Central Dublin Substation Project

Site-Specific Flood Risk Assessment

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1 Introduction

1.1 Nature of Application

RPS has been appointed by EirGrid plc (hereafter EirGrid) to prepare a Strategic Infrastructure Development (SID) planning application under Section 182A of the *Planning and Development Act 2000,* as amended (the Act) for the Central Dublin Substation Project which comprises of the construction of a new transmission substation in East Wall, Dublin 3 (hereafter referred to as the "Proposed Development").

The SID planning application is made following receipt of the formal notice from An Coimisiún Pleanála (ACP), dated 12th June 2025 (Ref: ABP-322217-25) which confirms that the Proposed Development constitutes strategic infrastructure under Section 182 of the Act, and formally concludes pre-application consultation with An Coimisiún Pleanála.

This Site-Specific Flood Risk Assessment comprises part of the SID planning application documentation submitted to An Coimisiún Pleanála.

1.2 Objectives

The objective of this report is to carry out a Site-Specific Flood Risk Assessment (FRA) of the proposed new transmission substation site. The FRA examines any flooding risks to the proposed new transmission substation site and assesses any impacts of the proposed new transmission substation on the existing flooding/hydrological regimes of the adjacent watercourses, lands, and properties.

This Flood Risk Assessment has been prepared under the Planning System and Flood Risk Management Guidelines for Planning Authorities (DoEHLG & OPW, 2009) (hereinafter referred to as "the Planning Guidelines").

1.3 The Planning System and Flood Risk Management Guidelines

Flood Risk Assessments aim to identify, quantify and communicate to decision-makers and other stakeholders the risk of flooding to land, property and people. The purpose is to provide sufficient information to determine whether a proposed development or change in land use is appropriate from a flood risk perspective. A Flood Risk Assessment can be undertaken either over a large area or for a particular site to:

- Identify whether and the degree to which flood risk is an issue;
- Identify flood zones (if not already available);
- Inform decisions in relation to zoning and planning applications; and
- Develop appropriate flood risk mitigation and management measures for development sited in flood risk areas.

1.3.1 Flood Risk

Understanding flood risk is a key step in managing the impacts of flooding. Flood risk is a combination of the likelihood of flooding and the potential consequences arising:

Flood Risk = (Likelihood of flooding) x (Consequences of flooding)

The likelihood of flooding is defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. The consequences of flooding depend on the hazards associated with the flooding and the vulnerability of people, property and the environment potentially affected by a flood.

1.3.2 Types of Flooding

There are two main sources of flooding: coastal flooding and inland flooding.

Coastal flooding is caused by higher sea levels than normal, largely due to storm surges, resulting in the sea overflowing onto the land. Key factors of coastal flooding include high tide level, storm surge and wave action.

Inland flooding is caused by prolonged and/or intense rainfall. This results in fluvial, pluvial or groundwater flooding acting independently or in combination.

- Fluvial flooding occurs when a river overtops its banks due to a blockage in the channel or the channel capacity is exceeded.
- Pluvial flooding occurs when overland flow cannot infiltrate into the ground, when drainage systems exceed their capacity or are blocked and when and when the water cannot discharge due to a high-water level in the receiving watercourse.
- Groundwater flooding occurs when the level of water stored in the ground rises to meet the ground surface and flows out over it after a period of prolonged rainfall.

1.3.3 Likelihood of Flooding (Flood Zones)

Flood zones are geographical areas within which the likelihood of flooding is in a particular range, and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning. There are three types of flood zones defined for the purposes of flood risk planning guidelines:

Flood Zone A – Where the probability of flooding from rivers and the sea is highest (greater than 1%AEP or 1 in 100 years for river flooding or 0.5%AEP or 1 in 200 for coastal flooding)

Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding)

Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas not in zones A or B

1.3.4 Consequences of Flooding (Flood Hazards and Development Vulnerability)

The Guidelines provide three vulnerability categories, based on the type of development, which are detailed in Table 3.1 of the Guidelines, and are summarised as:

- Highly vulnerable, including residential properties, essential infrastructure, and emergency service facilities.
- Less vulnerable, such as retail and commercial, and local transport infrastructure.
- Water compatible, including open space, outdoor recreation and associated essential infrastructure, such as changing rooms.

1.3.5 Sequential Approach

A sequential approach to the development process is essential when managing flood risk. This involves five principles in the management of flood risk: Avoidance, Substitution, Justification, Mitigation and Proceeding with the development. **Figure 1-1** extracted from Section 3.1 of the Planning Guidelines sets out the broad philosophy underpinning the sequential approach in flood risk management.

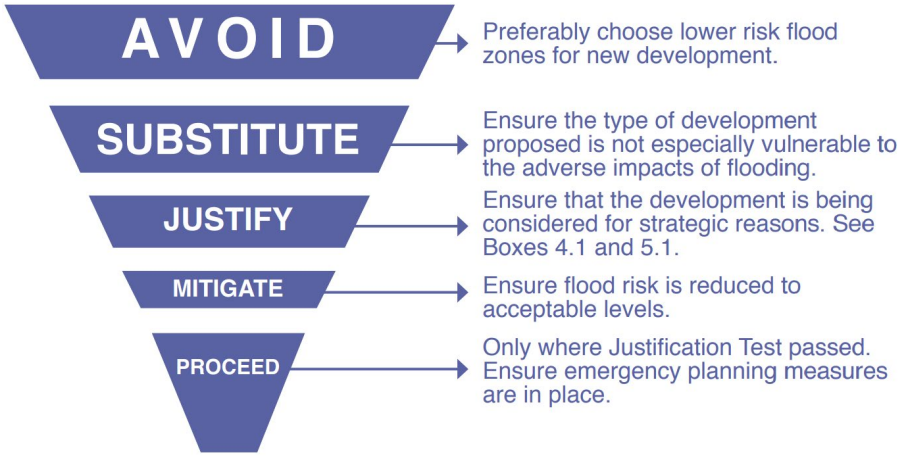


Figure 1-1: Sequential approach principles in flood risk management

(extract from the Planning Guidelines)

1.3.6 Justification Test

The Justification Test may be required where a development is deemed vulnerable and is located within Flood Zone A or Flood Zone B. The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of developments that are being considered in areas of moderate or high flood risk. **Table 1.1** presents the criteria to determine the requirement for completion of the Justification Test based on flood zone and vulnerability of the proposed development or land use.

Table 1.1: Matrix of vulnerability vs flood zone

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

1.3.7 Staged Approach

A staged approach to flood risk should be adopted, carrying out only such appraisal and or assessment as is needed for the purposes of decision-making at the site-specific level. The need for progression to a more detailed stage is dependent on the outcomes of the former stage until the level of detail of the flood risk assessment is appropriate to support the individual planning application, or it has been demonstrated that flooding is not a relevant issue for the site.

The stages of appraisal and assessment are:

Stage 1 Flood risk identification - To identify whether there may be any flooding or surface water management issues related the proposed development site that may warrant further investigation.

Stage 2 Initial flood risk assessment - To confirm sources of flooding that may affect the proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped.

Stage 3 Detailed flood risk assessment - To assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

2 Site Location and Context

The subject 1.124ha site is located at East Wall Road (R131 regional road), East Wall, Dublin 3, as illustrated in **Figure 2-1**.

The majority of the site is owned by ESB, with a strip of land along the East Wall Road footpath being within the control of Dublin City Council. Letters of consent to include these lands are enclosed as part of the SID application pack.

The site is currently in use as a temporary surface car park for ESB Networks staff with an adjacent vacant brownfield site. Access to the site is via the East Wall Road with two gated entrances – only one of which is in operation. The security-controlled surface car park has been in operation at the location since 2016, as permitted by DCC (under Planning Reference 3052/16 and 2766/21) and will cease operating in August 2026.

As illustrated in **Figure 2-2**, the residential area of East Wall is located immediately to the southwest of the site and generally comprises two storey residential dwellings. The site is bounded to the west by the Portside Business Centre, to the east by a Dublin Port Company (DPC) Storage Site, to the north by the M50 and Port Tunnel Control building and Tolling facility.

The Eastpoint Business Park lies immediately to the north of the M50 and Port Tunnel which consists of numerous office buildings with access to the Business Park from two security-controlled access points from Alfie Byrne Road and Bond Road. Further afield to the northwest of the application site, the River Tolka flows out into the Dublin Bay Estuary. The M50 crosses the river near the estuary before entering the port tunnel.

The location is approximately 50m south from the Belcamp – Shellybanks 220 kV circuit which currently runs on the northern side of the M50. The proposed substation will connect into this 220 kV circuit via a trenchless crossing of the M50. This Grid Connection does not form part of the proposed SID planning application.

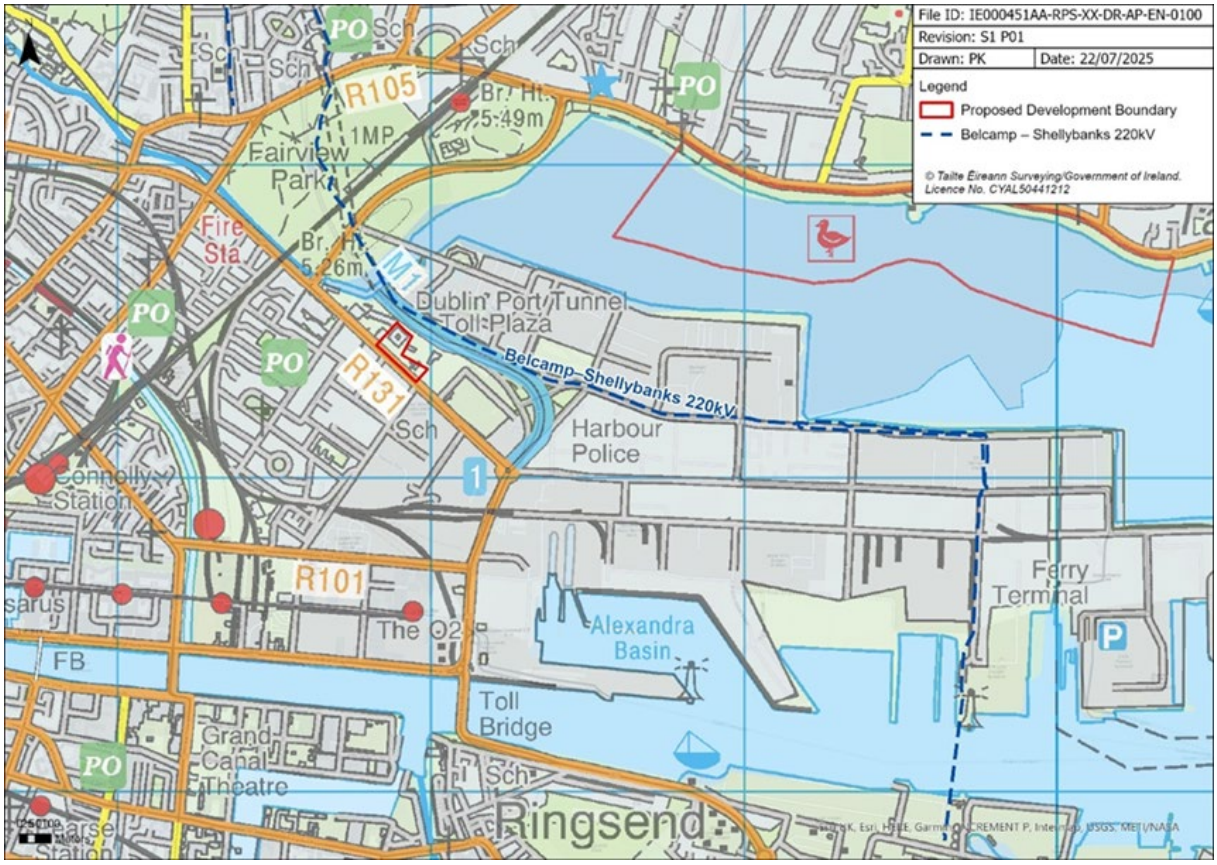


Figure 2-1: Site Location

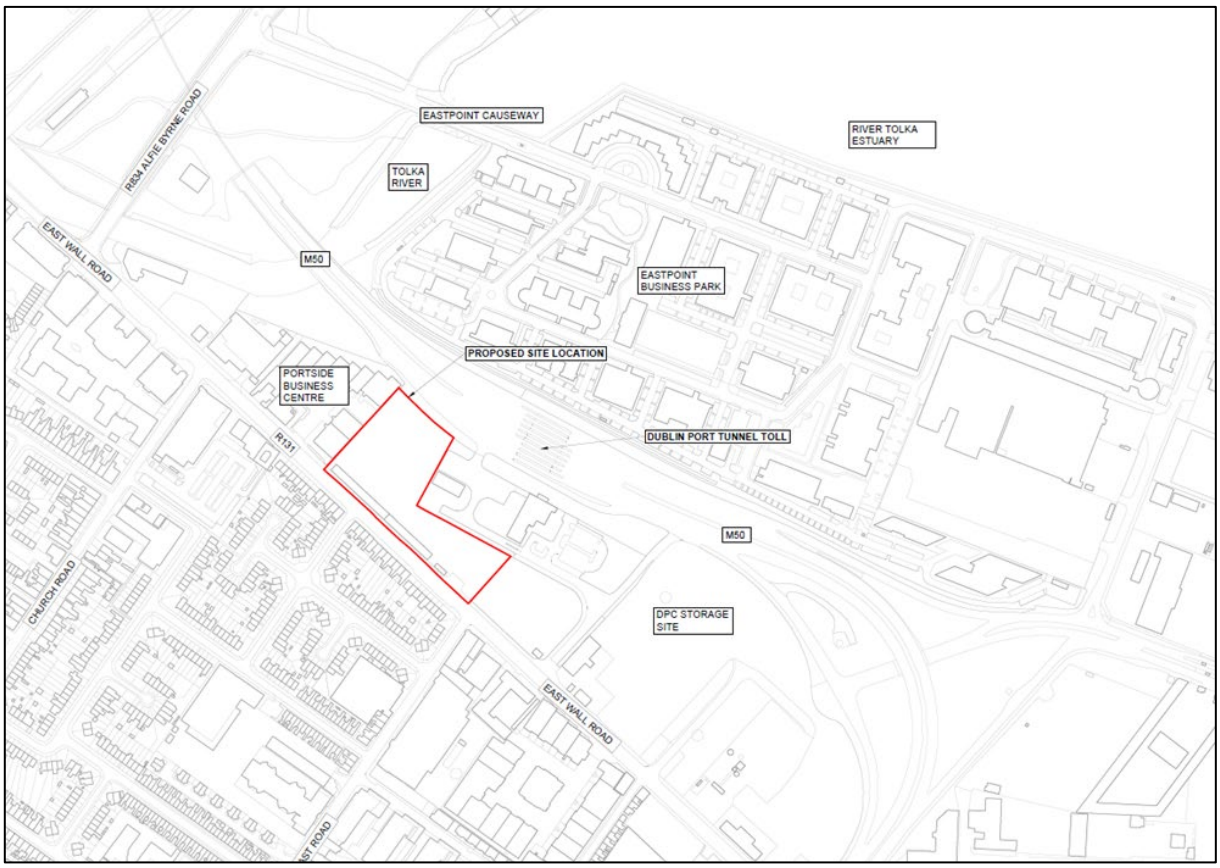


Figure 2-2: Site Context

2.1 Proposed Development Overview

The 1.124ha subject site at the ESB Gateway Car Park and adjoining lands, East Wall Road, East Wall, Dublin 3 is within the ownership of ESB and comprises of a temporary surface car park for ESB Networks staff, and an adjacent vacant brownfield site on the north side of East Wall Road (R131 regional road).

The Proposed Development comprises of:

- Change of use from car park to electricity infrastructure;
- Demolition of existing buildings, structures and general site clearance;
- 1 no. 2-storey 220kV Gas Insulated Switchgear (GIS) substation building occupying an area of c. 51.8m x 22.2m and 20m in height to include the GIS switchgear comprising of insulated circuit breakers, disconnectors and other high voltage equipment, an emergency diesel generator, all necessary welfare facilities, office spaces, and monitoring and control equipment required for the operation and maintenance of the substation;
- 1 no. 2-storey 110kV GIS substation building occupying an area of c. 51m x 15.9m and 16.5m in height to include the GIS switchgear comprising of insulated circuit breakers, disconnectors and other high voltage equipment, an emergency diesel generator, all necessary welfare facilities, office spaces, and monitoring and control equipment required for the operation and maintenance of the substations;

- 3 no. transformers to transform electrical power from 220kV to 110kV and associated acoustic enclosures (c. 5.3m in height) and c 1m high lightning protection rods extending to a height of c. 11m above ground level;
- Electrical cables located within the site boundary;
- Site lighting within the substation compound;
- Closure of all existing entrances to the site and the provision of new vehicular and pedestrian access from East Wall Road;
- Ancillary car parking spaces including internal access roads;
- 2.6 m high palisade security fence and associated gates;
- A public-facing fence and associated gates along East Wall Road varying in height from c. 2.4m to c. 3m;
- Public realm improvements including the provision of seating areas and landscaping;
- Associated utility connections including water supply, foul drainage and surface water drainage, including the provision of an underground storm water attenuation tank; and
- All other associated ancillary above and below ground development, including works comprising or relating to construction works, roadworks and excavation.

The Proposed Development Layout is illustrated in **Figure 2-3**.

Figure 2-3: Proposed Development Layout

3 Existing Site Characteristics

3.1 Hydrology & Drainage

The site is located within Hydrometric Area 09 - Liffey and Dublin Bay and is within the Tolka_SC_020 sub catchment. The nearest EPA designated watercourses are River Tolka and River Liffey. River Tolka originates in County Meath and flows along the East Wall Road, approximately 100m to the north of the site and joins the Dublin Bay. River Liffey flows through the centre of the Dublin to its mouth within Dublin Bay, approximately 1km away from the proposed development site. The Royal Canal links the River Liffey in Dublin to the River Shannon in Longford. **Figure 3-1** shows surface waterbodies near the Proposed Development site.

Figure 3-1: Surface Waterbodies

The site also has existing surface water drainage network shown in **Figure 3-2**. A 300mm concrete surface gravity main flows east through the proposed development site, then turns north and converges at Dublin Bay, with the pipe size varying along its path.

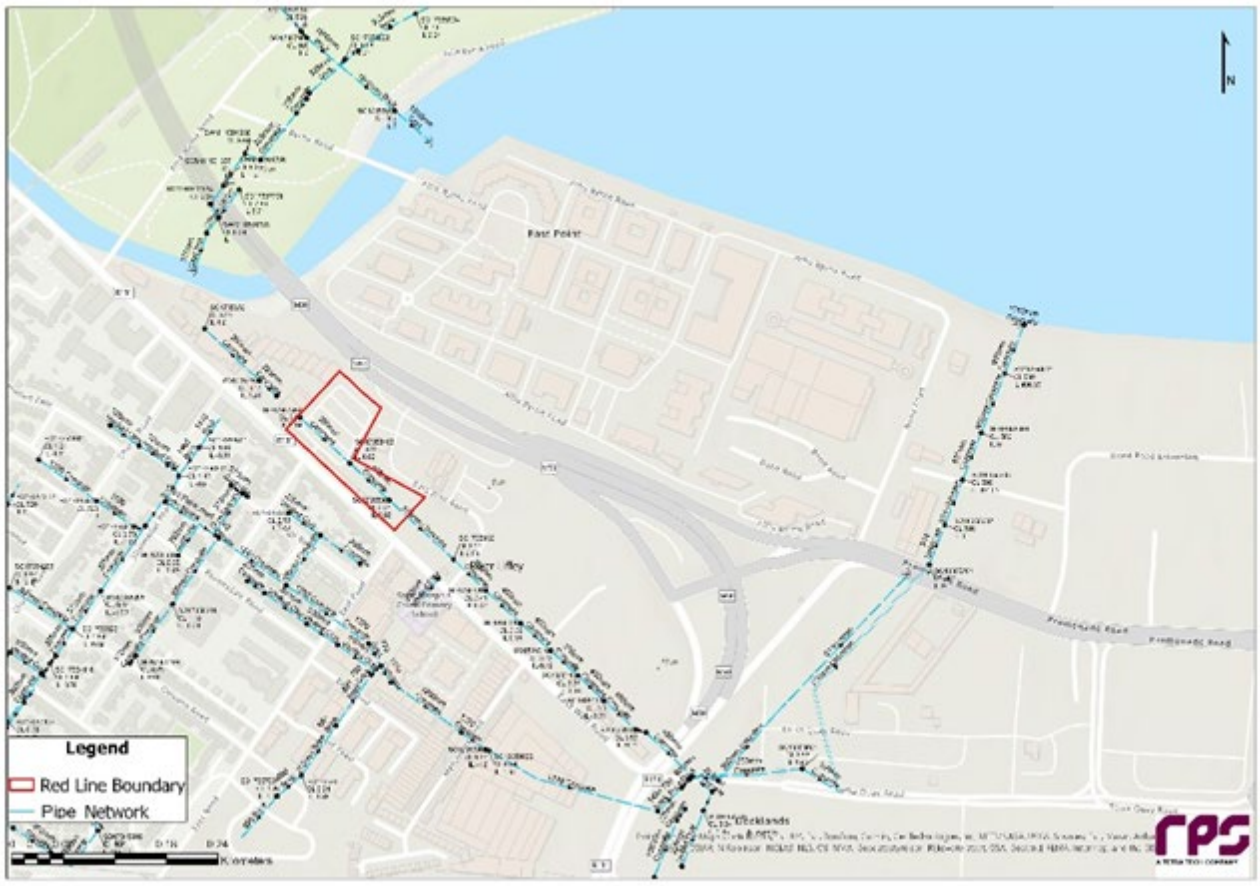


Figure 3-2: Existing Surface Water Drainage Network

3.2 Geology

The site is on reclaimed land from the Tolka River estuary. It consists of Made Ground from a car park, while the adjacent area is a brownfield site. *Geological Survey Ireland Spatial Resources*[1] identify the made ground. Bedrock geology is Dark limestone and shale. *EPAMaps Water*[2] indicates a low groundwater vulnerability, and locally important aquifer.

[1] https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
[2] https://gis.epa.ie/EPAMaps/Water

3.3 Topography

Topographic survey of the existing site is provided in **Appendix A**. The lowest elevation on site is at the vehicle entrance to the site from East Wall Road with a level of 3.29 mOD Malin. Ground levels across the site typically range from 3.30 - 4.30mOD Malin.

To the north of the site, the access road to the Port Tunnel is raised at approximately 5mOD, whilst to the south of the site, a significant depression has existing ground levels as low as 0.26mOD as shown in **Figure 3-3**.

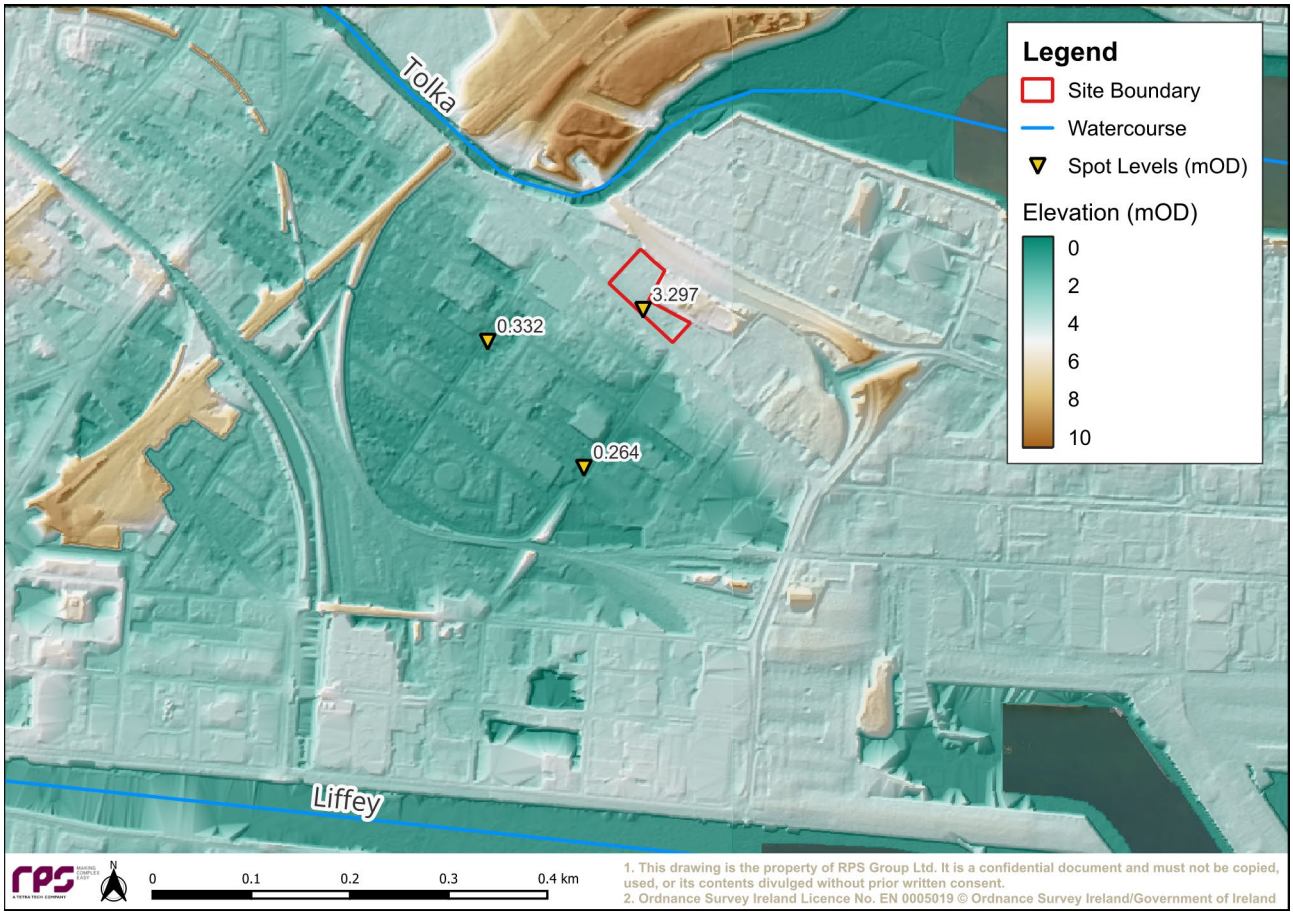


Figure 3-3: Topography[3]

[3] Open Topographic Data Viewer

3.4 Dublin City Development Plan 2022-2028

3.4.1 Land Use Zone

The Dublin City Development Plan 2022 – 2028 is a plan which sets out how the city will develop to meet the needs of all residents, workers, and visitors. The Proposed Development is designated as Zone Z6: Employment/Enterprise Zones. The objective of this zone is to provide for the creation and protection of enterprise and facilitate opportunities for employment creation. **Figure 3-4** illustrates the land use zone map of Proposed Development.

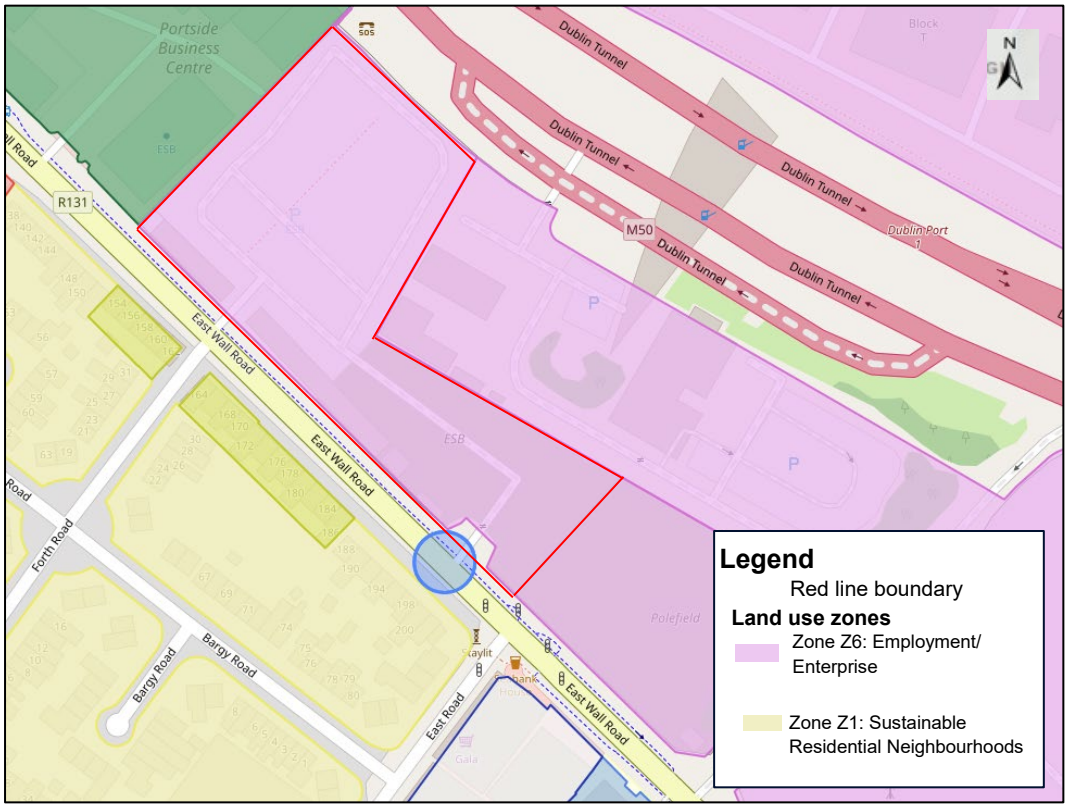


Figure 3-4: Dublin City Development Plan 2022-2028, Land use Zoning Map[4]

3.4.2 Relevant Flood Risk Policy

The following are the policies relevant to the proposed development site:

- **SI13 Minimising Flood risk** To minimise the flood risk in Dublin City from all other sources of flooding as far as is practicable, including fluvial, coastal, reservoirs and dams, the piped water system, and potential climate change impacts.
- **SI14 Strategic Flood Risk Assessment** To implement and comply fully with the recommendations of the Strategic Flood Risk Assessment prepared as part of the Dublin City Development Plan 2022-2028, including all measures to mitigate identified climate change and flood risks, including those recommended under Part 3 (Specific Flood Risk Assessment) of the Justification Tests, and to have regard to the Flood Risk Management Guidelines (2009), as revised by Circular PL 2/2014, when assessing planning applications and in the preparation of statutory and non-statutory plans.

[4] PLANNINGAPPLICATION Map

- **SI15 Site-Specific Flood Risk Assessment** All development proposals shall carry out, to an appropriate level of detail, a Site-Specific Flood Risk Assessment (SSFRA) that shall demonstrate compliance with:
  - The Planning System and Flood Risk Management, Guidelines for Planning Authorities, Department of the Environment, Community and Local Government (2009), as revised by Circular PL 2/2014 and any future amendments, and the Strategic Flood Risk Assessment (SFRA) as prepared by this development plan.
  - The application of the sequential approach, with avoidance of highly and less vulnerable development in areas at risk of flooding as a priority and/ or the provision of water compatible development only. Where the Justification Test for Plan Making and Development Management have been passed, the SSFRA will address all potential sources of flood risk and will consider residual risks including climate change and those associated with existing flood defences. The SSFRA will include site-specific mitigation measures, flood-resilient design and construction, and any necessary management measures (the SFRA and Appendix B of the above-mentioned national guidelines refer). Attention shall be given in the site-specific flood risk assessment to building design and creating a successful interface with the public realm through good design that addresses flood concerns but also maintains appealing functional streetscapes. Allowances for climate change shall be included in the SSFRA.
  - On lands where the Justification Test for Plan Making has been passed and where a small proportion of the land is at significant risk of flooding, the sequential approach to development will be applied, and development will be limited to Minor Development (Section 5.28 of the Planning System and Flood Risk Management Guidelines 2009) on the portion at significant risk of flooding. There will be a presumption against the granting of permission for highly or less vulnerable development which encroaches onto or results in the loss of the flood plain. Water compatible development only will be considered in such areas at risk of flooding which do not have existing development on them.
- **SI21 Managing Surface Water Flood Risk** To minimise flood risk arising from pluvial (surface water) flooding in the City by promoting the use of natural or nature-based flood risk management measures as a priority, by requiring the use of sustainable drainage systems (SuDS) to minimise and limit the extent of hard surfacing and paving, and requiring the use of sustainable drainage techniques, where appropriate, for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flooding risk and to deliver wider environmental and biodiversity benefits, and climate adaption.
- **SI22 Sustainable Drainage Systems** To require the use of Sustainable Drainage Systems (SuDS) in all new developments, where appropriate, as set out in the Greater Dublin Strategic Drainage Study (Vol 2: New Development)/ Greater Dublin Regional Code of Practice for Drainage Works and having regard to the guidance set out in Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas, Water Sensitive Urban Design Best Practice Interim Guidance Document (DHLGH, 2021). Sustainable Drainage Systems (SuDS) should incorporate nature-based solutions and be designed in accordance with the Dublin City Council Sustainable Drainage Design & Evaluation Guide (2021) which is summarised in Appendix 12. SuDS should protect and enhance water quality through treatment at source while enhancing biodiversity and amenity.

- **SI23 Green Blue Roofs** To require all new developments with roof areas in excess of 100 sq. metres to provide for a green blue roof designed in accordance with the requirements of Dublin City Council's Green & Blue Roof Guide (2021).
- **SI24 Control of Paving of Private Driveways / Vehicular Entrances / Grassed Areas** To require that all surface water run-off from new/ extended domestic driveways, repaired/ replacement driveways, and vehicular entrances (where such development is not exempted from the requirement to obtain planning permission), is managed through the use of SuDS, ensuring no increase in surface water discharges to the public drainage network.
- **SI25 Surface Water Management** To require the preparation of a Surface Water Management Plan as part of all new developments in accordance with the requirements of the Council's Surface Water Management Guidance.
- **SI26 Taking in Charge of Private Drainage Infrastructure** To require that all new surface water infrastructure within public or private developments be constructed in accordance with the standards set out within the Greater Dublin Regional Code of Practice for Drainage Works, irrespective of the management and maintenance regime proposed for the development or whether or not the development is intended to be taken in charge, in full or in part (i.e. infrastructure shall be to designed to taking in charge standards).

4 STAGE I – FLOOD RISK IDENTIFICATION

This section identifies existing flood risk information at or near the site. This includes reports of previous flooding, historical flood mapping, and previous predictive flood studies and risk assessments.

4.1 Flooding History

4.1.1 floodinfo.ie

Floodinfo.ie was developed and is maintained by the OPW as a mapped dataset from the National Flood Data Archive. Between the years of 2004 and 2006 a data collection programme including over 50 organisations collected information about flooding, including photographs, consultants' reports, recordings at gauging stations, eyewitness accounts, letters from the public, and official meeting minutes. Since 2006, supplementary information has been added to the record as it has become available.

No flood events are noted on floodinfo.ie within the site.

Flood events recorded within 2.5 km of the site boundary are listed in **Table 4.1** and locations shown in **Figure 4-1**. The mapped extent of the Tolka 2002 flood (ID-5) is shown 100 meters away from the proposed development site. The main source of flooding noted include significant rainfall (both continuous and torrential), rising sea levels, river overflow, and the failure of drainage systems to manage excess water.

Table 4.1: Floodinfo.ie Past Flood Event Local Area Summary

Flood ID	Location	Date(s) of Report(s)	Recorded date of occurrence	Frequency	Description
ID-456	Dublin city	01/02/2002	01/02/2002	Single flood event	Flooding caused by significant rise in sea level
ID-2581	Clontarf Rd Seaview Avenue	23/08/2004	23/09/2005	Single flood event	Flooding caused by continuous heavy rainfall.
ID-12907	Clontarf	-	13/12/2012	Single flood event	Flooding caused by coastal/estuarine water
ID-11566	Clanmoyle Rd, Donnycarney, Dublin 5	17/04/2012	23/10/2011	Single flood event	The source of the flood waters was the Wad River. Water from the river ran into Collins Avenue and then Clanmoyle Road and ponded around the houses.
ID-10660	Dublin Area	27/07/2009	02/07/2009	Single flood event	Flooding caused by continuous heavy rainfall.
ID-5	Tolka	10/2003	13/11/2002	Single flood event	Flooding caused by continuous heavy rainfall.
ID-11945	Jones Rd, Dublin 3	01/09/2013	26/07/2013	Single flood event	Flooding caused by continuous heavy rainfall.
ID-4	Tolka	25/10/1955	08/12/1954	Single flood event	Flooding caused by continuous heavy rainfall, when River Tolka burst its banks near Annesley Bridge.
ID-290	Ringsend	05/11/1963	10/06/1963	Single flood event	The flooding in Ringsend in June 1963 was primarily caused by severe rainfall that overwhelmed the local drainage systems, leading to significant water

Flood ID	Location	Date(s) of Report(s)	Recorded date of occurrence	Frequency	Description
					accumulation and flooding throughout the area.
ID-11708	ESB Sportsco, Ringsend, Dublin 4	16/04/2012	23/10/2011	Single flood event	The source of the flood waters was surface water drainage, which was inundated due to heavy rainfall in a short duration.
ID-13659	Dublin City		30/07/2019	Single flood event	The flood in Dublin on July 30, 2019, was caused by unexpected torrential rain, which resulted in flash flooding.

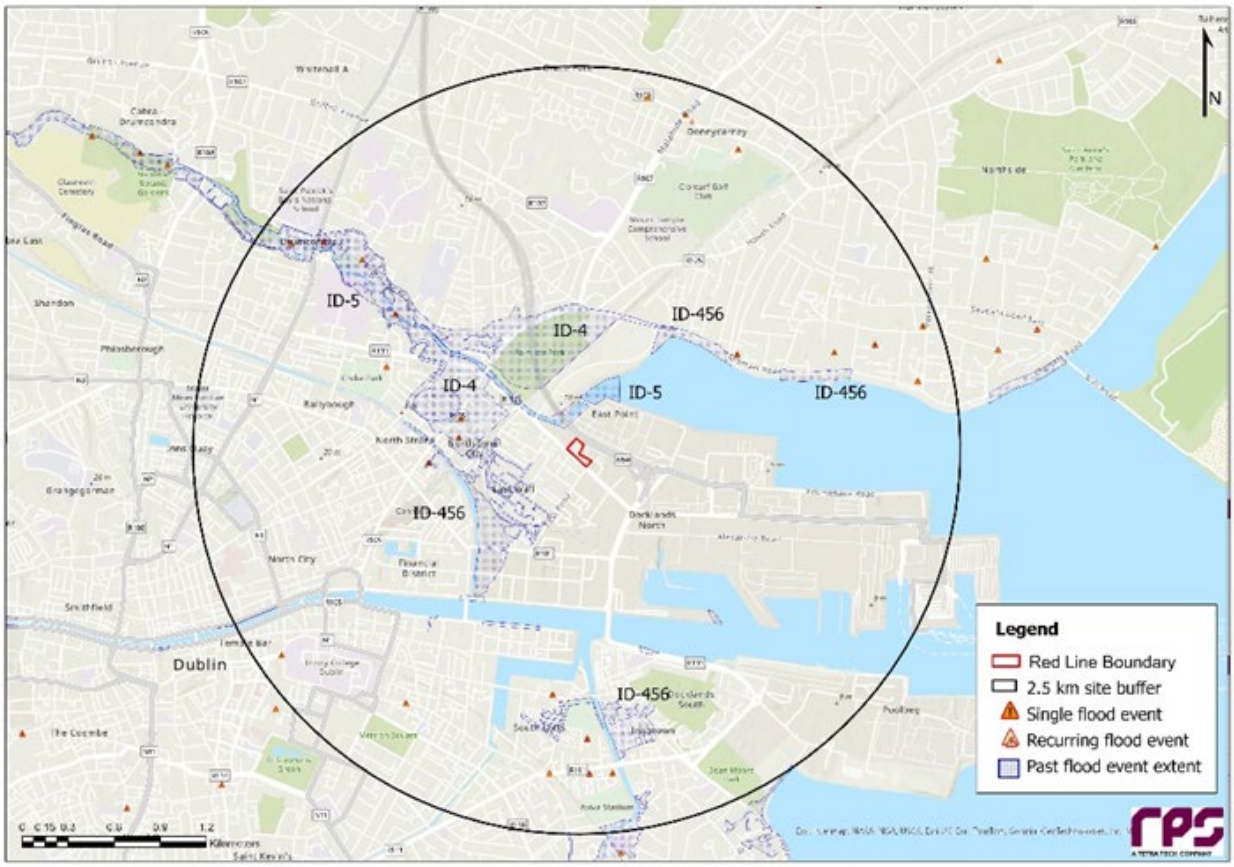


Figure 4-1: OPW Past Flood Events

4.1.2 Tailte Éireann Historical Mapping

The historical 6-inch map from Tailte Éireann[5] reveals that the proposed development site was formerly a mud flat of the Tolka Estuary. The historical mapping shows that all lands to the north of East Wall Road including the site, the M50 Port Tunnel and Eastpoint Business Park are built on reclaimed land.

[5] https://www.arcgis.com/apps/webappviewer/index.html?id=3ae19cc156bf4706a929304bf8fcc4f6

4.1.3 GSI Historical Groundwater Flooding

There is no evidence of historical groundwater flooding or surface water flooding within the Geological Survey Ireland Spatial Resources Groundwater Flooding Data Viewer[6] mapped datasets, including 2015-2021 SAR Seasonal Flood Map, Winter 2015/2016 Surface Water Flooding or Maximum Historic Groundwater Flooding.

4.1.4 Existing Flood Defences

Two OPW-led flood relief schemes provide existing flood defences near the site. **Figure 4-2** shows the combined benefitting area of these schemes. This benefitting area map identifies locations that would experience flooding if the scheme defences were not in place. The site itself lies outside this benefitting area, indicating that the current site levels are elevated above the potential flood extents without the schemes in place.

4.1.4.1 Tolka Flood Relief Scheme

The River Tolka Flood Relief Scheme, completed in 2008, successfully protected 1,346 properties by implementing flood defence works along various sections of the river.

4.1.4.2 Spencer Dock Flood Relief Scheme

The Spencer Dock Flood Relief Scheme, completed in 2009, successfully protected 1,200 properties and aimed to safeguard the East Wall area and other vulnerable parts of Dublin. The Scheme protects against elevated water levels in the River Liffey and includes provision for foreseeable climate changes in sea level.[7]

[6] https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
[7] Flood fears subside as dock gates completed | Irish Independent

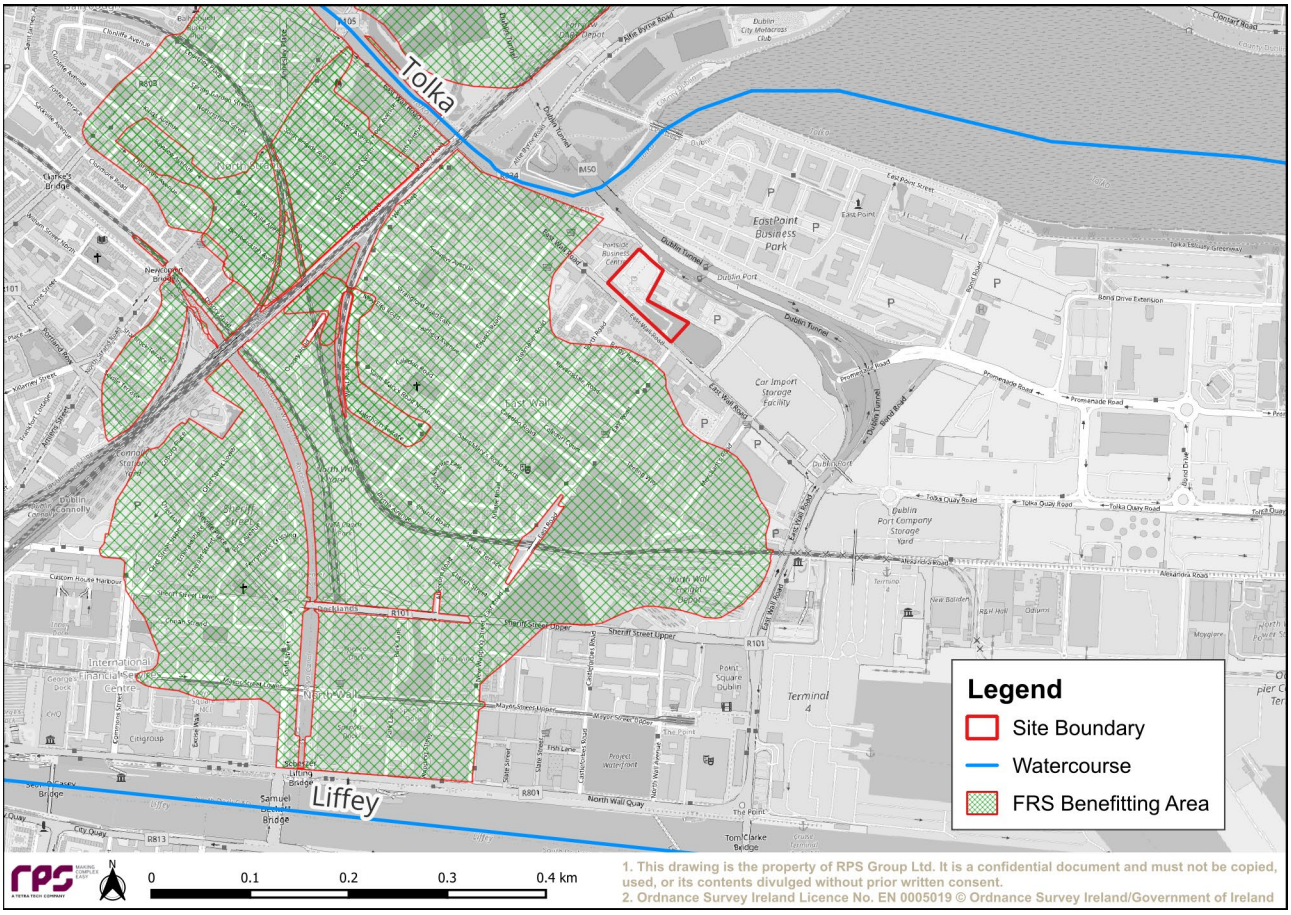


Figure 4-2: FRS Benefitting Areas

4.1.5 Internet Search

An internet search was carried out on 14th April 2025 to identify any past flooding events in proximity to the proposed development. Key words used in this search include “flood”, “flooding”, and “East wall road”. East Wall Road has experienced significant flooding events, particularly notable in 1954 and 2002.[8,9]

In 1954, the flood occurred in North strand, Dublin which was caused by heavy rain and gale-force winds caused the River Tolka to burst its banks. The flooding extended to several areas, including East Wall Road, causing significant damage and disruption.

The 2002 flood on East Wall Road was primarily caused by an unusual combination of high tides and gale-force winds.[10] This severe weather led to the seas breaching the sea walls, resulting in extensive coastal flooding.[11] The flooding was particularly severe in the East Wall area, prompting significant emergency responses and subsequent flood protection measures.[12]

The Spencer Dock Flood Relief Scheme (FRS) was implemented to prevent flooding in the East Wall area, particularly after the severe flooding in 2002. Since the completion of the Spencer Dock FRS in 2009, there have been no reported instances of flooding in the East Wall area.[13]

[8] Flood fears subside as dock gates completed | Irish Independent
[9] Week 2 - The North Strand Floods 1954 - CoolockALS - Adult Literacy Service
[10] Storms cause damage across the country
[11] Storms cause damage across the country
[12] Flood fears subside as dock gates completed | Irish Independent
[13] Flood fears subside as dock gates completed | Irish Independent

4.2 Predictive Flooding

4.2.1 Catchment Flood Risk and Management Fluvial Flooding

The OPW Catchment Flood Risk and Management (CFRAM) Studies used predictive modelling to assess flooding for 300 communities at potentially significant flood risk. The Eastern CFRAM Study included assessment of fluvial flooding from the Tolka River and River Liffey in the vicinity of the site.

Flood extents for the Tolka River are currently unavailable (as of 28/07/2025) on the OPW flood information site Flood Maps - Floodinfo.ie. The OPW review status is shown in **Figure 4-3**.

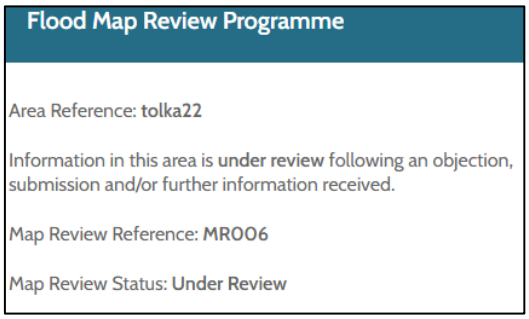


Figure 4-3: Extract of Tolka River Flood Map Review

Figure 4-4 shows the mapped areas from the River Liffey that the CFRAM study estimated to be inundated at some point during a flood with the respective Annual Exceedance Probabilities (AEPs). Three extents are shown on the extent maps – Low Probability (0.1% AEP); Medium Probability (1% AEP) and, where appropriate, High Probability (10% AEP).

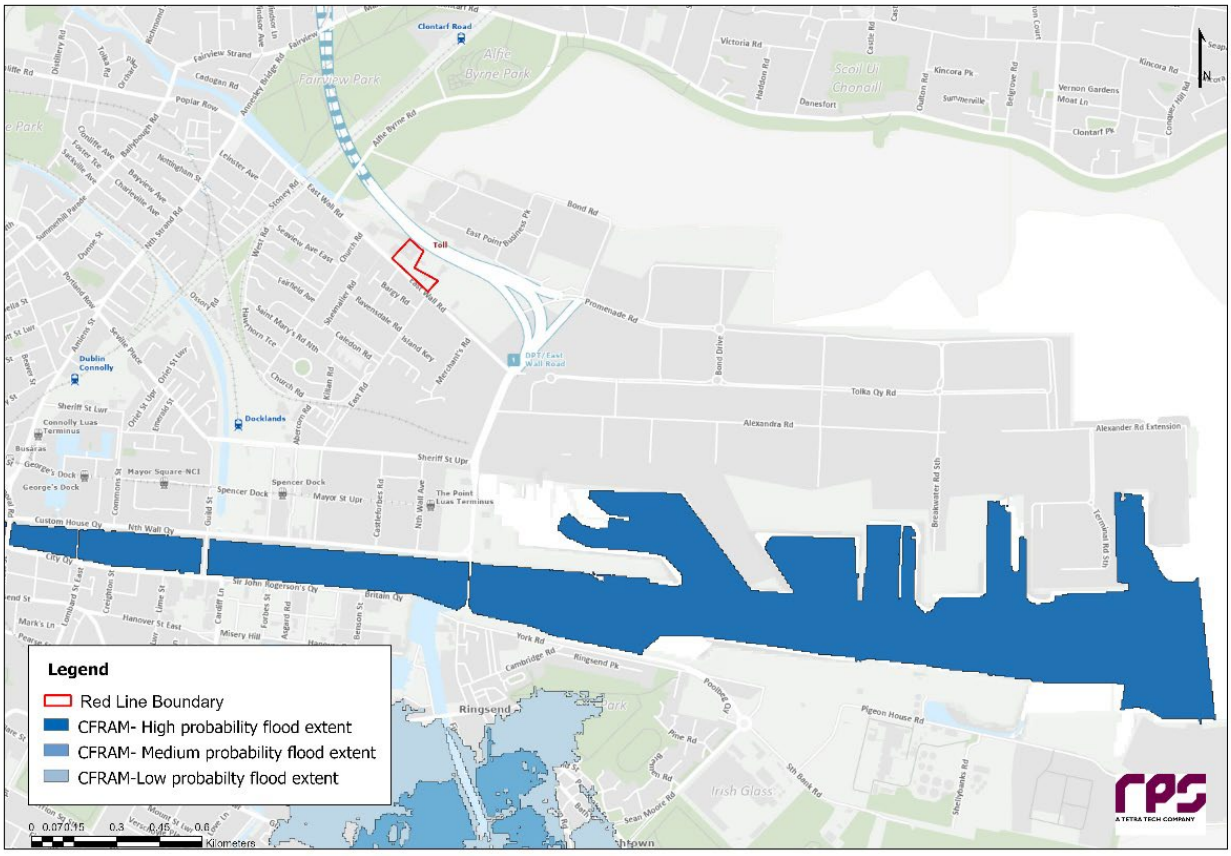


Figure 4-4: Eastern CFRAM study Fluvial flood extent map

4.2.2 National Indicative Fluvial Mapping

The National Indicative Fluvial Mapping (NIFM) project produced second generation indicative fluvial flood spatial data that are of a higher quality and accuracy to those produced for the first cycle PFRA14.

The OPW notes that the maps "*may be used in the Stage I Flood Risk Assessment (Flood Risk Identification) to identify areas where further assessment would be required if development is being considered within or adjacent to the flood extents shown on the maps"*. However, they also note that, "*the maps only provide an indication of areas that may be prone to flooding. They are not necessarily locally accurate, and should not be used as the sole basis for defining the Flood Zones nor for making decisions on planning applications."*[15]

The NIFM flood mapping of the River Tolka shown in **Figure 4-5** illustrates significant flood risk upstream of the rail line, but no flooding extending to the site location in any event.

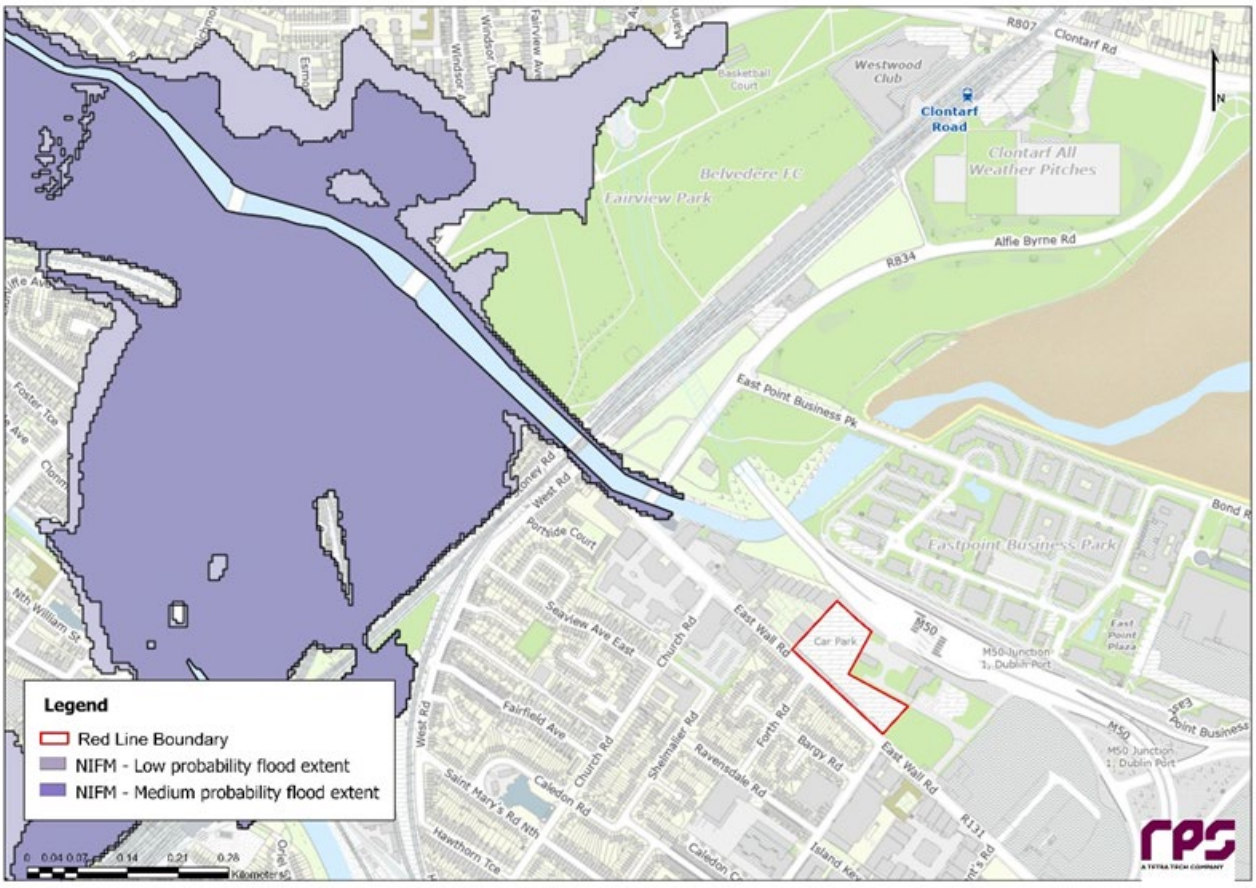


Figure 4-5: NIFM fluvial flood extent map

[14] National Indicative Fluvial Mapping: Applying and Updating FSU Data to Support Revised Flood Risk Mapping For Ireland, Irish National Hydrology Conference (Brown et al, 2019) https://hydrologyireland.ie/wp-content/uploads/2019/11/06-Emma-Brown-National-Indicative-fluvial-mapping.pdf
[15] https://www.floodinfo.ie/map/nifm_user_guidance_notes/

4.2.3 Catchment Flood Risk and Management Coastal Flooding

The CFRAM study includes assessments of coastal flooding risks, focusing on areas vulnerable to storm surges, high tides, and sea-level rise. The Eastern CFRAM coastal flood risk analysis show the site is outside the flood extents of the coastal flood events as seen in **Figure 4-6**. The proposed development site does not benefit from either the Spencer Dock Flood Relief Scheme or the River Tolka Flood Relief Scheme, as shown in **Figure 4-6**.

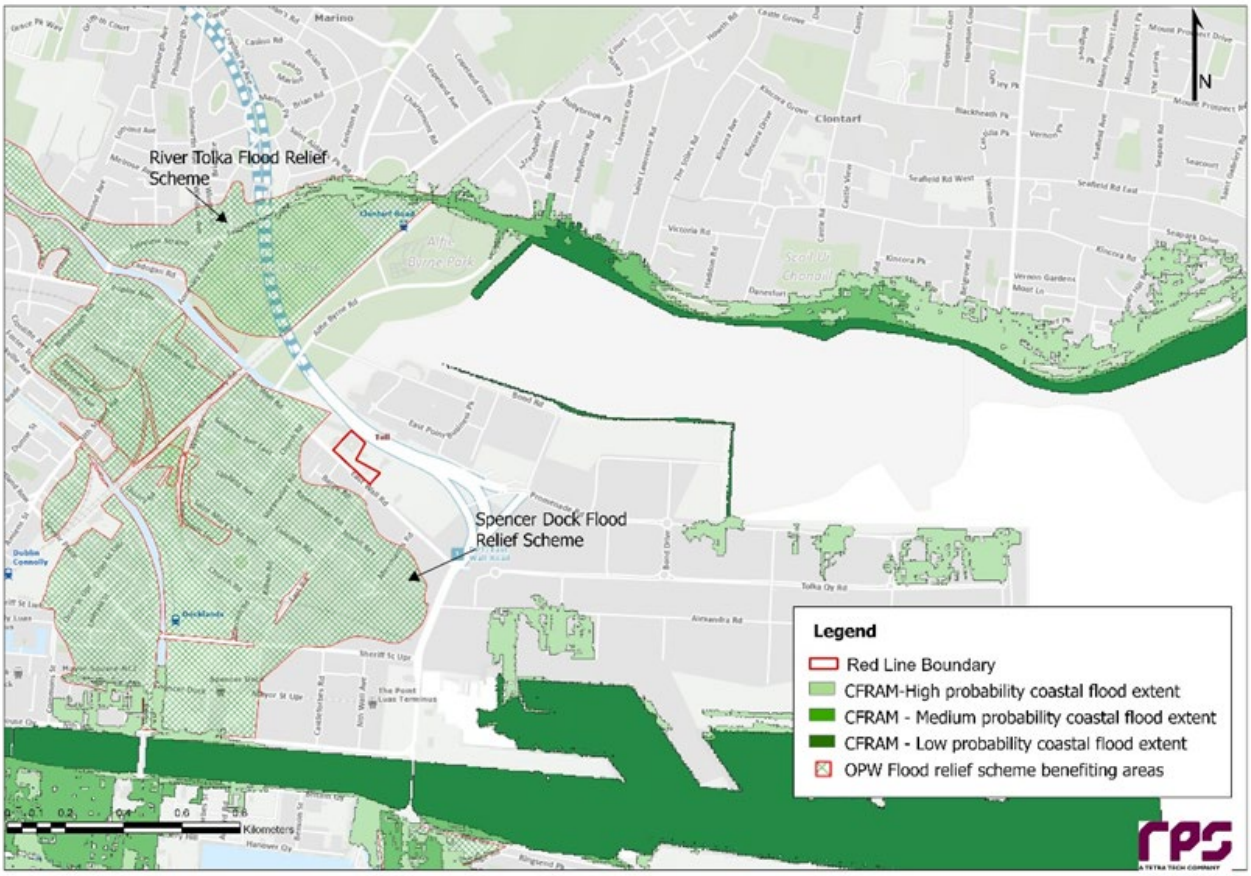


Figure 4-6: Eastern CFRAM study coastal flood extent map

4.2.4 Irish Coastal Wave and Water Level Modelling

The Irish Coastal Wave and Water Level Modelling Study (ICWWS) 2018 produced an update to the Estimated Extreme Coastal Boundary Water Levels, associated with astronomical tide, storm surge and seiche/local wind set-up allowance, for the coast of Ireland, originally presented as output from the Irish Coastal Protection Strategy Study (ICPSS) undertaken between 2004 and 2013, as well as two further future scenario extreme water level datasets associated with 1.5m (H+EFS) and 2.0m (H++EFS) of Sea Level Rise.

The ICWSS revised coastal flood estimates for the entire coastline of Ireland and produced updated predicted flood levels at defined node points of regular intervals around the coast. The nearest node point to the proposed development site is Northeast point NE22 in River Liffey shown in **Figure 4-7**. The ICWWS predicted extreme water levels at NE22 are tabulated in **Table 4.2**.

Figure 4-7: ICWWS Water Level Node Locations

Table 4.2: NE22 Water level (mOD)[16]

	Scenario				
AEP	Present Day	MRFS	HEFS	H+EFS	H++EFS
50%	2.70	3.20	3.70	4.20	4.70
20%	2.79	3.29	3.79	4.29	4.79
10%	2.86	3.36	3.86	4.36	4.86
5%	2.93	3.43	3.93	4.43	4.93
2%	3.01	3.51	4.01	4.51	5.01
1%	3.08	3.58	4.08	4.58	5.08
0.5%	3.15	3.65	4.15	4.65	5.15
0.1%	3.30	3.80	4.30	4.80	5.30

[16] Coastal Map - Floodinfo.ie

4.2.5 National Coastal Flood Hazard Mapping

The National Coastal Flood Hazard Maps (NCFHM) were produced by the Office of Public Works (OPW) in 2021, and projected flood levels reported from the ICWWS nodes across the adjacent topography to provide indicative coastal flood maps where ground level is below predicted flood level. It is important to note that the NCFHM make no allowance for connectivity of low-lying areas to the source of coastal flooding and ignores any higher ground which would prevent lower inland areas from flooding. As such the OPW acknowledges that "t*he flood extent and depth maps are therefore suitable for the assessment of flood risk at a strategic scale only, and should not be used to assess the flood hazard and risk associated with individual properties or point locations, or to replace a detailed flood risk assessment."*[17]

Flooding along the road frontage of East Wall Road is indicated in the NCFHM 0.1% AEP flood extent as shown in **Figure 4-8**.

Figure 4-8: NCFHM Coastal flood extent map[18]

[17] https://s3-eu-west-1.amazonaws.com/docs.floodinfo.opw/floodinfo_docs/NCFHM_Mapping_Methodology_20210611_v1.0.pdf
[18] Coastal Map - Floodinfo.ie

4.2.6 Dublin Pluvial Study

Pluvial flooding relates to flooding as a direct result of extreme rainfall. Pluvial flooding can occur during rainfall events of extreme intensity. If the rate at which water falls on the ground is faster than the rate at which the water can make its way to the drainage network, then flooding will occur. The Dublin Pluvial Study assesses the risk of surface water flooding in Dublin, focusing on how heavy rainfall can overwhelm drainage systems and lead to localized flooding. From this study, there is potential for flooding in the proposed development site as shown in **Figure 4-9**.

Figure 4-9: CFRAM Dublin city pluvial flood extent map[19]

4.2.7 GSI Predictive Groundwater Flooding

There is no GSI predictive groundwater flooding in the Proposed Development site.[20]

[19] Flood Maps - Floodinfo.ie
[20] Groundwater Flooding Data Viewer

4.2.8 Dublin City Development Plan Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) was prepared as part of the Dublin City Development Plan 2022-2028 to provide a board assessment of flood risk to inform strategic land-use planning decisions.

An extract of the composite flood map provided in Appendix E of SFRA[21] is shown in **Figure 4-10**. The maps indicates that the proposed development site is within Flood Zone C with a low risk of flooding.

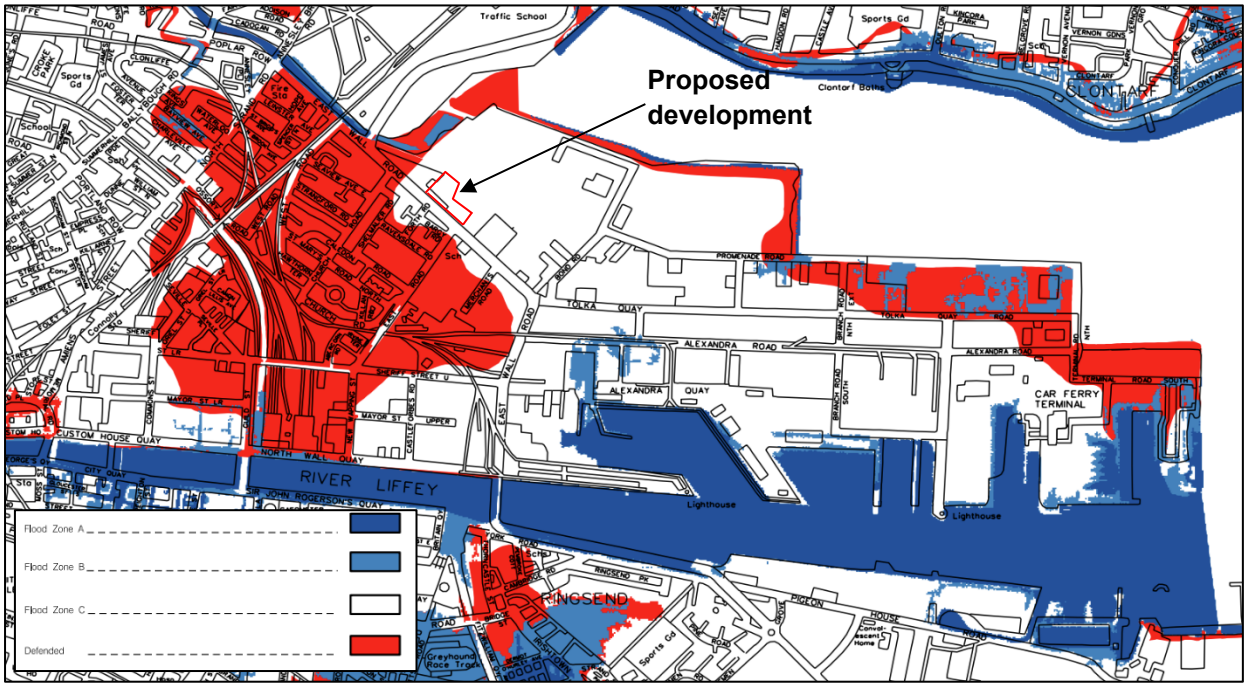


Figure 4-10: Dublin City Development Plan Flood Zones

[21] https://www.dublincity.ie/sites/default/files/2022-12/Final%20SFRA%20Full-compressed%2014.12.22%20-%20comp.pdf

4.3 Stage 1 - Summary

Throughout Stage 1, this report has identified the existing flood risk information at or near the site, including reports of previous flooding, historical flood mapping, and previous predictive flood studies and risk assessments.

A summary of the identified sources of flood risk to the site and the possible flood mechanisms are presented through a Source-Pathway-Receptor model as provided in **Table 4.3**.

The source-pathway-receptor model demonstrates that the proposed development site is potentially impacted by pluvial flooding. All other identified sources of flood risk to the site are low risk. Therefore, the risk of flooding to the site from groundwater, coastal and fluvial sources can be screened out at this stage

The site is not inundated in a 0.1% AEP fluvial flood event from either the Tolka River of the River Liffey. The existing site levels are also shown to be above the 0.1%AEP coastal flood levels of the ICWWS. Therefore, the site is determined to be in Flood Zone C.

However, the FRA is required to progress to Stage 2 to further consider the potential flood risk to the site from pluvial flooding.

Table 4.3: Identification of Flood Risk

Source	Pathway	Receptor	Likelihood (remote, possible, likely)	Consequences (low, medium, high)	Risk (low, medium, high)	Comment/ Reason
Fluvial River Tolka	Overland flow along East Wall Road if riverbank overtops	substation	Remote	High	Low	The Site is located outside of the 0.1%AEP flood extent from the Tolka River (Section 4.2.2) and is outside the benefitting area of the Tolka River FRS (Section 4.1.4). Any overland flow originating from the Tolka River will preferentially flow to the south of the site where ground levels are 3m lower than existing site levels. (Section 3.3)
Fluvial River Liffey	Overland flow through urban area	substation	Remote	High	Low	The Site is located outside of the 0.1%AEP flood extent from the River Liffey (Section 4.2.1) and is outside the benefitting area of the Spencer Dock FRS. (Section 4.1.4) Ground levels between the River Liffey and the site are 3m lower than site levels. (Section 3.3)
Fluvial Royal Canal	Overland flow	substation	Remote	High	Low	Ground levels between the canal and the site are 3m lower than site

Source	Pathway	Receptor	Likelihood (remote, possible, likely)	Consequences (low, medium, high)	Risk (low, medium, high)	Comment/ Reason
	through urban area					levels. (Section 3.3) In the event of an overbank spill, flood waters would not make it to the site.
Coastal	Rising sea levels overtopping low-lying coastal land	substation	Remote	High	Low	The site is not identified at flood risk in the CFRAM coastal flood extents for events up to and including the 0.1%AEP event.(Section 4.2.3) Inundation of the site boundary is indicated to occur in the NCFHM 0.1%AEP flood map (Section 4.2.5), however detailed site topography demonstrates that existing ground levels (Appendix A) of the site exceed the ICWWS 0.1%AEP predicted level of 3.3m OD (Table 4.2). Therefore, the NCFHM is not suitable for the assessment of flood risk at the site location as per the OPW guidance.
Pluvial	Surface water run-off, surcharging surface water drainage network	substation	Likely	High	High	The Dublin Pluvial Flood Study (Section 4.2.6) identified a high probability of pluvial flooding within the site.
Groundwater	Rising Ground Water Level	substation	Remote	High	Low	No evidence of historical flooding (Section 4.1.3) and no predictive flooding in the proposed development site. (Section 4.2.7)

5 Stage 2 – Initial Flood Risk Assessment

This section reports the undertaking of an initial flood risk assessment which was used to confirm sources of flooding that may affect the proposed development site, to appraise the adequacy of existing information, and to determine the level of detail required to address the relative complexity of the flood risk issues. This includes the potential impact of the development on flooding elsewhere and mitigation measures included within the development proposal.

5.1 Sources of Flooding

The identification of flood risk within Stage 1 concluded that:

- There is a low risk of fluvial flooding to the site
- There is a low risk of coastal flooding to the site
- There is a low risk of groundwater flooding to the site
- There is a high pluvial flood risk site

5.2 Appraisal of Information

Having reviewed the available sources of flooding information outlined in Section 4, there is no identified historic flooding within the site despite recorded events within nearby areas.

Sufficient information is available through the CFRAM and NIFM fluvial flood mapping to demonstrate that the site is not at risk of fluvial flooding for events up to and including the 0.1% AEP from either the Tolka River, River Liffey or the Canal.

Whilst the NCFHM indicates that the southern boundary of the site along East Wall Road could be inundated in the 0.1%AEP coastal flood event, detailed topographic survey of the existing site demonstrates that existing ground levels are above the nearest 0.1%AEP ICWWS levels from which the NCFHM is derived. As such, it is the finding of this FRA that in accordance with the OPW recommendations, the NCFHM "*should not be used to assess the flood hazard and risk associated with individual properties or point locations".*[22] As the existing site levels are higher than the 0.1%AEP ICWWS levels and the site is not identified at risk within the CFRAM coastal 0.1%AEP flood extent, there is sufficient information to conclude that there is a low risk of coastal flooding to the site.

Further, as the site is on made ground from reclaimed land, with an existing drainage network and no evidence of historical or predicted groundwater flooding, sufficient information is available to confirm the risk of groundwater flooding to the site is low.

The Dublin Pluvial Flood Study does identify a high probability of pluvial flooding within the site. However, this study does not include detailed surface features, elevation levels at a site-specific scale or inclusion of the existing drainage network. In the absence of validation via historic observed pluvial flooding at the site, it therefore should only be considered a dataset suitable for the indication of the potential for pluvial flood risk at any particular location. In consideration of this risk, mitigation measures are proposed to appropriately manage rainfall and surface water run-off within the site, and to minimise flood risk elsewhere.

Review of the available information confirms that the site is not at risk of inundation from the 0.1% AEP fluvial or coastal flood events. This places the site within Flood Zone C. As such the Justification Test is not applicable, and the proposal follows the sequential approach by avoiding areas of flood risk. Notwithstanding, mitigation measures are proposed to provide a precautionary

[22] https://s3-eu-west-1.amazonaws.com/docs.floodinfo.opw/floodinfo_docs/NCFHM_Mapping_Methodology_20210611_v1.0.pdf

approach in accordance with the Planning Guidelines with consideration of pluvial flood risk, residual risk and climate change. Based on the appraisal of information, it is concluded that a Stage 3 detailed Flood Risk Assessment is not required.

5.3 Mitigation Measures

Appropriately elevated floor levels and a detailed and robust site drainage design are the primary measures included within the proposed development to mitigate the remaining flood risk within the site.

5.3.1 Finished Floor Levels

It is proposed that the finished floor level be set above the relevant flood level as required within the Dublin City Strategic Flood Risk Assessment (SFRA). As the site is undefended, with coastal flood risk near to the site, the DCC SFRA requires the minimum finished floor level to be above the 0.5% AEP coastal flood level, plus climate change considerations, and an additional 300 mm freeboard. For the site location, this requires a minimum finished floor level of 3.15 m (0.5%AEP ICWWS level) + 1 m (HEFS for critical infrastructure) + 0.3 m (freeboard), equating to 4.45 mOD. Threshold levels with the proposed design are 4.5mOD, thereby demonstrating appropriate mitigation of this flood risk.

5.3.2 Site Drainage

The highest risk of flooding to the site identified in Stage 1 was pluvial flood risk. The primary mitigation measure to address pluvial and surface water flooding is robust and sustainable drainage management within the site.

As part of the proposed development, a new storm water drainage system will be provided to effectively manage runoff from hardstanding areas, building roofs, internal access roads, and car parking within the substation compound. The proposed drainage network will consist of a series of strategically placed gullies and channel drains that collect surface water from all impermeable and semi-permeable areas and discharge to an existing gravity network. Collected surface water runoff will pass through an oil/petrol interceptor to remove hydrocarbons and other potential contaminants before entering an underground attenuation system, which has been designed to regulate the outflow from the Proposed Development to match the greenfield runoff from the site (without development). The attenuation discharge rate has been designed on the basis of a 1 in 100-year return period critical storm with 20% climate change allowance.

The discharge rate will be limited to the maximum of Qbar or 2l/sec/ha, in accordance with DCC requirements. As no long-term storage has been provided, the outflow from the site will be restricted to 5l/s during a 1 in 100 Year storm, in accordance with local authority requirements to prevent downstream flooding and protect the receiving network. The attenuated discharge will exit the site via a controlled outfall and connect to the public surface water drainage system.

All surface water drainage design and construction will be carried out in compliance with The Greater Dublin Strategic Drainage Study (GDSDS), CIRIA The SuDS Manual and Building Regulations 2010 Part H.

Sustainable Urban Drainage System (SuDS) measures are proposed to be provided within the proposed development, to mitigate the adverse effects of urban stormwater drainage by replicating the natural predevelopment catchment characteristics of the site. The SuDS features include lined infiltration trenches that provide temporary storage and pollutant filtration, complementing the attenuation system and by-pass oil interceptor.

The drainage system has been designed assuming no infiltration capacity in the subsoil; therefore, runoff is managed primarily through lined infiltration trenches with impermeable liners and a piped drainage network connected to an underground attenuation system. The outflow is controlled via a

HydroBrake flow restrictor to maintain discharge rates at greenfield runoff levels, minimizing flood risk downstream.

The proposed development drainage layout is provided in **Appendix B**.

Further details on the SuDS requirements and demonstration of compliance with DCC's Sustainable Drainage Design and Evaluation Guide (2021) is provided in the Engineering Services Report prepared by RPS and which is provided under separate cover.

5.4 Residual Risk

5.4.1 Failure of existing defences

There are two common methods of failure of existing flood defences. These are overtopping or breaching of the defence. In the case of a design exceedance event overtopping either the Tolka Flood Relief Scheme or the Spencer Dock Flood Relief Scheme, the residual risk to the site is low, as the topography of the surrounding area would lead water away and to the south of the site where ground levels are approximately 3m lower than the site. In the case of a breach in either of the FRS defences, the residual risk would also remain low to the site, as the site is located outside of the benefitting area of both schemes.

5.4.2 Blockage of Surface Water Drainage Network

The Proposed Development's surface water drainage system incorporates features such as catchpit manholes located upstream of the geocellular attenuation tank, designed to collect silt and debris and help prevent blockages within the drainage network. Oil/petrol interceptors are also provided to remove hydrocarbons and potential contaminants before runoff enters the attenuation system, reducing the risk of pollution-related blockages.

While these design elements reduce the likelihood of blockages, a residual risk remains due to the potential accumulation of silt, debris, or other materials within gullies, pipes, or other drainage components. The catchpit manholes are designed to be accessible and simple to clean, facilitating routine maintenance to manage this risk and ensure continued system performance. In the event that a blockage did occur leading to surcharge of the drainage network, surcharged water would be contained within the roadways and sloping away from the buildings.

5.5 Access and Egress

The proposed development is an unmanned electrical substation which will only be accessed if safe to do so. Public access to the substation compound is restricted to authorized personnel only, maintaining site security and safety. Emergency access points are clearly identified and maintained to ensure rapid response capability in case of incidents.

Primary vehicular access is provided from East Wall Road along the southern boundary of the site and within Flood Zone C. Therefore, there will be no restriction of access to the site during the 1% and 0.1% AEP fluvial and coastal flood events. Internal circulation within the site is facilitated by paved roads and hardstanding areas, allowing safe manoeuvring around the buildings and critical infrastructure. The layout incorporates turning areas and sufficient space for large vehicles, supporting operational requirements and emergency service access.

5.6 Climate Change

The Proposed Development has been designed with finished floor levels (FFLs) set above the 0.5% AEP coastal flood level, incorporating allowances for future climate change impacts (HEFS). This approach ensures that the substation buildings remain protected against extreme coastal flood events throughout their operational lifespan.

Furthermore, the surface water drainage and attenuation systems have been designed to accommodate increased rainfall intensity, with a 20% climate change allowance applied to the design storm event.

5.7 Stage 2 Summary

The Stage 2 Initial Flood Risk Assessment demonstrates that the proposed development has been thoroughly evaluated against the relevant flood risks, including fluvial, coastal, groundwater and pluvial sources. On this basis the site is confirmed to be within Flood Zone C.

The development's finished floor levels are set above the 0.5% AEP coastal flood level with climate change allowances and additional freeboard, providing robust protection against flooding. The surface water drainage system incorporates SuDS, including infiltration trenches, oil interceptors, and an underground attenuation system designed to manage runoff to greenfield rates while accommodating climate change impacts.

Residual risks are mitigated through design measures, maintenance provisions, and emergency access planning. Access and egress routes are designed to remain safe and operational during flood events, with public access restricted to maintain security and safety.

Based on the Stage 2 assessment, it is concluded that a Stage 3 detailed Flood Risk Assessment is not required. The information and design presented are sufficient to manage flood risk to an acceptable level, ensuring the development can proceed safely and sustainably.

Overall, the Proposed Development complies with all relevant flood risk management guidelines and planning objectives. The mitigation and management measures ensure that flood risk to people, property, and the surrounding environment is minimized and maintained at acceptable levels. As such, the development can proceed safely and sustainably in line with best practice and statutory requirements.

6 Conclusion

This Flood Risk Assessment for the proposed development was undertaken in accordance with the requirements of the “Planning System and Flood Risk Management Guidelines for Planning Authorities”, November 2009.

It is proposed to construct an electrical substation, which, under the Planning Guidelines, is considered a highly vulnerable land use to flooding.

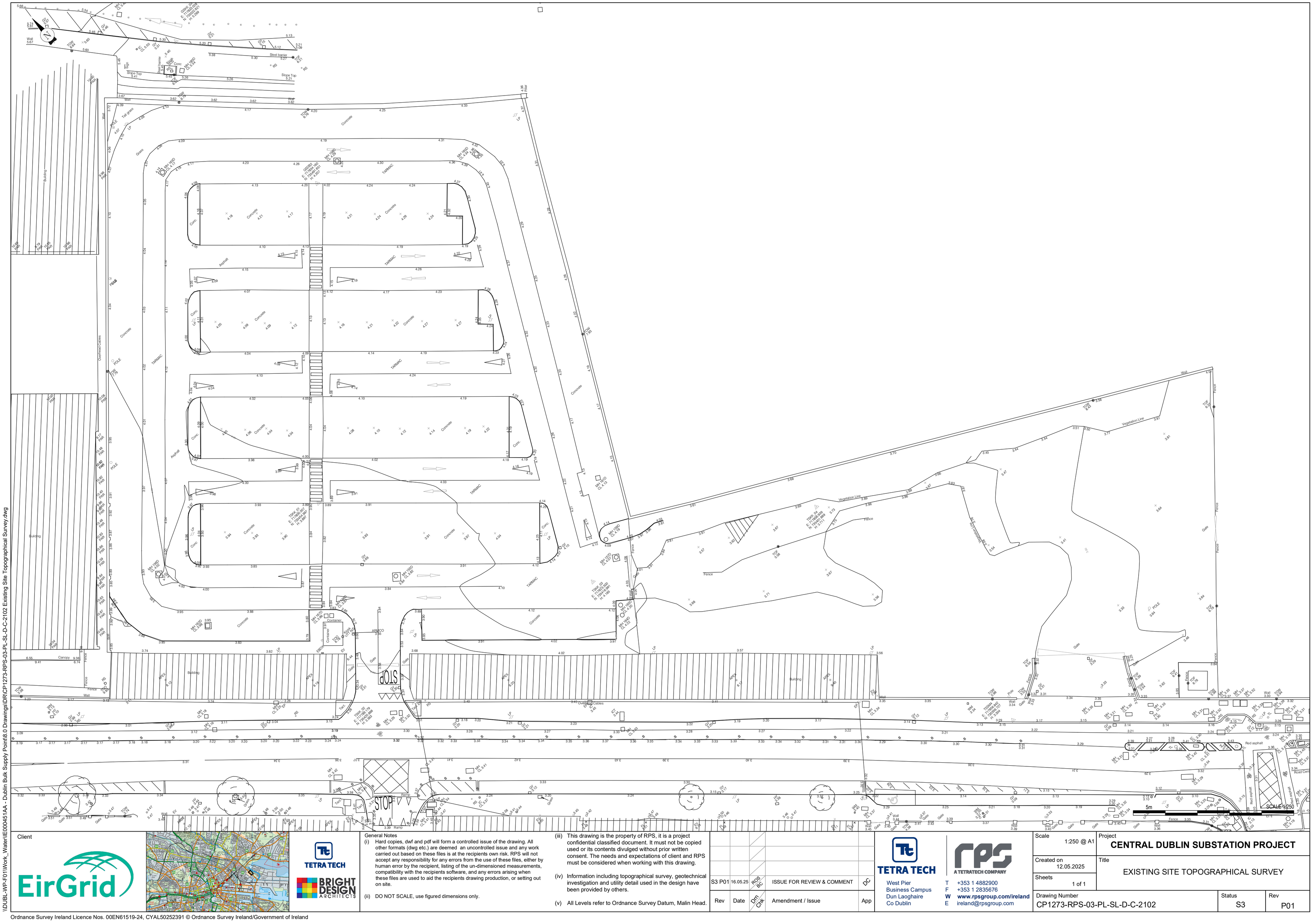
The site is set on reclaimed land from the Tolka River estuary. The main watercourses in the area were identified as the Tolka River and the River Liffey. Having reviewed the available sources of flooding information on the site, there is no historic flooding found at the site location. Review of the OPW Eastern CFRAM flood maps and ICWWS coastal flood levels confirms that the site is not at risk of inundation from the 0.1% AEP fluvial or coastal flood events. This places the site within Flood Zone C.

There is no recorded occurrence of pluvial flooding at the site, but the Dublin Pluvial flood map indicates pluvial flooding of the site. Rainfall and surface water runoff on the site will be managed through a combination of SuDS, including lined infiltration trenches, oil interceptors, and an underground attenuation system. This system limits discharge rates to match greenfield runoff, preventing increased flood risk downstream.

To manage residual risk, the development design includes finished floor levels set above the 0.5% AEP flood level with allowances for climate change (HEFS) and freeboard, ensuring protection against extreme flood events. The design also considers potential residual risks, such as overtopping of defences and drainage blockages, with maintenance plans and emergency access routes in place to ensure safety and operational continuity.

Overall, the assessment concludes that the site is in Flood Zone C with a low risk of flooding. Potential for pluvial flooding, residual flood risks and consideration of climate change are effectively managed through setting of appropriate finished floor levels and a robust and sustainable site drainage design including SuDS. As such, the development complies with the relevant policies and guidelines and is therefore appropriate for development from a flood risk perspective.

Appendix A Existing Site Topographical Survey



Client

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BRIGHT DESIGN ARCHITECTS

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(iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.

(v) All Levels refer to Ordnance Survey Datum, Malin Head.

Rev	Date	Drn	Chk	Amendment / Issue	App
S3 P01	16.05.25	ROS	BC	ISSUE FOR REVIEW & COMMENT	DC

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Project: **CENTRAL DUBLIN SUBSTATION PROJECT**

Title: EXISTING SITE TOPOGRAPHICAL SURVEY

Drawing Number	Status	Rev
CP1273-RPS-03-PL-SL-D-C-2102	S3	P01

\\DUBL-WP-F01\Work_Water\IE0004514A - Dublin Bulk Supply Point\8.0 Drawings\DR\CP1273-RPS-03-PL-SL-D-C-2102 Existing Site Topographical Survey.dwg

Appendix B Proposed Drainage Layout

LEGEND:

SITE LAYOUT:

- PLANNING BOUNDARY
- PROPOSED FENCELINE
- PROPOSED BUILDING
- PROPOSED ASPHALT ROAD
- PROPOSED CONCRETE FOOTPATH
- PROPOSED GRAVEL AREA

SURFACE WATER:

- PROPOSED SURFACE WATER
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED DOWNPIPE CONNECTION
- PROPOSED FILTER DRAIN
- EXISTING SURFACE WATER
- EXISTING SURFACE WATER MANHOLE
- EXISTING SURFACE WATER TO BE REMOVED

FOUL WATER:

- PROPOSED FOUL WATER
- PROPOSED FOUL WATER MANHOLE
- EXISTING FOUL WATER
- EXISTING FOUL WATER MANHOLE
- EXISTING FOUL WATER TO BE REMOVED

GENERAL NOTES:

1. ALL WASTEWATER INFRASTRUCTURE DETAILS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CURRENT BUILDING REGULATIONS,(PART H) AND THE FOLLOW IRISH WATER DOCUMENTATION:
   - IW-CDS-5030-01: STANDARD DETAILS
   - IW-CDS-5030-03: CODE OF PRACTICE
2. PERMISSIBLE PIPE MATERIAL:
   - 2.1. CONCRETE:
     - DIAMETER: SEWERS 225mm Ø AND ABOVE)
     - JOINTS: SPIGOT AND SOCKET WITH RUBBER RING FITTINGS
     - STRENGTH CLASS: 120 (CRUSHING LOADS TABLE 8 BS 5911-1)
     - PIPE AND FITTINGS: SPIGOT AND SOCKET OR REBATED FORM.
     - COMPLIANCE: IS EN 1916, BS5911-1 AND IS 6 OR EQUIVALENT STANDARD
   - 2.2. THERMOPLASTIC STRUCTURED WALL PIPES:
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 13476
   - 2.3. UNPLASTICISED PVC;
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 1401
3. DEPTH OF COVER:
   - 3.1. ROADWAYS: NOT LESS THAN 1.2m
   - 3.2. PUBLIC OPEN SPACE: NOT LESS THAN 0.9m
   - 3.3. PRIVATE AREAS WITH NO VEHICLE ACCESS: NOT LESS THAN 0.5m
4. ALL MAIN SEWERS WITH LESS THAN COVER AS STATED ABOVE UNDER ROADS TO BE SURROUNDED IN CONCRETE AS PER IRISH WATER STANDARD DETAILS
5. MANHOLE COVERS (IN ACCORDANCE WITH IS EN 124):
   - 5.1. ROADWAYS & PARKING BAYS (NO HGV ACCESS): CLASS D400
   - 5.2. PUBLIC FOOTPATHS CLASS B125
6. PROVIDE MANHOLE COVERS AND AJ'S WITH ARCHITECTURAL PAVING WHERE REQUIRED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS
7. ALL ACCESS JUNCTIONS TO BE IN ACCORDANCE TABLE 11 OF PART H OF THE BUILDING REGULATIONS. THEY SHALL COMPLY WITH IS EN 13598-1 AND EN 7158 AND SUITABLE FOR 150mm ID PIPEWORK.
8. RISING MAIN TO BE POLYETHYLENE PIPE (HDPE / MDPE PE 80) IN COMPLIANCE WITH IS EN 12201. NOMINAL BORE DIAMETER: 80mm (TBC BY M&E ENGINEER) DEPTH OF COVER 750mm (MIN) WITH CONCRETE PROTECTION SLAB.
9. CE CERTIFICATION TO BE PROVIDED FOR ALL PRODUCTS COVERED BY THE EU CONSTRUCTION PRODUCTS REGULATION (NO.305/2011-CPR)
10. ALL MATERIALS PROPOSED FOR USE ON SITE YO BE APPROVED PRIOR TO ARRIVAL ON SITE

APPLICABLE IRISH WATER STANDARD DETAILS
DOCUMENT: IW-CDS-5030-01

DRAWING NO:	DRAWING TITLE
STD-WW-03	DRAIN & SERVICE CONNECTION PIPEWORK
STD-WW-04	TYPICAL SEWER /SERVICE PIPE CONNECTION
STD-WW-05	TYPICAL SERVICE LAYOUT (SEPARATION DISTANCES)
STD-WW-05A	SERVICE CONNECTION VERTICAL SEPARATION DISTANCES
STD-WW-06	RESTRICTIONS ON WORKS ADJACENT TO EXISTING TREES
STD-WW-06A	RESTRICTIONS ON NEW TREES/SHRUBS ADJACENT TO SEWERS
STD-WW-07	TRENCH BACKFILL & BEDDING
STD-WW-08	CONCRETE BED, HAUNCH & SURROUND TO PIPES
STD-WW-10	PRE-CAST MANHOLE WITH CAST IN-SITU BASE
STD-WW-10A	PRE-CAST MANHOLE WITH PRECAST BASE
STD-WW-12	BACKDROP AND CASCADE MANHOLES
STD-WW-13	INSPECTION CHAMBER
STD-WW-14	THRUST BLOCKS FOR RISING MAINS
STD-WW-17	SLUICE VALVE FOR RISING MAINS - POLYETHYLENE (P.E) PIPE
STD-WW-36	MARKER POSTS / PLATES

LINED GRAVEL TRENCH. 0.3m SURFACE DEPRESSION

Proposed full retention Separator NSFA015

220kV GIS BUILDING FFL 4.500m

110kV GIS BUILDING FFL 4.500m

LINED GRAVEL TRENCH.

LINED GRAVEL TRENCH. 0.3m SURFACE DEPRESSION

HYDROBRAKE MANHOLE LIMITING FLOW TO 5l/s

Proposed bypass interceptor NSBE010

Attenuation
Wavin AquaCell (Unit 0.5m x 1m x 0.4m Height).
17.5m x 8.00m x 2.0m deep, 0.6m min.Cover. 150mm gravel surround.
CL: 4.30m IL: 1.70m
Volume Required: XX
Volume Provided: 266m³ (95% Void volume)
Attenuation designed to the 1:100 year storm with 20% climate Change allowance.

MH161D (Existing Manhole)
CL 4.13
IL ?.??
Existing MH to be re-used

Existing Connection TBC

225mmØ Foul Existing

300mmØ Existing Storm

EX. MH CL: 3.33 IL: 0.94

EX. MH CL: 3.15 IL:1.75m

Retaining drainage

Tie-in to Existing Storm Network IL 0.93m (TBC)

5m SCALE 1:250

Client: EirGrid

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Rev	Date	Drn	Chk	Amendment / Issue	App
S3 P01	12.05.25	UR	AB	ISSUE FOR REVIEW & COMMENT	DC

General Notes

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(iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.

(v) All Levels refer to Ordnance Survey Datum, Malin Head.

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Scale	1:250 @ A1
Created on	12/05/2025
Sheets	1 of 1
Project	CENTRAL DUBLIN SUBSTATION PROJECT
Title	PROPOSED DRAINAGE LAYOUT
Drawing Number	CP1273-RPS-03-PL-SL-D-C-2111
Status	S3
Rev	P01

R:\IE\000451AA - Dublin Bulk Supply Point\8.0 Drawings\DR\CP1273-RPS-03-PL-SL-D-C-2111 Proposed Drainage Layout.dwg