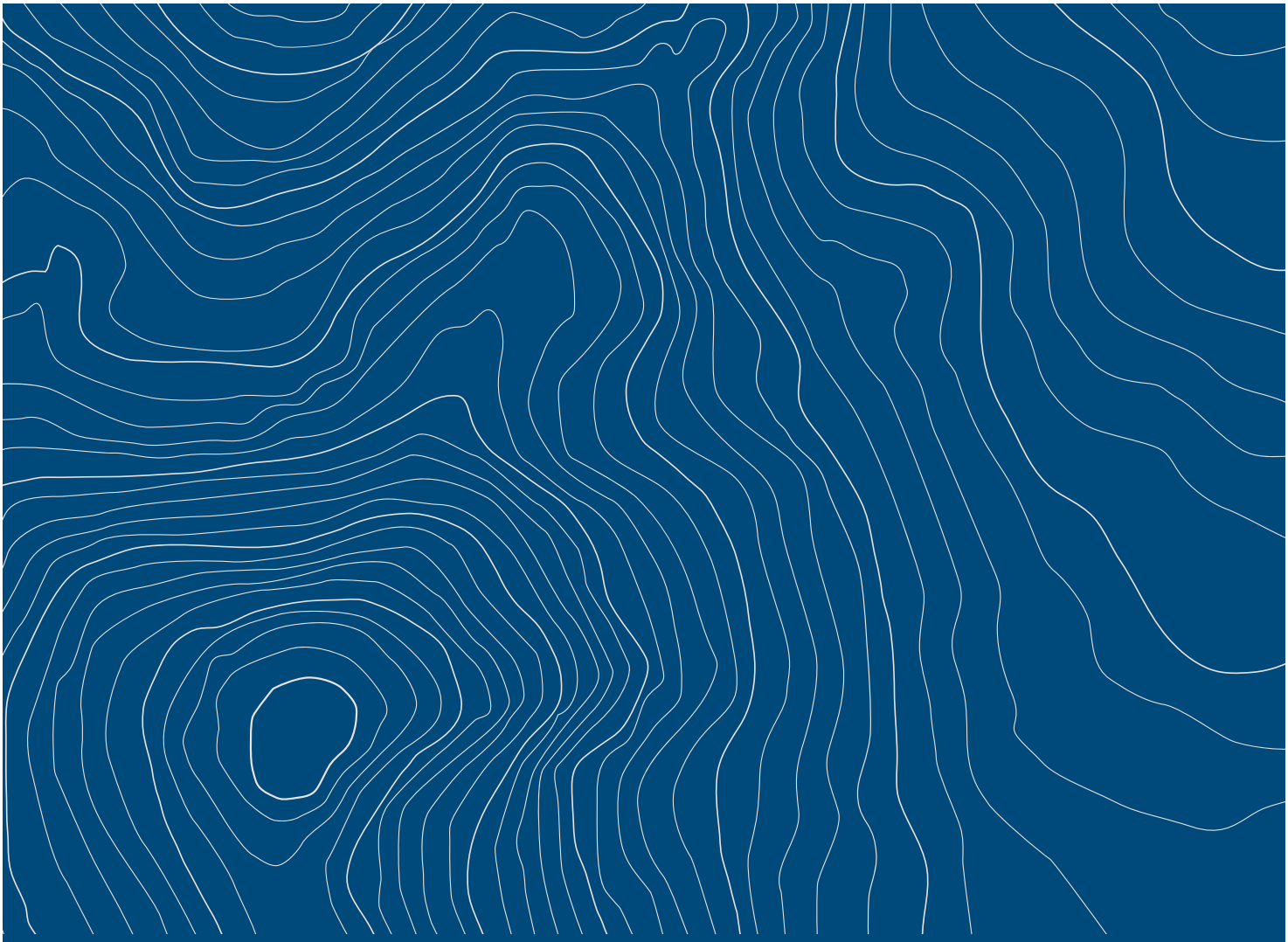

DublinArray
Generation for generations

EIAR Volume 5: Onshore Infrastructure Assessment Chapters
Chapter 6: Traffic and Transport

Kish Offshore Wind Ltd

RWE SLR GoBe APEM Group

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Dublin Array Offshore Wind Farm

Environmental Impact Assessment Report

Volume 5, Chapter 6: Traffic and Transport

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Glossary

Term	Definition
AADT (Annual Average Daily Traffic)	The total volume of vehicle traffic on a highway or road for a year divided by 365 days. This metric provides an average daily traffic count, which helps in understanding traffic patterns. It is an important statistic for assessing the capacity and performance of road networks.
AIL (Abnormal Indivisible Load)	A load that cannot be divided into smaller loads for transport and exceeds standard legal size or weight limits.
ATC (Automatic Traffic Count)	A method of collecting traffic data using automated equipment.
ATR (All-Terrain Routes)	Routes suitable for all types of terrain, often used for cycling and walking.
CTMP (Construction Traffic Management Plan)	A plan detailing how traffic will be managed during construction to minimize disruption.
DMRB (Design Manual for Roads and Bridges)	A manual used for the design, assessment, and operation of road infrastructure in the UK and Ireland.
EC (European Commission)	The executive branch of the European Union (EU) responsible for proposing legislation and implementing decisions.
EMRA (Eastern and Midland Regional Assembly)	A regional authority in Ireland responsible for strategic planning and development.
GDDR (Glenamuck District Distributor Road)	A road project aimed at improving traffic flow in the Glenamuck area. Currently in construction.
GFA (Gross Floor Area)	The total floor area inside a building, including all floors and levels.
GPS (Global Positioning System)	A satellite-based navigation system used to determine precise location and time information.
IEMA (Institute of Environmental Management and Assessment)	A professional body for environmental practitioners.
iRAP (International Road Assessment Programme)	A program aimed at improving road safety through assessment and star rating of roads.
LRN (Local Road Network)	Roads that provide access to local areas and properties.
PIA (Personal Injury Accident)	An accident resulting in injury to a person.
PPP (Public-Private Partnership)	A cooperative arrangement between public and private sectors.
PSL (Posted Speed Limit)	The maximum legal speed at which vehicles may travel on a road.
PSV (Public Service Vehicle)	A vehicle used for public transport, such as buses and taxis.
RSES (Regional Spatial and Economic Strategy)	A strategic plan for regional development.
RTC (Road Traffic Collision)	An incident involving one or more vehicles on a road.
SID (Strategic Infrastructure Development)	Large-scale infrastructure projects of national or regional importance.

Term	Definition
SPMT (Self-Propelled Modular Transporter)	A platform vehicle used for transporting large and heavy loads.
SRN (Strategic Road Network)	Major roads that are essential for long-distance travel and economic activity.
TEN-T (Trans-European Transport Network)	A network of roads, railways, airports, and waterways in the European Union.
TP (Travel Plan)	A plan to manage travel demand and promote sustainable transport.
TRICS (Trip Rate Information Computer System)	A database used to estimate trip generation for new developments.

Acronyms

Term	Definition
AADT	Annual Average Daily Traffic
AIL	Abnormal Indivisible Load
ATC	Automatic Traffic Count
ATR	All-Terrain Routes
CCTV	Closed Circuit Television Camera
CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
DLRCC	Dún Laoghaire Rathdown County Council
DMRB	Design Manual for Roads and Bridges
EC	European Commission
ECR	Export Cable Route
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMRA	Eastern and Midland Regional Assembly
EPA	Environmental Protection Agency
EU	European Union
GDDR	Glenamuck District Distributor Road
GFA	Gross Floor Area
GPS	Global Positioning System
HDD	Horizontal Directional Drilling
HDPE	High-Density Polyethylene
HGV	Heavy Goods Vehicle
HIE	High Intensity Employment
HV	High Voltage
HWM	High Water Mark
IEMA	Institute of Environmental Management and Assessment
iRAP	International Road Assessment Programme
LRN	Local Road Network
NRA	National Roads Authority
OCS	Overhead Contact System
OES	Onshore Electrical System

Term	Definition
OSS	Onshore Substation
O&M	Operations and Maintenance
P&R	Park & Ride
PIA	Personal Injury Accident
PIC	Personal Injury Collision
PPP	Public-Private Partnership
PSV	Public Service Vehicle
RoRo	Roll-on/Roll-Off
RSA	Road Safety Authority
RSES	Regional Spatial and Economic Strategy
RTC	Road Traffic Collision
SPMT	Self-Propelled Modular Transporter
SRN	Strategic Road Network
TCC	Temporary Construction Compound
TEN-T	Trans-European Transport Network
TII	Transport Infrastructure Ireland
TJB	Transition Joint Bay
TP	Travel Plan
TTA	Traffic and Transport Assessment
WWTP	Waste Water Treatment Plant

6 Traffic and Transportation

6.1 Introduction

6.1.1 This chapter presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of the construction, operation and maintenance, and decommissioning phases associated with the onshore infrastructure of the proposed Dublin Array Offshore Wind Farm (hereafter referred to as Dublin Array) upon onshore traffic and transport.

6.1.2 The onshore infrastructure comprises the proposed Operations and Maintenance (O&M) Base at Dún Laoghaire Harbour and the Onshore Electrical System (OES) comprising the Landfall Site, Onshore Export Cable Route (onshore ECR), Onshore Substation (OSS) and grid connection. All are described in full in Volume 2, Chapter 6: Project Description (hereafter referred to as the Project Description Chapter).

6.1.3 Specifically, this chapter considers impacts on receptors above the High Water Mark (HWM). Impacts on shipping are considered in Volume 3, Chapter 10: Shipping and Navigation (hereafter referred to as the Shipping and Navigation Chapter) and impacts on aviation are considered in Volume 3, Chapter 3.12: Aviation and Radar (hereafter referred to as the Aviation and Radar Chapter).

6.1.4 The chapter describes the scope, relevant legislation, assessment methodology, and the current baseline conditions within a study area defined in Section 6.4. It considers any potential significant environmental effects the proposed development would have on this baseline environment; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed. Cumulative traffic and transportation effects with other proposed developments that may also have an impact on these sensitive receptors are also considered.

6.1.5 This Environmental Impact Assessment Report (EIAR) chapter should be read in conjunction with the following documents included within the EIAR, due to interactions between the technical aspects:

- Volume 6, Appendix 6.5.6-1: Traffic and Transportation Technical Baseline Report (hereafter referred to as the Traffic and Transportation Technical Baseline Report);
- Volume 5, Chapter 5: Noise and Vibration (hereafter referred to as the Noise and Vibration Chapter) which assesses noise effects arising from changes in traffic flows; and
- Volume 5, Chapter 10: Air Quality (hereafter referred to as the Air Quality Chapter) which assesses air quality effects arising from changes in traffic flows.

6.2 Regulatory background

6.2.1 A review of the national, regional, and local planning policy and guidance relevant to this Chapter is summarised in Table 1 :

Table 1 Policy and guidance

Policy/Legislation /Publisher	Name/Reference/Key provisions	What is covered/Section where provision is addressed
Statutory		
Source	**Name and reference**	**What the guidance covers**
Irish Statute Book (2018) S.I. No. 296 of 2018	European Communities (Planning and Development) (Environmental Impact Assessment) Regulations. https://www.irishstatutebook.ie/eli/2018/si/296/made/en/print?q=296	Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011, as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014
Non-Statutory		
Guidelines and technical standards		
Source	**Name and reference**	**What the guidance covers**
Environmental Protection Agency (EPA), 2022	Guidelines on the Information to be Contained in Environmental Impact Assessment Reports Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)	These Guidelines apply to the preparation of all Environmental Impact Assessment Reports undertaken in the State (Ireland)
European Commission (EC), 2017	Environmental impact assessment of projects - Guidance on the preparation of the environmental impact assessment report. https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1	Directive 2011/92/EU as amended by 2014/52/EU)
Department of Housing, Planning and Local Government , 2018	Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. https://www.gov.ie/en/publication/53aee9-guidelines-for-planning-authorities-and-an-bord-pleanala-on-carrying/	Guidelines for Planning Authorities
Transport Infrastructure Ireland (TII) (2014)	Traffic and Transport Assessment (TTA) Guidelines https://www.tiipublications.ie/library/PE-PDV-02045-01.pdf	Provide guidance to assist in: ▪ scoping and conducting studies for TTA particularly areas in proximity to national roads, ▪ defining thresholds at which studies are recommended as part of a planning proposal to minimise the impact of future proposals on the national roads network,

Policy/Legislation /Publisher	Name/Reference/Key provisions	What is covered/Section where provision is addressed
		▪ Contributing the provision of sustainable forms of development and better-informed planning decisions. Where relevant the methodology set out in Section 6.4 and 6.5 follows the guidance
IEMA, (2023)	Institute of Environmental Management and Assessment (IEMA) 'Environmental Assessment of Traffic and Movement' (IEMA, July 2023), and other departmental design standards IEMA - New IEMA Guidance: Environmental Assessment of Traffic and Movement	Guidance on the assessment of traffic and transportation effects arising from project developments. Where relevant the methodology set out in Section 6.4 and 6.5 follows the guidance
TII (2012), Spatial Planning and National Road, 2012	Transport Infrastructure Ireland (TII), Spatial Planning and National Road, Guidelines for Planning Authorities (January 2012)	Future baseline traffic forecasts which are used in Section 6.6.
Eastern and Midland Regional Assembly (EMRA) (2019)	Regional Spatial & Economic Strategy (RSES)	Strategic plan which identifies regional assets, opportunities and pressures for the EMRA. Provides appropriate policy responses in the form of Regional Policy Objectives Future baseline traffic forecast in Section 6.7

6.3 Consultation

6.3.1 Consultation was undertaken with the following bodies in respect of Traffic and Transportation. Relevant responses are included in Table 2.

Table 2 Summary of consultation relating to Traffic and Transportation.

Date	Body consulted with	Consultation and key issues raised	Section where provision is addressed
Informal consultation			
2019 to 2024	Dún Laoghaire Rathdown County Council (DLRCC)	Engagement with DLRCC to determine the acceptability of various route options which were considered for the onshore ECR between the Landfall site and the proposed OSS at Ballyogan. DLRCC provided feedback to these options particularly where it acted as a landowner providing technical feedback to Dublin Array on the acceptability of route options.	Traffic and transportation infrastructure referenced in Section 6.6 Receiving Environment
Scoping responses			
9th November 2020	Transport Infrastructure Ireland (TII) – Scoping Response	TII commented that in regards to the onshore cable route, the scoping report indicates: ▪ The cables and the whole electrical transmission system will be built to EirGrid specifications. ▪ The scenarios potentially interact with TII existing networks at the N11, and M50 ▪ That trenchless installation methodologies will be required for national roads (N/M11 and M50); ▪ Interaction with the Luas Green Line. TII advises that there will be requirement for a trenchless installation methodology.	As set out in the Project Description Chapter, the Applicant is proposing Horizontal Directional Drilling (HDD) under the N11 and M50 which will avoid any direct impacts on these roads. The only Luas crossing will be along a stretch of the R118 in Cherrywood where the road crosses under the Luas which is running on a flyover at this point.
		TII commented that no reference is made to the following: ▪ Investigation of alternatives to the provision of cable routing along or through national roads and Luas Green Line, such as alternative routing or the laying of cabling in private lands. ▪ As indicated above there is a requirement for the	As above, crossings of national roads will be using trenchless technology. A full project description of the onshore infrastructure is set out in the Project Description Chapter.

Date	Body consulted with	Consultation and key issues raised	Section where provision is addressed
		interaction with the Luas Green Line to require a special installation methodology.	
		TII suggested that in relation to cabling and potential connection routing in general, the scheme promoter should note locations of existing and future national road schemes, Luas lines and develop proposals to safeguard proposed road schemes impacted.	All road schemes affecting the study area are referenced in Section 6.6 receiving environment
		TII commented that the cable routing should also avoid all impacts to existing TII infrastructure such as traffic counters, Overhead Contact System (OCS) signals, weather stations, etc., and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII, any costs attributable shall be borne by the applicant/developer.	None of the proposed onshore infrastructure will impact existing TII infrastructure
		TII suggested that the developer should also be aware that separate approvals and specific technical solutions will be required for works traversing the Luas network, national road network and motorway network if it is deemed necessary to proceed.	Noted. Further approvals required are set out in the Project Description Chapter.
		TII commented that consultations should be had with the relevant local authorities with regard to locations of existing and future national road schemes.	Extensive consultation has been undertaken with DLRCC during the evolution of the design of the onshore infrastructure as presented in the Project Description Chapter.
		TII suggested a consultation with the relevant authorities regarding the M50 Dublin Port South Access	This comment is no longer relevant as Dublin Array is no

Date	Body consulted with	Consultation and key issues raised	Section where provision is addressed
		Scheme in the Poolbeg area, which has progressed through pre-appraisal in accordance with the requirements of Project Ireland 2040 National Development Plan by TII, National Transport Authority, and Dublin City Council. Work is currently ongoing on a feasibility/scoping study for the project.	longer proposing the use of Poolbeg/Dublin Port for OSS and landfall location.
		TII highlighted that reference to the long term protection of the Eastern Bypass in the Transport Investment Priorities of the Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region and in the NTA Transport Strategy for the Greater Dublin Area 2016-2035. They also recommend that the requirements in the TII's Dublin Eastern Bypass Corridor Protection Study Sector A: Dublin Tunnel to Sandymount Strand 2014 and Dublin Eastern Bypass Corridor Protection Study Booterstown to Sandyford 2011 need to be referred to and considered as part of this EIAR process.	This comment is no longer relevant as Dublin Array is no longer proposing the use of Poolbeg/Dublin Port for OSS and landfall location
		TII commented that they are specifically concerned about potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development, and take into account that it would be important that where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a TTA be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with	A Traffic and Transportation Assessment (TTA) has been undertaken and is presented in this Chapter of the EIAR. As set out in Section 6.4 Methodology the approach adopted in this assessment follows the scope set out in the Traffic and Transportation Guidelines (2014) together with a number of other relevant guidelines for undertaking EIA

Date	Body consulted with	Consultation and key issues raised	Section where provision is addressed
		reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's TTA Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the NRA/TII/TTA Guidelines which addresses requirements for sub-threshold TTA.	and in relation to the environmental assessment of traffic and movements. Refer to Section 6.4 for full details.
		TII requested that the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licenses may be required in connection with the proposed haul route, including where temporary modification to the road network may be required. Liaison with relevant Public-Private Partnership (PPP) Companies and MMaRC Contractors may also be required. All structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.	All construction access routes are presented in this Chapter in Section 6.4.
		TII stated that where proposed works impact national road structures, consultation with TII Structures will be required and all works shall comply with TII Publications and Technical Acceptance requirements included in TII Publications DN-STR-03001.	No national road structures will be directly impacted by the onshore infrastructure.

Date	Body consulted with	Consultation and key issues raised	Section where provision is addressed
		TII requested that the designers are asked to consult TII Publications to determine whether a Road Safety Audit is required.	The Dublin Array onshore infrastructure does not meet the criteria requiring a separate Road Safety Audit to be undertaken. Notwithstanding, road safety has been included within the scope of this assessment and is addressed in Section 6.9.
		TII commented that the developer, in conducting the Scheme assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for environmental factors and occurrences. In particular; TII Publications (formerly Design Manual for Roads and Bridges (DMRB) and the Manual of Contract Documents for Road Works); TII's Environmental Assessment and Construction Guidelines, including the Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (National Roads Authority (NRA), 2006); and the Environmental Noise Regulations 2006 (SI 140 of 2006, Government of Ireland (2006)) and, in particular, how the development will affect future action plans by the relevant competent authority, the developer may need to consider the incorporation of noise barriers to reduce noise impacts (see Guidelines for the Treatment of Noise and Vibration in National Road Schemes (1st Rev., NRA, 2004)).	The Traffic and Transportation Assessment has been undertaken in accordance with these guidelines. However, note that separate noise and vibration and air quality assessments have been undertaken (Noise and Vibration Chapter and Air Quality Chapter respectively). A noise assessment of the proposed development has been undertaken and is included in Noise and Vibration Chapter. Air Quality is addressed in the Air Quality Chapter.

6.4 Methodology

6.4.1 The assessment of traffic and transportation impacts has been undertaken with reference to the following key guidance documents:

- Environmental Protection Agency (EPA) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022);
- Transport Infrastructure Ireland (TII), Traffic and Transportation Assessment Guidelines – PE-PDV-02045, May 2014;
- IEMA Guidelines: (2023), Environmental Assessment of Traffic and Movements (hereafter referred to as 'the IEMA Guidelines'); and
- Highways England (2019) Design Manual for Roads and Bridges (DMRB), LA 112 Population and Human Health.

6.4.2 The EPA Guidelines set out the obligations of developers when preparing EIARs and emphasise the importance of the methods used when preparing an EIAR to ensure that the information is "*adequate and relevant".* The TII Guidelines provide a framework which ensures that the proposed development "*promote a more efficient use of investment in transportation infrastructure, reduce travel demand and promote road safety.*"

6.4.3 The IEMA Guidelines have recently been updated. While the new document considers the same effects, broadly; the 2023 Guidelines provide some changes to the method of assessment in that it has a greater focus on applying professional judgement than simply applying rigorous percentage impact thresholds.

Study area

6.4.4 The study area for this assessment includes a series of roads that will be impacted by the transportation of construction materials, the movement of construction staff, the operation and maintenance, and decommissioning of the onshore infrastructure. The study area includes:

Onshore Electrical System

Landfall

- National Roads: M50 and N11/M11;
- Regional Roads: R837 Dublin Road and R119 Shanganagh Road; and
- Local Roads: Rathsallagh Drive and Shanganagh Cliffs.

Onshore ECR

- National Roads: M50 and M11/N11;
- Regional Roads: R118 Wyattville Road, R837 Dublin Road and R119 Shanganagh Road, R119 Killiney Hill Road; and
- Local Roads: Ballyogan Road, Glenamuck Road North, Glenamuck Road South, Carrickmines Luas Park & Ride (P&R), Grand Parade, Glenamuck Road, Achill Road, Gleanntan, Loughlinstown Drive, Cherrywood, Cherrywood Avenue, Clifton Park, Bayview Crescent, Bayview Glen, Bayview Glade, Bayview Drive, Shanganagh Cliffs, Rathsallagh Drive, Old Glenamuck Road, Leopardstown Access Road, and Golf Lane.

OSS

- National Roads: M50; and
- Local Roads: Ballyogan Road and Glenamuck Road North;

O&M Base

- National Roads: M50, N11 and N31
- Regional Roads: R119 Monkstown Road, R119 Cumberland Street and R119 York Road; and
- Local Roads - Harbour Road.

6.4.5 As the majority of construction, operation and maintenance and decommissioning phase traffic will be restricted to these roads the wider network has been excluded from this assessment.

6.4.6 In addition, the study area (section 6.4.4) also includes active travel routes that could be impacted by the works. Such routes include those that might be crossed by the open cut trenching to install the onshore ECR, locations for the construction vehicular access (temporary or permanent), the Temporary Construction Compounds (TCC) or haul roads for the onshore ECR. Active travel routes are also considered where they may be indirectly impacted, such as those where access could be restricted due to adjacent work activities for example.

Baseline data

6.4.7 A number of baseline data sources (existing and new) have been used to inform this Chapter. The data sources which are described in detail in the Traffic and Transportation Technical Baseline Report, have been discussed and are summarised below:

- A desktop appraisal of the traffic and transport aspects of the study area;
- Annual Average Daily Traffic (AADT) flows and speeds for the National Primary Network (TII Road Statistics);

- All-Terrain Routes (ATR) maps (Global Positioning System (GPS) Cycle and Walking Routes);
- Existing cycle facilities (National Transport Authority); and
- Collision data for the local road network (LRN) within the study area (Dún Laoghaire-Rathdown County Council/Road Safety Authority (RSA)).

6.4.8 New baseline data has been collected to inform this Chapter. The first set of data was collected in May 2023 using Automatic Traffic Counter (ATC) tubes at two locations and digital turning count surveys commissioned for eight locations. Digital count surveys were used where it was considered a tubed counter would not be effective in filtering Public Service Vehicles (PSVs) along the local access routes and links within the LRN that will be crossed by the onshore ECR.

6.4.9 In September 2023, a further four locations were surveyed and in September 2024, a further eight locations were surveyed. All of the surveyed locations are included in Table 3.

6.4.10 The locations are shown in Figure 1.

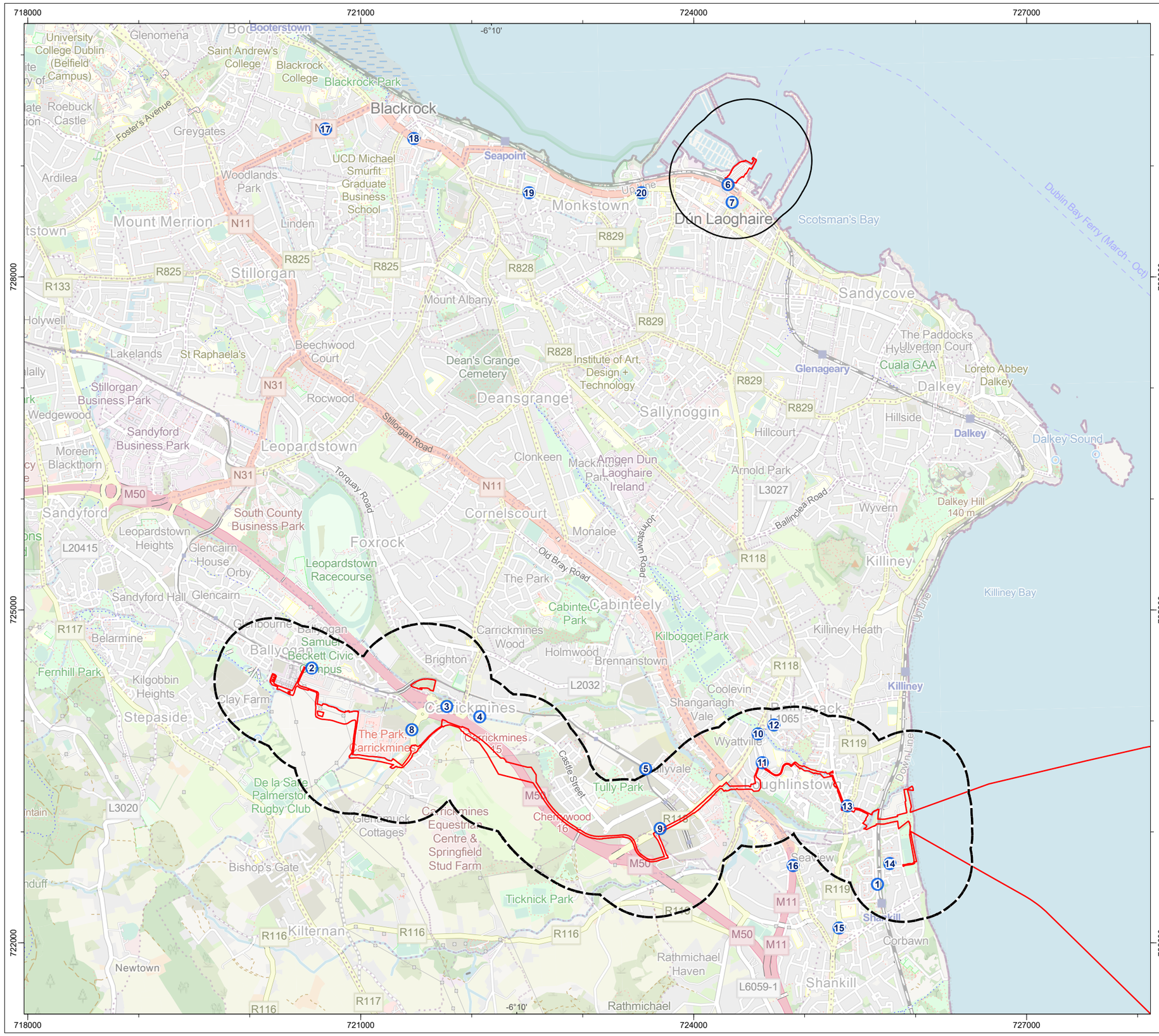
Table 3 Survey locations

Survey type and date	Location	Survey location ref	Link type
ATC (May 2023)	Rathsallagh Drive	1	Construction, Operation and Maintenance access to the Landfall and construction access to the proposed TCC at Clifton Park.
ATC (May 2023)	Ballyogan Road	2	Construction, Operation and Maintenance access to the OSS.
ATC (Sept 2023)	R842 Link Road Between M50 J15 and Glenamuck Road North	3	Construction and Operational access to the OSS/TCC Leopardstown for Staff
ATC (Sept 2023)	Carrickmines Luas P&R Access	4	Road leading on to construction access road and also relevant for workforce trip generation modelling. Data was also collected here to inform the onshore ECR route selection process which is described in Volume 2, Chapter 5 Consideration of Alternatives (hereafter referred to as the Consideration of Alternatives chapter).
ATC (Sept 2023)	Grand Parade	5	Road leading on to onshore ECR. Data was also collected here to inform the routing study described in Consideration of Alternatives chapter. Link is also relevant for workforce trip generation modelling.

Survey type and date	Location	Survey location ref	Link type
ATC (Sept 2023)	N31 Harbour Road	6	Construction, Operation and Maintenance access to the proposed O&M Base.
ATC (Sept 2023)	Marine Road	7	Operational access to the proposed O&M Base.
ATC (Sept 2023)	Glenamuck Road (R842)	8	Construction, Operation and Maintenance access to the onshore ECR
ATC (Sept 2023)	R118 Wyattville Road (westbound between Valley Drive and M50)	9	Construction, Operation and Maintenance access to the onshore ECR
ATC (Sept 2023)	R118 Wyattville Road (between junction of L1065 and N11)	10	Construction, Operation and Maintenance access to the onshore ECR
ATC (Sept 2023)	Loughlinstown Drive	11	Construction, Operation and Maintenance access to the onshore ECR
ATC (Sept 2023)	L1065 Wyattville Road	12	Construction, Operation and Maintenance access to the onshore ECR
ATC (Sept 2023)	Shanganagh Road	13	Construction, Operation and Maintenance access to the onshore ECR
Digital (September 2024)	Shanganagh Cliffs	14	Construction, Operation and Maintenance access to the onshore ECR (Landfall)
ATC (September 2024)	Shanganagh Road	15	Construction, Operation and Maintenance access to the onshore ECR including the Landfall and proposed TCC at Clifton Park. Note the Clifton Park TCC would only be used for construction.
ATC (September 2024)	R837 Dublin Road	16	Construction, Operation and Maintenance access to the onshore ECR including the Landfall and proposed TCC at Clifton Park. Note the Clifton Park TCC would only be used for construction.
TII data	N31 Between Stillorgan Road and Rock Road, Blackrock, Co. Dublin	17	Construction, Operation and Maintenance access to the proposed O&M Base.

Survey type and date	Location	Survey location ref	Link type
Digital (September 2024)	N31 Frascati Road	18	Construction, Operation and Maintenance access to the proposed O&M Base.
ATC (September 2024)	R119 Monkstown Road	19	Construction, Operation and Maintenance access to the proposed O&M Base.
ATC (September 2024)	R119 Cumberland Street	20	Construction, Operation and Maintenance access to the proposed O&M Base.

6.4.11 The ATCs and Closed Circuit Television Camera (CCTV) surveys were installed at relevant locations along local access routes. These are routes that would be used by construction or operational traffic, or routes that would be crossed by the onshore ECR. The associated surveys captured the speed and volumes of traffic.



- Application Site Boundary
- Onshore Electrical System (OES) 500 m Buffer
- Operations and Maintenace Base (O&M Base) 500 m Buffer
- Traffic Survey Locations

DRAWING STATUS

PUBLIC

MAP NOTES / DATA SOURCES:

Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc, and its affiliates, Esri Community Maps contributors, Map layer by Esri ©Ordnance Survey Ireland 2023 © Tailte Eireann. (CYSL50270365) Not to be used for Navigation.

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Traffic Survey Locations

DRAWING NUMBER: **Figure: 1**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
01	2025-02-07	DRAFT	JK	SW	AE
02	2025-01-15	PUBLIC	JK	SW	AE

0 0.3 0.5 0.8 1 Kilometres

0 0.1 0.3 0.4 0.5 Miles

GRID NORTH

SCALE 1:35,000 PLOT SIZE A3

DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW

PRJ IRENET95 Irish Transverse Mercator

SLR

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Desktop appraisal

6.4.12 A desk-based study has been undertaken to identify sources of pre-existing data that will be used to inform the EIA process, as set out in Table 4.

Table 4 Baseline data Sources

Source	Summary
Google Earth	Desktop appraisal of the traffic and transport aspects of the study area
Transport Infrastructure Ireland (TII)	AADT flows for the R119.
National Transport Authority (NTA)	Existing Cycle Facilities
Road Safety Authority (RSA)	Collison Data for the local highway network
Transport For Ireland (TFI)	Public Transport Timetables

6.5 Assessment criteria

6.5.1 The likely significance of the potential effects has been determined by considering the magnitude of change in traffic movements and the sensitivity of the receptors which would be affected by these changes. This has been undertaken in accordance with the IEMA guidance (IEMA, 2023)[1] and standard good practice, based on the experience of the assessor.

6.5.2 The IEMA guidance suggests that a day-to-day traffic flow variation of +/- 10% is to be expected in the baseline situation, and that projected traffic flow increases of less than 10% would be imperceptible to the general public and would create no discernible environmental impact. Therefore, increases in traffic levels of below 10% are considered insignificant.

6.5.3 Based on the updated IEMA guidance, the following impacts have been identified as being the most discernible potential environmental effects likely to arise from changes in traffic movements. These are therefore considered in the assessment as potential effects which may arise from changes in traffic flows resulting from the Dublin Array onshore infrastructure:

- **Severance of Communities** – severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure or separation of people from places and other people;
- **Road vehicle driver delay** – traffic delays to non-development traffic which may occur at various locations depending on the type and scale of development;
- **Pedestrian and non-motorised user delay** – possible delays and increased severance to non-motorised users of the roads affected, predominantly related to the crossing of roads;

[1] Institute of Environmental Management and Assessment of Traffic and Movement (2023)

- **Non-motorised user amenity** – the impact to the 'pleasantness' of a journey. This includes pedestrian fear and intimidation. The extent of any fear and intimidation experienced is dependent on changes to the volumes of traffic, the level of Heavy Goods Vehicles (HGVs) and the speed of vehicles;
- **Road safety** – the potential effect on road users, but in particular vulnerable users of the road (e.g. pedestrians/cyclists); and
- **Hazardous/large loads** – the potential effect on road users and local residents caused by an increase to the number of hazardous and large loads, to include the movement of Abnormal Indivisible Loads (AILs).

6.5.4 Criteria for the determination of sensitivity (e.g. 'high', 'medium', or 'low') or of importance (e.g. 'international', 'national', 'regional', or 'authority area') have been established based on prescribed guidance, legislation, statutory designation and/or professional judgement.

6.5.5 The significance of the likely effect has been determined by consideration of the sensitivity of receptors to change, are they able to adapt and recover from the effects, taking account of the specific issues relating to the study area, and then the magnitude of that change.

6.5.6 The potential sensitivity of receptors to changes in traffic levels has been determined by considering the study area and the presence of receptors in relation to each potential impact.

6.5.7 The IEMA guidelines suggest two thresholds when considering predicted increase in traffic, whereby a full assessment of the impact is required:

- Include highway links where traffic flows will increase more than 30% (or the number of heavy goods vehicles will increase by more than 30%): and/or
- Include highway links of high sensitivity where traffic flows have increased by 10% or more.

6.5.8 The IEMA (2023) guidelines are intended for the assessment of environmental effects of major new developments, as opposed to short-term construction. Where existing traffic levels are generally low (e.g. rural roads and some unclassified roads), any increase in traffic flow may result in a predicted increase that would be higher than the IEMA (2023) guideline thresholds. In these situations, it is important to consider any increase in terms of overall traffic flow in relation to the capacity of the road, before making a conclusion on whether the effect is significant as defined under the EIA Regulations.

6.5.9 Any change in traffic flow which is greater than the thresholds set out in the IEMA (2023) guidelines would be subject to additional mitigations. The magnitude of potential impacts will be identified through consideration of receptor sensitivity against the degree of predicted change to baseline conditions, the duration and reversibility of this change, considered with professional judgement.

Sensitivity of receptor criteria

6.5.10 Each receptor has been assessed individually to determine its sensitivity and the criteria used to define sensitivity are shown in Table 5. The ability of a receptor to adapt to change, tolerate the impacts or recover from the impacts is key in assessing its vulnerability to the impact.

Table 5 Receptor sensitivity

Receptor sensitivity	Definition
Very High	**Adaptability:** The receptor cannot avoid or adapt to an impact. **Tolerance:** The environment has no capacity to accommodate the proposed form of change. **Recoverability:** The receptor has no ability to recover from an impact. **Value:** The receptor is designated for international importance (e.g. Trans-European Transport Network (TEN-T) and/or very high socio-economic value." Receptor with no capacity to accommodate a particular effect and no ability to recover or adapt.
High	**Adaptability:** The receptor may have limited ability to avoid or adapt to an impact. **Tolerance**: The environment has low capacity to accommodate the proposed form of change. **Recoverability:** The receptor has limited ability to recover from an impact. **Value:** The receptor is designated for national importance (e.g. motorway or National road) and/or high socio-economic value. Receptor with very low capacity to accommodate a particular effect with low ability to recover or adapt.
Medium	**Adaptability**: The receptor may have some ability to avoid or adapt to an impact. **Tolerance**: The environment has some capacity to accommodate the proposed form of change. **Recoverability**: The receptor has limited ability to recover from an impact. **Value:** The receptor is designated for regional importance (e.g. Regional road) and/or moderate socio-economic value. Receptors with low capacity to accommodate a particular effect with low ability to recover or adapt.
Low	**Adaptability**: The receptor has significant ability to avoid or adapt to an impact. **Tolerance:** The environment has high capacity to accommodate the proposed form of change. **Recoverability**: The receptor has strong ability to recover from an impact. **Value**: The receptor is designated for local importance (e.g. Local road) and/or low socio-economic value. Receptor has some tolerance to accommodate a particular effect or will be able to recover or adapt.
Negligible	**Adaptability**: The receptor has extremely high ability to avoid or adapt to an impact. **Tolerance**: The environment has very high capacity to accommodate the proposed form of change.

Receptor sensitivity	Definition
	Recoverability: The receptor has excellent ability to recover from an impact. **Value:** The receptor is of minimal importance and/or negligible socio-economic value. Receptors are generally tolerant and can accommodate a particular effect without the need to recover or adapt.

6.5.11 For the assessment of potential community severance and driver delay associated with the use of open cut trenching as a construction method, the sensitivity of each link has been based on professional judgement and identified based on the following:

- The strategic importance of the highway/road hierarchy;
- The existing types of users of the road; and
- The availability of suitable alternative routes.

Magnitude of impact criteria

6.5.12 The magnitude of an impact is based on a range of factors. The definitions provided in Table 6 are for guidance only and may not be appropriate for all impacts. For example, an impact may occur in a very small area but at very high intensity for a long period of time. In such cases expert judgement is used to determine the most appropriate magnitude ranking and this is explained as part of the assessment.

Table 6 Magnitude of the impact

Magnitude	Definition
Major (High)	The impact is very likely to occur or will occur frequently. The impact occurs over a large area, resulting in widespread changes to the baseline. These changes are long term or permanent and affect a large percentage of the receptor population. **Extent:** Impact across the near-field and far-field areas beyond the study area within a geographic area e.g. City of Dublin. **Duration:** The impact is anticipated to begin in 2025 and to be permanent (i.e. over 60 years). **Frequency:** The impact will occur constantly throughout the relevant project phase. **Probability:** The impact can reasonably be expected to occur.
Medium	The impact is likely to occur or will occur at a moderate frequency. The impact will occur over a local to medium extent resulting in short to medium term changes to the baseline. A moderate percentage of the receptor population will be affected. **Extent**: Impact across the near-field and potentially into the far-field areas within the study area e.g. City of Dublin. **Duration**: The impact is anticipated to begin in 2025 and last for a significant period of time.

Magnitude	Definition
	Frequency: The impact will occur regularly throughout the relevant project phase. **Probability**: The impact is likely to occur, but with some uncertainty.
Minor (Low)	The impact is unlikely to occur and will be localised, temporary or short term in nature. Change to baseline will be detectible and will affect a small percentage of the receptor population. **Extent:** Limited impact primarily within the near-field areas of the study area e.g. areas of south Dublin such as Shankill, Ballyogan and Dun Laoghaire. **Duration**: The impact is anticipated to begin in 2025 but will be temporary, lasting for a shorter period of time. **Frequency:** The impact will occur sporadically or intermittently throughout the relevant project phase. **Probability**: The impact is possible but considered unlikely to occur.
Negligible	The impact is very unlikely to occur, would be localised and short term with slight or imperceptible changes to the baseline. The small receptor population will recover fully. **Extent**: Very limited impact confined to a small area within the near-field of the study area e.g. areas of south Dublin such as Shankill, Ballyogan and Dún Laoghaire. **Duration**: The impact is anticipated to begin in 2025 but will be extremely short-term, lasting for only a brief period. **Frequency**: The impact will occur infrequently or very rarely throughout the relevant project phase. **Probability**: The impact is theoretically possible but highly unlikely to occur in reality.

Defining the significance of effect

6.5.13 Sensitivity and magnitude of change as assessed under the criteria detailed above have then been considered collectively to determine the significance of effect, as described in Table 7. The collective assessment is a considered assessment by the assessor, based on the likely sensitivity of the receptor to the change (e.g. is a receptor present which would be affected by the change), and then the magnitude of that change. Effects of 'major' and 'moderate' significance are considered to be 'significant' in terms of the EIA Regulations and additional mitigations may be required.

Table 7 Significance of potential effects

Sensitivity of receptor	Magnitude of impact				
	No Change	Negligible	Minor (Low)	Medium	Major (High)
Negligible	Negligible	Negligible	Negligible	Negligible	Minor
Low	Negligible	Negligible	Minor	Minor	Moderate (Significant)
Medium	Negligible	Minor	Minor	Moderate (Significant)	Major (Significant)
High	Negligible	Minor	Moderate (Significant)	Major (Significant)	Major (Significant)
Very High	Negligible	Minor	Major (Significant)	Major (Significant)	Major (Significant)

6.6 Receiving environment

6.6.1 A technical report has been prepared to provide a detailed characterisation of the receiving environment – see Traffic and Transportation Baseline Report. A review of the key findings from that study has been incorporated into the following description of the receiving environment. This section is not intended to repeat this technical report.

6.6.2 The following section is set out as follows:

- OES;
  - Landfall Site;
  - Onshore ECR including TCCs at Clifton Park and Leopardstown; and
  - OSS and grid connection route;
- O&M Base.

OES

Landfall Site TCC

6.6.3 The following section sets out the proposed construction and operational access route to the Landfall Site. The Landfall Site TCC will be used for the Landfall construction works and will be used for the construction of the onshore ECR. The following section sets out the construction access route to the Landfall Site TCC.

N11

6.6.4 The N11 is a primary road which extends south from Dublin until it meets the N25 at Wexford. In Dublin the N11 is a dual carriageway which extends south from the junction with the N31 Mount Merrion Avenue; the N11 becomes the M11 just to the north of Shankill.

R837 Dublin Road

6.6.5 The R837 Dublin Road is a single carriageway road which links from the N11 at Loughlinstown to the R119 at Shankill. For the most part it features footway provisions on both side of the carriageway, with the exception of a distance of around 200 m at it its northern end, where the footpath is on the eastern side only. R837 Dublin Road is fully illuminated and mostly free of obstructions such as street furniture or vegetation. Pedestrian crossing points along the route are characterised by dropped kerbs and tactile paving.

6.6.6 The road also features a cycle path running both directions which for the most part is located in the main vehicle carriageway, with the exception of the last 100 m at the north end of the road which is grade separated. The road is subject to a speed limit of 50 kph.

6.6.7 A range of frequent bus services can be accessed along the R837 providing connections to various destinations.

R119 Shanganagh Road

6.6.8 The R119 is a single carriageway road which links from the R761 close to Woodbrook College north to Dún Laoghaire and then west towards the N31.

6.6.9 The R119 features footway provisions on both sides of the carriageway on its wider sections towards Shankill and at major junctions along its route. On other sections, footways are provided on only one side of the carriageway. The footways were observed to be well-lit and mostly free of any obstructions from street furniture or vegetative growth. Pedestrian crossing points along the route are characterised by dropped kerbs and tactile paving.

6.6.10 The R119 north of Shankill has no cycle lanes in place and is subject to a speed limit of 50 kph.

6.6.11 A range of frequent bus services can be accessed along the R119 providing connections to various destinations.

Rathsallagh Drive

6.6.12 Rathsallagh Drive is a local road located to the west of the Landfall Site. The road features footways on both sides for most of its length, setback from the carriageway by grass verge. It provides access to Scoil Mhuire Catholic Primary School and a raised table, signalised pedestrian crossing is provided adjacent to the school access. There is also a raised table on the approach to the convenience store. On-street car parking bays are provided on the eastern side of the carriageway, as well as designated bays outside the shop, with on street parking occurring on the western side.

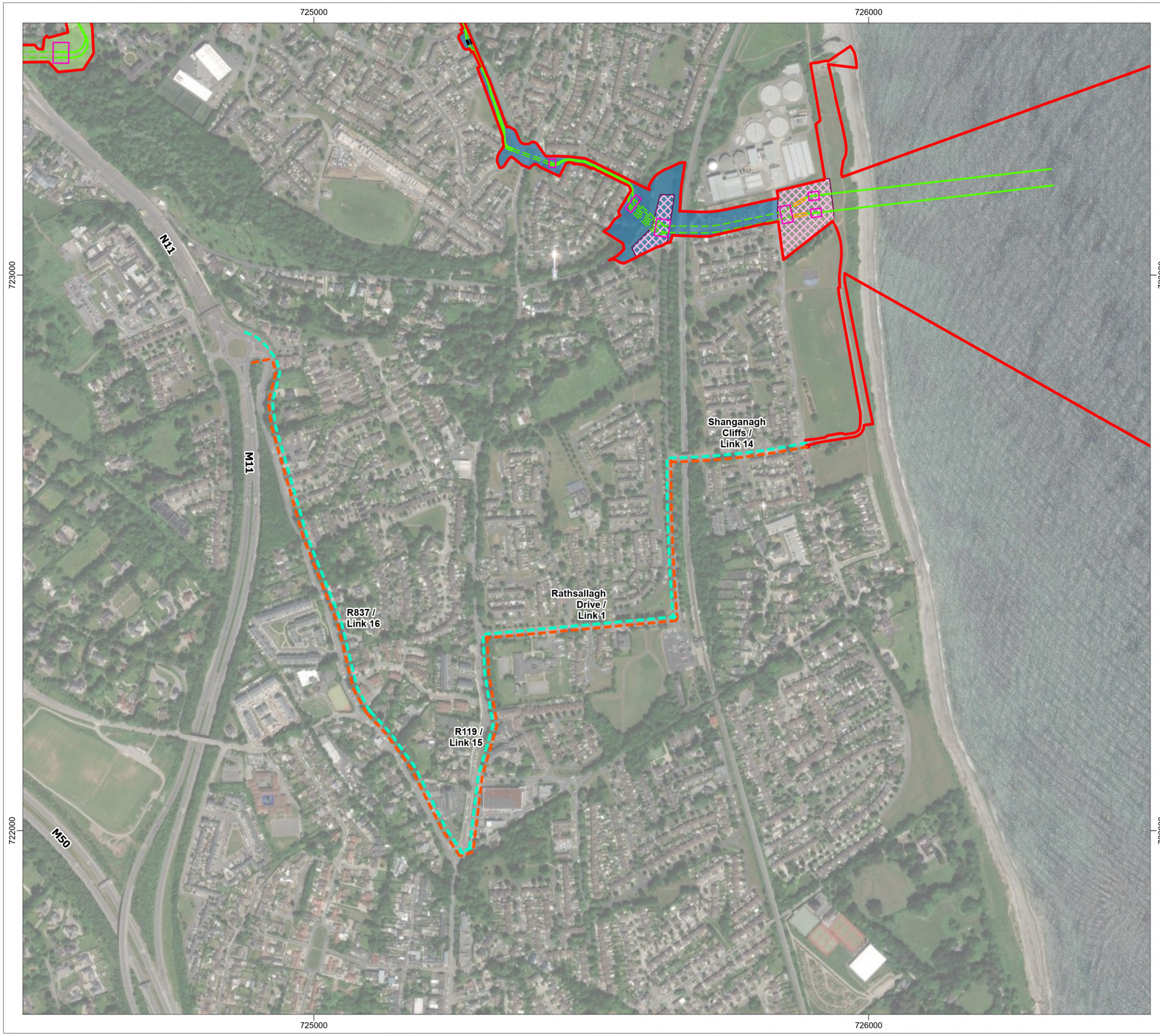
6.6.13 Rathsallagh Drive also provides access to the Shankill Railway Station car park, which has space for 100 vehicles and 40 bicycles. Travelling towards Shanganagh Cliffs, there is traffic calming in the form of build outs and a raised table signalised pedestrian crossing is located just to the south of the junction with Shanganagh Cliffs.

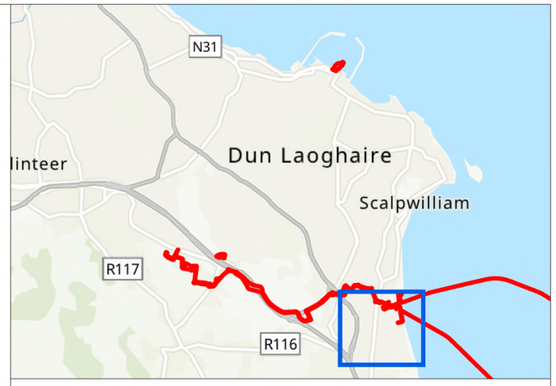
6.6.14 A bus route and local bus service 45B also utilises this road, with a bus stop being provided within the vicinity of the railway station.

Shanganagh Cliffs

6.6.15 Shanganagh Cliffs is a residential street close to the coast on the eastern side of Dublin. It provides access to a number of residential streets, to Shanganagh Waste Water Treatment Plant (WWTP) and the football pitches which abut the residential estate. Shanganagh Cliffs features footway provisions on both sides of the carriageway with a grassed buffer in between footway and carriageway. The footways integrate with existing footpaths within the area.

6.6.16 Access to the Landfall Site is shown on Figure 2.





- Application Site Boundary

Onshore Electrical System (OES) Design

- TJB
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (trenchless)
- Onshore Export Cable Route (trenched)
- Temporary Construction Compound (TCC)

Export Cable Route (ECR) Sector

- Sector 1
- Sector 2

Construction Access Route (CAR)

- CAR Into Site
- CAR Out Of Site

DRAWING STATUS

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MAP NOTES / DATA SOURCES:

Maxar, Microsoft, Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Landfall Access/Links

DRAWING NUMBER: **Figure: 2**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
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02	2025-01-15	PUBLIC	JK	SW	AE

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SCALE 1:7,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CD/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

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Onshore ECR

6.6.17 The following section sets out the road network followed or crossed by the onshore ECR. The onshore ECR is broken down into 7 sectors as presented in Table 8.

6.6.18 The onshore ECR will cross under significant transport networks and watercourses using trenchless techniques (HDD or similar) to avoid disruption. There are eight trenchless crossing (TX) locations along the onshore ECR identified as TX-01 to TX-08 for ease of reference. These are described in full in the Project Description Chapter. The trenchless crossings which will cross highways links are included in Table 8 below.

Table 8 Onshore ECR Sectors

Onshore ECR sector	Highway links followed or crossed by the Onshore ECR	Road classification
Sector 1	Bayview Glen	Local
	Bayview Crescent leading to Bayview Glade	Local
	R119 Shanganagh Road (TX-03)	Regional
	Achill Road	Local
Sector 2	Gleanntan	Local
	Loughlinstown Drive	Local
	Cherrywood	Local
Sector 3	N11 (TX-06)	National
	R118	Regional
Sector 4	R118 (crossing)	Regional
	Beckett Road (construction planned for 2025)	Local
	M50 (TX-07)	National/International
Sector 5	Golf Lane	Local
	Old Glenamuck Road	Local
	R842 Glenamuck Road	Regional
Sector 6	R842 Glenamuck Road	Regional
	Glenamuck District Distributor Road (GDDR) (under construction) (TX-08)	Regional
Sector 7	N/A	N/A
*N/A (Not applicable) represents sectors which do not cross highway links		

Sector 1

6.6.19 Sector 1 initially starts at the Landfall Site at Shanganagh, before crossing underneath the Shanganagh Community Gardens and Dublin/Wexford railway line (by means of trenchless installation – see full description of these crossings in Project Description Chapter), the greenspace area at Clifton Park will support the onshore ECR as one of the three main TCC sites before crossing underneath Shanganagh River (via trenchless installation).

6.6.20 Beyond this the onshore ECR will run along the residential street **Bayview Crescent**. The residential road has footways on both sides, is subject to street lighting and accommodates on-street parking. Various private driveways gain access directly from the road. At its northern end Bayview Crescent leads on to **Bayview Glade**. The onshore ECR will be installed within the road carriageway of Bayview Glen and Bayview Crescent by standard open-cut trenching techniques. Temporary traffic management measures, as set out in the Construction Environmental Management Plan (CEMP) will be adopted during construction works.

6.6.21 At Bayview Glade, the onshore ECR then crosses underneath the roundabout with the **Killiney Hill Road/Shanganagh Road** which sits on the R119 and proceeds north- west adjacent to the road in the grass verge and pedestrian path. The onshore ECR will not directly affect the carriageway of Shanganagh Road and has been routed to avoid disruption to the flow of the road.

6.6.22 R119 Shanganagh Road is a single carriageway road which links south County Dublin and north County Wicklow with Dún Laoghaire. The road features footway provisions on both sides of the carriageway on its wider sections towards Shankill and at major junctions along its route. However, on the section of Shanganagh Road which runs adjacent to the onshore ECR, it only features footway provision on its western side. Pedestrian crossing points along the route are characterised by dropped kerbs and tactile paving.

6.6.23 Shanganagh Road has no cycle lanes in place and is subject to a speed limit of 50 kph. A range of frequent bus services can be accessed along Shanganagh Road.

6.6.24 The onshore ECR will run adjacent to Shanganagh Road for 300 m before proceeding west on to **Achill Road** where it will cross under the Kill o' the Grange Stream and continues west, progressing into Sector 2.

6.6.25 Achill Road is a residential street west of Shanganagh Road branching off the main road to connect with residential area centred around Aran Avenue. Footways are present on both sides of the carriageway. Speed-calming features to enforce a low-speed profile within the street were observed in the form of speed tables. On-street parking is also present. As well as providing access to the residential streets to the west of Shanganagh Road, the road also provides pedestrian access to St Columbanus National School on Loughlinstown Drive.

6.6.26 Temporary traffic management measures, as set out in the CEMP will be adopted along Achill Road during construction works.

Sector 2

6.6.27 Sector 2 continues along the grassed area north of the Kill o' the Grange Stream through Loughlinstown Linear Park to the west of Shanganagh Road, crossing Kill o' the Grange Stream twice before reconnecting with the road network on **Gleanntan**.

6.6.28 Gleanntan is a small 5 m wide residential street which extends to the north of Loughlinstown Drive. There are footways on both sides of the road which also provide links to Loughlinstown Linear Park to the north. Temporary traffic management measures, as set out in the CEMP will be adopted along Gleanntan during construction works.

6.6.29 After running along the carriageway of Gleanntan for 40 m the onshore ECR joins **Loughlinstown Drive** (L1067), running along the carriageway of the road for 360 m. The road provides access to a range of local businesses and services in this area including Ballyowen Meadows School, Loughlinstown Community Rooms and DLR leisure at Loughlinstown. The road also provides access to Cherrywood residential streets to the east of the R118. It has pavements either side which are well lit and is also served by local bus services. Temporary traffic management measures, as set out in the CEMP will be adopted along Loughlinstown Drive during construction works.

6.6.30 Beyond Loughlinstown Drive, the onshore ECR will run along the carriageway of '**Cherrywood**' for 160 m. Cherrywood is a residential street which provides access to a residential area centred around four cul de sacs also known as 'Cherrywood', together with the Eurofound premises to the south of the road. The section of Cherrywood which will be followed by the onshore ECR has a pavement running along its western side. Temporary traffic management measures, as set out in the CEMP will be adopted along Cherrywood during construction works.

6.6.31 Sector 2 ends as the cable route reaches N11.

Sector 3

6.6.32 Sector 3 proceeds underneath the N11 using trenchless technology, ensuring that there is no disruption caused to the functioning of the N11 during the construction of the onshore ECR.

6.6.33 After crossing under the N11, the onshore ECR will route onto Wyattville Road (R118) in the direction of the M50 carriageway. The R118 is a regional road connecting Dún Laoghaire to Junction 16 of the M50 at Cherrywood. This section of the R118 is arranged as a dual carriageway, however the onshore ECR will only be constructed within the southbound carriageway of the R118 for a distance of 690 m.

6.6.34 The R118 features shared footway/cycleway provisions on both sides of the carriageway on most sections including the sections within the vicinity of the onshore ECR. On other sections, a separate provision for pedestrians and cyclists are in place in the form of footways and cycle lanes. Crossing points along the R118 feature staggered toucan crossings equipped with dropped kerbs, tactile paving, and barriers.

6.6.35 A range of frequent bus services run along the R118. These will be interrupted by the cable installation works as the onshore ECR will be constructed within the carriageway. Temporary traffic management measures, as set out in the CEMP will be installed during construction works.

Sector 4

6.6.36 Sector 4 proceeds from Wyattville Road (R118) onto Cherrywood Avenue for approximately 200 m. The onshore ECR route will then be routed along the planned Beckett Road (ducts will be pre-installed as part of the Beckett Road construction therefore no new works are proposed).

6.6.37 From the Mercer Drive junction of Beckett Road, the onshore ECR will continue north parallel to the east of the M50 in private agricultural lands for approximately 250 m.

6.6.38 The onshore ECR will then run underneath the M50 using trenchless technology, ensuring that there is no disruption to the M50. Here the route will connect with Sector 5 at Golf Lane, to the south of the M50.

Sector 5

6.6.39 Sector 5 continues on the 5.5 m wide Golf Lane and Old Glenamuck Road carriageway. Temporary traffic management measures will be installed along Golf Lane and Old Glenamuck Road during construction works to ensure access is maintained to Carrickmines Golf Club, residential properties along the lane and agricultural fields to the south of the M50 at Carrickmines.

6.6.40 After proceeding along Golf Lane and Old Glenamuck Road for 500 m, the onshore ECR will cross the roundabout on Glenmamuck Road by open cut trenching. The roundabout provides access to the Carrickmines Green residential area.

Sector 6

6.6.41 The onshore ECR will proceed to cross the roundabout and travel south along Glenamuck Road South (R842). The onshore ECR continues south on Glenamuck Road South for approximately 40 m where the onshore ECR exits the road to the west entering into a privately owned agricultural land. The onshore ECR will then cross under the GDDR via trenchless techniques. The GDDR is currently under construction and is expected to be completed in advance of the onshore ECR construction.

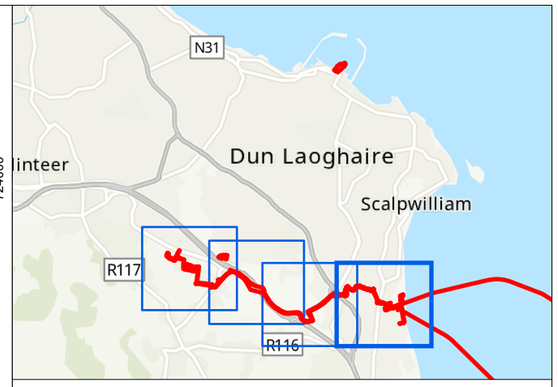
6.6.42 Figure 3 to Figure 6 set out the links directly affected by the construction of the onshore ECR.

Sector 7

6.6.43 The onshore ECR will cross under the GDDR into agricultural fields to the south of the Carrickmines Retail Park and route west along the southern boundary of the Carrickmines Retail Park for approximately 300 m. The cables will be installed using open-cut trenching and will cross two small watercourses.

6.6.44 The onshore ECR will then route north towards the OSS at Jamestown for approximately 320 m. The cables will be located within the extent of the existing access track.

6.6.45 The extent of Sector 7 is defined by the existing fence line.



- Application Site Boundary
- Onshore Electrical System (OES) 500 m Buffer

Onshore Electrical System (OES) Design

- TJB
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Temporary Construction Compound (TCC)
- Highway Link

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PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Local Highway Network followed or crossed by the Onshore ECR

DRAWING NUMBER: **Figure: 3**

PAGE NUMBER: **1 of 1**

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02	2025-01-15	PUBLIC	JK	SW	AE

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SCALE 1:8,000 PLOT SIZE A3

DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW

PRJ IRENET95 Irish Transverse Mercator

SLR

Dublin Array Generation for generations

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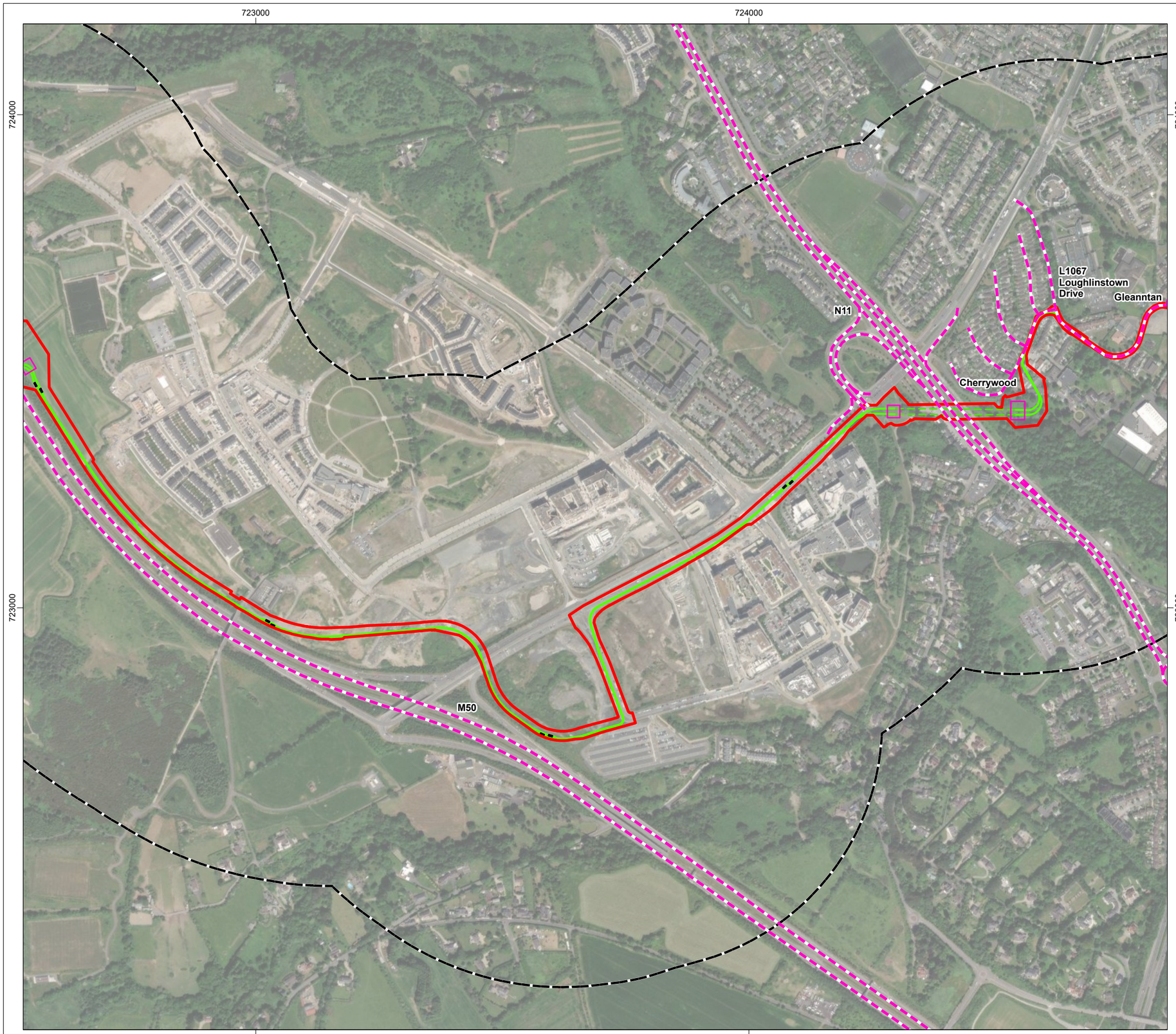

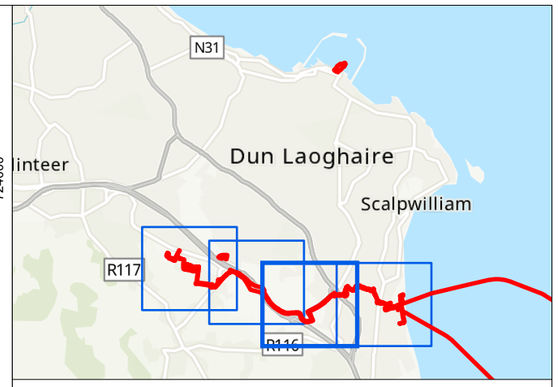

- Application Site Boundary
- Onshore Electrical System (OES) 500 m Buffer

Onshore Electrical System (OES) Design

- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Highway Link

DRAWING STATUS

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PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Local Highway Network followed or crossed by the Onshore ECR

DRAWING NUMBER: **Figure: 4**

PAGE NUMBER: **1 of 1**

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SCALE 1:8,000 PLOT SIZE A3

DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW

PRJ IRENET95 Irish Transverse Mercator

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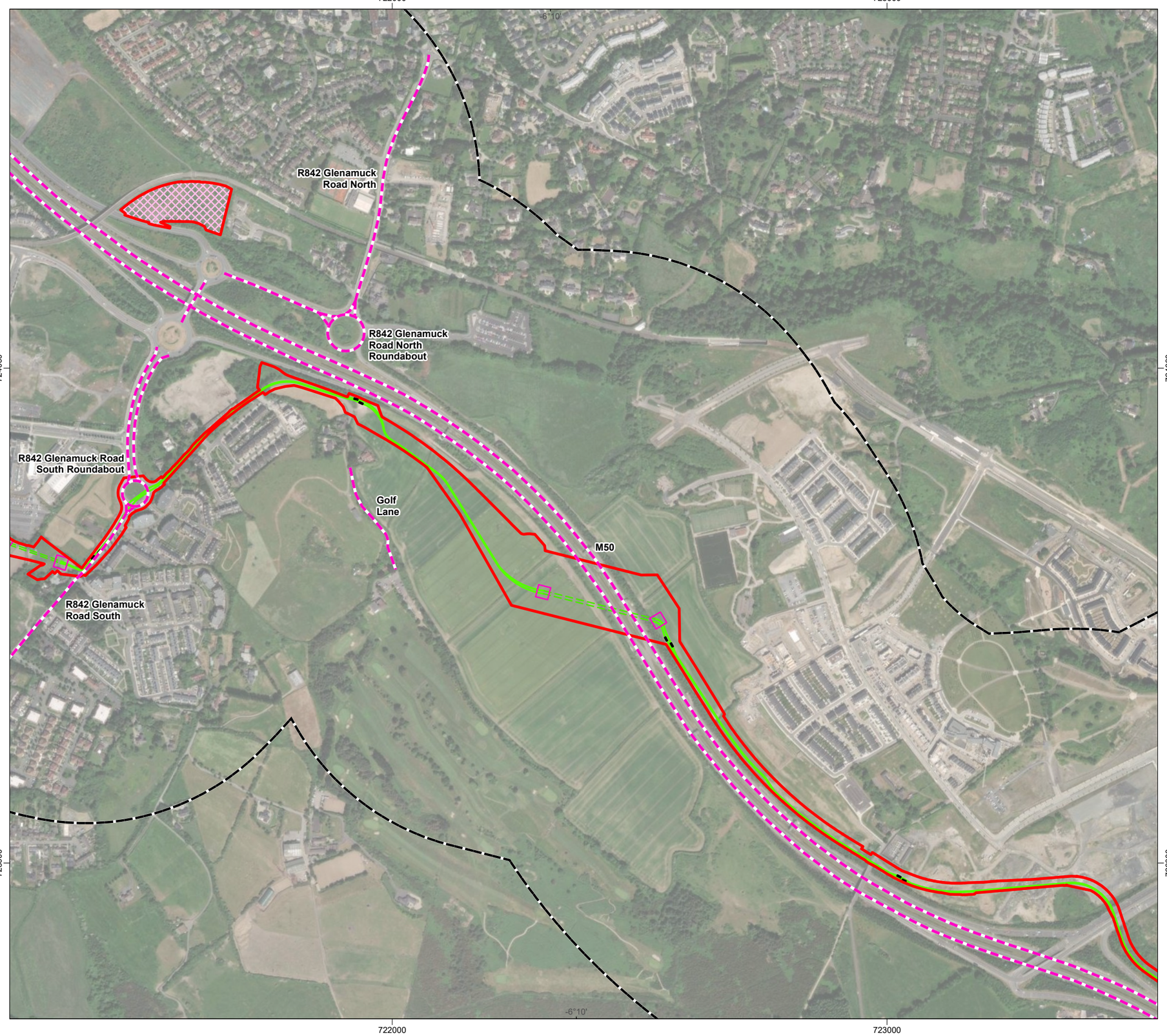

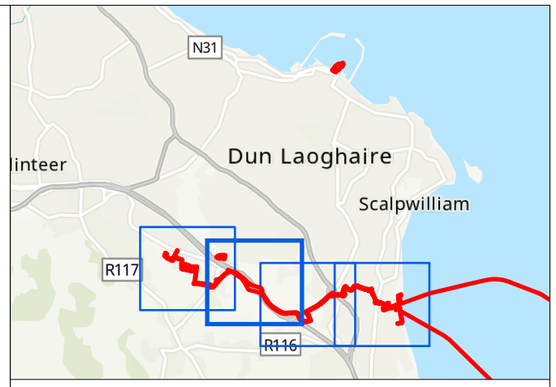

- Application Site Boundary
- Onshore Electrical System (OES) 500 m Buffer

Onshore Electrical System (OES) Design

- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Temporary Construction Compound (TCC)
- Highway Link

DRAWING STATUS

PUBLIC

DISCLAIMER

MAP NOTES / DATA SOURCES:

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Local Highway Network followed or crossed by the Onshore ECR

DRAWING NUMBER: **Figure: 5**

PAGE NUMBER: **1 of 1**

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02	2025-01-15	PUBLIC	JK	SW	AE

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0 200 400 600 800 Feet

GRID NORTH

SCALE 1:8,000 PLOT SIZE A3

DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW

PRJ IRENET95 Irish Transverse Mercator

SLR

Dublin Array Generation for generations

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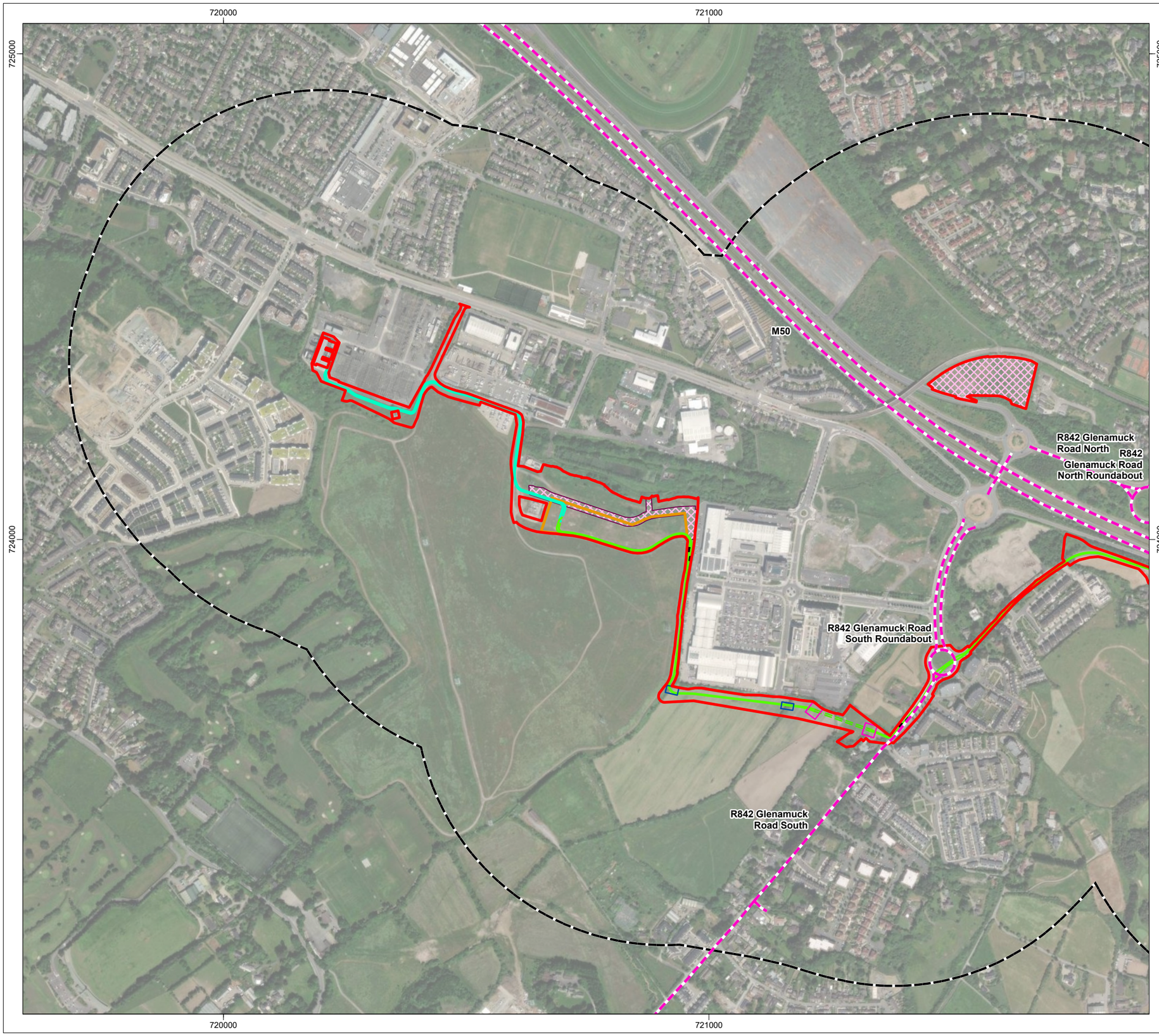

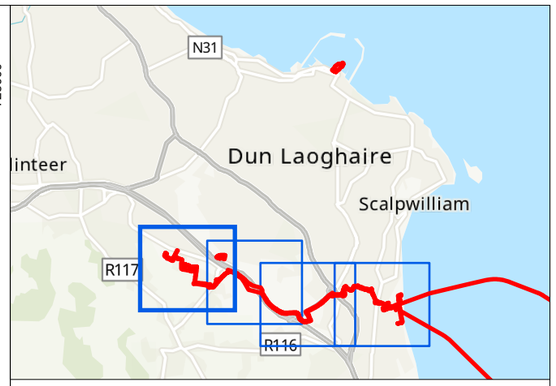

- Application Site Boundary
- Onshore Electrical System (OES) 500 m Buffer

Onshore Electrical System (OES) Design

- Onshore ECR Watercourse Crossing (trenched)
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Grid Connection Cable
- Temporary Construction Compound (TCC)
- Onshore Substation (OSS) Boundary
- Highway Link

DRAWING STATUS

PUBLIC

MAP NOTES / DATA SOURCES:
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PROJECT TITLE

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DRAWING TITLE

Traffic and Transport: Local Highway Network followed or crossed by the Onshore ECR

DRAWING NUMBER: **Figure: 6**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
01	2025-02-07	DRAFT	JK	SW	AE
02	2025-01-15	PUBLIC	JK	SW	AE

0 50 100 150 200 Metres
0 200 400 600 800 Feet

SCALE 1:8,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

SLR

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Temporary Construction Compounds (TCCs)

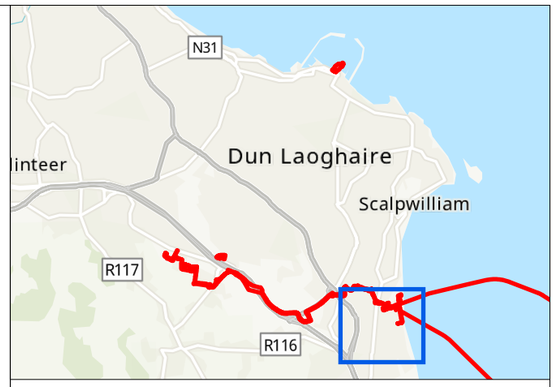
6.6.46 The onshore ECR construction phase will be served by three TCCs which will be set up and used for the duration of the construction works. These will be located at the following locations:

- Landfall Site TCC (this was described earlier in the section 6.6);
- Clifton Park TCC; and
- Leopardstown TCC.

6.6.47 As set out in the Project Description Chapter, construction of the onshore ECR will be undertaken by using these TCCs to move plant, machinery and materials back and forth on a daily basis to sections of the onshore ECR where construction works will be taking place. A full description of the activities to be undertaken at these TCCs is set out in the Project Description Chapter.

Clifton Park TCC

6.6.48 The Clifton Park TCC will be used for the duration of the onshore ECR construction phase. It would be accessed the same way as the Landfall Site i.e. N11/R837 Dublin Road/R119 Shanganagh Road/Rathsallagh Drive. However, instead of using the Shanganagh Cliffs local residential road, the last section of the construction access route would continue along Rathsallagh Drive until the point where it joins Clifton Park. Figure 7 sets out the links that would be used in accessing the Clifton Park TCC.



Application Site Boundary

Onshore Electrical System (OES) Design

- TJB
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (trenchless)
- Onshore Export Cable Route (trenched)
- Temporary Construction Compound (TCC)

Export Cable Route (ECR) Sector

- Sector 1
- Sector 2

Construction Access Route (CAR)

- CAR Into Site
- CAR Out Of Site

DRAWING STATUS

PUBLIC

MAP NOTES / DATA SOURCES:
Maxar, Microsoft, Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Clifton Park TCC Access/Links

DRAWING NUMBER: **Figure: 7**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
01	2025-02-07	DRAFT	JK	SW	AE
02	2025-01-15	PUBLIC	JK	SW	AE

0 50 100 150 200 Metres
0 200 400 600 800 Feet

N GRID NORTH

SCALE 1:7,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

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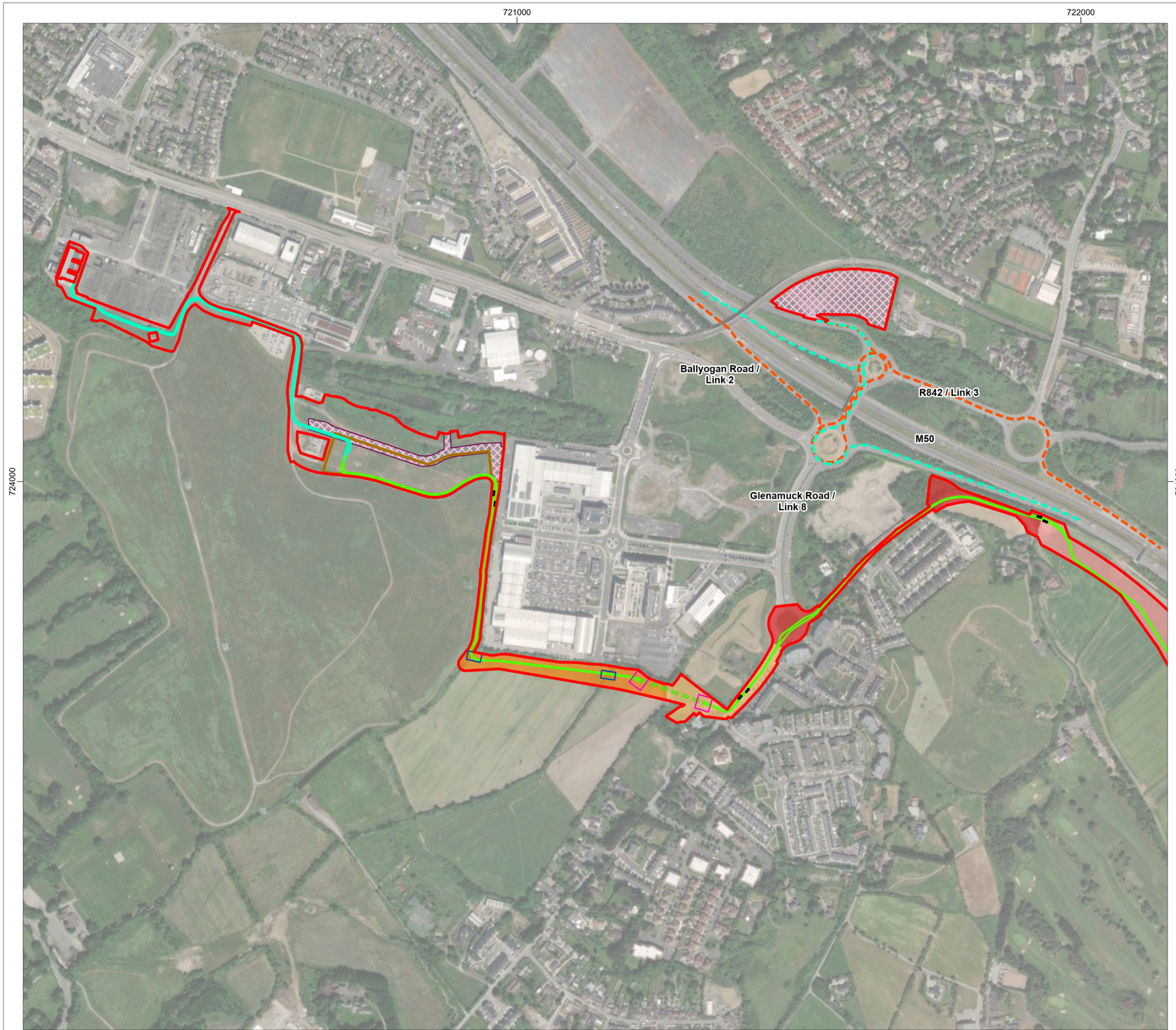
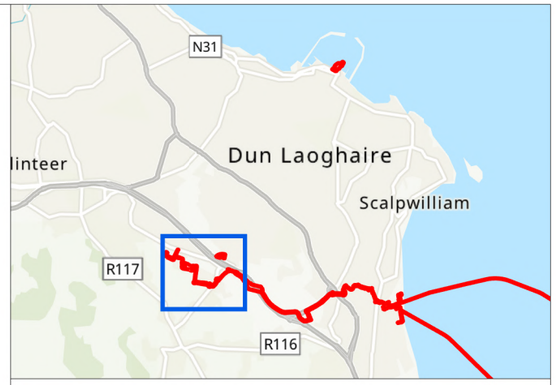
Leopardstown TCC

6.6.49 The Leopardstown TCC will be used for the duration of the onshore ECR construction phase. It would be accessed from Junction 15 of the M50 at Carrickmines. Access would then follow the Leopardstown Access Road. The construction access route to the Leopardstown TCC is set out in Figure 8.





Application Site Boundary

Onshore Electrical System (OES) Design

- Onshore ECR Watercourse Crossing (trenched)
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Grid Connection Cable
- Temporary Construction Compound (TCC)
- Onshore Substation (OSS) Boundary

Export Cable Route (ECR) Sector

- Sector 4
- Sector 5
- Sector 6
- Sector 7

Construction Access Route (CAR)

- CAR Into Site
- CAR Out Of Site

DRAWING STATUS

PUBLIC

DISCLAIMER

MAP NOTES / DATA SOURCES:

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: Leopardstown TCC Access/Links

DRAWING NUMBER: **Figure: 8**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
01	2025-02-17	DRAFT	JK	SW	AE
02	2025-01-15	PUBLIC	JK	SW	AE

0 50 100 150 200 Metres
0 175 350 525 700 Feet

N GRID NORTH

SCALE 1:7,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

SLR

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Onshore Substation (OSS)

6.6.50 The following section sets out the planned access route to the site of the proposed OSS and the temporary construction compound that will be located there to support the construction of the OSS.

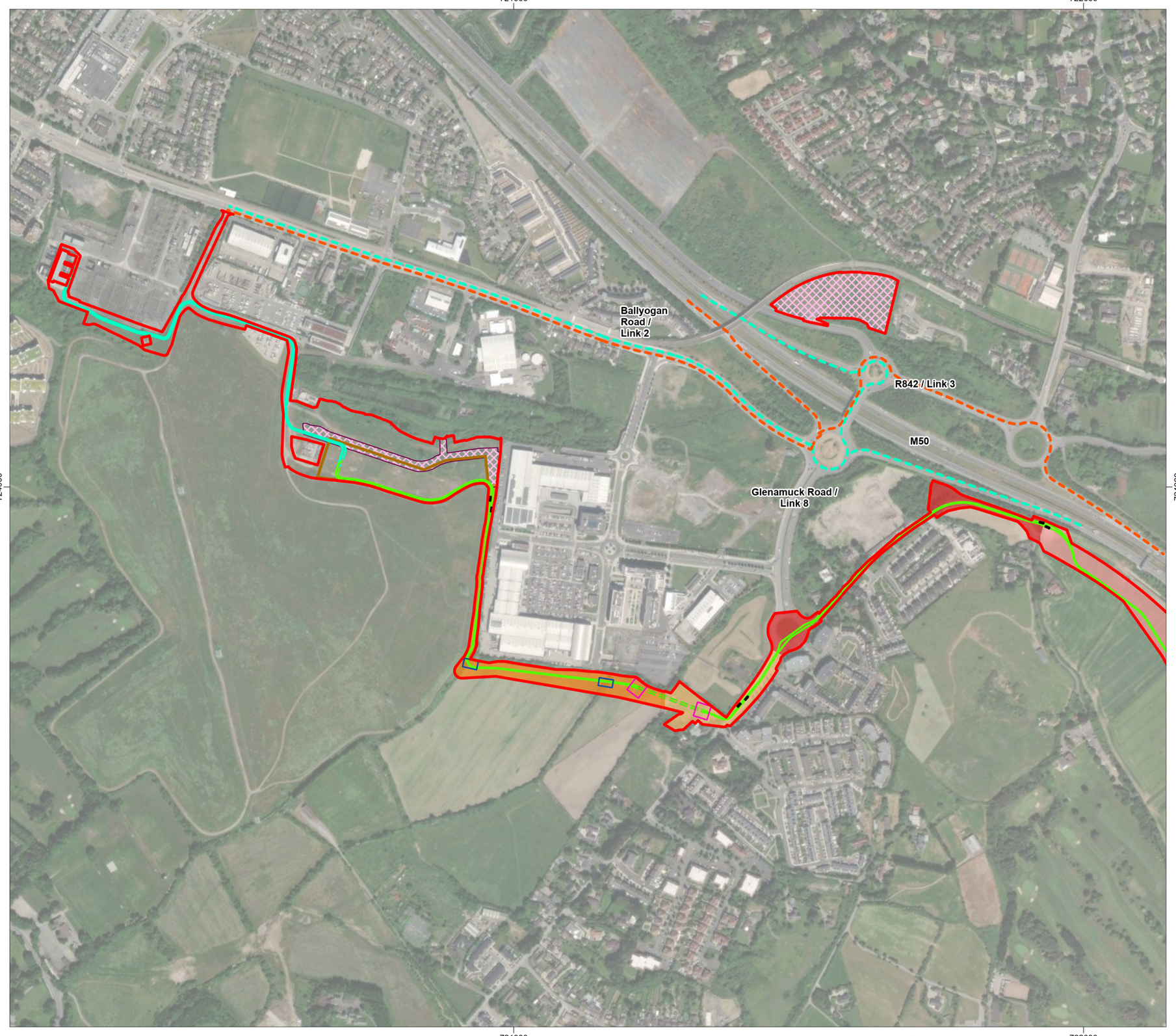
6.6.51 The OSS will be accessed during the construction and operational phase directly from Junction 15 of the M50 at Carrickmines. Vehicles would then use Ballyogan Road which extends west from the Carrickmines South roundabout, immediately south of junction 15. The Luas Tram stop of Ballyogan Wood is located approximately 500 m west of the junction on the northern side of Ballyogan Road.

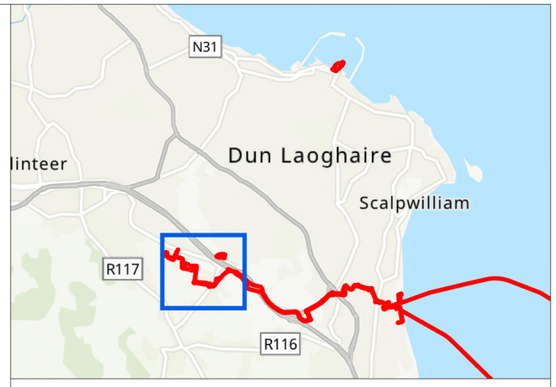
6.6.52 There are pedestrian footways on both sides of the road along with cycle lanes. As well as the Luas tram there are bus services that operate along the road. The construction and operational access route to the OSS is set out in Figure 9.

721000

722000

724000





Application Site Boundary

Onshore Electrical System (OES) Design

- Onshore ECR Watercourse Crossing (trenched)
- Temporary Trenchless Crossing Compound
- Underground Joint Bay
- Onshore Export Cable Route (Trenchless)
- Onshore Export Cable Route (Trenched)
- Grid Connection Cable
- Temporary Construction Compound (TCC)
- Onshore Substation (OSS) Boundary

Export Cable Route (ECR) Sector

- Sector 4
- Sector 5
- Sector 6
- Sector 7

Construction Access Route (CAR)

- CAR Into Site
- CAR Out Of Site

DRAWING STATUS

PUBLIC

MAP NOTES / DATA SOURCES:
Maxar, Microsoft, Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: OSS Access/Links

DRAWING NUMBER: **Figure: 9**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
01	2025-02-17	DRAFT	JK	SW	AE
02	2025-01-15	PUBLIC	JK	SW	AE

0 50 100 150 200 Metres
0 175 350 525 700 Feet

N GRID NORTH

SCALE 1:7,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF ODN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

SLR

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The O&M Base

6.6.53 The following section sets out the construction access route to the O&M Base at Dún Laoghaire Harbour. Access would be taken from the N11 at Stillorgan, followed by the N31 and R119 before following the LRN into Dún Laoghaire Harbour. Traffic leaving the O&M Base would be routed west bound along the N31, which is one-way in this section along Seapoint Avenue.

N31

6.6.54 The N31 is a national road which extends from Dún Laoghaire Harbour west to connect to the N11. At the signalised junction with the N11 at Stillorgan the N31 heads northeast for approximately 1.5 km along Mount Merrion Avenue before reaching the signalised junction with the R118 opposite Blackrock Park.

6.6.55 Mount Merrion Avenue is a 50 kph single carriageway road which accommodates 2-way traffic and a bus lane on alternative sides. There are wide 2.5 m footways along both sides of the road and frequent signalised pedestrian crossings; the southern footway is a shared cycleway/footway for the last 700 m as the road heads west. The N31 in this location serves a number of large residential properties set back from the road and a number of small businesses.

6.6.56 From the signalised junction opposite Blackrock Park, the N31 becomes a dual carriageway road through Blackrock, with two lanes in each direction with several right turn lanes and left turn filter lanes. There is a cycle lane on each side of the road adjacent to the footway. There are pedestrian crossing facilities at every signalised junction and wide footways on both sides of the road.

R119

6.6.57 From the N31/R119 junction at Temple Hill the R119 extends east as Monkstown Road, a single carriageway road and is subject to a 50 kph speed limit. There are cycle lanes on each side of the road up to Monkstown where the R119 becomes Monkstown Crescent. From here the road supports on-street parking with no cycle lanes. Monkstown Crescent becomes Longford Place, leading east into Cumberland Street. These are all the R119.

6.6.58 There are signalised pedestrian crossings through Monkstown and in various locations on sections of the R119 east and west of Monkstown.

6.6.59 At the junction with York Road, the R119 heads north towards the harbour to connect with the N31 at Clarence Street. The R119 along Cumberland Street supports a range of retail businesses and number of residential dwellings that front the footway. There are footways long both sides.

Construction traffic leaving O&M Base

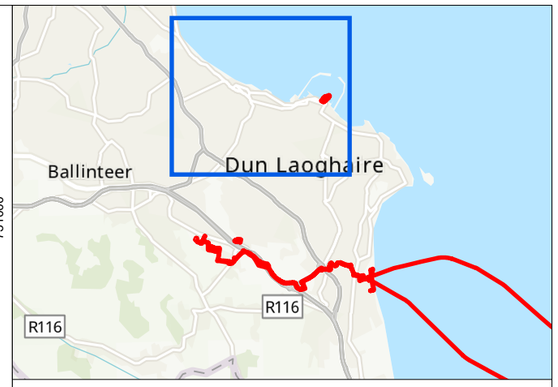
6.6.60 Upon leaving the O&M Base construction traffic would turn right on to Harbour Road before joining the N31 at Crofton Road. The first 2.5 km section of the N31 is one-way in a westerly direction following Seapoint Avenue. This section runs between residential properties, restaurants and hotels with the coast directly to the north. There is a two lane cycleway which runs along this length and there are footway along both sides of the road.

Dún Laoghaire Harbour

6.6.61 As above, the O&M Base is to be located at Dún Laoghaire Harbour, with access from Harbour Road. Harbour Road extends for 500 m east from the junction with the R119 towards the entrance to the harbour and the roundabout junction with Queens Road. The railway track to Dun Laoghaire (Mallin) Station runs parallel to the south of Harbour Road.

6.6.62 Harbour Road is a single carriageway road with two lanes of traffic and footpaths along both sides. In the vicinity of this area there are two pedestrian crossings in the form of zebra crossings. There is a signalised pedestrian crossing adjacent to the harbour.

6.6.63 The access route to the O&M Base is shown on Figure 10.



Application Site Boundary

Construction Access Route (CAR)

CAR Into Site

CAR Out Of Site

DRAWING STATUS

PUBLIC

MAP NOTES / DATA SOURCES:
Maxar, Microsoft, Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS

PROJECT TITLE

Dublin Array

DRAWING TITLE

Traffic and Transport: O&M Base Access/Links

DRAWING NUMBER: **Figure: 10**

PAGE NUMBER: **1 of 1**

VER	DATE	REMARKS	DRAW	CHEK	APRD
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02	2025-01-15	PUBLIC	JK	SW	AE

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0 0.1 0.2 0.3 0.4 Miles

N GRID NORTH

SCALE 1:20,000 PLOT SIZE A3
DATUM IRENET95 VERTICAL REF CDN/LAT/MLLW
PRJ IRENET95 Irish Transverse Mercator

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Traffic flows

6.6.64 Table 9 sets out a summary of the baseline data obtained from recorded ATC surveys and the digital surveys completed in 2023 and 2024 by traffic survey specialists.

6.6.65 Survey locations were identified as they were considered to be representative of the links that would be used to access the onshore infrastructure. In some cases these links will be used to access several components of the onshore infrastructure.

6.6.66 The data have been summarised to provide totals for all vehicles, and for the number and percentage of HGVs as a proportion of the total flow. The ATC survey classified the data by the number of axles on a vehicle, whereas the digital counts were able to classify the vehicles by type. For the ATCs, the 2-axle and 3-axle trucks classification have been grouped in as HGVs to ensure that all HGVs are captured; 2-axle trucks include waste disposal trucks, tow-trucks and tankers. This classification also includes public services vehicles (buses) with configurations that fit those axle specifications. The digital survey conducted in May 2023 have captured buses separately within the vehicle classification.

6.6.67 The full data and survey results can be found in the Traffic and Transport Technical Baseline Report.

Table 9 Base annual average daily traffic (AADT) flows

Link	Highway link(s)	AADT		
		Total vehicles	HGV	HGV (%)
1	Rathsallagh Drive Rathsallagh Drive (between Shanganagh Cliffs and Rathsallagh Drive R/about)	1901	123	6%
2	Ballyogan Road (between junctions with Clay Farm Way and Ballyogan Avenue)	9944	702	7%
3	R842 Link Road Between M50 J15 and Glenamuck Road North	18954	1269	7%
4	Carrickmines Luas P&R Access Road	765	45	6%
5	Grand Parade (between Junctions with Barringtons Road and Valley Drive)	557	72	13%
6	N31 Harbour Road (between junctions with Crofton Road and Queens Road)	1962	176	1%
7	Marine Road (between junctions with Queens Road and George Street Lower/Upper)	6146	530	9%
8	Glenamuck Road (between Carrickmines South R/about and Glenamuck Road South R/about)	22323	528	2%
9	R118 (Westbound only between junctions with Valley Drive and M50)	12721	617	5%
10	R118 Wyattville Road (between junctions with L1065 Wyattville Road and N11)	15790	556	4%
11	Loughlinstown Drive (between junctions with R118 Wyattville Road and Cherrycourt)	4696	270	6%
12	L1065 Wyattville Road (between junctions with Oakton Park and R118 Wyattville Road	7241	155	2%
13	Shanganagh Road (between junctions with Commons Road and Killiney Hill Road)	6662	189	3%
14	Shanganagh Cliffs, between Shanganagh Road and Landfall Site	1836	47	3%
15	R119 Shanganagh Road, between R119 Main Street and Shanganagh Wood	10986	242	2%

Link	Highway link(s)	AADT		
		Total vehicles	HGV	HGV (%)
16	R837 Dublin Road, between R119 Main Road and N11	11335	397	4%
17	N31 Between Stillorgan Road and Rock Road, Blackrock, Co. Dublin	12667	190	2%
18	N31 Frascati Road, between Carysfort Avenue and Sweetman's Avenue	28608	466	2%
19	R119 Monkstown Road, between Belgrave Square West and Belgrave Square East	15494	387	3%
20	R119 Dun Leary Hill, between Wallace's Hill and De Vesci Terrace	7782	357	5%

Footpaths/active travel route maps (GPS cycle and walking routes)

6.6.68 In addition, the study areas for the OES and the O&M Base also includes all active travel routes that could be impacted by the construction works. Such routes include those that might be crossed by the open cut trenching to install the cables, locations for the construction vehicular access (temporary or permanent), and the TCCs for the onshore ECR. Active travel routes are also considered where they may be indirectly impacted, such as those where access could be restricted due to adjacent work activities.

Existing cycle facilities

6.6.69 The study area supports good cycling potential with existing cycle infrastructure. Full details are set out in the Traffic and Transportation Technical Baseline.

Road safety

6.6.70 Personal Injury Collision (PIC) data would normally be obtained for the study area to cover the most recent five-year period. This data would then be used to determine the existing road safety situation and to establish a base against which the effects of the Proposed Development are assessed. However, the RSA is currently in the process of reviewing its road traffic collision (RTC) data sharing policies and procedures. As such at the time of submission of this consent application it is not making the RTC data available. As a result, it has not been possible to obtain PIC data specifically for the roads within the study area.

6.6.71 A review of the available information has identified that road collision annual reports provide information on Road Casualties and Collisions in Ireland annually up to 2019; in addition, it is possible to look at the five-year trend analysis of fatalities and serious injuries from 2017 to 2021.

6.6.72 The 'Road Casualties and Collisions in Ireland 2019 – Tables[2] [Online]' dated June 2022, have been reviewed. Data is provided for each County confirming the number of persons killed or injured between 2015 and 2019. This information provides statistics which have been obtained from all RTCs as reported to An Garda Síochána, with data presented to confirm the number of persons killed or injured. The relevant information has been summarised in Table 10 and Table 11**.**

Table 10 Persons killed and injured

Year	Ireland		Dublin	
	Total killed	Total injured	Total killed	Total injured
2015	162	7,840	16	2,143
2019	140	7,598	19	2,344

2 https://www.rsa.ie/docs/default-source/road-safety/r2---statistics/road-collision-annual-reports/road-casualties-and-collisions-in-ireland-2019.pdf?Status=Master&sfvrsn=a6dcadd8_3

Table 11 Persons killed and injured by road user type

Year	Pedestrians	Pedal cyclists	Car user	Motor cyclist	Other*
2015	31	10	89	22	10
2019	27	8	81	17	7

(*Other includes Passenger Service Vehicles, goods vehicles, and unknown road users)

6.6.73 It can be seen from the information in Table 10 that the number of people injured and killed in road collisions has reduced in Ireland, and increased in Dublin, between 2015 and 2019. The information in Table 11 confirms that more car users were killed, but that the number of deaths reduced from 2015 to 2019. The deaths of vulnerable road users (pedestrians and cyclists) reduced in 2019 also across Ireland.

6.6.74 The observed increase in fatalities across Dublin, has been noted. Evidence in the report suggests that collisions are more likely in built up areas. This is detailed in Table 12.

Table 12 Casualties, inside and outside built-up areas (2019)

Collision	Total collisions inside built-up areas	Total collisions outside built-up areas
Total	4,512	3,226

6.6.75 While the data is not specific to the roads within the study area it is possible to confirm that the number of collisions in Dublin in 2019 was not abnormal. There were fewer vulnerable road users killed throughout Ireland in 2019 than in 2015 which would indicate that fatalities for vulnerable road users are reducing.

6.7 Defining the sensitivity of the baseline

Highway links (increase in traffic)

6.7.1 Using the review of the construction vehicle access routes set out earlier in this Section, Table 13 identifies the sensitivity of each highway link to changes in the volume of traffic, based on the criteria in Section 6.5 and professional judgement.

Table 13 Link based sensitive receptors

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
1	Rathsallagh Drive (Between Shanganagh Cliffs and Rathsallagh Drive R/about)	Medium	Shopping area with roadside frontage, residential areas, segregated footways. Shopping area with roadside frontage, residential areas and segregated footways exhibit some adaptability to the potential impacts, wherein they may have the ability to avoid or adapt to adverse changes. The environment surrounding these areas has some tolerance to accommodate proposed forms of change. The receptor has limited

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			ability to recover from an impact. The receptor holds a valuable position in the community as there are moderate levels of pedestrians.
2	Ballyogan Road L6034 (between junctions with Clay Farm Way and Ballyogan Avenue)	Low	Segregated foot/cycleway The Ballyogan Road link which has a segregated foot/cycleway has significant adaptability to potential impacts, with a notable ability to avoid or adapt to changes. The environment surrounding this link has a high capacity to accommodate proposed forms of change, indicating a high level of tolerance. Additionally, the receptor exhibits a strong ability to recover from impacts. In terms of its value to vulnerable road users, the value is low.
3	R842 Link Road Between M50 J15 and Glenamuck Road North	Negligible	Segregated foot/cycleway Dual carriageway The receptor shows an extremely high ability to avoid or adapt to impacts, suggesting a minimal likely of significant negative consequences. The surrounding environment displays a high capacity to accommodate proposed changes, indicating a high level of tolerance, Additionally, the link exhibits excellent recoverability, meaning it can quickly bounce back from the impacts that may occur. The link is of minimal value.
4	Carrickmines Luas P&R Access Road	Negligible	Segregated foot/cycleway Low active travel users The receptor shows an extremely high ability to avoid or adapt to impacts, suggesting a minimal likely of significant negative consequences. The surrounding environment displays a high capacity to accommodate proposed changes, indicating a high level of tolerance, Additionally, the link exhibits excellent recoverability, meaning it can quickly bounce back from the impacts that may occur. The link is of minimal value.
5	Grand Parade (Between Junctions with Barringtons Road and Valley Drive)	Negligible	Segregated foot/cycleway

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			The receptor shows an extremely high ability to avoid or adapt to impacts, suggesting a minimal likelihood of significant negative consequences. The surrounding environment displays a high capacity to accommodate proposed changes, indicating a high level of tolerance. Additionally, the link exhibits excellent recoverability, meaning it can quickly bounce back from the impacts that may occur. The link is of minimal value.
6	Harbour Road	Medium	Harbourside area with roadside frontage, segregated footways. The receptor may have some ability to avoid or adapt to impacts, suggesting a moderate level of adaptability, its capacity to accommodate proposed changes is limited, signifying a lower level of tolerance compared to low sensitivity receptors. Additionally, the receptor has limited ability to recover from impacts which further contributes to its classification as medium sensitivity. The links holds a valuable position in the community.
7	Marine Road (between junctions with Queens Road and George Street Lower/Upper)	Medium	Shopping area with roadside frontage, residential areas, segregated footways The receptor may have some ability to avoid or adapt to impacts, suggesting a moderate level of adaptability, its capacity to accommodate proposed changes is limited, signifying a lower level of tolerance compared to low sensitivity receptors. Additionally, the receptor has limited ability to recover from impacts which further contributes to its classification as medium sensitivity. The presence of a shopping area with roadside frontage, residential areas and segregated footways adds complexity to the receptor and increases its susceptibility to potential impacts. The links holds a valuable position in the community.
8	Glenamuck Road (R842) (Between Carrickmines South R/about and Glenamuck Road South R/about)	Medium	Roadside bus stops, segregated footways, equestrian center This link is considered to have some ability to avoid or adapt to impacts, indicating a

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			moderate level of adaptability compared to receptors with higher sensitivity levels. Additionally, the environment surrounding the receptor has some capacity to accommodate proposed changes, suggesting a moderate level of tolerance. The limited ability of the receptor to recover from impacts contributes to its classification as medium sensitivity. This indicates that while the receptor may be able to adapt to certain impacts, its ability to fully bounce back or recover from significant disturbances is limited. The presence of roadside bus stops, footways and an equestrian center adds to the complexity and increases its sensitivity and value as there would be more vulnerable road users including pedestrians and horse riders.
9	R118 (Westbound Only between junctions with Valley Drive and M50)	Low	Segregated foot/cycleway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences. Additionally, the receptor is said to have a strong ability to recover from impacts, further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
10	R118 Wyattville Road (Between junctions with Wyattville Road and N11)	Negligible	Segregated foot/cycleway Dual carriageway The receptor shows an extremely high ability to avoid or adapt to impacts,

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			suggesting a minimal likelihood of significant negative consequences. The surrounding environment displays a high capacity to accommodate proposed changes, indicating a high level of tolerance, Additionally, the link exhibits excellent recoverability, meaning it can quickly bounce back from the impacts that may occur.
11	Loughlinstown Drive (Between junctions with R118 Wyattville Road and Cherrycourt)	High	School, Church and Community centre all accessed. Roadside bus stops, segregated footways This link is described as having limited ability to avoid or adapt to impacts, indicating a lower level of adaptability compared to receptors with lower sensitivity levels. Additionally, the environment surrounding the receptor has low capacity to accommodate proposed changes, suggesting a low tolerance for disturbances. Furthermore, the limited ability of the receptor to recover from impacts contributes to its classification as a receptor of high sensitivity. This implies that the receptor may struggle to recover fully from significant disturbances. It has high social value due to the presence of the school, church, community centre, bus stops and footways.
12	Wyattville Road (Between junctions with Oakton Park and R118 Wyattville Road)	Low	Segregated footway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences. Additionally, the receptor is said to have a strong ability to recover from impacts,

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
13	Shanganagh Road (Between junctions with Commons Road and Killiney Hill Road)	Medium	Shopping area with roadside frontage, residential areas, segregated footways Shopping area with roadside frontage, residential areas and segregated footways exhibit some adaptability to the potential impacts, wherein they may have the ability to avoid or adapt to adverse changes. The environment surrounding these areas has some tolerance to accommodate proposed forms of change. The receptor has limited ability to recover from an impact. The receptor holds a valuable position in the community as there are moderate levels of pedestrians.
14	Shanganagh Cliffs, between Shanganagh Road and Landfall	Low	Segregated footway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences. Additionally, the receptor is said to have a strong ability to recover from impacts, further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
15	R110 Shanganagh Road between R119 Main Road and Shanganagh Wood	High	School access. Roadside bus stops, segregated footways

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			This link is described as having limited ability to avoid or adapt to impacts, indicating a lower level of adaptability compared to receptors with lower sensitivity levels. Additionally, the environment surrounding the receptor has low capacity to accommodate proposed changed, suggesting a low tolerance for disturbances. Furthermore, the limited ability of the receptor to recover from impacts contributes to its classification as a receptor of high sensitivity. This implies that the receptor may struggle to recover fully from significant disturbances. It has high social value due to the presence of the school, bus stops and footways.
16	R837 Dublin Road between R119 Main Road and N11	Low	Segregated footway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences. Additionally, the receptor is said to have a strong ability to recover from impacts, further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
17	N31 between Stillorgan Road and Rock Road, Blackrock Co. Dublin	Low	Segregated footway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences. Additionally, the receptor is said to have a strong ability to recover from impacts, further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
18	N31 Frascati Road between Carysfort Avenue and Sweetman's Avenue	Medium	Shopping area with roadside frontage, residential areas, segregated footways Shopping area with roadside frontage, residential areas and segregated footways exhibit some adaptability to the potential impacts, wherein they may have the ability to avoid or adapt to adverse changes. The environment surrounding these areas has some tolerance to accommodate proposed forms of change. The receptor has limited ability to recover from an impact. The receptor holds a valuable position in the community as there are moderate levels of pedestrians.
19	R119 Monkstown Road between Belgrave Square West and Belgrave Square East	Low	Segregated footway, residential area The receptor is considered to have significant ability to avoid or adapt to impacts, indicating a high level of adaptability compared to receptors with higher sensitivity levels. This means that the receptor has the means to adjust or mitigate potential negative effects that may arise. Furthermore, the environment around the receptor is described as having high capacity to accommodate proposed changes, suggesting a high tolerance for disturbances. This indicates that the surroundings of the receptor can absorb or adjust to the proposed changes without significant negative consequences.

Link	Highway link(s)	Sensitivity level	Rationale for receptor sensitivity
			Additionally, the receptor is said to have a strong ability to recover from impacts, further reinforcing its classification as a receptor of low sensitivity. This means that if disturbances do occur, the receptor has the capability to bounce back and restore its normal functioning relatively quickly.
20	R119 Dun Leary Hill between Wallace's Hill and De Vesci Terrace	High	College accessed. Roadside bus stops, segregated footways. This link is described as having limited ability to avoid or adapt to impacts, indicating a lower level of adaptability compared to receptors with lower sensitivity levels. Additionally, the environment surrounding the receptor has low capacity to accommodate proposed changed, suggesting a low tolerance for disturbances. Furthermore, the limited ability of the receptor to recover from impacts contributes to its classification as a receptor of high sensitivity. This implies that the receptor may struggle to recover fully from significant disturbances. It has high social value due to the presence of the College, shop frontages, bus stops and footways.

6.7.2 All other roads within the study area will not be directly affected by construction access routes. Works on these will be restricted to construction of the onshore ECR or roads which will be used by construction workers.

Future baseline

6.7.3 The background traffic on the highway links in the study area may increase between the baseline and the anticipated years of construction of Dublin Array onshore infrastructure. The Central Growth Rates for Dublin (2016-2030) have been taken from the TII Document PE-PAG-02017-03 to account for the growth on the local highway. The growth factors are: 1.016 [light vehicles] and 1.030 [heavy vehicles].

6.7.4 In addition to the Central Growth rates an investigation of nearby cumulative developments was undertaken in August 2024. In order to determine a catchment for cumulative developments it is important to note that substations require substantial transport of materials and equipment during construction, which may involve large transportation vehicles.

6.7.5 The cable route 500 m search area is adequate to account for vehicles related to cable installation, maintenance, and repair activities. This proximity is necessary for ensuring efficient terrestrial connections to existing infrastructure.

6.7.6 The 1 km search area around the O&M Base, ensures that staff are close enough while considering ease of access for maintenance teams and equipment transport.

6.7.7 The transport impact assessments must consider cumulative effects, which can extend beyond immediate sites. A 1 km radius for the substation ensures that traffic impacts on a broader scale are thoroughly assessed while still being geographically constrained.

6.7.8 Based on these assumptions the future year AADT flows also account for cumulative developments within a reasonable catchment of the elements of the development proposals.

6.7.9 A list of the developments considered is set out in Annex 1 Cumulative Projects List. Note, the 'cut off' date for these applications was August 2024.

6.7.10 Table 14 details the predicted traffic flows on each link during the future year scenario. This table accounts for the baseline traffic, factored up with The Central Growth Rates for Dublin (2016-2030) and the flows associated with the cumulative developments detailed in Annex 1 Cumulative Projects List.

Table 14 2030 AADT – Highways links

Link	Highway link(s)	AADT Total vehicles	HGV	HGV (%)
1	Rathsallagh Drive (Between Shanganagh Cliffs and Rathsallagh Drive R/about)	(+33)	6(+4)	7%
2	L6034 Ballyogan Road (between junctions with Clay Farm Way and Ballyogan Avenue)	(+3411)	2(+21)	5%
3	R842 Link Road Between M50 J15 and Glenamuck Road North	2(+7714)	(+37)	5%
4	Carrickmines Luas P&R Access Road	3232(+2397)	74(+2)	2%
5	Grand Parade (Between Junctions with Barringtons Road and Valley Drive)	568(+12)	181(+5)	32%
6	Harbour Road (between junctions with Crofton Road and Queens Road)	2002(+41)	545(+16)	27%
7	Marine Road (between junctions with Queens Road and George Street Lower/Upper)	3496(+17350)	3(+16)	2%
8	Glenamuck Road (Between Carrickmines South R/about and Glenamuck Road South R/about)	39690(+17367)	1263(+646)	3%
9	R118 (Westbound Only between junctions with Valley Drive and M50)	23186(+10466)	572(+16)	2%

Link	Highway link(s)	AADT Total vehicles	HGV	HGV (%)
10	R118 Wyattville Road (Between junctions with Wyattville Road and N11)	5928(+10139)	277(+8)	1%
11	Loughlinstown Drive (Between junctions with R118 Wyattville Road and Cherrycourt)	4777(+81)	159(+5)	3%
12	Wyattville Road (Between junctions with Oakton Park and R118 Wyattville Road	7362(+121)	94(+6)	3%
13	Shanganagh Road (Between junctions with Commons Road and Killiney Hill Road)	6772(+111)	48.3865(+1)	1%
14	Shanganagh Cliffs, between Shanganagh Road and Landfall	1867(+31)	(+1)	3%
15	R110 Shanganagh Road between R119 Main Road and Shanganagh Wood	1836(+851)	1504(+1263)	13%
16	R837 Dublin Road between R119 Main Road and N11	525(+191)	408(+12)	4%
17	N31 between Stillorgan Road and Rock Road, Blackrock Co. Dublin	2878(+212)	195(+6)	2%
18	N31 Frascati Road between Carysfort Avenue and Sweetman's Avenue	29080(+473)	480(+14)	2%
19	R119 Monkstown Road between Belgrave Square West and Belgrave Square East	15752(+258)	398(+11)	3%
20	R119 Dun Leary Hill between Wallace's Hill and De Vesci Terrace	7913(+132)	67(+11)	5%

*Brackets indicates the number of trips added from growth/cumulative development from the baseline flows.

6.8 Uncertainties and technical difficulties

6.8.1 The assessment of the potential impacts to the baseline traffic relies on the accuracy of the traffic flow data. The traffic counts have been undertaken by an experienced surveying company and while there were issues during the collection of the data due to disruption of the equipment, the data that has been collected is considered to be reliable.

6.8.2 There are inaccuracies with the vehicle class categories used in the ATC data, in terms of the identification of HGVs and an overestimated Other Goods Vehicle 1 (OGV1) category. This is due to the method of traffic data collection using ATC equipment, which is based on wheelbase. Since the inception of this method of traffic flow data collection there has been an increase in wheelbase of many non-goods delivery vehicles (such as twin-cab pickup vehicles).

6.8.3 The method of compensating for the inaccuracies in the ATC data is described in the Traffic and Transportation Technical Baseline Report.

6.8.4 As set out above PIC data would usually be obtained for the study area to cover the most recent five year period. This data is then used to determine the existing road safety situation and to establish a base against which the effects of the development are assessed. However, the RSA is currently in the process of reviewing its RTC data sharing policies and procedures and as such it is not allowing the RTC data to be available. As a result, it has not been possible to obtain PIC data specifically for the roads within the study area.

6.9 Scope of the assessment

6.9.1 As set out earlier in the Chapter, the following factors have been identified as being the most discernible potential environmental effects likely to arise from changes in traffic movements. These are considered in the assessment as potential effects which may arise from changes in traffic flows resulting from the Dublin Array onshore infrastructure and have been scoped into this assessment.

6.9.2 The approach for the assessment of traffic and transport effects has been to define the level of traffic anticipated to access each construction site associated with the Proposed Development during the construction phase, calculated from a first principles basis (a method based on quantities of materials required for the construction and corresponding numbers of heavy goods vehicles (HGVs) and the number of expected construction workers) and distributed over the anticipated construction period of 36 months.

6.9.3 In addition to the anticipated increase in vehicle movements associated with the construction phase, this chapter also considers the disruption to existing users of ATRs and existing users of roads that would be potentially impacted by the construction works, together with an assessment of operational phase effects

Scoped-in

6.9.4 The following Impacts have been identified as being the impacts likely to arise from the construction, decommissioning and operation of the Dublin Array onshore infrastructure. These impacts align with the IEMA guidelines (IEMA, 2023):

Construction phase

- Impact 1: Road driver vehicle delay;
- Impact 2: Severance of communities;
- Impact 3: Pedestrian and non-motorised user delay;
- Impact 4: Non-motorised user amenity;
- Impact 5: Road safety and pedestrian safety; and
- Impact 6: AILs/large loads.

Operational phase

- Impact 7: Road driver vehicle delay arising from operation of the O&M Base.

Impact 1: Road driver vehicle delay

6.9.5 Delays to non-development traffic can occur at various locations, including at the access to onshore ECR TCCs (Landfall Site TCC, Clifton Park TCC and Leopardstown TCC) as well as on roads where traffic measures are being implemented for the onshore ECR construction works or where there is an increase in construction traffic. Similarly delays may occur at the access to the OSS site on Ballyogan Road or around the site of the proposed O&M Base.

6.9.6 IEMA Guidance recommends the use of proprietary software packages to model junction delay and therefore estimate increased vehicle delays. However, it is noted that vehicle delays are only likely to be significant when the surrounding highway network is at, or close to, capacity.

6.9.7 For the potential delay to users of the highway links that may require a temporary closure to enable open cut trenching to be utilised along the onshore ECR, the assessment is based on the relative importance of each link and the availability of an alternative route, using professional judgement.

Impact 2: Severance of communities

6.9.8 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people, and it is acknowledged that it is difficult to measure and predict.

6.9.9 Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to relatively minor traffic flows if they impede pedestrian access to essential facilities. Severance effects could equally be applied to residents, motorists, cyclists, or pedestrians and will impact community groups differently with vulnerable groups (older age, younger age) being more sensitive.

6.9.10 IEMA Guidance suggests that changes in total traffic flow of 30%, 60% and 90% are considered to be slight, moderate, and substantial respectively. However, it also states that these figures should be used cautiously, and the assessment should pay full regard to specific local conditions. The increase in traffic resulting from the Proposed Development may result in severance, in particular in locations where the numbers of HGVs increase above thresholds.

Impact 3: Pedestrian and non-motorised user delay

6.9.11 Pedestrian delay may be more noticeable in the residential areas within the study area where the proposed development traffic is predicted to increase.

6.9.12 In assessing pedestrian delay it also serves to indicate potential impacts to other non-motorised users. It is useful to link pedestrian delay with pedestrian severance as they are interrelated.

6.9.13 An increase in the volume, composition and speed of traffic can make crossing a road more difficult, but this also depends on the existing level of activity and the available infrastructure. There are no recommended thresholds to assess pedestrian delay and it is recommended that professional judgement is used, informed by relevant resources.

Impact 4: Non-motorised user amenity

6.9.14 Pedestrian amenity is defined in the IEMA (2023) guidelines as "the relative pleasantness of a journey", which is generally affected by traffic flow and traffic composition, with pedestrian infrastructure also taken into account. This broad category relates to how a person would feel about travelling along a particular route and how the journey can be affected by the traffic flow and traffic composition. It includes pedestrian fear and intimidation with consideration of the overall relationship between pedestrians and traffic where traffic levels (or the HGV component) increase.

6.9.15 The total volume of traffic is to be considered along with the traffic composition and speed, with the proximity of traffic to people factored.

Impact 5: Road safety

6.9.16 The construction traffic associated with the proposed development will result in an increase in the number of HGVs in certain locations within the study area, some of which are likely to be more sensitive to changes in road safety. It has not been possible to obtain personal injury accident (PIA) data and so the assessment of road safety will be limited.

6.9.17 IEMA Guidance recommends that a 'Safe System' approach is followed to assess the road safety impacts of a project. This involves identification of the historic injury accident data within the study area, establish a baseline and then an assessment of effects of the additional development traffic for all users. A final impact assessment should then present the calculated changes to serious injury accidents and fatal accidents, using modelling software such as International Road Assessment Programme (iRAP).

6.9.18 In this context, an examination of the existing collisions occurring within the study area has been undertaken to identify any areas of the highway with concentrations of collisions, or roads with collision rates that are higher than the national average. These locations are considered to be sensitive to changes in traffic flows (sensitive receptors) and therefore a more detailed analysis of significance has been undertaken in the context of the Dublin Array.

Impact 6: Abnormal indivisible loads/large loads

6.9.19 The importing of AILs and large loads (HGVs) may lead to delays on the highway network. This considers the potential effect on road users and local residents caused by an increase to the number of large loads, including the movement of AILs.

Sensitive receptors

6.9.20 The assessment is required to evaluate the effects of the proposed development and to determine the magnitude and significance of the impacts on the identified sensitive receptors. The main receptors which are sensitive to increased traffic levels and environmental impacts are anticipated to be located along the local roads connecting to the major roads such as R118, R119, Shanganagh Road, Loughlinstown Drive and Glenamuck Road. In addition, the roads closest to the construction site locations are also likely to experience higher increases in construction traffic. Residential properties and sensitive non-residential properties, such as schools, are also considered.

Scoped out from further assessment

Operational traffic and transportation impacts arising from the OES

Landfall trip generation

6.9.21 As set out in the Project Description Chapter, the Landfall Site TCC will be decommissioned upon completion of the construction phase and all plant and equipment removed and the ground reinstated, leaving the underground transmission infrastructure in situ.

6.9.22 Visits to the TJB at the Landfall Site once it is operational will be limited to ad hoc inspections utilising the inspection manhole covers. As set out in the Project Description Chapter, these visits will be infrequent and will result in negligible levels of traffic generation during the operational phase. No further consideration is given in this chapter.

Onshore ECR trip generation (operational)

6.9.23 As set out in the Project Description Chapter, the Clifton Park and Leopardstown TCCs will be decommissioned upon completion of the construction phase and all plant and equipment removed and the ground reinstated to its original condition. There will be no further traffic movements associated with the TCCs post construction phase.

6.9.24 Visits to the onshore ECR will be limited to ad hoc inspections of the joint bays utilising the inspection manhole covers. As set out in the Project Description chapter, these visits will be infrequent and will result in negligible levels of traffic generation during the operational phase. No further consideration is given in this chapter.

OSS trip generation

6.9.25 The operational trip generation for the OSS has been calculated on the assumption for the yearly trip generation of the OSS. This assumes 25 working days in each month and in order to be robust the busiest month of August has been selected. This indicates that the OSS is forecast to generate 201 2-way trips annually and 22 of these trips are assumed to be HGVs. This equates to 16 2-way trips per month.

Table 15 OSS movements (annually) – operation phase

Item	2-Way trips (annually)		
Operation			
	LGV	**HGVs**	**Total Vehicles**
OSS 2-way Trips	**179**	**22**	**201**

Assignment for OSS

6.9.26 The assignment of daily worker movements associated with the OSS, has been estimated using local knowledge to determine commuting patterns to the OSS in the table below.

Table 16 Distribution of workers (OSS) (annually)

Link	Number of vehicles
1	0
2	201*
3	36
4	0
5	9
6	0
7	0
8	18
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0

*Considered to be a worst case as some workers are likely to turn left on to Ballyogan Road after departing the OSS

6.9.27 Given the very low amounts of traffic being generated during the OES operational phase (8 visits per month to the OSS and only ad hoc visits to the remainder of the OES), an assessment of operational impacts has been scoped out of the assessment.

Operational cumulative effects

6.9.28 The operational impact of the Proposed Development on the study area will be significantly lower in terms of HGV traffic than the construction period. On this basis operational cumulative effects have been scoped out also.

6.10 Key parameters for assessment

Construction works

6.10.1 The installation of the OES, excluding surveys and site preparation, is anticipated to take approximately 36 months.

6.10.2 The most intense activity during the OES construction stage of the project will be at the OSS albeit there will be significant activities for shorter durations at the trenchless crossings for the onshore ECR. Construction of the OSS is likely to start early in the overall construction programme and works will continue in different Sectors of the onshore ECR until the offshore wind farm and the complete electrical system has been commissioned.

6.10.3 The largest concentration of construction staff will be at the OSS site, and this will peak at later stages of the construction programme when it is likely that there will be up to approximately 75 staff on site.

6.10.4 An indicative OES construction programme is set out in Table 17.

Table 17 Overview of typical construction programme for the Onshore Electrical System works

Activity	Y1				Y2				Y3				Y4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Landfall Site																
Site preparation																
Installation of offshore export ducts at Landfall (trenchless installation)																
Onshore ECR activities (incl. TJBs)																
Cable pulling and jointing (onshore & offshore)																
Demobilisation and reinstatement																
Duct laydown and assembly area																
Onshore export cable route																
Cable ducts and JB installation (including trenchless crossings)																
Cable pulling and jointing																
Commissioning																
Landfall Site TCC																
Clifton Park TCC																
Leopardstown TCC																
Onshore substation																
Site preparation																
Civil works																
Electrical works																
Commissioning																
OSS TCC																

Table 18 Indicative O&M construction schedule

Construction phase	Activity	Approximate timeline
Site Preparation	Erection of temporary site fencing & hoarding; Erection of site offices; Location of onsite services.	8 weeks
Demolition	Demolition of Roll-on/Roll-Off (RoRo) ramp structures, concrete towers and levelling; Demolition of existing Harbour Maintenance Building; Demolition of elements of the existing fender structure; Clearance of existing surface on St. Michael's Pier.	12 weeks
O&M Building	Construction of new concrete pavement at the location of the demolished RoRo ramp; Construction of new foundations for O&M building; Construction of new O&M building including all civil elements (drainage, etc.); Construction of new substation building, including laying all electrical cables for the development; Installation of floating pontoon and access gangway; Erection of site O&M Base fencing, secure access gates, lighting masts and site CCTV; Installation of pontoon infrastructure & fit out for services.	78 weeks
O&M Building	Fit out of structures – O&M building, proposed substation and pontoon.	24 weeks
Final Commissioning	Commissioning of all structures and demobilising from site.	4 weeks
Total Build Period		**126 weeks**

Trip generation

6.10.5 To enable a realistic assessment to be undertaken of the traffic impacts resulting from maximum construction traffic volumes upon the existing road network, an outline of the construction activities and trip generation estimates is presented in the following section.

6.10.6 The construction programme and likely resource requirements have been used to enable an assessment of:

- The practicality, sequencing, and duration of construction activities;
- The shortest duration feasible of the construction works; and
- The potential workforce and associated vehicle movements that would be required to support the construction activities over the duration of the works.

Trip generation parameters

6.10.7 In order to undertake an assessment of the likely significant effects of the Dublin Array onshore infrastructure a number of trip generation parameters have been identified. The assumptions have been informed by estimates provided by the Applicant.

6.10.8 The key trip generation parameters are:

- Core working hours – 07:00 to 19:00, Monday to Friday and 08:00 to 14:00 Saturday, which doesn't take into account any 24-hour working that may be required for trenchless crossings at TX-01, TX-06 and TX-07 and at the Landfall Site;
- The construction workers arrive and depart in light vehicles (cars, minibus or vans);
- Core HGV deliveries - 07:00 to 19:00 (Monday to Friday) and Saturday 08:00 to 14:00;
- The 2-way HGV movements assumes a vehicle arriving at the site access and TCC, unloading and departing via the same access; and
- The 2-way construction workers movements assumes a vehicle arriving at a construction site and/or TCC in the morning and leaving in the evening, as per the assumptions above.

6.10.9 The following section sets out the anticipated sequencing of the onshore infrastructure construction phase and traffic generation estimates for each of these. It is set out as follows:

- OSS construction;
- Landfall construction;
- Remainder of the OES comprising the onshore ECR; and
- The O&M Base at Dún Laoghaire Harbour.

OSS

6.10.10 The OSS is proposed to be located at Jamestown, Ballyogan, to the south of Ballyogan Road. The Project Description Chapter sets out a full description of the OSS. The following section sets out a summary of the sequence of construction activities and traffic generation estimates for the OSS:

- Site enabling works, including:
  - Site clearance;
  - Site mobilisation, fencing and the establishment of the temporary construction compound in an area around the proposed OSS site;
- Construction activities including:
  - The installation of site drainage;
  - The construction of an earth grid for the substation;
  - The construction of foundations, and the installation of the above ground electrical infrastructure and buildings; and
- Site landscaping and demobilisation.

6.10.11 Construction of the OSS will require deliveries of plant, materials, and equipment. Site set up works will require excavators, arriving on low loaders, as well as backhoe loader together with dump trucks and bulldozers.

6.10.12 A large capacity crane will be required for installation of equipment, particularly the transformers. Delivery of materials will predominantly comprise of aggregate, concrete and steel. Delivery of OSS electrical equipment will be accommodated on low-loaders with a total of 2 being classed as AILs which will be delivered to site on either a girder frame and/or a Self-Propelled Modular Transporter (SPMT). These AILs are detailed later in this section.

6.10.13 Table 19 outlines the estimated trip generation for the construction of the OSS.

Table 19 Estimated trip generation OSS construction

Item	2-Way trips (daily)
HGV peak daily movements	31
Average car and van movements	138
Total	**169**

Landfall

6.10.14 As described in Project Description Chapter the proposed construction activities at the Landfall will fall into distinct construction activities which will comprise the following:

- Enabling works (temporary access track alterations, pedestrian footpath diversions. Landfall earthworks including topsoil removal & site preparation, archaeological investigation and mitigation works as necessary);
- Site establishment (offices, welfare facilities, security and fencing, lighting, signage);
- Excavation and construction of two Transition Joint Bays (TJBs);
- Trenchless drilling or tunnelling;
- Duct installation; and
- Trenchless equipment demobilisation.

6.10.15 The sequence of works for the second period of landfall construction phase works will be as follows:

- Mobilisation of winch and equipment for onshore and offshore export cable installation;
- Offshore cable pull, is undertaken from a winch onshore, which pulls the offshore cable through the ducts to each TJB;
- Jointing of offshore export cables with onshore export cables within TJBs;
- TJB pit ground re-instatement;

- Use of the TCC to support the construction phase of the onshore ECR; and
- Demobilisation and temporary fence removal.

6.10.16 Construction of the onshore infrastructure at the Landfall Site would require deliveries of mechanically operated plant, construction materials, and ancillary equipment. It is expected that excavators along with tipper wagons would be required during construction, together with dumper trucks and bulldozers. Delivery of construction materials would predominantly comprise aggregate, concrete, cement bound sands and cable ducting.

6.10.17 While this construction programme equates to a maximum total of 20 months, these activities will be conducted in two separate stages within an approximate period of 36 months. Therefore, there will be periods of less activity at the landfall site between these primary stages.

6.10.18 It should be noted that the total construction period for the Landfall cannot be assumed to be the sum of all durations as many of the work activities could be overlapped. Where an overlap is likely to occur, the sum of vehicle movements associated with such activities has been assessed.

6.10.19 The realistic maximum adverse scenario would be the phase with the highest number of deliveries over the longest duration, which would be the site compound set up and access road construction with 20 No. deliveries per day over a 1-month period. While this provides an average, the maximum number of HGV deliveries per day provides a worst-case; this has been confirmed to be 25 No. HGVs. These deliveries are converted into total movements by multiplying by two, representing an arrival and departure per delivery.

6.10.20 Therefore, the total daily movements for deliveries assessed for the Landfall equate to 50 movements during site compound and access road construction activity, lasting for 4 to 6 weeks. The realistic maximum adverse scenario for construction workers would be the phase with the highest number of workers over the longest duration. In this instance it coincides with the assessed HGV activity with 16 staff 2-way movements per day.

Remainder of the OES comprising the onshore ECR

6.10.21 The onshore ECR construction phase will commence with the set-up of the two additional TCCs at Clifton Park TCC and Leopardstown TCC respectively. TCC set up activities are set out in full in the Project Description Chapter. In summary, these will comprise:

- Upgrade of existing or installation of new access from the public highway where required;
- Erection of temporary security fencing and lighting; and
- Establishment of site offices, welfare facilities, security, wheel wash, lighting, and signage at the TCCs.

6.10.22 The set up of the TCCs will take the following timescale: Clifton Park (3 months); Leopardstown (3 months)

6.10.23 Once all TCCs have been set up, construction of the onshore ECR will commence. Construction activities are set out in full in the Project Description Chapter. In summary, these will comprise:

- Total length of onshore ECR will be 7.4 km. There will be an additional 750 m of cabling between the OSS and the existing substation at Carrickmines;
- The onshore cable will be installed on a rolling basis. This will require the securing of the construction site along the onshore ECR with the installation of site fencing and the implementation of traffic management signage and pedestrian walkway routes;
- The onshore export cables will be installed on a rolling basis along the onshore ECR. Where no obstacles or constraints exist within or near the ECR, it is expected that progress rates for the open cut trench excavation and installation of ducts for the two circuits will be:
  - 20 m linear per day duct installed within roads; and
  - 40 m linear per day duct installed within open greenspace.
- On completion of setting out the proposed alignment of the cable route, where open cut trenching is used will be set out and the road surface shall be cut to the required trench width;
- Once the road surface has been cut to the correct width this section of pavement is to be removed from site for disposal;
- Once the trenches have been excavated to the required depth a trench box or trench sheets and lateral bracing supports will be installed. Typical Cable trench dimensions: 1425 x 700 mm
- The base of the trench will be prepared followed by the installation of a high-density polyethylene (HDPE) ducts for each cable and separate ducts for fibre optic bundle within the trench before the trench is backfilled and the roadway reinstated;
- Trenchless crossings will be carried out at the following locations:
  - Sector 1 Dublin/Wexford railway Line crossing (reference TX-01 in Project Description Chapter);
  - Sector 1 Shanganagh River (TX-02);
  - Sector 1 Shanganagh Road & Killiney Hill Road Crossing (TX-03);
  - Sector 1 & Sector 2 Deansgrange Stream/Kill o'the Grange Stream (2 crossings) (TX-04 and TX-05);
  - Sector 2 & Sector 3 N11 crossing (TX-06);
  - Sector 4: M50 crossing (TX-07); and
  - Sector 6 and Sector 7: crossing of GDDR (TX-08) currently under construction.

6.10.24 The cables will be laid in lengths of between 600 m and 850 m, each requiring a joint bay to allow the jointing of cables and the inspection and maintenance of cable joints. The cables themselves will be delivered to the TCCs on a cable reel via a low loader, transporting several at a time. From the TCC, these loads will be sub-divided to transport a single reel of cable at a time by public road to the relevant working area on the onshore ECR.

6.10.25 Trenchless crossing activities along the onshore ECR will be used where there are interfaces with significant transport networks and watercourses in order to avoid disruption and reduce the overall impact of the installation of the onshore ECR. Temporary drilling compounds will be established on either side of the trenchless crossings to facilitate the set-up of the necessary plant and equipment. Materials and equipment will be transported to the temporary drilling compound. A drilling rig (typically a 32-tonne unit) will be delivered on a low loader, while also needing a crane with a capacity of 250 tonnes together with the relevant materials such as stone, concrete and ducting.

6.10.26 As set out above the onshore ECR will require a total of eight trenchless crossings (excluding the installation of the offshore export cable ducts at the Landfall Site). It is anticipated that the trenchless crossings will be constructed a maximum of two at a time meaning that two drilling rigs and two drilling crews will be used at any one time along the entire onshore ECR, moving onto the next trenchless site once each operation has been completed.

6.10.27 The most intense phase of traffic volumes during cable works will be during the trench excavation and filling process. There will be more traffic associated with this than joint bay installation, cable pulling, jointing or commissioning.

6.10.28 The maximum extent of excavation and backfilling in any working day would be 20 metres length of two trenches (40 metres cumulatively) in any one road/street.

6.10.29 To effect these works would require a maximum daily traffic contribution of 14 HGV movements (7 in and 7 out) involved in spoil removal, backfill importation or other sundry delivery (e.g. ducting).

6.10.30 The work crew in attendance would be seven, meaning a maximum daily traffic contribution of 14 LGV/car movements (7 in and 7 out).

6.10.31 Once construction is complete, demobilisation and reinstatement of the TCCs will occur. It is assumed that these activities will result in fewer vehicle movements and so this has not been included in the assessment.

6.10.32 The main construction activities associated with each onshore ECR section are expected to be programmed over a 36-month period. The assessment has been based on a maximum adverse scenario that the onshore ECR construction activities occur concurrently, with all TCCs operating at the same time.

TCC traffic movements during construction phase

6.10.33 The following type of traffic is likely to access the TCCs during the construction phase:

- Low-loaders and HGVs to deliver equipment and plant;
- Cranes;

- Fuel tankers to supply diesel to construction plant;
- HGVs with regular deliveries of construction materials, i.e. aggregates for temporary haul roads, cables, cable ducting; and
- Private car, light van or minibus transporting construction workers.

6.10.34 A range of plant would be required including bulldozers, tractors, excavators and dump trucks/trailers, all of which will be delivered using low-loaders.

6.10.35 Based on the estimates of HGV construction traffic and construction worker needs, Table 20 outlines the estimated trip generation based on 2-way vehicle movements along the onshore ECR.

Table 20 Estimated trip generation onshore ECR (activities at TCC and from TCC to onshore ECR)

Item	2-Way trips (daily)
Vehicle trips (peak trips)	332
HGV deliveries (within the total vehicle trips)	161

6.10.36 The most intense phase of traffic volumes during cable works will be during the trench excavation and filling process. There will be more traffic associated with this than joint bay installation, cable pulling, jointing or commissioning.

O&M Base

6.10.37 The Project Description Chapter sets out a full description of the Operations and Maintenance (O&M) Base. The following section sets out a summary of the required construction activities at the O&M Base and traffic generation estimation for these:

- Site mobilisation, fencing and the establishment of the temporary construction compound;
- Demolition of landside and marine infrastructure;
- Construction of the O&M building including fit out, construction of the utilities, onsite substation and installation of the pontoon and access gangway; and
- Demobilisation from site.

6.10.38 Construction of the O&M Base will require deliveries of plant, materials, and equipment. It is expected that excavators, arriving on low loaders, and backhoe loaders will be required during construction, together with dump trucks and tractors and trailers. A large capacity crane may be required for the demolition of the marine infrastructure (fenders) and elements of the existing RoRo ramp. A crane will also be required for construction of the O&M building steel frame.

6.10.39 Table 21 outlines the estimated trip generation in line with the construction programme.

Table 21 Estimated trip generation: O&M Base construction

Item	2-Way trips (daily)
HGV trips daily movements	14
Car and van movements	30
Total	**44**

6.10.40 The construction works estimate that there will be 44 No. 2-way movements per day (14 HGVs and 30 light vehicles) associated with the construction of the O&M Base.

Heavy goods vehicles network assignment

6.10.41 The origin of HGV movements has been based partially on the likely origins of materials, with many being delivered to Dublin Port. Critically, it has been assumed that all HGV deliveries will travel to each of the construction locations and TCC locations via the strategic roads and main roads. For clarity, the following construction locations have been assessed

- OES:
  - Landfall Site TCC
  - Onshore ECR
  - Clifton Park TCC;
  - Leopardstown TCC;
  - OSS - located at Jamestown, Ballyogan; and
  - HGV movements to and from the onshore ECR.
- O&M Base – located at Dún Laoghaire Harbour;

6.10.42 Table 22 outlines the distribution of deliveries with reference to the links within the study area. The expected type of vehicle is likely to be either a 20 tonne (T) tipper truck or an articulated lorry. 20 T tipper trucks (Approx. length 10 m) are a rigid vehicle typically used for delivery of bulk materials, such as stone and sand, while articulated lorries up to 16.5 m in length will be used for larger items, such as site offices & welfare units, plant and electrical components.

Table 22 Distribution of HGVs for deliveries

	TCC Landfall Site		OSS		TCC Clifton Park		TCC Leopardstown		O&M Base		ECR construction	
Link	%	Link	%	Link	%	Link	%	Link	%	Link	%
1 - Rathsallagh Drive	100%	1	-	1	100%	1	-	1	-	1	100%
2 - Ballyogan Road	-	2	100%	2	-	2	-	2	-	2	100%
3 - R842 Link Road Between M50 J15 and Glenamuck Road North	-	3	20%	3	-	3	20%	3	-	3	100%
4 - Carrickmines Luas P&R Access	-	4	-	4	-	4	-	4	-	4	-
5 - Grand Parade	-	5	-	5	-	5	-	5	-	5	-
6 - Harbour Road	-	6	-	6	-	6	-	6	100%	6	-
7 - Marine Road	-	7	-	7	-	7	-	7	-	7	-
8 - Glenamuck Road (R842)	-	8	20%	8	-	8	20%	8	-	8	100%
9 - R118 Wyattville Road (Westbound between Valley Drive and M50)	50%	9	-	9	50%	9	-	9	-	9	50%
10 - R118 Wyattville Road (between the junction of L1065 and N11)	-	10	-	10	-	10	-	10	-	10	100%
11 - Loughlinstown Drive	-	11	-	11	-	11	-	11	-	11	100%
12 - L1065 Wyattville Road	-	12	-	12	-	12	-	12	-	12	100%
13 - Shanganagh Road (Between junctions with Commons Road and Killiney Hill Road)	-	13	-	13	-	13	-	13	-	13	100%
14 - Shanganagh Cliffs	100%	14	-	14	-	14	-	14	-	14	100%
15 - Shanganagh Road Between R119 Main Street and Rathsallagh Drive/Shanganagh Wood)	100%	15	-	15	100%	15	-	15	-	15	100%
16 - R837 Dublin Road	100%	16	-	16	100%	16	-	16	-	16	100%
17 - N31 Between Stillorgan Road and Rock Road, Blackrock	-	17	-	17	-	17	-	17	100%	17	-

	TCC Landfall Site		OSS		TCC Clifton Park		TCC Leopardstown		O&M Base		ECR construction	
Link	%	Link	%	Link	%	Link	%	Link	%	Link	%
18 - N31 Frascati Road	-	18	-	18	-	18	-	18	100%	18	-
19 - R119 Monkstown Road	-	19	-	19	-	19	-	19	100%[3]	19	-
20 - R119 Cumberland Street	-	20	-	20	-	20	-	20	100%	20	-

[3] It is anticipated that this road will only take 50% of the construction traffic as it will only be used for accessing the O&M Base, with the route out of the O&M Base going via the N31. However it has been modelled at 100% in order to show a worst case, should all construction traffic be routed to and from the O&M Base along this route.

6.10.43 The assignment of HGV traffic onto the road network has been based upon the use of the motorway and national roads wherever possible before selecting regional roads and local roads to access the Landfall Site, the OSS, the TCCs and the O&M Base.

6.10.44 The distribution of HGV traffic represents how much of the total traffic will route along each link. If all traffic follows a single route, 100% of the traffic impacts that link. However, if route choices exist or HGVs must arrive and depart through different routes, the overall impact on each link is reduced accordingly. When HGVs use two distinct routes, no single link will experience 100% of the traffic. In cases where HGVs must arrive and depart from different routes, 50% of the distribution is assigned to the arrival route and 50% to the departure route. The total link impact only reaches 100% where the arrival and departure routes converge.

Construction workers networks assignment

6.10.45 It is expected that a reasonable proportion of the construction workers will be drawn from the greater Dublin area. However, for some elements of the construction process, specialist expertise will not be available from local labour sources. Those personnel who are not from the local area, i.e. beyond a reasonable daily commute, may use temporary accommodation in the Dublin and North Wicklow area.

6.10.46 As such, all workers will travel from the local area and suburbs of Dublin, either as residents or from local accommodation. Table 23 outlines the likely distribution of construction workers on the basis of this assumption.

Table 23 Distribution of construction workers

	TCC Landfall Site		OSS		TCC Clifton Park		TCC Leopardstown		O&M Base		ECR construction	
Link	%	Link	%	Link	%	Link	%	Link	%	Link	%
1 - Rathsallagh Drive	100%	1	-	1	100%-	1	-	1	-	1	100%
2 - Ballyogan Road	-	2	100%	2	-	2	-	2	-	2	100%
3 - R842 Link Road Between M50 J15 and Glenamuck Road North	-	3	20%	3	-	3	20%	3	-	3	100%
4 - Carrickmines Luas P&R Access	-	4	-	4	-	4	-	4	-	4	-
5 - Grand Parade	5%	5	5%	5	5%	5	5%	5	5%	5	-
6 - N31 Harbour Road	0%	6	-	6	-	6	-	6	100%	6	-
7 - Marine Road	-	7	-	7	-	7	-	7	20%	7	-
8 - Glenamuck Road (R842)	-	8	10%	8	-	8	10%	8	-	8	100%
9 - R118 Wyattville Road (Westbound between Valley Drive and M50)	40%	9	-	9	40%	9	-	9	-	9	50%
10 - R118 Wyattville Road (between the junction of L1065 and N11)	15%	10	-	10	15%	10	-	10	30%	10	100%
11 - Loughlinstown Drive	-	11	-	11	-	11	-	11	-	11	100%
12 - L1065 Wyattville Road	15%	12	-	12	15%	12	-	12	-	12	100%
13 - Shanganagh Road (Between junctions with Commons Road and Killiney Hill Road)	15%	13	-	13	15%	13	-	13	10%-	13	100%
14 - Shanganagh Cliffs	100%	14	-	14	-	14	-	14	-	14	100%
15 - Shanganagh Road Between R119 Main Street and Rathsallagh Drive/Shanganagh Wood)	40%	15	-	15	40%	15	-	15	10%	15	100%
16 - R837 Dublin Road	30%	16	-	16	30%	16	-	16	10%	16	100%
17 - N31 Between Stillorgan Road and Rock Road, Blackrock	-	17	-	17	-	17	-	17	30%	17	-

	TCC Landfall Site		OSS		TCC Clifton Park		TCC Leopardstown		O&M Base		ECR construction	
Link	%	Link	%	Link	%	Link	%	Link	%	Link	%
18 - N31 Frascati Road	0%	18	-	18	-	18	-	18	50%	18	-
19 - R119 Monkstown Road	0%	19	-	19	-	19	-	19	50%	19	-
20 - R119 Cumberland Street	0%	20	-	20	-	20	-	20	50%	20	-

6.10.47 Details of the proposed construction hours are set out in the Project Description Chapter which state that the core working hours will be 07:00-19:00 Monday to Friday and 08:00 – 14:00 on a Saturday, however, activities may take place outside of these hours at major trenchless crossing locations (TX-01, TX-06 and TX-07). Therefore, personnel movements are expected to be outside of the standard working hours as stated above.

Onshore construction traffic trip generation – overall

6.10.48 The combined HGV and construction worker traffic for the proposed development is shown in Table 24 to present the total impact of all construction activities for each link within the study area.

6.10.49 The below table assumes a "worst case" by applying the peak construction traffic typically associated with the establishment of the TCCs site compound and access. In addition to this traffic this table also accounts for construction traffic during the construction of the onshore ECR which will occur after the TCCs have been established. This traffic, although typically lower than the establishing of the compounds, will impact on additional links that will not be impacted by construction works to establish the TCCs.

6.10.50 To account for the ECR construction traffic it is assumed that two sections of the onshore ECR can be worked on at one time. This will generate a total of 28 daily trips (14 HGV, 14 LGV/Cars). The links impacted by the ECR route have been detailed in the above distribution tables.

6.10.51 To account for establishment of the TCCs and construction of the ECR as a worst case, ECR construction trips have been applied where:

- A link point is located on the ECR and is not subject to trips from TCC establishment; or
- A link point is located on the ECR and the daily trips to establish a TCC are lower than the ECR construction trips for HGVs, staff or total daily trips.

6.10.52 Where ECR trips are presented in bold, they are the worst case and will be used over TCC establishment trips. Where ECR trips are presented in grey they are lower than the worst case and are not used over the TCC establishment trips.

Table 24 Trip generation by proposed development construction element (AADT)

Link	Construction (HGV)						Construction (Staff)					
	Landfall	Remainder of the Onshore Electrical System			O&M	ECR	Landfall	Remainder of the Onshore Electrical System			O&M	ECR
		TCC Clifton Park	TCC Leopardstown Racecourse	OSS				TCC Clifton Park	TCC Leopardstown Racecourse	OSS		
1	51	18	0	0	0	14	22	9	0	0	0	14
2	0	0	0	31	0	14	0	0	0	138	0	14
3	0	0	7	6	0	**14**	0	0	22	28	0	14
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	1	0	5	7	2	0
6	0	0	0	0	14	0	0	0	0	0	30	0
7	0	0	0	0	0	0	0	0	0	0	6	0
8	0	0	7	6	0	**14**	0	0	11	14	0	14
9	25	9	0	0	0	7	9	4	0	0	0	7
10	0	0	0	0	0	**14**	3	1	0	0	9	**14**
11	0	0	0	0	0	**14**	0	0	0	0	0	**14**
12	0	0	0	0	0	**14**	3	1	0	0	0	**14**
13	0	0	0	0	0	**14**	3	1	0	0	3	**14**
14	51	18	0	0	0	14	22	0	0	0	0	14
15	51	18	0	0	0	14	9	4	0	0	3	14
16	51	18	0	0	0	14	7	3	0	0	3	14
17	0	0	0	0	14	0	0	0	0	0	9	0
18	0	0	0	0	14	0	0	0	0	0	15	0
19	0	0	0	0	14	0	0	0	0	0	15	0
20	0	0	0	0	14	0	0	0	0	0	15	0

6.10.53 Table 25 confirms the number of construction vehicles predicted to be on the links within the study area during the construction period of the onshore infrastructure.

Table 25 Total construction traffic by link (AADT).

Link	Total	HGVs
1	98	69
2	169	31
3	63	14
4	0	0
5	15	0
6	44	14
7	6	0
8	39	14
9	46	34
10	28	14
11	28	14
12	28	14
13	28	14
14	91	69
15	83	69
16	83	69
17	23	14
18	29	14
19	29	14
20	29	14

*Note any errors are due to rounding

Operational works

Trip generation – O&M Base (operational)

6.10.54 The operational trip generation has been calculated on the assumption that there will be a maximum of 80 staff at the O&M Base at any one time. The estimated number of daily trips is provided in Table 26.

6.10.55 It should be noted that this assessment presents a worst-case scenario by assuming all employees travel to the site by car. The reality of the site will be that staff will car share and use public transportation, given its town centre location with good levels of public transport availability.

Table 26 Operational staff movements (daily)

Item	2-Way trips (light vehicles)
Operation	
Staff	**245**

6.10.56 The assignment of daily worker movements associated with the O&M Base, during the operational phase, to the study area has been estimated using local knowledge of likely areas for workers to commute to the site.

Table 27 Distribution of workers (O&M Base)

Route link	Number of vehicles
1	0
2	0
3	0
4	0
5	12
6	245
7	49
8	0
9	0
10	74
11	0
12	0
13	25
14	0
15	25
16	25
17	74
18	123
19	123
20	123

6.11 Project design features and other avoidance and preventative measures

6.11.1 As outlined within Volume 2, Chapter 3: Methodology (hereafter referred to as the Methodology Chapter) and in accordance with the EPA Guidelines (EPA, 2022), this EIAR describes the following:

- Project Design Features: These are features of Dublin Array that were selected as part of the iterative design process, which are demonstrated to avoid and prevent potential adverse effects on the environment in relation to traffic and transportation. These are presented within Table 28.
- Other Avoidance and Preventative Measures: These are measures that were identified throughout the early development phase of the Dublin Array project, also to avoid and prevent likely significant effects, which go beyond design features. These measures were incorporated in as constituent elements of the project, they are referenced in the project description chapter of this EIAR and they form part of the project for which development consent is being sought. These measures are distinct from design features and are found within our suite of management plans. These are also presented within Table 28.

- Additional Mitigation: These are measures that were introduced to the Dublin Array project after a likely significant effect was identified during the EIA assessment process. These measures either mitigate against the identified significant adverse effect or reduce the significance of the residual effect on the environment.

6.11.2 All measures are secured within Volume 8, Chapter 4: Schedule of Measures (hereafter referred to as the Schedule of Measures Chapter).

Table 28 Project design measures relating to traffic and transport

<table>
<tr><th>Project design feature/other avoidance and preventative measures</th><th>Where secured</th></tr>
<tr><td colspan="2">Project Design Features</td></tr>
<tr><td>Trenchless techniques will be used at the following road and transport infrastructure crossings to ensure that they remain open during the Dublin Array onshore infrastructure construction phase:

▪ (TX-01) - underneath the Dublin/Wexford railway line;
▪ (TX-03) - underneath the R119 Shanganagh Road/Killiney Hill Road Roundabout;
▪ (TX-06) underneath the N11 at Loughlinstown;
▪ (TX-07) – underneath the M50; and
▪ (TX-08) – underneath the Glenamuck District Distributor Road (road currently in construction).</td><td>Project Description chapter</td></tr>
<tr><td colspan="2">Other avoidance and preventative measures</td></tr>
<tr><td>During the construction phase, access to the proposed Landfall Site TCC will be via a proposed temporary access track from the public road. The proposed temporary access track has been designed to ensure that the heavy construction traffic will avoid around 300 m of the residential properties on Shanganagh Cliffs (a total of 34 properties directly fronting on to Shanganagh Cliffs).</td><td>Project Description Chapter</td></tr>
<tr><td>Only roads where the width of the carriageway is unlikely to permit one lane to be kept open will be temporarily closed to install the cable. These closures will be partial only, with access in both directions being ensured through the use of traffic management measures.

Links where traffic management measures will be necessary are identified below. Where no traffic management is necessary these are included for information only (noting sector 7 does not include any roads and is therefore not included in the following table):

<table>
<tr><th>Onshore ECR sector</th><th>Highway links followed or crossed by the Onshore ECR</th><th>Category</th><th>Traffic management required whilst onshore ECR construction works are taking place on this link</th></tr>
<tr><td>Sector 1</td><td>Bayview Glen</td><td>Local</td><td>Yes – temporary lane closure. Temporary traffic lights will be required.</td></tr>
</table>
</td><td>Project Description Chapter</td></tr>
</table>

Project design feature/other avoidance and preventative measures				Where secured
	Bayview Crescent leading to Bayview Glade	Local	Yes – temporary lane closure. Temporary traffic lights required.	
	R119 Shanganagh Road (crossing)	Regional	No – onshore ECR installed by trenchless technique underneath R119 (TX-03). Thereafter, the onshore ECR will be installed in the greenspace to the west of Shanganagh Road. No works will take place directly to Shanganagh Road.	
	Achill Road	Local	Yes – temporary lane closure. Temporary traffic lights required.	
Sector 2	Gleanntan	Local	Yes – temporary lane closure. Temporary traffic lights required.	
	Loughlinstown Drive	Local	Yes – temporary lane closure. Temporary traffic lights required on this road	
	Cherrywood	Local	Yes – temporary lane closure. Temporary traffic lights required.	
Sector 3	N11 (crossing)	National	No – onshore ECR installed by trenchless technique underneath (TX-06)	
	R118	Regional	Yes – temporary lane closure. No temporary traffic lights required as R118 is dual carriageway in this sector.	
	Cherrywood Avenue	Local	Yes – temporary lane closure. Temporary traffic lights required.	
Sector 4	Consented Beckett Road	Local	Yes – temporary lane closure will be required to undertake the cable pulling during construction of the ECR.	
	R118 (crossing)	Regional	No – onshore ECR installed underneath R118 following alignment of proposed Beckett	

Project design feature/other avoidance and preventative measures				Where secured
			Road (note there will be lane closures on the R118 in Sector 3. Note, the R118 will remain open during this time as it is a dual carriageway in this section)	
	M50 (crossing)	National/ International	No – onshore ECR installed by trenchless technique underneath (TX-07).	
Sector 5	Old Glenamuck Road	Local	Yes – temporary lane closure. Temporary traffic lights required.	
Sector 5	Golf Lane	Local	Yes – temporary lane closure. Temporary traffic lights required.	
	R842 Glenamuck Road South	Regional	Yes – temporary lane closure. Temporary traffic lights required.	
Sector 6	R842 Glenamuck Road South	Regional	Yes – temporary lane closure. Temporary traffic lights required.	
	Glenamuck District Distributor Road (under construction) (crossing)	Regional	No – onshore ECR installed by trenchless technique underneath. (TX-08)	
Construction Traffic Management Plan A Construction Traffic Management Plan (CTMP) will be developed for the construction phase. The CTMP sets out mitigation measures that would be suitable to apply during the construction phase prior to the commencement of the construction and during the construction phase. A planning stage CTMP has been appended to the CEMP.				CEMP
Travel Plan (TP) A TP will be prepared prior to the start of construction works and will include a range of demand management measures including a target car share ratio.				CEMP

6.12 Environmental assessment: Construction stage

6.12.1 The predicted increases in traffic levels against the baseline levels have been calculated in this section for the Dublin Array onshore infrastructure, an assessment of the significance of the effect has been made against the criteria described in Section 6.5.

6.12.2 The IEMA Guidelines provide two thresholds when considering predicted increases in traffic, whereby further consideration of impacts would be required:

- Include highway links where traffic flows will increase more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and/or
- Include highway links of high sensitivity where traffic flows have increased by 10% or more.

6.12.3 There are sensitive receptors (e.g. residential properties, shop fronts, road side bus stops) present within the study area, however the study area as a whole is not considered sensitive. The majority of roads within the study area are main roads which currently experience high baseline flows from cars and LGVs and a normal level of HGV traffic. Therefore, the threshold of 30% has been applied to these links.

6.12.4 There are a number of residential roads which are considered to be more sensitive to an increase in traffic, in particular an increase in HGVs. Those roads located between the R119 and the R118 would experience traffic associated with the onshore ECR construction activities specifically, these roads are Loughlinstown Drive and Wyattville Road. These roads while located predominantly within residential areas also serve a range of other uses comprising a church, a school and a community centre, which are likely to be used by those classed as vulnerable road users. As such, these two locations are considered to have a high sensitivity where traffic flows would increase by 10% or more.

6.12.5 In addition, the route to the Landfall Site TCC area is likely to be sensitive to the increase in HGVs as Rathsallagh Drive provides access to a primary school and there are residential dwellings on Shanganagh Cliffs, with the route being used by pedestrians to access the coastal path and recreation areas. Both of these roads will support the construction vehicles travelling to the Landfall Site. In addition, these links also provide access to the Shanganagh WWTP which is also served by HGVs. However, as presented in Section 6.11 the proposed construction access has been designed to avoid around 300 m of the residential properties on Shanganagh Cliffs (a total of 34 properties directly fronting on to Shanganagh Cliffs).

6.12.6 The predicted development construction generated traffic (total traffic and HGVs) has been applied to the roads within the study area, as summarised in Table 29 and Table 30.

Table 29 Development construction traffic AADT Flows

Link No	Location	Total	HGV
1	Rathsallagh Drive (Between Shanganagh Cliffs and Rathsallagh Drive R/about)	98	69
2	Ballyogan Road (between junctions with Clay Farm Way and Ballyogan Avenue)	169	31
3	R842 Link Road Between M50 J15 and Glenamuck Road North	63	14
4	Carrickmines Luas P&R Access Road	0	0
5	Grand Parade (Between Junctions with Barringtons Road and Valley Drive)	15	0

Link No	Location	Total	HGV
6	Harbour Road (between junctions with Crofton Road and Queens Road)	44	14
7	Marine Road (between junctions with Queens Road and George Street Lower/Upper)	6	0
8	Glenamuck Road (Between Carrickmines South R/about and Glenamuck Road South R/about)	39	14
9	R118 (Westbound Only between junctions with Valley Drive and M50)	46	34
10	R118 Wyattville Road (Between junctions with Wyattville Road and N11)	28	14
11	Loughlinstown Drive (Between junctions with R118 Wyattville Road and Cherrycourt)	28	14
12	Wyattville Road (Between junctions with Oakton Park and R118 Wyattville Road)	28	14
13	Shanganagh Road (Between junctions with Commons Road and Killiney Hill Road)	28	14
14	Shanganagh Cliffs, Between Shanganagh Road and Landfall	91	69
15	R119 Shanganagh Road, Between R119 Main Street and Rathsallagh Drive/Shanganagh Wood	83	69
16	R837 Dublin Road, Between R119 Main Road and N11	83	69
17	N31 Between Stillorgan Road and Rock Road, Blackrock, Co. Dublin	23	14
18	N31 Frascati Road, Between Carysfort Avenue and Sweetman's Avenue	29	14
19	R119 Monkstown Road, Between Belgrave Square West and Belgrave Square East	29	14
20	R119 Dun Leary Hill, Between Wallace's Hill and De Vesci Terrace	29	14

6.12.7 Table 30 presents the total vehicle flows by link with and without the development in the future baseline assessment for the 24-hour AADT period, also shown in the tables are the corresponding magnitude category in line with IEMA Guidance rules; development traffic effect is considered in terms of total traffic and HGV traffic movements. As such, the first six columns present the development effect in terms of total traffic movements and the remaining six columns present the development effect in terms of HGV movements only.

Table 30 Construction phase traffic effects

Link	Total Traffic Effect							HGV Traffic Effect						
	Base	Dev Traffic	Total Traffic	Effect	Magnitude	Sensitivity	Signficance	Base	Dev Traffic	Total Traffic	Effect	Magnitude	Sensitivity	Signficance
1	1934	98	2032	5%	Negligible	Medium	Negligible	187	69	256	37%	Minor	Medium	Minor
2	13355	169	13524	1%	Negligible	Low	Negligible	1041	31	1072	3%	Negligible	Low	Negligible
3	25363	63	25426	0%	Negligible	Negligible	Negligible	1695	14	1709	1%	Negligible	Negligible	Negligible
4	3232	0	3232	0%	Negligible	Negligible	Negligible	97	0	97	0%	Negligible	Negligible	Negligible
5	569	15	584	3%	Negligible	Negligible	Negligible	213	0	213	0%	Negligible	Negligible	Negligible
6	2003	44	2047	2%	Negligible	Medium	Negligible	696	14	710	2%	Negligible	Medium	Negligible
7	23496	6	23502	0%	Negligible	Medium	Negligible	1005	0	1005	0%	Negligible	Medium	Negligible
8	39690	39	39729	0%	Negligible	Medium	Negligible	1374	14	1388	1%	Negligible	Medium	Negligible
9	23187	46	23233	0%	Negligible	Low	Negligible	741	34	776	5%	Negligible	Low	Negligible
10	25929	28	25957	0%	Negligible	Negligible	Negligible	437	14	451	3%	Negligible	Negligible	Negligible
11	4777	28	4805	1%	Negligible	High	Negligible	351	14	365	4%	Negligible	High	Negligible
12	7362	28	7390	0%	Negligible	Low	Negligible	252	14	266	6%	Negligible	Low	Negligible
13	6773	28	6801	0%	Negligible	Medium	Negligible	180	14	194	8%	Negligible	Medium	Negligible
14	1867	91	1958	5%	Negligible	Low	Negligible	64	69	133	107%	Major	Low	Moderate
15	11837	83	11920	1%	Negligible	High	Negligible	1514	69	1582	5%	Negligible	High	Negligible
16	11525	83	11608	1%	Negligible	Low	Negligible	453	69	521	15%	Negligible	Low	Negligible
17	12879	23	12902	0%	Negligible	Low	Negligible	396	14	410	4%	Negligible	Low	Negligible
18	29081	29	29110	0%	Negligible	Medium	Negligible	496	14	510	3%	Negligible	Medium	Negligible
19	15752	29	15781	0%	Negligible	Low	Negligible	454	14	468	3%	Negligible	Low	Negligible
20	7914	29	7943	0%	Negligible	High	Negligible	424	14	438	3%	Negligible	High	Negligible

6.12.8 Table 30 identifies that the total traffic flows will not increase above 30%, with the largest increase expected on Link 1 and Link 14 at 5%.

6.12.9 Furthermore, there is expected to be two links where the HGV flows would increase more than 30% when comparing to the 2030 Future Baseline, which would be Link 1 and Link 14 Shanganagh Cliffs.

6.12.10 For the HGV effects it is shown that there are no links where the HGV flows would increase more than 30% when comparing to the Future Baseline with Development.

6.12.11 The construction generated traffic is not expected to result in any significant impacts associated with the increase to the total flow of traffic, however there are possibly minor impacts on Link 1 and moderate impacts on Link 14, as set out below.

Impact 1: Road driver vehicle delay

6.12.12 The IEMA guidance states that there are a number of factors which determine driver severance and delay; these include delay caused by additional turning vehicles and additional parked cars at the site, delays at junctions due to increased traffic, as well as delays at side roads due to reduced gaps in the oncoming traffic.

6.12.13 The total traffic flows are predicted to increase by no more than 5% on all links. For HGV traffic the increase will be no more than 15% on all but two of the links (Link 1 Rathsallagh Drive [37%] and Link 14 Shanganagh Cliffs [107%])

6.12.14 As such, the magnitude of impacts on the majority of links (except Link 1 and Link 14) will be **negligible**. The significance of effect on these links will be **Negligible**, which is **Not Significant** in EIA terms.

6.12.15 On Link 1 Rathsallagh Drive, in terms of HGV traffic the magnitude of Impact will be Minor and on Link 14 Shanganagh Cliffs the magnitude of Impact will be Major. In the case of Link 1 Rathsallagh Drive, the significance of effect would be **Minor,** which is not significant in EIA terms and in the case of Link 14 Shanganagh Drive, the significance of effect would be **Moderate.**

6.12.16 As noted earlier, the magnitude of impact on Link 14 (Shanganagh Cliffs) is principally due to the low levels of HGV traffic currently using this road. The total traffic effect would be a 5% increase on current baseline traffic levels (see Table 30). Due to these low baseline levels the construction phase activities are not expected to lead to vehicle delays on the road. The significance of effect is therefore considered to be Not Significant in respect of road driver vehicle delay.

Onshore ECR traffic management measures

6.12.17 The slight delay resulting from the traffic management measures is not anticipated to result in long queues or delays. This is due to the fact that the vast majority of lane closures will occur on roads which are lightly trafficked or in the case of the R118, two lanes are available to accommodate the closure. All other roads where there would be significant levels of traffic will be crossed by trenchless techniques ensuring that disruption is kept to an absolute minimum.

6.12.18 In addition, the cable laying works and traffic management measures will be temporary and short lived; the magnitude of these impacts will therefore be of a **Low Magnitude**. Central to this professional judgement is consideration of the project design measures which have been set out in Section 6.11, which includes traffic management measures adopted during the construction of the onshore ECR.

6.12.19 The installation of the cables will require one lane of traffic to be closed for short sections while the cable is installed in the road and it is likely that the lane closures will need to be supported by traffic management measures, such as temporary traffic signals, which will result in slight delays to drivers of road vehicles. As such, the sensitivity is considered to be a **Low** sensitivity**.**

6.12.20 Therefore, as a worst case scenario, the impact on all Links is likely to be limited and primarily within the immediate vicinity of the Links. The duration of the impact is expected to be temporary, limited to the construction phase and is not expected to have a significant or widespread effect. As such, the overall effects on the study area and both cable routes from the cable laying works will be **Negligible** and **Not Significant.**

Impact 2 Severance of communities

6.12.21 The IEMA guidance identifies severance as *"the perceived division that can occur within a community when it becomes separated by a major traffic artery".* As an example, a road that passes through a community such as a town or village, where perhaps amenities are located on one side of the road and residential properties are located on the other side, causes severance to the movements between those places. The degree of severance depends on the traffic levels on the road and the presence of adequate crossing opportunities.

6.12.22 As set out in Table 30, the vast majority of links within the study area will either experience a Negligible increase or a Minor increase in the level of traffic due to the Dublin Array onshore infrastructure construction phase. As illustrated in Table 30, this is the same for the Total Traffic Effect and the HGV Traffic Effect.

6.12.23 For Link 14 (Shanganagh Cliffs), whilst the Dublin Array onshore infrastructure construction phase will generate only a 5% increase in total traffic, the percentage increase in the numbers of HGVs using this link will be more significant.

6.12.24 As set out in Table 30, the construction phase will lead to a 107% increase in the number of HGVs using the link. As described in Section 6.11, a temporary construction access road will be constructed which will mean that construction traffic will avoid a large proportion of Shanganagh Cliffs. Accordingly, the effect will only be experienced in the section running from the railway line to the playing fields, avoiding the section of Shanganagh Cliffs running up to the Shanganagh WWTP.

6.12.25 The extent of the impact on Link 14 will be limited as the increase is only expected to occur along a short section of the road. The frequency of the impact is expected to be throughout the duration of the construction phase. While this suggests it will persist over an extended period it is a temporary situation. The probability of impact can reasonably be expected to occur based on the anticipated changes in traffic patterns.

6.12.26 As set out in Section 6.7, Link 14 (Shanganagh Cliffs) was considered to be a Low sensitivity receptor, based upon its ability to accommodate degree of change and adapt to the increase in traffic. This was mainly driven by the very low HGV levels using the road at present. Whilst the construction phase would increase the numbers of HGVs using the link by 107%, this would be building upon a low baseline figure.

6.12.27 The magnitude of Impact in respect of severance is considered to be **Medium**. As the sensitivity of the receptor is considered to be **Low** (due to the low baseline traffic levels), the overall significance of effect will be **Minor**, and **Not Significant**.

6.12.28 Notwithstanding, it is recognised that due to the low levels of HGV traffic on Link 14, Shanganagh Cliffs additional mitigation may be appropriate in order to further reduce the magnitude of impact. Additional measures are presented below.

Onshore ECR

6.12.29 In addition, as set out in Section 6.6 there are a number of sectors where the onshore ECR will run along the road carriageway. These sectors and the respective public roads are presented in Table 31.

Table 31 Highway links followed by the Onshore ECR

Onshore ECR sector	Highway links followed by the Onshore ECR	Road Classification
Sector 1	Bayview Glen	Local
	Bayview Crescent leading to Bayview Glade	Local
	Achill Road	Local
Sector 2	Gleanntan	Local
	Loughlinstown Drive	Local
	Cherrywood	Local
	R118	Regional
	Consented Beckett Road	Local
Sector 5	Golf Lane/Old Glenamuck Road	Local
	R842 Glenamuck Road	Regional

Onshore ECR sector	Highway links followed by the Onshore ECR	Road Classification
Sector 6	R842 Glenamuck Road	Regional

6.12.30 All of these roads have at least two lanes of traffic, segregated footways and crossing facilities. Temporary traffic management such as lane closures will be utilised to facilitate the onshore ECR construction works within these roads. Duration of the construction works associated with the onshore ECR will be temporary and so any impacts will be short lived.

OSS and O&M Base

6.12.31 As concluded in Section 6.10 all links affected by the construction of the OSS and O&M Base specifically are expected to experience a negligible increase in the volume of Total Traffic and HGV Traffic. On this basis further detailed assessment is not required, in line with IEMA Guidelines.

Additional mitigation measures

6.12.32 At Link 14 (Shanganagh Cliffs) specific measures will be deployed. Provision of information to local residents and users of amenities will ensure they are fully aware of the construction works to alleviate stress and anxiety.

6.12.33 Details to be shared will include the purpose of the works, duration and any specific traffic management measures that will be deployed. Dublin Array will work with key stakeholders to agree the method of engagement with these residents and users of amenities.

6.12.34 Through the deployment of these measures, it is considered that the magnitude of impact can be reduced to **Minor**, resulting in an **Minor** effect, which is **Not Significant**.

Impact 3: Pedestrian and non-motorised user delay

6.12.35 Non-motorised road users, or vulnerable road users, are defined as road users most at risk from road traffic (pedestrians, particularly children and older adults or disabled people, cyclists, and motorcyclists).

6.12.36 The impact of traffic on vulnerable road users would be most substantial within residential areas along the proposed construction access routes where the presence of vulnerable road users, such as pedestrians and cyclists, is greatest.

6.12.37 The residential road Links within the study area (Loughlinstown, Wyattville Road, Rathsallagh Drive and Shanganagh Cliffs) are likely to see greater levels of vulnerable road users, as well as links located in busier urban areas (Marine Road and Harbour Road). As such certain links are likely to demonstrate a higher number of sensitive receptors. Such links include Link 1 (Rathsallagh Drive), Link 6 (N31 Harbour Road), Link 7 (Marine Road), Link 8 (Glenamuck Road), Link 13 (Shanganagh Road) and Link 18 (N31 Frascati Road), all of which are identified as having **medium sensitivity.** Link 11 (Loughlinstown Drive), Link 15 (R119 Shanganagh Road) and Link 20 (R119) are identified as having **high sensitivity**.

6.12.38 In line with DMRB LA112, locations where the traffic flow is greater than 16,000 vehicles per day would be considered to have a very high sensitivity; this occurs at Link 3 (R842 Link Road Between M50 J15 and Glenamuck Road North, Link 8 (Glenamuck Road), Link 18 (N31 Frascati Road) however all these links will see less than a 1% increase in traffic as a result of the Dublin Array onshore infrastructure construction phase. As such all links are identified with impacts of either **negligible** or **low magnitude.**

6.12.39 As a worst case scenario, the impact on Links 3, 8 and 10 would be limited and contained to the road environment. The duration of the impact is expected to be temporary, limited to the construction phase and is not expected to have a significant or widespread effect.

6.12.40 It is considered that the likely significant effects on pedestrian and non-motorised user delay for crossing movements on the roads within the study area would be short term and temporary, and therefore a **Negligible** or **Minor adverse** effect and **Not Significant** in EIA terms.

Impact 4: Non-motorised user amenity

6.12.41 Pedestrian amenity is defined in the IEMA (2023) guidelines as *"the relative pleasantness of a journey"*, which is generally affected by traffic flow and traffic composition, with pedestrian infrastructure also taken into account. In addition, pedestrian fear and intimidation are also included.

6.12.42 The impact of the additional traffic on non-motorised user amenity should only be considered where the change in traffic flows or HGV flows is more than 50% and 100%, respectively, and a judgement to be made on routes where the traffic increase is greater than this.

6.12.43 As such, it is considered that the overall worst case impact on non-motorised user amenity is **Negligible** due to the increase in total traffic of less than 32%. In addition, the short term and temporary nature of the construction works, taking into account the project design measures presented in Section 6.11 will result in effects that are **Negligible** and **Not Significant** in EIA terms**.**

Impact 5: Road user and pedestrian safety

6.12.44 There are no general thresholds used when determining the significance of increased traffic on highway safety, therefore professional judgement is required to identify the potential road safety effects associated with the construction phase. The IEMA guidance confirms that existing road accident rates and professional judgement are needed to assess the implications of the cumulative construction traffic.

6.12.45 It has not been possible to obtain PIC data for the study area as no location specific data is currently available from the RSA. The national data reviewed has identified that the number of collisions and those killed and injured within Dublin increased in 2019 in comparison to 2015. This data does not allow any conclusions about road safety within the study area to be confirmed and it does imply that there are some road safety issues within Dublin. Due to the lack of information available regarding existing road safety within the study area it is prudent to classify all links as having a **high sensitivity** to road safety.

6.12.46 The increase in total traffic has been identified in Table 30 to be below the 30% threshold. As set out in Table 30, the maximum increase in total traffic arising as a result of the construction phase would be 5%. Any impacts would be limited to the duration of the construction phase. Construction traffic would be controlled through the use of a CTMP, the outline of which was presented in Section 6.11. Key measures in respect of road safety included:

- Contractors – all contractors will have relevant experience working on underground HV cables and OSS construction projects;
- Signage – Warning signs will be provided throughout the construction locations;
- Construction site traffic - traffic visiting the construction sites (TCCs, OSS and O&M Base) will be required to report to the gatehouse/reception to obtain clear instructions. Inductions will be completed, vehicle permits will be issued, and the site rules and emergency procedure will be explained;
- During the construction phase, a project website will be regularly updated with project news to provide the latest information to the community. In relation to the traffic movements associated with the site, the website will be kept up to date.

6.12.47 On the basis of the low increase in total traffic effect and the measures which would be included in the CTMP, the impact to road safety is anticipated to be **Negligible.**

6.12.48 In accordance with the significance criteria set out in Section 6.5, the level of effect for the duration of the construction period is considered to be **Minor** and **Not Significant** in EIA terms**.**

Impact 6: Impacts caused by AILs/large loads

6.12.49 As set out in the Project Description Chapter, Abnormal Indivisible Loads (AILs) would only be necessary during the construction of the OSS. All other elements of the onshore infrastructure would be constructed using conventional HGV loads.

6.12.50 Access to the OSS site on Ballyogan Road would be taken from the M50 directly into the OSS site off Ballyogan Road. No permanent road modifications would be necessary to facilitate the deliveries. The necessary consents and permits would be obtained in advance of any works or delivery periods.

6.12.51 The severity of these impacts is considered as follows:

- Delays to drivers due to slow moving AILs/large loads may occur although this is expected to be limited to national road network and a short section of Ballyogan Road into the site of the OSS. Abnormal loads would travel in convoy and movements would be timed so as to avoid the peak hours. Abnormal load movements occurring outside of the peak hours would have a temporary minor adverse effect; and

6.12.52 There may be the potential to group the component deliveries into a number of small convoys. This would allow the deliveries to occur over a reduced number of days, while only slightly increasing the impact on those days.

6.12.53 All abnormal load deliveries will be completed in consultation with the relevant roads authorities and Garda Síochána and could include movements during the night which would reduce effects on road users at busier daytime periods. Deliveries will be scheduled to avoid peak times of the day and school opening/closing times.

6.12.54 There would be **Minor** magnitude impact associated with the delivery of components on the short section of Ballyogan Road that will be used. Given the infrequency of the impact and limited duration the probability of the impact is very unlikely. The overall significance of effect would be **Minor** and **Not Significant** in EIA terms.

6.13 Environmental assessment: operational phase

Impact 7: Road driver and vehicle delay arising from operation of the O&M Base

6.13.1 The O&M Base is predicted to generate additional traffic associated with the staff movements once the site is fully operational. Table 32 sets out the traffic generation for the staff working at the O&M Base and Table 33 identifies the increase to the base flows on Harbour Road and Marine Road during the peak arrival and departure times as a result of the O&M generated traffic. Beyond these roads, it is expected that operational traffic will disperse and have a negligible impact on the local road network.

Table 32 O&M Base staff traffic generation

Time	Arrivals	Departures	2-Way
07:00-08:00	18	1	19
08:00-09:00	22	2	24
09:00-10:00	27	5	32
10:00-11:00	5	6	11
11:00-12:00	4	6	10
12:00-13:00	6	14	20

Time	Arrivals	Departures	2-Way
13:00-14:00	18	13	31
14:00-15:00	12	6	18
15:00-16:00	5	14	19
16:00-17:00	4	28	32
17:00-18:00	2	8	10
18:00-19:00	1	18	19

Table 33 Impact of O&M Base traffic

Time	Harbour Road			Marine Road		
	Baseflows	O&M	Increase (%)	Baseflows	O&M	Increase (%)
09:00-10:00	108	32	29.6%	381	6	1%
16:00-17:00	173	32	15.6%	519	6	<1%
12 hr	1556	245	3%	4688	49	1%

6.13.2 As shown in the table above the impact of the additional traffic associated with the O&M base would result in less than a 1% increase in traffic on Marine Road and a 29.6% increase in flows along Harbour Road.

6.13.3 It should be noted that this assessment presents a worst-case scenario by assuming all employees travel to the site by car. The reality would be that staff would car share and use public transportation, given the O&M Base's town centre location with good levels of public transport availability.

6.13.4 Assuming a worst case that all operational phase workers were to drive to the O&M Base, the magnitude of Impact would be Medium. On this Medium sensitivity receptor this would be a Moderate impact. However, as set out above it is highly unlikely that all workers would drive to site individually. In this context, together with the consideration that the peak movement would amount to 32 trips (assuming worst case as above) on Harbour Road, the overall magnitude of impact is anticipated to be **Minor (Low)**. On this **Medium** sensitivity receptor, the overall significance of effect is anticipated to be **Minor**, which is **Not Significant** in EIA terms.

6.14 Environmental assessment: decommissioning phase

OES

6.14.1 The construction, operation and maintenance works associated with the OES will be managed by the Applicant until the end of the proving period and handover of ownership to EirGrid. As the enduring asset owner, EirGrid will become responsible for decommissioning of the transferring assets at the end of their deemed lifetime.

6.14.2 Accordingly, this planning application does not seek permission for decommissioning of the OES. However, for the purpose of enabling a comprehensive environmental impact assessment, we have set out below our recommended approach to decommissioning, should EirGrid choose to decommission any aspect of the OES. This approach is informed by the Applicant's experience of decommissioning onshore substations and onshore export cables on other projects and knowledge of how EirGrid typically do this.

6.14.3 In addition, we have set out below the factors which should inform any decision by EirGrid to decommissioning:

- The baseline environment at the time decommissioning works are carried out;
- Technological developments relating to decommissioning of onshore transmission infrastructure;
- Changes in what is accepted as best practice relating to decommissioning of onshore transmission infrastructure;
- Submissions or recommendations made by interested parties, organisations and other bodies concerned with decommissioning of onshore transmission infrastructure; and
- Any new relevant regulatory requirements.

6.14.4 Further, any decommissioning works must:

- Comply with any decommissioning specific conditions in the Development Consent;
- Ensure that the environmental impacts are consistent or less in scale and magnitude to those predicted in the EIAR, Natura Impact Statement and Water Framework Directive Assessment associated with the Development Consent, any amendment of the Development Consent or any subsequent consent EirGrid might be granted in respect of decommissioning;
- Comply with the relevant health and safety regulations.

6.14.5 A decommissioning plan, along with an environmental management plan, should be prepared before any decommissioning works begin. If necessary, an application for consent should be made by Eirgrid, and submitted to the relevant competent authority, in respect of any decommissioning works which require consent. We would expect any such application to involve further environmental assessment and public participation, and for any decision made by the competent authority to be judicially reviewable.

O&M Base

6.14.6 A Decommissioning and Restoration Plan has been included in Volume 7 Appendix 7.2 of the Environmental Impact Assessment Report. As outlined in the Decommissioning and Restoration Plan, the O&M building will be either re-purposed for an alternative use, or demolished following the decommissioning of the offshore infrastructure.

6.14.7 Following the decommissioning of the offshore infrastructure the fencing and pontoon will be removed, and the hardstanding area will be taken over by DLRCC for general harbour operations.

6.14.8 Decommissioning activities for the OES and the O&M Base are not anticipated to exceed the construction phase design parameters which have been assessed in Section 6.12. Accordingly, it is anticipated that there would be the same level of impact and resulting level of effect and significance (or less) in comparison to the assessment of construction effects set out in Section 12 of this chapter.

6.15 Environmental assessment: cumulative assessment

6.15.1 The cumulative assessment for traffic and transport was undertaken in Section 6.7 in order to determine the future baseline position. Reference should be made to this section for details of the approach taken.

6.16 Interactions of the environmental factors

6.16.1 A matrix illustrating the likely interactions of the foregoing arising from the proposed development on Traffic and Transportation receptors is provided in Volume 8, Chapter 1: Interactions of the Environmental Factors.

6.16.2 Interactions of the foregoing are considered to be the effects and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- **Project lifetime effects**: Assessment of the scope for effects that occur throughout more than one phase of the project (construction, operation and decommissioning) to interact and potentially create a more significant effect on a receptor than if just assessed in isolation in these three project phases.
- **Receptor-led effects:** Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. For example, all effects on soil quality such as compaction, contamination, and changes in soil structure may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects.

6.16.3 As indicated in the interactions matrix (Volume 8, Chapter 1: Interactions of the Environmental Factors), there are linkages between the topic-specific chapters presented within this EIAR, whereby the effects assessed in one chapter have either the potential to result in secondary effects on another receptor.

6.16.4 The different Land, Soils, and Geology effects are already inter-related. Therefore, these linked processes have been considered within the assessment. The potential effects on Land, Soils, and Geology during construction, operational and decommissioning phases of the Dublin Array have been assessed in Sections 6.12 to 6.15. In turn, this assessment of changes to Traffic and Transportation has been used to inform other EIA aspects.

6.16.5 Traffic and Transportation effects also have the potential to have secondary effects on other receptors which have been fully assessed in the topic-specific chapters. These receptors are:

- Noise – Volume 5, Chapter 5; and

- Air Quality – Volume 5, Chapter 10.

6.17 Transboundary effects

The onshore infrastructure of the proposed development is located wholly within the Republic of Ireland. There are no transboundary effects associated with traffic and transportation in relation to Dublin Array.

6.18 Summary of effects

6.18.1 Summary of effects are presented in the following table.

Table 34 Summary of predicted effects (post-mitigation)

Impact	Mitigation Measures	Residual effects
Construction phase		
Impact 1: Road vehicle and passenger delay	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Impact 2: Community severance	At Link 14 (Shanganagh Cliffs) specific measures will be deployed. Provision of information to local residents and users of amenities will ensure they are fully aware of the construction works to alleviate stress and anxiety. Details to be shared will include the purpose of the works, duration and any specific traffic management measures that will be deployed. Dublin Array will work with key stakeholders to agree the method of engagement with these residents and users of amenities. The terms of this engagement will be set out in the final CTMP for the onshore infrastructure.	No significant adverse residual effects
Impact 3: Pedestrian and non-motorised user delay	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Impact 4: Non-motorised user amenity	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Impact 5: Road user and pedestrian safety	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Impact 6: Hazardous/Large loads	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Operational Phase		

Impact	Mitigation Measures	Residual effects
Impact 7: Road driver and vehicle delay arising from operation of the O&M Base	No further mitigation beyond the project design and other avoidance and preventative measures set out in Section 6.11.	No significant adverse residual effects
Decommissioning effects		
Decommissioning activities are not anticipated to exceed the construction phase worst case criteria which were assessed in Section 6.12.		
Cumulative effects		
Cumulative effects have been incorporated into the assessment in Section 6.12 as part of the future baseline position.		

6.19 References

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Annex 1 Cumulative Projects List

Proposed Development	Address	Reference	Developer	Status of Development
BusConnects Bray to City Centre Core Bus Corridor Scheme	Bray to Dublin City Centre	ABP 317742	Local Authority Projects SID Dublin City Council/Wicklow County Council	Case not decided
Leopardstown racecourse: 10 year planning permission for development comprising alterations and modifications to the Racecourse	Leopardstown Racecourse, Foxrock, Dublin 18.	D02A/0698/E	Leopardstown Racecourse	Temporary permission
Glenamuck District Roads Scheme	Glenamuck Road	ABP 303945	Dun Laoghaire Rathdown County Council	Construction started
Mixed use development on a 6.9 hectares (17 acre) site incorporating amendments to previously permitted development Reg Ref D03A/1239	The Park, Brookfield, Glenamuck Road, Carrickmines Great & Jamestown, Dublin 18	D07A/0936	Tristor Ltd	Some earthworks. Construction not started.
30 no. residential development (houses) and 173 no. apartments, Glenamuck Road South, Kilternan, Dublin 18.	Glenamuck Road South, Kilternan, Dublin 18.	ABP303978	Victoria Homes Ltd	Construction largely complete - considered as part of the baseline
927 no. residential units (355 no. houses and 572 no. apartments), a neighbourhood centre	Clay Farm, Ballyogan Road, Dublin 18	ABP301522	Viscount Security	Construction largely complete- considered as part of the baseline
443 no. residential units (41 no. houses, 402 no. apartments), creche and all associated site works.	Priorsland, within the townlands of Carrickmines Great and Brennanstown, Dublin 18. (www.priorslandshd.ie)	ABP313322	1 Carrickmines Land Limited	Case still live at cut off date. Due for determination soon

Proposed Development	Address	Reference	Developer	Status of Development
482 no. apartments, creche and associated site works.	Golf Lane, Carrickmines, Dublin 18.	ABP309026	Bowbeck DAC	Construction has started
Proposed Amendment No. 7 of the Cherrywood Planning Scheme 2014 (as amended) - Beckett Road Re-alignment and Ancillary Amendments.	Cherrywood, County Dublin	ZE06D.308753	Dun Laoghaire Rathdown County Council	Construction not started
418 Build-to-rent apartment units within Cherrywood SDZ	Townland of Cherrywood, Dublin 18 (southside of the R118)	DZ22A/0591	RGRE Devco 4 Limited	Site cleared - Construction not started
192 apartment units, childcare facility, office development of 12,223 sq.m., 1,242 sq.m. non-retail commercial space and associated development	Townland of Cherrywood, Dublin 18	Cherrywood SDZ		Status unknown
The proposed development will comprise a total of 191,115sq.m (gross floor area - GFA) in 15 blocks including: 1,269 no. residential units (115,332 sqm), Retail Gross (20,284 sqm), High Intensity Employment (HIE) uses (22,946 sqm), Non Retail uses (31,115 sqm), Community uses (1,437 sqm) and associated work	Cherrywood, County Dublin (north side of R118/Grand Parade)	DZ17A/0862	Hines Cherrywood Dev Fund ICAV	Construction started

Proposed Development	Address	Reference	Developer	Status of Development
The proposed development comprises 482 no. residential units in a mix of apartments, duplexes, triplexes and houses ranging from 3 to 5 storeys.	In the Townlands of Laughanstown, Brennanstown and Cherrywood, Dublin 18.	DZ20A/0690	Quintain Developments Ireland Limited	Construction started
Planning application for the provision of 162 no. residential units within the Cherrywood SDZ Planning Scheme.	In the Townlands of Laughanstown and Cherrywood, Dublin 18.	DZ22A/0133	LSREF V Eden TC6 Limited	Construction started
184 no. residential units (134 no. apartments 14 no. duplex units and 36 no. houses), local neighbourhood road and associated site works.	Townland of Laughanstown, Dublin 18 (lands generally bounded by Bishop Street to the south, the Luas green line to the east and Tully Park to the north).	ABP 303429	Hines Cherrywood Development Fund ICAV	Site cleared but construction not started
Mixed-use Village Centre and residential development comprising 402 no. apartments, 41 houses, retail, commercial, creche, community, offices, gym, park, open spaces.	Priorsland, located within the townlands of Carrickmines Great and Brennanstown, Dublin 18	ABP31332222	Carrickmines Land Limited	Case still live at cut off date (Aug 2024). Due for determination soon
Residential development of 56no. units (apartments and duplexes), and 1no. childcare facility, all in a range of buildings of 3 to 4 storeys in height.	Site at Development Area 8 - Development Tile 13, Cherrywood SDZ, in the Townlands of Laughanstown and	DZ23A/0010	LSREF V Eden T13 Limited	Invalid Application

Proposed Development	Address	Reference	Developer	Status of Development
	Brennanstown, Dublin 18			
Total of 158 no. dwellings; 25 no. detached houses	Barrington Tower, Brennanstown Road, Cabinteely, Dublin 18	D07A/0161/E	C/o Green Property Ventures	Construction not started
Permission for retention and completion of modifications to the development permitted under Reg. Ref.:D18A/0257 and ABP Ref.: 304396-19. The proposed amendments to the permitted development comprise modifications to the Ballyogan Link Road	Lands known as Quadrant 3, The Park, Brookfield, Glenamuck Link Road, (also known as Glenamuck Road) and Ballyogan Road, Carrickmines Great and Jamestown, Dublin 18	D21A/1115	IPUT Plc	Consent granted - construction not started
Demolition of all existing buildings (1985sq.m) on site and the construction of a 4 storey Primary Care Centre and General Practitioner (GP) Surgery with a gross floor area of 4,267sq.m.	Lands at Loughlinstown Drive (0.5685ha), Loughlinstown, Co. Dublin comprising Loughlinstown Industrial Estate and part of HSE Health Centre	D19A/0797	Melcorpo Commercial Properties	Consent granted - construction not started
32 unit apartment block	Conna, Abingdon Park, Shanganagh Road, Shanganagh, Shankill. Co. Dublin, D18WF54	D21A/1082	Mr. Ian Ronayne	Consent granted - construction not started

Proposed Development	Address	Reference	Developer	Status of Development
Amendments to the permitted Strategic Housing Development (SHD) planning permission (Ref. ABP-308418-20). The amendments will be to permitted Blocks B, C and D to provide 5 no. additional apartments resulting in a total of 198 no. apartments across the entire development.	Site to the south of Abingdon, Shanganagh Road, Shankill, Dublin 18	LRD24A/0396/WEB	Cairn Homes Properties Limited	Consent granted - construction not started
Demolition of Barn Close Lodge, refurbishment of Beechlands House, Barn Close and Shanganagh Castle. Provision of 61 no. residential units and associated works. Barn Close Lodge, Beechlands and	Shanganagh Castle, Shankill, Dublin 18.	D15A/0840	Fortiori Developments Ltd.	Consent granted - construction not started
The construction of a 120 no. bed nursing home facility (4 and 5 storeys in height) and all associated site clearance, excavation and development works.	Rose Cottage, 26 Cherrywood Road, Shankill, Dublin 18, D18 P4A7	D23A/0054	Galadar Properties Limited	Planning permission refused and Appeal refused.
The new build development of 23no. residential units (9no. apartment units, 9no. duplex units and 5no. house units)	Saint Annes, Dublin Road, Shankill, Dublin 18, D18 H9V3	D23A/0806	Maplepond Limited	Consent granted - construction not started. Note previous larger scheme on this site was refused
Construction of 42 no. residential units	Loughlinstown Wood (lands part of playing pitches),	D17A/0381	Cooperative Housing Ireland Ltd	Not built

Proposed Development	Address	Reference	Developer	Status of Development
	Loughlinstown, Glenageary, Co Dublin (west of Cois Cualann, Ballybrack, Glenageary, Co. Dublin)			
The East Coast Railway Infrastructure Protection Project (ECRIPP).	The Dalkey Tunnel to Shanganagh Wastewater Treatment Plant cell of the project	N/A	Irish Rail	Pre-Application Stage
Deansgrange Flood Relief Scheme	Glenavon Park	N/A	DLRCC/OPW	Pre-application Stage
Dublin Replacement Underground Cable Programme CP1146 Carrickmines to Poolbeg Cable Replacement	Carrickmines to Poolbeg, South Dublin	N/A	Eirgrid	Pre-application Stage
14 residential units	Northumberland Avenue (with fronting to Lee's Lane), Dun Laoghaire, Co. Dublin Residential development consisting of 14 residential units.	D20A/0582	Cumberland Developments Ltd	Consent granted - construction not started
National Watersports Centre - proposed development of a	Dun Laoghaire Harbour, Dun	N/A	DLRCC	Pre-application Stage

Proposed Development	Address	Reference	Developer	Status of Development
watersports centre in the harbour area	Laoghaire, County Dublin.			
Ferry Terminal Building Development. Removal/Deletion of condition number 2 of the Grant of Planning Permission Register Ref No. D18A/0078 and redesign of ground floor restaurant to be substituted by a food court.	Dun Laoghaire Harbour, Dun Laoghaire, County Dublin.	D18A/0078.	Work Shack Ltd	Consent granted - construction not started
Demolition of existing building on site and the construction of 3-5 storey over basement apartment building containing 25 no. apartments, car parking spaces, bicycle spaces and all associated site works. Subsequently varied by D23A/0646 to add a further 12 units.	Site of 0.13ha at 7-9 Clarence Street and George's Place, Dun Laoghaire, Co. Dublin	D21A/0519 (D23A/0646)	Kavco Limited	Consent granted - construction not started
Whether the proposed Coastal Mobility Scheme development to urban public realm, public and non-public roads is or is not development and/or is or is not exempted development.	Temple Road/Newtown Avenue to junction of Sandycove Avenue West/Sandycove Point, which includes a section of Harbour Road	318088	Susan Joyce	Decision pending at cut off date (Aug 2024)

Registered office:
Unit 5,
Desart House,
Lower New Street,
Kilkenny
www.RWE.com