REPORT

Water Framework Directive Assessment

Project Ref: Proposed Gas to Milltown Pipeline

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1. INTRODUCTION

1.1 Background

AWN Consulting Limited (AWN) has prepared this Water Framework Directive (WFD) 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 as a result of the Proposed Gas to Milltown Pipeline.

In summary, the development primarily comprises approximately 1.175 km of 400 mm nominal bore (NB) steel pipeline. This pipeline will extend from the previously permitted Gas to Microsoft pipeline to the permitted Milltown Above Ground Installation (AGI) (Reg. Ref.: SD25A/0135W).

The proposed Gas to Milltown Pipeline will connect to the designated future tie-in point of the newly permitted Gas to Microsoft pipeline, located immediately south of the Ballybane AGI within the Microsoft Operations Ireland Ltd. site. From the tie-in location, the pipeline routes south, crossing the New Nangor Road (R134) (RDX 01), and enters the adjacent grass verge. It then continues west, running parallel to the R134 alignment before exiting onto the Old Nangor Road. The route subsequently enters lands under the jurisdiction of South Dublin County Council (SDCC), crossing the Baldonnell Stream (WCX 01), Baldonnel Rd (RDX 02), and Griffeen River (RVX 01), and the R120 before terminating at Milltown AGI, situated within the proposed Data and Power Hub Services Facility site.

The proposed Gas to Milltown Pipeline involves installing long sections of conventional pipeline in open-cut trenches at a nominal minimum depth of 1.2 metres, within roads, verges, and greenfield areas. In addition to these sections, the pipeline will traverse beneath the Griffeen River (RVX 01) using trenchless methodology and above the culverted section of the Baldonnell Stream (WCX 01).

A full description of the proposed development is provided in Chapter 2 – Description of Development of the EIA.

This WFD Assessment has been prepared in response to the requirements of the Water Framework Directive 2000/60/EC. This WFD compliance document should be read in conjunction with Hydrological Risk Assessment report prepared by AWN Consulting.

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?

1.2 Experience of Authors

This report was prepared by Marcelo Allende and Alan Wilson. Marcelo Allende (BSc, BEng) is a Principal Environmental Consultant (Hydrologist) with AWN Consulting with over 20 years of experience in water resources technical studies, conceptual and numerical hydrological/hydrogeological modelling and environmental consultancy. Marcelo holds a degree in Water Resource Civil Engineering (BEng, Hons) from the University of Chile and a Bachelor of Science in Engineering (BSc, Hons). He has worked on a wide of range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, surface and groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments (Stage 1,2 and 3), Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He is currently a member of the International Association

of Hydrogeologists (IAH, Irish Group) and a member of Engineers Ireland (MIEI). Alan Wilson (BSc) 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 (Stages 1 & 2), baseline studies, hydrological and hydrogeological risk assessments, water framework directive assessments, environmental due diligences, site investigations and groundwater and surface water monitoring on various operational developments and greenfield and brownfield sites. Alan has over 5 years' experience as an Environmental Consultant including previous roles in Ecology and Forestry related work. Alan is a member of the International Association of Hydrogeologists (IAH) (Irish Group).

1.3 Source of Information

Desk-based hydrological and hydrogeological information in the vicinity of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Geological Survey of Ireland- online mapping (GSI, 2025).
- GSI - Geological Heritage Sites & Sites of Special Scientific Interest.
- Ordnance Survey of Ireland (OSI).
- Teagasc subsoil database.
- National Parks and Wildlife services (NPWS, 2025).
- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area.
- River Basin Management Plan for Ireland 2018-2021.
- River Basin Management Plan for Ireland 2022-2027.
- South Dublin County Development Plan 2022-2028.
- Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024).
- 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).

Site specific data was derived from the following sources:

- Gas Networks Ireland - Gas to Milltown Pipeline Construction Methodology (Fingleton White, September 2025).
- Various design site plans and drawings, as submitted with this planning application.
- Consultation with design and engineers.
- Outline Construction Environmental Management Plan (AWN, 2025).

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.
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment.

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 in November 2025). From the source of information, the WFD Status classification and Risk scores were obtained for the identified water bodies.

1.4 Site Setting and WFD General Screening

AWN Consulting Limited (AWN) has prepared this Water Framework Directive (WFD) Assessment report on behalf of Gas Networks Ireland for a proposed development i.e. the Proposed Gas to Milltown Pipeline in the Grangecastle area, Clondalkin, Dublin 22.

According to EPA mapping, the Proposed Gas to Milltown Pipeline is located within the Liffey and Dublin Bay Catchment (Sub-Catchment: Liffey_SC_090) and falls under Hydrometric Area No. 09 of the Irish River Network. It lies within the Cammock (Camac River) and Liffey Water Management Unit (WMU), which forms part of the River Liffey Catchment.

This WFD Screening has identified one (1) no. WFD river waterbody and one (1) no. WFD groundwater body of potential relevance due to the proximity and potential connection of these waterbodies during construction of the Proposed Gas to Milltown Pipeline.

The Grand Canal pNHA (Site Code: 002104) is located c. 1 km to the north of the Proposed Gas to Milltown Pipeline. However, the canal is fully lined and there is no hydrological connection with this water body. Therefore, it was not considered during this WFD Screening.

The potential water bodies are listed in Table 1-1 below which also presents the most recent WFD Status and Risk Score for these waterbodies.

Table 1-1. Current WFD Status and Risk Score of the relevant waterbodies

Waterbody Name / EU Code	Type	EPA Name(s)	WFD Status (2019-2024)	3rd Cycle Risk Score	Location
Liffey_170 (IE_EA_09L012100)	River(s)	Griffeen River	Poor	At Risk	On Site
		Baldonnelll Stream			
Dublin Groundwater Body (GWB) (IE_EA_G_008)	Groundwater	Dublin Groundwater Body	Good	Under 'Review'	Underlying

1.5 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 WFD was transposed into Irish law by the European Communities (Water Policy) regulations 2003 (S.I. No 722 of 2003). The WFD requires that EU Member States achieve at least "Good" status for all water bodies by the year of 2027 at the latest. Additionally, where Member States assign "High" status objectives to water bodies, the "High" status must be achieved or maintained by 2027.

The concept of 'deterioration of the status' of a body of surface water in Article 4(1)(a)(i) of Directive 2000/60 is 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 the WFD implementation process the EPA completes a risk assessment and the outcomes are implemented through River Basin Management Plans (RBMPs) in six-year cycles. Ireland is currently in WFD third cycle 2022-2027 i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024). Waterbodies are either "At Risk" or "Not at Risk" of meeting WFD environmental objectives. Where a waterbody is "At Risk", the EPA determines the significant pressures that are placing the water body at risk of meeting its status objective. This determination focuses the Programme of Measures for the relevant sub catchment(s).

The primary aim of the RBMP is that water bodies identified as being 'At Risk' of not achieving their WFD environmental objectives need to have targeted measures implemented to achieve objectives under this Plan. The EPA determines the significant pressures that are placing the water body at risk of meeting its status objective. This determination focuses the programme of Measures for the relevant sub catchment(s).

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.

1.6 Methodology

This WFD assessment is based on desktop review of the Environmental Protection Agency (EPA) dataset which was obtained from the portal www.catchments.ie (accessed in November 2025).

The water bodies identified for this assessment are related to the vicinity of the Proposed Gas to Milltown Pipeline and its potential indirect and direct hydrological or hydrogeological connection during the construction of the proposed trenchless crossing beneath the Griffeen River and crossing above the culverted section of the Baldonnell Stream. From the aforementioned source of information, the WFD Status classification, and Risk score were obtained for the identified water bodies and are presented in Table 1-1 above.

Besides the status classification of water bodies, the WFD also requires that 'designated sites' meet their environmental requirements and conservation objectives. Designated sites are Natura 2000 sites (Special Areas of Conservation, SACs, with water-dependent habitats, and Special Protection Areas for species listed in the EU Habitats Directive); drinking water protected areas; bathing waters; shellfish waters; salmonid waters; and nutrient sensitive waters. Environmental requirements and conservation objectives for designated sites are stipulated in existing regulations or are being developed by the relevant public bodies (e.g., National Parks and Wildlife Service for SACs).

1.6.1 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.

1.6.2 WFD Water Body Status

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

1.6.3 Surface Water No Deterioration Assessment

Table 1-2 below presents the matrix used to assess the effect of the Proposed Gas to Milltown Pipeline 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 1-2 is applied to the 'No Deterioration Assessment' spreadsheet provided in Appendix B of this report.

Table 1-2. 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

Effect	Description/ Criteria	Outcome
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.

1.6.4 Groundwater No Deterioration Assessment

Table 1-3 below presents the matrix used to assess the effect of the Proposed Gas to Milltown Pipeline 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 1-3 is applied to the final 'No Deterioration Assessment' spreadsheet in Appendix B of this report.

Table 1-3. 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.

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 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

1.6.5 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 and chemical potential of a surface water body and the mitigation measures stated in the River Basin Management plans that defined the ecological and chemical 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 3rd Cycle RBMP 2022-2027 i.e. Water Action Plan 2024. The assessment considers whether the proposed Gas to Milltown Pipeline has the potential to prevent the implementation or impact the effectiveness of the defined measures in these plans.

2. DESCRIPTION OF HYDROLOGICAL AND HYDROGEOLOGICAL ENVIRONMENT

2.1 Hydrology

2.1.1 Regional and Local Hydrological Environment

The site is located within the former 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). The proposed development site is located in the Eastern River Basin District (ERBD) and the Liffey and Dublin Bay WMU (Water Management Unit).

According to EPA mapping, the proposed Gas to Milltown Pipeline is located within the Liffey and Dublin Bay Catchment (Sub-Catchment: Liffey_SC_090) and falls under Hydrometric Area No. 09 of the Irish River Network.

The EPA Water Features Database (2025) identifies two named watercourses intersecting the proposed pipeline route: the Baldonnell Stream (EPA Code: IE_EA_09L012100) and the Griffeen River (EPA Code: IE_EA_09L012100), both belonging to the Liffey_170 WFD surface waterbody.

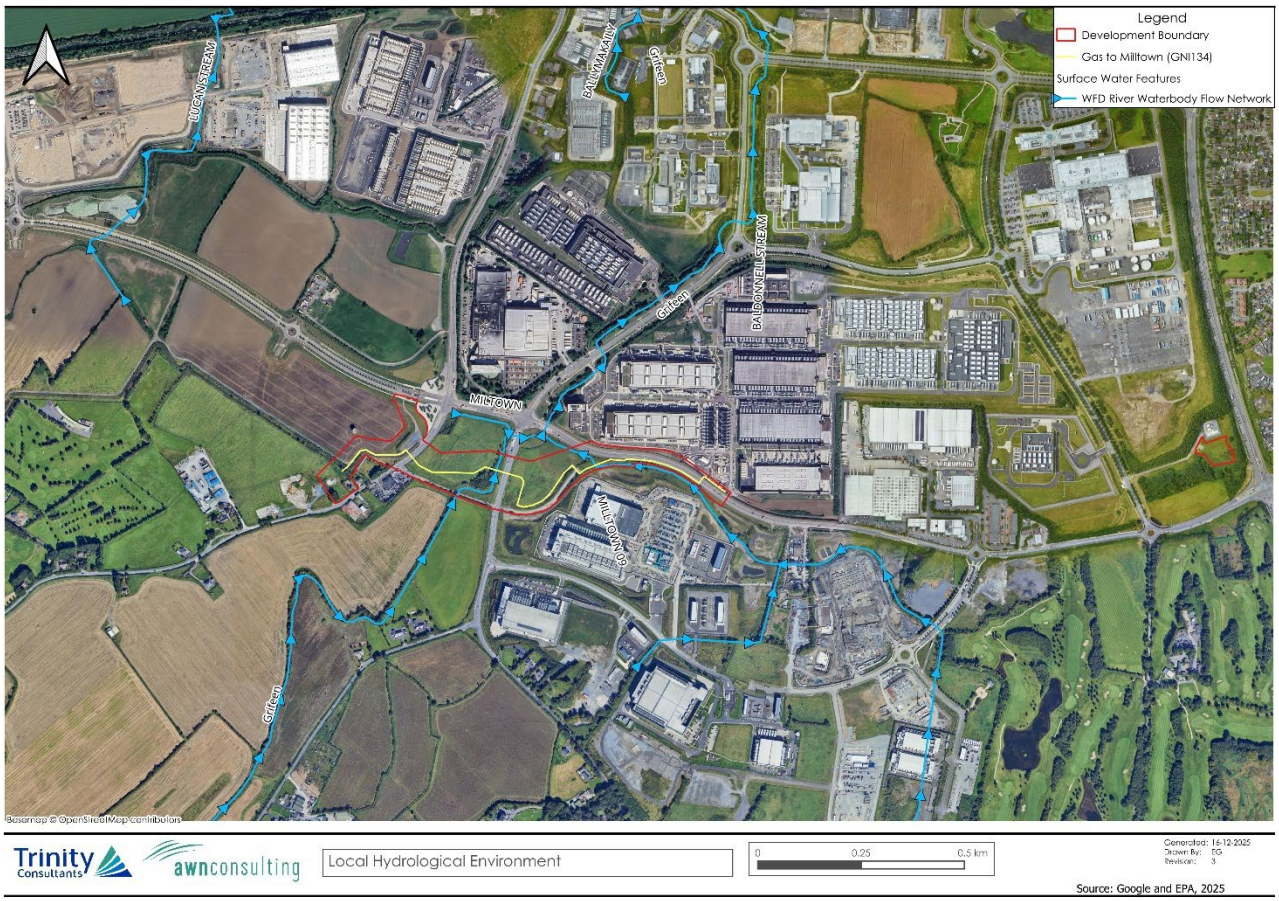
The Baldonnell Stream, located near Nangor Road in the southern section of the route, has been extensively modified by development within Grange Castle Business Park. Its current alignment comprises engineered channels, culverts, and piped sections, particularly at road and infrastructure crossings. The stream flows north through Profile Park, then west along the southern side of Nangor Road before joining the Griffeen River near the Baldonnel/Nangor Road (R134) junction. The Baldonnell Stream's reconstructed channel originates near Grange Castle Golf Club, runs north through Profile Park, and then west parallel to Nangor Road (R134), where it passes through a piped section before merging with the Griffeen River. This realignment was implemented as part of the Adamstown Road (R120) and Nangor Road (R134) Improvement Scheme in the late 2010s.

Similarly, the Griffeen River has undergone both historic and more recent realignments, including modifications associated with the former mill at Milltown and other anthropogenic works. Its current course includes engineered sections and diversions reflecting these historical and modern interventions. From the point where it intersects the proposed Gas to Milltown Pipeline, the Griffeen River flows northwards before discharging into the River Liffey approximately 4.3 km north / 5.2 river km downstream of the proposed Gas to Milltown Pipeline. Other contributary streams of the Griffeen River to the north of the proposed Gas to Milltown Pipeline include the Miltown Stream (EPA Code: IE_EA_09L012100).

The Grand Canal pNHA (Site Code: 002104) is located c. 1 km to the north of the Proposed Gas to Milltown Pipeline. However, the canal is fully lined and there is no hydrological connection with this water body. Therefore, it was not considered during this WFD Screening.

Refer to Figure 2-1 below for the site location and regional hydrological environment as per the latest EPA mapping.

Figure 2-1. Site Location Map with Local Hydrological Environment



2.1.2 Surface Water Quality

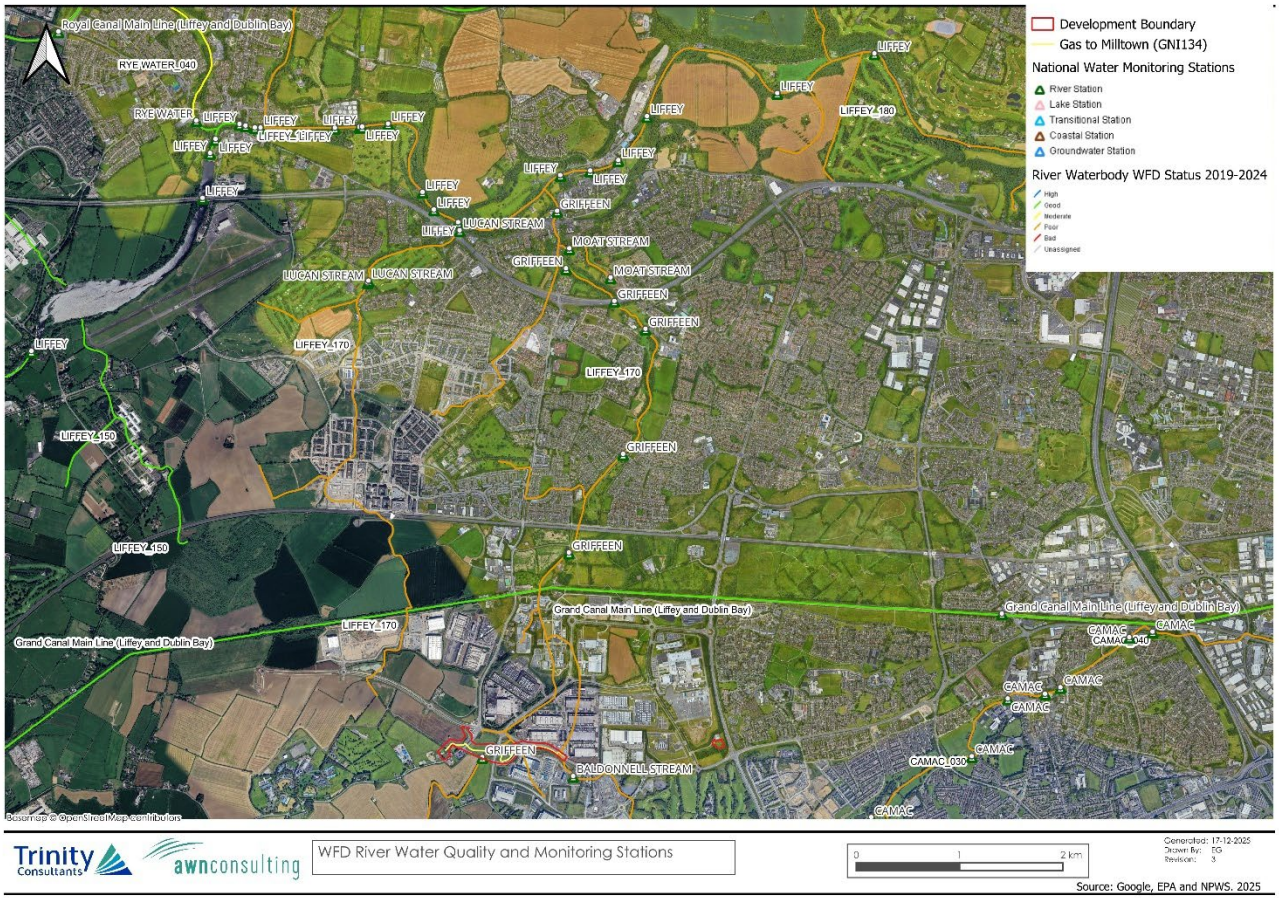
The Environmental Protection Agency (EPA, 2025) on-line mapping presents the available water quality status information for water bodies in Ireland. The Liffey_170 i.e. the Baldonnelll Stream and Griffeen River has a WFD status (2019-2024) of 'Poor' and a WFD risk score of 'At Risk' of not achieving good status.

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 – Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

In relation to the Proposed Gas to Milltown Pipeline, the nearest (active) surface waterbody EPA monitoring station is 'Griffeen – In Lucan Village (Gauging Station)' located c. 4 km north of the Proposed Gas to Milltown Pipeline in the lower section of the Griffeen River before discharging to the River Liffey. The water quality at this station was classified by the EPA as Q3 – 'Poor', based on data obtained in 2022. This 'Poor' status is in relation to the waterbodies Ecological Status or Potential.

Error! Reference source not found. below illustrates the regional hydrological setting in the context of the most recent Water Framework Directive (WFD) river waterbody status assessment for the 2019 - 2024 cycle period and EPA Q Value monitoring stations.

Figure 2-2. Surface Waterbody Status (WFD: 2019-2024) and EPA River Monitoring Stations (EPA, 2025)



2.1.3 Areas of Conservation

The NPWS (2025) online database was reviewed to identify areas of conservation in proximity to the proposed development. No Special Protection Areas (SPAs) designated under the EU Birds Directive (79/409/EEC) or Special Areas of Conservation (SACs) designated under the Habitats Directive occur within or along the boundary of the Proposed Gas to Milltown Pipeline.

The nearest Natura 2000 site is the Rye Water Valley/Carton SAC (Site Code: 001398), located approximately 5 km northwest of the Proposed Gas to Milltown Pipeline within the Rye Water river waterbody. At a broader regional scale, Natura 2000 sites associated with the Liffey Estuary Lower, Tolka Estuary transitional waterbodies, and Dublin Bay coastal waterbody include:

- South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024).
- South Dublin Bay SAC (Site Code: 000210).
- North Dublin Bay SAC (Site Code: 000206).

These sites are situated approximately 16 km east/north-east of the Proposed Gas to Milltown Pipeline. The proposed works are unlikely to have a hydrological connection to these SACs or SPAs due to the nature of the development involving no hydrological interaction with the Griffeen River and Baldonnell Stream, combined with the significant separation distance and lack of direct hydrological linkages.

2.1.4 Bathing Waters and Recreational Waterbodies

A review of the Environmental Protection Agency's (EPA) online mapping that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no

Recreational Waters or Bathing Waterbodies located in the vicinity of the proposed Gas to Milltown Pipeline in the Liffey_170 WFD surface waterbody i.e. the Griffeen River or Baldonnell Stream or further downstream within the Liffey_180 and Liffey_190 WFD surface waterbodies i.e. the River Liffey and the Liffey Estuary Upper and Lower transitional waterbodies.

2.1.5 Water Supplies

A review of the Environmental Protection Agency's (EPA) online mapping, which includes the Register of Protected Areas (RPA) established under the Water Framework Directive (WFD), indicates the Liffey_170 WFD surface waterbody is not located within a designated Surface Water Drinking RPA.

This classification of drinking water river lines has been delineated in accordance with the European Communities (Drinking Water) (No. 2) Regulations 2007 (SI No. 278/2007). This regulatory framework aims to ensure the protection of water resources utilised for human consumption, thus safeguarding public health and the environment.

2.2 Hydrogeology

2.2.1 Regional Groundwater Quality

As mentioned above, the groundwater body in the region of the site (Dublin GWB - European Code: IE_EA_G_008) for which the Proposed Gas to Milltown Pipeline is located entirely within, has a WFD status of 'Good' (WFD Period: 2019-2024) and the WFD risk score (3rd Cycle) is currently under 'Review'. This status reflects both quantitative and chemical groundwater conditions.

2.2.2 Aquifer Classification and 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).

Reference to the GSI Bedrock Geology mapping indicates that the Proposed Gas to Milltown Pipeline is underlain by the Lucan Formation (Code: CDLUCN), which consists primarily of dark limestone and shale. These deposits belong to the Visean stage of the Carboniferous period (Mississippian age) within the Palaeozoic era.

The underlying bedrock geology at the site has been classified by the GSI as a 'Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones (LI)'. This aquifer is capable of supplying locally important supplies (e.g., smaller public water supplies, group schemes).

Figure 2-3 below presents the current bedrock aquifer map for the region.

Figure 2-3. Aquifer Classification (GSI, 2025)

Groundwater vulnerability is an indication of how easily the aquifer can become contaminated by human activity. It is dependent on the thickness and permeability of the overlying soils and depth to the water table. For example, a bedrock aquifer with minimal thickness of overburden or with a thin layer of permeable overburden will be more vulnerable to contamination than a bedrock aquifer which has a thick layer of low permeability overburden. Extreme groundwater vulnerability is also associated with karst landforms as these are a direct pathway for water and contaminants to enter the aquifer from the surface.

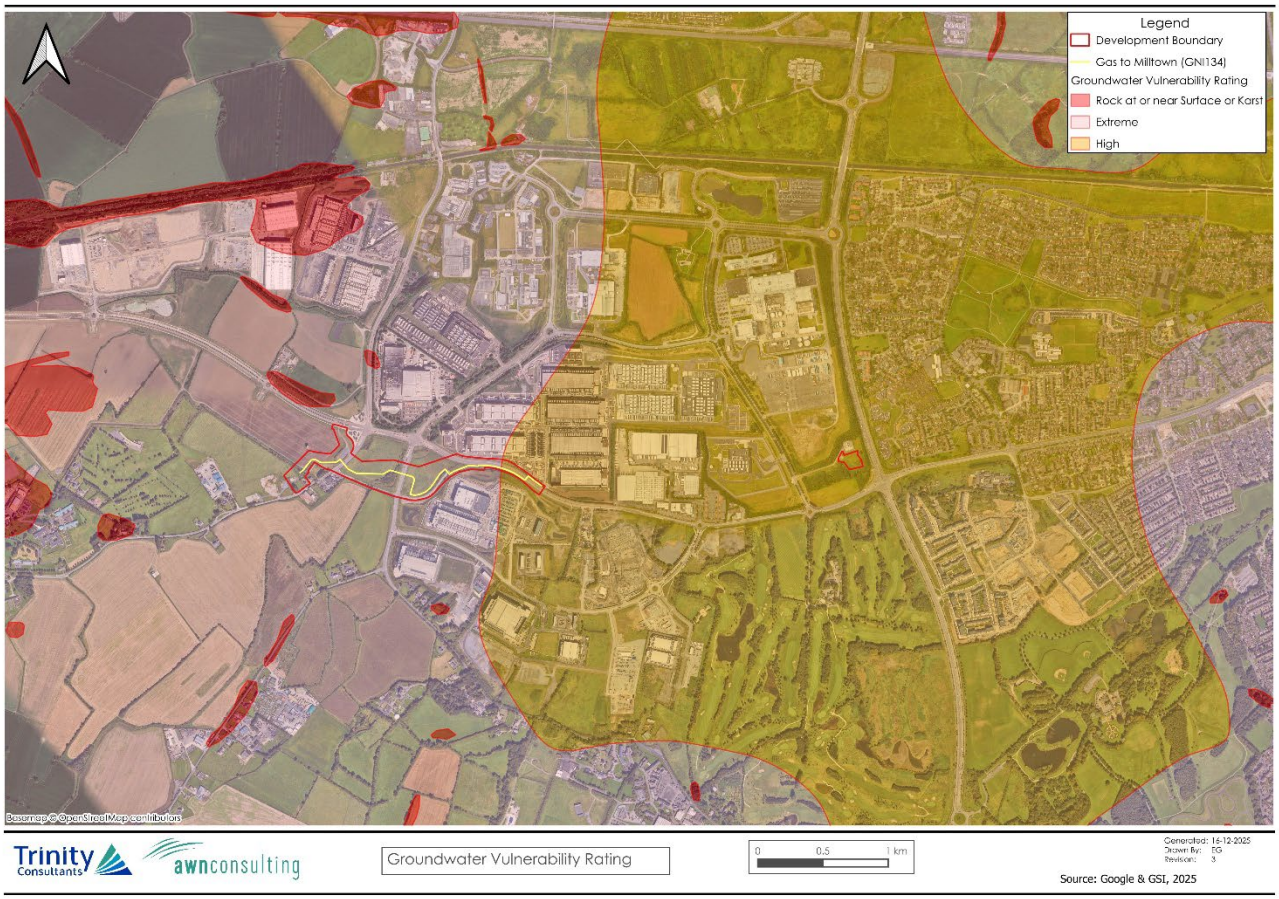
The GSI (2025) mapping indicates that the majority of the Proposed Gas to Milltown Pipeline route is classified as having 'Extreme' groundwater vulnerability, with the easternmost section mapped as 'High' vulnerability. These classifications correspond to indicative overburden depths of approximately 0–3 m and 3–5 m, respectively. However, given that much of the route lies within the developed lands of Grange Castle Business Park along Nangor Road, where significant made ground is present, these vulnerability ratings are likely conservative and actual vulnerability may be considerably lower. Groundwater vulnerability is determined by the thickness and permeability of subsoils overlying the bedrock aquifer. Considering the depth of overburden along most of the pipeline route and the subsurface nature of the proposed works, local groundwater is not considered a sensitive receptor in this context.

The recent ground investigation (Causeway Geotech, August 2025; Report Ref: 25-0780) confirms that subsoil depths along the route generally range from 3.0 m to 4.0 m, with bedrock encountered at these depths. The subsoil consists primarily of glacial till (sandy gravelly clay), which is of low permeability, and made ground in developed areas. These findings suggest that actual groundwater vulnerability is lower than indicated by GSI mapping, as the presence of cohesive glacial till and made ground provides additional protection to the underlying aquifer. In addition, groundwater was not noted during drilling at any of the other exploratory hole locations.

Refer to Appendix 5.2 – Grangecastle Pipeline Ground Investigation Report (CGL, 2025) of the EIA for further information on the site-specific ground conditions encountered.

Refer to Figure 2-4 below for the aquifer vulnerability in the context of the proposed Gas to Milltown Pipeline.

Figure 2-4. Groundwater Vulnerability (GSI, 2025)



2.2.3 Groundwater Supply

There are no recorded Public Supply Source Protection Area or Group Scheme Preliminary Source Protection Areas in the vicinity of the Proposed Gas to Milltown Pipeline.

The nearest Group Scheme Preliminary Source Protection area is Kilteel GWS located c. 9 km south of the Proposed Gas to Milltown Pipeline. The nearest Public Supply Source Protection area is Dunboyne PWS located c. 11.2 km to the north. Neither of these areas share a hydrological or hydrogeological connection to the site.

3. WATERBODIES IDENTIFICATION AND STATUS

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 or at least by 2027, 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.

As outlined in Section 1.4, this WFD Screening has identified one WFD river waterbody (Liffey_170) and one WFD groundwater body (Dublin GWB) as potentially relevant due to their proximity and possible hydrological/hydrogeological connection during construction of the proposed Gas to Milltown Pipeline.

***Note**: Surface waterbodies located further downstream of the Liffey_170 WFD surface waterbody i.e. the Liffey_180, the Liffey_190, the Liffey Estuary Upper transitional waterbody, the Liffey Estuary Lower transitional waterbody and Dublin Bay coastal waterbody and the associated Natura 2000 sites located herein have been excluded from this assessment. This exclusion is justified by the nature of the proposed Gas to Milltown Pipeline, which will be entirely subsurface during operation, combined with the use of trenchless crossing techniques at the Griffeen River (c. 3.5 m below riverbed) and a minimum separation distance of 500 mm above the piped section of Baldonnelll Stream. Furthermore, the significant downstream distance and associated hydrological dilution along the pathway ensure that the proposed development will not exert any measurable impact on these waterbodies.*

The proposed Gas to Milltown Pipeline lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Liffey_SC_090 Sub-Catchment (Sub-Catchment ID: 09-15). According to the EPA Water Features Database (2025), two named watercourses intersect the pipeline route: the Baldonnelll Stream (EPA Code: IE_EA_09L012100) and the Griffeen River (EPA Code: IE_EA_09L012100), both forming part of the Liffey_170 WFD surface waterbody.

The Liffey_170 is classified as having a 'Poor' status for the WFD period 2019–2024, with a current risk score 'At Risk' of not achieving good status for the 3rd Cycle i.e. by 2027. This 'Poor' status reflects its Ecological Status or Potential. The main pressures on Liffey_170 are associated with urban run-off and diffuse urban wastewater sources, as reported in the WFD Cycle 2 Sub-Catchment Assessment (EPA, 2018). These findings are consistent with the Cycle 3 Liffey and Dublin Bay Catchment Report (HA09, EPA, May 2024), which highlights ongoing concerns about nutrient enrichment and hydromorphological alterations.

The 2nd Cycle River Basin Management Plan (RBMP) 2018–2021 identified the Liffey catchment, including Liffey_170, as an Area for Action, prioritising measures to address water quality risks. The draft 3rd Cycle RBMP (2022–2027) continues to highlight the Liffey catchment for restoration measures, reflecting persistent pressures from urbanisation and diffuse pollution.

The groundwater body underlying the proposed Gas to Milltown Pipeline, Dublin GWB (European Code: IE_EA_G_008), is classified as having a 'Good' status for the WFD period 2019–2024, with a current risk score under 'Review' for the 3rd Cycle. This status reflects both quantitative and chemical groundwater conditions.

The proposed Gas to Milltown Pipeline works will involve crossing beneath and above the Liffey-170 WFD surface waterbody i.e. the proposed trenchless crossing beneath the Griffeen River and the proposed crossing above the culverted section of the Baldonnelll Stream. To minimise environmental impact and maintain river integrity, trenchless techniques are proposed for the crossing at the Griffeen River (RVX 01)

(c. 3.5 m below riverbed), and a minimum separation distance from the culvert of 500mm will be maintained at the piped section of the Baldonnell Stream (WCX 01).

As stated above, the Liffey_170 i.e. the Baldonnell Stream and Griffeen River has a WFD status (2019-2024) of 'Poor' and a WFD risk score of 'At Risk' of not achieving good status, meaning it has not achieved its objectives, and the overall status is considered 'Poor'. It is failing to achieve good status in Ecological Status or Potential.

Figure 3-1 and Figure 3-2 below summarise the water quality of the aforementioned WFD surface water and groundwater bodies.

Figure 3-1. Water Quality for Liffey_170 WFD Surface Waterbody (EPA, 2025)

Waterbody: LIFFEY_170

Name:	LIFFEY_170	Code:	IE_EA_09L012100
Subcatchments:	09_1 Liffey_SC_100 09_15 Liffey_SC_090	Catchments:	09 Liffey and Dublin Bay
Latitude:	53.3078356	Longitude:	-6.477091
Cycle 1 RBD:	Eastern	Local Authority:	South Dublin County Council
Waterbody Category:	River	WFD Risk:	At risk
Protected Area:	Yes	High Status Objective:	No
Heavily Modified:	Unknown	Artificial:	Unknown
Area (Km^2):	N/A	Length (Km):	43.04
Transboundary:	No	Canal:	No

SW 2019-2024

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	medium confidence	Poor
▾ Biological Status or Potential			Poor
▾ Other Aquatic Flora Status or Potential			Moderate
Phytobenthos Status or Potential			Moderate
Invertebrate Status or Potential			Poor
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			Moderate
Nitrate			Moderate
Ammonium			High
▾ Phosphorous Conditions			High
Orthophosphate			High
Specific Pollutant Conditions			Pass

Figure 3-2. Water Quality for the Dublin Ground Waterbody (EPA, 2025)

Waterbody: Dublin

Name:	Dublin	Code:	IE_EA_G_008
Catchments:	07 Boyne 08 Nanny-Delvin 09 Liffey and Dublin Bay 14 Barrow		
Latitude:	-6.4891473	Longitude:	53.3593898
Cycle 1 RBD:	Eastern	Local Authority:	South Dublin County Council
Waterbody Category:	Groundwater	WFD Risk:	Review
Protected Area:	N/A	High Status Objective:	No
Heavily Modified:	N/A	Artificial:	N/A
Area (Km^2):	N/A	Length (Km):	N/A
Transboundary:	No	Canal:	No
Chemistry Data:	Download		

GW 2019-2024

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

4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

The purpose of this section is to provide an overview of the key relevant details of the construction phase and operational phase of the proposed Gas to Milltown Pipeline. The information presented in this section is informed by the project design, but it is not a complete description of the proposed Gas to Milltown Pipeline. Therefore, it should be read in conjunction with the full development package. For a more comprehensive understanding of the proposed development, refer to Chapter 2 – Description of Proposed Development of the EIA.

4.1 Construction Phase

The activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the hydrological and hydrogeological environment. These activities primarily pertain to the site preparation activities required to facilitate construction of the proposed Gas to Milltown

The excavation of bedrock, topsoil, subsoil, stones, tarmac and hardcore will be required for the installation of the proposed Gas to Milltown Pipeline. Based on the site investigation conducted by CGL (2025), the anticipated depth to bedrock ranges between approximately 3.0 m below ground level (mbgl) and 4.0 mbgl.

Project engineers estimate approximately 9,850m^3 of topsoil and 1740m^3 to 1305 m^3 of subsoil will be excavated for the pipeline installation, including minor shallow bedrock removal.

The proposed pipeline will cross beneath the Griffeen River using trenchless methods, requiring a launch pit and reception pit on either side of each crossing. The trenchless crossing of the Griffeen River will be installed at an approximate depth of 3.5 m below the Griffeen riverbed, ensuring compliance with I.S. 328.

The pipeline will also cross over a piped section of the Baldonnell Stream (WCX 01) near the junction of Baldonnel Road and Nangor Road (R134). At this location, the Baldonnell Stream is fully contained within a concrete culvert situated approximately 2.4–2.5 m below ground level. Details of this crossing are illustrated in Drawing Ref: 1587-DG-PLG-0014. This Baldonnell Stream crossing (WCX 01) will follow a typical third-party service crossing, whereby the pipeline will be installed to avoid interaction with the existing underground service. Given the minimum depth of cover required (1200 mm to the top of the pipe) the pipeline will be constructed to pass over this Baldonnell Stream piped section. A minimum separation distance of 500mm will be maintained between the pipeline and the Baldonnell Stream pipe.

Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

All plant, machinery and equipment will be stored on site within the works area or within the temporary construction compounds (refer to Chapter 2 – Description of Development for further details). Oils and fuels will not be stored on site and will be stored in an appropriately bunded area within the temporary storage compound.

During the commissioning phase, the transmission pipeline will be hydrostatically tested by filling it with approximately 166,000 litres of clean potable water sourced from the mains supply via a hydrant or other established connection. This water will be pressurised to identify leaks, with no chemical additives used. Following testing, the water will be discharged to the existing stormwater network or, if contaminated, to the foul sewer network leading to Ringsend Wastewater Treatment Plant, subject to compliance with discharge regulations and agreement with South Dublin County Council (SDCC) or Irish Water / Uisce Éireann. Alternatively, water may be removed via tankering.

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;
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board);
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA 2008);
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment; and
- CIRIA 697 (2007), The SUDS Manual; and UK Pollution Prevention Guidelines, (PPG) UK Environment Agency, 2004.

4.2 Operational Phase

During the operational phase of the proposed Gas to Milltown Pipeline there are limited interaction with the hydrological and hydrogeological environment due to:

- The proposed Gas to Milltown Pipeline will not alter the existing hardstanding areas that it will run beneath (all trenches established across roads to facilitate the proposed pipeline will be fully reinstated).
- The pipeline will not result in any new hardstanding or surface water generation;
- There will be no additional attenuation or stormwater management required;
- The proposed underground transmission gas pipeline does not require an operational water supply, or wastewater demand.

5. 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.

The proposed Gas to Milltown Pipeline is located in the Eastern River Basin District (ERBD) and the Liffey and Dublin Bay WMU (Water Management Unit). The proposed Gas to Milltown Pipeline lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Liffey_SC_090 Sub-Catchment (Sub-Catchment ID: 09-15).

As stated in Section 0 above, the site is underlain by the Dublin Groundwater Body (GWB) (European Code: IE_EA_G_008), which has been investigated by the GSI and is described as a 'Locally Important Aquifer'. The majority of groundwater flow in this aquifer will occur in the top few metres, through the weathered zone in a lateral direction towards rivers and springs, as well as through, joints and fractures, rather than through the rock mass.

Table 5-1 below describes the S-P-R model for the proposed Gas to Milltown Pipeline and includes the robust mitigation and design measures which will be incorporated into the proposed Gas to Milltown Pipeline throughout the construction phases.

Table 5-1. Pollutant Linkage (S-P-R) Assessment

Source	Pathway	Receptor	Risk of Impact	Mitigation/Design Measures
Construction Impacts (summary)				
Unmitigated leak from an oil tank to ground/ unmitigated leak from construction vehicle (1,000 litres worst case scenario). Unmitigated leak of foul water from temporary welfare facilities. Discharge to ground of runoff water with: • High pH from cement process. • Hydrocarbons from construction vehicles. • Run-off containing a high concentration of contaminated suspended solids.	Bedrock protected by 0-3m and 3-5m well drained and poorly drained overburden (Glacial Tills), respectively. Migration within weathered/ less competent limestone is low (limestone has discrete local fracturing rather than large, connected fractures). Direct pathway to Grifeen River during construction of launch shaft and reception pit.	Limestone bedrock aquifer (Locally Important aquifer) i.e. Dublin GWB. Hydrological environment (Liffey_170 WFD surface waterbody i.e. Griffeen River & Baldonnell Stream).	Low risk of migration through poorly connected fracturing within the limestone (Locally Important Aquifer) rock mass. No likely impact on the status of the WFD groundwater body, due to low potential loading, natural retention and dispersion in the grounds, natural attenuation within glacial tills and discrete nature of fracturing reducing off site migration. No likely impact on the status of the aquifer or hydrological environment oroff site migration due to the mitigation measures outlined in the OCEMP.	The project-specific OCEMP will include robust mitigation measures, to protect the underlying hydrogeological environment and surrounding hydrological. 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 Gas to Milltown Pipeline. These include management of soils, sediment run-off, re-fuelling machinery and chemical handling, control of water and minimum setback for materials storage of >20m during the construction phase.

Source	Pathway	Receptor	Risk of Impact	Mitigation/Design Measures
			Potential for local temporary exceedances of statutory water quality standards at outfall. However, no perceptible risk of deterioration of WFD Status in the Liffey_170 WFD surface waterbody based on proposed trenchless crossing methodology on Griffeen River (c. 3.5m below riverbed) & open cut crossing above Baldonnelll Stream (c. 500mm minimum separation distance)	

Operational Impacts (summary)

N/A.

The proposed Gas to Milltown Pipeline will not alter the existing hardstanding areas that it will run beneath (all trenches established across roads to facilitate the proposed pipeline will be fully reinstated). The pipeline will not result in any new hardstanding or surface water generation;

The proposed Gas to Milltown Pipeline will be installed with an approximate cover depth of 3.5 m below the Griffeen River riverbed and a minimum separation distance of 500mm will be maintained between the pipeline and the Baldonnell Stream piped section. This ensures no interactions with the hydrological environment occur.

There will be no attenuation or stormwater management required;

The proposed underground transmission gas pipeline does not require an operational water supply, or wastewater demand.

6. NO-DETERIORATION ASSESSMENT

6.1 Hydrological Environment

The proposed development site is located within the Liffey and Dublin Bay Catchment (Sub-Catchment: Liffey_SC_090) and falls under Hydrometric Area No. 09 of the Irish River Network. According to the EPA Water Features Database (2025), two named watercourses intersect the proposed pipeline route: the Baldonnelll Stream (EPA Code: IE_EA_09L012100) and the Griffeen River (EPA Code: IE_EA_09L012100). Both watercourses form part of the Liffey_170 WFD surface waterbody.

To protect water quality and maintain river integrity, trenchless construction techniques will be employed for the crossing beneath the Griffeen River (RVX 01), and crossing at Baldonnell Stream (WCX 01) will occour at an existing culvert. Consequently, the proposed development will have no direct or indirect hydrological connection with any surface waterbody.

The proposed Gas to Milltown Pipeline will be installed beneath any existing hardstanding areas, and all trenches created across roads will be fully reinstated, ensuring no permanent alteration of surface conditions. The development will not introduce new hardstanding areas or generate additional surface water runoff. Therefore, no attenuation or stormwater management measures are required, and the pipeline does not require operational water supply or wastewater discharge.

Mitigation and design measures will be implemented during construction to safeguard the hydrological environment. While there is a potential for accidental discharges during construction, these would be temporary, short-lived events and will not affect long-term water quality status or trends. Dewatering may be required during construction. In the event this is required, water will be discharged into a vegetated area at least 20m from any watercourse. Water will be discharged via a silt bag and/or settlement tank. Silt fencing will surround the discharge area. Any dewatering discharge will be managed to prevent infiltration of sediment-laden water into groundwater. These measures ensure that groundwater quality and flow remain unaffected during construction. Therefore, there is no impact on quantitative aspects of waterbody status. The project-specific Outline Construction Environmental Management Plan (oCEMP) address risks of accidental spillages during construction that will be implemented by the construction contractor. There will be no diversions of drainage ditches or watercourses, and there is no direct hydrological connection to off-site waterbodies during construction. No dewatering is required during operation.

No impact on baseflow or hydrological regime is anticipated.

With the proposed mitigation measures and construction approach, the development will not cause deterioration in the status of any waterbody under the Water Framework Directive.

Overall, the potential effects on the WFD status to 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

Excavations will be required for the installation of the proposed Gas to Milltown Pipeline. This will involve the removal of bedrock, topsoil, subsoil, stones, tarmac, and hardcore to facilitate pipeline installation.

During construction, water will discharge to the existing stormwater network via the public roadway, and where necessary, a wastewater discharge licence will be obtained to manage direct discharge of contaminated surface water on site. This licence will permit the discharge of trade effluent arising from groundwater or surface water ingress within the construction area. If any exceedance of discharge permit conditions occurs, water will be transported to a licensed facility for disposal, with treatment and monitoring carried out off-site at a regional facility north of the project area.

During the commissioning phase, the transmission pipeline will be hydrostatically tested by filling it with of clean potable water sourced from the mains supply via a hydrant or other established connection. This water will be pressurised to identify leaks, with no chemical additives used. Following testing, the water will be discharged to the existing stormwater network or, if contaminated, to the foul sewer network leading to Ringsend Wastewater Treatment Plant, subject to compliance with discharge regulations and agreement with South Dublin County Council (SDCC) or Irish Water / Uisce Éireann. Alternatively, water may be removed via tankering.

Mitigation and design measures outlined in the Outline Construction Environmental Management Plan (OCEMP) will be implemented during construction to protect the hydrogeological environment. While there is a potential for accidental discharges during construction, these would be temporary and will not impact the long-term water status of the underlying bedrock aquifer due to the presence of existing hardstanding areas. Consequently, no deterioration in water quality trends or overall status assessment is anticipated.

De-watering may be required following periods of heavy rainfall. Dewatering may also be required during excavation works for the launch and reception pits either side of the Griffeen River. In the event this is required, water will be discharged into a vegetated area at least 20m from any watercourse. Water will be discharged via a silt bag and/or settlement tank or similar. Silt fencing will surround the discharge area. Any dewatering discharge will be managed to prevent infiltration of sediment-laden water into groundwater. These measures ensure that groundwater quality and flow remain unaffected during construction. Therefore, there will be no impact on the quantitative aspects of waterbody status. The project-specific OCEMP, prepared by the appointed contractor, will enforce strict mitigation measures to ensure the protection of the hydrogeological environment during construction. This will guarantee that there is no negative impact on either the quantitative or qualitative status of the underlying bedrock limestone aquifer (Dublin GWB).

For the operational phase, the risk to the aquifer is considered low. The proposed Gas to Milltown Pipeline will be installed beneath existing hardstanding areas, and all trenches created across roads will be fully reinstated, ensuring no permanent alteration of surface conditions. The development will not introduce new hardstanding areas or generate additional surface water runoff. Therefore, no attenuation or stormwater management measures are required, and the pipeline does not require operational water supply or wastewater discharge.

With the proposed mitigation measures and construction approach, the development will not result in any adverse impact on the hydrogeological environment or the status of the underlying aquifer.

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

6.3 Assessment in Terms of Future Good Status

The proposed Gas to Milltown Pipeline site is located within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Liffey_SC_090 Sub-Catchment (Sub-Catchment ID: 09-15). According to the EPA Water Features Database (2025), two named watercourses intersect the pipeline route: the Baldonnelll Stream (EPA Code: IE_EA_09L012100) and the Griffeen River (EPA Code: IE_EA_09L012100), both forming part of the Liffey_170 WFD surface waterbody.

The Liffey_170 waterbody is currently classified as having a 'Poor' status for the WFD period 2019–2024 and is assessed as 'At Risk' of not achieving Good Status by the end of the third cycle (2027). This classification reflects its Ecological Status or Potential, with primary pressures linked to urban runoff and diffuse urban wastewater sources, as identified in the WFD Cycle 2 Sub-Catchment Assessment (EPA, 2018). These findings are consistent with the Cycle 3 Liffey and Dublin Bay Catchment Report (HA09, EPA, May 2024), which highlights ongoing concerns regarding nutrient enrichment and hydromorphological alterations.

The Water Action Plan 2024 (River Basin Management Plan 2022–2027) confirms that the Liffey catchment—including waterbody Liffey_170—remains a designated priority for restoration and protection. The plan continues to identify persistent pressures from urbanisation and diffuse pollution, and emphasizes the application of targeted, catchment-specific actions to support the recovery of areas at risk. Specific measures include reducing nutrient inputs through improved stormwater and wastewater management, implementing Sustainable Drainage Systems (SuDS), restoring river morphology and riparian habitats, and enhancing monitoring to track progress toward achieving Good status by 2027. These actions reflect a targeted, catchment-based approach to address ecological and chemical status failures and support long-term water quality improvement.

The main contaminants associated with these pressures include suspended solids, metals, and pollutants linked to human activities. However, during construction there will be no direct hydrological pathways and good construction environmental practice will control all pollutants. During operation, the underground transmission gas pipeline will be installed beneath existing hardstanding areas, and all trenches created will be fully reinstated, ensuring no permanent alteration of surface conditions. The development will not introduce new hardstanding areas or generate additional surface water runoff. Consequently, no attenuation or stormwater management measures are required, and the pipeline does not require operational water supply or wastewater discharge.

The proposed Gas to Milltown Pipeline will not introduce any discharges or hydrological changes that could hinder catchment improvement measures or compromise the achievement of Good Status under the Water Framework Directive.

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 wastewater.
- Management of pollution from urban environments.
- Changes to natural flow and levels of water.
- Managing invasive non-native species.

Based on the above information it is not considered that any of the aspects of the proposed Gas to Milltown Pipeline will prevent the WFD objectives from being achieved or to meet the requirements and/or objectives in the draft third RBMP 2022-2027.

7. 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, is used in Appendix B – Table 1 and Table 2 to give a visual impression of the surface water and groundwater assessment, respectively.

The WFD assessment indicates that, based on the current understanding of the proposed Gas to Milltown Pipeline , there is no potential for adverse or minor temporary/ long-term or localised effects on the Liffey and Dublin Bay Catchment (Catchment ID: 09), the Liffey_SC_090 Sub-Catchment (Sub-Catchment ID: 09-15 or the Liffey_170 WFD surface waterbody i.e. the Baldonnell Stream and the Griffeen River (EPA Code: IE_EA_09L012100).

Therefore, it has been assessed that the proposed Gas to Milltown Pipeline 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 Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024).

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Dublin GWB (European Code: IE_EA_G_008). Therefore, it has been assessed that it is unlikely that the proposed Gas to Milltown Pipeline will cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in theWater Action Plan 2024 (River Basin Management Plan 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 Gas to Milltown Pipeline during construction and operation.

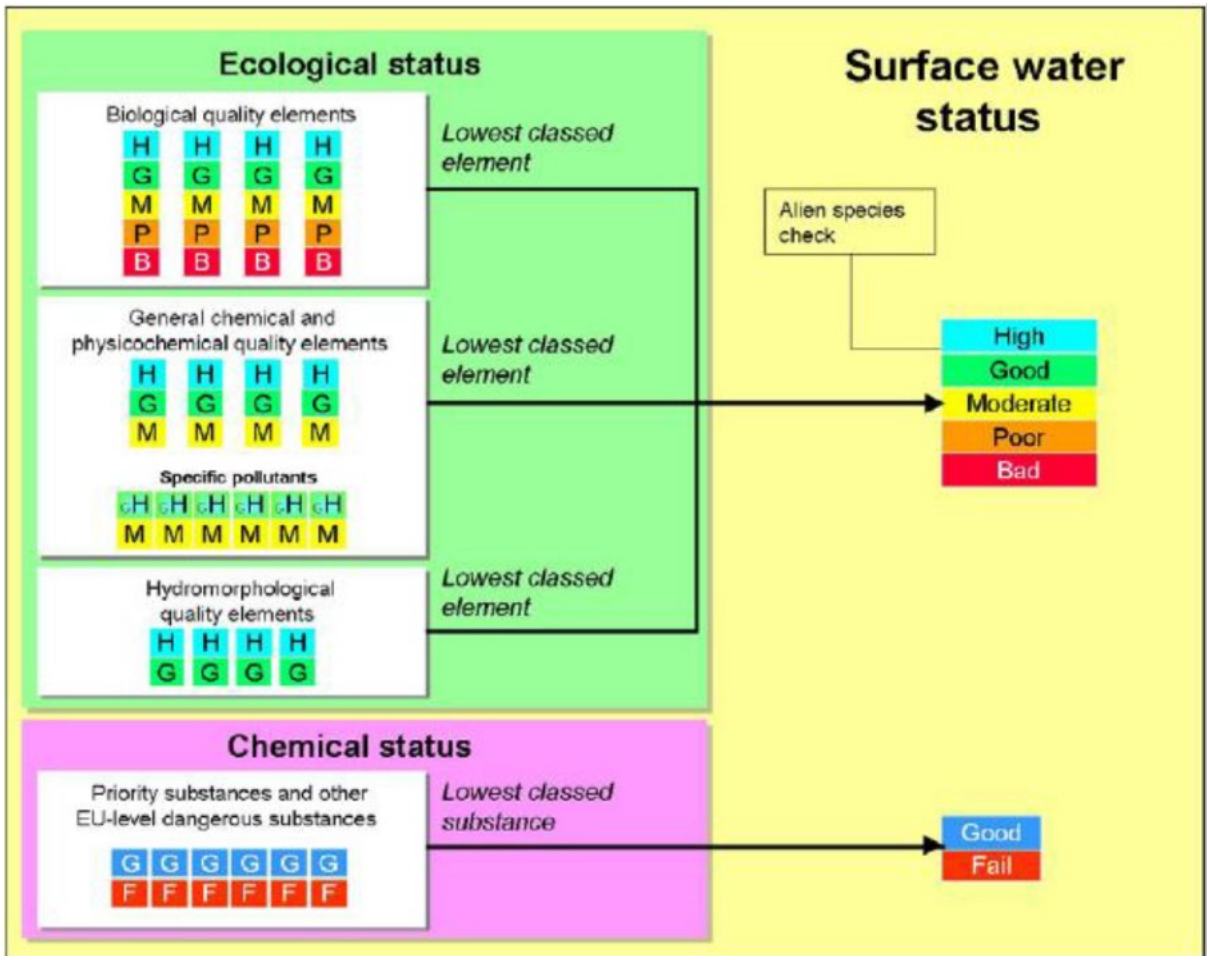
APPENDIX A. WFD ASSESSMENT MATRIX

WATER FRAMEWORK DIRECTIVE ASSESSMENT MATRIX

1.1 Background to Surface Water Body Status & Groundwater 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)



1.1.2 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.

1.1.3 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 waterbodies, 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.

1.2 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.

1.2.1 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.

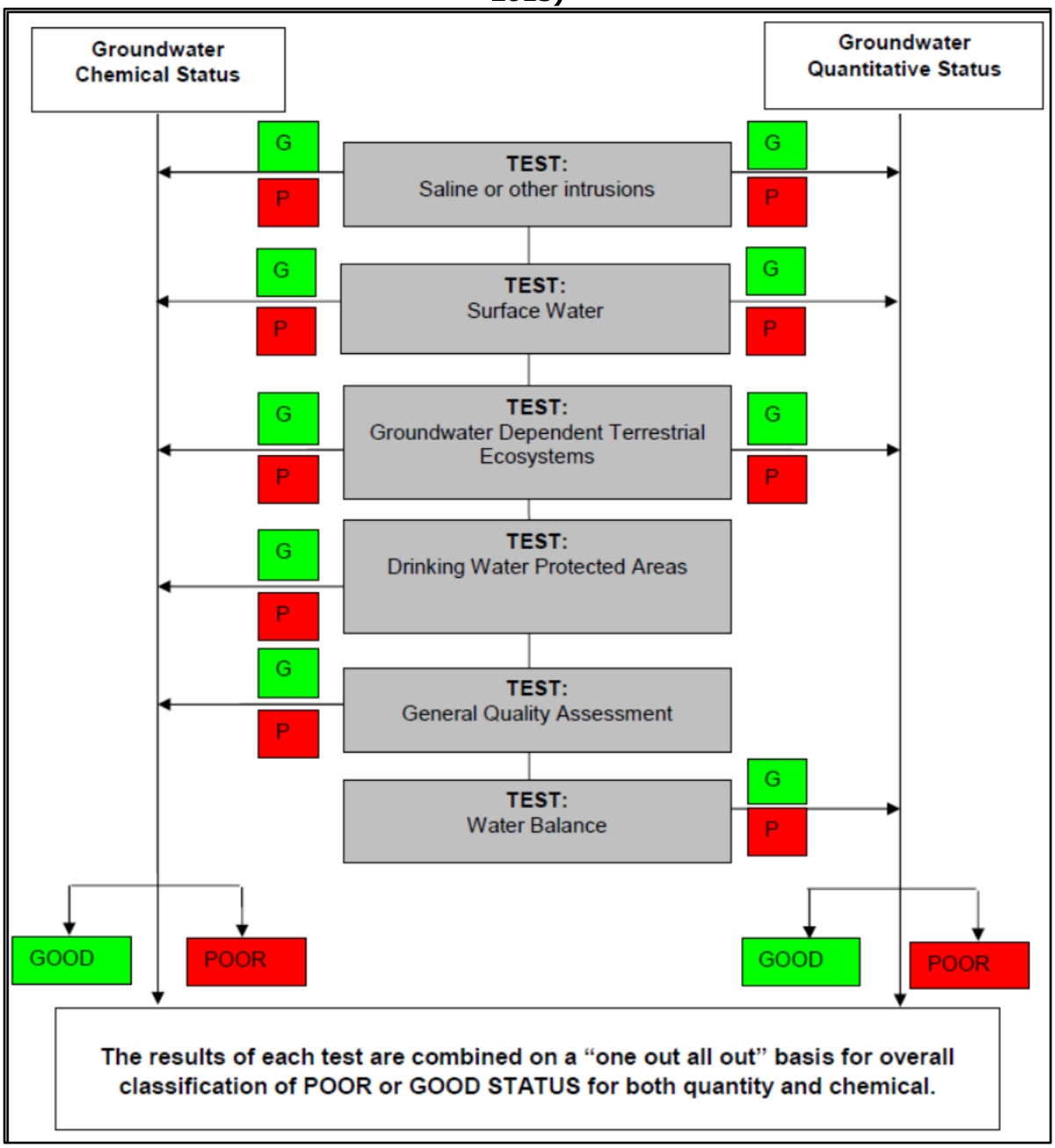
- **Groundwater Dependent Terrestrial Ecosystems (GWDTEs):** This test is designed to identify groundwater bodies where groundwater abstraction is leading to "significant damage" to associated GWDTEs (with respect to water quantity).
- **Water balance:** This test is designed to identify groundwater 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.

1.2.2 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.
- **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 (Environmental Agency, 2015)



APPENDIX B. NON-DETERIORATION ASSESSMENT

Risk screening of potential to cause deterioration of current WFD status									
	Groundwater	Scheme Elements	**Proposed Development**					Mitigation Measures	Overall Impact
	Dublin GWB (European Code: IE_EA_G_008)	Phase (Construction/ Operation)	Construction	Construction	Construction	Operation	Operation		
		Identified Quantitative Impacts	Increased run-off and sediment loading	Release of sediments, pollutants and construction material during Bridge	Pollution due to accidental discharges or spillages during the construction phase	Increase in Hardstanding	Storage of Fuel		
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.	No measurable change anticipated.	**Construction:** The project-specific OCEMP will include robust mitigation measures to protect the underlying hydrogeological environment. The OCEMP 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 outlined in the EIA Report 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. No signficant dewatering is required which could impact on quantitaive status. **Operation:** During operation, the underground transmission gas pipeline will be installed beneath existing hardstanding areas, and all trenches created across roads will be fully reinstated, ensuring no permanent alteration of surface conditions. The development will not introduce new hardstanding areas or generate additional surface water runoff. Consequently, no attenuation or stormwater management measures are required, and the pipeline does not require operational water supply or wastewater discharge. The proposed development will not introduce any discharges or hydrogeological changes that could hinder catchment improvement measures or compromise the achievement of Good Status under the Water Framework Directive.	No anticipated impacts to the hydrological 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 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 measurable change anticipated.		No anticipated impacts to the hydrological 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)	Not Applicable (no dewatering anticipated)	Not Applicable (no dewatering anticipated)	Not Applicable (no water supply from borehole anticipated)	Not Applicable (no water supply from borehole anticipated)		Not Applicable
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 measurable change anticipated.		No anticipated impacts to the hydrological 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 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 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 measurable change anticipated.		No anticipated impacts to the hydrological 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 measurable change anticipated.		No anticipated impacts to the hydrological 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 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										
	Surface Water	Scheme Elements	**Proposed Development**						Mitigation Measures	Overall Impact with mitgation measures
	Liffey_170 WFD surface waterbody (EPA Code: IE_EA_09L012100).	Phase (Construction/ Operation)	Construction	Construction	Construction	Construction	Operation	Operation		
		Identified Quantitative Impacts	Increased run-off and sediment loading	Temporary land-take during the construction phase	Pollution due to accidential discharges or spillages during the construction phase	Release of sediments, pollutants and construction material during Bridge construction.	Increase in Hardstanding	Storage of Fuel		
WFD 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.	No measurable change anticipated.	**Construction:** The project-specific OCEMP will include robust mitigation measures to protect the hydrological environment. The OCEMP 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 outlined in the EIA Report 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:** During operation, the underground transmission gas pipeline will be installed beneath existing hardstanding areas, and all trenches created across roads will be fully reinstated, ensuring no permanent alteration of surface conditions. The development will not introduce new hardstanding areas or generate additional surface water runoff. Consequently, no attenuation or stormwater management measures are required, and the pipeline does not require operational water supply or wastewater discharge. The proposed development will not introduce any discharges or hydrological changes that could hinder catchment improvement measures or compromise	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 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 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 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 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 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 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 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 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 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 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 measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status