

# Annual Environmental Report

2022



Cork City

D0033-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0033-01, Cork City, in Cork 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.

## 1.2 TREATMENT SUMMARY

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

- Carrigrennan (Cork City) WWTP with a Plant Capacity PE of 413200, 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
TPEFF0400D0033SW001	Carrigrennan (Cork City) WWTP	Treated	Non-Compliant	BOD, 5 days with Inhibition (Carbonaceo mg/l Total Nitrogen mg/l)

## 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 CARRIGRENNAN (CORK CITY) WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - CARRIGRENNAN (CORK CITY) 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
COD-Cr mg/l	260	950	272
Total Phosphorus (as P) mg/l	26	7.40	2.56
Suspended Solids mg/l	260	380	123
Total Nitrogen mg/l	26	30	20
BOD, 5 days with Inhibition (Carbonaceo mg/l	260	260	106
Hydraulic Capacity	N/A	303448	123959

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 less 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 - TPEFF0400D0033SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	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	260	1	N/A	61	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	260	6	N/A	13	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	25	50	N/A	260	10	1	11	Fail
<b>Total Nitrogen mg/l</b>	10	12	N/A	26	24	21	20	Fail
<b>pH pH units</b>	9	9	N/A	260	N/A	N/A	7.75	Pass
<b>Total Phosphorus (as P) mg/l</b>	2.5	3	N/A	26	N/A	N/A	0.670	Pass
<b>Ammonia-Total (as N) mg/l</b>	N/A	N/A	N/A	26	N/A	N/A	13	
<b>Appearance (on Sampling) Descriptive</b>	N/A	N/A	N/A	260	N/A	N/A	N/A	

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	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)
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	26	N/A	N/A	0.350	
Odour Descriptive	N/A	N/A	N/A	260	N/A	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	26	N/A	N/A	4.47	

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):

Refer to Incident Section of Report

### Significance of Results:

: The WWTP is non compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving waters is assessed further in Section 2



## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0400D0033SW001

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
Upstream	165691, 74463	RS19B140110	No	No	No	No	Moderate
Downstream	162843, 69176	RS19T050890	No	No	No	No	Moderate
Downstream	162863, 71034	RS19C120110	No	No	No	No	Moderate
Downstream	165003, 71212	RS19C120740	No	No	No	No	Moderate
Downstream	164101, 68782	RS19G040140	No	No	No	No	Poor
Downstream	164344, 69415	RS19G040190	No	No	No	No	Poor
Downstream	165278, 69503	RS19G040300	No	No	No	No	Poor
Downstream	165697, 70336	RS19G040490	No	No	No	No	Poor
Downstream	165401, 70768	RS19G040700	No	No	No	No	Poor
Downstream	166291, 74796	RS19G880990	No	No	No	No	Moderate
Downstream	166925, 74246	RS19B140300	No	No	No	No	Poor

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
Downstream	167422, 73340	RS19B140800	No	No	No	No	Poor
Downstream	168942, 73453	RS19G090400	No	No	No	No	Poor
Downstream	167868, 73539	RS19G090800	No	No	No	No	Poor
Downstream	167496, 72342	RS19K750900	No	No	No	No	Poor
Downstream	174650, 70440	TW04003159LE2005	No	No	No	No	Moderate
Downstream	170242, 72195	TW04003159LE2006	No	No	No	No	Moderate

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary**

### Significance of Results:

The coastal/transitional ambient monitoring results do not meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: BOD, 5 days with Inhibition (Carbonaceous mg/l, Total Nitrogen mg/l).

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. 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 - CARRIGRENNAN (CORK CITY) WWTP

### 2.1.4.1 Treatment Efficiency Report - Carrigrennan (Cork City) 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)
SS	5128064	558460	89
TN	831969	822099	1.19
TP	107546	28141	74
COD	11310168	2548022	77
cBOD	4430008	448658	90

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

### 2.1.4.2 Treatment Capacity Report Summary - Carrigrennan (Cork City) 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.

Carrigrennan (Cork City) WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	359592
DWF to the Treatment Plant (m <sup>3</sup> /day)	59359
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	303448.5

Carrigrennan (Cork City) WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	123959
Organic Capacity (PE) - As Constructed	413200
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	231000
Organic Capacity (PE) - Remaining	182200
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 - CARRIGRENNAN (CORK CITY) 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>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 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 2022.</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 Uisce Éireann 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>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment calibration at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	No
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	No
<b>Breach of ELV</b>	WWTP upgrade required to meet ELV	1	Yes	No
<b>Breach of ELV</b>	Adverse Weather	1	No	No
<b>Spillage</b>	Blocked Sewer	1	Yes	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes
<b>Spillage</b>	Adverse Weather	1	No	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes
<b>Uncontrolled release</b>	Adverse Weather	1	No	Yes
<b>Uncontrolled release</b>	EO caused by ragging or blocking	1	Yes	Yes
<b>Uncontrolled release</b>	EO caused by pump failure	1	No	Yes
<b>Uncontrolled release</b>	Blocked Sewer	1	No	Yes
<b>Uncontrolled release</b>	EO caused by pump failure	1	No	Yes
<b>Uncontrolled release</b>	Adverse Weather	1	No	Yes
<b>Uncontrolled release</b>	Broken Sewer Pipe	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Broken Sewer Pipe	1	No	No
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	No
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	No
Uncontrolled release	Broken Sewer Pipe	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	Yes
Uncontrolled release	Adverse Weather	1	No	Yes

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	28
Number of Incidents reported to the EPA via EDEN in 2022	28
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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S08</b>	167435,72646	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S08</b>	167435,72646	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S09</b>	167497,72348	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S47</b>	167497,72348	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S14</b>	167497,72348	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S15</b>	167497,72348	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored



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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S10</b>	167405,73414	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S11</b>	167493,73692	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S13</b>	167458,73281	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S16</b>	167435,72646	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S43</b>	168831,73441	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	165219,69285	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	163254,69999	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	162947,69892	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	162794,70707	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	164503,71238	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S02</b>	165746,71653	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S03</b>	165992,71741	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S04</b>	166772,72082	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S05</b>	166965,72159	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S06</b>	167054,72194	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S07</b>	167469,72139	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	165605,70430	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	165605,70430	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	176798,70342	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	168307,72009	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S17</b>	167558,72135	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S18</b>	167666,72129	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S19</b>	168078,72052	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S19</b>	168078,72052	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S19</b>	168078,72052	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S21</b>	169349,72330	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S22</b>	170463,72270	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S23</b>	170703,72271	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S24</b>	170271,72107	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S25</b>	168303,71862	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S25</b>	168303,71862	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S27</b>	167533,71538	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S28</b>	167441,71546	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S29</b>	167260,71521	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S30</b>	167185,71501	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S30</b>	167185,71501	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S30</b>	167185,71501	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S31</b>	166415,71478	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S32</b>	165976,71334	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S33</b>	164347,69423	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>SD04</b>	163247,69974	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S34</b>	171683,69814	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S35</b>	165254,71147	Yes	High Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S35</b>	165254,71147	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S36</b>	165602,70434	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S37</b>	165598,70436	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S38</b>	165705,69791	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S39</b>	166295,69286	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S40</b>	168668,69893	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	168668,69893	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>S41</b>	170193,69770	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S42</b>	170046,70086	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S44</b>	171627,71861	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S44</b>	171627,71861	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S44</b>	171627,71861	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S45</b>	168313,70079	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S45</b>	168313,70079	Yes	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S48</b>	176680,70534	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>S49</b>	170768,72079	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	166610,71492	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>SW20</b>	167255,72152	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>SW21</b>	167386,71575	Yes	TBC	Not yet Assessed	Unknown	Unknown	Monitored
<b>TBC</b>	170607,72270	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	165262,71318	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	164732,69432	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	165014,71472	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
TBC	170579,69856	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	172538,69463	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	172788,74183	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	174518,71127	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	175958,72971	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	177329,73294	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	173100,69539	No	Low Significance	Not yet Assessed	Unknown	Unknown	Monitored
TBC	175339,71489	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	177469,71480	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
S26	167920,71735	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
S26	167920,71735	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
<b>S26</b>	167920,71735	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>S26</b>	167920,71735	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	167920,71735	No	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	167920,71735	No	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	169935,73933	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	163148,71116	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>TBC</b>	164731,69408	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
<b>S20</b>	168765,72118	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	168765,72118	No	Low Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>TBC</b>	168765,72118	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
<b>TBC</b>	167119,71591	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored



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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
TBC	164947,71247	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	164256,69387	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165228,69252	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	165207,71185	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
TBC	165233,71155	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	169118,69210	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	172264,72015	No	Low Significance	Not yet Assessed	Unknown	Unknown	Monitored
TBC	171683,69814	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	173151,70547	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	171176,72149	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	170607,72270	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	169812,72296	No	Low Significance	Meeting Criteria	Unknown	Unknown	Monitored
TBC	TBC,TBC	No	TBC	Not yet Assessed	Unknown	Unknown	Monitored
TBC	TBC,TBC	No	TBC	Not yet Assessed	Unknown	Unknown	TBC
TBC	173033,69515	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
TBC	165485,71594	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	172700,72881	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	177975,73141	No	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	TBC,TBC	No	TBC	Not yet Assessed	Unknown	Unknown	TBC
TBC	167607,71505	No	Low Significance	Not yet Assessed	Unknown	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much sewage was discharged via monitored SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	No
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?	No

## 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>D0033-SIP:03</b>	Improvement in operation of, and reduction in frequency of discharge via, CS071 (S48N and S48S)	C	31/12/2020	Yes	Works Completed		
<b>D0033-SIP:04</b>	Upgrading of waste water works, as required, to ensure Storm Water Overflows comply with the criteria outlined in DoEHLG.	C	22/12/2015	Yes	Not Started		DAP completed 2023. Upgrades will span multiple investment plans.
<b>D0033-SIP:02</b>	Infiltration and inflow programme	C	22/12/2015	Yes	Not Started		DAP completed 2023. Upgrades will span multiple investment plans.
<b>D0033-SIP:01</b>	Cessation of discharge from SD02 (St Patrick's Bridge)	A	22/12/2015	Yes	Not Started		DAP completed 2023. Upgrades

Specified Improvement Programmes (under Schedule A and C of WVDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
							will span multiple investment plans.

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	2012	No
Shellfish Impact Assessment	Yes		No
Toxicity of Final Effluent	Yes	2011	No

## 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
Is there a need to advise the EPA for Consideration of a Technical Amendment/Review of the Licence?	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	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
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:

Signed:    Date: 22/08/2023

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

Eleanor Roche

Acting Head of Environmental Regulation.



## 7 APPENDIX

Appendix

**Appendix 7.1 - Ambient monitoring summary**

Ambeint Monitoring Report Summary Data

Ambient monitoring point	Irish Grid Reference	Designations				WFD Status
		Bathing Water	Drinking Water	FWPM	Shellfish	
RS19B140110	165691, 74463	No	No	No	No	Moderate
RS19B140300	166925, 74246	No	No	No	No	Poor
RS19B140800	167422, 73340	No	No	No	No	Poor
RS19C120110	162863, 71034	No	No	No	No	Moderate
RS19C120740	165003, 71212	No	No	No	No	Moderate
RS19G040140	164101, 68782	No	No	No	No	Poor
RS19G040190	164344, 69415	No	No	No	No	Poor
RS19G040300	165278, 69503	No	No	No	No	Poor
RS19G040490	165697, 70336	No	No	No	No	Poor
RS19G040700	165401, 70768	No	No	No	No	Poor
RS19G090400	168942, 73453	No	No	No	No	Poor
RS19G090800	167868, 73539	No	No	No	No	Poor
RS19G880990	166291, 74796	No	No	No	No	Moderate
RS19K750900	167496, 72342	No	No	No	No	Poor
RS19T050890	162843, 69176	No	No	No	No	Moderate
TW04003159LE2005	174650, 70440	No	No	No	No	Moderate
TW04003159LE2006	170242, 72195	No	No	No	No	Moderate
CW05003150LE8004	178089, 65386	No	No	No	No	Moderate
TW05003157LE4005	177039, 69408	No	No	No	No	Moderate
TW05003157LE4004	174649, 70439	No	No	No	No	Moderate

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
RS19B140110	12/01/2016	0.06	1.6	73.4	0.05	7.6	1.15	0.89
RS19B140110	09/02/2016	0.04	1	103.7	0.06	7.6	3.23	2.89
RS19B140110	01/03/2016	0.06	1	103.8	0.06	7.5	3.14	2.8
RS19B140110	05/04/2016	0.04	1	81.5	0.05	8.0	3.26	2.82
RS19B140110	04/05/2016	0.02	1.2	82.3	0.04	7.8	3.43	3.11
RS19B140110	01/06/2016	0.03	3	79.2	0.04	7.9	3.79	3
RS19B140110	05/07/2016	0.004	2.7	66.9	0.08	7.9	3.2	2.67
RS19B140110	10/08/2016	0.004	1.5	74.3	0.09	8.0	2.66	2.22
RS19B140110	01/09/2016	0.01	2.6	59.6	0.09	7.8	1.81	1.56
RS19B140110	04/10/2016	0.01	1.6	62.8	0.06	7.8	1.85	1.56
RS19B140300	12/01/2016	0.061	1	78.2	0.09	7.6	2.79	2.38
RS19B140300	09/02/2016	0.047	1	80.6	0.07	7.6	2.9	2.51
RS19B140300	01/03/2016	0.070	1	92.0	0.08	7.4	3.18	2.8
RS19B140300	05/04/2016	0.023	1.2	79.0	0.07	8.3	3.22	2.87
RS19B140300	04/05/2016	0.023	1.1	85.5	0.06	7.6	3.84	3.62
RS19B140300	01/06/2016	0.031	1.2	75.2	0.07	7.9	3.79	3.4
RS19B140300	05/07/2016	0.004	1	75.7	0.10	8.1	3.15	2.82
RS19B140300	10/08/2016	0.004	1	71.7	0.10	7.8	2.24	1.98
RS19B140300	01/09/2016	0.023	1	65.3	0.12	7.7	2.22	1.89
RS19B140300	04/10/2016	0.016	1	60.1	0.10	7.7	1.48	1.11
RS19B140800	12/01/2016	0.052	1	76.8	0.07	7.2	1.63	1.33
RS19B140800	09/02/2016	0.047	1	85.5	0.07	7.5	3.86	3.36
RS19B140800	01/03/2016	0.054	1	104.8	0.07	7.1	2.24	2.13
RS19B140800	05/04/2016	0.016	1	76.8	0.08	8.2	3.51	3.11
RS19B140800	04/05/2016	0.016	1	79.9	0.05	7.6	5.05	4.84
RS19B140800	01/06/2016	0.023	1.2	66.5	0.07	7.4	4.83	4.44
RS19B140800	10/08/2016	0.004	1	65.7	0.09	7.5	2.09	1.93
RS19B140800	01/09/2016	0.031	1	64.1	0.10	7.6	2.43	2.22
RS19B140800	04/10/2016	0.000	1.2	67.4	0.10	7.2	2.04	1.78
RS19C120110	19/01/2016	0.428	2.6	71.7	0.08	7.8	3.25	2.6
RS19C120110	16/02/2016	0.037	0.8	76.2	0.05	7.7	2.87	2.64
RS19C120110	08/03/2016	0.024	0.5	84.4	0.05	7.6	2.89	2.71
RS19C120110	19/04/2016	0.001	0.3	77.4	0.04	7.6	2.32	2.18
RS19C120110	10/05/2016	0.014	2.6	72.2	0.08	7.7	5.66	4.96
RS19C120110	28/06/2016	0.062	1.9	60.6	0.03	7.8	3.17	2.8
RS19C120110	26/07/2016	0.001	0.6	55.9	0.04	7.9	2.86	2.64
RS19C120110	24/08/2016	0.001	0.8	76.7	0.06	7.7	4.05	3.78
RS19C120110	11/10/2016	0.038	0.8	89.1	0.05	7.9	1.74	1.56
RS19C120110	15/11/2016	0.045	0.8	68.3	0.06	7.8	1.13	0.89
RS19C120740	19/01/2016	0.179	1.6	66.0	0.07	7.71	3.24	2.73
RS19C120740	16/02/2016	0.163	1.1	75.4	0.06	7.66	3.39	3.07
RS19C120740	08/03/2016	0.030	0.8	79.4	0.05	7.65	3.66	3.38
RS19C120740	19/04/2016	0.103	0.5	72.0	0.05	7.58	2.89	2.64
RS19C120740	10/05/2016	0.871	3.9	67.2	0.15	7.64	4.61	3.04
RS19C120740	28/06/2016	0.436	3.0	44.2	0.04	7.6	3	2.2
RS19C120740	26/07/2016	0.576	2.2	44.4	0.05	7.47	3.98	3.2
RS19C120740	24/08/2016	0.459	1.2	46.6	0.07	7.47	2.24	1.56
RS19C120740	11/10/2016	0.280	1.3	81.1	0.05	7.62	3.72	3.33
RS19C120740	15/11/2016	0.285	1.0	55.3	0.05	7.66	1.79	1.33
RS19G040140	19/01/2016	0.022	1.2	76.0	0.06	7.41	2.4	2.38
RS19G040140	16/02/2016	0.016	0.8	74.1	0.05	7.05	2.42	2.31
RS19G040140	08/03/2016	0.049	0.4	88.8	0.04	7.01	3.47	3.36
RS19G040140	19/04/2016	0.008	0.3	70.3	0.04	6.85	2.22	2.13
RS19G040140	10/05/2016	0.004	3.1	68.7	0.05	7.84	4.01	3.67
RS19G040140	28/06/2016	0.016	0.1	61.0	0.07	7.53	4.02	3.78
RS19G040140	26/07/2016	0.001	0.4	63.7	0.05	7.46	4.89	4.63
RS19G040140	24/08/2016	0.001	0.4	74.7	0.06	7.32	3.64	3.47
RS19G040140	11/10/2016	0.034	0.9	88.0	0.08	7.59	1.01	1
RS19G040140	15/11/2016	0.044	0.9	65.4	0.06	7.27	2.29	2.22
RS19G040190	19/01/2016	0.057	1.4	101.5	0.06	7.43	1.96	1.78
RS19G040190	16/02/2016	0.075	0.7	70.8	0.05	7.52	3.15	3.02
RS19G040190	08/03/2016	0.109	0.6	78.3	0.05	7.41	2.22	2.09
RS19G040190	19/04/2016	0.078	0.7	72.4	0.07	7.32	2.52	2.27
RS19G040190	10/05/2016	0.138	1.4	66.3	0.08	7.9	3.47	3
RS19G040190	28/06/2016	0.093	2.3	51.3	0.09	7.74	2.61	2.09
RS19G040190	26/07/2016	0.019	1.8	62.4	0.12	7.92	2.7	2.33
RS19G040190	24/08/2016	0.001	0.8	64.9	0.09	7.73	2.15	1.89
RS19G040190	11/10/2016	0.053	1.1	85.3	0.08	7.91	1.41	1.33
RS19G040190	15/11/2016	0.069	0.9	64.7	0.07	7.85	1.53	1.33
RS19G040300	19/01/2016	0.817	7.6	60.0	0.27	7.43	4.8	2.84
RS19G040300	16/02/2016	0.607	3.2	76.4	0.17	7.3	3.75	2.82
RS19G040300	08/03/2016	0.194	1.5	61.7	0.08	7.52	2.09	1.78
RS19G040300	19/04/2016	0.125	0.8	62.5	0.05	7.51	3.85	3.58
RS19G040300	10/05/2016	0.557	1.6	51.3	0.08	7.61	3.09	2.24
RS19G040300	28/06/2016	0.513	7.3	28.5	0.10	7.56	3.18	1.69
RS19G040300	26/07/2016	0.756	1.7	20.0	0.15	7.38	3.19	2.11

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
RS19G040300	24/08/2016	1.019	1.5	25.7	0.20	7.3	4.06	3.44
RS19G040300	11/10/2016	1.322	1.9	48.5	0.18	7.39	3.55	2.22
RS19G040300	15/11/2016	1.252	2.2	25.7	0.14	7.41	2.01	0.67
RS19G040490	19/01/2016	0.197	1.8	50.9	0.09	7.48	3.25	2.82
RS19G040490	16/02/2016	0.342	2.0	64.3	0.10	7.46	3	2.47
RS19G040490	08/03/2016	0.218	1.7	57.6	0.08	7.58	1.78	1.44
RS19G040490	19/04/2016	0.154	1.1	51.1	0.07	7.48	2.85	2.49
RS19G040490	10/05/2016	0.378	1.6	44.6	0.08	7.76	3	2.16
RS19G040490	28/06/2016	0.622	10.0	20.1	0.17	7.48	3.65	1.47
RS19G040490	26/07/2016	0.660	3.5	27.2	0.18	7.51	2.82	1.84
RS19G040490	24/08/2016	0.801	1.4	25.8	0.19	7.37	3.17	2.13
RS19G040490	11/10/2016	0.856	2.7	47.6	0.12	7.44	2.61	1.56
RS19G040490	15/11/2016	0.894	2.5	27.9	0.21	7.49	1.77	0.89
RS19G040700	19/01/2016	0.195	2	52.8	0.08	7.57	2.39	1.98
RS19G040700	16/02/2016	0.342	2.3	57.3	0.11	7.57	2.85	2.24
RS19G040700	08/03/2016	0.194	1.4	64.2	0.08	7.66	3.2	2.89
RS19G040700	19/04/2016	0.103	0.9	56.8	0.06	7.56	2.59	2.27
RS19G040700	10/05/2016	0.315	2.2	65.9	0.08	7.76	3.18	2.49
RS19G040700	28/06/2016	0.404	13.2	10.6	0.61	7.66	4.24	1.22
RS19G040700	26/07/2016	0.386	2.7	42.8	0.20	7.7	2.72	2
RS19G040700	24/08/2016	0.624	2.0	43.8	0.17	7.55	2.15	1.31
RS19G040700	11/10/2016	0.669	3.9	66.7	0.16	7.58	2.99	2.11
RS19G040700	15/11/2016	2.676	8.8	30.7	0.41	7.56	3.92	0.22
RS19G090400	12/01/2016	0.075	1.1	78.4	0.09	7.49	0.41	0.22
RS19G090400	09/02/2016	0.086	1.3	77.4	0.10	7.53	2.05	1.56
RS19G090400	01/03/2016	0.070	1.0	96.9	0.10	7.37	3.02	2.67
RS19G090400	05/04/2016	0.140	1.8	81.1	0.10	8.22	3.69	3.18
RS19G090400	04/05/2016	0.047	1.0	71.5	0.10	7.68	3.05	2.67
RS19G090400	01/06/2016	0.148	1.4	65.1	0.12	7.7	2.81	2.24
RS19G090400	05/07/2016	0.202	1.7	66.5	0.17	7.79	2.91	2.4
RS19G090400	10/08/2016	0.187	2.4	58.6	0.24	7.77	2.15	1.6
RS19G090400	01/09/2016	0.086	1.8	62.3	0.21	7.65	1.67	1.33
RS19G090400	04/10/2016	0.070	11.0	65.9	0.13	7.65	2.22	1.89
RS19G090800	12/01/2016	0.062	1.0	81.4	0.10	7.43	0.65	0.44
RS19G090800	09/02/2016	0.054	1.0	82.7	0.11	7.51	2.62	2.11
RS19G090800	01/03/2016	0.062	1.0	106.5	0.09	7.32	3.22	2.82
RS19G090800	05/04/2016	0.047	1.3	74.8	0.09	8.33	3.18	2.69
RS19G090800	04/05/2016	0.039	1.0	76.0	0.10	7.69	3.02	2.67
RS19G090800	01/06/2016	0.117	1.4	68.3	0.12	7.57	3.85	3.27
RS19G090800	05/07/2016	0.156	1.8	71.3	0.17	7.93	2.89	2.44
RS19G090800	10/08/2016	0.039	2.3	68.1	0.22	7.77	2.24	1.89
RS19G090800	01/09/2016	0.039	1.0	66.1	0.18	7.66	1.44	1.11
RS19G090800	04/10/2016	0.031	1.0	62.7	0.14	7.42	1.24	1
RS19G880990	12/01/2016	0.061	1	85.4	0.06	7.6	2.47	2.09
RS19G880990	09/02/2016	0.078	1	83.2	0.08	7.62	3.71	3.11
RS19G880990	01/03/2016	0.062	1	87.5	0.07	7.55	2.51	2.09
RS19G880990	05/04/2016	0.016	1.3	74.8	0.08	8.37	2.62	2.22
RS19G880990	04/05/2016	0.008	1.3	79.6	0.06	7.81	4.86	4.56
RS19G880990	01/06/2016	0.016	1.1	81.0	0.08	7.99	4.72	4.22
RS19G880990	05/07/2016	0.004	1	73.7	0.11	7.95	3.27	2.89
RS19G880990	10/08/2016	0.004	1.3	80.1	0.11	8.03	2.71	2.33
RS19G880990	01/09/2016	0.023	1	68.6	0.14	7.84	2.7	2.44
RS19G880990	04/10/2016	0.008	2.3	73.8	0.14	7.82	2.48	2.11
RS19K750900	12/01/2016	0.057	1.4	88.0	0.08	6.98	1.89	1.56
RS19K750900	09/02/2016	0.047	3.3	83.0	0.10	6.97	3.67	3.24
RS19K750900	01/03/2016	0.047	1.4	103.8	0.07	6.8	2.68	2.2
RS19K750900	05/04/2016	0.031	7.3	73.8	0.09	8.31	3.85	3.33
RS19K750900	04/05/2016	0.070	24	65.7	0.14	6.94	4.53	3.78
RS19K750900	01/06/2016	0.187	17.7	50.9	0.05	7.15	4.77	3.13
RS19K750900	05/07/2016	0.856	115	34.4	0.36	7.18	4.53	0.96
RS19K750900	10/08/2016	2.022	43.3	32.9	0.22	6.99	6.66	2.98
RS19K750900	01/09/2016	0.739	4.4	30.2	0.37	6.79	3.23	2.11
RS19K750900	04/10/2016	0.008	1.8	53.1	0.15	6.89	1.68	1.33
RS19T050890	19/01/2016	1.944	10.1	76.8	0.23	7.79	6.23	3.27
RS19T050890	16/02/2016	0.037	0.6	77.0	0.05	7.7	3.32	3.13
RS19T050890	08/03/2016	0.059	0.4	85.0	0.04	7.61	3.09	2.93
RS19T050890	19/04/2016	0.008	0.4	78.4	0.04	7.57	2.39	2.22
RS19T050890	10/05/2016	0.001	0.9	70.1	0.06	7.91	3.45	3
RS19T050890	28/06/2016	0.194	5.9	68.6	0.09	8	3.66	2.98
RS19T050890	26/07/2016	0.001	0.8	62.0	0.07	8.17	3.6	3.2
RS19T050890	24/08/2016	0.001	1.1	79.2	0.09	8	1.52	1.22
RS19T050890	11/10/2016	0.043	0.9	92.4	0.05	8.14	1.96	1.78
RS19T050890	15/11/2016	0.054	0.8	70.8	0.05	8.04	1.04	0.89
TW04003159LE2005	01/02/2021	0.073	0.5	66.7	0.03	7.6	2.2	2.27
TW04003159LE2005	01/02/2021	0.176	0.5	59.5	0.04	7.8	1.6	1.37
TW04003159LE2005	01/02/2021	0.098	0.5	66.0	0.04	8	1	0.64

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW04003159LE2005	01/02/2021	0.055	0.5	66.5	0.03	7.6	2.1	1.92
TW04003159LE2005	01/02/2021	0.146	0.5	66.4	0.04	7.9	1.4	0.78
TW04003159LE2005	01/02/2021	0.143	0.5	73.9	0.04	8	1.1	0.73
TW04003159LE2005	18/03/2021	0.173	0.5	78.6	0.03	7.8	2.8	2.45
TW04003159LE2005	18/03/2021	0.137	0.5	70.8	0.03	8	1.2	0.71
TW04003159LE2005	18/03/2021	0.087	0.5	85.0	0.03	8.1	1.1	0.54
TW04003159LE2005	18/03/2021	0.128	0.5	73.9	0.03	8	1.9	1.82
TW04003159LE2005	18/03/2021	0.118	0.5	76.0	0.03	8.1	1.2	0.59
TW04003159LE2005	18/03/2021	0.114	0.5	86.1	0.03	8.1	1.2	0.59
TW04003159LE2005	29/04/2021	0.097	2.4	83.8	0.01	8.4	1.7	0.49
TW04003159LE2005	29/04/2021	0.12	3.2	76.0	0.01	8.4	1	0.34
TW04003159LE2005	29/04/2021	0.11	2.9	69.4	0.01	8.5	1	0.41
TW04003159LE2005	29/04/2021	0.053	1.8	81.3	0.01	8.3	2.1	1.35
TW04003159LE2005	29/04/2021	0.063	2.7	78.4	0.01	8.5	0.9	0.31
TW04003159LE2005	29/04/2021	0.0175	2.4	95.7	0.01	8.5	0.8	0.23
TW04003159LE2005	17/05/2021	0.139	1.8	84.6	0.01	8.2	1.4	1.28
TW04003159LE2005	17/05/2021	0.136	1.7	67.8	0.01	8.2	0.9	0.22
TW04003159LE2005	17/05/2021	0.154	2.1	79.6	0.01	8.2	0.9	0.18
TW04003159LE2005	17/05/2021	0.101	2	71.5	0.01	8.3	0.9	0.58
TW04003159LE2005	17/05/2021	0.129	2	67.5	0.01	8.2	1.1	0.25
TW04003159LE2005	17/05/2021	0.104	2.1	85.3	0.01	8.2	0.8	0.16
TW04003159LE2005	14/06/2021	0.071	1.5	76.7	0.01	8	1.7	1.25
TW04003159LE2005	14/06/2021	0.097	2.6	74.2	0.07	8.1	1	0.39
TW04003159LE2005	14/06/2021	0.145	2	84.3	0.01	8.1	1	0.33
TW04003159LE2005	14/06/2021	0.083	1.6	76.6	0.01	8	1.7	1.35
TW04003159LE2005	14/06/2021	0.142	2	70.6	0.03	8.2	1	0.32
TW04003159LE2005	14/06/2021	0.14	2	84.4	0.01	8.1	1.1	0.37
TW04003159LE2005	13/07/2021	0.15	1.6	87.1	0.02	8.2	1.3	1.04
TW04003159LE2005	13/07/2021	0.152	2.6	86.5	0.01	8.2	0.9	0.2
TW04003159LE2005	13/07/2021	0.147	1.7	86.0	0.01	8.2	1	0.17
TW04003159LE2005	13/07/2021	0.107	2.2	70.4	0.01	8.3	1.2	0.47
TW04003159LE2005	13/07/2021	0.121	2.7	71.1	0.08	8.3	0.9	0.17
TW04003159LE2005	13/07/2021	0.149	2.4	82.6	0.01	8.3	0.9	0.16
TW04003159LE2005	25/08/2021	0.037	4.2	82.4	0.01	8.3	1	0.68
TW04003159LE2005	25/08/2021	0.11	3.8	73.7	0.01	8.3	0.7	0.18
TW04003159LE2005	25/08/2021	0.042	1.4	72.1	0.01	8.1	0.6	0.24
TW04003159LE2005	25/08/2021	0.066	3.6	70.8	0.02	8.4	0.8	1.12
TW04003159LE2005	25/08/2021	0.05	3.2	67.3	0.01	8.3	0.6	0.18
TW04003159LE2005	25/08/2021	0.079	2.9	80.6	0.01	8.3	0.6	0.16
TW04003159LE2005	16/09/2021	0.063	1.4	78.0	0.03	8	1.3	1.19
TW04003159LE2005	16/09/2021	0.084	3.3	80.0	0.02	8.3	0.6	0.16
TW04003159LE2005	16/09/2021	0.096	2.5	92.1	0.02	8.2	0.6	0.13
TW04003159LE2005	16/09/2021	0.0175	5.6	69.3	0.01	8.4	0.8	0.57
TW04003159LE2005	16/09/2021	0.062	2.3	83.3	0.01	8.2	0.6	0.16
TW04003159LE2005	16/09/2021	0.082	2.6	84.2	0.01	8.2	0.6	0.13
TW04003159LE2005	09/11/2021	0.084	0.5	70.3	0.04	7.7	2.7	2.08
TW04003159LE2005	09/11/2021	0.123	0.5	67.6	0.04	7.8	1.2	1.03
TW04003159LE2005	09/11/2021	0.158	0.5	79.3	0.03	7.9	1.1	0.81
TW04003159LE2005	09/11/2021	0.111	0.5	70.2	0.03	7.8	1.8	1.55
TW04003159LE2005	09/11/2021	0.142	0.5	74.2	0.03	7.9	1.1	0.78
TW04003159LE2005	09/11/2021	0.123	0.5	82.8	0.03	7.9	1.1	0.66
TW04003159LE2005	01/12/2021	0.188	0.5	78.2	0.01	7.9	1.8	1.7
TW04003159LE2005	01/12/2021	0.259	0.5	72.2	0.01	8	1	0.63
TW04003159LE2005	01/12/2021	0.255	0.5	79.9	0.01	7.9	0.9	0.47
TW04003159LE2005	01/12/2021	0.241	0.5	70.7	0.01	8	1.4	1.05
TW04003159LE2005	01/12/2021	0.266	1.4	72.9	0.01	8	1.2	0.71
TW04003159LE2005	01/12/2021	0.262	0.5	82.4	0.01	7.9	1.1	0.56
TW04003159LE2006	01/02/2021	0.07	0.5	62.8	0.03	7.7	2.3	2.33
TW04003159LE2006	01/02/2021	0.26	0.5	66.1	0.06	7.9	1.4	0.84
TW04003159LE2006	01/02/2021	0.077	0.5	68.2	0.03	7.7	2.5	2.29
TW04003159LE2006	01/02/2021	0.28	0.5	75.2	0.06	7.9	1.4	0.75
TW04003159LE2006	18/03/2021	0.149	0.5	77.4	0.03	7.9	3	2.79
TW04003159LE2006	18/03/2021	0.153	0.5	75.0	0.03	8	1.4	0.65
TW04003159LE2006	18/03/2021	0.114	0.5	90.4	0.03	7.9	3	3.03
TW04003159LE2006	18/03/2021	0.169	0.5	88.4	0.03	8.1	1.3	0.64
TW04003159LE2006	29/04/2021	0.137	1.2	83.2	0.01	8.2	2.2	1.86
TW04003159LE2006	29/04/2021	0.131	4.1	77.6	0.01	8.5	1.1	0.35
TW04003159LE2006	29/04/2021	0.05	0.5	94.3	0.01	8.1	2.7	2.08
TW04003159LE2006	29/04/2021	0.069	3.1	94.8	0.01	8.5	0.9	0.4
TW04003159LE2006	17/05/2021	0.121	0.5	79.6	0.01	7.9	1.9	1.1
TW04003159LE2006	17/05/2021	0.176	1.3	82.0	0.01	8.2	1	0.24
TW04003159LE2006	17/05/2021	0.105	0.5	66.6	0.01	7.8	2.1	1.64
TW04003159LE2006	17/05/2021	0.142	2.3	81.4	0.01	8.2	0.9	0.31
TW04003159LE2006	14/06/2021	0.081	1.4	69.6	0.01	7.9	1.9	1.47
TW04003159LE2006	14/06/2021	0.2	2.2	71.0	0.01	8	1.1	0.43
TW04003159LE2006	14/06/2021	0.091	1.1	66.6	0.01	7.8	2	1.48

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW04003159LE2006	14/06/2021	0.173	1.4	74.1	0.01	8.1	1.1	0.42
TW04003159LE2006	13/07/2021	0.178	1.3	70.1	0.03	8	1.7	0.96
TW04003159LE2006	13/07/2021	0.201	2	65.2	0.05	8.1	1	0.17
TW04003159LE2006	13/07/2021	0.14	1.1	89.4	0.03	7.9	2	1.81
TW04003159LE2006	13/07/2021	0.168	3.6	85.0	0.01	8.3	0.7	0.15
TW04003159LE2006	25/08/2021	0.061	1	75.6	0.02	7.9	1.4	1.38
TW04003159LE2006	25/08/2021	0.148	1.6	71.2	0.02	8	0.7	0.19
TW04003159LE2006	25/08/2021	0.056	1.7	67.0	0.02	8.1	1.2	1.36
TW04003159LE2006	25/08/2021	0.121	2.7	75.5	0.01	8.2	0.6	0.17
TW04003159LE2006	16/09/2021	0.074	1.1	77.2	0.03	7.9	1.2	1.28
TW04003159LE2006	16/09/2021	0.134	1.6	82.3	0.02	8.2	0.6	0.13
TW04003159LE2006	16/09/2021	0.065	1.8	74.5	0.03	7.9	1.5	1.24
TW04003159LE2006	16/09/2021	0.142	2	84.1	0.02	8.1	0.6	0.14
TW04003159LE2006	09/11/2021	0.064	0.5	69.7	0.04	7.7	3.2	2.7
TW04003159LE2006	09/11/2021	0.153	0.5	72.4	0.04	7.8	1.1	0.67
TW04003159LE2006	09/11/2021	0.06	0.5	70.6	0.03	7.7	2.8	2.76
TW04003159LE2006	09/11/2021	0.13	0.5	80.4	0.03	7.8	1.1	0.64
TW04003159LE2006	01/12/2021	0.16	0.5	78.4	0.01	7.8	2	2.02
TW04003159LE2006	01/12/2021	0.268	0.5	71.5	0.01	7.9	1	0.41
TW04003159LE2006	01/12/2021	0.19	0.5	72.6	0.01	7.9	2	1.66
TW04003159LE2006	01/12/2021	0.248	0.5	77.8	0.01	8	1.3	0.51
TW05003157LE4005	01/02/2021	0.102	0.5	61.9	0.04	7.8	2	1.96
TW05003157LE4005	01/02/2021	0.118	0.5	64.3	0.04	7.9	1.6	1.33
TW05003157LE4005	01/02/2021	0.117	0.5	74.7	0.04	7.9	1.4	1.04
TW05003157LE4005	01/02/2021	0.115	0.5	65.0	0.04	8	1.5	1.31
TW05003157LE4005	01/02/2021	0.072	0.5	68.1	0.03	8	1	0.62
TW05003157LE4005	01/02/2021	0.044	0.5	74.5	0.03	8	0.9	0.5
TW05003157LE4005	18/03/2021	0.102	0.5	76.2	0.03	8.1	1.5	1.19
TW05003157LE4005	18/03/2021	0.097	0.5	74.6	0.03	8.1	1.5	0.9
TW05003157LE4005	18/03/2021	0.101	0.5	71.5	0.03	8.1	1.3	0.74
TW05003157LE4005	18/03/2021	0.076	0.5	76.0	0.03	8.1	1.2	0.88
TW05003157LE4005	18/03/2021	0.075	0.5	81.0	0.02	8.1	0.9	0.44
TW05003157LE4005	18/03/2021	0.0175	0.5	89.2	0.02	8.1	0.7	0.34
TW05003157LE4005	29/04/2021	0.082	2	79.2	0.01	8.5	0.9	0.38
TW05003157LE4005	29/04/2021	0.097	2.2	76.9	0.01	8.5	0.9	0.34
TW05003157LE4005	29/04/2021	0.125	2.1	75.2	0.01	8.4	0.9	0.28
TW05003157LE4005	29/04/2021	0.0175	2.2	84.4	0.01	8.5	0.7	0.27
TW05003157LE4005	29/04/2021	0.0175	1.8	84.9	0.01	8.5	0.6	0.1
TW05003157LE4005	29/04/2021	0.0175	1.9	92.5	0.01	8.5	0.6	0.08
TW05003157LE4005	17/05/2021	0.136	2.7	76.6	0.01	8.3	1	0.42
TW05003157LE4005	17/05/2021	0.152	2.9	73.4	0.02	8.3	0.9	0.35
TW05003157LE4005	17/05/2021	0.137	2.6	82.7	0.01	8.3	0.9	0.21
TW05003157LE4005	17/05/2021	0.082	1.4	76.4	0.05	8.3	0.8	0.38
TW05003157LE4005	17/05/2021	0.065	1.2	76.7	0.01	8.2	0.7	0.04
TW05003157LE4005	17/05/2021	0.102	1.2	86.2	0.01	8.2	0.6	0.04
TW05003157LE4005	14/06/2021	0.035	2.6	92.5	0.01	8.4	1.1	0.66
TW05003157LE4005	14/06/2021	0.061	2.9	77.9	0.01	8.2	1.1	0.39
TW05003157LE4005	14/06/2021	0.073	2.5	86.0	0.01	8.2	1	0.35
TW05003157LE4005	14/06/2021	0.05	2.4	76.3	0.01	8.3	0.8	0.45
TW05003157LE4005	14/06/2021	0.047	2.2	73.3	0.01	8.2	0.8	0.18
TW05003157LE4005	14/06/2021	0.044	1.8	86.9	0.01	8.2	1	0.1
TW05003157LE4005	13/07/2021	0.101	0.5	73.9	0.01	8.3	0.8	0.29
TW05003157LE4005	13/07/2021	0.126	2.2	68.2	0.01	8.2	0.8	0.19
TW05003157LE4005	13/07/2021	0.105	2.2	91.6	0.01	8.2	0.8	0.18
TW05003157LE4005	13/07/2021	0.101	2.7	71.3	0.01	8.3	0.7	0.11
TW05003157LE4005	13/07/2021	0.103	2	67.0	0.01	8.3	0.6	0.07
TW05003157LE4005	13/07/2021	0.086	1.8	91.1	0.02	8.3	0.6	0.05
TW05003157LE4005	25/08/2021	0.04	1.9	77.2	0.01	8.3	0.6	0.26
TW05003157LE4005	25/08/2021	0.044	2.3	71.2	0.01	8.2	0.6	0.19
TW05003157LE4005	25/08/2021	0.055	2.1	70.3	0.01	8.2	0.7	0.14
TW05003157LE4005	25/08/2021	0.046	2.7	68.9	0.01	8.3	0.25	0.11
TW05003157LE4005	25/08/2021	0.039	2	69.0	0.01	8.2	0.25	0.06
TW05003157LE4005	25/08/2021	0.369	1.9	78.1	0.01	8.2	0.25	0.05
TW05003157LE4005	16/09/2021	0.0175	6	81.6	0.01	8.4	0.7	0.36
TW05003157LE4005	16/09/2021	0.047	5.5	85.1	0.01	8.5	0.7	0.2
TW05003157LE4005	16/09/2021	0.074	4.8	93.3	0.01	8.4	0.6	0.14
TW05003157LE4005	16/09/2021	0.0175	2.6	96.9	0.01	8.3	0.5	0.16
TW05003157LE4005	16/09/2021	0.069	2	84.7	0.01	8.2	0.25	0.14
TW05003157LE4005	16/09/2021	0.0175	2.1	86.1	0.01	8.2	0.25	0.11
TW05003157LE4005	09/11/2021	0.118	0.5	73.0	0.03	7.8	1.6	1.34
TW05003157LE4005	09/11/2021	0.13	0.5	69.4	0.03	7.9	1.3	0.9
TW05003157LE4005	09/11/2021	0.126	1.7	86.6	0.03	7.9	1.3	0.75
TW05003157LE4005	09/11/2021	0.1	0.5	73.3	0.03	7.9	1.2	0.77
TW05003157LE4005	09/11/2021	0.056	0.5	72.5	0.03	7.9	0.9	0.5
TW05003157LE4005	09/11/2021	0.041	0.5	70.1	0.03	7.9	0.9	0.42
TW05003157LE4005	01/12/2021	0.28	1.4	77.3	0.01	7.9	1.2	0.8

Monitoring point	Date	Ammonia-Total (as N)	BOD - 5 days (Total)	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Total Nitrogen	Total Oxidised Nitrogen (as N)
TW05003157LE4005	01/12/2021	0.28	0.5	75.7	0.01	7.9	1.1	0.72
TW05003157LE4005	01/12/2021	0.24	0.5	82.3	0.01	8	1.1	0.66
TW05003157LE4005	01/12/2021	0.223	0.5	78.5	0.01	8	1	0.54
TW05003157LE4005	01/12/2021	0.205	0.5	87.2	0.01	8	0.9	0.49
TW05003157LE4005	01/12/2021	0.172	0.5	87.4	0.01	8	0.9	0.4