TOBIN

Rooaunalaghta Green Energy Project

Appendix 11-3

Aviation Review Statement

ROOAUNALAGHTA
Green Energy

BUILT ON KNOWLEDGE

Report

Rooaunalaghta Wind Farm

Aviation Review Statement

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Executive Summary

Ai Bridges Ltd have been commissioned to review the possible impacts of the proposed wind farm on aviation systems in the vicinity of the proposed wind farm development at Rooaunalaghta. As part of the review, the following subjects were considered:

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Minimum Sector Altitudes (MSAs)
- Building Restricted Areas (BRAs)
- Instrument Flight Procedures
- Existing Wind Farms in vicinity of Proposed Wind Farm
- Communications and Navigation Systems
- Radar Surveillance Sensors
- Flight Inspection and Calibration
- Aeronautical Obstacle Warning Light Scheme
- Irish Air Corps / DoD Safeguarding
- Garda Air Support Unit (GASU)
- Emergency Aeromedical Service (EAS)

Annex 14 - Obstacles Limitation Surfaces (OLS)

A review shows that the proposed wind farm would be located outside the Outer Horizontal Surface of the Ireland West Runway Obstacle Limitation Surfaces (OLS), as defined in ICAO (International Civil Aviation Organization) Annex 14.

As the proposed wind farm is situated outside the Outer Horizontal Surface and there is no penetration of the take-off or approach surfaces, it is unlikely that there will be any impacts to the OLS surfaces for Ireland West Airport.

Annex 15 - Aerodrome Surfaces

Following a review of “Terrain and Obstacle Requirements” as defined in ICAO Annex 15, turbines at the proposed development would need to be registered if they are more than 100 meters above terrain. The distance from the centre point (ARP – Airport Reference Point) of Ireland West Airport to the boundary of Area 1 of the Annex 15 Aerodrome Surface is 45km. This area encloses the TMA area i.e. Total Maneuvering Area and this is used for circling and maneuvering by aircraft. Should the proposed windfarm be permitted, the turbines would be outside 45km of Ireland West Airport’s ARP and would not cause an impact on the Annex 15 Aerodrome Surface. However, the proposed turbines would be required to be included in the IAA Electronic Air Navigation Obstacle Dataset.

Building Restricted Areas (BRAs)

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with

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the potential for causing unacceptable interference to navigation facilities. A review shows that the proposed wind farm is over 40 km from the BRA surfaces at Ireland West Airport. At this distance there will be no impact on the BRAs due to the proposed wind turbines at Rooaunalaghta.

Minimum Sector Altitudes (MSA)

The Minimum Sector Altitudes (MSA) is the lowest altitude which may be used that will provide a minimum obstacle clearance of 1000ft above all obstacles within a sector of 25 nautical miles (46km) from the VOR/DME at Ireland West Airport. As the proposed wind farm is located outside the MSA Sectors for Ireland West Airport, there should be no impact on the published MSA altitudes.

Instrument Flight Procedures

There are 16 published Instrument Flight Procedures for flights to/from Ireland West Airport. Due to the distance of the proposed wind farm from the airport, and as there are existing obstacles nearer to the airport than the proposed development, there should be no impacts to these flight procedures.

Communications and Navigation Systems

As the proposed wind farm is more than 45 km from the Localizer and transmitting antennas at Ireland West Airport, it is very unlikely that wind turbines at the proposed development will have any impact on these ATS communications and radio navigational aids.

Radar Surveillance Sensors

For Radar Surveillance Systems, EUROCONTROL Guidelines require a 16 km safe distance from the surveillance radar system (SSR), for a "*Zone 4 - No Assessment*" condition. It has been highlighted in the analysis that turbines located at the proposed farm would be located at a minimum distance of 90 km from the radar stations at Dooncarton, Shannon and Woodcock Hill and in Assessment Zone 4 of the EUROCONTROL Guidelines. As turbines at the proposed development would be located in Assessment Zone 4, a detailed impact assessment on Radar Surveillance Systems will not be required by AirNav Ireland.

Flight Inspection and Calibration

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Ireland West Airport for calibration of instrument landing systems.

It is highly unlikely that the Flight Inspection Procedures will be impacted as the proposed wind farm is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g. terrain and existing wind farms).

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Aeronautical Obstacle Warning Light Scheme

In the event of a grant of planning consent the IAA are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development would be considered as an en-route obstacle.

Irish Air Corps / Department of Defence (DoD) Safeguarding

The Irish Air Corps position on wind farms / tall structures are outlined in the paper which was published in 2014: "*Air Corps Wind Farm/ Tall Structures Position Paper*". In the position paper the Irish Air Corps outlines restricted areas where they would object to the installation of wind turbines /tall structures. The areas defined by the Air Corps have been mapped and analysis shows that proposed wind farm site is located outside the restricted areas. As the proposed wind farm is not located in a restricted area it should have no impacts on the Irish Air Corps activities. In line with the DoD consultation response in August 2026, consideration should be given to the following:

- Cumulative Effects of Renewable Energy Developments
- Military Aviation Lightning

As the nearest farms to the proposed development are over 15 km away there would be no cumulative effects due to the addition of turbines at Rooaunalaghta. Regarding Military Aviation Lightning, the recommendation is to engage at the early stage in a consented development (subject to planning conditions), to agree on the details relating to the lighting requirements for the IAC.

Garda Air Support Unit (GASU)

The standard concerns that are being raised in recent consultations with the Irish Air Corps also highlight the potential for obstacles that could impact the operations of the Garda Air Support Unit (GASU). A review of the GASU operations indicates that they are unlikely to be impacted by the proposed wind farm development.

Emergency Aeromedical Service (EAS)

The EAS service in Ireland is operated from two air ambulance bases. One EAS base is located at Custume Barracks in Athlone, the other is located at Rathcoole Flying Club, Rathcoole, Co Cork. A review of the EAS operations from Custume Barracks and from Rathcoole Flying Club indicates that they are unlikely to be impacted by the proposed wind farm development.

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Sections

1. Introduction 6
1.1 Wind Farm Site Information 6
1.2 Ireland West Airport 7
2. Aviation Review 8
2.1 Annex 14 Obstacle Limitation Surfaces (OLS) 9
2.2 Annex 15 Aerodrome Surfaces 10
2.3 Building Restricted Areas (BRA) 12
2.4 Minimum Sector Altitudes 13
2.5 Instrument Flight Procedures 14
2.6 Existing Wind Farms in vicinity of Proposed Wind Farm 16
2.7 Communication and Navigation Systems 17
2.8 Radar Surveillance Sensors 18
2.9 Flight Inspection and Calibration 23
2.10 Aeronautical Obstacle Warning Light Scheme 27
2.11 Irish Air Corps / DoD Safeguarding 28
2.12 The Garda Air Support Unit (GASU) 35
2.13 The Emergency Aeromedical Service (EAS) 37
3. Summary 39

Appendices

Appendix A – ICAO Annex 15 Area 1 and Area 2 Surfaces 41
Appendix B – ICAO Building Restricted Areas 42
Appendix C – Air Corps Wind Farm / Tall Structures Position Paper 43

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1. Introduction

This section provides a brief summary of the proposed wind farm development at Rooaunalaghta and of the nearest significant aviation installation at Ireland West Airport.

1.1 Wind Farm Site Information

The proposed wind farm development is located in County Mayo approximately 49km southwest of Ireland West Airport. Figure 1 shows the proposed wind farm site with respect to Ireland West and the IAA radar stations at Dooncarton, Shannon and Woodcock Hill.



Figure 1. Location of proposed wind farm at Rooaunalaghta

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1.2 Ireland West Airport

Table 1 below shows the co-ordinates of Ireland West Airport and the distance from the Airport reference Point (ARP) to the proposed wind farm site. Ireland West Airport operates in Class C controlled airspace with Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) Flight rules.

Location	Installation	Description	Airport Ref. Point ARP	ARP Distance to Proposed Wind Farm
Ireland West Airport, Charlestown, Co Mayo	International Airport	Single Asphalt Runway Airspace: Class C	53 54 37 N 08 49 06 W (Mid-point of Runway 08/26).	49.1 km

Table 1. Ireland West Airport Details

The aeronautical navigation aids at the aerodrome include DVOR/DME, NDB, ILS LOC and ILS GP.



Figure 2. Ireland West International Airport

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2. Aviation Review

In this section a review of the following Aviation topics is provided.

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Building Restricted Areas (BRAs)
- Minimum Sector Altitudes (MSAs)
- Instrument Flight Procedures
- Existing Wind Farms in vicinity of proposed Wind Farm
- Communications and Navigation Systems
- Radar Surveillance Sensors
- Aeronautical Obstacle Warning Light Scheme
- Irish Air Corps / DoD Safeguarding
- Garda Air Support Unit (GASU)
- Emergency Aeromedical Service (EAS)

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2.1 Annex 14 Obstacle Limitation Surfaces (OLS)

A review of the Annex 14 Obstacles Limitation Surfaces (OLS) was first was carried out by first plotting the proposed wind farm location and the airport obstacle surfaces. The obstacle limitation surfaces for Ireland West Airport are plotted based on the following:

- *Annex 14 to the Convention on International Civil Aviation Aerodromes Volume I - Aerodrome Design and Operations Seventh Edition July 2016"*
- *Certification Specifications and Guidance Material for Aerodromes Design CS-ADR-DSN Issue 4, 8th of December 2017*

Figure 3 below shows the OLS in relation to the proposed Rooaunalaghta wind farm. The distance from the ARP at Ireland West Airport (i.e. the runway centre-point), to the nearest point of the proposed wind farm is 49 km.

The analysis of the OLS plots indicates that turbines at the proposed wind farm would not penetrate the Outer Horizontal Surface which extends to 15km from the Airport Reference Point (ARP) or runway centre-point.

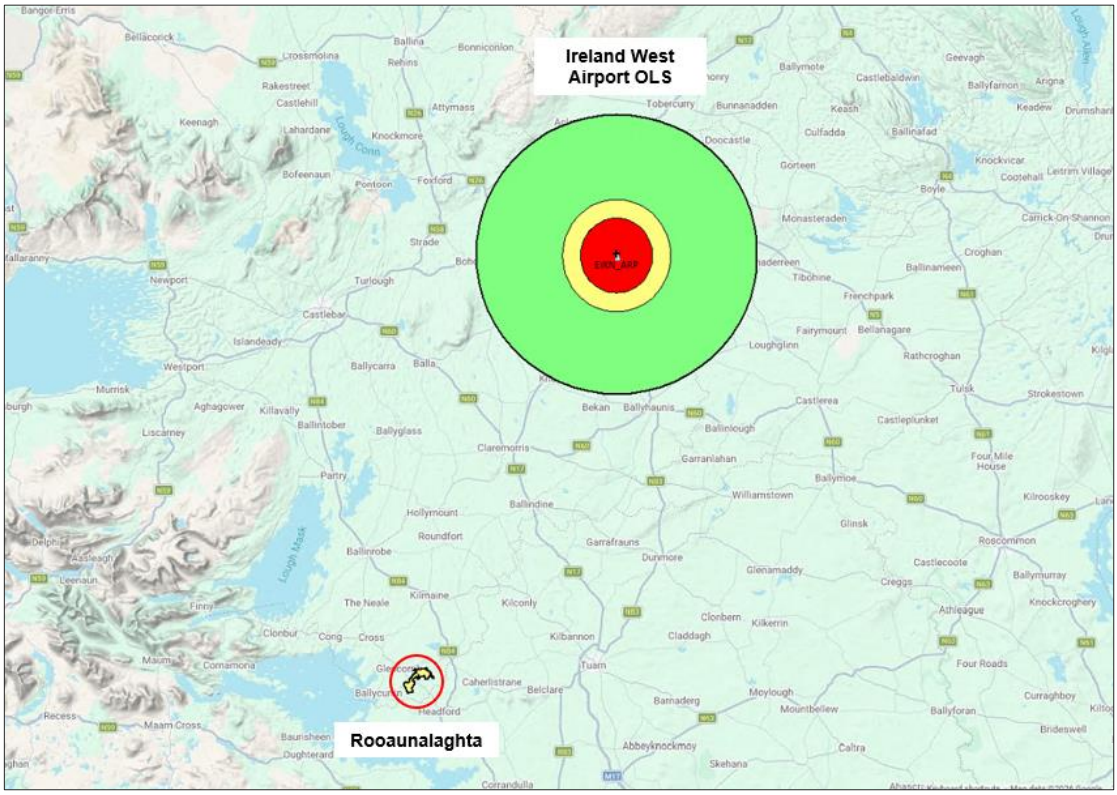


Figure 3. Rooaunalaghta Wind Farm in relation to Ireland West Airport OLS.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 14 Obstacle Limitation Surfaces	No action	None

Table 2. Aviation Impact Review - Annex 14 Obstacle Limitation Surfaces

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2.2 Annex 15 Aerodrome Surfaces

Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface as shown in Figure 4. The “Terrain and Obstacle Requirements Area” is defined in ICAO Annex 15 as an area of up to 45km from the Aerodrome ARP. (An illustration of ICAO Annex 15 Area 1 and Area 2 Surface is provided in Appendix A).

As the nearest turbine at the proposed wind farm would be more than 45 km from the ARP at Ireland West Airport, there will be no penetration of the Annex 15 surface for the Ireland West Aerodrome. All obstacles, if they are more than 100 meters above terrain for a distance of up to 45 km from the ARP, need to be registered in the IAA Air Navigation Obstacle Data Set. This area is known as the TMA area i.e. Terminal Maneuvering Area and is used for en-route circling and maneuvering and is shown in Figure 4.

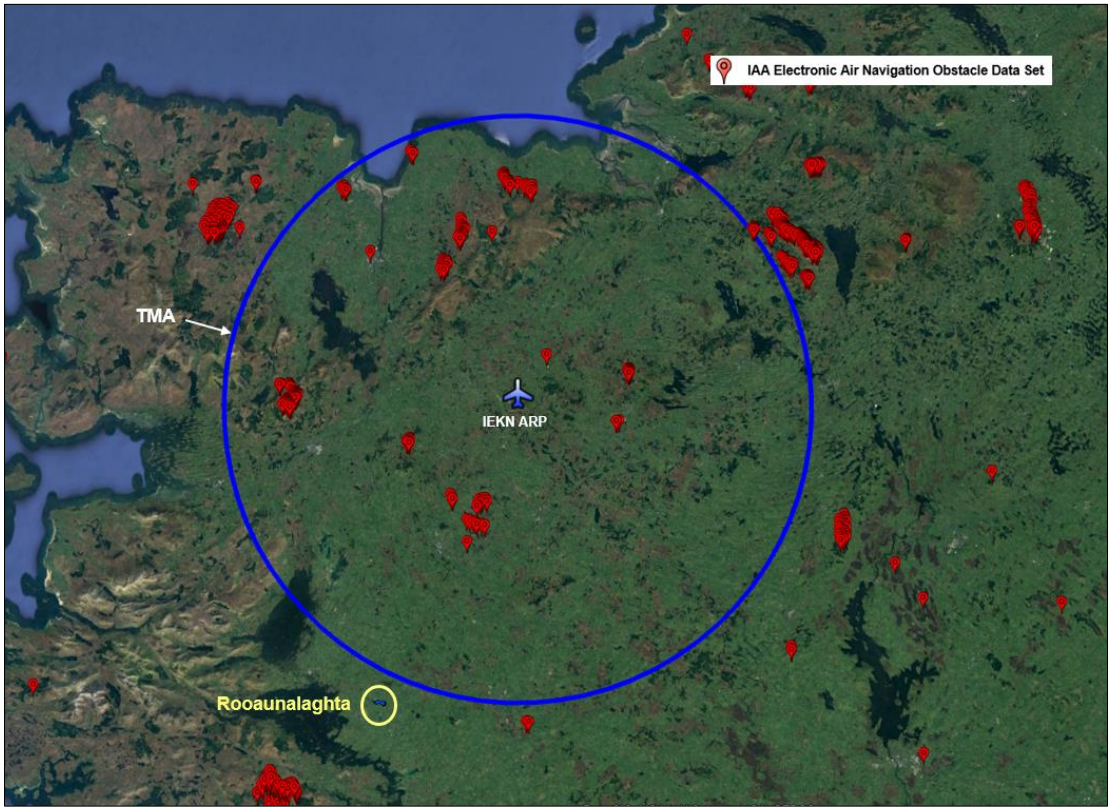


Figure 4. Annex 15 Aerodrome Surface and IAA Electronic Air Navigation Obstacle Data Set

It should also be noted that there are other existing tall structures (obstacles) nearer to the airport, e.g. the telecom masts at Croaghmoyle and the operational wind farms at Ballykinava, Cloontoa, Magheramore, Cuillilea, Lenavavea, Raheen Barr and Derrynadivva.

These existing obstacles would shield any potential impacts from the proposed wind farm at Rooaunalaghta. The IAA Electronic Air Navigation Obstacle Data Set permitted obstacles are shown relative to the proposed wind farm in Figure 5.

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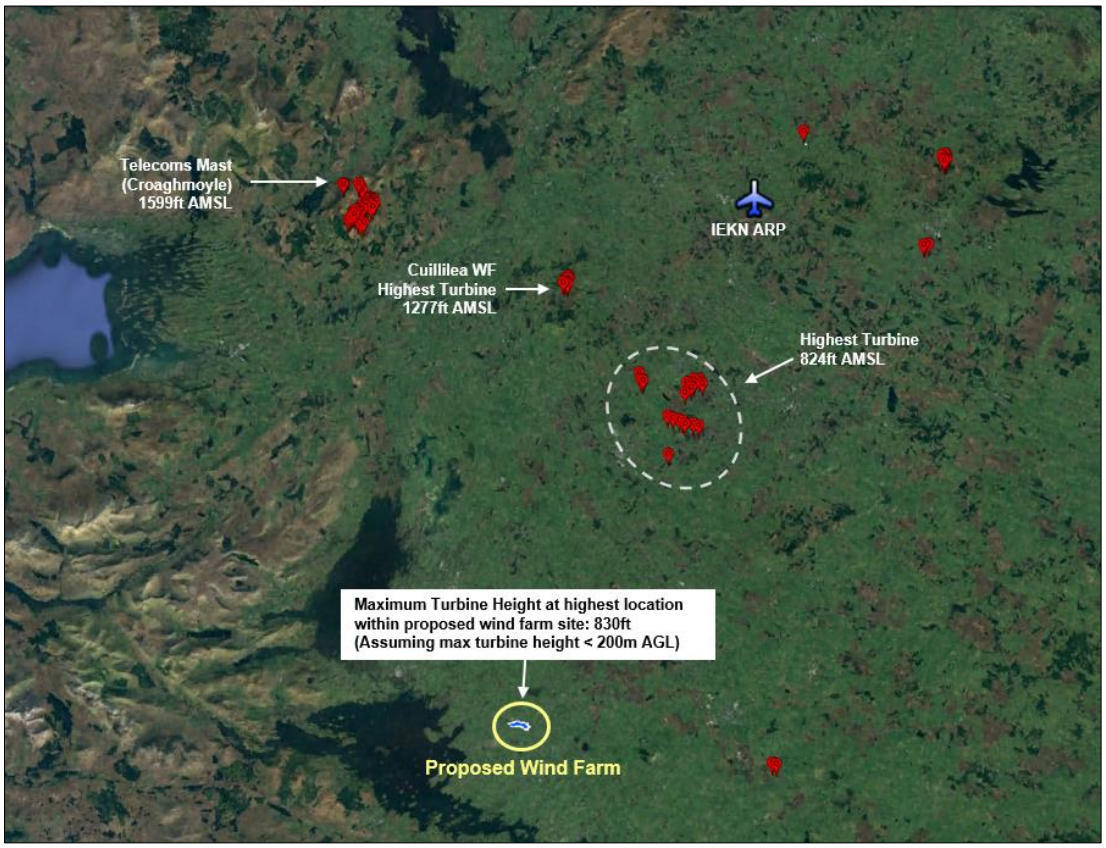


Figure 5. Permitted Obstacles in vicinity of Rooaunalaghta Wind Farm

Although there are other obstacles closer to the airport than the proposed wind farm, all new obstacles must be considered and assessed to see if they cause a “hazard to air navigation” and all Terrain Obstacle Data (including man-made obstacles) have to be considered by the relevant Aviation Authorities.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 15 Aerodrome Surfaces	The proposed wind turbines would be required to be included in the IAA Obstacle Data Set.	None

Table 3. Aviation Impact Review - Annex 15 Aerodrome Surfaces

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2.3 Building Restricted Areas (BRAs)

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities.

The navigation facilities to be considered at Ireland West Airport are the ILS Localisers, Glidepaths and DMEs that provide guidance for aircraft landings. The minimum safeguarded areas for these facilities are defined by the International Civil Aviation Organisation (ICAO) in the document ICAO EUR DOC 015, Section 7. The BRA parameters as specified by the ICAO are provided in Appendix B of this report.

Figure 6 below illustrates that the proposed wind farm at Rooaunalghta is over 40 km from the Ireland West BRAs (safeguarded areas for Runway 08 and Runway 26). At this distance turbines at the proposed wind farm will have no impact on the navigation facilities associated with the Building Restricted Areas for Ireland West Airport.

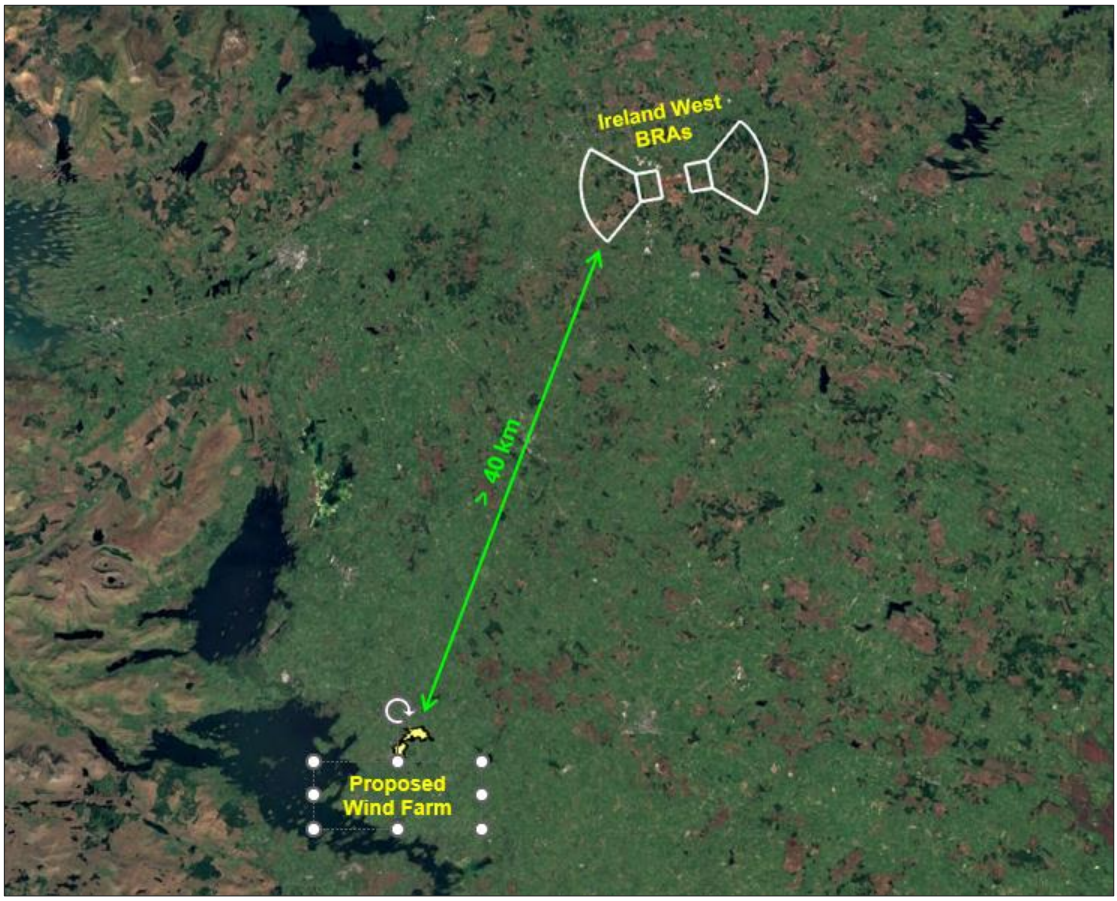


Figure 6. Proposed Wind Farm relative to Ireland West Airport BRAs (RWY 08 and RWY 26)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Building Restricted Areas	No action.	None

Table 4. Aviation Impact Review - Building Restricted Areas

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2.4 Minimum Sector Altitudes (MSAs)

A review of the Minimum Sector Altitudes (MSA) shows that turbines at the proposed wind farm would not be inside 25 nautical miles of the VOR/DME at Ireland West Airport. The MSA provides a minimum obstacle clearance of 1000 ft above the highest obstacle within specified sectors.

The proposed wind farm is located outside the MSA Sectors for Ireland West Airport as shown in Figure 7. Therefore, there will be no impact on the published MSA altitude figures.

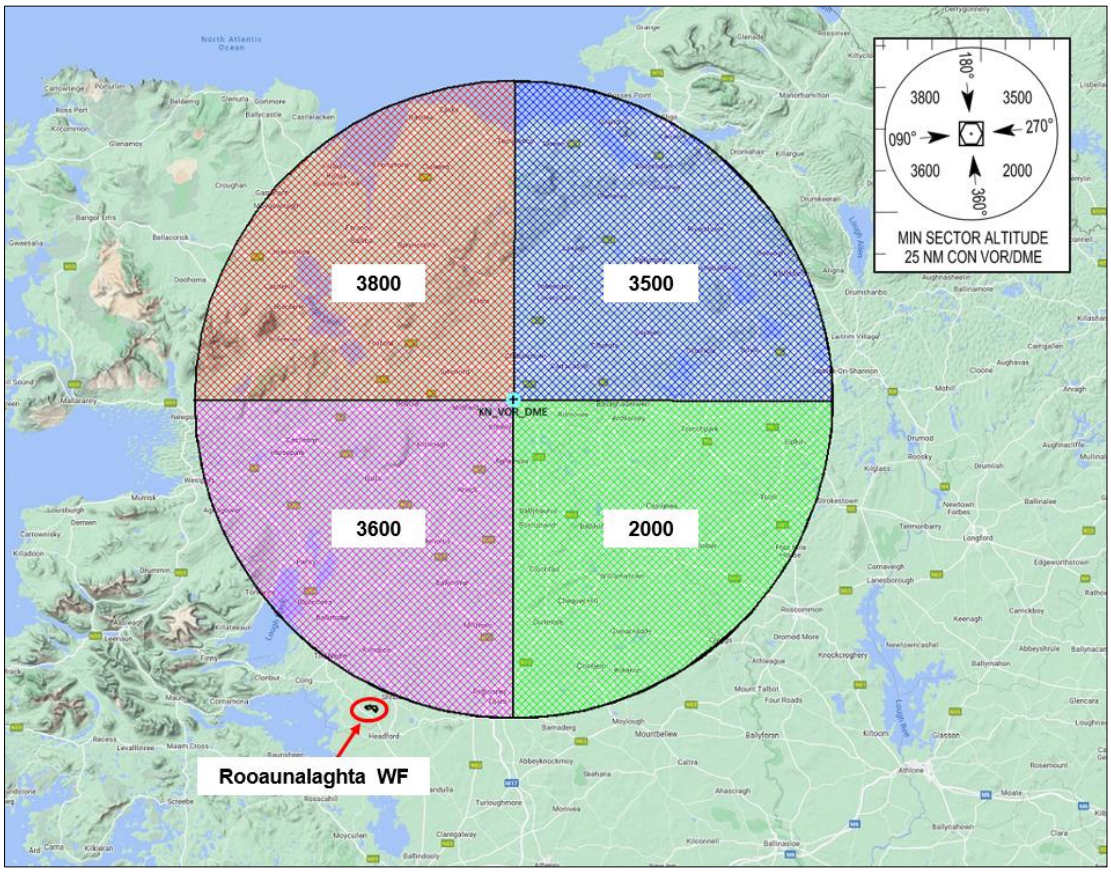


Figure 7. Ireland West Airport (EIKN) Minimum Sector Altitudes

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Minimum Sector Altitudes	No action	None

Table 5. Aviation Impact Review - Minimum Sector Altitudes

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2.5 Instrument Flight Procedures

There are 16 published Instrument and Visual Flight Procedures for arrivals to and departures from Ireland West. These Instrument Flight Procedures/Charts are listed below in Table 6.

An initial review of the Instrument Flight Procedures (IFPs) indicates that they are unlikely to be impacted by the proposed development, as none of the proposed turbines at Rooaunalaghta would be located in Controlled Airspace (Class C) for flights to/from Ireland West Airport.

Aerodrome	Aerodrome Procedure	Chart ID	Observations
Ireland West	Precision Approach Terrain Chart RWY 26– ICAO	EIKN AD 2.24-3	No Impacts.
Ireland West	RNAV Standard Departure Chart Instrument (SID) RWY 26 - ICAO	EIKN AD 2.24-4.1	No Impacts.
Ireland West	RNAV Standard Departure Instrument (SID) Chart RWY 08 - ICAO	EIKN AD 2.24-5.1	No Impacts.
Ireland West	RNAV Standard Arrival Chart Instrument (STAR) RWY 26 - ICAO	EIKN AD 2.24-6.1	No Impacts.
Ireland West	RNAV Standard Arrival Chart Instrument (STAR) RWY 08- ICAO	EIKN AD 2.24-7.1	No Impacts.
Ireland West	Instrument Approach Chart RNP RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-8	No Impacts.
Ireland West	Instrument Approach Chart ILS A CAT 1and CAT 11 or LOC RWY 26 (ACFT CAT A, B, C, D) – ICAO	EIKN AD 2.24-9.1	No Impacts.
Ireland West	Instrument Approach Chart ILS B CAT 1 and 11 RWY 26 (ACFT CAT A, B, C, D) – ICAO	EIKN AD 2.24-10.1	No Impacts.
Ireland West	Instrument Approach Chart VOR RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-11.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-12.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-13.1	No Impacts.
Ireland West	Instrument Approach Chart RNP RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-14	No Impacts.
Ireland West	Instrument Approach Chart VOR RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-15.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-16.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-17.1	No Impacts.
Ireland West	Visual Approach Chart – ICAO	EIKN AD 2.24-19	No Impacts.

Table 6. Instrument and Visual Flight Procedures – Ireland West Airport

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The figure below has been provided to illustrate that the proposed development would be located in Class G Uncontrolled Airspace and therefore would not impact the IFPs for flights to/from Ireland West Airport.

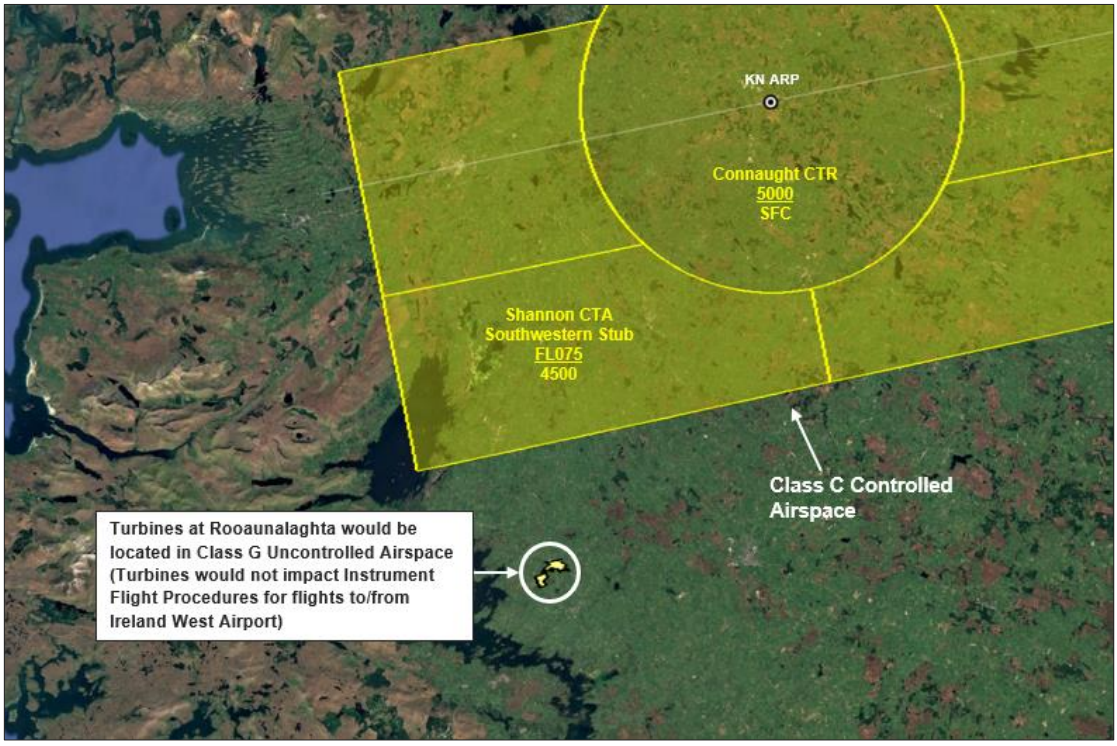


Figure 8. Proposed wind farm located in Class G (Uncontrolled Airspace)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Instrument Flight Procedures	None	None

Table 7. Aviation Impact Review - Instrument Flight Procedures

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2.6 Existing Wind Farms in vicinity of Proposed Wind Farm

The existing wind farms in the vicinity of the proposed wind farm development are shown below in Table 8.

Wind Farm	Planning Reference	Description
Ballykinava	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Cloontoa,	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Magheramore	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Lenavavea	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Ratheen Barr	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Derrynadivva	https://www.eplanning.ie/MayoCC	Operational Wind Farm
Galway Wind Park	https://www.galway.ie/en/planning-building	Operational Wind Farm

Table 8. Existing Wind Farms in vicinity of Proposed Wind Farm

All of the above wind farms are operational and do not impact the instrument flight procedures/charts for flights to/from Ireland West Airport.

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2.7 Communication and Navigation Systems

The AIP document EIKN AD 2-18/19 provides the information for communication and navigation facilities for Ireland West Airport. The table below shows the channel frequencies for the ATS communications Facilities and the Radio Navigation and Landing Aids for the airport.

Aerodrome	ATS communications Facilities Channel Frequency	Radio Navigation and Landing Aids Channel Frequency	Approximate Distance to Localizer and Transmitting antennas	Impacts of wind farm
Ireland West	118MHz –131MHz	110KHz – 330MHz	48km	No impacts

Table 9. Impacts on Communications and Navigation Systems

As the proposed wind farm is over 40 km from the Localizers and transmitting antennas, it is very unlikely that turbines at the proposed wind farm will have any impact on these ATS communications and radio navigational aids. Typically, interference to VHF communications systems will only occur when obstacles are in close proximity to the VHF transmitter e.g. less than 500m.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Communication and Navigation Systems	No action	None

Table 10. Aviation Impact Review - Communication and Navigation Systems

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2.8 Radar Surveillance Sensors

The tables below show the EUROCONTROL Guidelines Assessment Zone arrangement for the two types of aviation radar surveillance systems; Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR).

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 15km and in radar line of sight	Detailed Assessment
Zone 3	Further than 15km and in radar line of sight	Simple Assessment
Zone 4	Not in radar line of sight	No Assessment

Table 11. PSR Zone Arrangements

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 16km but within maximum instrumented range and in radar line of sight	Detailed Assessment
Zone 4	Further than 16km or not in radar line of sight	No Assessment

Table 12. SSR Zone Arrangements

The EUROCONTROL Guidelines require a 16km safe distance for a “Zone 4 - No Assessment” condition and detailed assessments are required for any proposed wind within 16km of a secondary surveillance radar.

It should be noted that in the UK, NATS (Air Traffic Control) safeguards SSR to a distance of 10km. The guidelines used by NATS (*CAP 764: Chapter 2: Impact of wind turbines on aviation*) state that:

> *“Wind turbine effects on SSR are traditionally less than those on PSRs but can be caused due to the physical blanking and diffracting effects of the turbine towers, depending on the size of the turbines and the wind farm. These effects are typically only a consideration when the turbines are located very close to the SSR i.e. less than 10 km.”*

A review of the potential impact of the proposed wind farm on Radar Surveillance Sensors is presented below in Section 2.8.1. The review shows that AirNav Ireland should not require a radar assessment, as turbines at the proposed development would be located in Assessment Zone 4 for all of their radar installations (PSR and SSR).

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Radar Surveillance Sensors	No action	None.

Table 13. Aviation Impact Review - Radar Surveillance Sensors

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2.8.1 AirNav Radar Surveillance Sensors

To determine which Assessment Zones are applicable to the proposed wind farm a desktop assessment was carried out. The nearest radar surveillance sites to the proposed wind farm development are at Dooncarton, Shannon Airport and Woodcock Hill.

An assessment of the potential impact due to the proposed wind farm on these radar installations is provided in Section 2.8.1.1, Section 2.8.1.2 and 2.8.1.3.

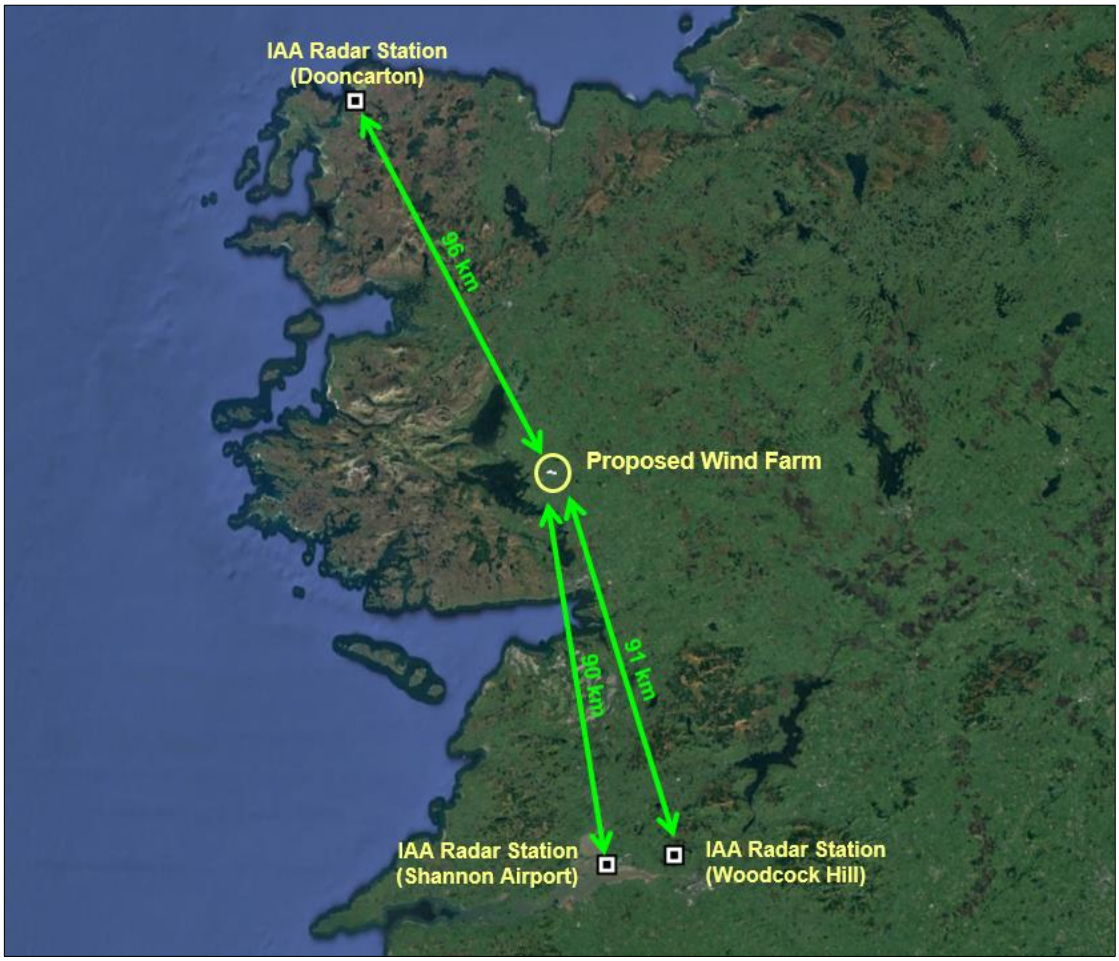


Figure 9. Radar Surveillance Sites relative to Rooaunalaghta Wind Farm.

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2.8.1.1 Dooncarton Radar Assessment

The radar surveillance site at Dooncarton consists of a SSR system located in the six-story circular reinforced concrete communications tower shown in Figure 10. The SSR antennas are housed in the dome-shaped structure at the top of the tower.



Figure 10. Dooncarton Radar Station

Table 14 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar Assessment Zone (EuroControl Guidelines)	Radar Assessment Requirement (EuroControl Guidelines)
Rooaunalaghta	96 km	Zone 4	Detailed Assessment Not Required

Table 14. EuroControl Safeguarding Guidelines – Dooncarton Radar Station

As the table above show, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the SSR radar station at Dooncarton.

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2.8.1.2 Shannon Airport Radar Assessment

The radar surveillance site at Shannon Airport consists of a PSR and an SSR. The PSR and the SSR antennas are co-located on the same structure at Shannon Airport (Figure 11).



Figure 11. Shannon Airport Radar Station

Table 15 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar Assessment Zone (EuroControl Guidelines)	Radar Assessment Requirement (EuroControl Guidelines)
Rooaunalaghta	90 km	Zone 4	Detailed Assessment Not Required

Table 15. EuroControl Safeguarding Guidelines – Shannon Airport Radar Station

As the table above show, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the PSR/SSR radar station at Shannon Airport.

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2.8.1.3 Woodcock Hill Radar Assessment

The radar surveillance site at Woodcock Hill consists of an SSR system housed in the dome-shaped structure shown in Figure 12.



Figure 12. Woodcock Hill Radar Station

Table 16 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar Assessment Zone (EuroControl Guidelines)	Radar Assessment Requirement (EuroControl Guidelines)
Rooaunalaghta	91 km	Zone 4	Detailed Assessment Not Required

Table 16. EuroControl Safeguarding Guidelines – Woodcock Hill Radar Station

As the table above show, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the SSR radar station at Woodcock Hill.

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2.9 Flight Inspection and Calibration

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an AirNav Ireland approved Flight Inspection Service Provider (FCSL).

The checks are carried out during annual inspections consisting of radial and orbital test flights around Ireland West Airport for calibration of instrument landing systems (ILS). Test flights are done for inspection and calibration of the ILS Localizer Lateral Coverage Sectors and the ILS Glide Path Sectors.

2.9.1 ILS Localizer Lateral Coverage Sector

Figure 13 shows the ILS Localiser Lateral Coverage Sector, as defined in ICAO Annex 10. Figure 14 shows the proposed wind farm site relative to the ILS Localiser Lateral Coverage Sector for Ireland West Airport RWY08.

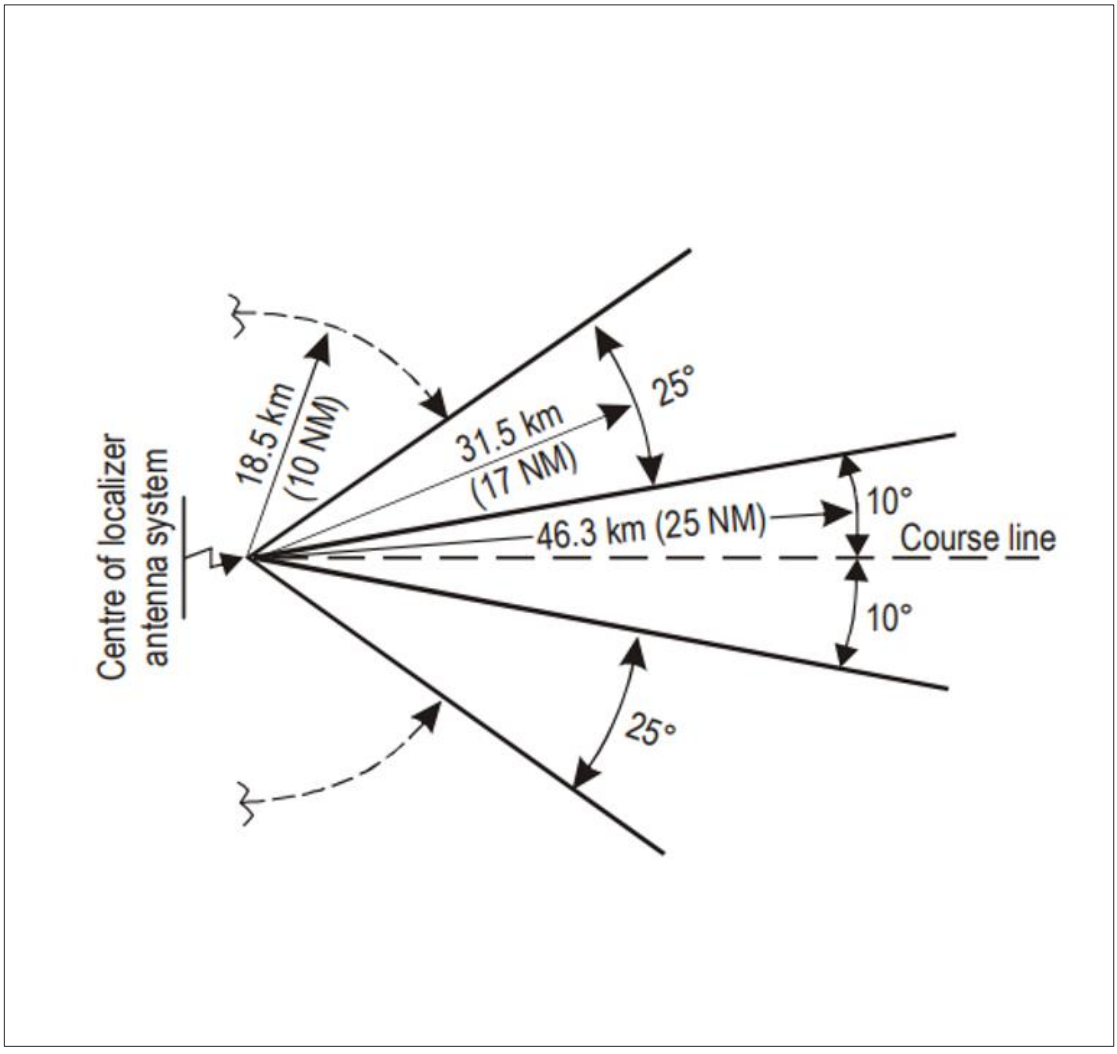


Figure 13. ILS Localiser Lateral Coverage Sector (as defined in ICAO Annex 10)

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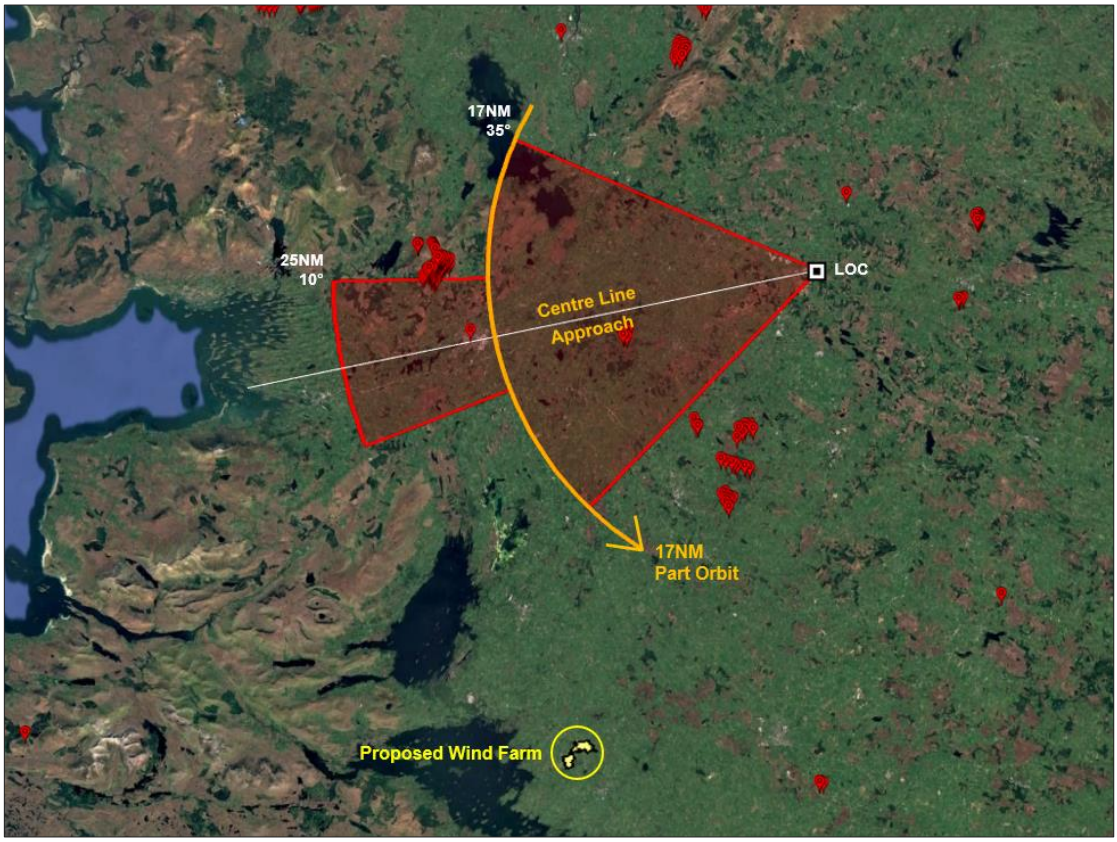


Figure 14. Ireland West ILS Localiser Lateral Coverage Sector (RWY08)

As Figure 14 above shows, the proposed wind farm site is located outside the ILS Localiser Lateral Coverage Sector for Ireland West Airport (RWY06) and is not expected to have any impact on the ILSs.

As previously mentioned, inspections of the ILS Localiser facilities are done by orbital and radial flights around the airport by an AirNav approved Flight Inspection Service Provider (FCSL). The flight paths of the latest publicly available FCSL Inspection/Calibration flights for Ireland West Airport are shown below in Figure 15 and Figure 16.

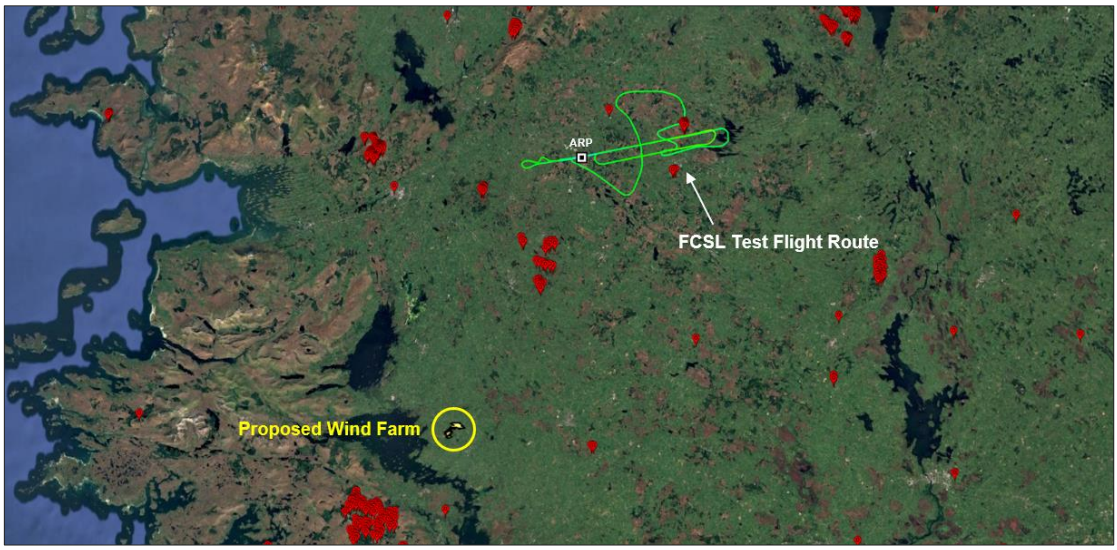


Figure 15. FCSL Flight Route - 31st October 2025

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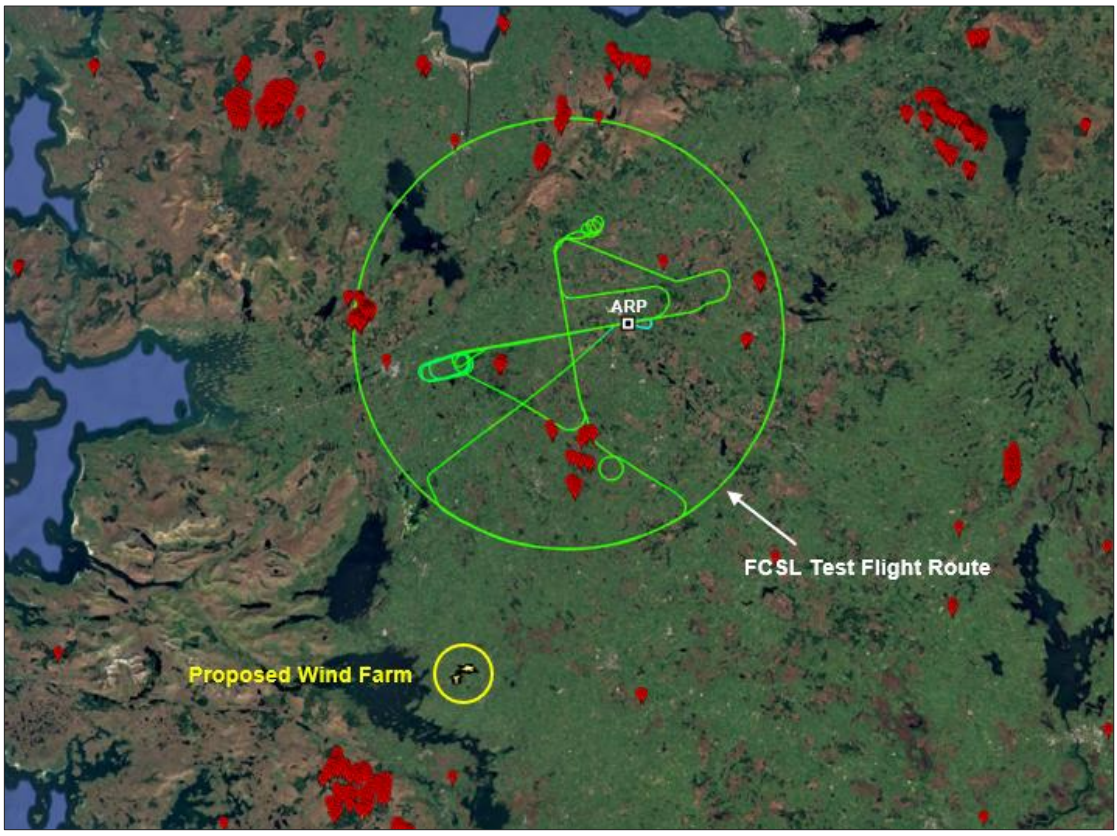


Figure 16. FCSL Flight Route - 09th November 2025

As Figure 15 and Figure 16 show, the FCSL Flight Routes do not fly over/near the proposed wind farm, and it is highly unlikely that there would be any impact to the Inspection/ Calibration Test Flights for Ireland West Airport.

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2.9.2 ILS Glide Path Sector

Figure 17 shows the ILS Glide Path Coverage Sector, as defined in ICAO Annex 10. Glide Path flight inspection procedures include checks below the sector to assure a safe flight path area between any obstacles on the approach path and the bottom edge of the Glide Path Sector.

The Glide Path slice flight profiles (i.e. 8° of centre line) must therefore ensure that the test aircraft clears obstacles by at least 500 ft in Visual Meteorological Conditions (VMC) and by at least 1000 ft in Instrument Meteorological Conditions (IMC).

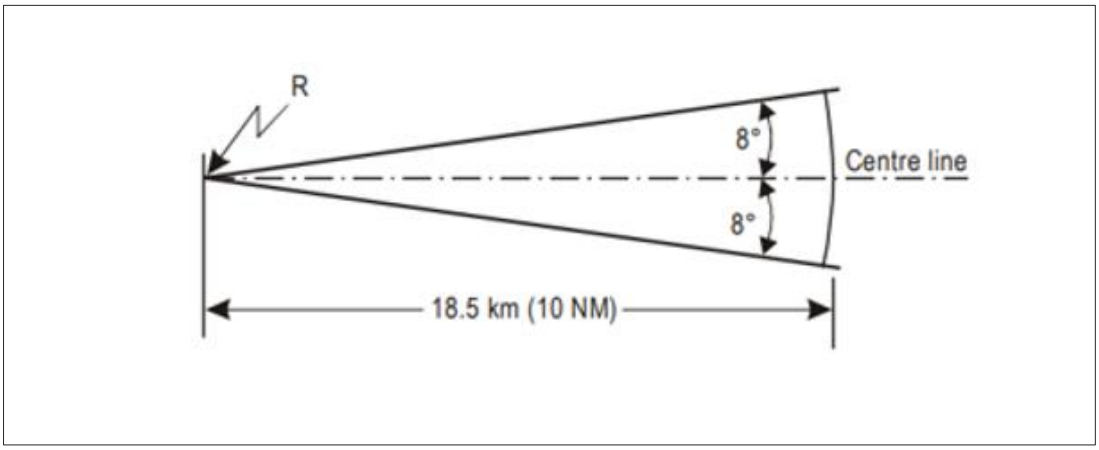


Figure 17. ILS Glide Path Coverage Sector (as defined in ICAO Annex 10)

As turbines at the proposed development would be more than 25 NM from the runways at Ireland West Airport, there would be no impact on the ILS Glide Path Coverage Sectors for this airport.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Flight Inspection and Calibration	None.	None.

Table 17. Aviation Impact Review - Flight Inspection and Calibration

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2.10 Aeronautical Obstacle Warning Light Scheme

In the event of a grant of planning consent the IAA-ANSP would require the lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development may be considered as an en-route obstacle. The developers of the proposed turbines would intend to implement an aeronautical obstacle warning light.

It is recommended that lighting requirements should be in accordance with Chapter Q – Visual Aids for denoting Obstacles; CS ADR.DSN.Q.851 and GM.ADR.DSN.Q.851 (Pages 729/730) of the EASA Easy Access Rules for Aerodromes (Reg (EU) No. 139/2014) where it states that

> *"Applicability: When considered as an obstacle a wind turbine should be marked and/or lighted."*

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Aeronautical Obstacle Warning Light Scheme	In the event of planning consent being granted, the applicant should be conditioned to contact the IAA to agree to an Aeronautical Obstacle Warning Light Scheme.	None

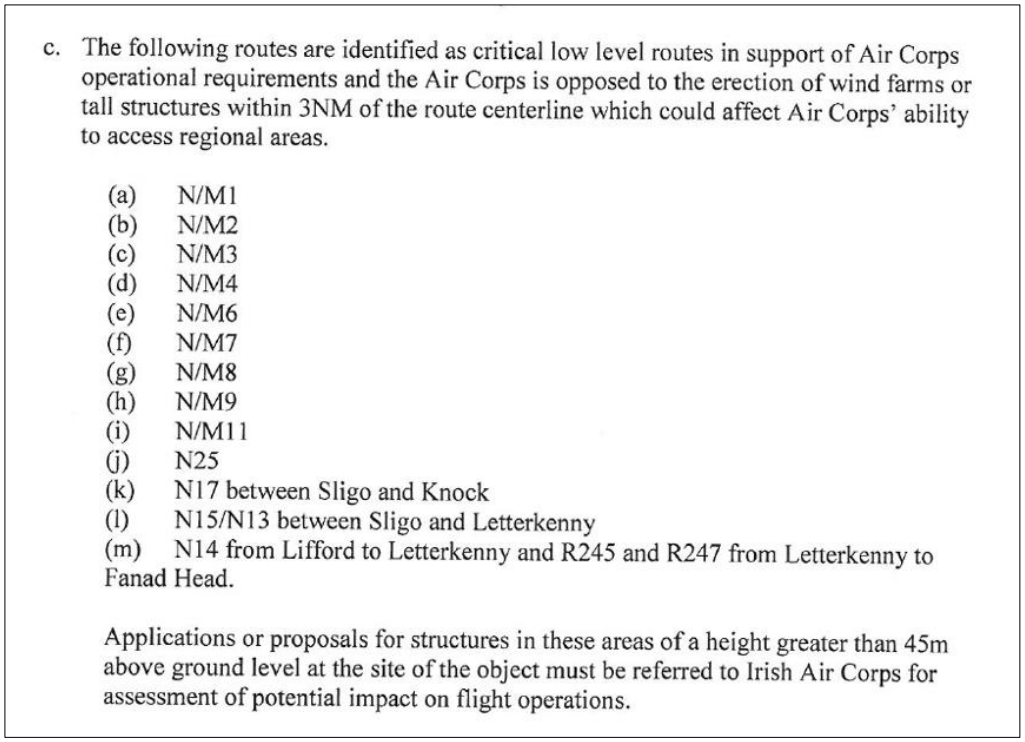
Table 18. Aviation Impact Review - Aeronautical Obstacle Warning Light Scheme

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2.11 Irish Air Corps / DoD Safeguarding

The Irish Air Corps Position Paper "*Air Corps Wind Farm / Tall Structures Position Paper*" published on 08th August 2014 (Appendix B), states that the Air Corps are likely to oppose any wind farm / tall structure in the following restricted areas:

- Lands underlying military airspace for flying activity. (Areas contained in Danger Areas EI-D1, EI-D5, EI-D6, EI-D13, EI-D14, Restricted Areas EI-R15, EI-R16 within 20 NM of Baldonnel, MOAs 3 and 4 within 20 NM of Baldonnel.
- Low Flying Training Areas within MOA 4 in the areas of; Blessignton, Edenderry/Allenwood/Rathangan, Kilmeague/Newbridge.
- Low Flying Training Area West – LFTA WEST.
- A distance of 5 NM or less from military installations.
- Critical low level flying routes in support of Air Corps operation requirements as described in Figure 18 below.



c. The following routes are identified as critical low level routes in support of Air Corps operational requirements and the Air Corps is opposed to the erection of wind farms or tall structures within 3NM of the route centerline which could affect Air Corps' ability to access regional areas.

(a) N/M1
(b) N/M2
(c) N/M3
(d) N/M4
(e) N/M6
(f) N/M7
(g) N/M8
(h) N/M9
(i) N/M11
(j) N25
(k) N17 between Sligo and Knock
(l) N15/N13 between Sligo and Letterkenny
(m) N14 from Lifford to Letterkenny and R245 and R247 from Letterkenny to Fanad Head.

Applications or proposals for structures in these areas of a height greater than 45m above ground level at the site of the object must be referred to Irish Air Corps for assessment of potential impact on flight operations.

Figure 18. Irish Air Corps – Critical Low-Level Routes

In addition to the restricted areas, as outlined above, the IAC have specific aviation lighting requirements for wind farm developments.

A review of the IAC Restricted Areas is provided In Section 2.11.1, and a review of the Military Aviation Lighting requirements is provided in Section 2.11.2.

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2.11.1 IAC Restricted Areas

The applicable restricted areas as defined by the IAC Position Paper have been mapped and are shown relative to the proposed wind farm in Figure 19. As the figure shows, the proposed wind farm is located outside the restricted areas.

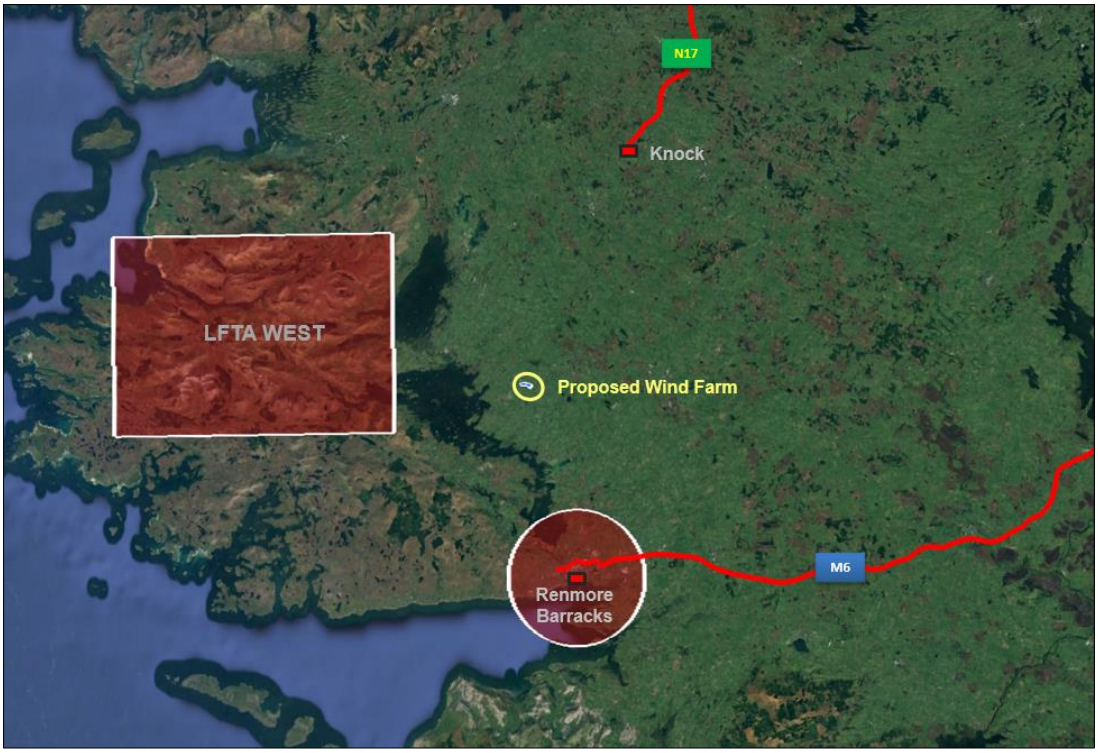


Figure 19. IAC Restricted Areas (as defined in IAC Position Paper)

Although Rooaunalaghta is located outside the low-level flight routes, as defined in the IAC Position Paper, it has recently been stated by the Department of Defense that the N84 is also considered as a low-level flight route (Ref. DoD consultation response below).

DoD Response to Consultations (04/06/26):

> *"I refer to your below e-mail, dated 20th May 2026, in relation to an EIAR report relating to windfarm development with 13 wind turbines at Rooaunalaghta, Co. Mayo.*
>
> *I wish to advise at the outset that any determination in relation to a planning consent is solely a matter for the planning authorities and/or ABP, as appropriate. Therefore, the following observations are made on a non-prejudicial basis, and are not intended to be used to rely on for a prospective planning application, nor are these observations to be relied on in the event of any commercial transaction pertaining to such lands and they are not to be relied on in the event of any contract exchange pertaining to same.*
>
> *As a matter of practice, the Department of Defence does not provide observations or advice in the scoping process, except where the relevant parties have been directed by a planning authority to seek the Department's views.*
>
> *Having consulted with the Military authorities, the Department of Defence wishes to make the following observations:*
>
> - ***The N84 route is identified as an Irish Air Corps low level route. The location of structures higher than 45m above ground within 2.7NM of the route centreline of low level routes should be considered.***

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- *The cumulative effect of renewable energy developments has the potential to impede the Irish Air Corps operability.*
- *All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.*
- *In the event of negative impacts on future military radar systems, the owner will engage with the Department of Defence and will provide suitable mitigations as soon as practical.*

Nothing in the above observations shall be taken as a binding response by the Minister for Defence in the event that a planning application is made. The Minister reserves the right to comment on an actual planning application as and when it is submitted in accordance with the provisions of the planning regulatory code.

We would appreciate if you could keep us informed on any progress relating to this proposed development."

2.11.1.1 N84 Route Considerations

When considering the N84 as an IAC low-level IAC flight route, turbines at the proposed development would be located within 2.7 NM of the flight route centerline (Ref. Figure 15). However, in the consultation response (above), the 2.7 NM around the N84 is not referred to as an Exclusion Zone, rather it is stated that "*The location of structures higher than 45m above ground within 2.7NM of the route centreline of low level routes should be considered*."

The items to be considered (as stated in the DoD consultation response) include;

- The cumulative effect of renewable energy developments (e.g. existing wind farms).
- Military Aviation Lighting Requirements.

A review of the cumulative effect of renewable energy developments is provided in Section 2.11.1.1.1, and a review of the military aviation lighting requirements is provided in Section 2.11.1. 2.

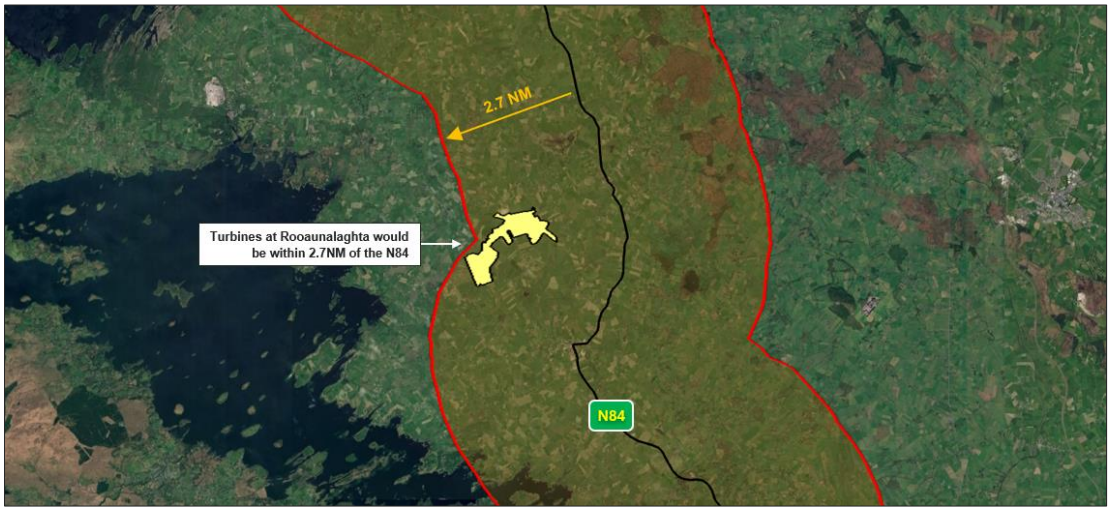


Figure 20. IAC Low-level Flight Route - N84

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2.11.1.1.1 Cumulative Effects of Renewable Energy Developments

There are existing wind turbines west of the N84, but these are over 15 km from the proposed development. At this distance there would be no cumulative effects due to the addition of new turbines at Rooaunalghta.

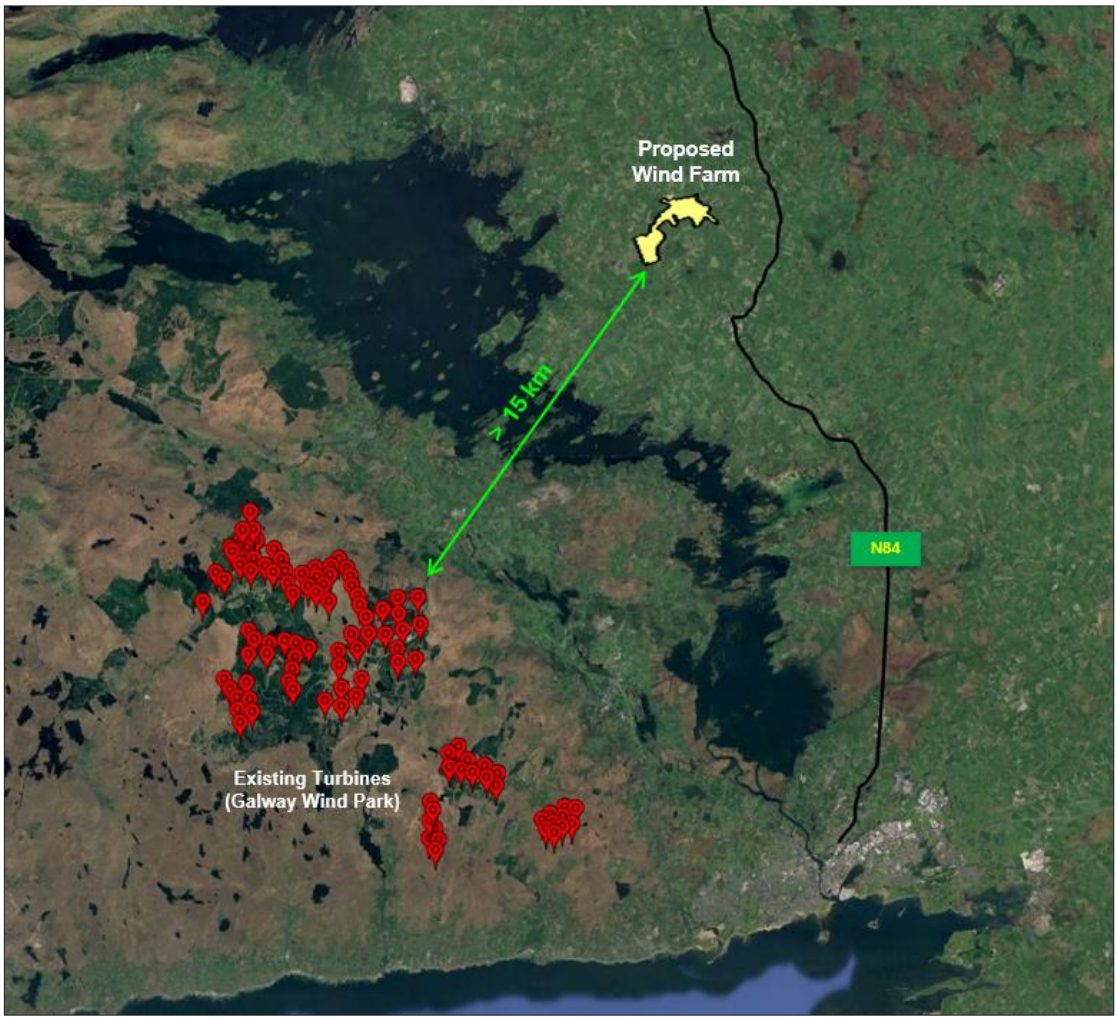


Figure 21. No cumulative effects due to proposed development

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2.11.2 Military Aviation Lighting

From the consultation response received from the Department of Defence (Ref Section 2.11.1, P25 & P26) in relation to the proposed wind farm development, the DoD have made the following observations regarding military aviation lighting requirements.

- *All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.*

- *In the event negative impacts on future military radar systems, the owner will engage with the Department of Defence and will provide suitable mitigations as soon as practical.*

For Military Aviation Lightning, it is recommended is to engage at the early stage in a consented development (subject to planning conditions), to agree on the details relating to the lighting requirements for the DoD/IAC.

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2.11.3 Precedents of Existing Turbines within 2.7NM of IAC Flight Routes

It should be noted that there are numerous other instances of wind turbines being located within 2.7 NM of an IAC low-level flight route. These include the following wind farms: Magheramore and Cloontooa (Figure 22), Yellow River (Figure 23), and Monaincha, Bruckana/Lisheen, Lisdowney and Kill Hill (Figure 24).

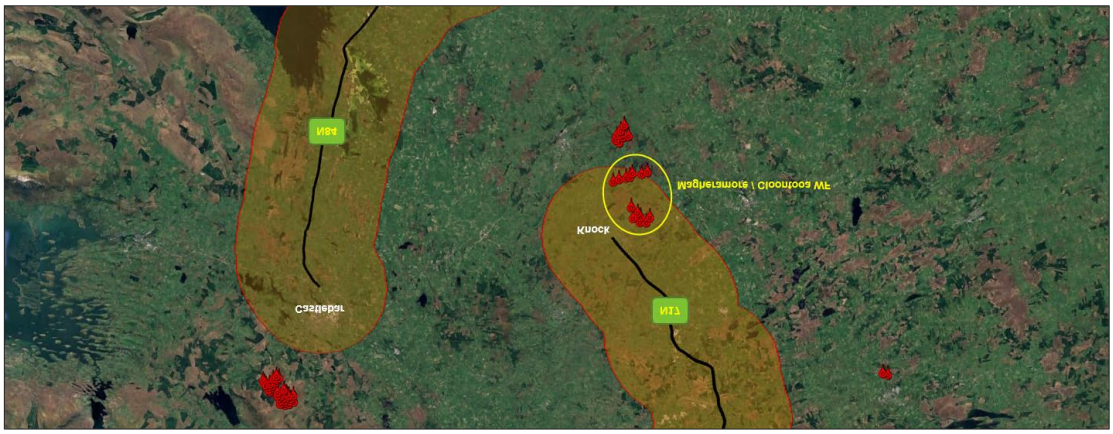


Figure 22. Existing wind turbines within 3NM of IAC low-level flight route – N17

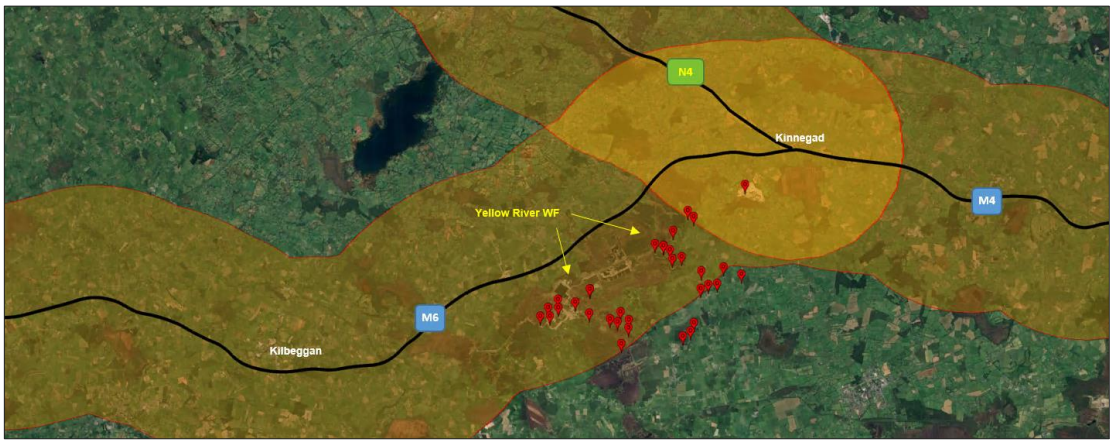


Figure 23. Existing wind turbines within 3NM of IAC low-level flight route – M6

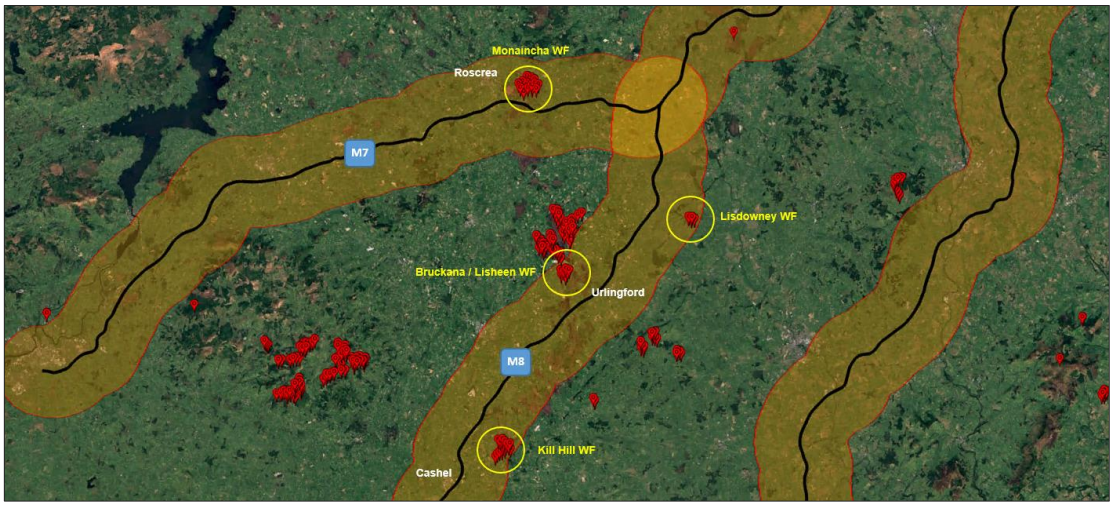


Figure 24. Existing wind turbines within 3NM of IAC low-level flight route – M7 & M8

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Aviation Impact Review	Observations
Irish Air Corps / Department of Defence Safeguarding	In line with the DoD consultation response, consideration should be given to the following: - Cumulative Effects of Renewable Energy Developments - Military Aviation Lightning As the nearest turbines to the proposed development at over 15 km away there would be no cumulative effects due to the addition of turbines at Rooaunalaghta. Regarding Military Aviation Lightning, the recommendation is to engage at the early stage in a consented development (subject to planning conditions), to agree on the details relating to the lighting requirements for the DoD/IAC. The DoD have also identified that In the event of negative impacts on future military radar systems, the developer will engage with the Department of Defence and will provide suitable mitigation. The developer agrees to comply with this requirement.

Table 19. Aviation Impact Review - Irish Air Corps / Department of Defence Safeguarding

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2.12 The Garda Air Support Unit (GASU)

The Garda Air Support Unit is based at Casement Aerodrome, Baldonnel and is typically deployed to incidents in the following cases:

- Immediate threat to life
- Incidents of a criminal, terrorist or other nationally important nature
- Immediate threat of serious public disorder
- Tasks leading to the prevention or detection of crime
- Evidence gathering
- Intelligence gathering
- Photographic tasks
- Traffic Management/Monitoring

The unit consists of one fixed-wing aircraft (a de Havilland Canada-6 Twin Otter Guardian 400 aircraft) and two helicopters (Eurocopter EC 135 T2).



Figure 25. GASU - de Havilland Canada-6 Twin Otter Guardian 400 aircraft



Figure 26. GASU - Eurocopter EC135 T2

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The proposed wind farm is located in an area that is sparsely populated and on agricultural terrain. For these reasons, it is highly unlikely that the proposed wind farm development would have any significant impacts on GASU operations.

In the unlikely event of GASU operations in the general area, it should be noted that all modern aircraft are equipped with a range of Global Navigation Satellite Systems (GNSS), e.g. GPS, GLNASS, Galileo, etc. These GNSS systems provide pilots with accurate navigation information including data to avoid obstacles during VFR operations. Should the proposed wind farms be permitted the associated turbine locations would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly.

GASU Aircraft	Impact of proposed wind farms - Opinion
Fixed-wing Airplane (Pilatus Britten-Norman BN 2T-4S Defender 4000)	Low – Fixed-wing aircraft are unlikely to be deployed in low level activity in the subject areas. In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.
Helicopter (Eurocopter EC135 T2)	Low – Helicopter landings in the subject area would not occur as the proposed wind farm located in in an area that is sparsely populated and on agricultural terrain. In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.

Table 20. Impact of proposed wind farm on GASU Operations

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2.13 The Emergency Aeromedical Service (EAS)

The air ambulance service in Ireland is known as the Emergency Aeromedical Service (EAS). The EAS crew (which include National Ambulance Service (NAS) paramedics) deal with time-critical emergency callouts to major emergencies such as road collisions and urgent medical events. The EAS currently operate two air ambulance helicopters operating from two bases:

- Custume Barracks, Athlone, Co Westmeath.
- Rathcoole Aerodrome, Rathcoole, Mallow, Co Cork.

The two helicopter borne emergency air ambulances consist of an Air Corps operated aircraft based at Custume Barracks in Athlone, and an aircraft located at Rathcoole Aerodrome in North County Cork. The nearest EAS base to the Proposed Wind Farm is the base in Athlone. The flight times from the EAS base at Athlone are shown in Figure 27.



Figure 27. EAS – Flying Times from Athlone

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EAS Helicopter landings are highly unlikely to occur in the subject area due to the agricultural terrain of the proposed site. Should the proposed wind farm be permitted, the associated turbine locations would also be submitted to the IAA, and aviation charts and GNSS databases would be updated accordingly.

EAS helicopters would also be fitted with GNSS systems which would clearly identify any potential objects in the operational area (e.g. wind turbines).

In addition, the footprint of the proposed wind farm development is relatively small and any flight diversions for EAS operations would have negligible time impacts. For these reasons, turbines at the proposed wind farm should have no impact on EAS flights from Athlone or Rathcoole.

EAS Aircraft	Impact of Proposed Turbines – Opinion
Helicopter (Eurocopter EC135)	Low – Helicopter landings at the subject area are highly unlikely to occur as the proposed wind farm site is located on agricultural terrain. In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.

Table 21. Impact of proposed wind farm on EAS

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3. Summary

A summary of the aviation review for the proposed wind farm at Rooaunalaghta is provided in Table 22 below.

Item	Impact	Summary
Annex 14 - Obstacle Limitation Surfaces (OLS)	None	Turbines at the proposed wind farm site would be located outside the OLS Surfaces for Ireland West Airport
Annex 15 - Aerodrome Surfaces	None	Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface for Ireland West Airport. All obstacles, if more than 100 meters above terrain for a distance of 45km from center point of Ireland West Airport, need to be registered in the IAA Air Navigation Obstacle Data Set. The IAA may request that the turbines be included in the IAA Aeronautical Electronic Obstacle Data Sets. It should be noted that other existing tall structures nearer to Ireland West Airport (e.g. Telecoms mast at Croaghmoyle and existing turbines at Ratheen Barr, Cuillilea etc.) are also located within the ICAO Annex 15 Aerodrome Surface and are already listed in the IAA Aeronautical Electronic Obstacle Data Sets.
Minimum Sector Altitudes (MSA)	None	A review of the Minimum Sector Altitudes (MSA) shows that the proposed wind farm is outside 25 nautical miles from the VOR/DME at Ireland West Airport. Therefore, the MSA of the relevant sector will not be affected and there will be no impact on the published MSA altitude figures.
Instrument Flight Procedures	None	A review shows that the instrument flight procedures for RWY 08 and RWY 26 standard instrument departures are unlikely to be impacted for precision aircraft.
Communication and Navigation Systems	None	As the proposed wind farm is over 40 km from the Localizer and transmitting antenna at Ireland West Airport, it is very unlikely that the proposed development will have any impact on these ATS communications and radio navigational aids.
Radar Surveillance Sensors	None	The proposed wind turbines would be located in Assessment Zone 4 (EuroControl guidelines) for SSR and PSR instruments and a detailed Impact Assessment will not be required
Flight Inspection and Calibration	None	The annual Flight Inspection Procedures will not be impacted by the proposed wind farm as the proposed site is sufficiently far from the ARP at Ireland West Airport that there would be no impacts. In addition, the Flight Inspection Procedures should already account for existing obstacles.
Aeronautical Obstacle Warning Light Scheme	Observation	The IAA have requested that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance to industry standards. The developer agrees to comply with this requirement.
Irish Air Corps / DoD Safeguarding	Observations	The proposed wind farm is located outside the Irish Air Corps Restricted Areas, as specified in the Irish Air Corps Position Paper “Air Corps Wind Farm/ Tall Structures Position Paper”.

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		The DoD have also identified the N84 route as a low-level route and any structures higher than 45m above ground within 2.7NM of the route centreline should be considered. The DoD have also identified that In the event of negative impacts on future military radar systems, the developer will engage with the Department of Defence and will provide suitable mitigation. The developer agrees to comply with this requirement.
Garda Air Support Unit	None	A review of GASU operations indicates that they are unlikely to be impacted by the proposed wind farm development.
Emergency Aeromedical Service	None	A review of EAS operations indicates that they are unlikely to be impacted by the proposed wind farm development.

Table 22. Rooaunalaghta Wind Farm – Aviation Review Summary

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APPENDIX A - ICAO Annex 15 Area 1 and Area 2 Surfaces.

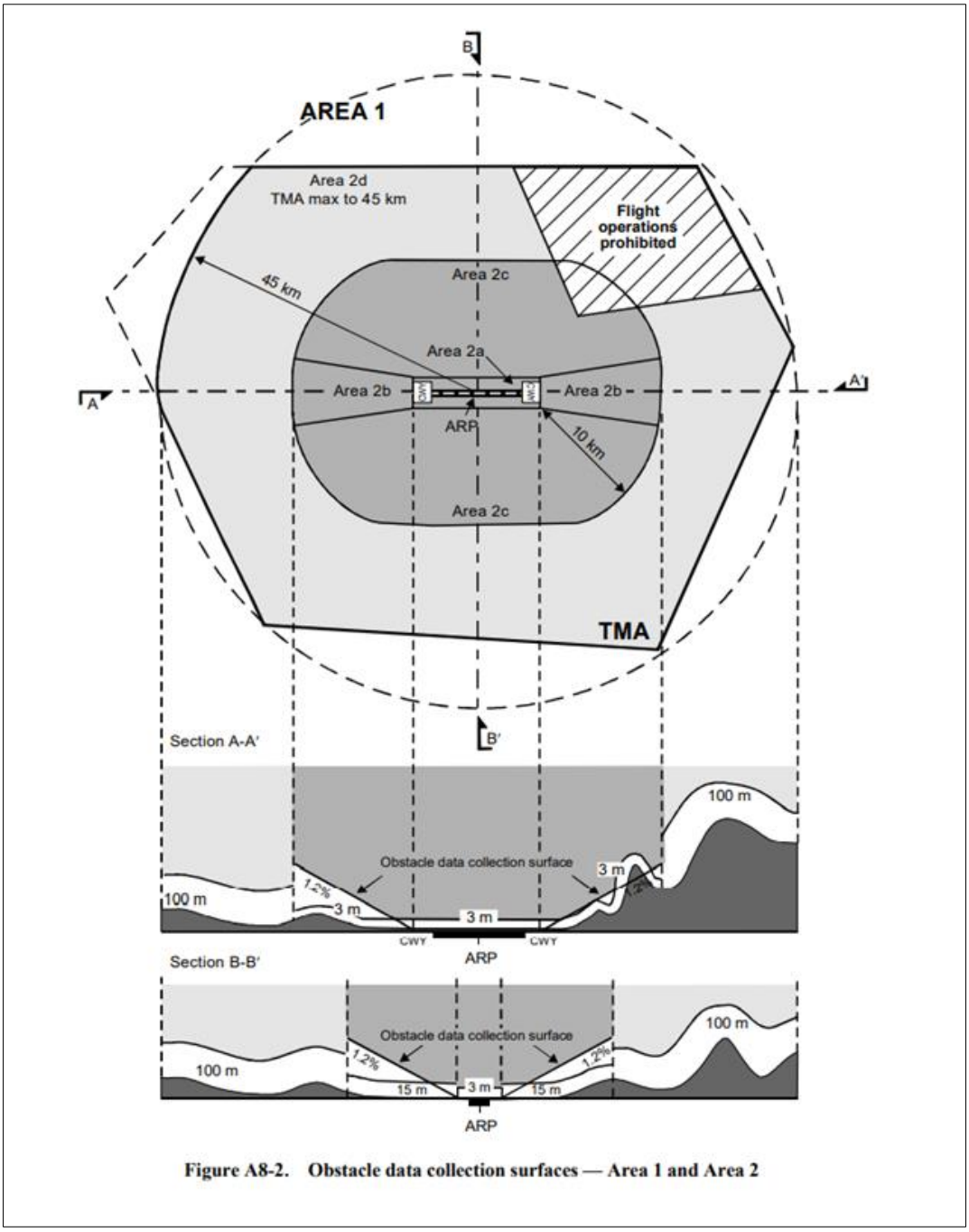


Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

ICAO Annex 15 Area 1 and Area 2 Surfaces.

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APPENDIX B - ICAO Building Restricted Areas.

Figure B1 below shows an example BRA shape for directional facilities. Table B1 provides harmonized guidance figures for the directional navigational facilities in accordance with Figure B1.

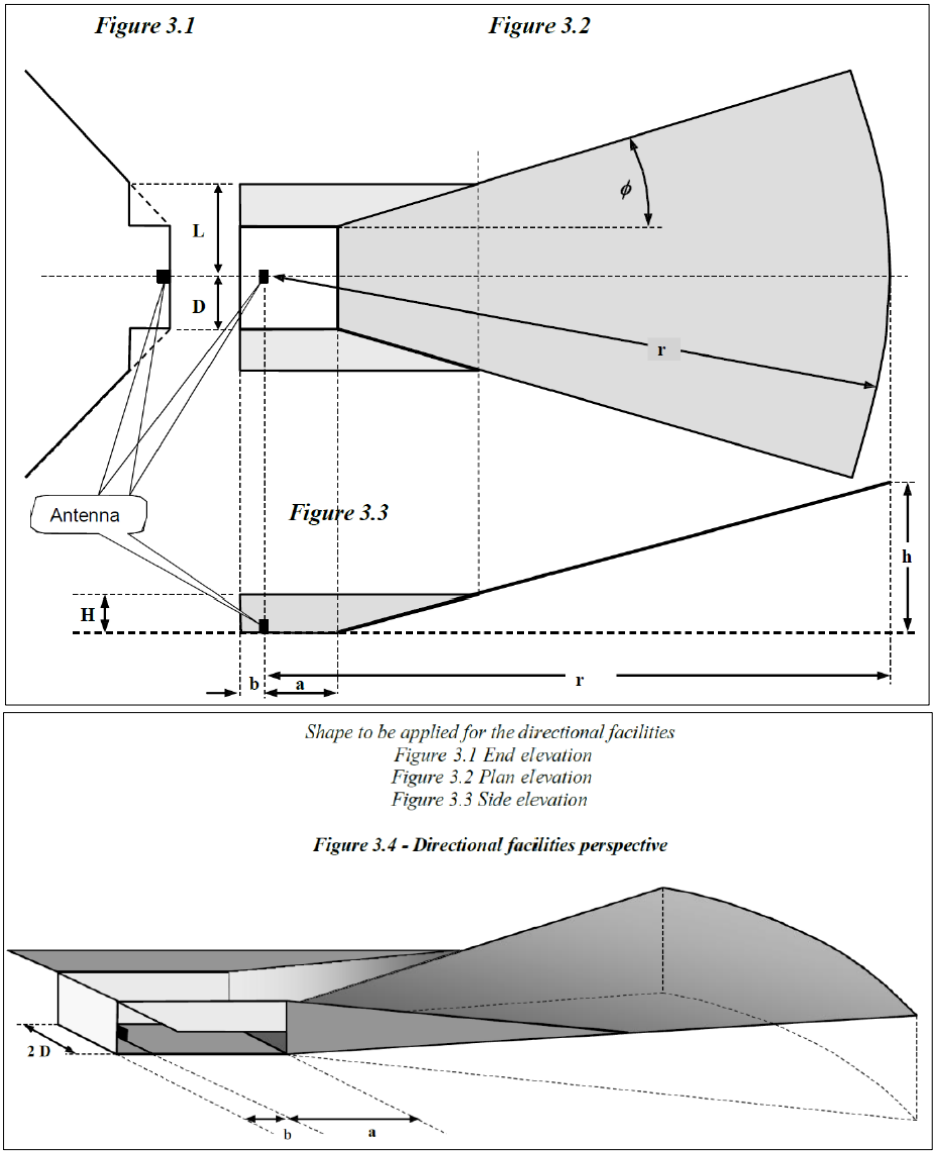


Figure B1 - Example BRA shape for directional facilities (ICAO EUR DOC 015 Figures 3.1-3.4)

*Type of **navigation** facilities*	***A*** *(m)*	***b*** *(m)*	***h****(m)*	***r*** *(m)*	***D*** *(m)*	***H*** *(m)*	***L*** *(m)*	***ϕ*** *(°)*
ILS LLZ (medium aperture single frequency)	Distance to threshold	500	70	a+6000	500	10	2300	30
ILS LLZ (medium aperture dual frequency)	Distance to threshold	500	70	a+6000	500	20	1500	20
ILS GP M–Type (dual frequency)	800	50	70	6000	250	5	325	10
MLS AZ	Distance to threshold	20	70	a+6000	600	20	1500	40
MLS EL	300	20	70	6000	200	20	1500	40
DME (directional antennas)	Distance to threshold	20	70	a+6000	600	20	1500	40

Table B1 - Harmonized guidance figures for the directional navigational facilities (ICAO EUR DOC 015 Table 2)

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APPENDIX C – Air Corps Wind Farm / Tall Structures Position Paper, August 2014

Óglaigh na hÉireann
DEFENCE FORCES IRELAND

Ceanncheatru an Aer Chor
Air Corps Headquarters

08 August 14

GOC AC

Air Corps Wind Farm/Tall Structures Position Paper

Sir,

1. The attached is the draft Air Corps Position Paper agreed and developed in concert with the flying units under the auspices of CAS Ops.
2. It is recommended that it be forwarded to the Directorate of Operations for transmission to the Department of Defence.
3. The AC position contained within this paper should be notified to planning authorities including An Bord Pleanala. It should also be forwarded to the Department of the Environment, Heritage and Local Government to inform its policies and guidance in respect of wind farms.

Raymond Martin, Lt Col
CATSO

CATSO, Ceanncheatru an Aer Chor, Aerodrom Mhic Easmuinn, BAC 22.
CATSO Air Corps Headquarters, Casement Aerodrome, Baldonnel, Dublin 22
Ph +353 (0)1 403 7513 *Fax: +353 (0)1 403 7850*

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Óglaigh na hÉireann
DEFENCE FORCES IRELAND

Ceanncheatru an Aer Chor
Air Corps Headquarters

Air Corps Wind farm/Tall Structures Position Paper.

1. **Objective:**
This position paper is intended to ensure that
   a. Air Corps operations and training may be accomplished in a safe and economical manner;
   b. Baldonnel remains a viable aerodrome for IFR and VFR traffic;
   c. The ability to train military flying skills is protected;
   d. Vital navigation routes to and from the regions to Baldonnel and the Dublin area are protected to safeguard the ability of the Air Corps to fulfill its role.

2. **Statement of position.**

   a. The Air Corps is opposed the erection of wind farms or other obstacles which will affect its ability to train and operate in a safe and economic manner.

   b. The Air Corps is opposed to any wind farms or tall structures in the following areas:

   (1) Lands underlying military airspace used for flying activity

   (a) The area contained in Danger Area EI-D1.
   (b) The area contained in Danger Area EI-D5.
   (c) The area contained within Danger Area EI-D6.
   (d) The area contained within Danger Area EI-D13.
   (e) The area contained within Danger Area EI-D14.
   (f) The area contained within Restricted Area EI-R15.
   (g) The area contained within Restricted Area EI-R16 within 20NM of Baldonnel.
   (h) The area contained within Military Operating Areas, MOAs 3 and 4 within 20NM of Baldonnel.

   (2) Areas wherein military flying occurs at low level as identified in the annexes listed below.
   (a) Annex A: Low flying training areas within MOA 4 in the areas of
      a. Blessington
      b. Edenderry/Allenwood/Rathangan
      c. Kilmeague/Newbridge

   (b) Annex B: low flying training area West (LFTA WEST).

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(3) A distance of 5NM or less from military installations.

c. The following routes are identified as critical low level routes in support of Air Corps operational requirements and the Air Corps is opposed to the erection of wind farms or tall structures within 3NM of the route centerline which could affect Air Corps' ability to access regional areas.

(a) N/M1
(b) N/M2
(c) N/M3
(d) N/M4
(e) N/M6
(f) N/M7
(g) N/M8
(h) N/M9
(i) N/M11
(j) N25
(k) N17 between Sligo and Knock
(l) N15/N13 between Sligo and Letterkenny
(m) N14 from Lifford to Letterkenny and R245 and R247 from Letterkenny to Fanad Head.

Applications or proposals for structures in these areas of a height greater than 45m above ground level at the site of the object must be referred to Irish Air Corps for assessment of potential impact on flight operations.

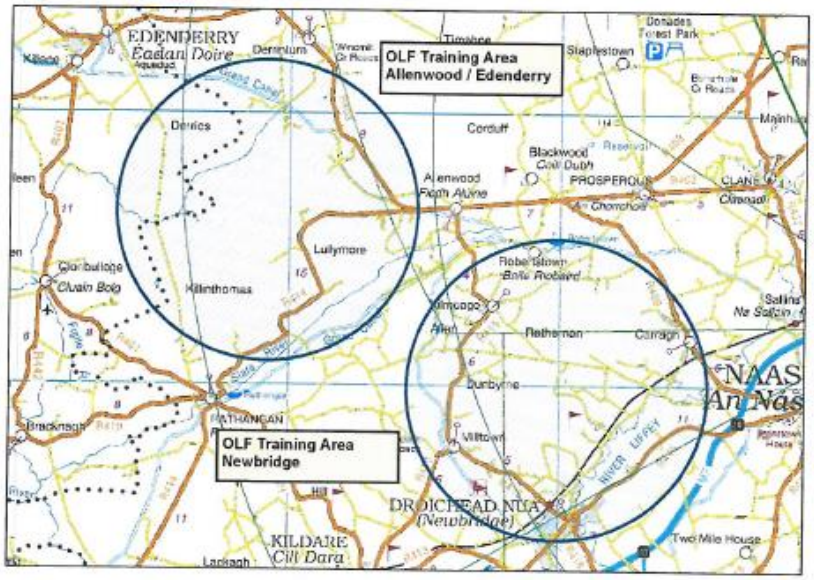
d. In MOA 4 outside of the areas identified in b.(1) (2) and (3), and in MOA 5, applications or proposals for objects of a height greater than 45m above ground level at the site of the object must be referred to the Irish Air Corps for assessment of potential impact on flight operations.

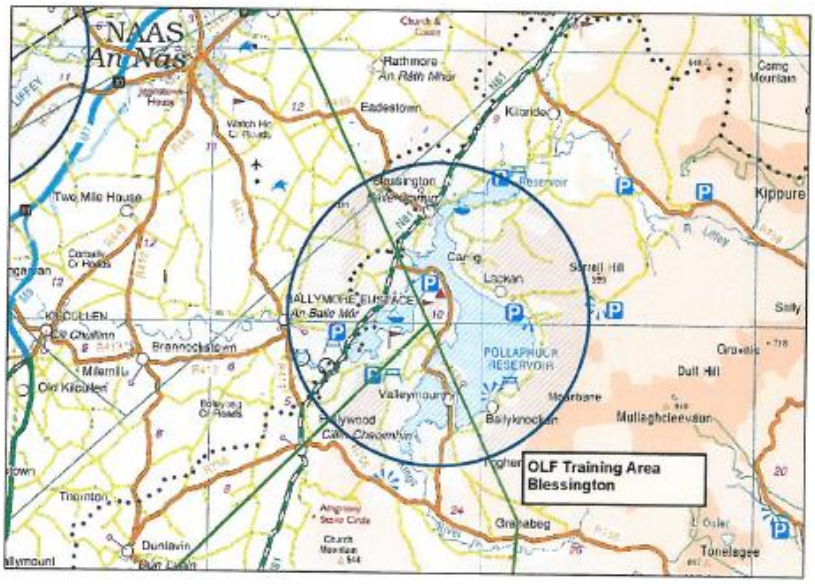
e. In all locations where wind farms or masts are permitted it should be a condition that they meet the following lighting requirements

(1) Single turbines or structures, or turbines delineating corners of a wind farm, should be illuminated by high intensity strobe lights (Red).
(2) Obstruction lighting elsewhere in a wind farm will be of a pattern that will allow the hazard be identified and avoided by aircraft in flight.
(3) Obstruction lights used should be incandescent or of a type visible to Night Vision Equipment. Obstruction lighting fitted to obstacles must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.

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Annex A
Low Flying Areas - MOA 4





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Annex B

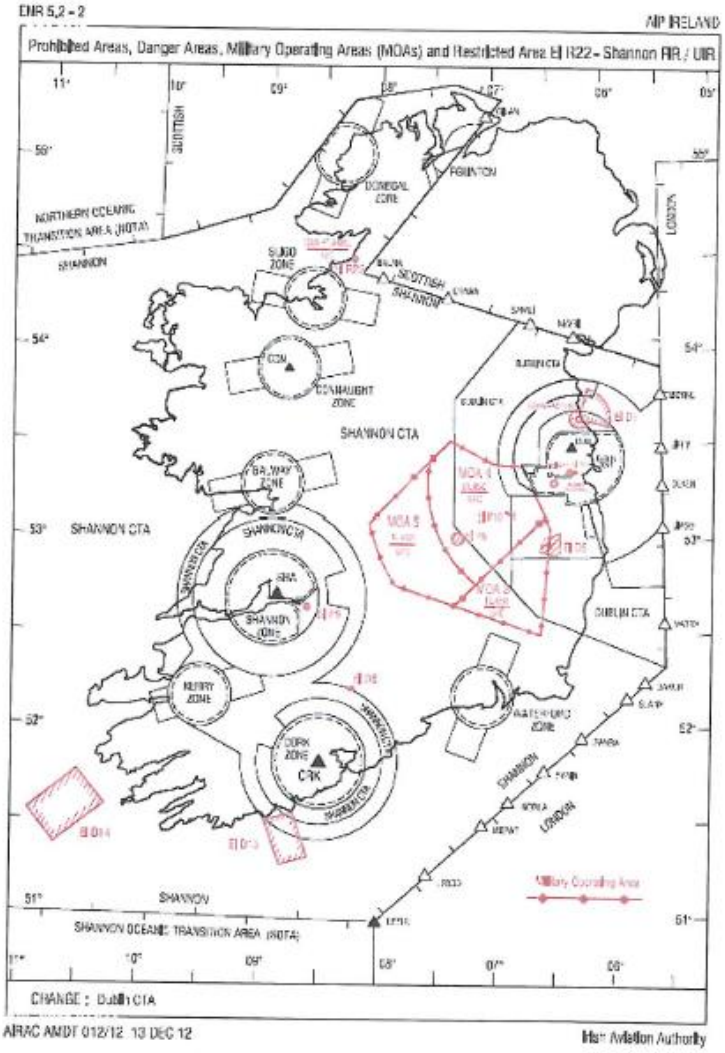
Low Flying Area – LFTA WEST

1. Area contained within the following grid L6972; L6945; M0745; M0772
2. Routes are primarily within valley areas.
3. Applications for wind farms/masts should be referred to Air Corps Operations for assessment against low flying routes.

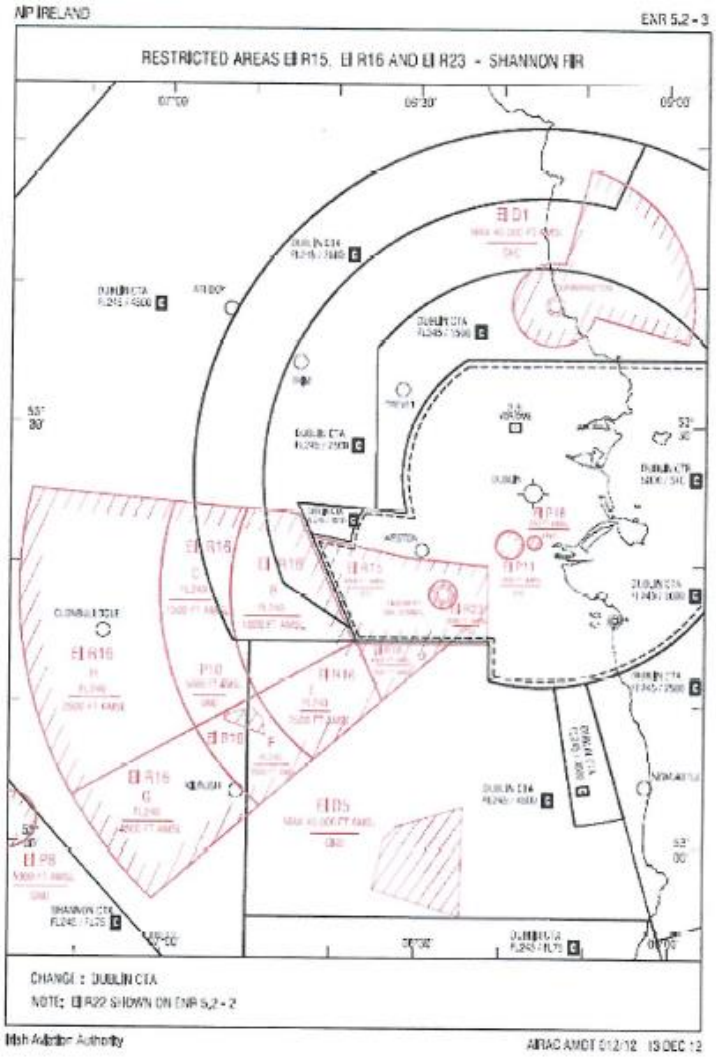
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Annex C

Designated Airspace
Restricted Areas, Danger Areas and Military Operating Areas



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Annex D

Low Level Routes



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