This Report has been cleared for submission to the Board by Programme Manager

Darragh Page

Signed: Eve O'Sullivan Date: 8 May 2024

OFFICE OF ENVIRONMENTAL SUSTAINABILITY

INSPECTOR'S REPORT ON A WASTE WATER DISCHARGE LICENCE REVIEW APPLICATION

To:	Each Director	
From:	Aimie Cranch, Inspector	Water, Energy and Business Support Programme
Date:	8 May 2024	
RE:	Application for a review of a Waste Water Discharge Licence from Uisce Éireann, for the agglomeration named Greater Dublin Area, Reg. No. D0034-02.	

Summary Details of an Application for the review of a licence under the European Union (Waste Water Discharge) Regulations 2007 to 2020	
Agglomeration Name:	Greater Dublin Area
Location:	Dublin
Number and type of waste water discharges from the waste water works:	1 primary discharge, 386 discharges from storm water overflows
Location of waste water treatment plant (WWTP)	Pigeon House Road, Dublin 4, Co. Dublin, D04 X2X7
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of greater than 10,000
Population equivalent (p.e) to which the application relates:	2,400,000
Design Population Equivalent of WWTP:	2,400,000
Reported current Population Equivalent:	2,207,592
Licence application received:	22/05/2023
Additional information received:	Site notices: 21/02/2024, 20/02/2024, 28/09/2023, 19/06/2023, 23/05/2023 Additional information: 12/04/2024, 22/01/2024, 12/01/2024, 05/01/2024, 21/12/2023, 13/10/2023, 24/08/2023, 17/07/2023, 07/07/2023, EIAR & NIS addendums: 13/10/2023

Regulation 18(2) Compliance Acknowledgement:	16/02/2024
Site notice check:	27/02/2024, 13/06/2023
Site Visit:	13/06/2023
Submission(s) Received:	Health Service Executive (28/07/2023) Dublin City Council (30/11/2023) Fingal County Council (20/12/2023) Individuals and Wild Irish Defence CLG (23/01/2024 and 14/02/2024)
Environmental Impact Assessment (EIA) Required:	Yes
Environmental Impact Assessment Report Submitted:	22/05/2023, addendum received 13/10/2023
Stage 2 Appropriate Assessment required:	Yes
Natura Impact Statement (NIS) submitted:	22/05/2023, addendum received 13/10/2023

1. Introduction to application

Waste water from the Greater Dublin Area, which includes Dublin City and County, and parts of counties Kildare and Meath, is served by a collection system of approximately 3,000km and one waste water treatment plant (WWTP) at Ringsend. The WWTP provides over 40% of Ireland's waste water treatment capacity and is 10 times larger than the next largest treatment plant in Ireland.

The agglomeration is included on the EPA's Urban Waste Water Priority Areas List[1] for the following 3 priority issues:

- The discharge of raw sewage at Doldrum Bay;
- Failure to meet EU treatment standards; and
- Significant pressure on waters at risk of pollution.

It is also on the European Commission infringement list for failing to meet secondary treatment standards and failing to provide nutrient removal by 31/12/1998, as required under Article 4(2) of the Urban Waste Water Treatment Directive 1991 (91/271/EEC). Despite an upgrade to 2.1. million p.e. capacity in December 2023, the plant is still not in compliance with the Emission Limit Values as set in the current licence (D0034-01).

The Greater Dublin Area Agglomeration (formerly called Ringsend) was granted a waste water discharge licence (WWDL) register no. D0034-01 on the 27/07/2010. The Agency initiated a review of the WWDL register no. D0034-01 on the 10/11/2021 because of material changes to discharges, non-compliance with licence conditions and significant planned upgrades to the WWTP.

This WWDL review application addresses the non-compliance, current capacity and priority issues and provides for additional treatment capacity to accommodate future growth. The review application is for;

- WWTP upgrade:

[1] EPA's Urban Waste Water Priority Areas List is available at Priority-areas-for-website-April-2024.pdf

    - Provision of additional secondary treatment capacity with nutrient reduction for 2.4 million p.e.;
    - Provision of a new phosphorus recovery process;
    - Expansion of the plants sludge treatment facilities[2];
    - Upgrade of the UV system to increase disinfection capacity during the bathing season;
- Elimination of raw sewage discharge from Doldrum Bay; and
- Network upgrades and inclusion of additional storm water overflows.

Changes to the agglomeration boundary are proposed for the inclusion of areas within Kildare and Meath (see Appendix 1 for map).

Uisce Éireann are investing approximately €500 million in the upgrade works. Upon completion of the upgrade works, the WWTP will be one of the 10 largest plants in Europe.

The capacity of the WWTP has increased from 1.64 million p.e. in 2009 to 2.1 million p.e. in 2023. Further upgrade works, to bring treatment capacity up to 2.4 million p.e., are ongoing on a phased basis alongside the normal operation of the plant.

Uisce Éireann are retrofitting with the Aerobic Granular Sludge (AGS) Nereda technology, combined with the AGS Nereda Hybrid technology, to the existing secondary treatment tanks on a phased basis. The existing secondary treatment tanks consist of 24 Sequencing Batch Reactor (SBR) tanks, stacked in a two-layer deck of 12 SBR tanks per deck. 8 of the 12 upper deck treatment tanks will be retrofitted with AGS technology and the retrofit of the other 4 upper deck treatment tanks and the 12 lower deck treatment tanks with AGS Hybrid technology. AGS is used in WWTPs across the country and consists of dense microbial granules that have both aerobic and anoxic/anaerobic zones for simultaneous nitrification, denitrification and phosphate removal. WWTPs using AGS Nereda technology are capable of meeting strict compliance limits.

Uisce Éireann did not achieve the specified date of 22/12/2015 for the completion of WWTP upgrade works as required in the current licence (D0034-01) or the specified date of 2021 in Appendix 1 of the River Basin Management Plan (RBMP) 2018-2021. Uisce Éireann stated in their review application that there was insufficient time allowed in the licence for the development and completion of these works. Uisce Éireann's expected timeframe for completing the outstanding upgrade works at the waste water treatment plant is Q4 2025.

This application details one primary discharge (into the Lower Liffey Estuary) and 386 discharges from storm water overflows into various waterbodies in the Greater Dublin Area. Though the p.e. served by the agglomeration is increasing to 2.4 million p.e., the proposed upgrades will result in a reduced pollutant load to receiving waters.

In the long term, it is proposed to construct a new WWTP as part of the Greater Dublin Drainage Project in the townland of Clonshaugh in Fingal. This will involve diverting flows from some of the existing drainage catchments served by the Greater Dublin Area agglomeration WWTP. This new WWTP will require a separate WWDL.

[2] The operation of sludge treatment facilities is not within the scope of the European Union (Waste Water Discharge) Regulations 2007 to 2020.

2. Planning Status

Planning permission for the Ringsend waste water treatment plant upgrade project was granted on 24/04/2019 (ref no. PA29S.301798) by An Bord Pleanála (ABP). A copy of the grant of planning permission and planners report was submitted with the application. This permission is for the purposes of the waste water discharge to which this licence review application relates. The 2018 Environmental Impact Assessment Report associated with the planning permission accompanied this application. The Agency has had regard to the reasoned conclusions reached by An Bord Pleanála in undertaking its environmental impact assessment of the proposed development.

The long sea outfall tunnel discharge associated with the planning permission for Ringsend WWTP plant extension project granted on 09/11/2012 (ref. no. 29N.YA0010) did not proceed.

Planning permission for 2 pumping stations and associated infrastructure at Carrickbane Road, Sutton South and Ceanchor Road, Censure, Howth, was granted on 30/01/2023 by Fingal County Council. The planning approval granted by Fingal County Council was subject to a planning appeal (ref no. ABP-315902-23). ABP confirmed to Uisce Éireann on 21/12/2023 that EIA is not required for planning application reference ABP-315902-23. An Bord Pleanála granted planning permission on 18/01/2024. These pumping stations are required to eliminate the discharge of raw sewage at Doldrum Bay.

3. Discharges to Waters

The following table outlines the waste water discharges to waters from the waste water works serving this agglomeration.

Table 1: Waste Water Discharges

Primary discharge point (SW001)	
Type of treatment:	Tertiary treatment (Nitrogen & Phosphorus removal), with UV disinfection during the bathing season.
WWTP description:	The plant consists of preliminary treatment (screening and Fats, Oils & Grease (FOG) removal), primary treatment (settlement tanks), secondary treatment tanks with AGS technology, tertiary treatment (N and P removal), and ultraviolet disinfection during the bathing season[3].
Receiving water name	Lower Liffey Estuary WFD code: IE_EA_090_0300 Transitional waterbody
Dry weather flow (DWF)	Proposed DWF: 369,160m^3/day A DWF of 369,160m^3/day is based on the design capacity of the WWTP of 2,400,000 p.e. and on 153 litres per head per day (approx. 30% of the load entering the Greater Dublin Area WWTP is from industrial sources).
Maximum flow	1,192,320 m^3/day (≈3.2 times DWF)

[3] ELV shall apply during the bathing season 1st June to 15th September (as per S.I. No. 79/2008 - Bathing Water Quality Regulations 2008).

UWWTD Compliance[4]	The upgraded WWTP will consist of tertiary treatment and will comply with the Directive in respect of the level of treatment for agglomerations above the 100,000 p.e. threshold and discharging into nutrient sensitive areas.
Secondary discharge point	
Secondary discharge point	S4 Fingal (raw sewage into Doldrum Bay).
Receiving water name	Dublin Bay WFD code: IE_EA_090_0000 Coastal waterbody
Decommissioning date	The licensee proposes the end of 2024 (due to be decommissioned and repurposed as a Storm Water Overflow (SWO), with Emergency Overflow (EO) in the event of pump failure).
UWWTD Compliance[3]	The cessation of this secondary discharge complies with the requirements of the UWWTD.
Storm water overflows	
Storm water overflows[5]	386 storm water overflows
Stormwater storage	62,100m^3 at the WWTP 7,400m^3 at West Pier pumping station 30,000m^3 at Network storage 9C 5,005m^3 at Sutton
Receiving water name(s)	Refer to Table 6: Discharges from SWOs by waterbodies
UWWTD Compliance	51 out of 101 assessed SWOs are compliant with the criteria as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995. 285 SWOs are yet to be assessed.
Emergency overflows	
Emergency overflows[6]	52 emergency overflows

The sources of inputs to the WWTP are predominantly (69%) from domestic waste water, with 30% arising from industrial waste water and 1% from leachate. This industrial loading is significant and priority substances screening was carried out in 2022, which detected Chromium (Total), Copper and Zinc levels in the effluent sample. This is discussed further in Section 4 below.

The ELVs proposed by Uisce Éireann for the primary discharge are in line with the Urban Waste Water Treatment Directive. Mass emission limits (kg/day) are also proposed and are considered in Section 4 below.

[4] Compliance with the Urban Waste Water Treatment Directive 1991 (91/271/EEC)

[5] Outlets designed to relieve sewers of excess flows caused by unusually heavy rainfall. Without these releases there could be a greater risk to the environment and people's health because the sewer and treatment plant could become inundated, and homes and streets flooded by sewage.

[6] Emergency overflow structures provided for pump stations in the event of mechanical or electrical failure.

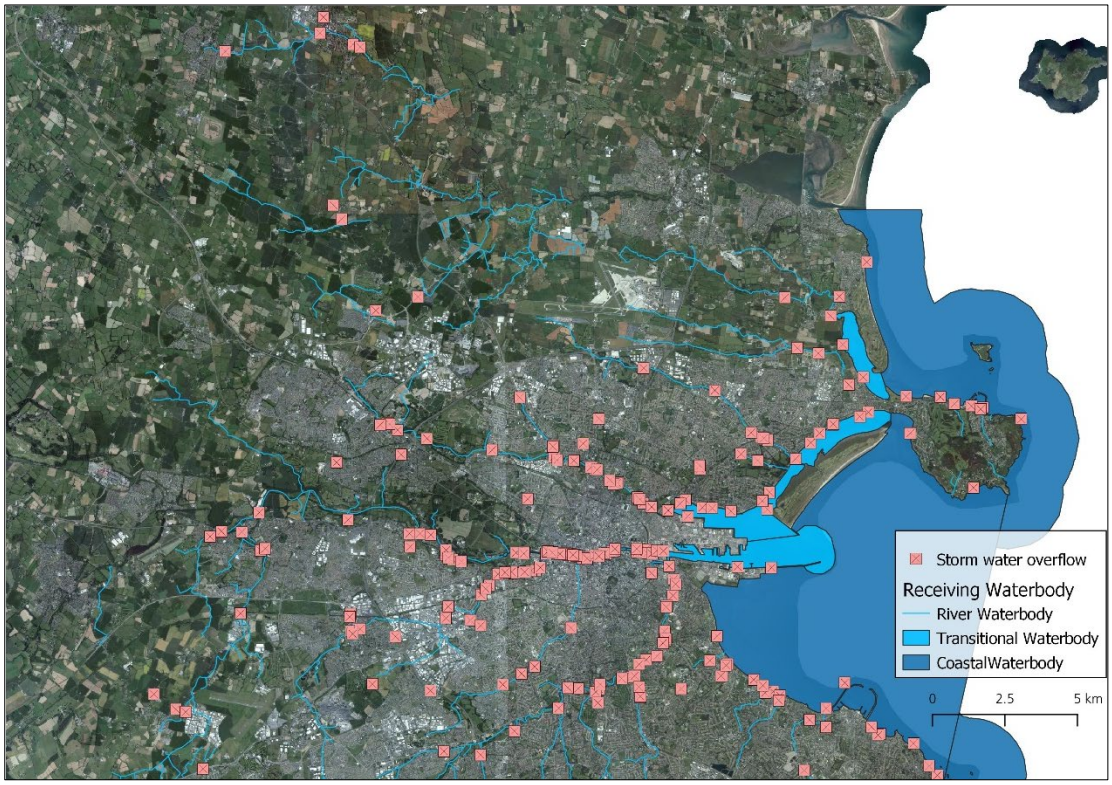
The primary discharge is to the Lower Liffey Estuary via the ESB Poolbeg Power Station cooling water channel and weir. The channel and weir are currently damaged and Uisce Éireann intends to repair them as part of the upgrade works.

It should be noted that the existing WWDL (D0034-01) required raw sewage discharges to Doldrum Bay (S4 Fingal) to be discontinued by December 2011.

The existing licence (D0034-01) listed 322 overflows and this review includes 64 additional overflows. Stormwater overflows have been identified through Drainage Area Plans (DAPs). DAPs for the whole agglomeration are not fully complete and this process may result in additional SWOs being identified.

Figure 1 below gives the spatial distribution of SWOs within the Greater Dublin Area agglomeration.

Figure 1: Location of SWOs

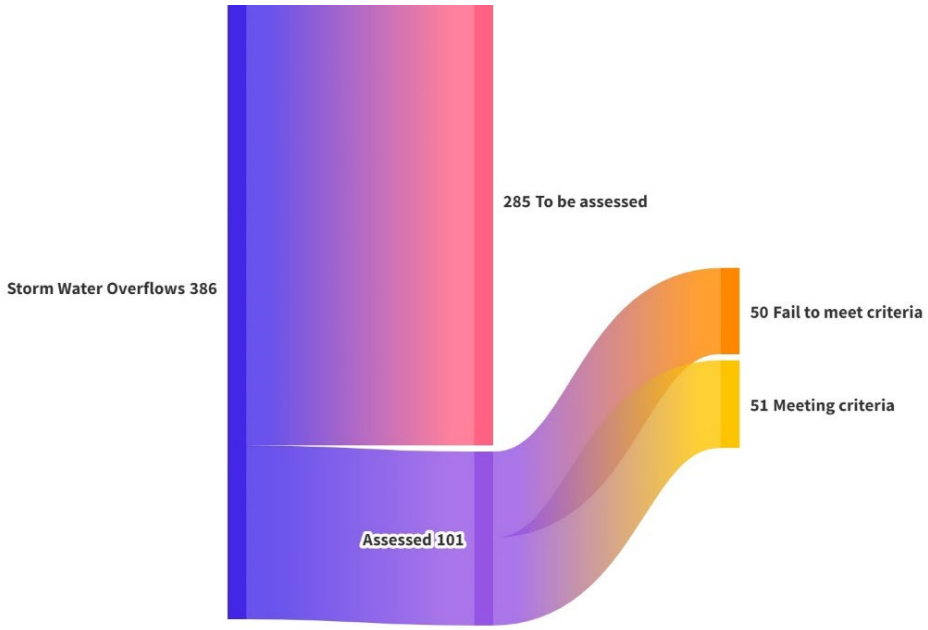


In order to prevent pollution and comply with the UWWTD, discharges from SWOs on the network must comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995.

Figure 2 illustrates the assessment status of the SWOs. 101 of the 386 SWOs have been assessed, and half of those do not comply with the Department criteria.

For those that do not meet the DoECLG criteria, a solution will need to be developed. Measures will be site specific and may include storm water storage, separation of drainage systems, and inflow and infiltration removal. Five network upgrade projects are underway, with completion timeframes up to 2026. These projects may provide an improvement to overflow performance. SWO mitigation measures will need to be implemented, as discussed in Section 4.

Figure 2: Assessment status of SWOs



It was reported in the 2022 Annual Environmental Report (AER) that the volume discharged from SWOs was unknown, except for discharges from the storm tanks at the WWTP (SW002) which discharged a total of 1,834,086m^3 (1.15% of total flow discharged) in 2022. The upgrade to the WWTP will increase its treatment capacity and thereby reduce the discharges from SW002. In terms of monitoring, there are 14 SWOs equipped with monitoring (1 flow meter and 13 event duration monitors) and Uisce Éireann intend to increase the number of monitors.

4. Impact of Waste Water Discharges

This section details the impact of the primary discharge and discharges from SWOs with respect to the Water Framework Directive (WFD) status and objectives of the receiving waters and protected areas.

4.1. Receiving waters of primary discharge

The following table summarises the main considerations in relation to the receiving waters of the primary discharge (see Appendix 2 for map).

The receiving water is the Lower Liffey Estuary.

Table 2: Receiving Waters

Waste Water discharges from primary discharge point		
Characteristic	**Classification**	**Comment**
Receiving water name	Lower Liffey Estuary	WFD Code: IE_EA_090_0300 Transitional waterbody
WFD status (2016-2021)	Moderate	Waterbody 'at risk' of not meeting its environmental objective of 'good' status by 2027. Designated as 'good' status in 2nd cycle (2013-2018).
WFD Significant pressure	Yes	The WWTP and network are listed as significant pressures due to nutrient pollution.

WFD environmental objective	Good	To be achieved by 2027. The proposed WWTP upgrade is a measure specified in the RBMP 2018-2021 (in order to comply with the UWWTD and to support compliance with the requirements of Merrion Strand bathing water[7]). The date prescribed for completion was 2021.
WFD Protected areas	**Bathing Water Areas**	
	Dollymount Strand	Located approx. 1.8km north-east of the primary discharge. Classified as 'good' in 2023.
	Sandymount Strand	Located approx. 1.5km south-west of the primary discharge. Classified as 'poor' in 2023.
	Shellfish Areas	
	Malahide Shellfish Area	Located approx. 10.5km north-east of the primary discharge point. This is not considered further due to objectives being met, remote distance, and extensive dilution available.
WFD Protected areas	**Nutrient Sensitive Areas**	
	Liffey Estuary Nutrient Sensitive Area (NSA)	Designated in 2001. Comprising of the Lower Liffey Estuary and the Tolka Estuary. The current trophic status of the Lower Liffey Estuary is 'intermediate' (2018-2020) and 'eutrophic' for the Tolka Estuary (2018-2020). Both N and P are limiting parameters in this NSA.
	SACs/SPAs with water dependent habitats & species	
	South Dublin Bay and River Tolka Estuary SPA	Site code: 004024. Approx. 0.2km East
	South Dublin Bay SAC	Site code: 000210. Approx. 0.2km East
	North Bull Island SPA	Site code: 004006. Approx. 1.8km North-East
	North Dublin Bay SAC	Site code: 000206. Approx. 1.8km North-East
	Howth Head Coast SPA	Site code: 004113. Approx. 9.1km North-East
	Howth Head SAC	Site code: 000202. Approx. 6.6km North-East

[7] Merrion Strand is no longer a designated bathing water

	Dalkey Islands SPA	Site code: 004172. Approx. 9km South-East
	Rockabill to Dalkey Island SAC	Site code: 003000. Approx. 6.2km East
	North-West Irish Sea SPA	Site code: 004236. Approx. 2km East
Designations	European sites listed above. In addition to the above: Dublin Bay UNESCO Biosphere Reserve	
Receiving water monitoring stations		
Refer to Tables 34-36 in attachment *'Application Form 18'* and *'Attachment B.2.2: Map 6'*		

There has been a deterioration in water quality in both the Lower Liffey Estuary and the Tolka Estuary since the 2nd WFD cycle (2013-2018). The 2021 *3rd Cycle Draft Liffey and Dublin Bay Catchment Report* reported that excess nutrients remain the most prevalent issue in the Liffey and Dublin Bay catchment. Levels of both dissolved inorganic nitrogen and orthophosphate have been trending upwards in the Liffey Estuary Lower since 2013 (as per the WFD app for 2013-2018). The Source Load Apportionment Model (SLAM) Catchment report attributes 69% of the nitrogen loadings and 92% of the phosphorus loadings to discharges from urban waste water[8].

4.2. Primary Discharge Impact Assessment

The licensee carried out an impact assessment using modelling (2018 and 2023) to determine the impact of the primary discharge on water quality (chemical and bacterial parameters). An addendum to the 2018 EIAR was received on 13/10/2023 with an updated model.

The objective of the modelling study was to examine the potential impacts of waste water discharges within Dublin Bay, more specifically within the Lower Liffey Estuary and Tolka Estuary, and to determine if the future discharges (relating to 2.4 million p.e. capacity) are compatible with the achievement of WFD objectives and standards for the receiving waters and associated protected areas.

Water Quality Modelling

An updated DHI MIKE 3 FM model (which analyses how the final effluent discharge disperses and decays within the receiving water) of Dublin Bay was used for this study.

A baseline scenario (using 2019-2021 data) was run by the licensee to inform a validation exercise, comparing modelled output to monitoring data. The validation exercise demonstrated the model suitable for future scenario modelling.

Modelling was conducted for both winter and summer conditions across future (i.e. completed upgrade works) scenarios. Modelling for all future scenarios considered a repaired outfall weir structure. Sensitivity analyses show that the channel arrangement has little effect on overall water quality concentrations in receiving waters. The water quality modelling report has been reviewed with the assistance of a technical expert

[8] As reported in the 3rd Cycle Draft Liffey and Dublin Bay Catchment Report 2021

in the Agency and we are satisfied the report represents an accurate assessment of the impact from the primary discharge under a range of plausible scenarios.

A series of future scenarios were modelled as follows:

1. A 'Future Scenario' for typical operational conditions at the treatment works, and includes background sources (such as Shanganagh WWTP outfall and Synergen Power Station) and river sources.
2. A 'Future – Notionally Clean' scenario that retains the future discharge at the Greater Dublin Area WWTP, but removes all other asset discharges, and inputs a calculated natural contributing concentration for all river discharges, with river loads set at notionally clean (20% of the high/good status threshold).
3. A 'Future Mass Emissions' scenario was run to understand the impact of the short-term operation of the WWTP at Full Flow to Treatment (FFT) flow rates, a 'notionally clean' approach is used for the Dissolved Inorganic Nitrogen (DIN) and Molybdate Reactive Phosphorus (MRP) runs where only the WWTP discharge is modelled under this scenario. For BOD and Total Ammonia, all sources were modelled.
4. A 'Future Storm Tank' scenario was included to understand the impact of a major discharge event, i.e. where the release of a 100,000m³ discharge from the storm tank was made concurrently with FFT operation at the Greater Dublin Area WWTP for a 5 hour period.

Model Inputs for Scenarios 1, 2 and 3

The key chemical and bacterial substances assessed in this study and the effluent (primary discharge) input data are summarised in Table 3 below. Model inputs included all rivers (the Liffey river being the largest freshwater input), industrial discharges and Uisce Éireann assets (Ringsend WWTP, Shanganagh WWTP Outfall & Ringsend Storm Tank). Therefore, the model takes account of cumulative impacts.

Table 3: Modelled Effluent Inputs – Primary Discharge

Scenario	Parameter	Summer (mg/l)	Winter (mg/l)	Licensee requested emission level (mg/l)
Future Scenario **Winter flow rate: 8.15 m³/s** **Summer flow rate: 6.05 m³/s**	BOD	25	25	25
	DIN	6.3	15	10 (TN)*
	MRP	0.7	1.2	1 (TP)*
	Total Ammonia	1	1	-
	Escherichia coli (CFU/100ml)	100,000	106,739	100,000 MPN/100ml
	Intestinal Enterococci (CFU/100ml)	25,000	35,500	-
Future - Notionally Clean	DIN	6.3	15	
	MRP	0.7	1.2	
Future Mass Emission[9] (Time Series) **Flow Rate: 13.8 m³/s**	BOD	25	25	29,808 kg/day
	DIN	6.3	9	11,923 kg/day (TN)
	MRP	0.7	0.7	1,192 kg/day (TP)
	Total Ammonia	1	1	-

[9] The licensee describes this as an 'abnormal' scenario

* annual average

The relationship between DIN and Total Nitrogen (TN) and MRP and Total Phosphorus (TP) are similar; the DIN is estimated to be between 80-90% of TN, while the MRP is estimated to be between 70-80% of TP.

Model Results

The water quality results predicted by the model were compared to the relevant Environmental Quality Standards (EQS) to determine if the proposed discharge is compatible with the WFD objectives of the receiving water.

Results of the water quality modelling study for future and notionally clean scenarios by parameter are summarised in the following table.

Table 4: Water Quality Modelling Results for Scenario 1 & 2

	Future scenario
BOD	The model results indicate that the water quality of the receiving water meets the ≤4.0mg/l at 95%ile EQS for BOD outside of the mixing zone of the primary discharge. The predicted levels are in the range of 1mg/l – 2mg/l in the receiving water outside of the mixing zone.
DIN	There is no EQS for DIN in transitional waters and the results are compared with a derived DIN value from the coastal waters EQS (0.506mg/l at 31 PSU, 50%ile). Concentrations of DIN have seasonal variation, with higher background and effluent concentrations in winter. The model results indicate that the water quality of the receiving water exceeds the derived DIN value of 0.506mg/l in the vicinity of the outfall (winter and summer), and in the Lower Liffey Estuary and the Tolka Estuary (winter only). Under the 'notionally clean' scenario (i.e. when background levels are reduced), modelled concentrations of DIN shows 'moderate' water quality (≥0.506mg/l) in the immediate vicinity of the outfall (winter and summer). 'High' water quality is noted across all waterbodies in both the summer and winter scenarios, with a small area in the Tolka Estuary achieving 'good' quality (winter).
MRP	Similar to DIN, predicted concentrations of MRP have seasonal variation, with higher winter concentrations. The model results indicate that the water quality of the receiving water exceeds the EQS of 0.044mg/l at 31 PSU (50%ile) in the mixing zone of the outfall (winter and summer) and approximately half of the Tolka Estuary, particularly behind North Bull Island (winter). WFD objectives are achieved under the summer scenario outside the mixing zone. Under the 'notionally clean' scenario, modelled median concentrations of MRP show an area (max. 200m by 2.5km) in the mixing zone of the outfall which exceeds the derived EQS for 'good' water quality (in winter and summer). Outside of this, WFD objectives are met, with no other areas exceeding the derived EQS for 'good' water quality.
Un-ionised Ammonia	The non-regulatory target of 21µg/l is exceeded in a very small mixing plume constrained to within the outfall channel and weir structure for the winter scenario but is not exceeded for the summer scenario.

Scenario 3 and 4 modelling are discussed below.

Water Framework Directive (WFD)

The impact assessment of the primary discharge is considered in view of the requirements of the WFD, namely the environmental objectives of the receiving waters and the objectives and standards of associated protected areas.

Ecological status supporting chemistry conditions

When the future scenario loading is annualised (kg/year) and compared to the 2018 SLAM, it is noted that a significant reduction in nutrient loading will be achieved on completion of the WWTP upgrade works.

Table 5 below outlines reductions on EPA Catchments SLAM loadings as documented in 2018 for the primary discharge.

Table 5: 2018 SLAM vs future loadings

Primary discharge	TP (kg/year)	TN (kg/year)
2018 SLAM load	631,119	3,390,540
Future loading[10] (scenario 1)	223,906	2,239,056
Reduction	**65%**	**34%**

The model indicates exceedances of the EQS for MRP and the derived value for DIN when all sources are included (scenario 1). When the other sources are removed from the modelling (scenario 2), the primary discharge does not cause an exceedance of the MRP EQS or the derived value for DIN. Therefore, the modelling results demonstrate that nutrient losses from other sources, including from SWOs, are significantly contributing to the impact in the receiving waters. Losses from SWOs is addressed in Section 4.4. In view of the proposed TN and TP reductions and the modelling results for the primary discharge, it is concluded that the proposed primary discharge will not cause a deterioration in WFD status and will contribute to the achievement of 'good' status for the receiving waters.

The proposed upgrade, as a measure specified in the RBMP 2018-2021, fulfils the requirements of the WFD programme of measures which aims to improve water quality.

Uisce Éireann requested mass emission limits (see Table 3) based on a maximum flow through the plant (13.8m^3/sec) and at maximum concentration ELVs (scenario 3). This was not considered further as it does not represent normal operations and is an 'abnormal' scenario. The recommended ELVs to control quality and quantity of the primary discharge are set out in Section 4.3.

A significant mixing zone is associated with the discharge (extending to some 200m by 2.5km) which is taken into account in the calculation of the WFD status of the Lower Liffey Estuary.

Chemical status

The chemical surface water status is currently reported as 'good' and therefore measures are not necessary for the reduction of pollution from priority substances.

Priority substances screening was carried out in 2022, which detected levels of the specific pollutants of Chromium (Total), Copper and Zinc in the effluent sample.

[10] Average future flow x proposed concentration limit

A report[11] by the EPA details a study conducted at WWTPs, including Ringsend, whereby priority and dangerous substances were monitored in the final effluent. 11 of the priority pesticides were detected in samples from Ringsend WWTP. Of the 34 samples collected at Ringsend WWTP, all were shown to contain some levels of priority metals. The highest detected levels were determined for copper, zinc, boron, barium and molybdenum. Ringsend was classified as at risk of high levels of both pesticides and metals.

Total emissions (kg/year) data for 20 pollutants/priority substances in the primary discharge were reported in the 2022 Pollutant Release and Transfer Register (PRTR).

Specific pollutants and priority substances that are not biodegradable are controlled at source in so far as is practicable. Uisce Éireann have a regulatory system in place for the control of industrial discharges into the waste water works. The current licence and recommended licence specifies a limit of 5 Toxic Units (T.U.) which limits the effects of specific pollutants/priority substances in the waterbody.

Given the significant scale of the discharge, on-going monitoring of pollutants is an important source of information in relation to the chemical status of the receiving waters.

Protected Areas

Water Dependent SACs/SPAs

Water quality is a critical factor for the protection of water dependant SACs and SPAs. The achievement of 'good' status water quality will contribute to the achievement of their conservation objectives. The impact of the primary discharge on the ecological status and environmental objective of the receiving waters is assessed above. The assessment of effects of waste water discharges on European sites assessed in Section 5 Appropriate Assessment and Appendix 3.

Nutrient Sensitive Areas

Under the Urban Waste Water Treatment Regulations 2001 as amended, the Liffey Estuary has been designated as a Nutrient Sensitive Area since 2001. Nutrient removal for both N and P is currently in place at the WWTP, and is proposed as part of the upgrade. The current licence specifies both N and P as relevant parameters and both parameters continue to be relevant. Article 3 of the Urban Waste Water Treatment Directive requires WWTPs over 100,000 p.e. to provide nutrient reduction to meet the emission standards of 10mg/l for TN and 1mg/l for TP, as an annual average, for discharges into designated Nutrient Sensitive Areas. The proposed upgrade of the WWTP complies with the requirements for Nutrient Sensitive Areas under Article 3.

Bathing Waters

Under the WFD, objectives are met for designated bathing waters if the annual classification of a designated bathing water is 'sufficient' or better[12]. Local authorities are responsible for managing and monitoring identified bathing waters, reporting and investigation of pollution events and carry out measures to reduce or remove any sources of pollution.

There are two designated bathing waters in Dublin Bay which are in the vicinity of the primary discharge; Dollymount Strand and Sandymount Strand. Dollymount Strand

[11] STRIVE 2007-2013 Report Series No.117 'Monitoring of Priority Substances in Waste Water Effluents'
[12] As required under Reg 13(1) of the Bathing Water Regulations

met its WFD objective (to be at least of sufficient quality) for 2023, while Sandymount Strand declined from 'sufficient' in 2022 to 'poor' in 2023. Merrion Strand is no longer a designated bathing water, but continues to be monitored by Dublin City Council as an 'other monitored' waterbody. There are several other bathing waters in the vicinity of Dublin Bay that are monitored by Dublin City Council but are not designated as bathing waters (e.g. North Bull Wall, located 1.7km from the primary discharge).

The Dublin Bay Bathing Water Task Force was established in 2019 with the aim to identify, assess and remediate sources of pollution affecting vulnerable bathing waters in Dublin Bay. Uisce Éireann is a member of the task force. A report[13] published in 2023 detailed coordinated activities undertaken by members of the taskforce to address the pressures on bathing waters. With respect to the primary discharge these activities include:

- Modelling the impacts of discharges from Ringsend WWTP on bathing areas under a variety of wind, tide and discharge conditions,
- Undertaking a trial of the UV treatment of effluent discharges from the WWTP during the winter months to observe potential benefits to bathing water quality at designated bathing areas. This study concluded that the effect of UV treatment had negligible, if any, positive effect on bathing water quality at designated bathing waters in winter months),
- Ongoing upgrade works and investment at Ringsend WWTP.

Bacteriological impact on bathing waters

Both *Escherichia coli* and Intestinal Enterococci were modelled to assess the impact of discharges on bathing waters. The model shows seasonal impacts demonstrated by a larger footprint in the winter scenarios (consistent with the higher overall total load). The bacterial plume is not predicted to reach or interact with local designated bathing water sites. The modelling reports demonstrates that the proposed discharge from the WWTP (with UV in operation during the bathing season) is compatible with the achievement of bathing water quality standards at designated bathing waters.

The modelling report also shows bacterial plumes with concentrations exceeding 500 CFU/100ml for *Escherichia coli* and 200 CFU/100ml for Intestinal Enterococci (thus failing to meet 'good' classification) impacting on the North Bull bathing water. The North Bull Wall bathing water is not a designated bathing water and was considered as 'below minimum standard' in 2023. The North Bull bathing water is not within the scope of the WFD and Bathing Water Regulations. Under the event based 'future storm tank scenario', the WWTP effluent modelled *E. coli* levels of approximately 21,500 CFU/100ml and no interaction with the North Bull Wall was noted on the ebbing and flooding tide plots before the storm event started. This indicates that *E. coli* levels at 21,500 CFU/100ml are not predicted to impact on North Bull Wall.

The proposed *E. coli* ELV of 100,000 CFU/100ml was used to model the 'future' scenario, though normal performance is much better. The proposal to retain the current ELV of 100,000 CFU/100ml *E. coli* at higher future flows (6.05m^3/s) will result in potentially a higher load to the receiving water compared to current baseline levels. The average concentration of *E. coli* during the summer periods of 2019-2021 was 21,558 CFU/100ml and was used in the baseline model at a flow rate of 4.7m^3/s.

[13] Dublin Bay Bathing Waters Report by the Bathing Water Task Force, June 2023. Available at https://www.dublincity.ie/sites/default/files/2023-10/BWTF%20Report%202023%20-%20FINAL_0.pdf

Primary discharge monitoring results during the 2023 bathing season show average levels of both *E. coli* and Intestinal Enterococci below 10,000 CFU/100ml.

Ultraviolet disinfection is estimated to reduce faecal coliforms levels by 3-6 orders of magnitude. The licensee states that a higher percentage reduction of *E. coli* is expected to be achieved through the UV disinfection process due to the reduced suspended solids present in the AGS final effluent and thus enabling greater transmissivity of the UV light through the final effluent. The EIAR states that the AGS process 'produces a final effluent with a 50% reduction in *E. coli* concentrations compared to the existing biological process' as a result of reduced suspended solids and longer treatment time. In summary, the AGS process and UV disinfection will result in an effluent quality better than what was considered in the modelling study under the future scenario.

It is worth noting that there are numerous ongoing projects to reduce the frequency of discharges from SWOs. As these projects progress, there will be a reduction in the bacterial concentrations being discharged into the Liffey and Tolka estuaries, thus reducing the overall concentration of faecal coliforms in the receiving waters.

The upgrade of the WWTP to AGS technology, and UV disinfection during the bathing season will have a beneficial impact on the receiving water environment and is compatible with the achievement of bathing water quality standards at designated bathing waters and improving water quality at the North Bull Island.

Overall conclusion

Based on the foregoing assessment of the primary discharge, it is concluded that the proposed upgrade will reduce the pollutant load being discharged into the receiving waters, while serving a 2.4 million p.e., will not cause a deterioration of the status, will not compromise the achievement of 'good' ecological status, the maintenance of 'good' chemical status and will fulfil the requirements of the RBMP. The reduction in pollutant loadings will contribute to the conservation objectives for water dependent SACs and SPAs. The proposed upgrade and primary discharge complies with the emission standards for discharges into designated Nutrient Sensitive Areas. The proposed upgrade with AGS technology and UV disinfection is compatible with the achievement of bathing water quality standards.

In relation to 'other' bathing waters, the Agency is obliged, *inter alia*, under Section 52(2) of the EPA Act 1992 as amended, to have regard to environmental protection. In view of these requirements, the bacteriological load from the WWTP effluent needs to be controlled.

Where the primary discharge is managed, operated and controlled in accordance with the foregoing assessment, the primary discharge will not have an adverse effect on the quality of the receiving waters.

4.3. Recommended Licence – Primary Discharge

The following section sets out the recommended limits and controls consistent with the foregoing assessment and the requirements of the combined approach[14].

The ELVs set in *Schedule A: Discharges & Discharge Monitoring* of the Recommended Licence (RL) are established according to the combined approach and contribute to

[14] in relation to a waste water works, means the control of discharges and emissions to waters whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Regulations, and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made.

the achievement of the environmental objectives and environmental quality standards for the receiving waterbody as follows:

- Concentration limit of 25 mg/l for Biochemical Oxygen Demand (cBOD), 125 mg/l for Chemical Oxygen Demand (COD), 35 mg/l for Suspended Solids (SS), 1mg/l for Total Phosphorus and 10mg/l for Total Nitrogen (TN) concentration limit in accordance with the Urban Waste Water Treatment Regulations, 2001, as amended.
- Mass flow limits of 223,906 kg/year TP and of 2,239,056 kg/year TN are set to ensure that the discharge does not compromise the achievement of WFD objectives of the receiving waters and conservation objectives of the protected areas.
- An ELV of 21,500 CFU/100ml *E. coli* and 7,400 CFU/100ml Intestinal Enterococci (mean of results), during the bathing season, has also been set for the purpose of not compromising the achievement of environmental objectives and standards for designated bathing waters and the requirements of the EPA Act 1992 as amended for other bathing water. This limit is consistent with the performance characteristics of the UV treatment system in use at Ringsend.
- A Toxicity ELV of 5 T.U. is carried forward from the current licence to ensure that the discharge does not compromise the maintenance of the chemical status of the receiving water.

The ELVs set in the RL shall apply from the grant of licence in accordance with the requirements of the Urban Waste Water Treatment Directive and prescribed dates in the RBMP under the WFD.

In order to monitor the effluent quality adequately and ensure protection of the environment, the frequency of monitoring is weekly (increased from fortnightly in D0034-01 licence) for the main parameters.

Condition 4 requires influent monitoring on a weekly basis, monitoring of specific pollutants and priority substances annually and PRTR reporting. The PRTR condition has been updated to improve control and monitoring of substances.

To complement the ELVs set in *Schedule A*, ambient monitoring at 28 monitoring locations is required under *Schedule B: Ambient Monitoring* to monitor for potential impacts on the receiving water as a result of the discharges. The frequency of ambient monitoring will be monthly (previously specified as 'ten samples a year' in the D0034-01 licence) on grant of the RL. Where ambient monitoring results are available from any other statutory body, including the Environmental Protection Agency, the Marine Institute etc., the licensee may submit those results in fulfilment of *Schedule B.4 Ambient Monitoring* of the RL (Condition 4.16). Condition 4.17 requires the licensee to establish and submit to the Agency for approval, trigger levels (having regard to the modelling) for use in assessing ambient monitoring, and to establish, maintain and implement a response programme to address any exceedance of the trigger level.

The invertebrate monitoring required under the existing licence will not be brought forward as this is already carried out by the EPA and the Marine Institute.

The licensee is also required to complete waste water treatment plant upgrade works listed in *Schedule C: Specified Improvement Programme* in order to ensure compliance with the emission limit values as set out in *Schedule A: Discharges & Discharge Monitoring* of the RL.

As previously mentioned, the WWTP discharges treated waste water into the outer part of the ESB Poolbeg Power Station cooling water channel and then into the Lower

Liffey Estuary via a weir, which is currently damaged and not fit for purpose. The licensee is required to complete all necessary repair works to the sheet piling along the discharge channel *(Schedule C: Specified Improvement Programme)*.

The licensee is required to cease the secondary discharge S4 Fingal to Doldrum Bay on grant of licence.

The mass load of waste water entering a waste water works can be expressed in population equivalent (p.e.). The p.e. to which this application relates is 2,400,000. The modelling assessment of the impact of waste water discharges from the waste water works corresponds to this p.e. The RL specifies a limit for the p.e. and the method to be used in its determination. The p.e. is to be determined annually and reported as part of the AER. Any exceedance of the p.e. limit as stated in Condition 1.2 is considered an incident and must be reported to the Agency.

The RL specifies the location of the waste water treatment plant and the level and nature of treatment.

4.4. Discharges from Storm Water Overflows

Uisce Éireann provided details of 386 storm water overflows associated with the Greater Dublin Area agglomeration.

Of the 386, 282 overflows have been identified by EPA Catchments as significant pressures in 15 receiving waterbodies (see Table 6 and Figure 3).

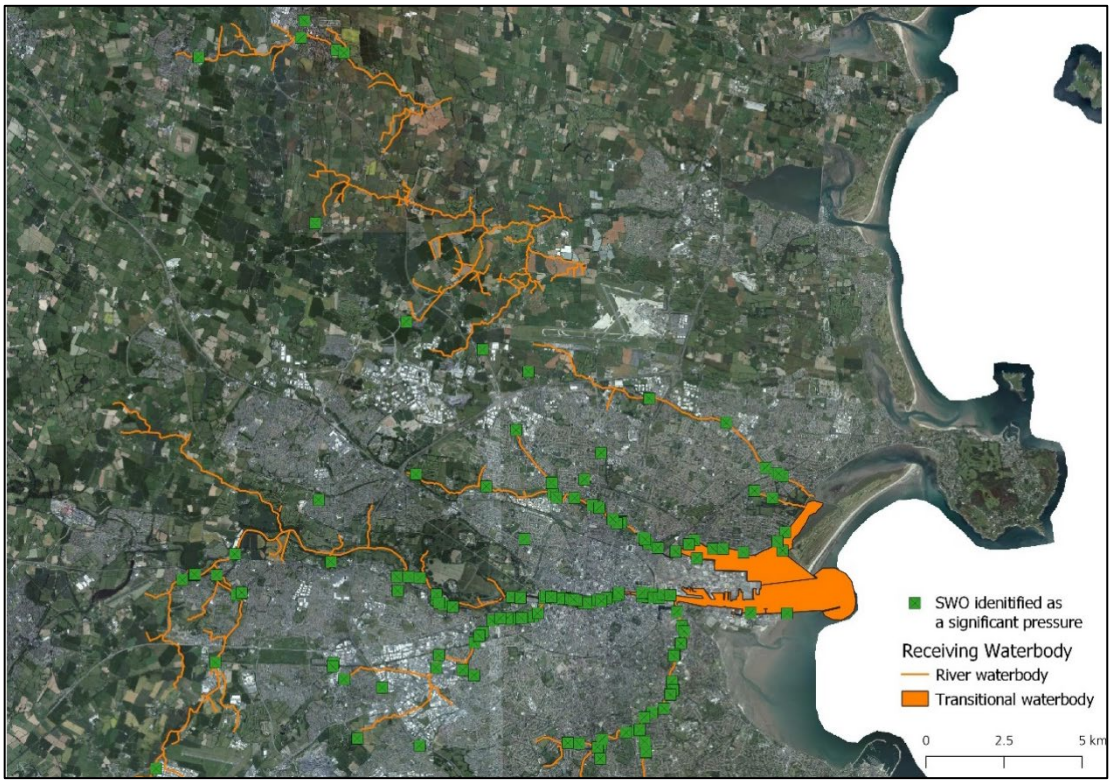
Table 6: Discharges from SWOs by waterbodies

Name of waterbody	No. of discharges into waterbody	WFD status	Are SWOs identified as a significant pressure?
Brewery Stream_010	18	Poor	No
Broadmeadow_010	2	Poor	Yes
Broadmeadow_020	3	Poor	Yes
Camac_030	2	Poor	No
Camac_040	30	Poor	Yes
Castletown (Dublin-Kildare)_010	2	Poor	No
Dodder_040	4	Moderate	No
Dodder_050	36	Moderate	Yes
Dublin Bay	18	Good	No
Grand Canal Basin (Liffey and Dublin Bay)	11	Good	No
Howth_010	3	Moderate	No
Irish Sea Dublin (HA 09)	12	Good	No
Kill of the Grange Stream_010	1	Poor	No
Liffey Estuary Lower	17	Moderate	Yes
Liffey Estuary Upper	59	Good	Yes
Liffey_170	9	Poor	Yes
Liffey_180	10	Poor	Yes
Liffey_190	7	Poor	Yes
Mayne Estuary	4	Moderate	No
Mayne_010	2	Poor	No
North Bull Island	9	Moderate	No
Owenadoher_010	1	Moderate	No
Poddle_010	7	Poor	No
Powerstown (Dublin)_010	1	Poor	No

Santry_010	1	Poor	Yes
Santry_020	9	Poor	Yes
Sluice_010	3	Poor	No
Tolka Estuary	66	Poor	Yes
Tolka_040	5	Poor	No
Tolka_050	13	Poor	Yes
Tolka_060	18	Poor	Yes
Ward_010	1	Poor	No
Ward_030	2	Moderate	Yes
Total at 'poor' status: 21 (out of 33)			
No. of waterbodies where SWOs identified as a significant pressure: 15			

The identification of these overflows as significant pressures indicates that they do not comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995 (DoECLG criteria). As depicted in Figure 2, an extensive number of SWOs (74%) are yet to be assessed against the DoECLG criteria and 50 of the 101 already assessed are non-compliant. The DoECLG criteria have been in place since 1995 and it is a requirement of the current licence to comply with these criteria.

Figure 3: SWOs (green) identified as a significant pressure on receiving waterbodies (orange)



The 2018 SLAM estimated nutrient losses from SWOs on the network to be 52,552 kg/year TP and 315,316 kg/year TN. Given the extent of non-compliant SWOs, losses are likely to be underestimated.

The Office of Environmental Enforcement (OEE) have 4 open compliance investigations in relation to SWOs and Uisce Éireann are progressing corrective action plans in respect of each of these.

Measures to restore the waterbodies (in Table 6) to 'good' status are required to be completed by 2026[15] under the WFD. Where discharges from SWOs are non-compliant and causing a pressure, works/measures need to be implemented. A programme of work is required which involves:

- Completing the investigation of the network to identify all SWOs through the DAPs;
- An assessment of compliance against the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995; and
- Development & implementation of solutions for non-compliant SWOs.

Uisce Éireann are progressing the DAPs to assess the performance of the networks and 5 schemes of infrastructural improvements on the network.

It will be challenging to have all necessary works completed by 2026. This WFD date may be extended in the future in line with future cycles of the RBMP.

In addition to the impact on ecological status of rivers and transitional waters, SWOs have been identified as posing a risk to bathing waters. The Bathing Water Profiles prepared and published on www.beaches.ie identify discharges from SWOs as posing a risk to bathing waters.

All designated bathing waters within the Dublin area have met their objective of at least 'sufficient' quality for 2023, with the exception of Sandymount Strand ('poor'). The North Bull Wall bathing water (other monitored bathing water) is 'below minimum standard'.

The Dublin Bay Bathing Water Task Force activities relating to SWOs include:

- Identifying and assessing SWOs impacting on Dublin Bay,
- The identification and inclusion of a programme of works to address the activation/requirement for 3 SWOs which discharge into the Elm Park Stream and Sandymount Strand (namely Elm Park Golf Course & Roebuck Castle (assessment ongoing), Larchfield SWO (removed 2022) and Ailesbury Pumping Station and outfall to Sandymount Strand (feasibility and optioneering study to be progressed).

The OEE have highlighted issues regarding overflows discharging near designated bathing waters. With respect to Sandymount, the Ailesbury Road pumping station SWO and Elm Park SWO are of concern. Uisce Éireann report the Ailesbury Road SWO is not meeting the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 and Elm Park SWO is yet to be assessed. The OEE has a compliance investigation open in relation to this matter and has received complaints from members of the public. The modelling report confirms that the Trimleston Stream and Elm Park Stream increases the bacterial load at Sandymount bathing water.

Similarly, the West Pier pumping station short sea outfall discharges in the vicinity of Seapoint and Uisce Éireann report it is not meeting the DoECLG criteria.

During heavy rainfall events, SWOs allow discharges directly to receiving waters. The licensee modelled a future storm tank scenario (SW002) which demonstrated that the designated bathing waters at Sandymount and Dollymount are not impacted. The 'other monitored' North Bull Wall bathing water is impacted (concentrations higher than the threshold for 'good' classification) at high water and low water after the event ceased and returns to ambient conditions within two days. The frequency of discharges

[15] WFD app states achievement date as 2027. A year of data is required to determine recovery by 2027.

from storm water overflows will be reduced due to the increased capacity of the upgraded WWTP.

In conclusion, significant further measures to address discharges from SWOs is required to reduce the pollutant load on receiving waters. Implementation of these measures will contribute to the achievement of the environmental objectives for the receiving waters and the objectives and standards for bathing waters.

4.5. Recommended Licence – SWOs

In light of the foregoing and having regard to the impact on receiving waters (including bathing waters), the RL:

- *Schedule A: Discharges & Discharge Monitoring,* specifies the location of all known discharges from SWOs, current status of compliance and monitoring at 14 discharge points;
- Condition 3.5.1 requires the licensee to notify the Agency of any additional SWOs following investigation;
- Condition 3.5.2 requires all discharges from SWOs to comply with the criteria for storm water overflows, as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 and any other guidance as may be specified by the Agency;
- Condition 5.7.1 requires an improvement programme to be prepared and implemented for storm water overflows identified as non-compliant with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 as listed in *Schedule A.3: Storm Water Overflows*;
- Condition 5.7.2 requires the licensee to complete an assessment of compliance for all storm water overflows by 31st December 2026. The programme must prioritise areas of concern such as those listed as significant pressures under the WFD or posing a risk to bathing waters. For those identified as non-compliant, the licensee must implement an improvement programme;
- Condition 5.7.3 requires the licensee to carry out improvement works at the following:
    - West Pier pumping station and associated overflow,
    - Ailesbury Road pumping station and associated overflow,
    - Elm Park CSO/SWO.
- *Schedule C: Specified Improvement Programme,* reinforces the requirements of Condition 5.7.1 to 5.7.3 above, also requires the licensee to:
    - Complete all Drainage Area Plans of the waste water works serving the agglomeration;
    - Develop and implement solutions for non-compliant SWOs by 2026 or as may be required by future RBMP;
    - Carry out a risk assessment to identify the critical SWOs on the network and install event duration or flow monitors, or equivalent, to the satisfaction of the Agency;
- Condition 6.1 requires the licensee to notify the relevant Local Authority of any incident in the case of discharges to, or likely to impact on, designated bathing waters.

The storm tank upgrade requirement specified in the D0034-01 licence will not be carried forward as the storm tank complies with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995.

4.6. Unintended or accidental discharges

The risk of unintended discharges or accidental discharges was evaluated for significant effects. Five operational phase events were risk assessed including an event involving an incident at an adjacent Seveso site. The risk of environmental pollution of the receiving waters from unintended/accidental waste water discharges with mitigation measures in place, is determined to be low for 4 events and medium for the event involving an incident at adjacent Seveso site. The consequence of certain events/incidents is the discharge of untreated waste water.

An incident involving the discharge of raw sewage over three days was modelled using BOD as a selected parameter. BOD levels return to normal after a further three days once the discharge stops. The impact of such an incident is acute and short-term.

Measures to prevent unintended discharges

The following measures will be in place to prevent unintended discharges into the water environment:

- Standby pumps and equipment at the WWTP and all pumping stations.
- Provision of backup generators and bunded fuel tanks at the WWTP. Standby generators are available at the Main Lift Pumping Station, Sutton Pumping Station and West Pier Pumping Station.
- Uninterruptible power supply backup for telemetry/plant controllers at WWTP.
- Alarms for WWTP fed to SCADA with alarms sent to operators.
- The majority of Pumping Stations have either local telemetry or full connection to Uisce Éireann telemetry system. Sites which are not currently on the Uisce Éireann system will be migrated to the national telemetry system. New sites will be added during commissioning. New monitors for SWO's are also being installed on a priority basis under the programme where currently not monitored.
- An Emergency Response Plan and Procedures, Operation and Maintenance Procedures for all equipment will be in place and implemented by the appointed plant operator, as required.
- All flows will continue to be monitored continuously and recorded at the electromagnetic flowmeters installed at the WWTP.
- Provision of storm tanks (capacity 62,100m^3) to provide short-term storage for waste water.

The Greater Dublin Area waste water treatment works has been designed to ensure unintended waste water discharges and potential impacts on the environment are kept to a minimum.

4.7. Recommended Licence – unintended discharges

In order to minimise accidents associated with the waste water works and their consequences, the RL as drafted requires the licensee to:

- Include 104,505m^3 of storm water storage and standby pumps at all pumping stations (Condition 1.9).

- Maintain an operation and maintenance programme for all plant and equipment to ensure that no unauthorised waste water discharges take place (Condition 4.9).
- Identify measures to minimise any environmental damage associated with discharges from the waste water works following anticipated events or accidents/incidents (Condition 4.21 and 5.1.7).
- In the event of an incident or other malfunction of critical equipment, alarm activation must trigger a notification to the licensee as soon as practicable (Condition 4.25).
- Ensure an Emergency Response Procedure is in place to minimise the effects of any emergency on the environment (Condition 6.5).

4.8. Climate Change Adaptation

Severe weather, as a result of climate change, can affect the content and extent of discharges from the waste water works and affect river flows (receiving waters). Discharges from waste water works can increase as a result of a deluge and flows in rivers can reduce under drought conditions. Adaptation to address the risks posed by climate change is critical. Under the National Adaptation Framework and the Climate Action Plan, DHLGH prepared the *Water Quality and Water Services Infrastructure – Climate Change Sectoral Adaptation Plan*, in line with the requirements of the Climate Action and Low Carbon Development Act 2015. Under this plan, Uisce Éireann have responsibility to implement measures. In line with the requirements of Section 15 of Climate Action and Low Carbon Development Act 2015, the RL requires the licensee to prepare and implement a climate change adaptation plan to address the risks posed by climate change (Condition 4.24). The plan must be agreed with the EPA, be subject to regular review and reported on as part of the AER.

5. Appropriate Assessment

Appendix 3 lists the European Sites assessed, their associated qualifying interests and conservation objectives along with the assessment of the effects of the waste water discharges on the European Sites.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the sites, if the waste water discharges, individually or in combination with other plans or projects are likely to have a significant effect on any European Site. In this context, particular attention was paid to the following European Sites:

- South Dublin Bay and River Tolka Estuary SPA (site code: 004024)
- South Dublin Bay SAC (site code: 000210)
- North Bull Island SPA (site code: 004006)
- North Dublin Bay SAC (site code: 000206)
- Howth Head Coast SPA (site code: 004113)
- Howth Head SAC (site code: 000202)
- Dalkey Islands SPA (site code: 004172)
- Rockabill to Dalkey Island SAC (site code: 003000)

The waste water discharges are not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it cannot be excluded, on the basis of objective information, that the waste water discharges, individually or in combination with other plans or projects, will have

a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the waste water discharges was required.

This determination has been made in light of the potential for impacts from waste water discharges on the water dependent qualifying habitats and species of South Dublin Bay and River Tolka Estuary SPA (site code: 004024), South Dublin Bay SAC (site code: 000210), North Bull Island SPA (site code: 004006), North Dublin Bay SAC (site code: 000206), Rockabill to Dalkey Island SAC (site code: 003000), Howth Head Coast SPA (site code: 004113),Dalkey Islands SPA (site code: 004172) and North-west Irish Sea candidate SPA (site code: 004236). The waste water discharges (primary discharge and discharges from storm water overflows and emergency overflows) are located either adjacent to or within 10km of the European Sites and are hydrologically connected with the qualifying interests of the sites.

A Natura Impact Statement was received by the Agency on 22/05/2023. An addendum NIS was received by the Agency on 13/10/2023.

The EPA was notified on 12/07/2023 by the Department of Housing, Local Government and Heritage of the Minister's intention to designate a new European site, namely the North-west Irish Sea candidate Special Protection Area (site code: 004236). The North-west Irish Sea SPA is approximately 2km from the primary discharge point. The North-west Irish Sea SPA is included in the Appropriate Assessment undertaken for this licence review application.

An Inspector's Appropriate Assessment has been completed and has determined, based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, pursuant to Article 6(3) of the Habitats Directive, that the waste water discharges, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site (in particular those listed above) having regard to their conservation objectives and will not affect the preservation of these sites at favourable conservation status if carried out in accordance with this recommended licence and the conditions attached hereto for the following reasons:

- The waste water required to be treated prior to discharge by tertiary treatment (N & P removal), and UV disinfection during the bathing season.
- The proposal to upgrade the waste water treatment plant and network upgrades will result in a reduction in the pollutant load on receiving waters.
- The ELVs for the primary discharge have been established in accordance with the combined approach and will not compromise the achievement of environmental objectives for the receiving water.
- Conditions attached to the licence require discharges from storm water overflows to comply with the criteria for storm water overflows, as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995.
- A condition attached to the licence requires the licensee to take such measures as necessary to ensure that no deterioration in the quality of the receiving water shall occur as a result of the discharge.
- Conditions attached to the licence specify controls and monitoring of waste water discharges.
- Conditions attached to the licence require measures to prevent and limit the consequences of unintended discharges.

There was one submission on this application concerning Appropriate Assessment.

In light of the foregoing reasons no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of those European Sites listed above.

6. EU Directives and National Regulations

In considering the application and the drafting of the Recommended Licence, regard was had for, the requirements of Regulation 6(2) (a) to (g) of the European Union (Waste Water Discharge) Regulations 2007 to 2020, EU Directives, the EPA Act, Section 15 of Climate Action and Low Carbon Development Act 2015 and Regulations set out in Table 6.

Table 7: EU Directives/Regulations

Directives/Regulations
Environmental Protection Agency Act 1992 as amended
Urban Waste Water Treatment Directive 91/271/EEC
Urban Waste Water Treatment Regulations, 2001 as amended
Water Framework Directive 2000/60/EC
European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended
Bathing Water Directive 76/160/EEC
Bathing Water Quality Regulations 2008
Birds Directive (2009/147/EC) as amended, Habitats Directive (92/43/EEC) as amended and European Communities (Birds and Natural Habitats) Regulations 2011 as amended
Environmental Impact Assessment Directive 2011/92/EU, as amended by 2014/52/EU
Marine Strategy Framework Directive 2008/56/EC
Section 15 of the Climate Action and Low Carbon Development Act 2015, as amended, and the Department of Housing, Planning and Local Government *Water Quality and Water Services Infrastructure – Climate Change Sectoral Adaptation Plan*

Urban Waste Water Treatment Directive Recast

The Urban Waste Water Treatment Directive was adopted in 1991. A review of the Directive was carried out in 2019. This Directive is currently under review and a new Directive is expected in late 2024. In relation to waste water discharge authorisations, additional requirements may be necessary once the new directive is in force, including more stringent TN and TP limits, and increased effluent monitoring. As the new Directive in not in force, the requirements set out therein have not been incorporated into the recommended licence. Depending on how the new Directive is transposed and implemented in Ireland, it is likely that a licence review will be required to give effects to its requirements.

7. Submissions

Five submissions were received in relation to this licence review application. While the main points raised in the submission are briefly summarised below, the original submission should be referred to at all times for greater detail and expansion of particular points. The issues raised in the submissions are noted and addressed in this Inspector's Report and the submissions were taken into consideration during the preparation of the RL.

The submission received from the **Health Service Executive (HSE)** on 28/07/2023 listed a number of issues as follows:

Submission	**Response**
The HSE documented their assessment of the application and made 6 conclusions which included 5 recommendations. The HSE noted that the discharge point from the treatment plant was close to two bathing waters and that an opportunity exists to provide enhanced treatment.	This application for a licence review is for an upgraded treatment plant providing tertiary treatment (nutrient removal), and disinfection during the bathing season. The application has been considered and it is recommended to grant a revised licence subject to conditions on the basis of this proposal.
It is recommended that a complaints procedure is implemented and that a member of staff is designated as a point of contact to deal with any complaints or queries received from members of the public in relation to the WWTP facility. The operator should develop a system for recording and responding to complaints from the public regarding fugitive noise and or odour emissions from the WWTP or from any component. It is recommended that records of complaints received are included in annual monitoring results reported to the EPA. It is recommended that an Odour Management Plan is implemented and that regular unannounced odour audits of the plant are undertaken.	The European Union (Waste Water Discharge) Regulations, 2007 to 2020, relate specifically to, and are restricted to, the regulation and control of waste water discharges from the waste water works serving the agglomeration. In line with Condition 6.2 of the RL, the licensee must record and report all complaints related to the discharges to waters from the waste water works in accordance with the national environmental complaints procedure and shall include these in their Annual Environmental Report to the EPA. Where the complainant is unhappy with the response, they may follow up with the EPA. The Office of Environmental Enforcement follow up on complaints made. Odour and noise issues are dealt with under the European Communities (Waste Water Treatment) (Prevention of Odours and Noise) Regulations 2005, which Uisce Éireann are required to comply with and are enforced by the EPA.
Emission Limit Values and monitoring frequencies specified in the EPA licence shall be strictly adhered to ensure the maintenance of groundwater quality and the protection of public health.	It is a matter for Uisce Éireann to adhere to the ELVs and monitoring requirements specified in any licence granted. The EPA will enforce compliance with ELVs and monitoring requirements.
It is recommended that the routine monitoring, maintenance and repair of all plant, equipment and pipework is included as a condition of the licence. This should include the discharge pipe and the non-return flap valve.	Condition 4.9 of the RL, as drafted, requires the licensee to maintain an operation and maintenance programme for all plant and equipment to ensure that no unauthorised waste water discharges take place. Condition 5.3 also requires a review of the infrastructural and operational improvements programme to maximise the

	effectiveness and efficiency of the waste water works. The treated effluent is be discharged to the Lower Liffey Estuary via a number of diffuser heads situated in the ESB Poolbeg Power Station cooling water channel and a weir. The licensee has not proposed to install a non-return flap valve on the discharge pipe.

The submission received from **Dublin City Council** on 30/11/2023 relates to monitoring frequency as follows:

Submission	**Response**
Dublin City Council recommends that the influent and effluent and ambient monitoring regimes are increased rather than decreased in the current licence review for the following reasons: 1. The licensed effluent discharge has been in substantial non-compliance with the terms of D0034-01 since it has been issued. 2. The monitoring carried out by Central Laboratory for Uisce Éireann covers 5 days a week currently and results continue to show considerable variability on a day to day, week to week and month to month basis (see Annual Environmental Reports prepared from 2010 to 2022). 3. Nitrogen and Phosphorus parameters are not yet adequately controlled. 4. Algal blooms continue to be a problem in the ambient receiving waters. 5. The Bathing Season is effectively all year round and is certainly not confined to the current official Bathing season.	1. The proposed upgrade to the treatment plant and previous non-compliant performance of the WWTP due to overloading have been taken into account in the establishment of monitoring frequency. 2. The RL recommends increasing the frequency of influent and effluent monitoring from fortnightly to weekly as the Ringsend WWTP provides over 40% of Ireland's waste water treatment capacity. The RL, as drafted, requires the licensee to carry out ambient monitoring on a monthly basis. 3. The proposed upgrade includes denitrification (for nitrogen removal) and phosphorus removal, which will remove a large amount of these nutrients from the final effluent. The RL, as drafted, requires the licensee to comply with a Total Phosphorus (TP) concentration limit of 1mg/l and Total Nitrogen (TN) concentration limit of 10mg/l in accordance with the Urban Waste Water Treatment Regulations, 2001, as amended, and to ensure that the discharge does not compromise the achievement of WFD objectives for the receiving waters and objectives and standards for the associated protected areas. 4. Algal blooms as a result of discharges from the WWTP are not known to be an issue in the Dublin region. 5. The RL sets limits for and requires weekly monitoring of *E. coli* and

	Intestinal enterococci during the bathing season in line with the requirements of the Bathing Water Regulations 2008. The bathing season in any year means the period from 1st June to 15th September in that year.

The submission received from **Fingal County Council** on 20/12/2023 relates to SWOs:

Submission	**Response**
Fingal County Council is concerned that the application does not provide sufficient information on discharges from SWOs (the element of the DoECLG guidance which the overflow is compliant, quantity of the storm overflow when it occurs, the critical storm duration or return period duration). Fingal County Council consider this information will assist them in assessing the requirement to issue prior warning notices under the bathing water regulations. Fingal County Council state that the DoECLG guidance on storm overflows is quite old now and precedes the current bathing water regulations.	The application provides details of 386 discharges from SWOs including their location. It is noted that the majority of SWOs have not been assessed for compliance with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995. The RL requires Uisce Éireann to notify Fingal County Council or any relevant Local Authority of discharges which may impact of bathing waters, including details on the nature, cause and extent of discharges. The RL also requires additional monitoring of SWOs which will assist in the notifications of incidents that may impact of bathing waters. The DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995, guidance was issued by the Department under the Urban Waste Water Treatment Directive and remains the relevant standard for the design and operation of SWOs.

The submission received from **Ms. Sabrina Joyce-Kemper** on 23/01/2024 contains observations and a recommendation as follows:

Submission	**Response**
Wish to raise an issue in relation to notice/public consultation being deficient and hope to make a submission as soon as possible. Recommend that robust public consultation is ensured going forward in relation to this WWDL application. Ms. Joyce-Kemper outlines the means by which she became aware of the application.	Public participation is a key pillar of the waste water discharge licensing process and the Agency ensures that the public are informed of an application for a review of licence and provides access to the application documentation on its website. The following summarises the public notices with respect to this review application: • The Agency initiated a review of this licence on 10/11/2021 and

	published a notice of this review on its website. • Uisce Éireann published newspaper notices pursuant to Regulation 9 contained all the information in accordance with Regulation 10. The published newspaper notices were submitted to the Agency on 23/05/2023 and 28/09/2023 and are published on the Agency website. • Uisce Éireann submitted to the Agency site notices 23/05/2023, 28/09/2023, 20/02/2024 and 21/02/2024 (following on from Ms. Joyce-Kemper submission). The current site notice submitted was in accordance with the requirements specified in paragraphs (a) to (f) of Regulation 10. All notices are published on the Agency website. On 16/02/2024 the Agency issued an acknowledgement of compliance of the application in accordance with Regulation 18(2). The acknowledgement is published on the Agency website. The Agency shall not make a decision on the application before the expiry of a period of 5 weeks following the date of issue of a relevant acknowledgement in accordance with Regulation 18(2). Notices are in accordance with the regulations.
Have concerns about calibration of modelling, failure to include Doldrum Bay discharge and other CSO's in worst case scenario (combined approach) modelling.	Overall, the proposal will result in a reduced pollutant load to the receiving water. The application details all known discharges from waste water works and contains an impact assessment of future discharges. This information is assessed and considered in the impact assessment section of this report. The water quality modelling report outlined the data used for model calibration. The baseline data included ambient monitoring data. The model includes riverine inputs which takes account of the effect of discharges from storm water overflows on water quality. The application details the existing secondary discharge at Doldrum Bay is to be decommissioned and repurposed

	as a Storm Water Overflow (SWO), with Emergency Overflow (EO) in the event of pump failure.
Failure to include discharge locations, as newly identified in unsolicited information received by EPA on 22nd of January 2024.	The information submitted to the Agency on 22/01/2024 were maps of discharge locations. The application contains information on discharges from SWOs and their impact on the environment.
Failure to identify a raw sewage discharge (from a waste water misconnection to surface water in a housing estate proximate to St. Dominic's High School) that discharges raw sewage onto Sutton Strand, current capacity issues, reliance on outdated biodiversity surveys that were used in (and predate) a 2018 planning application. The NIS and EIAR cannot be complete and capable of informing an AA, EIA and WFD assessment.	Misconnection to surface water drains are not part of the waste water works. The Local Authority, under the Water Pollution Act, is responsible for identifying misconnections into its storm/surface water lines and for contacting the relevant property owner asking them to rectify by way of connection to the Uisce Éireann foul network. The application contains information on capacity issues. The application was accompanied by the 2018 EIAR and 2018 NIS and 2023 addenda to the 2018 EIAR and NIS in accordance with the European Union (Waste Water Discharge) Regulations 2007 to 2020. The 2023 addenda to the 2018 EIAR and NIS provide an update for the review application.

A second submission received from **Ms. Sabrina Joyce-Kemper** on 14/02/2024 contains observations and recommendations as follows:

Submission	**Response**
The most current public and newspaper notice is not in accordance with the statutory requirements under legislation in relation to where the application can be viewed.	Public participation is a key pillar of the waste water discharge licensing process and the Agency ensures that the public are informed of an application for a review of licence and provides access to the application documentation on its website. The following summarises the public notices with respect to the application: • The Agency initiated a review of this licence on 10/11/2021 and published a notice of this review and reminders on its website. • Uisce Éireann published newspaper notices pursuant to Regulation 9 contained all the information in accordance with Regulation 10. The published newspaper notices were

	submitted to the Agency on 23/05/2023 and 28/09/2023 and are published on the Agency website. • Uisce Éireann submitted to the Agency site notices on 23/05/2023, 28/09/2023, 20/02/2024 and 21/02/2024 (following on from Ms. Joyce-Kemper submission). The current site notice submitted was in accordance with the requirements specified in paragraphs (a) to (f) of Regulation 10. All notices are published on the Agency website. On 16/02/2024 the Agency issued an acknowledgement of compliance of the application in accordance with Regulation 18(2). The acknowledgement is published on the Agency website. The Agency shall not make a decision on the application before the expiry of a period of 5 weeks following the date of issue of a relevant acknowledgement in accordance with Regulation 18(2). Notices are in accordance with the regulations.
The NIS and EIA are not up to date. The completion date for both the NIS and EIA predate the application by 5 years, both reports are not in accordance with either EIA Directive or Habitats Directive nor the CIEEM advice note on the lifespan of ecological reports and surveys. The CIEEM advice note states that if a report is over three years old: "The report is unlikely to still be valid and most, if not all, of the surveys are likely to need to be updated (subject to an assessment by a professional ecologist)."	The application was accompanied by the 2018 EIAR and 2018 NIS. In October 2023 addenda to the NIS and EIAR were compiled and submitted to the Agency. The addenda brings the EIAR and NIS up to date. I am satisfied the EIAR and NIS were prepared by competent experts and the content complies with the requirements of the EIA Directive and Habitats Directive. These documents, together with the application information, are adequate to assess for the purposes of AA and EIA.
Both the NIS and EIAR specifically relate to the Ringsend Waste water Treatment Plant Upgrade Project. The EIAR and NIS are prepared for a planning application not a WWDL and should be completely updated to reflect the fact that this application relates to the WWDL. The EIAR and NIS needs to assess the worst case scenario under the combined approach.	Yes, the NIS and EIAR specifically relate to the Ringsend WWTP upgrade project and were prepared for a planning application. Waste water treatment plant is a project specified in the EIA Directive. The European Union (Waste Water Discharge) Regulations 2007 to 2020 require the planning EIAR to accompany the WWDL application as per Regulation 16(3A)(a)(i). The 2023 addenda to the 2018 EIAR and NIS provide an update for this licence review application.

	The impacts of the primary discharge and storm water overflows, including unintended discharges are assessed in Section 4 above. The Agency is obliged to apply the combined approach in setting Emission Limit Values and this is considered in Section 4 above.
The updated application/NIS and EIAR shall take into account the retrospective impact of all unauthorised discharges e.g. Doldrum bay. It is noted from the file that ABP did not carry out an EIA or AA on the Doldrum Bay discharge as part of planning appeal 315902 as was required by law. Particularly as this discharge was not licensed to discharge to Dublin Bay under D0034-01.	This application for the review of the waste water discharge licence, register number D0034-01, is for an upgrade to the waste water treatment plant and network improvements. Overall, the proposal will result in a reduced pollutant load to the receiving water. Uisce Éireann are undertaking drainage area plans to identify and assess all discharges from the waste water works. This application details all known discharges from waste water works, gives details of the receiving waters and associated protected areas and contains an impact assessment of future discharges. This information is assessed and considered in the impact assessment section of this report. The current licence required the cessation of discharges to Doldrum Bay since 31/12/2011, in accordance with the requirements of the Urban Waste water Treatment Directive. The application details the existing secondary discharge at Doldrum Bay is to be decommissioned and repurposed as a Storm Water Overflow (SWO), with Emergency Overflow (EO) in the event of pump failure. ABP confirmed for Uisce Éireann on 21/12/2023 that EIA is not required for planning application reference ABP-315902-23.
The modelling is not as claimed, calibrated/validated. It is clear that storm and weather events have not been modelled and as such account for large discrepancies between the monitored actual data and the modelled data. EIAR and AA must be carried out on precise scientific information and excluding the more frequent storm events (that Ireland is experiencing more frequently) is a major lacunae in the data.	I am satisfied that the modelling study was completed by competent persons and is representative. A time series storm event was modelled. The current status of the receiving water (based on monitoring data) was taken into account the impact assessment in Section 4 of this report has more details of the assessment.

Monitored data from the inner Tolka estuary and landside estuary section of Dollymount has not been validated. Due to the potentially eutrophic nature of these areas, validation by comparing monitored data is required.	In considering this review application, regard was had to ambient monitoring data. In developing the model, a baseline scenario (using 2019-2021 data) was run to inform a validation exercise, comparing modelled output to monitoring data for the updated baseline period which is satisfactory. The validation of the model exercise demonstrated that the model setup is suitable for future scenario modelling. Monitoring data from the Tolka Estuary was used in the validation.
The Irish Sea waterbody is excluded from monitoring and assessment despite the fact that Ringsend and the proposed GDD project will cumulatively impact this waterbody. Therefore there is no validation of the model and therefore the impact in these areas.	Dublin Bay is a coastal waterbody which is contiguous with the Irish Sea and was included in the water quality modelling report. I am satisfied this addresses the impacts on the immediate coastal waterbody. The proposed GDD project is not the subject of this review application.
The applicant appears to have used a new company to model the discharges rather than DHI. The baseline has also been changed to a "New Normal". This study has used 2019-2021 as a more up to date reference for the baseline. This is updated from the previous modelling conducted by DHI which used 2013-2015 as a reference baseline. This is an unusual thing to do. It raises issues of shifting baselines and of setting a new baseline at a time when the plant was continuously non-compliant in its discharges. This choice is particularly strange as the applicant uses the DHI baseline data for the modelling of the Shanganagh discharges so it lacks consistency.	It is a matter for Uisce Éireann to decide who they contract to undertake modelling on their behalf. In terms of modelling, the MIKE 3 FM model were used in both reports. A 2-dimensional model was used in Shanganagh. I am satisfied that the 2023 water quality modelling study is representative, up to date and is appropriate to consider current water quality conditions for the purposes of the EIA by the Agency.
There appears to be an error in the declared figures in relation to decay rates in 2.2.3 of the modelling report. In fact there are a number of discrepancies in this report. I recommend that a full technical review and document suitability assessment of the EIAR/NIS and modelling be carried out as is the case in relation to aquaculture licences where the Marine engineering section take this role.	The differences between the 2018 and 2023 modelling reports were documented in the addenda to the 2018 EIAR in Section 4.3.2. The water quality modelling reports have been reviewed with the assistance of a technical expert and I am satisfied the report was completed to the most up to date standards.

There does not appear to be any model run for current mass emissions and the model runs for future mass emissions exclude bacterial substances (EC & IE). With the proximity of bathing waters and SAC's, SPAs this constitutes lacunae in the assessment.	The model compared modelled output from current discharges to monitoring data to validate the model set up. The model predicted the impact of future discharges on designated bathing waters and the ecological status of receiving waters. The model report included the results of a time series storm event which modelled a predicted bacteriological impact. Section 4 of this report contains an assessment of the predicted impact of waste water discharges on the receiving waters including bathing waters and Natura sites.
The model impacts in the application are assessed against Environmental Quality Standards (EQS) as prescribed by the Surface Water Regulations for Ireland (Amended) (IG, 2019) and the Bathing Water Regulations (IG, 2008). These regulations are outdated and the updated regulations should be used for assessment against the model.	Both the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 (S.I. No. 77/2019) and the Bathing Water Quality Regulations 2008 (S.I. No. 79/2008) have been amended. However, the amendments did not change the relevant EQSs set in the 2019 and 2008 regulations. Therefore the 2019 and 2008 Regulations are the most up to date.
As a non-expert in water modelling it is clear that there are issues with parameters/assumptions and the interpretation of the data. An independent interrogation of the modelling report that can help inform a new report and include a model run of the impact of all agglomeration discharges on the network as it is clear that the models have no regard for cumulative impact of discharges (just what happens on a single day). No model for a process failure over say 3 days, no cumulative impact of discharges over a year as the discharge does not simply disappear. Microplastic, virus, PFAS (Dublin Airport monitors is showing toxic levels of runoff that may be, etc.) will continue to accumulate. There are also no impact on the waters in Baldoyle estuary from CSOs from this agglomeration that discharge directly into it.	The water quality modelling reports have been reviewed with the assistance of a technical expert in the Agency and I am satisfied the reports were completed to the most up to date standards. The modelling did consider cumulative effects, e.g. riverine inputs were included in the model and river quality is affected by discharges from SWOs on the network. An untreated discharge scenario was included in the 2018 modelling report. Modelling predicts how waste water discharges disperses and decays within the receiving water and model results were compared with relevant EQSs. The proposed upgrade does not entail quaternary treatment and specific pollutants and priority substances that are not biodegradable are controlled at source in so far as is practicable. The recommended licence specifies an ELV of 5 Toxic Units (a whole effluent limitation) and requires monitoring and reporting of priority substances. Waste water

	treatment reduces the viral load in raw sewage. The discharges from SWOs including those discharging to the Baldoyle estuary are considered in Section 4 of this report.
The applicant failed to identify impacts of POPs, and pollutants of emerging concern on cetaceans and pinnepeds and birds, using up to date surveys and recent scientific data on impacts.	The licensee addressed the identification of impacts of POPs, and pollutants of emerging concern on cetaceans, pinnepeds, and birds in Volume 3 Sections 5 and 6 of the 2018 EIAR and in section 4 of the Addenda to the 2018 EIAR. The proposed upgrade does not entail quaternary treatment and specific pollutants and priority substances that are not biodegradable are controlled at source in so far as is practicable. Uisce Éireann regulates the discharges from industrial sources. Refer to Section 5 and Appendix 3 of this Inspector's Report in relation to Appropriate Assessment. Section 4 of this report addresses the impacts on the chemical status of the receiving water. A Toxicity ELV of 5 T.U. is carried forward from the current licence and annual monitoring of specific pollutants and priority substances is required.

8. Cross Office Liaison

I consulted with the EPA's Office of Environmental Enforcement (OEE) on compliance matters and with the EPA's Office of Environmental Assessment Scientific Officers with regards to the impact assessment, water quality modelling reports, and bathing water quality.

9. Environmental Impact Assessment

9.1. EIA Introduction

This assessment is being undertaken in accordance with the requirements of *Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*. The application was accompanied by the 2018 Environmental Impact Assessment Report (EIAR) for Ringsend WWTP upgrade project. An addendum to the 2018 EIAR for Ringsend WWTP upgrade project was submitted in October 2023.

As part of this environmental impact assessment, I have carried out an examination, analysis and evaluation of all the information provided by the licensee (including the EIAR and addendum to the EIAR), the existing licence, Register Number: D0034-01,

information received through consultation, the documents associated with the assessments carried out by An Bord Pleanála and its reasoned conclusion, and the issues that interact with the matters that were considered by that authority and which relate to the waste water discharges, written submissions, as well as considering any supplementary information, where appropriate. All of the documentation received was examined and I consider that the EIAR complies with the provisions of Regulation 17A of the European Union (Waste Water Discharge) Regulations 2007 to 2020, as amended when considered in conjunction with the additional material submitted with the application.

I had regard to the matters mentioned in an EIAR in respect of the development only in so far as they relate to the risk of environmental pollution of the receiving waters from the waste water discharge concerned. I am satisfied that the information contained in the EIAR has been prepared by competent experts and that the environmental effects arising as a consequence of the waste water discharges have been satisfactorily identified, described and assessed.

Having specific regard to EIA, this Inspector's Report as a whole is intended to identify, describe and assess for the Agency the likely significant direct and indirect effects of the waste water discharges on the environment, for each of the following environmental factors: population and human health, biodiversity, land, soil, water, air and climate, the landscape, material assets and cultural heritage.

The cumulative effects, with other developments in the vicinity of the waste water discharges have also been considered, as regards the combined effects of discharges. In addition, the vulnerability of the proposed development to risks of major accidents and/or disasters has been considered in Section 4 so far as it relates to the risk of environmental pollution of the receiving waters from the waste water discharge concerned.

A summary of the submissions made by third parties has been set out above in the Submissions section of this report.

I am satisfied that the public have been given early and effective opportunity to participate in the environmental decision-making process.

9.2. Consultation with Planning Authority in relation to EIA

Consultation was carried out between the Agency and An Bord Pleanála (ABP).

An Bord Pleanála in their correspondence of 29/11/2023 advised that the Board has granted permission for the proposed works subject to the current licence review under ref: ABP-301798-18 and are aware the proposed development as applied for within this application is a licensable activity. An Bord Pleanála observed that the information relating to the EIAR on the Agency's website is the same information as in the EIAR submitted to An Bord Pleanála and that no significant additional information has to date been added to the original planning application submitted to An Bord Pleanála during the application process for this development. ABP set out the planning history and approvals in their correspondence and stated that a copy of the ABP Inspector's Report, ABP Direction, ABP Order and all documentation is available on their website.

An Bord Pleanála advised there is a live planning application under consideration by An Bord Pleanála (reference number: ABP-312131-21) which relates to Greater Dublin Drainage Project consisting of a new waste water treatment plant at Clonshagh (Clonshaugh), sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility. An Bord Pleanála observed that this is not the same development as that before the Agency under licence application reference D0034-02 but is relevant

to it. I have reviewed the documentation on the ABP website for this file (reference number: ABP-312131-21). This proposal is not part of this licence review application nor is it subject to any other current application under consideration by the Agency. If a licence application is made for this proposed development (Clonshaugh), the planning documentation including the EIAR and NIS relating to that development will be considered by the Agency as part of any licence application at that time.

9.3. Alternatives

The matter of alternatives is addressed in Volume 2 (Ringsend WWTP Upgrade) Section 4 of the 2018 EIAR. Volume 2 (Ringsend WWTP Upgrade) Section 4 examines several alternative discharge locations. Appropriate combinations of technologies and discharge locations were compared on technical, environmental and cost parameters. The technologies considered included:

1. Sequencing Batch Reactors (SBR) and Capacity Upgrade (SBR + CU) utilising the Long Sea Outfall Tunnel (LSOT);
2. Deep Shaft Aeration (DSA) with SBR discharging to the Lower Liffey Estuary;
3. Integrated Fixed-Film Activated Sludge (IFAS) discharging to the Lower Liffey Estuary;
4. Membrane Bioreactor (MBR) discharging to the Lower Liffey Estuary; and
5. Aerated Granular Sludge (AGS) discharging to the Lower Liffey Estuary.

Those combinations were scored against 15 parameters.

The EIAR Consideration of Alternatives ultimately focused on comparing the Long Sea Outfall Tunnel (LSOT); which was part of the 2012 Approval, and the new AGS technology. The conclusion was that the AGS treatment option, with improved effluent quality discharging into the Lower Liffey Estuary at the existing discharge location, is the preferred option.

In this regard I consider that the matter of the examination of alternatives has been satisfactorily addressed.

9.4. Likely Significant Direct and Indirect Effects

The likely significant direct and indirect effects of the waste water discharges on the following factors as set out in Article 3 of the EIA Directive are considered in this section:

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in points (a) to (d).

The cumulative effects have also been considered as regards the combined effects of discharges from the agglomeration and from other sources. The mitigation measures proposed to address the range of predicted significant effects have been outlined. This Inspector's report provides conclusions to the Agency in relation to such effects.

9.5. Population & Human Health

Identification, Description and Assessment of Effects

Population and human health are addressed in the 2018 EIAR Volume 3 (Ringsend WWTP Upgrade) Section 3 and in the addendum to the 2018 EIAR Sections 3 and 4. The potential direct effects, indirect effects, and cumulative effects on human health associated with waste water discharges relate to the quality of bathing waters. Due to the quality of water in the inner parts of Dublin Bay and the Liffey, consumption of shellfish from the area can only occur following depuration. There is no designated shellfish area in the vicinity of the outfall. The Dublin Bay waters are not utilised as an abstraction point for drinking water.

The proposed capacity of the WWTP will support population and economic growth up to 2.4 million p.e. within the Greater Dublin Area. This is a significant indirect and positive impact of the proposed WWTP upgrade.

The effects of discharges and unintended/accidental discharges including cumulative effects are assessed in section 4 *Impact of Waste Water Discharges* of this report. The proposal is to upgrade the WWTP to tertiary waste water treatment (nutrient removal), with UV disinfection of waste water during the bathing season and network upgrades. The findings of the assessment are that the proposed waste water discharges will improve water quality and not compromise the requirements of the Bathing Water Quality Regulations 2008. The RL specifies a condition to operate a UV disinfection system during the bathing season, sets out emission limit values on the primary discharge and requires the SWOs to comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 for the purposes of achieving compliance with UWWTD and WFD.

Mitigation and Monitoring

Mitigation measures and monitoring are detailed in the Impact of Waste Water Discharges section of this report.

Conclusion

I have examined all the information on population and human health, provided by the licensee, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Licence. I am, therefore, satisfied that the waste water discharges are not likely to have any unacceptable direct or indirect effects in terms of population and human health.

9.6. Biodiversity

Identification, Description and Assessment of Effects

Biodiversity is addressed in Volume 3 (Ringsend WWTP) Section 5 and Section 6 of the 2018 EIAR and in Sections 3 and 4 of the addendum to the 2018 EIAR. The EIAR describes the habitats and species at and in the vicinity of the primary waste water discharges.

A substantial portion of the marine environment in Dublin Bay hosts Natura Sites (EU Protected Sites) and consequently the potential impact on the conservation status of these was assessed in the EIAR. The licensee also submitted a Natura Impact Statement (NIS) compiled in 2018 and an addendum to the 2018 NIS in 2023. The intertidal areas of Dublin Bay support large waterbird populations. There is an area of amenity grassland immediately adjacent to the southern boundary of the WWTP site and this is regularly used by wintering waterbirds. Populations of waterbirds in the

wider area of Dublin Bay were evaluated because they are potentially affected by the treated effluent from the proposed Ringsend WWTP component.

The potential direct effects, indirect and cumulative effects on biodiversity associated with waste water discharges and unintended discharges relate to the water quality. Water quality is an important factor in the protection of water dependent habitats and species.

The potential effects are considered in Section 4 Impact of Waste Water Discharges, Section 5 Appropriate Assessment and Appendix 3 of this Inspectors' Report. The proposal is to upgrade the WWTP to tertiary waste water treatment and network upgrades.

The main impact on marine ecology is predicted to be a positive one due to the improved quality of the treated effluent. Water chemistry in the Inner Dublin Bay will be enhanced as a result of a reduced nutrient load for which the WWTP is currently a major source.

Benthic macroinvertebrates will become more diverse, phytoplankton will remain abundant, and perhaps more diverse, and the conservation status of bird populations, whether dependent on aquatic plants or infaunal macroinvertebrates, will not be negatively impacted.

The finding of the assessment is that the proposed upgraded WWTP will result in a reduction in pollutant loadings, the proposed waste water discharges will not compromise the environmental objectives and standards established for the water body and associated water dependant habitats and species, and will contribute to their conservation objectives.

The recommended licence specifies controls and limits established in accordance with the combined approach as described in Section 5 Impact of Waste water Discharges of this report. The RL also requires that the licensee to establish trigger levels for use in assessing ambient monitoring carried out under *Schedule B: Ambient Monitoring*. The RL requires SWOs to comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 to reduce pollutant load from these point sources.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to biodiversity are detailed in the *Impact of Waste Water Discharges* section of this report.

Conclusion

I have examined all the information on biodiversity, provided by the licensee, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Licence. I am, therefore, satisfied that the waste water discharges are not likely to have any unacceptable direct or indirect effects in terms of biodiversity.

9.7. Water

Identification, Description and Assessment of Effects

Water is addressed in Volume 3 (Ringsend WWTP) Section 4 of the 2018 EIAR and in Sections 3 and 4 of the addendum to the 2018 EIAR. The potential direct effects, indirect and cumulative effects on water associated with waste water discharges and unintended discharges relate to the water quality.

The effects of waste water discharges from the waste water works serving the agglomeration, including cumulative effects, are assessed in Section 4 *Impact of Waste water Discharges* of this report. The proposal is to upgrade the WWTP to tertiary treatment, including UV disinfection of waste water during the bathing season, and network upgrades. The finding of the assessment is that the proposed upgraded WWTP is a measure specified in the River Basin Management Plan 2018-2021 and the proposed waste water discharges will improve water quality, comply with the requirements of Urban Waste Water Treatment Directive and not compromise the achievement of environmental objectives established for the receiving water body and associated protected areas under the Water Framework Directive. The recommended licence specifies controls and limits established in accordance with the combined approach and monitoring to help protect water quality as described in Section 4 Impact of Waste Water Discharges of this report. The RL requires SWOs to comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows'*, 1995 to reduce pollutant load from these point sources.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to water are detailed in the *Impact of Waste Water Discharges* section of this report.

Conclusions

I have examined all the information on water provided by the licensee, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Licence. I am, therefore, satisfied that the waste water discharges are not likely to have any unacceptable direct or indirect effects on water.

9.8. Land, Soil, Air, Climate, Material Assets, Cultural Heritage and the Landscape

Identification, Description and Assessment of Effects

Land, soil, air, climate, material assets, cultural heritage and landscape are addressed in Volume 3 (Ringsend WWTP) Sections 7 to 14 and 16 of the 2018 EIAR and in Section 3 of the addendum to the 2018 EIAR.

The potential direct and indirect effects on land, soil, air, climate, material assets, cultural heritage and landscape are not associated with waste water discharges including unintended/accidental discharges and therefore are outside the scope of waste water discharge licensing.

An Bord Pleanála has also carried out EIA and identified, described and assessed the likely significant direct and indirect effects of the development on land, soil, air, climate, material assets, cultural heritage and landscape. An Bord Pleanála completed an EIA and concluded, subject to the implementation of the mitigation measures and proposed monitoring, and compliance with planning permission conditions, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable.

Adaptation to climate change is addressed under risk management below.

Mitigation and Monitoring

There are no specific mitigation measures or monitoring proposed in the RL.

Conclusion

I have examined all the information on land, soil, air, climate, material assets, cultural heritage and the landscape provided by the licensee, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified. I am, therefore, satisfied that the waste water discharges is not likely to have any unacceptable direct or indirect effects in terms of land, soil, air, climate, material assets, cultural heritage and landscape.

9.9. Interactions Between Environmental Factors

Interactions of effects are considered in Volume 3 (Ringsend WWTP) Section 16 of the 2018 EIAR and Section 4 of the addendum to the 2018 EIAR.

The most significant interactions between the factors as a result of the waste water discharges are the interactions of water with population and human health, and biodiversity. Discharges (including unintended/accidental) have an effect on water quality which can have an indirect effect on human health who may come into contact with discharges during recreational bathing activities. Water dependant biodiversity can also be affected by reductions in water quality due to discharges. Consideration has been given to these effects in Section 4 *Impact of Waste Water Discharges* and Section 5 *Appropriate Assessment* of this report. As demonstrated such effects are considered not to be likely or significant.

Conclusions

I have considered the interaction between the factors as a result of the waste water discharges and the interaction of the likely effects identified throughout this report. I am satisfied that the relevant potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Licence. I am, therefore, satisfied that the waste water discharges are not likely to have any unacceptable in terms of the interaction between the foregoing environmental factors.

9.10. Risk Management and Vulnerability of the Project to Risks of Major Accidents and or Disasters

Identification, Description and Assessment of Effects

Vulnerability to risks of major accidents and or disasters are addressed in Volume 3 (Ringsend WWTP Component) Section 15 of the 2018 EIAR and Section 4 of the Addenda to 2018 EIAR.

It is noted that the risk of a major accident and/or disaster at an adjacent Seveso establishment or EPA licensed site is present in the baseline scenario and it is not expected that the proposed WWTP upgrade will contribute further to the existing risk profile.

Five operational phase events were risk assessed including an event involving an incident at an adjacent Seveso site. The risk of environmental pollution of the receiving waters from unintended/accidental waste water discharges with mitigation measures in place, is determined to be low for 4 events and medium for the event involving an incident at adjacent Seveso site. The effects of unintended/accidental discharges from

the waste water works serving the agglomeration and the risk posed by climate change are assessed in Section 4 *Impact of Waste Water Discharges* of this report. The RL specifies measures to prevent and limit the consequences of unintended discharges including a requirement for an Emergency Response Plan and operational procedures to be in place. Further, the RL requires the licensee to prepare and implement a climate adaptation plan to address the risks posed by severe weather.

Therefore, no likely significant direct, indirect or cumulative effects have been identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to unintended/accidental discharges are detailed in the in the *Impact of Waste Water Discharges* section of this report.

Conclusion

I have examined all the information provided by the licensee, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified. I am, therefore, satisfied that the waste water discharges is not likely to have any unacceptable direct or indirect effects in terms of vulnerability to risks of major accidents and or disasters, or unintended/accidental discharges.

9.11. Reasoned Conclusion on the significant effects

Having regard to the examination of environmental information contained above, and in particular to the content of the EIAR and supplementary information provided by the licensee, and the submissions from the planning authority/authorities and third parties in the course of the application, it is considered that the potential significant direct and indirect effects on the environment, in so far as they relate to the risk of environmental pollution of the receiving waters from the waste water discharge concerned, are as follows:

- Waste water discharges from the primary discharge point to the Lower Liffey Estuary WFD Code: IE_EA_090_0300;
- Waste water discharges from storm water overflows to waterbodies as detailed in Table 7 of the Inspector's Report;
- Unintended waste water discharges from emergency overflows or as a result of plant failure.

There is the potential for accidents and emergency situations arising at a waste water works resulting in partially treated or untreated waste waters discharging to the receiving waters. Such incidents or events could lead to the breach of ELVs and the discharge of elevated levels of polluting organic matter, which would have the potential to impact on receiving water environment.

Having assessed the potential effects, I have concluded as follows:

- The waste water is required to be treated prior to discharge to tertiary treatment (N & P removal) level, and UV disinfection during the bathing season.
- The proposal to upgrade the waste water treatment plant and network upgrades will result in a reduction in the pollutant load on receiving waters.
- The ELVs for the primary discharge have been established in accordance with the combined approach and will comply with the treatment requirements of

the Urban Waste Water Treatment Directive and contribute to the attainment of environmental objectives for the receiving water established under the Water Framework Directive.

- Conditions attached to the licence require discharges from SWOs to receiving water bodies to comply with the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995 to prevent and reduce pollution from waste water discharges.
- A condition attached to the licence requires the licensee to take such measures as necessary to ensure that no deterioration in the quality of the receiving water shall occur as a result of the discharge.
- Conditions attached to the licence require measures to prevent and limit the consequences of unintended discharges.
- Conditions attached to the licence specify controls and monitoring of discharges and the receiving water.

Having regard to the effects (and interactions) identified, described and assessed throughout this report, I consider that the monitoring, mitigation and preventative measures proposed will ensure the discharges from the waste water works serving the agglomeration do not result in environmental pollution, subject to compliance with the Recommended Licence. The conditions of the RL and the mitigation measures proposed will significantly reduce the likelihood of unintended discharges occurring and limit their environmental consequences should one occur.

10. Charges

The RL requires that the licensee shall pay to the Agency, such sum as the Agency from time to time determines is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

11. Recommendation

In considering an application for review of a licence, the Agency shall have regard to:

- the requirements of Regulation 6(2) of the European Union (Waste Water Discharge) Regulations 2007 to 2020; and
- the matters mentioned in an EIAR in respect of a development only in so far as they relate to the risk of environmental pollution of the receiving waters from the waste water discharge concerned.

In deciding on an application, the Agency shall:

- set emission limit values and timeframe(s) in which these are to be achieved with the aim of achieving environmental objectives for the surface water body into which the discharges are or will be made including any objectives and standards established for associated protected areas;
- have regard to the conclusions of the Appropriate Assessment and findings of the EIA; and
- has regard to submissions received in accordance with these Regulations.

The Agency shall not grant a revised licence which in the opinion of the Agency will cause a deterioration in the status of the receiving surface water body or compromise the achievement of objectives or environmental quality standards.

In setting emission limit values for the discharge, the Agency shall ensure that the discharge is controlled according to the combined approach where the limits are established on the basis of the stricter of either or both, the limits and controls required

under the Urban Waste Water Regulations, and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made.

In accordance with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended, the Agency shall perform its functions in a manner consistent with the Department of Housing, Planning and Local Government *Water Quality and Water Services Infrastructure – Climate Change Sectoral Adaptation Plan.*

I am satisfied, on the basis of the information available, that this report and the recommended decision to grant subject to conditions as set out in the Recommended Licence (RL) give effect to the requirements set out above. Subject to compliance with the conditions of this RL, any discharges from the agglomeration served by the waste water works will comply with and will not contravene any of these requirements.

This report was prepared by Aimie Cranch and Úna Prendergast with the assistance of Ann Marie Donlon.

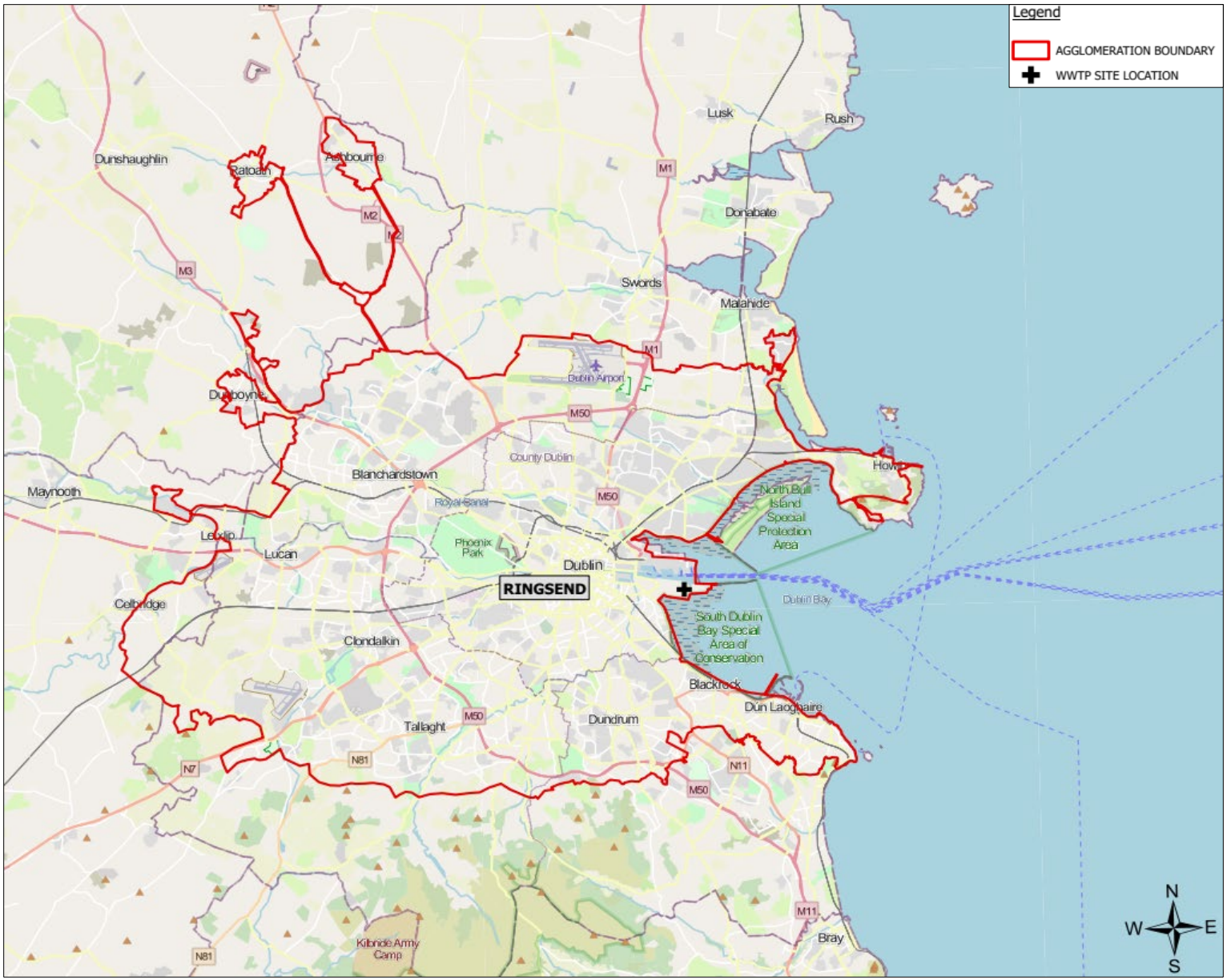
I recommend that a Final Licence be granted subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed

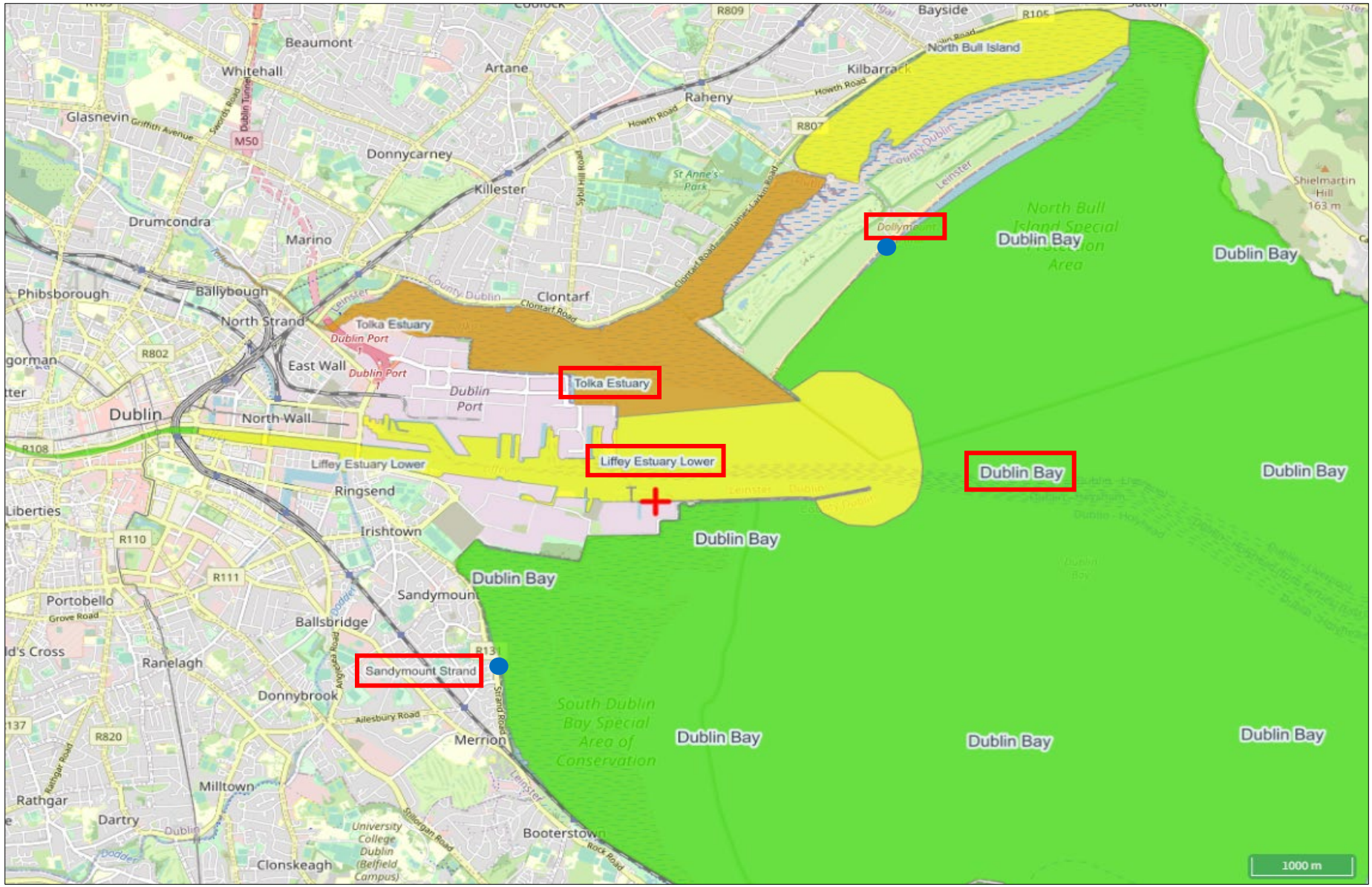
Aimie Cranch

Water, Energy and Business Support Programme

Appendix 1: Map showing Ringsend agglomeration boundary and associated WWTP



Appendix 2: Map showing Tolka Estuary, Liffey Estuary Lower & Dublin Bay. WWTP primary discharge point marked '+'



Appendix 3: Appropriate Assessment

Table 8: Assessment of the effects of discharges on European sites and proposed mitigation measures.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
000210	South Dublin Bay SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 2110 Embryonic shifting dunes	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000210.pdf
000206	North Dublin Bay SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks **Species** 1395 Petalwort (*Petalophyllum ralfsii*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000206.pdf
003000	Rockabill to Dalkey Island SAC	**Habitats** 1170 Reefs **Species** 1351 Harbour Porpoise *(Phocoena phocoena)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO003000.pdf
000202	Howth Head SAC	**Habitats** 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000202.pdf
004024	South Dublin Bay and River Tolka Estuary SPA	**Birds** A162 Redshank *(Tringa totanus)* A193 Common Tern *(Sterna hirundo)* A157 Bar-tailed Godwit *(Limosa lapponica)* A130 Oystercatcher *(Haematopus ostralegus)* A141 Grey Plover *(Pluvialis squatarola)* A149 Dunlin *(Calidris alpina)* A137 Ringed Plover *(Charadrius hiaticula)* A194 Arctic Tern *(Sterna paradisaea)* A192 Roseate Tern *(Sterna dougallii)* A143 Knot *(Calidris canutus)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A144 Sanderling *(Calidris alba)* A046 Light-bellied Brent Goose *(Branta bernicla hrota)* **Habitats** Wetlands	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004024.pdf

004006	North Bull Island SPA	**Birds** A179 Black-headed Gull *(Chroicocephalus ridibundus)* A048 Shelduck *(Tadorna tadorna)* A054 Pintail *(Anas acuta)* A160 Curlew *(Numenius arquata)* A157 Bar-tailed Godwit *(Limosa lapponica)* A046 Light-bellied Brent Goose *(Branta bernicla hrota)* A056 Shoveler *(Anas clypeata)* A169 Turnstone *(Arenaria interpres)* A141 Grey Plover *(Pluvialis squatarola)* A052 Teal *(Anas crecca)* A144 Sanderling *(Calidris alba)* A130 Oystercatcher *(Haematopus ostralegus)* A140 Golden Plover *(Pluvialis apricaria)* A149 Dunlin *(Calidris alpina)* A156 Black-tailed Godwit *(Limosa limosa)* A162 Redshank *(Tringa totanus)* A143 Knot *(Calidris canutus)* **Habitats** Wetlands	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004006.pdf
004113	Howth Head Coast SPA	**Birds** A188 Kittiwake *(Rissa tridactyla)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004113.pdf
004172	Dalkey Islands SPA	**Birds** A192 Roseate Tern *(Sterna dougallii)* A194 Arctic Tern *(Sterna paradisaea)* A193 Common Tern *(Sterna hirundo)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004172.pdf
004236	North-west Irish Sea SPA	**Birds** A001 Red-throated Diver *(Gavia stellata)* A003 Great Northern Diver *(Gavia immer)* A009 Fulmar *(Fulmarus glacialis)* A013 Manx Shearwater *(Puffinus puffinus)* A017 Cormorant *(Phalacrocorax carbo)* A018 Shag *(Phalacrocorax aristotelis)* A065 Common Scoter *(Melanitta nigra)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A182 Common Gull *(Larus canus)* A183 Lesser Black-backed Gull *(Larus fuscus)* A184 Herring Gull *(Larus argentatus)* A187 Great Black-backed Gull *(Larus marinus)* A188 Kittiwake *(Rissa tridactyla)* A192 Roseate Tern *(Sterna dougallii)* A193 Common Tern *(Sterna hirundo)* A194 Arctic Tern *(Sterna paradisaea)* A195 Little Tern *(Sterna albifrons)* A199 Guillemot *(Uria aalge)* A200 Razorbill *(Alca torda)* A204 Puffin *(Fratercula arctica)*	https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004236.pdf

		A862 Little Gull *(Hydrocoloeus minutus)*	

Assessment

Emissions to water

Discharge of effluent to water systems can lead to an altered nutrient balance, potential threat of toxicity, reduction in ecological status and effects on water dependant habitats and species. Water quality is an important factor for achieving the conservation objectives established for water dependant species and habitats of the nine European Sites listed above. The achievement of 'good' status water quality will contribute to the achievement of their conservation objectives. The nine European sites listed above are located in Dublin Bay area and range in distance from 0.2km to 9km from the primary discharge point.

The proposal is to treat the waste water with tertiary treatment (nitrogen & phosphorus removal), with UV disinfection during the bathing season, which includes preliminary treatment (screening), primary treatment (settlement tanks), and secondary treatment tanks providing nutrient reduction via AGS Technology. In addition, upgrades to the network to prevent and reduce pollution from storm water overflows are ongoing. The proposed upgrade to the treatment plant is a measure specified in the RBMP 2018-2021 for water quality improvement.

The proposed upgrade to the treatment plant will result in an overall reduction in the pollutant load (including nutrients) being discharged into the receiving waters while serving a greater p.e (2.4 million). The modelling results demonstrate that nutrient losses from other sources, including from SWOs, are significantly contributing to the impact in the receiving waters. In view of the proposed TN and TP reductions and the modelling results for the primary discharge, it is concluded that the proposed primary discharge will not cause a deterioration of the status, will not compromise the achievement of 'good' ecological status or the maintenance of 'good' chemical status and will fulfil the requirements of the RBMP.

The intertidal areas of Dublin Bay support large waterbird populations. There is an area of amenity grassland immediately adjacent to the southern boundary of the WWTP site and this is regularly used by wintering waterbirds. Populations of waterbirds in the wider area of Dublin Bay were evaluated because they are potentially affected by the treated effluent from the proposed Ringsend WWTP component. The main impact on marine ecology is predicted to be a positive one due to the improved quality of the treated effluent. Water chemistry in the Inner Dublin Bay will be enhanced as a result of a reduced nutrient load for which the WWTP is currently a major source.

Benthic macroinvertebrates will become more diverse, phytoplankton will remain abundant, and perhaps more diverse, and the conservation status of bird populations, whether dependent on aquatic plants or infaunal macroinvertebrates, will not be negatively impacted.

The reduction in pollutant loadings will contribute to the conservation objectives for water dependent SACs and SPAs.

Further measures are required to reduce the pollutant load on receiving waters from SWOs.

The RL specifies ELVs which were established in accordance with the combined approach and include limits considered necessary to achieve the environmental objective to restore the receiving water to good status including compliance with the EQSs established under European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) as amended. The RL requires a programme of improvements to be completed to ensure all storm water overflows comply with criteria set out in the DoECLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995. Condition 3.3 of the RL requires the licensee to take such measures as necessary to ensure that no deterioration in the quality of the receiving waters shall occur as a result of the discharge.

Potential for Accidents to Arise

There is the potential for accidents and emergency situations arising at a waste water works resulting in partially treated or untreated waste waters discharging to the receiving waters. Such incidents or events could lead to the breach of ELVs and the discharge of elevated levels of polluting organic matter, which would have the potential to impact on the receiving water environment. The licensee detailed measures to prevent unintended discharges in their application. Condition 5.1.7 of the RL requires the licensee to identify measures to minimise any environmental damage associated with discharges or overflows from the waste water works following anticipated events or accidents/incidents. Condition 4.21 of the RL requires the licensee to provide an annual statement as to the measures taken or adopted to minimise environmental damage associated with discharges or overflows from the waste water works following anticipated events or accidents/incidents. Condition 4.9 of the RL requires the licensee must maintain a program for the maintenance and operation for all plant and equipment to ensure that no unauthorised waste water discharge take place. This program shall be based on the instructions issued by the manufacturer/supplier or installer of the equipment. Appropriate record keeping and diagnostic testing shall support this maintenance program. The licensee must clearly allocate responsibility for the planning, management and execution of all aspects of this programme to appropriate personnel. Condition 6.5 requires an emergency response procedure to be in place.

Appendix 4: Acknowledgement and Attribution

This report uses maps submitted as part of the application and map imagery as set out in Table 9 below.

Table 9: Acknowledgement and attribution of the imagery used from EPA Maps in Appendix 1 of this report

Map Source	Link to Source	Data Provider	Usage Licence	Attribution Statement	Location in Report
EPA Maps	https://gis.epa.ie/EPAMaps/	OpenStreetMap	ShareAlike 2.0 Generic (CC BY-SA 2.0)	Data is available under the Open Database License	Appendix 1