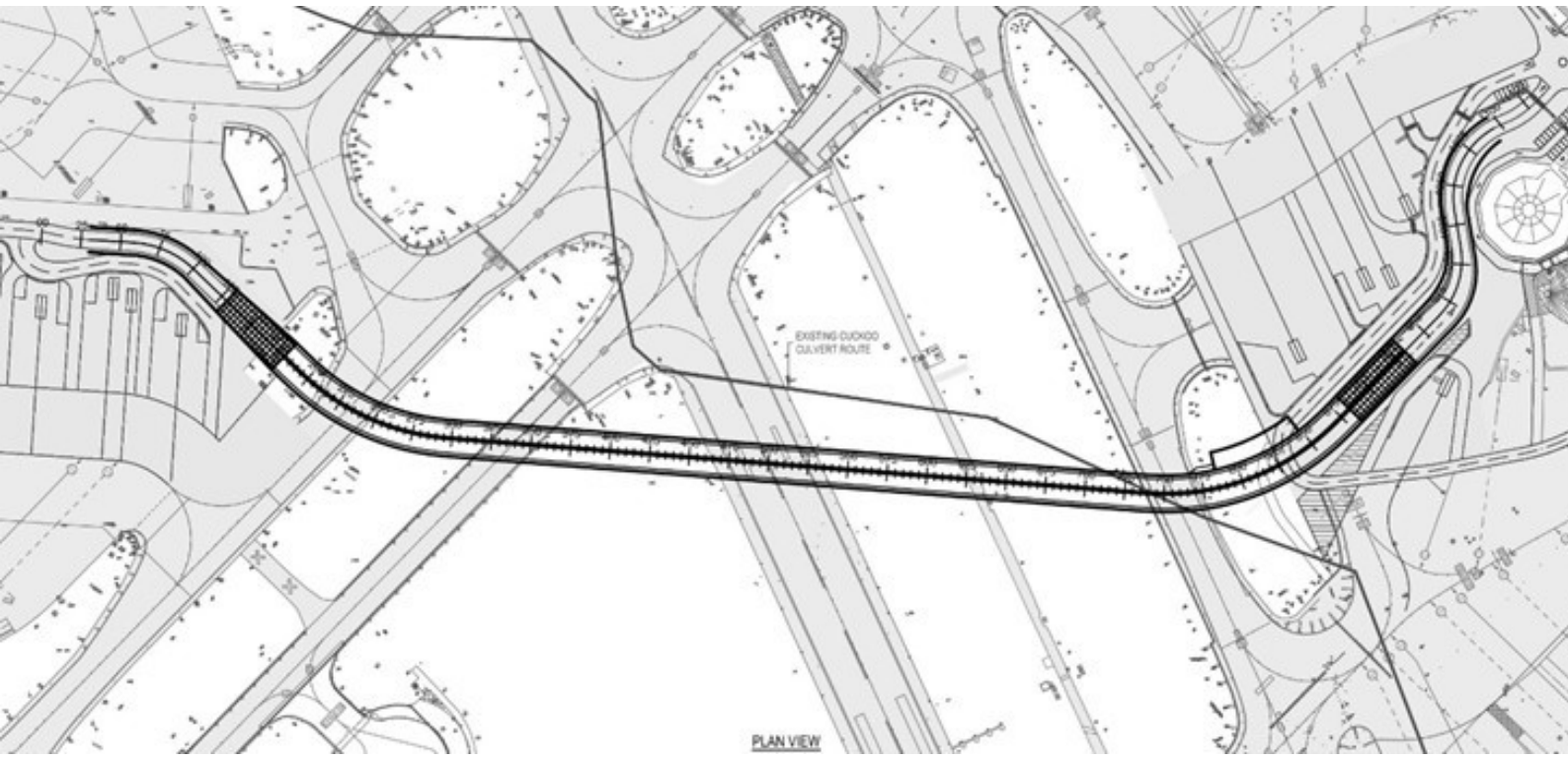

Dublin Airport Underpass

Environmental Impact Assessment Report
Volume 1 – Non-Technical Summary

August 2022

daa

DublinAirport

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Contents

Introduction

This Non-Technical Summary provides a summary, in non-technical language, of the Environmental Impact Assessment Report (EIAR) for the Dublin Airport Underpass project, referred to here as the 'Proposed Development'.

The EIAR is one of a suite of documents submitted to Fingal County Council as part of an application for planning permission for the Proposed Development. The purpose of the EIAR is to identify, describe and assess the direct and indirect significant effects of the Proposed Development on the environment and, where significant adverse effects are identified, to recommend measures to reduce or offset them. These measures are referred to as mitigation measures.

In addition to the EIAR, other environmental assessments are included in the planning application:

- A Natura Impact Statement which considers potential impact on sites designated by the European Union for their biodiversity value
- A Water Framework Directive Assessment which examines the potential impact on objectives for water quality set at the European Union level
- A Flood Risk Assessment

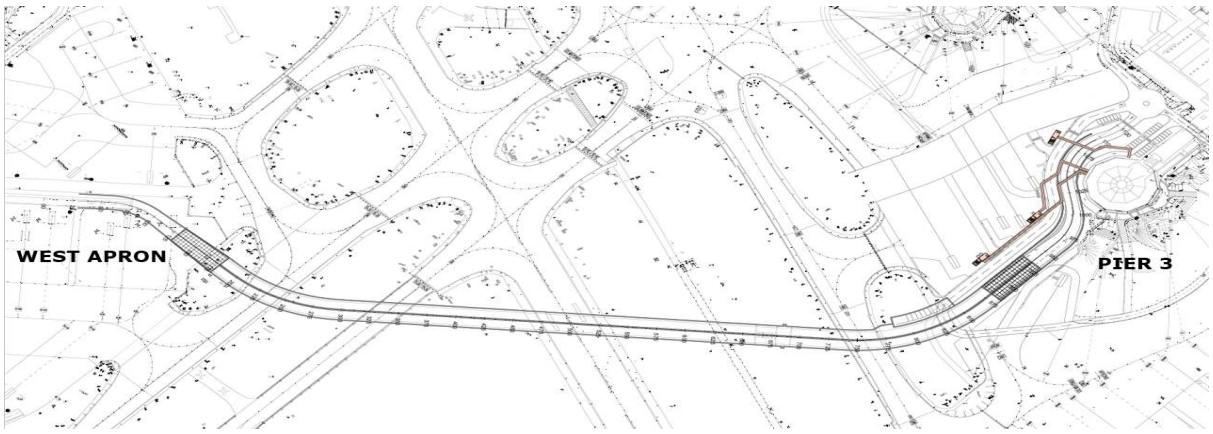
The location of Dublin Airport is shown on Figure 1. Figure 2 shows the context of the Application Site and the airport complex. Both Figures are presented at the end of this Non-Technical Summary.

Project Overview

The Proposed Development consists of four key elements:

- A subterranean Underpass of Runway 16/34 including ramps and portals, plantroom, and all attendant access roads at surface level to tie in with the existing airside road network. The Underpass will provide vehicular access between the Eastern Campus (accessed close to Pier 3) and the West Apron.
- Relocation of aircraft stands/apron at Pier 3 to accommodate access roads to serve the Underpass. Works include introduction of new nodes, fixed links and airbridges, to provide access to the relocated stands from Pier 3, while accommodating the Underpass footprint where it interacts with existing apron and aircraft stands. This will result in a net loss of three Narrow Body Enabled (NBE) stands and net gain of one Wide Body (WB) stand in the East Campus.
- Modifications to Pier 3 (including revised internal layout and breaking through the facade) to accommodate the proposed fixed links and airbridges.
- Drainage works, including temporary diversion of the Cuckoo Stream culvert and local attenuation.

The proposed Underpass between Pier 3 and the West Apron is illustrated below.



In addition, there will be ancillary works need for construction, include two construction compounds outside, and one main compound within, the airport boundary. Of the external compounds, the Western Compound will provide

a pre-screening facility to be used by all deliveries going airside and thus needing to pass through airport security. Some car parking and staff bussing will also be provided. An existing area of hard standing to the south-west of the airport will be utilised as a lorry waiting area for HGVs. No works are required at this Southern Compound.

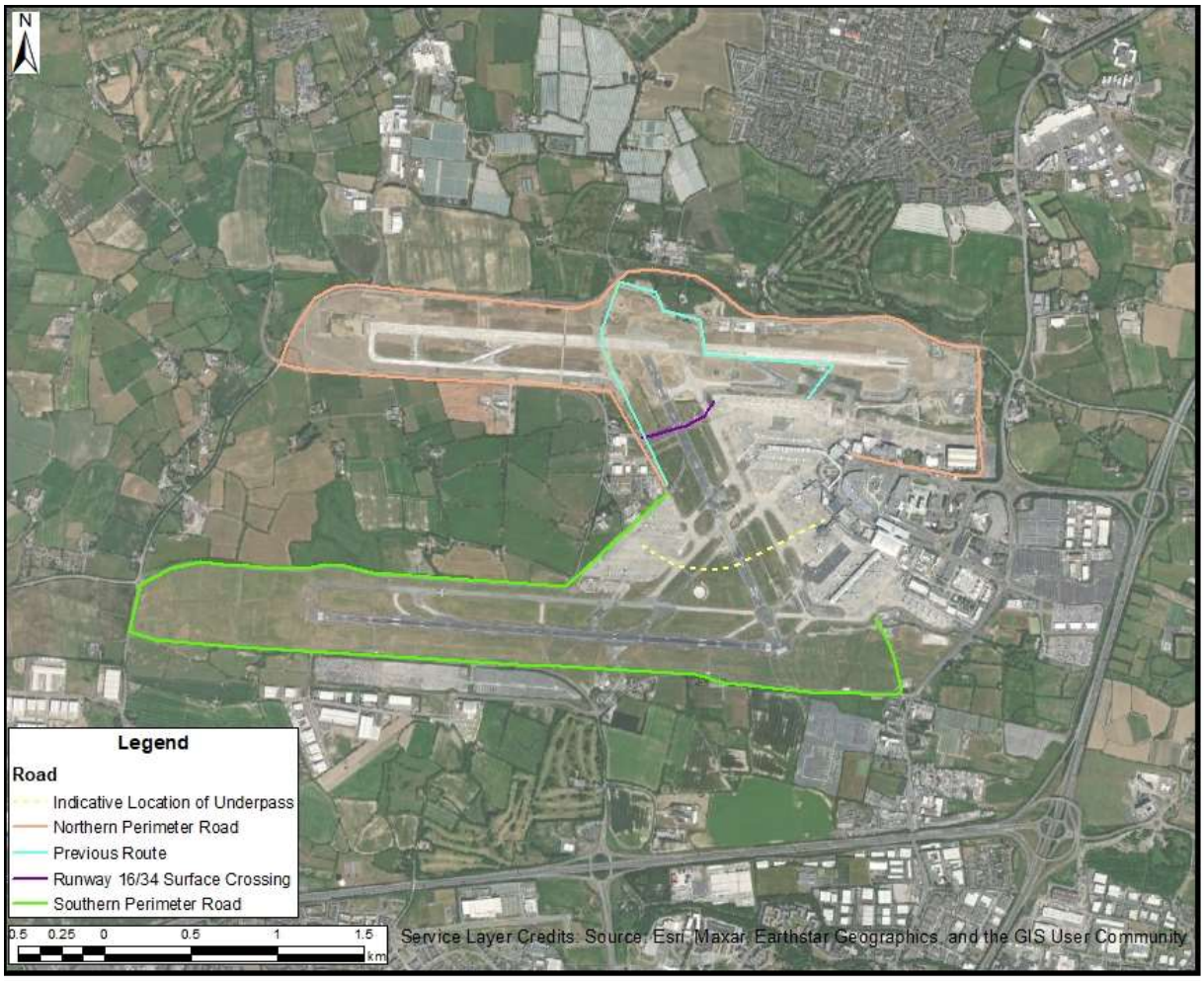
It is also proposed, as part of the Proposed Development and to avoid repeat construction along this route in future, to construct six pipelines that are required for the future drainage network at the airport. However, the six pipes will serve no function and will not be capable of use unless and until the future drainage network receives planning consent and is constructed.

The Proposed Development does not provide any additional capacity to Dublin Airport, either for passengers or for aircraft, and will not give rise to any additional aircraft movements.

Why is the Proposed Development Needed?

Eastern to Western Campus Access

Dublin Airport operations are primarily concentrated on the Eastern Campus, with a large area of apron located to the West, separated by the Crosswind Runway (Runway 16/34). The Eastern Campus hosts most of Dublin Airport's infrastructure: the Terminal buildings, aircraft stands, car parking and is the main point of surface access for passengers (see the illustration below); with the West Apron mainly used for cargo operations, I as well as transit and business aviation.



Access to the West Apron from the East campus has become more difficult since the construction of the North Runway. Prior to the construction of the new North Runway, access to the West Apron, and the operations that take place in this location - was via the Runway 16 / 34 Perimeter Road (Blue Line) or directly across Runway 16/34 under escort (Purple Line in illustration above).

Impact of the North Runway

Current access to the West Apron is directly across the Crosswind Runway (the Runway 16/34 Surface Crossing) via the West Apron Surface Crossing (Purple Line). This crossing is used under a temporary approval received from the Irish Aviation Authority. It is subject to strict Standard Operating Procedures to ensure safety and is not available when Runway 16/34 is in use.

Once the North Runway becomes operational (August 2022), vehicles will instead need to travel around the airfield perimeter road to the North or South (Pink or Green Lines in illustration above). The Northern Perimeter Road, which the airport will have to use as an interim measure, is much less efficient. It involves a journey of around 8km which can take 20 – 30 minutes. This road is also not designed for the types of vehicles that will have to use it and is not regarded as safe for long term use.

In summary, the objective is to replace the existing access to the West Apron, which is no longer viable, with a new means of access, which is both efficient in operational terms and robust in safety terms.

Alternatives

Introduction

The EIA Directive requires an outline of the reasonable alternatives considered and reasons why the Proposed Development has been selected. The main alternatives considered included do nothing, alternative processes, alternative locations and alternative designs.

Do Nothing Scenario

The need for a solution to the problem of reaching the Western Campus from the Eastern Campus is discussed above. As explained there, the imminent opening of the North Runway will mean that the only access route to the Western Campus will be the Northern Perimeter Road. The aviation regulator, the Irish Aviation Authority, requires on safety grounds that an alternative solution is put in place as soon as possible. Doing nothing has therefore been rejected as an alternative.

Alternative Processes

Reasonable alternative processes considered include:

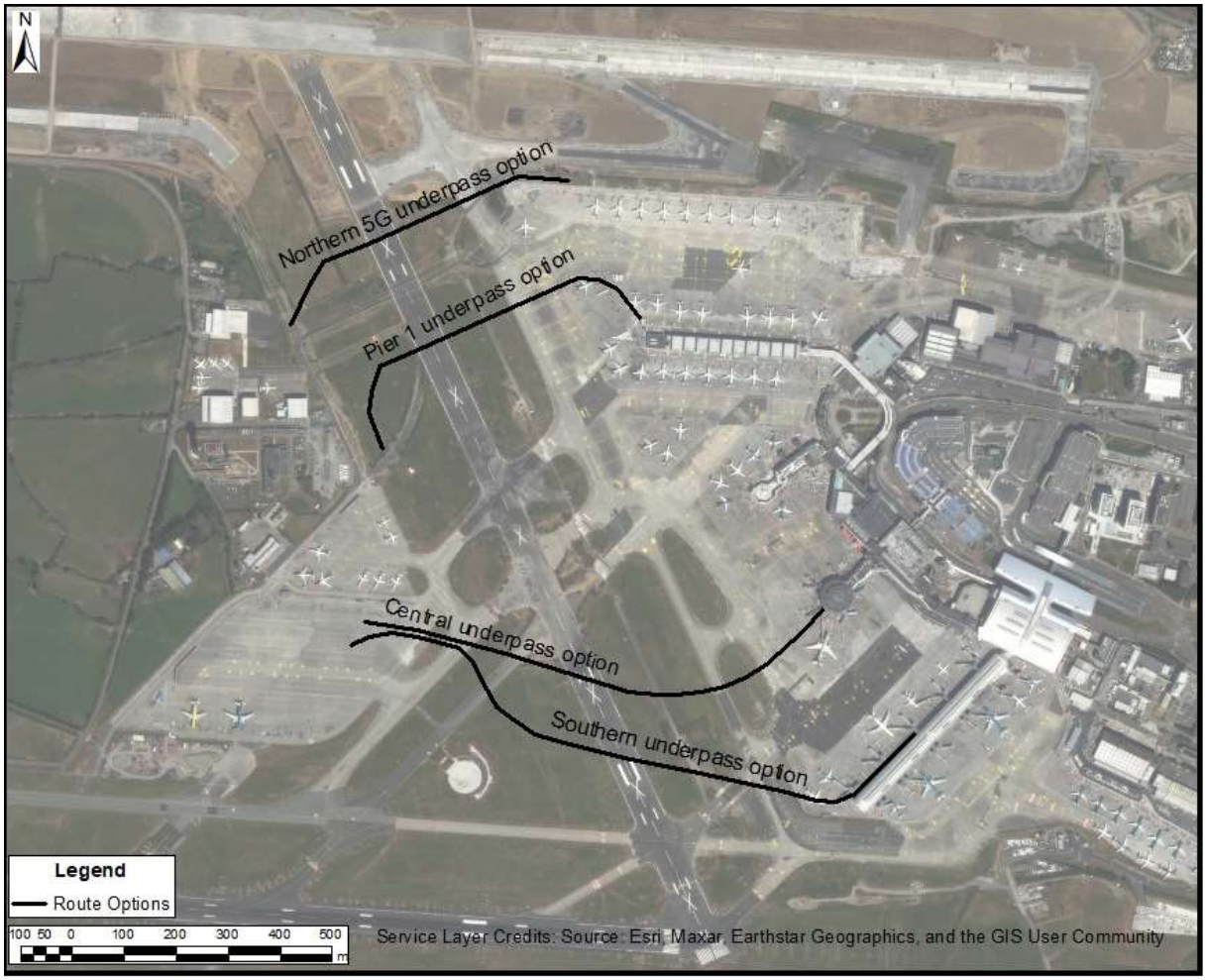
- **Use of the Northern Perimeter Road**, which is not possible if the Crosswind Runway 16/34 is required for emergency use. The road itself is not currently wide enough for the vehicles that would need to use it and it is unsuitable for winter operations. The journey of around 8 km would take from 20 to 30 minutes and there could be further delays as traffic would be held up by slow-moving vehicles (e.g., baggage dollies) at intervals along the route.
- **Use of the Southern Perimeter Road**, which suffers from the same operational problems that come about because of the length of the journey on the Northern Perimeter Road. Moreover, it cannot be used in low visibility conditions and is closed to all but essential authorised daa staff only, to avoid potential Instrument Landing System interference.
- **Duplication of Eastern Campus facilities in the Western Campus**, which would be very expensive, would take a long time to construct and require a lot of land to be freed up.
- **Closure of Runway 16/34** with a view to facilitating access to the West Apron, which is an option but is not supported by the Irish Aviation Authority or airlines as it is required as a taxiway and for crosswind operations.

The permanent solution which best suits the operational and regulatory requirement to provide safe, efficient, dedicated access to the West Apron that avoids interfaces with operational runways and taxiways is to construct an underpass beneath the taxiways and Runway 16/34.

Alternative Locations

Four alterative locations were studied, and these are shown in below:

- **Northern 5G Underpass** – a link between Apron 5G and the West Apron
- **Pier 1 Underpass** – a link between Pier 1 and the West Apron
- **Central Underpass** – an alternative corresponding to the Proposed Development
- **Southern Underpass** – between the South and West Aprons



The Central Underpass option was preferred to the Southern Underpass on grounds of construction costs. Whilst the Central Underpass was both more expensive and more complex to build than the Northern 5G underpass and the Pier 1 underpass options, it was considered to perform better operationally, giving the best travel times to the West Apron, and the least conflict with vehicle and aircraft taxi routes and formed the starting point for the design of the Proposed Development. The final design adopted was shorter and straighter than the Central Underpass option as it no longer needed to avoid surface link works that had been planned along this route.

Alternative Designs

Several alternative tunnel configurations were considered:

- A **single cell option**, featuring two lanes, each wide enough for vehicles up to 5 m.
- A **second single cell option**, which in addition to the two lanes, also included passing points at selected locations to allow slower moving vehicles, such as baggage dollies to pull in.
- A **twin cell option**, which provided a lane for faster vehicles up to 2.8 m wide and a lane for slow moving vehicles up to 4.1 m wide in each cell.

The twin cell option was preferred as it would be more robust in operational and safety terms.

Environmental Effects of the Alternatives

The permanent solution which best suits the operational and regulatory requirement to provide safe, efficient, dedicated access to the Western Apron that avoids interfaces with operational runways and taxiways is to construct an underpass beneath the taxiways and Runway 16/34. Compared with the other alternatives that have been studied, this has the advantage of providing quick, safe access from the Eastern Campus to the West Apron.

The Proposed Development has a larger environmental “footprint”, than the Northern 5G and Pier 1 underpass options, which means it consumes more materials in construction, in particular concrete. This means that it will result in higher levels of “embodied carbon”, or greenhouses gases emitted in the creation of the materials used in construction.

Similarly, the twin cell option also requires more concrete that the single cell options, also leading to a bigger environmental footprint.

Once operational, the Proposed Development would emit less carbon than the alternatives, since journey times would be shorter and require less fuel. (The Northern 5G Underpass and the Pier 1 Underpass might have shorter journey times within the tunnel but may be longer overall.)

In other respects, the environmental effects of the alternative layouts are broadly similar to the Proposed Development, with potential for typical construction-related impacts such as noise, fumes or dust arising from construction plant and traffic, impacts on ground or surface water, or generation of waste in each case. Construction times would likely be shorter for the Northern 5G Underpass and the Pier 1 Underpass, but the construction impacts would be similar in nature.

EIA Methodology

Introduction

The EIAR and this NTS have been prepared in accordance with the requirements of the EIA Directive and relevant guidance.

Scenarios Assessed

The EIA focuses on the construction of the Proposed Development in 2024, which is expected to be the year of maximum environmental effects. The assessment assumes that the Proposed Development opens in 2025 and considers the operational impact in that year for completeness, although the operational impacts are generally imperceptible.

Environmental Factors Considered

The following chapters, including (but not restricted to) those environmental factors referred to in the EIA Directive, formed part of the EIAR:

- Traffic & Transportation
- Noise & Vibration
- Air Quality
- Water
- Land & Soils
- Biodiversity
- Climate (including Carbon)
- Cultural Heritage (including Architecture & Archaeology)
- Landscape & Visual
- Material Assets (Waste Management)
- Material Assets (Infrastructure)
- Major Accidents & Disasters
- Population & Human Health
- Interactions & Cumulative Effects

Methodology: How Was the Assessment Carried Out?

The general approach to the assessment was to identify the likely impacts that would occur during construction of the Proposed Development and once it was operational. These impacts were compared to the existing conditions for each of the environmental factors listed above to decide whether there was any potential for a resulting effect on the factors.

For example, construction of the Proposed Development requires excavation of large amounts of spoil, some of which would need removal by road and disposal. Construction traffic could result in noise and air quality effects, while disposal of the waste would take up space in nearby landfill sites and so affect the regional capacity for waste management. Therefore, excavation could affect the land & soils, noise, air and material assets (waste management) factors.

Where such potential was identified, further analysis was carried out to determine whether the effect was likely and whether it could result in a significant effect upon that factor. This analysis used a variety of means including traffic, noise and air quality modelling, calculations of the carbon impact, and so-called “conceptual models” to determine whether there were feasible pollution pathways to affect water or land and soils.

Significance of Effect

Unless stated otherwise, the EIAR describes the significance of the identified environmental effects as follows. **Non-significant** effects are described as:

- Negligible
- Minor

Significant effects are described as:

- Moderate
- Major

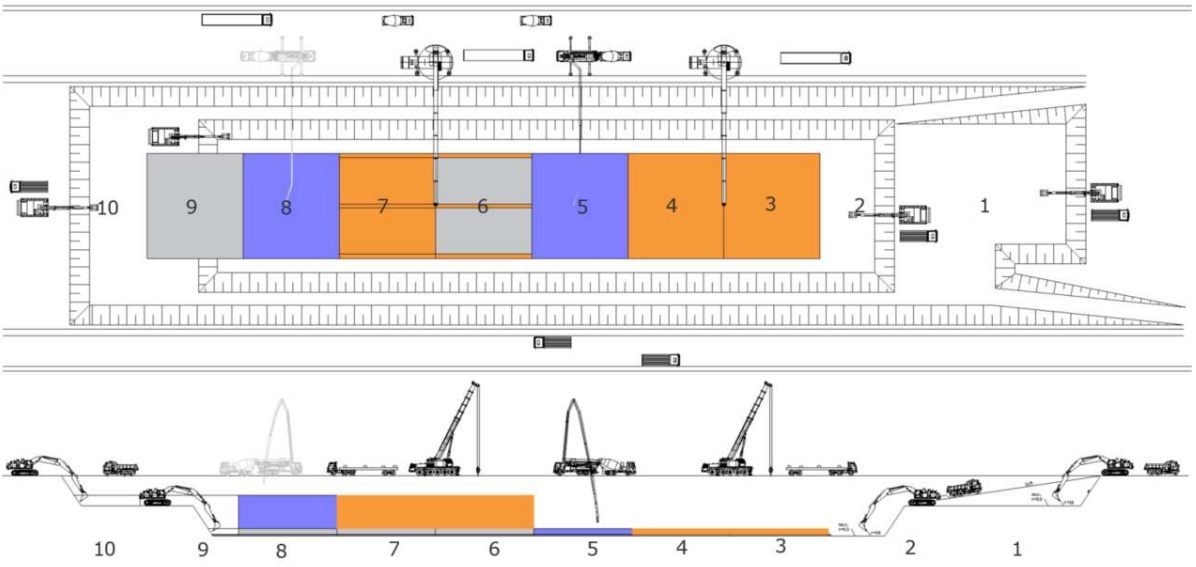
Construction of the Proposed Development

Construction of the Proposed Development will comprise:

- Enabling works comprising service diversions and construction logistics facilities
- Temporary re-routing of some airport operations
- Civil and structural works relating to the construction of the Underpass, ramps, portals and the plantroom
- Mechanical, electrical, instrumentation, control and automation installations
- Minor reconfiguration of existing Pier 3 and West Apron interfaces, relocation of aircraft stands and fixed links
- Associated infrastructure works including airfield and general services, surface water attenuation and pollution control

The civil and structural works are the most complex and large-scale and include excavation of the Underpass route, construction and installation of the concrete segments that constitute the tunnel itself, backfilling around these structures and reinstatement of runway, taxiways and aprons.

The Underpass is proposed to be constructed using a “bottom-up cut-and-cover” method, with the general approach illustrated below. The bottom-up method is a form of construction which can be adopted for a cut-and-cover tunnel, in which the excavation is made from the ground surface and the tunnel is then constructed within this excavation.



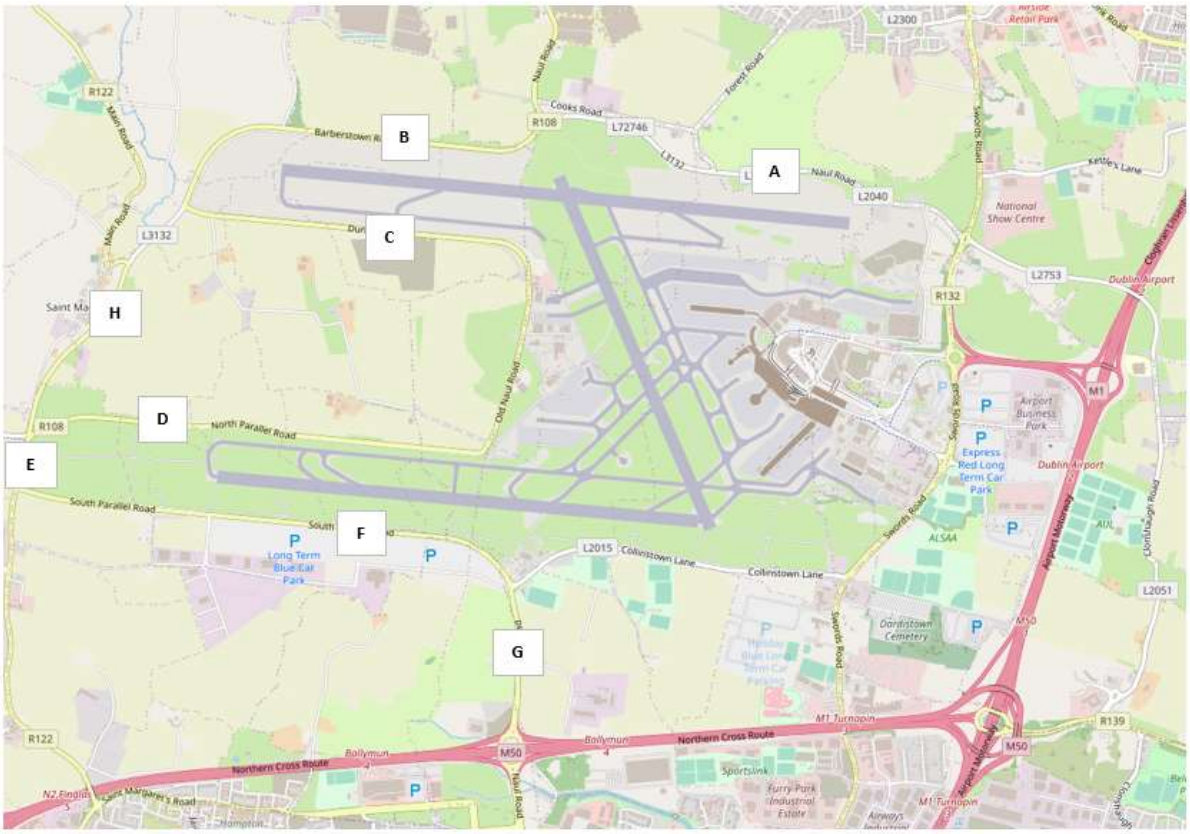
The schematic above shows how this would work in practice, as it is constructed from the West Apron towards Pier 3. At the eastern end of the route excavations (labelled 1 and 2) are made to create a trench to the required depth. Concrete tunnel segments are then constructed in the trench, first preparing the floor slab (3 and 4) and then casting it (5). The walls and roof are prepared (6 and 7) and cast (8), then the whole structure is buried, backfilled with excavated material (9) and surfaces reinstated (10).

Construction of the Underpass would take place in sections to limit the duration of taxiway closures and closure of Runway 16/34. Much of the work, in particular the excavations, will take place at night when few flights take place, minimising disruption to airfield operations.

Relocation of the aircraft stands, which merely involves repainting of the pavement, of the fixed links at Pier 3 and internal works to Pier 3 itself are much more limited in scale and will take place after the Underpass is constructed.

Traffic and Transportation

The main impact of the Proposed Development is during construction, when construction traffic will create additional heavy goods vehicle movements on some of the roads surrounding the Airport to dispose of excavation waste. Existing vehicle movements were modelled in a Local Area Model (LAM) of the road network in the vicinity of the Airport and the predicted vehicle movements during construction were added to this to determine whether there would be an adverse effect on any of the roads likely to be used.



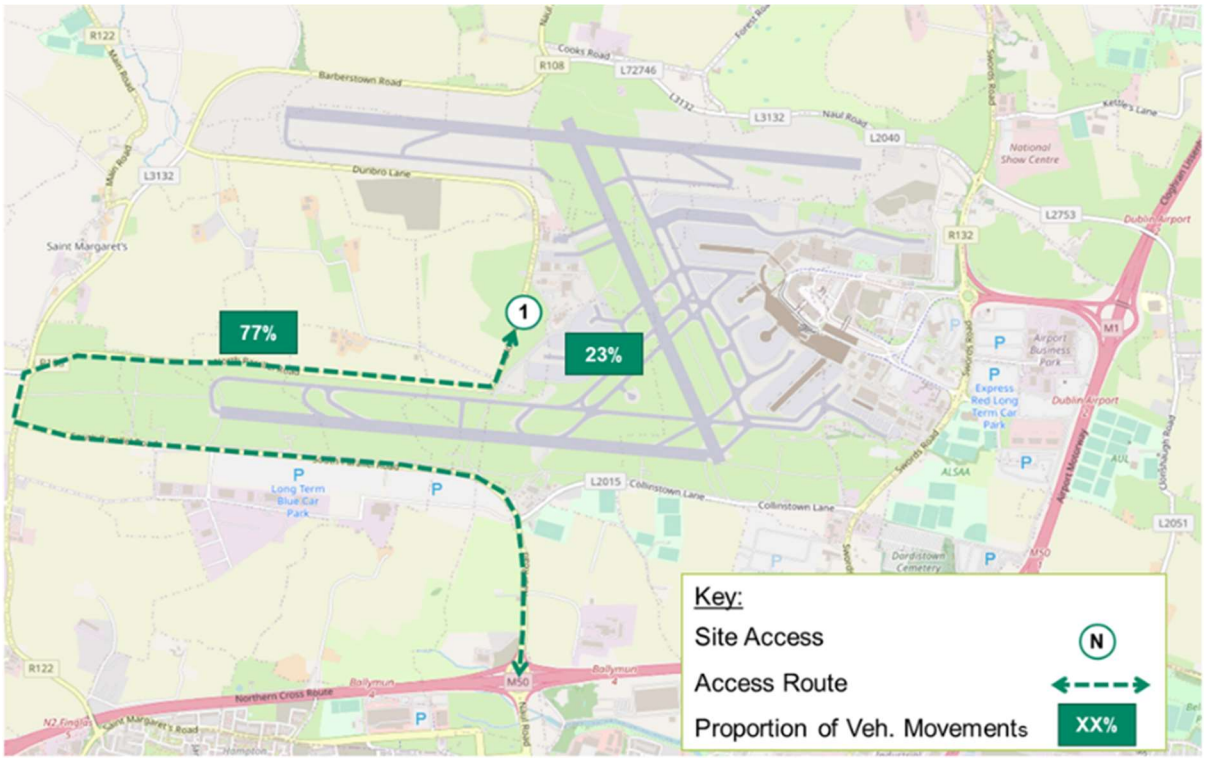
The locations used for the assessment of the traffic impact are shown above. They comprise:

- A. L2040 Naul Road
- B. R108 Barberstown Road
- C. R108 Dunbro Lane
- D. R108 North Parallel Road
- E. R108 St. Margaret's Road
- F. R108 South Parallel Road
- G. R108 Naul Road
- H. St. Margaret's Bypass

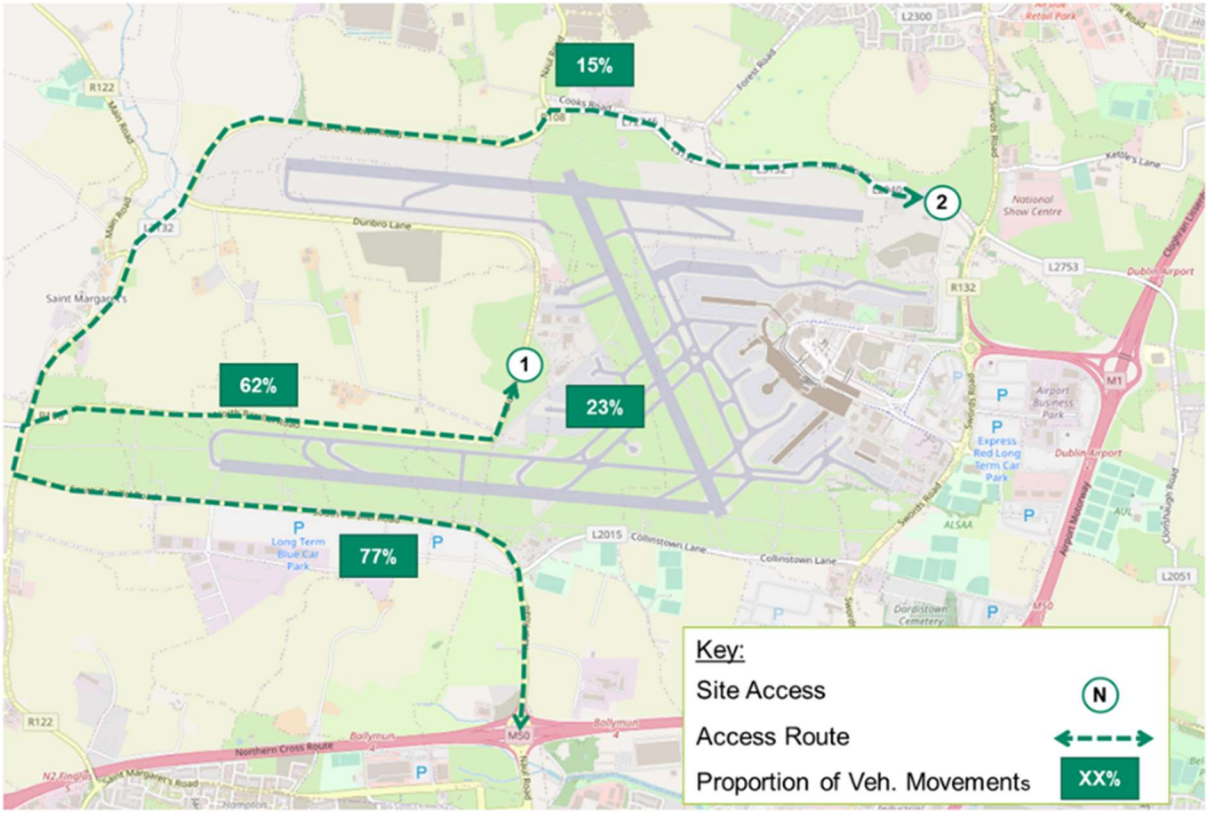
Construction traffic will use the R108 and M50 junction to the south of the airport, rather than the R132 and M1 junction to the east.

Construction work will be in three broad phases, with different accesses and vehicle routing in each phase as illustrated below.

In **Phase 1**, 23% of construction traffic movements will be airside and this traffic will not enter the public road network. The remaining 77% of construction traffic will exit the airport at Gate 9 and head south on the R108 to the M50 junction as shown below. Construction traffic entering the airport will follow the same route in reverse.

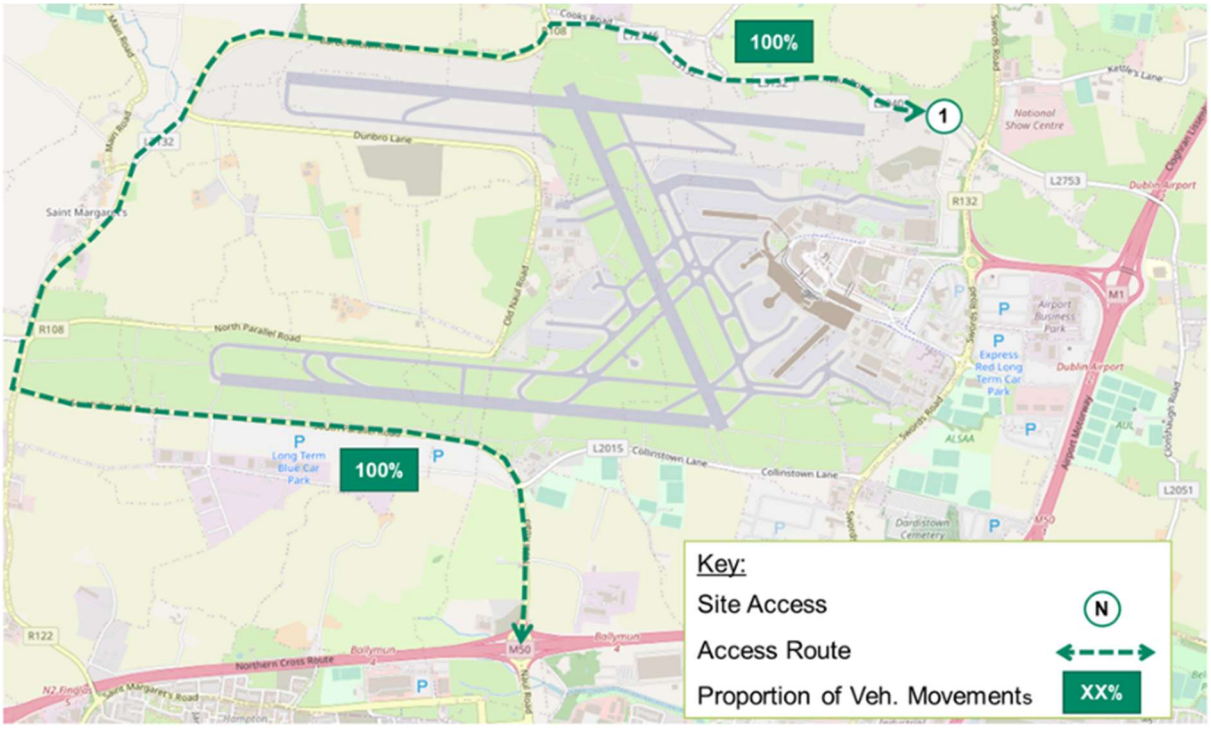


In **Phase 2**, again 23% of the construction traffic movements will be airside, with 62% exiting the airport at Gate 9 and heading south on the R108 to the M50 junction as shown below. A further 15% of construction traffic will exit the airport at Gate 1B and head west on the R132, joining the R108

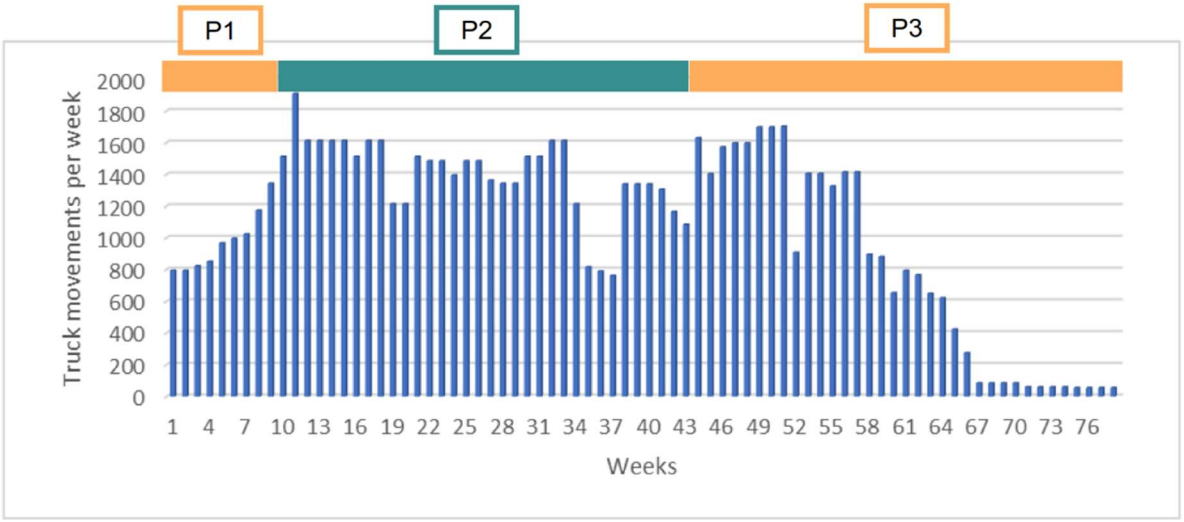


heading south to the M50. Construction traffic entering the airport will follow the same routes in reverse.

In **Phase 3**, 100% of construction traffic movements will be to and from the airport using the public road network, as shown below. Construction traffic will exit the airport at Gate 1B or Gate 4 and head west on the R132, joining the R108 heading south to the M50. Construction traffic entering the airport will follow the same route in reverse.



Weekly heavy good vehicle movements as shown below peak at 1,900 movements per week. Note that in phases 1 and 2, these figures include the 23% of vehicle movements that are entirely within the airfield and do not enter the public roads.



As most of the vehicle movements will be at night when the background traffic levels are generally low compared to the day, the effects on the road network modelled were minimal. Although at the construction peak in 2024 there would be a significant percentage increase (+32%) in traffic at site D. R108 North Parallel Road this is because there are low background traffic flows along this route and the actual daily peak number of heavy goods vehicle movements (231) can easily be accommodated.

Once constructed and operational in 2025, the Proposed Development will only serve vehicles operating airside (that is, within the airfield) and does not entail any increase in vehicle movements between the East Campus and the West Apron. It will not generate any additional landside movements (outside the airfield) once it is operational.

Land and Soils

The impacts of the Proposed Development on land, soils, geology and hydrogeology have been considered and are reported in EIAR's *Chapter 6: Land and Soils*.

The Application Site is located mainly within the boundary of the airfield and Pier 3, except for two construction compounds to the north-west and south-west of the airport on the R108. Apart from Pier 3, there are no other buildings to which works are proposed, and no chemicals are stored within the Application Site. Apart from in-ground utilities (including the culverted Cuckoo Stream) that serve the airport, there are no underground structures beneath the Application Site.

Ground surfacing consists either of concrete or grass. Bedrock geology consists mainly of shale and limestone, either of the Tober Colleen or Malahide Formations. However, the Underpass will be constructed wholly within what is known technically as the 'overburden geology' and will not disturb the underlying bedrock. This is important because the bedrock beneath the Application Site contains groundwater which needs to be protected from pollution, although it is classified as either a Poor Aquifer or as a Locally Important Aquifer (beneath the West Apron). Groundwater beneath the Application Site is classified as having low vulnerability.

There are six wells mapped within a 2 km radius of the Application Site from which groundwater is reportedly abstracted for industrial use and one domestic supply well. It is not known if these wells are still active. Shallow soil sampling conducted in 2018 showed concentrations of polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), BTEX compounds (benzene, toluene, ethyl benzene and total xylenes) and polychlorinated biphenyls (PCBs) close to or below laboratory detection limits.

Chlorinated hydrocarbons have been detected in groundwater around the Application Site. The general groundwater flow direction is expected to follow the topographic gradient to the east and north-east. Shallow groundwater discharge to surface water courses may occur where they are in hydraulic continuity, which is considered unlikely to be the case for the Cuckoo Stream as this is culverted beneath the Application Site.

With regard to land, soils and geology, the Application Site is considered to be of Low sensitivity, while it is considered to be of Low to Medium sensitivity with regard to hydrogeology.

Excavation and infilling activities will result in a permanent direct but **imperceptible** effect on the character of the soil and geological environment, the effect is certain to occur and irreversible.

With regard to groundwater, excavation, dewatering and infilling will result in a **slight to imperceptible** effect.

Dewatering and/or depressurisation of the aquifer is likely to be required during construction on a temporary basis and may include reinjection. Dewatering is not considered to pose a significant risk to the availability of groundwater within aquifers and the resulting effect will be **imperceptible** during the construction phase.

During construction there is a risk of accidental pollution incidents (spill or leakage). Spills and leaks, if they occur, would be confined to one-off releases that could alter the character of soil and/or groundwater at the local site but that would be temporary in nature. The resultant effect is i**mperceptible** with regard to soils and geology, and **slight to imperceptible** with regard to groundwater.

Contamination of groundwater from the use of lime and concrete during in-situ concrete casting of the floor, walls and roof of the tunnel is unlikely. If it were to occur it could alter the character of soil and/or groundwater at the local site but would be temporary in nature and the resultant effect would be **imperceptible**.

When assessed against the national demand for aggregates, the use of natural resources for the construction of the Proposed Development would result in a **minor** effect.

Accidental spills and leaks (from vehicles using the Underpass) are also possible during the operation of the Proposed Development. If they were to occur, and they could only occur if the drainage system failed to operate correctly, these impacts could alter the character of soil or groundwater at the local site, however the effect would be temporary in nature resulting in an **imperceptible** effect.

A set of comprehensive measures to manage potential impacts on land, soils, geology and hydrogeology will be contained within the construction environmental management plan. This will include measures to manage temporary storage of excavated material and spoil, temporary drainage arrangements to manage surface water

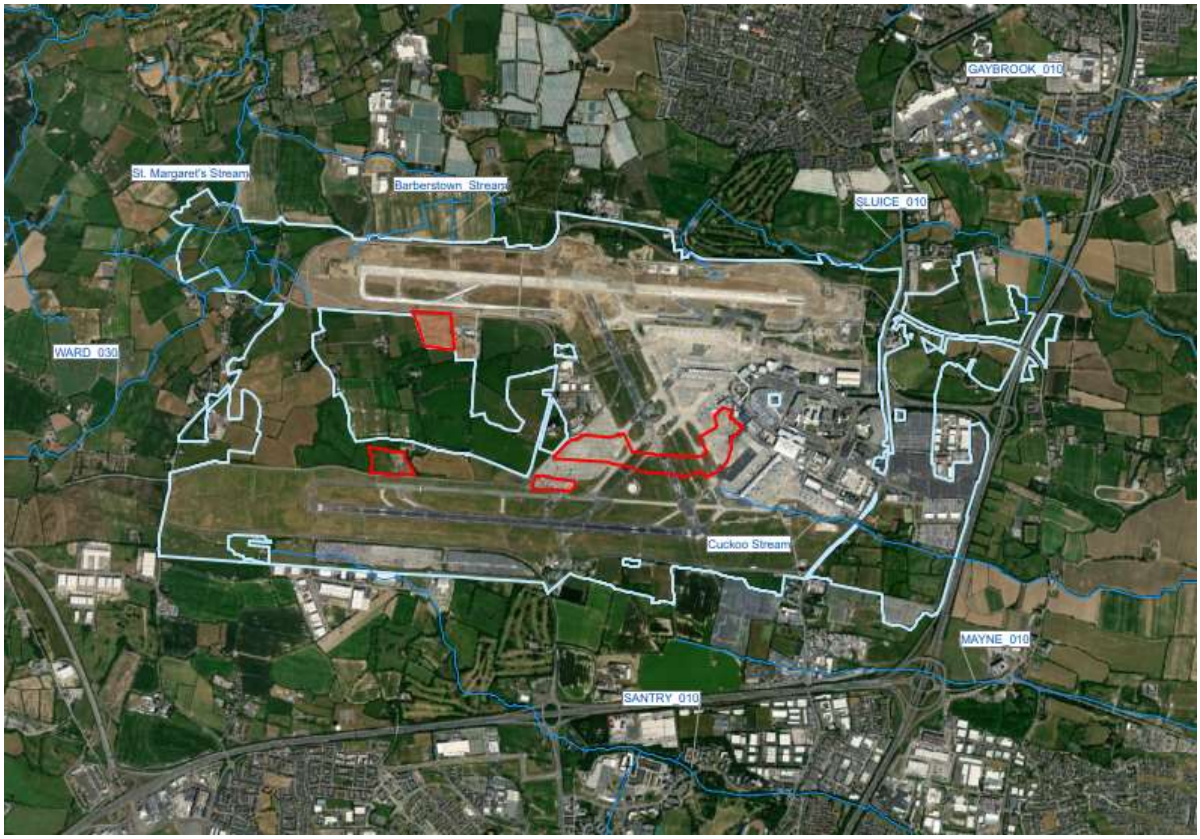
run-off, as well pollution prevention measures during construction. In addition, all construction materials will be responsibly sourced.

Water

An assessment was undertaken of the effects of the Proposed Development on surface waters and groundwater, in EIAR *Chapter 7: Water*. The risk of flooding from and to the Proposed Development is reported separately within the Flood Risk Assessment report accompanying the Application.

The assessment first considered potential sources or 'causes' of effects (such as excavations and associated dewatering activities, introduction of flow barriers, incidental spills or surface runoff from the Proposed Development). It then identified water bodies that have the potential to be affected by these sources. The final stage was to determine if there is a mechanism via which the source can affect the waterbody (a 'pathway'). If there is, then the significance of the predicted effect has been assessed.

Surface watercourses in the vicinity of the airport are shown below.



Groundwater is present in the underlying limestone beneath the Application Site. Excavation works would extend to a maximum of 15m and therefore are expected to be entirely within the superficial deposits, which comprise till (boulder clay) derived from limestone and made ground.

Potential impacts on the quality of groundwater within the superficial deposits and the Cuckoo Stream/Mayne River sub-basin as a result of incidental spillages, surface run-off or dewatering activities during construction are likely to be localised and temporary in nature. The implementation of pollution prevention measures, as detailed within the construction environmental management plan, and the management of temporary drainage means that any effects on groundwater/surface water quality during construction are considered to be **imperceptible**.

During operation, the Proposed Development will create an impermeable barrier for the infiltration to groundwater. There will be additional groundwater level and quality monitoring, whilst discharges from the Application Site will be controlled by the implementation of the agreed Drainage Strategy. As a result, pollution of groundwater and surface water during operation would be **imperceptible**.

To facilitate the installation of the Proposed Development, a temporary diversion of the culverted section of Cuckoo Stream will be required as part of the works. The risk of increased flow within the Cuckoo Stream as a result of over pumping throughout the works would be managed by the implementation of construction environmental management plan measures, the requirements of the pumping permit and the agreed Drainage Strategy. The Cuckoo Stream will be reinstated to its previous state during the operational phase. As a result, effects from the proposed diversion of the Cuckoo Stream during both construction and operation are considered **imperceptible.**

Dewatering activities required to facilitate excavations for the Underpass or altered drainage regimes (diverting water away from groundwater-dependent receptors or creating flow barriers) could lead to reduced groundwater level and flow alteration and/or potential groundwater flood risks. Reduction in the availability of groundwater as a result of dewatering activities are anticipated to result in only localised and temporary effects on the groundwater flow regime and would result in an **imperceptible** effect.

Once complete, the Proposed Development may act as an impermeable barrier to groundwater flows. The limited groundwater potential of the superficial deposits, limited recharge across the Application Site due to presence of made ground, and the distance to the nearest open watercourse means that potential impacts on the groundwater flow regime would be **imperceptible**.

Air Quality

An air quality impact assessment was undertaken in EIAR *Chapter 8: Air Quality*, to assess the likely effects on air quality during construction of the Proposed Development. There will be no change in the overall number of vehicles accessing the Western Campus once the Underpass is operational thus there is no potential for operational air quality effects.

Baseline air quality is generally good. Diffusion tubes passive sampling measuring of nitrogen dioxide (NO_2) was undertaken by the Applicant, at several off-site locations in the vicinity of Dublin Airport. The data demonstrates that the Air Quality Limit Value for nitrogen dioxide (40 micrograms per cubic metre) are not being exceeded.

The Environmental Protection Agency measures annual mean concentrations of pollutants in the Dublin region. The closest monitoring location to the airport is in Swords, which is over 2 kilometres from the airport. Data available for the most recent years demonstrates that air quality complies with the Air Quality Limit Values nitrogen dioxide and particulate matter (known as PM_{10} and $PM_{2.5}$)

Atmospheric Dispersion Modelling System (ADMS) Roads modelling software was used to predict concentrations of road transport derived pollutants nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), at selected locations.

In terms of construction phase road traffic emissions, the highest predicted concentrations during the construction of the Proposed Development in 2024 is 30.3 micrograms per cubic metre, at Meakstown Cottages. This and all other predicted nitrogen dioxide levels fall well below the Air Quality Limit Value of 40 micrograms per cubic metre.

Predicted concentrations for PM_{10} fall within the annual mean range of 10 to 20 micrograms per cubic metre. For $PM_{2.5}$, concentrations lie within the annual mean range of 5 to 10 micrograms per cubic metre. These are well below Air Quality Limit Values for annual mean levels of 40 and 25 micrograms per cubic metre respectively.

A construction dust risk assessment was carried out using Institute of Air Quality Management guidance for residences up to 350 metres beyond the Application Site boundary and 50 metres either side of the construction traffic routes (up to 500 metres from the entrance to the Application Site).

The assessment concluded that for potential dust generating activities (demolition, earthworks, construction and vehicle track-out) the risk of soiling of surfaces and to human health was low.

Noise and Vibration

EIAR *Chapter 9: Noise & Vibration* reviews potential noise impacts during construction of the Proposed Development and focuses only on construction traffic. Noise from construction activities themselves, such as excavation of the underpass route, emanates from the centre of the airfield and would not be significant at the nearest residences which are over 350m distant from the noise source. Vibration impacts are not likely from well-maintained roads and so was excluded from the assessment. Operational noise and vibration from use of the underpass would not be discernible at the closest residences.

A study area was defined based on guidance within the Design Manual for Roads & Bridges at 50 metres either side local roads that will be used by construction traffic. A road traffic noise model was developed to predict levels of road traffic noise at residences along the routes used by construction traffic and these were assessed using the decibel (dB) scale below, corresponding to the Design Manual for Roads & Bridges guidance. Moderate and Major increases in noise are considered to be significant adverse effects.

Change in Noise Level	Magnitude of Effect
0.0 dB(A)	No change
0.1 – 0.9 dB(A)	Negligible
1.0 – 2.9 dB(A)	Minor
3.0 – 4.9 dB(A)	Moderate (significant)
5.0 dB(A) or more	Major (significant)

The existing daytime noise is dominated by road traffic noise and air traffic noise. A noise survey undertaken from 18th to 20th September 2019, to determine representative baseline noise figures on the road network surrounding the airport boundary, measured levels of 75dB to 80dB.

During Phase 1:

- In daytime period, the predicted increase in road traffic noise will be, at worst an increase of marginally over 1dB at road link D (see the illustration in the section on Traffic & Transportation above).
- In the evening period, there is predicted to be a Negligible change in noise at all road links with the exception of road link D. Road traffic noise is predicted to increase by approximately 3dB to 5dB within the study area. Although this would be considered a significant effect, there are no residences along this road link and consequently, construction traffic noise effects during the evening period are not considered significant.
- In the night-time period, there is predicted to be a Negligible change in noise at all road links with the exception of road links D and F. There are no receptors within the defined study area at road link D so the increase here is again, not considered significant. Residences along road link F are predicted to experience a Minor effect, which is not considered significant.

During Phase 2:

- Construction traffic flows are broadly comparable to Phase 1 with minor differences in traffic flows on road links A, B, D and H. However, these differences in traffic flows are not substantial enough to result in a material difference in road traffic noise predictions. Consequently, Phase 2 construction traffic noise effects are Negligible during the day and evening, and Minor during the night-time. Construction traffic noise effects during Phase 2 are not considered significant.

During Phase 3:

- In the day and evening periods construction traffic uses roads with relatively high baseline traffic flows so construction traffic does not increase noise by greater than 1dB. Consequently, changes in road traffic noise are Negligible and not significant.
- In the night-time period, there is predicted to be a Negligible change in noise at all road links with the exception of road link F. Consequently, residences within the study area around road link F are predicted to experience a Minor effect, which is not considered significant.

Biodiversity

The impacts of the Proposed Development on biodiversity, including habitats and protected species, have been considered within EIAR *Chapter 10: Biodiversity*. Effects on European designated sites for nature conservation are presented within the Natural Impact Statement that accompanies the Application.

The assessment draws upon field surveys covering the Application Site and the wider landscape around Dublin Airport. These were carried out for other projects in 2019, 2020 and 2021. Visits were made to the sites of the proposed Southern and Western construction compounds in 2022.

The landcover within the airport comprises industrial and commercial uses including the terminals, hangers, piers and support facilities. No semi-natural habitats are present within the airport boundary which may be affected by the Proposed Development. Habitat in the surrounding area is largely limited to improved grassland and other agricultural land, divided by species poor hedgerows and ditches.

The Baldoyle Bay Special Protection Area (SPA) and Special Area of Conservation (SAC) is approximately 7km east-south-east of the airport. Dublin Airport lies within several watercourse catchments. The main one is the Cuckoo Stream which flows from west-north-west to east-south-east, discharging to the centre of Baldoyle Bay SPA/SAC. This catchment is directly impacted by the Proposed Development.

A Wildlife Management Plan is implemented under licence within the operational airfield which discourages the presence of species that might pose a safety threat to aircraft such as flocks of hazardous birds and/or other animals and allows disturbance of otherwise protected species such as the Irish Hare.

The Application Site is mainly within the current footprint of Dublin Airport and all European designated sites are well beyond the distance at which construction-related disturbance could occur on animals within such sites. There are no habitats of ecological value or other sensitive ecological receptors within the airfield. An exception to this is the Irish Hare, which is endemic to the airfield but which, on safety grounds, does not enjoy the normal protection within the airport.

No habitat loss will occur at the Southern Compound. Much of the low-quality grassland within the Western Compound will be lost, as will a small section of the hedgerow surrounding this site required for access. The hedgerow has some value for commuting or foraging bats, but the effect is not likely to be significant. The site will be lit in a way to avoid light falling on the hedgerow and reduce impacts on any bats that may be using the habitat.

Pollution from construction activities, in particular the diversion of the Cuckoo Stream, could potentially reach the Baldoyle Bay SAC/SPA via the Cuckoo Stream and have an indirect impact upon this internationally designated site. The Airfield Trunk Culvert Temporary Diversion Pollution Control report, presented in Appendix 7-3 to the EIAR, and the Construction Environmental Management Plan contain measures to prevent pollution of surface waters and manage any accidental pollution events, should they occur.

Once the Proposed Development is completed, there will be no new impacts on ecological receptors. The drainage design of the Proposed Development will ensure that there will be no effect on the surface water environment during operation and prevent the potential transport of pollutants to Baldoyle Bay SAC / SPA via the Cuckoo Stream.

Climate

Chapter 11: Climate of the EIAR focuses on the potential impacts of additional greenhouse gas emissions from the Proposed Development. Consideration is also given to the resilience of the Proposed Development to projected climate change impacts, as well as the combined impact of the Proposed Development and future climate change on receptors in the surrounding environment.

The impacts of extreme weather events and increased rainfall due to climate change have been factored into the design of the Proposed Development, for example as part of the climate change allowances within the drainage design and Flood Risk Assessment. In addition, the Application Site is not located within a built-up area (meaning there is a negligible urban heat island effect) or an area susceptible to sea level rise. For these reasons, a separate in-combination climate change impact (ICCI) assessment was not considered necessary.

Similarly, the resilience of the Proposed Development to increased dry spells, increased year-round temperatures, and increased severity of storms has also been considered through the design of the Proposed Development.

A lifecycle approach has been undertaken for the assessment of GHG emissions which considers emissions from the different stages of the Proposed Development as a whole, including product stage, construction process stage and the operational stage.

Where activity data has allowed, expected greenhouse gas emissions arising from the construction and operational activities, as well as the embodied carbon of materials, have been quantified in line with current best-practice guidelines. GHGs specifically considered in the assessment include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3).

Where data was not available, a qualitative approach to addressing greenhouse gas impacts has been followed, in line with the guidance from the Institute of Environmental Assessment & Management.

The assessment of construction effects has considered potential embodied greenhouse gas emissions from the extraction of raw materials and transportation and manufacturing of products/materials; as well as greenhouse gas emissions from fuel and energy consumption associated with on-site construction activity, transport of construction workers and construction materials, and disposal and transportation of construction waste

The assessment of operational effects has considered greenhouse gas emissions from operational energy use (e.g., road lighting, traffic lights etc.), the supply of potable water and the disposal and treatment of wastewater.

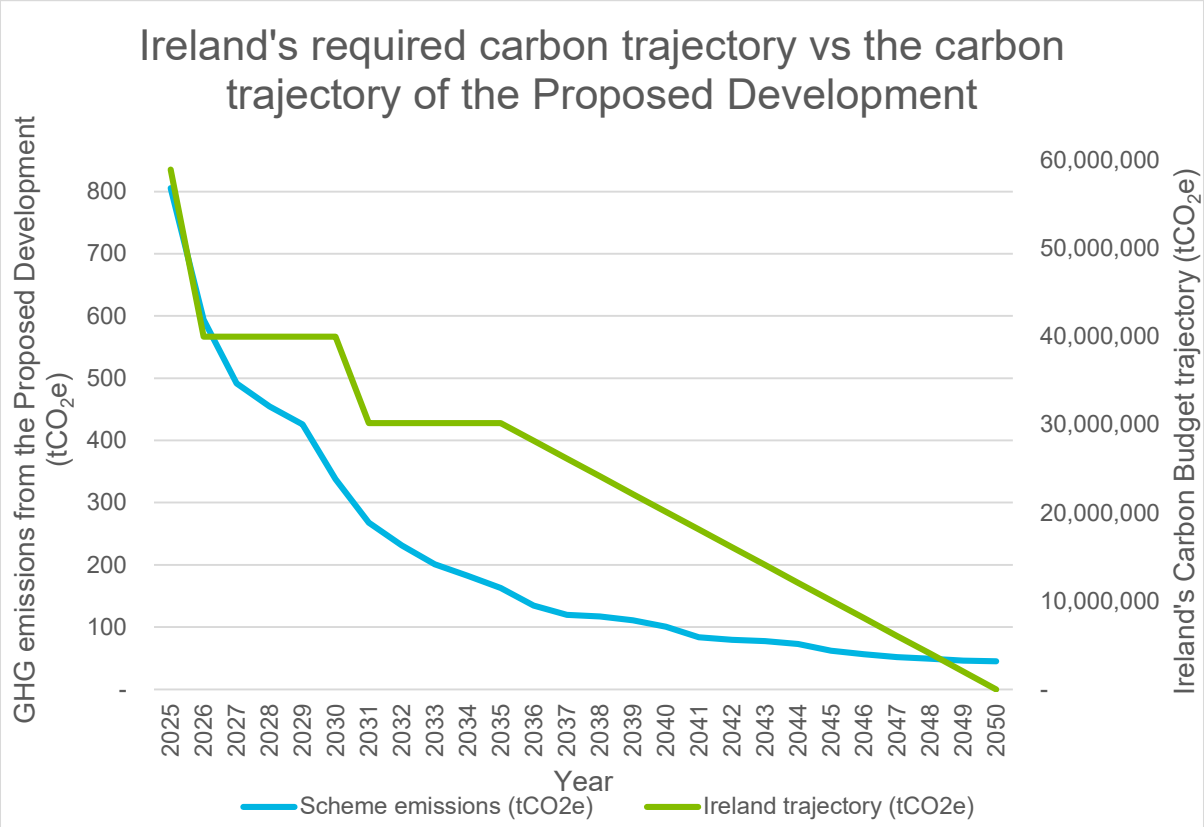
Vehicle usage during operation has not been assessed on the basis that the Proposed Development will not result additional vehicle journeys. It is unlikely that the Underpass will be replaced during its lifetime so only minor maintenance works are expected during the operational phase. Emissions associated with maintenance activities are unlikely to change the outcome of the assessment and have thus not been considered. Similarly, it is not practically possible to assess the greenhouse gas impact of decommissioning activities with any certainty due to the anticipated change of the decommissioning landscape (e.g., methods and fuels used), therefore this aspect was also scoped out of the assessment.

The national carbon budgets produced by the Climate Change Advisory Council were used to determine the impact of the additional greenhouse gas emissions due to the Proposed Development on Ireland's ability to meet its reduction targets and whether or not it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

The total greenhouse gas emissions from construction are estimated to be approximately 79,889 tCO_2e, or tonnes or carbon dioxide equivalent. The greatest contribution to construction emissions is the embodied carbon within construction materials which accounts for 83.9% of total construction greenhouse gas emissions. The average annual GHG emissions from construction equate to 53,259 tCO_2e per year, assuming a 1.5-year construction programme.

The total greenhouse gas emissions from operations across the assumed 60-year design life of the Underpass are estimated to be approximately 6,934 tCO_2e. The greatest contribution to operational emissions is the carbon emissions from operational energy use (e.g., road lighting, traffic lights etc) which account for 99.9% of total operational GHG emissions. The annual average operational greenhouse gas emissions are expected to decrease

over the design life of the Proposed Development, from approximately 806 tCO_2e in 2025 to 45 tCO_2e from 2050 onwards, as a result of the decarbonisation of the national electricity grid.



As can be seen from the chart above, the GHG emissions associated with the Proposed Development are not considered to be material in the context of Ireland's carbon budgets, representing <0.03% of the 1st carbon budget (mostly driven by construction emissions) and <0.001% for the subsequent carbon budgets (operational emissions only).

It should be noted that the chart above chart compares the two trajectories only and uses two very different scales for Ireland's projected carbon trajectory and the trajectory of the Proposed Development. The effect of the Proposed Development is therefore considered **minor** (not significant).

Cultural Heritage

An appraisal of the effects of the Proposed Development on Cultural Heritage was undertaken in EIAR *Chapter 12: Cultural Heritage*. The appraisal has focussed on the potential significant effects on buried archaeological remains within the Application Site. There are no buildings of architectural importance or whose setting (in either visual or noise terms) might be affected by the works within the Application Site. There are also no folklore or historic connections to the Application Site. Therefore, architectural heritage, and folklore and history, have not been considered further within the EIAR.

Within the airport boundary, the Application Site comprises an operational airfield, including the West Apron and Pier 3. It is crossed by Runway 16/34 and several taxiways which largely consist of made ground with limited potential for surviving archaeology. Outside the made ground areas there are grassed areas where remains could potentially continue to exist; however, these areas are also likely to have been disturbed during the construction of the runways and taxiways or by construction of services, so the potential for surviving archaeology is low.

Of the two compounds that also form part of the Application Site, only the Western Compound will require works that could affect archaeology. However, comprehensive surveys were undertaken for the construction of the North Runway and the archaeology in this location was fully investigated and recorded at that time.

There are two designated heritage assets within the 1km study area, both of which form part of the airport complex: *The Old Central Terminal Building* which was built in 1937 in the International Modern style and consists of a detached, multiple-bay, four-storey building; and the *Church of our Lady Queen of Heaven* which dates to 1964 and is still in use. There are four recorded undesignated heritage assets within the study area, namely *Corballis House* and *associated landscape*, *Corballis Castle* and the *Boot Inn*.

None of these assets are located within the footprint of the Application Site.

During the archaeological investigations carried out in 2017 to inform the construction of the North Runway a number of archaeological sites were uncovered, most of them within fields previously outside the airport boundaries, with the exception of one site. Prehistoric, early medieval and post-medieval activity were identified within these sites.

The construction of the Proposed Development will require ground works which have the potential to impact on unknown buried archaeological remains. However, as the Application Site mainly comprises already build out areas including taxiways and aprons, it is likely that any sub-surface archaeological remains that may have existed within these areas have been heavily truncated or destroyed during their construction.

Although the construction of the Proposed Development will result in additional traffic on the road network within and in the vicinity of the airport, any built heritage surrounding the Application Site would already be impacted by traffic and noise associated with the existing airport activity including the runways. Any increase in construction traffic and noise during the works would be temporary and not considered to result in a significant effect in the context of the current airport operations.

The Proposed Development, once operational, will not alter or increase in any way the activities currently being undertaken at Dublin Airport or, more specifically, on the West Apron. Therefore, no direct or indirect operational effects on nearby heritage receptors are anticipated and their setting would remain unchanged. It is noted that the setting of any nearby heritage assets would already be impacted by the existing infrastructure, including taxiways and aprons and the operation of the airport.

Landscape and Visual

An appraisal of the effects of the Proposed Development on landscape character and visual amenity has been undertaken and is reported in EIAR *Chapter 13: Landscape and Visual*. The appraisal considers a number of aspects including landscape appearance and character, landscape context, views and prospects, and historic landscapes.

Given the nature and scale of the Proposed Development, the sensitivity of the receiving environment and potential visibility of the Proposed Development, landscape and visual effects are likely to be restricted to within the boundary of Dublin Airport. Existing landscape conditions and visual receptors within the airport boundary have been identified through desk-based study involving a review of mapping and aerial photography, relevant planning and policy documents and other relevant documents and publications.

On one side, the assessment takes into account the value of the landscape and visual receptors as well as their sensitivity to change; and on the other side, the size, scale, geographical extent, duration and quality of the potential impact (i.e., their magnitude) in order to establish the significance of predicted effects. The assessment of potential effects on landscape character and visual amenity, although closely related, are undertaken separately in accordance with best practice.

There are no sensitive or historic landscapes located within the boundary of Dublin Airport. The airfield is a large expanse of generally flat terrain comprising of visible and dominating terminals, runways, control towers, auxiliary built structures and lighting systems. The landscape is transport dominant, providing the structures and systems required of an international airport. Visual receptors are of low sensitivity and include people engaged in work, carrying out airport operations and a large transient population occupied (and interested in) the activities and functions of the airport. There are no specific views and prospects that contribute to the landscape character of the Application Site.

During the construction phase, visual receptors (mainly airport workers and passengers) will notice an increase in heavy machinery associated with infrastructure works, which will be evident from internal viewing points in the vicinity of the Application Site. This sort of activity is not unusual to facilitate the phased growth and development of the airport.

There would be relatively large earthworks visible as excavation proceeds along the proposed route of the Underpass, together with construction-related plant and vehicles, however, the impact would be limited in scale as a result of working methodology and views to the works from beyond the airport campus will be limited and distant. No vegetation removal is proposed as part of the works and therefore there will be no opening up of new views into the Application Site from visual receptors. The nearest visual receptors from outside the airport boundary will be vehicle travellers along public roads along the airport boundary fence.

Both external compounds would be visible from the R108 to traffic approaching and passing them, although views would be partially screened by intervening hedgerows.

As a result, the impact of the Proposed Development on the landscape character and visual amenity during construction will be confined to locations in close proximity to the Site and to the construction traffic and will be temporary in nature.

Views of the completed development would only be possible in the above ground sections at each end of the Underpass and would not be considered inappropriate or intrusive in the context of the operational airport environment. The Proposed Development would not alter or increase the activities currently being undertaken at Dublin Airport or, more specifically, on the West Apron. The existing landscape character and visual amenity will remain similar to existing conditions following the completion of construction works.

Material Assets (Waste Management)

EIAR *Chapter 14: Material Assets (Waste)* reports the findings of an appraisal of the effects that waste generated by the construction of the Proposed Development will have on waste management capacity and on meeting relevant local and national targets for waste recovery. Waste arisings during the operational phase of the Proposed Development are expected to be minimal and confined to occasional maintenance and repair. No significant waste effects are likely during the operational phase and therefore this aspect has not been considered further within the assessment.

The assessment considers waste arising from construction activities taking place within the Application Site (including any temporary land requirements during construction).

The assessment has also considered the impacts of hazardous and non-hazardous waste on waste management capacity across the whole of Ireland due to the need to consider all available waste management infrastructure capacity (although it is noted that a proportion of hazardous waste arising in Ireland is managed outside the country).

Information on waste arisings and waste management capacity in Ireland has been sourced from the most recent data published by the Environmental Protection Agency (EPA). Approximately 8,825,130 tonnes of construction and demolition waste was collected in 2019, with the majority (84.8%) comprising soil, stones and dredging spoil. Approximately 96% of this waste underwent final treatment with around 4% exported for final treatment. Exports mainly comprised soil and stone material and waste metals. Treatment by backfilling was the most utilised method, managing 82.4% of all construction and demolition waste in 2019.

In 2019, Ireland's performance against the Waste Framework Directive target for reuse, recycling and recovering of non-hazardous construction and demolition waste was 84%, exceeding the 70% target.

In 2020, 557,221 tonnes of hazardous waste were generated in Ireland. The construction sector produced 32% of Ireland's hazardous waste in that year which mainly comprised dredging spoil and contaminated soil.

Available forecast data of potential construction and demolition waste arisings to the year 2029 indicates that construction and demolition waste arisings may return to pre-pandemic levels by 2025 / 2026[1], at the end of the Proposed Development construction period. Accordingly, the current baseline is assumed to apply during the Proposed Development's construction phase (2022 to 2025).

A draft Waste Minimisation Plan has been developed and recently submitted to Fingal County Council (FCC) as required by the Dublin Airport Local Area Plan. In addition, the Construction Environmental Management Plan contains a Preliminary Waste Management Plan setting out the waste management measures to be implemented during construction of the Proposed Development.

The total waste arising from the construction of the Proposed Development would account for 6.4% of annual national construction and demolition waste management, indicating a moderate effect, which is significant.

However, total waste requiring disposal off-site is likely to comprise approximately 44,000 tonnes, which equates to 4.9% of national construction and demolition waste treated via disposal, indicating a **minor** impact on finite disposal infrastructure capacity.

Further, a total recovery rate (including recycling, energy recovery and backfilling) of approximately 95% is likely to be achievable for non-hazardous construction and demolition waste (excluding naturally occurring soil and stones managed off-site), indicating a **negligible** impact.

Following the implementation of mitigation and monitoring measures included in the Construction Environmental Management Plan and Waste Management Plan, no significant residual effects are anticipated on national construction and demolition waste arisings, disposal infrastructure capacity or national targets for recovery of non-hazardous construction and demolition waste.

[1] The Construction & Demolition Waste - Soil and Stone Recovery / Disposal Capacity - Update Report 2020, Government of Ireland (2020) Construction & Demolition Waste - Soil and Stone Recovery / Disposal Capacity - Update Report 2020. Available at: http://southernwasteregion.ie/sites/default/files/National%20C%20%20D%20Report%20Dec%202020%20for%20Publication.pdf

Material Assets (Built Services)

EIAR *Chapter 15: Material Assets (Built Services)* considers the potential impact of the Proposed Development on built services material assets, including the consumption of resources provided by those assets such as gas, electricity and water.

For the purposes of the assessment, a change in annual consumption of resources of 1% or more over the total annual consumption in Ireland is considered significant.

Dublin Airport consumed approximately 51,652,782 kWh of gas in 2019 when the airport was operating close to the consented 32 million passengers per annum capacity. By comparison, networked gas consumption in Ireland in 2018 was 57,129 GWh[2] (a gigawatt hour (GWh) is equivalent to one million kilowatt hours (kWh)).

In terms of electricity supply, the Applicant owns and operates a substation at Dardistown with dual supply 100kVA power lines providing power directly to the airport. In addition, 268 solar panels have been installed 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.

Electricity consumption at the airport in 2019 was 68,459,564 kWh. Total metered electricity consumption in Ireland was 26,505 GWh in 2019 and 27,056 GWh in 2020[3].

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).

In 2019 some 570,949 m^3 of water was used by Dublin Airport, according to data provided by the Applicant.

The aviation sector is recovering rapidly from the Covid-19 pandemic and consumption of gas, electricity and potable water, whilst currently lower than in 2019, is anticipated to return to the levels experienced then, if passenger numbers return to the 32mppa Cap during this construction period. There is also a live daa planning application (F21A/0518) for a large solar energy plant to the south-east of the airport which, if permitted, will provide up to 11% of the airport's annual electrical needs and up to 62% of its current maximum import.

There are not likely to be any significant disruptions to built services or accidental damage to currently unidentified services during the construction of the Proposed Development. Contractors will be required to follow construction industry standard safety procedures and undertake risk assessments during construction, as set out in the CEMP. Construction will not require use of gas, and only electricity for use in powering hand tools. It is estimated that 3,000 litres of water per day would be required during construction, mainly for vehicle washdown. Therefore, there are unlikely to be any significant effects on Material Assets (Built Services) during construction.

Electricity demand once the Proposed Development is complete is expected to increase by more than 1% of total baseline demand. Whilst this is not a negligible increase in airport terms, it is **not significant** when compared with the total national consumption.

Water consumption during operation is estimated to be less than 0.04% of total consumption in 2019. This is a negligible increase even in airport terms and is **not significant** when compared with the total national consumption.

[2] https://www.cso.ie/en/releasesandpublications/er/ngc/networkedgasconsumption2018/
[3] https://www.cso.ie/en/statistics/climateandenergy/meteredelectricityconsumption/

Major Accidents and Disasters

EIAR *Chapter 16: Major Accidents & Disasters* considers the vulnerability of the Proposed Development to natural disasters or major accidents from existing sources of hazards, the risk of the Proposed Development creating a new source of major accident and the potential significant effects on the environment resulting from these events.

Considerable effort is directed by Dublin Airport towards ensuring that civil aviation is as safe as is reasonably practicable. In the unlikely event of a crash, or other emergency situation arising, Dublin Airport will implement its emergency response plan to ensure that all necessary steps are taken to mitigate the consequences for people and the environment.

The current access to the West Apron is directly across Runway 16/34 via the West Apron Surface Crossing. This crossing is used under a temporary approval received from the Irish Aviation Authority (IAA-SRD). IAA SRD mandate is to review and approve any proposed changes to the airfield infrastructure to ensure operational safety during both construction and on completion and ensure compliance with European Aviation Safety Authority (EASA) Regulations.

Once the North Runway becomes operational in August 2022 the West Apron Surface Crossing can no longer be used on safety grounds. Instead, access via the Northern Perimeter Road must be used until the Proposed Development is constructed.

Safety was the key consideration in the design of the Underpass and the proposed construction methodology (twin cell configuration) was chosen with this in mind. The design meets minimum key safety requirements[4][5] and incorporates additional safety measures such as mechanical ventilation.

A Flood Risk Assessment has been carried out for the Underpass which concludes that, with the implementation of identified mitigation measures such as fitting of a waterproof membrane to prevent ingress of groundwater, design measures to minimise the volume of rainwater that can enter via the tunnel portals and adequate pumping / storage, only a residual risk of flooding remains.

In addition, the design of the stand reconfigurations around Pier 3 and the West Apron has been subject to strict guidance from International Civil Aviation Organisation (ICAO) and meets internationally recognised levels of safety.

The chapter provides an assessment of the risks to the Proposed Development from natural disasters or major accidents from existing sources of hazard. It also assesses the risk of the Proposed Development introducing a new hazard to the existing environment. The methodology draws on the guidance provided by the Department of the Environment, Heritage and Local Government on Risk Assessment in Major Emergency Management.

The Proposed Development is safety-critical infrastructure, designed to reduce the risk of accidents occurring and will represent an improvement over the current (i.e., use of the West Apron Surface Crossing) and future conditions (i.e., use of the Northern Perimeter Road as an interim measure). The Proposed Development does not, itself, pose an accident risk to the environment. The assessment concludes that during construction and operation there is no more than a **minor** and not significant risk of major accidents or disasters occurring.

Population and Health

An appraisal of the effects of the Proposed Development on Population & Human Health has been undertaken and is reported in EIAR *Chapter 17: Population & Human Health*. The assessment focusses on the effects of the Proposed Development on human health, in particular the indirect heath impacts upon sensitive receptors from construction traffic noise along public roads.

Although there will be employment created by the construction of the Proposed Development, the effect will be temporary and there will be no long-term job creation. The Proposed Development will be constructed almost entirely within the Airport campus and will not affect public amenity. Therefore, effects on employment and amenity do not require further assessment.

[4] Transport Infrastructure Ireland, "DN-STR-03015 Design of Road Tunnels," December 2000
[5] Directive 2004/54/EC of the European Parliament of 29 April 2004 on Minimum Safety Requirements for Tunnels

The life expectancies in Dublin and Ireland have been increasing in recent years creating an ageing population, a trend that is currently being experienced across most developed countries. The life expectancy in 2016 of residents within the Dublin Region were broadly in line with the country's averages. The health conditions in Dubber Electoral Division (ED), Fingal County and across the country are positive, but they appear slightly worse within the Airport ED. In 2016, 89% of the population aged 15 years and over in Fingal County considered themselves to be in very good or good health, compared to Ireland's average of 88%. In comparison, around 84% of residents in Dubber ED and 77% of residents in the Airport ED were in very good or good health.

The public health baseline is not likely to change substantively from that outlined in the Current State of the Environment in the period covered by the assessment, namely the peak construction year of 2024

The construction of the Proposed Development would lead to an increase in construction traffic along the local road network. During all three construction phases, changes in road traffic noise are predicted to be Negligible. The exception to this is an increase of between 1 and 3 dB during the night-time period in construction phase 2 that is predicted to impact residents on Harristown Lane to the south of road link F. This effect has been assessed as **minor** in noise terms and therefore **not significant** in health terms.

There is no change anticipated in the volume of operational activities being carried out or traffic movements at Dublin Airport as a result of the Proposed Development and therefore no effect on human health.

Interactions and Cumulative Effects

In accordance with the EIA Directive, EIAR's *Chapter 18: Interactions and Cumulative Effects* assesses the likely significant cumulative effects of the Proposed Development.

Two categories of cumulative effects have been considered and they are defined as:

- Interactions – these occur when a single receptor or group of receptors experience more than one type of impact, for example a single receptor may be affected by noise, air quality and visual impacts from a proposed development at the same time. The effects resulting from these individual impacts may not be significant, but the accumulation of effects may collectively lead to an overall significant effect.
- Cumulative effects: these occur when the environmental impacts and effects of the Proposed Development interact with those associated with other planned projects and developments and result in a greater significance of effects on the environment.

Interaction and cumulative effects are only considered to be possible where receptors would experience residual effects, as a result of the Proposed Development, that are greater than 'negligible'. Once complete and operational, the Proposed Development would have no perceptible environmental effects as demonstrated throughout the EIAR. Therefore, the assessment of interactions and cumulative effects focused on the construction phase only.

Interactions

The assessment of interactions and cumulative effects considers all the residual effects identified by the individual technical assessments, excluding those which are classified as 'negligible'. As only residual effects were considered, the assessment takes into account any mitigation measures identified by the individual technical assessments.

The only factors experiencing greater than imperceptible effects are land & soils, noise, biodiversity, climate, landscape & visual and waste, and population and human health. However, the chapter concludes that in most cases interactions cannot take place between the effects on these factors and, in cases where interactions could occur, significant effects would not result.

Cumulative Effects

In order to inform the cumulative effects assessment, a list of other schemes that could interact with the Proposed Development by virtue of their location, type, scale of development and associated activities, as well as the type and duration of their likely environmental effects, was drawn-up. This included any known permitted or planned projects by Dublin Airport, for example the critical taxiways project to refurbish older taxiways including those adjacent to the Underpass, or third parties which have planning permission and/or which are in the planning system and considered reasonably likely to proceed but would not be in operation by the time the Proposed Development is operational.

The assessment concluded that the potential for cumulative effects in combination with other schemes is, in practice, limited to construction traffic noise. Whilst it is not possible to quantify the extent of any cumulative effect, the likelihood of it actually occurring is limited given that other schemes are likely to be constructed during the day while construction of the Proposed Development is expected to take place mostly at night. Any cumulative effect would be temporary and therefore unlikely to be significant.

Future Development at Dublin Airport

The growth of Dublin Airport is mandated by government policy, as well as national, regional and local planning policy. The Proposed Development seeks to address the current need for a safe and reliable means of accessing the West Apron from the Eastern Campus. Whilst the objective of the Proposed Development is not to facilitate airport growth or provide extra capacity to the airport, it has nevertheless been designed to ensure it will be able to accommodate the anticipated growth in passenger numbers in the long term, subject to future aviation policy and to future planning permission.

As a standalone proposal, the Proposed Development is not reliant on future airport growth nor is the future airport growth dependent upon the Proposed Development. Nonetheless, as future expansion could affect the future receiving environment, some consideration has been given within the EIAR to potential environmental impacts which could be associated with future development at the airport. This is presented in the EIAR *Chapter 19*: *Future Development Plans*.

There are development proposals currently being prepared which will seek planning permission for future airport growth to 40 million passengers per year, known as the Infrastructure Application. These will include proposals for airport infrastructure required to accommodate this growth:

- Expand the existing South Apron with new remote stands, taxiways, pre-boarding zone and apron space
- Extend Pier 1 on the North Apron to increase passenger capacity and the number of boarding gates
- Create a new Apron 7 on the western side of the airport with additional aircraft stands
- Increase space internally inside Terminal 1 by relocating the security hall to the mezzanine level
- Internal changes to enable Pier 3 for pre-cleared US-bound passengers
- Expand of staff car park (north)
- Expand long-term car park (red)
- Expand the existing Terminal 1 and Terminal 2 multi-story car parks by adding three and two levels respectively
- Ancillary works such as construction compound(s)

The principal operational environmental impact of the IA is likely to be the increase in air and ground traffic movements from Dublin Airport, with associated aircraft / ground noise and greenhouse gas emissions. During construction, there will be construction wastes generated and this would involve additional HGV traffic on the major roads around the airport. It is unclear whether this would lead to significant but temporary air or noise effects in the vicinity of the airport during the construction period but mitigation of any such impacts is a key focus for the environmental assessment work to be undertaken for the IA, with phasing of the likely 10 – 15-year construction programme offering opportunities to manage the timing of potential impacts to limit their cumulative effects.

The Infrastructure Application will require a grant of planning permission in order to be realised, which in itself will entail planning and environmental impact assessment.

Airfield drainage projects are currently being developed towards planning approval. The proposals include construction of trunk pipelines from the West Apron designed to convey flows from future developments to the west and north-west of the airfield. The purpose of these projects is to improve the surface water management system to achieve environmental improvement in response to extreme weather and so the operational effect on water and biodiversity is likely to be beneficial. Other environmental effects are uncertain at this stage. These projects will also require planning permission but would be implemented incrementally over a decade or so.

It is expected that the Applicant will make an application at some point in the future to replace the aircraft stands lost around Pier 3 as a result of the Proposed Development. When this application would be made, where it would be located and what it might comprise is not currently known and so it is not feasible to comment on its effects

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Project Title:

DUBLIN AIRPORT UNDERPASS

Client:

daa Dublin Airport

LEGEND

Application Site Boundary

Land owned by daa

Notes:

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

AECOM Internal Project No:

60601864

Drawing Title:

APPLICATION SITE LOCATION

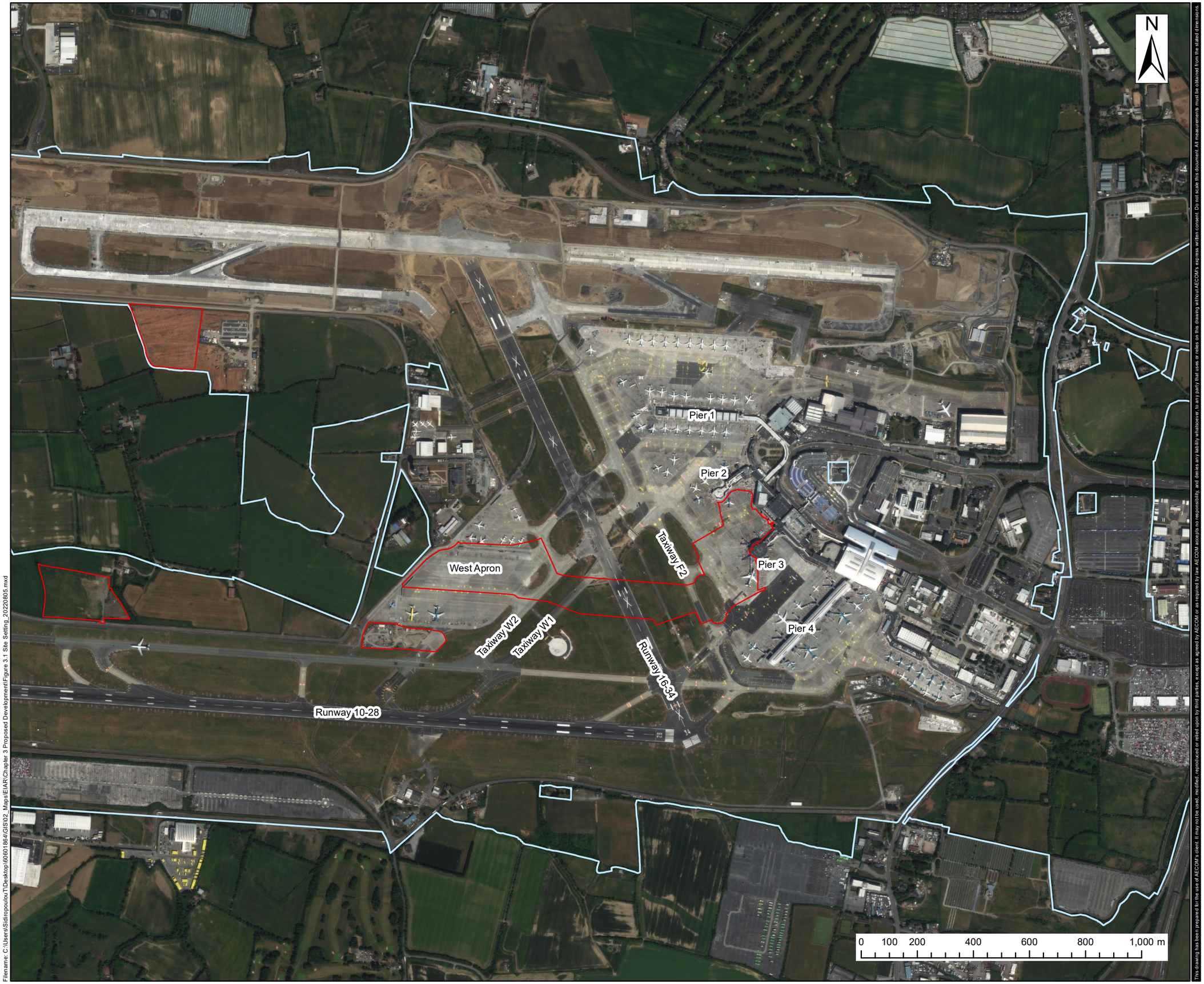
Scale at A3: 1:35,000

Drawing No:

FIGURE 1

Drawn:	Chk'd:	App'd:	Date:
TS	BS	CM	05/08/22

Filename: C:\Users\Sidiropoulou1T\Desktop\60601864\GIS\02_Maps\EIAR\Chapter 3 Proposed Development\Figure 1.1 Site Location_20220805.mxd



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Tel +353 (1) 238 3100
Fax +353 (1) 238 3199
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Project Title:

DUBLIN AIRPORT UNDERPASS

Client:

daa Dublin Airport

LEGEND

- Application Site Boundary
- Land owned by daa

Notes:

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

AECOM Internal Project No:

60601864

Drawing Title:

SITE SETTING

Scale at A3: 1:12,500

Drawing No:

FIGURE 2

Drawn:	Chk'd:	App'd:	Date:
BS	BS	CM	05/08/22

Filename: C:\Users\Sidiropoulou.T\Desktop\60601864\GIS\02_Maps\EIAR\Chapter 3 Proposed Development\Figure 3.1 Site Setting_20220805.mxd