



Dublin Airport North Runway Relevant Action Application

Environmental Impact Assessment Report
Volume 3 - Figures

September 2021

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Acronyms and Abbreviations

Abbreviation / Term	Definition
%	Percentage
µg/m ³	Microgram per cubic meter
µm	Micro-metre. A measure of length equalling 1x10 ⁻⁶ of a metre
AA	Appropriate Assessment
ABP	An Bord Pleanála
ACA	Architectural Conservation Area
AEDT	Aviation Environmental Design Tool
ANCA	Aircraft Noise Competent Authority
ANPR	Automatic Number Plate Registration
ANQ	Annual Noise Quota
APU	Auxiliary Power Units
AQLV	Air Quality Limit Values
ATM	Air Traffic Movement
ASI	Archaeological Survey of Ireland
AQC	Air Quality Consultants
ACDM	Airport Collaborative Decision Making
BCT	Bat Conservation Trust
BNL	Basic Noise Level
BSI	British Standards Institute
CAR	Commission for Aviation Regulation
CAFE	Cleaner Air for Europe
CCD	Climb, Cruise and Descent
CCR	Climate Change Resilience
CEMP	Construction Environmental Management Plan
CFRAM	Catchment Flood Risk Assessment and Management
CGI	Computer Generated Imagery
CHD	Coronary Heart Disease
CH ₄	Methane
CIEEM	Chattered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
cNAO	Candidate Noise Abatement Objective
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CODA	Central Office of Delay Analysis
CO ₂	Carbon Dioxide
COMAR	Control of Major Accident Hazard
CTPRO	Change to Permitted Runway Operations
CSO	Central Statistics Office
CD	Cardiovascular Disease

Abbreviation / Term	Definition
C ₆ H ₆	Benzene
DAA	Dublin Airport Authority
dB	The unit of noise measurement that expresses the loudness in terms of decibels (dB) based on a weighting factor for humans sensitivity to sound (A)
dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies
DBA	Desk-Based Assessment
DCHG	Department of Culture, Heritage and the Gaeltacht
DCLG	Department of Communities and Local Government
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DfE	Department of Education
DfT	Department for Transport
DoEHLG	Department of Transport and the Department of Environment, Heritage and Local Government
DRAQMP	Dublin Regional Air Quality Management Plan
DTTAS	Department of Transport, Tourism and Sport
DUB	Dublin
EASA	European Aviation Safety Agency
EC	European Commission
ED	Electoral Divisions
EIA	Environmental Impact Assessment.
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPS	European Protected Species
EPUK	Environmental Protection UK
ETS	Emission Trading Scheme
EU	European Union
FAA	Federal Aviation Administration
FDI	Foreign Direct Investment
FEGP	Fixed Electrical Ground Power
FCC	Fingal County Council
FRA	Flood Risk Assessment
NFTMS	Flight Track Monitoring System
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GSE	Ground Support Equipment
ha	Hectare
HFCs	Hydrofluorocarbons
HIA	Health Impact Assessment
HSA	Health and Safety Authority

Abbreviation / Term	Definition
HSE	Health and Safety Executive
HT	High Technology
IAA	Irish Aviation Authority
IAI	Institute of Archaeologists Ireland
IAQM	Institute of Air Quality Management
ICAO	International Civil Aviation Organisation
ICE	Inventory of Carbon and Energy
ICCI	In-combination Climate Change Impact Assessment
IEMA	Institute of Environmental Management and Assessment
IFC	International Finance Corporation
IFI	Inland Fisheries Ireland
IGI	Institute of Geologists of Ireland
IHD	Ischaemic Heart Disease
IHT	Institution of Highways and Transportation
IPC	Integrated Pollution Control
IPPC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
IW	Irish Water
JA	Jobseekers Allowance
JB	Jobseekers Benefit
km	Kilometres
LAP	Local Area Plan
LAQM	Local Air Quality Management.
LDC	Least Developed Countries
LLDC	Landlocked Developing Countries
Ltd.	Limited
LTO	Landing and Take-off
mppa	Million Passengers Per Annum
NAO	Noise Abatement Objective
NAP	National Aviation Policy
N/A	'Not applicable' or 'Not appropriate'
NDP	The National Development Plan 2018 – 2027
NFTMS	Noise and Flight Track Monitoring System
NF ₃	Nitrogen Trifluoride
NIAH	National Inventory of Architectural Heritage
NIS	Natura Impact Statement
NLS	National Landscape Strategy
NMS	National Monument Service
NMTs	Noise Monitoring Terminals
NO ₂	Nitrogen Dioxide
NOEL	No Observed Effect Level
NO _x	Nitrogen Oxides

Abbreviation / Term	Definition
NPPF	National Planning Policy Framework. (UK)
NPF	National Planning Framework
NPPG	National Planning Policy Guidance (UK)
NPWS	National Parks and Wildlife Services
NQP	Night Quota Period
NRA	National Roads Authority
NSO	National Strategic Outcomes
NSS	National Spatial Strategy
NTA	National Transport Authority
NTS	Non-Technical Summary
N ₂ O	Nitrous Oxide
O-D	Origin-Destination
OPW	Office of Public Works
OS	Ordnance Survey
OSI	Ordnance Survey Ireland
PAX	Annual Passengers
PDA	Planning and Development Acts
PFCs	Perfluorocarbons
PM ₁₀	Particulate Matter
PM _{2.5}	Particulate Matter
PWHT	Polluted Water Holding Tank
QC	Quota Count
QI	Qualifying Interest
RMP	Record of Monument and Places
RMSE	Root Mean Square Error
Rol	Republic of Ireland
RPS	Record of Protected Structures
RSES	Regional Spatial and Economic Strategy
PSZ	Public Safety Zones
SA	Small Areas
SAC	Special Area of Conservation
SCI	Special Conservation Interests
SEAI	Sustainable Energy Authority of Ireland
SF ₆	Sulphur Hexafluoride
SI	Statutory Instrument
SID	Standard Instrument Departure
SIDS	Small Island Developing States
SO ₂	Sulphur Dioxide
SPA	Special Protected Area
SRI	Societal Risk Index
SSSI	Site of Special Scientific Interest
TFS	Trans Frontier Shipping

Abbreviation / Term	Definition
TII	Transport Infrastructure Ireland
TOC	Total Organic Carbon
TPA	Tom Philips + Associates
TTA	Traffic and Transport Assessment
UK	United Kingdom
UV	Ultraviolet
VOC	Volatile Organic Compounds
WFD	Water Framework Directive
WHO	World Health Organisation
ZOI	Zone of Influence

Key Concepts and Terminology Used in the EIAR

(Proposed) Relevant Action

The proposed **Relevant Action** is to amend condition no. 3(d) and replace condition 5 of the **North Runway Planning Permission**, as described in Chapter 1 ('Introduction') and Chapter 2 ('Characteristics of the Project').

32 million passengers per annum (mppa) Cap (32 mppa Cap)

Cap on the permitted annual passenger capacity of the Terminals at Dublin Airport as a result condition no. 3 of the **Terminal 2 Planning Permission** and condition no. 2 of the **Terminal 1 Extension Planning Permission**. These conditions provide that the combined capacity of Terminal 1 and Terminal 2 together shall not exceed 32 million passengers per annum.

Permitted Scenario

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

Proposed Scenario

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

Current State of the Environment

This is the description of the current environmental conditions, as required by the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU). It is determined through desk-study and surveys undertaken between 2018 and 2021, as detailed in the technical chapters.

Future Receiving Environment

The **Future Receiving Environment** is the predicted state of the environment in three **Assessment Years** (2022, 2025 and 2035) and represents the likely evolution of the **Current State of the Environment** without implementation of the proposed **Relevant Action**. It is also used as the baseline environment against which the assessment of effects of the **Proposed Scenario** is undertaken. It is derived from the **Current State of the Environment**, adjusted to reflect likely changes occurring between now and the assessment years (insofar as it is possible to determine these).

This is in line with the draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2017) which explain that the predicted future baseline may be referred to as the likely future receiving environment.

Assessment of Effects

The effects of the proposed **Relevant Action** are identified by examining the predicted impacts of the **Permitted Scenario** on the **Future Receiving Environment** and comparing these with the predicted impacts of the **Proposed Scenario** on the same **Future Receiving Environment**.

Assessment Year(s)

The **Assessment Years** are the points in time at which the likely significant effects of the proposed **Relevant Action** are assessed. The reasons for selecting these years are given below.

- **2022:** the year when the North Runway is first expected to become operational.

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

North Runway Planning Permission

The **North Runway Planning Permission** is the planning application FCC Reg. Ref. No. F04A/1755; ABP Ref. No.: PL06F.217429 granted on 29th August 2007, and as amended by FCC F19A/0023, ABP Ref. No. ABP-305298-19 granted on the 18th March 2020 by An Bord Pleanála.

Terminal 1 Extension Planning Permission

The **Terminal 1 Extension Planning Permission** is the planning application FCC Reg. Ref. No. F06A/1843, ABP Ref. PL06F. 223469 granted on the 10th January 2008 by An Bord Pleanála.

Terminal 2 Planning Permission

The **Terminal 2 Planning Permission** is the planning application FCC Reg. Ref. No. F06A/1248, ABP Ref. PL06F.220670 granted on the 29th August 2007 by An Bord Pleanála.

Balanced Approach

The principle of the “balanced approach” to aircraft noise management was adopted by the International Civil Aviation Organisation (ICAO) Assembly in 2011. The **Balanced Approach** recognises the importance of achieving a careful balance between the interests of developing airport growth as well as managing noise levels; operating restrictions are only considered when all other elements of the **Balanced Approach** have been assessed.

Noise Abatement Objective

The Aircraft Noise (Dublin Airport) Regulation Act 2019 (Aircraft Noise Act) implements European Union Regulation 598/2014 on the establishment of rules and procedures with regard to the introduction of noise related operating restrictions at EU Airports within the **Balanced Approach**.

The Aircraft Noise Act also sets out a process of aircraft noise regulation whereby the Aircraft Noise Competent Authority (ANCA) shall ensure that the **Balanced Approach** is adopted where a noise problem at the airport has been identified and requires the identification of a **Noise Abatement Objective** (NAO) as appropriate.

Quota Count System

A Quota Count (QC) system is designed to limit the overall amount of noise produced by aircraft using an airport, based on an allowable Annual Noise Quota (ANQ) for a given time period. A QC value is assigned to each individual aircraft movement based on the certified noise level of that aircraft. Lower QC values are attributed to aircraft with lower noise levels, higher values to noisier aircraft. The QC accumulates for each Air Traffic Movement (ATM) against the allowable ANQ across the chosen time period. As such, the system allows a greater number of quieter aircraft movements within a given quota thereby encouraging the use of quieter aircraft at the airport.





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Relevant Action

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LEGEND

- Historic Sites and Monuments
- + Inventory of Architectural Heritage Sites
- - - North Runway 5 km buffer
- Application Site boundary
- Natural Heritage Area
- Sensitive Landscapes
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Landscape Character Areas**
 - Coastal / Estuary
 - Low Lying Agricultural
 - River Valleys / Canal
 - Rolling Hills with Tree Belts

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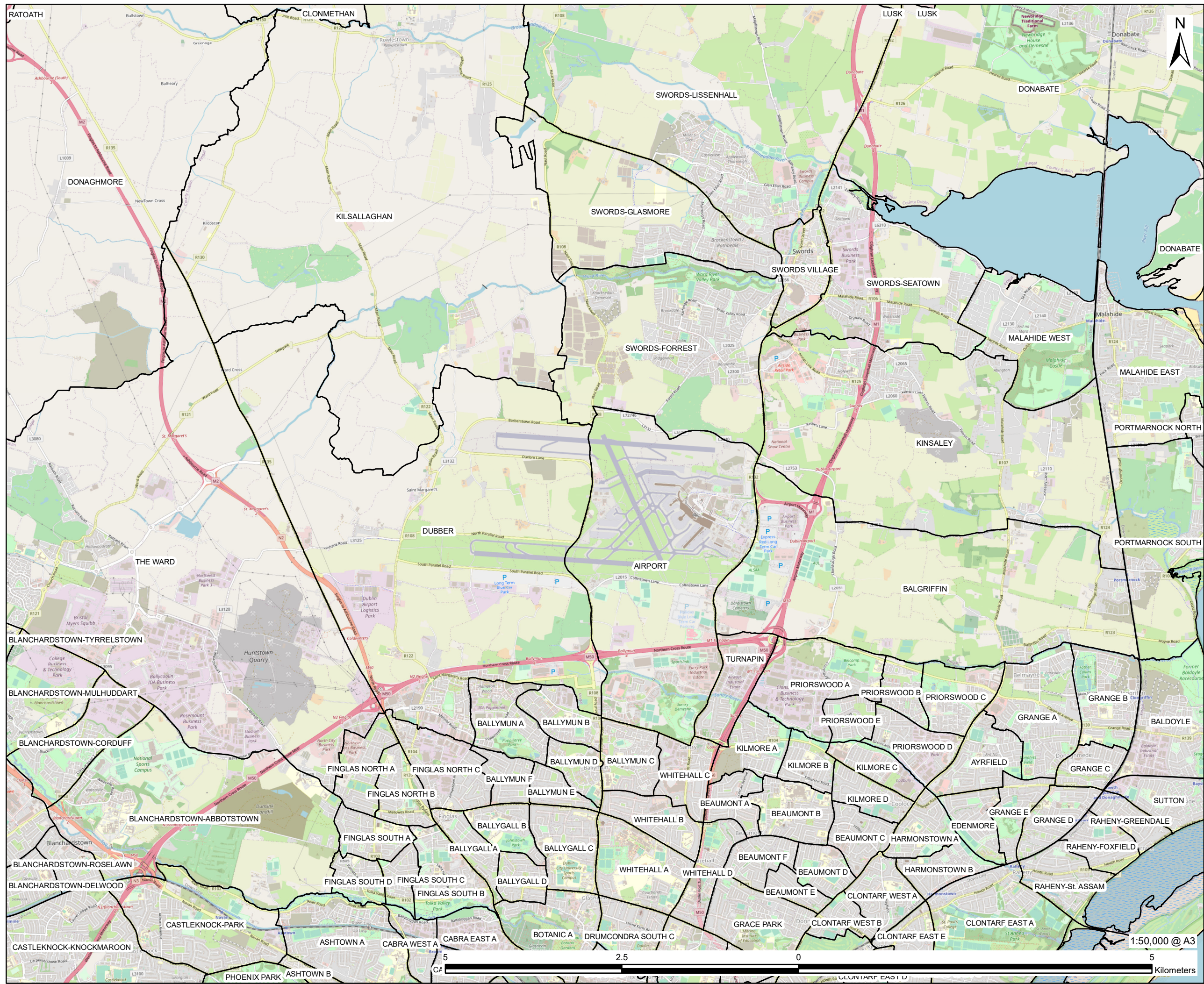
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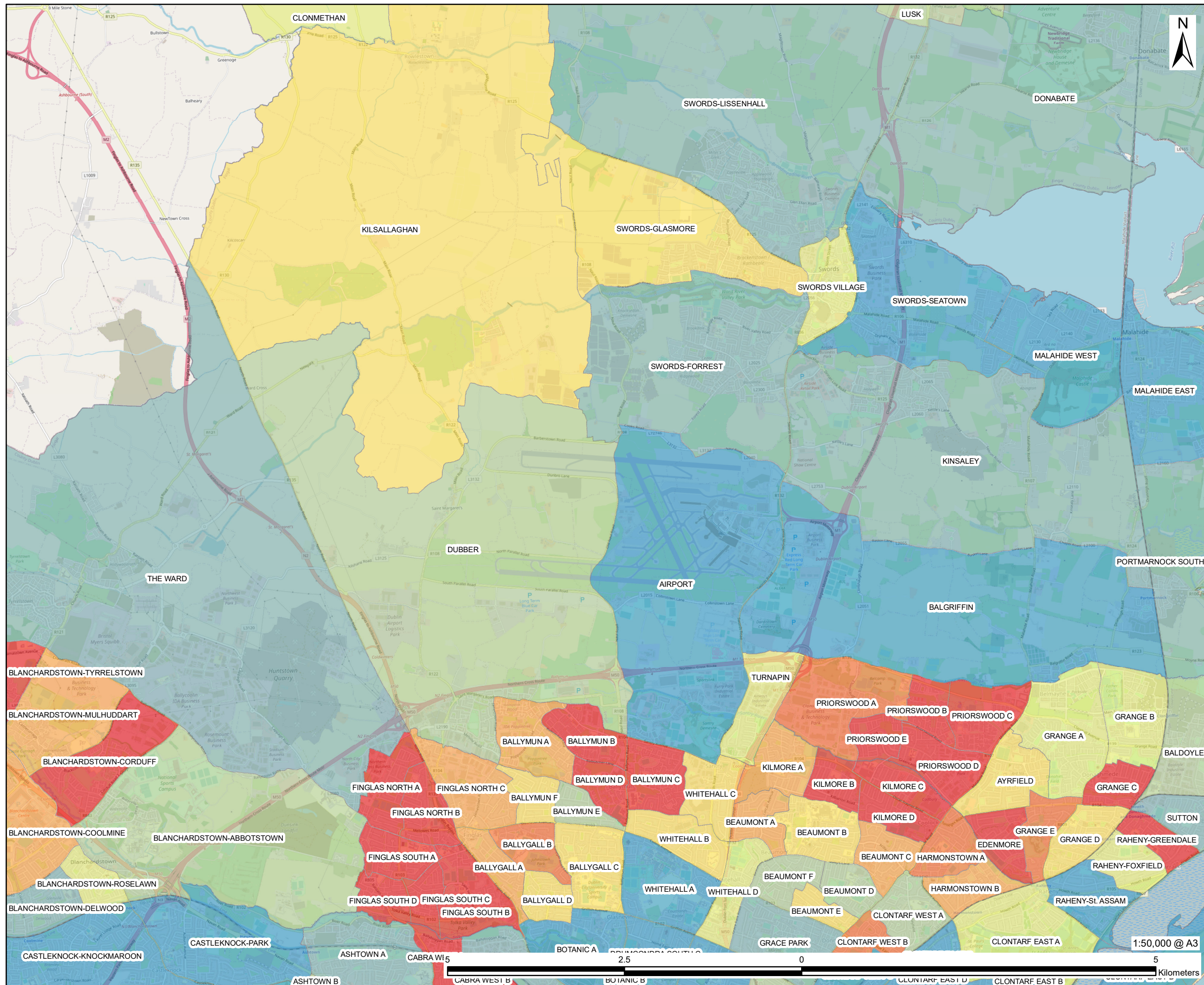
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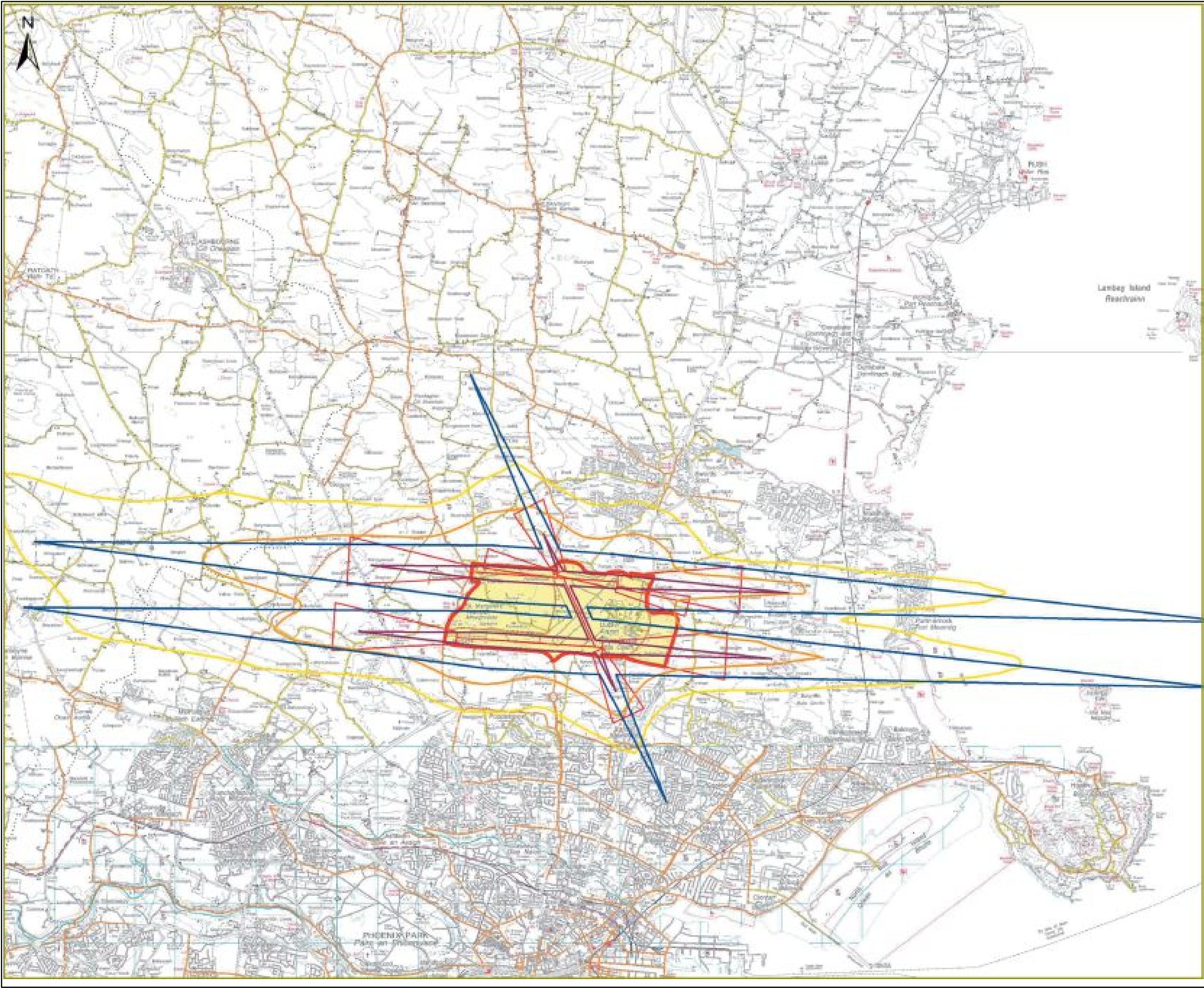
Environmental Context Plan

Figure Number

Figure 2.1







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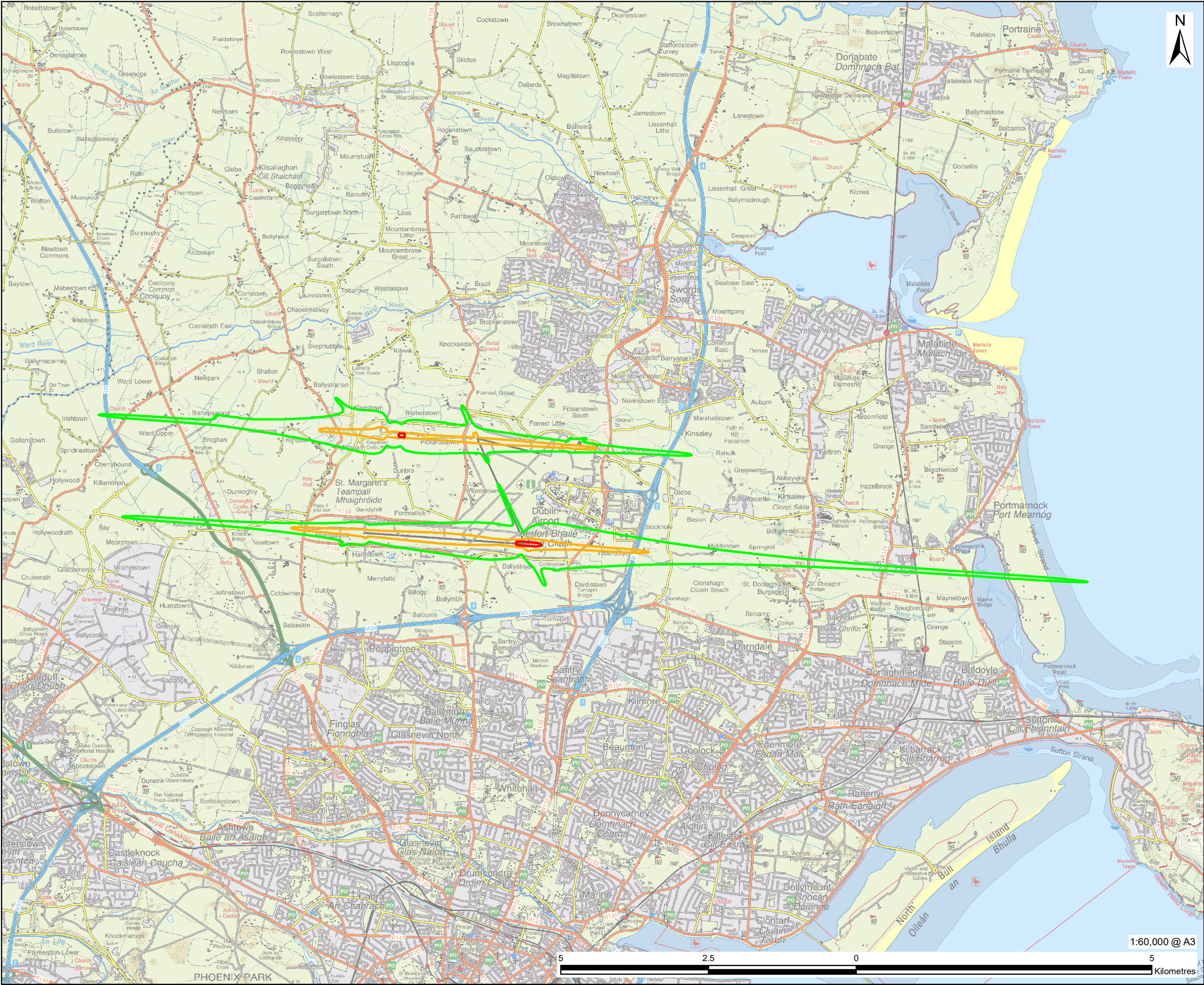
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FIGURE TITLE

Provisional PSZs from the Dublin
Airport Local Area Plan

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Figure 8.1



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LEGEND

- 1 in 10,000 per annum risk
- 1 in 100,000 per annum risk
- 1 in 1,000,000 per annum risk

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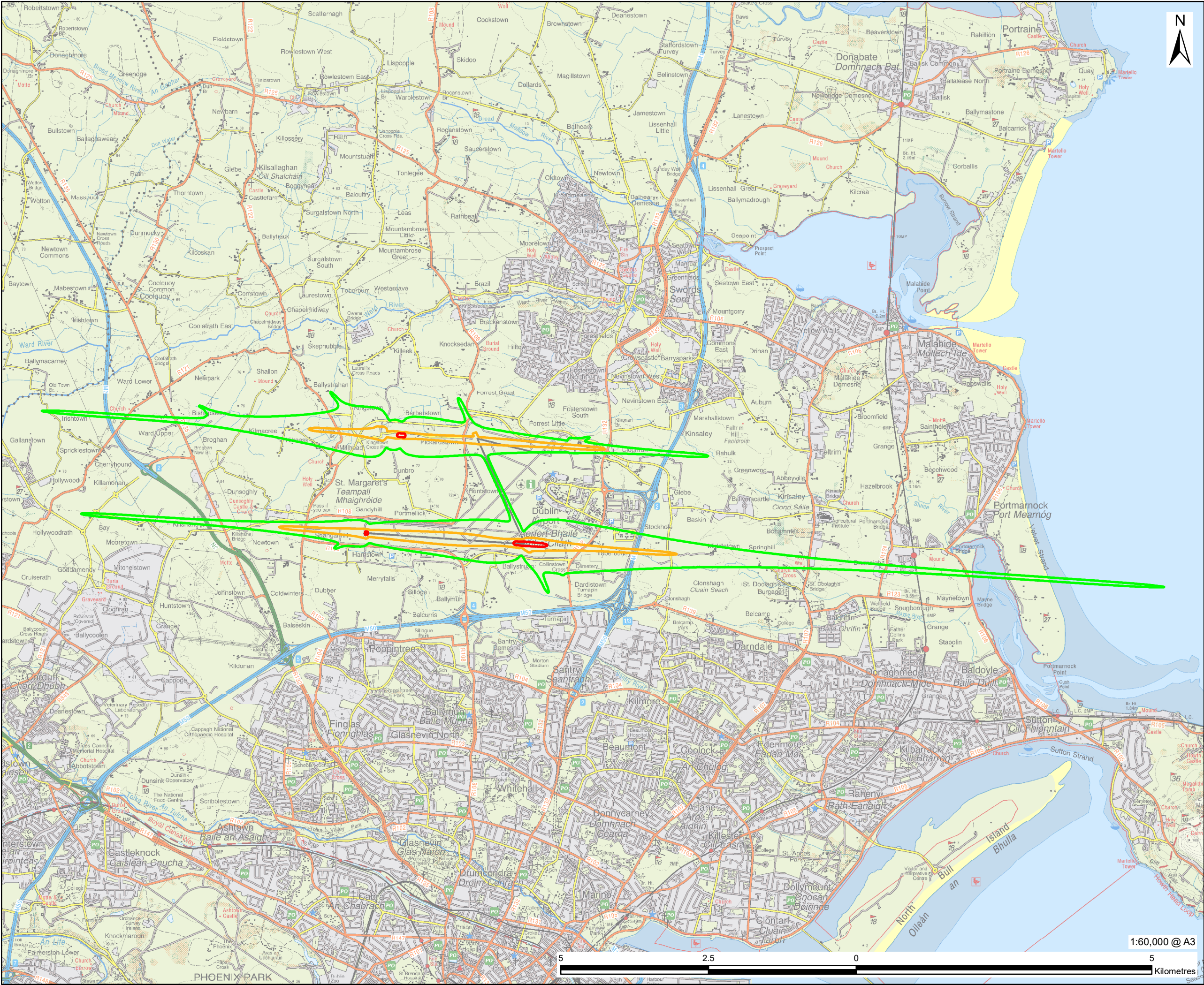
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FIGURE TITLE

2022 Permitted Scenario Risk Contours

FIGURE NUMBER

Figure 8.2



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LEGEND

- 1 in 10,000 per annum risk
- 1 in 100,000 per annum risk
- 1 in 1,000,000 per annum risk

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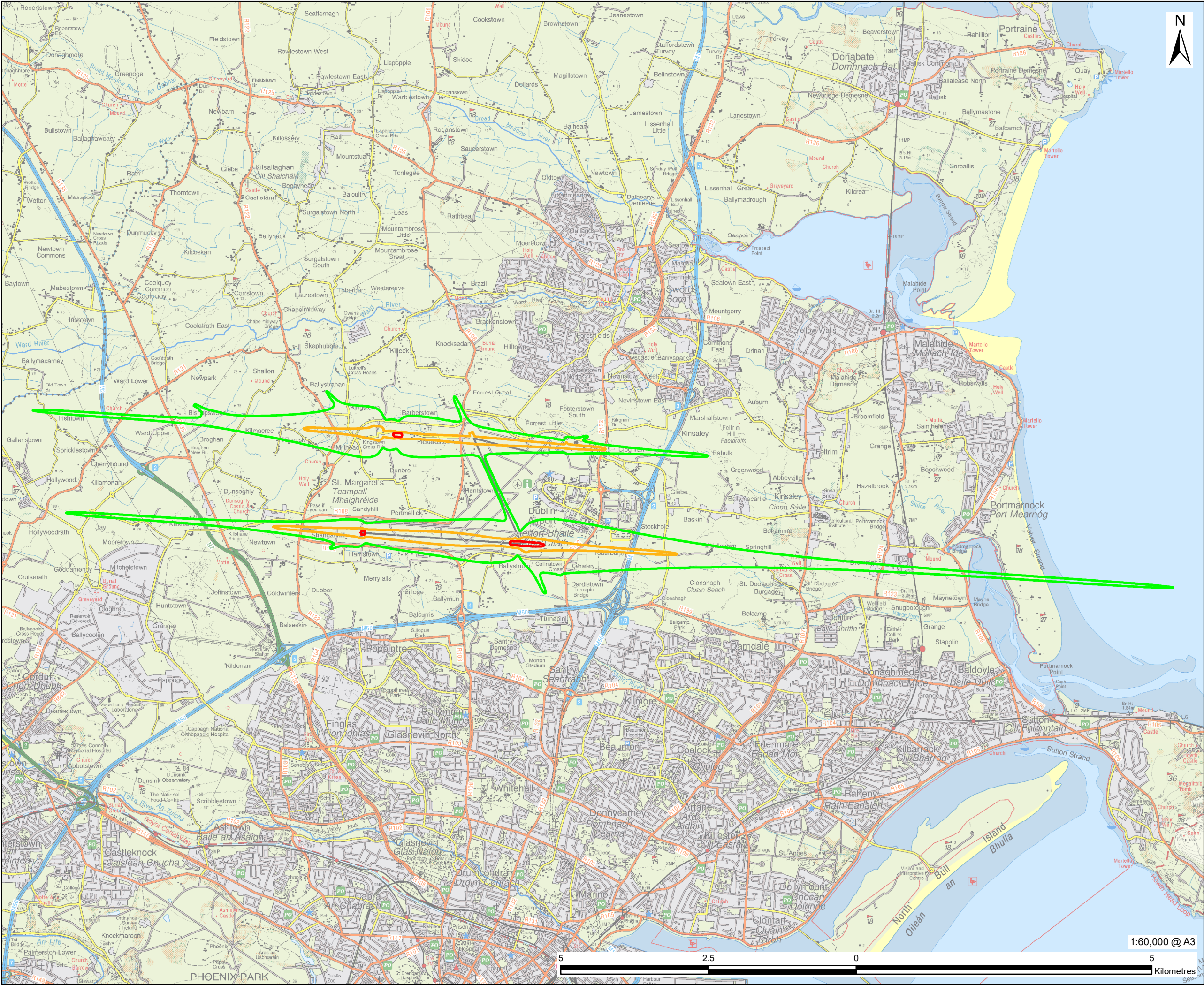
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FIGURE TITLE

2025 Permitted Scenario Risk Contours

FIGURE NUMBER

Figure 8.3



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LEGEND

- 1 in 10,000 per annum risk
- 1 in 100,000 per annum risk
- 1 in 1,000,000 per annum risk

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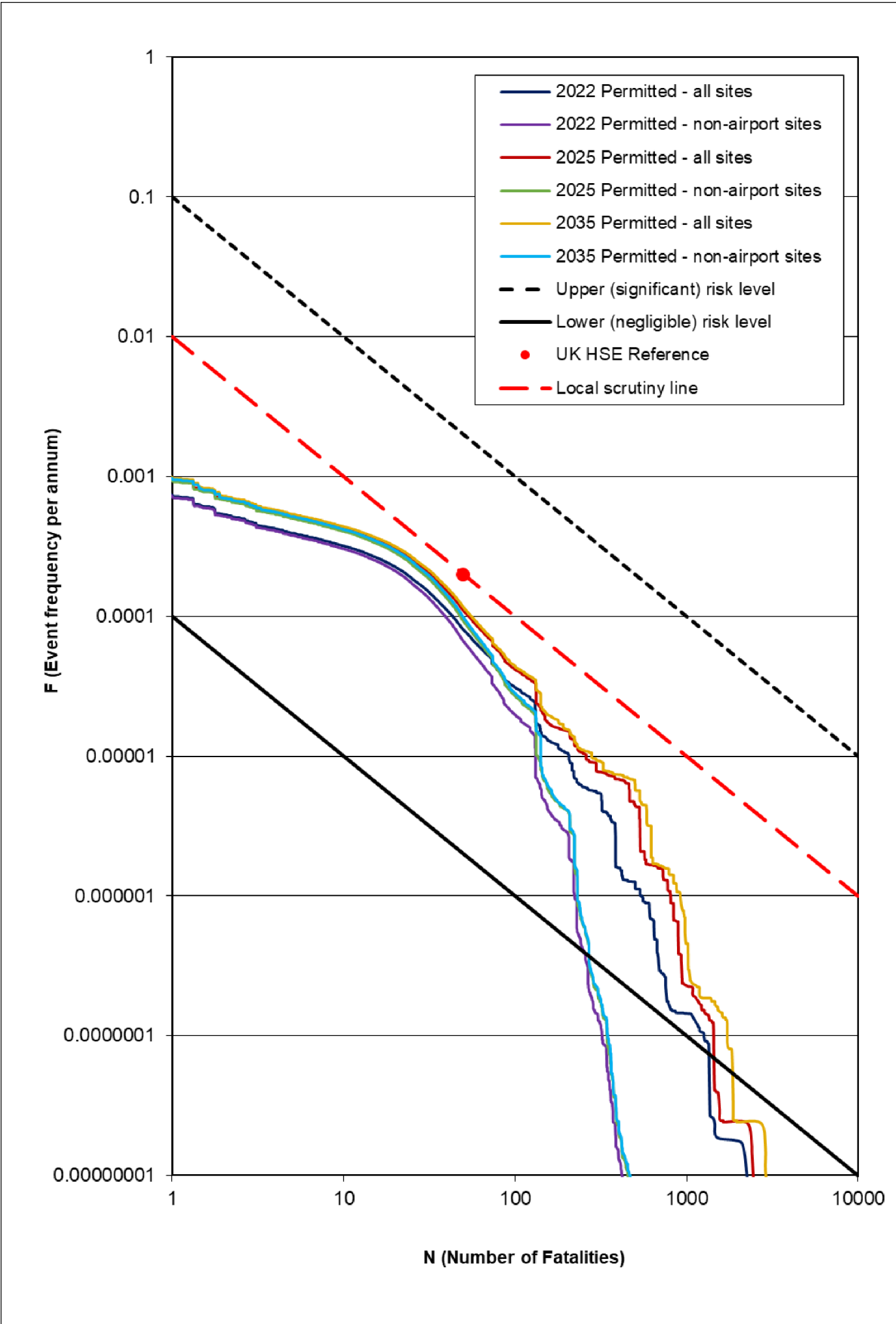
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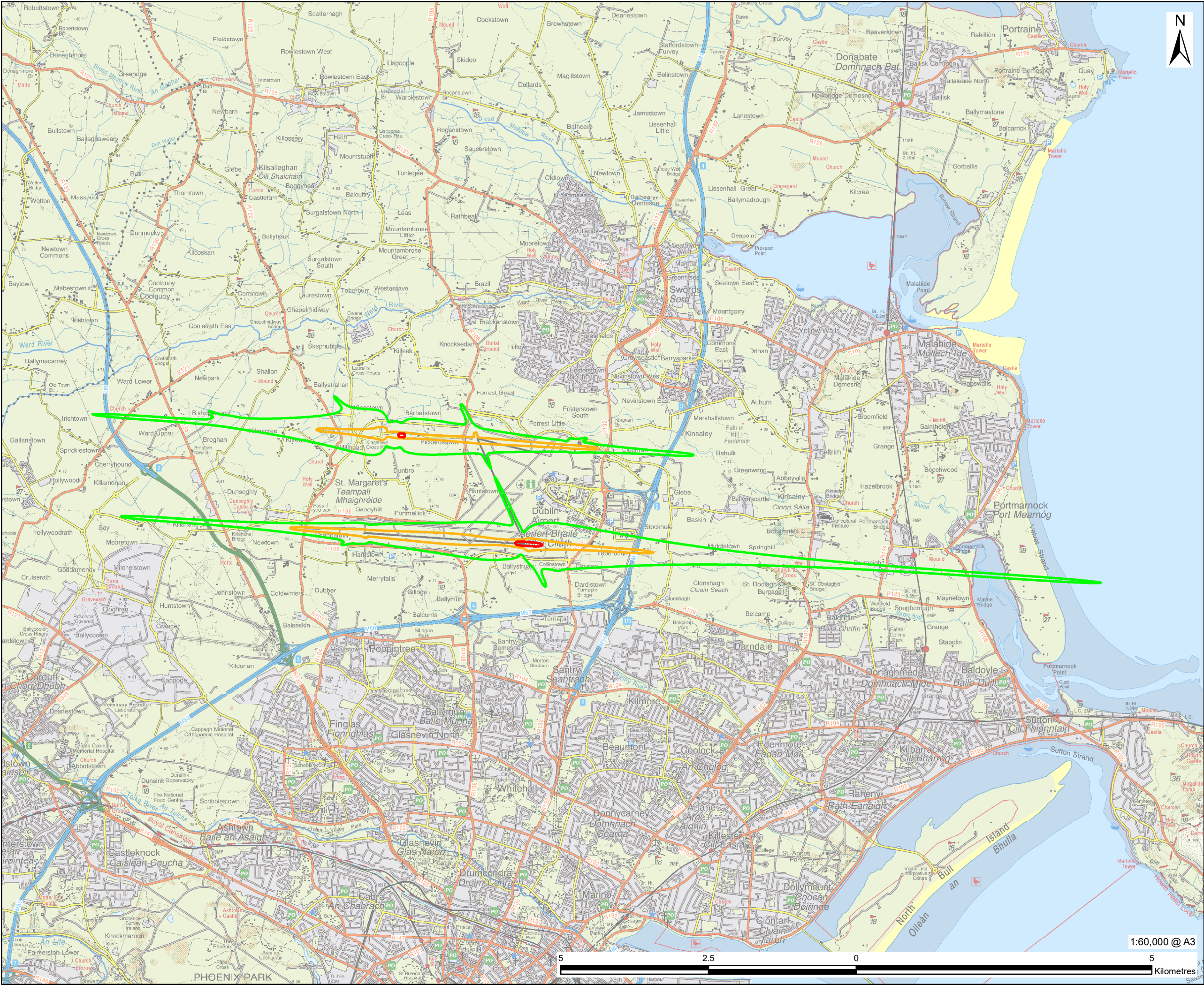
FIGURE TITLE

2035 Permitted Scenario Risk Contours

FIGURE NUMBER

Figure 8.4





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LEGEND

- 1 in 10,000 per annum risk
- 1 in 100,000 per annum risk
- 1 in 1,000,000 per annum risk

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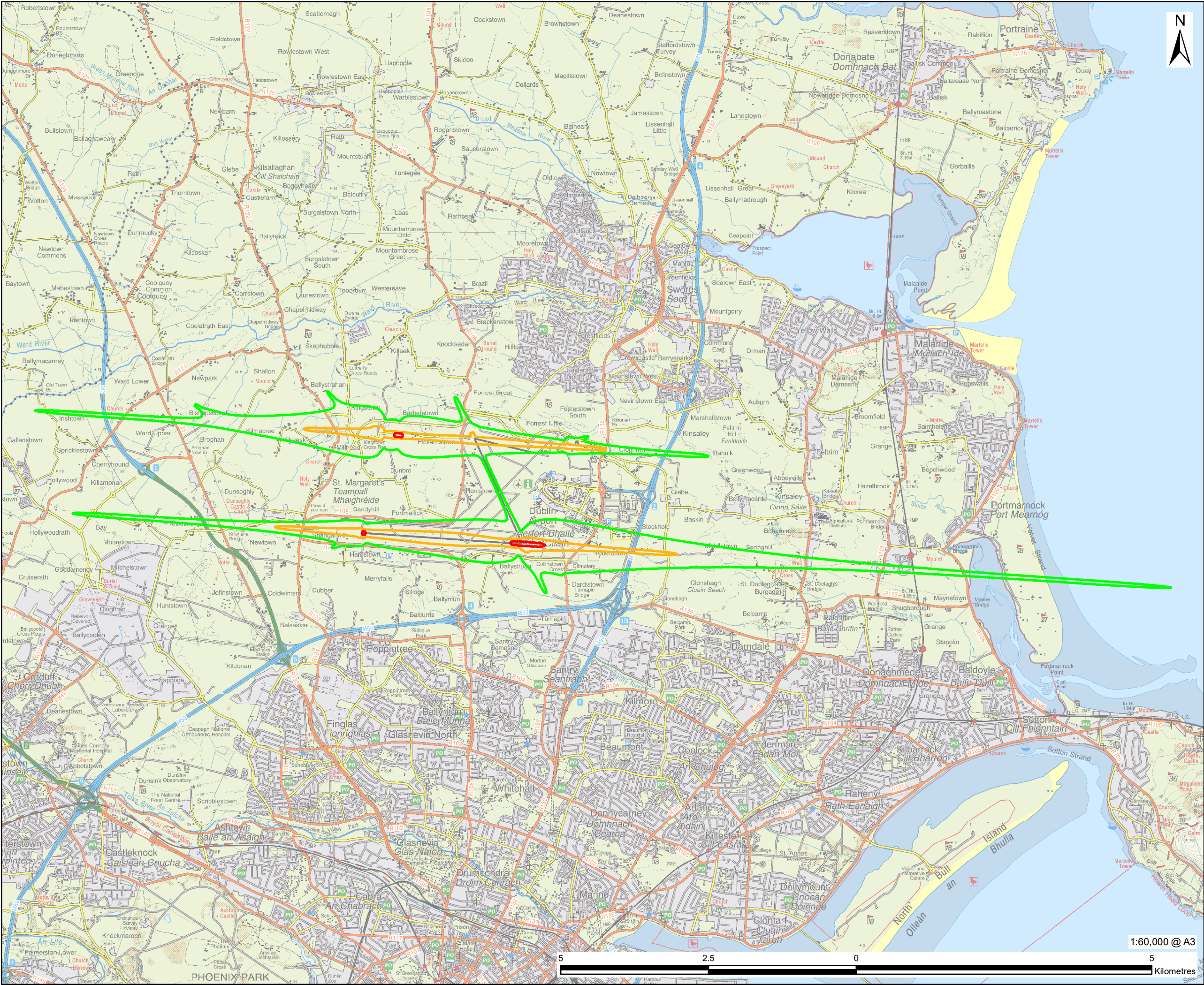
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2022 Proposed Scenario Risk Contours

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LEGEND

- 1 in 10,000 per annum risk
- 1 in 100,000 per annum risk
- 1 in 1,000,000 per annum risk

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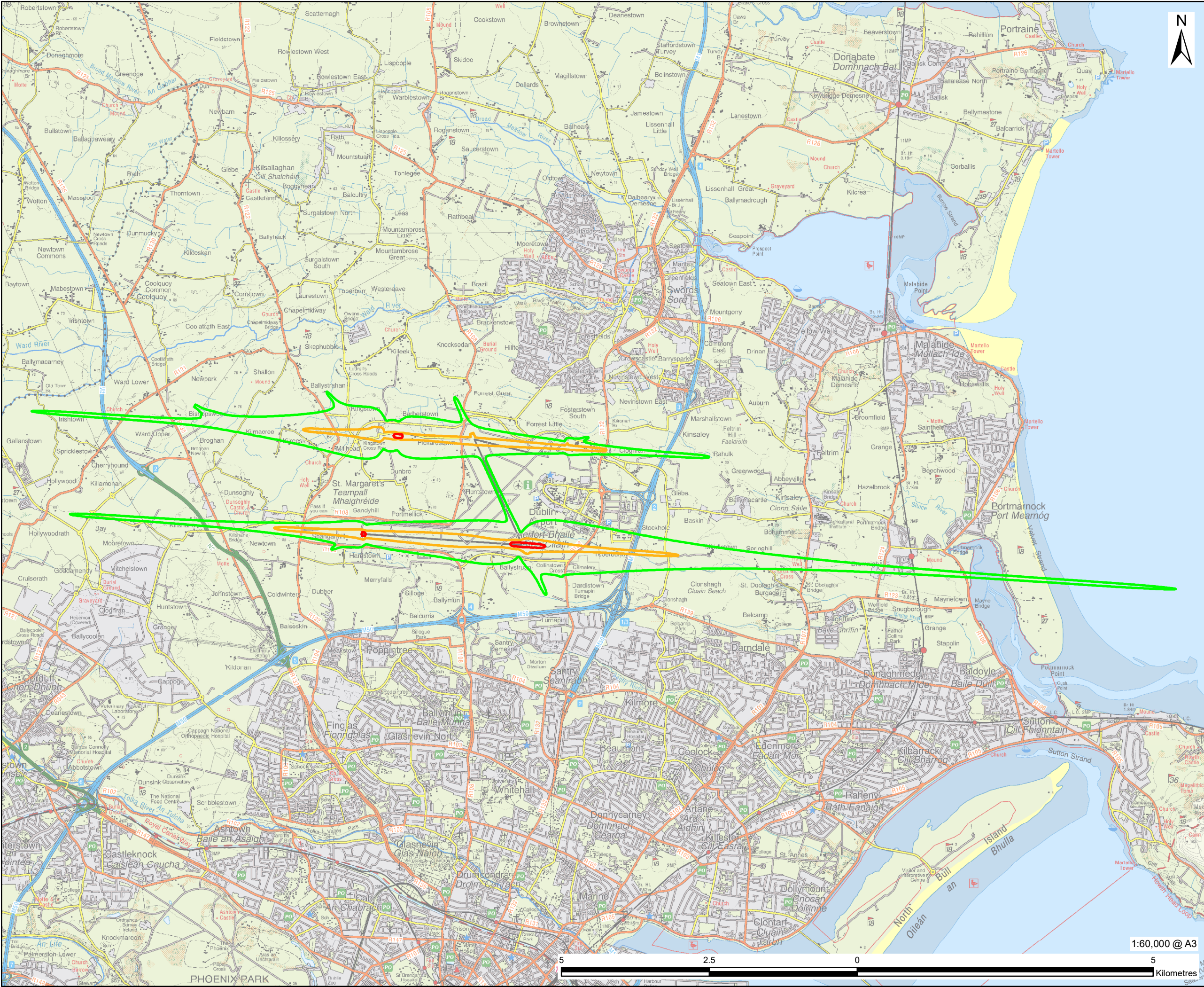
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FIGURE TITLE

2025 Proposed Scenario Risk Contours

FIGURE NUMBER

Figure 8.7



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LEGEND

- 1 in 10,000 per annum risk
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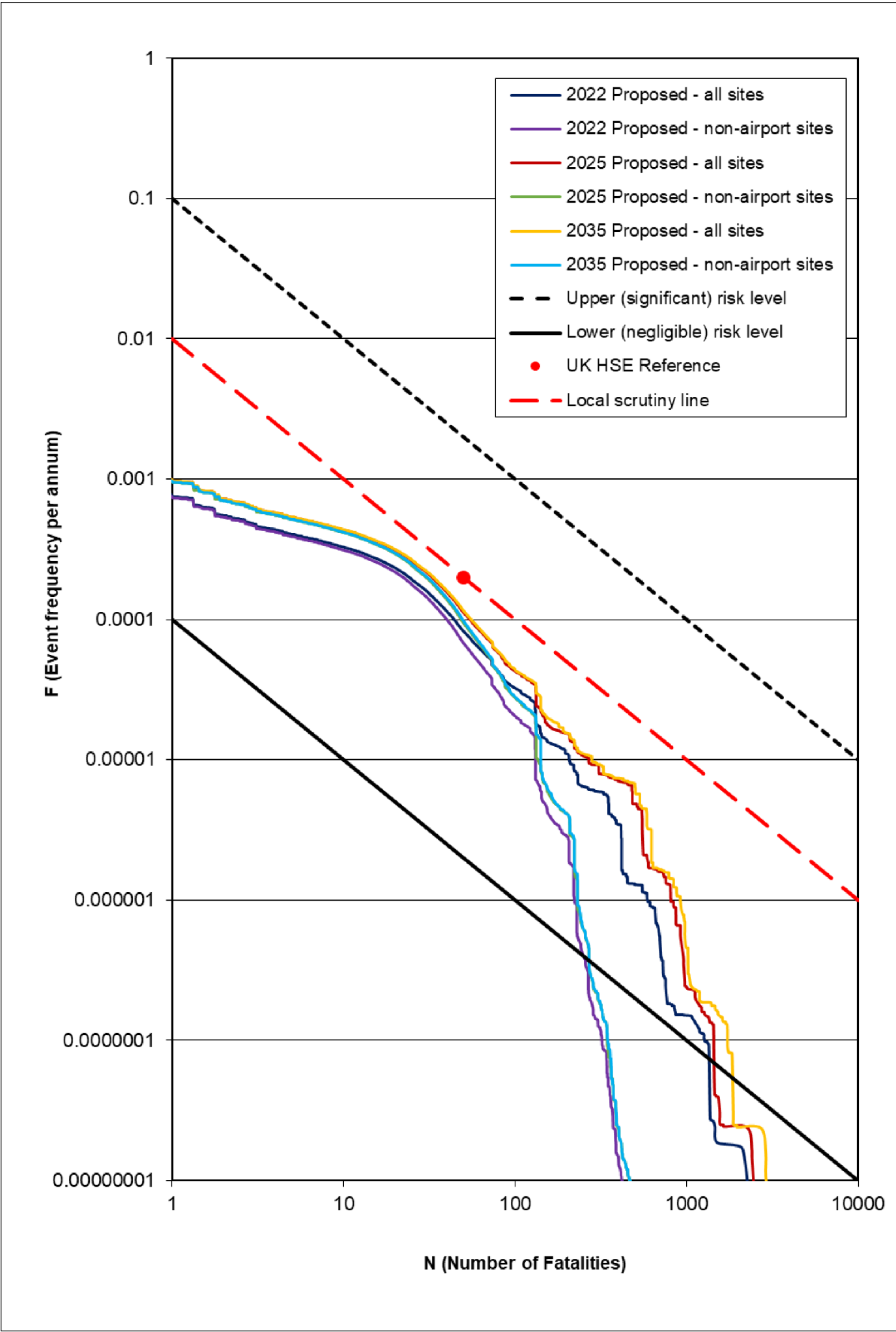
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FIGURE TITLE

2035 Proposed Scenario Risk Contours

FIGURE NUMBER

Figure 8.8



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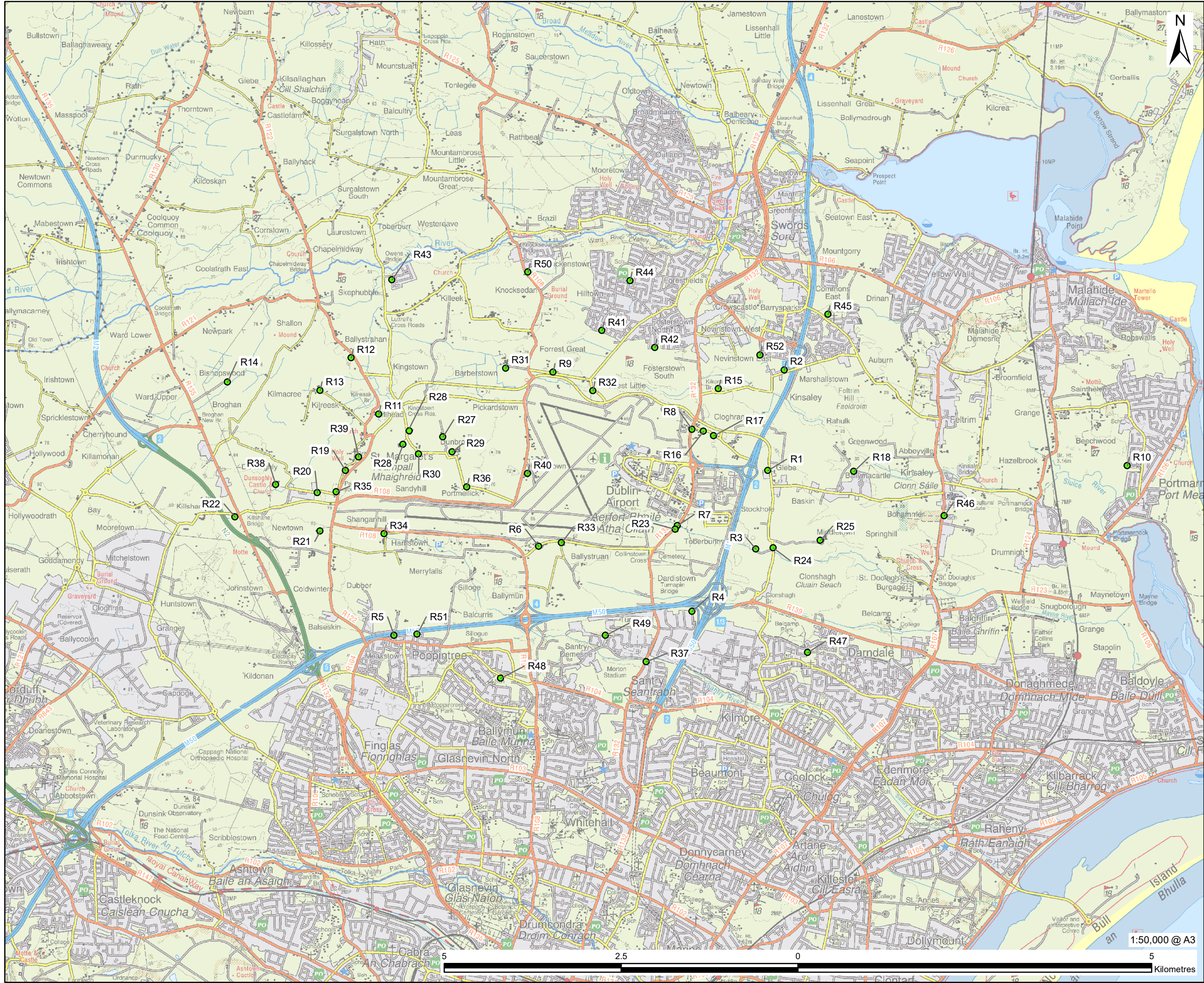
FIGURE TITLE

Societal Risk FN Curve for Proposed
Scenarios

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LEGEND

- Assessed Receptors

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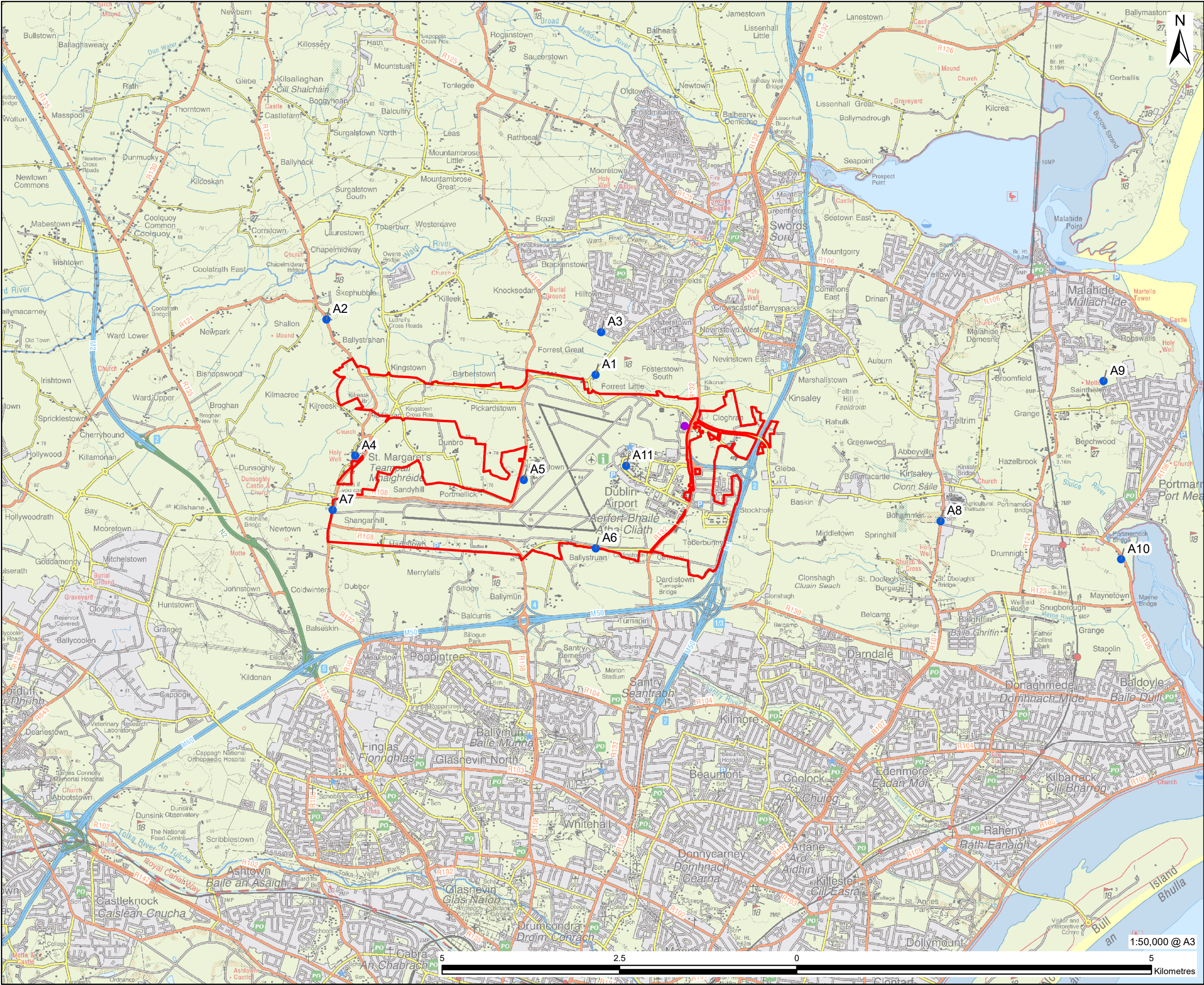
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FIGURE TITLE

Air Quality Receptor Locations

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Figure 10.1



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LEGEND

- Passive Monitoring Locations
- Continuous Monitoring Locations
- Lands Under daa Ownership

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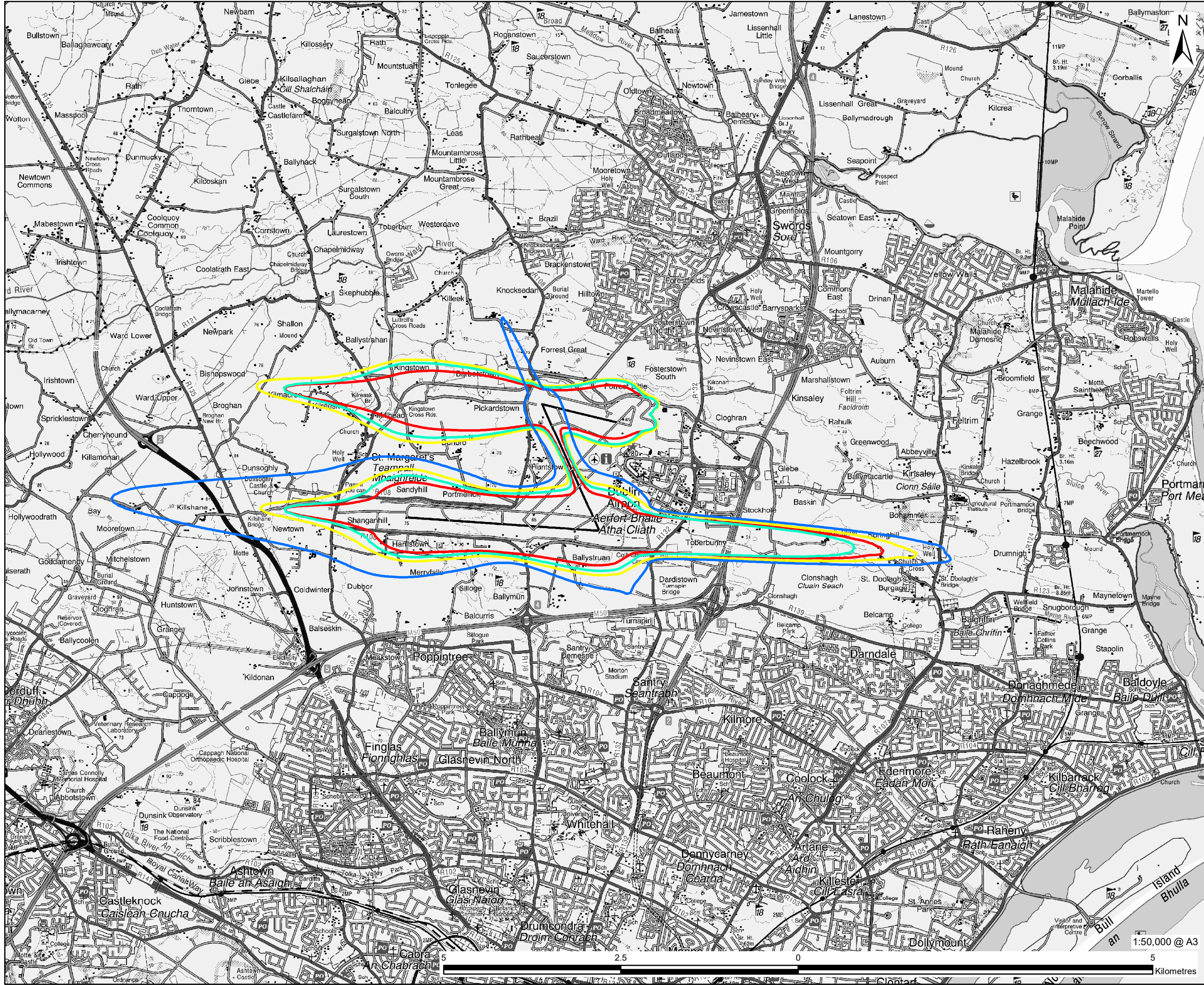
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FIGURE TITLE

Local Air Quality Monitoring

FIGURE NUMBER

Figure 10.2



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LEGEND

- 2018
- 2022 Permitted
- 2025 Permitted
- 2035 Permitted

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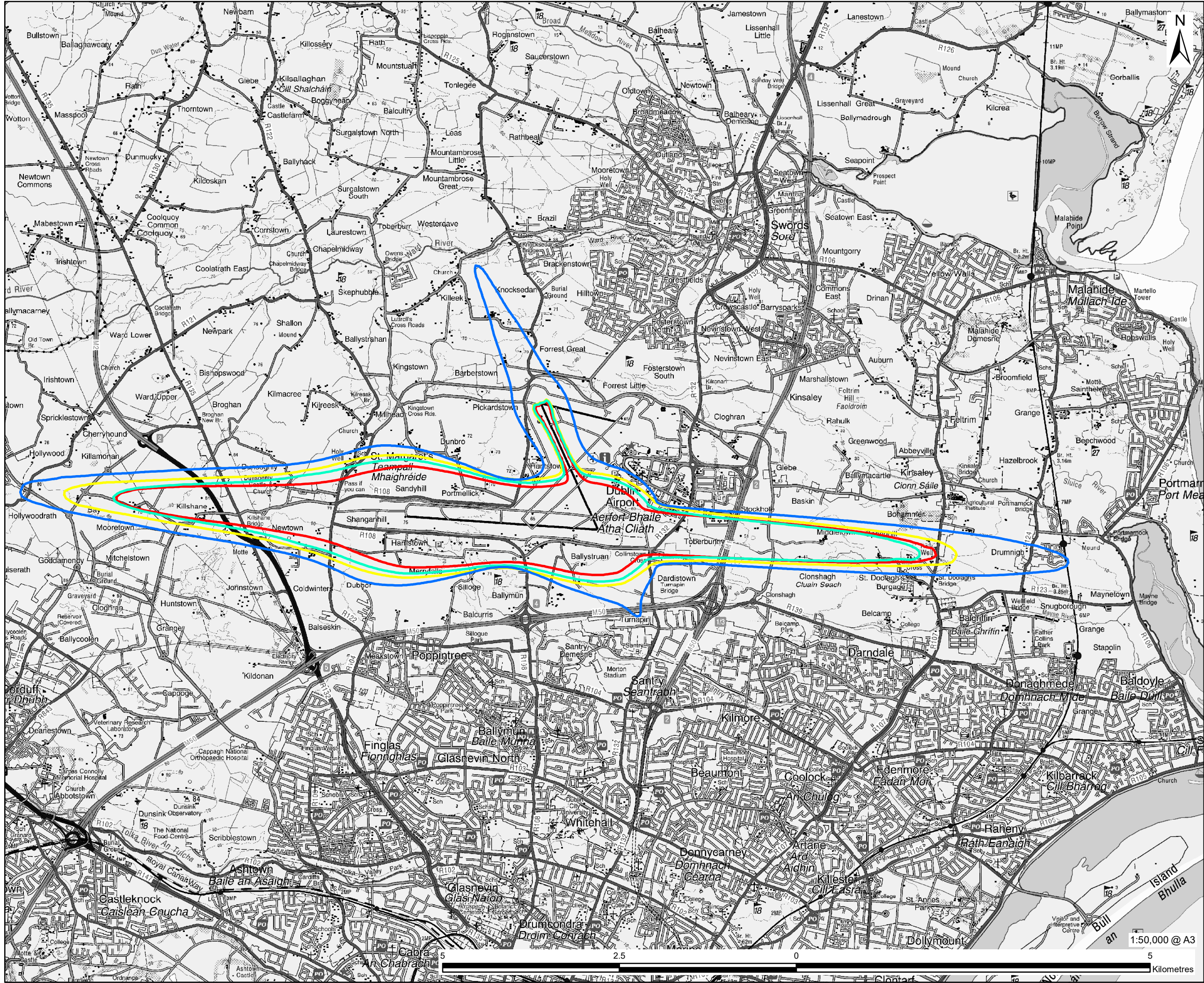
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FIGURE TITLE

65dB Lden Noise Contours

FIGURE NUMBER

Figure 13.1



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PROJECT

North Runway Proposed
Relevant Action

CLIENT



CONSULTANT

AECOM
4th Floor, Adelphi Plaza, Adelphi Centre
George's Street Upper, Dun Laoghaire
Co. Dublin, Ireland
T +353-1-2383100

LEGEND

- Noise Contours 2018
- 2022 Permitted
- 2025 Permitted
- 2035 Permitted

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

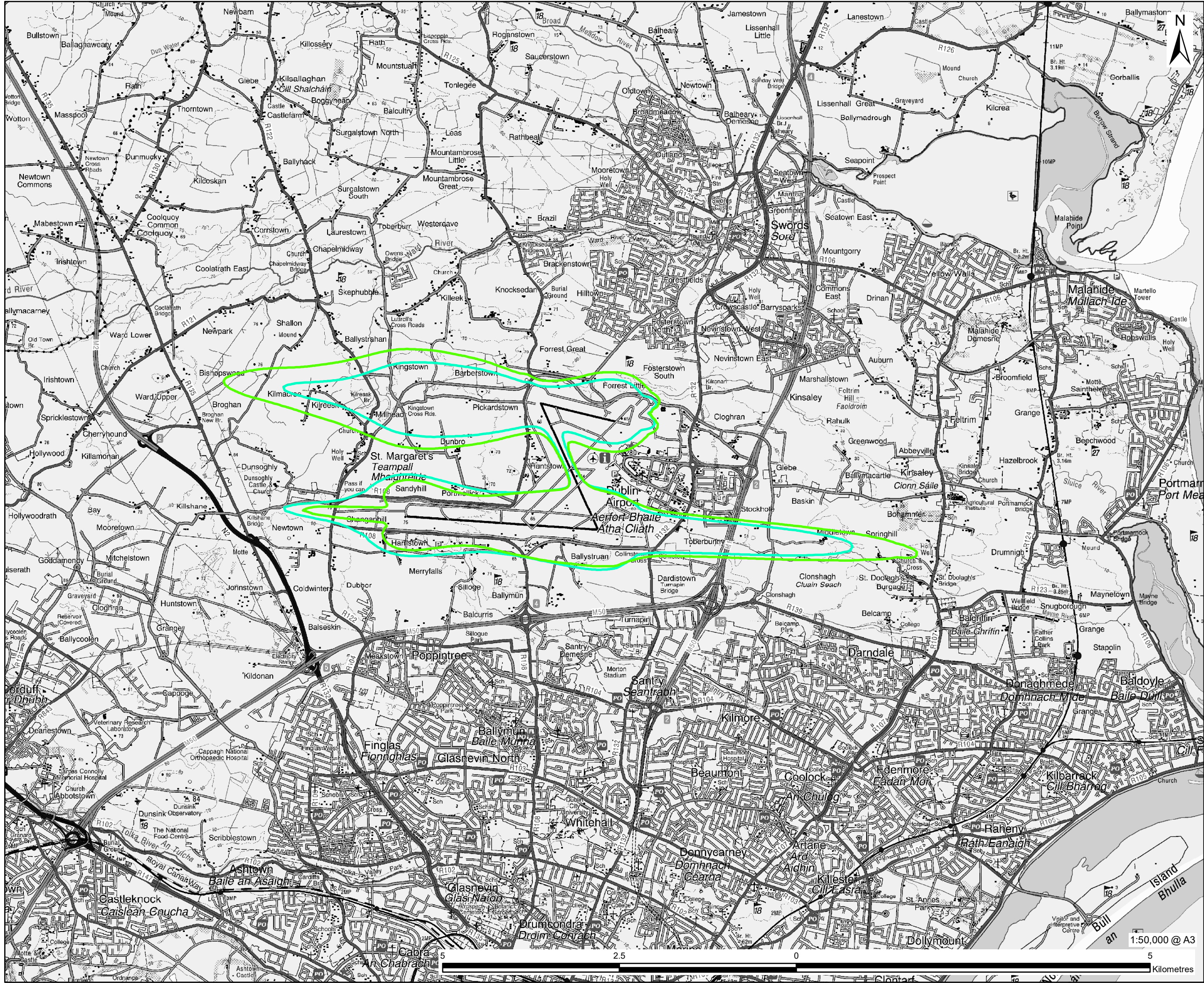
60601864

FIGURE TITLE

55dB Lnight Noise Contours

FIGURE NUMBER

Figure 13.2



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North Runway Proposed
Relevant Action

CLIENT

daa
Dublin Airport

CONSULTANT

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LEGEND

2022 Proposed
2022 Permitted

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

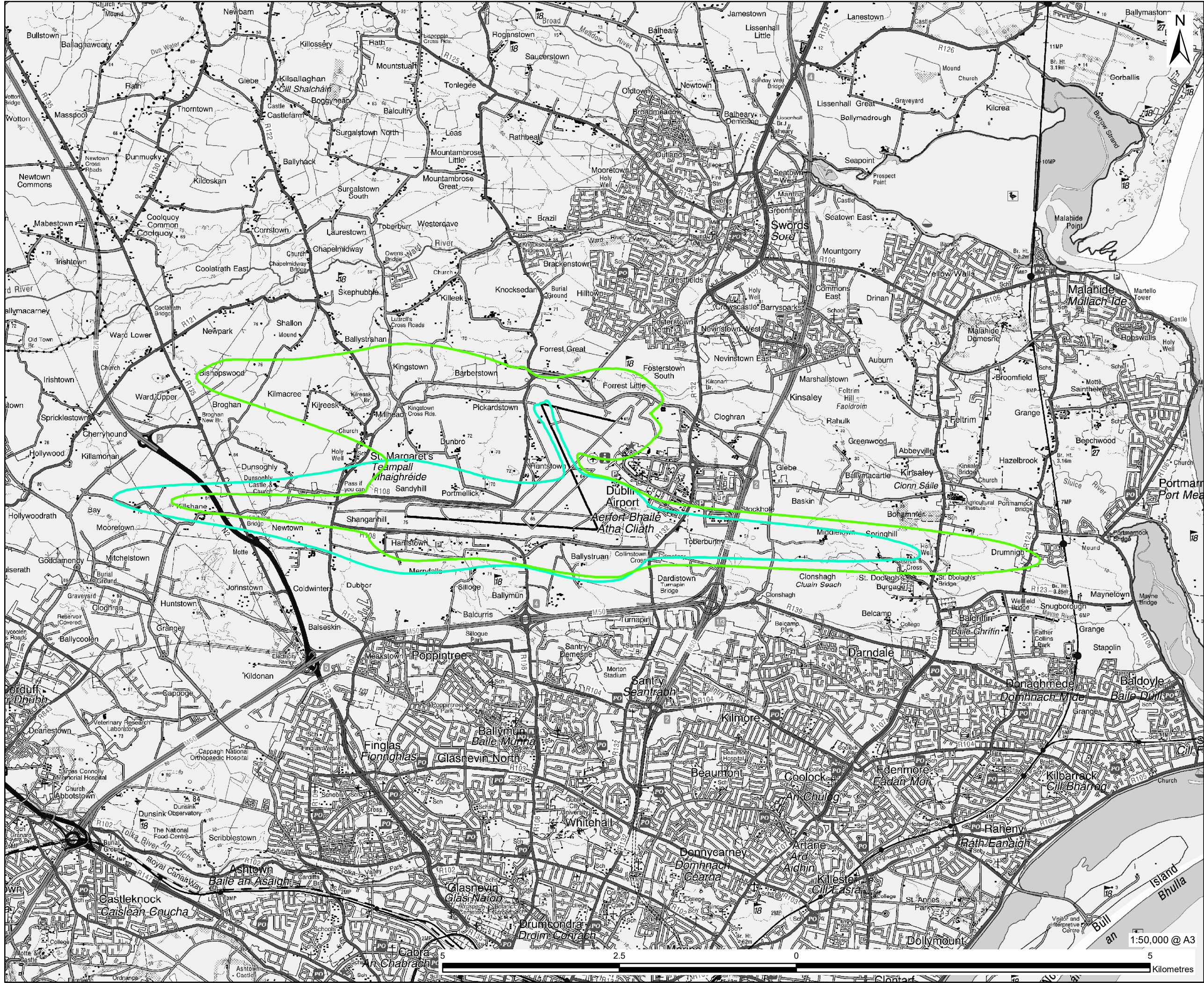
60601864

FIGURE TITLE

65dB Lden Noise Contours

FIGURE NUMBER

Figure 13.3



AECOM

PROJECT

North Runway Proposed
Relevant Action

CLIENT

daa
Dublin Airport

CONSULTANT

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LEGEND

2022 Proposed
2022 Permitted

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FINAL

PROJECT NUMBER

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FIGURE TITLE

55dB Lnight Noise Contours

FIGURE NUMBER

Figure 13.4



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North Runway Proposed
Relevant Action

CLIENT



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LEGEND

- 2025 Proposed
- 2025 Permitted

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

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FIGURE TITLE

65dB Lden Noise Contours

FIGURE NUMBER

Figure 13.5



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Relevant Action

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LEGEND

- 2025 Proposed
- 2025 Permitted

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

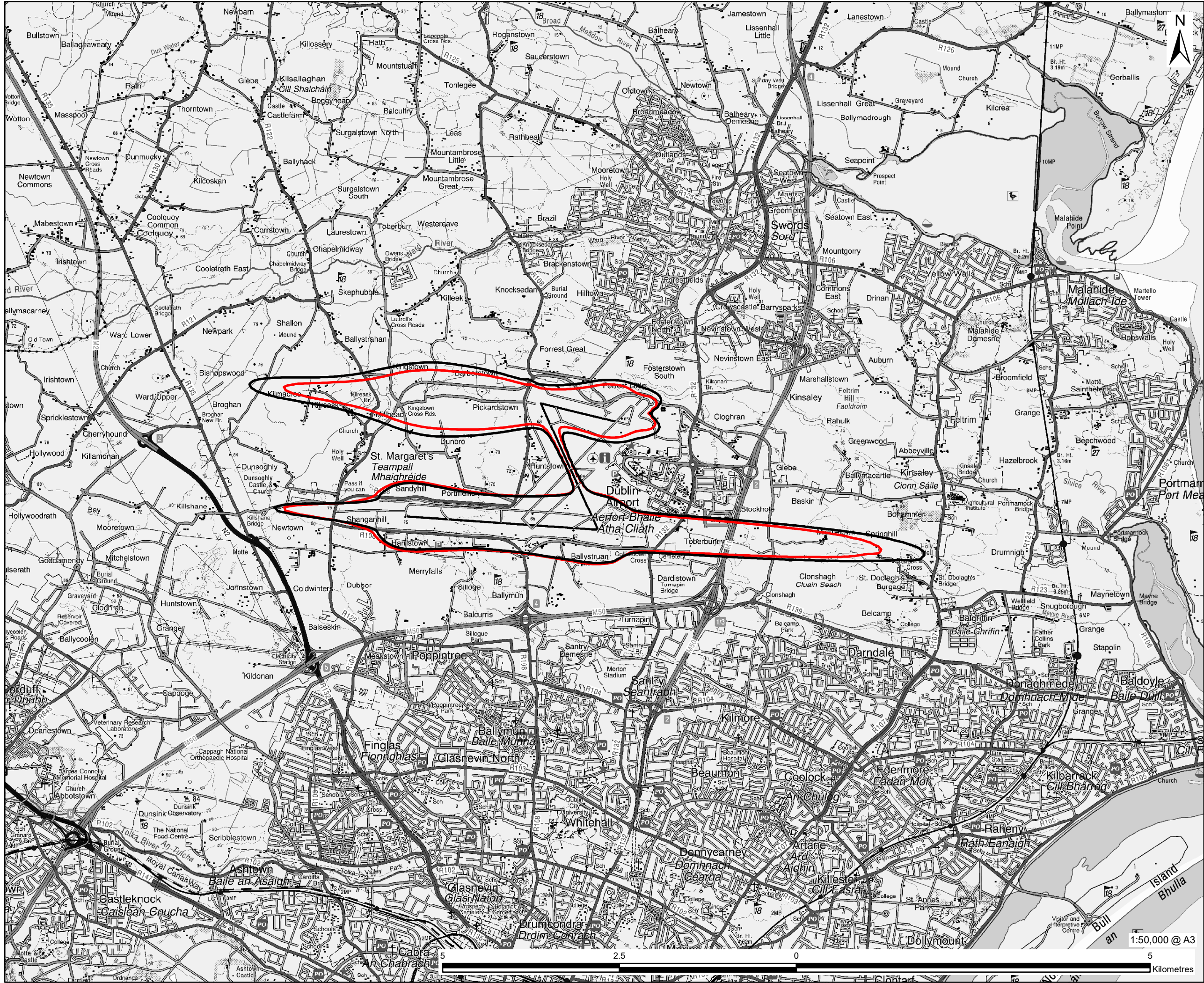
60601864

FIGURE TITLE

55dB Lnight Noise Contours

FIGURE NUMBER

Figure 13.6



AECOM

PROJECT

North Runway Proposed Relevant Action

CLIENT

daa
Dublin Airport

CONSULTANT

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LEGEND

- 2035 Proposed
- 2035 Permitted

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

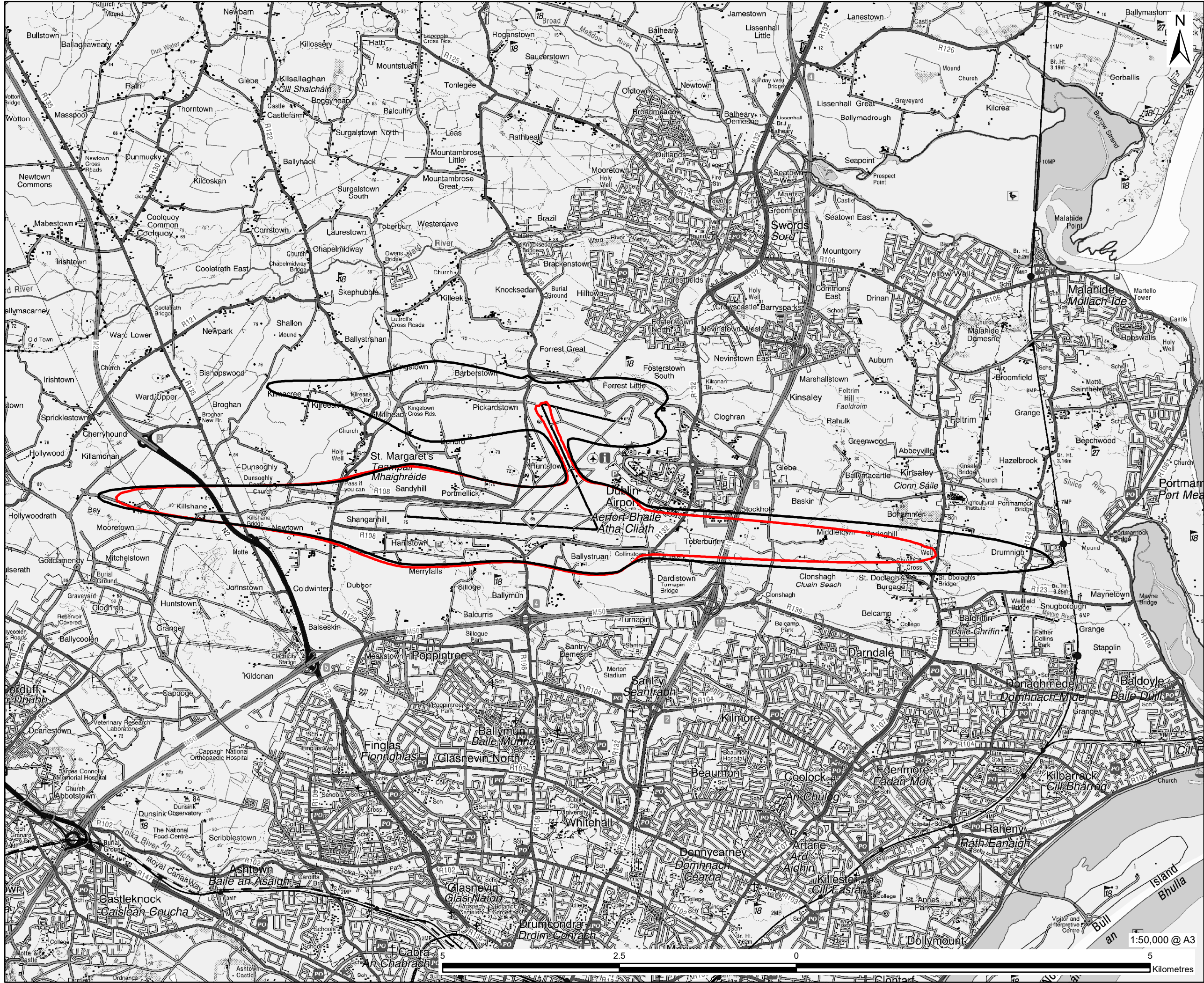
60601864

FIGURE TITLE

65dB Lden Noise Contours

FIGURE NUMBER

Figure 13.7



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PROJECT

North Runway Proposed
Relevant Action

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LEGEND

- 2035 Proposed
- 2035 Permitted

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

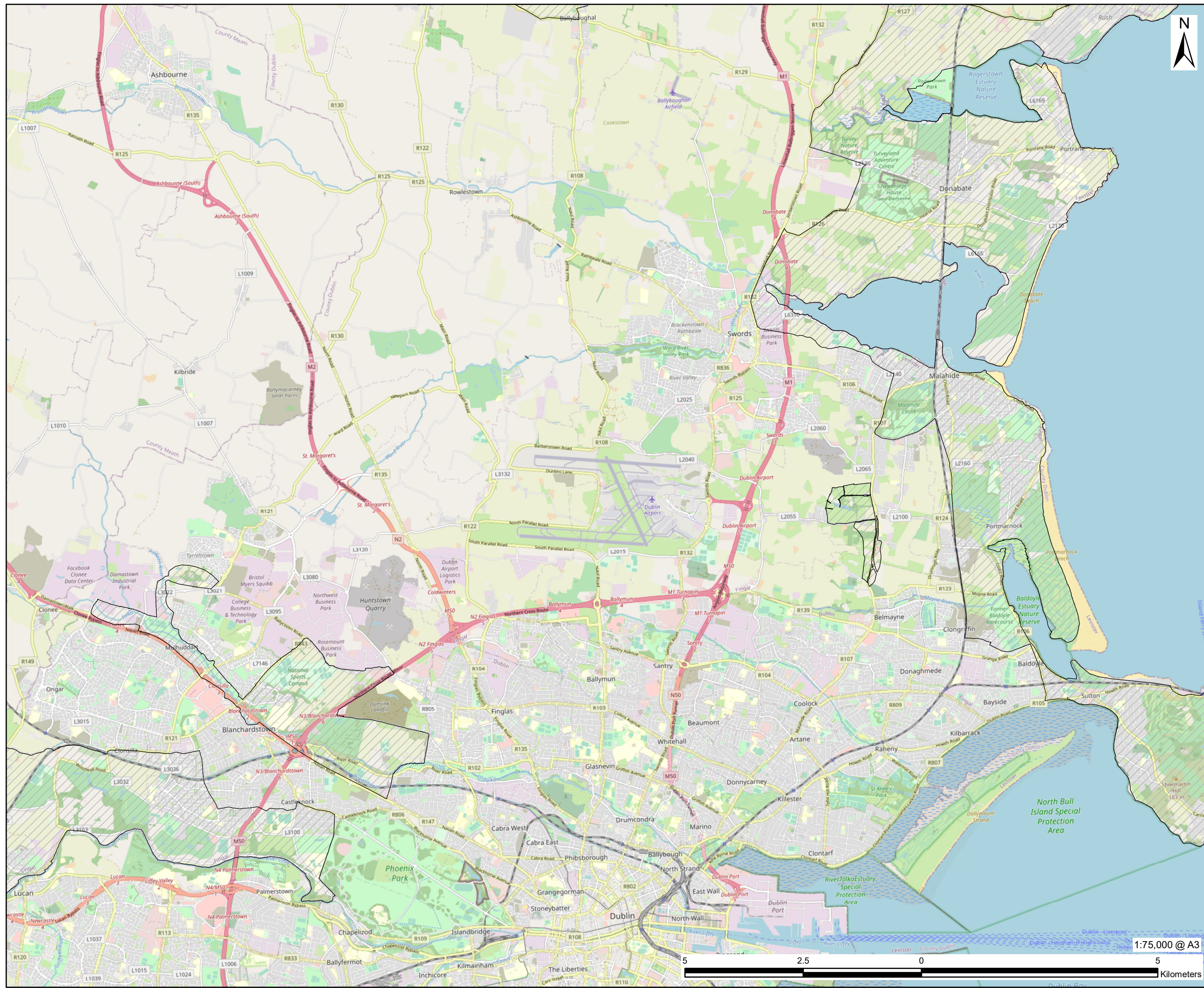
60601864

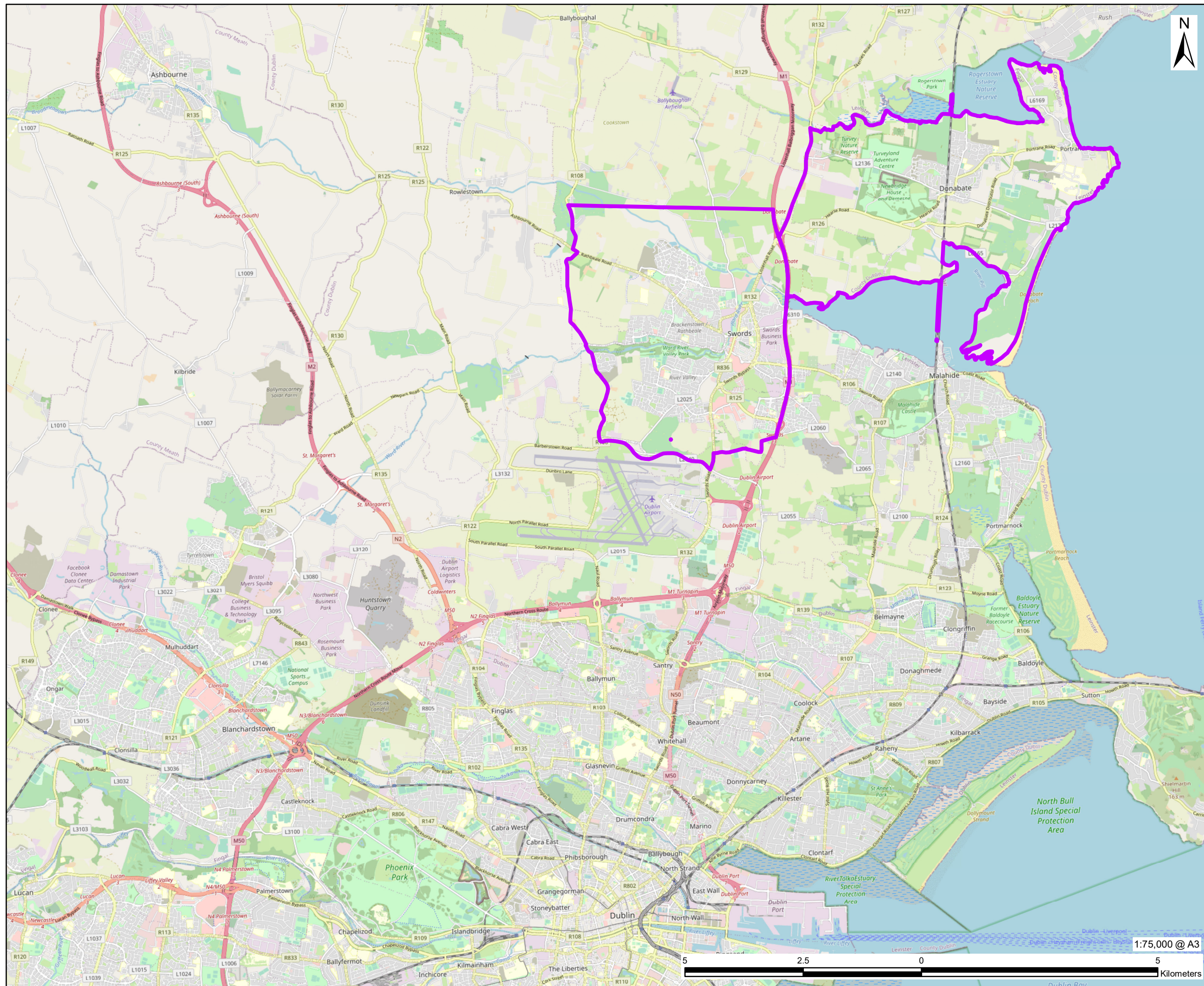
FIGURE TITLE

55dB Lnight Noise Contours

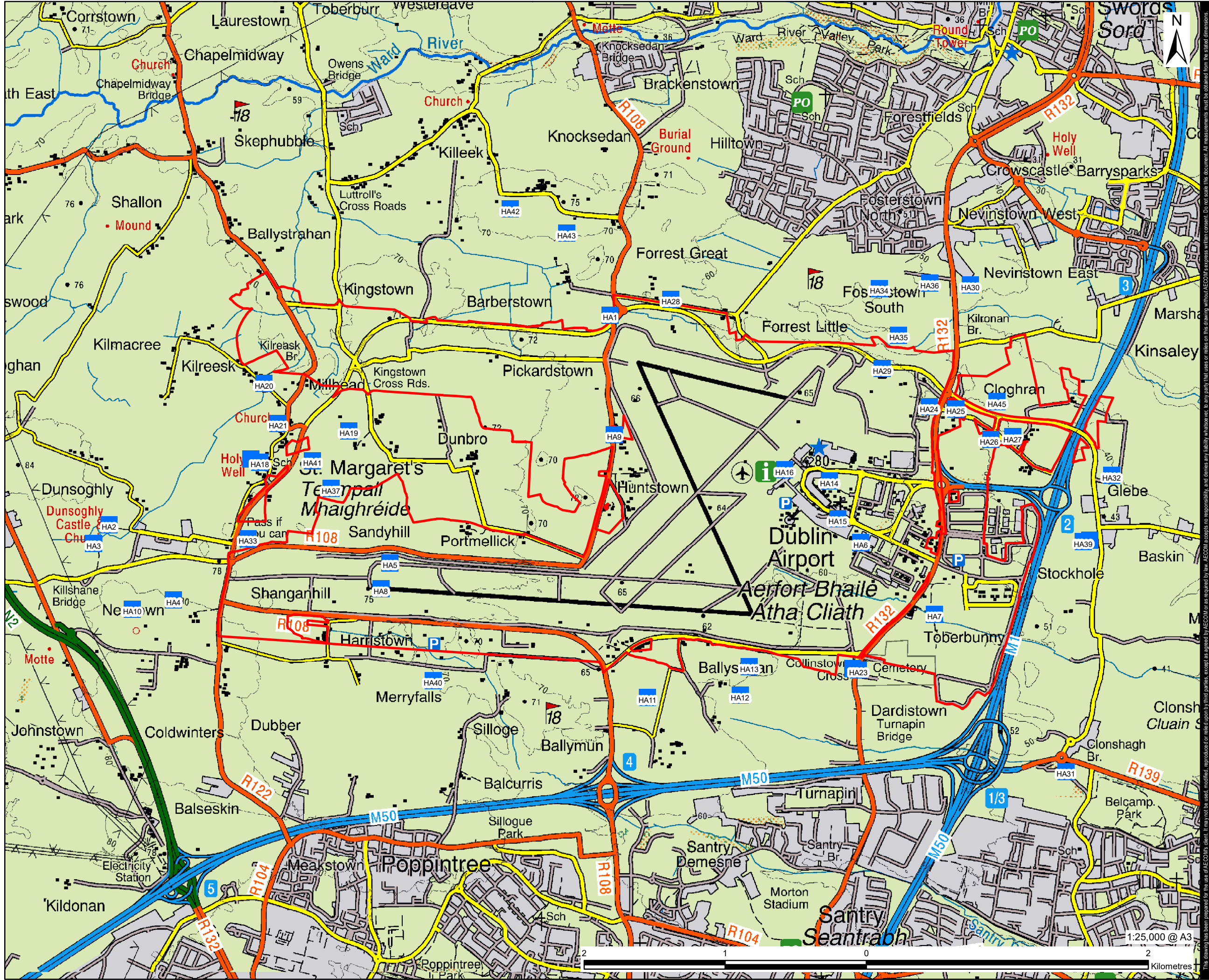
FIGURE NUMBER

Figure 13.8





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PROJECT

North Runway Proposed
Relevant Action

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LEGEND

- daa Site Boundary
- Heritage

Label	Description
HA1	Ringfort (RPS 610)
HA2	Dunsgoghly Castle (National Monument 230)
HA3	Castle / Tower House (DU-014-005)
HA4	Enclosure (RPS 620)
HA5	Enclosure (DU014-008)
HA6	Corbally Castle (DU014-011)
HA7	Holy Well (RPS 602)
HA8	16th/17th Century House (DU014-040)
HA9	The Boot Inn (DU014-060)
HA10	Ring Ditch (DU014-100)
HA11	Burnt Mound (DU014-119)
HA12	Cremation Pit (DU014-120)
HA13	Enclosure (DU014-121)
HA14	Original Terminal Building (RPS 612)
HA15	Corbally House (NIAH 11349002)
HA16	Church of Our Lady Queen of Heaven (RPS 864)
HA17	St. Bridget's Holy Well (RPS 624)
HA18	St. Margaret's 19th Century Church (RPS 625)
HA19	Windmill in ruins (RPS 628)
HA20	Killeek Bridge (RPS 627)
HA21	St. Margaret's church, graveyard and architectural fragments (RPS 629)
HA22	Thatched Dwelling Swords Road (RPS 604)
HA23	Thatched Dwelling Swords Road (NIAH 11349004)
HA24	Castlemoate House (RPS 611)
HA25	Cloghran Graveyard and Church (RPS 609)
HA26	Cloghran Holy Well (RPS 607)
HA27	Former Cloghran Stud Farm (RPS 608)
HA28	House - 16th/17th century (DU011-044)
HA29	Ringfort - unclassified (DU011-046)
HA30	Ring-ditch (DU011-047)
HA31	House - 16th/17th century (DU014-056)
HA32	Mound (RPS 605)
HA33	Ringfort - unclassified (DU014-099)
HA34	Enclosure (DU011-113)
HA35	Enclosure (DU011-115)
HA36	Enclosure (DU011-118)
HA37	Enclosure (DU014-109)
HA38	Enclosure (DU014-111)
HA39	Field system (DU014-112)
HA40	Enclosure (DU014-123)
HA41	Enclosure (DU014-108)
HA42	Enclosure (RPS 635)
HA43	Church (RPS 830)
HA44	Holy Well (RPS 606)

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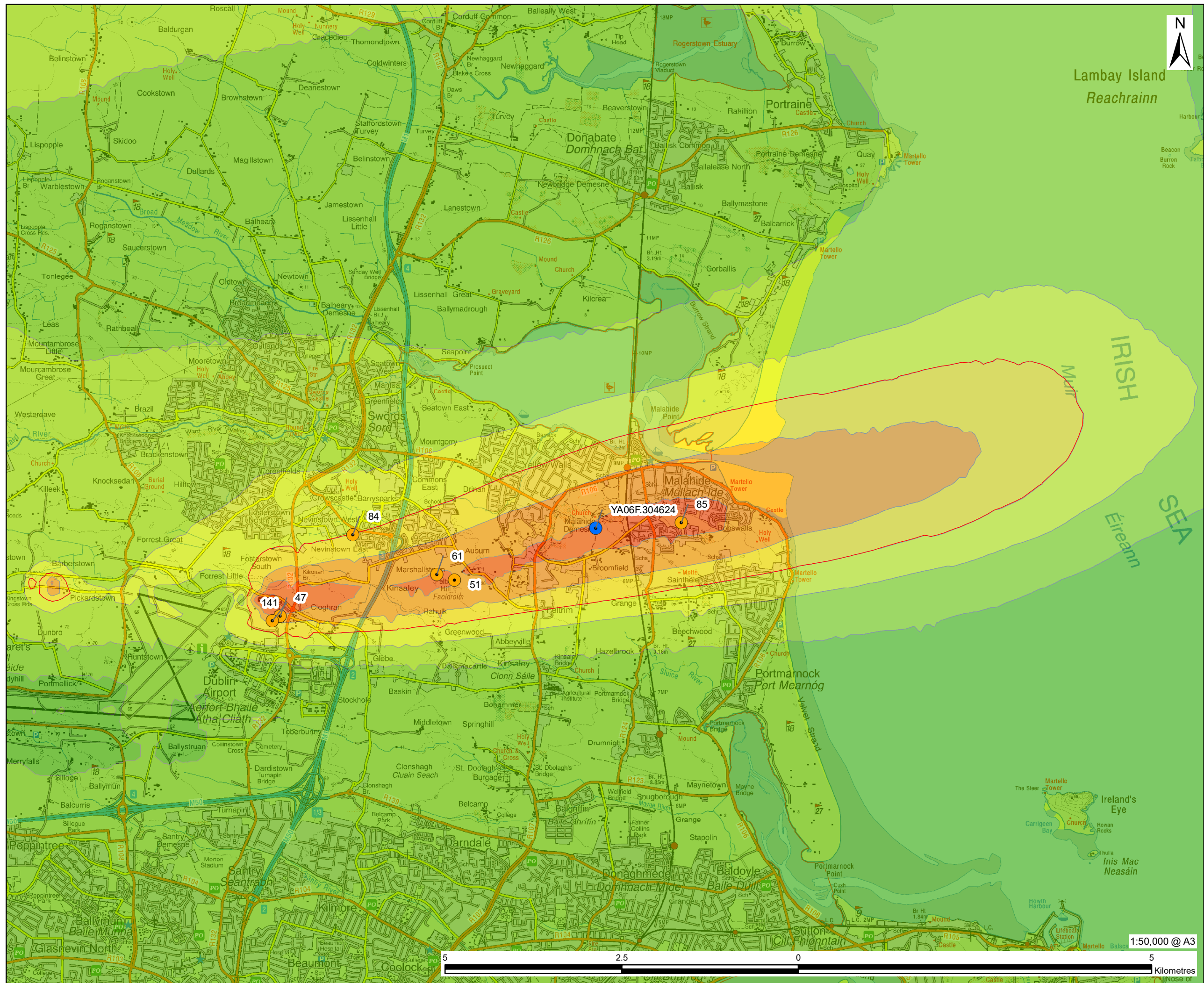
60601864

FIGURE TITLE

Cultural Heritage Assets within Dublin
Airport and Vicinity

FIGURE NUMBER

Figure 20.1





PROJECT

North Runway Proposed Relevant Action



CLIENT

Dublin Airport

CONSULTANT

AECOM

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LEGEND

● Regular

● SID

— 3dB(A)Lden Contour

dB(A)Lden

-0.71

0

1

2

3

4

5

6

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FIGURE TITLE

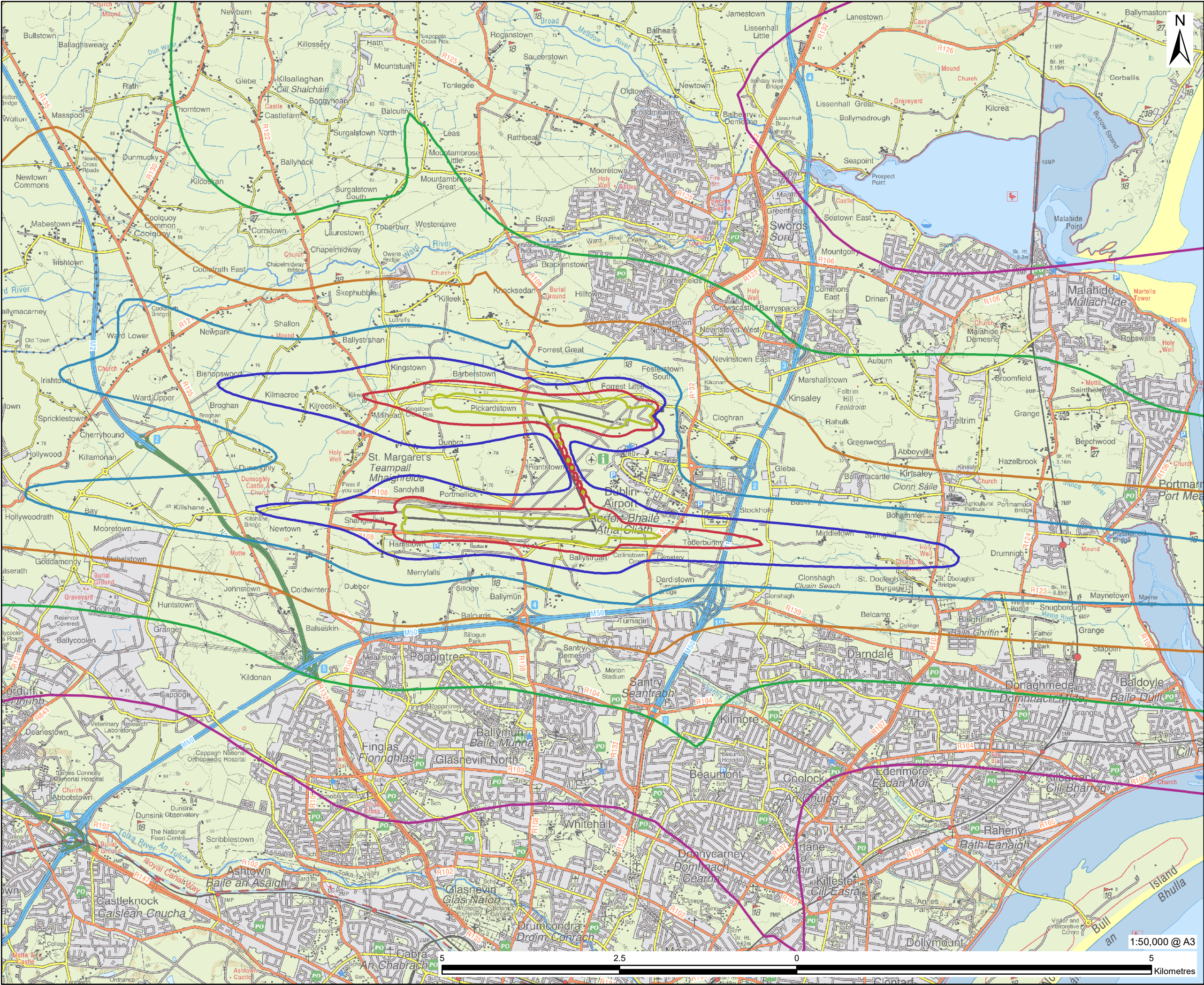
2025 Proposed versus Permitted Scenario

Difference in Forecast Noise Contours (Lden)

With other developments included in cumulative effects assesment

FIGURE NUMBER

Figure 21.1



PROJECT

North Runway Proposed
Relevant Action

CLIENT



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LEGEND

2030 dB(A)Lden

- 45
- 50
- 55
- 60
- 65
- 70
- 75

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FIGURE TITLE

40mppa Noise Impacts (Proposed
Scenario) – Illustration Only

FIGURE NUMBER

Figure 22.1