8 WATER

8.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the existing environmental setting and the likelihood of significant impacts on nearby water bodies, associated with the proposed residential development at Portmarnock South Phase 1F in the townlands of Maynetown and Portmarnock, Portmarnock, Co. Dublin and partially located in the townland of Stapolin, Baldoyle, Dublin 13. The characteristics of the potential and predicted impacts during the Construction and Operational Stages of the Proposed Development are assessed and evaluated. Where an impact is identified, appropriate mitigation measures to avoid any potential significant effects to surrounding water bodies are recommended and the residual impacts of the Proposed Development post-mitigation are assessed.

The Proposed Development (Phase 1F) which consists of 296no. residential units, described in detail in Chapter 3: Description of Proposed Development and in Section 8.4 below, are situated on lands designated for new residential communities in accordance with the Fingal Development Plan 2023-2029 and previously in the Portmarnock South Local Area Plan 2013 (as extended), which has now expired.

This assessment was drafted by Colman Horgan, Chartered Engineer who is a Technical Director with Egis Engineering Ireland with over 35 years' experience in civil and structural engineering, during which time he has assisted in the preparation of planning applications, EIAR's, Part 8 Applications and presented evidence at CPO and Oral Planning hearings.

8.2 ASSESSMENT METHODOLOGY

The assessment has been carried out generally in accordance with the following guidelines: -

- Environmental Protection Agency (EPA, 2022). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*,
- National Roads Authority (NRA, 2009). *Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*,
- *The Planning System and Flood Risk Management Guidelines* (DoEHLG/OPW, 2009),
- Construction Industry Research and Information Association (CIRIA, 2001). *Control of Water Pollution from Construction Sites*,
- Construction Industry Research and Information Association (CIRIA, 2002). *Environmental Handbook for Building and Civil Engineering Projects*.

Resources relied on to prepare this chapter of the EIAR include: -

- Fingal Development Plan 2023 – 2029,
- Strategic Environmental Assessment for the Fingal Development Plan 2023 – 2029,
- Strategic Flood Risk Assessment for the Fingal Development Plan 2023 – 2029,
- Portmarnock South Local Area Plan (Adopted and Extended) July 2013 published by Fingal County Council, but noting this has now expired,
- The historic flood data was obtained from the National Flood Hazard Mapping website www.floodinfo.ie ,
- The Subsoil and Aquifer vulnerability data was obtained from the Geological Survey of Ireland website www.gsi.ie,
- Strategic Flood Risk Assessment Flood Maps including Climate Change Flood Maps (refer to appendices to same) www.fingal.ie/,

- Catchment Flood Risk Assessment and Management Study (CFRAMS) – river flood extents, website www.floodinfo.ie ,
- Catchment Flood Risk Assessment and Management Study (CFRAMS) – coastal flood extents, website www.floodinfo.ie,
- Greater Dublin Strategic Drainage Study (GDSDS) – 2005,
- Dublin Coastal Flooding Protection Project (DCFPP) – 2005,
- Irish Coastal Protection Strategy Study (ICPSS) Phase III – 2010 and 2019,
- National Coastal Flood Hazard Mapping (NCFHM) – 2021, website www.floodinfo.ie,
- Fingal East Meath Flood Risk Assessment and Management Study (FEMFRAM Study) www.fingal.ie/femframs ,
- The Rivers of Dublin – New Revised Edition 2017,
- Latest EPA Maps & Catchment Water Quality Data for watercourses in the area. https://gis.epa.ie/EPAMaps and www.catchments.ie ,
- Liffey Catchment Assessment 2010-2015 (HA 09) published by EPA Catchment Science & Management Unit,
- Irish Water website – www.irishwater.ie ,
- Proposed Residential Development at Portmarnock South Phase 1F Flood Risk Assessment (Egis Engineering Ireland – June 2025).
- Proposed Residential Development at Portmarnock South Phase 1F Water Services Report (Egis Engineering Ireland – June 2025).

This assessment of impacts follows guidelines established by Transport Infrastructure Ireland (formerly National Roads Authority before merger with Railway Procurements Agency) in its publication *Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes* (2009).

The significance of impacts on specific receptors are considered in terms of the magnitude of the effect / impact of an element of the project on a receptor and the importance of that receptor.

The Criteria for rating the importance of Environmental Attributes are listed in the table below.

Importance	Criteria	Typical Example
Extremely High	Attribute has a high quality or value on an international scale	River, wetland or surface water body ecosystem protected by EU legislation e.g. 'European sites' designated under the Habitats Regulations or 'Salmonid waters' designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988.
Very High	Attribute has a high quality or value on a regional or national scale	River, wetland or surface water body ecosystem protected by national legislation – NHA status. Regionally important potable water source supplying >2500 homes. Quality Class A (Biotic Index Q4, Q5). Flood plain protecting more than 50 residential or commercial properties from flooding. Nationally important amenity site for wide range of leisure activities.

High	Attribute has a high quality or value on a local scale	Salmon fishery. Locally important potable water source supplying >1000 homes. Quality Class B (Biotic Index Q3-4). Flood plain protecting between 5 and 50 residential or commercial properties from flooding. Locally important amenity site for wide range of leisure activities.
Medium	Attribute has a medium quality or value on a local scale	Coarse fishery. Local potable water source supplying >50 homes. Quality Class C (Biotic Index Q3, Q2-3). Flood plain protecting between 1 and 5 residential or commercial properties from flooding.
Low	Attribute has a low quality or value on a local scale	Locally important amenity site for small range of leisure activities. Local potable water source supplying <50 homes. Quality Class D (Biotic Index Q2, Q1). Flood plain protecting 1 residential or commercial property from flooding. Amenity site used by small numbers of local people.

Table 8-1: Criteria for Rating Site Importance of Hydrological Features

Potential impacts are then categorized, based on their effect on the integrity of the attribute both whole or in part, as listed below.

Magnitude of Impact	Criteria
Large Adverse	Results in loss of attribute and /or quality and integrity of attribute
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity

Table 8-2: Criteria for Rating Impact Significance.

Finally, the combination of the importance of the attribute with the magnitude of the impact is used to determine the significance of the potential environmental impact, as categorized below.

Importance of Attribute	Magnitude of Impact (Effect)			
	Negligible	**Small Adverse (Low)**	**Moderate Adverse (Medium)**	**Large Adverse (High)**
Extremely High (High)	Imperceptible (Not Significant)	Significant (Slight to Very Significant)	Profound (Moderate to Profound)	Profound (Profound)
Very High (High)	Imperceptible (Not Significant)	Significant / Moderate (Slight to Moderate)	Profound / Significant (Moderate to Significant)	Profound (Very Significant to Profound)
High	Imperceptible	Moderate / Slight	Significant / Moderate	Profound / Significant

(Medium to High))	(Not Significant)	(Slight to Moderate)	(Moderate to Significant)	(Very Significant to Profound)
Medium (Medium)	Imperceptible (Not Significant)	Slight (Slight)	Moderate (Moderate)	Significant (Significant to Profound)
Low (Low to Negligible)	Imperceptible (Imperceptible to Not Significant)	Imperceptible (Not Significant)	Slight (Not Significant to Slight)	Slight / Moderate (Not Significant to Moderate)

Table 8-3: Rating of Significant Environmental Impacts/Effects.

Note the above table has been adjusted to reflect the equivalent classification (text in brackets) from Figure 3.4 of the EPA *Guidelines on the information to be contained in Environmental Impact Assessment Reports.*

8.3 RECEIVING ENVIRONMENT

The lands, within which this Proposed Development is located, lie to the west of Baldoyle Bay, to the east of the Dublin-Belfast Rail Line, north of Moyne / Mayne Road (with the exception of the proposed rising main which runs further south) and south of Station Road.

These lands are being developed, primarily as residential development, on a phased basis, with Phase 1A constructed in 2016 / 2017 (101no. units), Phase 1B constructed in 2020 (150no. units), Phase 1C constructed in 2021 / 2022 (153no. units and a Local Centre), Phase 1D (172no. units) which is currently under construction and Phase 1E (195no. units) which was granted permission in December 2024.

The Proposed Development is described below and for the purposes of cumulative assessment will include the current phase under construction (Phase 1D), the phase recently granted permission (Phase 1E) and the development of future phases to build out approximately 33no. residential units including public open space, integration of recorded monuments and provision of road and drainage infrastructure.

A number of existing dwellings are present on the periphery of the Portmarnock South lands, namely five houses in the north-east opposite the junction of Station Road, Strand Road and Coast Road as well as three houses further south along Coast Road.

Newly developed residential areas are also present to the west of the Dublin – Belfast Rail Line, to the north of Station Road (including some apartments under construction) and Portmarnock Village itself, located to the northeast of the subject lands across the Sluice River.

8.3.1 Hydrology

For the purpose of implementing the Water Framework Directive, Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine/coastal areas.

The Portmarnock South area falls within the Eastern River Basin District and the subject lands lie within the Water Framework Directive Catchment 09 '*Liffey and Dublin Bay*' and within the Water Framework Directive River Sub Basins '*Sluice_010*' to the north and '*Mayne_010*' to the south.

The River Liffey Catchment includes the area drained by the River Liffey and by all streams entering tidal water between Seamount and Sorrento Point, Co. Dublin, draining a total area of 1,616km². The eastern part of this catchment is drained by several small coastal streams and of relevance here are the northern streams i.e. the Sluice, Mayne and Santry Rivers.

The Sluice River, which rises to the north of Dublin Airport and flows by way of Kinsealy, lies approximately 150 - 200m to the north of the Proposed Development and outfalls into the head of Baldoyle Bay at Portmarnock Bridge.

The southern part of the lands is connected to the Mayne River via an open ditch which runs parallel to and then crosses the Moyne Road. The Mayne River, which rises near Dublin Airport, lies approximately 600 - 650m to the south of the Proposed Development (noted however that the proposed rising main to serve this and previous phases of the development will cross below this river), and also discharges to Baldoyle Bay at the Coast Road (R106), to the south of the Moyne Road / Coast Road junction.

Baldoyle Bay/Mayne Estuary (located 200m to the east of the Proposed Development) is a tidal estuarine bay protected from the open sea by a large sand-dune system and is both a Special Area of Conservation (SAC) – Site Code 000199, designated under the Habitats Directive and a Special Protection Area (SPA) – Site Code 004016, designated under the Birds Directive.

We note the Natura Impact Statement (NIS) which accompanies this LRD Planning Application includes the Malahide Estuary (004025) and North Bull Island (004006) for appraisal as well as the protected sites listed above, however they go on to note that *There is no potential for habitat loss within the SPA or for impacts via emissions to surface water.* Therefore, they are not included in this assessment.

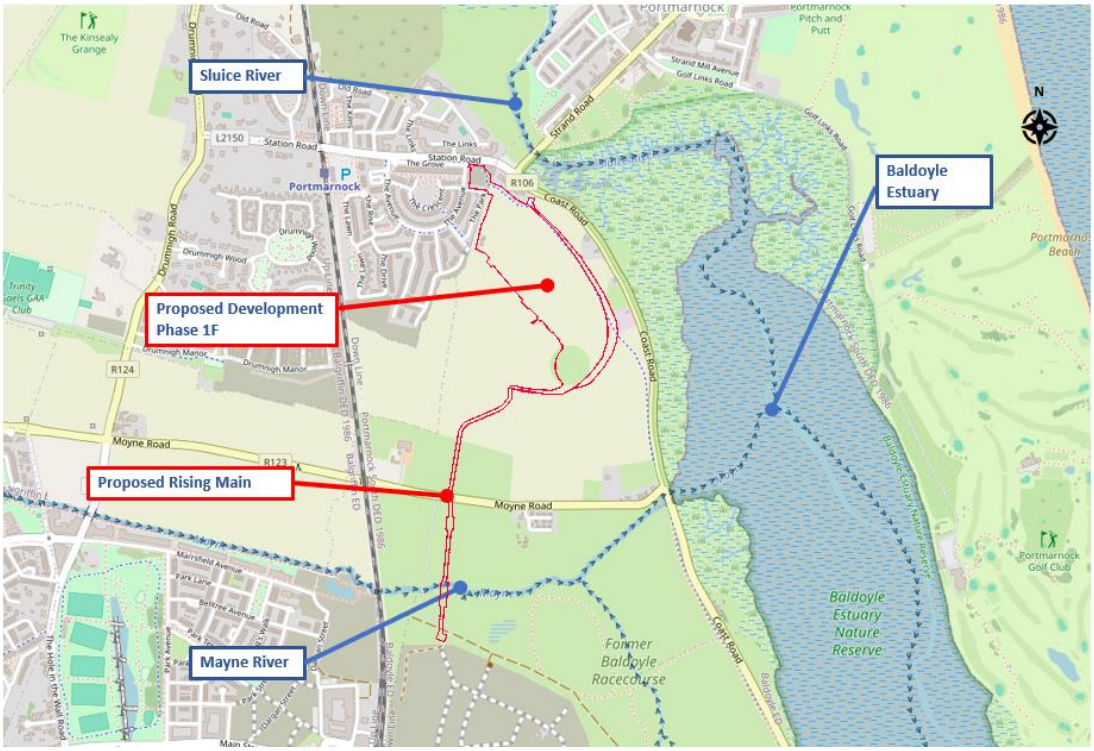

Figure 8-1: Hydrological Features of the Area (Source: EPA Map Viewer, annotation by Egis Engineering Ireland).

8.3.2 Water Quality

In 1978, the European Parliament and Council adopted 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life. This directive was transposed into Irish Law as the European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. 293 of 1988). Salmonid Waters are defined as being fresh waters that are capable of supporting salmon, trout, char, whitefish.

- Neither the Sluice River nor the Mayne River are designated as a Salmonid River, therefore for this assessment these regulations are not applicable.

In 2000, the European Parliament and Council adopted 2000/60/EC – the Water Framework Directive (WFD). This establishes the legal framework for the protection, improvement and sustainable management of, inland surface waters, transitional waters, coastal waters and groundwater. The WFD was transposed into Irish law by the European Communities Water Policy Regulations 2003 (S.I. 722 of 2003). The key objectives of this directive are: -

- Prevention or limit the input of pollutants into groundwater and prevent deterioration of the status of all bodies of surface and groundwater.
- Protect, enhance and restore all bodies of surface and groundwater with the aim of achieving good status by 2015.

The EPA assesses the quality of rivers through assigning a 'Q' value (Biotic Indices) based primarily on the relative proportions of pollution sensitive to tolerant macroinvertebrates and the associated status and condition are shown in Table 8-4 below.

Q Value	WFD Status	Pollution Status	Condition
Q5, Q4-5	High	Unpolluted	Satisfactory
Q4	Good	Unpolluted	Satisfactory
Q3-4	Moderate	Slightly Polluted	Unsatisfactory
Q3, Q2-3	Poor	Moderately Polluted	Unsatisfactory
Q2, Q1-2, Q1	Bad	Seriously Polluted	Unsatisfactory

Table 8-4: Biotic Indices.

In 2006, the European Parliament and Council adopted 2006/7/EC relating to the management of bathing waters, which aims to improve the protection of swimmer's health and provides standards for water quality and assessment. This directive was transposed into Irish Law as the Bathing Water Quality Regulations 2008 (S.I. 79 of 2008). Bathing waters are classified into quality categories (Regulation 12); Poor, Sufficient, Good, Excellent, in accordance with the criteria set out in Schedule 6 to the Regulations.

The nearest beaches to the development are Portmarnock, Velvet Strand Beach and Sutton Burrow Beach. Fingal County Council's 2024 monitoring results for these beaches, classify their Annual Water Quality Rating as Excellent and Good Quality respectively.

Finally, in 2006, the European Parliament and Council adopted 2006/11/EC – Dangerous Substances Directive, on pollution caused by certain dangerous substances discharged into the aquatic environment. This directive was transposed into Irish Law as the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. 272 of 2009 and as amended), which gave effect to the above directive, but also amended directive 2000/60/EC.

The key hydrological features in the vicinity of the Proposed Development are: -

- Sluice River to the north of the site which inputs flow to the Baldoyle – Mayne Estuary.
- Mayne River to the south of the site which inputs flow to the Baldoyle – Mayne Estuary.
- The Baldoyle – Mayne Estuary, a transitional receiving waterbody which both receives flows from, and discharges flows to the Irish Sea.
- Irish Sea – Dublin (HA 09).

The table below summarises the status and risk of each of these hydrological features based on data available on the EPA Maps website: -

Waterbody	Code	Type	Protected	WFD Risk	Ecological Status	Importance
Sluice River	IE_EA_09S071100	River	No	Under Review	Poor	Medium*
Mayne River	IE_EA_09M030500	River	No	At Risk	Poor	Medium*
Mayne Estuary	IE_EA_080_0100	Transitional	Yes	Under Review	Moderate	Extremely High
Irish Sea – Dublin	IE_EA_070_0000	Coastal	N/A	Not at Risk	Good	Extremely High

** Based on River Quality Attribute*

Table 8-5: Status of Hydrological Features in proximity to Proposed Development.

8.3.3 Local Drainage Network & Flow Paths

The lands slope to the north towards the Sluice River, to the east towards the Mayne Estuary and to the south towards the Mayne River. The overall site generally falls from a high contour of +15m OD mid-way along the western boundary adjoining the rail line to a +12m OD contour in the centre of the overall site. The ground levels around the perimeter are typically; +10m OD contour in the northwest by the railway station, +4.5m OD contour in the northeast adjoining Station Road, falling to +3.7m OD contour toward the estuary and +3.0m OD contour in the southeast along Moyne Road.

Figure 8-2: Topographical Slopes.

Under previous phases of development, the overall lands were divided into three principal catchments as indicated in the figure below.

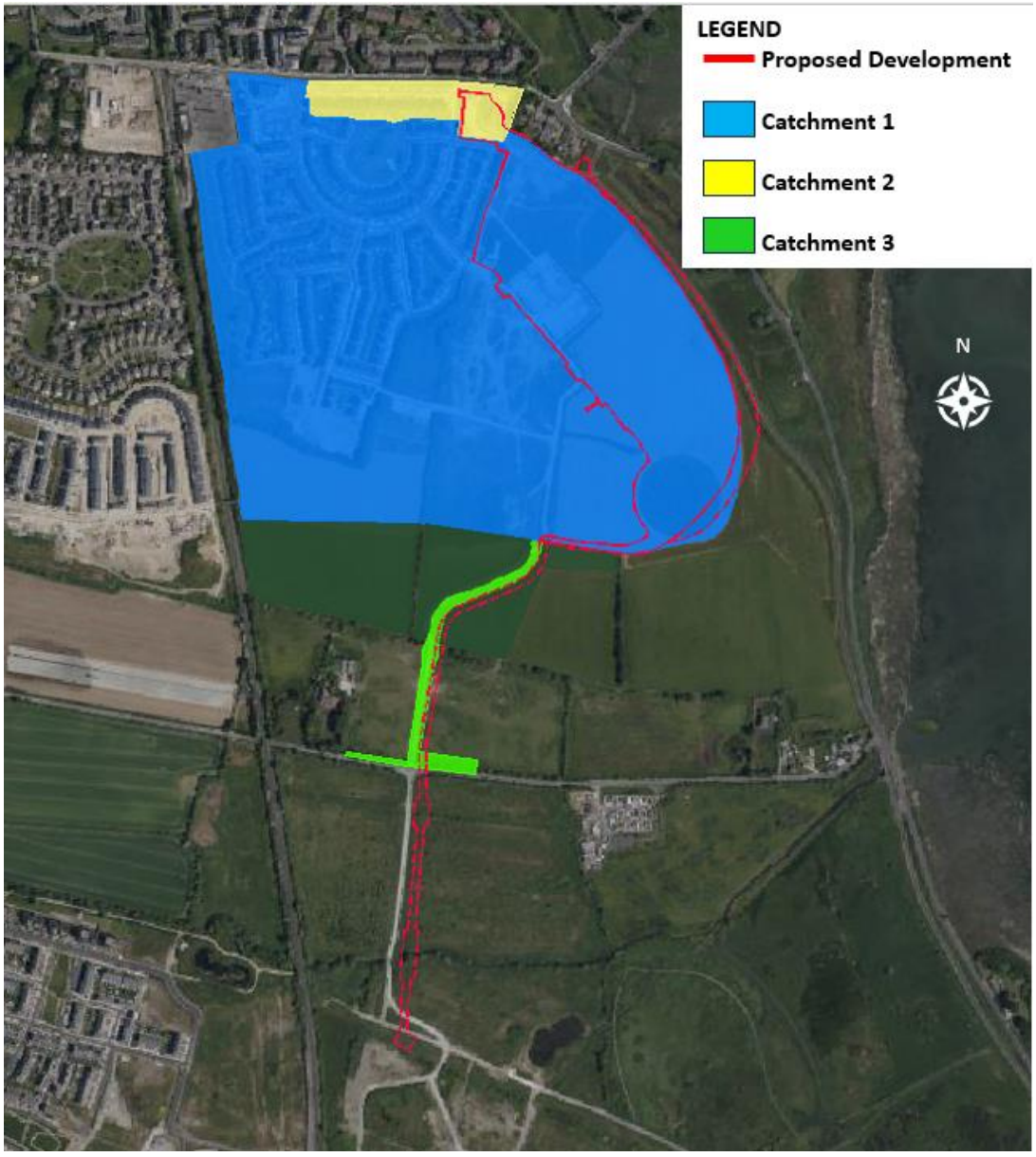

Figure 8-3: Catchment Areas

Catchment No. 2 (1.55 Ha) which drains an earlier phase of the development (Phase 1B) discharges attenuated flows via an existing constructed detention pond to the existing drainage network on Station Road with eventual outfall to Sluice River/Baldoyle-Mayne Estuary.

The majority of the development lands lie within Catchment No.1 (37.55 Ha) including this proposed phase of development (Phase 1F) and remaining future phase of the development.

This catchment outfalls via an internal 'separated' surface water network to a regional constructed wetland and from there via 2no. 375mm dia. pipes complete with tideflex non return valves into the estuary.

The regional wetland, which was constructed as part of Phase 1B, has a minimum permanent water level depth of 300mm and was designed to cater for the entire Catchment No.1 and provides both attenuation and pollutants removal through biological treatment and settlement. A settlement forebay has been provided to decrease velocity and sediment loading. The wetlands comply with the Storm Water Wetland Briefing Paper, GDSDS.

Finally, Catchment No. 3 (0.89 Ha), which primarily serves flows arising from the proposed new 6.5m Access Road (granted permission with Phase 1D) complete with 3m verge / reservation each side and will be attenuated and drain via proposed wetland/SuDS device with outfall flow limited to 2l/s, prior to discharge through petrol interceptor to the existing drainage ditch alongside Moyne Road which eventually connects to the Mayne River

8.3.4 Flood Risk

A flood risk assessment has been carried out in accordance with '*The Planning System and Flood Risk Management Guidelines*' (hereafter referred to as the FRM Guidelines) published in November 2009 jointly by the then Department of the Environment, Heritage and Local Government, DEHLG, (now the Department of the Environment, Community and Local Government, DECLG) and the Office of Public Works (OPW). This flood risk assessment is included with the LRD Planning Application documentation as a separate document.

Data required for the flood risk assessment was obtained from various sources, as described below.

- The historic flood data was originally obtained from the National Flood Hazard Mapping website www.floodmaps.ie, but is now contained on a layer '*Past Flood Events*' on the OPW website www.floodinfo.ie.
- The Subsoil and Aquifer vulnerability data was obtained from the Geological Survey of Ireland website www.gsi.ie.
- Strategic Flood Risk Assessment flood maps including Climate Change Flood Maps (refer to appendices to same) www.fingal.ie/
- Catchment Flood Risk Assessment and Management Study (CFRAMS) – river flood extents, website www.floodinfo.ie*
- Catchment Flood Risk Assessment and Management Study (CFRAMS) – coastal flood extents, website www.floodinfo.ie*
- Greater Dublin Strategic Drainage Study (GDSDS) – 2005
- Dublin Coastal Flooding Protection Project (DCFPP) – 2005
- Irish Coastal Protection Strategy Study (ICPSS) Phase III – 2010 and 2019.
- National Coastal Flood Hazard Mapping (NCFHM) – 2021, website www.floodinfo.ie
- Fingal East Meath Flood Risk Assessment and Management Study (FEMFRAM Study) www.fingal.ie/femframs.
- Portmarnock South Local Area Plan 2013-2019 (noted it has expired and that Fingal Development Plan 2023-2039 is published).

** Footnote; Area currently under review on website – previous downloaded versions were used.*

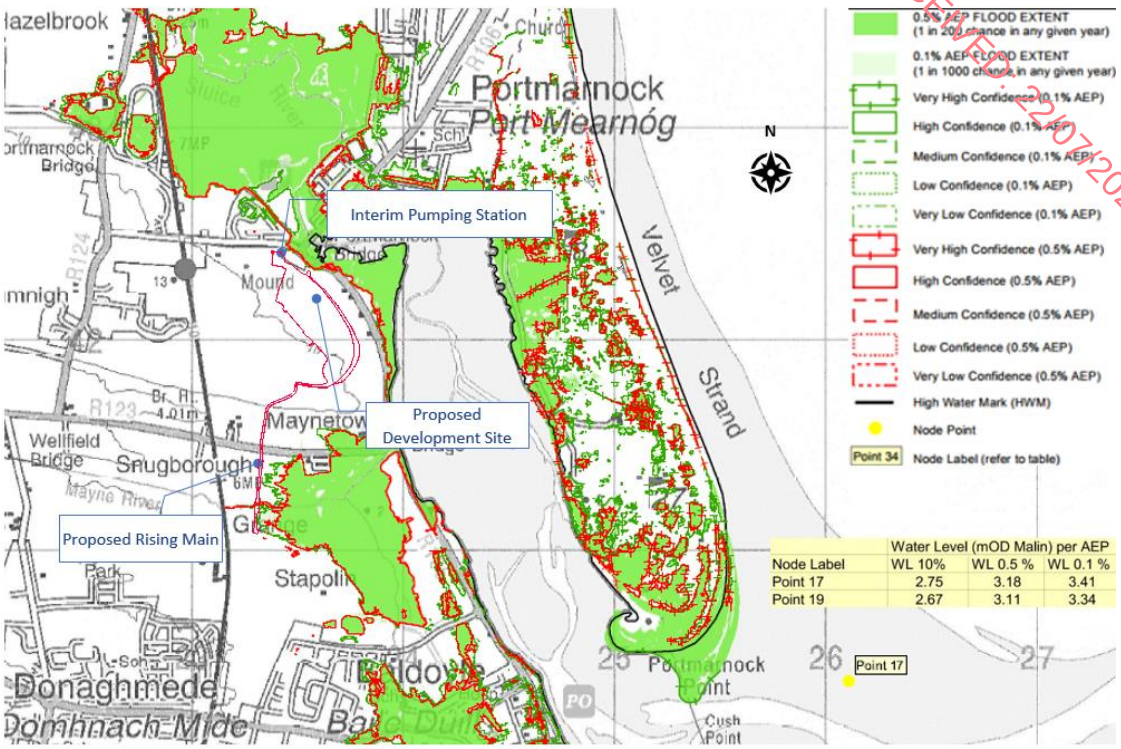

Figure 8-4: Extract of ICPSS Flood Map (Source: www.opw.ie, annotation by Egis Engineering Ireland)

Figure 8-5: Extract of National Coastal Flood Hazard Map (Source: www.floodinfo.ie, annotation by J.B. Barry & Partners)

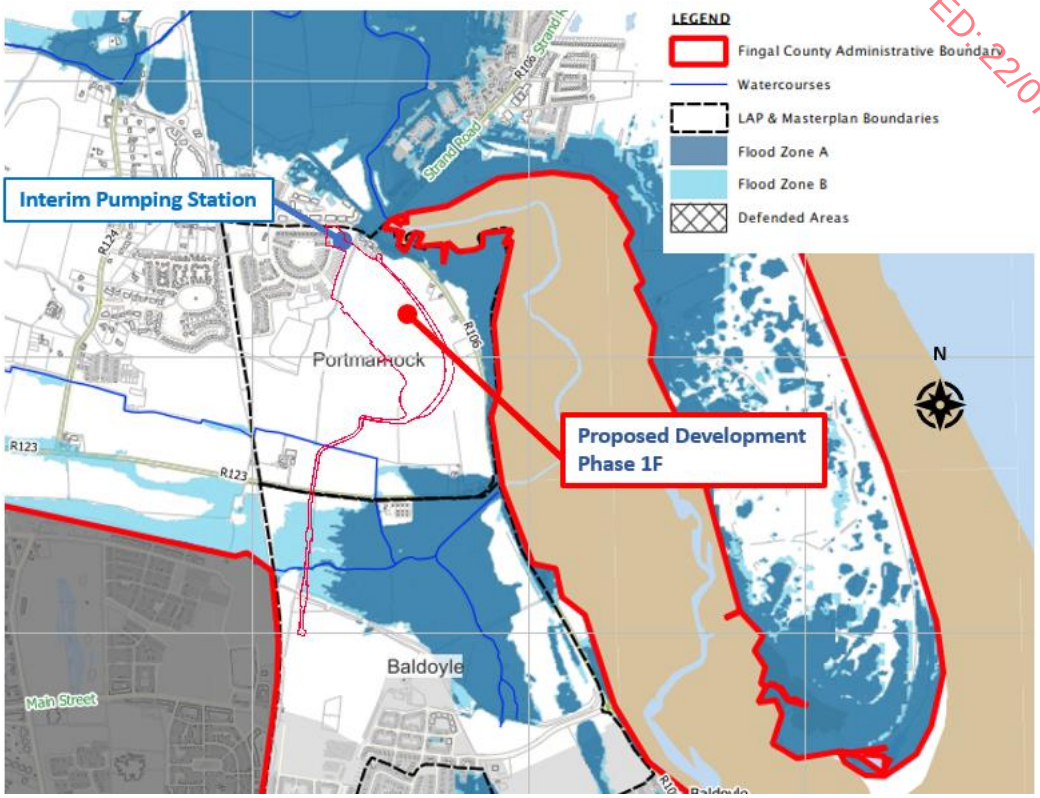

Figure 8-6: Extract from the SFRA Flood Zone Map M02127-06_FIG_FL122 (annotation by Egis Engineering Ireland)

As can be seen from the above maps, extracted from the relevant flood risk and management studies, the Proposed Development and surrounding environs lie outside the 0.1% Annual Exceedance Probability for both fluvial and coastal events and thus are considered to be located in Flood Zone C i.e. the probability of flooding from rivers and the sea is low, less than 1 in 1000.

The exception to the above points, is the rising main, which runs through the 0.1% AEP Fluvial Event south of the Moyne Road. This is a sealed pipe thus not at risk to water ingress.

Nevertheless, the Strategic Flood Risk Assessment which accompanied the Portmarnock South Local Area Plan (albeit now expired) identified four areas within the LAP lands as at risk, since existing site levels were within 0.5m to 1.0m of the 0.1% Tidal Flood Level, namely: -

- The north-east corner of the LAP lands.
- Existing housing at Portmarnock Bridge.
- Proposed Irish Water foul pumping station site (then proposed within LAP).
- Existing housing at south-eastern corner of LAP lands.

And as a consequence, it was recommended that the following measures form part of proposed development for these lands to mitigate the risk of flooding: -

- Set the building finished floor levels at an appropriate level above the relevant predicted flood levels.
- Determine as part of the detailed design the impact of flooded outfalls/tide locking on the outfall from this area and mitigate against same.

- Provide adequate overland flood routing away from this area, ensuring flood routing is directed away from properties and vulnerable infrastructure.

Although none of the above identified areas fall within the Proposed Development or remaining future phase, it is proposed to follow the above recommendations and with reference to the future scenarios as set out in the Strategic Flood Risk Assessment to the Fingal Development Plan 2023 – 2029.

8.3.5 Water Supply Infrastructure

Refer to Chapter 16: Material Assets (Utilities) for assessment on same.

8.3.6 Foul Drainage Infrastructure

The Portmarnock South lands lie within the North Fringe Sewer catchment, which in turn discharges to the Ringsend Wastewater Treatment Plant.

This treatment plant was previously operating in excess of its 2005 design capacity of 1.64 million population equivalent having received an average daily wastewater load in 2019 of 1.98 million population equivalent. However, work commenced in February 2018 on the first part of a series of upgrades to this plant with the construction of an additional secondary treatment capacity of 0.4 million population equivalent which was completed and commissioned in 2022.

The second element of the upgrade works (upgrade of 24 existing secondary treatment tanks) commenced in November 2020 and a contract was also signed for the third element in 2021 i.e. the construction of a phosphorous recovery facility.

The Ringsend Wastewater Treatment Plant will have an increased capacity for a 2.1 million population equivalent in the latter half of 2023 and ultimately when these proposed upgrade works are complete in 2025, a capacity of 2.4 million population equivalent and therefore achieve compliance with the Urban Wastewater Treatment Directive.

The greater Portmarnock foul network discharges to an existing pumping station located adjacent to Portmarnock Bridge and from there the effluent is pumped via a rising main along the Coast Road to a high point and then flows by gravity to the Mayne Bridge Pumping Station which in turn pumps to the North Fringe Sewer (1600mm diameter in this locale) located approximately 1km to the south and as noted earlier this then flows into the Sutton Pumping Station which pumps to the Ringsend Wastewater Treatment Plant.

Although originally envisaged by the Local Area Plan, that a new permanent pumping station would be constructed on the Portmarnock South Lands, which would service both the Proposed Development flows and replace the existing Portmarnock Bridge Pumping Station (nearing capacity and lacking storage, particularly during significant rainfall events), upon review by Uisce Éireann (formerly Irish Water), following their assumption of responsibility for foul and water infrastructure in 2014, they proposed to develop a new Portmarnock Bridge Pumping Station on lands adjacent to the existing pumping station as part of their Local Network Reinforcement Project strategy.

This proposed new Portmarnock Bridge Pumping Station will have twice the current capacity of the existing as well as storm water storage to substantially reduce the risk of emergency overflows during peak rainfall events and will discharge, via a 1.7km rising main, directly to the North Fringe Sewer i.e. bypassing the Mayne Bridge Pumping Station (and therefore reducing load on same).

Uisce Éireann re-lodged a planning application to Fingal County Council for this upgraded pumping station with improved storage and rising main to the North Fringe Sewer in July 2021, having previously been refused permission by An Bord Pleanála in December 2020 for not adequately addressing flood risk. The current application was granted permission in August 2022, but subsequently appealed to An Bord Pleanala, who granted permission in June 2024. This decision has been challenged and currently awaits judicial review.

As part of earlier developments within the subject lands, a temporary pumping station (St. Marnock's Temporary Pumping Station), including storage was constructed adjacent to Station Road, which lifts the flows from the earlier phases and discharges to the gravity sewer in Coast Road, which in turn outfalls directly (i.e. bypassing the at-capacity existing Portmarnock Bridge Pumping Station) into the Mayne Bridge Pumping Station.

Following discussions with Uisce Éireann in respect of the Phase 1D development, it was agreed to upgrade the above temporary pumping station to interim status through the following works, namely;

- Maintain current discharge rate and provide additional operational storage in excess of that normally provided for emergencies (24-hour storage).
- Provide telemetry and PLC upgrades to all 3 pumping stations i.e. . Existing Portmarnock Bridge Pumping Station, Mayne Bridge Pumping Station and St. Marnocks Interim Pumping Station and provide Uisce Éireann with a managed system.
- Additional works including; new wet well, new welfare building, new storage tank, lifting gantry, wash down hose reel, valve chambers, assisted lift hatches, outdoor lighting, pump isolation cabinet, hardstanding, telemetry, flowmeter, level sensors, controls, interlock and fencing.

The above works have been carried out as part of the Phase 1D development, currently under construction, and the same approach was considered acceptable for Phase 1E, granted permission in December 2024.

Ultimately this interim pumping station will be de-commissioned and all foul flows from the subject lands will be re-directed by gravity to the proposed new Uisce Éireann Portmarnock Bridge Pumping Station.

Also, of relevance to the Portmarnock South lands is the proposed Greater Dublin Drainage Project which seeks to construct a pumping station at Abbotstown, which will discharge to a proposed orbital sewer running from Blanchardstown to Clonshaugh, where a new regional wastewater treatment facility and sludge hub centre is proposed.

This regional treatment facility will also receive flows from a proposed sewer diverting part of the North Fringe Sewer (thereby reducing flows within same and eventual load on the Ringsend Wastewater Treatment Plant).

Finally, as part of this Greater Dublin Drainage Project, it is proposed to construct an outfall pipe from the Clonshaugh treatment facility, which will traverse the subject lands with eventual discharge 6km into the Irish Sea.

Planning permission was granted by An Bord Pleanála for the Clonshaugh treatment facility in November 2019, however following a court case in 2020, it is noted that the board's decision has been quashed, but that the matter is to be remitted to them from the point where the Inspector's report was submitted for their consideration.

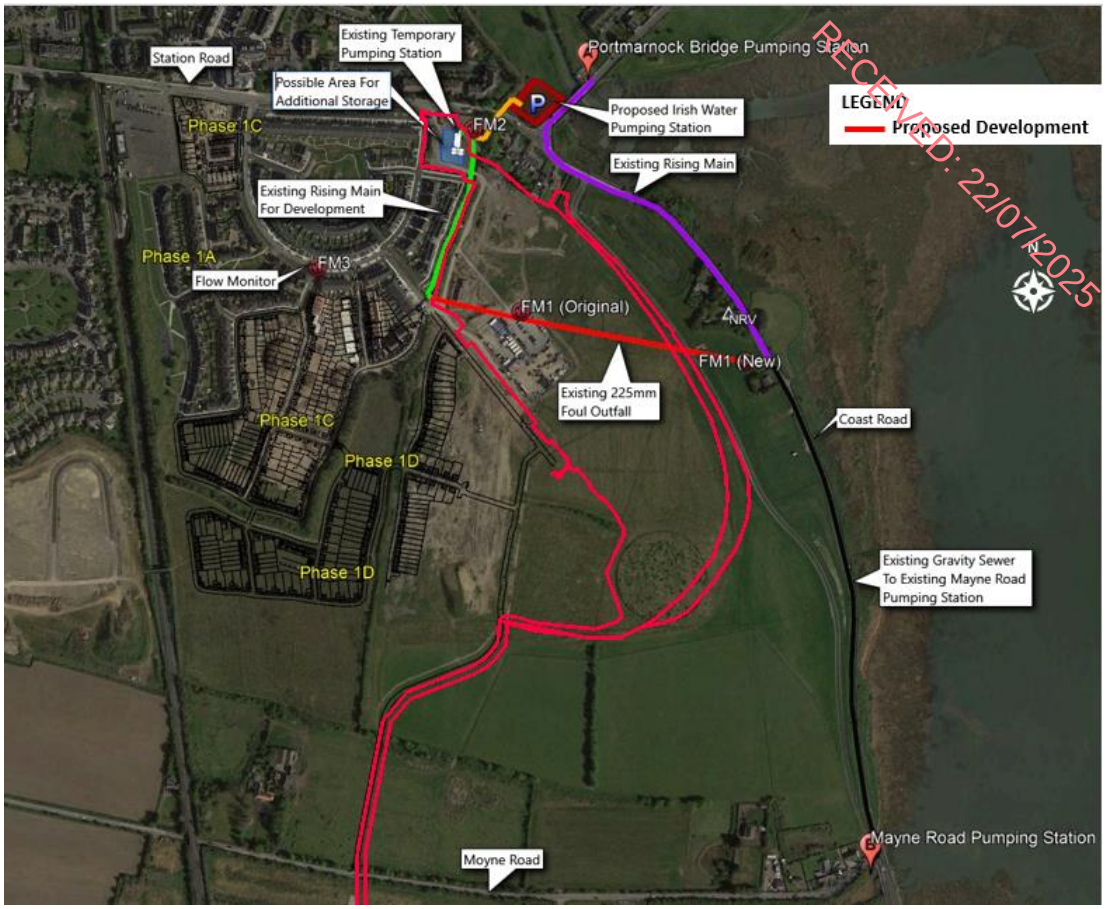

Figure 8-7: Foul Drainage Infrastructure.

8.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

8.4.1 Proposed Development

The Proposed Development (Phase 1F), is described in detail in Chapter 3: Description of Proposed Development, but may be summarised as follows: -

- 296no. residential units consisting of 42no. duplex / apartments and 254no. houses ranging in heights between 1.5 and 3 storeys.
- Public Open Space including southern Monument Park.
- Vehicular access to serve the development is proposed off Monument View (Phase1E).
- Proposed temporary Rising Main to serve this phase and previous development phases (1A to 1E inclusive) c1.7km long, connecting Interim Pumping station (upgraded as part of Phase 1D development) to the North Fringe Sewer to the south, crossing both Moyne Road and Mayne River, including upgrading of interim pumping station and storage as required.
- All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

In the context of this assessment the key characteristics of this development are set out in the paragraphs below and further detailed in the Water Services Report (25201-EEI-ZZ-ZZ-RP-C-00209_Water_Services_Report_P02) which accompanies this LRD Planning Application.

The Proposed Development and future development phases, subject to relevant planning permissions being granted, will be constructed along the following timeline: -

- Phase 1D – 172no. units – Under construction Q1 2024 and nearing completion.

- Phase 1E – 195no. units – Granted permission in December and due to commence construction Q3 2025.
- Phase 1F – 296no. units – Commence construction Q2 2026.
- Remaining Phase – 33no. units (conservatively) – Commence Construction Q2 2027.

Surface Water Drainage

The Proposed Development (as well as previous phases) has been designed in accordance with a sustainable drainage strategy (SuDS) and as such any surface water runoff will follow a surface water management train approach with the focus not only on controlling the quantity of discharge flows through attenuation, but on providing treatment storage to remove pollutants and thus improve the quality of water being discharged to the estuary.

The key component of this approach (and as noted earlier, delivered as part of Phase 1B) is the Regional Constructed Wetland, located adjacent to Coast Road, which provides for a permanent water volume of c. 3,000m^3, with a minimum water level depth of 300mm, thus removing pollutants through biological treatment and settlement. A settlement forebay was incorporated as part of these wetlands to decrease flow velocities and increase settlement loading.

The surface water drainage infrastructure for the Proposed Development will discharge to this regional wetland and will be a 'separate' system, that is no surface water runoff will discharge to the foul drainage system, and vice versa.

Various SuDS devices will be utilised upstream within the Proposed Development itself (Swales, Permeable Pavement Parking Bays, Filter Drains, Filtration Trenches, Tree Pits, Petrol / Oil Interceptors) and storm water runoff from the development will pass through a minimum of three devices.

For clarity, the above source and site control measures are proposed for this phase (and any future phases) of the development in addition to the regional control wetland, already constructed under an earlier phase.

Surface Water discharge from the Regional Wetland is controlled and attenuated for the 1 year, 30 year and 100 year critical storm events with outflow rate limited to 200l/s for the entire Catchment 1 lands based on the Q_{100} critical storm event.

Flood Risk

As noted earlier a flood risk assessment was carried out (refer to 25201-EEI-ZZ-ZZ-RP-C-00208_Flood_Risk_Assessment_P02) which identified that the Proposed Development (and future remaining phase) lies within Flood Zone C where the probability of flooding from rivers and the sea is low i.e. less than 1 in 1000. This assessment also noted that flooding from groundwater and/or pluvial events was not considered to be significant.

Therefore, the Proposed Development, although categorized as a 'highly vulnerable development' is appropriate for this location and does not require a justification test.

The Flood Risk Assessment noted the following flood risk mitigation measures;

- Building floor levels will be set at a level to exceed the tidal level for the 0.1% AEP under the HEFS (+4.28mOD at North East Point 17) including a freeboard of +250mm as recommended in Table 6.4:Minimum Design Level Requirements for Coastal/Tidal Flooding, in the Strategic Flood Risk Assessment for the Fingal Development Plan 2023-2029. Therefore, the minimum required finish floor level that the residential development needs to exceed is +4.53mOD.
- The finished floor levels (FFL) of residential buildings for this phase of the development (1F) have FFL's ranging from +4.85mOD to +9.60mOD. Therefore, all buildings in the proposed development site have a FFL in excess of +4.53mOD.

- The drainage network of the Proposed Development, constructed phases and future development phases was modelled for various flow conditions (1 year, 30 year and 100 year storm events with 20% climate change applied throughout) with free discharge or against a +3.63mOD tide level (tide lock scenario based on Midrange Future Scenario for 1 in 200 year tide) and the results are listed in the table below. In summary although surcharging exists, no flooding occurs.

Critical Storm	Discharge Conditions	Top Water Level in Wetland (m OD)	Pipe Flow (l/s)	Velocity (m/s)
1 Year	Free Discharge	+2.55	206.80	0.95
1 Year	+3.63 Tide Level	+3.42	197.50	0.91
30 Years	Free Discharge	+3.19	201.50	0.93
30 Years	+3.63 Tide Level	+4.12	206.30	0.95
100 Years	Free Discharge	+3.53	206.40	0.96
100 Years	+3.63 Tide Level	+4.36	207.00	0.96

Table 8-6: Analysis /Results of Catchment 1 Modelling.

- The Regional Constructed Wetland caters for attenuation of all the lands which fall within Catchment No.1 and as shown above, does so without causing flooding of the residential developments (both existing and proposed), however drawings are included with the Planning Application which show overland flow paths through the Proposed Development. Refer to drawing 25201-EEI-ZZ-ZZ-DR-C-04011 to 04013.

Water Supply Demand

Refer to Chapter 15: Material Assets (Utilities) for assessment on same.

Foul Drainage

The proposed Phase 1F development will produce a daily flow of 132,016 l/day, estimated in accordance with Section 3.6 and Appendix C of Uisce Éireann's Code of Practice for Wastewater Infrastructure (July 2020 – Rev 2), and a peak discharge rate of 9.18l/s.

The foul discharge from the Portmarnock 1F development will be collected in a proposed foul drainage network and connect via foul infrastructure, constructed under previous developments, to the interim pumping station, described earlier.

However, unlike the previous phases (1D and 1E), Uisce Éireann in response to pre-connection enquiry noted that the Mayne Bridge Pumping Station is out of capacity and cannot cater for any additional load. Uisce Éireann went on to recommend two options, namely wait for the new Portmarnock Bridge Pumping Station, albeit they could not commit to a date for their delivery of same or construct a rising main from the Interim Pumping Station all the way to the North Fringe Sewer.

It is the latter option that forms part of this proposed development i.e. the construction of a temporary rising main c1.7km long, to serve this phase and previous development phases (1A to 1E inclusive) from the Interim Pumping Station to the North Fringe Sewer to the south, crossing both Moyne Road and Mayne River, including upgrading of interim pumping station and storage as required. Refer to 25201-EEI-ZZ-ZZ-RP-C-00209_Water Services Report_P02 which is included as part of the LRD application for more background on this.

The current rising main and gravity pipe within the development which outfalls via a 375mm dia. gravity main on the Coast Road to the Mayne Bridge Pumping Station will be decommissioned once the above proposed temporary rising main is constructed.

For clarity the operation and maintenance of the St. Marnock's Interim Pumping Station remains with the developer, as will the proposed rising main should same be granted permission, and a

maintenance agreement will be entered into with a suitable company for same. This interim pumping station, associated storage and rising main, will be decommissioned and removed (where required) at such time as the new Uisce Éireann Portmarnock Bridge pumping station becomes operational. All flows from the Portmarnock South lands would then be redirected by gravity to the new Uisce Éireann Portmarnock Bridge pumping station as allowed for in the current design. The remaining infill phase will then be delivered on these lands, subject to grant of permission for same.

The foul drainage infrastructure will be a 'separate' system, that is no foul effluent will discharge to the surface water drainage system, and vice versa. This foul drainage network will be constructed in accordance with Uisce Éireann, and where relevant Fingal County Council requirements, specifications and standard details.

8.4.1.1 Construction Stage

As noted, this development is a residential development with building heights ranging from 1.5 to 3 storeys, therefore the key construction activities involved are: -

- Excavation for drainage and service infrastructure – depths vary but less than 3.5m.
- Excavation for strip footing foundations to residential units.
- Excavation for roads, parking and paths – typically depth to formation less than 1m.
- Excavation for rising main, primarily cut and cover construction, however directional drilling will be utilised to cross beneath the Mayne River and potentially beneath Moyne Road also.
- General excavation to facilitate final layout and level of Proposed Development, and although re-use of suitable material will be facilitated, it is estimated that nominally 16,500m^3 of material (incl. material excavated for drainage, services, foundations, roads, parking and paths) will be removed from site.
- Construction of new drainage and services infrastructure to facilitate the development.
- Construction of buildings (brickwork/blockwork/timber frames, precast concrete floors and frames, in-situ concrete footings, columns and beams where required, render finishes).
- Construction of boundary walls and fencing.
- Placing of fill to achieve required levels.
- Construction of roads, parking and footpaths.
- Landscaping.
- Imported fill, stone, aggregates are required to complete the development, and this is estimated at 24,600m^3.

The existing construction compound used for the current phase of the development (Phase 1D) will be retained and used for the construction of this Proposed Development also, although as development proceeds this will be reduced in scale and eventually constructed over.

Construction access to the main development site will be from the currently constructed Haul Road (granted permission FCC Reg Ref. F20A/0700), which connects the proposed development to Moyne Road to the south. This Haul Road will eventually be replaced by a primary link road (granted permission ABP-312112-21), serving the previously constructed development phases as well as Phase 1D nearing completion, Phase 1E granted permission and this proposed Phase 1F.

All works will be constructed in accordance with a Construction and Environmental Management Plan (CEMP), specifically prepared for this phase of the development.

All connections to foul drainage and water supplies will be in accordance with Irish Water's relevant Code of Practice for same.

8.4.1.2 Operational Stage

On completion of the Construction Phase, the development becomes a residential estate.

There are no specific operational elements for consideration other than surface water drainage, foul drainage and water supply to function as designed, which in turn requires maintenance in accordance with acknowledged standards for same i.e.: -

- Cleaning of gullies.
- Inspection of drainage lines at suitable intervals.
- Monitoring and cleaning of petrol interceptors at planned intervals.
- Monitoring and maintenance of interim foul pumping station and rising main until such time as it is decommissioned.
- Inspection and maintenance of SuDS features as per the requirements of the SuDS Manual, CIRIA 753, 2015 and Section 3.6 of Fingal County Council's *Green/Blue Infrastructure for Developments Guidance Note*.
- Periodic testing of water supply.

8.4.2 Cumulative

As noted earlier the cumulative development (for assessment purposes) consists of this Proposed Phase 1F, the current phase under construction (Phase 1D), the Phase 1E granted permission and the development of a final phase to build out approximately (conservatively) 33no. residential units including public open space, integration of recorded monument and provision of road and drainage infrastructure.

The nature of these developments will be similar in character to the Proposed Development Phase 1F.

There is residential development being carried out by others to the west of the railway line (and in turn to the west of the Proposed Development) and of similar characteristics. It is noted however, these works are substantially complete and therefore not considered further.

8.4.2.1 Construction Phase

The construction methodology for the current and future phases will be similar to that described above, with excavation depths of a similar order and cut fill volumes pro-rata to the house numbers being constructed under each future phase.

It is noted that the construction compound and marketing suite will be scaled down and relocated as this Proposed Development gets developed but will remain within the overall development lands and be proximate to the remaining phase.

The Haul Road will eventually be superseded by the permanent access road to Moyne / Mayne Road, being constructed as part of Phase 1D and nearing completion, which will serve the same function in the context of construction traffic i.e. mitigate public safety issues and reducing traffic congestion on Station Road.

8.4.2.2 Operational Phase

As before on completion of the Construction Phase for each phase of the development, then that phase of the development becomes a residential estate.

The maintenance and inspection elements described earlier will also apply for each consecutive phase of the development.

8.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

8.5.1 Proposed Development

8.5.1.1 Construction Stage

The following potential impacts arising from construction of the Proposed Development have been identified: -

- **Increase in Sediment Concentration**

  Topsoil removal, bulk excavation, material stockpiling (to be re-used as fill) and specific excavation for drains, services and foundations, if not properly managed can lead to increased sediment concentration in surface water runoff which may in turn flow via existing drains, ditches, overland or through constructed drainage network, and outfall into nearby waterbodies.

  There are two work locations to assess here, namely; main development and works for proposed rising main.

  The magnitude of impact is assessed to be negligible for the main development, since the majority of the proposed works are approx. 150m, 200m to 600m away from nearby waterbodies and slopes are relatively flat (1:20 to 1:50) for the ditch / overland pathways. Also, the Regional Wetland is already constructed so that flows via network pathways will outfall to same before discharging to the estuary.

  The magnitude of impact is assessed to be small adverse for the construction of the rising main, since whilst the extent of these works is significant (c1.2km beyond main development) and the works cross the Mayne River, the works are light civil engineering construction (narrow trench width, shallow excavation depth and directional drilling proposed to cross the Mayne River and the works themselves are focussed in nature.

  Finally, any potential for increase in sediment concentration in runoff will either be of short duration/high volume *('brief effect'*) or long duration/low volume (*'temporary effect'*) and as such are not considered to have a long-term impact on the quality of water in the nearby waterbodies.

- **Accidental Spills and / or Leaks**

  Spills arising from leakage of oils, fuels and chemicals stored on site or oils and fuels from construction plant working on site. These spillages may directly flow into the surface water drainage network or be conveyed there in runoff and from there to nearby waterbodies. The magnitude of impact is assessed to be negligible for the main development given scale of activities involved and the pathway limitations as described above.

  However, for the rising main works this is considered to be small adverse given proximity to the Mayne River but offset by scale and nature of works.

- **Spillages Arising from Concreting Operations**

  Any runoff from concreting operations has the potential for a highly alkaline leachate to enter drains if not properly managed and therefore be conveyed into nearby waterbodies. The magnitude of impact is assessed to be negligible for the main development given limited amount of concrete works involved and the pathway limitations as described above.

  However, for the rising main works (which includes installation of thrust blocks where required) this is considered to be small adverse given proximity to the Mayne River but offset by scale and nature of works.

Source	Path	Potential Receptor	Significance
Earthworks	Combined with Runoff – drain network, ditches, overland	Baldoyle / Mayne Estuary, Mayne River Sluice River	Imperceptible
			Slight
			Imperceptible
Oils, Fuels, Chemicals	Direct to or combined with Runoff – drain network, ditches, overland	Baldoyle / Mayne Estuary, Mayne River Sluice River	Imperceptible
			Slight
			Imperceptible
Concreting Operations	Combined with Runoff – drain network, ditches	Baldoyle / Mayne Estuary, Mayne River Sluice River	Imperceptible
			Slight
			Imperceptible

Table 8-7: Significance of Potential Impacts of the Proposed Development – Construction Phase prior to Mitigation.

It is important to reiterate that the Regional Wetland is already constructed as part of an earlier phase and as such intercepts and treats almost all of the surface water flows from this Proposed Development, even during the Construction Phase, prior to eventual outflow to the Baldoyle / Mayne Estuary.

8.5.1.2 Operational Stage

The following potential impacts arising post completion of the Proposed Development have been identified: -

- **Flooding**

  The flood risk assessment identified that the Proposed Development lies within Flood Zone C and as such is at a low risk of flooding, furthermore finished floor levels are being set at a level greater than that suggested by a Mean Sea Level Rise of 1m as suggested by a High-End Future Scenario and appropriate freeboard.

  Furthermore, the development lands (neither earlier, current nor future phases) are within a flood plain, thus there is no increase in flood risk to the surrounding area as a consequence of this development.

  The exception to the above, is the rising main, which runs through the 0.1% AEP Fluvial Event south of the Moyne Road. This is a sealed pipe thus not at risk to water ingress.

  There is no loss of or depletion to existing floodplain cross sectional area, or storage as a result of this development and any surface water generated as result of increase in hardstanding is being managed using SuDS principles (mitigation by design), therefore the impact is assessed as negligible.

- **Accidental Spills and / or Leaks**

  Spills arising from leakage of oils and fuels from occupant's vehicles in car parking bays. These spillages may directly flow into the surface water drainage network and from there to nearby waterbodies. The magnitude of impact is assessed to be negligible given scale of activities involved, source controls including petrol interceptors installed on network and the Regional Wetland is already constructed so that flows via network pathway will outfall to same before discharging to estuary.

- **Emergency Foul Overflows and/or Leaks**

  The construction of a temporary rising main c1.7km long, to serve this phase and previous development phases (1A to 1E inclusive) from the Interim Pumping Station to the North Fringe Sewer to the south, means the Proposed Development as well as previous phases and future

phase are now independent of the existing Portmarnock Bridge Pumping Station (upstream) and existing Mayne Road Pumping Station (downstream).

The existing temporary foul pumping station, which has been upgraded to interim status (St. Marnock's Interim Pumping Station) as part of the previous Phase 1D development under construction and nearing completion, is not designed to be susceptible to surface water inflows (since separated drainage networks, and whilst some infiltration has been observed now that detailed data is available, this is being remediated) and has storage capacity (24-hour emergency storage) to cater for the current constructed and under construction/future phases of this development.

As a consequence, there will be no increase in the potential risk of foul overflows due to this development, since it now pumps direct to the North Fringe Sewer.

Finally receipt of the confirmation of feasibility from Uisce Éireann indicates downstream infrastructure, at the point of discharge of the proposed rising main, also has the capacity to cater for this development.

The proposed rising main is to be installed and tested, prior to commissioning, in accordance with Uisce Eireann's Code of Practice for Wastewater Infrastructure (July 2020 -Revision 2).

Therefore, magnitude of the impact is assessed to be negligible.

Source	Path	Potential Receptor	Significance
Flooding	Combined with flood waters – drain network, ditches, overland	Baldoyle/Mayne Estuary,	Imperceptible
		Sluice River/Mayne River	Imperceptible
		Development Vulnerability	Imperceptible
Oils and Fuels	Direct to or combined with Runoff – drainage network.	Baldoyle/Mayne Estuary,	Imperceptible
		Mayne River	Imperceptible
Emergency Foul Overflows and/or Leaks	Combined with Surface Water – drain network, ditches, overland	Baldoyle/Mayne Estuary,	Imperceptible
		Mayne River	Imperceptible
		Sluice River	Imperceptible

Table 8-8: Significance of Potential Effects of the Proposed Development – Operational Phase.

8.5.1.3 Do Nothing Impact

In the event that the Proposed Development does not proceed, then the site will remain in its current greenfield state and as a consequence there will be no potential for any significant effect on surrounding waterbodies.

8.5.2 Cumulative

The potential effects for both the Construction Phase and the Operational Phase of the Proposed Development, equally apply for remaining future phase, and whilst it is envisaged that the proposed Uisce Éireann Portmarnock Bridge Pumping Station with rising main direct to North Fringe Sewer will be operational within the likely development timelines, the upgrades to the interim foul pumping station and the proposed rising main serving this and future development, will enable it to continue to function until such time as this is the case.

8.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

8.6.1 Proposed Development

8.6.1.1 Construction Phase

The appointed contractor to carry out the construction work for this development, will be required to prepare a site-specific CEMP which will include the following measures to minimize or reduce the risk of pollution events occurring;

- Within the works, temporary earth bunds/silt fences will be constructed to contain surface water run-off and channel it to a silt trap or settlement pond before discharge to the drainage network.
- Any excavated soil is to be temporarily stockpiled at least 20m from any ditch or drainage network or other waterbodies in order to reduce the likelihood of any suspended solids reaching them. This also applies to works associated with the proposed rising main.
- Longer term stockpiles should be located 50m from any ditch or drainage network or other waterbodies.
- Bulk Excavation works will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24-hour period, or high winds.
- Designated impermeable fuelling areas will be constructed. All oils and fuels will be stored in bunded tanks with the provision of a storage/retention capacity of 110% of tank storage.
- No fuelling areas or fuel storage areas should be designated along route of proposed rising main.
- Care and attention to be taken during refuelling and maintenance operations. Drip trays and spill kits to be available on site.
- Drip trays and spill kits to be specifically included as part of proposed rising main works.
- Chemicals to be stored in dedicated, secure bunded storage. No chemicals to be stored along route of proposed rising main.
- Pouring of cement-based materials for works will only be carried out in substantially dry conditions. It will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24-hour period or high winds).
- If any on-site cleaning of ready-mix concrete trucks, tools is required, designated impermeable washout areas will be provided at least 50m from any waterbody. No washout areas should be designated along route of proposed rising main.
- Directional Drilling of the proposed rising main beneath Mayne River is to be carried out by a specialist contractor with experience of similar works (complexity, scale and nature), who will be requested to prepare a detailed method statement prior to undertaking the work.
- The proposed rising main is to be installed and tested, prior to commissioning, in accordance with Uisce Eireann's Code of Practice for Wastewater Infrastructure (July 2020 -Revision 2).
- Discharge points to the drainage network will entail a mechanism for containment of runoff in the event of accidental spillage, to enable clean-up and appropriate disposal through licensed facilities.
- *Contractor Guidance set out in the Control of Water Pollution from Construction Sites* (CIRIA, 2001) shall be adhered to.
- *Environmental Good Practice on Site* (CIRIA 2005) to be implemented and followed.
- Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996 as amended.

Refer to CEMP prepared for this phase of the Proposed Development and included with the Planning Application documentation, for further detail.

With the introduction of these mitigation measures, the significance of the potential construction effects, identified earlier, are considered to reduce since they either remove the source of potential impact and / or place barriers to the pathways for such impact events.

8.6.1.2 Operational Phase

The following measures are incorporated in the design of the Proposed Development, which when implemented will mitigate any potential effects currently identified: -

- The drainage design follows a sustainable drainage strategy (SuDS) i.e. mitigation by design, and as such any surface water runoff will follow a surface water management train approach with the focus not only on controlling the quantity of discharge flows through attenuation, but on providing treatment storage to remove pollutants and thus improve quality of water being discharged to the estuary. The key component of this approach is the Regional Wetland which is already constructed.
- Various SuDS devices will be utilised upstream within the Proposed Development (Swales, Permeable Pavement Parking Bays, Filter Strips, Filter Drains, Tree Pits, Petrol/Oil Interceptors) and storm water runoff from the development will pass through a minimum of three devices.
- Floor levels will be greater than +4.53mOD.
- The interim foul pumping station and proposed rising main will have a maintenance agreement in place until such time as they are decommissioned.

With the introduction of these mitigation measures, the significance of the potential operational effects identified earlier are considered to reduce since they either remove / minimise the source of potential impact and / or place barriers to the pathways for such impact events.

8.6.2 Cumulative

The proposed mitigation measures for this phase of the Proposed Development equally apply to current and remaining future phase and will have the same reduction in the significance of the potential effects.

Again, it is envisaged that the proposed Uisce Éireann Portmarnock Bridge Pumping Station with rising main direct to North Fringe Sewer will be operational within their likely development timelines, however the recently constructed upgrades to the interim foul pumping station and proposed temporary rising main serving this and future development, will enable it to continue to function until such time as this is the case.

8.7 RESIDUAL IMPACT OF THE PROPOSED DEVELOPMENT

8.7.1 Proposed Development

8.7.1.1 Construction Stage

With the introduction of the proposed mitigation measures, the significance of the potential effects are considered to reduce/remain as follows: -

Source	Path	Potential Receptor	Significance
Earthworks	Combined with Runoff – drain network, ditches, overland	Baldoyle / Mayne Estuary, Mayne River Sluice River	Imperceptible
			Imperceptible
			Imperceptible
Oils, Fuels, Chemicals	Direct to or combined with Runoff – drain network, ditches, overland	Baldoyle / Mayne Estuary, Mayne River	Imperceptible
			Imperceptible

		Sluice River	Imperceptible
Concreting Operations	Combined with Runoff – drain network, ditches	Baldoyle / Mayne Estuary, Mayne River Sluice River	Imperceptible Imperceptible Imperceptible

Table 8-9: Significance of Potential Effects of the Proposed Development – Construction Phase with Mitigation.

The predicted overall residual effect of the Proposed Development on hydrology during Construction Phase will be imperceptible.

8.7.1.2 Operational Stage

With the incorporation of the proposed design features and mitigation measures, the significance of the potential effects are considered to reduce as follows: -

Source	Path	Potential Receptor	Significance
Flooding	Combined with flood waters – drain network, ditches, overland	Baldoyle/Mayne Estuary, Sluice River/Mayne River Development Vulnerability	Imperceptible Imperceptible Imperceptible
Oils and Fuels	Direct to or combined with Runoff – drainage network.	Baldoyle/Mayne Estuary, Mayne River	Imperceptible Imperceptible
Emergency Foul Overflows & Leaks	Combined with Surface Water – drain network, ditches, overland	Baldoyle/Mayne Estuary, Mayne River Sluice River	Imperceptible Imperceptible Imperceptible

Table 8.10: Significance of Potential Effects of the Proposed Development – Operational Phase with Mitigation.

The predicted overall residual effect of the Proposed Development on hydrology during the Operational Phase will be imperceptible.

8.7.2 Cumulative

8.7.2.1 Construction Stage

The predicted overall residual effect of the proposed cumulative development on hydrology during the Construction and Operational Phases will be imperceptible.

8.8 MONITORING

8.8.1 Proposed Development

8.8.1.1 Construction Phase

Regular inspections of the works and audits of the CEMP to determine mitigation measures are both adequate and being implemented.

8.8.1.2 Operational Phase

No specific monitoring is proposed, other than to note maintenance regime to be implemented.

Monitoring and maintenance of interim foul pumping station and temporary rising main until such time as it is decommissioned.

8.8.2 Cumulative

Monitoring to continue for remaining future phase as per this proposed phase.

8.9 REINSTATEMENT

Not relevant.

8.10 DIFFICULTIES ENCOUNTERED

No difficulties were encountered during the preparation of this chapter of the EIAR.