MWP

Water Framework Directive Compliance Assessment

Steeven's Lane 110kV Substation

The Electricity Supply Board (ESB)

August 2026

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Executive Summary

Malachy Walsh and Partners (MWP) was commissioned by the Electricity Supply Board (ESB) to undertake a Water Framework Directive (WFD) Compliance Assessment as part of the planning application for the proposed Steeven's Lane 110kV Substation and associated underground cable infrastructure in Dublin 8. The assessment has been completed to demonstrate compliance with the objectives of the EU Water Framework Directive (2000/60/EC), specifically to ensure that the Proposed Development will not cause deterioration in the status of any water body or prevent the achievement of the environmental objectives established under the current River Basin Management Plan.

The Proposed Development comprises the construction of a new 110kV/MV electrical substation, associated electrical infrastructure, and approximately 1.5km of underground cable connections.

The assessment considered the receiving water environment, including nearby surface water bodies, the underlying Dublin Groundwater Body, protected areas and potential hydrological pathways. A staged WFD assessment was undertaken comprising Screening, Scoping and Detailed Impact Assessment. Surface water receptors identified for detailed assessment include the Liffey Estuary Upper and Lower, Tolka Estuary and Dublin Bay, while the Dublin Groundwater Body was assessed in relation to potential construction effects. Key potential risks identified were associated with sediment-laden runoff, mobilisation of existing contaminated soils, accidental spills of fuels, cementitious materials and transformer insulating oil during construction activities.

The assessment concludes that, with the embedded design measures and standard construction environmental controls incorporated into the Proposed Development, including implementation of the outline Construction Environmental Management Plan (oCEMP), the Proposed Development will not result in any deterioration in the status of surface water or groundwater bodies.

Accordingly, the Proposed Development is not predicted to result in deterioration of any Water Framework Directive water body, nor will it compromise the achievement of current or future WFD environmental objectives. The Proposed Development is therefore considered to be compliant with the requirements and objectives of the Water Framework Directive.

1. Introduction

Malachy Walsh and Partners (MWP) have been commissioned by the Electricity Supply Board (ESB) ("the Applicant") to undertake a Water Framework Directive (WFD) Compliance Assessment for a proposed 110kV substation at Steeven's Lane, Dublin 8.

The assessment evaluates nearby WFD water bodies that could potentially be affected by the Proposed Development and determines whether the project could cause deterioration in water body status or prevent the achievement of WFD environmental objectives.

1.1 Competency of Assessor

This WFD Compliance Assessment has been undertaken by Antía Prados and reviewed by Micheal Fenton.

Antía Prados is a Principal Environmental Consultant and Chemical Engineer with over 12 years' experience in environmental assessment, planning and infrastructure delivery in Ireland and internationally. She specialises in Environmental Impact Assessment (EIAR), statutory consenting and environmental management for civil engineering projects, with strong experience in preparing and reviewing environmental documentation for transport and other large-scale infrastructure schemes. She has extensive experience in environmental regulation, stakeholder engagement and sustainability assessments, including CEMPs and carbon accounting. Her strong understanding of environmental legislation and water-related impacts, combined with experience working with multidisciplinary teams and statutory authorities, demonstrates clear competence to support Water Framework Directive (WFD) assessments for complex infrastructure projects.

Micheál Fenton is a Chartered Civil Engineer with over 18 years' experience in hydrology, hydraulics, flood risk assessment and water environment assessment for major infrastructure and renewable energy projects. He has led the delivery of hydrological assessments, Flood Risk Assessments, hydraulic modelling and Water Framework Directive (WFD) Assessments for numerous infrastructure projects across Ireland. His expertise includes catchment characterisation, assessment of potential impacts on surface water bodies, development of mitigation measures, and ensuring compliance with the objectives of the EU Water Framework Directive. Micheál has extensive experience in hydrological analysis, 1D/2D hydraulic modelling, watercourse crossing assessments, and the preparation of robust environmental assessment documentation to support planning applications. His combination of technical expertise and project leadership ensures the successful delivery of WFD-compliant assessments for complex infrastructure projects.

2. Legislative Context

2.1 Water Framework Directive (WFD) (2000/60/EC)

The EU Water Framework Directive (WFD) (2000/60/EC) is implemented in Ireland through the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003), as amended, together with the Surface Waters Regulations 2009 (S.I. No. 272/2009) and the Groundwater Regulations 2010 (S.I. No. 9/2010), as amended. The legislation provides the framework for managing and protecting rivers, lakes, transitional and coastal waters, and groundwater through River Basin Management Plans (RBMPs).

2.1.1 WFD Objectives

There are two principal objectives of the WFD:

- Achieve at least 'Good Ecological and Chemical Status' (or Good Ecological Potential where applicable) for all water bodies by 2027; and
- Prevent deterioration in the status of any water body.

Implementation is delivered through six-year River Basin Management Plans (RBMPs). The current RBMP 2022–2027 sets out the measures required to protect and improve water quality while addressing emerging challenges such as climate change.

2.1.2 WFD Classification

Water body status is assessed through the national WFD monitoring programme using data collected by the EPA https://gis.epa.ie/EPAMaps/Water). Assessments consider:

- Biology (plants and animals living in and around water bodies);
- Water quality (concentrations of nutrients such as nitrogen and phosphorus and harmful chemicals such as pesticides);
- Water quantity (flows and levels of surface waters and groundwaters); and
- Hydromorphology (the physical habitat conditions of water bodies).

Surface waters are classified into five ecological status classes, while groundwater is classified as either good or poor. Overall status is determined using the "one-out, all-out" principle, whereby the lowest individual element determines the overall classification. Refer to Figure 2-1 below.

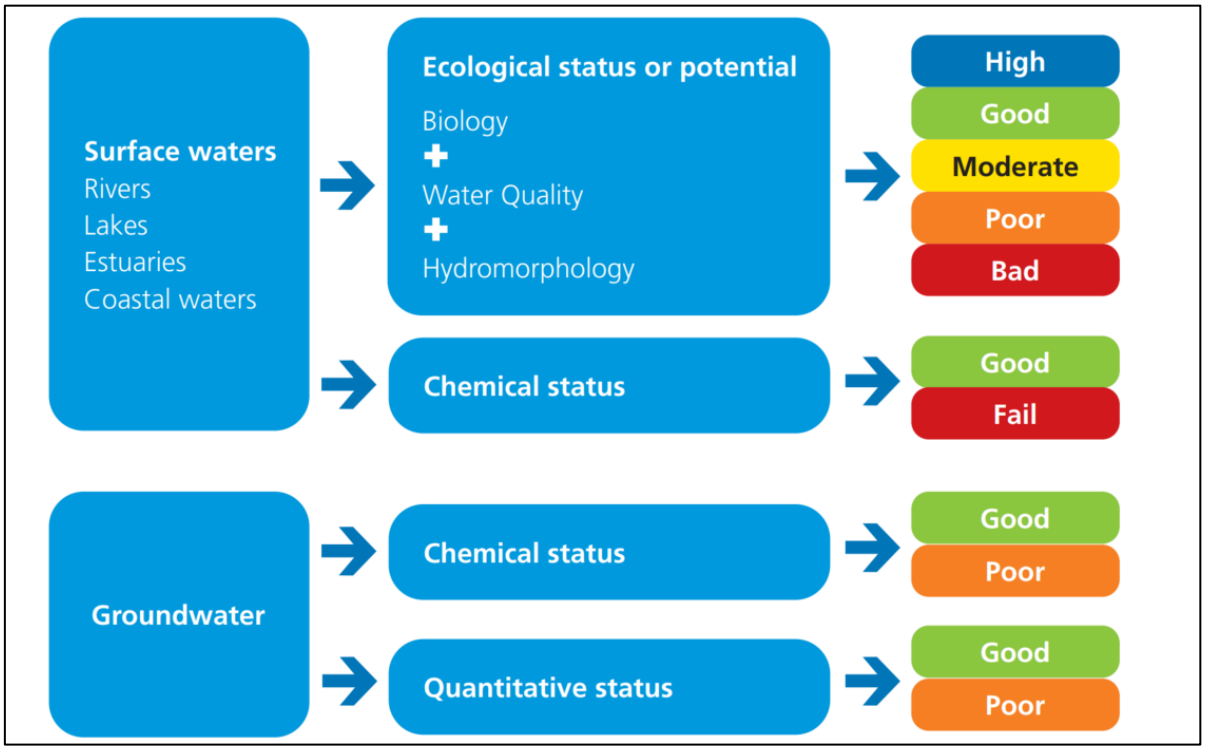

Figure 2-1: WFD Classification (EPA, 2025 –www.catchments.ie)

2.1.2.1 Ecological Status

Ecological status is recorded as high, good, moderate, poor or bad. 'High' represents 'largely undisturbed conditions'. Eighteen different biological assessment methods have been developed to assess the condition of biological communities across the four surface water categories (EPA, Ireland's National Water Quality Monitoring Programme 2022-2027). (Refer to Table 2-1)

Table 2-1: Biological Assessment Methods Used to Assess Ecological Status of Various Water Bodies

Quality Element	Rivers	Lakes	Transitional Waters	Coastal Waters
Macroinvertebrates	Quality Rating System (Q-value)	Lake Acidification Macroinvertebrate Metric (LAMM)	Infaumal Quality Index (IQI)	Infaumal Quality Index (IQI)
	Acid Water Indicator Community Score (AWICs)			
Aquatic Plants	Mean Trophic Rank (MTR)	Free Macrophyte Index	Intertidal Seagrass tool	Intertidal Seagrass tool
	LEAFPACS		Saltmarsh Angiosperm Assessment Tool for Ireland (SMAATIE)	Saltmarsh Angiosperm Assessment Tool for Ireland (SMAATIE)
Macroalgae	Mean Trophic Rank (MTR)	Not applicable	Opportunistic Green Macroalgal Abundance (OGA tool)	Opportunistic Green Macroalgal Abundance (OGA tool)
	LEAFPACS			RSL – Rocky Shore reduced species list
Phytoplankton	Not applicable	IE Lake Phytoplankton Index	Phytoplankton biomass & composition	Phytoplankton biomass & composition
Phytobenthos	Revised form of Trophic Diatom Index (TDI)	Lake Trophic Diatom Index (IE)	Not applicable	Not applicable
Fish	Fish Classification Scheme (FCS2)	Fish in lakes 2 (FIL2)	Transitional Fish Classification Index (TFCI)	Not applicable
			Estuarine Multi-metric Fish Index (EMFI)	

2.1.2.2 Physico-Chemical Quality Status

Physico-chemical elements such as nutrients, dissolved oxygen, salinity, pH, etc., are measured to provide an indication of how these elements support the achievement of good or better ecological status. The physico-chemical quality elements and parameters that will be monitored in the 2022-2027 programme are shown in Table 2-2. Transparency in rivers is not measured due to the shallow nature of most Irish rivers.

Table 2-2: Physico-Chemical Quality Elements and Parameters of Water

Quality Element	Rivers	Lakes	Transitional Waters	Coastal Waters
Transparency	Not measured	Secchi depth, colour	Secchi Depth	Secchi Depth
Thermal Conditions	Temperature	Temperature	Temperature	Temperature
Oxygenation conditions	DO, BOD	DO	DO, BOD	DO, BOD
Acidification	pH, alkalinity, cations and anions, DOC	pH, alkalinity, cations and anions, DOC	pH	pH
Salinity	Conductivity	Conductivity	Salinity	Salinity
Nutrient Conditions	MRP, TA, TON	MRP, TA, TON, TP, Si	DIN, MRP, Si	DIN, MRP, Si

2.1.2.3 Hydromorphology Status

The WFD requires the assessment of the ecological status, which includes hydromorphological quality elements. Hydromorphology is the study of physical form, condition and processes within a surface water body, which create and maintain habitat. Where the hydromorphology of a surface water body has been significantly altered for anthropogenic purposes, such as water supply, flood protection or navigation, it can be designated as an Artificial or Heavily Modified Water Body (HMWB).

An alternative environmental objective, Good Ecological Potential (GEP) applies in these cases. In practice, this means that ecology must be as close as possible to that of a similar natural water body, but without compromising its human use. The water bodies of relevance to this project are not classified as HMWB so the classification of these is not discussed further.

2.1.3 WFD Protected Areas

The WFD requires a register of protected areas. These are protected for their use (such as fisheries or drinking water) or because they have important habitat and/or species that directly depend on water. The register includes areas identified by the WFD itself or other European Directives. These may include the following:

- Areas used for water abstraction – Act No. 48/2022 – Water Environment (Abstractions and Associated Impoundments) Act 2022;
- Areas designated for the protection of economically significant aquatic species (Directive 2000/60/EC establishing a framework for Community action in the field of water policy);
- Recreational waters (Bathing Waters Directive 2006/7/EC);
- Nutrient Sensitive Areas (Nitrates Directive 91/676/EEC, amended by Commission Directive (EU) 2026/288;
- Urban Wastewater Treatment Directive (EU) 2024/3019;
- Areas of protected species or habitats where water quality is an important factor in their protection (Natura 2000 sites under Birds Directive 2009/147/EC and Habitats Directive 92/43/EEC).

3. Assessment Methodology

3.1 Appraisal Method

Any activity associated with the Proposed Development that could affect the status of a water body or prevent the achievement of WFD objectives must be assessed for compliance with the WFD.

Published methodologies for the assessment of plans or projects in relation to undertaking WFD assessments across all types of water bodies that are specific to Ireland are not currently available. There is however an EU level guidance document of relevance titled ''Water Framework Directive Project assessment checklist tool'' (2024), published by the Joint Assistance to Support Projects in European Regions (JASPERS). In addition, the UK Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (NSIP, 2024) provides guidance on the WFD process, and the information required.

The WFD compliance assessment follows a three-stage process:

- Stage One: Screening. – identifies receptors that require further assessment;
- Stage Two: Scoping – identifies quality elements potentially affected; and
- Stage Three: Detailed Impact assessment. – evaluates potential impacts, mitigation measures, and whether the development could cause deterioration or prevent achievement of Good Status.

3.2 Data Resource

The following data resources and reports were utilised to inform this assessment:

- Geological Survey of Ireland Online Mapping (GSI, 2026)
- Environmental Protection Agency Online Mapping (EPA, 2026)

4. Description of the Proposed Development

The Proposed Development will consist of a 110 kV / MV electrical substation and will include the following elements:

- Demolition of all existing buildings on site including a former office building, warehouse and storage shed;
- The construction of 110 kV / MV substation compound with the following electrical plant within the substation:
    - A two storey 110 kV / MV Gas Insulated Switchgear (GIS) building (c. 559 m^2; 14.1 m in height);
    - Two bunded 110 kV / MV transformers in transformer bays (c. 5.75 m in height) and surrounding fire walls (c.6.1 m high) and associated electrical equipment;
    - All associated and ancillary site development and infrastructural works, including site clearance, demolition of existing western boundary wall and gates, provision of new boundary treatments and gates along the western site boundary, replacement of the existing retaining wall along the northern and northeastern site boundary, provision of new boundary treatments along the southern and south eastern site boundary, site services including electrical circuits, lighting, telecommunications and drainage.

- The installation of six 110kV underground cables (UGC) circuits connecting the proposed Stevens Lane 110kV substation to key locations, including:
    - Loop-in connection joint bays on the existing Francis Street – Heuston Square 110kV circuit at Bow Lane West and Echlin Street / James' Street;
    - Diageo's 110kV substation (subject to a separate and future consenting process); and
    - Ducting for future use to be terminated in joint bays at St James's Gate Medical car park, north of James' Street.

The combined total length of the circuits is approximately 1.5 km, and they will be installed as either double or single circuits.

- The installation of 14 circuit MV UGC between the proposed substation and new joint bays at St James's Gate Medical car park, north of James' Street.

Figure 4-1 shows the Proposed Development footprint within the development boundary. The characteristics of the Proposed Development are fully described in the Planning and Environmental Considerations Report (PECR) and the Outline Construction Environmental Management Plan (oCEMP) accompanying this planning application, and this WFDA should be read in conjunction with those documents. In addition, full details of the proposed design, layout, elevations, sections, and associated site development works are provided within the planning drawings.

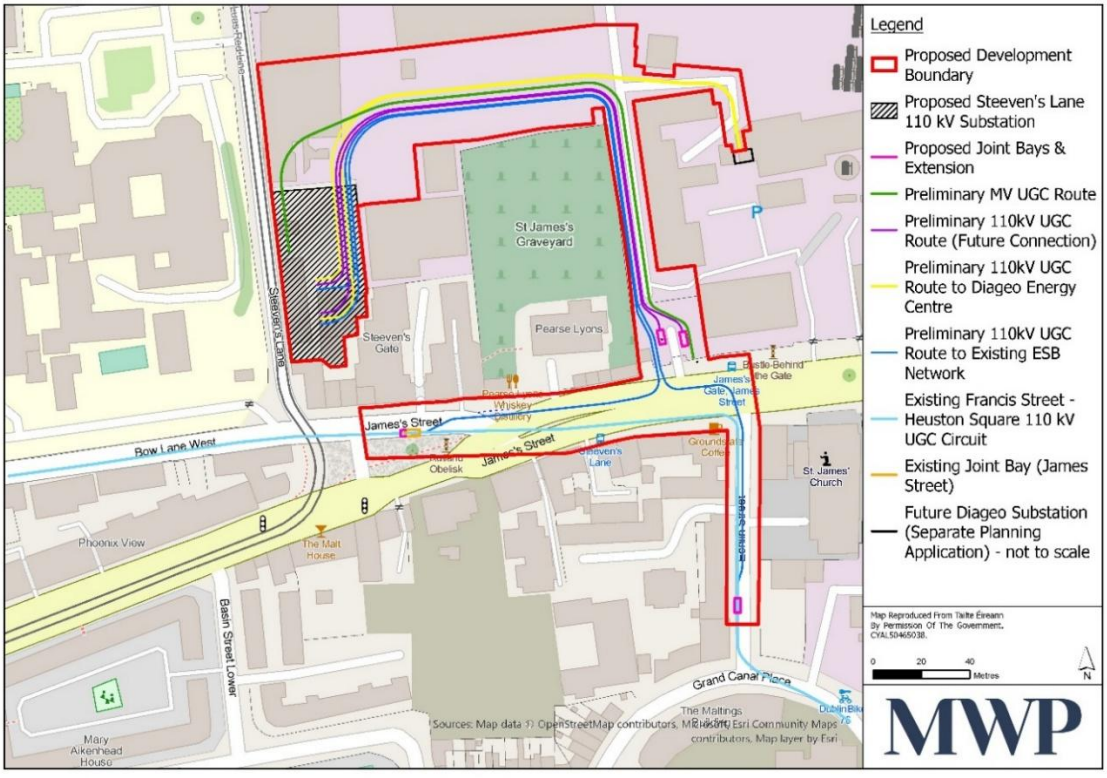

Figure 4-1: Proposed Development Footprint within the development boundary[1]

[1] There is no building located within the northwest section of the Green Preliminary MV UGC Route. The building shown in this area is part of the background mapping only and does not exist on site.

4.1 Construction Works

The construction of the Proposed Development will be undertaken on a phased basis over an approximate period of three years. Construction activities will include enabling and demolition works, civil engineering, building, and electrical installation activities associated with the development of the proposed 110 kV substation and associated underground cable infrastructure. The operational life of the Proposed Development is expected to be in excess of 50 years.

A detailed description of the proposed construction methodology, sequence of works, construction management measures and embedded mitigation is provided in the Construction Environmental Management Plan (CEMP) accompanying this planning application.

For the purposes of the WFD screening assessment, the Proposed Development has been divided into construction and operational phases, with the key activities identified for each phase to facilitate the identification of potential impact pathways to the water environment (Table 4-1). The activities presented are indicative of the principal construction works and are not intended to represent an exhaustive list of all construction activities.

Table 4-1: Project Phases and Activities

Project Phase	Activity
Pre-construction	• Demolition of all existing buildings on site including a former office building, warehouse and storage shed; and • Demolition of retaining walls to the north and east of the proposed substation site.
Construction	• Piling of MV Gas Insulated Switchgear building foundations; • Construction of a two storey 110 kV / MV Gas Insulated Switchgear (GIS) building (c. 559 m2; 13 m in height); • Construction of two 110 kV / MV transformers in transformer bays (c. 5 m in height) and surrounding fire walls (c.5.5 m high) and associated electrical equipment; • Installation of approximately 1.5 km of underground cable (UGC); • All associated and ancillary site development and infrastructural works, including site clearance, demolition of existing boundary wall and gates, provision of new boundary treatments and gates, site services including electrical circuits, lighting, telecommunications and drainage; and • Use of Fuels & Concrete.
Operational	• General maintenance works.

5. Site Setting and Receiving Environment

5.1 Site Location and Context

The Proposed Development site is located on unoccupied brownfield land owned by Diageo, immediately adjacent to the Diageo Guinness Brewery at James Street. The site currently comprises a number of vacant and derelict buildings, together with an associated yard area.

It is bounded to the north and northeast by the industrial lands of the Guinness Brewery. Steeven's Lane forms the western boundary, serving primarily pedestrians, cyclists, and the Luas Red Line, with limited vehicular access restricted to the site and St Patrick's University Hospital located on the opposite side of Steeven's Lane.

To the south, the Proposed Development site is bordered by mixed-use and residential properties, including 132-134 James's Street and Steevens Gate Apartments.

The site location within the greater Dublin area is shown in Figure 5-1 below.

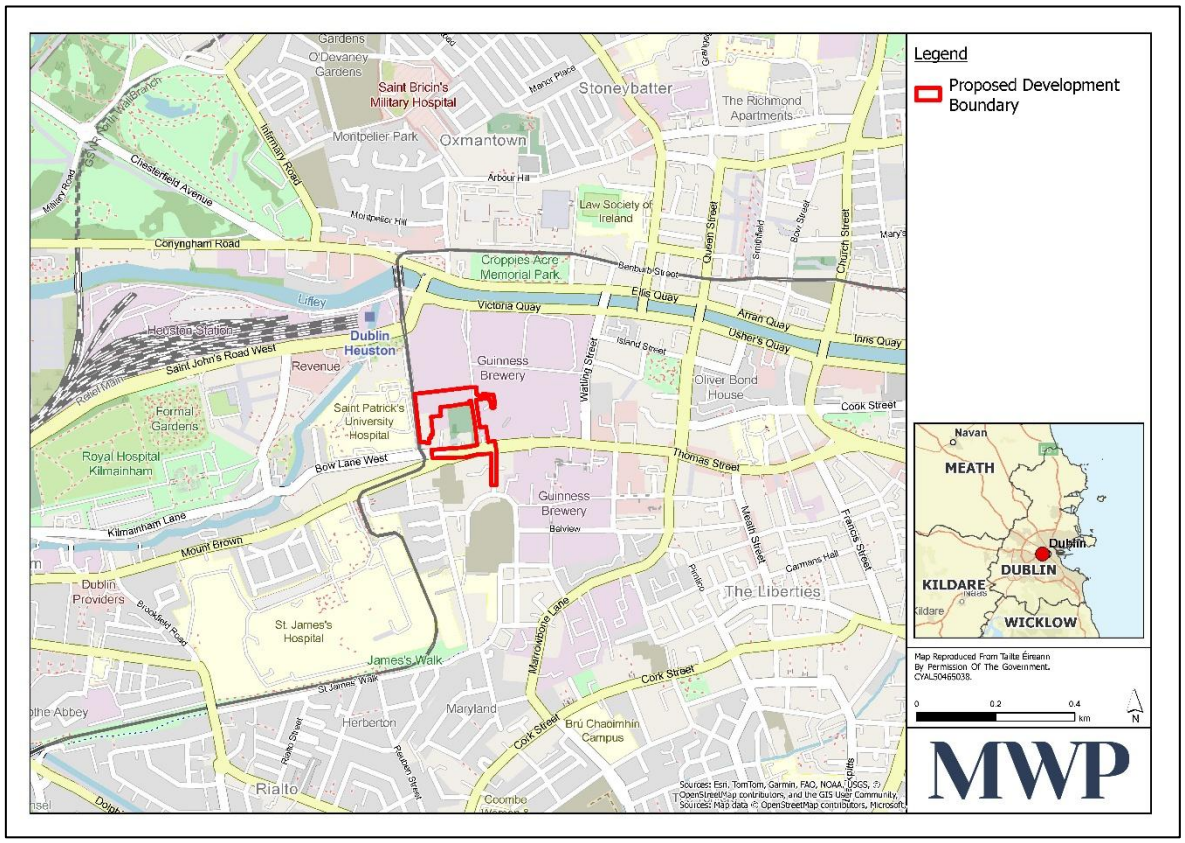

Figure 5-1: Proposed Site Location

5.2 Catchment Description

The current status and measures designed to achieve the water body objectives are set out by the EPA in the RBMP (2022-2027). For this RBMP cycle, a single national River Basin District has been defined for Ireland. This is broken down into 46 catchment management units.

The Proposed Development is located within Hydrometric Area No. 09, also known as Liffey and Dublin Bay Catchment (HA 09). The Liffey and Dublin Bay catchment is divided into 17 sub catchments with 81 river waterbodies, six lake waterbodies, six transitional waterbodies, five coastal waterbodies and 29 groundwater

bodies (Figure 5-2). The Proposed Development is located mostly in the Liffey_SC_090 Sub-catchment (ID: 09_15) (Figure 5-3) and the grid connection works will extend into the Dodder_SC_10 sub-catchment (ID:09_16).

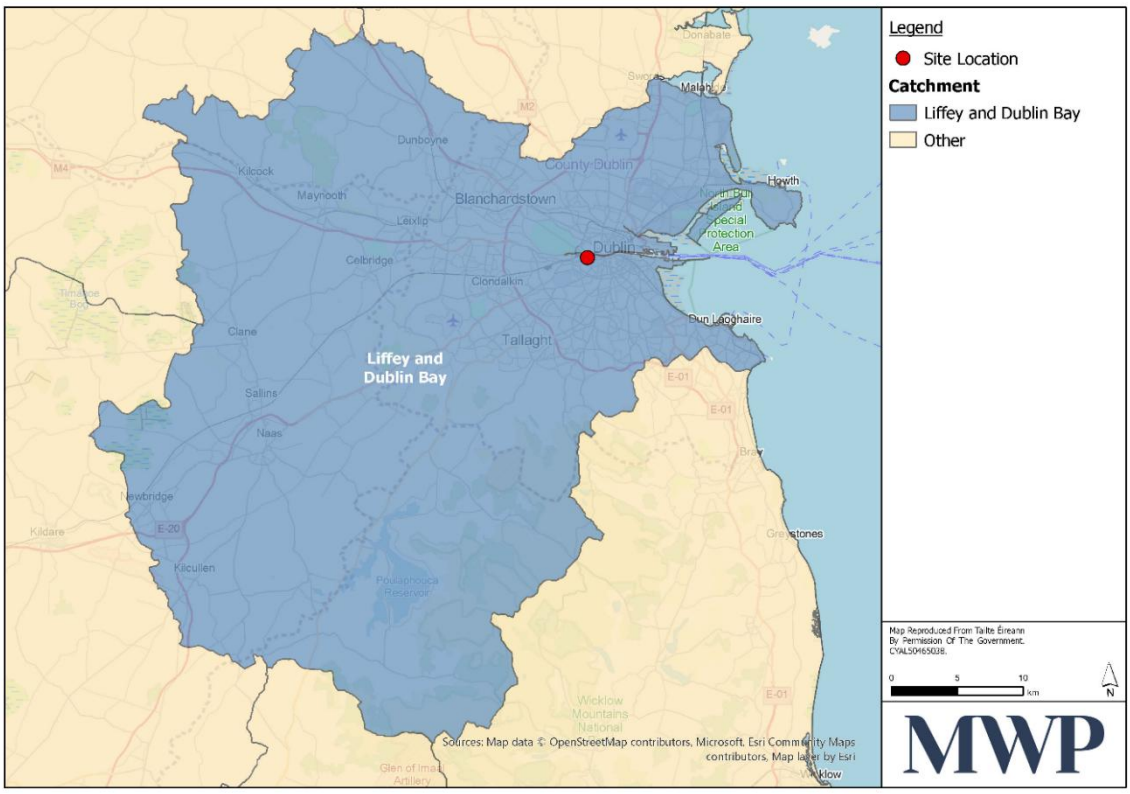

Figure 5-2: The Liffey and Dublin Bay Catchment (EPA, 2024)

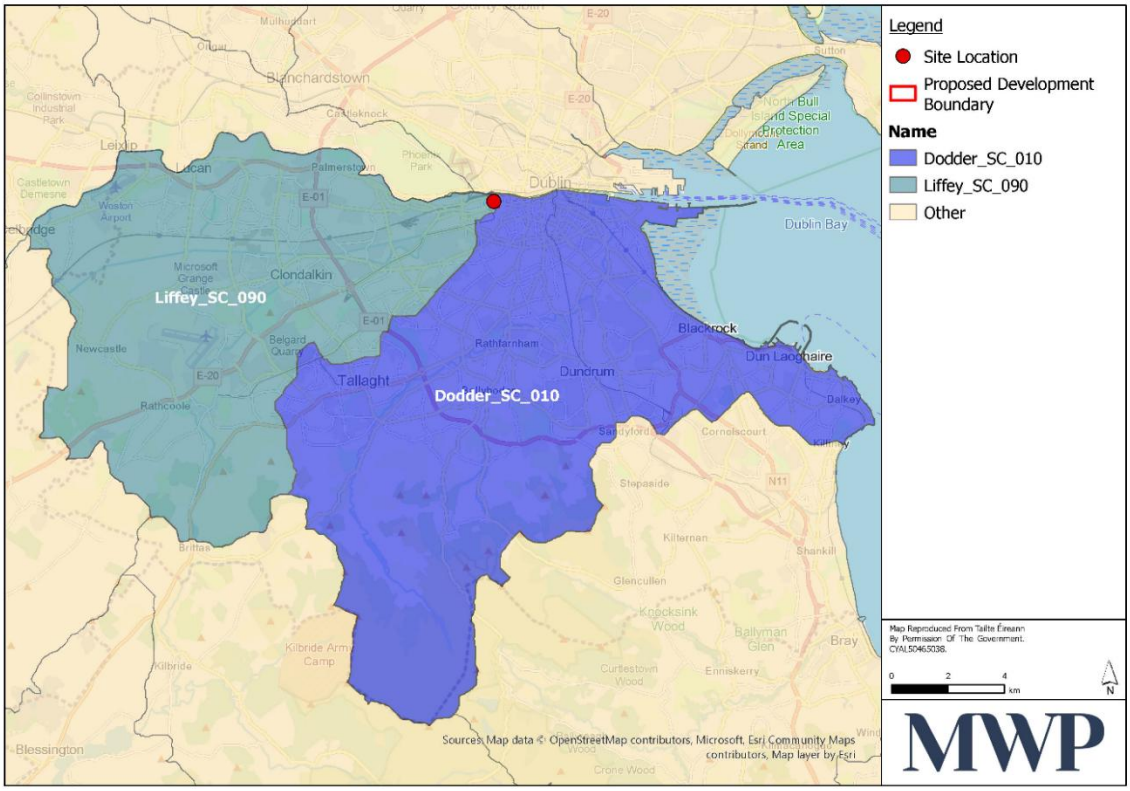

Figure 5-3: Sub-Catchment Locations (EPA Maps, 2025)

5.3 Relevant Surface Waterbody and Status

The surface water features (Figure 5-4) in the vicinity of the Proposed Development are:

- CAMAC_040 (IE_EA_09C020500), EPA Name: Camac is located approximately 200m to the northwest of the Proposed Development;
- Poddle_010 (IE_EA_09P030800), EPA Name: Poddle is located approximately 950m east of the Proposed Development;
- Liffey Estuary Upper (IE_EA_090_0400), is located approximately 330m to the north of the Proposed Development;
- Liffey Estuary Lower (IE_EA_090_0400), is located approximately 2.6km east of the Proposed Development;
- Tolka Estuary (IE_EA_090_0200) is located approximately 7km east of the Proposed Development;
- Dublin Bay (IE_EA_090_0000) is located approximately 5.4km east of the Proposed Development; and
- Grand Canal Main Line (Liffey and Dublin Bay) (IE_09_AWB_GCMLE) is located approximately 1.3km south of the Proposed Development.

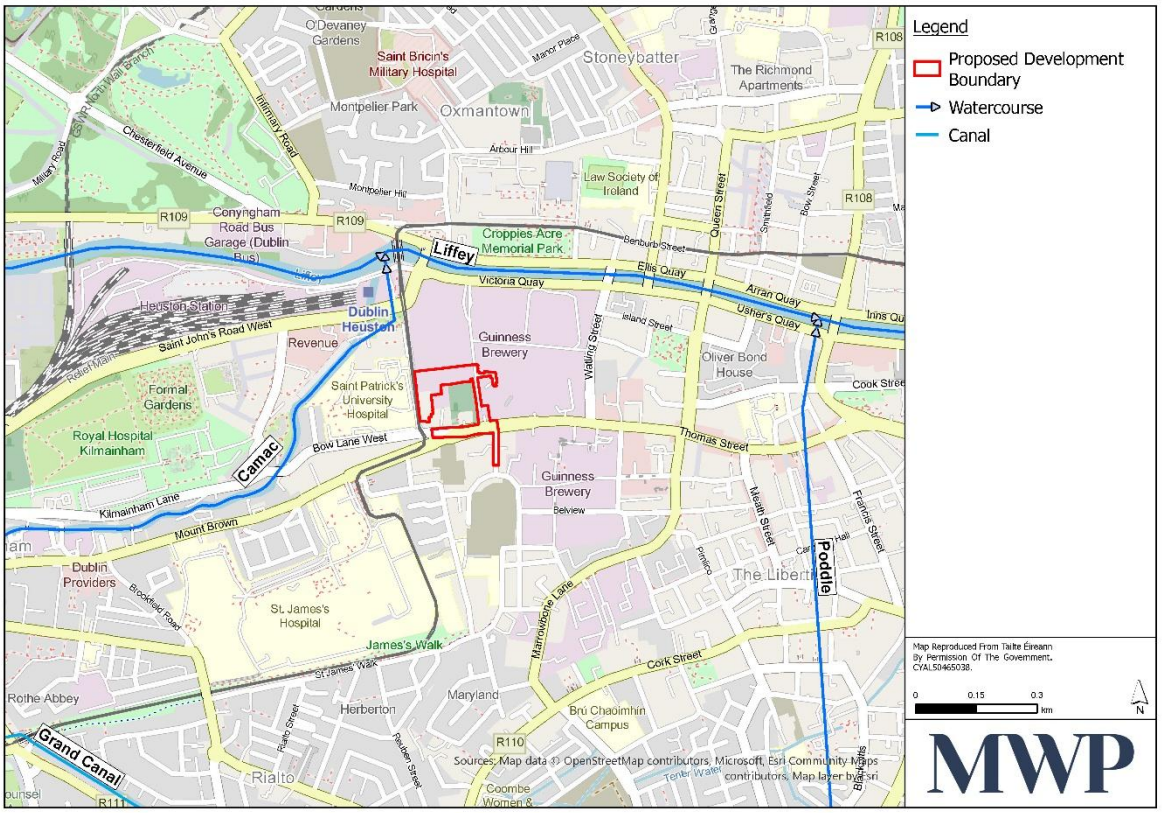

Figure 5-4: Location of Surface Water Bodies

The Camac River flows in a southwest to northeast direction approximately 200m northwest of the Proposed Development site. The Camac discharges into the Upper Liffey Estuary approximately 300m to the north of the site. The Upper Liffey Estuary subsequently connects with the Lower Liffey Estuary approximately 2.6km east of the Proposed Development. The Lower Liffey Estuary continues eastwards and ultimately converges with the Tolka Estuary and Dublin Bay approximately 7km from the Proposed Development site.

The Poddle River, located within the Dodder_SC_010 sub-catchment, flows in a north to south direct approximately 1km east of the Proposed Development. The Poddle River discharges into the Upper Liffey Estuary approximately 1km east of the Proposed Development site.

The Grand Canal flows in an east-west direction through Dublin. The canal forms part of the Grand Canal Basin catchment and is a highly modified water body, primarily used for navigation and amenity purposes. The Grand Canal is connected to the River Liffey via the Grand Canal Dock and ultimately discharges to Dublin Bay.

Table 5-1 provides a summary of the WFD status for the identified surface waterbodies, and the pressures they are experiencing.

Table 5-1: Surface Water Body Status

Waterbody Name	Code	Type	Status 2019-2024	At Risk of Not Achieving Good Status	Pressures
Camac	IE_EA_09C020500	River	Poor	At risk	Urban run-off, Urban Waste Water
Poddle	IE_EA_09P030800	River	Poor	At risk	Urban run-off
Liffey Estuary Upper	IE_EA_090_0400	Transitional	Moderate	Review	None Indicated
Liffey Estuary Lower	IE_EA_090_0400	Transitional	Moderate	At risk	Urban Waste Water
Tolka Estuary	IE_EA_090_0200	Transitional	Poor	At risk	Urban Waste Water
Dublin Bay	(IE_EA_090_0000)	Coastal	Good	Not at risk	None Indicated
Grand Canal Main Line	IE_09_AWB_GCMLE	Canals	Good	Not at risk	None Indicated

5.4 Relevant Groundwater Body and Status

The groundwater body underlying the site is the 'Dublin Groundwater Body (GWB) (IE_EA_G_008)'. Currently the EPA classifies the Dublin GWB as having a WFD 2019-2024 status of 'Good' and has a current WFD risk assessment score of 'Review'.

Groundwater vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease at which the groundwater may be contaminated generally by human activities. The Geological Survey of Ireland (GSI) has mapped the vulnerability in the area of the Proposed Development as 'Moderate Vulnerability'. The 'Moderate Vulnerability' rating at the proposed site gives a depth of 3-5m of overlying subsoils. The sediment at the proposed site is classified as 'concreted or artificial surfaces'. The 'Moderate Vulnerability' rating for the groundwater vulnerability represents the risk of contamination by human activities. Figure 5-5 shows the groundwater body, while Figure 5-6 illustrates the groundwater vulnerability beneath the site and within the surrounding area.

The bedrock aquifer underlying the site and surrounding areas, according to the EPA maps (gis.epa.ie/EPAMaps/), is a 'Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones'. See Figure 5-7. Table 5-2 provides a summary of the WFD status for the groundwater aquifer under the site. The water quality remained of good quality from 2013 to the latest results in 2024. The current status is 'Review', meaning that either additional information is needed to determine their status before resources and more targeted measures are initiated or the measures have been undertaken, e.g. a wastewater treatment plant upgrade, but the outcome hasn't yet been measured/monitored.

Table 5-2: Groundwater Status

Waterbody Name (Code)	Type	Status 2013-2018	Status 2016-2021	Status 2019-2024	At Risk of Not Achieving Good Status	Pressures
Dublin (IE_EA_G_008)	Groundwater	Good	Good	Good	Review	None indicated

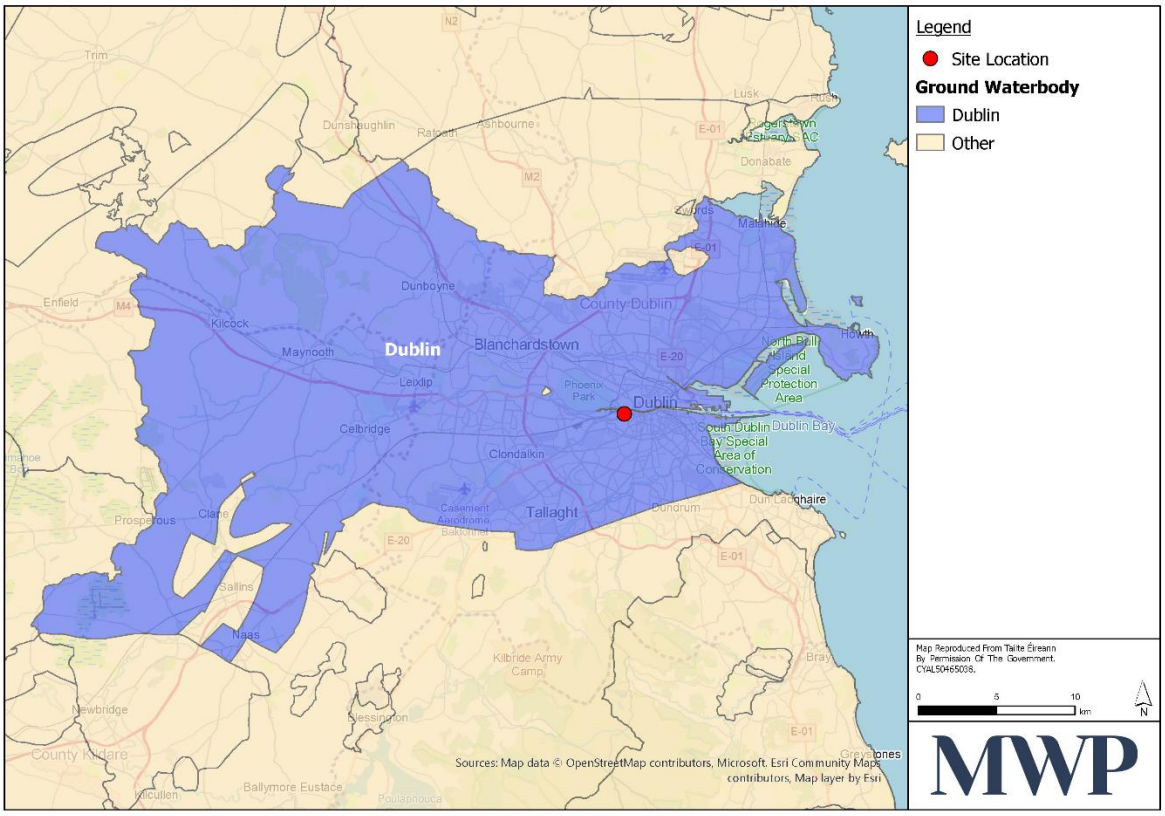

Figure 5-5: Groundwater Body

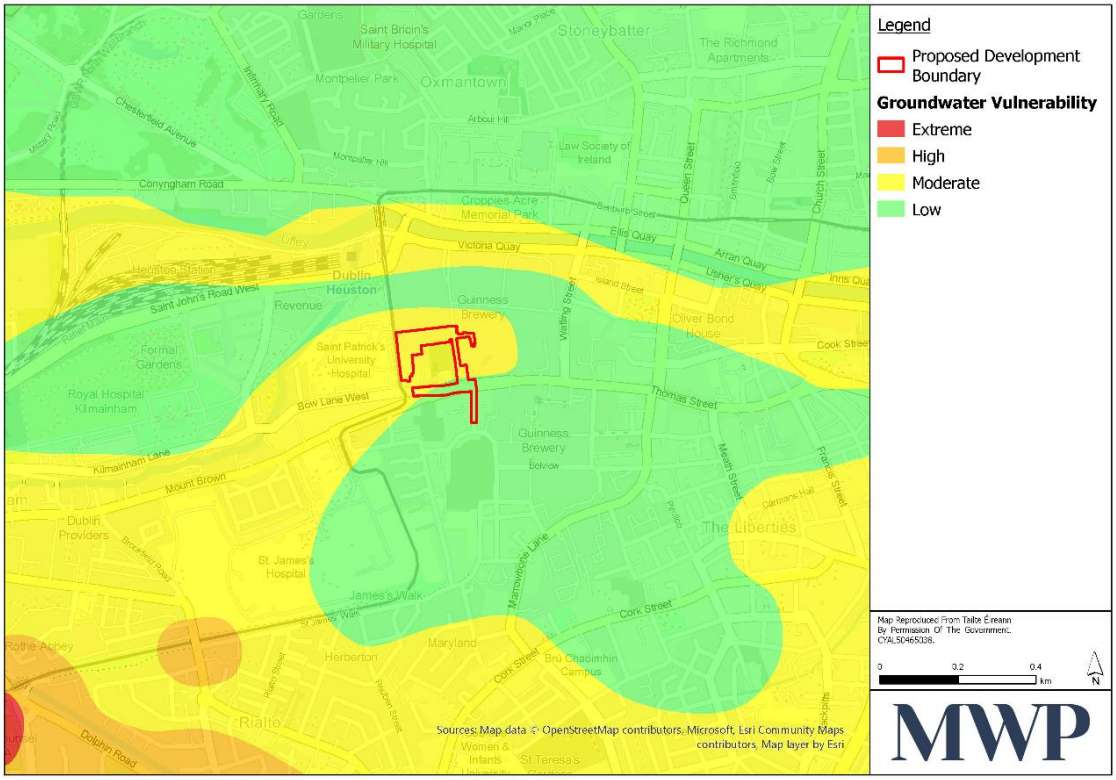

Figure 5-6: Groundwater Body Vulnerability

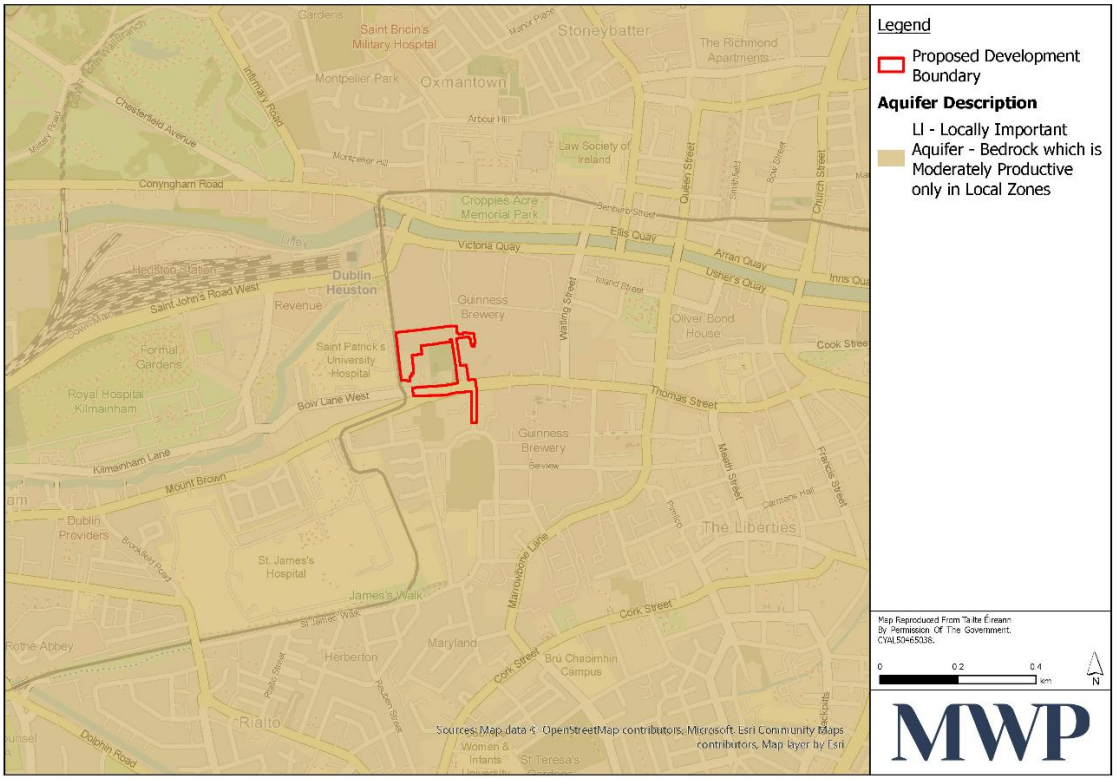

Figure 5-7: EPA Bedrock Aquifer Classification

5.5 Drinking Water/Abstractions

There are several waterbodies designated for Abstraction for Drinking Water under Article 7 of the WFD. These are designated as 'All bodies of water used for the abstraction of water intended for human consumption providing more than 10m³ a day as an average or serving more than 50 persons, and those bodies of water intended for such future use'.

The GWB Dublin underlies the site of the Proposed Development which is designed under Article 7 for drinking water. There are no nearby rivers or lakes for drinking water, the closest being the 'DODDER_020' c. 11.5km southwest of the Proposed Development.

The Geological Society of Ireland delineates Public Supply Source Protection Areas for drinking water to protect these public water supplies. These are split into inner and outer protection areas, with the inner areas designated to prevent immediate threats to the water source. The outer area encompasses the Zone of Contribution (ZoC) that contributes to the inner areas water supply. There are no public water supply (PWS) sources located in the vicinity of the Proposed Development. The closest PWS is the DUNBOYNE PWS, c.15km to the northwest of the Proposed Development, see Figure 5-8.

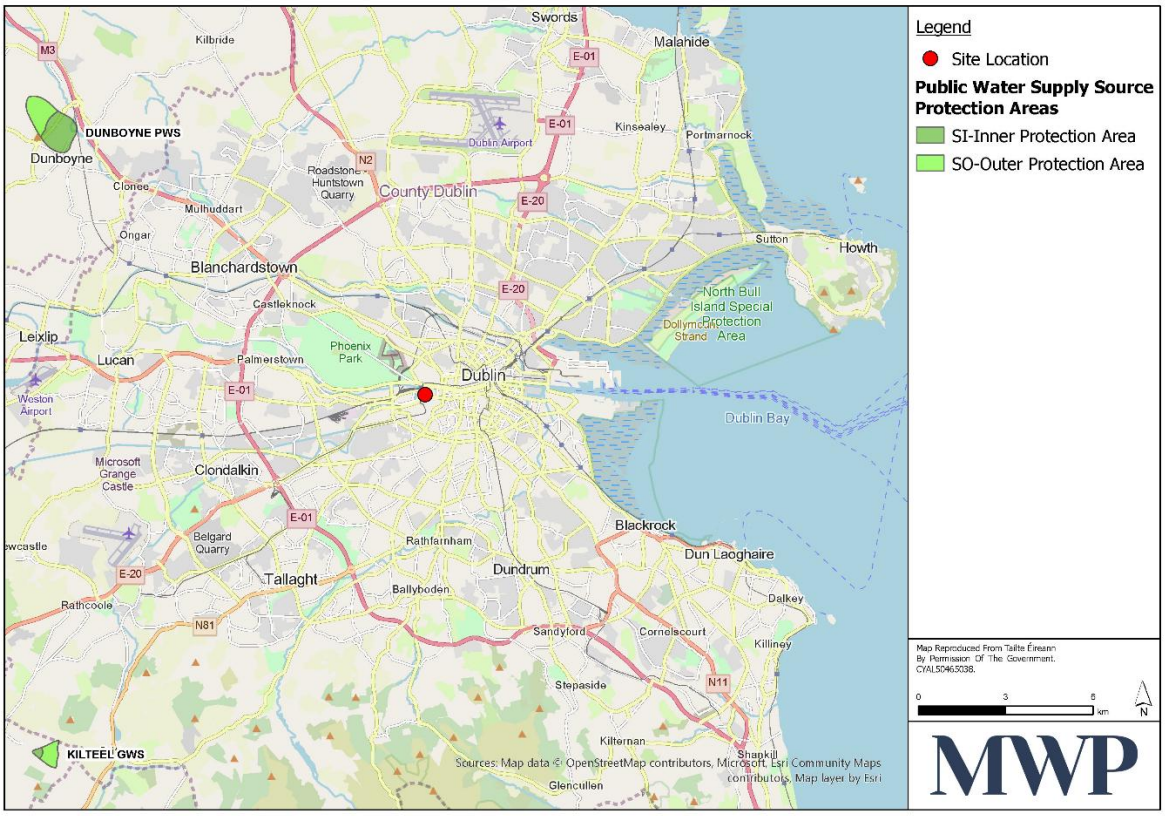

Figure 5-8: PWS Locations

According to the GSI database, several groundwater wells are located within the vicinity of the Proposed Development. The nearest is Borehole (IE_GSI_GW_Well_7683), located approximately 900m northeast of the site and Borehole (IE_GSI_GW_Well_7681), located approximately 1.4km to the east. These wells have recorded depth of 30.4m and 106.7m, respectively, and are both classified as having good groundwater yields. These wells, along with other wells in the surrounding area, are illustrated in Figure 5-9.

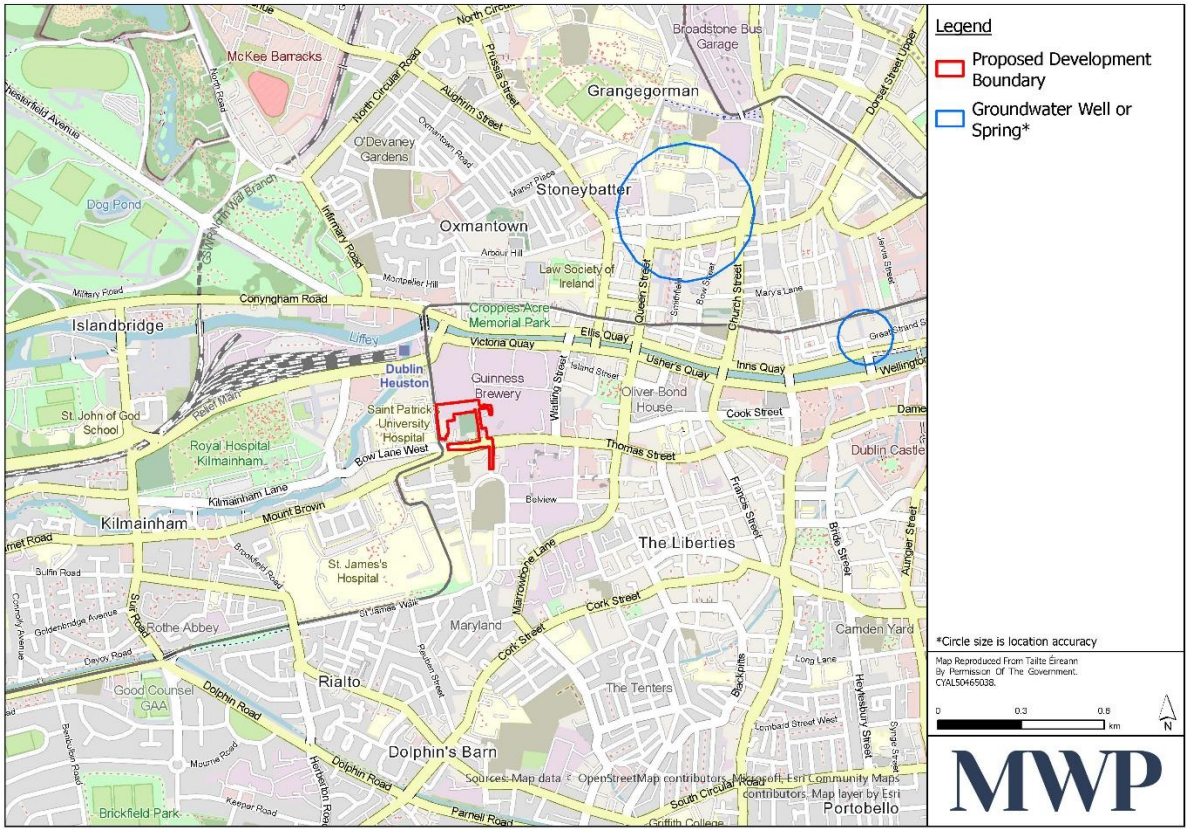

Figure 5-9: GSI Groundwater Wells and Springs

5.6 Nutrient Sensitive Waters

Nutrient sensitive areas were documented in December 2018 to represent information in the RBMP Cycle 3. During this undertaking, the River Liffey and its estuaries as well as the Tolka Estuary were classed as nutrient sensitive waters. There are no Salmonid rivers in the vicinity of the Proposed Development. The closest is the River Dargle, c. 19km southeast of the Proposed Development, which no connectivity to the proposed site.

The Sea Fisheries Protection Agency (SFPA) monitors and publishes classified bivalve production areas in Ireland as required by Directive 2006/113/EC on the quality required of shellfish waters and brought into Irish legislation under S.I. No. 268 of 2006. This classification is graded against *E.Coli* thresholds, with gradings of A, B and C available. Areas graded 'A' are suitable for sale for direct human consumption, while grade 'C' areas require bivalves to under a last 2 months relaying in cleaner waters or an approved heat treatment before being suitable for human consumption. The Proposed Development is not located close to or has hydrology connectivity to any designated shellfish water. The closest designated area is 'Malahide' c. 15km northeast of the Proposed Development. It is designated for Razor Clams, class 'A'.

5.7 Natura 2000 Protected Areas

There are several designated, Special Areas of Conservation (SAC) and Specially Protected Areas (SPA), as part of the Natura 2000 network. There are 4 No. Natura 2000 sites within the potential zone of influence (ZoI) of the Proposed Development as identified in the AA Screening Report, submitted as part of this planning application. The closest SAC to the Proposed Development is the South Dublin Bay SAC c. 5.5km east of the Proposed

Development. The closest SPA to the Proposed Development is c. 4.4km to the northeast. These Natura sites are hydrologically linked to the Liffey Estuary that flows c. 330m north of the Proposed Development. Figure 5-10 presents these Natura 2000 sites in the surrounding areas.

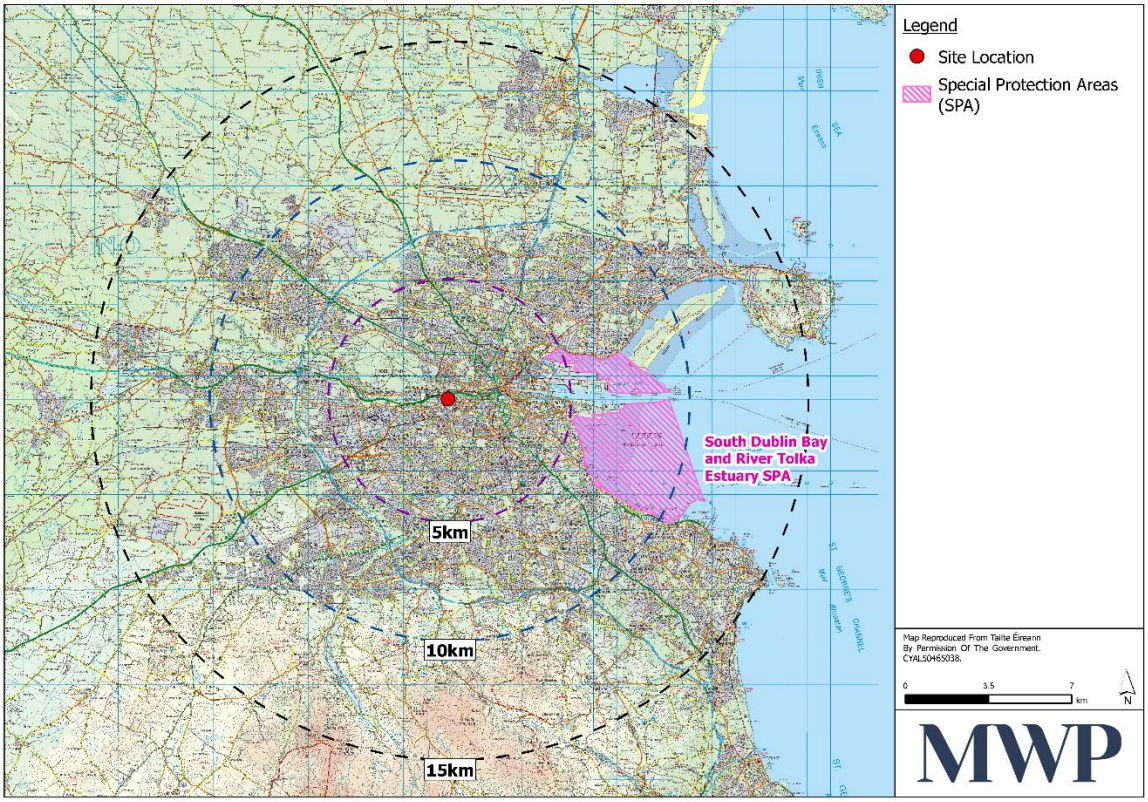

Figure 5-10: Natura 2000 Sites

5.8 Bathing Waters

Bathing Waters are designated under Regulation 5 of Directive 2006/7/EC. Designated Bathing Waters exist under S.I. No. 79/2008 and S.I. No. 351/2011 Bathing Water Quality (Amendment) Regulations 2011. EC Bathing Water Profiles – Best Practices and Guidelines 2009. The closest designated Bathing Water location is Sandymount Strand, which has a bathing quality status of 'Sufficient'.

Sandymount Strand is located approximately 5.5 km east of the Proposed Development and has an indirect hydrological connection with the site via the Liffey Estuary Lower.

6. Compliance Assessment

6.1 Stage One: Screening

The first stage of the WFD Compliance Assessment involves screening water bodies to identify those with potential connectivity or risk of impact from the Proposed Development. Water bodies without a potential pathway for impact are screened out and not considered further. The results of the screening exercise are summarised in Table 6-1.

Table 6-1: Results of Stage 1 Screening Assessment of the WFD

Waterbody Name	Waterbody EU Code	Screening Assessment	Justification
Camac_040	IE_EA_09C020500	Screened Out	Surface water flow directions are away from these water bodies and there is no hydrological pathway. Consequently, any potential pollutants from the site could not reach these water bodies.
Poddle_010	IE_EA_09P030800	Screened Out	
Grand Canal Main Line (Liffey and Dublin Bay)	IE_09_AWB_GCMLE	Screened Out	
Liffey Estuary Upper[1]	IE_EA_090_0400	Screened In	Waterbody drains the Proposed Development site. Works within the catchment have the potential to adversely affect water quality status if unmitigated.
Liffey Estuary Lower	IE_EA_090_0400	Screened In	An upstream waterbody drains the Proposed Development. Although the distances involved and dilution within the waterbodies are expected to reduce the potential for pollutants to reach the surface waterbody, applying the precautionary principle, the potential for effects cannot be ruled out at this screening stage.
Tolka Estuary	IE_EA_090_0200	Screened In	
Dublin Bay	IE_EA_090_0000	Screened In	
Dublin GWB[2]	IE_EA_G_008	Screened In	Works required to facilitate piling of the proposed GIS building and transformer bays have the potential to adversely affect the status of the underlying GWB if unmitigated. Construction will temporarily increase groundwater vulnerability. Similarly, underground cable trenching for the proposed grid connection represents a potential pathway to groundwater during construction. However, site investigations boreholes encountered no groundwater to a depth of approximately 9 m below ground level. As excavations will extend to only approximately 2 m below ground level, these works will not intercept the groundwater table.

Note:
[1] Indirect hydrological connection to Bathing Water and Natura 2000 sites
[2] Drinking Water Protected Area

6.2 Stage Two: Scoping

The aim of the scoping stage is to identify quality elements within the water bodies brought forward which may be affected by the Proposed Development. This process is informed by the nature of the proposed works, the hydrological and hydrogeological context, and the sensitivity of the receiving environment.

The scoping process results, show in Table 6-2, identified the following Water Framework Directive (WFD) quality elements as requiring detailed assessment:

Table 6-2: Results of Stage 2 Scoping Assessment of the WFD

Waterbody Element	Scoped In or Out?	Justification
Surface Water Hydromorphological status	Out	The Proposed Development does not include in-stream works, watercourse crossings, channel modifications or other activities that would alter the hydromorphological characteristics of any surface waterbody.
Surface Water Chemical Status	In	Due to the potential for sediment mobilisation and accidental release of deleterious materials to affect water quality during construction. Further details in Section 6.2.1.
Surface Water Ecological Status	In	Due to the potential for sediment-laden runoff and accidental releases of contaminants to affect aquatic ecological receptors during construction. Further details in Section 6.2.2.
Groundwater Chemical Status	In	Due to the potential for the mobilisation of contaminated soil and/or groundwater during piling and excavation works, and the accidental release of fuels, oils and cementitious materials. Further details in Section 6.2.3.
Groundwater Quantitative status	Out	No groundwater abstraction or dewatering is proposed, and the Proposed Development is not expected to significantly alter groundwater levels, groundwater flow or groundwater recharge.

6.2.1 Surface Water Chemical Status

Construction activities, including demolition of the existing retaining walls on the northern and eastern boundaries of the proposed substation site and the installation of the underground cable on Diageo's IEL Site (P0304-04) have the potential to mobilise sediment and other contaminants. During demolition of the retaining walls and underground cable installation works, a temporary surface water pathway will exist between the construction site and the transitional waterbody, providing a route for runoff to enter the receiving waterbody via the existing stormwater outfall (SW-1).

The use and storage of potentially polluting materials associated with the Proposed Development, including (but not limited to) cementitious materials used during concrete pouring works and transformer insulating oil associated with transformer installation and filling activities, present a potential risk to water quality in the event of an accidental release. These activities have the potential to temporarily affect the chemical status of the receiving transitional waterbody.

During operation, the potential pathways for pollutants to reach the water environment are limited to surface water runoff and activities associated with the handling and refilling of transformer insulating oil.

Other activities associated with the Proposed Development have been considered as part of the scoping assessment and, with the inclusion of embedded design measures (refer to Section 7.1 below), are not considered

to present a credible source–pathway–receptor linkage with the receiving surface waterbody. These activities are therefore not expected to result in an impact on the chemical status of the transitional waterbody.

6.2.2 Surface Water Ecological Status

The ecological status of the transitional waterbody may be indirectly affected through changes in water quality arising from the Proposed Development activities. The mobilisation of suspended sediments and other contaminants in surface water runoff has the potential to temporarily affect aquatic ecological receptors within the receiving waterbody, including fish and other aquatic communities. Accidental releases of fuels, oils, cementitious materials also have the potential to adversely affect aquatic ecology if not appropriately managed.

6.2.3 Groundwater Chemical Status

Piling associated with the GIS building and transformers, along with excavation works required for underground cable trenching, have the potential to disturb contaminated soil and/or groundwater. Such disturbance could result in the mobilisation of existing contaminants within the subsurface environment and increase the potential for migration through soil or groundwater pathways.

In addition, the use and storage of fuels, oils and cementitious materials during construction presents a potential risk to groundwater quality in the event of an accidental release.

Potential sources of operational pollution include accidental releases of hydrocarbons, including transformer insulating oil associated with the substation infrastructure.

These activities therefore have the potential to affect the chemical status of the Dublin Groundwater Body and have been carried forward for detailed assessment.

Other activities associated with the Proposed Development have been considered as part of the scoping assessment and, with the inclusion of embedded design measures (refer to Section 7.1), are not considered to present a credible source–pathway–receptor linkage with the receiving ground water bodies. These activities are therefore not expected to result in an impact on the groundwater chemical status.

6.3 Stage Three: WFD Assessment

The Stage 3 Impact Assessment considers the potential effects of the Proposed Development based on the embedded mitigation measures incorporated into the design and construction approach, as outlined in Section 7.1. The assessment identifies the relevant source–pathway–receptor linkages associated with the construction and operational phases of the Proposed Development and evaluates the potential effects on the relevant WFD quality elements following implementation of these measures.

Additional good practice construction environmental controls, including those to be implemented through the Construction Environmental Management Plan (CEMP), are considered separately in Section 7.2.

The results of the impact assessment, including the predicted effects and supporting justification, are presented in Table 6-3.

6.3.1 Surface Water Bodies

Table 6-3: Result of the Stage 3 Assessment for Surface Water Bodies

Chemical Status			
Waterbody Name	Potential Impact	Potential Impact of Proposed Development	Embedded Design Measures?
Liffey Estuary Upper	Construction Phase: **Yes**	There is potential for impacts on the chemical status of the transitional waterbody during the construction phase of the Proposed Development. During demolition of the existing retaining walls on the northern and eastern boundaries of the proposed substation site, and during the installation of the underground cable on Diageo's IEL Site (P0304-04), a temporary surface water pathway will exist between the construction site and the transitional waterbody. As a result, surface water runoff generated during these construction activities has the potential to mobilise sediment and other contaminants, which could enter the receiving waterbody via the existing stormwater outfall (SW-1) and temporarily affect water quality. The use and storage of potentially polluting materials associated with the Proposed Development, including (but not limited to) cementitious materials used during concrete pouring works and transformer insulating oil associated with transformer installation and filling activities, present a potential risk to water quality in the event of an accidental release. If unmitigated, there is potential for construction-related or accidental spillages to adversely affect the chemical status of the transitional waterbody. Once these activities are complete, the pathway is removed.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	During operation, the potential pathways for pollutants to reach the water environment are limited to surface water runoff and activities associated with the handling and refilling of transformer insulating oil. However, with the embedded design measures incorporated into the Proposed Development design, no significant pathway for operational pollutants to impact the receiving water environment has been identified. Therefore, the potential for operational activities to result in adverse effects on WFD water body status is not anticipated.	**Yes** (refer to Section 7.1 below)
Liffey Estuary Lower	Construction Phase: **Yes**	Due to the hydrological connectivity, any deterioration in upstream water quality could propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or contaminants during construction has the potential to adversely affect downstream water quality status. The magnitude of any potential downstream effect would depend on factors including pollutant loading, dilution, attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated. As the Proposed Development is not expected to result in adverse effects on the upstream water body, and the connection to downstream receptors is indirect, there is no credible pathway for operational activities to result in deterioration of downstream WFD status.	**Yes** (refer to Section 7.1 below)

Chemical Status			
Waterbody Name	Potential Impact	Potential Impact of Proposed Development	Embedded Design Measures?
Tolka Estuary	Construction Phase: **Yes**	Due to the hydrological connectivity, any deterioration in upstream water quality could propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or contaminants during construction has the potential to adversely affect downstream water quality status. The magnitude of any potential downstream effect would depend on factors including pollutant loading, dilution, attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated. As the Proposed Development is not expected to result in adverse effects on the upstream water body, and the connection to downstream receptors is indirect, there is no credible pathway for operational activities to result in deterioration of downstream WFD status.	**Yes** (refer to Section 7.1 below)
Dublin Bay	Construction Phase: **Yes**	Due to the hydrological connectivity, any deterioration in upstream water quality could propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or contaminants during construction has the potential to adversely affect downstream water quality status. The magnitude of any potential downstream effect would depend on factors including pollutant loading, dilution, attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated. As the Proposed Development is not expected to result in adverse effects on the upstream water body, and the connection to downstream receptors is indirect, there is no credible pathway for operational activities to result in deterioration of downstream WFD status.	**Yes** (refer to Section 7.1 below)

Ecological Status			
Waterbody Name	Potential Impact	Potential Impact of Proposed Development	Embedded Mitigation Measures?
Liffey Estuary Upper	Construction Phase: **Yes**	There is potential for impacts on the ecological status of the transitional waterbody during the construction phase of the Proposed Development. Construction activities, including demolition of the existing retaining walls on the northern and eastern boundaries of the proposed substation site, installation of the underground cable on Diageo's IEL Site (P0304-04), and the use and storage of fuels, oils, including transformer insulating oil, have the potential to generate sediment-laden runoff or result in the accidental release of contaminants. The introduction of suspended sediments and other contaminants to the receiving waterbody has the potential to temporarily reduce water quality and adversely affect aquatic ecological receptors, including fish and other aquatic communities, thereby affecting the ecological status of the transitional waterbody.	**No** (refer to Section 7.2 below)

Waterbody Name	Ecological Status Potential Impact	Potential Impact of Proposed Development	Embedded Mitigation Measures?
	Operational Phase: **No**	During operation, the potential pathways by which the Proposed Development could influence the receiving water environment are limited to surface water runoff and activities associated with the handling and refilling of transformer insulating oil. However, with the embedded design measures incorporated into the Proposed Development design, no significant pathway for operational activities to affect the ecological supporting conditions of the receiving water environment has been identified.	**Yes** (refer to Section 7.1 below)
Liffey Estuary Lower	Construction Phase: **Yes**	Due to the hydrological connectivity of the receiving water system, any deterioration in upstream ecological conditions could potentially propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or changes to physico-chemical conditions during construction have the potential to adversely affect downstream aquatic habitats and ecological status elements. The magnitude of any potential downstream effect would depend on factors including the extent and duration of sediment mobilisation, the sensitivity of downstream receptors, dilution and attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated from an ecological perspective. As the Proposed Development is not expected to result in adverse effects on the upstream water bodies during operation, and given the indirect nature of the hydrological connection to downstream receptors, there is no credible pathway for operational activities to result in changes to downstream hydromorphological or ecological conditions that could affect WFD status.	**Yes** (refer to Section 7.1 below)
Tolka Estuary	Construction Phase: **Yes**	Due to the hydrological connectivity of the receiving water system, any deterioration in upstream ecological conditions could potentially propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or changes to physico-chemical conditions during construction have the potential to adversely affect downstream aquatic habitats and ecological status elements. The magnitude of any potential downstream effect would depend on factors including the extent and duration of sediment mobilisation, the sensitivity of downstream receptors, dilution and attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated from an ecological perspective. As the Proposed Development is not expected to result in adverse effects on the upstream water bodies during operation, and given the indirect nature of the hydrological connection to downstream receptors, there is no credible pathway for operational activities to result in changes to downstream hydromorphological or ecological conditions that could affect WFD status.	**Yes** (refer to Section 7.1 below)
Dublin Bay	Construction Phase: **Yes**	Due to the hydrological connectivity of the receiving water system, any deterioration in upstream ecological conditions could potentially propagate downstream. In the absence of mitigation, the mobilisation and downstream transport of sediment or changes to physico-chemical conditions during construction have the potential to adversely affect downstream aquatic habitats and ecological status elements. The magnitude of any potential downstream effect would depend on factors including the extent and duration of sediment mobilisation, the sensitivity of downstream receptors, dilution and attenuation processes, and the assimilative capacity of the receiving water bodies.	**No** (refer to Section 7.2 below)

Ecological Status			
Waterbody Name	Potential Impact	Potential Impact of Proposed Development	Embedded Mitigation Measures?
	Operational Phase: **No**	No adverse effects on downstream WFD water bodies are anticipated from an ecological perspective. As the Proposed Development is not expected to result in adverse effects on the upstream water bodies during operation, and given the indirect nature of the hydrological connection to downstream receptors, there is no credible pathway for operational activities to result in changes to downstream hydromorphological or ecological conditions that could affect WFD status.	**Yes** (refer to Section 7.1 below)

6.3.2 Groundwater Bodies

Table 6-4: Result of the Stage 2 Scoping Assessment for Groundwater Bodies

Chemical Status			
Waterbody Name	Potential Impact	Potential Impact of Proposed Development	Embedded Mitigation Measures?
Dublin GWB	Construction Phase: **Yes**	During excavation and piling activities, there is potential for the temporary disturbance and mobilisation of contaminated soil and/or groundwater, with a corresponding risk of impacts to groundwater quality. Where piling extends beyond the depths investigated during the site investigation, there is potential for interaction with contaminated materials or groundwater pathways, which could result in the mobilisation of contaminants and affect the quality of the underlying groundwater body. Once these activities are complete, the pathway is removed.	**No** (refer to Section 7.2 below)
	Operational Phase: **No**	Potential sources of operational pollution include accidental releases of hydrocarbons, including transformer insulating oil associated with the substation infrastructure. However, with the embedded design measures incorporated into the Proposed Development, no significant pathway for operational pollutants to migrate to the underlying groundwater body has been identified.	**Yes** (refer to Section 7.1 below)

7. Embedded Design and Mitigation Measures

The standard measures outlined in this section of the report will ensure that there will be no significant impact on the receiving waterbodies. The effective implementation of these measures will ensure that the Proposed Development will not have any impact on compliance with the EU Water Framework Directive, European Communities (Environmental Objectives) Surface Water Regulations (S.I. 272 of 2009 and as amended) and the European Communities Environmental Objectives (Groundwater) Regulations (S.I. No. 9 of 2010 and as amended) individually or in combination.

7.1 Embedded Design Measures

The Proposed Development incorporates a number of embedded design measures that form an integral part of the project design and reduce the potential for impacts on surface water and groundwater quality during the operational phase.

7.1.1 Bunded Transformer Areas

The transformer bund is designed to provide a minimum containment capacity of 110% of the transformer oil volume. The bund outlet will incorporate a hydrocarbon-detecting pumped system which, under normal operating conditions, will pump drainage to a downstream access chamber. If hydrocarbons are detected, an alarm signal will be transmitted to the substation control room and pumping will automatically cease, thereby retaining the contaminated liquid safely and securely within the bund.

7.1.2 Drainage Design

The Engineering Services Report (ESR), submitted as Appendix 2 of the PECR, provides detailed information on the proposed foul water, potable water and surface water management strategy for the Proposed Development. Readers should refer to the ESR for a comprehensive description of the proposed engineering services infrastructure and drainage design

7.1.2.1 SuDS

The proposed permeable paving system will incorporate an impermeable liner beneath the underlying stone storage layer. This design measure prevents downward migration of surface water runoff and associated pollutants into the underlying ground and groundwater body, thereby reducing the potential for impacts on groundwater quality.

7.1.2.2 Surface Water Management

Surface water management will vary depending on the location of the Proposed Development components and the existing drainage arrangements serving each area. Surface water runoff from the proposed substation site will be managed through the proposed drainage system and discharged to the existing combined sewer network along Steevens Lane. Similarly, surface water arising from works within the public road network will continue to be managed through the existing public drainage infrastructure. These drainage pathways are subject to the controls and treatment processes associated with the receiving sewer networks.

7.2 Construction Mitigation Measures

An Outline Construction Environmental Management Plan (CEMP) has been prepared for the Proposed Development and accompanies this planning application. The Outline CEMP incorporates industry best practices, construction management procedures, mitigation measures and monitoring proposals that are required to be adhered to in order to construct the works in an appropriate manner.

The measures outlined below provide a non-exhaustive summary of the key controls relevant to the protection of surface water and groundwater quality and the prevention of deterioration in the status of relevant Water Framework Directive (WFD) water bodies. Full details of the construction management measures are provided within the outline CEMP accompanying this planning application.

7.2.1.1 Surface Water Runoff

Surface water runoff generated during construction will be managed to prevent sediment-laden or contaminated water entering the site drainage network or surrounding environment. Specific mitigation measures will include:

- Surface water runoff from the elements of the Proposed Development located within Diageo's IEL Site will be collected and routed via the existing SE-1 discharge point prior to discharge to the Ringsend wastewater treatment system. This controlled drainage pathway forms part of the Proposed Development design and reduces the potential for uncontrolled release of operational runoff to the receiving water environment.
- Temporary surface water management measures, including silt fencing and silt traps (or similar systems), will be implemented to control sediment laden runoff. Treated runoff will be managed and discharged in a controlled manner to the existing drainage network, ensuring no increase in suspended solids or adverse impact on downstream infrastructure, in accordance with SuDS principles.
- During the underground cable installation works, any existing surface water drainage connections (SW discharges) within the active work area will be temporarily isolated or shut down, where practicable and agreed with Diageo, to prevent sediment-laden runoff entering the drainage network. Any water requiring discharge from the works area will be appropriately treated prior to controlled discharge.
- Activities in proximity to drainage features will be avoided during periods of heavy rainfall, and works will cease where there is a risk of pollution.
- All temporary surface water control measures will be maintained in good working order and removed following completion of the works. Surface water management on site will be undertaken in accordance with the requirements of Dublin City Council and relevant drainage standards, including the Greater Dublin Strategic Drainage Infrastructure requirements.
- Monitoring will be carried out throughout the construction phase. The Environmental Manager will conduct regular inspections to ensure that all runoff, erosion and sediment control measures are in place and functioning effectively. Any defects or failures identified will be addressed promptly to prevent environmental impact.

7.2.1.2 Fuel, Oil and Chemical Management

- Chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health ("COSHH") Datasheet in accordance with health and safety regulations. All chemicals will be stored in designated bunded areas at least 110m away from any drainage ditch. Drainage from the bunded area shall be diverted for collection and safe disposal. All containers within

the storage area will be clearly labelled, so that appropriate remedial action can be taken in the event of a spillage. When moving drums from the bunded storage area to locations within the site plot, a suitably sized spill pallet will be used for containing any spillages during transit.

- Refuelling of plant and equipment and the addition of hydraulic oils or lubricants to vehicles, will take place in designated areas using double walled mobile bowsers with a minimum capacity of 110%. Refuelling will be carried out over impermeable surfaces or within bunded areas using drip trays or absorbent mats to capture any spills. Spill kits will be available at all refuelling locations, and operatives will be trained in their use.
- Drainage within temporary compound areas will be directed through appropriate treatment systems, including oil interceptors where required, to prevent discharge of contaminated water. Additional measures such as plant nappies or absorbent mats will be used beneath static plant and during refuelling to prevent small leaks or drips entering the ground or drainage network.

8. Residual Effects

The effect of the embedded design avoidance and mitigation measures have been assessed and summarised in Table 8-1, which provides a summary of the predicted/potential status changes associated with the Proposed Development, with mitigation. In all cases, the proposed measures are sufficient to meet WFD objectives.

Table 8-1: Summary of WFD Status for Mitigated Scenarios

Waterbody Name	Waterbody EU Code	Current WFD Status 2019-2024	Current WFD Risk	Status Change?
Liffey Estuary Upper	IE_EA_090_0400	Moderate	Review	No
Liffey Estuary Lower	IE_EA_090_0400	Moderate	At Risk	No
Tolka Estuary	IE_EA_090_0200	Poor	At Risk	No
Dublin Bay	IE_EA_090_0000	Good	Not at Risk	No
Dublin GWB	IE_EA_G_008	Good	Review	No

9. Conclusion

This WFD compliance assessment has been undertaken for Steeven's Lane 110kV Substation, Dublin, to assess whether the Proposed Development could result in deterioration in the status of the water bodies within the WFD study area or compromise the achievement of the objectives of the Water Framework Directive, including those in protected areas.

The assessment considered all project components and activities with the potential to affect WFD quality elements. It concludes that, with the embedded design measures, including Sustainable Drainage Systems (SuDS), and the implementation of best practice construction and operational mitigation measures, the Proposed Development will not result in any deterioration in the status of surface water or groundwater bodies.

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