SAC – Site Code 001058;
- Cork Harbour SPA – Site Code 004030 (*SPA is largely fragmented and the effluent discharges to one section of the Natura 2000 site*); and
- Ballycotton Bay SPA – Site Code 004022.

Following consideration of the implications of the existing discharge from the Whitegate/ Aghada agglomeration on the Natura 2000 network, the Cork Harbour SPA was identified as having the potential to be impacted as a result of the Whitegate/ Aghada discharge (in keeping with the conclusion of the Screening Stage). This site is therefore the focus of this Stage 2 assessment and is discussed in relation to the conservation objectives of this designated site.

Description of the Project

The Whitegate / Aghada agglomeration comprises the four villages of Whitegate, Aghada, Farsid and Rostellan in the south-east of County Cork. They function as service centres and focal points for the adjacent hinterland. Whitegate is primarily an industrial / enterprise location. The settlements are contained by the shoreline to the north and west, and to a lesser extent by the steep topography to the south and east. The sewerage scheme is a combined sewerage scheme that discharges to the harbour without treatment.

The Whitegate / Aghada agglomeration comprises three discharge points which discharge waste water directly to the harbour. There are also ten houses within the agglomeration which feed into a septic tank with a percolation area.

The current PE (for the year 2014) for the agglomeration is 2016, and the predicted PE for the year 2020 is 2092. The population load for the Whitegate/ Aghada agglomeration arises from the domestic population, commercial premises and infiltration. The final effluent is discharged to Cork Harbour.

Description of Infrastructure

The following description of infrastructure is taken from the license application submitted in 2009. *The Whitegate / Aghada agglomeration comprises three discharge points which discharge waste water directly to the harbour. There are also ten houses within the agglomeration which feed into a septic tank with a percolation area. The sewerage network collects waste water from Whitegate and Upper Aghada and discharges the effluent via the primary discharge point at Long Point in the vicinity of the ESB station. Waste water gravitates from Upper Aghada and Whitegate to a pumping station on the R630 road, and is pumped from there to the discharge point at Long Point. Waste water from Glebe Manor housing estate and the surrounding area flows, by gravity, to a second pumping station and is also pumped to the primary discharge point at Long Point.*

The largest secondary discharge point is located in Rostellan. The majority of the total discharge is collected in the sewerage network and discharges directly to the harbour without treatment. There is also a housing development where the waste water is treated in a private treatment plant operated by the developer, before discharging to the harbour via the sewerage network.

There is one discharge in Lower Aghada. Waste water from a housing development (comprising 22 houses) is treated by a private treatment plant. Waste water from two private houses and one public house also receives treatment at this waste water treatment plant. Cork County Council suspects that this treatment plant is not working efficiently.

There are ten council houses feeding into a septic tank, effluent from the septic tank goes to a percolation area. There is no discharge to sea or groundwater. There are no water abstraction points in the vicinity of the percolation area. The septic tank is old and no relevant documentation or drawings are available for it.

Description of the Receiving Environment and Monitoring Results

The Whitegate / Aghada agglomeration comprises three discharge points which discharge waste water directly to Cork Harbour. There is no regular monitoring of the Whitegate outfall.

The Water Framework Directive (WFD) overall status of the Cork Harbour Coastal Waterbody (IE_SW_060_0000) is moderate, with the Dissolved Inorganic Nitrogen (DIN) status and ecological status also moderate. The risk status is 1a (at risk), with WwTP listed as a point source pollution risk (report generated 05/11/2014). The WFD Objectives for the Cork Harbour Coastal Waterbody are to:

- Prevent Deterioration
- Restore Good Status
- Reduce Chemical Pollution
- Achieve Protected Areas Objectives

The Water Quality in Ireland (2007-2009) report produced by the EPA and published in 2010 shows, through water quality data for Cork Harbour and Outer Cork Harbour, that both failed the criteria for DIN during winter but were compliant in summer due to greater bacterial activity in warmer waters.

The data, summarised in Table 1.0, is collected using the EPA's Trophic Status Assessment Scheme (TSAS), which is required to satisfy the Urban Wastewater Treatment Directive and Nitrates Directive requirements.

Molybdate Reactive Phosphate (MRP) and BOD are not stipulated in the Surface Waters Regulations 2009 for coastal waters, however it is monitored to capture the potential effect of seasonal changes in river flow that can result in higher phosphate concentrations in estuaries in summer. The monitoring of BOD is linked to dissolved oxygen requirements and as an indicator of possible organic enrichment.

Table 1.0: Summary of Water Quality Data for Cork Harbour & Outer Cork Harbour

TSAS criteria	Threshold	Value	Intermediate	Threshold	Value	Intermediate
	Cork Harbour			Outer Cork Harbour		
Winter DIN	0.697	0.816	Fail	0.442	0.495	Fail
Winter MRP	48	28	Pass	43	25	Pass
DIN-	0.378	0.136	Pass	0.314	0.066	Pass
MRP-	42	5	Pass	41	5	Pass
Chloro. Median	10.6	4.5	Pass	10.3	3.0	Pass
Chloro 90 percentile	21.1	9.4	Pass	20.6	5.9	Pass
DO%sat 5 percentile	79	84.4	Pass	79	87.7	Pass
DO%sat 95 percentile	121	117.5	Pass	121	115.7	Pass
BOD	4	3.2	Pass	4	3.1	Pass

EPA (2010) Appendix 5.1 of Water Quality in Ireland 2007-2009: Summary statistics for individual transitional and coastal water bodies assessed between 2007-2009.

The data indicates that the concentrations of DIN in the harbour itself were higher than those of the outer harbour, and both the harbour and outer harbour DIN values were above the threshold levels set by the European Communities Objectives (Surface Waters) Regulations, 2009. However, the current EPA coastal water quality data for Cork Harbour indicates that there has been an improvement in water quality, with both Inner Cork Harbour and Outer Cork Harbour currently classified as unpolluted (<http://gis.epa.ie/Envision>).

Description of the Natura 2000 Site Affected

The Whitegate/ Aghada effluent discharges directly into Cork Harbour, which is part of Cork Harbour SPA. The Cork Harbour SPA is the only Natura 2000 site likely to be affected by the waste water discharge. The following text is taken from the Cork Harbour Site Synopsis (version date 26/02/2008).

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poul nabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Laxflowered

Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site 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.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occur regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

The majority of the Natura 2000 site lies within 15km of the Whitegate/ Aghada agglomeration, with only small sections to the northwest around the outfall of the River Lee from Cork City into Lough Mahon exceeding this boundary.

Description of the Conservation Interests of the SPA Annex I Species

This site has been designated as a Natura 2000 site due to the presence of wetland habitat and up to 22 different wintering bird populations and one breeding population who utilise the area. The qualifying interests are listed below;

- Little Grebe (*Tachybaptus ruficollis*) [A004] (Wintering)
- Great Crested Grebe (*Podiceps cristatus*) [A005] (Wintering)
- Cormorant (*Phalacrocorax carbo*) [A017] (Wintering)
- Grey Heron (*Ardea cinerea*) [A028] (Wintering)
- Shelduck (*Tadorna tadorna*) [A048] (Wintering)
- Wigeon (*Anas penelope*) [A050] (Wintering)
- Teal (*Anas crecca*) [A052] (Wintering)
- Pintail (*Anas acuta*) [A054] (Wintering)
- Shoveler (*Anas clypeata*) [A056] (Wintering)
- Red-breasted Merganser (*Mergus serrator*) [A069] (Wintering)
- Oystercatcher (*Haematopus ostralegus*) [A130] (Wintering)
- Golden Plover (*Pluvialis apricaria*) [A140] (Wintering)
- Grey Plover (*Pluvialis squatarola*) [A141] (Wintering)
- Lapwing (*Vanellus vanellus*) [A142] (Wintering)
- Dunlin (*Calidris alpina*) [A149] (Wintering)
- Black-tailed Godwit (*Limosa limosa*) [A156] (Wintering)
- Bar-tailed Godwit (*Limosa lapponica*) [A157] (Wintering)
- Curlew (*Numenius arquata*) [A160] (Wintering)
- Redshank (*Tringa totanus*) [A162] (Wintering)
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179] (Wintering)
- Common Gull (*Larus canus*) [A182] (Wintering)
- Lesser Black-backed Gull (*Larus fuscus*) [A183] (Wintering)
- Common Tern (*Sterna hirundo*) [A193] (Breeding)
- Wetlands & Waterbirds [A999]

Little Grebe (A004)

The Little Grebe (*Tachybaptus ruficollis*) is resident on ponds and lakes throughout Ireland. The Little Grebe is amber-listed in the Birds of Conservation Concern in Ireland (BoCCI) due to a contraction in the breeding range. The European population is regarded as Secure by BirdLife International. Little Grebe feed on a range of invertebrates (particularly insect larvae), small fish and molluscs. Little Grebe breeding sites are relatively widely scattered with slightly higher densities in the northeast of Ireland. Pairs are highly territorial, nesting mostly on floating plant material hidden in dense vegetation at the margins of shallow, freshwater rivers, streams, loughs and ponds. They are typically shy and skulking when breeding. Some pairs occupy breeding territories throughout the years, while at some sites birds disperse from their inland breeding sites over the winter. Little Grebes extend their wintering habitat to include ephemeral wetlands and are often encountered on sheltered coasts, estuaries and coastal lakes and lagoons at this time of the year.

Great Crested Grebe (A005)

Great Crested Grebe (*Podiceps cristatus*) is resident in Ireland, and numbers increase during the winter due to immigrating birds. The Great Crested Grebe is amber-listed in the BoCCI due to the localised wintering population (<10 sites). The European population is regarded as Secure. The diet of the Great Crested Grebe is mainly fish, sometimes supplemented with aquatic invertebrates. Great Crested Grebes breed on large, shallow eutrophic loughs and along canals and slow flowing rivers – wetlands with emergent vegetation bordered by open water are generally selected. Nests are a large mound of aquatic vegetation and are usually well concealed within reeds. The winter distribution is widespread with greatest concentration in the north midlands and northeast and birds from the continent join the resident population. Outside the breeding season Great Crested Grebes are often solitary with some birds moving to the coast through the winter. Occasionally, large congregations form for short periods. Birds start returning to breeding areas from mid-February.

Cormorant (A017)

The Cormorant (*Phalacrocorax carbo*) is resident in Ireland, with some immigration during the winter. The Cormorant is amber-listed in the BoCCI due to its localised breeding population. The European population has been evaluated as Secure. The diet of the Cormorant is fish. The Cormorant breeds in colonies mainly around the coast of Ireland, with some birds breeding inland. Most of the larger coastal colonies in Ireland are on the south and north west coasts with big colonies also in Co. Dublin. Birds on the coast breed on cliffs, whilst those inland nest in trees. The Cormorant winters at sea and inland.

Grey Heron (A028)

The Grey Heron (*Ardea cinerea*) is a common resident at wetlands, estuaries and along rivers throughout Ireland. It is green-listed in the BoCCI. The European population is considered to be Secure. The Grey Heron's diet comprises fish, amphibians, small mammals, insects and reptiles. Grey Herons breed in large trees and can form large heronries, some of which have been in use for over 100 years. Grey Herons are found in the same wetland habitats during the winter as in the breeding season. Birds breeding in Ireland are thought to be sedentary and birds from Britain and even Scandinavia join the resident population for the winter.

Shelduck (A048)

The Shelduck (*Tadorna tadorna*) is resident and is a winter migrant - Ireland receives additional birds during the winter (October to March) from Scandinavia and the Baltic. It is amber listed in the BoCCI, as the majority of the wintering population occurs at less than ten sites. The European population is regarded as Secure. The chief prey source for Shelduck is *Hydrobia ulvae*, which is present in almost all estuaries, and often in large numbers. Spatial distribution is strongly influenced by the behaviour of this prey, particularly in relation to water depth. They possibly feed at night, detecting prey by tactile clues using their bills. Shelducks breed in open areas along seashores, larger lakes and rivers. They nest in holes in banks, trees, occasionally strawstacks or buildings. There has been a recent expansion in the range of the northwest European population, and birds in Ireland and Britain have been displaced from coastal breeding sites and are increasingly using inland sites. Shelducks winter in sheltered estuaries or tidal mudflats.

Wigeon (A050)

The Wigeon (*Anas penelope*) is a common winter visitor to wetlands throughout Ireland from September and April. The Wigeon is amber-listed in the BoCCI as the majority winter at less than ten sites. The European population is regarded as Secure. Wigeon graze on coastal seagrass and algae, particularly on *Zostera* spp. and *Enteromorpha* spp., and also feed regularly on grasslands and cereal crops. Wigeon breed on shallow freshwater marshes, or under tussocks adjacent to lakes and lagoons, or on lake islands. Wigeon are widespread in winter - they occur on coastal marshes, freshwater and brackish lagoons, estuaries and bays. Many winter on inland wetlands, lakes, rivers and turloughs. The Icelandic breeding component of this population winters mostly in Ireland and western Britain, though some continue on to parts of continental Europe.

Teal (A052)

Teal (*Anas crecca*) is a resident & winter migrant. Most of the Icelandic population winter in Ireland, and also some from Fennoscandia and northern Russia. The Teal is amber-listed in the BoCCI due to a decline in the breeding population. The European population is considered to be Secure. Small seeds predominate in the diet of Teal, but *Enteromorpha* sp. and molluscs are also frequently taken. Occasionally feed on *chironomid* larvae where available, though usually during the summer months. They feed by day where they are safe from shooting. Teal usually nest near small freshwater lakes or pools and small upland streams away from the coast, and also in thick cover. In winter Teal are widespread on wetlands with good cover, such as reedbeds. They winter in a wide variety of habitats, both coastal and inland, and usually below an altitude of 200 metres, including coastal lagoons and estuaries and inland marshes, lakes, ponds and turloughs.

Pintail [A054]

The Pintail (*Anas acuta*) is a winter visitor to wetlands throughout Ireland from October to March. The Pintail is red-listed in the BoCCI, due to a significant decrease in the numbers wintering in Ireland. The European population has been assessed as Declining, due to a moderate ongoing decline. The diet consists largely of plant seeds and underwater plants, while insects and crustaceans are also eaten. They also feed on farmland, particularly stubble. Pintail nest in shallow freshwater marshes, small lakes and rivers, preferably with dense vegetation cover. Small breeding population of between 30 and 40 pairs in Britain, and there have been a few

breeding records in Ireland - one pair in County Down in 1994. In winter, Pintail form large flocks on brackish coastal lagoons, in estuaries and on large inland lakes.

Shoveler (A056)

The Shoveler (*Anas chlypeata*) is resident and a winter migrant, with most occurring between October and March. Wintering birds originate from breeding populations which range across France, northern Europe, the Baltic and western Russia. Ireland and northern Britain also support the small Icelandic breeding population during the winter. The Shoveler is Red-listed in the BoCCI, and is declining, with a moderate recent decline in Europe. Shovelers feed predominantly on zooplankton, which are found mostly on ephemeral wetlands, particularly turloughs and callows. They also feed on small molluscs, insects and larvae, seeds and plant material and are frequently seen dabbling around the edges of waterpools. The Shoveler nests on the ground among waterside vegetation, often with many nests in close proximity. Breeding in Ireland is centred around Lough Neagh and the mid-Shannon basin. For wintering, Shovelers prefer shallow eutrophic waters rich in plankton, and occur on a variety of habitats in Ireland, including coastal estuaries, lagoons and inland lakes and callows.

Red-breasted Merganser (A069)

The Red-breasted Merganser (*Mergus serrator*) is resident in Ireland and is a winter visitor from the Continent. This species is Green-listed in the BoCCI, the European population is regarded as Secure. Fish comprise the major component of the diet of the Red-breasted Merganser, and is predominantly small cod, hake and plaice. While on freshwater during the breeding season, they feed on roach, trout, salmon, eels and pike. They have also been recorded eating crustaceans and molluscs. Red-breasted Mergansers nest on sheltered lakes and large rivers throughout the west and north of the country, though they are largely absent from Clare and a few pairs have been recorded in Wexford. They use a variety of nesting habitats, usually located beside fast-flowing rivers, large and small lakes, also along the coast, on islands and sea-loughs. They winter exclusively in brackish and marine waters, particularly in shallow protected estuaries and bays and lagoons, and also offshore.

Oystercatcher (A130)

The Oystercatcher (*Haematopus ostralegus*) is resident in Ireland, and is a winter visitor from Iceland and the Faeroes. The largest numbers in Ireland between occur between September & March. The Oystercatcher is amber-listed in the BoCCI as Ireland hosts internationally important numbers of in winter. The European population is considered to be Secure. The main food resource includes the larger invertebrates, particularly mussels and cockles that proliferate along sandy coasts. They also occasionally feed on grasslands where they prey on *tipulid* larvae and earthworms. They feed by both sight (for *polychaete* worms) and touch (bivalve mussels). The Oystercatcher nests principally on shingle beaches, dunes, salt marshes and rocky shores around the coast. For wintering, Oystercatchers use all coastal habitats, and particularly favour open sandy coasts.

Golden Plover (A140)

The Golden Plover (*Pluvialis apricaria*) is a summer visitor from France & Iberia (though possibly some remain year-round in Ireland), and a winter visitor from Iceland. Most occur in Ireland between October & February. Golden Plovers are Red-listed in the BoCCI due to a large decline in the breeding population. The European population is considered to be Secure. Golden Plovers

feed on a variety of soil and surface-living invertebrates, principally beetles and earthworms, but also on plant material such as berries, seeds and grasses. They regularly feed in association with Lapwing & Black-headed Gulls. Golden Plover breed in heather moors, blanket bogs & acidic grasslands. Distribution is limited to the uplands of northwest counties in Ireland. Throughout the winter, Golden Plovers are regularly found in large, densely-packed flocks, and in a variety of habitats, both coastal and inland. Their distribution is widespread in Ireland.

Grey Plover (A141)

Grey Plover (*Pluvialis squatarola*) is a winter visitor from Siberia. The first birds arrive in Ireland and Britain towards the end of July but most here between September & April. Grey Plover are amber-listed in the BoCCI as the majority winter at less than ten sites. The European population is considered to be Secure. The Grey Plover feeds on a wide variety of burrowing intertidal invertebrates, particularly polychaete worms, molluscs and crustaceans. The Grey Plover breeds across the high arctic regions of Russia & North America. The winter distribution in Ireland is widespread, but exclusively coastal. They occur mostly along eastern and southern coasts, most often on large muddy estuaries. They regularly roost among dense flocks during high tide, while their distribution is more scattered while feeding.

Lapwing (A142)

The Lapwing (*Vanellus vanellus*) is resident, with summer visitors from the Continent (France & Iberia) and winter visitors from western & central Europe. There is some overlap between all three groups. The greatest numbers occur in Ireland between September & April. The Lapwing is red-listed in the BoCCI and is considered to be vulnerable in Europe. Lapwing feed on a variety of soil and surface-living invertebrates, particularly small arthropods and earthworms. They also feed at night, possibly to avoid kleptoparasitic attacks by Black-headed Gulls, but also, some of the larger earthworm species are present near the soil surface at night, and thus are more easily accessible. They use traditional feeding areas, are opportunistic, and will readily exploit temporary food sources, such as ploughed fields and on the edge of floodwaters. Lapwing breed on open farmland, and appear to prefer nesting in fields that are relatively bare (particularly when cultivated in the spring) and adjacent to grass. The wintering distribution in Ireland is widespread. Large flocks regularly recorded in a variety of habitats, including most of the major wetlands, pasture and rough land adjacent to bogs.

Dunlin (A149)

Dunlin (*Calidris alpina*) is a summer visitor from NW Africa/SW Europe, a winter visitor from Scandinavia to Siberia and a passage migrant from Greenland (heading south to winter in Africa). Most occur during the mid-winter period. Dunlin is amber-listed in the BoCCI as the majority of Dunlins winter at less than ten sites. The European population has been evaluated as Depleted, due to a large historical decline. Dunlin feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. They feed in flocks, in the muddier sections of the estuaries and close to the tide edge. Dunlin nest on the ground in sparse, low vegetation - in Ireland Dunlin favour machair habitats. In winter Dunlin are common along all coastal areas - especially on tidal mudflats and estuaries, there are very few inland.

Black-tailed Godwit [A156]

The Black-tailed Godwit (*Limosa limosa*) is a winter visitor from Iceland. It is amber-listed in the Birds of Conservation Concern in Ireland (BoCCI) as the majority of Black-tailed Godwits winter

at less than ten sites. The European population is considered to be Vulnerable, due to past and present declines in key populations, such as the Netherlands and Russia. Black-tailed Godwits are visual and tactile feeders, they feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. They prefer to feed on muddier estuaries, but also feed in brackish pools and on nearby rough pasture. While on pasture, they feed on the larvae of crane fly (*Tipulidae*) and on the amphipod *Corophium volutator*. They have also been recorded feeding on grain in stubble fields. Black-tailed Godwits breed in lowland wet grassland and marshes. Nine breeding sites were identified in Ireland during the last breeding atlas. More recently, birds were present during the breeding season between 1996 and 1999 inclusive, though breeding was not proven. Black-tailed Godwits winter in a variety of habitats, both inland (particularly grassland and river deltas) and coastal (particularly estuaries), though seldom seen along non-estuarine coast.

Bar-tailed Godwit (A157)

The Bar-tailed Godwit (*Limosa lapponica*) is a winter visitor to coastal estuaries from October to April from Russia and Scandinavia. Bar-tailed Godwit are amber-listed in the BoCCI as the majority of the population winter at less than ten sites. The European population is considered to be Secure. Bar-tailed Godwit feed along the tidal edge, or in shallow water (up to 15 cm depth). They usually commence feeding on an ebbing tide, and feed continuously for up to 6 hours. *Polychaete* worms, particularly lugworms, form a large proportion of their diet. On the muddier estuaries, where lugworms may be absent, they take ragworms and bivalves. Bar-tailed Godwit breed in northern Norway, Finland and further to the north and east. The wintering distribution is entirely coastal. They are largely confined to estuaries, with the largest numbers recorded on sandy estuaries. Small numbers are recorded using non-estuarine coastline.

Curlew (A160)

The Curlew (*Numenius arquata*) is a winter visitor to wetlands throughout Ireland, as well as breeding in small numbers in floodplains and boglands. The Curlew is red-listed in the BoCCI due to its small and declining breeding population. The European population is experiencing similar problems and has been evaluated as Declining. Curlew feed mostly on invertebrates, particularly ragworms, crabs and molluscs. They are usually well dispersed across the estuary while feeding, but roost communally, usually along salt marshes and sand banks. Curlew nest on the ground in rough pastures, meadows and heather. It is not a common breeder, but is found in most parts of the country. Curlew winter in a wide range of wetland habitats (coastal and inland) and other good feeding areas including damp fields. The Irish breeding population is supplemented by Scottish and Scandinavian breeders in winter.

Redshank (A162)

The Redshank (*Tringa totanus*) is resident in Ireland, a winter visitor from Iceland and a passage migrant (birds on passage from Scandinavia/the Baltic breeding areas to west African wintering areas). The highest numbers occur during the early autumn, when there is an overlap of the populations. Redshank is red-listed in the BoCCI, due to its small and declining breeding population. The European population has been evaluated as Declining, due to a moderate continuing decline. Redshank detect prey visually and feed mostly during the day along the upper shore of estuaries and along muddy river channels. They feed singly or in small groups, and their prey consists mostly of *Hydrobia* sp., *Corophium* sp. and *neriid* worms. Redshank nest

on the ground in grassy tussock, in wet, marshy areas and occasionally heather. Adults often keep guard standing on fence posts or high rocks. Breeds mainly in midlands (especially Shannon Callows) and northern half of the country, but not commonly anywhere in Ireland. Redshank winters all around the coasts of Ireland, Britain and many European countries. Favours mudflats, large estuaries and inlets. Smaller numbers winter at inland lakes and large rivers.

Black-headed Gull (A179)

The Black-headed Gull (*Chroicocephalus ridibundus*) is resident along all Irish coasts, with significant numbers arriving from the Continent in winter. The Black-headed Gull breeds in small numbers on islands in larger lakes in western Ireland. The Black-headed Gull is red-listed in the BoCCI due to its rapidly declining and localised breeding population. The European population is regarded as Secure, despite declines in several countries. The Black-headed Gull feeds on insects especially in arable fields, and will also exploit domestic and fisheries waste. Black-headed Gulls breed both on the coast and inland where they will often nest in colonies. Usually, nests are on the ground in wetland areas, such as bogs and marshes and will also use man-made lakes. Numbers breeding inland have declined dramatically, probably due to predation by the American Mink, which is an able swimmer and is able to access previously inaccessible nesting areas. The largest colonies in Ireland are in Northern Ireland on Lough Neagh. Colonies in the republic are not widespread, the largest are found inland in Counties Galway, Monaghan and Mayo and at coastal sites in Counties Wexford and Donegal. Irish birds are augmented by wintering birds from northern and eastern Europe and are widespread on both on the coast and inland.

Common Gull (A182)

The Common Gull (*Larus canus*) is a local breeding species on islands in larger lakes in western Ireland. It is a winter visitor to all Irish coasts, with significant numbers arriving from central and northern Scotland, Scandinavia and the Baltic. The Common Gull is amber-listed in the BoCCI due to a decline in the localised breeding population. The European population is regarded as Depleted, due to a moderate historical decline. The diet of the Common Gull includes terrestrial and aquatic insects and invertebrates, fish. The Common Gull nests on the ground in a wide variety of situations, including islands, cliffs and shingle banks. It breeds on the coast and inland in the west of Ireland, from Dingle to Malin Head, with most colonies in Co. Galway, Co. Mayo and Co. Donegal. Inland it can breed on islands in lakes where it has declined. These declines, like those of inland breeding Black-headed Gulls, have been attributed to predation by American Mink, reaching previously safe nesting areas. The numbers of resident wintering birds are joined by wintering birds from Europe.

Lesser Black-backed Gull (A183)

The Lesser Black-backed Gull (*Larus fuscus*) is a summer visitor to lakes and coasts from March to September, wintering in Iberia and northwest Africa. It is a winter visitor in small numbers along eastern and southern coasts, probably from Iceland and the Faeroe Islands. The Lesser Black-backed Gull is amber-listed in the BoCCI due to its localised breeding population. The European population is regarded as Secure. The Lesser Black-backed Gull takes a wide variety of prey including fish from the sea, waste from fisheries, rubbish from landfill sites, insects in flight, young birds and food from other birds. The Lesser Black-backed Gull breeds colonially, often with other gull species especially Herring Gull, and nests on the ground. The Lesser Black-

backed Gull will use a variety of sites, including off shore islands, islands in inland lakes, sand dunes and coastal cliffs. Small numbers also nest on roof tops in Co. Dublin. Most colonies in Ireland are on the coast, mostly on the west coast. Most inland colonies are found in Co. Mayo and in Co. Donegal. In the winter, the species is found in a wide variety of habitats both inland and along the south and east coasts. The largest numbers occur after the breeding season in autumn when migrating birds pass through Ireland in great numbers.

Common Tern (A193) (Breeding)

The Common Tern (*Sterna hirundo*) is a summer visitor from March to October to all Irish coasts. The species is amber-listed in the BoCCI due to its localised breeding population. The European population has been evaluated as Secure. The diet of the Common Tern is chiefly fish. Common Tern nest colonially on the ground from April to October. They breed on the coast, with larger colonies in Co. Dublin, Co. Wexford and Co. Galway. Also breeds inland on islets in freshwater lakes, notably in Co. Galway and in Co. Mayo. Common Tern winter in west and south Africa.

Field Survey

Field survey was conducted by Mr David Rees, Glas Ecology Ltd., on March 2014. The field survey comprised of a bird survey from 8 locations from Rostellan Lake to the south side of the pier at Whitegate.

Table 2.0 shows species present along the surveyed stretch and also includes species recorded as part of the IWeBS survey (Birdwatch Ireland) for subsites Whitegate Bay and Aghada between 2007-2012.

Table 2.0: Qualifying Species along Surveyed Stretch

Site	Qualifying Species	Present in Area Surveyed March 2014	Recorded in IWeBS Counts 2007-2012
Cork Harbour SPA	Little Grebe	Yes	No
	Great Crested Grebe	Yes	Yes
	Cormcrant	Yes	Yes
	Grey Heron	No	Yes
	Shelduck	Yes	Yes
	Wigeon	Yes	Yes
	Teal	Yes	Yes
	Pintail	No	Yes
	Shoveier	No	Yes
	Red-breasted Merganser	No	Yes

Site	Qualifying Species	Present in Area Surveyed March 2014	Recorded in IWsBS Counts 2007-2012
	Oystercatcher	Yes	Yes
	Golden Plover	No	No
	Grey Plover	No	No
	Lapwing	No	Yes
	Dunlin	Yes	Yes
	Black-tailed Godwit	Yes	Yes
	Bar-tailed Godwit	No	Yes
	Curlew	Yes	Yes
	Redshank	Yes	Yes
	Black-headed Gull	Yes	Yes
	Common Gull	Yes	Yes
	Lesser Black-backed Gull	No	Yes
	Common Tern	No	Yes

Conservation Objectives of the Cork Harbour SPA

Article 6 of the Habitats Directive states that:

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications of the site in view of the site's conservation objectives.

The importance of a site designated under the Habitats Directive is defined by its qualifying features or interests. Qualifying interests for any Natura 2000 site are listed on a *pro forma*, called the Natura 2000 standard data form, which forms the basis of the rationale behind designation, and informs the Conservation Management Plan for targeted management and monitoring of key species and habitats.

The conservation objectives (Version 4.0, 16th April 2012) for the Cork Harbour SPA are set out below:

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Tachybaptus ruficollis* [wintering]

- *Podiceps cristatus* [wintering]
- *Phalacrocorax carbo* [wintering]
- *Ardea cinerea* [wintering]
- *Tadorna tadorna* [wintering]
- *Anas penelope* [wintering]
- *Anas crecca* [wintering]
- *Anas acuta* [wintering]
- *Anas clypeata* [wintering]
- *Mergus serrator* [wintering]
- *Haematopus ostralegus* [wintering]
- *Pluvialis apricaria* [wintering]
- *Pluvialis squatarola* [wintering]
- *Vanellus vanellus* [wintering]
- *Calidris alpina* [wintering]
- *Limosa limosa* [wintering]
- *Limosa lapponica* [wintering]
- *Numenius arquata* [wintering]
- *Tringa totanus* [wintering]
- *Chroicocephalus ridibundus* [wintering]
- *Larus canus* [wintering]
- *Larus fuscus* [wintering]
- *Sterna hirundo* [breeding]
- Wetlands []

Impact Prediction

Impacts on Water Quality

The conservation interests of the Cork Harbour SPA are directly dependant on the marine environment and as the Whitegate/ Aghada effluent discharges to Cork Harbour within the SPA designation, there is a connection between this agglomeration and the ecological receptors in the Cork Harbour SPA.

The Whitegate / Aghada agglomeration comprises three discharge points which discharge waste water directly to Cork Harbour. There is no regular sampling programme for the Whitegate outfall.

The Water Framework Directive Status for the Cork Harbour Coastal Waterbody [IE_SW_60_0000] is Moderate overall, with the Dissolved Inorganic Nitrogen Status classified as Moderate, and the Ecological Status also classified as Moderate. The Water Quality in Ireland (2007-2009) report produced by the EPA and published in 2010 shows through water quality data for Cork Harbour and Outer Cork Harbour that both failed the criteria for DIN during winter but were compliant in summer due to greater bacterial activity in warmer waters. The data indicates that the concentrations of DIN in the harbour itself were higher than those of the outer harbour, and both the harbour and outer harbour DIN values were above the threshold levels set by the European Communities Objectives (Surface Waters) Regulations, 2009. However, the current EPA coastal water quality data for Cork Harbour indicates that there has been an

improvement in water quality, with both Inner Cork Harbour and Outer Cork Harbour currently classified as unpolluted.

The Whitegate/ Aghada agglomeration falls within the Womagh Water Management Unit Action Plan (which supplements the South Western River Basin Management Plan), where it is stated that the Whitegate/ Aghada agglomeration has "insufficient existing capacity, no evidence of impact and that it discharges to a protected area". The WMU contains the following measures for the Whitegate/ Aghada agglomeration:

- Requires further investigation prior to capital works;
- Required to commence implementation of pollution reduction programmes for shellfish waters; and
- There is an extended timescale for measure implementation; and for achievement of waterbody objective.

Impacts on Annex I (Birds Directive) Species

Dissolved Inorganic Nitrogen (DIN) pollution in coastal waters can stimulate or enhance the development, maintenance and proliferation of primary producers, resulting in the eutrophication of the ecosystem (Camargo & Alonso, 2006). The Site Synopsis for Cork Harbour recognises eutrophication as one of the potential threats for the site:

" As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic".

Inorganic nitrogen can enter aquatic ecosystems via point and non-point sources. Point sources include municipal sewage effluents, industrial waste water effluents and overflows of combined sewers. Non-point, or diffuse, sources include agricultural run-off, urban run-off from sewered and unsewered areas, septic leachate from failed septic systems and run-off from construction sites. Eutrophication of estuarine and coastal systems can cause ecological and toxicological effects related to the proliferation of primary producers. As noted by Camargo & Alonso (2006), the effects of eutrophication in aquatic ecosystems can include:

- Reductions in water column transparency and light availability;
- Decreased concentrations of dissolved oxygen in bottom waters and sediments;
- Increased biomass and productivity of phytoplankton;
- Shifts in phytoplankton composition to bloom-forming species, some of which may be toxic;
- Increased biomass and productivity, and shifts in species composition of marine macroalgae;
- Changes in biomass, productivity and species composition of benthic invertebrates and fish; and
- Alterations in the food web structure of estuarine and marine coastal ecosystems.

The effects of discharge of untreated sewage discharge on coastal birds varies according to the effects of eutrophication experienced. For instance, Small Gulls, such as the Black-headed Gulls,

can benefit from using small fragments of food present in the waste water discharge as a food source. However, overall it would be expected that a shift in the composition of invertebrates and fish in the coastal ecosystem would in turn alter the species composition of the coastal bird populations using that area. For example, a decline in fish numbers may increase the food supply available to waders as they often consume the same types of prey as the fish. Conversely, at high levels of eutrophication, decreased concentrations of dissolved oxygen in sediments may result in a reduction of invertebrates, and therefore a reduction in food sources for birds (Ferns, 1992).

Cork Harbour is surveyed for birds on a regular basis as part of Birdwatch Ireland's IWeBS monitoring programme. The IWeBS results for Cork Harbour sub sites at Whitegate Bay and Aghada (included in Appendix B) show that the qualifying species of Cork Harbour SPA occur at these sub sites in relatively small numbers. On the whole, populations of bird species using this area of Cork Harbour occur in numbers below those of national or international importance. Exceptions to this include Great Crested Grebe, which occurred in numbers above those of national importance for one year's count at both Whitegate Bay and Aghada, and Black-tailed Godwit occurred at numbers above those of national importance for one year's count at Whitegate Bay. The numbers of all qualifying species recorded by Mr. David Rees during the field survey were low, and well below those of national importance. The numbers of each species recorded during the IWeBS counts vary considerably from year to year, and no clear pattern of change in population numbers is evident.

The NPWS site synopsis for Cork Harbour SPA states that: "the polluted conditions may not be having significant impacts on the bird populations". The lack of change of status in bird populations using this area of Cork Harbour would appear to suggest that the current discharge is not having a significant effect on the qualifying species of Cork Harbour SPA.

Cumulative Impacts

As discussed previously, cumulative impacts in the catchment possibly pose the greatest risk to the conservation objectives. The potential threat(s) of the Whitegate/ Aghada discharge on water quality (long term or single event) is greatly increased when taken in combination with other water quality concerns in the catchment. For example the Rostellan and Crosshaven WwTP's also discharge to Cork Harbour in the vicinity of Whitegate, and these discharges will also effect water quality. Other impacts which are likely to act cumulatively and impact on the SPA result from the following:

- Chemical fertiliser application to agricultural lands (the main fertilisers in use supply nitrogen, phosphorus, potassium and sulphur);
- Agricultural practices such as ploughing leads to greater mineralisation and nitrification, and in the case of old grassland, it can result in an increase in the release of nitrogen over a number of years (OECD, 1986);
- Artificial drainage increases nitrate leaching;
- On-site wastewater treatment systems, poorly performing septic tank units and other small effluent systems can be significant sources of nutrients to waterbodies. There are 6252 septic tanks in the Womagh WMU. 1198 of these are located in areas of very high or extreme risk;
- Point pressures 3 IPPC licenced facilities in Cork Harbour;

- Quarries - there are 4 quarries in the Womanagh WMU; and
- Landfills- there are 2 landfills in the Womanagh WMU.

Consequently, it is considered that it cannot be ruled out that the continued discharge of effluent from the Whitegate/ Aghada agglomeration, in-combination with the above additional sources of pollution to Cork Harbour, will have a cumulative negative effect on the qualifying interests of Cork Harbour SPA.

Mitigation Measures

The current effluent discharge from the Whitegate/ Aghada agglomeration is from a combined sewerage scheme that discharges to the harbour without treatment. The PE of the agglomeration is 2016.

The receiving water of the Cork Harbour Coastal Waterbody is deemed by the Water Framework Directive to be of Moderate status, with the Dissolved Inorganic Nitrogen (DIN) status and ecological status also classified as moderate. The Water Quality in Ireland (2007-2009) report produced by the EPA and published in 2010 shows that both Cork Harbour and Outer Cork Harbour failed the criteria for DIN during winter but were compliant in summer due to greater bacterial activity in warmer waters. The EPA data indicates that the concentrations of DIN in the harbour itself were higher than those of the outer harbour and both the harbour and outer harbour DIN values were above the threshold levels set by the European Communities Objectives (Surface Waters) Regulations, 2009. However, the current EPA coastal water quality data for Cork Harbour indicates that there has been an improvement in water quality, with both Inner Cork Harbour and Outer Cork Harbour currently classified as unpolluted.

To comply with the measures in the Womanagh Water Management Unit Action Plan, where it is noted that the Whitegate/ Aghada agglomeration has insufficient existing capacity, the Whitegate/ Aghada agglomeration:

- Requires further investigation prior to capital works;
- Required to commence implementation of pollution reduction programmes for shellfish waters; and
- There is an extended timescale for measure implementation; and for achievement of waterbody objective.

In order to ensure the objective of Art. 6 of the Habitats Directive is complied with, mitigation measures required for the Whitegate/ Aghada agglomeration are as follows:

- The provision of waste water treatment for the Whitegate/ Aghada agglomeration.

Stage 2 Appropriate Assessment Conclusion Statement

The current Appropriate Assessment has been prepared following the EPA (2009) 'Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)'. The Department of the Environment, Heritage and Local Government guidance 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities' (DoEHLG, 2010a) has also been taken into account. The current assessment for the Waste Water Discharge Licence Application investigates the potential adverse effects on the qualifying interests of the Natura 2000 network arising from the waste water discharge, in combination with other plans / projects affecting the coastal environment. The assessment considers whether the discharge, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects.

It has been determined that the existing discharge has potential for significant negative impacts on the Cork Harbour SPA, either alone or in combination with other plans and projects, and as such mitigation is required to reduce the negative effects. The mitigation required is provision of waste water treatment for the Whitegate/ Aghada agglomeration.

When the above mitigation measure, together with the measures required under the WFD for the Womanagh Water Management Unit, are implemented in full, it is envisaged that there will be no significant adverse effects on the integrity of the Cork Harbour SPA in view of the site's conservation objectives and that the conservation status of the Annex I species will not be compromised by the effluent discharge either directly, indirectly or cumulatively.

Stage 2 concludes the Appropriate Assessment process of the Whitegate/ Aghada agglomeration Waste Water Discharge Licence Application.

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Appendix A

NPWS Site Synopsis: Cork Harbour SPA

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SITE SYNOPSIS

SITE NAME: CORK HARBOUR SPA

SITE CODE: 004030

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poul nabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nephtys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactuca* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Lax-flowered Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site 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.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of

national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bar-tailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

26.2.2008

Appendix B:
IWeBS and Field Survey Data

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Whitegate Bay W836639

Species	1% National	1% International	2007/08	2008/09	2009/10	2010/11	2011/12	Mean	Peak
Mute Swan	110					3		1	3
Light-bellied Brent Goose		400					11	2	11
Shelduck	150	3,000	49	92	18	147	25	66	147
Wigeon	820	15,000	128	106	52	44	12	68	128
Gadwall	20	600				11	3	3	11
Teal	450	5,000				131	3	27	131
Mallard	380	20,000	177	42	32	115	38	81	177
Shoveler	25	400		8				2	8
Red-breasted Merganser	35	1,700	8	8	4	4	5	6	8
Great Crested Grebe	55	3,500	36	41	72	21	29	40	72
Cormorant	140	1,200	28	12	23	4	85	30	85
Shag		2,000	2					0	2
Little Egret		1,300	10	3	3	5	2	5	10
Grey Heron	30	2,700	12	7	6	4	8	7	12
Oystercatcher	680	8,200	97	96	84	74	59	82	97
Knot	190	4,500	24	15				8	24
Dunlin	880	13,300	53	26		107	190	75	190
Black-tailed Godwit	140	610	233	46	91	104	71	109	233
Bar-tailed Godwit	160	1,200	1					0	1
Whimbrel		6,700					1	0	1
Curlew	550	8,400	216	46	110	75	61	102	216
Greenshank	20	2,300	11	4	6	5	3	6	11
Redshank	310	3,900	203	200	122	136	109	154	203
Turnstone	120	1,400	14	18	12	10	25	16	25
Mediterranean Gull		770	33	65				20	65
Black-headed Gull		20,000	285	NC	NC	NC	NC	57	285
Common Gull		16,400	45	NC	NC	NC	NC	9	45
Lesser Black-backed Gull		5,500	13	NC	NC	NC	NC	3	13
Herring Gull		10,200	37	NC	NC	NC	NC	7	37
Great Black-backed Gull		4,200	82	NC	NC	NC	NC	16	82

The counts presented in the table refer to the peak counts of species in each I-WeBS season. Site peak and mean are calculated as the peak and mean of peak counts respectively over the seasons specified. Blank cells within columns which contain positive values for one or more species constitute zero for those species. NC indicates that the species may have been present but was not counted.



Aghada W8566

Species	1% National	1% International	2007/08	2008/09	2009/10	2010/11	2011/12	Mean	Peak
Mute Swan	110		3	8	2	2		3	8
Light-bellied Brent Goose		400	7	6	24	9	19	13	24
Black Brant					1			0	1
Shelduck	150	3,000	2			2	2	1	2
Wigeon	820	15,000	57	16	74	94	50	58	94
Teal	450	5,000				3	3	1	3
Mallard	380	20,000	2	11	6	8	8	7	11
Pintail	20	600			5			1	5
Shoveler	25	400		9		3		2	9
Scaup	45	3,100		1				0	1
Common Scoter	230	5,500	1	1				0	1
Velvet Scoter			3					1	3
Red-breasted Merganser	35	1,700	4	2	12		4	4	12
Great Northern Diver		50		1	12	1		3	12
Great Crested Grebe	55	3,500	30	32	121	57	62	60	121
Slavonian Grebe		55			1			0	1
Black-necked Grebe					1	2		1	2
Cormorant	140	1,200	46	12	30	18	53	32	53
Shag		2,000	1	1	1		1	1	1
Little Egret		1,300	4	2		2	1	2	4
Grey Heron	30	2,700	4	3	2	3	6	4	6
Oystercatcher	680	8,200	57	19	20	29	24	30	57
Ringed Plover	150	730	27	11	30	21	20	22	30
Lapwing	2,100	20,000	222	93	36	230	106	137	230
Dunlin	880	13,300	68	42		100	149	72	149
Black-tailed Godwit	140	610	1	4	56		30	18	56
Curlew	550	8,400	48	14	10	18	81	34	81
Common Sandpiper				2				0	2
Greenshank	20	2,300	3	4	5	5	4	4	5
Redshank	310	3,900	13	12	21	22	14	16	22
Turnstone	120	1,400	52	14	22	33	30	30	52
Mediterranean Gull		770	2	NC	NC	NC	NC	0	2
Black-headed Gull		20,000	115	NC	NC	NC	NC	23	115
Common Gull		16,400	27	NC	NC	NC	NC	5	27
Lesser Black-backed Gull		5,500	3	NC	NC	NC	NC	1	3
Herring Gull		10,200	22	NC	NC	NC	NC	4	22
Great Black-backed Gull		4,200	13	NC	NC	NC	NC	3	13
Sandwich Tern			10				1	2	10
Common Tern			1					0	1
Arctic Tern			1					0	1

The counts presented in the table refer to the peak counts of species in each I-WeBS season. Site peak and mean are calculated as the peak and mean of peak counts respectively over the seasons specified. Blank cells within columns which contain positive values for one or more species constitute zero for those species. NC indicates that the species may have been present but was not counted.

Bird Survey Results
Dr David Rees, 18th March 2014

Species	Whitegate Bay		North of Whitegate		Yacht Club		South side of pier		North side of pier		Aghada		Rostellan Outlet		Rostellan Lake		HW TOTAL	LW TOTAL
	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW		
Black-headed Gull	8	46									10	11	76	30		3	94	90
Black-tailed Godwit		18												1			0	19
Brent Goose			2														2	0
Common Gull		55						1	38	2	18	15	36	3			92	76
Cormorant							3	1							1		4	1
Curlew		30	2	1										1			2	32
Dunlin		41															0	41
Great Black-backed Gull				4													0	4
Greenshank		2	1						1			2	1				2	5
Herring Gull		3		2		11						3		1			0	20
Hooded Crow		12		3		1			1								1	16
Little Egret																1	0	1
Little Grebe															1		1	0
Mallard	1													3	2	7	3	10
Mediterranean Gull						1											0	1
Mute Swan													2	2	1	2	3	4
Oystercatcher		3				2		3				2					0	10
Redshank		7								1		1	2	2			2	11
Ringed Plover	40																40	0
Shelduck		16	2														2	16
Teal																2	0	2
Tufted Duck															9	10	9	10
Wigeon		4											4				4	4

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