



Carrickmines-Shanganagh River Flood Relief Scheme

Water Framework Directive Assessment

Final Report

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Contract

This report relates to the Carrickmines-Shanganagh River Flood Relief Scheme commissioned by Dún Laoghaire-Rathdown County Council (DLRCC), on behalf of the Office of Public Works (OPW). Tara Saccardo and Kate de Smeth of JBA Consulting compiled this report.

Purpose

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Abbreviations

CEMP	Construction Environmental Management Plan
CIS	Common Implementation Strategy
DLR	Dún Laoghaire-Rathdown
DLRCC	Dún Laoghaire-Rathdown County Council
EC	European Commission
ECoW	Ecological Clerk of Works
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
FRS	Flood Relief Scheme
GIS	Geographic Information System
HA	Hydrometric Area
OPW	Office of Public Works
RBMP	River Basin Management Plan
RPS	Record of Protected Structures
SW	Surface Water
WFD	Water Framework Directive

1 Introduction

JBA Consulting Engineers and Scientists Ltd. (hereafter JBA) has prepared a Water Framework Directive (WFD) Assessment Report for a proposed Flood Relief Scheme (FRS) on the Carrickmines-Shanganagh River, in the vicinity of Sandymount, Leopardstown, Loughlinstown, and Shankill (the 'proposed development') in response to Item 10a of the Request for Additional Information from An Coimisiún Pleanála on 15th December 2025.

Item 10a of the RFI states:

“The proposed FRS measures will take place within and along the following WFD designated river water bodies: Carrickmines Stream_010 and Shanganagh_010 which flows into the coastal water body Southwestern Irish Sea – Killiney Bay (HA10). In order to be compliant with the requirements of the WFD, any activity which has the potential to have an impact on WFD water bodies, directly or indirectly, must be assessed against the objectives of the WFD. You are therefore requested to submit a detailed WFD Assessment which assesses the impact of both construction and operational phases on WFD water bodies and examines if the proposed works will cause deterioration in the status of a water body or compromise the ability of the water body to achieve its environmental objectives. Notwithstanding the hydromorphological impact assessment in Table 10.6 of the EIAR, the WFD Assessment should include an hydromorphological impact on WFD water bodies which assess it against the WFD criteria. The WFD Assessment should consider those findings arising from question no. 5 above and related to hydromorphology.”

In preparing this assessment, the requirements of Items 5f and 5g of the RFI have also been considered. Details of these items are set out below:

5f. *“Clarification is needed with regard to the hydromorphological impacts of the scheme and the consequent effects on river habitats, such as loss of spawning gravels, nursery habitat and holding pools for fish. Describe the effects on river habitats from changes in river hydromorphology during the construction and operational phases of the scheme, considering both the effects to instream habitats in specific work areas, and cumulative effects across the catchment.”*

5g. *“The Carrickmines_010 and Shanganagh_010 waterbodies are the only waterbodies attaining Good WFD Status within the M50/M11 zone, and two of the few waterbodies attaining Good status in the greater Dublin area. Following the mitigation hierarchy, where impacts to river habitats cannot be avoided, describe how they will be minimised and compensated for. This shall include proposals for reinstatement of appropriate instream habitats to support protected aquatic life. The applicant shall liaise with IFI on the design of such measures.”*

The hydromorphological assessment and associated mitigation measures presented in the EIAR were reviewed by Inland Fisheries Ireland (IFI) as part of the RFI process. IFI did not raise any fundamental concerns regarding the proposed approach outlined in the EIAR. Clarifications were requested in relation to certain elements, including aspects of the Construction Environmental Management Plan (CEMP), and these have been addressed as part of the RFI response submission.

1.1 WFD Overview

The Water Framework Directive (WFD) is the most substantial piece of EU water legislation to date. The Directive imposes legal requirements to protect and improve the water environment. All activities in the water environment need to take the Directive into account. The EU Water Framework Directive was transposed into law in Ireland by S.I. No. 722/2003 - European Communities (Water Policy) Regulations 2003, with later elements in the European Communities (Surface Waters) Regulations 2009. Section 4 of the Surface Water Regulations sets out the duties of public authorities with regard to the Water Framework Directive. In particular, a public authority, in performing its functions, will ensure that surface water bodies comply with the relevant environmental quality standards. Also, a public authority shall not undertake its functions in a manner that knowingly causes or allows deterioration in the status or ecological potential of a

surface waterbody. Section 7 of the Surface Water Regulations lays out the duties of public authorities with regard to emission limits.

The Directive operates in six-year cycles: the 1st Cycle ran between 2009 and 2015, and the 2nd Cycle between 2016 and 2021. Ireland published its 3rd Cycle River Basin Management Plan ("RBMP"), in September 2024 covering the period from 2022 to 2027. The programme encompasses a total of 4,842 surface and groundwater bodies, rivers account for 66% of all waterbodies, followed by lakes (17%), groundwater (11%), transitional waterbodies (4%), coastal waterbodies (2%) and canals (>1%). Specifically, this includes 3,192 river water bodies, 812 lakes, 514 groundwater bodies 196 transitional waters, 112 coastal waters and 16 canals¹.

The RBMP is managed by the Environmental Protection Agency in collaboration with the Marine Institute, Inland Fisheries Ireland, Waterways Ireland, and the National Parks and Wildlife Service. The most recent characterisation assessment indicates that 1,983 water bodies, representing 41% of the total number of waterbodies, are classified as "Not at Risk" and currently meet their environmental objectives of achieving good or high status. In contrast, 1,603 water bodies (26%) are identified as "At Risk" due to significant pressures that may prevent them from meeting these objectives. Additionally, 1,256 water bodies, accounting for 26%, are currently under review to determine their risk status¹.

All identified WFD waterbodies in the vicinity of the proposed development have been assigned a status by the EPA.

1.1.1 Scope of the WFD Assessment

The European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) require that Environmental Objectives be set for all surface and ground waters in Ireland to enable them to achieve Good Status (or Good Ecological Potential for Heavily Modified and Artificial Waterbodies) by a defined date. These Environmental Objectives for surface waterbodies include the following:

- To prevent deterioration of the status of surface waters;
- To protect, enhance and restore surface waters, with the aim of achieving good status (ecological and chemical) for all WFD waterbodies;
- To protect and enhance heavily modified waterbodies and artificial waterbodies in order to achieve good ecological potential and good chemical status for those waterbodies;
- To progressively reduce pollution from priority substances and cease or phase out emissions, discharges and losses of priority hazardous substances into surface waters.

1.1.2 Preventing Deterioration in Status

A WFD assessment should expressly make the conclusions required in the WFD that neither a deterioration in status nor a jeopardization of the attainment of good water status will occur.

Any activity which has the potential to have an impact on the ecology of a waterbody will need consideration in terms of whether it could cause deterioration in its Ecological Status or Potential. The assessments will provide a detailed appraisal of the potential impacts of the proposed measures on waterbody

¹ Government of Ireland (2024) Water Action Plan 2024: A River Basin Management Plan for Ireland. Ireland: Department of Housing, Local Government and Heritage. Available at: <http://www.gov.ie/pdf/?file=https://assets.gov.ie/199144/7f9320da-ff2e-4a7d-b238-2e179e3bd98a.pdf#page=null>

hydromorphology and status and, where necessary, a detailed appraisal under Article 4(7) of the WFD (derogation related to deterioration caused by new modifications)².

For each waterbody, three different status objectives are identified within the RBMP. These are the overall status objective, the ecological status or potential objective and the chemical status objective. A default objective for all WFD waterbodies is to prevent the deterioration in the Ecological Status (or Ecological Potential for Heavily Modified and Artificial Waterbodies) of the waterbody. Note, the Ecological Status applies only to surface water bodies, and not groundwater bodies. A separate assessment may be required to assess the impacts on the chemical and quantitative status of a groundwater body, if the proposed activity is likely to cause impact.

The Ecological Status of a waterbody is determined through analysis of its constituent Biological Quality Elements. These elements are in turn supported by a series of Physico-Chemical and Hydromorphological Quality Elements. These Quality Elements are taken from Annex V of the WFD Regulations and are listed below. The overall Ecological Status is determined by the lowest element status.

The Biological Quality Elements assessed in the WFD include:

- Fish
- Benthic Invertebrates
- Macrophytes
- Phytobenthos
- Phytoplankton

The WFD defines the flow, shape and physical characteristics of a watercourse as its 'hydromorphology'. Any in-channel works can impact upon the shape of a watercourse and the natural processes that occur within it, including:

- Flow patterns
- Width and depth of a channel
- Features such as pools, riffles (shallow parts of a stream), bars and bank slopes
- Sediment availability/ transport
- Interaction between a channel and its floodplain
- Ecology and biology (i.e., habitats which support plants and animals)

The WFD considers the chemistry of a watercourse through general water quality (physico-chemical measurements) and chemical pollutants. All three environmental components; morphology, hydrology and chemistry, support the overall biology of a waterbody.

Any activity that has the potential to have an impact upon any of the Quality Elements will need consideration in terms of whether it could cause a deterioration in the status of a waterbody. The activity will also need to be considered in terms of whether it will compromise the ability of the waterbody to reach Good Ecological Status or Good Ecological Potential by 2027 at the latest.

Any adverse impacts can cause a waterbody's ecology to deteriorate and prevent environmental improvements from being undertaken. Nevertheless, in-channel works can also be beneficial if they can be designed to help achieve environmental improvements included in the RBMP, thus enhancing the water environment for plants and animals.

² Department of Housing, Local Government and Heritage (2024) River Basin Management Plan for Ireland 2022-2027. Available at: <https://www.gov.ie/en/department-of-housing-local-government-and-heritage/policy-information/river-basin-management-plan-2022-2027/>

1.1.3 Artificial or Heavily Modified Waterbodies

Whilst good ecological status is defined as a slight variation from undisturbed natural conditions in natural waterbodies, artificial and heavily modified waterbodies are unable to achieve natural conditions. Instead, artificial and heavily modified waterbodies have a target to achieve Good Ecological Potential, which recognises their important uses, whilst making sure ecology is protected as far as possible. Ecological potential is also measured on the scale high, good, moderate, poor and bad. The chemical status of these waterbodies is measured in the same way as for natural waterbodies.

Specific mitigation measures have been identified for each Artificial and Heavily Modified Waterbody and are listed in the RBMP. These mitigation measures are necessary to reduce the existing hydromorphological impacts on the waterbody and all measures need to be in place in order for the waterbody to achieve Good Ecological Status or Potential.

1.1.4 Protected Areas

The WFD specifies that areas requiring special protection under other retained EC Directives and waters used for the abstraction of drinking water are identified as protected areas. These areas have their own objectives and standards. Article 4 of the WFD requires Member States to achieve compliance with the standards and objectives set for each protected area by 22nd December 2015, unless otherwise specified in the legislation under which the protected area was established. The date by which compliance must be reached has been extended to 2027 at the latest.

These protected areas under the WFD include:

- Drinking water protected areas (DWPA)
- Nutrient sensitive areas (NSA)
- Salmonid rivers
- Shellfish classified areas
- Bathing water areas

1.2 Purpose of this WFD Assessment

The Water Framework Directive (WFD) Assessment Report has been prepared for a proposed Flood Relief Scheme (FRS) on the Carrickmines-Shanganagh River, in the vicinity of Sandyford, Leopardstown, Loughlinstown, and Shankill (the 'proposed development'). The proposed development comprises a flood relief scheme to minimise the risks currently posed to people, property, the community, social amenity, environment, and landscape.

This WFD assessment aims to determine the effects of the proposed development on ecological, hydromorphological and chemical quality and identify any potential impacts that could cause deterioration in the current status of the waterbody or could hinder the waterbody from meeting its WFD objectives in the future. The assessment will determine whether the conclusions required in the WFD, that neither a deterioration in status nor a jeopardization of the attainment of good water status will occur, apply for the proposed development.

The site is situated within the Ovoca-Vartry WFD catchment (HA 10D). The catchment is 1,247km² in area according to the 3rd Cycle Draft Ovoca-Vartry Catchment Report³.

³ Environmental Protection Agency (2024) Cycle 3 HA 10 Ovoca-Vartry Catchment Report, May 2024. Available at: <https://catchments.ie/wp-content/files/catchmentassessments/10%20Ovoca-Vartry%20Catchment%20Summary%20WFD%20Cycle%203.pdf>

The proposed development site is entirely located within the Dargle_SC_010 sub-catchment. The sub-catchment contains eleven river waterbodies, including the Carrickmines-Shanganagh River, where the proposed scheme is to take place. The Carrickmines-Shanganagh River primarily flows in a south-easterly direction through heavily developed land, with numerous residential estates, commercial and employment centres, and major transport corridors including the M50, N11, and Dublin-Bray railway line all present. The river ultimately discharges into the Irish Sea at Killiney Bay. The Carrickmines-Shanganagh River is fed by several tributaries, including the Brides Glen River, the Kilgobbin Stream, and the Ballyogan Stream.

There are no artificial waterbodies within the Ovoca-Vartry catchment. The catchment contains four heavily modified waterbodies, however none are within the Dargle_SC_010 sub-catchment.

The Environmental Objectives, together with any specific actions (mitigation measures) necessary to enable the waterbody to meet these objectives, are set out in the River Basin Management Plan (RBMP) for Ireland (2022-2027) and the Environmental Protection Agency (EPA) Interactive GIS mapping website.

2 Assessment Methodology

2.1 Overview

The following flow chart (Figure 2-1), from the Common Implementation Strategy for the Water Framework Directive and the Floods Directive (CIS Guidance Document No. 36) summarises the WFD Assessment process.

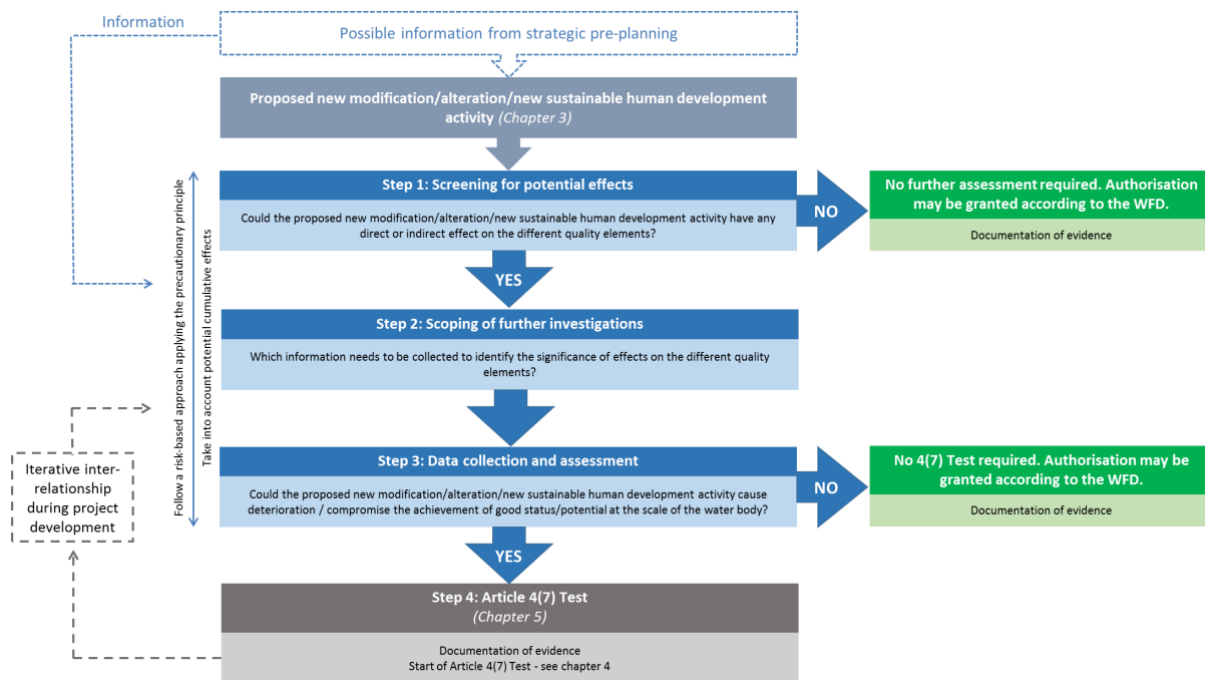


Figure 2-1:WFD assessment process (Source: CIS Guidance Document No. 36)

2.2 Stage 1: Screening Assessment

The purpose of the screening stage is to identify potential for impacts of the proposed development on relevant WFD waterbodies, i.e., whether it will contribute to deterioration of status; or jeopardise the waterbody achieving good status in the future. The Screening Assessment aims to exclude any activities that do not need to go through the scoping or WFD impact assessment stages. Screening takes place in 4 steps:

- Step 1 – Description of the nature of the project, site, and locality
- Step 2 – Identification of relevant WFD waterbodies and their status
- Step 3 – Use of Source-Pathway-Receptor method to infer hydraulic linkages between the project and the relevant WFD waterbodies
- Step 4 – Screening statement.

The EPA's WFD waterbody geographic data files (shapefiles) were used to determine which WFD waterbodies could be potentially affected by the proposed works. The names, ID numbers, designation, status classification and objectives for all relevant WFD waterbodies were obtained and downloaded from the EPA catchments website (www.catchments.ie).

The initial stage of the assessment screens the proposed works against the Ecological and Chemical Status objectives for the WFD waterbodies potentially affected by the works, together with their Quality Elements. The aim of this process is to determine whether the works could have an impact upon any of these criteria. Those criteria for which no potential adverse effects are identified are not considered further in the

assessment. Any potential adverse effects are screened into the assessment and are carried forward to a detailed assessment.

The Source-Pathway-Receptor method is used in the screening assessment. This first considers any potential sources of impacts, i.e., the proposed development and its associated activities. Pathways from these sources are then considered, such as surface water pathways or groundwater pathways. The receptors are then the sites or waterbodies which could be impacted.

2.3 Stage 2: Scoping Assessment

A detailed assessment is then undertaken to determine the effects that the proposed works could have upon those Quality Elements screened into the assessment. Any impacts identified are then considered in relation to the Ecological Status of the waterbody, which comprises biology, hydrology, hydromorphology and water chemistry. The purpose of the Scoping stage is to determine how the development could affect each WFD Quality Element (i.e., Biological, Hydromorphological, Chemical). Scoping should include an initial assessment to determine which WFD waterbodies and their quality elements are at risk; and identification of WFD waterbodies where detailed assessment is required.

The following quality elements shown in Table 2-1 below will be assessed during the scoping assessment.

Table 2-1: Water quality elements

Quality Element	Sub-Category	Individual Elements Assessed
Biological elements	Aquatic flora (macrophytes and phytobenthos)	Taxonomic composition Abundance
	Benthic invertebrate fauna	Taxonomic composition Abundance Level of diversity Ratio of disturbance sensitive taxa to insensitive taxa
	Fish	Species composition Abundance Type-specific disturbance-sensitive species present Age structure
	Phytoplankton	Taxonomic composition Abundance Planktonic bloom status
Hydromorphological elements	Hydrological regime	Quantity and dynamics of water flow Connection to groundwater bodies
	River continuity	Lateral connectivity Longitudinal connectivity
	Morphological conditions	River depth and width variation Structure and substrate of the riverbed Structure of the riparian zone
Physico-chemical elements	General	Thermal conditions Oxygenation conditions Salinity Acidification status Nutrient conditions
	Specific pollutants	Pollution by all priority substances identified as being discharged into the body of water Pollution by other substances identified as being discharged in significant quantities into the body of water

2.4 Stage 3: WFD Impact Assessment

The third stage of the WFD Assessment, if determined as necessary from the Screening and Scoping Assessments, is to undertake a WFD Impact Assessment to consider the impacts of the proposed scheme in more detail and recommend necessary mitigation measures. An impact assessment must be carried out for each receptor identified during scoping as being at risk from your activity.

The Stage 3 assessment process is focused on assessing the potential for the proposed development to impact on the objectives of the WFD and the RBMP. The assessment shows how any impact on WFD receptor caused by the proposed activity fits with the objectives of any affected WFD waterbodies. After the works have been amended to try and avoid, minimise, mitigate or compensate for the risks to WFD receptors the following questions will need to be answered:

- Could the activity still cause a waterbody to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening?
- Could the activity prevent or undermine action to get waterbodies to good status?

When these questions are answered, the following should be borne in mind:

- A waterbody deteriorates in status when one WFD receptor (an "element") is affected such that it drops from one WFD status class to another.
- A significant localised impact on an element is one that is either long-lasting; causes severe harm; or affects a wide area within a waterbody. These are likely to contribute to a waterbody dropping from one status to another and highly likely to prevent action to get waterbodies to good status.
- Elements at high status are very sensitive. The assessment will need to demonstrate that there will be a negligible impact on those aspects of the water environment.
- Elements at bad status must not be made worse.

The assessment is undertaken in 2 steps:

Step 1: Detailed assessment. For each quality element it must be shown that the activities scoped into the assessment will not cause deterioration in status nor prevent the achievement of WFD status objectives. This must include:

- A description of the proposed development
- Baseline characteristics and conditions for each identified waterbody
- Methodology used to identify WFD impacts
- Risk of impact to WFD waterbodies
- Any specific mitigation required
- Enhancement measures or positive contributions that the project will provide

Step 2: Findings. The findings should be set out in a WFD Assessment Report.

If it cannot be demonstrated with a high level of confidence that the activity supports RBMP objectives, then in order for the Competent Authority (in this case, An Coimisiún Pleanála, ACP) to permit the activity it must be shown that the activity meets the criteria set out in Article 4(7) of the WFD. Article 4(7) sets out stringent environmental and socio-economic tests to assess if a scheme meets strict environmental and sustainability criteria.

2.5 Stage 4: Article 4(7) Test

If the Competent Authority concludes the proposed development will not cause or contribute to deterioration of status; or jeopardise the waterbody achieving good status, planning permission may be granted, subject to meeting other relevant planning / legal requirements.

If Article 4(7) has been triggered, the WFD assessment process must provide justification for the following tests:

- Test (a) - all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
- Test (b) - the reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every six years;
- Test (c) - the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 (of Article 4(7)) are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and
- Test (d) - the beneficial objectives served by those modifications or alterations of the waterbody cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.

3 Stage 1: Screening

This screening assessment aims to screen in any works that require WFD Assessment and to identify which WFD waterbodies are within and near to the proposed works.

- Step 1 – Description of the nature of the project, site, and locality.
- Step 2 – Identification of relevant WFD waterbodies and their status.
- Step 3 – Use of Source-Pathway-Receptor method to infer hydraulic linkages between the project and the relevant WFD waterbodies.
- Step 4 – Screening statement.

The results of the screening assessment are presented below. The baseline status of the Quality Elements within the WFD waterbodies screened into the assessment are discussed in this chapter. As discussed in the Introduction and Methodology, if this section finds there is potential for the proposed works to cause deterioration in the status of a WFD waterbody, or prevent it from achieving its status objectives, the relevant waterbody and its Quality Elements should be taken forward and consider further in the Scoping Assessment chapter.

3.1 Project Overview

The development will consist of a series of flood defences positioned along the banks of the Carrickmines-Shanganagh river system as it flows from the R117 Enniskerry Road towards the sea between Killiney and Shankill. The defences comprise new and upgraded flood walls, culvert adjustments, and instream works.

3.1.1 Location

The site and WFD surface waterbodies within 5km are shown in Figure 3-1 and Figure 3-2, and WFD groundwater bodies within 2km in Figure 3-3 overpage. An initial buffer distance of 5km is considered appropriate for surface waterbodies given the size and nature of the proposed development. However, other waterbodies which are outside of this but downstream of the development will be examined, if deemed necessary following the initial screening and scoping exercises.

For groundwater bodies, an initial buffer distance of 2km is considered appropriate, and is in line with guidance published by the Institute of Geologists of Ireland (IGI) on the assessment of hydrogeology⁴. Other groundwater bodies which are outside of this will be examined if deemed necessary following the initial screening and scoping exercises.

The proposed development is on and adjacent to the Carrickmines Stream_010 and the Shanganagh_010, the primary WFD-designated waterbodies in the area. This river network flows south-east before discharging into the Irish Sea at Killiney Bay.

The proposed scheme includes interventions on some of the rivers and streams including: Kilgobbin Stream, Ballyogan Stream, Carrickmines River, Brides Glen River and Shanganagh River. The Carrickmines-Shanganagh River catchment is approximately 36km² and encompasses a wide variety of land uses ranging from rural mountainous areas in the west, to urban residential areas in the east. The proposed development will be situated primarily in the built-up residential parts of the catchment.

⁴ IGI (2013) Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements. Available at: https://www.gsi.ie/documents/IGI_guidelines_on_EIAR.pdf

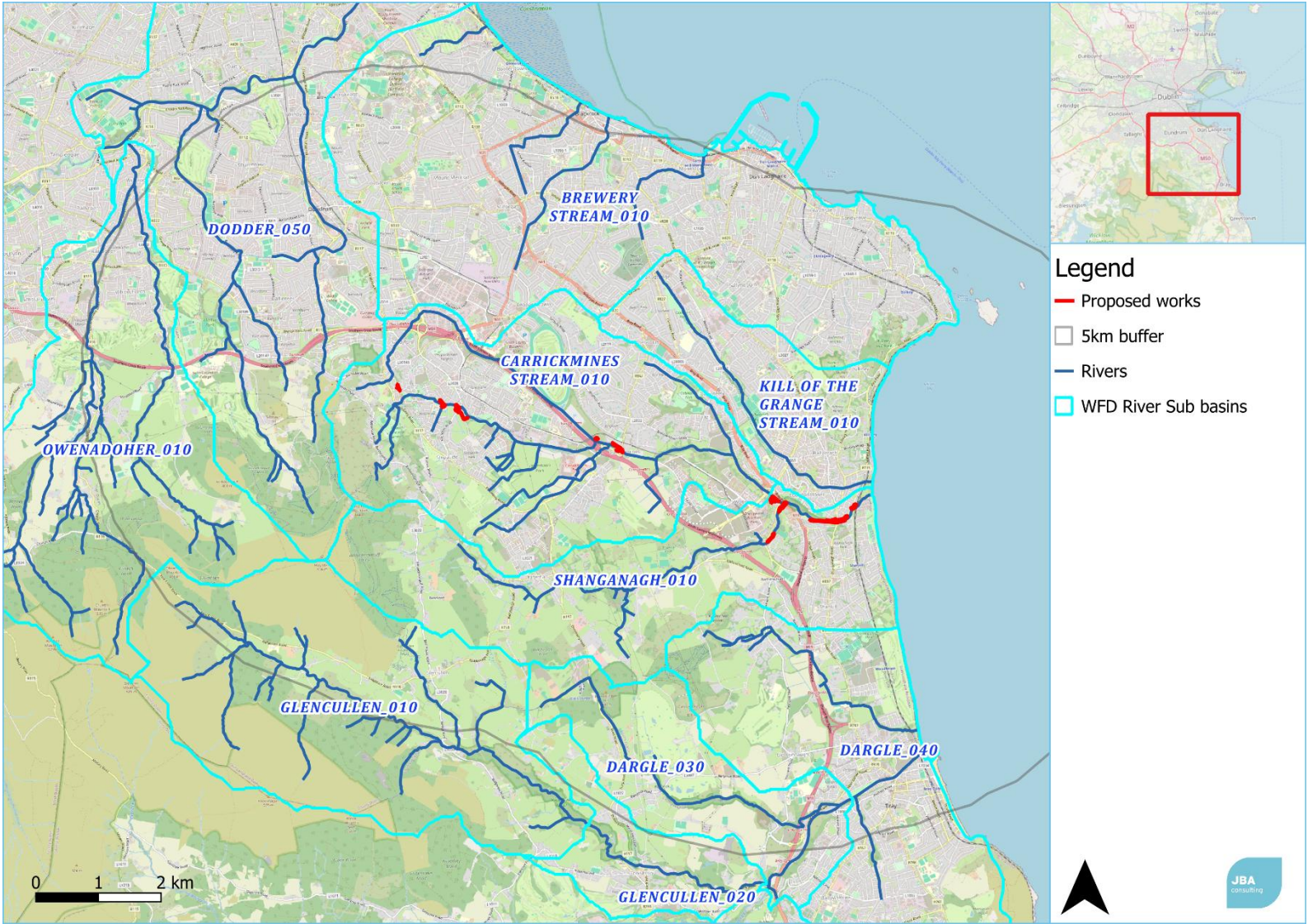


Figure 3-1: WFD river waterbodies within 5km of the site

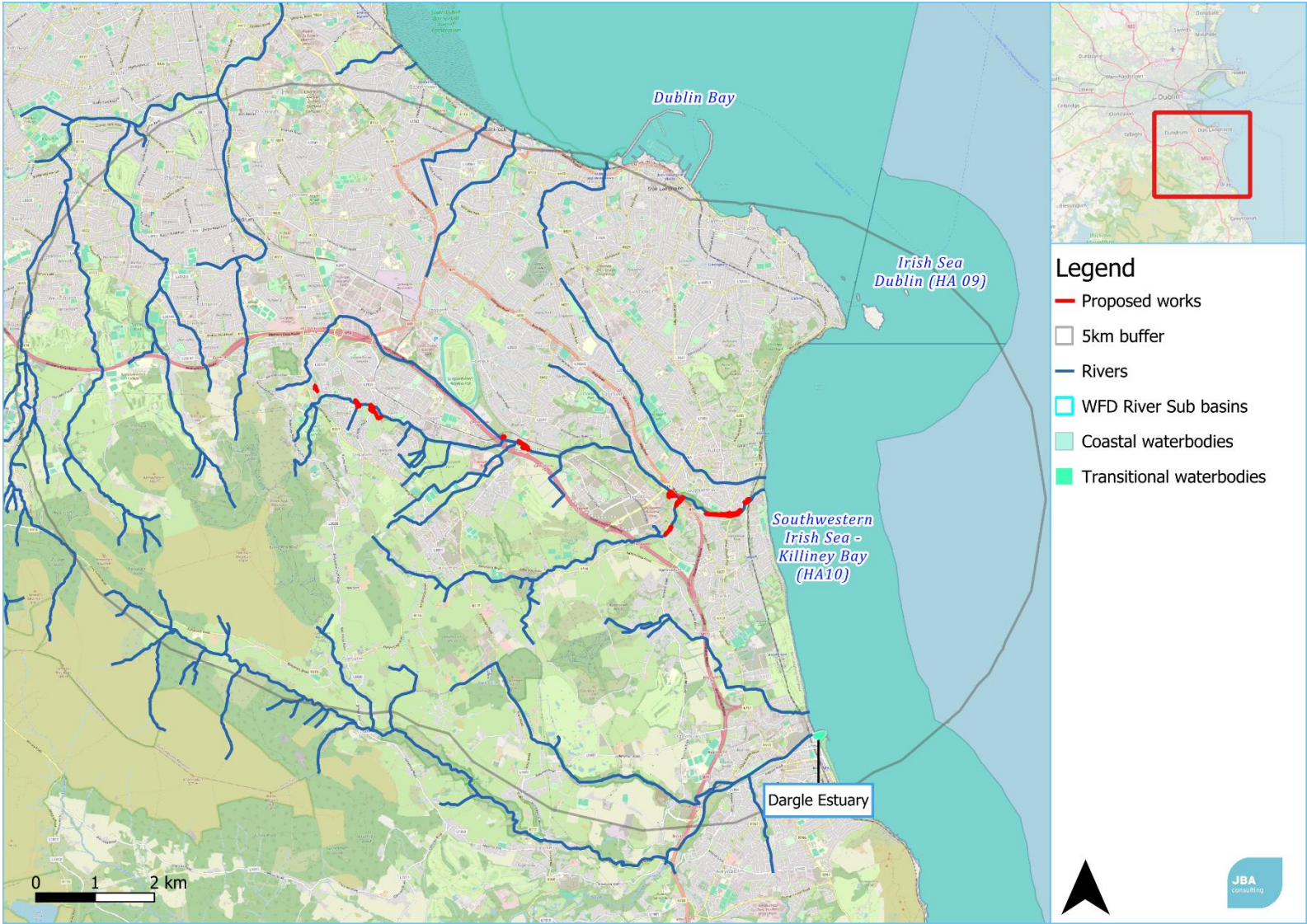


Figure 3-2: WFD transitional and coastal waterbodies within 5km of the site

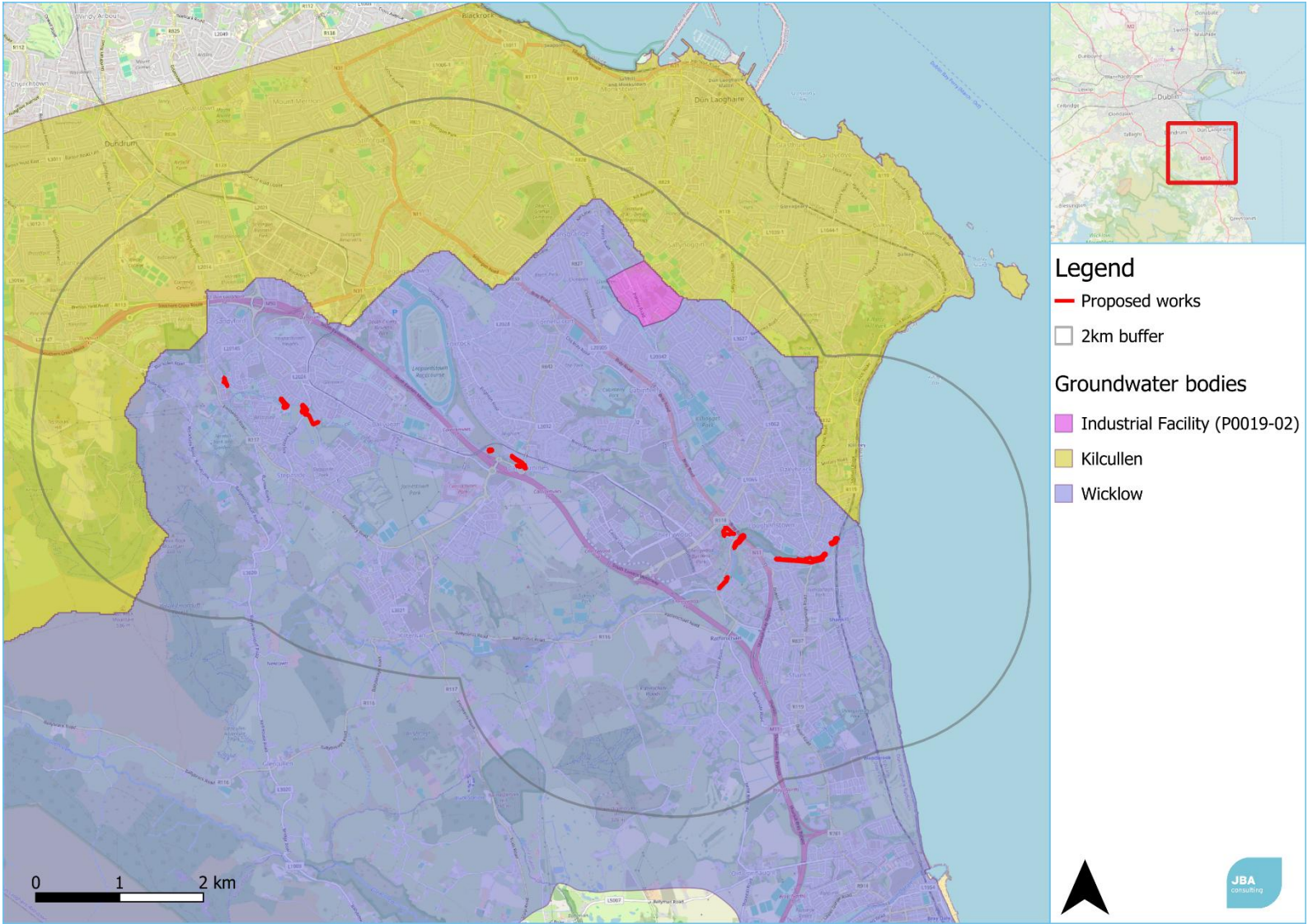


Figure 3-3: WFD groundwater bodies within 2km of the site

3.1.2 Description of the Proposed Works

The characteristics of the proposed development are described in detail in this section. A summary of the activities associated with the construction of the development is described in Table 3-1.

The following works are proposed in the CARRICKMINES STREAM_010 river sub-basin, as indicated in Figure 3-1:

Clon Brugh – 1.A, 1.B

- Construction of c. 113m of flood defence walls up to 1.35m high adjacent to the existing overland flow path from the Carysfort Maretimo Stream.
- Demolition of c. 16m of existing masonry walls and realignment works to the existing footpath.

Belarmine Park – 2.B, 2.D

- Replacement of c. 100m of the Sandyford Hall boundary wall with a new concrete flood defence wall up to 2.6m high.
- Construction of c. 36m of new flood defence walls in Belarmine Park up to 1.65m high to tie into the existing culvert inlet.
- Minor upgrade works to the existing culvert inlet structure.

Kilgobbin Road – 2.E, 2.G

- Replacement of c.69m of existing stone boundary wall to a protected structure Kilgobbin House (RPS Ref: 1684) and construction of c.100m of stone finished flood defence walls up to c.1.7m upstream of Kilgobbin Bridge.
- Installation of c. 298m of culvert from a proposed flow control weir at Kilgobbin Bridge to a discharge point adjoining Meadowbrook downstream.

Glenamuck Road North – 3.A

- Demolition and removal of c. 128m of existing masonry walls.
- Construction of c. 259m of stone finished flood defence walls up to 1.9m high, including flood gate, along Castle View/Ballyogan Grove and the upstream face of the bridge at Glenamuck Road roundabout.
- Construction of c. 90m of flood defence wall up to 1.5m high adjacent to the river immediately downstream of Glenamuck Road roundabout.
- Installation of a new in-channel debris screen immediately upstream of the existing bridge.

The following works areas are located in the SHANGANAGH_010 sub-basin, as indicated in Figure 3-1:

Cherrywood Road – 4.A

- Construction of c. 178m of concrete flood defence wall ranging from 1.1m to 2.7m high, including demountable barriers and railings, on the bank of the Brides Glen River adjoining the existing properties and upstream of the Cherrywood Viaduct (RPS Ref. 1783).

Bray Road – 5.D

- Construction of c. 133m of concrete flood defence wall ranging from 1.1m to 3.1m high, including flood gate, on the Carrickmines River to the rear of existing properties on Bray Road.
- Circa 75m of river channel realignment, replacement of the existing access bridge and strengthening works to the existing masonry arch.

Lower Brides Glen – 4.B

- Construction of c. 129m of flood defence walls ranging from 1.2m to 2m in height. The walls are to be located along the north bank of Brides Glen River, within the curtilage of existing properties including a protected structure Waterfall Cottage (RPS Ref: 1770) and immediately upstream of the N11 culvert. Works include demountable barriers and decorative railings.

N11 Overflow Culvert – 4.C

- Installation of c. 53m of new 2.4m diameter overflow pipe beneath the N11 dual carriageway including an inlet upstream of the N11 and an outlet structure in Loughlinstown Park.

Commons Road, River Lane and Brookdene – 5.A

- Construction of c.209m of flood defence walls up to 2.4m high on Commons Road adjoining the river.
- Structural works to upgrade c. 324m of existing flood defence walls upstream of Shanganagh Road Bridge to an overall height of up to c.3.6m.
- Structural remedial works to the existing Protected Structure, Shanganagh Bridge (RPS Ref: 1773) including underpinning, scour protection and reinforcement of the masonry parapet.
- Upgrading of c.113m of existing flood defence wall on along the road known as River Lane to a height of up to c.1.8m and construction of c.185m of flood defence wall to a height of up to c.1.2m in the Brookdene Estate.

Bayview – 5.C

- Construction of c. 95m of stone finished flood defence walls up to 1.8m high in the green area adjacent to Bayview Grove/Lawns.
- Replacement of c. 17m of existing boundary wall at 20 Bayview Lawns with a new flood defence wall to match existing wall height and finishes and replacement of remaining c. 10m of wall tying into the culvert under the railway with a concrete flood defence wall.

3.1.3 Proposed Activities

The proposed development will involve the following stages or activities:

Table 3-1: Activities associated with the proposed development

Activity Reference	Stage	Activity	Description
C1	Construction	Site clearance and preparation	Perimeter fencing will be erected, site compounds, welfare areas, and storage areas established. Clearance of waste and vegetation for removal. Drainage and service diversions.
C2	Construction	Demolition of existing flood defences	Demolition and removal of sections of existing flood walls.
C3	Construction	Earthworks and river channel modifications	Localised excavation for foundations and culverts. In one location, realignment of river channel.
C4	Construction	Construction and upgrading of flood walls, culvert and instream works	Construction of new flood walls and raising or strengthening of existing flood walls along the Carrickmines-Shanganagh river network. Construction of new weir and debris screens. Upgrade of existing culverts.
C5	Construction	Reinstatement	Reinstatement of disturbed areas following construction. Removal of temporary works.
O1	Operation	Surface water and river discharge	River flows conveyed through the channel, flood walls, culverts and the realigned section in accordance with the scheme design.
O2	Operation	Inspection and maintenance	Routine inspection and maintenance of flood defence structures.

3.1.4 Environmental Assessment

An Environmental Impact Assessment Report (EIAR) has been prepared for the proposed development. Chapter 10 of the EIAR addresses the water environment and assesses potential impacts arising from both

the construction and operational phases of the proposed scheme. The EIAR outlines mitigation measures to avoid or reduce adverse effects on surface and groundwater quality, including proper planning of works, site management, and excavation plans.

A preliminary scheme specific Construction Environmental Management Plan (CEMP) has also been prepared by JBA Consulting. The CEMP includes mitigation measures which will be developed into a construction stage CEMP implemented by the appointed contractor during construction which will manage, minimise, and mitigate any potential environmental impacts. Key measures include sediment and runoff management, pollution prevention, timing and monitoring of instream works to minimise habitat disturbance, and the design of culverts and channel works to maintain fish passage and flow and sediment continuity. These measures have been assessed in this report as an integral part of the design of the proposed development.

An Appropriate Assessment (AA) Screening has been prepared by JBA Consulting, which concluded that there are no likely significant impacts on Natura 2000 sites as a result of the proposed development.

3.2 WFD Waterbodies

WFD waterbodies in proximity to the proposed development are summarised in Table 3-2 below and shown in Figure 3-1, Figure 3-2 and Figure 3-3 above. WFD waterbodies greater than 5km from the proposed development are not likely to be impacted, given the distance and nature of the development.

Table 3-2: WFD waterbodies in proximity to the proposed development

EU Code	Waterbody Name	Type	WFD Status
IE_EA_10C040350	CARRICKMINES STREAM_010	River	Good
IE_EA_10S010600	SHANGANAGH_010	River	Good
IE_EA_10K020200	KILL OF THE GRANGE STREAM_010	River	Poor
IE_EA_10D010300	DARGLE_040	River	Good
IE_EA_10D010250	DARGLE_030	River	Good
IE_EA_10G020300	GLENCULLEN_010	River	High
IE_EA_10G020500	GLENCULLEN_020	River	Good
IE_EA_09O011700	OWENADOHER_010	River	Moderate
IE_EA_09D010900	DODDER_050	River	Moderate
IE_EA_09B130400	BREWERY STREAM_010	River	Poor
IE_EA_G_076	Wicklow	Groundwater	Good
IE_EA_G_003	Kilcullen	Groundwater	Good
IE_EA_G_091	Industrial Facility (P0019-02)	Groundwater	Poor
IE_EA_110_0100	Dargle Estuary	Transitional	Moderate
IE_EA_100_0000	Southwestern Irish Sea - Killiney Bay (HA10)	Coastal	Good
IE_EA_070_0000	Irish Sea Dublin (HA 09)	Coastal	Good
IE_EA_090_0000	Dublin Bay	Coastal	Good

3.3 Source-pathway-receptor model

The following table indicates which WFD waterbodies have been screened in or out of the assessment and the reasons for this decision. Those WFD waterbodies which have been screened in are shown in Figure 3-4.

Table 3-3: Screening outcome for previously identified WFD waterbodies in the study area (bold are screened in)

Waterbody	Hydraulic Linkage	Screening Outcome
CARRICKMINES STREAM_010	The Carrickmines River is directly connected to the proposed scheme.	Screened in
SHANGANAGH_010	The Shanganagh River is directly connected to the proposed scheme.	Screened in
KILL OF THE GRANGE STREAM_010	River is in a different sub-basin and not hydraulically linked.	Screened out
DARGLE_040	River is in a different sub-basin and not hydraulically linked.	Screened out
DARGLE_030	River is in a different sub-basin and not hydraulically linked.	Screened out
GLENCULLEN_010	River is in a different sub-basin and not hydraulically linked.	Screened out
GLENCULLEN_020	River is in a different sub-basin and not hydraulically linked.	Screened out
OWENADOHER_010	River is in a different sub-basin and not hydraulically linked.	Screened out
DODDER_050	River is in a different sub-basin and not hydraulically linked.	Screened out
BREWERY STREAM_010	River is in a different sub-basin and not hydraulically linked.	Screened out
Wicklow	Development site is inside this groundwater body, potential hydrogeological link.	Screened in
Kilcullen	Development site is not inside this groundwater body and is not hydrogeologically linked.	Screened out
Industrial Facility (P0019-02)	Development site is not inside this groundwater body and is not hydrogeologically linked.	Screened out
Dargle Estuary	No hydraulic connection exists between the proposed scheme and this transitional waterbody.	Screened out
Southwestern Irish Sea - Killiney Bay (HA10)	Waterbody is downstream of the Carrickmines River and Shanganagh River.	Screened in
Irish Sea Dublin (HA 09)	No hydraulic connection exists between the proposed scheme and this coastal waterbody. Given the localised nature of discharges to Killiney Bay, no pathway for significant effects to extend to this coastal waterbody is identified.	Screened out
Dublin Bay	No hydraulic connection exists between the proposed scheme and this coastal waterbody. Given the localised nature of discharges to Killiney Bay, no pathway for significant effects to extend to this coastal waterbody is identified.	Screened out

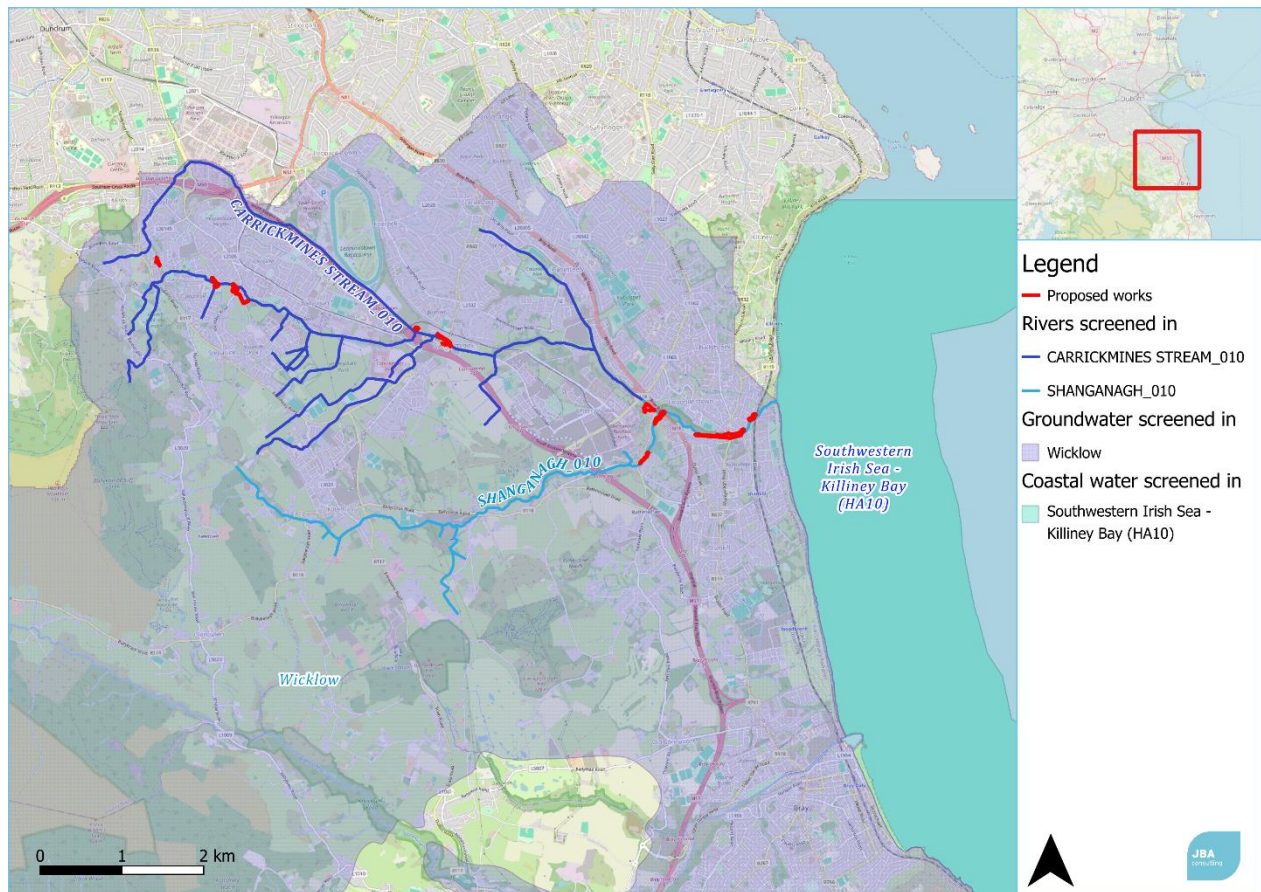


Figure 3-4: Screened in WFD waterbodies

3.4 Screening Statement

The following WFD waterbodies are being brought forward into the detailed assessment (Stage 2), as an impact on their quality elements is possible as a result of the proposed development:

- CARRICKMINES STREAM_010 (IE_EA_10C040350)
- SHANGANAGH_010 (IE_EA_10S010600)
- Wicklow (IE_EA_G_076)
- Southwestern Irish Sea - Killiney Bay (HA10) (IE_EA_100_0000)

4 WFD Scoping Assessment

4.1 Overview

This scoping assessment identifies whether the waterbody's receptors, identified during the screening assessment, are at risk from the proposed works discussed in Chapter 3. The proposed development works are being appraised in terms of their potential impact on WFD status and objectives, with account taken of the development's design and the assessment carried out in the EIAR, and proposed construction and operational measures outlined in the preliminary Construction Environmental Management Plan (CEMP) by JBA Consulting.

If any Quality Elements are found to be at risk of detrimental impact, further assessment and/or mitigation may be required.

Article 4.7 of the Directive protects against a deterioration in status or failure to meet WFD objectives resulting from new modifications or sustainable human development activities (if all conditions set out under this Article are met). If the assessment procedure predicts that an activity will cause deterioration in waterbody status or prevent a waterbody from meeting its ecological objectives, then an assessment is also required against the conditions listed in Article 4.7 of the WFD. If all the assessment conditions are met, there will not be a breach of the WFD, and compliance will be attained.

4.2 Scoping Assessment

For each waterbody screened into the assessment, details on the status of each element, as described by the EPA's interactive GIS data explorer are given below. A summary of the scoping assessment is shown in the following tables. Table 4-1 to Table 4-3 below describe the quality elements of the CARRICKMINES STREAM_010 waterbody and potential impacts of the proposed development, while Table 4-4 below summarises the findings of the scoping assessment for that waterbody. The scoping assessment for the other waterbodies follows the same structure.

4.2.1 CARRICKMINES STREAM_010 (RWB)

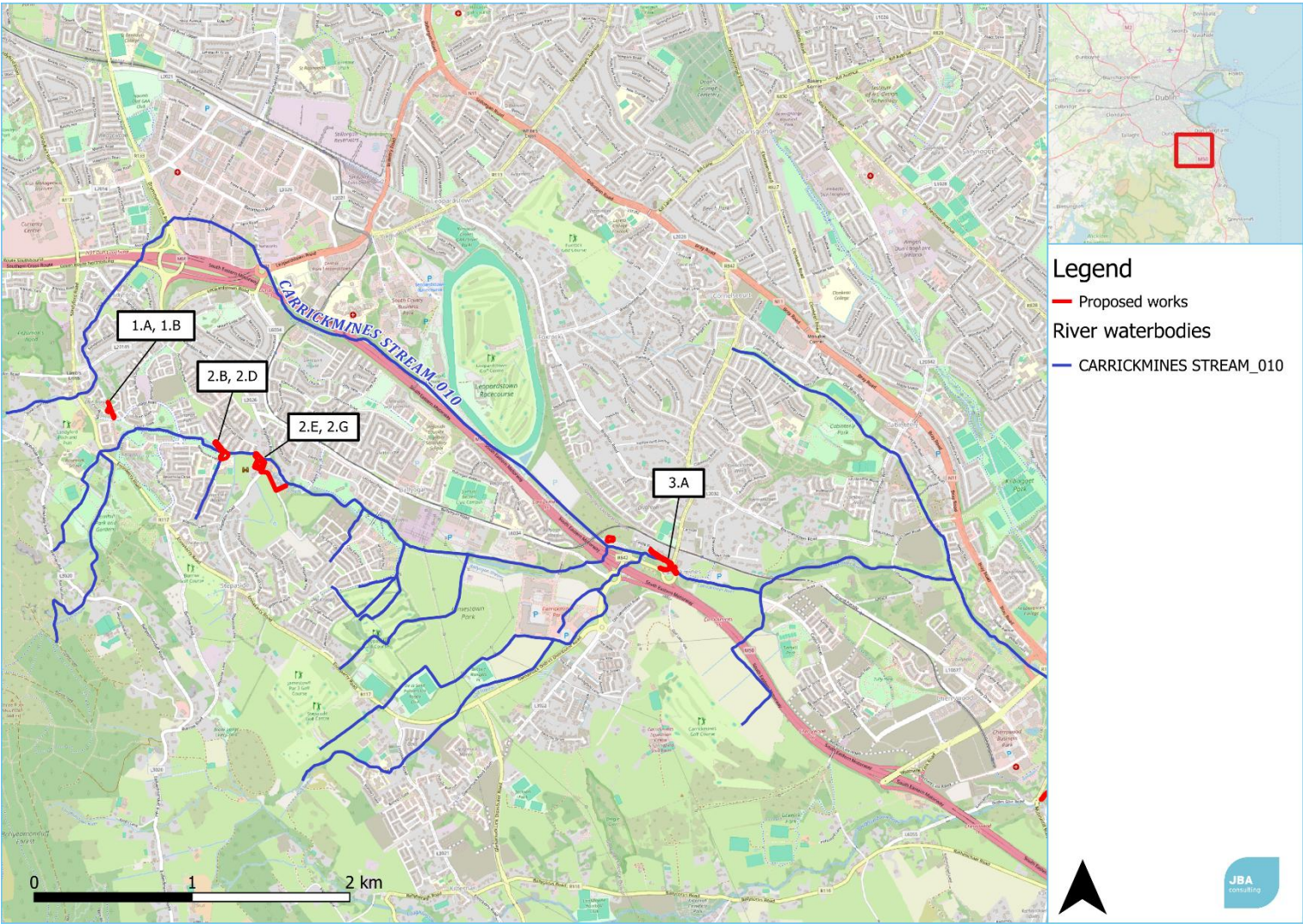


Figure 4-1: CARRICKMINES STREAM_010 river waterbody extent and proposed works locations.

The proposed works within the CARRICKMINES STREAM_010 river waterbody, as shown in Figure 4-1, include:

- 1.A and 1.B Clon Brugh: Construction of flood defence walls, demolition of existing walls, and footpath realignment works.
- 2.B and 2.D Belarmine Park: Construction of new flood defence walls and minor upgrades to existing culvert inlet.
- 2.E and 2.G Kilgobbin Road: Boundary wall replacement, construction of flood defence walls, and installation of a new culvert and weir structure.
- 3.A Glenamuck Road North: Construction of flood defence walls, installation of a debris screen, and associated demolition works.

Further details of the proposed works are provided in Section 3.1.2.

Table 4-1: Scoping of biological quality elements for CARRICKMINES STREAM_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Aquatic flora (macrophytes and phytobenthos)	- Taxonomic composition - Abundance	No	Instream works are proposed along approx. 320m of river channel at Belarmine Park, Kilgobbin Road and Glenamuck Road North, representing a small portion of the overall length of the waterbody. Instream works, comprising the upgrade of a culvert, installation of wall foundations, and construction of a new weir structure and debris screen, will only occur during the construction phase. These activities could cause direct disturbance to aquatic flora if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on aquatic flora are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.
Benthic invertebrate fauna	- Taxonomic composition - Abundance - Level of diversity - Ratio of disturbance sensitive taxa to insensitive taxa	No	Instream works are proposed along approx. 320m of river channel at Belarmine Park, Kilgobbin Road and Glenamuck Road North, representing a small portion of the overall length of the waterbody. Instream works, comprising the upgrade of a culvert, installation of wall foundations, and construction of a new weir structure and debris screen, will only occur during the construction phase. These activities could cause direct disturbance to benthic invertebrate fauna if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on benthic invertebrate fauna are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.

Fish	- Species composition - Abundance - Type-specific disturbance-sensitive species present - Age structure	No	Instream works are proposed along approx. 320m of river channel at Belarmine Park, Kilgobbin Road and Glenamuck Road North, representing a small portion of the overall length of the waterbody. Instream works, comprising the upgrade of a culvert, installation of wall foundations, and construction of a new weir structure and debris screen, will only occur during the construction phase. These activities could cause direct disturbance to fish if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, and all instream works will be planned and undertaken in consultation with Inland Fisheries Ireland, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Additionally, mitigation measures as outlined in Chapter 8 of the EIAR and Section 6.3 of the CEMP will be implemented, including dry working methods, fish-friendly pumps during dewatering, maintenance of channel continuity where practicable, and fish rescue where required. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on fish are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.
Phytoplankton	- Taxonomic composition - Abundance - Planktonic bloom status	No	Instream works are proposed along approx. 320m of river channel at Belarmine Park, Kilgobbin Road and Glenamuck Road North, representing a small portion of the overall length of the waterbody. Instream works, comprising the upgrade of a culvert, installation of wall foundations, and construction of a new weir structure and debris screen, will only occur during the construction phase. These activities could cause direct disturbance to phytoplankton if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and Sections 6.3 and 7.4 of the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on phytoplankton are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.

Table 4-2: Scoping of hydromorphological quality elements for CARRICKMINES STREAM_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Hydrological regime	- Quantity and dynamics of water flow - Connection to groundwater bodies	No	The installation of flood walls will be undertaken in accordance with detailed construction planning and method statements designed to avoid and, where avoidance is not possible, minimise alterations to surface runoff pathways, including potential ponding and fine sediment settlement. Where such effects occur, they will be short-term and limited to the immediate works area. Monitoring of runoff pathways, as outlined in Chapter 10 of the EIAR and Section 7.4 of the CEMP, is recommended to ensure appropriate management of surface water during construction. During the operational phase, the proposed works is expected to maintain the existing volumetric inputs to the stream (i.e., quantity of flow). Chapter 10 of the EIAR identifies the possibility of minor alterations to overland flow pathways where new flood walls are installed and potential to create some localised ponding effect, and monitoring was recommended. If ponding were to occur, it may temporarily alter the rate of runoff entering the stream during a precipitation event, but this would represent only a minor, localised change to surface runoff dynamics and is not expected to impact overall hydrograph shape or precipitation-discharge dynamics at the waterbody scale. Therefore, no significant impacts are anticipated.
River continuity	- Lateral connectivity - Longitudinal connectivity	No	<u>Lateral Connectivity:</u> The construction of new flood walls may result in minor, localised reductions in lateral connectivity, as the works will limit overbank flooding into already built-up areas (residential housing and gardens, commercial properties). However, adjacent green spaces will continue to allow natural overbank flow during flood events. Specific localised assessments for each measure are outlined below: • 1.A Flood walls (installation of new) and 1.B. Flood walls (alterations to existing): Both measures relate to a formalised surface runoff flow that is essentially an intermittent stream that activates after heavy rain. It is not a perennial watercourse. • 2.D Flood walls (installation of new): Flood walls are proposed to be set well back from the bank top and riparian zone at the intersection of the floodplain with private gardens. Lateral connectivity is restricted for extreme events at the local spatial scale. • 2.E Flood walls (installation of new, and alterations to existing): Some sections of flood walls are proposed to be set back from the bank top and riparian zone. Existing bank shape and material will remain. For some sections, the proposed flood walls sit at the top of bank (i.e. within the riparian zone). However, the length is limited in the context of the overall reach and minimal when considered at the waterbody scale. • 3.A Flood walls (installation of new, and alterations to existing): Flood walls are proposed to be set back from the bank top and riparian zone at the intersection of the floodplain with an existing access track. Lateral connectivity is restricted for extreme events at the local spatial scale. <u>Longitudinal connectivity:</u> Longitudinal river continuity is not expected to be significantly affected. Specific localised assessments for each measure are outlined below:

			2.B Culvert (upgrade to existing): Currently the concrete slab at the upstream entrance to the culvert is slanted slightly upwards in the opposite direction of the overall river grade line and therefore promotes fine sediment deposition at and immediately upstream of the culvert entrance. Vertical realignment to restore the overall grade line of the river represents an improvement that should support improved conveyance of fine sediment downstream relative to existing conditions. 2.G Weir and pipe installation: The flow control weir is a lateral structure designed to be effective only in high flow conditions. It does not place a barrier across the channel and is not expected to influence or disrupt downstream transport of flow or sediment. <u>Overall assessment:</u> The proposed development preserves river continuity at the waterbody scale, with only slight and localised impacts on lateral connectivity.
Morphological conditions	- River depth and width variation - Structure and substrate of riverbed - Structure of the riparian zone	No	The proposed works, and any construction methods involving coffer dam emplacement may result in minor, localised morphological alterations confined to the immediate works area. These potential effects will be managed through design mitigations and monitoring as outlined in Chapter 10 of the EIAR and Sections 6.1 and 6.2 of the CEMP. Any potential effects will be localised, and are not anticipated to impact at the waterbody scale. Specific localised assessments related to the operational effects of each measure on morphology are outlined below: 2.B Culvert (upgrade to existing): Concrete is proposed to be removed from the bed in front of the culvert structure that is being retained. This represents an overall improvement (naturalisation) of river bed condition for a very short, localised section. 2.E Flood walls (installation of new, and alterations to existing): Modelling results indicate some potential change in channel hydraulics (increased velocity as more flow is retained in channel) under 50% AEP events and greater. There is potential for erosion within the channel to the bed and banks which may, over successive high flow events, result in bank instability and effect the structural integrity of the proposed flood walls or other important structures. Monitoring of potential channel change (i.e., scour) is recommended (see EIAR Section 10.4.4). Any erosion is likely to be managed to prevent local instability and/or propagation upstream, and therefore is not considered significant at the waterbody scale. 2.G Weir and pipe installation: Some flow dissipation measures may be required for the right bank associated with the outflow headwall (e.g., rip rap or soft rock solutions for scour protection). Given this uncertainty and noting that this would replace natural bank materials, there are potential impacts identified at the reach scale. Design details (i.e., length, location and materials proposed) are required to be resolved at detailed design stage (for design requirements see EIAR Section 10.4.4). However, given this modification would be applied only within the immediate vicinity of the outfall headwall, this would affect only a small spatial extent in the context of the overall waterbody. Therefore, no significant impacts at the waterbody scale are anticipated.

			2.G Scour protection: For the channel downstream of the proposed pipe outlet, modelling results do not indicate notable change in the hydraulics. However, there is potential for localised channel response at the pipe outflow location, particularly on the left bank. Evidence of left bank scour approximately 40 m downstream of the proposed outflow location indicates bank material may be vulnerable to erosion under high flow conditions and therefore may represent a risk over the long term to the left bank private property (garden). Monitoring of potential channel change (i.e., scour) is recommended (see EIAR Section 10.4.4). This potential channel adjustment would be expected to be isolated to this reach and eroded material likely to be reworked locally (e.g., deposited as bar features). As such, there is no significant impact at the waterbody scale. <u>Overall assessment:</u> The proposed development preserves river morphology at the waterbody scale. The scale of any protection measure would be restricted to a single bank, with only slight and localised impacts to bank material and channel geometry. This is not expected to result in an adverse change at the waterbody scale.
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Table 4-3: Scoping of physico-chemical quality elements for CARRICKMINES STREAM_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
General	- Thermal conditions - Oxygenation conditions - Salinity - Acidification status - Nutrient conditions	No	During construction there will be no discharge of site runoff or water without agreement of the relevant authorities and an appropriate discharge licence, if relevant. Additionally, as per the CEMP, silt fencing will be installed strategically throughout the site to intercept surface water where there is a risk of water flow into excavations, adjoining lands or the existing watercourse. Operational phase impacts are not anticipated due to the design of the scheme.
Specific pollutants	- Pollution by all priority substances identified as being discharged into the body of water - Pollution by other substances identified as being discharged in significant quantities into the body of water	No	During construction, any potential pollutant mobilisation will be controlled through mitigation measures set out in the Section 6.2 of the CEMP, including erosion and sediment controls, pollution prevention measures such as silt fencing, controlled fuel and chemical storage, and the use of spill kits. No operational discharges are proposed as part of the scheme, so no long-term impacts are expected.

Table 4-4: Scoping summary assessment for CARRICKMINES STREAM_010

Quality Element	Potential Risk to Receptor?	Note the risk issue(s) for impact assessment	Further assessment and/or mitigation required?
Hydromorphology quality	No	During construction, minor and temporary hydromorphological disturbance may occur, including potential effects on bed and bank structures, localised adjustments to sediment dynamics and temporary shifts in surface runoff pathways. These potential effects will be managed through design mitigation and monitoring measures, as outlined in Chapter 10 of the EIAR and Sections 6.1 and 6.2 of the CEMP. For scheme operation, the proposed works do not introduce permanent barriers to flow and are designed to maintain existing channel form, sediment processes, groundwater interaction, and connectivity. Flood walls are designed to be set back as far as possible from the channel where possible, and the proposed culvert upgrade will have a positive effect on downstream sediment transport and remove concrete from the bed of the channel. Monitoring is recommended where channel change may occur over the long term due to localised changes in hydraulics, and specific requirements are made for the detailed design stage to minimise the footprint of any mitigation in the channel. Channel change and associated mitigations (e.g., scour protection) are expected to apply to a small spatial extent in the context of the overall waterbody. Overall, no waterbody-scale change to hydromorphological quality is anticipated.	No further assessment required.
Biological quality	No	Instream works are proposed along approx. 320m of river channel at Belarmine Park, Kilgobbin Road and Glenamuck Road North, representing a small portion of the overall length of the waterbody. Instream works, comprising the upgrade of a culvert, installation of wall foundations, and construction of a new weir structure and debris screen, will only occur during the construction phase. These activities will cause direct disturbance to habitats or species if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and Sections 6.3 and 7.4 of the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Additionally, mitigation measures as outlined in Chapter 8 of the EIAR and Section 6.3 of the CEMP will be implemented, including dry working methods, fish-friendly pumps during dewatering, maintenance of channel continuity where practicable, and fish rescue where required. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on biological quality are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.	No further assessment required.

Physico-Chemical quality	No	There will be no long-term change to general chemical quality elements as a result of the proposed development. Construction phase impacts are not anticipated due to the inclusion of the comprehensive design measures in the CEMP. The measures included in Sections 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines River during construction. The measures will effectively break any pathway from the site to the river, and/or remove the potential source of contaminants that would impact physico-chemical quality.	No further assessment required.
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4.2.2 SHANGANAGH_010 (RWB)

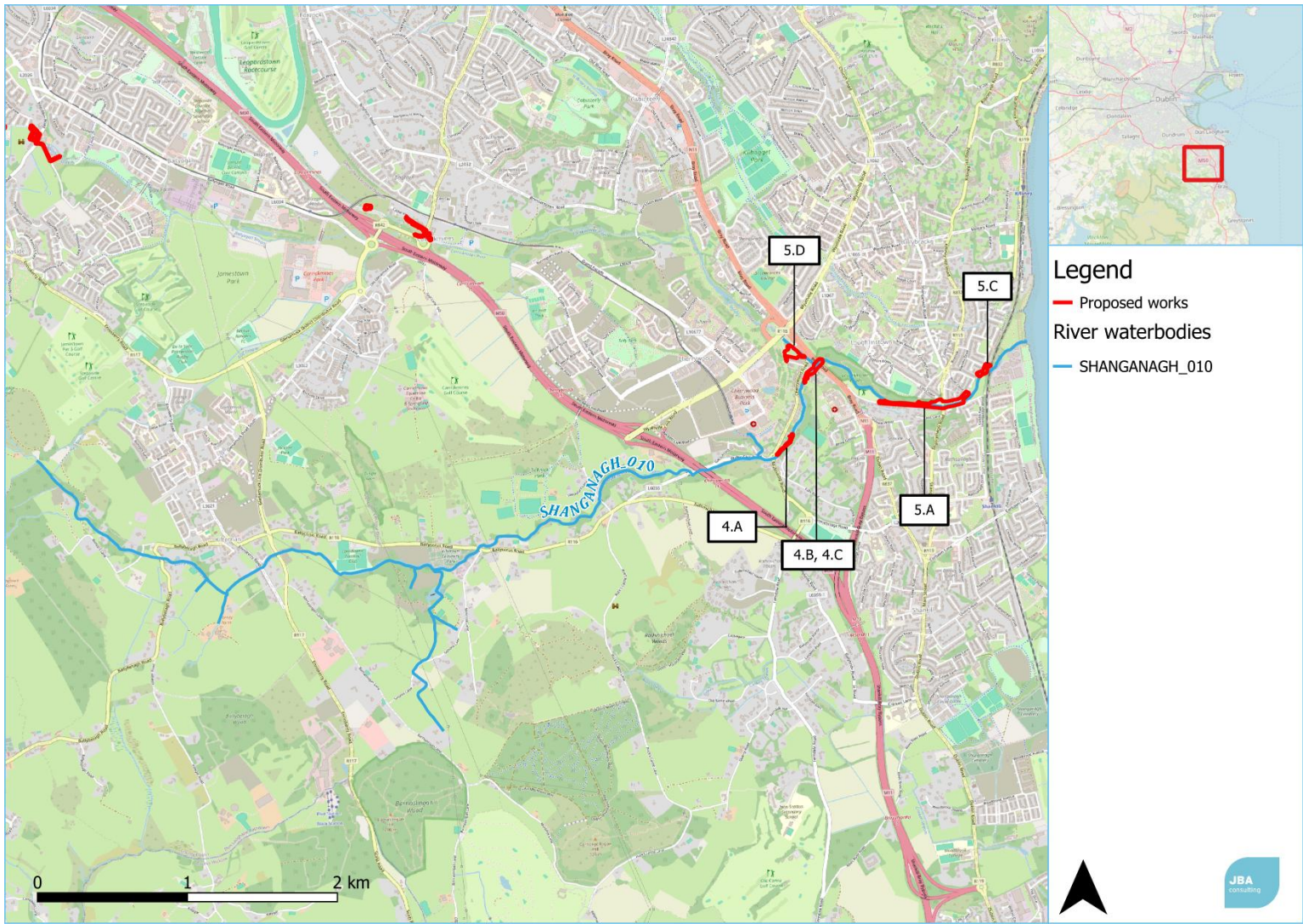


Figure 4-2: SHANGANAGH_010 river waterbody extent and proposed works locations.

The proposed works within the SHANGANAGH_010 river waterbody, as shown in Figure 4-2 include:

- 4.A Cherrywood Road: Construction of flood defence walls with demountable barriers and railings.
- 5.D Bray Road: Construction of flood defence walls, river channel realignment, and bridge upgrade works.
- 4.B Lower Brides Glen: Construction of flood defence walls.
- 4.C N11 Overflow Culvert: Installation of a new overflow culvert beneath the N11 dual carriageway.
- 5.A Commons Road, River Lane and Brookdene: Construction and upgrade of flood defence walls, and remedial works to Shanganagh Bridge.
- 5.C Bayview: Construction and replacement of flood defence walls.

Further details of the proposed works are provided in Section 3.1.2.

Table 4-5: Scoping of biological quality elements for SHANGANAGH_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Aquatic flora (macrophytes and phytobenthos)	- Taxonomic composition - Abundance	No	Instream works are proposed along approx. 700m of river channel at Cherrywood Road, Bray Road, the N11, Commons Road and Bayview, representing a small portion of the overall length of the waterbody. Instream works, comprising the installation of flood walls, construction of a new weir structure, bridge reinforcement, and culvert works, will only occur during the construction phase. These activities could cause direct disturbance to aquatic flora if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on aquatic flora are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.
Benthic invertebrate fauna	- Taxonomic composition - Abundance - Level of diversity - Ratio of disturbance sensitive taxa to insensitive taxa	No	Instream works are proposed along approx. 700m of river channel at Cherrywood Road, Bray Road, the N11, Commons Road and Bayview, representing a small portion of the overall length of the waterbody. Instream works, comprising the installation of flood walls, construction of a new weir structure, bridge reinforcement, and culvert works, will only occur during the construction phase. These activities could cause direct disturbance to a benthic invertebrate fauna if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on benthic invertebrate fauna are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.

Fish	- Species composition - Abundance - Type-specific disturbance-sensitive species present - Age structure	No	Instream works are proposed along approx. 700m of river channel at Cherrywood Road, Bray Road, the N11, Commons Road and Bayview, representing a small portion of the overall length of the waterbody. Instream works, comprising the installation of flood walls, construction of a new weir structure, bridge reinforcement, and culvert works, will only occur during the construction phase. These activities could cause direct disturbance to fish if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and in the CEMP. Construction will be supervised by the ECoW, and all instream works will be planned and undertaken in consultation with Inland Fisheries Ireland, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Additionally, mitigation measures as outlined in Chapter 8 of the EIAR and Section 6.3 of the CEMP will be implemented, including dry working methods, fish-friendly pumps during dewatering, maintenance of channel continuity where practicable, and fish rescue where required. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on fish are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.
Phytoplankton	- Taxonomic composition - Abundance - Planktonic bloom status	No	Instream works are proposed along approx. 700m of river channel at Cherrywood Road, Bray Road, the N11, Commons Road and Bayview, representing a small portion of the overall length of the waterbody. Instream works, comprising the installation of flood walls, construction of a new weir structure, bridge reinforcement, and culvert works, will only occur during the construction phase. These activities could cause direct disturbance to phytoplankton if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and Sections 6.3 and 7.4 of the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on phytoplankton are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.

Table 4-6: Scoping of hydromorphological quality elements for SHANGANAGH_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Hydrological regime	- Quantity and dynamics of water flow - Connection to groundwater bodies	No	The installation of flood walls will be undertaken in accordance with detailed construction planning and method statements designed to avoid and, where avoidance is not possible, minimise alterations to surface runoff pathways, including potential ponding and fine sediment settlement. Where such effects occur, they will be short-term and limited to the immediate works area. Monitoring of runoff pathways, as outlined in Chapter 10 of the EIAR and Section 7.4 of the CEMP, is recommended to ensure appropriate management of surface water during construction. During the operational phase, the proposed works are expected to maintain the existing volumetric inputs to the stream (i.e., quantity of flow). Chapter 10 of the EIAR identifies the possibility of minor alterations to overland flow pathways where new flood walls are installed and potential to create some localised ponding effect, and monitoring was recommended. If ponding were to occur, it may temporarily alter the rate of runoff entering the stream during a precipitation event, but this would represent only a minor, localised change to surface runoff dynamics and is not expected to impact overall hydrograph shape or precipitation-discharge dynamics at the waterbody scale. Therefore, no significant impacts are anticipated.
River continuity	- Lateral connectivity - Longitudinal connectivity	No	<u>Lateral Connectivity:</u> The construction of new flood walls may result in minor, localised reductions in lateral connectivity, as the works will limit overbank flooding into already built-up areas (residential housing and gardens, commercial properties). Specific localised assessments for each measure are outlined below: • 4.A Flood walls (installation of new): New flood walls are proposed to be positioned at the top of the bank along most of the reach except for approx. 40 m where wall placement is within the left bank environment. Wall placement is at the intersection of the top of bank environment with private residential gardens. Lateral connectivity will be restricted relative to existing conditions at the local scale, but relative to the entire waterbody this is not considered significant. • 4.B Flood walls (installation of new): Flood walls are positioned at the top of the existing hard bank protection at the intersection with urban use developments. • 5.A Flood walls (installation and upgrade existing) at Commons Road: Flood walls are positioned back from the top of bank with existing bank material maintained or are modifications to existing wall structures. Lateral connectivity is restricted for extreme events at the local spatial scale. • 5.A Flood walls (installation of new) at Brookdene: Flood walls are proposed to be set well back from the bank top and riparian zone. Lateral connectivity is restricted for extreme events at the local spatial scale.

			5.C Flood walls (installation of new): Flood walls are proposed to be set well back from the bank top and riparian zone. Lateral connectivity is restricted for extreme events at the local spatial scale. 5.D Flood walls (installation of new): Left bank flood walls are positioned within/close to the existing channel. However, the channel is immediately adjacent to urban development (shop buildings) so there is no loss of active floodplain. Lateral connectivity remains unrestricted on the right bank. <u>Longitudinal connectivity:</u> Longitudinal river continuity is not expected to be significantly affected. Specific localised assessments for each measure are outlined below: 4.C Weir and pipe installation: Proposed measures relate to a highly modified section of channel. The flow control weir is a lateral structure designed to be effective only in high flow conditions. It does not place a barrier across the channel and is not expected to influence or disrupt downstream transport of flow or sediment. 5.A Bridge reinforcement: Hydraulic modelling results indicate only minor upstream velocity changes at the 50% AEP event, but notable velocity increases for the 1% extreme high flow event. This raises the possibility of scour at either the upstream or downstream ends of the apron in single events or as a cumulative change over time, potentially leading to perching of the concrete apron and implications for longitudinal sediment connectivity and fish passage. Design mitigations follow published guidance to embed the concrete apron at a minimum 500mm depth below existing bed level and extend the upstream and downstream ends of the concrete apron to a greater depth to prevent scour and undermining of the apron. Long term monitoring is recommended (see EIAR Chapter 10). The proposed design minimises risk by following established design guidance, and longitudinal continuity is not expected to be adversely affected at the reach or waterbody scale. The proposed development preserves river continuity on a waterbody scale, with only slight and localised impacts on lateral connectivity.
Morphological conditions	- River depth and width variation - Structure and substrate of riverbed - Structure of the riparian zone	No	The proposed works, and any construction methods involving coffer dam emplacement may result in minor, localised morphological alterations confined to the immediate works area. These potential effects will be managed through design mitigations outlined in Chapter 10 of the EIAR and Sections 6.1 and 6.2 of the CEMP. Any potential effects will be localised and are not anticipated to impact at the waterbody scale. Specific localised assessments related to the operational effects of each measure on morphology are outlined below: 4.A Flood walls (installation of new): Flood walls are proposed to be positioned at the top of the bank along most of the reach and existing bank material maintained. For a short section (approx. 40 m), wall placement is within the left bank

			environment as this gradually slopes towards the stream, which represents a localised loss of bankside habitat. However, given the scale of the whole reach (approx. 200m) this is not considered a significant impact, and as such, is also not considered a significant impact at the waterbody scale. Additionally, the right bank and riparian zone topography along this length is gradually sloped, providing room for localised adjustment to this imposed change in channel geometry. • 4.B Flood walls (installation of new): Localised change to a short section of riparian zone adjacent to residential gardens is not expected to affect overall riparian zone condition at the waterbody scale. Any temporary disturbance to riparian vegetation will be reinstated following construction in accordance with Section 6.3.7 of the CEMP and Section 8.8.15 of the EIAR, including replacement planting of native tree species where required and allowance for natural regeneration of riparian vegetation where practicable. • 4.C Scour protection: Proposed measures relate to an already highly modified section of channel. • 5.A Bridge reinforcement: Following construction of the embedded concrete apron, natural bed material will be restored to the existing riverbed level (less a small portion of deposited sediment in the left archway that will be removed). Existing channel geometry and bed character is preserved. • 5.D Flood walls (installation of new): Left bank flood walls are positioned within the riparian zone/at top of bank, except for the walls to be installed immediately behind the buildings. For that approximately 85m length, the walls will be constructed within the existing channel. However, the left bank is already highly modified with hard bank protection along the length where the in-channel walls are proposed, making the installation of flood walls not dissimilar to a like-for-like replacement. • 5.D Stream realignment: Channel geometry for the proposed realignment maintains the existing river width and will replace existing hard bank protection (right bank) in favour of naturalised banks. This represents a positive improvement to geomorphology over the long term as the river channel will be able to interact with natural bed materials to support sediment dynamics and channel adjustment. <u>Overall assessment:</u> The proposed development preserves existing river morphology at the waterbody scale.
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Table 4-7: Scoping of physico-chemical quality elements for SHANGANAGH_010

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
General	- Thermal conditions - Oxygenation conditions - Salinity - Acidification status - Nutrient conditions	No	During construction there will be no discharge of site runoff or water without agreement of the relevant authorities and an appropriate discharge licence, if relevant. Additionally, as per the CEMP, silt fencing will be installed strategically throughout the site will be installed to intercept surface water where there is a risk of significant water flow into excavations, adjoining lands or the existing watercourse. Operational phase impacts are not anticipated due to the design of the scheme.
Specific pollutants	- Pollution by all priority substances identified as being discharged into the body of water - Pollution by other substances identified as being discharged in significant quantities into the body of water	No	During construction, any potential pollutant mobilisation will be controlled through mitigation measures set out in the Section 6.2 of the CEMP, including erosion and sediment controls, pollution prevention measures such as silt fencing, controlled fuel and chemical storage, and the use of spill kits. No operational discharges are proposed as part of the scheme, so no long-term impacts are expected.

Table 4-8: Scoping summary assessment for SHANGANAGH_010

Quality Element	Potential Risk to Receptor?	Note the risk issue(s) for impact assessment	Further assessment and/or mitigation required?
Hydromorphology quality	No	During construction, minor and temporary hydromorphological disturbance may occur, including effects on bed and bank structures, localised adjustments to sediment dynamics and temporary shifts in surface runoff pathways. These potential effects will be managed through design mitigation and monitoring measures, as outlined in Chapter 10 of the EIAR and Sections 6.1 and 6.2 of the CEMP. For scheme operation, the proposed works do not introduce permanent barriers to flow and are designed to maintain existing channel form, sediment processes, groundwater interaction, and connectivity. Flood walls are designed to be set back as far as possible from the channel where possible, the design for Shanganagh Road Bridge appropriately embeds current guidance to protect channel form and long-term longitudinal connectivity. Monitoring is recommended where channel change may occur over the long term due to localised changes in hydraulics. The removal of right bank hard protection at Bray Road (5.D) will have a positive effect on bank structure. Overall, no waterbody-scale change to hydromorphological quality is anticipated.	No further assessment required.
Biological quality	No	Instream works are proposed along approx. 700m of river channel at Cherrywood Road, Bray Road, the N11, Commons Road and Bayview, representing a small portion of the overall length of the waterbody. Instream works, comprising the installation of flood walls, construction of a new weir structure, bridge reinforcement, and culvert works, will only occur during the construction phase. These activities will cause direct disturbance to habitats or species if undertaken without the mitigation measures outlined in the EIAR Chapters 8 and 10, and Sections 6.3 and 7.4 of the CEMP. Construction will be supervised by the ECoW, with measures implemented to minimise channel disturbance and control sediment and pollutant runoff within and downstream of the proposed works. Additionally, mitigation measures as outlined in Chapter 8 of the EIAR and Section 6.3 of the CEMP will be implemented, including dry working methods, fish-friendly pumps during dewatering, maintenance of channel continuity where practicable, and fish rescue where required. Given the limited extent of works, short duration, and the implementation of mitigation measures, effects on biological quality are not expected at a waterbody scale. Operational phase impacts are not anticipated due to the nature of the scheme.	No further assessment required.

Physico-Chemical quality	No	There will be no long-term change to general chemical quality elements as a result of the proposed development. Construction phase impacts are not anticipated due to the inclusion of the comprehensive design measures in the CEMP. The measures included in Sections 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Shanganagh River during construction. The design measures will effectively break any pathway from the site to the river, and/or remove the potential source of contaminants that would impact physico-chemical quality.	No further assessment required.
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4.2.3 Wicklow GWB

Table 4-9 below describes the quality elements of the waterbody and potential impacts as a result of the proposed development.

Table 4-9: Scoping of physico-chemical quality elements for Wicklow GWB

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Quantitative status	- Groundwater level regime	No	Site investigations undertaken by GII, as presented in Chapter 10 of the EIAR, recorded groundwater strikes in five boreholes, indicating a relatively shallow groundwater table (2.3-4.5m below ground level) within the proposed FRS works area. Temporary and localised dewatering will be required during excavation works, as outlined in the mitigation measures in EIAR Chapter 8 and Section 6.3 of the CEMP. Given the limited scale and duration of the dewatering that may be required, relative to the size of the groundwater body, the activity is not expected to impact groundwater levels at a waterbody scale.
Chemical status	- Conductivity - Concentrations of pollutants	No	The construction phase could lead to the mobilisation of sediment in surface water, which could intercept to ground and to the groundwater body. However, mitigation measures in the EIAR Chapter 10 and the CEMP will ensure that these impacts are limited and not significant. The operational phase does not introduce any pollutant sources or discharges to the groundwater. Therefore, no impact is expected.

4.2.4 Southwestern Irish Sea - Killiney Bay (HA10) (CWB)

Table 4-10 to Table 4-12 below describe the quality element of the waterbody and potential impacts as a result of the proposed development, while Table 4-13 below summarises the findings of the scoping assessment for the waterbody.

Table 4-10: Scoping of biological quality elements for Southwestern Irish Sea - Killiney Bay (HA10)

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Aquatic flora (macrophytes and phytobenthos)	- Taxonomic composition - Abundance	No	No in-channel works are proposed within this waterbody, so there will be no direct risk to aquatic flora habitats or species. Construction phase impacts are not anticipated due to the implementation of mitigation measures in the EIAR Chapters 8 and 10 and the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The measures will effectively break any pathway from the proposed development to the

			waterbody, and/or remove the potential source of contaminants that would impact the habitat available for aquatic flora. Operational phase impacts are not anticipated due to the nature of the scheme.
Benthic invertebrate fauna	- Taxonomic composition - Abundance - Level of diversity - Ratio of disturbance sensitive taxa to insensitive taxa	No	No in-channel works are proposed within this waterbody, so there will be no direct risk to benthic invertebrate fauna habitats or species. Construction phase impacts are not anticipated due to the implementation of mitigation measures in the EIAR Chapters 8 and 10 and the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The measures will effectively break any pathway from the proposed development to the waterbody, and/or remove the potential source of contaminants that would impact the habitat available for benthic invertebrate fauna. Operational phase impacts are not anticipated due to the nature of the scheme.
Fish	- Species composition - Abundance - Type-specific disturbance-sensitive species present - Age structure	No	No in-channel works are proposed within this waterbody, so there will be no direct risk to fish habitats or species. Construction phase impacts are not anticipated due to the implementation of mitigation measures in the EIAR Chapters 8 and 10 and the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The measures will effectively break any pathway from the proposed development to the waterbody, and/or remove the potential source of contaminants that would impact the habitat available for fish. Operational phase impacts are not anticipated due to the nature of the scheme.
Phytoplankton	- Taxonomic composition - Abundance - Planktonic bloom status	No	No in-channel works are proposed within this waterbody, so there will be no direct risk to phytoplankton habitats or species. Construction phase impacts are not anticipated due to the implementation of mitigation measures in the EIAR Chapters 8 and 10 and the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The measures will effectively break any pathway from the proposed development to the waterbody, and/or remove the potential source of contaminants that would impact the habitat available for phytoplankton. Operational phase impacts are not anticipated due to the nature of the scheme.

Table 4-11: Scoping of hydromorphological quality elements for Southwestern Irish Sea - Killiney Bay (HA10)

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
Tidal regime	- Freshwater flow - Wave exposure	No	No works are proposed in the waterbody. The proposed works are confined to the upstream freshwater environment and will not affect the tidal regime in Killiney Bay.
Morphological conditions	- Depth variation - Structure and substrate of bed - Structure of the intertidal zone	No	No works are proposed in the waterbody. The proposed instream works are localised and temporary and upstream, and will not result in measurable changes within Killiney Bay. Sediment control measures implemented per Section 6.2 of the CEMP will prevent significant sediment release that could otherwise influence coastal morphological conditions. No operational phase impacts to hydromorphology are expected due to the nature of the scheme.

Table 4-12: Scoping of physico-chemical quality elements for Southwestern Irish Sea - Killiney Bay (HA10)

Quality Element	Assessment Criteria	Potential Risk to Receptor	Justification
General	- Thermal conditions - Oxygenation conditions - Salinity - Acidification status - Nutrient conditions	No	Construction phase impacts are not anticipated due to the inclusion of mitigation measures in the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The design measures will effectively break any pathway from the site to the waterbody, and/or remove the potential source of contaminants that would impact physico-chemical elements. Operational phase impacts are not anticipated due to the design of the scheme.
Specific pollutants	- Pollution by all priority substances identified as being discharged into the body of water - Pollution by other substances identified as being discharged in significant quantities into the body of water	No	Construction phase impacts are not anticipated due to the inclusion of mitigation measures in the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce potential specific pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction.

Table 4-13: Scoping summary assessment for Southwestern Irish Sea - Killiney Bay (HA10)

Quality Element	Potential Risk to Receptor?	Note the risk issue(s) for impact assessment	Further assessment and/or mitigation required?
Hydromorphology quality	No	No works are proposed in the waterbody. The proposed instream works are localised and temporary and upstream, and will not result in measurable changes within Killiney Bay. Sediment control measures implemented per Section 6.2 of the CEMP will prevent significant sediment release that could otherwise influence coastal hydromorphological conditions. No operational phase alterations to hydromorphology are proposed.	No further assessment required.
Biological quality	No	No works are proposed in or near to the waterbody, so there will be no direct risk to habitats or species. Construction activities further upstream could result in suspended solids or pollutants entering the watercourse from the site. However, these construction phase impacts are not anticipated due to the inclusion of design measures in the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Shanganagh River during construction. The design measures, together with the execution of the works by a competent Contractor with oversight by an experienced and proactive ECoW, will effectively break any pathway from the site to the river network, and/or remove the potential source of contaminants that would impact biological quality.	No further assessment required.
Physico-Chemical quality	No	There will be no long-term change to general chemical quality elements as a result of the proposed development. Construction phase impacts are not anticipated due to the inclusion of mitigation measures in the CEMP. The measures included in Section 6.2 of the CEMP will help to capture, control and reduce surface water run-off, suspended solids and pollutants discharging from site to the Carrickmines-Shanganagh River network and further downstream to Killiney Bay during construction. The mitigation measures will effectively break any pathway from the site to the river network, and/or remove the potential source of contaminants that would impact physico-chemical quality.	No further assessment required.

4.3 Scoping Summary

Table 4-14 below summarises the scoping assessment for all screened in WFD waterbodies. As all waterbodies are scoped out, this assessment does not continue to the next stage.

Table 4-14: Scoping assessment summary for all WFD waterbodies

Waterbody	Scoping Assessment	Scoping Result
CARRICKMINES STREAM_010 (RWB)	The design of the proposed development, and the mitigation measures included in the EIAR and the CEMP, are sufficient to ensure that no impact on this waterbody is likely to occur.	Waterbody scoped out
SHANGANAGH_010 (RWB)	The design of the proposed development, and the mitigation measures included in the EIAR and the CEMP, are sufficient to ensure that no impact on this waterbody is likely to occur.	Waterbody scoped out
Wicklow (GWB)	The design of the proposed development, and the mitigation measures included in the EIAR and the CEMP, are sufficient to ensure that no impact on this waterbody is likely to occur.	Waterbody scoped out
Southwestern Irish Sea – Killiney Bay (HA10) (CWB)	The design of the proposed development, and the mitigation measures included in the EIAR and the CEMP, are sufficient to ensure that no impact on this waterbody is likely to occur.	Waterbody scoped out

5 Conclusions

Following the completion of the WFD assessment, it is concluded that the proposed development will not significantly impact the quality elements of the screened-in WFD waterbodies, provided that the mitigation measures described in the EIAR and CEMP are fully implemented.

The Screening Assessment found four WFD waterbodies with potential pathways from the proposed development. These four WFD waterbodies, the CARRICKMINES STREAM_010, SHANGANAGH_010, Wicklow groundwater body, and Southwestern Irish Sea – Killiney Bay (HA10) coastal waterbody were carried forward to the Scoping stage.

The Scoping Assessment found that the proposed development, when considering all aspects of its design including the proposed layout and design measures to be put in place during construction and operation, is not likely to cause a deterioration in WFD status objectives for any of the screened-in waterbodies.

While the proposed scheme includes instream works with the potential for localised impacts during construction, these impacts will be temporary, limited in extent, and minor relative to the overall scale and status of the receiving waterbodies. The implementation of the mitigation measures set out in the EIAR and CEMP will further minimise the potential for adverse effects on surface water and groundwater receptors.

Therefore, a Stage 3 WFD Assessment is not required, as no likely significant effects on WFD status objectives have been identified.

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