An tÚdarás Inniúil um Thorann Aerárthaí
Aircraft Noise Competent Authority

Noise CONSULTANTS

Noise Abatement Objective and Regulatory Decision relating to Aircraft Noise Management at Dublin Airport: Strategic Environmental Assessment – Scoping Report

June 2021






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Document Control

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Job Number	J1010

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Document Status and Review Schedule

Report No.	Date	Status	Reviewed by
J1010 A/2/F1	25 June 2021	Final	Toby Gibbs

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1 Introduction

Background

Aircraft Noise Regulation

1.0 Regulation (EU) 598/2014 (hereinafter referred to as 'Regulation 598') requires Ireland and other EU Member States to appoint a Competent Authority to regulate the noise situation at certain airports. Regulation 598 applies to airports with more than 50,000 civil aircraft movements per calendar year. Dublin Airport is the only airport in Ireland meeting this threshold. Fingal County Council (FCC) have been designated as the Competent Authority for the purposes of aircraft noise regulation at Dublin Airport. FCC have, to fulfil their function with regard noise management, created an independent division, the Aircraft Noise Competent Authority (ANCA), which discharges FCC's functions under Regulation 598 and the Aircraft Noise (Dublin Airport) Regulation Act 2019 (hereinafter referred to as the '2019 Act').

1.1 Under Regulation 598, ANCA must ensure that the noise situation at Dublin Airport is assessed in accordance with the Environmental Noise Directive (Directive 2002/49/EC) and by the adoption of the Balanced Approach. Regulation 598 requires ANCA to apply the Balanced Approach at those airports where a noise problem has been identified. The Balanced Approach is a policy of the International Civil Aviation Organization (ICAO), which has provided detailed guidance in ICAO Doc 9829, Guidance on the Balanced Approach to Aircraft Noise Management. Under Regulation 598, the Balanced Approach is applied where a noise problem at an airport has been identified. According to the ICAO guidance, it involves analysing various measures available to reduce noise which can be classified into four principal elements as follows:

- Noise at Source;
- Land-use Planning Management;
- Noise Abatement Operational Procedures;
- Operating Restrictions.

1.2 In addition to those elements specified in ICAO, Regulation 598 also requires ANCA, in the context of the Balanced Approach, to define a Noise Abatement Objective (NAO) for the airport, identify the measures available to reduce the noise impact, and evaluate thoroughly the cost-effectiveness of the noise mitigation measures. ANCA must then select the applicable noise mitigation measures without detriment to public safety and taking into account environmental sustainability (including interdependencies between noise and emissions), public interest in the development prospects of the airport, and consultation with stakeholders

in a transparent way. At the end of this process, ANCA must specify the noise mitigation measures and ensure they are implemented.

1.3 The 2019 Act gives further effect to Regulation 598 in Ireland. It provides for ANCA to discharge its functions under Regulation 598 on its own initiative or in response to any planning application by Dublin Airport Authority (daa) relating to (1) "any noise problem that would arise from the carrying out of the development as proposed" (Section 34B) or (2) "any noise problem that would arise from taking [a] relevant action as proposed" (Section 34C), whereby the 'relevant action' consists exclusively of the revocation, amendment or replacement of an operating restriction, with or without the introduction of new noise mitigation measures. ANCA discharges its functions under Regulation 598 and the 2019 Act by, among other things, making a 'regulatory decision' (hereinafter referred to as 'the RD').

How Regulation 598 will apply to the daa planning application

1.4 daa have made, on 18/12/20, a planning application (F20A/0668) (hereinafter referred to as the 'planning application') to FCC which proposes to amend Condition 3(d) and replace Condition 5 of Planning Permission Reg. Ref. No. F04A/1755 (ABP Ref. No. PL06F.217429) as amended by Fingal County Council F19A/0023 (ABP Ref. No. ABP-305289-19) (hereinafter referred to as the 'Dublin Airport North Runway Planning Permission') that was granted in 2007 to provide for new operating procedures. Specifically, these Conditions restrict the way the Airport can be operated during the night-time (2300-0700) after the construction of the new North Runway, including particularly by not allowing use of the North Runway, and by restricting the number of air traffic movements (ATMs), that are allowed during this period.

1.5 Section 34C of the Planning and Development Act 2000, which was introduced by the 2019 Act, deals with planning applications that seek only to modify noise-related operating restrictions. Such operating restrictions are regulated by EU legislation on aircraft noise (i.e. Regulation 598). In seeking to modify such operating restrictions, daa can seek to have noise mitigation measures imposed in place of or in addition to operating restrictions. Section 34C requires the planning authority to refer such applications to ANCA, which must apply the Balanced Approach to the data and proposals made by daa.

1.6 Pursuant to Section 34C, the planning authority has referred the planning application to ANCA and has consulted with ANCA in relation to any noise problem that could arise from the planning application. ANCA has explored this through its report 'Ascertaining a Noise Problem at Dublin Airport', concluding that "the proposed development may significantly influence the evolving noise climate at Dublin Airport to the extent that presents a noise problem that requires detailed assessment." The following reasons were given:

- "The Application proposes an increase in aircraft activity at night, when referenced against the situation that would otherwise pertain, which may result in higher levels of human exposure to aircraft noise."
- "The Application proposes a situation where some people will experience elevated levels of night-time noise exposure for the first time which may be considered harmful to human health."
- "The EIAR accompanying the Application indicates that the proposed Relevant Action will give rise to significant adverse night-time noise effects. This indicates that the noise effects of the Proposed Development are a material consideration. Mitigation in the form of a night-time noise insulation scheme is proposed by the Application. The provision of such mitigation is an indicator that the Proposed Development may give rise to a Noise Problem."

1.7 A noise problem arising from the planning application has consequently been declared by ANCA, through delegated authority from the Chief Executive of FCC (CE Order: ANCA/002/2021).

1.8 ANCA can require daa to carry out such assessments and give to it such information or plans arising from such assessments, or to give to it such other information or plans as it may reasonably require for the purposes of making the RD. ANCA must also give notice to the planning authority and daa of the noise mitigation measures and operating restrictions it intends to provide for in the RD before adopting the RD. The planning authority and daa may then make comments and observations and make counterproposals. ANCA must take those into account and apply the Balanced Approach to the counterproposals.

1.9 ANCA must then publish a draft regulatory decision ('RD') and an underlying report for public consultation. The underlying report must include a summary of the data examined, the NAO, the noise mitigation measures considered, an evaluation of their cost-effectiveness, a summary of how ANCA applied the Balanced Approach, the alternative measures that have been considered, the noise mitigation measures and operating restrictions actually proposed, the reasons for those measures, any relevant technical information in that regard, and a non-technical summary of the foregoing. ANCA must take account of all submissions and observations made in that public consultation and revise the draft RD and underlying report if necessary, before making the final RD.

1.10 The RD can impose the operating restrictions and noise mitigations measures sought by daa, or it can impose other operating restrictions and noise mitigation measures. There is no requirement for the RD to mirror exactly the proposals made in the planning application. If ANCA believe that the RD needs to, for example, consider alternative options or cover a wider breadth of operating procedures to that proposed within the planning application they have the

ability to do so. Equally, if ANCA believe it to be appropriate, they can extend the RD to consider more than simply the proposals made in the application, for example to be extended so that a wider range of noise related measures and/or forecasts are considered.

1.11 When ANCA makes the final RD post-consultation, the planning authority will then consider the planning merits of the application, including Environmental Impact Assessment (EIA) and Appropriate Assessment if required. The planning authority must then incorporate the RD in any planning permission granted and, if necessary, revoke, replace or amend the conditions of any previous planning permission to make it consistent with the RD.

1.12 In this way, Section 34C gives effect to the provisions of Regulation 598 which applies to operating restrictions, such as Conditions 3(d) and 5 of the Dublin Airport Northern Runway Planning Permission, that were pre-existing when the Regulation was introduced. Article 14 of Regulation 598 provides that those operating restrictions shall remain in force until a CA, like ANCA, decides to revise them in accordance with the Regulation.

1.13 The planning permission incorporating the RD may be appealed to An Bord Pleanála by the parties normally entitled to make such appeals, as well as by any party who made a submission or observation in the public consultation on the RD.

1.14 If the RD introduces a new operating restriction, it must be notified to the European Commission and other Member States. The European Commission may review whether the Balanced Approach was properly applied in imposing the operating restriction.

Need for Strategic Environmental Assessment

1.15 Directive 2001/42/EC (hereinafter referred to as the SEA Directive) requires Member States to ensure that certain plans and programmes are subject to a requirement for Strategic Environmental Assessment ('SEA'). Statutory Instrument (S.I.) No. 435/2004 - European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (2004) (hereinafter referred to as the SEA Regulations) transpose this Directive into Irish legislation.

1.16 In terms of the requirement to carry out environmental assessment, the SEA Regulations state:

> *'9. (1) Subject to sub-article (2), an environmental assessment shall be carried out for all plans and programmes (a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications and tourism, and which set the framework for future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive, or (b) which are not directly connected with or necessary to the management of a European site but, either individually or in combination with other plans, are likely to have a significant effect on any such site.*

(2) A plan or programme referred to in sub-article (1) which determines the use of a small area at local level or a minor modification to a plan or programme referred to in sub-article (1) shall require an environmental assessment only where the competent authority determines that it is likely to have significant effects on the environment and, for this purpose, the competent authority shall make any necessary determination.

(3) A competent authority shall determine whether plans and programmes other than those referred to in sub-article (1), which set the framework for future development consent of projects, are likely to have significant effects on the environment.'

1.17 A 'development consent' in Irish law includes a planning permission for projects listed in Annexes I and II to the EIA Directive.

1.18 The RD that will be made in response to the planning application relates to transport. Even though the RD will be incorporated into an individual planning permission, it may impose operating restrictions and mitigation measures that will determine whether or not future planning applications for development consent at the airport potentially give rise to the potential for a noise problem. It thereby guides the decisions that ANCA and the planning authority will make on those future applications. It also results from an assessment against an NAO; it cannot be more restrictive than necessary to achieve the NAO. Accordingly, the NAO and RD may set the framework for future development consent of projects listed in Annexes I and II to the EIA Directive, including changes or extensions to airfields and airports with a basic runway length of 2,100 metres or more. The 'Plan' addressed through this SEA Scoping Report therefore comprises the NAO and the RD, as two interlinked components, the NAO setting a framework for the RD, which in turn sets the framework for future applications for planning permission at the airport.

1.19 The specific purpose of SEA is to ensure that early consideration is given to environmental aspects when a plan or programme is in development. However, a plan or programme that determines the use of a small area at local level or a minor modification to a plan or programme only requires SEA if implementation of the plan or programme is considered likely to lead to significant environmental effects. Determining whether significant effects are considered to be likely, and therefore whether SEA applies, is completed through a process known as Screening.

1.20 ANCA, in its role as CA, was required to make a Screening Determination on whether SEA applies. On 15 April 2021, having regard information provided in the SEA Screening Report, and submissions and observations provided by the prescribed Environmental Authorities, ANCA determined that there is potential for likely significant environmental effects to occur as a result of implementing the NAO and RD.

Purpose of this Report

1.21 With ANCA having determined that the Plan requires SEA , this SEA Scoping Report has been produced to set out the proposed scope of the detailed environmental assessment that will be documented within the SEA Environmental Report itself and to facilitate consultation with the prescribed Environmental Authorities in that regard.

1.22 Pursuant to the SEA Regulations, ANCA must include in its notice to the prescribed Environmental Authorities a statement that the Environmental Report (to be produced at the next stage of the SEA process) is required to include the level of detail that may reasonably be required taking into account:

- Current knowledge and methods of assessment;
- The contents and level of detail in the plan or programme, or modification to a plan or programme;
- The stage of the plan or programme, or modification to a plan or programme, in the decision-making process; and
- The extent to which certain matters are more appropriately assessed at different levels in the decision-making process in order to avoid duplication of environmental assessment.

1.23 This SEA Scoping Report has already had regard to the submissions made by the Environmental Authorities at the Screening stage, and, in line with the SEA Process Checklist (EPA, 2008) / SEA Pack (Updated 2020), also includes the following information:

- Details of the geographical area involved including a referenced and scaled map of the area;
- An outline description of the Plan including its intended lifespan;
- The likely scale, nature and extent of the area affected by the proposed Plan during the lifespan of the Plan (in broad terms);
- Details of the legislation and planning policy that applies;
- Alternatives that have been or will be considered, potentially including reference to the options also detailed;
- The predicted 'scoped in' significant effects of the Plan and those that are proposed to be 'scoped out' with justification for why they are scoped out;
- An overview of the approach that will be taken to assemble further baseline data to support the SEA and the methodology that will be used to assess significance.

1.24 In addition, consideration has been paid as to whether there could be, with other Plans as might be relevant, any cumulative environmental effects.

1.25 In order to meet the requirements of the SEA Regulations, and therefore the SEA Directive, certain environmental aspects have been considered (as listed in Schedule 2 of the SEA Regulations). The table below notes which chapter will cover them, both at the Scoping Report and Environmental Report stages:

Table 1.1: Coverage of environmental factors

S.I. environmental 'factors'	Aspect chapter where covered
Biodiversity	Biodiversity
Population	Population and Health
Human Health	Air Quality; Noise and Vibration; Population and Health; In Combination with specific Health section (Environmental Report only)
Fauna	Biodiversity
Flora	Biodiversity
Soil	Geology, Soils and Land Use
Water	Water and Hydrology
Air	Air Quality
Climatic Factors	Carbon and Climate Change
Material Assets	Material Assets
Landscape	Landscape and Visual
Cultural Heritage including Architecture and Archaeological Heritage	Cultural Heritage
Interrelationships between the above factors	In Combination (Environmental Report only)

From Schedule 2 of SEA Regulations S.I. 435/2004.

1.26 Consultation, through provision of this SEA Scoping Report, will be undertaken with the Environmental Authorities (listed below) to seek to gain agreement on the specific scope and method for the detailed assessment which will be detailed in the SEA Environmental Report.

- The Environmental Protection Agency (EPA);
- The Minister for Agriculture, Food and the Marine;
- The Minister for Environment, Climate and Communications;
- The Minister of Tourism, Culture, Arts, Gaeltacht, Sport and Media (acknowledging that the transfer of SEA functions to the Minister of Housing, Local Government and Heritage is contemplated shortly).

Related Environmental Assessments

1.27 Statutory Instrument (S.I.) No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations (2011), which transposes the EU Habitats Directive (92/43/EEC) into Irish law, requires that 'Appropriate Assessment' (AA) be carried out where a plan is likely to have a significant impact on a European site. European sites are commonly referred to as Natura 2000 sites and include Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). Each of these sites is designated because of their specific biodiversity value: for SPAs this is because of their value for wild birds; for SACs, it is because of the important habitats and species that they support. AA is required if it cannot be excluded, on the basis of objective scientific information following screening, that the plan, individually or in combination with other plans or projects, will have a significant effect on a European site. As with SEA, in determining this, a Screening exercise is undertaken to establish whether the potential for such exists.

1.28 AA Screening is therefore being undertaken broadly concurrently, but separately, to SEA Scoping. Where AA is required, ANCA will publish a Natura Impact Report at the same time as the NAO, RD and SEA Environmental Report for public consultation.

1.29 The process of aircraft noise regulation through the 2019 Act is summarised alongside the SEA and AA processes in Figure 1.1 below.

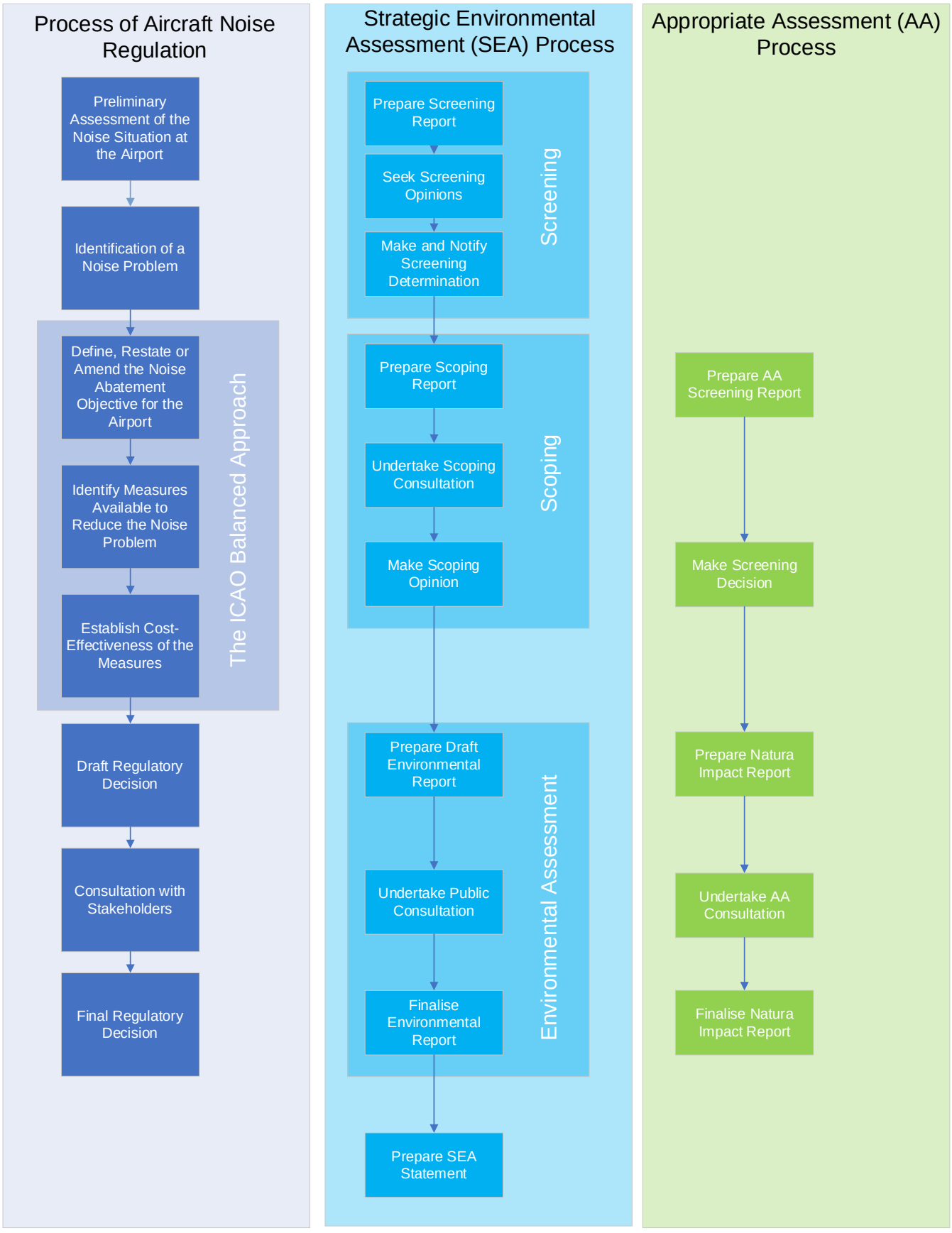

Figure 1.1: The concurrent processes of Aircraft Noise Regulation, SEA and AA

1.30 Separately to the SEA and AA potentially being carried out for the NAO and RD, the planning application submitted by daa has also undergone both EIA and AA Screening. The planning authority must have regard to the EIA Report and AA Screening Report submitted by daa when deciding whether permission should be granted for the development. ANCA may take account of the EIA Report and AA Screening Report submitted by daa in the drafting of the NAO and RD, however must also be mindful that these were prepared for the purposes of the planning application, rather than the processes undertaken by ANCA in setting the NAO or making the RD .

Consultant Team

1.31 This Report has been prepared by Logika Consultants Ltd. ('Logika'), part of the Noise Consultants Ltd. Consultant Team engaged to provide expert support to ANCA in setting the NAO and making the RD. Specifically Logika are responsible for providing SEA and AA input to the NAO and RD process.

2 Description of the Plan

Site Location

2.1 As stated in the National Aviation Policy, Dublin Airport has the potential to become an established secondary hub of European significance, with routes to over 200 different destinations, served by nearly 50 airlines. In 2019 a total of 32.9 million passengers used the Airport and its 241,000 ATMs. Dublin Airport is currently served by one main runway and a further cross runway which is used less frequently. It has two terminals, operates 24 hours a day, and for 364 days a year. As with all major airports, it relies on considerable additional infrastructure including an extensive bus network and car parking facilities.

2.2 Dublin Airport is located on the east coast of Ireland, see Figure 2.1, in Collinstown, in County Dublin in the administrative area of FCC. It lies approximately 7km north of Dublin City Centre, and between the City and the Airport lies mostly development. The area north of the Airport is also mainly developed all the way to the conurbation of Swords which lies approximately 3km to the north. In an easterly direction from the Airport is found a mixture of farmland and other open space, with scattered development all the way to the coast and thesettlement of Portmarnock which lies approximately 5km from the Airport itself. West of the Airport is characterised by being mainly undeveloped and comprising mostly farmland and other forms of open space.

2.3 The Airport is accessed by the M1 motorway, which provides access from Dublin itself and from areas to the north as far as Belfast in Northern Ireland. The M50 Dublin ring road connects with the M1, and from this there are road connections to the rest of Ireland.

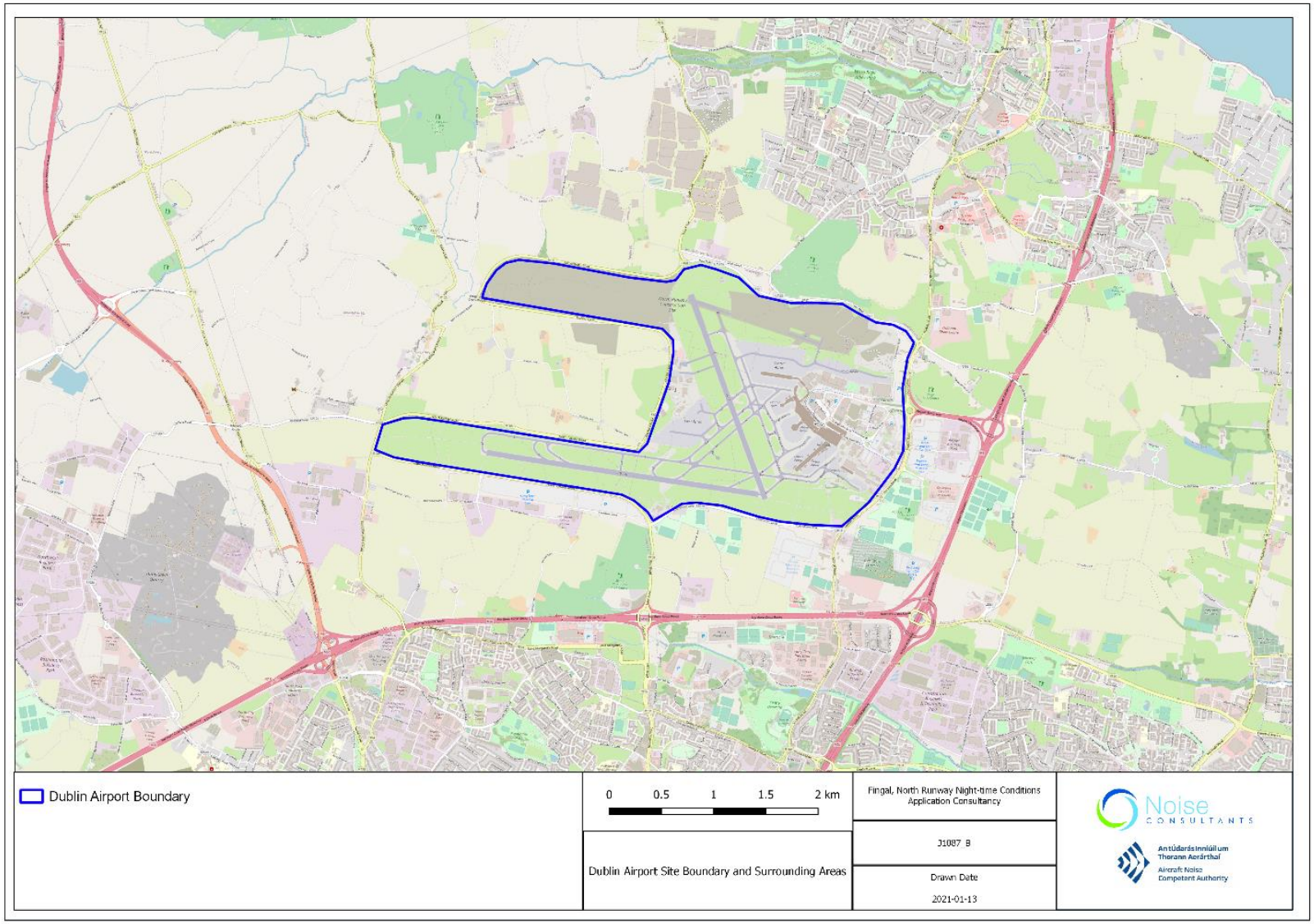

Figure 2.1: Dublin Airport site location

Plan Description

2.4 As stated in the previous chapter, where ANCA identifies a noise problem at Dublin Airport, an NAO must be defined in order to apply the Balanced Approach, including identification of the measures available to reduce the noise impact, and the cost-effectiveness of these measures. The noise problem that will be triggered by the development proposed in the planning application must then be assessed in the context of the NAO, culminating in ANCA making an RD . The 'Plan' addressed through this SEA Scoping Report therefore has two components: the NAO (focused on noise outcomes) and the RD (focused on noise mitigation measures and if necessary, operating restrictions which seek to secure the noise outcomes set by the NAO). ANCA is preparing the NAO and RD as two separate outputs of an interlinked process. These are described separately below.

2.5 Common to both the NAO and the RD are the assumptions made regarding the SEA. Firstly, the baseline situation assumed for the SEA is what would have occurred without the planning application, NAO or RD being implemented, i.e. annual passenger numbers not exceeding 30.9 mppa (unless, in the absence of the RD, daa later identify that they could achieve 32 mppa) and associated levels of ATMs – for more detail on this, see para. 2.18 below. Secondly, as only the management of aircraft noise lies within ANCA's remit, any associated growth in ATMs/passenger numbers leading to indirect impacts on road traffic or the need for construction of airport infrastructure is beyond the scope of this SEA. ATM and passenger growth up to 2050 has previously been dealt with through the SEA of the Dublin Airport Local Area Plan (FCC, 2019), whilst on-the-ground impacts will be considered in future through a more appropriate consenting mechanism, i.e. as a result of EIA via the planning approval process.

Consideration of Alternatives

2.6 Consideration of reasonable alternatives is a key feature of the SEA process as defined by the SEA Directive and the SEA Regulations. In practical terms, it refers to possible alternative mechanisms for delivering the objectives of the Plan, and the assessment of the impacts of each of these options against the SEA objectives.

2.7 The Guidance on Alternatives in SEA (EPA, 2015) recognises that it is not for the SEA to decide on the options to be considered. Instead the SEA should focus on the alternative delivery options actually considered in the preparation of the Plan. These should be identified by ANCA as the body responsible for drafting the Plan (i.e. for both the NAO and RD).

2.8 The alternative approaches for delivering the NAO and RD are currently being developed by ANCA. These are also described in the following sections.

The Noise Abatement Objective

2.9 ANCA's powers and obligations to define an NAO arise from Regulation 598 and, while they are exercised in parallel with the planning process in this instance, the NAO is not constrained by the terms of the planning application. As stated in para. 1.4 of this report, ANCA may define a narrow NAO that responds only to planning application submitted to the planning authority under section 34B or 34C of the 2019 Act. Alternatively, ANCA may develop an NAO which is broader in its remit . The result of this latter approach could be that the NAO itself becomes an overarching policy or plan which presents aspirations for the sustainable development of Dublin Airport. ANCA has examined several alternative approaches to defining the NAO. These are as follows:

1) The NAO is developed in the context of the daa planning application, based on the same timeframes (up to 2025) and the same overarching restrictions (i.e. the 32 million passengers per annum (mppa) passenger cap).

2) The NAO is developed in the context of the daa planning application, with the same overarching restrictions (i.e. the 32 mppa passenger cap), but taking a longer term perspective, e.g. up to 2030, 2040, or even 2050.

3) The NAO is developed as an overarching plan or policy that sits above both this and future planning applications, designed to complement other published policies which present scenarios for the sustainable development of Dublin Airport to a 40 mppa operation in 2030 and a c.55 mppa operation from 2050, through further terminal development and infrastructure.

2.10 If the last of these approaches is adopted, the NAO may therefore permit certain noise outcomes which may facilitate planning applications for future growth, be that an increase in ATMs/passenger numbers and/or any associated infrastructure works, without any alteration in the NAO. However, any such growth could only occur if these outcomes are met and would additionally be subject to planning permission and, where applicable, a formal EIA process. In that case the NAO may set a framework for future planning permissions, but any permission could be granted or refused within that framework if found to be unacceptable to the planning authority. Consequently, as stated above in para 2.5, even if this alternative approach is taken forward, only impacts resulting from the management of aircraft noise will be assessed through the SEA, as on-the-ground impacts lie beyond ANCA's remit and will be addressed through EIA of future proposed developments.

2.11 Regardless of the alternative approach taken, there are some commonalities in terms of what the NAO needs to do, and what are likely to be its key components. The purpose of an NAO is to set the level of ambition for a noise management regime that secures both environmental improvement and a sustainable transport network. In addition, an NAO should aim to unite

multiple stakeholder interests around a common purpose. Different interest groups are however likely to have their own principal expectations for the NAO. These are that it should:

- Use clear accessible language;
- Provide a level of certainty by setting realistic outcomes and/or expectations of change;
- Ensure the desired outcomes are measurable, and the metrics used are evidence based and credible with stakeholders;
- Provide opportunities for sustainable growth and protect the health of those affected;
- Recognise the need for review having regard for performance and changing circumstances; and
- Recognise the balance between the needs of different stakeholder groups.

2.12 Though still in the early stages of drafting the NAO, ANCA has determined that the key components of the NAO are likely to be those set out and described in Table 2.1 below.

Table 2.1: Key components of the emerging NAO

Element	Description
Part 1: Policy Objective	Having identified a noise problem this statement should detail the ambition against a stated baseline i.e. the resolution. This could be a visionary or focused ambition. If the former, its objective requires an interim timebound "priority or target statement" to provide the necessary focus for identifying measures, the noise action planning process[1] etc.
Part 2: Explanation	Explanatory text which should clarify that overall impacts which will be within the envelope, set by the situation, in the baseline period, but not necessarily for individuals. It should identify the impacts and effects being considered e.g. the number of people who are highly sleep disturbed or highly annoyed. It should clarify the general expectation and timeframe that effects will be limited, reduced, removed or improved.
Part 3: Measuring Performance	This should set out the mechanism and assumptions used to calculate outcomes of interest. For example, the specific noise contours and metrics used to determine particular health effects. It could extend / define measures that link to other certain measures i.e. average aircraft quota counts. It could even define the

[1] Noise action planning is required in relation to environmental noise issues and effects arising from road traffic, railways, major industrial sites and aircraft departing from and arriving at airports, through the Environmental Noise Regulations 2006, S.I. No. 140, which transposes the Environmental Noise Directive 2002/49/EC.

	population base and other parameters which define how the measurement should take place etc.
Part 4: Expected Outcomes	This should detail the specific outcomes of interest and the expected change over the lifetime of the objective (or if visionary the interim target or goal). This could be the first target, but it could also be a trajectory defining progressive limits.
Part 5: Progress Reporting	This should set out how data will be independently verified and reported to interested stakeholders. In the case of Ireland there is a clear role for ANCA and FCC in their Competent Authority roles for noise management at Dublin Airport[2].
Part 6: Review	This could describe how, when and/or under what circumstances the objective would be reviewed. For example, it could be every 5 or 10 years in line with the Noise Action Plan cycles and, as part of development applications as per the Act.

2.13 Given that ANCA is in the early stages of drafting the NAO, and that the preferred alternative has not yet been chosen, all the measures which could be potentially included within the NAO are therefore subject to scoping for SEA. Consistent with the precautionary principle, the scoping in and out of environmental aspects undertaken in Chapter 5 therefore considers the widest possible breadth of any NAO that could be made.

The (Draft) Regulatory Decision

2.14 The Dublin Airport North Runway Planning Permission is a ten year permission to allow development of a new North Runway at Dublin Airport by daa. Extension of the duration of the permission was granted in 2017 (F04A/1755 E1). This project is currently under construction with, according to the daa application, a scheduled opening date of 2022.

2.15 The planning permission associated with the second runway was subject to 31 planning Conditions. The recent planning application made by daa proposes to have two of these replaced by different operating procedures. The two Conditions in question are:

- Condition 3(d) which prohibits the use of North Runway for landings and take-offs between the hours of 23.00 and 07.00.
- Condition 5 which states that, on completion of construction of the new runway, the average number of night-time aircraft movements at the airport shall not exceed 65 per night (between 23.00 and 07.00) when measured over the 92 day modelling period.

[2] ANCA is the Competent Authority for applying the Balanced Approach, whilst FCC is the Competent Authority for preparing Noise Action Plans.

2.16 daa seek, through a Section 34C application, to take a 'Relevant Action[3]' to revoke and replace these operating restrictions. The proposals would allow for scheduled North Runway operations between the hours of 0600-0659 and 2300-2330 to occur, and for the restriction to an average of 65 night-aircraft movements at the airport to be lifted. In its place is proposed a set of noise-related operating restrictions, specifically in the form of a Noise Quota Count and mitigation measures, namely a noise insulation retrofit scheme for affected dwellings.

2.17 The daa application will not require the development of new Airport or other associated infrastructure. It will though, change the distribution of arriving and departing ATMs across a 24-hour day, having the effect of allowing increased operations during the night-time period.

2.18 In addition, according to the daa application (Table 1-1, page 1-9 of the EIA Report, which is repeated in Tables 2.2 and 2.3 below), changing the night-time restrictions will also allow the Airport to operate at its consented maximum, this being to service 32 mppa which is the number of passengers at which the Airport is capped to operate at (as required by Condition 3 of daa's 'Terminal 2' planning application F06A/1248 and An Bord Pleanála 06F.220670, and Condition 2 of daa's 'Extension to Terminal 1' planning application F06A/1843 and An Bord Pleanála 06F.223469). Without these restrictions being changed, daa indicate that, in 2025, the Airport could not service more than 30.9 mppa. No further information is provided in the daa application on post-2025 and so it is assumed, for the purposes of this Scoping Report, that the 2025 situation continues in perpetuity. In other words, as mentioned in para. 2.5 above, the assumed baseline situation for the SEA is 30.9 mppa and associated levels of ATMs (or such other mppa as daa may indicate is achievable in any further information provided to ANCA or the planning authority).

Table 2.2: Annual passengers (mppa)

Year	Unconstrained (with conditions 3(d) and 5 amended)	Constrained (baseline situation)	Difference
2018	31.5	31.5	0.0
2019	32.9	32.9	0.0
2020	8.2	8.2	0.0
2021	20.7	20.7	0.0
2022	29.6	28.7	-0.9

[3] Under Section 34C a relevant action refers to: the revoking of an operating restriction; the amendment of an operating restriction; or the replacement of an operating restriction with another

2023	30.4	29.3	-1.1
2024	31.2	30.1	-1.1
2025	32.0	30.9	-1.1

Table 2.3: Annual ATMs (000s)

Year	Unconstrained (with conditions 3(d) and 5 amended)	Constrained (baseline situation)	Difference
2018	233	233	
2019	241	241	
2020			
2021			
2022	229	223	-5.8
2023	233	226	-7.1
2024	237	229	-7.1
2025	241	233	-7.8

2.19 ANCA has exclusive competence to impose, revoke, replace, or amend the terms of, an operating restriction.

2.20 In responding to the planning application, ANCA will need to have regard for the cost-effectiveness of measures aimed at addressing the noise problem resulting from the daa's proposals, whilst keeping overall noise at the Airport within the expected outcomes of the NAO. Through application of the Balanced Approach, ANCA will therefore consider a number of alternative approaches for addressing noise by way of an RD in the context of the NAO. Currently under consideration to form part of the RD are the following:

- Night-time runway operating preferences;
- Restrictions on runway access either through aircraft movement related limits, noise quota or contour restrictions;
- A noise insulation scheme;
- Mandates in relation to monitoring and reporting, for example, the Airport's noise performance; and

- Restating any other constraints (which may have underpinned, for example, conditions in existing planning permissions) such as the passenger cap.

2.21 daa's planning application is still in the process of being determined by ANCA and accordingly no decision has been taken in relation to the contents of any RD which may be proposed by ANCA. At this early stage, all the measures which could be potentially included within any RD are therefore subject to scoping for SEA. Consistent with the precautionary principle, the scoping in and out of environmental aspects undertaken in Chapter 5 therefore considers the widest possible breadth of any RD that could be made.

3 Policy Baseline

3.1 This chapter sets out details of relevant adopted national, regional and local planning policy and programmes, and considers whether any of these might have in-combination effects with the Plan.

3.2 The following consider and inform, at a strategic level and high level, future development, including passenger numbers and aircraft movement growth at Dublin Airport:

- National Aviation Policy for Ireland (Department of Transport, Tourism and Sport (DTTAS), 2015)
- Ireland's Action Plan for Aviation Emissions Reduction (DTTAS, 2019)
- Review of Future Capacity Needs at Ireland's State airports (DTTAS, 2018)
- Policy Statement on Runway Development at Dublin Airport (DTTAS, 2018)
- National Policy Statement on Airport Charges Regulation (DTTAS, 2017)
- National Planning Framework – Project Ireland 2040 (Government of Ireland, 2018)
- National Development Plan 2018-2027 (Government of Ireland, 2018)
- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031 (Eastern & Midland Regional Assembly, 2019)
- Transport Strategy for the Greater Dublin Area 2016-2035 (National Transport Authority, 2016)
- South Fingal Transport Study (FCC, 2019)
- Fingal Development Plan 2017-2023 (FCC, 2017, updated 2019)
- Meath County Development Plan 2013-2019 (Meath County Council, 2013)
- Dublin Airport Local Area Plan (FCC, 2020)
- Dublin Airport Central Masterplan (FCC, 2016)
- Dublin Airport Capital Investment Programme 2020+ (Dublin Airport, 2019)
- Dublin Airport Noise Action Plan 2019-2023 (FCC, 2018)

3.3 Given the potential breadth of the NAO and RD, development proposals mentioned in these plans relating to or in the vicinity of Dublin Airport will be considered within the SEA in terms of potential in-combination effects.

National Aviation Policy for Ireland (2015)

3.4 The National Aviation Policy aims to foster the growth of aviation enterprise in Ireland, and to develop Dublin Airport as a vibrant secondary hub airport. Section 4.5 of the Policy concerns the future capacity needs of Ireland's airports and states the following:

"Air transport requires a specific level of airport infrastructure, both in terms of quantity and quality, to facilitate the optimum level of air services for Ireland. This includes terminal and runway capacity as well as surface access to airports, and is particularly relevant to the development of Dublin Airport as a secondary hub."

"Existing capacity at State airports should be optimised in conjunction with timely planning to enable expansion of air service connections in all relevant markets delivering wider economic benefits for Ireland."

3.5 Specifically regarding Dublin Airport, Action 4.5.1 states the following:

"The process to develop the second runway at Dublin Airport will commence, to ensure the infrastructure necessary for the airport's position as a secondary hub and operate to global markets without weight restrictions is available when needed."

3.6 The National Aviation Policy also mandates Dublin Airport "to carry out reviews of capacity constraints and infrastructure needs at five yearly intervals".

3.7 In terms of environmental requirements, the National Aviation Policy sets out a need for technology improvements in aircraft and engine design to help combat aviation emissions; for effective land-use planning to balance the operational needs of airports with protection for local residents and amenities; and for implementation of the Balanced Approach to noise management at Irish airports.

Ireland's Action Plan for Aviation Emissions Reduction (2019)

3.8 The Action Plan contains no references to airport growth per se, but instead focuses on environmental requirements to mitigate the adverse environmental impacts of such growth. For example, the development of measures to promote the use of more energy efficient aircraft. The Plan references other measures implemented at Dublin Airport that have reduced fuel burn, CO_2 emissions and noise, including Point Merge (an air traffic control technique, used since 2012); Continuous Descent Approach (also 2012); and High Intensity Runway Operations (introduced in 2018). The Plan also states that Dublin Airport intends to become carbon neutral under the Airport Carbon Accreditation Scheme by 2020 (which was achieved at the end of that year).

Review of Future Capacity Needs at Ireland's State airports (2018)

3.9 The Review suggests that Dublin Airport will reach a number of capacity constraints in the near future. For example, additional stands will be required from 2025, whilst greater internal capacity (gates, baggage reclaim, check-in etc) will be needed at T1 and T2 from as early as 2020. It also notes that the road system around Dublin Airport is already under pressure at peak times, in terms of traffic volumes and speeds – particularly the M1, R132 and R108.

3.10 Looking longer term, the Review sets out a baseline scenario of 2% annual passenger growth that would mean Dublin airport is expected to reach 54 mppa by 2050. At the same time, 1.7% annual growth is expected in terms of ATMs, resulting in 365,000 ATMs by 2050.

3.11 As a result of this expected growth, the Review suggests that incremental expansion of T1 and T2 will therefore be needed to support 40 mppa by 2030, and a third terminal may be required beyond that. Runway capacity constraints are also possible beyond 400,000 ATMs – which could happen as early as 2050 – requiring a third runway.

3.12 In terms of environmental requirements, the Review states that determining the location for a potential third terminal should include consideration of natural landscape features which need environmental protection, such as rivers. Meanwhile, surface access issues in the wider road network would suggest locating any additional terminal in the western part of the airport.

Policy Statement on Runway Development at Dublin Airport (2018)

3.13 This repeats the aims of the National Aviation Policy, i.e. that the Irish Government supports the building of a second runway at Dublin Airport and the development of the Airport as a hub airport. In terms of environmental requirements, the Policy Statement reveals that the Government is required to ensure full compliance with EU Regulation 598/2014 which governs the imposition of noise-related operating restrictions at airports. It additionally states that FCC must set out noise mitigation measures or abatement objectives for Dublin Airport to follow (in accordance with the ICAO Balanced Approach), and oversee the implementation of any such measures by the daa.

National Policy Statement on Airport Charges Regulation (2017)

3.14 The Policy Statement seeks to ensure (amongst other things) that continued economic development/airport capacity is in the best interests of the customer/consumer and in the national interest. In terms of environmental requirements, the Policy Statement requires the Regulator to have regard to Government policy on climate change and sustainability as part of the regulatory determination process. This is to ensure that future airport capacity development is advanced in accordance with the broad objectives of the National Mitigation Plan, which aims to enable transition to a low carbon, climate-resilient and environmentally sustainable economy by 2050.

National Planning Framework – Project Ireland 2040 (2018) (NPF)

3.15 The NPF is designed to improve the effectiveness of public investment in infrastructure and other relevant services in Ireland including the enhancement of regional and international connectivity. In addition to supporting the development of the North Runway, the NPF places importance on the following:

> *"Improving access to Dublin Airport, to include improved public transport access, connections from the road network from the west and north and in the longer term, consideration of heavy rail access to facilitate direct services from the national rail network in the context of potential future electrification."*

National Development Plan 2018-2027 (2018)

3.16 The National Development Plan supports the implementation of the NPF and also the National Aviation Policy, with particular reference to the importance of significant investment in the North Runway.

Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031 (2019)

3.17 The Regional Spatial and Economic Strategy supports the aims of the national plans with regard to the growth of movements and passengers at Dublin Airport. In particular, it supports the development of the North Runway, improved terminal facilities and other infrastructure relating to improving access to the airport via a variety of transport modes. In terms of environmental requirements, the Strategy requires integration of recommendations and proposed mitigation measures arising from SEAs, AAs and Flood Risk Assessments into policies and developments, underpinned by a regional green infrastructure and ecosystem services approach.

Transport Strategy for the Greater Dublin Area 2016-2035 (2016)

3.18 Serving Dublin Airport with a high-capacity, reliable and frequent public transport service to Dublin City Centre and improved public transport network connectivity at a national level is a priority for the Transport Strategy. Specifically, it is intended to further develop the light rail network with an underground link from the south city centre to Swords and Dublin Airport.

South Fingal Transport Study (2019)

3.19 The Study repeats the aims of the national plans with regard to the growth of movements and passengers at Dublin Airport. In addition, it refers to the daa's Airport Masterplan, which suggests that Dublin Airport is forecast to grow to 55 million passengers by 2040 (higher than the figure set out in the Review of Future Capacity Needs).

Fingal Development Plan 2017-2023 (2017) (FDP)

3.20 The FDP proposes a broad suite of sustainable development across the county, covering residential, employment, economic, infrastructure and transport development. With regards to Dublin Airport, it seeks to:

"Safeguard the current and future operational, safety, and technical requirements of Dublin Airport and provide for its ongoing development within a sustainable development framework of a Local Area Plan."

3.21 More specifically, Objective ED31 of the FDP seeks to "Ensure that the required infrastructure and facilities are provided at Dublin Airport so that the aviation sector can develop further and operate to its maximum sustainable potential". Objective ED31 then expands on its reference to 'sustainable' by setting out the environmental requirements for such infrastructure, specifically "taking into account the impact on local residential areas, and any negative impact such proposed developments may have on the sustainability of similar existing developments in the surrounding area, and the impact on the environment, including the climate."

Meath County Development Plan 2013-2019 (2013)

3.22 The Development Plan contains no references to airport growth per se, but instead focuses on environmental requirements to mitigate the adverse environmental impacts of such growth. Specifically it seeks to restrict development which would give rise to conflicts with aircraft movements on environmental or safety grounds on lands in the vicinity of Dublin Airport and on the main flight paths serving Dublin Airport.

Dublin Airport Local Area Plan (2020) (LAP)

3.23 The strategic aims of the Dublin Airport LAP include supporting the continued sustainable growth of Dublin Airport, as well as timely delivery of required infrastructure to facilitate airport growth. In addition, the LAP sets the baseline passenger and ATM forecasts for Dublin at 40 mppa and 265,000 ATMs by 2030, and 54 mppa and 365,000 ATMs by 2050 (the same figures as those in the Review of Future Capacity Needs). The LAP also refers to the Review's identification of the need for a third terminal to facilitate growth beyond 40 mppa, and suggests a target date of 2031 for the delivery of such.

3.24 Achieving the passenger and ATM forecasts is dependent on the following key infrastructure, as outlined in the LAP: "Improved surface access; Expanded terminal capacity by way of reconfiguration and augmentation of existing facilities (at T1 and T2); Completion of the North Runway; [and] Additional aircraft parking stands supported by accompanying boarding gate and aircraft piers, particularly in the context of growing the hub function of the Airport."

Dublin Airport Central Masterplan (2016)

3.25 The Masterplan refers to a study on future aviation demand growth which suggests a doubling of aviation demand by 2050. As such it promotes and supports the role of Dublin Airport as the primary gateway to Ireland, and as an important employment hub and business location in the region. It does this through proposing land use planning which facilitates future airport capacity needs as well as improved transport linkages to the city and region. Otherwise the Masterplan comprises a framework for the future development of lands located adjacent to Dublin Airport (for commercial purposes), covering an area of 21.7 hectares.

3.26 In terms of environmental requirements, the Masterplan seeks to progressively improve the character and image of the subject lands through a landscaping and public realm improvement strategy combined with the redevelopment and refurbishment of existing buildings and the provision of new office buildings.

Dublin Airport Capital Investment Programme 2020+ (2019)

3.27 The Capital Investment Programme responds to the capacity constraint issues highlighted through the Review of Future Capacity Needs. In particular it refers to the following operational processors as critically requiring immediate enhancement: Contact and Bus Gates, Stands, T1 and T2 Check-in, T1 and T2 Central Search, US Preclearance Facilities, T1 Baggage Reclaim, T1 and T2 Immigration and Transfer Facilities, T1 and T2 Departure Lounge and Hold Baggage Screening, Long-Term and Short-Term Car Parking, and T1 Kerbs.

3.28 In terms of environmental requirements, the Capital Investment Programme states that “Ireland will implement a ‘Balanced Approach’ to noise management at Irish airports in accordance with Regulation (EC) No. 598 of 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports”. It also states that any development at Dublin Airport must meet the statutory compliance requirements in relation to the disposal and treatment of surface water run-off, particularly regarding the contamination brought about by pavement and aircraft de-icing required for safe operations.

Dublin Airport Noise Action Plan 2019-2023 (2018)

3.29 The Noise Action Plan contains no references to airport growth per se, but instead focuses on environmental (i.e. noise) requirements to mitigate the adverse environmental impacts of such growth. Specifically it seeks “to avoid, prevent and reduce, where necessary, on a prioritised basis the harmful effects, including annoyance, due to long term exposure to environmental noise from road traffic, rail and aircraft.”

In-combinations effects with the NAO and RD

3.30 The proposals within the NAO and RD will be complementary to and in accordance with those mentioned in the aforementioned plans, and so no additional effects are considered likely to occur as a result of the NAO and RD that have not already been covered elsewhere. However, there is a possibility of in-combination environmental effects with other developments proposed in the surrounding area (as listed within the FDP), which will need to be considered in more detail within the SEA.

4 Environmental Baseline

4.1 Schedule 2 of the SEA Regulations specifies that the Environmental Report must contain the following information in respect of baseline conditions:

"(b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.

(c) The environmental characteristics of areas likely to be significantly affected.

(d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive."

4.2 For each of the environmental aspects listed in Table 1.1, this chapter describes the nature, value and vulnerability of the area potentially affected by the proposed Plan during its lifespan. A summary of the current state of the environment in respect of each of the environmental aspects is therefore provided below, along with likely future environmental conditions without the Plan.

4.3 As revealed in Chapters 1 and 2, ANCA's remit is focussed on aircraft noise and the purpose of the NAO and RD is to introduce measures to reduce the noise problem identified at Dublin Airport, . The area potentially affected by the Plan therefore relates to aircraft and associated outcomes (e.g. from overflying) within the vicinity of Dublin Airport. For each environmental aspect, a Zone of Influence (ZoI) has been identified and, except where wider contextual info is useful, baseline data gathered relates to that ZoI. In general each ZoI relates to the possible impacts of overflying, as ground operations or land-based development are outside of ANCA's remit. Where appropriate, Geographic Information Systems (GIS) have been used to assist with analysis of this data (including the EPA's web-based mapping tools); and maps have been produced to display relevant spatial information.

4.4 Information for this chapter has been obtained from the 'State of the Environment Report – Ireland's Environment 2020' (EPA, 2020); the EIA and AA Screening reports relating to the daa planning application F20A/0668 (AECOM, 2020); the SEA and AA reports relating to the FDP and the Dublin Airport LAP (published by FCC in 2017 and 2019 respectively); Government websites such as those of the EPA and National Parks & Wildlife Service (NPWS); and other documents as referenced below.

Air Quality

Key policy context

4.5 EU directives set baseline standards for monitoring air quality and reducing emissions in Ireland. The National Emission Ceilings (NEC) Directive (2016) set emissions reduction

commitments for 2020 and 2030, based on a reduction from 2005 emissions, for the five main air pollutants. The NEC Directive also requires that Member States, including Ireland, draw up a National Air Pollution Control Programme (NAPCP) to help implement air quality plans established under the Ambient Air Quality Directives (2008/50/EC and 2004/107/EC). The Ambient Air Quality Directives set standards for 13 air quality pollutants that have an impact on human health and vegetation. When a Member State exceeds a limit value for a pollutant, it is required to prepare an air quality plan detailing the measures that the Member State will take to bring the pollutant levels back under the limit value.

4.6 The Department of the Environment, Climate and Communications (DECC) has responsibility for ensuring that Ireland meets its air quality obligations under EU/international legislation and agreements. DECC is preparing a National Clean Air Strategy (NCAS) as part of a wider NAPCP, to promote clean air policies (relating to transport, energy, home heating and agriculture) to enhance and protect the quality of Ireland's air.

4.7 Also at a national level, NPO 64 of the NPF (2018) seeks to *"Improve air quality and help prevent people being exposed to unacceptable levels of pollution in our urban and rural areas through integrated land use and spatial planning that supports public transport, walking and cycling as more favourable modes of transport to the private car, the promotion of energy efficient buildings and homes, heating systems with zero local emissions, green infrastructure planning and innovative design solutions."*

4.8 At a local level, the Dublin Regional Air Quality Management Plan 2009-2012 (2009; yet to be updated) contains objectives for the four local authorities in the area to:

- *"Improve coordination of our efforts and build on the good work to date;*
- *Mainstream air quality management into all major policy areas;*
- *Strengthen evidence based decision making by improving how we share information on air quality;*
- *Lead by example with measures related to local authority activities that will reduce emissions;*
- *Identify and prioritise tackling main potential threats to air quality; and*
- *Provide clear time-bound criteria for the achievement of objectives."*

4.9 The FDP (2017) contains one policy exclusively on air quality. It seeks, through Objective AQ02, to *"implement the recommendations of the Dublin Regional Air Quality Management Plan (or any subsequent plan) and any other relevant policy documents and legislation in order to preserve good air quality where it exists or aim to improve air quality where it is unsatisfactory."* In relation to the Airport specifically, Objective DA18 seeks to *"ensure that*

every development proposal in the environs of the Airport takes account of the current and predicted changes in air quality, greenhouse emissions and local environmental conditions". Other policies are likely to impact on air quality indirectly, for example policies encouraging the use of sustainable transport.

4.10 The Dublin Airport LAP (2020) also sets out a number of objectives for air quality, drawn directly from the FDP. For example, Objective AQ02 of the LAP is identical to AQ02 from the FDP, whilst Objective AQ03 of the LAP is identical to DA18 from the FDP. In addition, Objective AQ05 of the LAP states a requirement to: "*Undertake a review of existing air quality monitoring (and associated appropriate remedial action in the case of breaches) within and surrounding the Airport (including changes in Particulate Matter (PM) at relevant locations). Where relevant, such a review should identify additional monitoring proposals, remedial actions and implementation systems*".

Current baseline conditions

4.11 According to the European Environment Agency (EEA, 2020), air pollution is the single largest environmental health risk in Europe. Latest figures for Ireland from the EEA attribute in excess of 1300 premature deaths annually to poor air quality. The EPA (2020) suggests there are three key issues that have a negative impact on air quality in Ireland: emissions from the burning of solid fuels in homes, transport emissions from vehicles in urban areas and ammonia emissions from agriculture. As a result, the EPA (2020) reports there are higher-than-acceptable levels of nitrogen dioxide (NO_2) in the nation's cities, particulate matter (PM) levels throughout the country, and ozone during summertime.

4.12 Nitrogen oxide (NO_X) emissions are linked to fuel combustion in transport, home heating and power stations and nitrogen (fertiliser and manures) in agriculture. According to the EPA (2020), Ireland exceeded the emission ceiling in 2010 but was compliant in all subsequent years up to and including 2018 (the latest year for which data is available). The Dublin Regional Air Quality Management Plan (2009) revealed an exceedance of the annual mean air quality standard for NO_2 within the Dublin region in 2009. The EPA has modelled concentrations of NO_2 beyond monitoring stations across Dublin more recently, detailing them in a report entitled Urban Environmental Indicators: Nitrogen Dioxide Levels in Dublin (EPA, 2019). The report found that based on air quality indicative monitoring and modelling predictions, many areas across Dublin, in particular those close to busy roads, were above the EU NO_2 annual limit value of 40 µg/m^3. The modelled concentrations of NO_2 were highest around the M50 motorway, along certain city centre streets, and around the entrance and exit of the Dublin Port tunnel. Away from busy roads, the modelling showed that levels of nitrogen dioxide are low. To reduce levels of NO_2 in Dublin, and to comply with the Ambient Air Quality Directives, the region's local authorities will need to prepare and implement an updated Air Quality Plan.

The EPA (2020) expects measures to include promoting the use of public transport, cycling and walking, and restricting more polluting vehicles from central areas.

4.13 Particulate matter (PM) consists of very small particles (PM_{10} and $PM_{2.5}$) suspended in air, with impacts on respiratory and cardiovascular health. In Ireland the dominant sources of PM are from solid fuels used in home heating in winter, the transport sector, and agricultural activities. The annual averages have remained within the annual limit values of the EU standard, however, in recent years there have been breaches of the WHO annual guideline values for both PM_{10} and $PM_{2.5}$ in Ireland's larger towns (EPA, 2020). Similarly, whilst remaining within the EU limits, 14 traffic monitoring sites across Dublin and Cork exceeded the WHO air quality daily guideline value for PM_{10} in 2019. The EPA (2020) reveals that levels of PM from the burning of solid fuels is a concern nationwide, but particularly in cities such as Dublin because of the cumulative effects of multiple sources of the pollutant and the large numbers of people exposed. Air quality considerations will therefore need to be integrated into planning decisions at national and local levels. As the EPA (2020) suggests, this should include considering transport options when planning large housing developments.

4.14 The two main factors impacting on air quality in the vicinity of Dublin Airport relate to operational impacts of the airport, and the construction impacts arising from development including supporting access infrastructure that caters for improved access to the airport. The daa carries out ambient air monitoring at Dublin Airport and in adjacent communities through its air monitoring stations, the results of which are published on its website. These monitoring stations are located as follows, all located within a relatively close distance to the Airport where roads may be indirectly affected by air traffic. At this Scoping stage the ZoI has been set for air traffic, and will extend to a distance that encompasses aircraft in the landing and take-off zone and to an altitude of 3,000 ft (up to 15km).

Figure 4.1: daa air monitoring stations in the vicinity of Dublin Airport

4.15 Onsite and offsite data collected since implementation of the air quality monitoring programme in 2011 has been generally found to be well within the limit values mandated in the Air Quality Standards Regulations. Onsite concentrations are measured at the automatic station at Dublin Airport. In Q1 2020 (before the full effects of the pandemic were felt), the daily average concentrations were 20 µg/m^3 for NO_2 and 15 µg/m^3 for PM_{10} – both well below the limit values of 40 µg/m³. Throughout 2019 the figures were higher (reaching an average of 36 µg/m^3 for NO_2 in Q1), but still within legal limits.

4.16 Offsite, the highest concentrations of NO_2 tend to be recorded adjacent to main roads around the airport, close to the vehicular emission source. However, the daa's Air Quality Monitoring Reports from Q1 and Q2 2019 reveal that the bus depot at the airport (new sampling point A11) exceeded the annual mean limit value of 40 µg/m³ for NO_2 by some margin. In consultation with the EPA, it was determined that the location of sampling point A11 did not meet criteria set out through EU Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe (CAFE), so it was moved to an alternative location at the bus depot. Since then, the annual mean values have been below the limit value of 40 µg/m³ at all 11 offsite monitoring locations, though remain highest at the bus depot, reaching 39.41 µg/m³ in Q1 2020.

Likely future trends without the NAO and RD

4.17 The NEC Directive sets out national emission reduction commitments for five important air pollutants, applicable from 2020 to 2029 and from 2030 onwards. As noted by the EPA (2020), future trends in PM2.5 emissions depend largely on solid fuel combustion in the residential sector, but current projections estimate that Ireland will be compliant with 2020 and 2030 reduction commitments. In terms of NO_2, the EPA's current projections show Ireland's emissions exceeding the reduction commitment for 2020. Projections estimate compliance with the 2030 emission reduction ceiling on the basis of full implementation of the Climate Action Plan (2019), but suggest further measures may be required beyond this.

4.18 Regarding ammonia emissions from agriculture, the EPA (2020) states that projections for future years up to 2030 show Ireland exceeding the reduction commitments for every year if further measures are not put in place. For NMVOC emissions, current projections estimate that Ireland will meet its reduction commitment for 2020, but will exceed the 2030 reduction commitment. Current projections for SO_2 emissions estimate that Ireland will be compliant with the 2020 and 2030 reduction commitments.

4.19 Overall, the EPA (2020) suggests that additional measures are needed to address air quality issues in Ireland as a whole, and Dublin specifically. The EPA (2020) recommends the urgent publication and rollout of actions as part of the forthcoming National Clean Air Strategy, ideally underpinned by WHO standards as these are more stringent than the limits set in European legislation.

Biodiversity

Key policy context

4.20 EU policy is driven by EU Directives seeking to conserve natural habitats and wild flora and fauna (the Habitats Directive 92/43/EEC), and all species of naturally occurring birds in their wild state (the Birds Directive 2009/147/EC).

4.21 At a national level, Ireland's National Biodiversity Plan 2017 – 2021 sets out strategic objectives, targets and actions to conserve and restore Ireland's biodiversity and to prevent and reduce the loss of biodiversity in Ireland and globally. In particular it seeks:

- To mainstream biodiversity in the decision-making process across all sectors;
- To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity;
- To increase awareness and appreciation of biodiversity and ecosystems services; and
- To conserve and restore biodiversity and ecosystem services in the wider countryside.

4.22 Furthermore, the NPF (2018) seeks to "Enhance the conservation status and improve the management of protected areas and protected species" by, amongst other things "Integrating policies and objectives for the protection and restoration of biodiversity in statutory development plans" (NPO 59).

4.23 At a local level, the FDP (2017) contains a suite of policies relating to biodiversity, for example protecting designated sites and protected species from adverse effects relating to development (Objective NH17); and protecting the functions of ecological corridors and stepping stone habitats (Objective NH23).

4.24 A new Fingal Biodiversity Action Plan is currently under preparation. The existing Fingal Biodiversity Action Plan 2010-2015 meanwhile seeks:

- To maintain, and where practicable enhance, the wildlife and habitats that give Fingal its character and natural diversity.
- To ensure that (inter)national targets for sites, species and habitats are translated into effective action at local level.
- To develop effective partnerships to ensure that programmes for biodiversity conservation are maintained in the long-term.
- To raise public awareness and encourage involvement in biodiversity action by the wider community.

- To increase our knowledge and understanding of biodiversity through ecological research.
- To ensure the full integration of biodiversity into FCC's policies and programmes as part of sustainable development in Fingal.

4.25 The Dublin Airport LAP (2020) also sets out several objectives for natural heritage. Objectives NH01 and NH02 require any development proposal resulting in a significant loss of wildlife habitat to mitigate and/or compensate for this loss within the LAP area wherever possible. Objective NH03 states: "*All development proposals shall have regard to the Fingal Heritage Plan 2018-2023 and the Fingal Biodiversity Plan 2010-2015 and any subsequent plan(s) where appropriate*."

Current baseline conditions

4.26 As stated by the EPA (2020) in the report 'State of the Environment Report – Ireland's Environment 2020', although Ireland naturally has a less diverse population of plants, insects and animals than mainland Europe, its peatland habitats are of EU importance, whilst its aquatic systems and wetlands also support populations of birds, fish and invertebrates that are of international importance. There are 430 Special Areas of Conservation (SACs) and 154 Special Protection Areas (SPAs) in Ireland, designated for their internationally important habitats/species and wild birds.

4.27 However, the current status of Ireland's 59 protected natural habitats and 60 protected species naturally occurring in Ireland is not good. Most habitats assessed in Ireland have an unfavourable status and almost half show ongoing declines, including marine, peatland, grassland and woodland habitats (EPA, 2020). The EPA has further revealed that progress towards many of Ireland's national biodiversity targets is partially effective but too slow, suggesting that a 'transformational change' is needed if Ireland is to achieve the vision outlined in the National Biodiversity Action Plan 2017-2021. Furthermore, the fourth assessment of Birds of Conservation Concern in Ireland (Birdwatch Ireland & RSPB, 2021) reveals that Irish birds are more endangered than ever before, with more than a quarter, or 54 species, now on the red list.

4.28 Within a 15km Zone of Influence of the Airport (the area recommended by the 2009 Guidance on Appropriate Assessment), there are 18 sites designated for their internationally important biodiversity value. These include eight SPAs designated for their wild birds, and ten SACs designated for their habitats. The nearest European Sites are Malahide Estuary SAC and SPA located c. 3km to the north-east, and Baldoyle Bay SAC and SPA located c. 5km to the east, both downstream of the Plan area. These are shown in Figure 4.2.

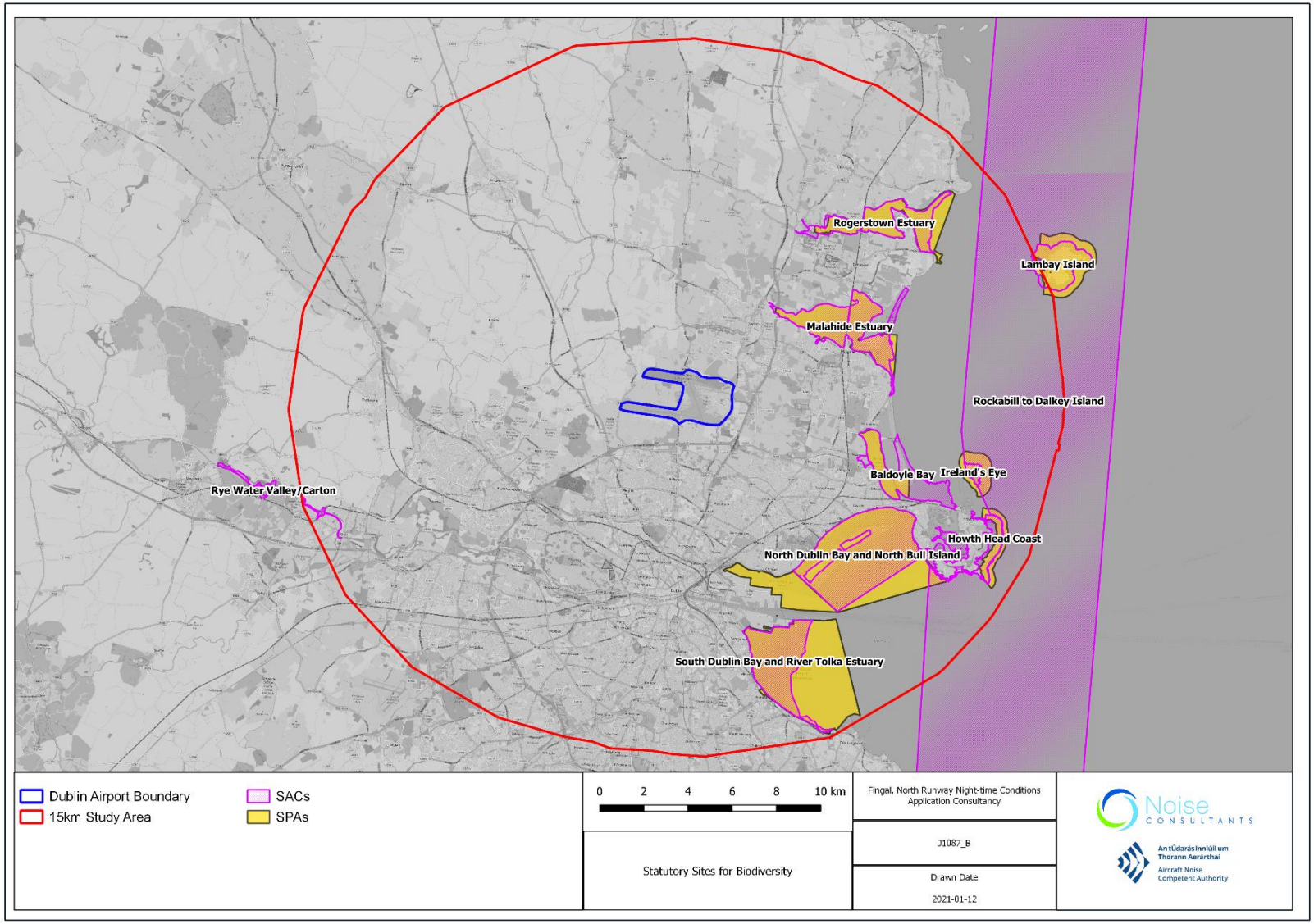

Figure 4.2: Internationally designated biodiversity sites in the vicinity of Dublin Airport

4.29 Of the eight SPAs, five (Rogerstown Estuary SPA, Baldoyle Bay SPA, Ireland's Eye SPA, Lambay Island SPA and South Dublin Bay and River Tolka Estuary SPA) appear to be currently over-flown by aircraft using Dublin Airport. The species of conservation importance (SCI) at these five sites are all waterbirds. As part of the AA Screening undertaken for daa's planning application (F20A/0668), a total of 228 hours of vantage point survey were carried out within Baldoyle Bay and Rogerstown Estuary between June 2016 and December 2018. The AA Screening Report (AECOM, 2020) reveals that, during this period, despite an almost continuous stream of air traffic overhead, at no time was a reaction by any wetland bird(s) to passing aircraft recorded

4.30 Of the SACs, Malahide Estuary SAC is the closest to Dublin Airport. There is a hydrological connection between the two via tributaries of the Ward River which rise in the north-west of the Plan area, and discharge, via the Broadmeadow River, into the Broadmeadow Estuary near Swords. The SEA Report associated with the Dublin Airport LAP (FCC, 2019) notes that tributaries at the airport and the upper stretch of the Ward River are identified as being of good status; however, the lower stretch of the Ward River is identified as being poor status. Broadmeadow Estuary is identified as being of moderate status. Only a small proportion of airfield drainage at Dublin Airport drains to Malahide Estuary SAC.

4.31 Baldoyle Bay SAC also has hydrological connections to the Airport. One is via the Cuckoo Stream, which flows west to east through the Airport, and discharges, via the Mayne River, into Baldoyle Estuary. Tributaries of the Sluice River, rising close to the north-eastern boundary of the Airport, also discharge into Baldoyle Estuary. The Dublin Airport LAP SEA (FCC, 2019) notes that the Cuckoo Stream and Mayne River are identified by the EPA as being of poor status due to significant pressures from diffuse urban sources, whilst the status of the Sluice River and Baldoyle Estuary itself are currently unassigned.

4.32 According to the AA Screening Report accompanying the daa's planning application (AECOM, 2020), the Cuckoo Stream (the main watercourse at the Airport) is not known to have any important fisheries or invertebrate populations, due to its history of poor water quality. The AA Screening Report also reveals that the primary threat to water quality as a result of operations at Dublin Airport has, at least in the recent past, been identified as the application of de-icing chemicals following snow or frost events (AECOM, 2020). Emergency fuel dumping could also theoretically pose a problem via surface water pathways to Baldoyle Bay and Malahide Estuary. However, as stated in the EIA Report (AECOM, 2020), previous incidents have involved relatively minor leakages, and any dumping would typically be undertaken in a controlled manner in an appropriately selected area away from watercourses and/or at a sufficient altitude to allow for vaporisation and dispersion before reaching ground level.

4.33 The land comprising Dublin Airport is entirely artificial in character, comprising existing roads, car parks, buildings and landscape planting. There are a number of treelines, hedgerows and

some small areas of amenity grassland, all of which are of limited value for biodiversity (FCC, 2019). Habitats in the area immediately surrounding Dublin Airport comprise improved grassland and other agricultural land, dissected by species poor hedgerows and ditches (AECOM, 2020). A Wildlife Management Plan is implemented under licence at Dublin Airport. This prevents flocks of hazardous birds and/or other animals (e.g. Irish hare) from occurring in areas within which they could present a risk to aircraft.

Likely future trends without the NAO and RD

4.34 At a national level, the EPA (2020) suggests that continuing with a 'business-as-usual approach' will mean that nature and wild places will continue to fragment and biodiversity will continue to decline. Furthermore, despite numerous positive initiatives, trends are going in the wrong direction. For example, Birdwatch Ireland and RSPB (2021) showed that the number of Irish birds on the endangered list has increased by 46% in less than a decade. Nevertheless, the EPA (2020) reveals that species declines can be reversed, that nature can bounce back under the right conditions, and that awareness of biodiversity issues, particularly amongst young people, is increasing.

4.35 At a more local level, the FDP (2017) describes "Protecting the ecological integrity of European (Natura 2000) sites, the Special Amenity Areas and the Dublin Bay Biosphere Reserve, while allowing for ongoing growth and development" as a key environmental challenge.

Carbon and Climate Change

Key policy context

4.36 There are numerous national plans of relevance to carbon and climate change in Ireland. The NAP describes greenhouse gas (GHG) emissions as a key issue in relation to aviation and states that while fuel efficiency has increased significantly in recent decades (70% increase in the last 40 years), these improvements are being offset by a rapid increase in activity. Furthermore, the NAP recognises that aviation emissions will need to be limited in the future in line with European and global emissions trading/ offsetting initiatives.

4.37 The NPF (2018), through NPO 54 seeks to "Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions." The associated NDP emphasises the need for "investment to support the achievement of climate action objectives and discourage investment in high-carbon technologies".

4.38 The National Policy Position on Climate Action and Low Carbon Development (2015) outlines a requirement for relevant bodies to, *"in the performance of [their] functions, have regard to […] the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State"*. The policy position provides a high-level policy direction for the adoption

and implementation by Government of plans to enable the State to move to a low carbon economy by 2050. Specifically, it suggests the road-mapping and policy development process will be guided by a long-term vision based on an aggregate reduction in carbon dioxide (CO2) emissions of at least 80% (compared to 1990 levels) by 2050 across the electricity generation, built environment and transport sectors. The National Policy Position draft 2020 amendment introduces Ireland's 5 yearly carbon budgets, to start in 2021, along with a requirement for a climate neutral economy by 2050, and an expectation for local authorities to develop Climate Action Plans.

4.39 The objective of Ireland's national Climate Action Plan (2019) is to enable Ireland to meet its EU targets to reduce its carbon emissions by 30% between 2021 and 2030 and lay the foundations for achieving net zero carbon emissions by 2050. The Plan outlines 180 actions that need to be taken across all the key sectors. Specifically in relation to the transport sector, key actions include encouraging the uptake of biofuels, among others. Non transport-specific targets include increasing carbon tax.

4.40 In terms of local planning policy, the Transport Strategy for Greater Dublin emphasises Ireland's need to "radically reduce dependence on carbon-emitting fuels in the transport sector". The FDP (2017) similarly describes the need to "minimise the County's contribution to climate change", with particular reference to the transport sector. For example, Objective MT25 and MT34 seek to develop a new Metro North and create bus connectivity respectively that address the needs of the Swords-Airport-City Centre corridor, taking into account environmental sensitivities. On climate change more generally, Objective DA20 seeks to:

> *"Take account of the global and local impacts of aviation as well as the likelihood of international action to limit greenhouse gas emissions from aviation through action at the International Civil Aviation Organisation ICAO as mandated in the Kyoto Protocol when evaluating any proposals to significantly increase the use of Dublin Airport."*

4.41 Meanwhile, the Dublin City Development Plan (2016) explains that Dublin City has set an ambitious target of a 20% reduction in GHG emissions compared with 1990 levels for the whole city and a 33% reduction for the Council's own energy by 2020, and the EU Mayors Adapt Initiative has agreed to reduce carbon dioxide emissions by at least 40% by 2030. In 2019, Fingal and Dublin Councils each published their 'Change Action Plan 2019-2024'. These set out a range of actions to reduce GHG emissions across five key areas - Energy and Buildings, Transport, Flood Resilience, Nature-Based Solutions and Resource Management.

4.42 The Dublin Airport LAP (2020) seeks to pursue climate mitigation in line with global and national targets and support the transition towards a low carbon economy by seeking to reduce CO2 emissions at the Airport. Specific objectives to facilitate actions contained in the Climate Action Plan 2019 are incorporated, including proposals relating to surface access and renewable energy. For example, Objective CA02 states that *"Major applications for aviation related*

expansion at Dublin Airport shall be supported by a carbon reduction strategy to include mitigation measures for implementation as part of development proposals."

Current baseline conditions

4.43 Emissions of GHG by humans come from various sectors including transport, agriculture, energy industries, manufacturing combustion, industrial processes, residential developments, commercial services developments, waste management processes and fluorinated gases equipment (such as refrigeration and fire protection systems). As revealed in the EPA's 'State of the Environment Report (2020), Ireland's GHG emissions increased by 10.1% from 1990 to 2019, up to 59.9 Mt CO_2 eq. Agriculture is the single largest contributor to the overall emissions, at 35.3%. Transport, energy industries and the residential sector are the next largest contributors, at 20.3%, 15.8% and 10.9%, respectively.

4.44 GHG emissions from transport showed the greatest overall increase over the period 1990-2019, at 136.9%, with road transport increasing by 142.4%. Transport emissions are currently 15.4% below the 2007 peak levels, primarily because of the economic downturn, improving vehicle fuel efficiency as a result of changes to the vehicle registration tax, the increase in use of biofuels and significant decreases in fuel tourism in recent years. However, more recently, increases in transport emissions have been recorded for five out of the last seven years (prior to the pandemic) as the economy has grown and transport movements have increased.

4.45 With regard to emissions from aviation, the European Commission has identified that aviation is one of the fastest growing sources of GHG emissions (EC, 2019). Direct emissions from aviation account for about 3% of the EU's total GHG emissions, and about 4% of Ireland's (representing a fairly constant 20% of Ireland's transport emissions since 1990). Ireland's Action Plan for Aviation Emissions Reduction (2019) reveals that the level of aviation emissions peaked in 2007, with 3,083 kt of CO_2 emitted by Irish airlines following a steady increase from the level in 1996 (1,067 kt of CO_2). Since then it has reduced to 2,251 kt of CO_2 (most recent available information is for 2014).

4.46 In terms of climate change impacts, Ireland has experienced several extreme weather events in recent years, including flooding, droughts and ex-Hurricane Ophelia in 2017, which was the first strong East Atlantic hurricane on record ever to reach Ireland. These events reveal the cost of extreme weather events and the vulnerabilities of society and the economy. For example, between 2014 and 2018 local authorities spent approximately €101 million responding to extreme weather events, such as Storm Darwin in 2014, ex-Hurricane Ophelia in 2017 and Storm Emma and Storm Eleanor in 2018.

Likely future trends without the NAO and RD

4.47 According to the EPA (2020), the latest projections show that full implementation of additional policies and measures, outlined in the Climate Action Plan (2019), will result in a reduction in Ireland's total GHG emissions by up to 25% by 2030 compared with 2020 levels. However, the scale and pace of GHG emissions reductions must accelerate. Reducing emissions requires far-reaching transformative change across the whole economy, including in agriculture, energy, transport, waste, land use, food, buildings and industry.

4.48 For transport emissions, projections over the period 2021-2030 show these decreasing by 11.6% with existing measures, and by 38.6% with additional measures (e.g. 936,000 electric vehicles being on the road by 2030). Looking specifically at aviation, Ireland's Action Plan for Aviation Emissions Reduction (2019) identifies that overall, without any intervention, it is expected that emissions will grow significantly in the future. However, the predicted impact of improved aircraft technology is a 24% improvement in fuel efficiency between 2010 and 2040. This would result in an overall 8.5% reduction of fuel consumption and CO_2 emissions over the period.

4.49 In terms of climate change impacts, the EPA's State of the Environment Report (2020) reveals that mid-century mean annual temperatures are projected to increase by 1.0-1.6°C depending on the emissions trajectory. Heat wave events, dry periods and heavy precipitation events are all expected to increase by mid-century and this will have a direct impact on public health and mortality. There is also the possibility that the intensity of individual storms may increase. Building performance will be challenged by a changing climate, whilst infrastructure (e.g. electricity, water, communications, transport) are likely to be affected by an increase in disruptive events.

Cultural Heritage

Key policy context

4.50 Heritage Ireland 2030 is to be Ireland's new national heritage plan (expected to be published in 2021). It will be a coherent, comprehensive and inspiring framework of values, principles, strategic priorities and actions to guide and inform the heritage sector over the next decade. Also seeking to support cultural heritage at a national level is the NPF (2018). In particular, NPO 17 seeks to "*enhance, integrate and protect the special physical, social, economic and cultural value of built heritage assets through appropriate and sensitive use now and for future generations"*, whilst NPO 60 seeks to *"conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance."*

4.51 At a local level, the FDP (2017) contains a number of policies on cultural heritage, the overarching one being Objective CH01 which seeks to *"Support the implementation of the*

Fingal Heritage Plan in relation to the promotion and protection of Fingal's Cultural Heritage." Other policies go into more detail on the need for protection of archaeological sites, monuments, artefacts and shipwrecks. For example, Objectives CH20 and CH25 seek to ensure that any development affecting a Protected Structure and/or its setting, or a historic designed landscape, is sensitively sited and designed. There is also the Fingal Heritage Plan 2018 – 2023 (2018) which aims to conserve and protect heritage at a strategic and local level, as well as increase awareness.

4.52 The Dublin Airport LAP (2020) sets out objectives to be applied in assessing development proposals at the Airport in relation to conserving the archaeology and architectural heritage present within the LAP and surrounding areas (Objectives AR01 and AH02). There are additional objectives with regards to the St. Margaret's Special Policy Area, for example Objective CH6 which seeks to *"Support the appropriate and sympathetic provision of noise insulation to St. Margaret's Church in consultation with relevant church and heritage bodies."*

Current baseline conditions

4.53 Archaeological sites and monuments vary greatly in form and date; examples include earthworks of different types and periods, (e.g. early historic ringforts and prehistoric burial mounds), megalithic tombs from the Prehistoric period, medieval buildings, urban archaeological deposits and underwater features. Meanwhile, Protected Structures are architectural heritage sites defined in the Planning and Development Act 2000 (as Amended) as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. In addition, the National Inventory of Architectural Heritage records many buildings of architectural significance that have yet to be afforded protected status.

4.54 The FDP (2017) reveals that the county of Fingal is rich in archaeological and historical sites. Numerous designated heritage assets are present within a 15km ZoI of Dublin Airport, defined based on potential noise and visual impacts from overflying (see Figure 4.3 below). This includes a number of statutory sites within the Airport boundary, as listed on the Record of Monuments and Places (RMP). These include:

- Ringfort, Cloghran (north-east part of site) – This structure was partly demolished in 1822 and cleared away in 1873. The area has been incorporated into an extension to the recently constructed runway at Dublin Airport. Not visible at ground level.
- Castle site, Corballis (east part of site) – There are no remains of the castle at this location and the site is under buildings within Dublin Airport. Not visible at ground level.

- Holy Well, Toberbunnny (south-east part of site) – An unenclosed pool close to Cuckoo Stream, this has been incorporated into a golf course. It is said to have been a station well in former times. The site is no longer venerated.
- Inn, Pickardstown (centre part of site) – This is a two-storey, four bay building of post-1700 date.
- Enclosure, Harristown (south-west part of site) – This may be a levelled ringfort and it is now located under the runway. Not visible at ground level.
- Dwelling site, Harristown (southwest part of site) – Harristown House probably occupied this site that is now part of the runway. Not visible at ground level.
- Enclosure, Sandyhill (west part of site) – A sub-circular enclosure visible as a crop mark on an aerial photograph located within a relatively flat open field. No visible remains.
- Enclosure, Sandyhill (west part of site) – A circular enclosure visible as a crop mark on an aerial photograph. Located at low point within field with quite stark undulations. No visible remains.
- Ringfort, Shanganhill (south-west part of site) – A circular enclosure visible as a crop mark on an aerial photograph. Located at low point within field with quite stark undulations. No visible remains.

4.55 In terms of Protected Structures, there are four located within the Airport boundary:

- Castlemoate House, Swords Road, Cloghran (north-east part of site);
- Old Central Terminal Building, Dublin Airport, Collinstown (north-east part of site);
- Windmill (in ruins), R122 Road, Millhead (west part of site); and
- Church of Our Lady Queen of Heaven, Dublin Airport, Corballis (west part of site).

4.56 The SEA of the Dublin Airport LAP (FCC, 2019) reveals that there are also a number of archaeological sites and features in areas beyond the Airport boundary, in areas such as St. Margaret's, Dunsoghly, Dubber and Cloghran. There are two historic graveyards in close proximity to the Airport, one at St. Margaret's and one at Dardistown. In addition, there are various Protected Structures in locations surrounding the Airport, whilst in the wider Fingal area there are a number of Architectural Conservation Areas (ACAs), including those located eastward of the Airport at Kinsealy, Portmarnock and Malahide.

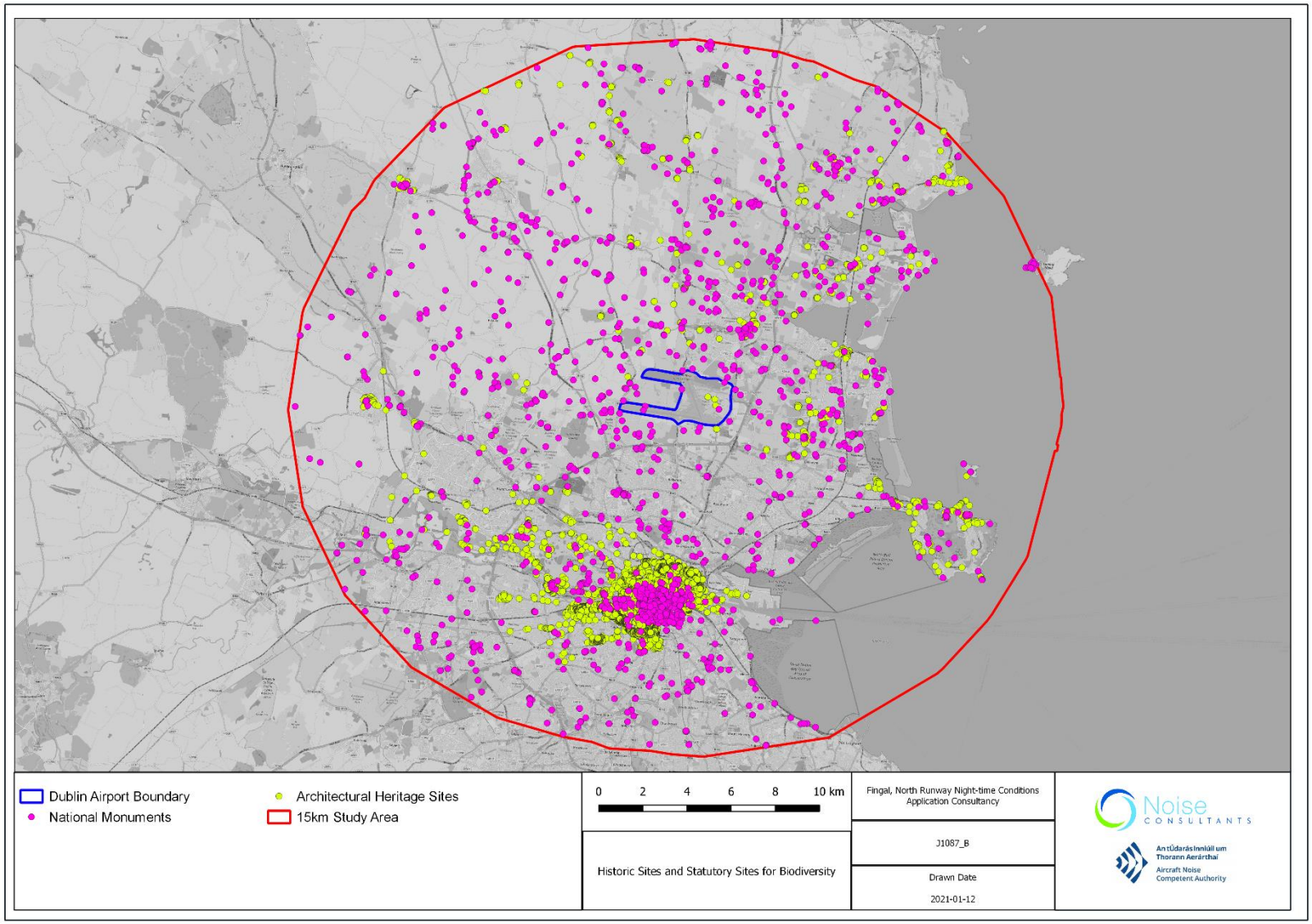

Figure 4.3: Designated heritage assets in the vicinity of Dublin Airport

Likely future trends without the NAO and RD

4.57 The FDP (2017) describes "Protection, enhancement and promotion of the County's rich archaeological and architectural heritage" as a key environmental challenge. However, no existing conflicts with legislative objectives governing archaeological and architectural heritage have been identified in the vicinity of the Airport.

Geology, Soils and Land Use

Key policy context

4.58 National planning policy is in this area is limited. NPO 53 of the NPF (2018) seeks greater efficiency in land management and a reduced rate of land use change from urban sprawl and new development. Supporting text to this policy recognises the impact on soils: *"The extent to which we prioritise brownfield over greenfield use, encourage the use and reuse of buildings in urban and rural areas, and reduce sprawl, will all help to increase the efficiency of land use and the pace of soil sealing i.e. the covering of the ground by an impermeable material which can result in soil degradation."*

4.59 At a local level, the FDP (2017) states that *"Environmental sustainability entails the maintenance of biodiversity; human health; as well as air, water, and soil qualities at standards sufficient to sustain human life and well-being, as well as animal and plant life, for all time. Land use policy and controls are central to the achievement of sustainability at a local level."* Policies relating to geology, soil and land use include the following:

- Regarding geology, Objective NH30 seeks to *"Protect and enhance the geological and geomorphological heritage of the County Geological Sites".*
- Regarding soil, a section on development management states *"In all cases involving contaminated land, it is the policy of Fingal County Council to require the highest standards of remediation… Decontamination activities should ensure there is no off-site migration of contaminants via runoff, soils or groundwater and the area is available for use."*
- Regarding land use, Objective DA13 seeks to *"Promote appropriate land use patterns in the vicinity of the flight paths serving the Airport, having regard to the precautionary principle, based on existing and anticipated environmental and safety impacts of aircraft movements."* In addition, Zoning Objective 'DA' states that *"minor extensions or alterations to existing properties located within the Airport Area which are not essential to the operational efficiency and amenity of the airport may be permitted, where it can be demonstrated that these works will not result in material intensification of land use".*

4.60 The main purpose of the Dublin Airport LAP (2020) is effective land-use planning and safeguarding the use of the Airport, and it refers to the 'DA' zoning objective providing "an adaptive land-use which supports aviation and related uses". Furthermore, noise zones relating to Dublin Airport are used to aid land use planning, with more detail on this provided through the Noise Action Plan for Dublin Airport 2019-2023.

Current baseline conditions

4.61 According to the EPA (2020), there are six overarching degradation processes that can impact on soils. These are soil sealing (where soils are closed off from the surface of the land, e.g. road and building developments close off soils from the land surface by building on top of it), erosion, organic matter decline, compaction, salination and landslides. The sealing of soils impacts their ability to absorb pollutants, reduces their biodiversity and productivity and can also increase flooding in built areas by affecting natural drainage patterns. Soil compaction is also a recognised key threat to the quality of Irish soils. It can lead to increased surface run-off, flooding, erosion and transport of nutrients and agrochemicals to open water.

4.62 The EPA's State of the Environment Report (2020) reveals that artificial areas with sealed soil surfaces have increased in Ireland by 65% since 1990, although there has been little change since 2012, until a slight increase again in 2018. The primary changes have been increases in discontinuous urban development, commercial/industrial areas, transport infrastructure, and sports and leisure facilities. These changes have mainly resulted in losses of agricultural areas, with some smaller losses of forestry and wetland areas.

4.63 Despite the increasing trend, artificial surfaces accounted for only 2.4% of Ireland's land cover in 2018. In contrast, the dominant land cover type in Ireland is agriculture, representing 67.6% of the national area in 2018. However there has been an overall downward trend, with a reduction of 8,230 hectares of agricultural land since 1990, converted mainly to artificial areas and forestry. Whilst there has been a general upward trend in the percentage of Ireland covered with forest since 1990 (an increase of 0.02%), in 2018 forest cover still represented just 9.5% of the national area. The aim is to increase forest cover to 18% by the year 2050.

4.64 At a local level, the Corine 2018 land cover map shows that the majority of land surrounding Dublin Airport is classified as a combination of industrial/commercial (artificial surfaces) and agricultural (arable or pasture).

4.65 The airport itself is classified as artificial surface throughout for industrial/commercial/transport use, with this classification extending eastwards across the office and hotel developments and incorporating the long-term car parks west of the M1 motorway. The airport buildings, comprising the terminals, hangars, piers and support facilities for catering, cargo and fuel, are set out in a horseshoe configuration with airfield development to the west (aprons, taxiways and runways) and ground transportation infrastructure located centrally to the east. Within the

airfield, ground cover is predominantly concrete with some grassed areas adjacent to the taxiways, runways and around the airfield perimeter.

4.66 Available historic maps from 1837-1842 and 1888-1913 indicate that the site was primarily occupied by agricultural land during this period with a number of single dwellings within the airport boundary. An airfield was first developed at Collinstown in 1917, with the commercial airport developed in the late 1930s. The land use of the overflown areas is the mostly intensively used land in Ireland, including the airport itself, nearby industrial lands and large parts of Dublin suburbs and satellite towns.

4.67 The FDP (2017) states that the County's quality soils are a key feature, with the consequence that the area is extremely suitable for agriculture, cereal production and horticulture, particularly around the areas of Rush and Lusk. Soils immediately surrounding the Airport are mapped on the EPA website as the Elton series, fine loamy drift with limestone, which has moderate drainage. However the Airport itself is covered by urban soils that have been disturbed, transported or manipulated by human activity in the urban environment and are often overlain by a non-agricultural, manmade surface layer.

4.68 There are 21 County Geological Sites in Fingal, the closest to the Airport being Feltrim Quarry (c. 3.5km to the east); Huntstown Quarry (c. 5km to the west); and Glasnevin Cemetery (c. 5km to the south). In terms of bedrock geology, the majority of the Airport is underlain by the Tober Colleen Formation, a dark grey, calcareous shale and limestone conglomerate of Carboniferous age. The remainder is underlain by the Malahide Formation, an argillaceous limestone/shale, and by Waulsortian Limestone, a massive unbedded lime/mudstone. A small portion of the airport is underlain by the Lucan Formation, also known as the Calp Formation, a dark limestone and shale. All of the above formations are of Carboniferous age. The Tober Colleen Formation is generally considered a 'Poor Aquifer' bedrock which is generally classified as unproductive except for local zones. The other bedrock units constitute a 'Locally Important Aquifer', which is moderately productive only in local zones. In terms of overburden geology, quaternary deposits overlying bedrock comprise glacial till derived from limestones (boulder clay) while the soils have been mapped as made ground. There is no gravel aquifer underlying the airport.

Likely future trends without the NAO and RD

4.69 Continued development is likely to further increase the proportion of land under sealed and artificial surfaces. The EPA (2020) states that careful management of soil enrichment and land management activities will avoid or minimise GHG emissions into the air, as well as nutrient and sediment losses into water catchments. The EPA (2020) adds that this needs to happen from the national policy level to the local management scale, covering cross-sectoral activities on farms, forest plantations and peatlands and within both urban and rural areas.

Landscape and Visual

Key policy context

4.70 The purpose of the National Landscape Strategy for Ireland 2015-2025 is *"to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing the landscape while positively managing its change."* Its objectives include providing *"a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local level, together with civil society, to protect, manage and properly plan through high quality design for the sustainable stewardship of the landscape."*

4.71 Also at a national level, the NPF (2018) seeks, through NPO 14, to *"protect and promote the sense of place and culture and the quality, character and distinctiveness of the Irish rural landscape that make Ireland's rural areas authentic and attractive as places to live, work and visit."* Meanwhile, NPO 61 facilitates landscape protection, management and change through guidance on local landscape character assessments, whilst NPO 62 seeks to strengthen the value of greenbelts and green spaces at a regional and city scale.

4.72 At a local level, the FDP (2017) contains a number of policies relating to the protection of landscape and visual amenity. For example:

- Objective NH34 seeks to *"Ensure development reflects and, where possible, reinforces the distinctiveness and sense of place of the landscape character types, including the retention of important features or characteristics, taking into account the various elements which contribute to their distinctiveness such as geology and landform, habitats, scenic quality, settlement pattern, historic heritage, local vernacular heritage, land-use and tranquillity."*
- Objective NH40 seeks to *"Protect views and prospects that contribute to the character of the landscape, particularly those identified in the Development Plan, from inappropriate development."*
- Objective LP01 requires *"that the design of lighting schemes minimises the incidence of light spillage or pollution into the surrounding environment."*

Current baseline conditions

4.73 Ireland's landscape has been shaped by long-running natural processes and human intervention throughout history. As stated by the EPA (2020), it forms an important part of the nation's cultural and natural identity, and contributes to the wellbeing of the economy (e.g. the tourism industry), society and environment. The extent to which the landscape is valued and protected plays an important role in where and how settlements are able to grow and where any supporting infrastructure should be placed.

4.74 The FDP (2017) describes the landscape character of Fingal as being characterised by *"gently rolling countryside in the central area of the County and the uplands around Garristown and the Naul located in the northern part of the County".* The Plan also describes Fingal as comprising *"a rich variety of natural amenities, vibrant towns, attractive villages, arable pasture and horticultural lands, uplands, inland rivers and streams and a scenic coastline."*

4.75 As revealed through the SEA of the FDP (FCC, 2017), there are a number of landscape designations in the County of Fingal. These include High Amenity Zones and Sensitive Landscapes, i.e. areas of special value or sensitivity in which inappropriate development would contribute to a significant diminution of landscape amenity in the county. High amenity landscapes include the coastal zone, river valley areas (Liffey, Delvin, Ward and Tolka) and the Naul Hills area. In addition, the Planning and Development Act 2000 enables Landscape Conservation Areas and Special Amenity Areas to be established to protect and enhance the landscape and amenities of an area. Special Amenity Area Orders (SAAOs) are in place for Howth and the Liffey Valley.

4.76 A 15km ZoI has been used for this environmental aspect, on the basis of possible overflying impacts on tranquillity. The closest designated landscapes to Dublin Airport are as follows, and shown in Figure 4.4:

- High Amenity Areas located in Swords (Ward River Valley Park, c. 2km north of the Airport), all along the coast (c. 3km northeast and c. 5km east of the Airport), and near Blanchardstown (c. 6km to the southwest).
- Highly Sensitive Landscapes located at Kinsaley (c. 3km east of the Airport), all along the coast (within c. 3km northeast and c. 5km east of the Airport), and near Sheephill (c. 4km to the southwest).
- Special Amenity Area Orders located at Howth and Ireland's Eye (c. 10km away to the east), and the Liffey Valley near Palmerston (c. 4km to the southwest).

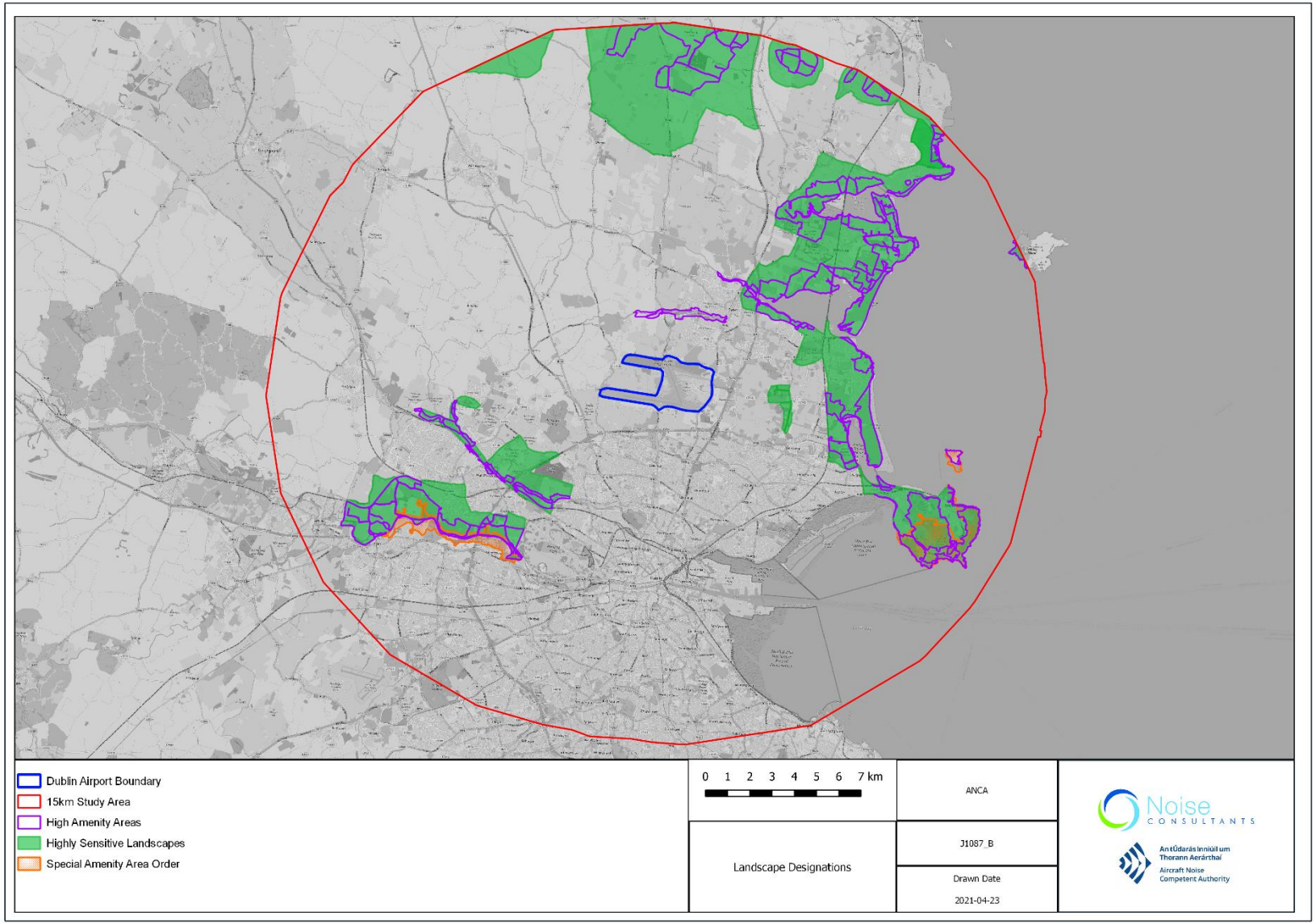

Figure 4.4: Designated landscapes in the vicinity of Dublin Airport

4.77 There are seven distinct landscape character areas (LCA) in Fingal County. Dublin Airport is located within the Airport and Swords LCA. The SEA for the FDP (FCC, 2017) notes that increasing industrial activity in this area is beginning to encroach on agricultural land. To the east, west and south of the Airport and Swords lies the Low Lying Agricultural LCA, comprising large open areas of pasture, arable and grassland that are uninterrupted by large settlements. To the northeast of the Airport and Swords is the Estuary LCA, characterised by the intertidal sand and mudflats, and saltmarshes at Rogerstown, Swords/Malahide and Baldoyle (FCC, 2017). Finally, to the northwest of the Airport and Swords is the Rolling Hills with Tree Belts LCA. This comprises the valleys of the River Ward and River Broadmeadow and their surrounding farm and woodland.

4.78 The landscape of Dublin Airport is entirely artificial in character, comprising existing roads, car parks, buildings and landscape planting. The airfield contains a large proportion of airport-managed grassland with limited enclosure (FCC, 2019). Outside the airfield, the western part of the site consists mainly of agricultural grasslands together with arable land, whilst enclosure is provided by hedgerows and treelines. A limited number of residential dwellings are located immediately west of Airport, including St. Margaret's; however, the open space in this area is not used for significant levels of amenity (FCC, 2019). The area beyond the Airport boundary comprises a working agricultural landscape including agricultural grasslands and arable lands, whilst the M1 Motorway is located to the east. The Airport is located between the urban fringe of Dublin City and the Dublin town of Swords, c. 5km inland from the coast (FCC, 2019).

4.79 The Airport itself is relatively flat, with an elevation of 80 m above Ordnance Datum (OD) to the west close to runway 10/28 and declining to 60 m above OD in the south-east, with a gradient of 0.005. As such, local views are dominated by structures and development associated with the operational Airport. The SEA of the Dublin Airport LAP (FCC, 2019) reveals that most views of the site are from passing motorists along the M1 and M50 motorways, stretches of which are enclosed by treelines making views intermittent, and the N2 national primary road and M2 motorway.

Likely future trends without the NAO and RD

4.80 The FDP (2017) describes "Management of the County's varied landscapes so that change maintains and enhances landscapes of high-quality and improves landscapes" as a key environmental challenge. However, whilst new developments have resulted in changes to the visual appearance of lands surrounding the Airport, legislative objectives governing landscape and visual appearance have not been identified as being conflicted with (FCC, 2019).

Material Assets

Key policy context

4.81 Material assets relates to grey infrastructure essential for the functioning of society, such as: water supply, wastewater treatment, waste management, energy generation and distribution, telecommunications, and transportation.

4.82 At a national level, there are policy requirements related to material assets within the NPF (2018), for example to:

- *"Ensure the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment"* (NPO 63).
- *"Sustainably manage waste generation, invest in different types of waste treatment and support circular economy principles, prioritising prevention, reuse, recycling and recovery, to support a healthy environment, economy and society"* (NPO 56).
- *"In co-operation with relevant Departments in Northern Ireland, strengthen all-island energy infrastructure and interconnection capacity, including distribution and transmission networks to enhance security of electricity supply"* (NPO 47).
- *"Support and facilitate delivery of the National Broadband Plan as a means of developing further opportunities for enterprise, employment, education, innovation and skills development for those who live and work in rural areas"* (NPO 24).
- Regarding Dublin Airport specifically, the NPF seeks to enable *"improved public transport access, connections from the road network from the west and north and in the longer-term consideration of heavy rail access to facilitate direct services from the national rail network in the context of potential future electrification."*

4.83 Other national plans of relevance to material assets include the National Water Resources Plan (in draft), the National Energy and Climate Plan 2021-2030, the National Renewable Energy Action Plan 2010-2020, the National Broadband Plan (2019), and the Transport Policy for Ireland 2009-2020. At a regional level, the Eastern-Midlands Region Waste Management Plan 2015-2021, the Water Supply Project Eastern-Midlands Region, and the Greater Dublin Area Transport Strategy 2016-2035 are relevant.

4.84 At a local level, the FDP (2017) contains a range of policies relating to material assets, for example:

- Objective DW06 seeks to *"Promote the sustainable use of water and water conservation in existing and new development within the County and encourage demand management measures among all water users."*
- Objective WT07 seeks to *"Require all new developments to provide separate foul and surface water drainage systems and to incorporate sustainable urban drainage systems."*
- Objective WM03 seeks to *"Implement the provisions of the Eastern Midlands Region Waste Management Plan 2015 -2021 or any subsequent Waste Management Plan applicable within the lifetime of the Development Plan. All prospective developments in the County will be expected to take account of the provisions of the Regional Waste Management Plan and adhere to the requirements of that Plan."*
- Objective EN04 seeks to *"Encourage development proposals that are low carbon, well adapted to the impacts of Climate change and which include energy saving measures and which maximise energy efficiency through siting, layout and design."*
- Objective IT01 seeks to *"Promote and facilitate the sustainable delivery of a high quality ICT infrastructure network throughout the County taking account of the need to protect the countryside and the urban environment together with seeking to achieve balanced social and economic development."*
- Objective MT02 supports *"the recommendations of the National Transport Authority's Transport Strategy for the Greater Dublin Area 2016-2035 to facilitate the future sustainable growth of Fingal."*

4.85 The Dublin Airport LAP (2020) also contains policies relating to material assets, for example: upgrading of wastewater collection and treatment systems (Objective IW01); implementing the recommendations of the Groundwater Protection Scheme (Objective WQ03); promoting waste prevention and minimisation (Objective WM02); and upgrading telecommunications, electricity and utilities infrastructure (Objective UT01). In terms of transport, through Objective SF01 the LAP requires *"that any planning applications to increase passenger numbers or that result in an increased demand for travel, shall clearly demonstrate the required transport infrastructure and measures to accommodate the proposed increase in line with the recommendations of the South Fingal Transport Study."*

Current baseline conditions

4.86 The Airport's water supply is solely provided by mains services with a reservoir on site having a 14,500m3 capacity. Dublin Airport straddles the Blanchardstown High Level Water Supply Area (Ballycoolin Reservoir Source – via elevated storage) and the Airport Water Supply Area (Ballycoolin Source via the 24" (600mm) diameter Forrest Little Main). A 36" (900mm)

diameter trunk main supplies the area and delivers roughly 660 L/s. Distribution pipework from the reservoir supplies cold water to the existing terminal, hangers, workshops, Aer Lingus offices and fire hydrants on the fire ring main across the airport (daa, 2008).

4.87 The foul drainage catchment is a mixture of industrial, commercial and hotel accommodation areas. Typical discharges are from toilets, sinks and hand wash basins within the airport buildings and from the hotel facilities (daa, 2008). The daa Capital Investment Programme 2020+ states: *"The foul sewer infrastructure at Dublin Airport comprises a network of small sewer pipes from the two terminals and all campus buildings, a 450mm collector sewer and a 900mm outfall sewer. This outfall sewer in turn enters the Local Authority Owned Swords Road branch sewer, which then joins the Dublin City Council North Fringe sewer. While the main collector and outfall sewers convey under gravity, there are 5 No. ejector stations and 17 No. pumps installed to complete the system"* (daa, 2019). For all foul discharges at existing terminal facilities, traders are required to be licensed and for all other foul discharges, daa holds a discharge license.

4.88 Waste management in Dublin is largely governed by the requirements set out in the Eastern-Midlands Region Waste Management Plan 2015-2021. The Plan addresses all areas of waste management, from waste prevention and minimisation, to its collection treatment, recovery and final disposal. WERLA has set a target of 70% for the reuse, recycling and material recovery of man-made construction and demolition waste (excluding soil and stone) by December 2020. Dublin Airport has a target of "Zero Waste to Landfill" which was first achieved in 2016 and is a key part of the Airport's waste management strategy (Dublin Airport, 2019). A current target in respect of waste was to achieve 50% of waste recycled by 2020. Recycling rates have improved from 11% in 2013 to 42% in 2019 (Dublin Airport, 2019).

4.89 In terms of electricity, the on-site power supply and distribution network was significantly upgraded as part of the development of Terminal 2 in 2011. A daa owned and operated substation at Dardistown with dual supply 100kVA power lines to the airport was completed. This enables the daa to provide power to the airport directly. In 2018, daa in partnership with ESB installed 268 solar panels on top of the airport's reservoir system which will provide more than half of the reservoir's annual energy requirements. The solar panels are connected directly to the airport's reservoir system.

4.90 With regard to gas, the on-site gas mains within Dublin Airport were upgraded to a 315 mm 4-bar ring main installed as part of the development of Terminal 2 in 2011. This is fed from a new Above Ground Installation (AGI) adjacent to the Dardistown substation with local AGIs around the site. In addition, Gas Networks Ireland (GNI) installed a new 19-bar distribution line and AGI on the Santry Road.

4.91 The on-site telecommunications at Dublin Airport were significantly upgraded as part of the Terminal 2 upgrades in 2011. The DAC Masterplan states: "the airport and its environs are

served by a dual-path, divergent connectivity to Dublin's T50 broadband ring. This is a multi-duct system surrounding the City providing an uninterrupted physical link with two major transatlantic fibre termination points, with access to 27 international carriers, including direct fibre connectivity from Eircom, Colt, Digiweb, BT, Viatel and EU Networks" (FCC, 2016). This network is referred to as the Campus Area Network (CAN) and is a high capacity (band width) fibre optic system with nodes at which connections are made to individual buildings and/or users. The existing communications network for South Apron and all terminal buildings, is well serviced by the existing telecommunication duct network.

4.92 Given its strategic national function, Dublin Airport is well located in terms of surface access, sitting on or adjacent to several key elements of the national road network such as the M1 Dublin-Belfast corridor, M2/N2 Dublin-Derry, M3/N3 Dublin-northwest and the M50 orbital motorway. As revealed in the SEA Report for Dublin Airport LAP (FCC, 2019), the Airport is also well served by a number of public transport bus services such as the various local routes that run between Dublin City Centre and Dublin Airport and a number of regional and national bus services that run from Dublin Airport to a wide range of locations across Ireland. The mainline Dublin-Belfast rail line is located c. 5km to the east, whilst the proposed MetroLink system from Dublin City Centre to Swords will run in a tunnel directly beneath the Airport, including a station at the Airport. However, transport to the airport is currently predominantly via road. As revealed in the EIA Report for the daa's planning application (AECOM, 2020), 35% of passengers travel to Dublin Airport via private car, 6% by rental car, 22% by taxi, 35% by bus, and 2% via other means.

Likely future trends without the NAO and RD

4.93 The FDP (2017) describes "Providing for growth and development which reduces energy consumption, promotes sustainable modes of transport and reduces car-dependency" as a key environmental challenge. As identified by the Dublin Airport LAP (2020), the Airport is faced with a number of capacity constraints in the short to medium term on a range of key infrastructure to meet forecasted growth, including surface access, the existing runway, aircraft parking stands and passenger boarding gates.

4.94 The EPA (2020) suggests that a sustainable mobility transformation is required, whereby necessary journeys are made by sustainable modes such as walking, cycling and public transport, followed by using electric vehicles where unavoidable.

Noise and Vibration

Key policy context

4.95 The World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (2018) (ENG18) sets out recommendations for protecting human health from exposure

to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. In relation to aircraft noise, the Guidelines strongly recommend reducing average noise levels below 45 dB L_{den} and night-time noise levels below 40 dB L_{night}, via suitable changes in infrastructure, in order to reduce health effects. ENG18 also describes 'exposure response relationships' linking long-term noise exposure to associated health effects. These relationships have been endorsed by the European Parliament and Council in Directive 2020/367 which establishes assessment methods for harmful effects of environmental noise. These relationships are to be applied for noise management and assessment purposes under Directive 2002/49/EC which requires the production of strategic noise maps and noise action plans, as transposed into Irish law through S.I. No. 140/2006 - Environmental Noise Regulations 2006. These relationships should also be applied in the consideration of noise and health under EU Regulation 598/2014.

4.96 At a national level, NPO 65 of the NPF (2018) seeks to *"Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans."*

4.97 At a local level, Objective DA09 of the FDP (2017) seeks to *"Ensure that aircraft-related development and operation procedures proposed and existing at the Airport consider all measures necessary to mitigate against the potential negative impact of noise from aircraft operations (such as engine testing, taxiing, taking off and landing), on existing established residential communities, while not placing unreasonable, but allowing reasonable restrictions on airport development to prevent detrimental effects on local communities, taking into account EU Regulation 598/2014 (or any future superseding EU regulation applicable) having regard to the 'Balanced Approach' and the involvement of communities in ensuring a collaborative approach to mitigating against noise pollution".* In addition, Objective NP02 seeks to *"Continue to promote appropriate land use patterns in the vicinity of Dublin Airport to minimise the amount of residents exposed to undesirable noise levels."*

4.98 The strategic aims and objectives of the Dublin Airport LAP (2020) seeks *"to protect community amenity and mitigate potential impact from airport growth"*, in part via the designation of airport noise zones, updated in 2019. The LAP seeks to restrict incompatible development where aircraft noise exposure is considered too high and ensures that where noise is above certain thresholds that adequate consideration is given to aircraft noise during the planning process and as part of designing and incorporating noise insulation measures. The LAP also refers to specific policies for noise as documented in the Noise Action Plan for Dublin Airport 2019 - 2023 (2018), designed to manage noise issues and effects associated with existing operations at Dublin Airport. The Noise Action Plan sets out 13 actions relating to reducing noise at source, land use planning and management, noise abatement operating procedures, and monitoring and community engagement. For example, Action 4 seeks to

"Monitor noise encroachment associated with Dublin Airport to ensure that airport noise policy is appropriately informed through land use planning frameworks in so far as they relate to Dublin Airport.". The Noise Action Plan sets a key objective for the management of aircraft noise at Dublin Airport. This is:

"to avoid, prevent and reduce, where necessary, on a prioritised basis the effects due to long term exposure to aircraft noise, including health and quality of life through implementation of the International Civil Aviation Organisation's 'Balanced Approach' to the management of aircraft noise as set out under EU Regulation 598/2014"

Current baseline conditions

4.99 As stated in the EPA's State of the Environment Report (2020), approximately 14.4% of the urban population in Ireland (equivalent to about 430,000 people, based on the Central Statistics Office 2016 census) are exposed to road noise levels above the Environmental Noise Directive (2002/49/EC) guideline values. This indicates that a substantial portion of the population may be experiencing some adverse effects on health and wellbeing caused by noise.

4.100 In the vicinity of Dublin Airport and under its flightpaths, noise from aircraft is a more pressing issue. Noise from aircraft is produced both on the ground and in the air. In general, these sources are considered separately and are typically described as air noise and ground noise. Air noise is created by aircraft in the air or on the runway when taking off or landing. This noise comprises of two components – airframe and engine noise – and is the main source of noise at civil airports. As the Noise Action Plan for Dublin Airport 2019 - 2023 (2018) points out, many people who live around an airport experience aircraft noise as a series of aircraft events which may potentially change over the course of a day or between days according to factors such as the airport's schedule, aircraft routing and the operating direction.

4.101 The Noise Action Plan (2018) reveals the noise situation from aircraft at Dublin Airport. The number of people exposed to average daytime noise levels greater than 55 dB(A) L_{den} increased between 2011 and 2016, from 11,900 to 18,500, with areas being introduced to this level of exposure including Tyrrelstown and Balgriffin. Meanwhile, the number exposed to levels greater than 65 dB(A) L_{den} rose from 200 in 2011 to 300 in 2016.

4.102 In terms of night-time noise levels, the number of people exposed to undesirable night-time noise exposure levels above 55 dB(A) L_{night} from the Airport was 200 people in 2006 and 2011, rising to 400 people in 2016. The number of people exposed to night-time noise levels above 50 dB(A) L_{night} increased even more sharply, from 1,200 in 2011 to 6,200 in 2016. The main changes in night-time noise exposure occurred in Tyrrelstown, Balgriffin, Portmarnock Bridge and Santry. The L_{night} contours around Dublin Airport can be seen in Figure 4.5.

4.103 The Noise Action Plan (2018) notes that *"Whilst it is the case that there has been an increase in activity between 2011 and 2016, and a corresponding increase in the number of people within the L_{den} and L_{night} contours, it is also important to note that a number of developments will have been constructed and occupied around the airport over this timeframe and this will also contribute towards the increase in the population"*

4.104 However, based on information submitted as part of planning application F20A/0668, the advice report on the potential noise problem associated with the application (Noise Consultants Ltd, 2021) shows further increases in noise exposure beyond those in the NAP. For example, the number of people exposed to night-time noise levels above 50 dB(A) L_{night} had risen to 12,317 in 2018, and to 13,838 in 2019 – more than double the figure for 2016. Similarly, the number of people exposed to average daytime noise levels greater than 55 dB(A) L_{den} reached 35,483 in 2018 (falling slightly to 34,097 in 2019) – again double the 2016 figure.

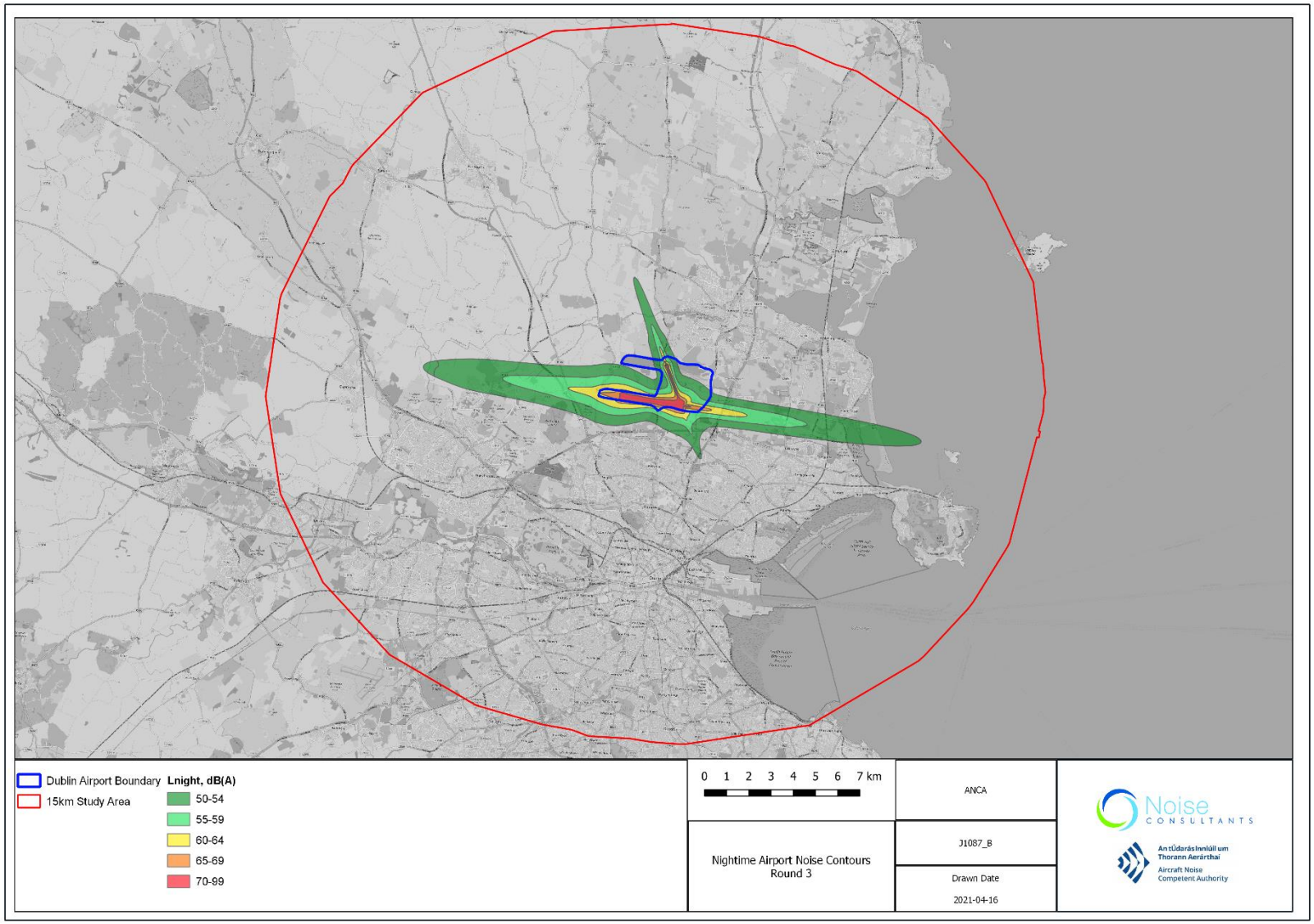

Figure 4.5: Noise contours for the night period (Round 3, 2018) for Dublin Airport

Likely future trends without the NAO and RD

4.105 The EPA (2020) notes that, from a human health and wellbeing perspective, the issue of environmental noise requires action on two fronts. Firstly, the proactive management of noise that is likely to have a significant negative impact on health and wellbeing; and, secondly, the preservation and increased provision and accessibility to designated quiet areas (i.e. those largely undisturbed by noise from traffic, industry or recreational activities), particularly in areas with a high population density.

4.106 The Noise Action Plan (2018) notes that, at present, there are no operating restrictions at Dublin Airport in its current form. However, following the construction of the North Runway operating restrictions will come into effect setting patterns preferential runway use and restricting the use of the North Runway and the number of flights at night through conditions 3(d) and 5 of the north runway planning consent. The planning application seeks to amend Conditions 3(d) and 5 thus potentially increasing and redistributing night-time noise at the airport following the construction of the North Runway, as explored by ANCA in their noise problem report (2021).

4.107 There are noise mitigation operational procedures set out in the Dublin Airport Noise Management Plan which aim to ensure aircraft are operated in a manner which is safe, and which reduces as far as practicable the noise in areas surrounding the airport. Furthermore, the airport has insulation and voluntary purchase schemes which seek to protect those experiencing elevated levels of aircraft noise.

4.108 It is clear that without the NAO or RD (which aim to reduce noise at Dublin Airport), the mechanisms for managing noise may not be the most appropriate or cost-effective. Without the NAO or RD the potential exists for the noise situation at the airport to be managed ineffectively particularly given the growth and changes in operating procedures (subject to appropriate consents) that are planned by daa.

Population and Health

Key policy context

4.109 The Healthy Ireland Framework 2019 – 2025 (2017) sets out a vision to create *"A Healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level of society and is everyone's responsibility"*. It notes that health and wellbeing are affected by all aspects of a person's life: economic status, education, housing, and the physical environment in which people live and work. The latter *"includes not only the study of the direct pathological effects of various chemical, physical, and biological agents, but also the effects on health of the broad physical*

and social environment, which includes housing, urban development, land use and transportation, industry, and agriculture."

4.110 Also at a national level, Chapter 6 of the NPF (2018) deals with 'People, Homes and Communities', and notes how specific health risks, such as include heart disease, respiratory disease, mental health, obesity and other injuries, can be influenced by spatial planning. Relevant objectives include NPO 26 which supports the delivery of the Healthy Ireland Framework and the National Physical Activity Plan, and NPO 28 which seeks *"a more diverse and socially inclusive society that targets equality of opportunity and a better quality of life for all citizens, through improved integration and greater accessibility in the delivery of sustainable communities and the provision of associated services."*

4.111 At a local level, the Fingal Economic and Community Plan 2016-2021 aims *"to promote the well-being and quality of life of citizens and communities*", whilst the FDP (2017) has an overarching aim to promote and improve quality of life and public health. Importantly, the FDP acknowledges that poor air quality, light pollution and noise pollution can be detrimental to the health of Fingal's citizens. Objective AQ01 therefore seeks to: *"Implement the provisions of EU and National legislation on air, light and noise and other relevant legislative requirements, as appropriate and in conjunction with all relevant stakeholders."* More specifically, Objective NP02 seeks to *"Continue to promote appropriate land use patterns in the vicinity of Dublin Airport to minimise the amount of residents exposed to undesirable noise levels."*

4.112 In addition, through Objective PM69, the FDP seeks to *"Ensure that proposals do not have a detrimental effect on local amenity by way of traffic, parking, noise or loss of privacy of adjacent residents".* Similarly, Objective ED31 aims to ensure that any growth at Dublin Airport takes *"into account the impact on local residential areas, and any negative impact such proposed developments may have on the sustainability of similar existing developments in the surrounding area".*

4.113 The Dublin Airport LAP (2020) contains a number of strategic aims and objectives, many of which are relevant to population and health. For example, it aims to *"Support the growth of the Airport as a major economic driver for the region"* (including through Objective ED01). At the same time, it seeks to *"Support continued communication between the Airport and neighbouring communities to protect community amenity and mitigate potential impact from airport growth in the interests of long-term sustainability"* (e.g. through Objective CS01).

Current baseline conditions

4.114 The EPA (2020) refers to the rising level of urbanisation and population growth in Ireland, coupled with the increasing public health burden of obesity and physical inactivity. Urbanisation can support the emergence of obesogenic environments, promoting more sedentary, inactive lifestyles and leading to an increase in obesity, a reduction in physical activity and increased

prevalence of chronic diseases. Other health challenges arising from urbanisation include exposure to excessive noise and poor air quality (EPA, 2020). Moreover, increased urban living means that there may be fewer opportunities for engaging with the natural environment, which can in itself be detrimental to physical and mental health. Also of concern to Ireland's population is the effect of climate change on physical health (e.g. through worsening the effects of aeroallergens and air pollutants) and on psychological wellbeing and mental health, particularly for those living in ecologically sensitive areas such as those prone to flooding.

4.115 Air pollution from transport is dominated by NO_X emissions. Of these, NO_2 is particularly impactful from a health perspective. The EPA's Air Quality in Ireland 2017 report (2018) describes that concentrations of NO_2 at urban areas in Ireland are close to the EU annual limit value. Short-term exposure to NO_2 is linked to adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in asthmatics, whilst long-term exposure is associated with increased risk of respiratory infection (EPA, 2018). Poor air quality in general is linked to incidence of chronic lung disease (chronic bronchitis or emphysema) and heart conditions and asthma levels of among children and young people.

4.116 Noise can have a significant and disruptive effect on everyday life and it has been identified by the WHO as the second greatest environmental cause of health problems (after air quality). Environmental noise (including aircraft noise) has been linked with negative health outcomes including cardiovascular disease, cognitive impairment, sleep disturbance, annoyance and psycho-physiological effects (impacts on quality of life, wellbeing and mental health). As identified in the preceding section on Noise and Vibration, noise in the vicinity of Dublin airport is affecting a larger number of people than in previous years, partly due to an increase in noise, and partly due to residential development undertaken in the area surrounding the airport. Overall, data supplied by the planning application suggests that 115,738 people were highly annoyed by noise from Dublin airport in 2019, and that 47,045 people were considered highly sleep disturbed based on exposure thresholds of ≥45 db L_{den} and ≥40 dB L_{night} respectively.

4.117 Meanwhile, the Dublin Airport Economic Impact Study (2019) reports on the positive economic impacts associated with Dublin Airport. The key findings are that direct employment supported by ongoing operations at Dublin Airport amounts to 21,500 jobs - adjusting for part-time and seasonal employment, this totals 19,200 Full-Time Equivalent jobs (FTEs). The total direct Gross Value Added (GVA) generated by Dublin Airport is estimated to be over €1.7 billion. Adding in multiplier impacts (indirect and induced), the total employment supported by activities at Dublin Airport is estimated to be 49,000 jobs (or 43,600 FTEs), earning a total of €1.9 billion. The catalytic impacts of Dublin Airport (tourism, transport of high value exports, the ability of Irish and multinational businesses to travel to clients and global headquarters etc) were estimated to total 80,700 jobs (71,300 FTEs) and €6.0 billion in GVA in 2018. The total economic impact of Dublin Airport therefore amounts to 129,700 jobs in Ireland, equivalent to

114,900 full-time jobs, earning a total €9.8 billion in GVA contributions to the national economy, representing 3.1% of total GDP.

Likely future trends without the NAO and RD

4.118 The EPA (2020) states that strong health-centred urban design, policies and planning (e.g. prioritising a modal shift away from the currently high dependence on private motor vehicles towards more active travel) are vital for Ireland's transition to more compact urban living, as well as for reducing air and noise pollution.

4.119 Through increasing stringency on aircraft noise emissions as implemented by ICAO, aircraft have become quieter. However, as the airport grows and the surrounding area becomes more developed, it is possible that noise and other health impacts on the local population could continue to increase. At the same time, it is likely that the local area will see population growth and greater job creation.

Water and Hydrology

Key policy context

4.120 The River Basin Management Plan for Ireland 2018-2021 sets out the actions or measures that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027 as is required under the EU Water Framework Directive. The plan outlines 'Prioritised Areas for Action', which within Fingal include the catchments of Rogerstown Estuary, Santry River, Mayne River and Upper Tolka.

4.121 Also at national level, the NPF (2018) seeks to enhance water quality and resource management through accordance with Flood Risk management Guidelines, River Basin Management Plan objectives, and sustainable urban drainage solutions (NPO 57). It also seeks "the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment" (NPO 63).

4.122 At a local level, the Fingal East Meath Flood Risk Management Plan (2014) sets out measures and policies, including guidance on appropriate future development, that should be pursued by the Local Authorities and the Office of Public Works to achieve the most cost-effective and sustainable management of flood risk within the study area. In addition, the FDP (2017) contains a number of policies on water quality management and flooding. For example, Objective DA19 seeks to "*Ensure that every development proposal in the environs of the Airport takes into account the impact on water quality, water based-habitats and flooding of local streams and rivers and to provide mitigation of any negative impacts through avoidance or design and ensure compliance with the Eastern River Basin District Management Plan.*"

4.123 The Dublin Airport LAP (2020) similarly contains a key strategic objective to "Maintain and improve surface water quality at the Airport", whilst requiring all development proposals at Dublin Airport to have regard to the requirement for Flood Risk Assessment and surface water management in accordance with relevant legislation and guidelines (Objectives FRM04 and SW01). In addition, Objective SWQ01 states that *"Applications for development shall demonstrate that they comply with the Water Framework Directive. Where appropriate, permissions shall be conditioned to require the developer to undertake actions in order to improve the status of water bodies, in line with the Water Framework Directive."*

Current baseline conditions

4.124 Ireland has seen a continuing decline in high status water bodies and an increase in the number of water bodies in poor ecological health, with 47.2% failing to meet their environmental objectives (EPA, 2020). An analysis of the pressures has found that the main activities affecting the quality of Ireland's surface water and groundwater resource are agriculture, hydromorphological alterations, discharges from urban wastewater treatment plants and forestry.

4.125 The EPA's State of the Environment Report (2020) reveals a dramatic reduction in the number of 'pristine' rivers, which has fallen from over 500 sites in 1990 to only 20 sites in 2020. The decline in river water quality is being driven primarily by nutrient pollution coming from agriculture and wastewater systems. Ireland's estuaries are also in a bad state, having the worst status of all Ireland's water bodies. The continuing decline in the ecological health of Ireland's rivers and estuaries is associated with increasing nutrient levels and physical alterations, siltation and pesticides. The combined effects of these different stressors mean that the capacity, or resilience, of these waterbodies to recover from further pollution impacts or external shocks is greatly reduced.

4.126 In terms of surface water, several river catchments and subsequent sub-catchments drain land at Dublin Airport. These include:

- The Forrest Little Stream, Wad Stream and Kealy's Stream sub-catchments. These are tributaries of the Sluice River, rising close to the north-eastern boundary of the Airport. The Sluice River discharges to Baldoyle Estuary/Portmarnock. As reported in the SEA Report for the Dublin Airport LAP (FCC, 2019), the status of the Sluice River, its tributaries and Baldoyle Estuary/Portmarnock is currently unassigned.
- The Cuckoo Stream and Mayne Stream sub-catchments. The Cuckoo Stream rises in the east of the site to the south of Terminal 2 and flows in an easterly direction until it confluences with the Mayne River to the north of Parkside housing estate. The Mayne River discharges to the Mayne Estuary (Baldoyle Estuary/Portmarnock and associated Baldoyle Estuary Nature Reserve). Both the Cuckoo Stream and the Mayne River are

identified by the EPA as being of poor status due to significant pressures from diffuse urban sources (FCC, 2019). The status of the Mayne Estuary (Baldoyle Estuary/Portmarnock) is currently unassigned.

- A number of unnamed streams, which rise to the north-west of the Airport and flow into the Ward River. The Ward River and its tributaries flow into the Broadmeadow River that discharges to the Broadmeadow Estuary near Swords. The tributaries at the Airport and the upper stretch of the Ward River are identified as being of good status; however, the lower stretch of the Ward River is identified as being poor status (FCC, 2019). Broadmeadow Estuary (and thus Malahide Bay) is identified as being of moderate status. This water body is impacted by excess nutrients from the discharge from the Swords wastewater treatment plant, and from the upstream catchment areas of the Broadmeadow and Ward Rivers.

4.127 According to the AA Screening Report accompanying daa's planning application (AECOM, 2020), the primary threat to water quality within and/or in the vicinity of Dublin Airport has, at least in the recent past, been identified as the application of de-icing chemicals following snow or frost events. Contamination of surface water at the Airport may occur due to the use of pavement and aircraft de-icer. Pavement de-icer is used for existing runways and taxiways as required based on weather conditions, whilst de-icing of departing aircraft on stand is undertaken dependent on air temperatures. The EIA Report accompanying the application (AECOM, 2020) states that de-icing of departing aircraft can occur any time of day but is mostly used for the first wave of departures in the 0600 to 0800 period.

4.128 According to the EIA Report (AECOM, 2020), run-off from the paved areas relating to the new runway will be continuously monitored via online Total Organic Carbon (TOC) analysers to measure TOC values which shall be calibrated to equivalent Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) limits to measure compliance with permitted discharge levels. If monitoring shows that the surface water is contaminated, it will be automatically diverted to the polluted water holding tank (PWHT). The control system for the tank discharge will include failsafe mechanisms to ensure that there is no accidental release of contaminated water into receiving waterways.

4.129 In addition, emergency fuel dumping could also pose a problem via surface water pathways to Baldoyle Bay and Malahide Estuary. However, as stated in the EIA Report (AECOM, 2020), previous incidents have involved relatively minor leakages, and any dumping would typically be undertaken in a controlled manner in an appropriately selected area away from watercourses and/or at a sufficient altitude to allow for vaporisation and dispersion before reaching ground level.

4.130 Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and

the yielding of water to surface and coastal waters. As revealed by the SEA of the Dublin Airport LAP (FCC, 2019) the WFD status (2010-2015) for most of the groundwater underlying Dublin Airport is identified as being of good status, meeting the objectives of the WFD. However, the groundwater underlying the north eastern part of the Airport is identified as poor, largely due to levels of Trichloroethylene (an industrial solvent).

4.131 Depth to groundwater measurements are not reported in the licensed monitoring wells on site, however, given that the shallow monitoring wells are generally between 4.2m and 6m below ground level (bgl) it is assessed that the depth to groundwater in the overburden (glacial till and made ground) is approximately 3 m bgl. Across the airport the bedrock aquifer is divided into three different groundwater bodies:

- The Swords Groundwater Body, IE_EA_G_01120, which was classified as having 'Good' status under the WFD for the period 2010-2015 and 'Not at Risk'. This groundwater body broadly coincides with the Malahide and Tober Collen formations beneath the northern half of runway 16/34, and northwards through runway 11/29 and the North Runway. The area of the groundwater body as a whole is estimated at 199 km2, with the airport located in the south-east of the groundwater body. Groundwater flow is expected to be primarily through shallow bedrock where weathering and fracturing is greatest. However, the presence of warm springs indicates that some deep circulation of groundwater can occur.

- The Industrial Facility (P0480-02) Groundwater Body, IE_EA_G_08621. This is a small groundwater body which is classified as having 'Poor' status for the period 2013-2018 and as being 'At Risk'. This groundwater body is approximately 3.25 km2 in area, extending from the hangars northwards to the Naul Road (L2040); south across the short-term car parks, office developments and onto the junction between the R132 and Corballis Road South near the Red Long-Term Car Park; and eastwards to the M1 motorway.

- The Dublin Groundwater Body, IE_EA_G_00822. This groundwater body is classified as having 'Good' status for the period 2010-2015 and as being 'Not At Risk'. This groundwater body coincides with the Tober Colleen Formation beneath the piers, terminals, cargo area, and most of the airfield as well as the Calp Formation beneath the Eastlands area. The airport straddles the northern boundary of this groundwater body. This is a large groundwater body with an estimated area of 837 km2, extending from Dunshaughlin, Kilcock and Naas in the west, eastwards across Dublin city to the coast. Groundwater flow paths are expected to be short (~1 km) from recharge to discharge points, with groundwater discharge occurring to rivers where they are in hydraulic continuity with the aquifer, to springs and to the coast. Groundwater flow is

expected to be primarily through shallow bedrock where weathering and fracturing is greatest.

4.132 In terms of flood risk, the Strategic Flood Risk Assessment undertaken in support of the Dublin Airport LAP highlighted a number of sources of potential flood risk to the area. Sources of flood risk within the Airport boundary and in the immediate vicinity include the Cuckoo Stream, which drains part of the south of the Airport, and the Forrest Little Stream, which drains part of the north-west of the Airport.

Likely future trends without the NAO and RD

4.133 External shocks will intensify in the context of climate change as more extreme weather brings extremes in water temperatures and water flows, which are likely to exacerbate the damage caused by underlying water pollution. The EPA (2020) also points to a need for nature-based and natural water retention measures as solutions for flood protection and flood alleviation works, e.g. restoring ecosystems such as wetlands and reconnecting floodplains with water courses to better regulate the flow and transport of water.

4.134 The FDP (2017) describes *"Maintenance and improvement of the environmental and ecological quality of Fingal's watercourses and coastal waters pursuant to the requirements of the Water Framework Directive"* and *"Management of flood risk along the County's watercourses taking account of climate change predictions"* as key environmental challenges.

4.135 In the vicinity of Dublin Airport, certain surface and groundwater bodies will need improvement in order to comply with the objectives of the WFD. There are also a number of areas that are at elevated levels of flood risk, which is likely to worsen with the predicted impacts of climate change.

5 Scope of the SEA

5.1 As revealed in Chapters 1 and 2, the purpose of the NAO and RD is to introduce measures to address the noise problem identified at Dublin Airport, whilst ANCA's remit is focussed only on aircraft noise. However, in introducing these measures, the NAO and RD may set the framework for future development consent of projects at the Airport, thus facilitating growth. As revealed in Chapter 3, such growth has already been set out in numerous other plans, and has therefore already been the subject of environmental assessment - in particular through SEA of the Dublin Airport LAP (FCC, 2019). Furthermore, any proposals for growth at the airport (e.g. relating to a new terminal) will be assessed in more detail at the planning application stage (e.g. through EIA).

5.2 The approach taken to assessing the likely environmental impacts of the NAO and RD at the next stage of the SEA process will need to be proportionate, accepting that the principal driver of the NAO and RD is related to aircraft noise (and measures to address this), and not on-the-ground development which is beyond ANCA's remit. Therefore, only direct impacts relating to the management of aircraft noise will be considered further in this SEA process. The broader impacts of growth (e.g. on-the-ground development) are more appropriately assessed in the overarching policy and through EIA of future planning applications to increase growth.

5.3 Using both the evidence base for current and likely future environmental conditions in the vicinity of Dublin Airport without the Plan, and the description of the emerging NAO and RD, possible impacts of the Plan on each of the environmental aspects have been identified. These are shown in Table 5.1.

Table 5.1: Possible environmental impacts of the Plan

Environmental aspect	Possible impacts of the NAO and RD
Air Quality	Changes in aircraft operational procedures might affect fuel burn and therefore the level of air pollutants emitted. There could also be an increase in airborne emissions as a result of any noise management measures that facilitate an increase in passenger numbers and ATMs
Biodiversity	Increases in noise and deteriorating air quality could arise as a result of new or additional overflying, and/or overflying more frequently whether in the day and/or night, impacting on sensitive receptors including designated sites or species afforded legal protection. Increases in emergency fuel dumping or de-icing activities could also theoretically pose a problem via surface water pathways to designated sites, but are unlikely to have a significant impact.

Carbon and Climate Change	Changes in aircraft operational procedures might affect fuel burn and therefore the level of carbon emissions. There is also potential for climate change effects, including particularly increases in carbon emissions, to arise as a result of any increase in flights or type of aircraft being used. Furthermore, many of the effects associated with aviation will, over time, be reversible should the operations halt, but carbon emissions could take a considerable time before their effect is no longer felt.
Cultural Heritage	It is possible that important cultural heritage assets could be affected as a result of the Plan, whether this be as a result of new or additional overflying, or because of changes in the time of day and night that they are being overflown.
Geology, Soils and Land Use	Geology, soils and land use are unlikely to be affected by changes in aircraft activities resulting from implementation of the Plan.
Landscape and Visual	There is potential for impacts on landscape, specifically whether important landscape assets including particularly those that are protected by legislation, are likely to experience new or increased effects from overflying, including impacts on their tranquillity.
Material Assets	Material assets are unlikely to be affected by changes in aircraft activities resulting from implementation of the Plan.
Noise and Vibration	Noise effects are likely to occur from the Plan, as a result of possible increases in, and changes to timings, in overflying – particularly at night. The overarching aim of the Plan is to manage, reduce and mitigate the impacts of aircraft noise, though depending on the number and location of ATMs, the impact on this environmental aspect could be positive or negative.
Population and Health	There is potential for positive effects on the population including for example, because of a result of an improved economic situation as a result of needing to serve additional passengers and associated flights, though changes in times of flights from day to night could potentially have a negative effect on ground services and facilities. However, human health may be negatively impacted by the Plan if changes to aircraft operations increase fuel burn and therefore the level of air pollutants emitted, whilst additional airborne emissions could also result from any increase in ATMs.. Similarly, noise pollution could potentially occur as a result of changes, including increases in, and changes to timings, in overflying, although the Plan seeks to reduce impacts of noise on human health.

Water and Hydrology	Water and hydrology are unlikely to be affected by changes in aircraft activities. Possible increases in emergency fuel dumping associated with an increase in ATMs could theoretically pose a problem via surface water pathways to watercourses and coastal sites, but are unlikely to have a significant impact.

5.4 The scoping process has revealed that the NAO and RD have the potential for significant adverse impacts on several aspects of the environment. This is due to the increase in night-time ATMs proposed through the daa's planning application and associated RD, and the potential for additional ATMs and passenger numbers that could be accommodated once the NAO is in place. Where specific environmental effects are considered to be unlikely, they should be scoped out from further assessment to ensure that the SEA Environmental Report deals only with potentially significant environmental effects. The following environmental aspects are therefore proposed to be scoped out, as impacts here relate to on-the-ground construction associated with Airport expansion, or low-risk emergency operations, beyond ANCA's control:

- Geology, soils and land use;
- Material assets;
- Water and hydrology.

5.5 Due to the likelihood of the Plan having uncertain or adverse effects on the environment and/or because key environmental and sustainability issues have been identified in the vicinity of Dublin Airport, the following environmental aspects will be carried forward to Stage B of the SEA process:

- Air quality;
- Biodiversity;
- Carbon and climate change;
- Cultural heritage;
- Landscape and visual;
- Noise and vibration;
- Population and health.

5.6 As noted earlier, the SEA will take a proportionate approach to assessing these effects, given that the main purpose of the Plan is to manage aircraft noise most sustainably, and on-the-ground development and associated road traffic movements are more appropriately

addressed through EIA undertaken as part of future planning applications and / or other consenting mechanisms.

6 SEA Methodology

6.1 This chapter identifies the proposed methodology for undertaking the assessment of each of the alternative delivery options for the NAO and RD, including the SEA objectives, indicators and targets (the assessment framework), and the significance criteria to be used.

Consideration of Alternatives

6.2 This will be undertaken by means of a three step process, as set out in the Guidance on Alternatives in SEA (EPA, 2015):

1. Alternatives identification and development;
2. Alternatives assessment and comparison; and
3. Alternatives selection and documentation.

6.3 Alternative options for delivering the NAO and RD are currently being developed. ANCA has determined that there are several alternative approaches to developing the NAO, relating to the extent to which the scale and timeframe of the NAO follow the daa planning application, or other published policies which present aspirations for the sustainable development of Dublin Airport. For the RD, ANCA will consider a number of alternative approaches for addressing noise in the context of the NAO. These alternatives are set out in more detail in Chapter 2 of this report.

6.4 The SEA will then assess, at a high level, which of the identified options, or combination of options performs the best environmentally. The SEA will focus only on the reasonable alternatives that emerge during the drafting of the Plan, and will explain why other alternatives are not considered to be 'reasonable' and will not, therefore, be subjected to assessment and consultation.

6.5 Through assessing the environmental performance of alternative options as they emerge, it is possible to influence the overall sustainability of the evolving Plan, as well as the selection of the preferred alternative. Once the preferred option has been chosen by ANCA, a more detailed assessment will then be undertaken.

Objectives, Targets and Indicators

6.6 The EPA SEA guidance document (EPA, 2018) states that objectives, targets and indicators must be established in order to clearly assess environmental impacts of a proposed plan or programme. The guidance further states:

"Objectives and targets set aims and thresholds which should be taken into consideration to effectively assess the impact of proposed plans on the environment. Indicators are used to illustrate and communicate this environmental impact in a simple and effective manner."

6.7 The SEA objectives, targets and indicators have been developed for each scoped-in environmental aspect using the SEA baseline presented in Chapter 4. These are set out in Table 6.1 below.

Table 6.1: SEA objectives, targets and indicators

Environmental aspect	Objectives	Targets	Indicators
Air Quality	Minimise emissions of pollutants to air associated with aircraft	Compliance with air quality legislation	Identified breaches of air quality limits
Biodiversity	Preserve, protect, maintain and where appropriate restore the terrestrial, aquatic and soil biodiversity, particularly EU and nationally designated sites and protected species	No significant effect on the conservation status of the qualifying habitat types and species of the SPAs and SACs, and compliance with conservation objectives	Maintained (or improved) conservation status of the qualifying habitats and species
Carbon and Climate Change	Minimise contribution to climate change by adopting adaptation and mitigation measures	Ensure that Ireland can meet its carbon emissions reduction targets for aviation	Change in carbon emissions from aircraft
Cultural Heritage	Protect places, features, buildings and landscapes of cultural, archaeological and/ or architectural heritage from impact	No significant effect on designated heritage assets	Maintained status of the assets
Landscape and Visual	Protect and maintain the special qualities of the landscape character and views	No significant effect on designated landscapes	Maintained status of the sites
Noise and Vibration	Avoid or reduce the harmful effects, including annoyance, due to long-term exposure to noise, especially at night	No significant increase in number of people who are 'highly annoyed'	Change in number of people exposed to noise levels $\geq$ 45 dB(A) L_{den}

		No significant increase in number of people who are 'highly sleep-disturbed' Adoption of practical and sustainable noise mitigation measures	Change in number of people exposed to noise levels ≥ 40 dB(A) L_{night} Number of mitigation measures implemented
Population and Health	Protect amenity of local residents from effects of traffic, parking, or loss of privacy Protect human health	Compliance with air quality legislation Compliance with WHO guidelines on noise	Identified breaches of air quality limits Population exposed to aircraft noise with reference to WHO noise guidelines and associated health endpoints

6.8 Based on the above objectives, targets and indicators, the methodology for assessing the likely impact of the Plan (i.e. the proposed approach to the management of noise) on each of the environmental aspects/SEA objectives is given in Table 6.2.

Table 6.2: Methodology for assessing impacts of the NAO and RD

Environmental aspect	Methodology
Air Quality	Review the likelihood of air quality legislation being complied with
Biodiversity	Review the likelihood of significant effects on the designated features of the SPAs and SACs and their overall integrity
Carbon and Climate Change	Review the likelihood of Ireland meeting its carbon emissions reduction targets for aviation
Cultural Heritage	Review the likelihood of significant effects on designated heritage assets
Landscape and Visual	Review the likelihood of significant effects on designated landscapes
Noise and Vibration	Review likelihood of WHO guidelines on noise being complied with
Population and Health	Review likelihood of air quality legislation and WHO guidelines being complied with

6.9 The assessment results will be presented in a matrix format using the colour coding shown in Table 6.3 to identify significance, along with an accompanying narrative description of the assessment findings.

Table 6.3: Key to likely significant effects

Key to likely significant effects	
Potential for significant positive effects	++
Potential for minor positive effects	+

Negligible or no effect	0
Potential for both positive and negative effects	+/-
Potential for minor negative effects	-
Potential for significant negative effects	- -

6.10 Should any significant negative effects be predicted through the assessment, measures to avoid, reduce or mitigate the effects will be proposed. Enhancement measures may also be suggested to encourage more positive effects through the Plan, or recommendations made for enhancement measures that may be developed in more detail at later planning stages.

7 Next Steps

7.1 This SEA Scoping Report has been forwarded to each Environmental Authority, thereby providing the information they required regarding which environmental factors are considered likely to be impacted by the proposed NAO and RD, and how any significant effects will be identified. The Environmental Authorities were provided with a period of 4 weeks within which they could make submissions and observations on the Scoping Report and the scope and level of detail to be included in the Environmental Report generally.

7.2 The EPA provided a consultation response to this Scoping Report on the 28th May 2021 (Appendix 1). In it they highlighted a series of considerations for the SEA Environmental Report stage, outlined under the following headings:

- Sustainable Development Goals & Key Actions for Ireland
    - Transition to a low carbon climate resilient economy and society
- Scope of the SEA
- Integration of SEA and Plan
- Monitoring, Review & Reporting
- Integration with other key Plans and Programmes
- Data & Knowledge Gaps
- Available Guidance & Resources
    - Environmental Sensitivity Mapping (ESM) Webtool
    - EPA SEA WebGIS Tool
    - EPA WFD Application
    - EPA AA GeoTool
- Environmental Authorities

7.3 The Department of Agriculture, Food and the Marine (DAFM) also provided a consultation response to this Scoping Report on the 4th June 2021 (Appendix 2). In it they highlighted a number of considerations for the SEA Environmental Report stage, outlined under the following headings:

- Relevant Legislation, Plans and Policies
- Issues for consideration

- Potential Impacts on Sea-Fisheries and Aquaculture
- Sources of Marine Data
- Who to Consult With

7.4 ANCA have reviewed the submissions and observations and will ensure that the SEA Environmental Report takes account of them. Furthermore, the SEA Environmental Report will include a section that outlines how the Report has taken them into account.

7.5 ANCA intends to adopt this Scoping Report as a statement of the current proposed scope of the Environmental Report to be prepared pursuant to Article 10 of the SEA Regulations.

7.6 The following stages of the SEA process, as prescribed in the SEA Process Checklist (EPA, 2008) / SEA Pack (Updated 2020), will now be undertaken to ensure that the requirements of the relevant legislation have been met:

- Environmental Report: this will contain the information set out in Schedule 2 of the SEA Regulations, including the detailed information required for the assessment. Furthermore it will demonstrate how the submissions and observations made during scoping were taken into account;
- Public Consultation: this will take place in parallel with the public consultation on the NAO, DRD and DRD report;
- SEA Statement: This will summarise:
    - how environmental considerations have been integrated into the plan or programme;
    - how the environmental report, submissions and observations made to ANCA by the Environmental Authorities and the public, and any consultations under article 14, have been taken into account during the preparation of the Plan,
    - the reasons for choosing the Plan in the light of the other reasonable alternatives dealt with; and
    - the measures decided upon to monitor the significant environmental effects of implementation of the Plan.

8 References

AECOM (2020) Dublin Airport North Runway Relevant Action Application: Appropriate Assessment Report

AECOM (2020) Dublin Airport North Runway Relevant Action Application: Environmental Impact Assessment Report. Main Report

ANCA (2021) Ascertaining a Noise Problem at Dublin Airport. Recommendation report arising from planning application F20A/0668 for a Relevant Action

Birdwatch Ireland & RSPB (2021) Birds of Conservation Concern in Ireland

daa (2008) Dublin Airport Multi Storey Car Park and Hotel, Environmental Impact Statement

DAHG (2015) National Landscape Strategy for Ireland 2015-2025

DCC (2019) Climate Change Action Plan 2019-2024

DCC (2016) Dublin City Development Plan

DCC, SDCC, FCC & CCCC (2009) Dublin Regional Air Quality Management Plan 2009-2012

DCHG (2017) National Biodiversity Action Plan 2017 – 2021

DECC (draft) National Clean Air Strategy

DECC (2020) National Energy and Climate Plan 2021-2030

DECC (2019) Climate Action Plan

DECC (2019) National Broadband Plan

DECC (2015) National Policy Position on Climate Action and Low Carbon Development

DECC (2009) National Renewable Energy Action Plan 2010-2020

DHLGH (draft) Heritage Ireland 2030

DTTAS (2019) Ireland's Action Plan for Aviation Emissions Reduction

DTTAS (2018) Policy Statement on Runway Development at Dublin Airport

DTTAS (2018) Review of Future Capacity Needs at Ireland's State airports

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Eastern-Midlands Waste Region (2015) Eastern-Midlands Region Waste Management Plan 2015-2021

EC (2019) 2050 long-term strategy. Available from: https://ec.europa.eu/clima/policies/strategies/2050_en. Accessed 27/04/2021

EPA (2020) SEA Pack

EPA (2020) State of the Environment Report – Ireland's Environment 2020

EPA (2019) Urban Environmental Indicators: Nitrogen Dioxide Levels in Dublin

EPA (2018) Air Quality in Ireland 2017

EPA (2015) Guidance on Alternatives in SEA

EPA (2008) SEA Process Checklist

EPA (no date) EPA Maps. Available from: https://gis.epa.ie/SeeMaps. Accessed 23/04/2021

European Environment Agency (2020) Air Pollution: Health Impacts of Air Pollution

FCC (2020) Dublin Airport Local Area Plan

FCC (2020) Dublin Airport Local Area Plan. Appendix 5: Screening Report for Appropriate Assessment

FCC (2020) Dublin Airport Local Area Plan. Appendix 6: Strategic Flood Risk Assessment and Surface Water Management Plan

FCC (2019) Climate Change Action Plan 2019-2024

FCC (2019) Draft Dublin Airport Local Area Plan. Appendix 4: Strategic Environmental Assessment Environmental Report

FCC (2019) Fingal Development Plan 2017-2023

FCC (2019) South Fingal Transport Study

FCC (2018) Dublin Airport Noise Action Plan 2019-2023

FCC (2018) Fingal Heritage Plan 2018-2023

FCC (2017) Natura Impact Report for the Fingal Development Plan 2017-2023

FCC (2016) Dublin Airport Central Masterplan

FCC (2016) Strategic Environmental Assessment Environmental Report for the Draft Fingal Development Plan 2017 - 2023

FCC (2010) Fingal Biodiversity Action Plan 2010-2015

FCC (2016) Fingal Local Economic and Community Plan 2016-2021

FCC (2014) Fingal East Meath Flood Risk Management Plan

Government of Ireland (2018) National Development Plan 2018-2027

Government of Ireland (2018) National Planning Framework – Project Ireland 2040

Government of Ireland (2018) River Basin Management Plan for Ireland 2018-2021

Healthy Ireland (2017) A Framework for Improved Health and Wellbeing 2013-2025

Irish Water (draft) National Water Resources Plan

Meath County Council (2013) Meath County Development Plan 2013-2019

National Transport Authority (2016) Transport Strategy for the Greater Dublin Area 2016-2035

Noise Consultants Ltd (2021) Advice Report: Aspects of a Potential Noise Problem associated with Planning Application F20A/0668.

NPWS (2009) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities

NPWS (no date) Protected Sites in Ireland. Available from: https://www.npws.ie/protected-sites. Accessed 15/01/2021

Smarter Travel (2012) Transport Policy for Ireland 2009-2020

WHO (2005) Air quality guidelines

WHO (2018) Environmental Noise Guidelines for the European Region

9 Appendix 1 - EPA Scoping Consultation Response

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

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Ms Ethna Felten
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Aircraft Noise Competency Authority
Fingal County Council
County Hall
Main Street, Swords
Co Dublin, K67 X8Y2

28th May 2021 Our Ref: SCP210501.1

Re. SEA Scoping Report for the Proposed Noise Abatement Objective for Dublin Airport

Dear Ms Felten,

We acknowledge your notice, dated 6th May 2021, in relation to the SEA Scoping Report for the Proposed Noise Abatement Objective for Dublin Airport (the 'Plan').

The EPA is one of the statutory environmental authorities under the SEA Regulations. In our role as an SEA environmental authority, we focus on promoting the full and transparent integration of the findings of the Environmental Assessment into the Plan and advocating that the key environmental challenges for Ireland are addressed as relevant and appropriate to the plan. Our functions as an SEA environmental authority do not include approving or enforcing SEAs or plans.

Where we provide specific comments on plans and programmes, our comments will focus on the EPA's remit and areas of expertise (in particular water, air, climate change, waste, resource efficiency, noise, radon and the inter-relationships between these and other relevant topics e.g. biodiversity), as appropriate and relevant to the particular plan or programme.

Following on from this submission, the EPA may provide additional comments upon receipt of the SEA Environmental Report and Draft Plan at the next stage of the SEA process.

Sustainable Development Goals & Key Actions for Ireland
Our State of Environment Report *Ireland's Environment - An Integrated Assessment 2020* (EPA, 2020) identifies thirteen Key Messages for Ireland. Delivering Ireland's long-term sustainable development and environmental protection goals will require a concerted effort by government departments to address these key actions:

1. *National Policy Position for Ireland's Environment* - Recognition of the need for an integrated policy position given the many interlinkages and dependencies.

2. *Full Implementation of existing environmental legislation and review of governance/coordination on environmental protection across public bodies*
3. Promote the benefits of a clean environment for health and wellbeing
4. Systemic change is needed for Ireland to become climate neutral and a climate resilient society and economy.
5. WHO clean air quality guideline values to be adopted within the Clear Air Strategy as specific targets to achieve.
6. Safeguard nature and wild places as a national priority to preserve its legacy for future generations
7. Improve the water environment and tackle water pollution water quality locally at a water catchment level.
8. Reduce human induced pressures on the marine environment
9. Move away rapidly from extensive use of fossil fuels to the use of clean energy systems
10. An agriculture and food sector that demonstrates validated performance around producing food with a low environmental footprint.
11. Drinking water and wastewater infrastructure must meet the needs of our society
12. Move to a less wasteful and circular economy where the priority is waste prevention, reuse, repair and recycle.
13. Promote integrated land mapping approaches to support decision making on sustainable land use.

In finalising the Plan and integrating the findings of the SEA into the Plan, the relevant recommendations, key issues and challenges described in our recent State of the Environment Report Ireland's Environment – An Assessment 2020 *(EPA, 2020)* should be taken into account.

The relevant objectives and policy commitments of the National Planning Framework and the Regional Spatial and Economic Strategy for the Eastern and Midlands Region should be aligned with and considered, as appropriate.

Transition to a low carbon climate resilient economy and society

You should ensure that the Plan aligns with national commitments on climate change mitigation and adaptation, as well as any relevant sectoral, regional and local adaptation plans.

Scope of the SEA

The Plan should clearly set out the scope, remit and implementation related elements of the Plan. These will have implications for the SEA, in terms of guiding the level of assessment applicable at the appropriate level for the Plan. Where it is envisaged that measures proposed in the Plan will be implemented via other plans, which themselves have been or will be subject to SEA, this should be explained in the Environmental Report and taken into account in the assessment.

Where specific measures will be implemented directly, further detail should be provided in the Environmental Report and Plan on the relevant environmental assessments to be carried out at the project stage and relevant mitigation measures to be applied, as appropriate. There may be merit in exploring this issue further with the relevant Environmental Authorities during the Plan preparation and SEA processes.

Integration of SEA and Plan

All recommendations from the SEA and AA processes, including mitigation measures, should be integrated in the Plan. We recommend that the Plan includes summary tables outlining the key

findings of the SEA and linking the significant environmental effects identified to the proposed mitigation measures, monitoring programme and Plan policies/measures.

Monitoring, Review & Reporting

The Plan should include a commitment to implement the environmental monitoring programme and associated reporting. We suggest including a separate section on '*Monitoring, Review and Reporting*' in the Plan, setting out the provisions for monitoring and reporting on the implementation of the Plan and periodic reviews. There may be merits, where relevant, in aligning the periodic reviews of the Plan with existing cyclical reporting e.g. *Ireland's Environment*, National Planning Framework, Water Framework Directive, Marine Strategy Framework Directive etc.

In between review periods for the Plan, if appropriate, we recommend that Plan-related implementation reports are published annually, or biennially, as appropriate. We recommend aligning these is Plan implementation monitoring/reporting with the environmental monitoring required under the SEA legislation. Doing so would enable the environmental performance of the Plan to be evaluated and would also provide for increased transparency during implementation.

The SEA-related monitoring should address positive, negative and cumulative effects where they are likely to occur and should include provision for on-going review to facilitate an early response to any environmental issues that may arise. The Environmental Report should specify the monitoring frequency and responsibilities and include provisions for reporting on the monitoring. To avoid duplication in data collection, the same indicators should be used for the plan-related and SEA-related monitoring where possible.

Integration with other key Plans and Programmes

We recommend including schematics in the Plan and SEA Environmental Report, showing the links and key inter-relationships with other key relevant national, regional, sectoral and environmental plans.

Data & Knowledge Gaps

The Plan should identify any significant data and knowledge gaps, include commitments to help address these on a priority basis during the implementation phase of the Plan. This is with a view to strengthening the evidence base for future reviews and iterations of the Plan.

Available Guidance & Resources

Our website contains various SEA resources and guidance, including:

- SEA process guidance and checklists
- Inventory of spatial datasets relevant to SEA
- topic specific SEA guidance (including *Good practice note on Cumulative Effects Assessment* (EPA, 2020), Guidance on SEA Statements and Monitoring (EPA, 2020), *Integrating climatic factors into SEA* (EPA, 2019), *Developing and Assessing Alternatives in SEA* (EPA, 2015), and *Integrated Biodiversity Impact Assessment* (EPA, 2012))

You can access these resources at: www.epa.ie/monitoringassessment/assessment/sea/

Environmental Sensitivity Mapping (ESM) Webtool

The ESM Webtool is a new decision support tool to assist SEA and planning processes in Ireland. The tool brings together over 100 datasets and allows users to explore environmental

considerations within a particular area and create plan-specific environmental sensitivity maps. These maps can help planners anticipate potential land-use conflicts and help identify suitable development locations, while also protecting the environment. The ESM Webtool is available at www.enviromap.ie.

EPA SEA WebGIS Tool

Our SEA WebGIS Tool has been updated recently and is now publicly available at https://gis.epa.ie/EPAMaps/SEA. It allows public authorities to produce an indicative report on key aspects of the environment in a specific geographic area It is intended to assist public authorities in SEA screening and scoping exercises.

EPA WFD Application

Our WFD Application provides a single point of access to water quality and catchment data from the national WFD monitoring programme. The Application is accessed through EDEN https://wfd.edenireland.ie/ and is available to public agencies. Publicly available data can be accessed via the Catchments.ie website.

EPA AA GeoTool

Our AA GeoTool application has been developed in partnership with the NPWS. It allows users to a select a location, specify a search area and gather available information for each European Site within the area. It is available at: http://www.epa.ie/terminalfour/AppropAssess/index.jsp

Environmental Authorities

Under the SEA Regulations, you should consult with:

- Environmental Protection Agency;
- Minister for Housing, Local Government and Heritage;
- Minister for Environment, Climate and Communications;
- Minister for Agriculture, Food and the Marine.
- Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media

If you have any queries or need further information in relation to this submission, please contact me directly. I would be grateful if you could send an email confirming receipt of this submission to: sea@epa.ie.

Yours Sincerely,

_____

David Galvin
SEA Section
Office of Evidence and Assessment
Environmental Protection Agency

10 Appendix 2 - DAFM Scoping Consultation Response

From: Environmental Co-ordination (Inbox) <Environmental_Co-ordination@agriculture.gov.ie>
Sent: 04 June 2021 14:39
To: Aircraft Noise CA <AircraftNoiseCA@fingal.ie>
Subject: SEA Scoping; Noise Abatement Objective and Regulatory Decision relating to Aircraft Noise Management at Dublin Airport

Hello
I refer to your recent correspondence concerning the above.

Where SEA scoping indicates potential impacts on sea-fisheries and the marine environment, the following information should be taken into account in the SEA.

Relevant Legislation, Plans and Policies

- Foreshore Acts 1933 to 2011
- Aquaculture Acts 1997 to 2006 (Fisheries (Amendment) Act 1997 and amendments)
- Sea Fisheries and Maritime Jurisdiction Act 2006 and Sea-Fisheries Regulations
- Fisheries Natura Plans and Declarations made under European Union (Birds and Natural Habitats) (Sea-fisheries) Regulations 2013 (online at http://www.fishingnet.ie/sea-fisheriesinnaturaareas/natura2000sitesundermanagement/)
- National Seafood Operational Programme (EMFF requirement) and National Strategic Plan for Aquaculture (CFP requirement) currently under preparation for 2014 – 2020
- Food Harvest 2020
- Harnessing Our Ocean Wealth – the national integrated marine plan for Ireland
- Implementation of pollution reduction programmes for designated shellfish waters (Shellfish Waters Directive 2006/113/EC)
- Classified Shellfish Production areas (classified for food safety and consumer protection purposes under Regulation (EC) No 854/2004)
- National Climate Change Adaptation Framework – particularly sector adaptation plans (including marine) due to undergo consultation in 2014.

Issues for consideration
In the development of any Plans or Programmes due consideration should be given to:

Potential impacts, both positive and negative, on marine environmental quality including potential impacts on designated Shellfish Growing Waters. Examples include, but are not limited to the following: increased sedimentation; re-suspension of contaminants; discharge of contaminants; and introduction of non-native or invasive species.

- Potential impacts , both positive and negative, on the microbiological quality of shellfish in Classified Shellfish Production areas

- Potential impacts on human health resulting from the placing on the market of microbiologically contaminated shellfish
- Potential impacts on commercially important fish and shellfish stocks, licensed aquaculture sites and areas of importance for fish / shellfish and fisheries e.g. spawning grounds, nursery areas
- Potential impacts on freshwater aquaculture operations including the requirement for water abstraction and capacity of the receiving waters to assimilate discharges
- Future designations of areas of importance to the Aquaculture and Fisheries Sector
- Relevant EU Directives and National Legislation in the area of Marine Spatial Planning

Potential Impacts on Sea-Fisheries and Aquaculture
Major land-use changes can significantly impact the quality of the marine (particularly coastal) environment (e.g. sedimentation, hydrographic change, impacts on benthic eco-system, etc).
All aspects of the seafood sector rely on safe high quality water and assessment of potential impacts on water quality should include the seafood sector. To guarantee food safety the growing waters must attain certain standards. This is of relevance to the fishing and aquaculture sectors. In freshwater aquaculture (on land) a continuity of supply is important to ensure animal welfare and quality. Water supplies in this instance are sourced from rivers, wells and occasionally from mains supplies.

The seafood processing sector also requires a safe and reliable water supply to support its operations. Designated shellfish waters are very important to the shellfish sector in Ireland working to maintain standards in product safety and quality and enabling sale for direct consumption from many areas, reducing production costs and contributing to the good international reputation of the products. The role of filter-feeding shellfish as a nutrient sink thus helping to reduce eutrophication potential and improve water quality is also important to consider in assessments.

Sources of Marine Data
Details of designated shellfish growing areas which are protected by law (2006/113/EC) are available at: http://www.environ.ie/en/Environment/Water/WaterQuality/ShellfishWaterDirective/
Details of Classified Shellfish Production areas (classified for food safety and consumer protection purposes under Regulation (EC) No 854/2004) are available on the Sea-Fisheries Protection Authority website: http://www.sfpa.ie/

The Marine Institute publishes a range of corporate reports, scientific and technical reports, peer reviewed articles and conference papers which are relevant to the SEA process. These can be found on the Marine Institute website: http://www.marine.ie/Home/publications or Marine Institute Open Access Repository.

Relevant reports and on line GIS include:
- Shellfish Stocks and Fisheries Review 2011: An Assessment of Selected Stocks
- Atlas of Commercial Fisheries Around Ireland
- Atlas of Commercial Discarding
- Ireland's Marine Atlas

Information on the Initial Assessment of Ireland’s marine waters, required under the Marine Strategy Framework Directive, is available at

http://www.environ.ie/en/Environment/Water/WaterQuality/Marine/

Who to Consult With

- DAFM – Policies, plans and legislation concerning sea-fisheries and aquaculture
- SFPA – Competent Authority for Seafood Safety (classifications, monitoring and sanitary surveys) and Sea-fisheries Control
- Marine Institute – Fisheries and Marine Environment
- BIM – Seafood Development Agency
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Consideration should also be given to consulting directly with the seafood sector. This may include regional inshore fisheries forums, Fisheries Local Action Groups, fisheries representative bodies, including producer organisations, local advisory committees, associations, co-operatives; seafood processors; aquaculture representative bodies, etc.

Kind regards

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