

Dublin Airport North Runway Relevant Action Application

Appropriate Assessment Screening Report

September 2021

Quality information

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Summary of Changes

This Appropriate Assessment Screening Report is an updated version of a previous document submitted by daa (hereafter referred to as 'the Applicant') to Fingal County Council (FCC). It has been amended in response to a Request for Information (RFI) from FCC and the Aircraft Noise Competent Authority (ANCA). Specifically, the following updates have been made to this version of the Appropriate Assessment Screening Report:

- The rationale behind the adopted zone of influence has been clearly explained;
- Consideration has been given to the potential for disturbance of marine mammals which are the Qualifying Interests of offshore Special Areas of Conservation;
- Consideration has been given to the potential for fuel dumping to result in likely significant effects; and,
- Other minor updates have been made, including reference to recently published guidance on Appropriate Assessment Screening, and bird collision data for Dublin Airport for 2019 have been added.

Furthermore, in response to an Appropriate Assessment Screening Determination prepared by ANCA in relation to the Noise Abatement Objective (NAO) for Dublin Airport¹, consideration has also been given in this revised version of the Appropriate Assessment Screening Report to the potential for air quality impacts from the proposed Relevant Action to have likely significant effects on any European site.

There has been no change to the conclusion of this Appropriate Assessment Screening Report and it is considered that, on the basis of objective information, likely significant effects on European sites can be excluded, when considering the proposed Relevant Action both individually and in combination with other plans or projects.

It is noted that the ANCA Appropriate Assessment Screening concluded that likely significant effects from the NAO could not be excluded. The NAO is a separate plan to the proposed Relevant Action, and it is stated in paragraph 2.7 of the ANCA document that:

"ANCA could define a narrow NAO that responds only to the planning application made by daa [for the proposed Relevant Action]. However, ANCA has chosen to develop an NAO which is broader in its remit."

The ANCA document goes on to explain that in taking this approach, the NAO becomes an overarching plan which presents aspirations for the sustainable development of Dublin Airport. The NAO will sit above the application for the proposed Relevant Action, and any other future planning applications, and will be designed to complement other published policies which present scenarios for the sustainable development of Dublin Airport to 40 million passengers per annum operation in 2030.

The assessment carried out by ANCA is considerably broader than that presented in this Appropriate Assessment Screening Report, which considers the proposed Relevant Action only (including in-combination with other projects and plans, of which the NAO is one). Due to the broad-scale nature of the ANCA assessment, and the early stage of development of the NAO, the level of information available for assessing the NAO is, at this time, less than what is available for the proposed Relevant Action, which is informed by detailed, specific noise modelling

Therefore, although the conclusions are different, it remains the case that likely significant effects on European sites from the proposed Relevant Action, both individually and in-combination with other plans or projects, including the NAO, can be excluded, based on best available scientific evidence.

¹ Dated 18 August 2021 and available from: <https://www.fingal.ie/sites/default/files/2021-08/20210818-anca-012-2021-aa-screening-determination-pdf>.

1. Introduction

Background

- 1.1 This revised Appropriate Assessment (AA) Screening Report has been prepared on behalf of daa (hereafter referred to as 'the Applicant') to accompany the application for a proposed development comprising the taking of a 'relevant action' only within the meaning of Section 34C of the Planning and Development Act 2000, as amended (the "PDA").
- 1.2 The Applicant applied to Fingal County Council (FCC) for a proposed Relevant Action in December 2020. By letter dated 19 February 2021, FCC requested further information in respect of the proposed Relevant Action. Item 2 in the Request for Further Information sought the provision of various clarifications and additional information, to be presented in a revised AA Screening Report. This revised AA Screening Report has been prepared in response to the Request for Further Information.
- 1.3 The proposed Relevant Action relates to the night-time use of the runway system at Dublin Airport. It involves the amendment of the operating restriction set out in condition no. 3(d) and the replacement of the operating restriction in condition no. 5 of the North Runway Planning Permission (FCC Reg. Ref. No. F04A/1755; ABP Ref. No.: PL06F.217429 as amended by FCC F19A/0023, ABP Ref. No. ABP-305289-19), as well as proposing new noise mitigation measures.
- 1.4 The proposed Relevant Action pursuant to Section 34C (1) (a) of the Aircraft Noise (Dublin Airport) Regulation Act 2019, is to amend condition no. 3(d) of the North Runway Planning Permission. Condition no. 3(d) and the exceptions at the end of condition no. 3 state the following:
- '3(d). Runway 10L-28R shall not be used for take-off or landing between 2300 hours and 0700 hours, except in cases of safety, maintenance considerations, exceptional air traffic conditions, adverse weather, technical faults in air traffic control systems or declared emergencies at other airports.'*
- 1.5 The proposed Relevant Action seeks to amend the above condition so that it reads:
- 'Runway 10L-28R shall not be used for take-off or landing between 0000 hours and 0559 hours except in cases of safety, maintenance considerations, exceptional air traffic conditions, adverse weather, technical faults in air traffic control systems or declared emergencies at other airports or where Runway 10L-28R length is required for a specific aircraft type.'*
- 1.6 The proposed Relevant Action also seeks to replace condition no. 5 of the North Runway Planning Permission which provides as follows:
- '5. On completion of construction of the runway hereby permitted, the average number of night time aircraft movements at the airport shall not exceed 65/night (between 2300 hours and 0700 hours) when measured over the 92 day modelling period as set out in the reply to the further information request received by An Bord Pleanála on the 5th day of March, 2007.*
- Reason: To control the frequency of night flights at the airport so as to protect residential amenity having regard to the information submitted concerning future night time use of the existing parallel runway.'*
- 1.7 It is proposed to replace condition no. 5 of the North Runway Planning Permission with a Noise Quota System in respect of night-time noise at the airport. The airport shall be subject to an Annual Noise quota of 7,990 quota count points² between 23:30 and 05:59.
- 1.8 The effect of proposed Relevant Action, if permitted, would be to remove the numerical cap on the number of flights permitted between the hours of 11pm and 7am daily that is due to come into effect in accordance with the North Runway Planning Permission and to replace it with an annual night-time noise quota between 23:30 and 05:59 and also to allow flights to take off from and/or land on the North Runway (Runway 10L 28R) for an additional two hours i.e. 23:00 to 00:00 and 05:59 to 07:00. Overall, this would allow for an increase in the number of flights taking off and/or landing at Dublin Airport between 23:00 and

² The proposed Noise Quota System is explained in *Chapter 2: Characteristics of the Project* in the revised Environmental Impact Assessment Report which accompanies this planning application.

07:00 over and above the number stipulated in condition no. 5 of the North Runway Planning Permission, in accordance with the annual night time noise quota.

- 1.9 In addition to the proposed night-time noise quota, the proposed Relevant Action also entails the introduction of the following noise mitigation measures:
- A noise insulation grant scheme for eligible dwellings within specific night noise contours; and,
 - A detailed Noise Monitoring Framework to monitor the noise performance with results to be reported annually to the Aircraft Noise Competent Authority (ANCA), in compliance with the Aircraft Noise (Dublin Airport) Regulation Act 2019.
- 1.10 The proposed Relevant Action does not seek any amendment of conditions of the North Runway Planning Permission governing the general operation of the runway system (i.e. conditions which are not specific to night-time use, namely conditions no. 3(a), 3(b), 3(c) and 4 of the North Runway Planning Permission) or any amendment of permitted annual passenger capacity of the terminals at Dublin Airport³.

Assessment Scenarios

- 1.11 As discussed above, the proposed Relevant Action involves the amendment of the operating restriction set out in condition no. 3(d) and the replacement of the operating restriction in condition no. 5 of the North Runway Planning Permission. This is referred to as the Proposed Scenario.
- 1.12 If condition no. 3(d) is not amended and condition no. 5 is not replaced, then their restrictions would take effect when the North Runway becomes operational. This is referred to as the Permitted Scenario (i.e. restricted by condition no. 3(d) and no. 5).
- 1.13 The AA Screening focuses on the comparison between these scenarios i.e. the Permitted and the Proposed Scenario. The Assessment Years for these scenarios include 2022, 2025 and 2035. These scenarios are discussed further below.

Permitted Scenario

- 1.14 This scenario assumes that the North Runway becomes operational but the airport is constrained by the restrictions on night-time use of the runway system at Dublin Airport, namely the restriction on the number of flights permitted between the hours of 23:00 and 07:00 which limits the daily number of flights to an average of 65 between these hours and the restriction of the use of North Runway at night (no use between 23:00 and 07:00) (i.e. conditions no. 3(d) and no. 5). These conditions do not currently apply to Dublin Airport but would come into force once the North Runway becomes operational. The Permitted Scenario also assumes that the current 32 mppa Cap remains in place. Taken together, these characteristics mean that the Permitted Scenario represents the 'do nothing' case.

Proposed Scenario

- 1.15 This scenario represents the situation with the proposed Relevant Action in place. It assumes that the North Runway becomes operational but the airport is not constrained by the restrictions on night-time use of the runway system at Dublin Airport, namely the restriction on the number of flights permitted between the hours of 23:00 and 07:00 which limits the daily number of flights to an average of 65 between these hours (i.e. conditions no. 3(d) and no. 5). Instead the Proposed Scenario involves use of North Runway in the shoulder hours 06:00 to 07:00 and 23:00 to 00:00 and the introduction of a noise Quota Count System to replace the 65-daily average number of flights restriction. The Proposed Scenario also assumes that the current 32 mppa Cap remains in place.

Assessment Years

- 1.16 The Assessment Years are the points in time at which the likely significant effects of the proposed Relevant Action are assessed. The reasons for selecting these years are given below;
- 2022: the year when the North Runway is first expected to become operational;

³ Condition no. 3 of the Terminal 2 Planning Permission (Fingal County Council Reg. Ref. No. F06A/1248; ABP Ref. No. PL06F.220670) and condition no. 2 of the Terminal 1 Extension Planning Permission (Fingal County Council Reg. Ref. No. F06A/1843; ABP Ref. No. PL06F.223469) provide that the combined capacity of Terminal 1 and Terminal 2 together shall not exceed 32 million passengers per annum (mppa)..

- 2025: the first year of highest use of the runway system in the Proposed Scenario (i.e. when 32 million passengers per annum throughput is first expected to be reached but not exceeded). This is also the first year of predicted maximum environmental effects in the Proposed Scenario; and,
- 2035: this year has been included in the assessment in response to a request from FCC for Further Information which sought assessment a longer-term scenario (i.e. 10 or 15 years post opening year scenario (2022)).

1.17 The Permitted and Proposed Scenarios outlined above are the same in all the Assessment Years (2022, 2025 and 2035).

1.18 The Mott MacDonald Report *Dublin Airport Operating Restrictions Quantification of Impacts on Future Growth* sets out the predicted Air Traffic Movements (ATMs) and Annual Passengers (PAX) for the future Permitted and Proposed Scenarios. The PAX numbers and ATMs, taken from this report, and assessed in this AA Screening Report are provided in Table 1. In addition, the modelled Busy Day ATMs for the 23:00 to 07:00 period used for the noise modelling have been provided. These were developed using the Motts forecast and are based on runway times (not scheduled times).

Table 1. Assessment Years, Scenarios, PAX and ATMs

Assessment Years and Scenarios	Predicted Annual Passengers (PAX) (millions per annum)	Permitted vs Proposed Difference in PAX (millions)	Air Traffic Movements (ATMs) ('000s per annum)	Typical 'Busy Day' Night-Time ATMs (23:00-07:00)
2022 Permitted	19.6	n/a	166	51
2022 Proposed	21.0	1.4	176	82
2025 Permitted	30.4	n/a	227	60
2025 Proposed	32.0	1.6	236	98
2035 Permitted	32.0	n/a	236	60
2035 Proposed	32.0	0.0	236	98

1.19 It should be noted that these figures are different to those quoted in the December 2020 Environmental Impact Assessment Report (EIAR) for the proposed Relevant Action as the forecasts have been revised to take account of the fast-changing situation in the airline industry. The latest forecast schedules have a smaller share of foreign airline traffic, which tends to operate during the 07:00-23:00 daytime hours. Most notably, the UK carrier FlyBE and Norwegian Airlines have exited the Dublin market. Therefore, the latest view of traffic recovery is more dependent on Aer Lingus and Ryanair, which require departure slots in the 06:00-07:00 period of the night and often last arrivals after 23:00. This means that in the post Covid-19 recovery, more traffic is now impacted by the 65 daily average night-time limit and the impact of the night operating restrictions are now calculated to be approximately 1.6m passengers in 2025.

1.20 Although not apparent from Table 1, a key difference between the two scenarios is that the post-Covid-19 return to operations at the 32mppa Cap in the airport is delayed by around two years in the Permitted Scenario. This is achieved in 2025 in the Proposed Scenario, whereas in the Permitted Scenario the 32mppa Cap is reached in 2027. A total of around 7.1 million fewer passengers would pass through the airport by 2027 in the Permitted Scenario.

Legislative Context

1.21 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, more commonly known as 'the Habitats Directive', requires Member States of the European Union (EU) to take measures to maintain or restore, at favourable conservation status, natural habitats and wild species of fauna and flora of Community interest. The provisions of the Habitats Directive require that Member States designate Special Areas of Conservation (SACs) for habitats listed in Annex I and for species listed in Annex II.

1.22 Similarly, Directive 2009/147/EC on the conservation of wild birds (more commonly known as 'the Birds Directive') provides a framework for the conservation and management of wild birds. It also requires Member States to identify and classify Special Protection Areas (SPAs) for rare or vulnerable species

listed in Annex I of the Birds Directive, as well as for all regularly occurring migratory species. Collectively, SACs and SPAs are known as 'European sites'.

- 1.23 In Ireland, the habitats and/or species which are the reason(s) for designation of an SAC are referred to as the 'Qualifying Interest(s)' (QI) of that site. In relation to SPAs, the bird species for which a particular site is designated are referred to as the 'Special Conservation Interests' (SCI).
- 1.24 Under article 6(3) of the Habitats Directive, any plan or project which is not directly connected with or necessary to the management of a European site, but would be likely to have a significant effect on such a site, either individually or in combination with other plans or projects, shall be subject to an Appropriate Assessment of its implications for the SAC / SPA in view of the site's conservation objectives.
- 1.25 In the Republic of Ireland, the requirements of Article 6(3) are transposed into national law through Part XAB of the PDA for planning matters, and by the European Communities (Birds and Natural Habitats) Regulations 2011 in relation to other relevant approvals / consents. The legislative provisions for AA Screening for planning applications are set out in Section 177U of the PDA.
- 1.26 The competent authority which is responsible for carrying out the AA is the relevant consenting body for each plan or project, which in this case is Fingal County Council, or An Bord Pleanála on appeal.
- 1.27 In fulfilling its role as competent authority, Fingal County Council is required to apply the precautionary principle to European sites and can only grant consent once it has been ascertained that the proposed Relevant Action will not adversely affect the integrity of any European site.
- 1.28 Also of relevance to this Screening is the Aircraft Noise (Dublin Airport) Regulation Act 2019 (hereafter referred to as the 'Aircraft Noise Act'). The Aircraft Noise Act implements EU Regulation 598/2014 on the establishment of rules and procedures with regard to the introduction of noise-related operation restrictions at EU airports. The Aircraft Noise Act amends the PDA by inserting a range of new sections in Part 3, which deals with control of development. These sections introduce a range of new measures for planning applications at Dublin Airport that may necessitate noise-related actions or that may require a new operating restriction. Section 34C of the PDA permits an applicant who is currently subject to a planning permission for development at the airport that includes an operating restriction to make an application under Section 34 of the PDA to revoke, amend, replace or take other action in respect of an operating restriction. The proposed Relevant Action is such an application, as it seeks to amend and replace the operating restrictions imposed by the relevant planning conditions.

Overview of Appropriate Assessment Process

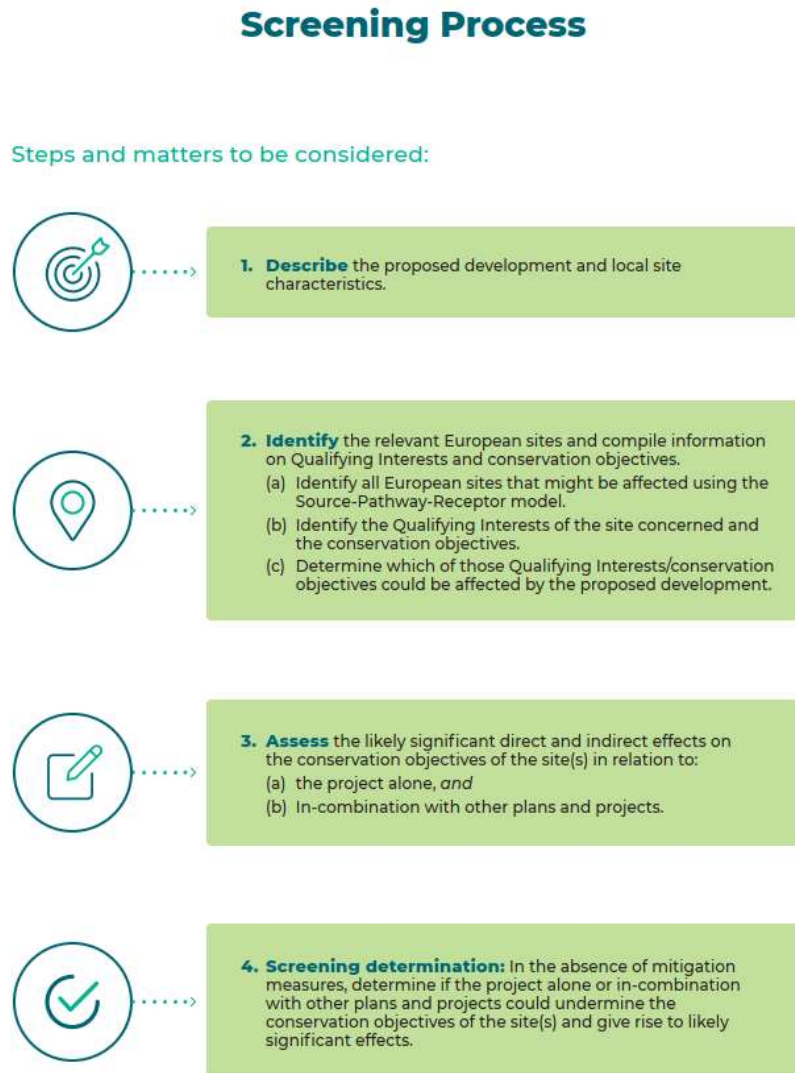
- 1.29 The process required by Articles 6(3) and 6(4) of the Habitats Directive is stepwise and must be followed in sequence.
- 1.30 The first step in the sequence of tests is to establish whether an AA is required. This is often referred to as 'AA Screening'. The purpose of AA Screening is to determine, in view of best available scientific knowledge, whether a plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a European site, in view of that site's conservation objectives. For this purpose and as a result of case law 'likely' means 'possible'.
- 1.31 Section 177(U) of the PDA provides: "*The competent authority shall determine that an appropriate assessment of a ... proposed development [in this case the proposed Relevant Action] ... is required if it cannot be excluded, on the basis of objective information, that the ... proposed development [proposed Relevant Action], individually or in combination with other plans or projects, will have a significant effect on a European site*" [emphasis added].
- 1.32 If the competent authority determines that there are no likely significant effects (including 'in combination' effects from other plans or projects), then no further assessment is necessary and the plan or project can, subject to any other consent processes, be taken forward. If, however, the competent authority determines that there are likely significant effects or if there is reasonable scientific doubt, then the next step in the process must be initiated and a detailed AA is undertaken.

Sources of Guidance

- 1.33 This AA Screening Report has been prepared in accordance with the European Commission (EC) guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites*:

Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001). It also accords with the guidance provided in the Office of the Planning Regulator (OPR) document on *Appropriate Assessment Screening for Development Management* (OPR, 2021), and follows the structure and approach recommended, as shown on Image 1 below.

Image 1. The AA Screening process (taken from OPR (2021))



1.34 In addition, the following sources of guidance have also been used when carrying out this AA Screening exercise:

- Appropriate Assessment of Plans and Projects in Ireland (DoEHLG, 2010);
- Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (EC, 2018); and,
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular Letter NPWS 1/10 & PSSP 2/10 (NPWS, 2010).

Relevant Case Law

1.35 A series of rulings of the Court of Justice of the European Union (CJEU) are relevant and are considered throughout this document. These rulings and their implications for this AA Screening Report are summarised in Table 2.

Table 2. Case Law Relevant to the AA Screening of the proposed Relevant Action

Case	Ruling	Relevance to the AA Screening of the proposed Relevant Action
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)	The ruling of the CJEU in this case requires that any conclusion of 'no likely significant effect' on a European site must be made prior to any consideration of measures to avoid or reduce harm to the European site. The determination of likely significant effects should not, in the opinion of the CJEU, constitute an attempt at detailed technical analyses. This should be conducted as part of the AA.	It is necessary to distinguish between those measures which are intended to avoid or reduce harmful effects on a European site and those elements of a plan or project that may incidentally provide some degree of mitigation, but which are intrinsic or essential parts of the plan / project itself. If it can be concluded that the proposed Relevant Action will have no adverse effect on any European site, in the absence of mitigation, it will be possible to conclude 'no likely significant effects', and the need for further detailed AA will be 'screened out'.
Waddenzee (C-127/02)	<p>The ruling in this case clarified that AA must be conducted using best scientific knowledge, and that there must be no reasonable scientific doubt in the conclusions drawn.</p> <p>The Waddenzee ruling also provided clarity on the definition of 'significant effect', which would be any effect from a plan or project which is likely to undermine the conservation objectives of any European site.</p>	<p>Adopting the precautionary principle, a 'likely' effect in this AA Screening is interpreted as one which is 'possible' and cannot be objectively ruled out.</p> <p>The test of significance of effects has been conducted with reference to the conservation objectives of relevant European sites.</p>
Holohan and Others v An Bord Pleanála (C-461/17)	<p>The conclusions of the Court in this case were that consideration must be given during AA to:</p> <ul style="list-style-type: none">• effects on qualifying habitats and/or species of a SAC or SPA, even when occurring outside of the boundary of a European site, if these are relevant to the site meeting its conservation objectives; and,• effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in adverse effects on the integrity of the European site.	This relates to the concept of 'functionally-linked habitat', i.e. areas outside of the boundary of a European site which supports its qualifying feature(s). In addition, consideration must be given to non-qualifying features upon which qualifying habitats and/or species rely.
Court of Appeal case C1/2009/0041/QBACF Citation No [2009] EWCA Civ. 1061	The CJEU ruled in this case that there must be a "credible" risk of a likely significant effect, rather than just a "hypothetical" risk.	It is not necessary to consider every hypothetical impact which could arise from a proposal, only those which, on the basis of objective information, can credibly be expected to present a risk of a significant effect arising.

Purpose of this Report

- 1.36 Whilst the various steps involved in the assessment process must be carried out by Fingal County Council, as competent authority, under Section 177U(3) of the PDA, project proponents or their consultants may undertake a form of Screening to establish if an AA is required and provide advice or may submit the information necessary to allow the competent authority to conduct a screening of an application for consent. Specifically, Section 177U(3) states that *"in carrying out a screening for appropriate assessment of a proposed development a competent authority may request such information from the applicant as it may consider necessary to enable it to carry out that screening, and may consult with such persons as it considers appropriate..."*.
- 1.37 This AA Screening Report therefore serves to provide AECOM's opinion on whether there are likely significant effects arising from the proposed Relevant Action, either individually or in combination with other plans or projects, and thus the requirement to proceed to the next stage of detailed AA. It provides the information needed by the competent authority to make their own screening decision in relation to the proposed Relevant Action.

2. Literature Review

- 2.1 A literature review was carried out to investigate hearing in birds and the effects of noise and visual stimuli on birds and marine mammals, in particular seals and cetaceans (whales, dolphins and porpoises). The review focussed primarily on scientific studies which investigated the effects of aircraft noise on non-breeding waterbirds, breeding seabirds, and seals and porpoises. These were the subject of the literature review as all European sites within the likely zone of influence of the proposed Relevant Action are designated for these species (see Section 3, below). However, where relevant, or where they provide useful additional information, other studies into noise disturbance of birds or marine mammals were also included in the literature review.
- 2.2 Noise and visual disturbance were the sole focus of the literature review as the only other possible impact from the proposed Relevant Action – bird strike – can be fully assessed with no requirement for any additional data beyond that provided by daa specifically in relation to Dublin Airport

Noise Levels and Bird Hearing

- 2.3 Hearing in birds is not as well developed as in humans, in that most birds cannot hear as high or as low frequencies as humans. There are physiological reasons for this (summarised in Dooling and Popper (2007) and Beason (2004)). Additionally, the ability of birds to resolve similar frequencies is only about one-half to one-third that of humans within the range of peak sensitivity, which is similar to that of humans at 1 – 4 kHz (Beason, 2004).
- 2.4 Many of the studies referenced throughout this section use ‘dB(A)’ to measure sound levels. dB(A) is the sound level in decibels in the range of human hearing which, as set out above, is better than in most birds. However, because the studies referenced investigated the response of birds to noise levels measured in dB(A), this does not represent a limitation to the literature review. In simple terms, the studies sought to show where a response by a given species may be elicited by noise levels measured in dB(A).
- 2.5 By virtue of its logarithmic nature, the decibel (dB) scale covers many orders of magnitude of sound pressure within a relatively small numerical range, which can be counterintuitive to those not familiar with it. The following points, based on information provided by the UK Civil Aviation Authority (<https://www.caa.co.uk/Consumers/Environment/Noise/Measuring-and-modelling-noise/>) and in the *Fundamentals of Acoustics* by Hansen (1951) may be helpful:
- A difference of less than 3 dB is often not perceived by humans and perhaps, given the general inferiority of bird hearing compared to human hearing, not by birds either;
 - A difference of 10 dB is perceived as roughly a doubling or halving; and,
 - Without barriers and varying also according to other physical aspects of the environment, sound levels from point sources tend to decrease by about 6 dB with each doubling of distance.
- 2.6 It is important to note that visual stimuli tend to have greater disturbance effects on birds than noise stimuli alone (as stated in Cutts *et al* (2009)).

Non-breeding Waterbirds

- 2.7 Although studies into aircraft disturbance of non-breeding waterbirds were found by the literature review, the majority of these investigated the effects of low-flying light aircraft, military jets and helicopters. Cutts *et al* (2009), however, note that there appears to be a degree of habituation by waterfowl flocks on the Humber Estuary, England, to regular commercial aircraft flights to Humberside Airport. They state that birds showed no response to these flights, except when, on two occasions, they appeared to be ‘spooked’ by the shadow of an aircraft when its flightpath positioned the shadow over the mudflats of the estuary. It is worth re-iterating that for the majority of the non-breeding season, flights associated with the proposed Relevant Action will take place during the hours of darkness so there is no possibility of visual disturbance stimuli, including shadows from over-flying aircraft.
- 2.8 Hoang (2013) conducted a literature review of aircraft disturbance on shorebirds and seabirds. Of seven studies presented in the literature review which investigated effects on shorebirds (including several of the SCI species relevant to this AA Screening), the minimum distance at which disturbance was found to be caused by fixed-wing aircraft was 300 m above ground level, with lower level flights having relatively

limited or no disturbance effects. It should be noted that all aircraft considered by this study were small planes or military jets.

- 2.9 Komenda-Zehnder *et al* (2003) performed 326 experimental flights over lakes in Switzerland to observe for behavioural responses by non-breeding waterbirds. They found that birds returned to a 'relaxed' behaviour (including preening, resting and feeding) within five minutes of the over-flights. Similar to the review of studies carried out by Hoang (2013), Komenda-Zehnder *et al* (2013) also found that planes flying at heights of 300 m above ground level did not result in any significant change in the behaviour of birds.
- 2.10 In a study carried out in the Dutch Wadden Sea, the numbers and behaviours of knot *Calidris canutus* were found to be affected by over-flights of military jets, with fewer birds present on days with flights and the birds that were present being more restless and less approachable by humans (Koolhaas *et al*, 1993). They also observed that 'light tourist airplanes' caused a more severe response in the birds than the military jets.
- 2.11 A substantial review of literature associated with the disturbance of waterbirds was produced for the Humber Industry Nature Conservation Association (INCA) by the University of Hull (Cutts *et al*, 2009). Although not specifically relating to aircraft, this report recommended that (with respect to waterbirds on mudflats), construction noise levels should be restricted to below 70 dB(A) because birds would habituate to regular noise below that level, but that sudden irregular noise above 50 dB(A) should be avoided. The University of Hull subsequently produced refined guidance in the Waterbird Disturbance Mitigation Toolkit (Cutts *et al*, 2013). It concluded that:
 - High level disturbance effects are likely with continuous noise above 72 dB(A) or sudden noise above 60 dB(A);
 - Moderate level disturbance effects are likely with regular noise of 60 – 72 dB(A) or sudden noise of 55 – 60 dB(A); and,
 - There is unlikely to be any response by waterbirds to any noises below 55 dB(A).

Breeding Seabirds

- 2.12 Ireland's Eye SPA, Lambay Island SPA, South Dublin Bay and River Tolka Estuary SPA and Howth Head Coast SPA are designated for breeding seabirds and some of the studies described below are likely to be directly applicable to those sites. However, nesting birds are generally considered to be more sensitive to disturbance and the results of these investigations may provide a conservative assessment of how the non-breeding SCI birds may react to similar disturbance sources.
- 2.13 Dunnet (1977) carried out a study into the disturbance caused by aircraft (including fixed-wing planes and helicopters) passing over a cliff-nesting seabird colony in Aberdeenshire, Scotland. The species present included herring gull *Larus argentatus*, kittiwake *Rissa tridactyla*, guillemot *Uria aalge* and razorbill *Alca torda*, all of which are SCI species of the Ireland's Eye SPA. The study found no evidence that aircraft passing at heights of 100 m or more above the cliff-top affected attendance of the birds, and whilst groups of kittiwake took to the air in response to planes it was noted that they did so frequently through the course of the day for no obvious cause. Although this study did not measure sound levels, it is clear that aircraft passing 100 m above the cliff would have generated a much larger amount of noise than aircraft passing overhead at 300 m or higher into or out of Dublin Airport. Furthermore, these aircraft would certainly have also presented a visual disturbance stimulus and thus be expected to be more likely to elicit a response from the birds present.
- 2.14 A study of nesting herring gulls beside an airport (Burger, 1981) found that normal colony noise was 77 dB(A), and (in this case, where birds were habituated to normal jet aircraft) behavioural reactions (taking flight) only occurred when Concorde passed by, generating noise exceeding 101 dB(A). This is rather an extreme example, however, involving birds that were habituated to noise from nearby passenger jets at levels which were liable to have caused hearing damage, but is useful as a further demonstration that birds may tolerate high levels of constant or frequently-occurring noise.
- 2.15 In an Australian study of nesting terns (Brown, 1990), aircraft noise was simulated using speakers placed beside a colony which was not accustomed to aircraft. In doing so, visual disturbance stimuli were eliminated and there was no prior habituation. It found that playback of aircraft noise at 65 dB(A) had a minimal reaction, causing the majority of terns to 'scan' (cocking the head or turning it horizontally). At 70

dB(A), about half the terns engaged in 'alert' behaviour (extending the neck, making minor whole-body movements or wing tensing). 'Startle' (preparation to fly) and 'escape' (flying off) behaviours only affected a small proportion of the terns and were largely restricted to sound levels above 85 dB(A). An observation study of harlequin ducks *Histrionicus histrionicus* (Goudie and Jones, 2004) similarly found that behavioural changes increased substantially when sound from passing aircraft exceeded 80 dB(A). However, this and other studies (e.g. Buxton *et al*, 2017) noted that whilst disturbance may not cause birds to take flight, less obvious stress-related behavioural changes can occur such as reduced courtship behaviour and increased time engaged in agonistic, disturbance or predator evasion behaviour, which may adversely affect survival.

- 2.16 A study conducted in Minnesota aimed to investigate the effects of an airport expansion on nearby nesting black-crowned night herons *Nycticorax nycticorax*, great blue herons *Ardea herodias* and great white egrets *Ardea alba* (Grubb, 1979). A single engine propeller aircraft was flown over the nesting site of these species at heights between 490 – 2,620 m above ground level. The noise levels generated by the aircraft at these heights ranged from 61 – 88 dB(A), and were 9 dB(A) greater than the maximum existing aircraft noise levels. No reactions were observed in the birds in response to the test flights.

Marine Mammals

Seals

- 2.17 Hoang (2013) reports a study of human disturbance of harbour seal in the Wadden Sea which found that, in 200 cases of potentially disturbing aircraft activities, eight events caused seals to enter the water. Out of 330 seals, on average twelve fled into the water and five became alert. The authors mentioned that aircraft at lower altitudes appeared to cause more disturbances, and that aerial surveys by small aircraft 980 feet (380 m) only caused alert behaviour and did not cause 'active' disturbance.
- 2.18 Born *et al* (1999) report that hauled out ringed seals *Phoca hispida* on Arctic ice were disturbed into the sea by aircraft at distances of approximately 600 m or less 'in front of' of twin-engine fixed-wing aircraft flying at heights of approximately 150 m. The study they carried out indicated that the risk of scaring ringed seals into the water could be substantially reduced if small fixed-wing aircraft did not approach closer than about 500 m.
- 2.19 Scottish Government has prepared an advice document – *Guidance on the Offence of Harassment at Seal Haul-out Sites* – to help avoid harassment of seals at haul out sites (Scottish Government, 2014). It is stated in that document that the intentional or reckless repeated over-flight of fixed wing aircraft or helicopters over a seal haul out site at heights below 1,000 feet (304 metres) would likely constitute a legal offence due to high probability of causing harassment (involving disturbance). It therefore recommends that such aircraft should maintain a minimum height of 1,000 feet (approximately 300 m) above colonies or groups of seals.

Cetaceans

- 2.20 The UK Joint Nature Conservation Committee (JNCC) carried out a conservation literature review for harbour porpoise (*A Conservation Literature Review for the Harbour Porpoise (Phocoena phocoena)*, JNCC, 2015). They state that although disturbance reactions in cetaceans have been found in response to low flying aircraft, including aerial surveys to assess harbour porpoise abundance, there is no evidence for a negative impact of low flying aircraft on harbour porpoise populations in UK waters.
- 2.21 Hoang (2013) reports a study from the Gulf of Mexico which examined the responses of different cetaceans to aerial surveys from a fixed-wing aircraft. The plane flew at 750 feet (229 m) altitude and at a minimum horizontal distance of 305 m from cetaceans. It was found that some species reacted more strongly to the aircraft than others. For example, bottlenose dolphins *Tursiops* sp. reacted in 28% of the sightings, and for Risso's dolphin *Grampus griseus*, in 16% of sightings.
- 2.22 Patenaude *et al* (2006) studied disturbance of bowhead whales *Balaena mysticetus* and beluga whales *Delphinapterus leucas* by fixed-wing aircraft and found that few (2.2% of bowhead, and 3.2% of belugas) reacted to over-flights at altitudes 60-460 m. Most observed reactions occurred when the aircraft was at altitudes of less than 182 m.

Summary of Literature Review

- 2.23 Bird hearing is, for most species, less developed than that of humans. Although noise can act in isolation to cause disturbance to both non-breeding and breeding birds, greater responses typically occur when there is also a visual stimulus.
- 2.24 There are very few studies into the effects of commercial aircraft on birds, with most investigations involving light aircraft, military jets and/or helicopters. The majority of studies have found that over-flights of fixed-wing aircraft do not result in disturbance to birds when these flights are 300 m or higher above the ground.
- 2.25 From the studies quoted, noise levels of around 60 dB(A) or lower appear unlikely to result in disturbance responses. Noises greater than 60 dB(A) have been shown to elicit disturbance responses in some studies, although others have shown that birds were not disturbed by noises ranging from 77 – 88 dB(A).
- 2.26 Similarly, all of the studies into disturbance of marine mammals found as part of the literature review involved small aircraft. However, these consistently found that below approximately 500 m (approximately 1,600 feet), or lower, there were no significant impacts of disturbance from such aircraft on seals and cetaceans, including harbour porpoise.

3. Identification of Relevant European Sites

Overview

- 3.1 When seeking to identify relevant European sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach (see OPR (2021)), rather than adopting a purely 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. If there is no ecological pathway or functional link between a proposed development and a European site, there is no potential for impact and the project can be screened out (OPR, 2021). Ecological pathways can be physical, for example water or air. Functional pathways occur, for example, where the application site is used for foraging by QI or SCI species (OPR, 2021). In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no likelihood for an effect to occur. Furthermore, even where an impact is predicted to occur, it may not result in significant effects.
- 3.2 Department of the Environment, Heritage and Local Government guidance *Appropriate Assessment of Plans and Projects in Ireland* (DoEHLG, 2010) states that European sites with the potential to be affected by a plan or project should be identified taking into consideration the potential for direct, indirect and/or cumulative (in-combination) effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:
- All European sites within or immediately adjacent to the plan or project area;
 - All European sites within the likely 'zone of impact' of the plan or project; and,
 - Adopting the Precautionary Principle (UNESCO, 2005), all European sites for which there is doubt as to whether or not such sites might be significantly affected.
- 3.3 The likely zone of impact (also referred to as the likely 'zone of influence' (Zol)) of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The DoEHLG guidance document prescribes a 15 km distance threshold for European sites from the boundary of a plan area. In the case of projects, the guidance acknowledges that the zone of influence must be devised on a case by case basis with reference to the following criteria: the nature, size / scale and location of the project, sensitivity of ecological features under consideration and cumulative effects.

Establishing the Zone of Influence

- 3.4 To establish the Zol, consideration was first given to the potential impacts (the 'source' in the source-pathway-receptor approach) which could arise from the proposed Relevant Action. As discussed above, the proposed Relevant Action comprises a change in operating restrictions and will involve no construction works or changes to the consented physical infrastructure of North Runway or any other areas of the airport. There is therefore no potential for construction-related impacts, including pollution.
- 3.5 'Fuel dumping' is carried out by aircraft in emergency situations in order to reduce weight, thereby improving the safety of landing. It is only carried out in emergency situations, as a matter of preserving human safety, and is a rare occurrence. being recorded only once at Dublin Airport since 2014. During take-off on 30 September 2018, the landing gear of an aircraft did not retract. After attempting to resolve the issue in-flight, the decision was made to return to Dublin Airport. Prior to landing, fuel was dumped over the sea, east of Drogheda. Although fuel is dumped from an aircraft in this situation, it is understood that much, if not all, vaporises / disperses before reaching the sea. Any which did reach the marine environment would be subject to massive dilution effects.
- 3.6 As fuel dumping is only carried out in emergency situations, it is impossible to know where it may be required and therefore to know where any potential impact may occur.
- 3.7 Furthermore, to require appraisal as part of the AA process, any impact must be 'likely'. While use of the precautionary principle (and case law) sets the threshold for 'likely' to be quite low (see Table 2), the CJEU ruled in the Boggis judgement that there should be "*credible evidence that there was a real, rather than hypothetical risk*" (Court of Appeal case C1/2009/0041/QBACF Citation No [2009] EWCA Civ. 1061).

- 3.8 Therefore, in accordance with case law, and as set out above, for the following reasons, fuel dumping is not considered to be a credible impact on European sites and is not considered further in this AA Screening Report:
- Fuel dumping is only carried out rarely (according to the Applicant, one recorded incident in seven years at Dublin Airport) and only in emergency situations;
 - Much or all of the dumped fuel vaporises before reaching the sea, so does not cause any pollution of the marine environment. Any fuel which did reach the sea would be dispersed over a wide area; and,
 - It is impossible to know where any such event may take place given that it is carried out in emergency situations. It is therefore impossible to assess what the effects may be on a given European site.
- 3.9 This is in line with a similar AA carried out for Edinburgh Airport in the UK, and reported in HiDef Aerial Surveying Ltd. (2017), where a change in flight paths was proposed, taking aircraft over multiple SPAs in the Firth of Forth. No consideration was given in the test of likely significant effects for this project to the potential impacts of fuel dumping.
- 3.10 It is impossible to know the location of every area of functionally-linked habitat (i.e. habitat outside of the boundary of a European site but which may be used by QI / SCI species) which may be overflown by aircraft using Dublin Airport. Therefore, for the same reasoning as set out in relation to fuel dumping, it is unreasonable to attempt to assess the potential impacts and effects from the proposed Relevant Action on species when using functionally-linked habitat.
- 3.11 The AA Screening Report prepared on behalf of ANCA to inform their own assessment of the Noise Abatement Objective (NAO) states that air emissions from aircraft become negligible, in terms of their ground-level air quality effects, once aircraft are more than approximately 350-650 feet above ground on take-off, or more than approximately 160-350 feet above the ground on landing (Logika Consultants Ltd., 2021). According to the same report, this height will be reached by aircraft using Dublin Airport within 2 km or less of the airport. The nearest European site to North Runway is Malahide Estuary SAC, approximately 4 km north-east, well beyond this distance.
- 3.12 Consequently, the only possible impacts from the proposed Relevant Action on the QI / SCI of European sites can be from direct noise and/or visual disturbance caused by over-flying aircraft, or from collision mortality ('bird strike'). Therefore, any SACs which are designated only for habitats, and have no animal species as QI which could be subject to disturbance, are outside of the Zol of the proposed Relevant Action.
- 3.13 The literature review set out above found that at noise levels below approximately 60 dB(A), birds are unlikely to be disturbed. All European sites which will be subject to maximum noise levels (L_{max}) of 60 dB(A) or greater, according analysis done by Bickerdike Allen who carried out the air noise impact assessment for the proposed Relevant Action, from incoming or departing aircraft were included within the Zol. Figure 1 illustrates noise contours covering the area within which there will be a noise event with an L_{max} value of 60 db(A) at least once per night on average⁴. It can be seen that the following European sites (which are designated for animal species) will be subject to noise events with L_{max} greater than 60 dB(A): Baldoyle Bay SPA, Ireland's Eye SPA and Rockabill to Dalkey Island SAC.
- 3.14 Note that the results of noise modelling provided in Table 11 suggest that the L_{Max} values at multiple European sites will exceed 60 db(A). However, this may occur on average less than once per night. In this case, they are not shown on Figure 1, on which the noise contour specifically shows where L_{Max} values will exceed 60 dB(A) at least once per night on average.
- 3.15 On a precautionary basis, therefore, and to account for potential rare exceedances of 60 dB(A), as well as visual disturbance, other European sites in and around the Dublin Bay area were also taken to be within the Zol. Rye Water Valley/Carton SAC was not considered to be within the Zol because it is designated for snail species which have no acoustic sense and will not be affected by passing aircraft (Chase, 2001).
- 3.16 The Zol was therefore all European sites which will be subject to noise levels of greater than 60 dB(A) from passing aircraft, and which have animal species (not including snails) as QI / SCI. On a precautionary basis, sites further afield in and around Dublin Bay have also been included to account for

⁴ Figures covering the night-time period were used as this is when the most substantial changes under the proposed Relevant Action will apply. The increase in daytime ATMs is temporary and will be consistent under the Proposed Scenario and Permitted Scenario by 2027.

rare exceedances of 60 dB(A) LMax, as well as the potential for visual disturbance from passing aircraft. The European sites within the potential Zol are summarised in Table 3 and their locations relevant to predicted noise levels under the proposed Relevant Action are shown on Figure 1.

- 3.17 Drawings 1 and 2 in Appendix A illustrate flight paths to and from Dublin Airport depending on the mode of operation of the runway systems. These are overlaid against European sites considered to be within the potential Zol of the proposed Relevant Action.

Table 3. European sites within the Potential Zol of the proposed Relevant Action

Site name [site code]	Approximate distance from Dublin Airport North Runway	Summary of QI / SCI
Malahide Estuary SPA [004025]	4.0 km north-east	<ul style="list-style-type: none"> • Non-breeding waterbirds and wetland habitats supporting waterbirds.
Baldoyle Bay SPA [004016]	6.6 km east-south-east	<ul style="list-style-type: none"> • Non-breeding waterbirds and wetland habitats supporting waterbirds.
Rogerstown Estuary SPA [004015]	8.0 km north-east	<ul style="list-style-type: none"> • Non-breeding waterbirds and wetland habitats supporting waterbirds.
South Dublin Bay and River Tolka Estuary SPA [004024]	8.1 km south	<ul style="list-style-type: none"> • Breeding seabirds. • Non-breeding waterbirds and wetland habitats supporting waterbirds.
North Bull Island SPA [004006]	8.2 km south-east	<ul style="list-style-type: none"> • Non-breeding waterbirds and wetland habitats supporting waterbirds.
Rockabill to Dalkey Island SAC [003000]	10.9 km east	<ul style="list-style-type: none"> • Harbour porpoise <i>Phocoena phocoena</i>
Ireland's Eye SPA [004117]	11.3 km east-south-east	<ul style="list-style-type: none"> • Breeding seabirds.
Howth Head Coast SPA [004113]	13.2 km south-east	<ul style="list-style-type: none"> • Breeding seabirds.
Lambay Island SPA [004069]	15.1 km north-east	<ul style="list-style-type: none"> • Breeding seabirds. • Non-breeding waterbirds.
Lambay Island SAC [000204]	15.1 km north-east	<ul style="list-style-type: none"> • Grey seal <i>Halichoerus grypus</i> • Harbour seal <i>Phoca vitulina</i>
Dalkey Islands SPA [004172]	19.7 km south-east	<ul style="list-style-type: none"> • Breeding seabirds.

Summary of European Sites within the Zone of Influence

3.18 A summary of the European sites within the potential Zol of the proposed Relevant Action is given below. All information on the sites, including details of the QI / SCI, conservation objectives and latest assessed conditions, has been obtained from site-specific documents provided on the National Parks and Wildlife Service (NPWS) website (<https://www.npws.ie/protected-sites>).

Malahide Estuary SPA

3.19 Malahide Estuary SPA is located approximately 4 km north-east of North Runway. The site encompasses the estuary, saltmarsh habitats and shallow subtidal areas at the mouth of the estuary. Following construction of a railway viaduct in the 19th century, the estuary became lagoonal in character and is only partly tidal. There are extensive intertidal flats which are exposed at low tide, with substantial stands of eelgrass (both *Zostera noltii* and *Zostera angustifolia*), and saltmarshes which provide important roost sites at high tide. A summary of the non-breeding SCI species of the Malahide Estuary SPA is given in Table 4.

Table 4. SCI species of the Malahide Estuary SPA

Species (common name)	Species (scientific name)	SPA population*	Latest assessed conservation condition (NPWS, 2013a)
Light-bellied brent goose	<i>Branta bernicla hrota</i>	1,104 individuals, representing 1% or more of the biogeographic population.	Favourable
Shelduck	<i>Tadorna tadorna</i>	439 individuals, representing 1% or more of the total Irish population.	Favourable
Pintail	<i>Anas acuta</i>	58 individuals, representing 1% or more of the total Irish population.	Favourable
Goldeneye	<i>Bucephala clangula</i>	215 individuals, representing 1% or more of the total Irish population.	Unfavourable
Red-breasted merganser	<i>Mergus serrator</i>	99 individuals, representing 1% or more of the total Irish population.	Favourable
Great crested grebe	<i>Podiceps cristatus</i>	63 individuals, representing 1% or more of the total Irish population.	Favourable
Oystercatcher	<i>Haematopus ostralegus</i>	1,360 individuals, representing 1% or more of the total Irish population.	Favourable
Golden plover	<i>Pluvialis apricaria</i>	1,843 individuals, representing 1% or more of the total Irish population.	Highly Unfavourable
Grey plover	<i>Pluvialis squatarola</i>	201 individuals, representing 1% or more of the total Irish population.	Intermediate Unfavourable
Knot	<i>Calidris canutus</i>	915 individuals, representing 1% or more of the total Irish population.	Unfavourable
Dunlin	<i>Calidris alpina alpina</i>	1,594 individuals, representing 1% or more of the total Irish population.	Highly Unfavourable
Black-tailed godwit	<i>Limosa limosa</i>	409 individuals, representing 1% or more of the biogeographic population.	Intermediate Unfavourable
Bar-tailed godwit	<i>Limosa lapponica</i>	156 individuals, representing 1% or more of the total Irish population.	Favourable
Redshank	<i>Tringa tetanus</i>	582 individuals, representing 1% or more of the total Irish population.	Favourable
Wetland habitats and waterbirds	N/A	The wetland habitats are identified as being of conservation importance for non-breeding migratory waterbirds and are therefore considered to be an additional SCI.	N/A

* The population size given is the 5-year mean peak count for the period 1995/96 – 1999/2000, with the exception of light-bellied brent goose, for which see Robinson *et al* (2004).

3.20 The conservation objectives in relation to the SCI species of the Malahide Estuary SPA are:

- To maintain the favourable conservation condition of the SCI species:
 - To be favourable, the long-term population trend for each waterbird SCI species should be stable or increasing;
 - To be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that use it:
 - The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 765 ha, other than that occurring from natural variation.

Baldoyle Bay SPA

3.21 Baldoyle Bay SPA is approximately 6.5 km east-south-east of Dublin Airport. The European site is relatively small and narrow and is separated from the open sea by a large sand dune system. At low tide, large areas of intertidal flats are exposed, comprising mostly sands but with some mud in the more sheltered parts of the estuary. In addition, areas of saltmarsh also occur in several parts of the site.

3.22 The non-breeding SCI species, and additional SCI, of Baldoyle Bay SPA are summarised in Table 5.

Table 5. SCI species of the Baldoyle SPA

Species (common name)	Species (scientific name)	SPA population*	Latest assessed conservation condition
Special Conservation Interest species			
Light-bellied brent goose	<i>Branta bernicla hrota</i>	726 individuals	Favourable
Ringed plover	<i>Charadrius hiaticula</i>	223 individuals	Intermediate Unfavourable
Bar-tailed godwit	<i>Limosa lapponica</i>	353 individuals	Highly Unfavourable
Additional Special Conservation Interests			
Shelduck	<i>Tadorna tadorna</i>	147 individuals	Favourable
Golden plover	<i>Pluvialis apricaria</i>	2,120 individuals	Unfavourable
Grey plover	<i>Pluvialis squatarola</i>	200 individuals	Unfavourable
Wetland habitat and waterbirds	N/A	The wetland habitats are identified as being of conservation importance for non-breeding migratory waterbirds and are therefore considered to be an additional SCI.	N/A

* The population size given is the 5-year mean peak count for the period 1995/96 – 1999/2000.

3.23 The conservation objectives in relation to the SCI species of the Baldoyle Bay SPA are:

- To maintain the favourable conservation condition of the non-breeding waterbird SCI species listed for Baldoyle Bay SPA:
 - to be favourable, the long-term population trend for each waterbird SCI species should be stable or increasing;
 - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- To maintain the favourable conservation condition of the wetland habitat at Baldoyle Bay SPA as a resource for the regularly-occurring migratory waterbirds that use it:
 - to be favourable, the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263 ha, other than that occurring from natural patterns of variation.

Rogerstown Estuary SPA

3.24 Rogerstown Estuary receives water from the Ballyboghil River and Ballough River and has a wide salinity range, from near full seawater to near full freshwater. At low tide, extensive intertidal sand and mud flats are exposed and these provide the main food resource for the non-breeding waterbirds that use the site.

3.25 A summary of the non-breeding SCI species of the Rogerstown Estuary SPA is given in Table 6.

Table 6. SCI species of the Rogerstown Estuary SPA

Species (common name)	Species (scientific name)	SPA population*	Latest assessed conservation condition
Greylag goose	<i>Anser anser</i>	160 individuals	Highly Unfavourable
Light-bellied brent goose	<i>Branta bernicla hrota</i>	1,069 individuals	Favourable
Shelduck	<i>Tadorna tadorna</i>	773 individuals	Favourable
Shoveler	<i>Anas clypeata</i>	59 individuals	Favourable
Oystercatcher	<i>Haematopus ostralegus</i>	1,345 individuals	Favourable
Ringed plover	<i>Charadrius hiaticula</i>	188 individuals	Favourable
Grey plover	<i>Pluvialis squatarola</i>	229 individuals	Intermediate Unfavourable
Knot	<i>Calidris canutus</i>	2,454 individuals	Highly Unfavourable
Dunlin	<i>Calidris alpina</i>	2,745 individuals	Favourable
Black-tailed godwit	<i>Limosa limosa</i>	195 individuals	Favourable
Redshank	<i>Tringa totanus</i>	490 individuals	Favourable
Wetland habitats and waterbirds	N/A	The wetland habitats are identified as being of conservation importance for non-breeding migratory waterbirds and are therefore considered to be an additional SCI.	N/A

* The population size given is the 5-year mean peak count for the period 1995/96 – 1999/2000.

3.26 The conservation objectives in relation to the SCI species of the Rogerstown Estuary SPA are:

- To maintain the favourable conservation condition of the non-breeding waterbird SCI species listed for Rogerstown Estuary SPA:
 - to be favourable, the long-term population trend for each waterbird SCI species should be stable or increasing;
 - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- To maintain the favourable conservation condition of the wetland habitat at Rogerstown Estuary SPA as a resource for the regularly-occurring migratory waterbirds that use it:
 - to be favourable, the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 ha, other than that occurring from natural patterns of variation.

South Dublin Bay and River Tolka Estuary SPA

3.27 The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dún Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. The site is important for wintering waterfowl. Common and Arctic tern breed in Dublin Docks on manmade structures and south Dublin Bay is an important staging post for tern species. A summary of the SCI species of the SPA is given in Table 7.

Table 7. SCI species of the South Dublin Bay and River Tolka Estuary SPA

Species (common name)	Species (scientific name)	SPA population*	Conservation condition
Light-bellied brent goose	<i>Branta bernicla hrota</i>	3,443	Favourable
Shelduck	<i>Tadorna tadorna</i>	913	Intermediate Unfavourable
Teal	<i>Anas crecca</i>	921	Favourable
Pintail	<i>Anas acuta</i>	156	Intermediate Unfavourable
Shoveler	<i>Spatula clypeata</i>	123	Unfavourable
Oystercatcher	<i>Haematopus ostralegus</i>	1,772	Favourable
Golden plover	<i>Pluvialis apricaria</i>	1,094	Unfavourable
Grey plover	<i>Pluvialis squatarola</i>	380	Unfavourable
Knot	<i>Calidris canutus</i>	3,542	Favourable
Sanderling	<i>Calidris alba</i>	271	Favourable
Dunlin	<i>Calidris alpina</i>	3,734	Favourable
Black-tailed godwit	<i>Limosa limosa</i>	873	Favourable
Bar-tailed godwit	<i>Limosa lapponica</i>	1,627	Favourable
Curlew	<i>Numenius arquata</i>	918	Favourable
Redshank	<i>Tringa totanus</i>	2,356	Favourable
Turnstone	<i>Arenaria interpres</i>	238	Favourable
Black-headed gull	<i>Croicocephalus ridibundus</i>	1,527	Unfavourable
Wetland and waterbirds	N/A	The wetland habitats are identified as being of conservation importance for non-breeding migratory waterbirds and are therefore considered to be an additional SCI.	Not provided

* The population size given is the 5-year mean peak count for the period 2006/07 – 2010/11.

3.28 The conservation objectives in relation to the SCI species of the South Dublin Bay and River Tolka Estuary SPA are:

- To maintain the favourable conservation condition of the SCI species:
 - to be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing;
 - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Bay SPA as a resource for the regularly-occurring migratory waterbirds that use it:
 - the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 ha, other than that occurring from natural variation.

North Bull Island SPA

3.29 This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterbirds. A summary of the SCI species of the SPA is given in Table 8.

Table 8. SCI species of the North Bull Island SPA

Species (common name)	Species (scientific name)	SPA population*	Conservation condition
Light-bellied brent goose	<i>Branta bernicla hrota</i>	1,548	Favourable
Shelduck	<i>Tadorna tadorna</i>	1,259	Intermediate Unfavourable
Teal	<i>Anas crecca</i>	953	Favourable
Pintail	<i>Anas acuta</i>	233	Intermediate Unfavourable
Shoveler	<i>Spatula clypeata</i>	141	Unfavourable
Oystercatcher	<i>Haematopus ostralegus</i>	1,784	Favourable
Golden plover	<i>Pluvialis apricaria</i>	2,033	Unfavourable
Grey plover	<i>Pluvialis squatarola</i>	517	Unfavourable
Knot	<i>Calidris canutus</i>	2,837	Favourable
Sanderling	<i>Calidris alba</i>	141	Favourable
Dunlin	<i>Calidris alpina</i>	4,146	Favourable
Black-tailed godwit	<i>Limosa limosa</i>	367	Favourable
Bar-tailed godwit	<i>Limosa lapponica</i>	1,529	Favourable
Curlew	<i>Numenius arquata</i>	937	Favourable
Redshank	<i>Tringa totanus</i>	1,431	Favourable
Turnstone	<i>Arenaria interpres</i>	157	Favourable
Black-headed gull	<i>Croicocephalus ridibundus</i>	2,196	Unfavourable
Wetland and waterbirds	N/A	The wetland habitats are identified as being of conservation importance for non-breeding migratory waterbirds and are therefore considered to be an additional SCI.	Not provided

* The population size given is the 5-year mean peak count for the period 1995/6 – 1999/2000.

3.30 The conservation objectives in relation to the SCI species of the North Bull Island SPA are:

- To maintain the favourable conservation condition of the Special Conservation Interest species:
 - to be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing;
 - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- To maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly-occurring migratory waterbirds that use it:
 - the permanent area occupied by the wetland habitat should be stable and not significantly less than the existing wetland area, other than that occurring from natural variation.

Rockabill to Dalkey Island SAC

3.31 The Rockabill to Dalkey Island SAC includes a range of dynamic inshore and coastal waters in the western Irish Sea. These include sandy and muddy seabed, reefs, sandbanks and islands. Harbour porpoise is the sole QI animal species. The species occurs year-round within the site and there are a wide array of habitats believed to be important for harbour porpoise, including inshore shallow sand and mudbanks and rocky reefs scoured by strong current flow.

3.32 The conservation objectives of the site in relation to harbour porpoise are to maintain the favourable conservation condition of harbour porpoise within the Rockabill to Dalkey Island SPA, as defined by the following attributes and targets:

- Species range within the site should not be restricted by artificial barriers to site use; and,
- Human activities should occur at levels that do not adversely affect the grey seal and harbour seal populations at the site.

Ireland's Eye SPA

3.33 Ireland's Eye is an uninhabited island located approximately 1.5 km north of Howth in Co. Dublin, and approximately 11.2 km south-east of Dublin Airport. The Ireland's Eye SPA designation encompasses Ireland's Eye, Rowan Rocks, Thulla, Thulla Rocks, Carragreen Bay and a seaward extension of 200 m in the west and 500 m to the north and east. The island has large, near vertical cliffs, along its northern and eastern sides, with scattered exposures elsewhere. There is also a tall stack to the eastern side of the cliffs.

3.34 The SPA is designated for breeding seabirds, and a summary the SCI species is provided in Table 9.

Table 9. SCI species of the Ireland's Eye SPA

Species (common name)	Species (scientific name)	SPA population*
Cormorant	<i>Phalacrocorax carbo</i>	306 pairs
Herring gull	<i>Larus argentatus</i>	250 pairs
Kittiwake	<i>Rissa tridactyla</i>	941 pairs
Guillemot	<i>Uria aalge</i>	2,191 individuals
Razorbill	<i>Alca torda</i>	522 individuals

* The population size given is taken from the Natura 2000 Standard Data Form for the site.

3.35 The sole conservation objective in relation to Ireland's Eye SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of the designation.

Howth Head Coast SPA

3.36 Howth Head is a rocky headland situated on the northern side of Dublin Bay. The site comprises the sea cliffs extending from just east of the Nose of Howth to the tip of the Bailey Lighthouse peninsula. The marine area to a distance of 500 m from the cliff base is included within the site.

3.37 The sole SCI species of the Howth Head Coast SPA is breeding kittiwake, with 2,269 pairs recorded during a census in 1999.

3.38 The only conservation objective for Howth Head Coast SPA is to maintain or restore the favourable conservation status of kittiwake, as the sole SCI species.

Lambay Island SPA

3.39 Lambay Island lies approximately 4 km from the coast and rises to a height of 127 m above sea level. It is situated approximately 14.8 km from Dublin Airport. On the western side of the island, the land rises gently from a bedrock shoreline, while the northern, eastern and southern shores consist of steep cliffs ranging in height from 15 – 50 m. The cliffs are backed by vegetated slopes along most of their lengths, with a typical maritime plant community.

3.40 A summary of the breeding and non-breeding SCI species of the Lambay Island SPA is provided in Table 10.

Table 10. SCI species of the Lambay Island SPA

Species (common name)	Species (scientific name)	SPA population*
Fulmar	<i>Fulmarus glacialis</i>	635 pairs
Cormorant	<i>Phalacrocorax carbo</i>	675 pairs (breeding) and 29 individuals (non-breeding, winter)
Shag	<i>Phalacrocorax aristotelis</i>	1,122 (not stated whether pairs or individuals)
Greylag goose	<i>Anser anser</i>	311 individuals

Species (common name)	Species (scientific name)	SPA population*
Lesser black-backed gull	<i>Larus fuscus</i>	309 pairs
Herring gull	<i>Larus argentatus</i>	1,806 (not stated whether pairs or individuals)
Kittiwake	<i>Rissa tridactyla</i>	4,091 pairs
Guillemot	<i>Uria aalge</i>	59,824 individuals

* The population size given is taken from the Natura 2000 Standard Data Form for the site.

3.41 The conservation objectives in relation to the SCI species of the Lambay Island SPA are to maintain or restore the favourable conservation condition of the bird species listed as SCI.

3.42 The favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Lambay Island SAC

3.43 Lambay Island supports the principal breeding colony of grey seal on the east coast of Ireland, numbering 196-252 seals, across all ages. It also contains regionally significant numbers of harbour seal, of which up to 47 individuals have been counted at the site. Both species occur year-round and the island's intertidal shorelines, coves and caves are used by resting and moulting seals.

3.44 Both grey seal and harbour seal are QI species of the Lambay Island SAC.

3.45 The conservation objectives of the site in relation to grey seal and harbour seal are to maintain the favourable conservation condition of both species within the Lambay Island SAC, as defined by a series of targets as follows:

- Species range within the site should not be restricted by artificial barriers to site use;
- The breeding sites should be maintained in a natural condition;
- The moult haul-out sites should be maintained in a natural condition;
- The resting haul-out sites should be maintained in a natural condition; and,
- Human activities should occur at levels that do not adversely affect the grey seal and harbour seal populations at the site.

Dalkey Islands SPA

3.46 The site comprises Dalkey Island, Lamb Island and Maiden Rock, the intervening rocks and reefs, and the surrounding sea to a distance of 200 m. Dalkey Islands SPA is both a breeding and a staging site for several tern species. There is a good history of nesting by terns though success has been variable over the years. Common tern *Sterna hirundo* is the most common species, usually outnumbering Arctic tern *Sterna paradisaea* by at least 3:1. The site is linked to another important post-breeding / pre-migration autumn tern roost area in Dublin Bay. Birds are present from about late-July to September, with approximately 2,000 terns.

3.47 The three breeding tern species which are the SCI of the Dalkey Islands SPA are:

- Common tern, up to 65 pairs (breeding) and 1,000 individuals (pre-migration);
- Arctic tern, up to 30 pairs (breeding) and 1,000 individuals (pre-migration);
- Roseate tern *Sterna dougallii*, up to eleven pairs (breeding) and 200 individuals (pre-migration).

3.48 The only conservation objective for Dalkey Islands SPA is to maintain or restore the favourable conservation status of the three tern species which are the SCI for this site.

4. Current Condition of Relevant European Sites

- 4.1 The condition of relevant European sites at the time of writing this Report has been established by AECOM through a desk-based study. This includes a review of the results of ornithological field survey carried out at Baldoyle Bay SPA and Rogerstown Estuary SPA between June 2016 and December 2017 and in April and May 2018, as described in more detail below.
- 4.2 The current conditions, as described below, are not expected to change on coming into operation of the Permitted Scenario. This is because the conditions described are based on information collected up to 2018 (as stated in Paragraph 4.1), at which time Dublin Airport was operating at significantly higher aircraft numbers than will be the case in 2022 when the Permitted Scenario comes into effect. At this time ATMs for Dublin Airport, including North Runway, are predicted to be 166,000. Given that the number of aircraft using the airport will be lower than in 2018, at which time no impacts on European sites were identified, it is highly unlikely that there will be a change on coming into effect of the Permitted Scenario. Moreover, aircraft disturbance has not been identified by NPWS as a threat or pressure to any European site considered by this AA Screening Report, and this is highly unlikely to change with coming into effect of the Permitted Scenario, especially so given that ATMs will be lower than in 2018, as stated previously.
- 4.3 A Wildlife Management Plan currently implemented by the Applicant permits them to disturb and prevent birds from flocking at or immediately adjacent to Dublin Airport, including North Runway, in the interests of public safety. It is therefore the case that significant numbers of SCI species will not occur in this area. Therefore, this AA Screening has been carried out on the basis that significant numbers of SCI species of any of the European sites listed in Table 3 do not occur in these areas.
- 4.4 Therefore, the introduction of condition 3(d) and 5 will not change in any way the condition of the QI / SCI of European sites. This is because: a) there is no evidence that flights over-flying Baldoyle Bay or Rogerstown Estuary have any effect on birds present within these sites (see further below); and, b) the Wildlife Management Plan implemented at Dublin Airport will still be implemented, meaning there will be no change to the numbers of birds present in the vicinity of North Runway and the runway system at the airport.
- 4.5 The following documents and sources of information were used to establish the receiving environment:
- Environmental Protection Agency (EPA) maps website (<https://gis.epa.ie/EPAMaps/>);
 - NPWS Protected Sites in Ireland website (<https://www.npws.ie/protected-sites>); and,
 - Technical report prepared on behalf of the Applicant detailing the results of targeted ornithological survey conducted at Baldoyle Bay and Rogerstown Estuary (this document is provided as an appendix to this AA Screening Report).
- 4.6 These documents can all be found at <https://www.dublinairport.com/corporate/north-runway>.

Condition of Relevant Qualifying Interests and Special Conservation Interests

All information presented below on the condition of QIs and SCIs of European sites within the potential Zol is taken from relevant Conservation Objectives documents and other supporting documents, all available from the NPWS website (<https://www.npws.ie/protected-sites>).

Malahide Estuary SPA

As shown in Table 4, based on long-term population trends for Malahide Estuary, it has been determined that the following SCI species are currently not achieving favourable conservation status:

- Highly Unfavourable – golden plover and dunlin;
- Unfavourable – goldeneye and knot; and,
- Intermediate Unfavourable – grey plover and black-tailed godwit.

The Malahide Estuary SPA Conservation Objectives Supporting Document identifies, based on a combination of desk study and field survey, a number of pressures on the designated site which are likely to be affecting the

conservation status of its SCI species. These include adjacent land use, fisheries and aquaculture, and recreational disturbance. The report concludes that the most obvious form of recreational disturbance is caused by walking, either with or without dogs, stating that it is clear that this activity is displacing waterbirds. The Conservation Objectives Supporting Document does not identify aircraft flying into or out of Dublin Airport as a potential pressure on the Malahide Estuary SPA achieving its conservation objectives or an overall favourable conservation status.

Baldoye Bay SPA

4.7 As shown in Table 5, based on long-term population trends for Baldoye Bay, it has been determined that the following SCI species are currently not achieving favourable conservation status:

- Highly Unfavourable – bar-tailed godwit;
- Unfavourable – golden plover and grey plover; and,
- Intermediate Unfavourable – ringed plover.

4.8 Although the Baldoye Bay SPA Conservation Objectives Supporting Document states that “*the air space over the site is one of the main routes for air traffic coming into and out of Dublin Airport*”, it does not identify that this is a pressure on the site nor that it has any role in affecting the conservation status of the SCI species. The document concludes that the primary source of disturbance is from walkers with or without dogs. Other potential pressures on the SPA include adjacent land use and activities associated with fishing and aquaculture.

Rogerstown Estuary SPA

4.9 As shown in Table 6, based on long-term population trends for Rogerstown Estuary SPA, it has been determined that the following SCI species are currently not achieving favourable conservation status:

- Highly Unfavourable – greylag goose and knot; and,
- Intermediate Unfavourable – grey plover.

4.10 As with the previous sites, walking with and without dogs is identified as one of the main pressures on waterbirds at Rogerstown Estuary. Aquaculture and fisheries activities also take place within the estuary. The Conservation Objectives Supporting Document notes that birds appear to have habituated to the noise produced by agricultural crop-scarers, with no response to these devices noted.

South Dublin Bay and River Tolka Estuary SPA

4.11 As shown in Table 7, based on long-term population trends for South Dublin Bay and River Tolka Estuary SPA, it has been determined that the following SCI species are currently not achieving favourable conservation status:

- Unfavourable – shoveler, golden plover, grey plover and black-headed gull; and,
- Intermediate Unfavourable – shelduck and pintail.

4.12 Existing pressures on the SPA are described in the Conservation Objectives Supporting Document, published by NPWS. This document identifies that Dublin Bay is subject to significant recreational pressure as a consequence of its proximity to a major population centre. Recreational activity in the form of walkers, both with and without dogs, is known to be widespread across the SPA and of a ‘highly active level’ in certain areas. A study carried out in the Irishtown area of south Dublin Bay (Phalan and Nairn, 2007) found that dogs off the leash accounted for nearly half of all disturbance events recorded. However, it also identified in NPWS (2014) that human recreational activities at coastal areas occur less frequently during winter months.

North Bull Island SPA

4.13 Pressures on North Bull Island SPA are described in the same document as for South Dublin Bay and River Tolka Estuary SPA, described above. The pressures acting on the two sites, given their close proximity, are considered to be the same.

Rockabill to Dalkey Island SAC

- 4.14 Although information on the harbour porpoise population of Rockabill to Dalkey Island SAC is available from the NPWS website, no assessment of its conservation status is given. No pressures or threats to this species within the SAC are identified in supporting documentation available from the NPWS website.

Ireland's Eye SPA

- 4.15 No information on the conservation status of the SCI species of Ireland's Eye SPA is available from the NPWS website. There is similarly no information provided on pressures which may be exerting on the designation.

Howth Head Coast SPA

- 4.16 No information on the conservation status of the SCI species of Howth Head Coast SPA is available from the NPWS website. There is similarly no information provided on pressures which may be exerting on the designation.

Lambay Island SPA

- 4.17 No information on the conservation status of the SCI species of Lambay Island SPA is available from the NPWS website. There is similarly no information provided on pressures which may be exerting on the designation.

Lambay Island SAC

- 4.18 Although information on the size of the grey seal and harbour seal populations within Lambay Island SAC are available from the NPWS website, no assessment of their conservation status is given. No pressures or threats to these species within the SAC are identified in supporting documentation available from the NPWS website.

Dalkey Islands SPA

- 4.19 No information on the conservation status of the SCI species of Dalkey Islands SPA is available from the NPWS website. There is similarly no information provided on pressures which may be exerting on the designation.

Field Survey

- 4.20 Between June 2016 and December 2017, and in April and May 2018, vantage point (VP) surveys were conducted at Baldoyle Bay SPA and Rogerstown Estuary SPA, which are both beneath flight paths of aircraft coming in to and departing from Dublin Airport at the time of writing this AA Screening Report. Surveys during this period covered the time when Dublin Airport was at its busiest (and before the reduction in flights caused by the Covid-19 pandemic) and were therefore carried out at a time when the number of ATMs was similar to that expected under the proposed Relevant Action up to 2035. . The aims of these surveys were to:
- Observe disturbance events and behavioural changes of waterbirds in response to over-flying aircraft; and,
 - Determine whether or not over-flying aircraft disturb waterbirds at these designated sites.
- 4.21 A total of 252 hours of survey were conducted during the survey period, covering a range of weather conditions, tidal states and times of day. During the VP watches, surveyors recorded all disturbance events, noting the time, source of disturbance, species affected and the number of birds involved. The response of waterbirds was recorded on a scale of 0 – 3:
- 0 – no behavioural change;
 - 1 – behavioural change (e.g. vigilance or alarm call) but no flight;
 - 2 – flew but soon returned to the site; and,
 - 3 – flew and abandoned the site.
- 4.22 There was an “almost continuous stream of air traffic overhead” during the surveys.

- 4.23 In summary, a total of 184 disturbance events were identified during the surveys, with 89 at Rogerstown Estuary and 95 at Baldoyle Bay. These were caused by a variety of disturbance sources, primarily walkers and/or dogs, but also including aquaculture activities, ground-based transport and predators. A single disturbance event was noted in response to a low-flying Coastguard helicopter.
- 4.24 During the 21 months of survey, comprising 252 hours of VP watch, no disturbance events caused by aircraft passing overhead on established flight paths to or from Dublin Airport were recorded.**

5. Test of Likely Significant Effects

Overview

- 5.1 For each of the European sites considered to be within the potential ZoI the potential impacts of the proposed changes to operation of the North Runway under the proposed Relevant Action are assessed below, with reference to the conservation objectives of each European site, to test for likely significant effects. As set out in Section 3, the only feasible impacts from the proposed Relevant Action are noise and/or visual disturbance from over-flying aircraft, and collision risk impacts (i.e. bird strike).
- 5.2 When carrying out the test of likely significant effects, cognisance was given to the ruling of the CJEU in November 2018 in the case of *Holohan and Others v An Bord Pleanála (C-461/17)*. The conclusions of the Court in that case now require that during the course of Appropriate Assessment, consideration must be given to:
- Likely significant effects on the qualifying habitats and/or species of a SAC / SPA, outside the boundary of the designated site, if these are relevant to the site meeting its conservation objectives; and,
 - Effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in Likely Significant Effects on the qualifying features.
- 5.3 This test of LSE is compliant with the requirements of the Holohan ruling and the other relevant case law set out in Table 2.

Disturbance Impact

- 5.4 **No disturbance events caused by over-flying aircraft were observed during 252 hours of field survey in Baldoyle Bay or Rogerstown Estuary. These surveys were carried out in 2017 and 2018, at a time when Dublin Airport was at its busiest, and the number of ATMs was similar to that predicted under the proposed Relevant Action up to 2035. On the basis of this substantial evidence, it is clear that over-flying commercial aircraft using Dublin Airport have no effect on birds using these European sites.**
- 5.5 Noise modelling carried out for the proposed Relevant Action has been carried out by Bikerdike Allen to predict the maximum noise level (LMax) on an average summer night above each of the European sites considered to be relevant by this AA Screening Report (Section 3). Using the information collected by the literature review (Section 2), the noise modelling exercise also estimated the number of times a noise level of 60 dB (N60), 72 dB (N72) and 77dB (N77) would be exceeded at these European sites due to passing aircraft on an average summer night. This exercise was carried out for each of the Permitted Scenario and Proposed Scenario in 2022, 2025 and 2035.
- 5.6 The results of the noise modelling exercise are presented in Table 11. It can be seen that in 2022, under the proposed Relevant Action there would only be an increase in LMax at four of the European sites, when compared to the Permitted Scenario. This would occur at Malahide Estuary SPA, the South Dublin Bay and River Tolka Estuary SPA, Lambay Island SPA and Lambay Island SAC, which are all predicted to experience a 2 dB increase when compared with the Permitted Scenario.
- 5.7 This level of increase is consistent across assessment years, but there is variation between which sites are impacted by the changes. There are eight predictions of an increase of more than 2 dB under the proposed Relevant Action: Malahide Estuary SPA 2035; Baldoyle Bay SPA 2025; Rogerstown Estuary SPA 2022; South Dublin Bay and River Tolka Estuary 2025; and, Lambay Island SPA and Lambay Island SAC 2025 and 2035. The maximum increase in LMax predicted at any European site is 6 dB; at Malahide Estuary SPA under the 2035 assessment scenario, and at South Dublin Bay and River Tolka Estuary SPA under the 2025 assessment scenario.
- 5.8 In the majority of instances, therefore, LMax remains the same or changes only slightly under the proposed Relevant Action at all European sites considered.

Table 11. Noise modelling results in relation to European sites

Site name	2022 Permitted Scenario				2025 Permitted Scenario				2035 Permitted Scenario				2022 Proposed Scenario				2025 Proposed Scenario				2035 Proposed Scenario			
	LMax	N60	N72	N77	LMax	N60	N72	N77	LMax	N60	N72	N77	LMax	N60	N72	N77	LMax	N60	N72	N77	LMax	N60	N72	N77
Malahide Estuary SPA	61	0	0	0	63	0	0	0	57	0	0	0	59	0	0	0	63	1	0	0	63	0	0	0
Baldoyle Bay SPA	75	24	2	0	73	35	1	0	75	29	2	0	75	41	3	0	75	45	2	0	75	45	2	0
Rogerstown Estuary SPA	61	0	0	0	65	6	0	0	61	0	0	0	63	1	0	0	63	1	0	0	61	0	0	0
South Dublin Bay and River Tolka Estuary SPA	72	0	0	0	66	1	0	0	72	0	0	0	72	0	0	0	72	1	0	0	72	1	0	0
North Bull Island SPA	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0
Rockabill to Dalkey Island SAC	67	4	0	0	67	4	0	0	66	2	0	0	68	5	0	0	66	5	0	0	66	1	0	0
Ireland's Eye SPA	70	24	0	0	69	31	0	0	70	27	0	0	70	41	0	0	70	45	0	0	70	44	0	0
Howth Head Coast SPA	67	1	0	0	67	1	0	0	67	1	0	0	67	1	0	0	67	2	0	0	67	1	0	0
Lambay Island SPA and Lambay Island SAC	63	0	0	0	63	1	0	0	62	0	0	0	63	1	0	0	65	1	0	0	65	0	0	0
Dalkey Islands SPA	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0	63	0	0	0

LMax values are in dB(A).

N60 is the number of times a noise level of 60 dB(A) will be exceeded. N72 and N77 are the same thing but relate to noise levels of 72 dB(A) and 77 dB(A), respectively.

Values shown in red represent an increase in LMax between the Permitted Scenario and the Proposed Scenario. Values shown in green represent a decrease in LMax between the Permitted Scenario and the Proposed Scenario. All LMax figures in black illustrate no change between the Permitted and Proposed Scenarios.

- 5.9 As identified by the literature review, construction noise events below 60 dB(A) are unlikely to disturb non-breeding waterbirds, while noises above 72 dB(A) have been shown to cause disturbance of non-breeding waterbirds. The noise modelling exercise therefore estimated the number of aircraft noise events at relevant European sites which would exceed these levels. In 2022 under the proposed Relevant Action, there would be one aircraft noise event above 72 dB at Baldoyle Bay. There would be no other such events at any other European sites. This represents a reduction from the Permitted Scenario, under which it is expected that there would be two exceedances of 72 dB at Baldoyle Bay. This trend continues through 2025 and 2035, with negligible change in the number of exceedances of 72 dB, and no exceedances at all of 77 dB.
- 5.10 It can be seen from the results presented that under the proposed Relevant Action there will be an increase in the number of noise events above 60 dB, particularly at Baldoyle Bay SPA and Rogerstown Estuary SPA. The changes at all other European sites are negligible and never involve an increase of more than one event, but much more frequently involve no change at all. However, the results of targeted ornithological survey at Baldoyle Bay SPA and Rogerstown Estuary SPA has clearly shown that over-flying aircraft cause no disturbance of waterbirds present at these sites. Therefore, birds using the site are completely habituated to aircraft movements, and any increase in the number of noise events which exceed 60 dB is likely to have no disturbance effect.
- 5.11 The increases in noise levels in the Proposed Scenario compared with the Permitted Scenario identified in Table 11 are in part the result of a higher number of ATMs in the Proposed Scenario in the 2022 and 2025 Assessment Years. As explained in Section 1, the post-Covid-19 return to operations at the 32mppa Cap in the airport is delayed by around two years in the Permitted Scenario. This is achieved in 2025 in the Proposed Scenario, whereas in the Permitted Scenario the 32mppa Cap is reached in 2027, thus in the period 2022 to 2026 there will be more over-flights of the European sites in the Proposed Scenario than in the Permitted Scenario.
- 5.12 The total number of ATMs in the Proposed Scenario will not be in excess of those experienced in 2018 when the airport was operating close to the 32mppa Cap without causing disturbance to waterbirds at these sites. Therefore, the temporarily higher number of ATMs in the Proposed Scenario during the period 2022-2026 would not have a significant effect.
- 5.13 On the basis of several scientific evidence sources described throughout this AA Screening Report, it is therefore concluded that the proposed Relevant Action will not result in any effects on any European site from potential disturbance impacts for the following reasons:
- Commercial aircraft using Dublin Airport have not been identified in any of the Conservation Objectives Supporting Documents (published by NPWS) as being an existing pressure on the favourable conservation status of the QI or SCI of any of the relevant European sites considered in this AA Screening Report;;
 - In 252 hours of targeted field survey at Baldoyle Bay SPA and Rogerstown Estuary SPA, there was no recorded incidence of disturbance being caused to waterbirds by commercial aircraft using Dublin Airport. It can therefore be concluded that birds using these sites are unaffected, potentially through habituation, to aircraft over-flights. It is highly likely that the observations at Baldoyle Bay and Rogerstown Estuary are applicable to the other SPAs considered in this AA Screening Report;
 - Noise modelling predicts no or negligible change in maximum noise levels above relevant European sites under the proposed Relevant Action in all assessment scenarios. Where an increase is predicted, this is small, and typically around 2 dB; and,
 - Noise modelling also predicts no or negligible change in the number of aircraft noise events at levels which were identified by the literature review as having the potential to cause disturbance (i.e. those greater than 72 dB). Likewise, there is no or negligible change at lower noise levels at all European sites with the exception of Baldoyle Bay SPA and Rogerstown Estuary SPA. As already stated, however, there is no evidence to suggest this would result in any disturbance of birds using these sites.
- 5.14 It is concluded that, **on the basis of objective information, likely significant effects on any European site from bird disturbance impacts associated with the proposed Relevant Action can be excluded.**

Collision Risk Impact

- 5.15 There are two aspects to collision risk impacts which require to be considered when testing for likely significant effects: the number of bird strikes that are likely to happen; and, whether the changes brought about under the proposed Relevant Action would significantly increase bird strikes.
- 5.16 Bird strike incidences at Dublin Airport are recorded by the Applicant. The data recorded between 2010 and 2019, inclusive, are shown in Table 12 (although data are available for 2020, they are not included here because, due to significantly reduced numbers of flights as a result of the Covid-19 pandemic, the bird strike figures are not representative of a typical year). 'External' bird strikes are those which take place outside of the boundary fence of Dublin Airport and can occur anywhere outside of this area. The most important information is therefore the number of 'Confirmed' bird strikes, which occur between birds and aircraft taking-off or landing.

Table 12. Bird strike information for Dublin Airport

Type of strike	Number of strikes per year									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Confirmed	83	57	68	59	60	71	56	60	61	75
External	12	4	13	5	9	11	6	15	13	5

- 5.17 More than 40 species were involved in these strikes, with the most commonly involved species being the very common and widely distributed woodpigeon *Columba palumbus*.
- 5.18 The Applicant is required to maintain a safe aerodrome and has a detailed Wildlife Management Plan in place to manage the risk to aircraft operations from wildlife. As a result of this management, SCI bird species of the European sites within the Zol of the proposed Relevant Action are not permitted to occur in significant numbers in the vicinity of the airport.
- 5.19 The implementation of the Wildlife Management Plan will continue following commissioning of North Runway. It will therefore continue to be the case that flocks of birds, including SCI species, will be prevented from forming on or near North Runway and the wider runway system, thereby substantially reducing the risk of bird strike.
- 5.20 The continuing implementation of the Wildlife Management Plan, serving to make it very unlikely that SCI species will be involved in aircraft strike, does not represent a change from the existing receiving environment. There will consequently be no impact to SCI species of European sites from the proposed Relevant Action as conditions will remain as they currently exist under the Wildlife Management Plan.
- 5.21 It is concluded that, **on the basis of objective information, likely significant effects on any European site from bird strike impacts associated with the proposed Relevant Action can be excluded.**

Other Principal Plans / Projects that may act 'in combination'

- 5.22 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2018). Effects which arise in-combination with other projects or plans must be considered as part of AA Screening. In accordance with OPR (2021), the assessment of in-combination effects must examine:
- Completed projects;
 - Projects which are approved but not completed;
 - Proposed projects (i.e. for which an application for approval or consent has been made, including refusals subject to appeal and not yet determined);
 - Proposals in adopted plans; and,
 - Proposals in finalised draft plans formally published or submitted for consultation or adoption.
- 5.23 Projects and plans that are not yet proposed do not generally need to be considered in the assessment of in-combination effects. The exception to this is where the project is considered to be functionally interdependent with the development being put before the competent authority (OPR, 2021).

- 5.24 However, no possible effects were identified for the impacts which could theoretically arise from the proposed Relevant Action. Where there is no possibility of any effect (as opposed to a small but insignificant effect), there cannot be any in-combination effect with other projects or plans as there will be no addition from the proposed Relevant Action.
- 5.25 The NAO for Dublin Airport is currently in the early stages of preparation by ANCA and lacks specific detail upon which to base an in-combination assessment. According to guidance published by the Office of the Planning Regulator, the assessment of in-combination effects must examine only plans which are formally adopted or which are in draft but have been formally published for adoption or consultation (OPR, 2021). As the NAO does not fall into either of these categories, and because there is insufficient detail on which to base any assessment, there is at this stage no possibility of the NAO acting in combination with the proposed Relevant Action to result in likely significant effects.
- 5.26 It is therefore possible to conclude that there is no possibility of the proposed Relevant Action acting in-combination with other projects or plans to result in likely significant effects on any European site.**

6. Conclusion

- 6.1 A comprehensive literature review was carried out to inform this AA Screening exercise. Using information from published studies and reports collected during the literature review, the potential zone of influence of the proposed Relevant Action was established. The Zol used was taken to include all European sites which have animal species (not including snails) as QI or SCI, and which will be subject to noise levels greater than 60 dB(A) from passing aircraft. Additionally, other European sites in and around Dublin Bay were also included within the Zol to account for the possibility of visual disturbance.
- 6.2 Special Areas of Conservation designated solely for habitats were excluded from the Zol as the only possible impacts from the proposed Relevant Action relate to disturbance and collision risk (bird strike).
- 6.3 On this basis, a total of nine SPAs and two SACs were deemed to be within the Zol of the proposed Relevant Action:
- Malahide Estuary SPA;
 - Baldoyle Bay SPA;
 - Rogerstown Estuary SPA;
 - South Dublin Bay and River Tolka Estuary SPA;
 - North Bull Island SPA;
 - Rockabill to Dalkey Island SAC;
 - Ireland's Eye SPA;
 - Howth Head Coast SPA;
 - Lambay Island SPA;
 - Lambay Island SAC; and,
 - Dalkey Islands SPA.
- 6.4 The test of likely significant effects arising from the proposed Relevant Action was therefore restricted to these European sites.
- 6.5 Evidence gathered through literature review of published scientific studies, targeted ornithological field survey conducted at Baldoyle Bay and Rogerstown Estuary, and noise modelling for the proposed Relevant Action suggests that there will be no effects from noise and/or visual disturbance of the QI or SCI species of any of the European sites within the Zol.
- 6.6 A Wildlife Management Plan is implemented at Dublin Airport and this prevents flocks of birds, including SCI species, from forming at or around the airport, in the interests of public safety. This will continue to be operated under the proposed Relevant Action. Bird strikes at Dublin Airport are rare. The proposed Relevant Action will have no effect in terms of increasing the likelihood of bird strike occurring.
- 6.7 As there are no predicted effects from the impacts which could arise from the proposed Relevant Action, there is no possibility of in-combination effects to arise with other projects or plans, as there can be no addition to effects which may arise from other projects or plans.
- 6.8 This AA Screening therefore concludes that, on the basis of objective information, likely significant effects on European sites from the proposed Relevant Action, both individually and in-combination with other plans and projects, can be excluded. There is no requirement to proceed to the next step of Appropriate Assessment and, subject to other requirements, the proposed Relevant Action can be authorised.**

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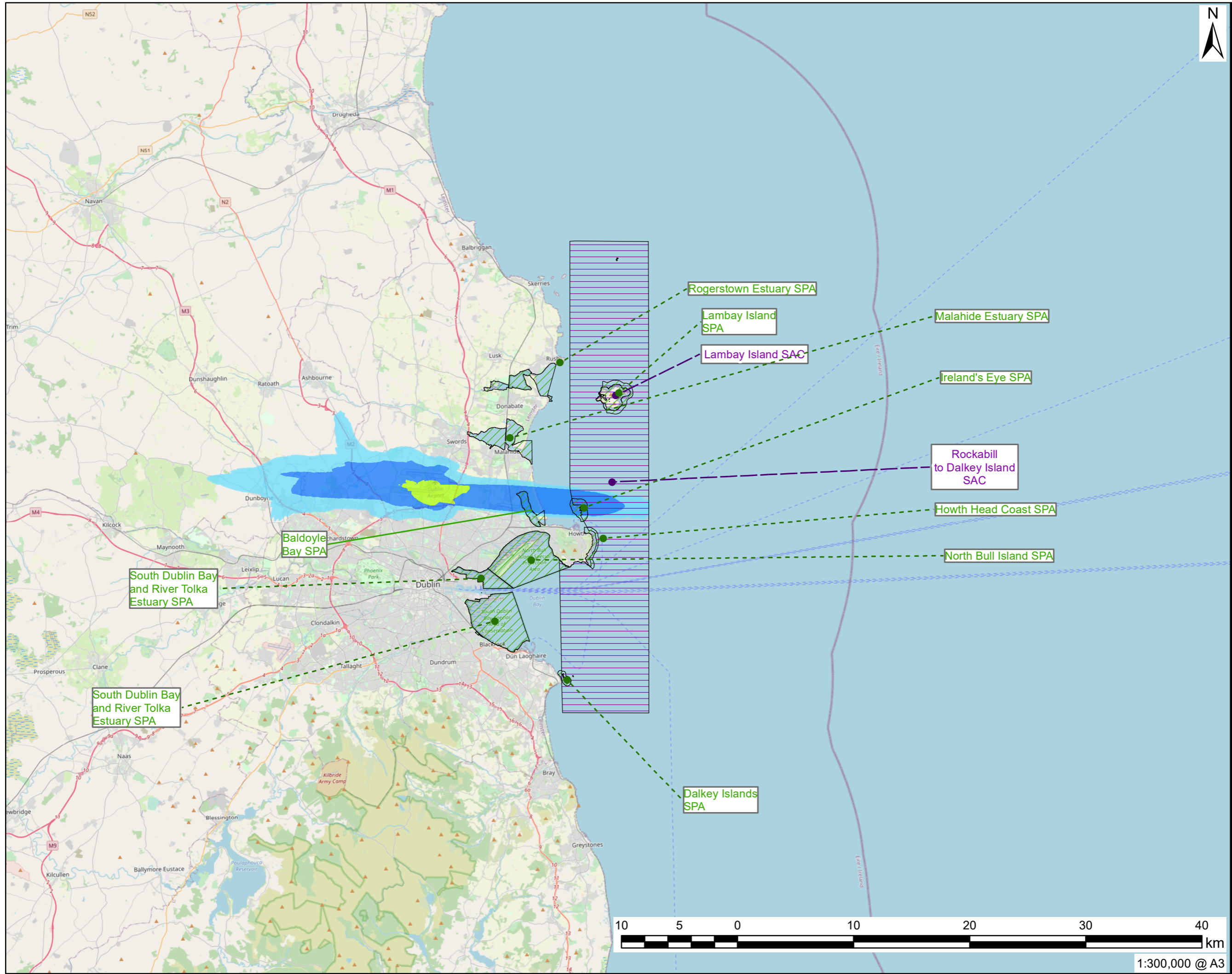
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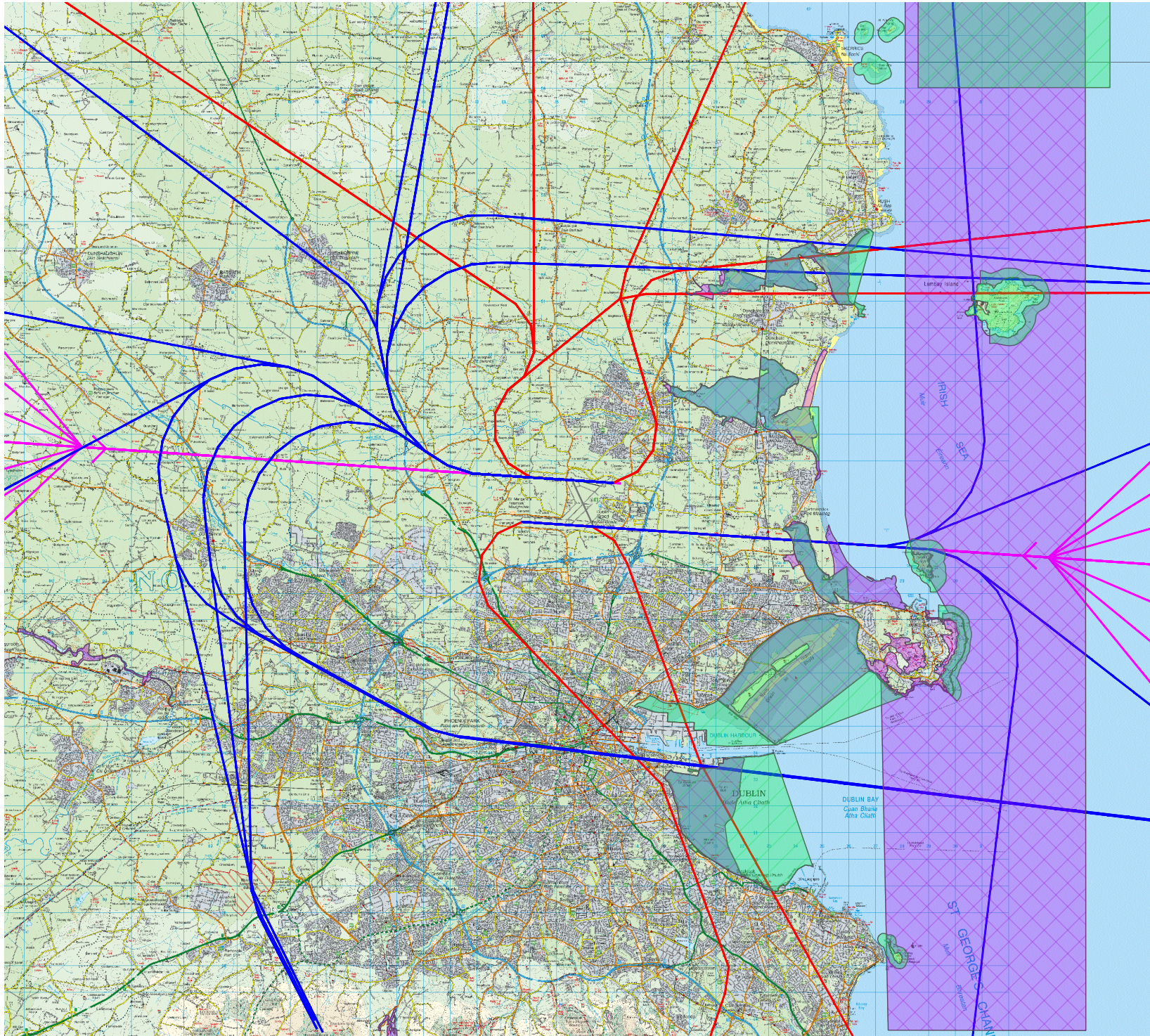
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8. Figures



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Appendix A Drawings illustrating flight paths relative to European sites



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LEGEND:

- Category A&B Aircraft Departure Route Centrelines
- Category C&D Aircraft Departure Route Centrelines
- ← Arrival Routes
- Special Protection Areas
- Special Areas of Conservation

Rev	Date	Description	Initials

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**Dublin Airport
 Proposed Relevant Action**

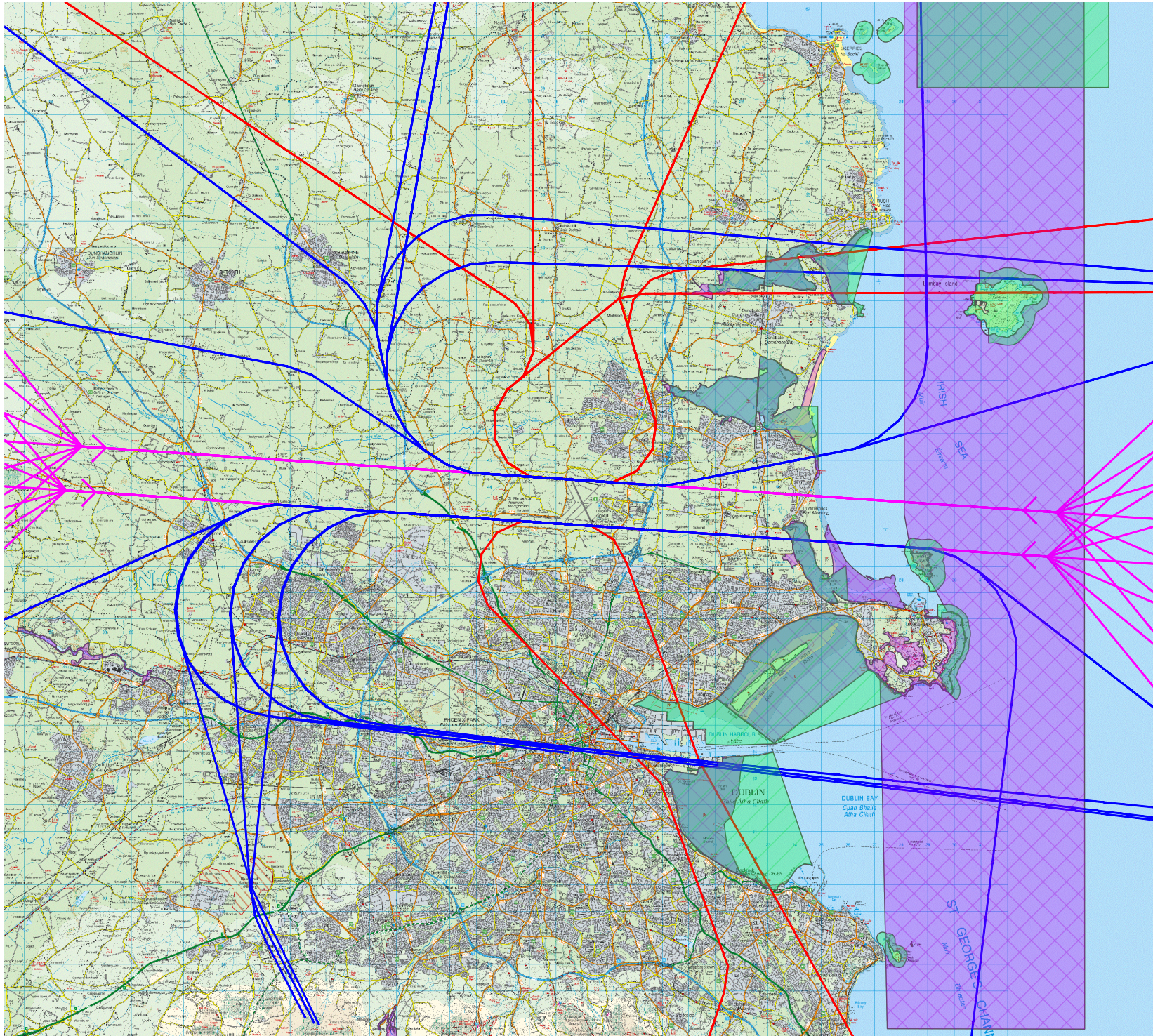
**Drawing No. 1
 Natura 2000 Sites and Main Runway
 Modelled Routes Future Segregated Mode**

DRAWN: MP CHECKED: NW

DATE: September 2021 SCALE: 1:200000@A4

FIGURE No:

A11267_19_DR829_1.0



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LEGEND:

- Category A&B Aircraft Departure Route Centrelines
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Rev	Date	Description	Initials

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**Dublin Airport
 Proposed Relevant Action**

**Drawing No. 2
 Natura 2000 Sites and Main Runway
 Modelled Routes Future Mixed Mode**

DRAWN: MP CHECKED: NW

DATE: September 2021 SCALE: 1:200000@A4

FIGURE No:

A11267_19_DR830_1.0

