The Tecpro Building,
Clonshaugh Business & Technology Park,
Dublin 17, Ireland.

T: + 353 1 847 4220
F: + 353 1 847 4257
E: info@awnconsulting.com
W: www.awnconsulting.com

WATER FRAMEWORK DIRECTIVE (WFD) SCREENING ASSESSMENT FOR A PROPOSED LARGE-SCALE RESIDENTIAL DEVELOPMENT (LRD) LOCATED AT BOHERNABREENA ROAD, BOHERNABREENA & OLDCOURT, DUBLIN 24, CO. DUBLIN

Report Prepared For
Capami Ltd.

Report Prepared By

Alan Wilson, Environmental Consultant

Teri Hayes, Director

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Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

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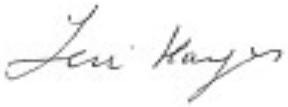
Signature		
Name	Alan Wilson	Teri Hayes
Title	Environmental Consultant	Director (Water Services)
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1.0 INTRODUCTION

1.1 OBJECTIVE OF ASSESSMENT

AWN Consulting Limited (AWN) has prepared this Water Framework Directive (WFD) Screening Assessment to support the competent authority, in determining if there is a likelihood of significant effects on the Water Framework status of the receiving waterbodies for a Large-Scale Residential Development (LRD). The proposed development is on a greenfield site measuring c. 20.3 Ha, located in the townlands of Bohernabreena, Oldcourt, and Killininny, Dublin 24.

This WFD Screening Assessment has been prepared in response to the requirements of the Water Framework Directive 2000/60/EC and is provided to support the Environmental Impact Assessment Screening Report (EIASR) and should, therefore, be read together with this report.

The objective of the assessment is to address the following:

- Does the development cause deterioration of a water body from its current status or potential for reaching “Good” status?
- Does the development impact on any water dependent protected areas, priority species, habitats etc.?
- Does the development support the achievement of water body objectives and programme of measures?

The surface water assessment and the groundwater assessment both examine the potential effects of the proposed development, which includes the construction and operation of the proposed development.

The proposed development consists of 523 no. residential units comprising 253 no. 2, 3 & 4 bed detached, semi-detached and terraced houses, 208 no. 1, 2 & 3 bed duplex units in 20 no. 2 & 3 storey blocks, and 62 no. 1, 2 & 3 bed apartments in 4 no. 3 & 3-4 storey blocks, along with a 2-storey childcare facility of c. 457sq.m. Refer to Section 2.3for a detailed description of the proposed development.

1.2 SITE SETTING

The development site is located to the east of Bohernabreena Road, north and east of Bohernabreena cemetery, south and south-east of St. Anne’s GAA club, south and south-west of the Dodderbrook residential estate, west of the Ballycullen Gate residential development (currently under construction) and west of Oldcourt Road (the R113). Refer to Figure 1.1 below for the location of the proposed development.

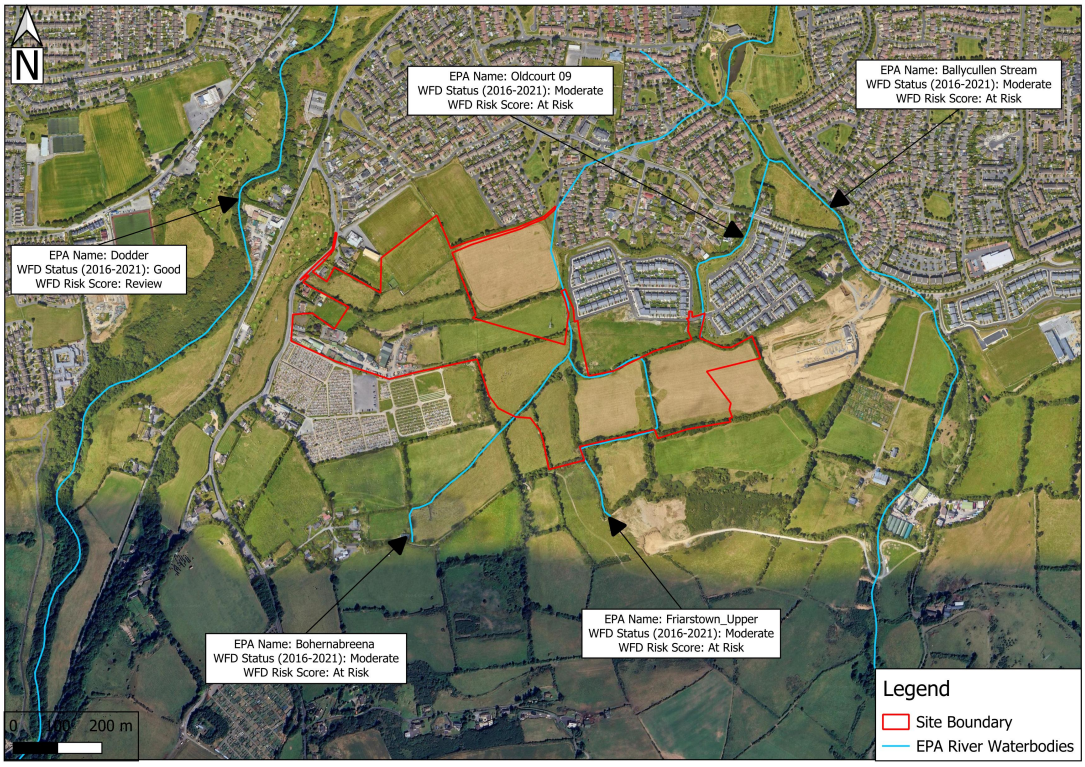


Figure 1.1 *Site Location and Local Hydrological Environment, WFD Status (2016-2021) & WFD Risk Score (EPA, 2024)*

1.3 EXPERIENCE OF AUTHORS

This report was prepared by Alan Wilson (BSc) and Teri Hayes ((BSc MSc PGeol EurGeol, Adv Dip in Environmental & Planning Law). Alan Wilson is an Environmental Consultant at AWN. Alan holds a BSc Honours in Environmental Management in Agriculture/ Environmental and Geographical Sciences. Alan has worked on a range of large scale projects involving EIA reports, site specific flood risk assessments, baseline studies, hydrological and hydrogeological risk assessments, environmental due diligences, site investigations and groundwater, surface water and soil monitoring on various operational developments and greenfield and brownfield sites. Alan also has previous experience as an Environmental Consultant in Ecology and Forestry related work. Alan is a member of the International Association of Hydrogeologists (IAH) Irish Group.

Teri Hayes (BSc MSc PGeol EurGeol, Dip Env & Planning Law) is a Director and Senior Hydrogeologist with AWN Consulting with over 30 years of experience in water resource management, environmental assessment and environmental licensing. Teri is a former President of The International Association of Hydrogeologists (IAH, Irish Group) and is a professional member of the Institute of Geologists of Ireland (IGI) and European Federation of Geologists (EurGeol). She has qualified as a competent person for contaminated land assessment as required by the IGI and EPA. Her project experience includes contributions to a wide range of complex Environmental Impact Statements, planning applications and environmental reports for Industry Infrastructure and residential developments. Teri's specialist area of expertise is water resource management, eco-hydrogeology, hydrological assessment and environmental impact assessment.

1.4 LEGISLATION AND GUIDANCE

The Water Framework Directive (WFD) 2000/60/EC aims to protect and enhance the quality of the water environment (both surface water and groundwater) across all European Union member states.

The concept of 'deterioration of the status' of a body of surface water in Article 4(1)(a)(i) of Directive 2000/60 must be interpreted as meaning that there is deterioration as soon as the status of at least one of the quality elements, within the meaning of Annex V to the directive, falls by one class, even if that fall does not result in a fall in classification of the body of the surface water as a whole. However, if the quality element concerned, within the meaning of that annex, is already in the lowest class, any deterioration of that element constitutes a 'deterioration of the status' of a body of surface water, within the meaning of Article 4(1)(a)(i).

As part of its role, the EPA and other stakeholders such as local authorities must consider whether proposals for new developments (other than where exemptions apply Article 4.4 - 4.7 of the WFD) have the potential to:

- Cause a deterioration of a water body from its current status or potential; and/ or
- Prevent future attainment of good status or potential where not already achieved.

As a result, new developments that have the potential to impact on current or predicted WFD status are required to assess their compliance against the WFD objectives of the potentially affected water bodies.

The WFD is implemented through River Basin Management Plans (RBMPs) in six year cycles. We are currently in WFD third cycle 2022-2027 – a draft RBMP is in operation.

The primary aim of the RBMP is that water bodies identified as being 'At Risk' of not achieving their environmental objectives need to have targeted measures implemented to achieve objectives under this Plan. The draft 3rd cycle RBMP has been reviewed in the context of ensuring mitigation measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the proposed development.

1.5 METHODOLOGY

This WFD assessment was based on desktop review of the Environmental Protection Agency (EPA) dataset which was obtained from the portal www.catchments.ie (accessed August 2024).

The water bodies identified for this assessment are related to the vicinity of the proposed construction area and its direct or indirect hydrological or hydrogeological connection. From the aforementioned source of information, the WFD Status classification and Risk score were obtained for the identified water bodies.

1.5.1 WFD Risk Status

The WFD Risk score is the risk for each waterbody of failing to meet their WFD objectives by 2027. The risk of not meeting WFD objectives has been determined by assessment of monitoring data, data on the pressures and data on the measures that have been implemented. Waterbodies that are At Risk are prioritised for implementation of measures. This assessment was completed in 2020 by the EPA

Catchments Unit in conjunction with other public bodies and was primarily based on monitoring data up the end of 2018. The three risk categories are:

- Waterbodies that are 'At Risk' of not meeting their Water Framework Directive objectives. For these waterbodies an evidence-based process was undertaken to identify the significant pressures; once a pressure is designated as 'significant', measures and accompanying resources are needed to mitigate the impact(s) from this pressure. These 'At Risk' waterbodies require not only implementation of the existing measures described in the various regulations, e.g., the Good Agricultural Practices Regulations, but also in many instances more targeted supplementary measures.
- Waterbodies that are categorised as 'Review' either because 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.
- Waterbodies that are 'Not at Risk' and therefore are meeting their Water Framework Directive objectives. These require maintenance of existing measures to protect the satisfactory status of the water bodies.

1.5.2 WFD Water Body Status

Surface water body status is classified on the basis of chemical and ecological status or potential. This system is summarised in Appendix B Figure 1. Under the WFD, groundwater body status is classified on the basis of quantitative and chemical status. This system is summarised in Appendix B Figure 2.

1.5.3 Methodology for Determination of No Deterioration Assessment

Proposed developments that have the potential to impact on current or predicted WFD status are required to assess their compliance against the objectives defined for potentially affected water bodies.

1.5.4 Surface Water No Deterioration Assessment

Table 1.1 below presents the matrix used to assess the effect of the proposed development on surface water status or potential class. It ranges from a major beneficial effect (i.e., a positive change in overall WFD status) through no effect to deterioration in overall status class. The colour coding used in Table 2.1 is applied to the No Deterioration Assessment' spreadsheet provided in Appendix A of this report.

Table 1.1 *Surface Water Assessment Matrix*

Effect	Description/ Criteria	Outcome
Major Beneficial	Impacts that taken on their own or in combination with others have the potential to lead to the improvement in the ecological status or potential of a WFD quality element for the entire waterbody	Increase in status of one or more WFD element giving rise to a predicted rise in status class for that waterbody.
Minor/ localised beneficial	Impacts when taken on their own or in combination with others have the potential to lead to a minor localised or temporary improvement that does not affect the overall WFD status of the waterbody or any quality elements	Localised improvement, no change in status of WFD element

No Impact	No measurable change to any quality elements.	No change
Localised / temporary adverse effect	Impacts when taken on their own or in combination with others have the potential to lead to a minor localised or temporary deterioration that does not affect the overall WFD status of the waterbody or any quality elements. Consideration will be given to habitat creation measures.	Localised deterioration, no change in status of WFD element when balanced against mitigation measures embedded in the project.
Adverse effect on class of WFD element	Impacts when taken on their own or in combination with others have the potential to lead to the deterioration in the WFD status class of one or more biological quality elements, but not in the overall status of the waterbody. Consideration will be given to habitat creation measures.	Decrease in status of WFD element when balanced against positive measures embedded in the project.
Adverse effect on overall WFD class of waterbody	Impacts when taken on their own or in combination with others have the potential to lead to the deterioration in the ecological status or potential of a WFD quality element, which then lead to a deterioration of status/potential of waterbody.	Decrease in status of overall WFD waterbody status when balanced against positive measures embedded in the project.

1.5.2 Groundwater No Deterioration Assessment

Table 1.2 below presents the matrix used to assess the effect of the proposed development on groundwater status class. It ranges from a beneficial effect but no change in status to deterioration in overall status class. The colour coding used in Table 2.2 is applied to the final 'No Deterioration Assessment' spreadsheet in Appendix A of this report.

Table 1.2 *Groundwater Assessment Matrix*

Magnitude of Impact of the proposed development on WFD Element	**Effect on WFD Element within the assessment boundary**	**Effect on Status of WFD element at the Groundwater Body Scale**
Impacts lead to beneficial effect	Combined impacts have the potential to have a beneficial effect on the WFD element.	Improvement but no change to status of WFD element
No measurable change to groundwater levels or quality.	No measurable change to WFD elements.	No change and no deterioration in status of WFD element

Impacts when taken on their own have the potential to lead to a minor localised or temporary effect	Combined impacts have the potential to lead to a minor localised or temporary adverse effect on the WFD element.	Combined impacts have the potential to lead to a minor localised or temporary effect on the WFD element. No change to status of WFD element and no significant deterioration at groundwater body scale.
Impacts when taken on their own have the potential to lead to a widespread or prolonged effect.	Combined impacts have the potential to have an adverse effect on the WFD element.	Combined impacts have the potential to have an adverse effect on the WFD element, resulting in significant deterioration but no change in status class at groundwater body scale.
Impacts when taken on their own have the potential to lead to a significant effect.	Combined impacts in combination with others have the potential to have a significant adverse effect on the WFD element.	Combined impacts in combination with others have the potential to have an adverse effect on the WFD element AND change its status at the groundwater body scale

1.5.2 Assessment against Future Status Objectives

River Basin Management Plans are used to outline water body pressures and the actions that are required to address them. The future status objective assessment considers the ecological potential of a surface water body and the mitigation measures that defined the ecological potential. Assessments are based on the project (including mitigation measures) risks (construction and operation) with regard to the objectives for achieving good status as set out in the 2nd Cycle RBMP 2018-2021 and *draft* 3rd Cycle RBMP 2022-2027. The assessment considers whether the proposed development has the potential to prevent the implementation or impact the effectiveness of the defined measures in these plans.

1.6 SOURCES OF INFORMATION

The following sources of information were used in the preparation of this report:

- Geological Survey of Ireland- online mapping (GSI, 2024).
- GSI - Geological Heritage Sites & Sites of Special Scientific Interest.
- Ordnance Survey of Ireland (OSI).
- Teagasc subsoil database.
- National Parks and Wildlife services (NPWS, 2024).
- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area.
- WFD Cycle 2 – Liffey and Dublin Bay Catchment Report - Sub-Catchment: Dodder_SC_010 (EPA, 2018).
- River Basin Management Plan for Ireland 2018-2021.
- Draft River Basin Management Plan for Ireland 2022-2027.
- Dublin County Council Development Plan 2022-2028.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW).
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)

- South Dublin City Council (2005), Greater Dublin Strategic Drainage Study: Technical Documents of Regional Drainage Policies. Dublin: Dublin City Council.
- 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001).
- National Parks and Wildlife Services (NPWS) – Protected Site Register.
- Engineering Planning Report (DRAFT), Oldcourt LAP Lands, Firhouse, Dublin 24, January 2024.
- Engineering Planning Report, Oldcourt LAP Lands, Firhouse, Dublin 24, September 2024.
- Site Specific Flood Risk Assessment. Residential Development, Bohernabreena, Oldcourt, Ballycullen, Co. Dublin, July 2024.
- Ground Investigations Report. Lands at Oldcourt, Ballycullen – Site Investigation, October 2015.

Relevant legislation and guidance is as follows:

- European Communities 920030, Common Implementation Strategy for the Water Framework Directives (2000/60/EC) Guidance Document No.2.
- EPA (May 2015), An approach to characterisation as part of the Water Framework Directive V2 revised.
- EPA (2010) Methodology for Establishing Groundwater Threshold Values, the Assessment of Chemical and Quantitative Status for Groundwater and Groundwater Trends.
- Common Implementation Strategy (CIS) (2017) Guidance Document No. 36 'Exemptions to the environmental objectives according to Article 4(7) provides comprehensive guidance on the application of Article 4(7).
- Joint Assistance to Support Projects in European Regions (JASPERS) (2018) Water Framework Directive Project assessment checklist tool.
- UKTAG (2012) Groundwater Chemical Classification for the Water Framework Directive. Paper 11b(i).
- UK Technical Advisory Group on the Water Framework Directive.
- UKTAG (2012) Groundwater Quantitative Classification for the Water Framework Directive. Paper 11b(ii), UK Technical Advisory Group on the Water Framework Directive.
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001).

This WFD assessment was based on desktop review of the Environmental Protection agency (EPA) and Local Authority Waters Programme water quality records which were obtained from the portal www.catchments.ie (accessed on 12 August 2024). From the aforementioned source of information, the WFD Status classification and Risk score were obtained for the identified water bodies.

2.0 DESCRIPTION OF EXISTING HYDROLOGICAL AND HYDROGEOLOGICAL ENVIRONMENT

2.1 HYDROLOGY

The proposed development site is located within the former Eastern River Basin District (ERBD, now the Irish River Basin District), as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD).

Figure 2.1 below presents the site location in the context of the regional hydrological environment.

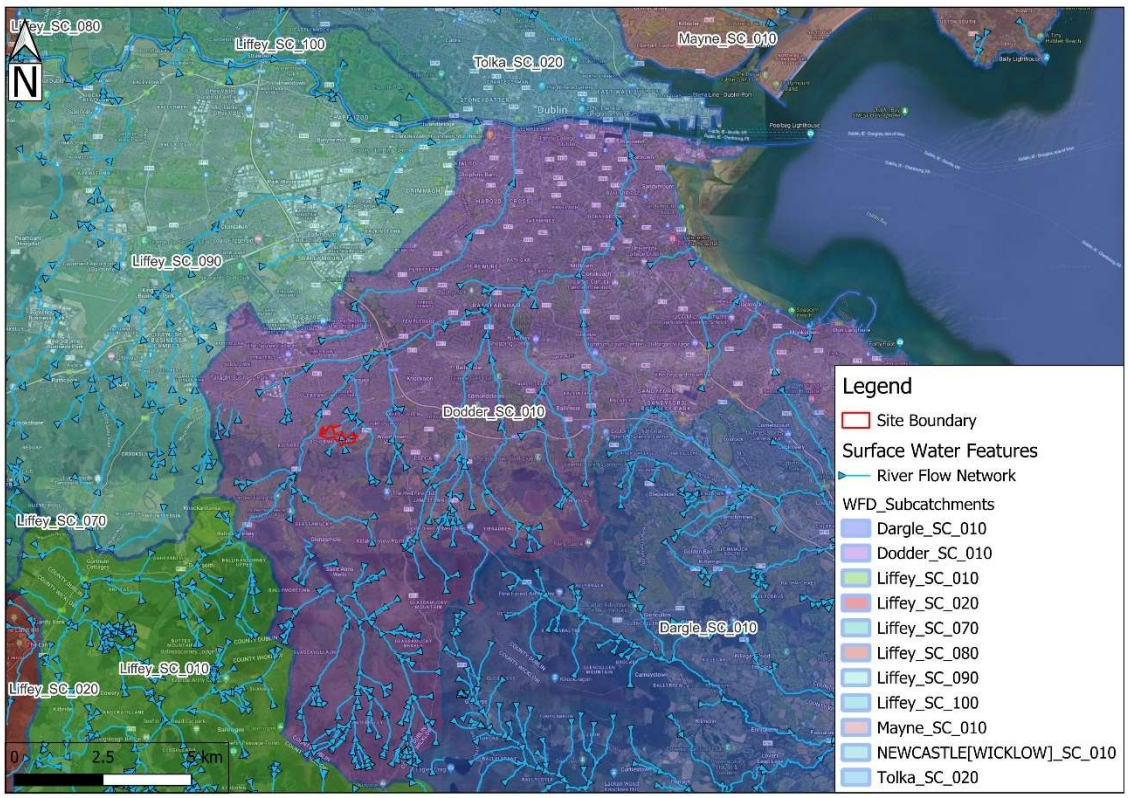


Figure 2.1 *Site Location, Hydrological Environment & Sub-Catchments (EPA, 2024)*

The proposed development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Dodder sub-catchment (WFD name: Dodder_SC_010, Id 09_16) (EPA, 2024).

The site is traversed by the Bohernabreena, Friarstown Upper and Oldcourt 09 river waterbodies which belong to the Dodder_040 WFD surface waterbody. At site scale, many of the field boundaries have drainage ditches which connect to these river waterbodies. Refer to Figure 2.2 below for the site location and WFD waterbodies in the context of the proposed development and regional area.

Note: The Dodder_020 and Dodder_030 WFD surface waterbodies were excluded from this assessment due to them being upgradient / upstream of the proposed development.

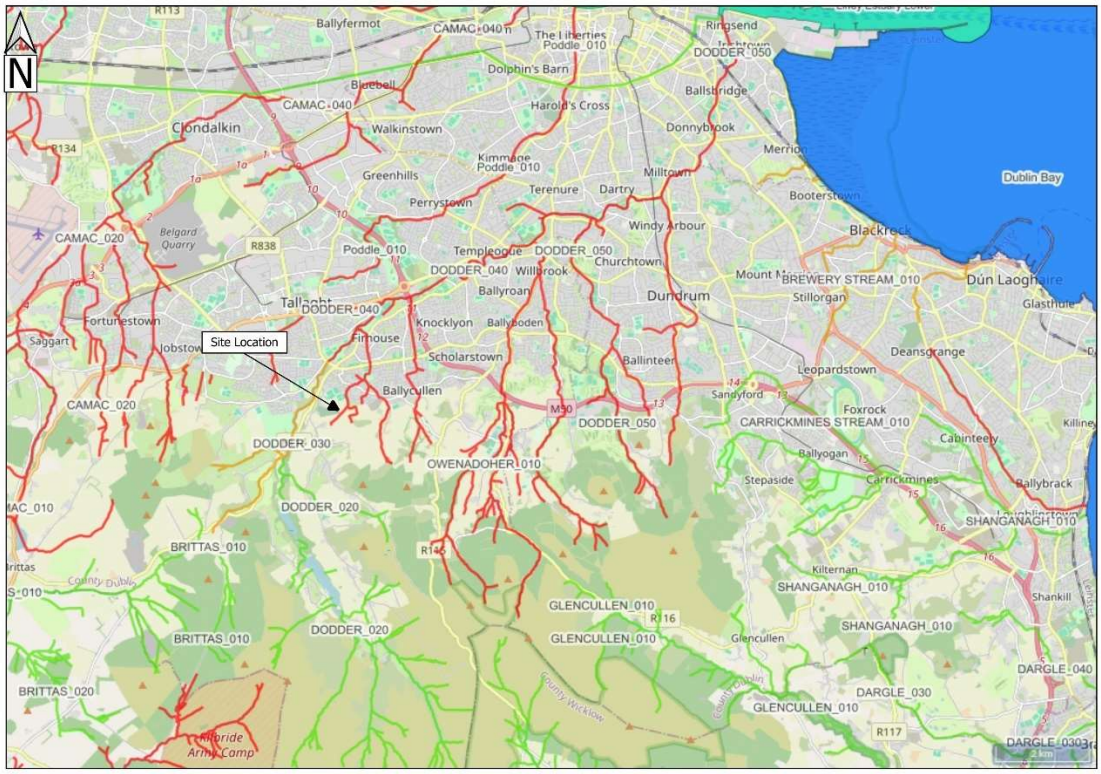


Figure 2.2 *Site Location and WFD Surface Waterbodies (EPA, 2024)*

The site ultimately discharges to the River Dodder c. 1.99 km downstream of the site through the Ballycullen Stream which eventually discharges into the Liffey Estuary Lower transitional waterbody (European Code IE_EA_090_0300). The Liffey Estuary Lower discharges into Dublin Bay coastal waterbody c. 14.9 km north-east of the proposed development site.

2.1.1 Conservation Areas

There is a hydrological connection / linkage to the following Natura 2000 sites; South Dublin Bay and River Tolka Estuary SPA [Site Code: 004024] and South Dublin Bay SAC [Site Code: 000210], located c. >10.7 km north-east / downgradient of the site.

Other Natura 2000 Sites within Dublin Bay that may be hydrologically connected to the proposed development site, but are located further away are North Dublin Bay SAC [Site Code: 000206], North Bull Island SPA [Site Code: 004006], North-West Irish Sea SPA [Site Code: 004236], Dalkey Islands SPA [Site Code: 004172], Rockabill to Dalkey Island SAC [Site Code: 003000], Howth Head SAC [Site Code: 000202] and Howth Head Coast SPA [Site Code: 004113]. There are no adverse effects anticipated on the aforementioned Natura 2000 sites due to their distance of removal from the proposed development site, the potential loading of contaminant from the site and significant dilution through its pathway.

Refer to Table 2.1 below for the distance of removal from the proposed development site to the conservation areas mentioned above located in the Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody.

Table 2.1 *Conservation Areas (Natura 2000 Sites) located within Dublin Bay (EPA, 2024)*

Site Code	Site name	Distance from site (km)
004024	South Dublin Bay and River Tolka Estuary SPA	c. 10.7 km
004006	North Bull Island SPA	c. 14 km
004236	North-West Irish Sea SPA	c. 16 km
000210	South Dublin Bay SAC/pNHA	c. 10.7 km
000206	North Dublin Bay SAC/pNHA	c. 14 km

2.2 HYDROGEOLOGY

2.2.1 Groundwater Quality

The Water Framework Directive (WFD) 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater, transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'Good Status' was to be achieved in all waters by 2015, as well as maintaining 'high status' where the status already exists. The EPA co-ordinates the activities of the River Basin Districts, local authorities and state agencies in implementing the directive, and operates a groundwater quality monitoring programme undertaking surveys and studies across the Republic of Ireland.

The groundwater body (GWB) underlying the site is the Kilcullen groundwater body (Code: IE_EA_G_003) and is classified under the WFD Status (2016-2021) as having a '*Good'* status and a WFD Risk Score of '*At Risk*' of not achieving good status. The Kilcullen groundwater body has a '*Good*' Status for chemical and quantitative categories. Therefore, the overall status is considered Good. Refer to Figure 2.3 below for the WFD groundwater bodies (Cycle 3) in the context of the proposed development site.

Note: There are no public water supply source protection areas or group water schemes zones of contribution adjacent to or in the vicinity of the proposed development site (GSI, 2024).

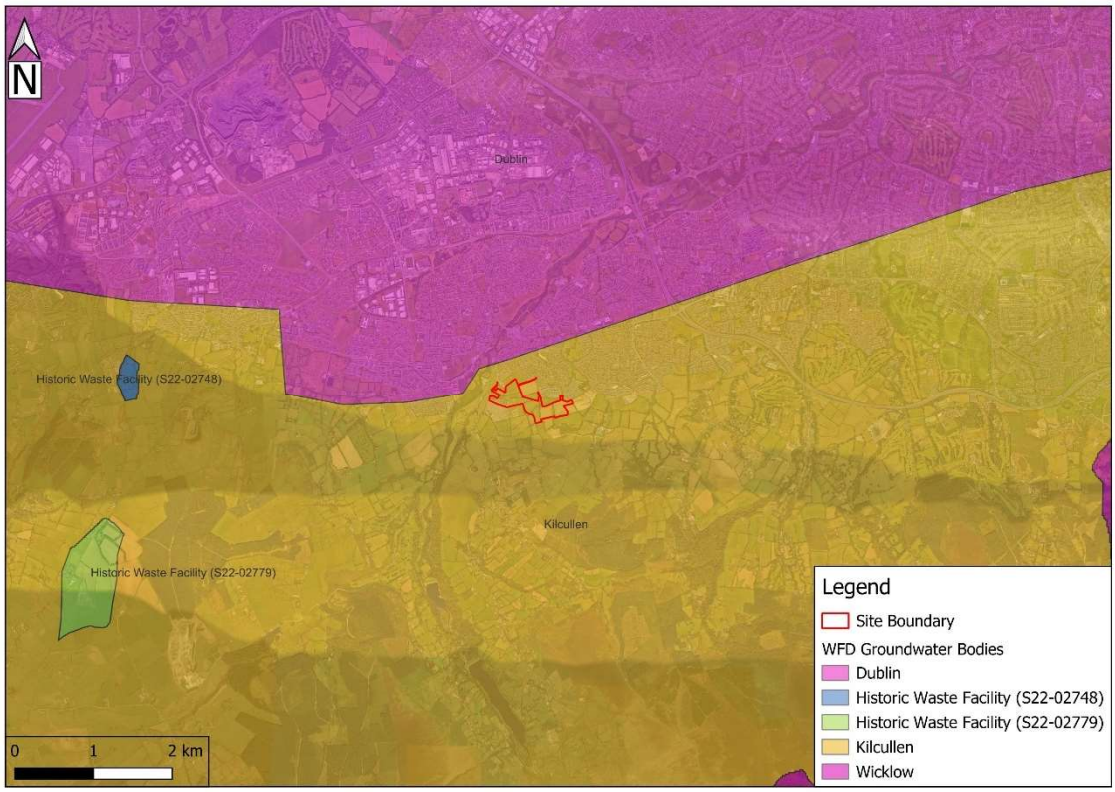


Figure 2.3 *WFD Groundwater Bodies – Cycle 3 (EPA, 2024)*

2.2.2 Aquifer Classification & Vulnerability

The GSI has devised a system for classifying the bedrock aquifers in Ireland. The aquifer classification for bedrock depends on a number of parameters including, the area extent of the aquifer (km^2), well yield (m^3/d), specific capacity ($m^3/d/m$) and groundwater throughput (mm^3/d). There are three main classifications: regionally important, locally important and poor aquifers. Where an aquifer has been classified as regionally important, it is further subdivided according to the main groundwater flow regime within it. This sub-division includes regionally important fissured aquifers (Rf) and regionally important karstified aquifers (Rk). Locally important aquifers are sub-divided into those that are generally moderately productive (Lm) and those that are generally moderately productive only in local zones (Ll). Similarly, poor aquifers are classed as either generally unproductive except for local zones (Pl) or generally unproductive (Pu).

Presently, from the GSI (2024) National Bedrock Aquifer Map, the GSI classifies the bedrock aquifer beneath the subject site as a '*Poor Aquifer (Pl) - Bedrock which is Generally Unproductive except for Local Zones*'.

The GSI/ Teagasc (2024) mapping database of the quaternary sediments in the area of the site indicates the principal subsoil type in the area comprises Limestone till Carboniferous (TLs, i.e. Till derived from limestones) with some Alluvium (A) subsoils located in the western portion of the site along the River Dodder. The lithology described in the Ground Investigations Report (October, 2015) prepared by Causeway Geotech Ltd comprised c. 200-300mm topsoil underlain by sandy gravelly clay with low cobble content and pockets of granular material occurring locally.

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of

groundwater through bedrock in Ireland, which is almost completely through fissures/ fractures, the main feature that protects groundwater from contamination, and therefore the most important feature in the protection of groundwater, is the subsoil (which can consist solely of/ or of mixtures of peat, sand, gravel, glacial till, clays or silts).

Groundwater vulnerability is a term used to represent the natural ground characteristics that determine the ease with which groundwater may be contaminated by human activities. The GSI (2024) guidance presently denotes 4 no. vulnerability classifications for the proposed development site. The majority of the site is classified as having a '*High*' (H) vulnerability. The south-east of the site is classified as having '*Extreme*' (E), the north of the site is classified with '*Moderate*' (M) and '*Low*' (L) vulnerability. The GSI Vulnerability Mapping Guidelines indicate the depth to bedrock as varying across the site ranging from 0-3m for '*Extreme*' (E) vulnerability in the south-east of the site, >3m for '*High*' (H) vulnerability and 5-10m for *'Moderate'* vulnerability through the centre of the site. Refer to Figure 2.6 below for the groundwater vulnerability at the proposed development site.

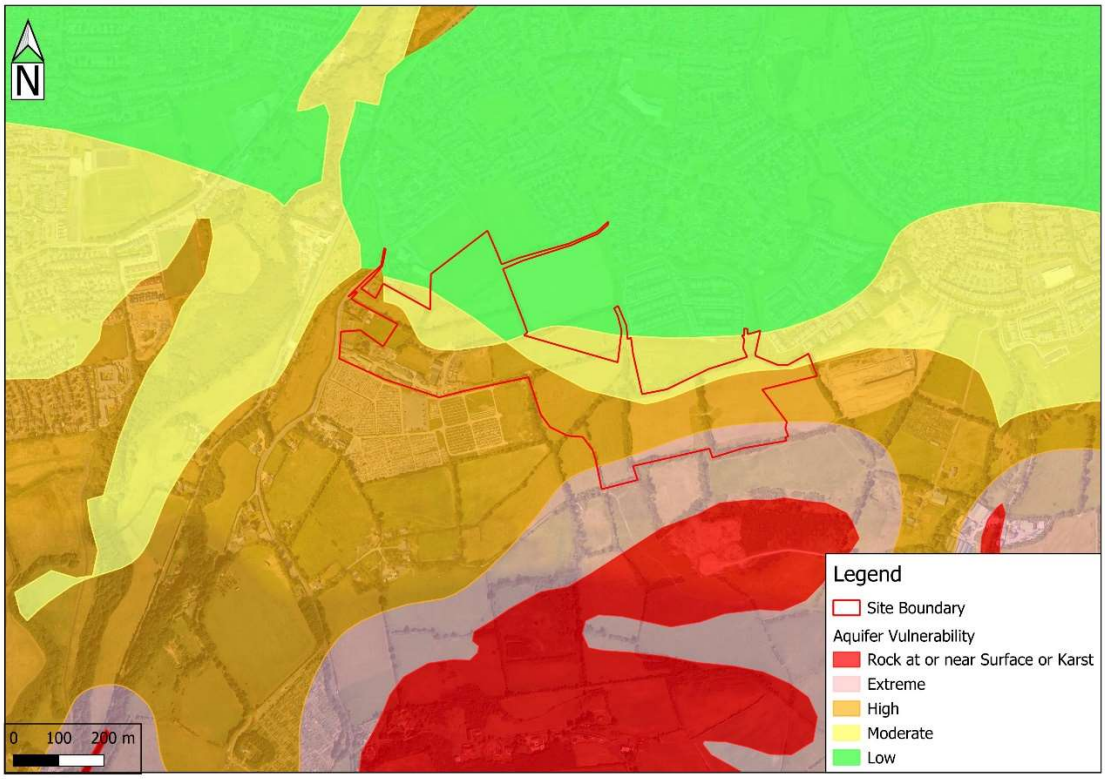


Figure 2.6 *Aquifer Vulnerability (GSI, 2024)*

3.0 WATER BODY IDENTIFICATION & STATUS

This section presents the water bodies identified for assessment, reasoning and water body status.

The proposed development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Dodder sub-catchment (WFD name: Dodder_SC_010, Id 09_16) (EPA, 2024). This WFD Screening has identified 4 no. WFD surface water bodies and 1 no. groundwater body which need to be considered: The Dodder_SC_040 (European Code: IE_EA_09D010620), Dodder_SC_050 (European Code: IE_EA_09D010900), Liffey Estuary Lower transitional waterbody

(European Code: IE_EA_090_0200), Dublin Bay coastal waterbody (European Code: IE_EA_090_0000) and the Kilcullen groundwater body (Code: IE_EA_G_003). There are no adverse effects anticipated on the aforementioned surface waterbodies or the Natura 2000 sites located within South Dublin Bay transitional waterbody during construction or operation of the proposed development, due to the proposed mitigation design and mitigation measures, the distance of removal from the proposed development site, the potential loading of contaminant from the site and significant dilution through its pathway.

As stated in Section 2.1 above, there is a hydrological connection through the existing and proposed storm water network, and through the existing drainage ditches and streams on site (Bohernabreena, Friarstown Upper and Oldcourt 09), which ultimately discharge to the River Dodder c. 1.99 km downstream of the site through the Ballycullen Stream.

The groundwater body (GWB) underlying the site is the Kilcullen groundwater body (European Code: IE_EA_G_003). Considering there is no dewatering proposed, there is no source pathway linkage to the surrounding groundwater bodies.040

The aforementioned surface and groundwater bodies are listed in Table 3.1 below. For each waterbody, the most recent WFD status (2016-2021), risk score and location in relation to the proposed development site are provided (EPA, 2024).

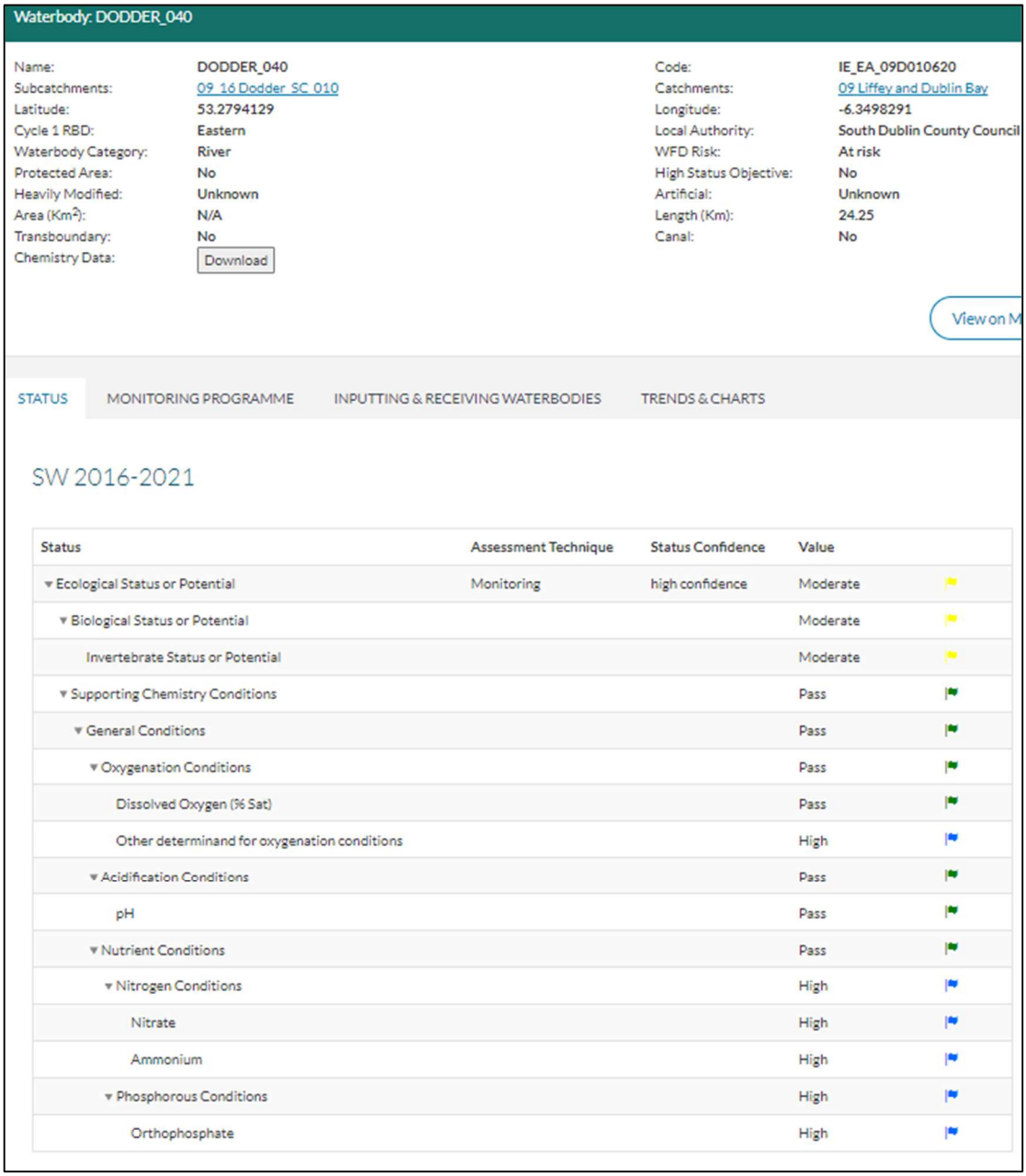
Note: The Bohernabreena, Friarstown Upper, Oldcourt 09, Ballycullen Stream belong to the Dodder_040 WFD surface waterbody. The River Dodder belongs to the Dodder_040 and Dodder_050 WFD surface waterbodies.

Table 3.1 WFD Surface Waterbodies located within the study area

Type	WFD Classification	WFD Status (2016-2021)	WFD Risk Score	WFD Name/ID	Location
Surface Water	River Waterbody	*'Moderate'*	*'At Risk'* of Not Achieving Good Status	Dodder_040 (IE_EA_09D010620)	Site Drainage discharge to Dodder 0_40
	River Waterbody	*'Moderate'*	*'At Risk'* of Not Achieving Good Status	Dodder_050 (IE_EA_09D010900)	>7.2 km downstream (Linear Distance: c. 5 km)
	Transitional Waterbody	*'Moderate'*	*'At Risk'* of Not Achieving Good Status	Liffey Estuary Lower transitional waterbody (IE_EA_090_0300)	>16 km downstream (Linear Distance: c. 11.8 km)
	Coastal Waterbody	*'Good'*	*'Not at Risk'*	Dublin Bay coastal waterbody (IE_EA_090_0000)	>21 km downstream (Linear Distance: c. 10.8 km)
Groundwater	Groundwater Body	*'Good'*	*'At Risk'* of Not Achieving Good Status	Kilcullen (GWB) (IE_EA_G_003)	Underlying Site

Figures 3.1 to 3.5 below summaries the surface water quality of the Dodder_040, Dodder_050, Liffey Estuary Lower and Dublin Bay WFD surface waterbodies.

The Dodder_040 WFD surface waterbody has a '*Moderate*' WFD status (2016-2021) and its WFD risk score is '*At risk'* of not achieving good status. This '*Moderate*' status is related to its ecological status or potential. The main pressure on the Dodder_040 WFD surface waterbody is urban run-off. Refer to Figure 3.1 below.



Waterbody: DODDER_040

Name:	DODDER_040	Code:	IE_EA_09D010620
Subcatchments:	09_16 Dodder_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	53.2794129	Longitude:	-6.3498291
Cycle 1 RBD:	Eastern	Local Authority:	South Dublin County Council
Waterbody Category:	River	WFD Risk:	At risk
Protected Area:	No	High Status Objective:	No
Heavily Modified:	Unknown	Artificial:	Unknown
Area (Km^2):	N/A	Length (Km):	24.25
Transboundary:	No	Canal:	No
Chemistry Data:	Download		

View on M

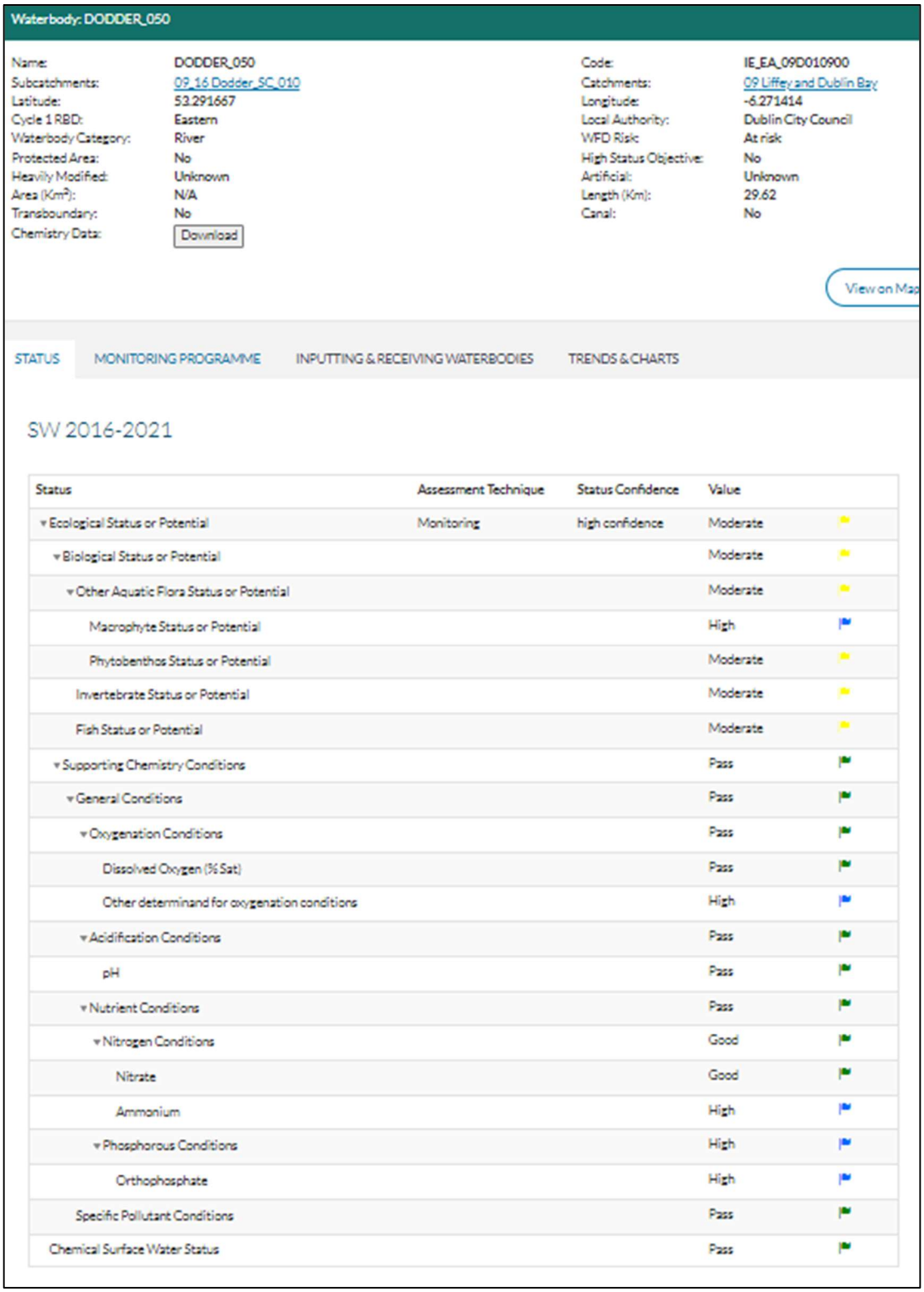
STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Moderate
▾ Biological Status or Potential			Moderate
Invertebrate Status or Potential			Moderate
▾ Supporting Chemistry Conditions			Pass
▾ General Conditions			Pass
▾ Oxygenation Conditions			Pass
Dissolved Oxygen (% Sat)			Pass
Other determinand for oxygenation conditions			High
▾ Acidification Conditions			Pass
pH			Pass
▾ Nutrient Conditions			Pass
▾ Nitrogen Conditions			High
Nitrate			High
Ammonium			High
▾ Phosphorous Conditions			High
Orthophosphate			High

Figure 3.1 *Surface Water Quality for the Dodder_040 WFD Surface Waterbody (EPA, 2024)*

The Dodder_050 WFD surface waterbody, has a '*Moderate*' WFD status (2016-2021) and its WFD risk score is '*At risk'* of not achieving good status. This '*Moderate*' status is related to its ecological status or potential. The main pressures on the Dodder_050 WFD surface waterbody are from urban run-off, urban waste water and anthropogenic pressures. Refer to Figure 3.2 below.



Waterbody: DODDER_050

Name:	DODDER_050	Code:	IE_EA_09D010900
Subcatchments:	09_16 Dodder_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	53.291667	Longitude:	-6.271414
Cycle 1 RBD:	Eastern	Local Authority:	Dublin City Council
Waterbody Category:	River	WFD Risk:	At risk
Protected Area:	No	High Status Objective:	No
Heavily Modified:	Unknown	Artificial:	Unknown
Area (Km²):	N/A	Length (Km):	29.62
Transboundary:	No	Canal:	No
Chemistry Data:	Download		

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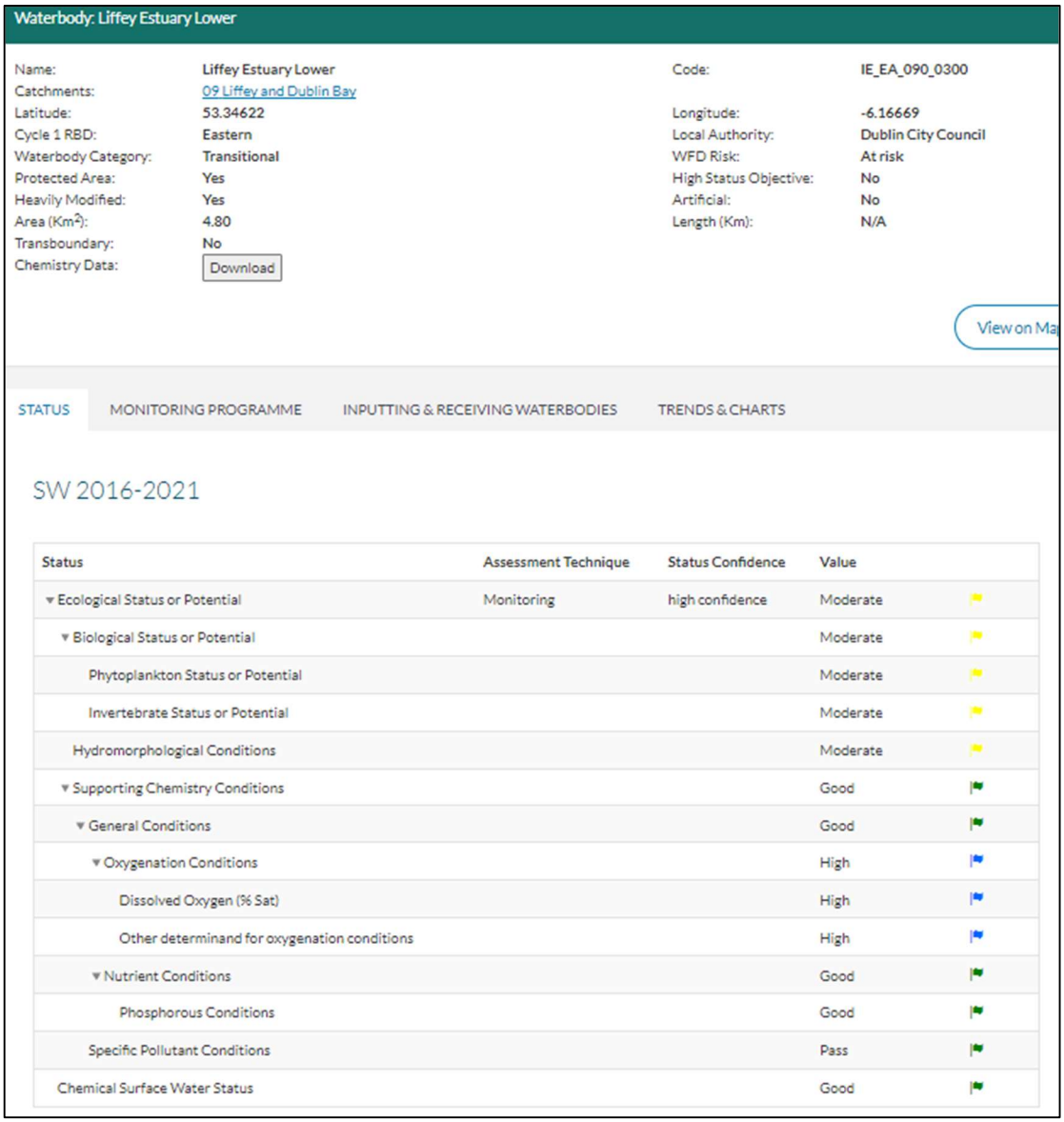
STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Moderate
▾ Biological Status or Potential			Moderate
▾ Other Aquatic Flora Status or Potential			Moderate
Macrophyte Status or Potential			High
Phytobenthos Status or Potential			Moderate
Invertebrate Status or Potential			Moderate
Fish Status or Potential			Moderate
▾ Supporting Chemistry Conditions			Pass
▾ General Conditions			Pass
▾ Oxygenation Conditions			Pass
Dissolved Oxygen (% Sat)			Pass
Other determinand for oxygenation conditions			High
▾ Acidification Conditions			Pass
pH			Pass
▾ Nutrient Conditions			Pass
▾ Nitrogen Conditions			Good
Nitrate			Good
Ammonium			High
▾ Phosphorous Conditions			High
Orthophosphate			High
Specific Pollutant Conditions			Pass
Chemical Surface Water Status			Pass

Figure 3.2 *Surface Water Quality for the Dodder_050 WFD Surface Waterbody (EPA, 2024)*

The Liffey Estuary Lower transitional waterbody has a '*Moderate*' WFD status (2016-2021) and its WFD risk score is '*At risk'* of not achieving good status. This '*Moderate*' status is related to its ecological status or potential. This '*Moderate*' status is related to its ecological status or potential. The main pressure on the Liffey Estuary Lower WFD surface waterbody is urban waste water. Refer to Figure 3.3 below.



Waterbody: Liffey Estuary Lower

Name:	Liffey Estuary Lower	Code:	IE_EA_090_0300
Catchments:	09 Liffey and Dublin Bay		
Latitude:	53.34622	Longitude:	-6.16669
Cycle 1 RBD:	Eastern	Local Authority:	Dublin City Council
Waterbody Category:	Transitional	WFD Risk:	At risk
Protected Area:	Yes	High Status Objective:	No
Heavily Modified:	Yes	Artificial:	No
Area (Km²):	4.80	Length (Km):	N/A
Transboundary:	No		
Chemistry Data:	Download		

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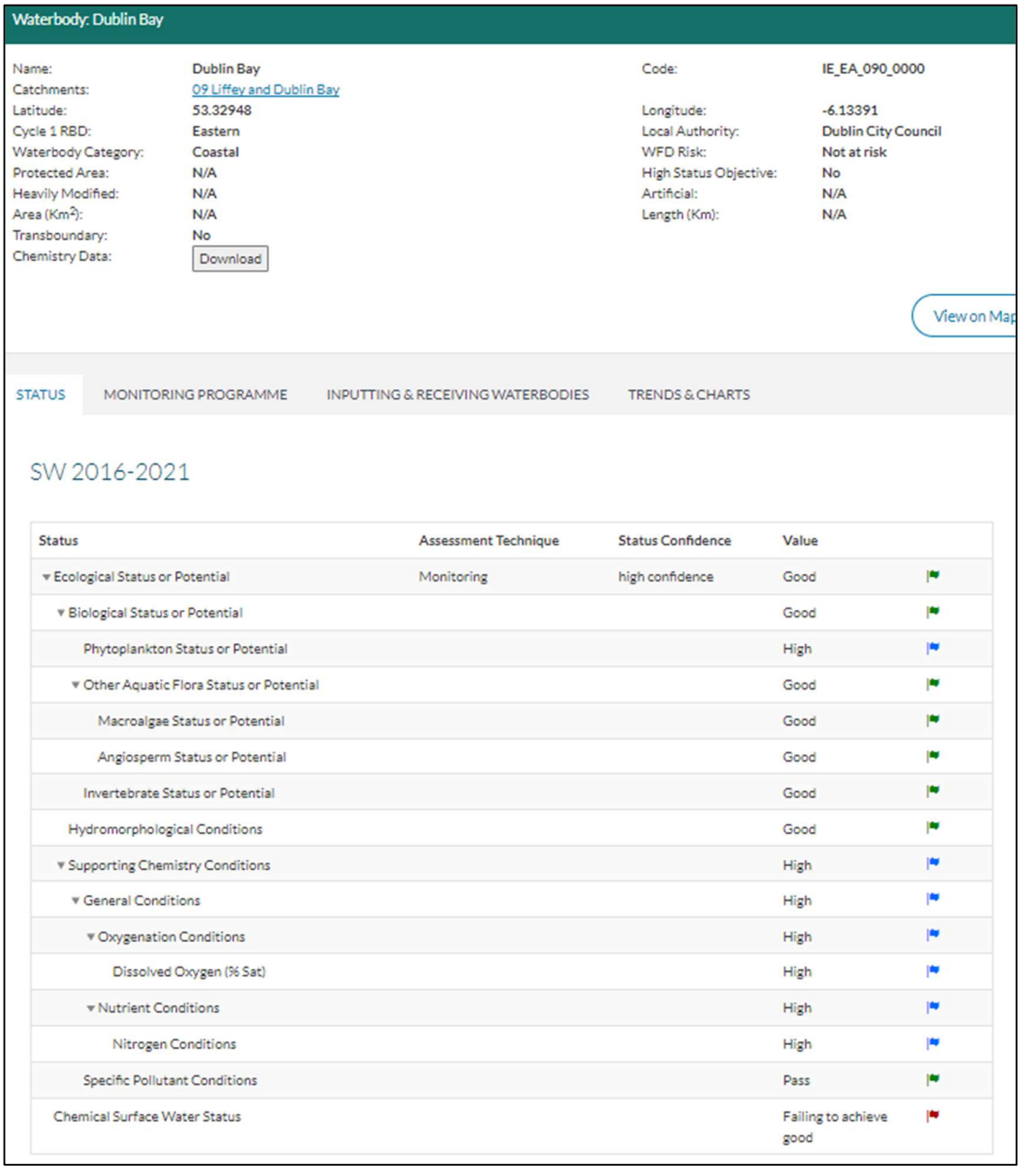
STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Moderate
▾ Biological Status or Potential			Moderate
Phytoplankton Status or Potential			Moderate
Invertebrate Status or Potential			Moderate
Hydromorphological Conditions			Moderate
▾ Supporting Chemistry Conditions			Good
▾ General Conditions			Good
▾ Oxygenation Conditions			High
Dissolved Oxygen (% Sat)			High
Other determinand for oxygenation conditions			High
▾ Nutrient Conditions			Good
Phosphorous Conditions			Good
Specific Pollutant Conditions			Pass
Chemical Surface Water Status			Good

Figure 3.3 *Surface Water Quality for the Liffey Estuary Lower Transitional Waterbody (EPA, 2024)*

Dublin Bay coastal waterbody has a WFD status (2016-2021) of '*Good*' and a WFD risk score of '*Not at risk*'. The ecological status (which comprises biological and chemical status) of transitional and coastal water bodies during 2016-2021 for Dublin Bay is classed as '*Good'* (although the chemical status failed wo achieve '*good*' status). The most recent surface water quality data for Dublin Bay on trophic status of estuarine and coastal waters indicate that they are '*Unpolluted*' (EPA, 2024). Under the 2015 'Trophic Status Assessment Scheme' classification of the EPA, 'Unpolluted' means there have been no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present. Refer to Figure 3.4 below.



Waterbody: Dublin Bay

Name:	Dublin Bay	Code:	IE_EA_090_0000
Catchments:	09 Liffey and Dublin Bay		
Latitude:	53.32948	Longitude:	-6.13391
Cycle 1 RBD:	Eastern	Local Authority:	Dublin City Council
Waterbody Category:	Coastal	WFD Risk:	Not at risk
Protected Area:	N/A	High Status Objective:	No
Heavily Modified:	N/A	Artificial:	N/A
Area (Km²):	N/A	Length (Km):	N/A
Transboundary:	No		
Chemistry Data:	Download		

View on Map

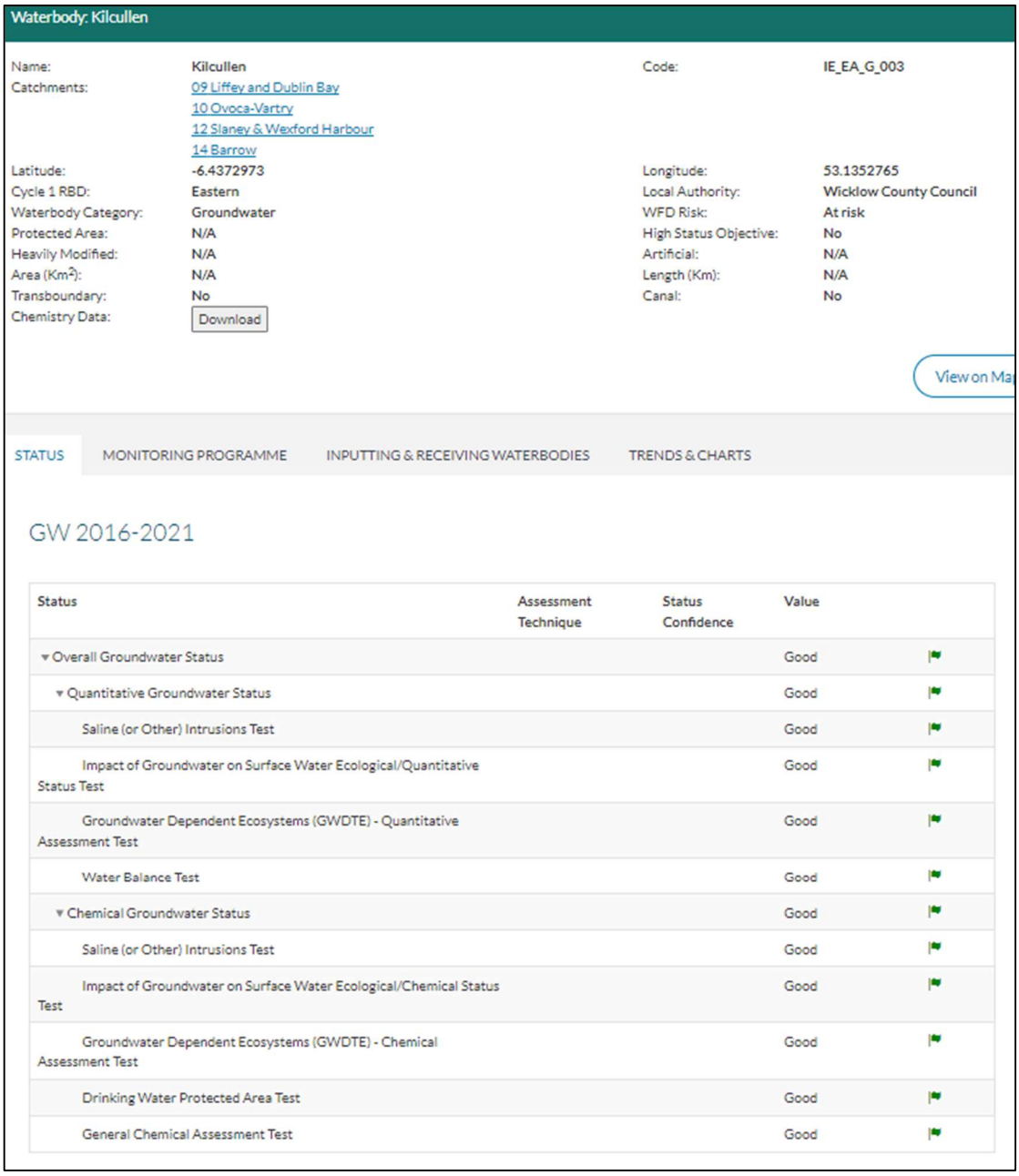
STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Good
▾ Biological Status or Potential			Good
Phytoplankton Status or Potential			High
▾ Other Aquatic Flora Status or Potential			Good
Macroalgae Status or Potential			Good
Angiosperm Status or Potential			Good
Invertebrate Status or Potential			Good
Hydromorphological Conditions			Good
▾ Supporting Chemistry Conditions			High
▾ General Conditions			High
▾ Oxygenation Conditions			High
Dissolved Oxygen (% Sat)			High
▾ Nutrient Conditions			High
Nitrogen Conditions			High
Specific Pollutant Conditions			Pass
Chemical Surface Water Status			Failing to achieve good

Figure 3.4 *Surface Water Quality for Dublin Bay Coastal Waterbody (EPA, 2024)*

As stated in Section 2.2.1 above, the Kilcullen groundwater body (Code: IE_EA_G_003) is classified under the WFD Status (2016-2021) as having a '*Good*' status and a WFD Risk Score of '*At Risk*' of not achieving good status. The Kilcullen groundwater body has a '*Good*' Status for chemical and quantitative categories. Therefore, the overall status is considered Good. Refer to Figure 3.5 below.



Waterbody: Kilcullen

Name:	Kilcullen	Code:	IE_EA_G_003
Catchments:	09 Liffey and Dublin Bay 10 Ovoca-Vartry 12 Slaney & Wexford Harbour 14 Barrow		
Latitude:	-6.4372973	Longitude:	53.1352765
Cycle 1 RBD:	Eastern	Local Authority:	Wicklow County Council
Waterbody Category:	Groundwater	WFD Risk:	At risk
Protected Area:	N/A	High Status Objective:	No
Heavily Modified:	N/A	Artificial:	N/A
Area (Km²):	N/A	Length (Km):	N/A
Transboundary:	No	Canal:	No
Chemistry Data:	Download		

View on Ma

STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

GW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Overall Groundwater Status			Good
▾ Quantitative Groundwater Status			Good
Saline (or Other) Intrusions Test			Good
Impact of Groundwater on Surface Water Ecological/Quantitative Status Test			Good
Groundwater Dependent Ecosystems (GWDTE) - Quantitative Assessment Test			Good
Water Balance Test			Good
▾ Chemical Groundwater Status			Good
Saline (or Other) Intrusions Test			Good
Impact of Groundwater on Surface Water Ecological/Chemical Status Test			Good
Groundwater Dependent Ecosystems (GWDTE) - Chemical Assessment Test			Good
Drinking Water Protected Area Test			Good
General Chemical Assessment Test			Good

Figure 3.5 *Groundwater Quality for Kilcullen Groundwater Body (EPA, 2024)*

4.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development consists of 523 no. residential units along with a 2-storey childcare facility, 7.38Ha of public open space and c.4,797 sq.m of communal open space associated with proposed residential units.

The proposed development also includes the demolition of existing buildings / structures on the site (c.3,800sq.m), hard & soft landscaping, boundary treatments, SuDs features, drainage infrastructure, services infrastructure, bin stores, bicycle

stores, car parking (including EV parking facilities), bicycle parking, public lighting etc. and all associated site development works.

In order to maintain the functioning of the existing agricultural ditches, several road-crossing culverts shall be designed in line with the Office of Public Works (OPW) requirements and the Arterial Drainage Act 1945. During detailed design, the necessary Section 50 application shall be made for each of the proposed culverts.

There is an existing Ø225mm foul sewer on the west of the site, draining northwards, providing service to the existing private dwellings. The foul water from the subject site shall ultimately connect to the existing surrounding public foul water sewer network from where it shall discharge to the Ringsend Wastewater Treatment Plant (WWTP). The maximum contribution of foul sewage (peak flow of 17.97 l/s) from the proposed development is 0.1617% of the current peak hydraulic capacity at Ringsend WWTP.

The proposed development (including overall drainage plan) is shown in Figure 4.1 below.

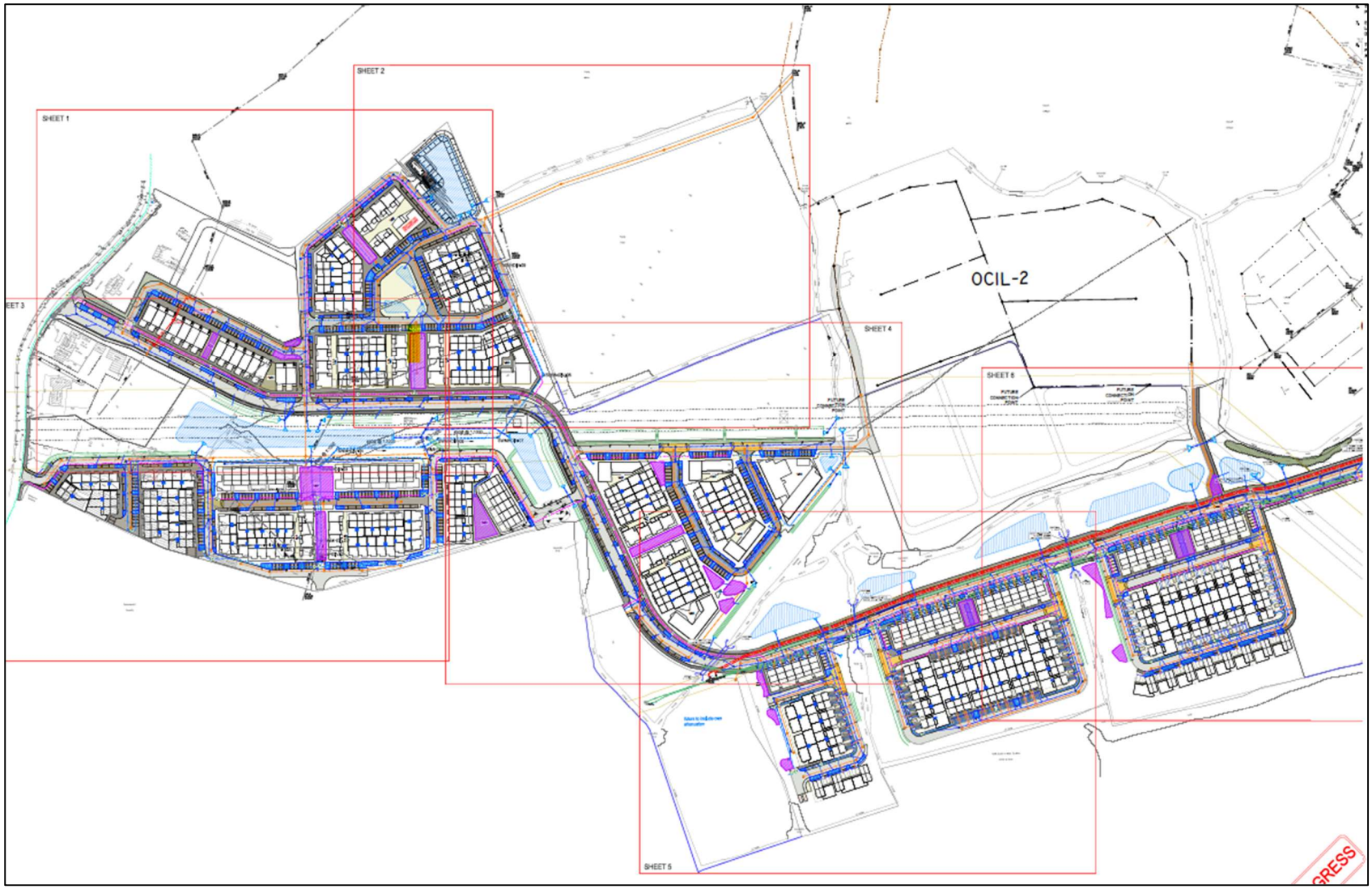


Figure 4.1 *Overall Combined Services Layout for Proposed Development – Drawing Ref: P211102-PIN-XX-XX-DR-C-00500-S2 (Pinnacle Consulting Engineers, 2024)*

The elements of the development which would have potential impact are summarised in Sections 4.1.1 and 4.1.2 below.

4.1.1 Construction Phase

During construction te contractor will be obliged to operate in compliance with a construction environmental management plan (CEMP) and mitigation measures as outlined in the EIA provided with planning.

Temporary impacts on local drainage discharging to the Dodder_040 WFD surface waterbody could occur if mitigation measures to attenuate and treat construction runoff water fail resulting in:

- Run-off with high levels of suspended solids (muddy water with increased turbidity – arising from excavation and ground disturbance;
- Run-off with high pH as a result of cement/concrete works on site
- Run-off with hydrocarbons as a result of accidental spillages from construction plant or onsite oil storage;
- Run-off with wastewater (nutrient and microbial rich) arising from poor on-site toilets and washrooms.

Temporary impacts on the aquifer are less likely as:

- The proposed cut and fill for foundations etc. is shallow (generally less than 1 m BGL). The total volume of soil requiring excavation for the proposed development is expected to be c. 71,178 m^3 with c. 57,894 m^3 to be reused onsite.
- No likely potential for mobilisation of contamination as no historical evidence of use of land for anything but agriculture. The CEMP also includes for monitoring of soil required for removal and disposal of same of a suitably licenced site or reuse as permitted.
- No dewatering required and no abstraction of groundwater required.

At a minimum, the works will be carried out according to standard best international practice including, but not limited, to:

- CIRIA, (2001), *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532)* Construction Industry Research and Information Association;
- CIRIA (2002) *Control of water pollution from construction sites: guidance for consultants and contractors (SPI56)* Construction Industry Research and Information Association;
- CIRIA (2005), *Environmental Good Practice on Site* (C650); Construction Industry Research and Information Association;
- BPGCS005, *Oil Storage Guidelines*;
- CIRIA 697 (2007), *The SUDS Manual*; and *UK Pollution Prevention Guidelines,* (PPG) UK Environment Agency, 2004.

4.1.2 Operational Phase

There is no abstraction of groundwater proposed or discharge to ground. There is no bulk chemical or fuels or other chemicals required during operation. As such, the only potential for a leak or spill of petroleum hydrocarbons is from single vehicles. It is noted that during the operational phase any accidental discharge will more likely impact stormwater drainage rather than underlying soils due to the hardstand and drainage

infrastructure proposed and any releases to drainage will be mitigated through petrol / hydrocarbon interceptors.

The proposed incorporation of hardstand area and the use of sustainable drainage systems (SuDS) design measures will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant considering the proportion of the site area in relation to the total aquifer area. SuDS measures have been incorporated in the design comprising blue/green roofs, permeable paving, swales, bio-retention tree pits, bio-retention rain gardens, detention basins, petrol/hydrocarbon interceptors and flow control devices.

The proposed development will provide a significant improvement to the local drainage catchment as it is proposed to provide full attenuation in compliance with the requirements of the Greater Dublin Strategic Drainage Study. A number of design measures will be put in place to minimise the likelihood of any spills entering the water environment to include the design of the car park with hydrocarbon interceptors. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

It is proposed to ultimately discharge surface water from the proposed development, post attenuation and outflow restrictions into the existing local drainage. The existing Ø450mm surface water sewer shall be diverted to connect to a new proposed surface water pipeline following the proposed development road networks.

With regard to the wastewater discharge, the process discharge flow from the completed development will be discharged to the public sewer at the rate agreed with Uisce Éireann. The foul water from the subject site shall ultimately connect to the existing surrounding public foul water sewer network from where it shall discharge to the Ringsend Wastewater Treatment Works (WWTW). The maximum contribution of foul sewage (peak flow of 17.97 l/s) from the proposed development is 0.1617% of the current peak hydraulic capacity at Ringsend WWTP.

Figure 4.1 shows the proposed combined overall services layout post development. Drawing Ref: P211102-PIN-XX-XX-DR-C-00500-S2 (Pinnacle Consulting Engineers, 2024).

5.0 ASSESSMENT OF SOURCE-PATHWAY-RECEPTOR (SPR) MODEL

A conceptual site model is developed based on a good understanding of the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This in turn allows possible Source Pathway Receptor (S-P-R) linkages to be identified. If no S-P-R linkages are identified, then there is no risk to identified receptors.

Note: There is no hazard present during operation and no overall change to the surface water or groundwater regime, therefore no source pathway linkage to consider.

The groundwater body (GWB) underlying the site is the Kilcullen groundwater body (Code: IE_EA_G_003). However, there is a low risk of migration through the low permeability poorly productive bedrock, with little connectivity and poorly connected fracturing, as there is no likely impact on the status of the aquifer during the construction phase due to mitigation measures (ref; CEMP), low potential loading, low permeability within overburden and discrete nature of fracturing reducing off site migration. There is no abstraction of groundwater proposed during the operational phase. There is also no bulk chemical or fuels required during operation. As such the only potential for a leak or spill of petroleum hydrocarbons is from vehicles. During the operational phase any accidental discharge will more likely impact stormwater

drainage due to the hardstand and drainage infrastructure proposed and any releases to drainage will be mitigated through petrol interceptors.

The site is traversed by the Bohernabreena, Friarstown Upper and Oldcourt 09 river waterbodies which belong to the Dodder_040 WFD surface waterbody. The site ultimately discharges to the River Dodder (Dodder_040 & Dodder_050 WFD surface waterbodies), c. 1.99 km and downstream of the site through the Ballycullen Stream which eventually discharges into the Liffey Estuary Lower transitional waterbody (European Code IE_EA_090_0300). The Liffey Estuary Lower discharges into Dublin Bay coastal waterbody c. 14.9 km north-east / c. 21 km downstream of the proposed development site.

During construction and operation there are no adverse effects anticipated on the Dodder 040 due to the potential contaminant loading (post mitigation). The distance of removal to the Dodder 050 from the proposed development site also provides significant dilution along the pathway.

There is also a hydrological connection to the Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody through the existing Ø225mm foul sewer which will be treated off site at Ringsend Waste Water Treatment Plant (WWTP) EPA licenced facility. Uisce Éireann are obliged to treat in accordance with the licence for this facility and as such, the additional peak flow (0.1617% of the current peak hydraulic capacity at Ringsend WWTP) would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).

Table 5.1 below describes the S-P-R model for the proposed development site and includes the robust mitigation and design measures which will be incorporated into the proposed development throughout the construction phases.

Table 5.1 *Pollutant Linkage Assessment (without mitigation)*

Source	Pathways	Receptors Considered	Risk of Impact	Mitigation Measures
Construction Impacts (Summary)				
Unmitigated leak from an oil tank to ground/ unmitigated leak from construction vehicle (1,000 litres worst case scenario). Discharge to ground of runoff water with High pH from cement process/ hydrocarbons from construction vehicles/run-off containing a high concentration of suspended solids.	Bedrock protected by >3 m low permeability overburden (sandy gravelly clay). Migration within weathered/ less competent bedrock is low (low permeability and porosity, local fracturing rather than large and connected fractures). Indirect pathway to Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody through public foul sewer network. Indirect pathway through stormwater drainage network to Dublin Bay coastal waterbody. Indirect pathway through existing drainage ditches on site and the Bohernabreena, Friarstown Upper and Oldcourt 09 EPA river waterbodies which ultimately discharge to the River Dodder (pNHA) through the Ballycullen	Underlying Bedrock Aquifer (Poor Aquifer). Dodder_040 WFD Surface Waterbody (Bohernabreena, Friarstown Upper, Oldcourt 09, Ballycullen Stream & River Dodder pNHA). Dodder_050 WFD Surface Waterbody (c. 7.2 km downstream / linear distance: c. 5 km). Liffey Estuary Lower Transitional Waterbody (c. 16 km downstream / linear distance: c. 11.8 km). South Dublin Bay SAC/pNHA (c. 21 km downstream / linear distance: c. 10.7 km). South Dublin Bay and River Tolka Estuary SPA (c. 21 km downstream / linear distance: c. 10.7 km).	No likely impact on the status of the aquifer due to low potential loading, mitigation on site (CEMP), presence of protective overburden and low permeability within overburden and discrete nature of fracturing reducing potential for any off site migration. No perceptible risk to water requirements for Dodder Valley pNHA or the Natura 2000 sites in Dublin Bay based on low potential loading mitigation on site (CEMP) and high level of dilution in the surface water sewer / drainage network between the source and protected sites.	Only potential for temporary impacts due to accidental releases. Mitigation measures outlined in a CEMP which will be a live document. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the CEMP and any subsequent conditions relevant to the proposed development. These include management of soils, re-fuelling of machinery and chemical handling, control of water during the construction phase and treatment of discharge water where required.

	Stream and into Liffey Estuary Lower transitional waterbody / Dublin Bay coastal waterbody.			
Operational Impacts (Summary)				
Foul effluent discharge to sewer. Discharge to ground of hydrocarbons from carpark leak.	Indirect pathway to Dublin Bay coastal waterbody through public foul sewer network. Indirect pathway to Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody through public foul sewer network. Pathway through existing drainage ditches on site and the Bohernabreena, Friarstown Upper and Oldcourt 09 EPA river waterbodies which ultimately discharge to the River Dodder (pNHA) through the Ballycullen Stream and into Liffey Estuary Lower transitional waterbody / Dublin Bay coastal waterbody.	Dodder_040 WFD Surface Waterbody (Bohernabreena, Friarstown Upper, Oldcourt 09, Ballycullen Stream & River Dodder pNHA). Dodder_050 WFD Surface Waterbody (c. 7.2 km downstream / linear distance: c. 5 km). Liffey Estuary Lower Transitional Waterbody (c. 16 km downstream / linear distance: c. 11.8 km). South Dublin Bay SAC/pNHA (c. 21 km downstream / linear distance: c. 10.7 km). South Dublin Bay and River Tolka Estuary SPA (c. 21 km downstream / linear distance: c. 10.7 km).	No perceptible risk – treatment within a licenced waste facility No perceptible risk – taking into account the implementation of the design measures which includes SuDS features i.e. blue/green roofs, permeable paving, swales, bio-retention tree pits, bio-retention rain gardens, detention basins, petrol/hydrocarbon interceptors and flow control devices. Furthermore, the extent of loading of contaminant, distance between the source and the protected sites along with significant dilution in the surface water sewer and drainage network will ensure any released hydrocarbons are at background levels (i.e., with no likely impact above water quality objectives as outlined in *S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019).*	Wastewater discharge to be agreed with Uisce Éireann in a Wastewater Connection Application. The proposed development is designed to ensure the protection of the hydrological environment by incorporating SuDs measures in design including limiting the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge.

6.0 NO DETERIORATION ASSESSMENT

6.1 HYDROLOGICAL ENVIRONMENT

The proposed development is traversed by the Bohernabreena, Friarstown Upper and Oldcourt 09 river waterbodies. Many of the field boundaries have drainage ditches which connect to these waterbodies. The site ultimately discharges to the River Dodder c. 1.99 km downstream of the site through the Ballycullen Stream before eventually discharging to the Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody c 16 km and c. 21 km downstream, respectively. The Bohernabreena, Friarstown Upper, Oldcourt 09, Ballycullen Stream belong to the Dodder_040 WFD surface waterbody and the River Dodder belongs to the Dodder_040 and Dodder_050 surface waterbody in relation to this assessment (downstream of proposed development). There is also an existing Ø450mm surface water sewer on the west of the site. The existing Ø450mm sewer conveys surface water from the Bohernabreena cemetery northwards through the proposed development. The existing Ø450mm surface water sewer shall be diverted to connect to a new proposed surface water pipeline following the proposed development road networks

Therefore, the proposed development has a hydrological connection / linkage with the Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody and the conservation areas / Natura 2000 sites located herein through the existing and proposed site drainage.

There are mitigation and design measures which will be implemented during the construction phase to protect the hydrological and hydrogeological environment. There is a potential of accidental discharges should mitigation fail during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

During the excavations for foundations, there may be localised pumping of perched groundwater within the subsoils and surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. However, it will be associated with perched groundwater within the subsoils and not with the regional aquifer within the bedrock. As such the proposed development will not have an impact on the quantitative aspects in consideration of water body status such as baseflow for the hydrological waterbodies.

The project-specific CEMP which the works contractor will develop will implement strict mitigation measures to ensure the protection of the hydrological (and hydrogeological) environment during construction which will ensure that there will be no negative impact on the quantitative or qualitative or morphology of the nearby watercourses.

During operation, surface water discharge will be managed to greenfield run-off rates and treated through oil interceptor. The discharges will be adequately treated via SuDS measures, hydrobrake (or equivalent) and oil/water interceptor to ensure there is no long-term negative impact to the WFD water quality status of the receiving waterbodies mentioned in Table 5.1 above. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment.

There are no changes to the overall hydrological and hydrogeological regime as a result of the proposed development. There are no proposed diversions of any drainage ditches or waterbodies as part of the proposed development.

Overall, the potential effects on the current status of the waterbodies are considered *no impact i.e. no change to the WFD status or elements in terms of the hydrological environment*.

6.2 HYDROGEOLOGICAL ENVIRONMENT

The proposed development will not involve dewatering or abstraction of groundwater during construction or operation. As such the proposed development will not have an impact on the quantitative aspects in consideration of water body status and no impact on baseflow of streams and rivers.

For the construction phase, along with mitigation and design measures which will be implemented during this phase, there is significant soil cover present to protect the hydrogeological environment. There is limited potential of accidental discharges during the construction phase, however should these occur they are temporary short-lived events that will not impact on the water status of the underlying bedrock aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

The project-specific CEMP which the works contractor will develop will implement strict mitigation measures to ensure the protection of the hydrogeological environment during construction which will ensure that there will be no negative impact on the quantitative or qualitative of the underlying bedrock limestone aquifer (Dublin GWB).

In terms of the operational phase, the risk to the aquifer is considered to be low due to the presence of handstand and a drainage system incorporating use of oil / hydrocarbon / petrol interceptors (or equivalent) on the stormwater drainage system prior to discharge from the site.

Overall, the potential effects on the WFD status to the waterbodies are considered no impact *i.e., no change to the current status or elements in terms of the underlying hydrogeological environment*.

6.3 ASSESSMENT IN TERMS OF FUTURE GOOD STATUS

The Dodder_040 WFD and Dodder_050 surface waterbodies have a '*Moderate*' WFD status (2016-2021) and a WFD risk score of '*At risk'* of not achieving good status. These '*Moderate*' statuses are related to the ecological status or potential. The main pressure on the Dodder_040 WFD surface waterbody is urban run-off and the main pressures on the Dodder_050 WFD surface waterbody are urban run-off, urban waste water and anthropogenic pressures.

The Liffey Estuary Lower transitional waterbody has a '*Moderate*' WFD status (2016-2021) and its WFD risk score is '*At risk'* of not achieving good status. This '*Moderate*' status is related to its ecological status or potential. This '*Moderate*' status is related to its ecological status or potential. The main pressure on the Liffey Estuary Lower WFD surface waterbody is urban waste water.

Dublin Bay coastal waterbody has a WFD status (2016-2021) of '*Good*' and a WFD risk score of '*Not at risk*'. The ecological status (which comprises biological and

chemical status) of transitional and coastal water bodies during 2016-2021 for Dublin Bay is classed as '*Good'* (although the chemical status failed wo achieve '*good*' status). The most recent surface water quality data for Dublin Bay on trophic status of estuarine and coastal waters indicate that they are '*Unpolluted*' (EPA, 2024). Under the 2015 'Trophic Status Assessment Scheme' classification of the EPA, 'Unpolluted' means there have been no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present.

Therefore, the overall status of Dublin Bay coastal waterbody is considered '*Good*' and the WFD objectives are currently being met.

The Kilcullen groundwater body (Code: IE_EA_G_003) is classified under the WFD Status (2016-2021) as having a '*Good'* status and a WFD Risk Score of '*At Risk*' of not achieving good status. The Kilcullen groundwater body has a '*Good*' Status for chemical and quantitative categories. Therefore, the overall status of the Kilcullen groundwater body is considered '*Good*' and the WFD objectives are being met.

At present there are no local targeted measures within the catchments to maintain or achieve improvements to the status of the water bodies. However, the following are some pressures associated with waterbody catchments:

- Physical Modifications.
- Management of pollution from agricultural activities.
- Management of pollution from sewage and waste water.
- Management of pollution from urban environments.
- Changes to natural flow and levels of water.
- Managing invasive non-native species.

The proposed development will incorporate SuDs measures within the landscape and drainage design in order to manage run-off quality and foul sewers management will be in compliance with UÉ specifications. No dewatareing or discharge to ground is required. As such there will be no change to the existing status as a result of the proposed development.

Based on the above information it is ***not*** considered that any aspects of the proposed development will prevent the WFD objectives from being achieved or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

7.0 CONCLUSIONS

Appendix A contains the background information and the WFD classification elements for surface water and groundwater body status. The colour coded system referred to in Appendix A – Table 1 and Table 2 are used to give a visual impression of the surface water and groundwater assessment, respectively

Appendix B presents the methodology for the surface water and groundwater assessments..

The WFD assessment indicates that, based on the current understanding of the proposed development, there is no potential for adverse or minor temporary/ long-term or localised effects on the Dodder_040, Dodder_050, Liffey Estuary Lower transitional waterbody, Dublin Bay coastal waterbody (or the Natura 2000 sites located herein).

Therefore, it has been assessed that the proposed development will not cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve, future good status or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Kilcullen groundwater body. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change on its water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during construction and operation.

8.0 STUDY LIMITATIONS

The conclusions and recommendations listed above are based on our current understanding of the site. This has been formed from review of historical maps, review of current and previous environmental and engineering reports for the proposed development site. This information is taken as being accurate and true.

Public databases held by the EPA, GSI, OPW, NPWS and OSI have been consulted and the most recent available data has been referenced.

No subsurface or destructive testing was carried out as part of this assessment.

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APPENDICES

APPENDIX A

BACKGROUND TO SURFACE WATER & GROUNDWATER BODY STATUS

Background to Surface Water Body Status

Under the WFD, surface water body status is classified on the basis of chemical and ecological status or potential. Ecological status is assigned to surface water bodies that are natural and considered by the EPA not to have been significantly modified for anthropogenic purposes (i.e., culverting). Ecological potential is assigned to artificial and man-made water bodies (such as canals), or natural water bodies that have undergone significant modification. The term 'ecological potential' is used as it may be impossible to achieve good ecological status because of modification for a specific use, such as navigation or flood protection. The ecological potential represents the degree to which the quality of the water body approaches the maximum it could achieve. The worst-case classification is assigned as the overall surface water body status, in a 'one-out all-out' system (i.e., by taking the worst case of all the combined risk outcomes). This system is summarised below in Figure 1.

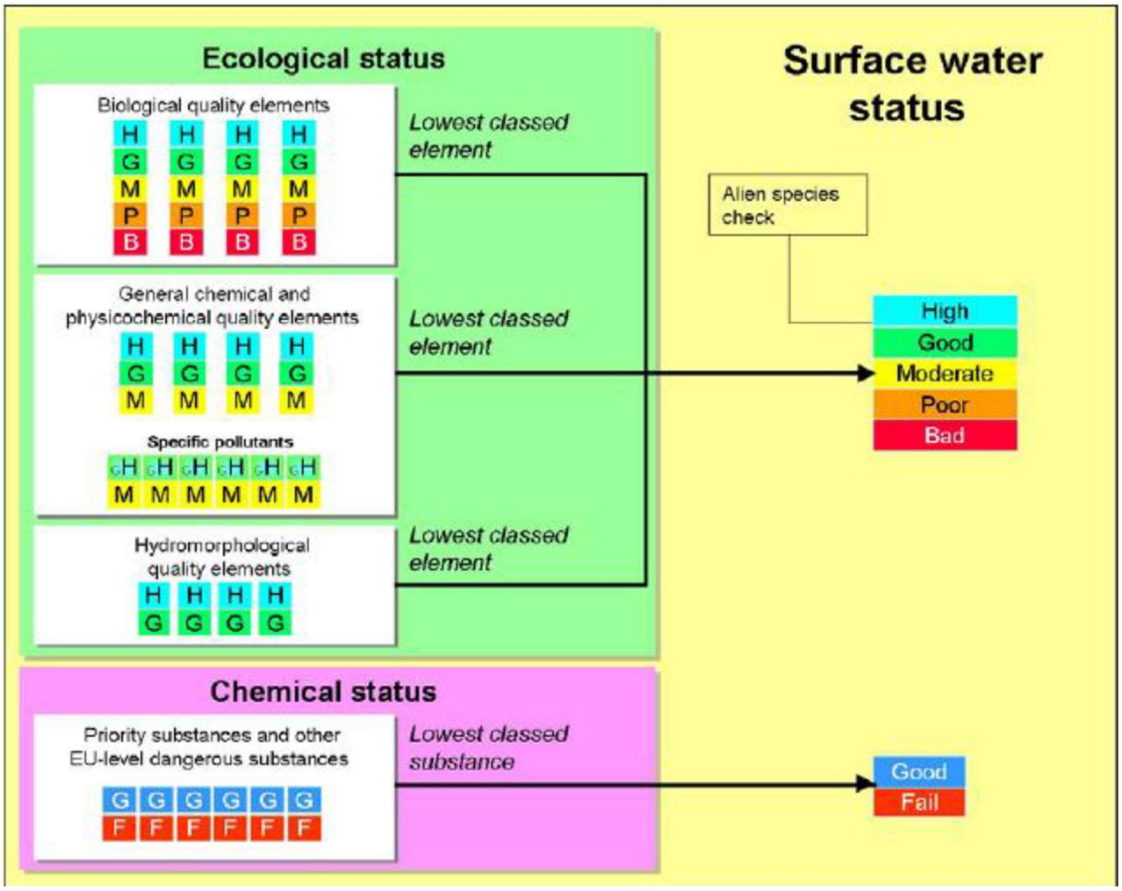

Figure 1 *WFD classification elements for surface water body status (Environmental Agency, 2015)*

In addition, the WFD also requires the assessment of the ecological status of water bodies associated with hydromorphological quality elements. Hydromorphology is a term used in the WFD to describe the processes operating within, and the physical form of a waterbody. The term encompasses both hydrological and geomorphological characteristics that, in combination, help support a healthy ecology. Hydromorphological elements contribute towards WFD status classification.

Chemical Status

Chemical status is defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with the Environmental Quality Standards Directive (2008/105/EC). This is assigned on a scale of good or fail. Surface water bodies are only monitored for priority substances where there are known discharges of these pollutants; otherwise, surface water bodies are reported as being at good chemical status.

Ecological Status

Ecological status or potential is defined by the overall health or condition of the watercourse. This is assigned on a scale of High, Good, Moderate, Poor or Bad, and on the basis of four classification elements or 'tests', as follows:

- **Biological:** This test is designed to assess the status indicated by a biological quality element such as the abundance of fish, invertebrates or algae and by the presence of invasive species. The biological quality elements can influence an overall water body status from Bad through to High.
- **Physico-chemical:** This test is designed to assess compliance with environmental standards for supporting physicochemical conditions, such as dissolved oxygen, phosphorus and ammonia. The physicochemical elements can only influence an overall water body status from Moderate through to High.
- **Specific pollutants:** This test is designed to assess compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic. As with the physico-chemical test, the specific pollutant assessment can only influence an overall water body status from Moderate through to High.
- **Hydromorphology:** For natural, this test is undertaken when the biological and physicochemical tests indicate that a water body may be of High status. It specifically assesses elements such as water flow, sediment composition and movement, continuity, and structure of the habitat against reference or 'largely undisturbed' conditions. If the hydromorphological elements do not support High status, then the status of the water body is limited to Good overall status. For artificial or highly modified waterbodies, hydromorphological elements are assessed initially to determine which of the biological and physico-chemical elements should be used in the classification of ecological potential. In all cases, assessment of baseline hydromorphological conditions are an important factor in determining possible reasons for classifying biological and physicochemical elements of a water body as less than Good, and hence in determining what mitigation measures may be required to address these failing water bodies. Subsection below further elaborates on the methodology for estimating the hydromorphological status independently.

Hydromorphological Status

Hydromorphology is a relatively new discipline which is described in the Water Framework Directive. Hydromorphology is the study of physical form, condition and processes within a surface water body, that create and maintain habitat. It stems from the term 'fluvial geomorphology', a discipline that focuses on the processes that operate in, for example, a river system (e.g. both water and sediment production and movement, erosion, deposition), and the features that these processes create (e.g. pools, riffles, sediment bars). As these processes create and maintain such features, this in turn will create and maintain habitats for invertebrates, fish and plants.

The Environmental Protection Agency (EPA) in the Republic of Ireland and the Northern Ireland Environment Agency (NIEA), through the North South Shared Aquatic Resource (NS SHARE) project, agreed a field assessment technique for WFD classification called the River Hydromorphology Assessment Technique (RHAT) which newest version was published in 2014.

These guidelines assume that natural systems support ecology better than modified systems. Hence the RHAT method classifies river hydromorphology based on a departure from naturalness. It assigns a morphological classification directly related to that of the WFD: *High*, *Good*, *Moderate*, *Poor* and *Bad*, based on semi-qualitative and quantitative criteria.

The eight criteria that are scored by the RHAT are:

1. Channel morphology and flow types: This attribute evaluates the form of the river and its deviation from natural including the planform, cross-section, natural bed forms, flow types and obstructions.

2. Channel vegetation: This attribute relates to the presence, diversity and habitat potential of any vegetation, including woody habitat (WH), leaf litter and tree roots occurring within the channel. The river type and riparian land cover affect the type and quantity of vegetation present in terms of the amount of leaf litter provided as a source of food and the number of refuges such as underwater roots for habitat.

3. Substrate diversity and condition: This attribute evaluates the type, quantity and diversity of substrate present in the river. The dominant substrate depends on the river type and geology. It will reflect the heterogeneity of the substrate present.

4. Barriers to continuity: This attribute relates to in stream barriers which affect both the variation in velocity across the channel and the longitudinal continuity of the river. It will indicate the impacts of widening, over deepening, straightening, impoundments, weirs and dams on downstream transport of water, sediment and organic matter, and up and downstream migration of fish (salmon, trout, eel and lamprey).

5. Bank structure and stability: This attribute assesses the shape and stability of the banks of the river. Rivers are naturally dynamic entities whose pathways constantly change. The degree of expected lateral movement will depend on typology, geology, soil type and hydrology. It relates to both the degree of bank engineering, e.g. steepening, and the effect of riparian or channel use on the stability of the banks.

6. Bank and bank top vegetation: This attribute assesses the types, continuity and canopy layers of the bank vegetation. Bank top should be taken as the first obvious break in slope to 1m back. The river type, altitude, geology and riparian land use will affect the type and extent of bank vegetation present. Bank vegetation contributes to river habitat and bank stability. It will reflect the amount and extent of vegetation cover.

7. Riparian land use: This attribute relates to land cover within the zone adjacent to the river from 1m to 21m back from the bank top. It will reflect the amount and type of vegetation (i.e. whether native or not) within this zone and the intrusion of human activities. Weight should be given to the nature of the activity, proximity to the river channel, and the importance of the floodplain area to the river ecosystem (most important for lowland rivers that interact regularly with the floodplain zone).

8. Floodplain interaction: This attribute concerns the degree of lateral connectivity between the channel and floodplain. The natural connectivity depends on the river type and valley confinement. For rivers that would naturally flood over bank at high discharges, the score will reflect the degree to which channel and bank work have altered flow regime.

Background to Groundwater Body Status

Under the WFD, groundwater body status is classified on the basis of quantitative and chemical status. Status is assessed primarily using data collected from the EPA monitoring network; therefore, the scale of assessment means that groundwater status is mainly influenced by larger scale effects such as significant abstraction or widespread/ diffuse pollution. The worst-case classification is assigned as the overall groundwater body status, in a 'one-out all-out' system. This system is summarised in Figure 2 below.

Quantitative Status

Quantitative status is defined by the quantity of groundwater available as baseflow to watercourses and water-dependent ecosystems, and as 'resource' available for use as drinking water and other consumptive purposes. This is assigned on a scale of Good or Poor, and on the basis of four classification elements or 'tests' as follows:

- **Saline or other intrusions:** This test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.
- **Surface water:** This test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the ecological status of associated surface water bodies.
- **Groundwater Dependent Terrestrial Ecosystems (GWDTEs):** This test is designed to identify groundwater bodies where groundwater abstraction is leading to "significant damage" to associated GWDTEs (with respect to water quantity).
- **Water balance:** This test is designed to identify groundwater bodies where groundwater abstraction exceeds the "available groundwater resource", defined as the rate of overall recharge to the groundwater body itself, as well as the rate of flow required to meet the ecological needs of associated surface water bodies and GWDTEs.

Chemical Status

Chemical status is defined by the concentrations of a range of key pollutants, by the quality of groundwater feeding into watercourses and water-dependent ecosystems and by the quality of groundwater available for drinking water purposes. This is assigned on a scale of Good or Poor, and on the basis of five classification elements or 'tests' as follows:

- **Saline or other intrusions:** This test is designed to identify groundwater bodies where the intrusion of poor-quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.

- **Surface water:** This test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the chemical status of associated surface water bodies.
- **Groundwater Dependent Terrestrial Ecosystems (GWDTEs):** This test is designed to identify groundwater bodies where groundwater abstraction is leading to "significant damage" to associated GWDTE's (with respect to water quality).
- **Drinking Water Protected Areas (DrWPAs):** This test is designed to identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WFD or at risk of failing in the future.
- **General quality assessment:** This test is designed to identify groundwater bodies where widespread deterioration in quality has or will compromise the strategic use of groundwater.

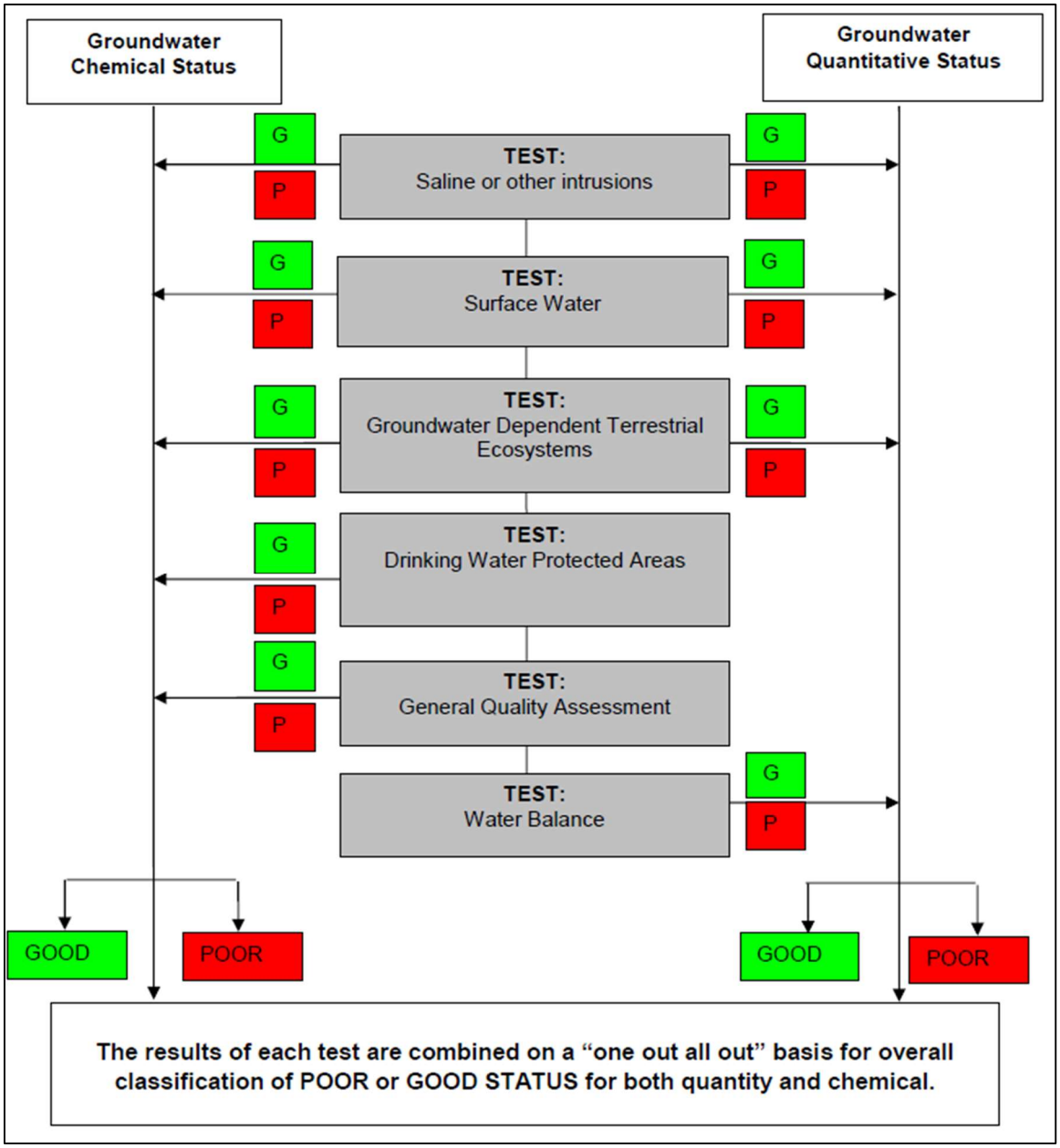

Figure 2 *WFD classification elements for groundwater body status (EPA, 2015)*

APPENDIX B

WATER FRAMEWORK DIRECTIVE ASSESSMENT MATRIX

Risk screening of potential to cause deterioration of current WFD status

	Surface Water	Scheme Elements	**Proposed Development**					Mitigation Measures	Overall Impact with mitgation measures
	Dodder_SC_040 (European Code: IE_EA_09D010620). Dodder_SC_050 (European Code: IE_EA_09D010900). Liffey Estuary Lower transitional waterbody (European Code: IE_EA_090_0200). Dublin Bay coastal waterbody (European Code: IE_EA_090_0000).	Phase (Construction/ Operation)	Construction	Construction	Construction	Operation	Operation		
		Identified Quantitative/Qualitative Impacts	Increased run-off and sediment loading	Pollution due to accidental discharges or spillages during the construction phase	Scour during the construction phase	Increase in Hardstanding	Localised oil leaks from vehicles		
Biological Status	Macrophytes and phytobenthos - combined	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	**Construction:** The project-specific CEMP will include robust mitigation measures to protect the underlying hydrogeological environment. The CEMP will be a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures and any subsequent conditions relevant to the proposed development. These include management of soils, re-fuelling machinery and chemical handling and control of water during the construction phase. **Operation:** The proposed development is designed to ensure the protection of the hydrological environment such as delivery and distribution and use of oil interceptors on the stormwater system and the use of SuDS techniques. The proposed daylighting of the Camac River is expected to improve the local ecological and hydromorphological condition of the river. In order to limit the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge the principles of Sustainable Drainage Systems, (SuDS) are to be implemented. The propsoed foul drainage system will ultimately discharge into the licenced facility at Ringsend WWTP.	No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Macroinvertebrates		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Fish		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
Physio-Chemical Status	Total Ammonia	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Total Nitrogen		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Ortho-Phosphate		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
Hydromorphological Elements	Quantity and dynamics of river flow	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Connection to Groundwater		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	River continuity		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	River depth and width variation bed		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Structure and substrate of river bed		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Structure of riparian zone		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status

Risk screening of potential to cause deterioration of current WFD status								
	Groundwater	Scheme Elements	**Proposed Development**				Mitigation Measures	Overall Impact
	Kilcullen groundwater body (European Code: IE_EA_G_003).	Phase (Construction/ Operation)	Construction	Construction	Operation	Operation		
		Identified Potential Quantitative/Qualitative Impacts	Increased run-off and sediment loading	Pollution due to accidential discharges or spillages during the construction phase	Increase in Hardstanding	localised oil leaks form cars		
Quantitative Elements	**Saline or other intrusions.** To identify groundwater bodies where the intrusion of poor quality water as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	**Construction:** In addition to the protection provided by the overburden on site (low permeability sandy gravelly clay), the project-specific CEMP includes robust mitigation measures to protect the hydrogeological environment. These includes collection of run-off and attenuation prior to discharge to the off site drainage ditch, containment of bulk oil tanks, management measures for concrete pouring and wash out to prevent alkaline discharge to ground, stockpile management and spill control measures. No signficant dewatering is anticipated which could impact on quantitaive status. **Operation:** The proposed development has a low hazard loading and is designed to ensure the protection of the underlying hydrogeological environment such as use of oil interceptors on the stormwater system and prior to discharge from the site and the use of SuDS techniques. In order to limit the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge the principles of Sustainable Drainage Systems, (SuDS) are to be implemented. No groundwater abstraction is required which could impact on quantitaive status.	No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	Surface water. To assess the impact of groundwater abstractions on the ecological status of surface water bodies.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Groundwater Dependent Terrestrial Ecosystems (GWDTE's) To assess the impact of groundwater abstractions on the condition of GWDTE'S.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	Water balance To identify groundwater bodies where abstractions exceed the available resource.		Not Applicable (no dewatering anticipated)					No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
Chemical Elements	**Saline or other intrusions.** To identify groundwater bodies where the intrusion of poor quality water as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	Surface water. To assess the impact of groundwater abstractions on the ecological status of surface water bodies.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	Groundwater Dependent Terrestrial Ecosystems (GWDTE's) To assess the impact of nutrient concentrations in groundwater (primarily phosphates) on GWDTE's.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	Drinking Water Protected Areas (DrWPAs) To identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WFD or at risk of failing in the future.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status
	General quality assessment To identify groundwater bodies where widespread deterioration in quality has or will compromise the strategic use of groundwater.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrogeological environment with no deterioration to the WFD Status