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## **An Bord Pleanála Oral Hearing**

**Irish Water**

**Greater Dublin Drainage**

**Brief of Evidence**

**Biodiversity (Marine & Terrestrial Ornithology)**

**Dr Simon Zisman**

<b>AN BORD PLEANALA</b>	
TIME <u>16:00</u>	BY: _____
<b>20 MAR 2019</b>	
LTR DATED _____	FROM _____
PL _____	

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Brief of Evidence of Dr Simon Zisman  
Biodiversity (Marine and Terrestrial Ornithology)**

**QUALIFICATIONS AND ROLE IN THE PROPOSED PROJECT**

- 1 My name is Dr Simon Zisman. I am a Senior Director and Director of Ecology at RPS. I hold a BSc Honours Degree in Geography, an MSc in Rural Resources and Environmental Policy and a PhD in coastal habitat conservation. I have over 20 years' experience in the environment sector, with previous roles including Environmental Scientist at an international firm of coastal consulting engineers, and Conservation Officer for the Royal Society for the Protection of Birds. I have worked at RPS since 2006, starting as Senior Ecologist and subsequently becoming Senior Director. I have continued my specialist interest in birds, undertaking and over-seeing ornithological work in Scotland, England, Wales, Northern Ireland and Ireland.
- 2 My work at RPS has included a variety of site sensitivity assessments, ornithology chapters for Environmental Impact Statements and Environmental Impacts Assessment Reports, mitigation strategies, Habitat Management Plans, Breeding and Wintering Bird Protection Plans, background technical reports, Habitats Regulations Assessments (equivalent to Natura Impact Statements) and inputs as ornithological expert witness to other public inquiries. My experience extends from the project planning and consenting phase, right through to construction, (for which I have managed Ecological Clerk of Works inputs on several large-scale projects), through to post-construction monitoring works.
- 3 As well as the Proposed Project, I have worked on several other coastal development projects, including renewable energy, marina, port and wastewater treatment developments, applying my experience of estuarine and nearshore bird populations, for breeding, migration and over-wintering seasons, to the assessment and mitigation of effects on Sites of Special Scientific Interest and Special Protection Areas. Examples include an assessment of ornithological sensitivities for the Oriel Wind Farm, Irish Sea, the design and up-grade of the Tetney Phillips 66 gas pipeline on the Humber Estuary (through consent and construction), an application for a Marine License for coast protection and port facilities up-grade in the Firth of Forth, and overseeing the production of Ornithological Chapters for Beatrice, Inchcape and Hornsea offshore wind farm Environmental Impact Assessments.
- 4 I have been involved with the Proposed Project since 2015, over-seeing the onshore and offshore ornithological aspects of Chapter 10 Biodiversity (Marine Ornithology) in Volume 3 Part A of the EIAR, and the Natura Impact Statement submitted to An Bord Pleanála in June 2018, and a subsequent Response to An Bord Pleanála dated 11 January 2019 (the Response).
- 5 Chapters 10 and 11 of the EIAR were prepared with the benefit of inputs from a number of ecology specialists, including James McCrory, Senior Associate, ecology expert, and Ian Wilson, marine biodiversity expert.
- 6 My evidence is concerned with marine and terrestrial ornithology interests and the Greater Dublin Drainage Project, specifically baseline condition, environmental assessment, and mitigation elements of the Proposed Project in relation to birds.

**SUMMARY OF LIKELY SIGNIFICANT IMPACTS & MITIGATION MEASURES (MARINE ORNITHOLOGY)**

- 7 In order to properly focus on, and address, the issues raised in submissions and observations made to the Board on the application for development consent in relation to biodiversity (marine ornithology), it is necessary to understand the context in which those issues have been raised. Accordingly, prior to outlining the specific issues raised and Irish Water's response to those issues, and as stated in the Board's Oral Hearing Agenda, it is useful to briefly summarise the conclusions of the biodiversity appraisal comprised in the application documentation by setting out the significant impacts of the Proposed Project and mitigation proposed.



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- 8 Chapter 10 in Volume 3 Part A of the EIAR is titled Biodiversity (Marine Ornithology). Chapter 10 draws on surveys undertaken by field ornithologists with expertise in bird monitoring in estuarine and marine environments.
- 9 Section 10.1 of Chapter 10 comprises an introduction to the Chapter. Section 10.2 describes the methodologies used for undertaking baseline estuarine and marine ornithology surveys, the evaluation of birds in these environments and the subsequent assessments of the Proposed Project's predicted effects on these species. Section 10.3 describes the estuarine and marine baseline environments, with Section 10.4 to 10.9 covering the predicted impacts of construction and operation on estuarine and marine birds, including associated mitigation measures. Residual impacts are set out in Section 10.10 and the reports and publications referenced in the Chapter are listed in Section 10.11.
- 10 The Biodiversity (Marine Ornithology) assessment contained within Chapter 10 of the EIAR is supported by two technical appendices and associated figures:

*Volume 3, Part B of the Environmental Impact Assessment Report*

- Appendix A10.1 Estuarine Ornithology Survey; and
- Appendix A10.2 Vessel Management Plan

*Volume 5 Part A of the Environmental Impact Assessment Report*

- Figure 10.1 Location and Extent of Marine, Coastal and Estuarine Ornithological Surveys;
  - Figure 10.3 Bird Distribution Compound No.10;
  - Figure 10.4 Distribution of Feeding Guillemot Records;
  - Figure 10.5 Distribution of Non-Feeding Guillemot Records;
  - Figure 10.6 Distribution of Feeding Razorbill Records;
  - Figure 10.7 Distribution of Non-Feeding Razorbill Records.
- 11 Also relevant to Chapter 10 is
- Figure 11.2 Special Protection Areas and Ramsar Sites.
- 12 The Biodiversity (Marine Ornithology) assessment contained within Chapter 10 of the EIAR is further supported by Section 11 Biodiversity (Marine Ornithology) of Irish Water's Response to An Bord Pleanála dated 11 January 2019.
- 13 Chapter 10 of the EIAR identifies, describes and assesses the likely significant effects of the Proposed Project on estuarine and marine birds.
- 14 A section of the proposed Outfall Pipeline Route (Marine Section) is proposed to be located:-
- in proximity to Ireland's Eye Special Protection Area; and
  - tunnelled below Baldoyle Bay Special Protection Area and Ramsar site.
- 15 Approximately 60% of the Proposed Project, from the commencement of the proposed Outfall Pipeline Route (Marine Section) from the R106 Coast Road to 1km north-east of Ireland's Eye, is located within transitional or buffer zones of Dublin Bay UNESCO Biosphere Reserve, and it is to be tunnelled under a Core Area of the Biosphere Reserve.

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- 16 Qualifying features of European sites are located within the Zone of Influence (Zol) of the Proposed Project. As these features relate to marine ornithology they are assessed in Chapter 10 Biodiversity (Marine Ornithology) in Volume 3 Part A of the EIAR and in the Natura Impact Statement. The Zol is defined (in section 1.3 of the NIS) as the Proposed Project footprint plus ecological receptors that could be connected to and subsequently impacted by the Proposed Project through impact pathways. To this end, the Zol extends outside of the Proposed Project infrastructure footprint to include ecological receptors connected to the Proposed Project through overlap / intersection, proximity and connectivity through features such as watercourses (see NIS Figure 1-1).
- 17 The significance of ornithological effects has been assessed using the criteria set out in section 10.2.5 to 10.2.8 of the EIAR (and summarised in Table 10.4).
- 18 Without mitigation, there are potentially significant effects on estuarine and marine birds that could occur during Construction from visual or noise disturbance to birds,
- 19 However, Construction Phase effects on estuarine and marine birds are temporary, and a range of mitigation measures have been incorporated into the Proposed Project to offset potentially significant Construction Phase effects on estuarine and marine birds. The mitigation measures (as specified in Table 10.15 and 10.16 of the EIAR) are:-
- Screening of construction works to minimise disturbance to estuarine birds; and
  - Implementation of a Vessel Management Plan.
- In addition, the employment of an Ecological Clerk of Works to supervise or implement this screening, and to provide guidance to appointed contractor(s) through toolbox talks and liaison will ensure these measures are effective.
- 20 There are no significant residual effects predicted on estuarine or marine birds during the Construction Phase, following the implementation of mitigation measures.
- 21 There are no significant effects predicted on birds during Operation. As a result, no mitigation measures are necessary during the Operation Phase..

**RESPONSE TO ISSUES RAISED IN SUBMISSIONS/OBSERVATIONS**

**Response to General Issues in Submissions**

- 22 With regard to coastal and marine biodiversity, 65 submissions raised general issues about the potential for wildlife impacts as a result of the Proposed Project<sup>1</sup>. The general issues fall under four broad categories:-
- effects on SPAs and protected bird species;
  - effects on seabird colonies from the proposed outfall pipeline route (marine section);
  - effects of malfunction on bird species; and
  - effects of tunnelling on estuarine birds.
- 23 A comprehensive assessment on all aspects of biodiversity is presented within Chapter 9 Biodiversity (Marine), Chapter 10 Biodiversity (Marine Ornithology) and Chapter 11 Biodiversity (Terrestrial and

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<sup>1</sup> These are listed at Paragraph 499 in Section 11.2 of the Response to An Bord Pleanála dated 11 January 2019



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Freshwater Aquatic) in Volume 3 Part A of the EIAR and where relevant to European sites, in the NIS also.

- 24 In relation to effects on SPAs and protected species, potential effects on estuarine and marine birds are assessed in section 10.6 in Volume 3 Part A of the EIAR, drawing on extensive baseline data collected for the Proposed Project. Mitigation measures prescribed to offset potential significant effects on estuarine and marine birds are set out in the EIAR's Tables 10.14 and 10.15. The significant environmental effects of the Proposed Project have therefore been fully addressed, with the EIAR concluding that there are no significant residual impacts on any estuarine or marine species, from the Construction or Operational Phase of the Proposed Project.
- 25 The NIS also examines the Proposed Project's implications on SPAs and their qualifying species. The NIS concludes beyond reasonable scientific doubt that there is no adverse impact on the integrity of any SPAs from the Proposed Project, either alone or in combination with other plans or projects.
- 26 The effects of the proposed outfall pipeline route (marine section) on seabird colonies has been fully assessed through the same process. With the mitigation measures prescribed in Table 10.15, there is no significant impact predicted on any seabird colony. Due to the nature of the Proposed Project and its operation (which does not require the routine presence of significant surface activities in or near Baldoye Bay or Ireland's Eye), there are no impacts predicted on ornithological interests from the proposed outfall pipeline route (marine section) discharge during the Operational Phase. The significant environmental effects of the Proposed Project have therefore been addressed, and no significant residual effects remain.
- 27 In relation to the effects of a malfunction on birds, the very unlikely event of a malfunction and release of untreated wastewater, there will be no short-term increase in suspended solids that would have a significant impact on marine birds. These species have extensive foraging ranges, so any effect would occupy only a small fraction of their potential foraging area for a short time. Fish, as a key part of seabird prey, would also be able to disperse from any area of increased suspended solid, further reducing the risk of any impact. The significant environmental effects of the Proposed Project have therefore been addressed, and no significant residual effects remain.
- 28 In relation to the effects of tunnelling on estuarine birds, all sources and potential implications of disturbance from tunnelling activities have been fully addressed in section 10.6.1 of Chapter 10 Biodiversity (Marine Ornithology) in Volume 3 Part A of the EIAR. Once the embedded mitigation of suitable screening at each of the proposed temporary construction compounds is in place prior to construction (Table 10.15), no impacts due to disturbance are predicted. The significant environmental effects of the Proposed Project have therefore been addressed, and no significant residual effects remain.

**Response to Specific Issues in Submissions**

**1. Issue – Potential Impact on Ireland's Eye**

**Submission:**

- 29 Seven submissions under Chapter 12 Biodiversity (Terrestrial and Freshwater Aquatic) raised issues that environmental impacts of the Proposed Project may be widespread as it is proposed to pump treated wastewater into the sea 1km northeast of Ireland's Eye and that no impact assessment was undertaken

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of the wildlife in the area surrounding Ireland's Eye or at Portmarnock Beach<sup>2</sup>. One other submission also raised the ecological significance of Ireland's Eye under Chapter 11 (Marine Ornithology)<sup>3</sup>.

**Response:**

- 30 As part of the preparatory work for the EIAR and the NIS, the seabirds present on and around Ireland's Eye have been comprehensively examined, using a combination of desk studies and field work. This is in recognition of the ornithological interests present in the area. From the outset, the approach taken has therefore been to ensure a robust assessment of baseline marine birds and possible impacts of the outfall on these interests (with consideration of their habitats and the food-chain on which the seabirds depend).
- 31 The assessment is contained within two main complementary biodiversity chapters of the EIAR which identifies and addresses the environmental impacts of the Proposed Project on wildlife. Chapter 9 (Marine), and Chapter 10 (Marine Ornithology) in Volume 3 Part A of the EIAR present in detail the surveys and assessments that were undertaken along the marine section of the Proposed Project. Sections 9.2 and 10.2 in Volume 3 Part A of the EIAR list the biodiversity surveys that were undertaken and Figure 10.1 in Volume 5 Part A of the EIAR shows the study area covered by surveys in this part of the study area, which includes the area north of Ireland's Eye.
- 32 Chapter 9 Biodiversity (Marine) in Volume 3 Part A of the EIAR provides details on the marine ecology impact assessment that was completed which addresses the potential impacts on the benthos (animals living on or within the seafloor), marine mammals, fish, plankton and water quality along the length of the proposed outfall pipeline route. Section 10.3.5 in Chapter 10 of the EIAR describes the marine birds recorded within the footprint of the Proposed Project (and survey data are presented in Appendix A10.1 in Volume 3 Part B of the EIAR, including Figures A10.55-A10.65 and raw survey data in Appendices 3 to 5).
- 33 Chapter 4 of the NIS considers whether or not the Proposed Project is likely to have significant effects on European sites in view of their conservation objectives, Chapter 5 of the NIS describes the scientific investigations that were undertaken to inform the Stage 2 Appropriate Assessment and Chapter 6 of the NIS contains an assessment of the implications of the Proposed Project on European sites. Chapter 7 of the NIS prescribes the necessary measures to avoid adverse effects upon European sites.
- 34 Accordingly, in circumstances where it is proposed to pump treated wastewater into the sea 1km north-east of Ireland's Eye, the environmental impacts will not be widespread and it is also clear that an impact assessment was undertaken of the wildlife in the area surrounding Ireland's Eye.
- 35 Drawing on the comprehensive survey data, detailed consideration has been given to the potential effects of construction and operation of the Proposed Project (proposed outfall pipeline route (marine section) and marine diffuser) on seabirds.
- 36 In light of the baseline bird interest on and around Ireland's Eye, and drawing on extensive experience of managing construction effects on seabirds, it is concluded that (i) for the purposes of Environmental Impact Assessment, there will be no significant effects, and (ii) for the purposes of Appropriate Assessment, that there will be no adverse effects on the integrity of any seabird SPAs.

**2. Issue – Potential Impact on Baldoyle Bay**

<sup>2</sup> Barbara Delaney, Celia Herbert, Kayleigh Hone, Linda Brady, Residents of Newtown Court, Stacey Kelly and Stephanie Moore

<sup>3</sup> Velvet Strand Sea Swimmers and Beach Users



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- Sections 10.4, 10.5 and 10.6 of the EIAR predict the significant construction and operational phase effects of the Proposed Project on marine birds.
- The NIS contains a stage 1 screening appraisal and a stage 2 appropriate assessment appraisal to inform the Habitats Directive assessments to be carried out by the Board.

- 52 A small number of submissions are more specific. In each case, for the reasons set out above, it is submitted that the material presented in the EIAR and NIS adequately addresses the issues raised.
- 53 In relation to ecological assessment of marine ornithology features in the area surrounding Ireland's Eye and Baldoyle Bay, a significant portion of the evaluation and analysis presented in the ecological impact assessment in Chapter 9, 10 and 11 in Volume 3 Part A of the EIAR, and the NIS is directed precisely at these locations due to their status as European sites.
- 54 Prescribed Body submissions and observations have focused on specific issues, and all issues raised have been responded to.
- 55 All the issues raised have been fully examined through the impact assessments provided in Chapter 10 Biodiversity (Marine Ornithology) of the EIAR and the NIS. Sections 10.6.2, 10.8, 10.9 and 10.10 confirm that with mitigation through screening and Vessel Management Plan, there will be no significant residual impacts on estuarine or marine birds.
- 56 Furthermore, the Natura Impact Statement itself concludes: "beyond reasonable scientific doubt, that the Proposed Project with the implementation of the prescribed mitigation measures will not give rise to significant impacts, either individually or in combination with other plans and projects, in a manner which adversely affects the integrity of any designated site within the Natura 2000 network."

**SUMMARY OF LIKELY SIGNIFICANT IMPACTS & MITIGATION MEASURES (TERRESTRIAL ORNITHOLOGY)**

- 57 Chapter 11 in Volume 3 Part A of the EIAR is titled Biodiversity (Terrestrial and Freshwater Aquatic). It includes the assessments of the Proposed Project's effects on terrestrial and aquatic birds, drawing on survey data collected by a field ornithologist with expertise in bird monitoring.
- 58 Sections 11.1, 11.2 and 11.16 of Chapter 11 encompass the assessment on birds, and respectively comprise an introduction to the Chapter; the methodologies used for undertaking baseline biodiversity surveys, valuation of biodiversity features and subsequent assessments; and a list of reports and publications referenced in the Chapter. Sections 11.3 to 11.8 of Chapter 11 relate only to terrestrial biodiversity, in which the sub-sections relating to birds are:-
- 11.3.1 (designated sites);
  - 11.3.2 (habitats);
  - 11.3.5 (baseline);
  - 11.4.5 (assessment of impacts during construction);
  - 11.5.5 (assessment of impacts during operation);
  - 11.7.6 (mitigation); and
  - 11.8 (residual impacts).
- 59 Farmland birds is the term used throughout, to describe and differentiate the species from those covered in Chapter 10 Biodiversity (Marine Ornithology). Farmland birds are those associated only with terrestrial

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and aquatic habitats, notably including the farmland traversed by the Proposed Project, but also including rivers, streams, parks, industrial and urban areas.

- 60 The assessment of the Proposed Project's impacts on these birds in Chapter 11 of the EIAR is supported by supporting documentation to the planning application and associated figures:

*Volume 4 Part B Appendices relevant to Volume 4 Part A*

- Appendix 17A Outline Construction Environmental Management Plan which forms part of the Planning Documentation for the Proposed Project; and

*Volume 5 Part A of the Environmental Impact Assessment Report*

- Figure 11.5 Habitat Survey Results (Sheet 1 of 6 to Sheet 6 of 6) in Volume 5 Part A of the EIAR.
- 61 The Terrestrial Biodiversity assessment contained within Chapter 11 of the EIAR is further supported by Section 12 Biodiversity (Terrestrial and Freshwater Aquatic) of the Response to to An Bord Pleanála dated 11 January 2019.
- 62 Chapter 11 of the EIAR identifies, describes and assesses the likely significant effects of the Proposed Project on farmland birds. There are limited potential effects on these species that could occur during the Construction Phase and Operational Phase. Without mitigation, these potential significant effects located within the Zone of Influence of the Proposed Project are:
- loss, deterioration and fragmentation of terrestrial and freshwater aquatic habitats;
  - damage to nests; and
  - disturbance to, displacement of or reduction in habitat availability.
- 63 Construction Phase effects are generally temporary, with the exception of the permanent loss of terrestrial habitats of site-level or local importance at the proposed Abbotstown pumping station and Wastewater Treatment Plant. No Operational Phase effects are predicted to occur.
- 64 A range of mitigation measures including trenchless crossing techniques at watercourses have been incorporated into the Proposed Project to offset potentially significant effects on terrestrial and freshwater aquatic biodiversity resources. In addition, an Ecological Clerk of Works will supervise or implement a number of mitigation measures, including:
- Provision of toolbox talks to appointed contractor(s);
  - Establishing ecological buffer zones;
  - Seasonal restrictions on vegetation clearance; and
  - Replanting of hedgerows to be removed.

- 65 These measures would ensure there are no significant residual effects on farmland birds, following the implementation of mitigation measures.

**Response to Terrestrial Ornithology Issues Raised in Submissions/Observations**

- 66 With regard to overall terrestrial (and aquatic) biodiversity, 73 submissions raised general issues about wildlife impacts from the Proposed Project. These submissions (listed at Paragraph 552 in Section 12.2 of the Response to An Bord Pleanála dated 11 January 2019), in relation to birds, fall under three broad categories:- effects upon wildlife and their habitats, effects on SPAs/SACs; and noise impacts .



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- 67 In relation to the Proposed Project's terrestrial effects on birds, the EIAR demonstrates that Construction Phase effects are generally temporary, the only exception being the permanent loss of terrestrial habitats of site-level or local importance at the proposed Abbotstown pumping station and the proposed WwTP. The proposed mitigation measures are set out in Section 11.7 and 11.14 in Chapter 11 in Volume 3 Part A of the EIAR and included the appointment of an Ecological Clerk of Works by Irish Water to advise on, monitor and enforce the effective implementation of biodiversity mitigation specified in the EIAR, NIS and the Outline Construction Environmental Management Plan, and to act as a liaison between Irish Water and An Bord Pleanála in the discharge of planning conditions relating to biodiversity. The mitigation measures will reduce these localised impacts and no significant residual impacts on farmland birds are predicted.
- 68 Operational Phase effects are only likely to occur if wastewater infrastructure fails to function correctly and untreated wastewater is released. In these circumstances, the birds species potentially at risk would only be those restricted to aquatic environments. However, as birds are highly mobile, they would be able to move away from any affected area.
- 69 As a result, there are no predicted significant residual effects upon farmland birds, following the implementation of mitigation measures.
- 70 There are no terrestrial European, national or local sites whose qualifying species or features include birds.
- 71 As the great majority of habitat comprises highly modified and intensively farmed agricultural landscapes, these open fields support bird interests of local significance throughout the year. Any disturbance impacts resulting from noise arising from construction activities will be localised and short term and therefore will not result in significant impacts on farmland birds.
- 72 In addition to the three general categories of wildlife-related responses, specific submissions were also made in relation to Light Bellied Brent Geese. One submission raised specific issues regarding Light Bellied Brent Geese at Clonshagh. A second stated that the area of the proposed Wastewater Treatment Plant is a migration path for Brent Geese and this will cease if the Proposed Project goes ahead:
- 73 Survey work confirms that there will be no impact on Light Bellied Brent Geese. In that regard, Section 11.2.3 in Chapter 11 in Volume 3 Part A of the EIAR presents the type and number of field surveys that were completed along the entire length of the Proposed Project including the Clonshagh area where the proposed WwTP is proposed to be located. This included wintering farmland surveys. Section 11.2.3 states that: "Three sets of visits were carried out, in late winter 2014/2015, in early winter 2015/2016 and in late winter 2016/2017."
- 74 Section 11.3.5 in Volume 3 Part A of the EIAR states that "There were no agglomerations of winter birds, such as geese or other wildfowl, or species reliant on farmland. The Proposed Project study area is therefore of no more than local importance for wintering birds".
- 75 Chapter 10 Biodiversity (Marine Ornithology) and Chapter 11 (Terrestrial and Freshwater Aquatic) in Volume 3 Part A of the EIAR identify, describe and assess the likely significant effects of the Proposed Project on birds at and around the proposed Wastewater Treatment Plant and there is no likely significant effect predicted on foraging grounds or migration of Light Bellied Brent Geese.
- 76 The NIS also considers the potential effects on Light Bellied Brent Geese from airborne noise and visual disturbance (covered in section 6.1 of the NIS) and water quality (covered in section 6.2). In both cases, using baseline data (in section 5.1.4, reflected for Light Bellied Brent Geese in Figure A10.2: Records in Baldoyle Bay (Dec 2014 to March 2018)) and taking account of the species' conservation objectives at Baldoyle Bay SPA (see extract from Table 6.1 below), it is concluded beyond reasonable scientific doubt,



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that mitigation (in the form of screening, and specified in section 7.1, and quoted above in paragraph 41) means there would be no adverse impact on the conservation objectives in relation to this (or any other species). Specifically, the NIS concludes (section 8) that: "Following the implementation of mitigation to reduce the impact of visual disturbance (screening around both microtunnelling compounds and access track; Section 7.1), no residual impact on the Baldoyle Bay SPA is predicted. On this basis it is concluded that the proposed development will not adversely affect the integrity of the above Baldoyle Bay SPA, having regard to the conservation objectives of the site".

Species	A046	Light-bellied brent Goose <i>Branta bernicla hrota</i>
Conservation objective	To maintain the favourable conservation condition of Light-bellied Brent Goose in Baldoyle Bay SPA, which is defined by the following list of attributes and targets	
Attribute	Measure	Target
Population trend	% change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation

- 77 No adverse effect on site integrity is predicted due to the water quality and habitat deterioration impact pathway during construction and operation of the Proposed Project (Section 6.2.4.1).

**Terrestrial Ornithology - Conclusions**

- 78 The 73 third party submissions relating to Chapter 11 Biodiversity (Terrestrial and Freshwater Aquatic) highlighted general issues on wildlife impacts, designated sites and protected species.
- 79 There are no designated sites along the land-based sections of the Proposed Project for birds. The risk of impacts on birds occurs only from potential disturbance or nest damage, plus habitat loss. Taking the safeguards and mitigation measures in place, it is concluded that there are no predicted significant residual effects on terrestrial and freshwater aquatic biodiversity, including farmland birds.
- 80 A small number of third party submissions on terrestrial and aquatic biodiversity raised the issue of bird disturbance, specifically of estuarine birds and Brent Geese. The material presented in the EIAR and NIS adequately responds to the queries raised, and based on robust data, it is concluded there will be no significant residual impacts on these birds from disturbance nor will there be any adverse effects, ex situ or otherwise, on Brent Geese as a result of the Proposed Project, either alone or in combination with other plans and projects.