

# Annual Environmental Report

2021



Rathdrum

D0086-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0086-01, Rathdrum, in Wicklow in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

## 1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

There were no capital works, significant changes or operational improvements undertaken in 2021.

## 1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- RATHDRUM WWTP with a Plant Capacity PE of 3500, the treatment type is 3P - Tertiary P removal.

## 1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF3400D0086SW001	RATHDRUM WWTP	Treated	Compliant	N/A

## 1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

**There are no Licence Specific Reports included in this AER.**

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 RATHDRUM WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - RATHDRUM WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	12	91	37
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	302	114
Total Phosphorus (as P) mg/l	12	9.93	3.20
COD-Cr mg/l	12	640	263.71
Suspended Solids mg/l	12	146	71.2
Hydraulic Capacity	N/A	3377	938

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

#### Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

## 2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF3400D0086SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included <sup>Note 1</sup>	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
<b>COD-Cr mg/l</b>	125	250	N/A	12	N/A	N/A	10	Pass
<b>Suspended Solids mg/l</b>	20	50	N/A	12	N/A	N/A	2.52	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	12	24	N/A	12	N/A	N/A	1.84	Pass
<b>pH pH units</b>	6.00	9.00	N/A	12	N/A	N/A	6.90	Pass
<b>Ammonia-Total (as N) mg/l</b>	3.00	3.60	N/A	12	N/A	N/A	0.043	Pass
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	1.00	1.20	N/A	12	N/A	N/A	0.225	Pass
<b>Total Phosphorus (as P) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.271	
<b>Nitrite (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.028	
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	7.71	

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included <sup>Note 1</sup>	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	6.98	

Notes:

1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

2 – For pH the WWDA specifies a range of pH 6 - 9

### Cause of Exceedance(s):

**Not applicable.**

### Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF3400D0086SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
<b>Upstream</b>	319247, 188744	RS10A050300	No	No	No	No	Good
<b>Downstream</b>	319917, 186316	RS10A050400	No	No	No	No	Moderate

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
<b>BOD - 5 days (Total) mg/l</b>	RS10A050300	0.822	RS10A050400	0.707	1.50	-7.7
<b>Ammonia-Total (as N) mg/l</b>	RS10A050300	0.018	RS10A050400	0.014	0.065	-5.7
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS10A050300	0.009	RS10A050400	0.008	0.035	-1
<b>Chloride mg/l</b>	RS10A050300	9.75	RS10A050400	9.94	N/A	



Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
<b>Conductivity @25°C µS/cm</b>	RS10A050300	66	RS10A050400	69	N/A	
<b>Dissolved Oxygen % Saturation</b>	RS10A050300	105	RS10A050400	107	N/A	
<b>Conductivity @20°C µS/cm</b>	RS10A050300	63	RS10A050400	N/A	N/A	
<b>Total Nitrogen mg/l</b>	RS10A050300	0.920	RS10A050400	N/A	N/A	
<b>Temperature °C</b>	RS10A050300	11	RS10A050400	12	N/A	
<b>Dissolved Oxygen % O2</b>	RS10A050300	103	RS10A050400	N/A	N/A	
<b>pH pH units</b>	RS10A050300	6.87	RS10A050400	7.18	N/A	
<b>Nitrate (as N) mg/l</b>	RS10A050300	0.860	RS10A050400	0.784	N/A	
<b>Nitrite (as N) mg/l</b>	RS10A050300	0.004	RS10A050400	N/A	N/A	
<b>True Colour mg/litre Pt Co</b>	RS10A050300	40	RS10A050400	37	N/A	
<b>Total Oxidised Nitrogen (as N) mg/l</b>	RS10A050300	0.644	RS10A050400	0.784	N/A	
<b>Total Hardness (as CaCO3) mg/l</b>	RS10A050300	16	RS10A050400	17	N/A	
<b>Nitrite (as N) µg/l</b>	RS10A050300	2.83	RS10A050400	2.83	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Dissolved Oxygen mg/l	RS10A050300	12	RS10A050400	12	N/A	
Alkalinity as CaCO <sub>3</sub> – Gran titration mg/l	RS10A050300	9.78	RS10A050400	11	N/A	

### Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - RATHDRUM WWTP

### 2.1.4.1 Treatment Efficiency Report - RATHDRUM WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	35966	572	98
SS	22517	782	97

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	1013	84	92
COD	83405	3178	96
TN	11711	2395	80

Note: The above data is based on sample results for the number of dates reported

#### 2.1.4.2 Treatment Capacity Report Summary - RATHDRUM WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

RATHDRUM WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	2362
DWF to the Treatment Plant (m <sup>3</sup> /day)	788
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	3377
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	937.68
Organic Capacity (PE) - As Constructed	3500
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	2111
Organic Capacity (PE) - Remaining	1389
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

## 2.1.5 SLUDGE / OTHER INPUTS - RATHDRUM WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
<b>Landfill Leachate (delivered by tanker)</b>	10	Volume (m <sup>3</sup> )	0.1	0.00	Yes	No	No
<b>Industrial / Commercial Sludge</b>	10	Volume (m <sup>3</sup> )	0.1	0.00	Yes	No	No
<b>Domestic /Septic Tank Sludge</b>	10	Weight (Tonnes)	0.1	0.00	Yes	No	No

## 3 COMPLAINTS AND INCIDENTS

### 3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
<b>There were no relevant environmental complaints in 2021.</b>			

### 3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

#### 3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Uncontrolled release</b>	Adverse Weather	1	No	Yes

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	1
Number of Incidents reported to the EPA via EDEN in 2021	1
Explanation of any discrepancies between the two numbers above	N/A

## 4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

### 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

#### 4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	Total volume discharged in 2021 (m <sup>3</sup> )	Monitoring Status
SW3	319518.294, 188089.622	Yes	Low	Meeting	8555	Monitored
SW4	319287, 188506	Yes	Low	Meeting	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via monitored SWOs in the agglomeration in the year (m <sup>3</sup> )?	8555
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

## 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS

### 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0086-SIP:01</b>	Construction of pumping station at old WWTP and decommissioning of old WWTP	C	28/02/2011	Yes	Works Completed		
<b>D0086-SIP:02</b>	SW2 to cease	A	28/02/2011	Yes	Works Completed		
<b>D0086-SIP:03</b>	SW4 to become operational	A	28/02/2011	Yes	Works Completed		

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.



## 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
<b>No additional improvements planned at this time.</b>				

## 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Tables 4.2.1 and 4.2.2.

## 5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER
Priority Substances Assessment	Yes	2011	No

### 5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2011.

## 6 CERTIFICATION AND SIGN OFF

### 6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e., have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Has a Technical amendment/licence review application been submitted to the Agency by IW?	No
List reason e.g., additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	Yes
List reason e.g., changes to monitoring requirements	Ambient monitoring location changes
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Date: 18/02/2022

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Katherine Walshe

Acting Head of Environmental Regulation.

## **7 APPENDIX**

There are no Appendices included.