

**MWP**

## **Chapter 06 Water**

### **Newtown Transmission Gas Pipeline and Associated Above Ground Infrastructure**

**Gas Networks Ireland**

**November 2025**

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## **6. Water (Hydrology and Hydrogeology)**

### **6.1 Introduction**

This chapter considers the potential effects on the existing water environment arising from the proposed development. A full description of the proposed development, development lands and all associated project elements is provided in **Chapter 02 Description of the Proposed Development** of this **EIAR**. The nature and probability of effects on the existing water environment arising from the overall project has been assessed. The assessment comprises:

- A review of the existing receiving environment;
- Prediction and characterisation of likely impacts;
- Evaluation of effects significance; and
- Consideration of mitigation measures, where appropriate.

#### **6.1.1 Competency of Assessor**

The assessment was completed by Kate Cain [BSc (Hons)]. Kate Cain is an environmental consultant at MWP and has over 15 years; of experience. Kate has authored EIA Screening reports, Environmental Impact Assessment Reports (EIAR), Detailed Site Assessments, Environmental Reports and Construction and Environmental Management Plans (CEMPs) for a wide range of projects. She has a strong background in hydrology and has undertaken water chapters and Water Framework Directive assessments for a wide range of projects.

Leanne Leonard [BSc (Hons)] assisted in the preparation of this assessment. Leanne has six years of experience in environmental consultancy. She has experience in the preparation of water chapters for Environmental Impact Assessment Reports, as well as in the delivery of Flood Risk and Drainage Assessments for major infrastructure and development projects.

This assessment has been reviewed by Olivia Holmes. Olivia is a Chartered Engineer and Chartered Environmental Practitioner with over twenty years' experience in Environmental Engineering focussing primarily on Environmental Impact Assessment (EIA), Appropriate Assessment (AA) and planning. She has prepared and reviewed a number of chapters for EIARs over her career for a broad range of projects.

#### **6.1.2 Legislation**

The following section sets out the legislative context of the assessment in relation to surface and groundwater quality.

##### **6.1.2.1 Water Framework Directive (WFD) (2000/60/EC)**

Directive 2000/60/EC of the European Parliament and of the Council of 23<sup>rd</sup> October 2000 establishing a framework for Community action in the field of water policy; commonly known as the Water Framework Directive (WFD) establishes a framework for community action in the field of water policy.

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at least, by 2027. 'Good status' means both 'Good

Ecological Status' and 'Good Chemical Status'. In 2009, the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle of river basin management planning (2022–2027) is currently in progress.

The Water Framework Directive (WFD) (2000/60/EC) establishes an integrated and coordinated framework for the sustainable management of water. Under the WFD<sup>1</sup>, the island of Ireland has been divided into a number of River Basin Districts (RBD) in order to facilitate the effective implementation of the WFD objectives. The proposed development site is located within the River Tolka WMU (Water Management Unit) within the former Eastern River Basin District (ERBD) (now the Irish River Basin District), as defined under the WFD.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations, since its inception in the year 2000.

The WFD (1<sup>st</sup> Cycle) was transposed into national legislation in 2003, with the aim to:

- Prevent deterioration of status for surface and groundwaters and the protection, enhancement and restoration of all water bodies;
- Achieve good ecological status and good chemical status for surface waters and good chemical and good quantitative status for groundwaters;
- Progressively reduce pollution of priority substances and phase-out of priority hazardous substances in surface waters and prevention and limitation of input of pollutants in groundwaters;
- Reverse any significant, upward trend of pollutants in groundwaters; and
- Achieve standards and objectives set for protected areas in Community legislation.

The objective for each surface water and groundwater body is to prevent deterioration, maintain high and good status waters, restore waters to at least good status where necessary, and ensure that the requirements of associated protected areas are met.

The River Basin Management Plan for Ireland 2022 - 2027, the third-cycle of river basin management planning under the WFD, provides for the targeted implementation of the two principle objectives of the WFD, namely;

1. To prevent the deterioration of water bodies and to protect, enhance and restore them with the aim of achieving at least good status; and
2. To achieve compliance with the requirements for designated protected areas.

Five key 'evidence-based' priorities form the pillar of this iteration of the RBMP are outlined as follows:

1. Ensure full compliance with relevant EU legislation;
2. Prevent deterioration;
3. Meet the objectives for designated protected areas;
4. Protect high-status waters; and
5. Implement targeted actions and pilot schemes in focused sub-catchments aimed at:
  - a) targeting water bodies close to meeting their objective; and
  - b) addressing more complex issues that will build knowledge for the third cycle.

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<sup>1</sup> Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

This assessment will determine the effect of the proposed development on water resources in accordance with the following regulations which give effect to the WFD:

- S.I. No. 9 of 2010 European Communities Environmental Objectives (Groundwater) Regulations 2010 (as amended);
- S.I. No. 272 of 2009 European Communities Environmental Objectives (Surface Water Regulations) 2009 (as amended);
- S.I. No. 296 of 2009 European Communities Environmental Objectives (Pearl Mussel Regulations) 2009 (as amended); and
- Urban Waste Water Treatment Regulations (SI No. 254 of 2001 as amended) (UWW Regulations).

These Regulations have been devised to implement the requirements of the WFD and establish Environmental Quality Standards (EQS) for the purpose of assessing the status of surface waters and groundwaters. The Surface Waters Regulations apply to all surface waters including lakes, rivers, canals, transitional waters and coastal waters and supersede all previous water quality regulations. MWP have considered the Water Framework Directive status of waterbodies within the vicinity of the proposed development, along with potential for increased risk of deterioration of this status due to the activities of the proposed development site in this Chapter of the EIAR.

#### 6.1.2.2 Water Framework Directive - Protected Areas

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

- Areas used for water abstraction - European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261 of 2018);
- Areas designated for the protection of economically significant aquatic species (Freshwater Fish Directive 78/659/EEC; Shellfish Directive 79/923/EEC);
- Recreational waters (Bathing Waters Directive 76/160/EEC);
- Nutrient Sensitive Areas (Nitrates Directive 91/676/EEC; Wastewater Treatment Directive 91/271/EEC);
- Areas of protected species or habitats where water quality is an important factor in their protection (Natura 2000 sites under Birds Directive 79/409/EEC and Habitats Directive 72/43/EEC); and
- Surface waters (The European Communities Environmental Objectives (Surface Waters) Regulations [S.I. No 272 of 2009], and amendment regulations 2012 [S.I. 327 of 2012]).

The proposed development site has an indirect hydrological pathway or connection with the Malahide Estuary Special Protection Area (SPA) Special Area of Conservation (SAC) / proposed Natural Heritage Area (pNHA) through the local drainage network, the Huntstown Stream and the Ward River. The Malahide Estuary is located c. 10.2 km northeast of the site.

Potential impacts of the proposed development on protected sites for nature are addressed in **Chapter 05 Biodiversity** of this EIAR and in the **Appropriate Assessment (AA) Screening Report** submitted with the consent application package.

## 6.2 Methodology

### 6.2.1 Relevant Guidelines and Best Practice

In addition to the relevant legislation detailed above, the water baseline assessment has been carried out in accordance with the following guidance and established best practice:

- *Transport Infrastructure Ireland - Road Drainage and Water Environment (TII, 2015);*
- *Transport Infrastructure Ireland (previously National Road Authority) - Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (TII, 2009);*
- *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), 2009);*
- *Water Action Plan 2024: A River Basin Management Plan for Ireland (DHPLG, 2024);*
- *Guidelines on protection of fisheries during construction works in and adjacent to waters (Inland Fisheries Ireland, 2016);*
- *Guidelines for the Crossing of Watercourses during Construction of National Road Schemes, (TII, 2008); and*
- *Institute of Geologists Ireland (IGI) -Geology in Environmental Impact Statements, a guide (IGI, 2002) and Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013).*

Water resource management in Ireland is dealt with in the following key pieces of legislation and guidelines:

- Part IV of the First Schedule of the Planning and Development Act 2000, as amended;
- European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003);
- Environmental Protection Agency ‘Towards Setting Guideline Values for the Protection of Groundwater in Ireland Interim Report’, (EPA 2003);
- European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014); and
- European Union (Drinking Water) (Amendment) Regulations (S.I. No. 464 of 2017).

### 6.2.2 Desktop Study

The methodology used for this study included desk-based research of published information and site visits to assemble information on the local receiving environment. The desk study included the following activities:

- Review of Ordnance Survey (OS) Mapping and aerial photography to establish existing land use and settlement patterns within the study area;
- Review of local and regional development plans and planning policy in order to identify future development and identify any planning allocations within the study area;
- Review of Fingal County Council’s Planning Register to identify relevant development proposals currently under consideration by the Council;
- Fingal Development Plan 2023-2029;

- Environmental Protection Agency (EPA) – website mapping and database information;
- National Parks and Wildlife Services (NPWS) – Protected Site Register;
- Water Action Plan 2024: A River Basin Management Plan for Ireland (DHPLG, 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), 2009);
- Office of Public Works (OPW) flood mapping data ([www.floodmaps.ie](http://www.floodmaps.ie));
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001); and
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Environmental Impact Assessment Report for the Kilshane Power Station, January 2023;
- MWP – Flood Risk Assessment Report, October 2025;
- Environmental Report for Proposed 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kv Substation, September 2022;
- Kilshane Block Valve AGI Ground Investigation Report, Causeway Geotech Ltd, June 2025;
- Kilshane Energy – Construction Methodology, Fingleton White, October 2025;
- Gas networks Ireland / Fingleton White - Various design site plans and drawings; and
- Consultation with design engineers (Fingleton White) and the developer, Gas Networks Ireland (GNI).

### 6.2.3 Difficulties Encountered

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

### 6.2.4 Site Walkover

A site walkover was completed on 30<sup>th</sup> January 2024 and on 8<sup>th</sup> April 2024 by MWP to identify hydrological or hydrogeological features at the proposed development site.

### 6.2.5 Assessment Criteria

The method of impact assessment and prediction follows the EPA (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)*. The methodology and approach outlined in the EPA Guidelines was used to determine whether the proposed development had the potential to cause significant effects on the hydrological or hydrogeological environment. The recommendations outlined in the EPA Guidelines are detailed in **Chapter 01 Introduction** of this **EIAR**.

## 6.3 Proposed Development

The proposed development involves the installation of an underground transmission gas pipeline to connect the proposed Kilshane Block Valve (BV) Extension (to be located at the existing Kilshane BV station) and the proposed Newtown Above Ground Installation (AGI) (to be located within the proposed Kilshane Energy Facility). Refer to **Chapter 02 Description of the Proposed Development** for further details and **Figure 6-1** for layout of the proposed Newtown AGI, Kilshane BV extension and the GNI139 pipeline route.

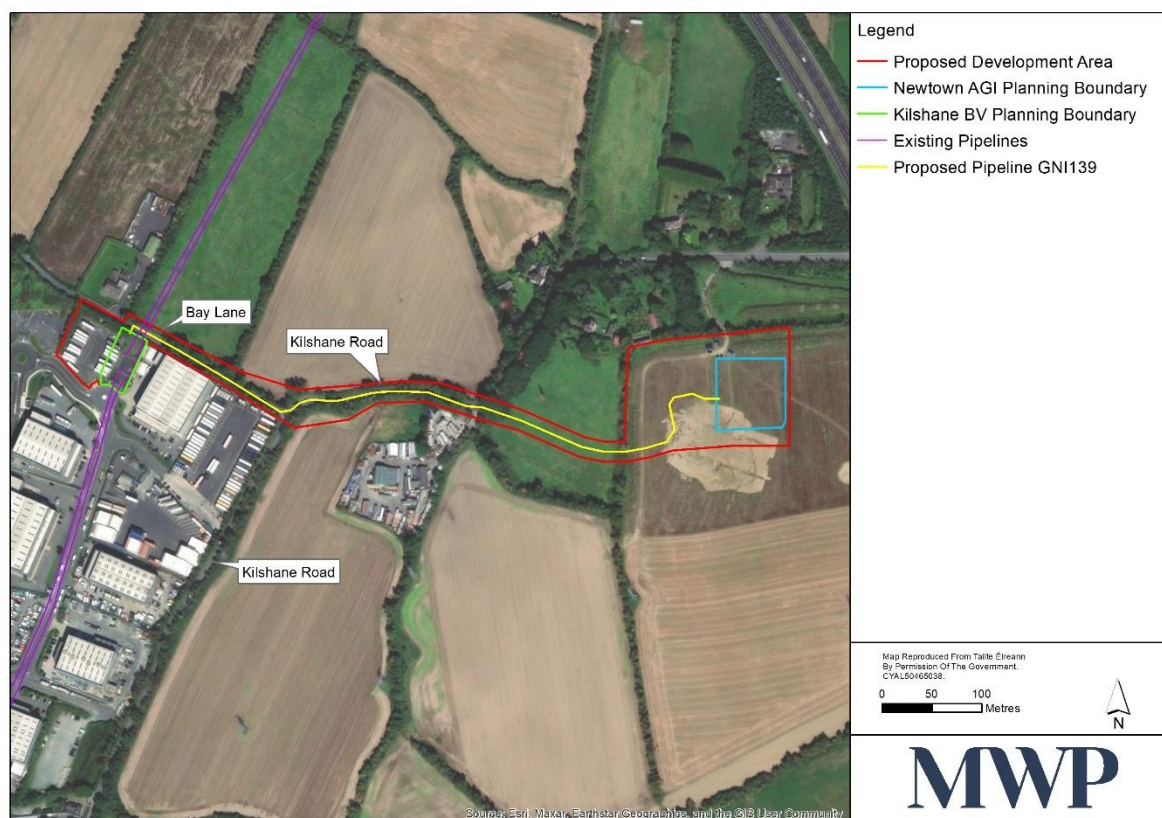


Figure 6-1: Site Layout

### 6.3.1 Construction Phase Activities

The key civil engineering works which could have a potential effect on the water environment during construction of the proposed development are summarised below.

- Excavations required for the BV Extension, AGI and installation of the gas transmission pipeline resulting in the following excavation quantities:
  - Pipeline – 1400m<sup>3</sup>;
  - Topsoil Stripping– 2900m<sup>3</sup>;
  - Block valve enabling works – 550m<sup>3</sup>;
  - Block valve – 390m<sup>3</sup> and
  - AGI – 650m<sup>3</sup>.

- There will be topsoil, subsoil, stones, tarmac and hardcore excavated as part of this activity to facilitate the installation of the gas pipeline and construction of the BV extension and Newtown AGI;
- Sheet piling will potentially be required at 3 No. locations:
  - Tie-in point at Kilshane BV;
  - Crossing T50 concrete casing at Kilshane Road; and
  - Drain crossing in customer site.

The road surface will be removed to create suitable strata for the piling. The sheet piling will be installed using a vibration pile driver and a tracked 16 tonne to 32 tonne excavator.

- The BV extension, tie in location and temporary pigging facilities will be located within the existing Kilshane BV station. The new BV site will consist of an area of 22.57m x 43.31m with a 2.4m high fence;
- The proposed transmission pipeline will be approximately 0.715km and includes 1 no. drainage ditch crossing to the east of the proposed Newtown AGI location. This drainage ditch crossing will be achieved via an open cut method as set out in **Section 6.4.4.4**;
- The AGI will be located within the proposed Kilshane Energy Facility in a 63m x 35.85m enclosure within 2.4m high fence;
- Construction activities will necessitate storage of cement and concrete materials, temporary oils and fuels. Cement will be stored in a temporary storage compound or on site. Oils and fuel will be stored in a temporary storage compound in bunded area;
- All plant, machinery and equipment will be stored on site within the works area or within the temporary construction compound located at the BV extension or the AGI;
- Two temporary construction compounds (one at the AGI and one at the BV extension) will be established on-site to facilitate construction staff. These compounds will include temporary welfare facilities. Any wastewater arising from this compound will be collected & removed off-site to an appropriately licensed facility; and
- The commissioning phase of the development will involve hydrostatically testing the pipeline. This will involve filling the entire transmission pipeline with clean potable water, requiring approximately 76,000 litres and pressurised to identify any leak. The required water will be sourced from an existing mains water supply. Once hydrostatic testing is complete the c. 76,000 litres of water (volume based on pipeline length) used for this purpose will need to be disposed of appropriately, via discharge to ground or alternatively, tankered away. There are no chemical additives to the hydrostatic testing water.

### 6.3.2 Operational Phase Activities

During the operational phase of the proposed development, there is a limited effect on the water environment as summarised below:

- The underground gas transmission pipeline will not alter the existing hardstanding areas (all trenches established across roads to facilitate the proposed pipeline will be fully reinstated).
- There will be additional hardstanding at the BV extension and Newtown AGI / pigging station, which will result in increased surface water generation; this will be managed as follows:
  - Surface water at the BV extension site will be managed by creating a swale at the base of the slope on the western boundary.

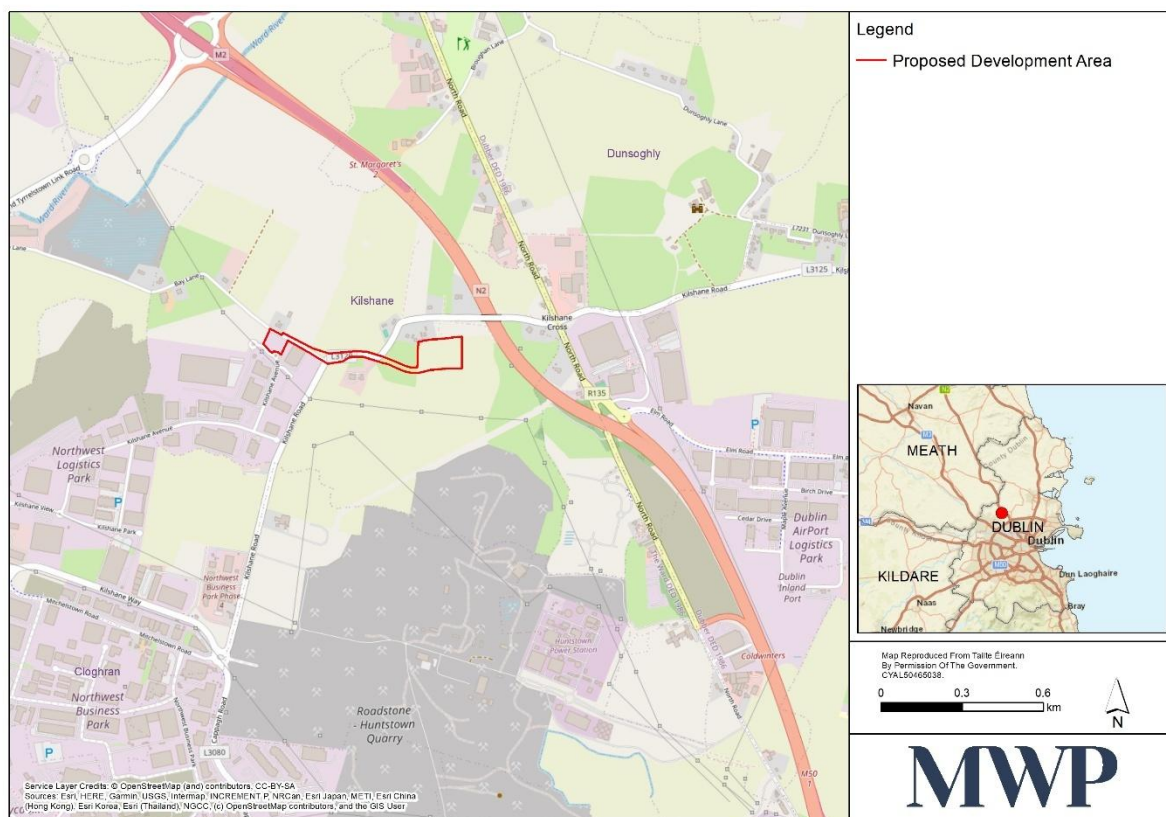
- Surface water drainage from the AGI site will be connected to the proposed surface water infrastructure at the proposed Kilshane Energy Facility with consent from the developer. Surface from the Kilshane Energy Facility water will discharge directly into the existing drainage ditch network which ultimately outfalls into the Huntstown Stream. Site drainage will be installed as per **Drawing No. 1395.03-DG-0004** contained in the drawing pack.
- There are no new connections for potable water or foul water proposed as the proposed BV extension, underground gas transmission pipeline or AGI does not require an operational water supply or generate any wastewater.

## 6.4 Baseline Environment

### 6.4.1 Site Location and Description

The proposed development is located in the townland of Kilshane, on lands at Kilshane Road (L3120) and Bay Lane, Kilshane, Finglas, Dublin 11. The area of the proposed development within the designated boundary extends to c. 3.14Ha.

The proposed development is located northwest of the M50 motorway and on the western side of the N2 national road and the R135 regional road. The surrounding area is characterised by agricultural fields and industrial uses such as logistics, power stations, and additional business park operations. Roadstone Huntstown Quarry and Huntstown Power Station are located on lands to the south of the proposed development and the site is located to the east and north of Ballycoolin and Rosemount Industrial Estates. Refer to **Figure 6-2** for site location.



**Figure 6-2: Site Location**

### 6.4.2 Bedrock Geology

Available GSI records indicate that the bedrock geology of the site and the surrounding area is dominated by Calcareous shale and limestone conglomerates referred to as part of the Tober Colleen Formation (Rock Unit code: CDTOBE). Massive, unbedded lime mudstone associated with the Waulsortian Limestones Formation (CDWAUL) are found underlying immediately southeast/east of the site (**Figure 6-3**).

The regional area is highly geologically variable. GSI maps show the site as overlying the Tober Colleen formation which is bordered to the south by Waulsortian Limestones (which have been noted to underly the Tober Colleen) and the Boston Hill Formation.

Due to this variability the GSI bedrock geology map (100K structural database) indicates a number of faults in the study area, one of which pass/transverse through the eastern portion of the proposed pipeline route before it connects to the permitted Newtown AGI.

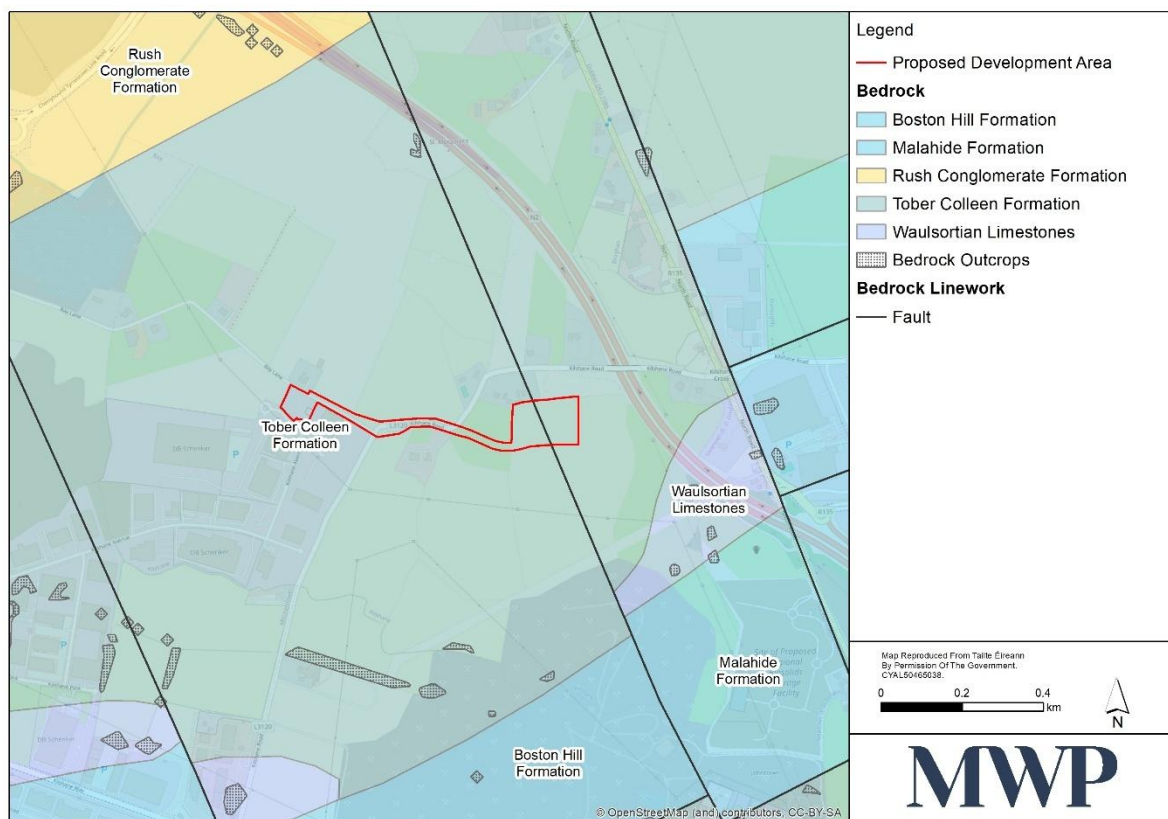


Figure 6-3: Bedrock Geology

### 6.4.3 Hydrogeology

#### 6.4.3.1 Regional Hydrogeology

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<sup>2</sup>), well yield (m<sup>3</sup>/d), specific capacity (m<sup>3</sup>/d/m) and groundwater transmissivity (mm<sup>3</sup>/d). There are three main classifications and their sub divisions include:

- Regionally important:

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:

Locally important aquifers are sub-divided into:

- Generally moderately productive (Lm); and
- Generally moderately productive only in local zones (LI).

- Poor aquifers:

Similarly, poor aquifers are classed as either:

- Generally unproductive except for local zones (PI); or
- Generally unproductive (Pu).

From analysis of GSI National data, the bedrock aquifer underlying the proposed development site is a Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones (refer to **Figure 6-4**).

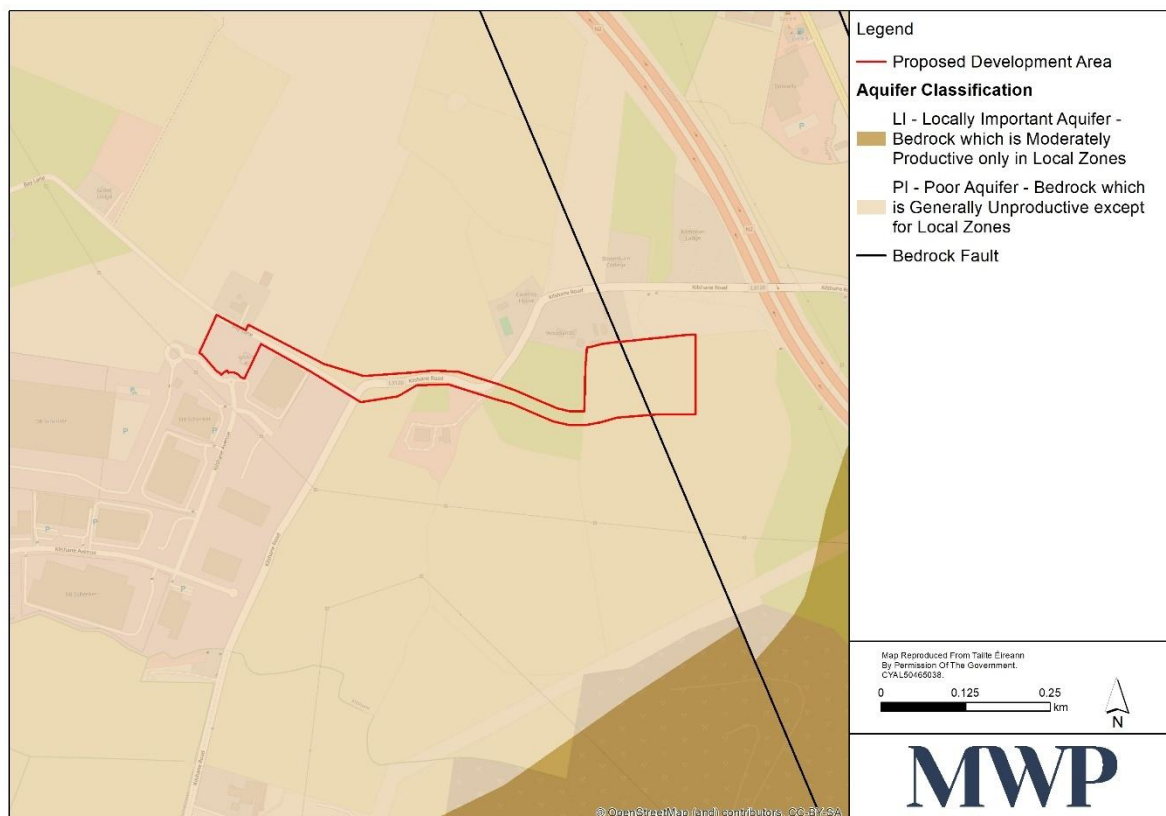
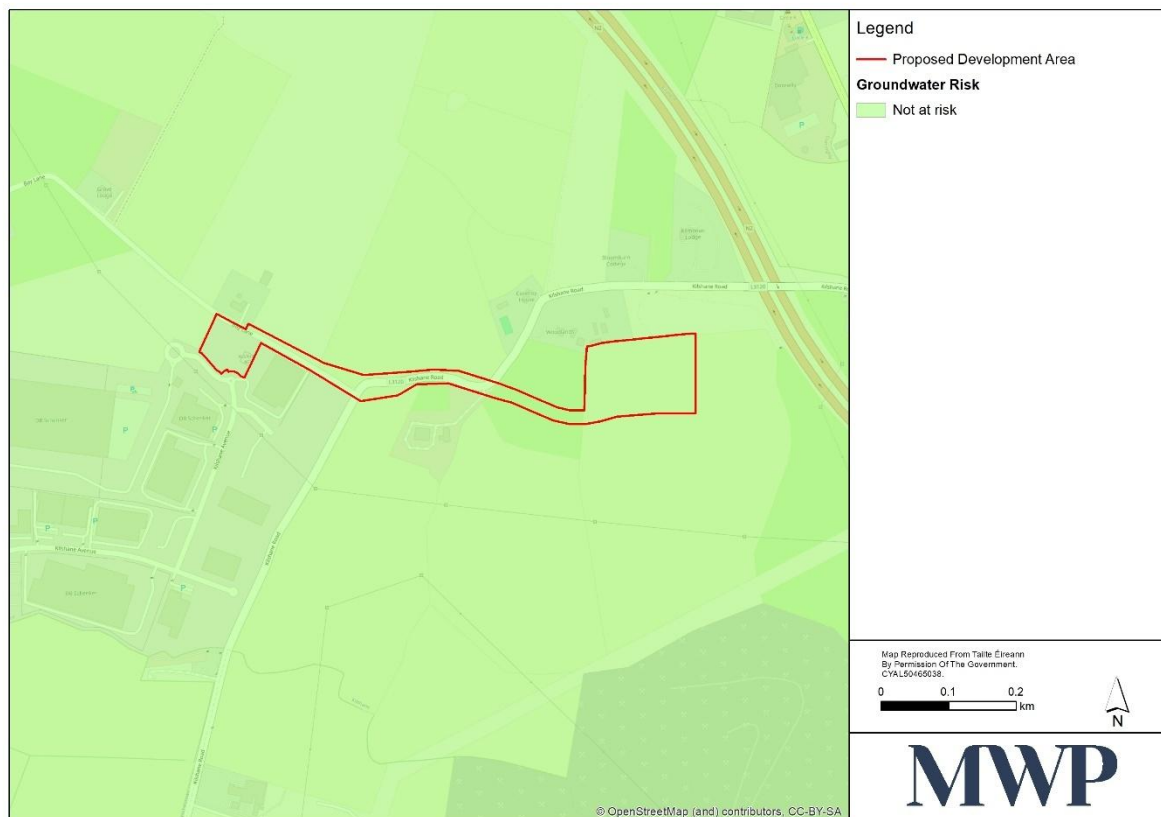


Figure 6-4: Aquifer Classification Map (GSI)

### 6.4.3.2 Groundwater Body and Risk

The Groundwater Body underlying the site is the Swords Groundwater Body (GWB) (EU code: IE\_EA\_G\_011). The current WFD risk score of this water body is 'Not at Risk' meaning the GWB has achieved its objectives and has either no significant trends or improving trends. **Figure 6-5** presents the WFD Risk third cycle data from the EPA website on groundwater body risk.



**Figure 6-5: Groundwater Risk**

### 6.4.3.3 Aquifer Vulnerability

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures, the main feature that protects groundwater from contamination, and therefore the most important feature in protection of groundwater, is the subsoil (which can consist solely or of mixtures of peat, sand, gravel, glacial till, clays or silts).

The GSI Map currently displays varied aquifer vulnerability across the region. The majority of the proposed development site is classified as 'Moderate' vulnerability with a small section on the east side of the proposed development site near the proposed AGI classified as 'High' vulnerability.

As can be seen from **Table 6-1**, a 'Moderate' vulnerability with clayey subsoil denotes a depth to bedrock of 5 – 10mbgl (below ground level) with 'High' vulnerability categorised as 3 - 5mbgl. The aquifer vulnerability class in the region of the site is presented in **Figure 6-6**.

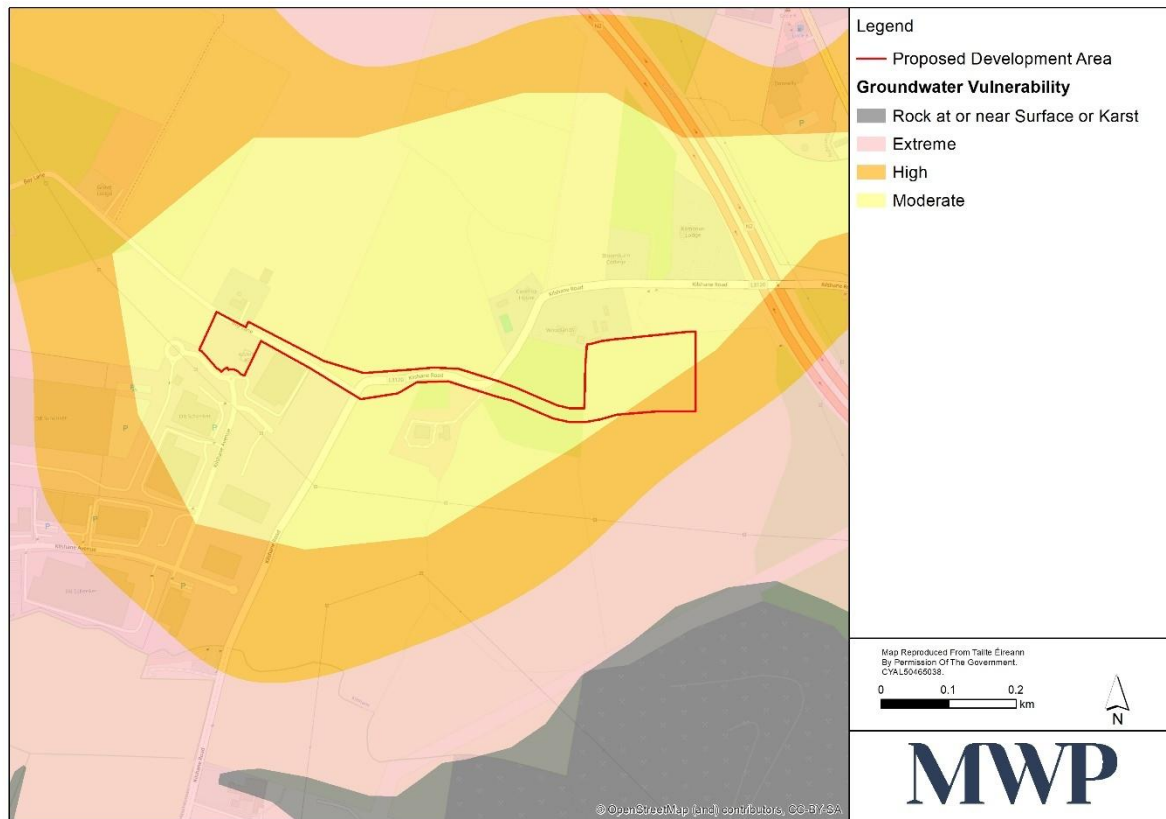


Figure 6-6: Aquifer Vulnerability Map (Source: GSI Map Viewer)

Table 6-1: Vulnerability Mapping Guidelines

Vulnerability Rating	Hydrogeological Condition				
	Subsoil Permeability (type) and Thickness			Unsaturated Zone	Karst Fracture
	High Permeability (sand / gravel)	Moderate Permeability (e.g. Sandy subsoil)	Low Permeability (e.g. Clayey subsoil, clay, peat)	(Sand / Gravel Aquifers only)	(<30m radius)
Extreme €	0-3 m	0-3 m	0-3 m	0-3 m	-
High (H)	>3 m	3-10 m	3-5 m	>3 m	n/a
Moderate (M)	n/a	>10 m	5-10 m	n/a	n/a
Low (L)	n/a	n/a	>10 m	n/a	n/a

Notes: (1) n/a: Not Applicable  
 (2) Precise permeability values cannot be given at present  
 (3) Release point of contaminants is assumed to be 1-2 below ground surface

#### 6.4.3.4 Groundwater Wells and Flow Direction

According to the GSI, there are no wells or springs located within the proposed development area or within the immediate vicinity. The nearest well to the proposed development site is located approximately 0.5km to the south of the proposed AGI. None of the wells in the surrounding area listed are categorised as domestic use. The area is serviced by Local Authority mains and is therefore unlikely that any wells are used for potable supply. The site is not located near any public groundwater supplies or group schemes.

Regional groundwater flow would most likely be to the south – southeast towards the River Tolka and Dublin Bay. However, it is understood that dewatering activities are taking place at Huntstown quarry which is located a short distance to the south and south east of the proposed development site and these will likely have a local influence on the groundwater flow at the proposed development site. In particular, they will control any potential migration pathway from the quarry towards the proposed development site.

#### 6.4.3.5 Groundwater Quality

The Water Framework Directive (WFD) Directive 2000/60/EC, was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and 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. The WFD requires ‘Good Water Status’ for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. ‘Good status’ means both ‘Good Ecological Status’ and ‘Good Chemical Status’.

In 2009, the Eastern River Basin District (ERBD) published its first River Basin Management Plan 2009–2015. In that plan, the ERBD assessed a variety of pressures on its waters, including diffuse and point source pollution, water abstraction and morphological alterations (for example, flow regulation structures). The aim was to identify water bodies at risk of failing to reach the Water Framework Directive’s objectives by 2015, and to incorporate a Programme of Measures designed to mitigate those pressures within the planning period. That marked the first RBMP cycle for the Eastern district (2010–2015).

Subsequently, in the second cycle (2018–2021), the earlier individual basin districts, including the ERBD, were consolidated under the single Ireland River Basin District (Ireland RBD). The third cycle (2022–2027) is currently in progress and aims to further reduce nitrate and phosphate losses to groundwater, strengthen protections for drinking water sources, and ensure that abstractions remain within sustainable limits.

The Swords GWB which underlies the proposed development site has been given a classification status of ‘Good’ for the last WFD cycle (2016-2021).

### 6.4.4 Hydrology

#### 6.4.4.1 Local Hydrology

The proposed development site is located within the Nanny-Delvin Catchment (Hydrometric Area 08) and the Broadmeadow sub-catchment (Sub catchment ID 08\_3) (**Figure 6-7**).

The current EPA watercourse mapping does not include any existing streams within the subject site boundaries, and a review of the historical mapping records provided within the GeoHive website does not indicate any watercourses within the site.

The site where the AGI is proposed is currently a greenfield site. The topographic survey completed as part of the EIAR for Kilshane Power Station (Environmental Impact Services, 2023) and the site walk over undertaken by MWP in April 2024 has confirmed that the field boundary hedgerows contain drainage ditches (refer to **Figure 6-8**)

which convey run off to the Huntstown Stream (to the south), during heavier rainfall events. There is a drainage ditch located to east and west of the proposed Newtown AGI site.

The Huntstown Stream generally flows in a north-easterly direction to join the River Ward at Saint Margaret Golf and Country Club. The River Ward is a tributary of the Broadmeadow River, which in turn outfalls to the Irish Sea at the Malahide Estuary. Therefore, the proposed development site has an indirect hydrological connection with the Malahide Estuary (SPA/SAC/pNHA) through the local drainage network, the Huntstown Stream and the Ward River. The hydrological environment is presented in **Figure 6-8**.

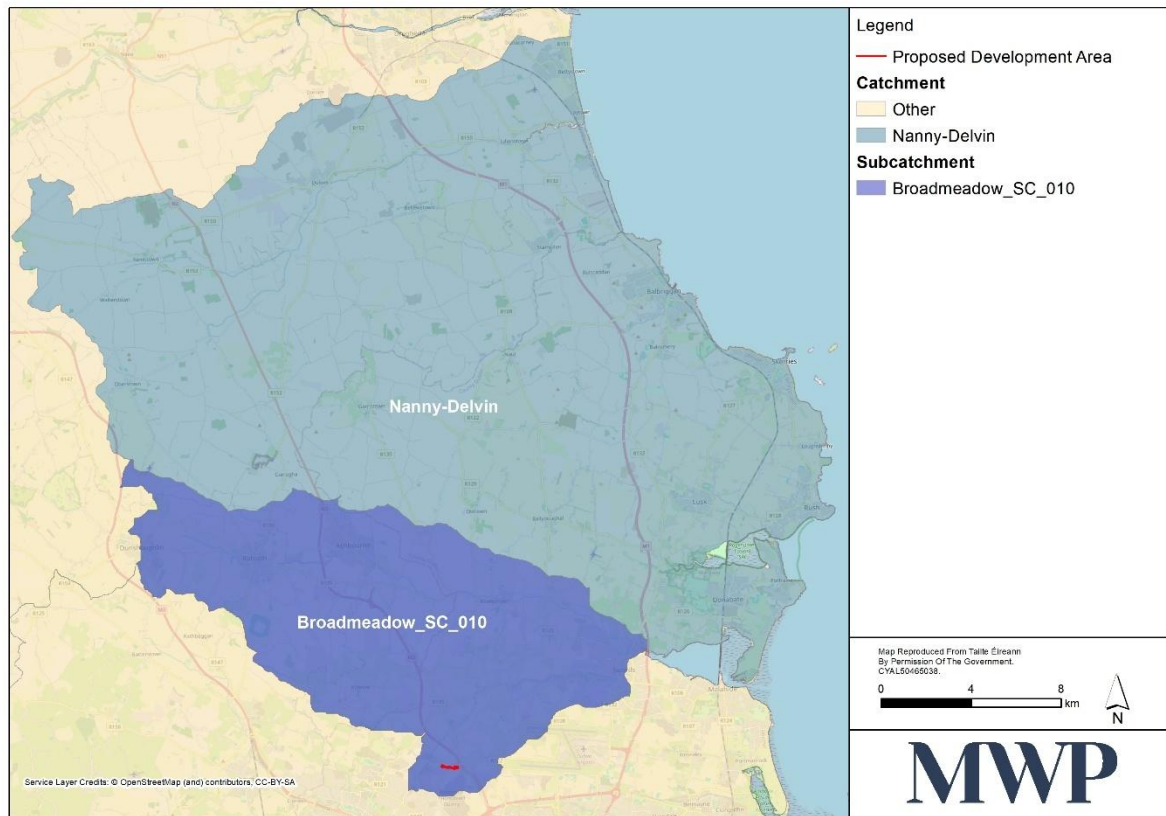


Figure 6-7: Catchment and Sub Catchment Area (Source: EPA)

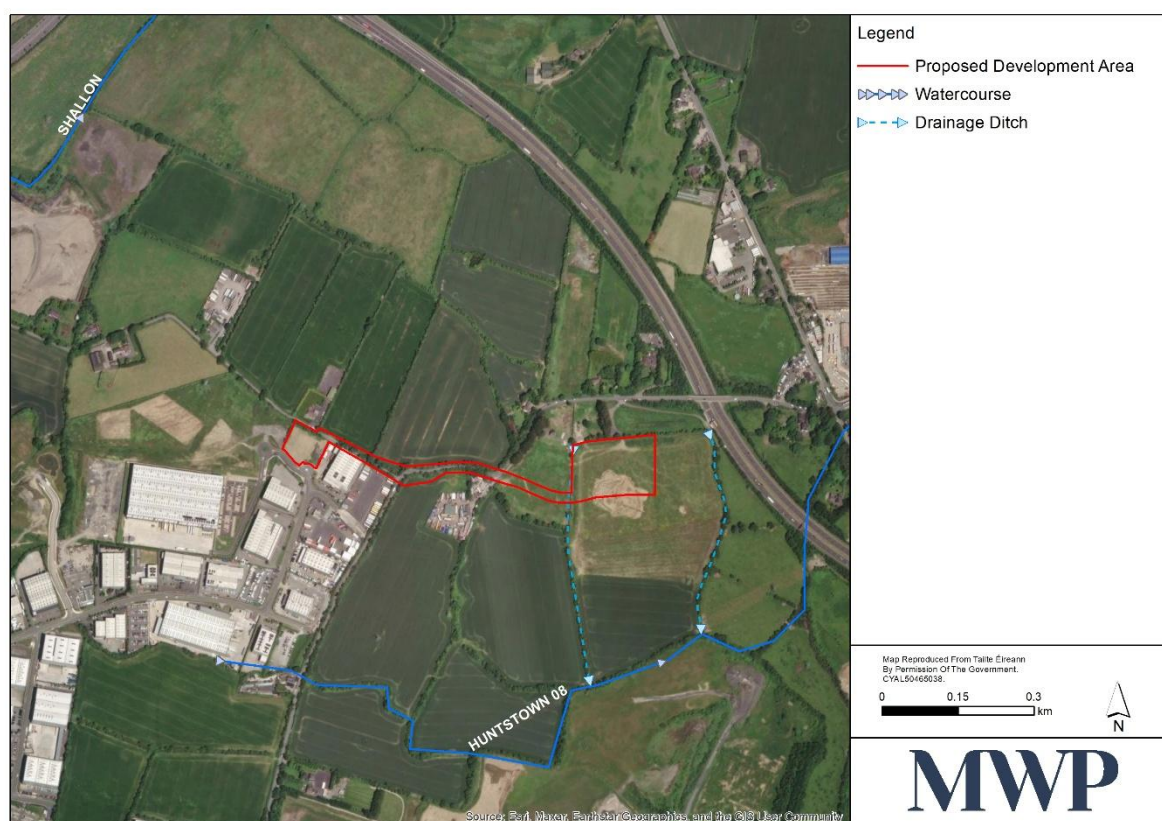


Figure 6-8: Local Hydrological Environment (Source: EPA, 2025)

#### 6.4.4.2 Surface Water Quality

The WFD requires ‘Good Water Status’ for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the latest, by 2027. ‘Good status’ means both ‘Good Ecological Status’ and ‘Good Chemical Status’. As outlined in **Section 6.4.3.5**, the Eastern River Basin District (ERBD) River Basin Management Plan (RBMP) 2009-2015 was published in 2009. In the ERBD RBMP, the impacts of a range of pressures were assessed including diffuse and point pollution, water abstraction and morphological pressures (e.g. water regulation structures). The purpose of this exercise was to identify waterbodies at risk of failing to meet the objectives of the WFD by 2015 and include a programme of measures to address and alleviate these pressures by 2015. This was the first River Basin Management planning cycle (2010-2015). The second cycle river basin management plan for was carried out between 2018- 2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken and focuses on building on progress to date by further reducing water pollution, protecting and restoring high-status waters, and tackling the pressures caused by hydromorphological change and other stressors on Ireland’s water bodies through targeted measures and strengthened implementation.

The primary aim of the plan is that Waterbodies identified as being ‘At Risk’ of not achieving their environmental objectives need to have targeted measures implemented to achieve objectives under this Plan. The EPA’s latest risk characterisation shows that 1,649 waterbodies are ‘At Risk’ of not meeting good or high status.

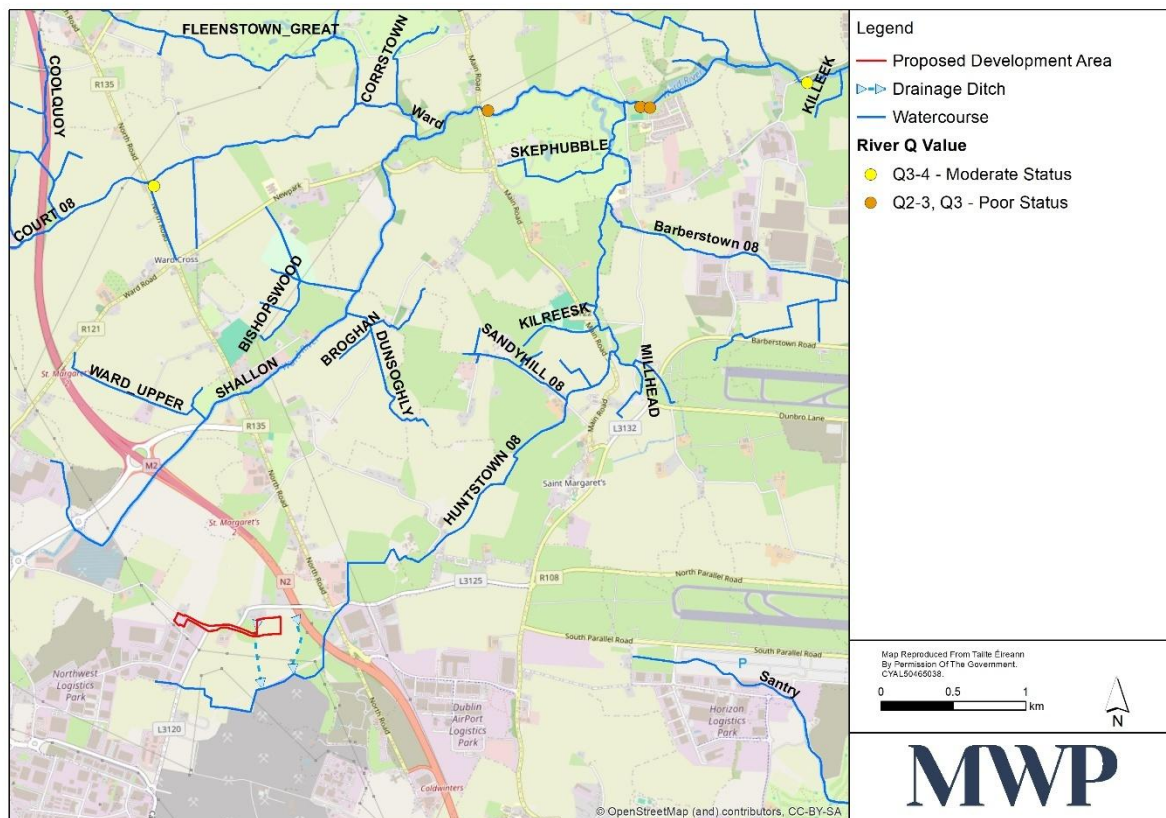
Within the 500 river water bodies monitored in Priority Areas for Action (PAAs) between 2019–2021, 314 remained stable, 118 improved, and 68 declined, resulting in a net improvement in 50 water bodies. This improvement rate in PAAs exceeds the national trend, demonstrating that targeted actions can enhance water

quality. However, continued decline in many river bodies highlight the need for sustained intervention to achieve lasting improvements. The plan 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.

Surface water quality is monitored 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 high water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality. In relation to the subject site, the nearest active EPA monitoring stations located in the Ward River catchment are:

- ‘Coolatrath Br’ (EPA Code: RS08W010070): located in the Ward River c. 3.3km upstream of the Huntstown Stream. The most recent status recorded by the EPA (2024) is classified as Q3-4/Moderate; and
- ‘Br SE of Powerstown House’ (EPA Code: RS09P210700): located in the Pinkeen River c. 2.1km upstream from its join with the Tolka River. The most recent status recorded by the EPA (2022) is classified as Q3/Poor.

Refer to **Figure 6-9** for locations of the EPA quality monitoring points in the context of the site.



**Figure 6-9: EPA Surface Water Quality Monitoring Stations**

The Huntstown Stream is a tributary of the Ward\_030 WFD surface water body, which currently, the EPA classifies as 'Moderate' and is 'At risk of not achieving good status' (Figure 6-10 and Figure 6-11). This moderate status is related to the nitrogen (nitrate, specifically) and orthophosphate conditions measured in the Ward River.

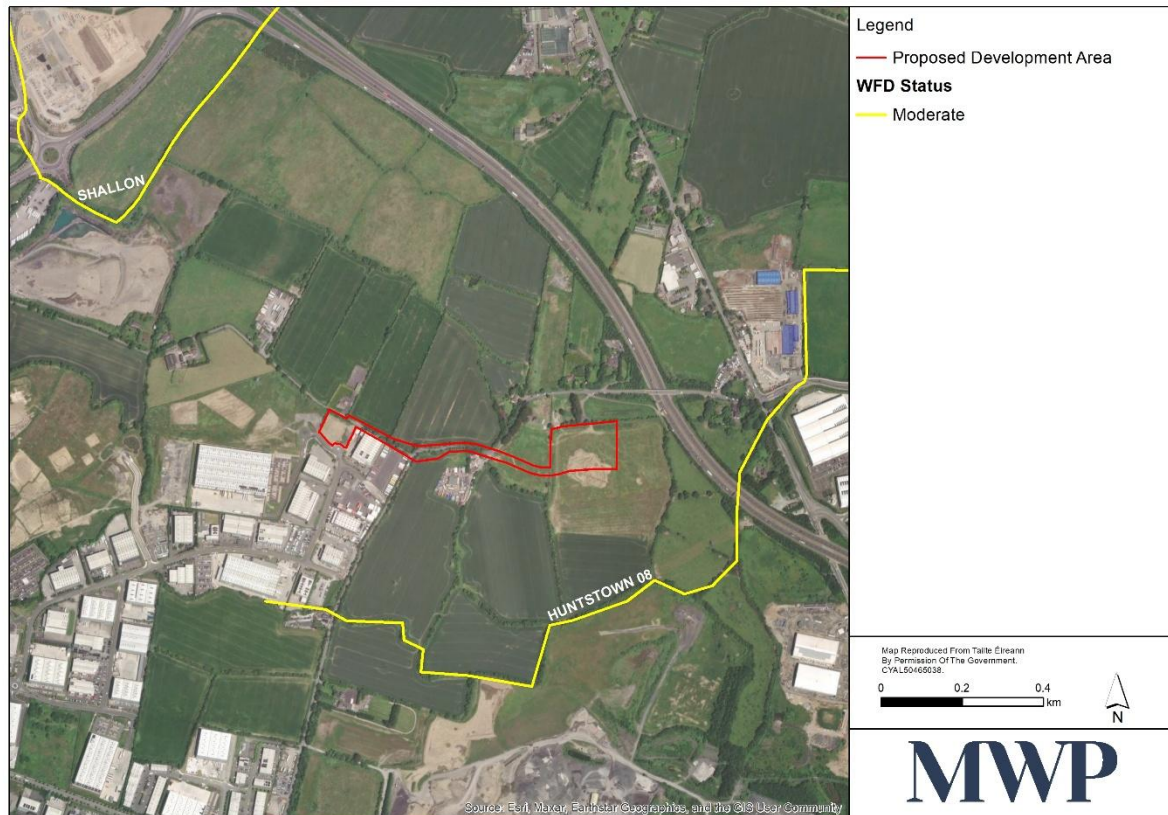


Figure 6-10: River Waterbody WFD Status 2016-2021 (Source: EPA Maps)

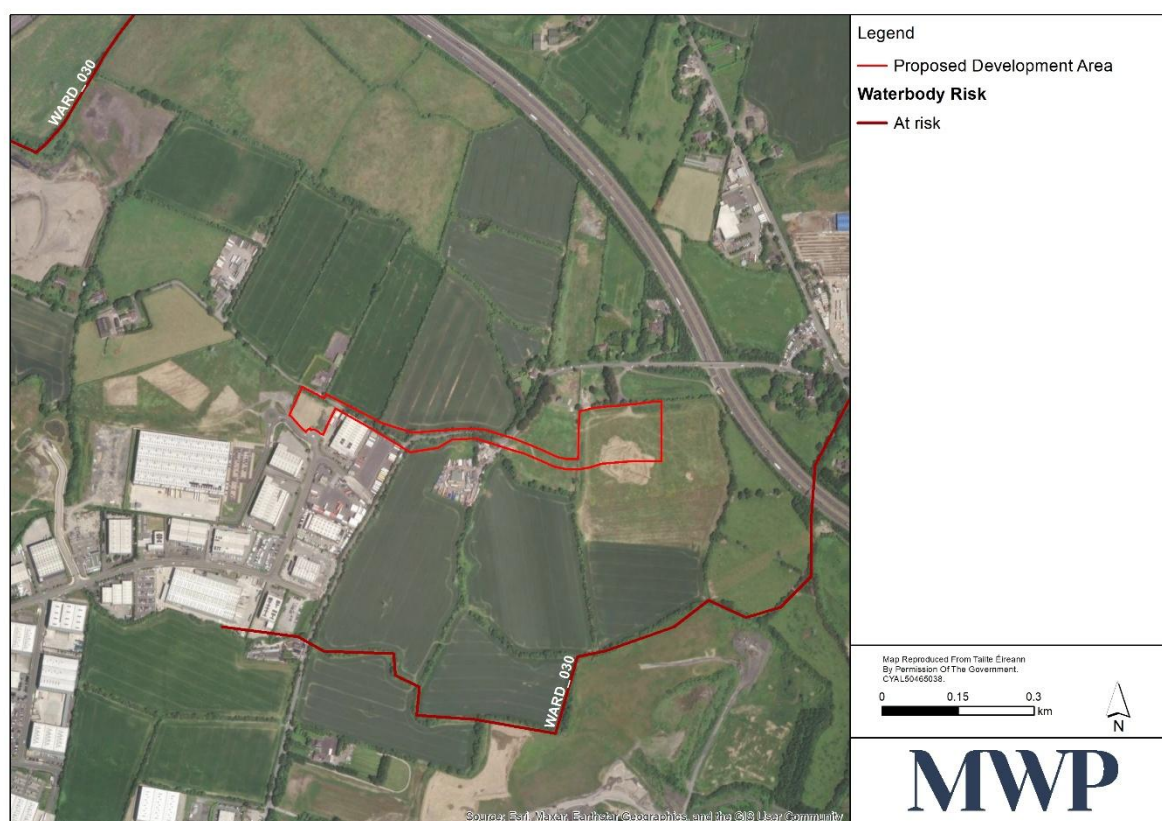


Figure 6-11: River Waterbodies Risk (Source: EPA Maps)

#### 6.4.4.3 Flood Risk

According to the Strategic Flood Risk Assessment (SFRA) carried out by McCloy Consulting on behalf of Fingal County Council as part of the Fingal Development Plan 2023 – 2029 (Fingal County Council 2023), there is extremely low risk of flooding affecting the site from fluvial or coastal sources, since the site lies within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1000).

According to the Flood Maps available on [www.floodinfo.ie](http://www.floodinfo.ie) the proposed development site does not lie in an area that is at risk of river, coastal or groundwater flooding. There have been no past flood events recorded at the proposed development site.

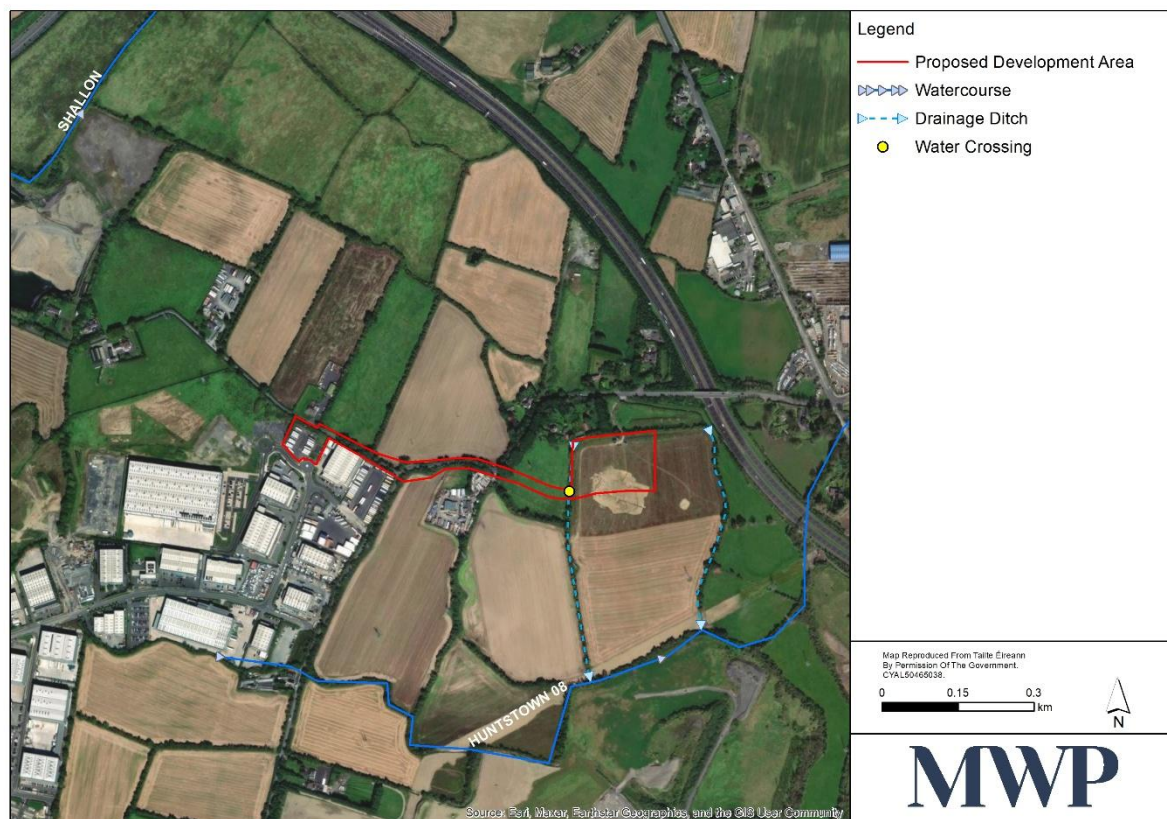
According to the Groundwater Flooding Data Viewer, the proposed development site does not lie in an area that has a high, medium or low probability of groundwater flooding (GSI, 2024).

A Flood Risk Assessment was undertaken by MWP in October 2025 (refer to report attached as **Appendix 6-1**). This assessment also concluded that the site is located within Flood Zone C as defined in the Flood Risk Management Guidelines and is appropriate for the proposed development. It was further demonstrated that the proposed development will not have a negative effect on flooding elsewhere and that the risk to users of the site would be low.

#### 6.4.4.4 Drainage Ditch Crossing

Part of the proposed pipeline and the Newtown AGI are located on agricultural fields to the east of Kilshane Road. Internal and boundary hedgerows within these fields contain drainage ditches which convey flow to Huntstown Stream. The pipeline will cross the drainage ditch to the west of the proposed Newtown AGI location. The location

of this crossing is illustrated in **Figure 6-12**. The open cut crossing will be carried out as quickly as possible (typically 3-4 days) to minimise the potential environmental impact.



**Figure 6-12: Pipeline Drainage Ditch Crossing Location**

The procedure for crossing this drainage ditch will include the following:

- At the beginning of construction, any trees or hedges along the water crossing banks will be removed along with the adjacent topsoil (refer to **Chapter 05 Biodiversity** for further details of the hedges and trees to be removed as part of the proposed development). A watercourse crossing is then installed to allow for an uninterrupted flow as shown in **Figure 6-13**;
- The watercourse is then left uninterrupted for a few days (estimated 2-3 days) before the pipeline installation. The banks are then graded back to bed level. Topsoil will be stored separately to the subsoil;
- Flume pipes sized to ensure they are capable of accommodating flood flow water volumes are inserted into the watercourse, ensuring they extend past the area of the proposed trench and running track. The flume pipes are surrounded with sandbags to create a seal. Straw bales are placed downstream to capture sediments as required;
- The pipe trench is then excavated below the flume pipe. This excavated material is stored separately to the topsoil and subsoil, in a designated area away from watercourse. Only this material will be used to backfill the watercourse trench. If dewatering is required, particular care will be taken to ensure appropriate sediment control is taken;
- The pipeline is installed in the trench. For water crossings, a distance of 1,600mm will be maintained from the top of the pipeline to the bottom of the true cleaned stream. A precast marker slab will be laid 300mm above the pipeline;

- The trench is then backfilled such that it is level with the rest of the watercourse bed. The watercourse banks are then reformed to their original profile;
- The dams and flume are removed and the watercourse is allowed to flow normally for the remainder of construction;
- When the running track is no longer required the bridge crossing is removed; and
- Where appropriate the banks are reinstated with native plants and fencing is erected as agreed with the landowner.

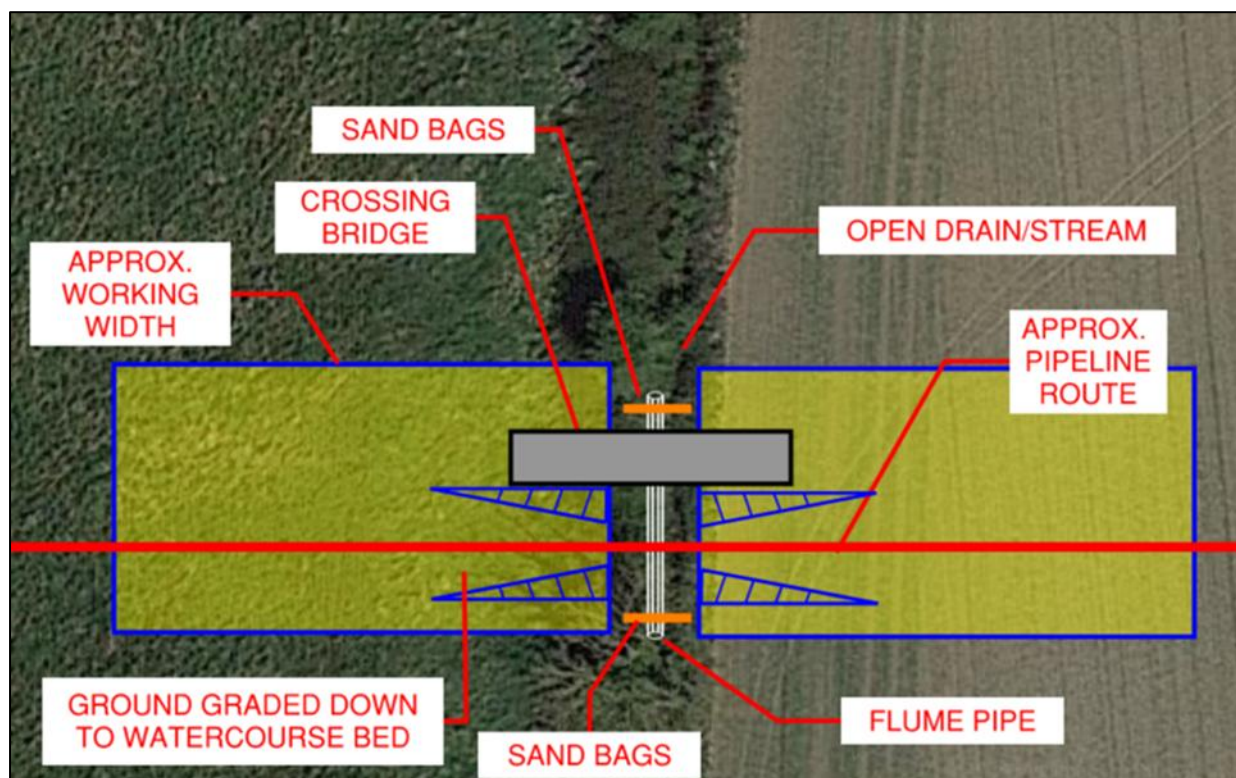


Figure 6-13: Schematic of Drainage Ditch Crossing

#### 6.4.5 Areas of Conservation

According to the NPWS Designations Viewer (2025), there are no Natura 2000 sites on or in the vicinity of the subject site. The closest NPWS designated areas are as follows (Figure 6-14):

- The Royal Canal (002103) pNHA - circa. 4.6km to the south of the site; and
- The Santry Demesne (00178) pNHA – circa 5.8km to the south east of the site

The proposed development site has an indirect hydrological pathway or connection with the Malahide Estuary SPA/SAC/pNHA through the local drainage network, the Huntstown Stream and the Ward River. The Malahide Estuary is located c. 10.2km northeast of the site (Figure 6-15).



Figure 6-14: Designated Sites of National Importance

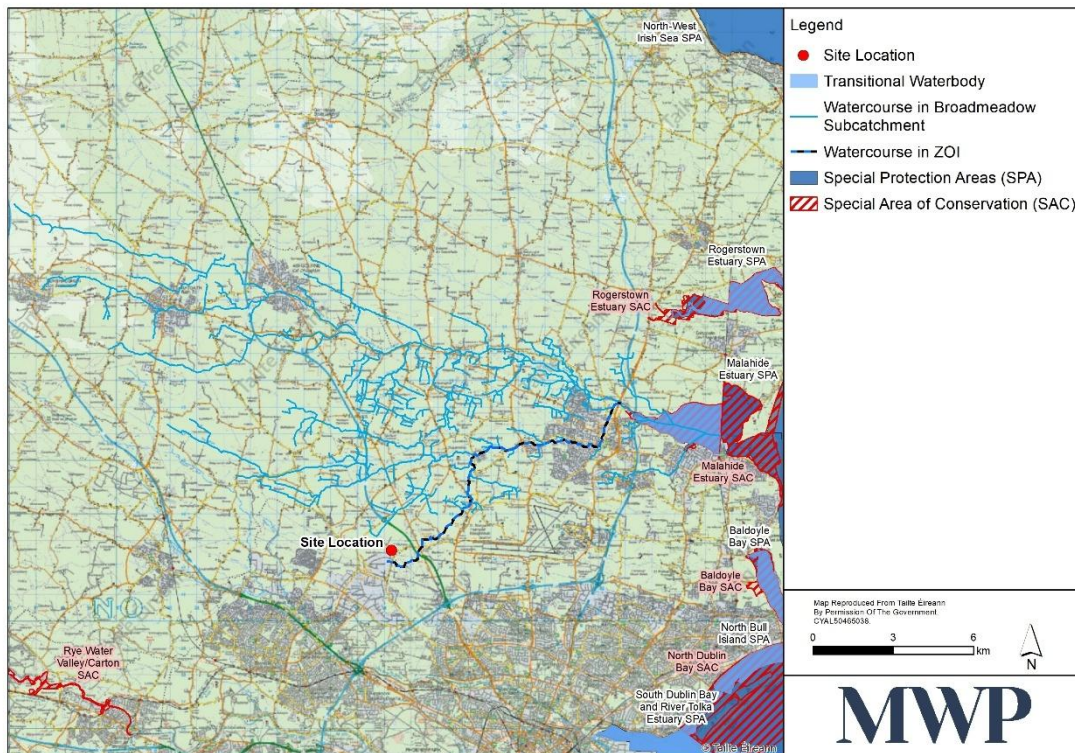


Figure 6-15: Natura 2000 Sites

## **6.5 Assessment of Effects**

An analysis of the potential effects of the proposed development on the groundwater and surface water environment during the construction and operation phases is outlined in the sections below. Mitigation measures proposed as part of this project to address these potential impacts are presented in **Section 6.6**.

The AA Screening report undertaken as part of the project concluded that the Natura 2000 sites within the potential zone of impact influence of the proposed development are not likely to be significantly affected by the proposed development. As a result, no impacts are expected on the Malahide Estuary SAC or SPA or pNHA located 10.2km and 10.4km respectively from the proposed development.

### **6.5.1 Do-Nothing**

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation or construction at this site. Therefore, there would be a neutral effect on the hydrogeological and hydrological environment.

### **6.5.2 Construction Phase**

#### **6.5.2.1 Increased Run-off and Sediment Loading**

Land clearing, earthworks and excavations will be required for construction phase operations to facilitate site clearance, construction of the proposed BV extension, gas pipeline, and the Newtown AGI. This will include site levelling, construction and trench excavation and will necessitate the removal of some vegetation and the excavation of soil and subsoils.

Piling activities associated with construction may also contribute to short-term increases in surface water run-off and sediment loading. Installation of sheet piles, particularly at the drain crossing where works occur closest to a water feature, may disturb underlying soils and sediments, resulting in localised increases in turbidity and suspended solids in nearby drainage features. Minor and temporary effects on shallow groundwater may also occur where piling locally alters subsurface flow paths, though such effects are expected to be short-lived and of limited extent.

During piling, shallow groundwater may be intercepted, potentially transporting suspended solids and mobilised sediments to nearby drainage features if not properly managed. To prevent this, any intercepted groundwater will be collected and treated through silt bags to remove sediments before controlled discharge, thereby minimising the risk of temporary turbidity increases and localised sediment loading in connected surface watercourses.

The gradual introduction of impermeable surfaces and the compaction of soils across the construction site as a result of the land clearing and earthworks will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential effect of this is a possible increase in surface water run-off and sediment loading, which could potentially impact local drainage if not adequately mitigated.

Collected surface water run-off from site preparation and excavations during the construction phase may contain increased silt levels and suspended solids or become polluted from construction activities. The potential for sediment loading is associated with the following sources:

- Suspended solids (muddy water with increased turbidity – arising from dewatering, piling, excavation and ground disturbance; and
- Cement / concrete (increase turbidity and pH) – arising from construction materials.

An increase in suspended solids and silty water can also result from hydrostatic testing, exposed ground, stockpiles and storage areas associated with the construction activities for the temporary construction compounds, BV extension, transmission pipeline and the Newtown AGI. Run-off containing large amounts of silt and suspended solids can pose a short-term risk to nearby watercourses (via a drainage ditch to Huntstown Stream which is a tributary of the Ward River).

There are no direct hydrological connections to surface water features near the BV extension area or along the pipeline route on Bay Lane and Kilshane Road. Mitigation and avoidance measures will however be put in place to manage runoff during the construction phase at these areas to prevent contaminated water leaving the site. Where required, pre-construction field drainage will be installed to ensure current drainage systems continue to work throughout construction phase.

There is a possible direct pathway from construction activities (including the excavations works, piling and construction activities associated with Newton AGI, the associated temporary construction compound and the portion of the pipeline once it leaves Kilshane Road (L3120) and crosses through the agricultural field) to the surface water drainage ditch onsite which conveys flow from the agricultural fields to the Huntstown Stream. The transmission pipeline will also need to cross the drainage ditch to the west of the Newtown AGI. The crossing will be constructed as detailed in **Section 6.4.4.4**. Open cut crossings will be carried out as quickly as possible (typically 3-4 days) to minimise the potential environmental impact. After completion of works the drainage ditch will be reinstated to its original condition. As there is potential for contaminated run-off to enter into the Huntstown Stream (via the man made drainage ditch) which is hydrologically connected to the River Ward circa. 4.5km downstream, mitigation and avoidance measures highlighted in **Section 6.6.1** will be employed to remove the risk to these water features.

In the absence of mitigation measures, the potential effects during the construction phase on water resources as a result of contaminated increased run off and sediment loading are **negative, moderate, likely** and **temporary**.

### 6.5.2.2 Uncontrolled Discharges, Fuel and Other Accidental Spills

While there are no EPA surface water bodies traversing the site, there is a potential risk of unintentional discharge from construction traffic, stored materials like fuels and oils or piling activities which could have negative effects on hydrologically connected surface waters (via the man-made drainage ditch) and the underlying groundwater. During the construction phase, there is a risk of accidental pollution incidences from the following sources:

- Spillage or leakage of fuels (and oils) stored on site;
- Spillage or leakage of fuels (and oils) from construction machinery or site vehicles;
- Spillage of oil or fuel from refuelling machinery on site; and
- The use of concrete and cement.

Construction machinery, piling and concreting operations may result in contamination of runoff/surface water. Potential impacts could arise from accidental spillage of fuels, oils, lubricants, etc. which could impact water resources if allowed to infiltrate to the groundwater or to runoff to surface water systems and/or receiving watercourses. However, mitigation and avoidance measures highlighted in **Section 6.6.1** will be employed to remove the risk of contamination to these water features.

Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and local fauna and flora. However, employment of the mitigation measures highlighted in **Section 6.6.1** will ensure that any impact will be mitigated.

Without the consideration and employment of mitigation measures, the potential effect during construction phase as a result of accidental discharges / spills from the proposed development will be **negative, not significant, likely** and **temporary**.

### 6.5.2.3 Changes to Hydrological Flow Regime

The proposed BV extension will be located within the existing Kilshane BV station (an already built area). There are no watercourses present in the vicinity of the area. As a result, the construction of this element of the proposed development is unlikely to impact on the hydrology of the area.

The Newtown AGI and its associated temporary construction compound has the potential to impact on surface hydrology and drainage in the area. It will however be constructed within the proposed Kilshane Energy Facility. This facility will have a drainage plan in place and the proposed AGI will not further alter surface water flow. As detailed in Chapter 8 of the Kilshane Energy Facility EIAR, during construction, *“mitigations will be put in place to manage run-off during the construction phase”*. Once operational, *surface water will discharge directly into the existing drainage ditch network which ultimately outfalls into the Huntstown Stream. The Kilshane Energy Facility will be fully serviced with separate foul and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Irish Water licencing requirements. Discharge from the site to the public foul sewer will be sewage and grey water only due to the nature of the proposed development”*.

The commissioning phase will necessitate the use of approximately 76,000 litres of water for use in hydrostatic testing. The required water will be sourced from an existing mains water supply with consent from Uisce Éireann or Fingal County Council. Given that no new surface water abstractions are proposed as the hydrostatic testing water will be sourced from an existing supply, there are no potential impacts on the quantity of surface or groundwater resources locally. This water once used will be disposed of appropriately, via discharge to ground or alternatively, tankered away.

As concluded in the Flood Risk Assessment undertaken (**Appendix 6-1**), the proposed development is located within Flood Zone C as defined in the Flood Risk Management Guidelines and is appropriate. It was further demonstrated that the proposed development will not have a negative effect on flooding elsewhere and that the risk to occupants of the site would be low.

Construction activities that have the potential to alter the existing flow regime will be temporary during the construction phase. In the absence of mitigation measures, the potential effects during the construction phase on the hydrological flow regime are **negative, slight, likely** and **temporary**.

### 6.5.2.4 Potential Effects on the Water Framework Directive Status

There is a potential of accidental discharges / spillage and contaminated run-off during the construction phase (as set out in **Section 6.5.2.2**), however these are temporary events that will not impact on the water quality status of the Huntstown Stream (a tributary of the Ward River) or the Swords GWB and as such will not impact on trends in water quality and overall WFD status. Therefore, the potential effect on Water Framework Directive status during the construction phase is **neutral, not significant, unlikely** and **short-term**.

## 6.5.3 Operational Phase

### 6.5.3.1 Increased Run-off and Sediment Loading

The new hardstanding at the Newtown AGI and BV extension sites will result in increased runoff which could have increased sediment. The operational phase of the proposed development will include the BV extension within an already built up industrial area with runoff draining to a swale along the western boundary of the BV extension, the underground transmission pipeline along Bay Lane and Kilshane Road (L3120) which have their own existing

stormwater systems and the Newtown AGI which will connect into the drainage system within the proposed Kilshane Energy Facility site. As a result, the potential effects on water resources as a result of contaminated increased run off and sediment loading are **neutral, imperceptible, unlikely** and **long-term**.

### 6.5.3.2 Uncontrolled Discharges, Fuel and Other Accidental Spills

There will be no uncontrolled discharges or spills resulting from the underground transmission pipeline during the operational phase of the proposed development.

There is a potential for localised leaks and spillages from vehicles along access roads and in parking areas at the BV extension and the Newtown AGI which could lead to contamination of groundwater via infiltration or surface water resources via run-off. The Newtown AGI will be located within the Kilshane Energy Facility and will be connected to the Kilshane Energy Facility surface water infrastructure. The BV extension will be located within an existing industrial area and surface water will drain via a swale. Without mitigation detailed in **Section 6.6.1.2**, the potential effect during operational phase as a result of accidental discharges / spills will be **neutral, imperceptible, unlikely** and **long term**.

### 6.5.3.3 Changes to Hydrological Flow Regime

During the operational phase of the proposed development, there will be no additional changes to the hydrological flow regimes. The BV extension will be located in an industrial area, the pipeline will be underground and the Newtown AGI will be located within the Kilshane Energy Facility. Areas of new hardstanding will be small in area. Therefore, the potential effect during operational phase to changes in the hydrological flow regime will be **neutral, imperceptible, unlikely** and **long term**.

### 6.5.3.4 Potential Effects on the Water Framework Directive Status

There is no potential for negative effects on the Huntstown Stream (a tributary of the Ward River) or Swords GWB during the operational phase. Therefore, it has been assessed that the proposed development will not cause any 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 the River Basin Management Plan (RBMP) 2022-2027. Therefore the potential effect on Water Framework Directive status during the operational phase is **neutral, imperceptible, unlikely** and **long-term**.

## 6.6 Mitigation and Monitoring Measures

### 6.6.1 Mitigation Measures

The following section sets out specific measures which will provide protection to the receiving surface water and groundwater resources. These are work practices that are industry best practice measures that will be applied during the construction phase.

An **Outline Construction Environmental Management Plan (OCEMP)** has been prepared for the construction phase of the proposed development and is included as **Appendix 2-1** of this **EIAR**. This **OCEMP** details the construction techniques and methodologies which will be implemented during construction of the proposed development.

Construction works and the proposed mitigation measures are informed by best practice guidance on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);

- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741);
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005); and
- Guidelines for the crossing of watercourses during the construction of national road schemes (National Roads Authority; 2008).

The **OCEMP** will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager, Resource Manager and a suitably qualified Ecologist where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The **OCEMP** sets out the proposed procedures and operations to be utilised on the proposed construction site. All mitigation measures outlined here, and within the **OCEMP** will be implemented during the construction phase, as well as any additional measures required pursuant to consent conditions which may be imposed.

During the project planning phase, a comprehensive emergency response plan will be developed by the construction contractor. This plan will outline a well-defined procedure for effectively managing emergencies as they arise. Furthermore, it's imperative to disseminate this emergency protocol to all site personnel during the site induction process. This plan will include for events such as:

- Pollution incidents: These may involve spillages, the malfunction of temporary structures, embankment collapse, acts of vandalism, fires and other related events; and
- Extreme weather occurrences: Events such as heavy rainfall, localised flooding, are important factors to consider due to their potential impact on the construction process.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the site will be suitably trained in the implementation of the procedures.

#### 6.6.1.1 Increased Run-off and Sediment Loading

The construction phase will require that run-off water containing silt will be managed appropriately. Silt reduction measures will be implemented on site as necessary, including a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds, buffer zones between machinery and watercourses and the refuelling of machinery offsite).

Due to the presence of the drainage ditch crossing required along the pipeline route, site works will comply with current best practice, including Transport Infrastructure Ireland's *Guidelines for the crossing of watercourses during the construction of national road schemes* (TII, 2008). The following mitigation measures will be taken at the construction stage in order to prevent any runoff entering watercourses and prevent any resulting impacts to surface water systems:

- The temporary storage of soil will be carefully managed;
- Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection. This will prevent any potential negative impact on the stormwater drainage and the material will be stored away from any surface water drains;
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust;

- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to remove any potential impact;
- Silt traps will be used as required where run off may occur from the excavations associated with the Launch/Reception Pits;
- No direct discharges to be made to waters where there is potential for cement or residues in discharges;
- Where dewatering is required, dirty water will be fully and appropriately attenuated, through silt bags, before being appropriately discharged to ground;
- Used hydrostatic testing water will be discharged to ground via a silt sock, or alternatively tankered off site for appropriate disposal;
- Pouring of concrete for aprons, sills and other works should be carried out in dry weather conditions; and
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site and the suitable distance of topsoil piles from surface water drains will be maintained.

The proposed piling methodology (if piling is required), will give cognisance to the Environment Agency's (EA) guidance on 'Piling into Contaminated Sites' (EA, 2002) and 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (EA, 2001), (or similar best practice) in order to minimise the potential for the introduction of any temporary conduit between any potential sources of contamination at the ground surface and underlying groundwater.

The following mitigation will be employed for soil removal / compaction to limit runoff containing silt / suspended solids:

- Excavated material will be reused on site where possible;
- Surplus material will be removed off-site for reuse, recovery and/or disposal;
- Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment. The material will be stored away from any surface water drains;
- Movement of material will be minimised to reduce degradation of soil structure and generation of dust;
- All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred; and
- Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

#### **6.6.1.2 Uncontrolled Discharges, Fuel and Other Accidental Spills**

The following mitigation measures will be taken at the construction stage in order to prevent any spillages of fuels and prevent any resulting impacts to surface water systems:

- Designation of a bunded refuelling areas on the site;
- Provision of spill kit facilities across the site;
- Where mobile fuel bowsers are used the following measures will be taken:

- Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
- The pump or valve will be fitted with a lock and will be secured when not in use;
- All bowzers will carry a spill kit and operatives must have spill response training; and
- Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during construction, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally banded chemical storage cabinet unit or inside a concrete banded areas;
- Oil storage tank(s) and the associated filling area and distribution pipe work should be at least 10m distant from surface watercourses ;
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the site, they should be done so secured and on spill pallets; and
- Drums to be loaded and unloaded by competent and trained personnel using appropriate equipment.

The piling method will also include procedures to ensure any potential impact to water quality is prevented including preventing surface runoff or other piling/drilling fluids from entering the surrounding formation. Where there is a requirement to use lubricants, drilling fluids or additives the contractor will use water-based, biodegradable and non-hazardous compounds under controlled conditions.

All contractors will be required to implement mitigation measures discussed above. All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

## **6.6.2 Monitoring / Reinstatement**

During construction phase, the following monitoring measures will be undertaken:

- Weekly inspections will be undertaken during the construction phase to ensure surface water drains remain clear of silt and other obstructions, and to confirm that stockpiles and fuel/oil storage are kept within the designated areas specified in the Contractor's CEMP.
- Regular inspection of surface water run-off and any sediment control measures (e.g. silt traps) will be carried out during the construction phase. Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire construction phase;
- Regular auditing of construction / mitigation measures will be undertaken, e.g. concrete pouring, refuelling in designated areas, etc; and
- A log of the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

## 6.7 Residual Effects

The residual effects section outlines the degree of environmental change that will occur after the proposed mitigation measures have taken effect. Refer to **Table 6-2** for the residual effects of the proposed development on the water environment.

**Table 6-2: Residual Effects**

Impact (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)				
		Quality of Effect	Significance	Duration	Other Relevant Criteria	Likelihood
<b>CONSTRUCTION</b>						
Increased Run-off and Sediment Loading	Refer to <b>Section 6.6.1.1</b>	Negative	Not significant	Temporary	Direct	Likely
Uncontrolled Discharges, Fuel and Other Accidental Spills	Refer to <b>Section 6.6.1.2</b>	Negative	Not significant	Temporary	Direct	Likely
Changes to Hydrological Flow Regime	Refer to <b>Section 6.6.1</b>	Negative	Imperceptible	Temporary	Direct	Likely
Potential Effects on the Water Framework Directive Status	Refer to <b>Section 6.6.1</b>	Neutral	Imperceptible	Temporary	Direct	Unlikely
<b>OPERATIONAL</b>						
Increased Run-off and Sediment Loading	Refer to <b>Section 6.6.1.1</b>	Neutral	Imperceptible	Long term	Direct	Unlikely
Uncontrolled Discharges, Fuel and Other Accidental Spills	Refer to <b>Section 6.6.1.2</b>	Neutral	Imperceptible	Long term	Direct	Unlikely
Changes to Hydrological Flow Regime	Refer to <b>Section 6.6.1</b>	Neutral	Imperceptible	Long term	Direct	Unlikely
Potential Effects on the Water Framework Directive Status	Refer to <b>Section 6.6.1</b>	Neutral	Imperceptible	Temporary	Direct	Unlikely

## 6.8 Cumulative Impacts and Effects

**Section 1.6 of EIAR Chapter 01 Introduction** identifies the developments considered in the cumulative assessment of the project. Those projects deemed directly relevant and requiring closer examination are detailed in **Table 1-3** of the same chapter.

The cumulative effects of the proposed development with the proposed Kilshane Energy Facility, Proposed 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kV Substation are discussed further in the following sections.

### 6.8.1.1 Construction Phase

Given the uncertainty associated with project sequencing, this EIAR assumes that all works, including the 220 kV Transmission Line connection, the proposed gas pipeline, the Kilshane Power Station, and the 220 kV GIS Substation and AGI, will be constructed concurrently.

The construction activity related to the installation of the BV extension, gas pipeline and Newtown AGI (including excavation, use of heavy machinery, stockpiling, etc.), will potentially give rise to effects on surface and groundwater resources. These effects will however be temporary in duration and not significant / imperceptible with the implementation of the proposed mitigation detailed in **Section 6.6.1**.

Nonetheless, in comparison to the proposed Kilshane Energy Facility, 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kv Substation, the proposed development's construction stage effects will be **localised, temporary** in nature, and will only result in a very minor increase in the intensity of construction related effects should these projects be constructed simultaneously. In respect of the potential effects of the above-mentioned project, they have been subject to EIA, which includes appropriate mitigation measures to minimise environmental effects. The proposed development will not increase the construction phase predicted effects of these developments should they be constructed simultaneously.

Therefore, the construction phase cumulative effect of the proposed development in combination with the related project mentioned on hydrology and geohydrology aspects is considered to be **negative, imperceptible** and **temporary** (the construction phase of the proposed development will be no more than 10 months).

#### **6.8.1.2 Operational Phase**

The BV extension, the Newtown AGI and their related infrastructure (including fencing) will be the only above ground structures during the operational phase.

The proposed development will not increase the operational phase predicted effects of the Kilshane Energy Facility, Proposed 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kv Substation and therefore the conclusion of the EIAR remains unchanged. Therefore, the operational phase cumulative effect of the proposed development in combination with the related project listed on hydrology and geohydrology is considered to be **neutral, not significant** and **long term**.

## 6.9 References

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