Annual Environmental Report

2019

Ennis North

D0048-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0048-01, Ennis North, in Clare 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 was no major capital works or operational changes undertaken

1.2 TREATMENT SUMMARY

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

- ENNIS NORTH WWTP with a Plant Capacity PE of 31500, 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
TPEFF0300D0048SW001	ENNIS NORTH WWTP	Treated	Non-Compliant	BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 ENNIS NORTH WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - ENNIS NORTH 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 Phosphorus (as P) mg/l	12	9.05	3.45
COD-Cr mg/l	12	342	143.05
Total Nitrogen mg/l	12	53	19.73
Suspended Solids mg/l	12	227	69.83
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	144.6	53.19
Hydraulic Capacity	N/A	20495	13132

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’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0300D0048SW001

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	12	N/A	N/A	20.54	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	9.5	Pass
Temperature °C	25	N/A	N/A	12	N/A	N/A	6.58	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	10	20	N/A	12	1	1	5.8	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.65	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	12	N/A	N/A	0.42	Pass
Ammonia-Total (as N) mg/l	1	1.2	N/A	12	N/A	N/A	0.14	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	N/A	12	N/A	N/A	0.3	Pass
Conductivity @25°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	620.55	

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	10.02	
Dissolved Inorganic Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	14.9	

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

Cause of Exceedance(s):

No mechanical failures were noted on-site on the day and a follow up grab sample taken on the 6/11/19 demonstrates that the plant is back in compliance, result: <2mg/l. Upon investigation, the only change in operations is the increasing of flows through the plant during October, which may have had an impact on the cBOD levels. This increase was carried out in line with the on-going optimisation following the upgrade of the aeration system and clarifier.

Significance of Results:

The WWTP is not compliant with the ELVs set in the WWTP. Follow up samples for cBOD have indicated that this was a once off incident.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0300D0048SW001

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 Status
Upstream	134820, 177944	RS27F010710	No	No	No	No	Poor
Downstream	134888, 176818	RS27F010720	No	No	No	No	Poor

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 WWTP discharge was not 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 - ENNIS NORTH WWTP

2.1.4.1 Treatment Efficiency Report - ENNIS NORTH 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)
COD	711707	74597	90
SS	347399	34500	90

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	264637	21046	92
TP	17174	1539	91
TN	98139	36392	63

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

2.1.4.2 Treatment Capacity Report Summary - ENNIS NORTH 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.

ENNIS NORTH WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	16272
DWF to the Treatment Plant (m^3/day)	6784
Current Hydraulic Loading - annual max (m^3/day)	20495
Average Hydraulic loading to the Treatment Plant (m^3/day)	13132
Organic Capacity (PE) - As Constructed	31500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	23980
Organic Capacity (PE) - Remaining	7520
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 - ENNIS NORTH 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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
95	Blocked Sewer	0	95

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)
Breach of ELV	WWTP biological sludge issue	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment maintenance at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Abatement Equipment offline	Plant or equipment maintenance at WWTP	1	No	Yes
Breach of ELV	Other	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	5
Number of Incidents reported to the EPA via EDEN in 2019	5
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	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW4	134675, 178004	Yes	Unknown	Meeting	Unknown	Unknown	Not Monitored
SW3	134355, 177744	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	134439, 180542	No	Unknown	Not Meeting	Unknown	Unknown	Monitored
TBC	134855, 177389	No	High	Not Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Unknown
TBC	134859, 177469	No	High	Not Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
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 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
D0048-SIP:02	Clonroadmore WWTP rehabilitation of the storm/balance tanks	C	31/12/2010	Yes	Works Completed		
D0048-SIP:03	Clonroadmore WWTP upgrade of the inlet works	C	31/12/2010	Yes	Works Completed		

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
D0048-SIP:06	collection systems: rehabilitation of sewers with high levels of infiltration.	C	31/12/2010	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
D0048-SIP:08	collection systems: upgrade of satellite pump station overflows	C	31/12/2010	Yes	Not Started		SWO Assessment Programme to assess performance against DoECLG criteri
D0048-SIP:11	Tulla road and Francis st pump stations: repair of grit traps	C	31/12/2010	Yes	Works Completed		
D0048-SIP:01	Clonroadmore WWTP installation of tertiary treatment system.	C	31/12/2010	Yes	Works Completed		
D0048-SIP:04	Clonroadmore WWTP upgrade of the sludge handling facilities	C	31/12/2010	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
D0048-SIP:05	Clonroadmore WWTP upgrade of the treatment	C	31/12/2010	Yes	Works Completed		

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
	capacity of the current aerator and clarifier tanks to cater for the existing and the short term increase in wastewater loading						
D0048-SIP:07	collection systems: separation of known surface water connections from the main combined sewer where feasible.	C	31/12/2010	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
D0048-SIP:09	Secondary discharge from SW2 to be upgraded to a SWO, as defined in DoEHLG 'Procedures & criteria in relation to SWOs'	A	01/01/2011	Yes	Works Completed		
D0048-SIP:10	Tulla road and Francis st pump stations: diversion of surface water away from pump stations	C	31/12/2010	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
D0048-SIP:12	Tulla road and Francis st pump stations: replacement	C	31/12/2010	Yes	Not Started		SWO Assessment Programme to assess

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
	of pumps and improving the pump controls						performance against DoECLG criteri
D0048-SIP:13	Tulla road and Francis st pump stations: upgrade of the combined sewer overflow regime at the pump stations	C	31/12/2010	Yes	Not Started		SWO Assessment Programme to assess performance against DoECLG criteri

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvements Programme for this Agglomeration.				

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 Table.

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 list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
There is no Licence Specific Report Required in this AER Annual Review.				

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?	Yes
List reason e.g. additional SWO identified	pH range clerical error
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	Change to Ambient monitoring locations: Upstream & Downstream
Have these processes commenced?	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

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

Signed: Date: 23/04/2020

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

Appendix
Appendix 7.1 - Ambient monitoring summary

D0048-01 Ennis North
SW3 Club Bridge

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)				Current WFD Status	Mean (mg/l)		
			Bathing Water	Drinking Water	FWPM	Shellfish		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	133906, 177700	RS27F010680					Poor	2.000	0.025	0.093
Downstream Monitoring Point	134888, 176809	RS27F010720	No	No	No	No	Poor	2.050	0.019	0.048
Difference								0.050	-0.006	-0.045
EQS								1.500	0.035	0.065
% of EQS								3.333%	-17.143%	-69.231%

D0048-01 Ennis North
SW01 Clonroad Bridge

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)				Current WFD Status	Mean (mg/l)		
			Bathing Water	Drinking Water	FWPM	Shellfish		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	134520, 177880	RS27F010700					Poor	2.600	0.027	0.046
Downstream Monitoring Point	134888, 176809	RS27F010720	No	No	No	No	Poor	2.050	0.019	0.048
Difference								-0.550	-0.008	0.002
EQS								1.500	0.035	0.065
% of EQS								-36.667%	-22.857%	3.077%

Ennis North Ambient 2019

Club Bridge (U/S Francis St)

aSW3u

Parameter	Ammonia N	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Total Nitrogen N	Biological Oxygen Demand	Ortho-Phosphate P	pH	Total Phosphorus P	Suspended Solids	Visual Inspection
Max.	--	120	--	--	--	--	--	9	--	--	--
Min.	--	80	--	--	--	--	--	6	--	--	--
Station	Laboratory	Station Reference	Sample Reference	Sample Date	Comments	Analyst Conclusion	mg/l	% O2	mg/l	Degrees C	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	Descriptive
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-0089	16-Jan-2019	-	-	0.081	88.9	10.29	8.6	1.4	< 2	0.027	7.85	< 0.12		Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-0244	13-Feb-2019	-	-	< 0.02	95.1	11.16	8.8	1.5	< 2	< 0.01	7.96	< 0.12	2.4	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-0452	13-Mar-2019	-	-	0.047	97.1	11.23	9.2	1.3	< 2	< 0.01	8.14	< 0.12		Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-0710	10-Apr-2019	-	-	0.029	91.2	10.17	11	1	< 2	< 0.01	8.07	< 0.12	2.8	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-0915	15-May-2019	-	-	0.044	95.1	9.87	14.2	0.7	< 2	0.01	8.34	< 0.12	< 2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-1199	26-June-2019	-	-	0.524	108.8	10.42	18.4	0.6	< 2	0.028	8.16	< 0.12	2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-1337	24-July-2019	-	-	0.054	95.1	8.72	19.2	0.9	< 2	0.022	8.09	< 0.12	3.2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-1541	21-Aug-2019	-	-	0.045	84.7	8.47	15.9	0.8	< 2	0.022	7.9	< 0.12	< 2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-1800	18-Sep-2019	-	-	0.07	***77.7***	8.02	15	0.6	< 2	0.032	7.97	< 0.12	< 2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-1991	16-Oct-2019	-	-	0.04	***79.9***	8.58	11.5	0.7	< 2	0.016	7.81	< 0.12	< 2	Clear
Club Bridge (U/S Francis St Pump St.)	Clare Co Co New Rd	RS27F010680	19-2190	13-Nov-2019	-	-	0.072	84.7	10.09	7	1	< 2	0.093	8.04	< 0.12	< 2	Clear

Br Near Clonroad House

aSW1u & aSW3d

Parameter	Ammonia N	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Total Nitrogen N	Biological Oxygen Demand	Ortho-Phosphate P	pH	Total Phosphorus P	Suspended Solids	Visual Inspection
Max.	--	120	--	--	--	--	--	9	--	--	--
Min.	--	80	--	--	--	--	--	6	--	--	--
Station	Laboratory	Station Reference	Sample Reference	Sample Date	Comments	Analyst Conclusion	mg/l	% O2	mg/l	Degrees C	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	Descriptive
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-0092	16-Jan-2019	-	-	0.024	84.9	9.84	8.6	1.2	< 2	0.02	7.88	< 0.12		Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-0247	13-Feb-2019	-	-	< 0.02	94.2	11.11	8.6	1.4	< 2	< 0.01	7.99	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-0453	13-Mar-2019	-	-	< 0.02	98.2	11.4	9	1.2	< 2	< 0.01	8.17	< 0.12		Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-0701	10-Apr-2019	-	-	0.102	92.9	10.49	10.5	0.7	< 2	0.017	8.09	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-0916	15-May-2019	-	-	0.029	105.5	10.73	15.1	0.7	< 2		8.34	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-1200	26-June-2019	-	-	0.06	109.6	8.5	18.4	< 0.2	< 2	< 0.01	8.19	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-1336	24-July-2019	-	-	0.099	89.9	8.27	19	0.5	< 2	0.065	8.06	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-1542	21-Aug-2019	-	-	0.034	85.4	8.49	16.1	0.8	< 2	0.011	7.92	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-1801	18-Sep-2019	-	-	0.049	81.5	8.4	14.9	0.6	< 2	0.102	7.96	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-1992	16-Oct-2019	-	-	0.036	82.1	8.75	11.9	0.7	8.4	0.015	7.81	< 0.12	< 2	Clear
Bridge Near Clonroad House - 0700	Clare Co Co New Rd	RS27F010700	19-2191	13-Nov-2019	-	-	0.036	84.6	10.06	7.1	0.9	< 2	0.014	8.07	< 0.12	< 2	Clear

Br. S.W. Of Doora

aSW1d

Parameter	Ammonia N	Dissolved Oxygen % Saturation	Dissolved Oxygen	Temperature	Total Nitrogen N	Biological Oxygen Demand	Ortho-Phosphate P	pH	Total Phosphorus P	Suspended Solids	Visual Inspection
Max.	--	120	--	--	--	--	--	9	--	--	--
Min.	--	80	--	--	--	--	--	6	--	--	--
Station	Laboratory	Station Reference	Sample Reference	Sample Date	Comments	Analyst Conclusion	mg/l	% O2	mg/l	Degrees C	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	Descriptive
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-0091	16-Jan-2019	-	-	0.05	87.2	10.07	8.7	1.3	< 2	0.026	7.88	< 0.12		Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-0246	13-Feb-2019	-	-	0.032	92.4	10.93	8.5	1.5	< 2	< 0.01	7.97	< 0.12	4	ok
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-0454	13-Mar-2019	-	-	0.052	96.5	11.07	9.4	1.1	< 2	< 0.01	8.14	< 0.12		Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-0702	10-Apr-2019	-	-	0.06	86.5	9.65	11	1.5	< 2	0.014	7.95	< 0.12	< 2	Surface particles
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-0917	15-May-2019	-	-	0.033	84.8	8.72	14.7	1	< 2	0.011	8.14	< 0.12	< 2	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-1201	26-June-2019	-	-	0.056	87.3	8.5	17.6	2.3	< 2	0.019	7.91	< 0.12	< 2	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-1338	24-July-2019	-	-	0.079	***71.2***	6.56	19	1.5	2.6	0.044	7.79	< 0.12	5.6	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-1543	21-Aug-2019	-	-	0.042	81.9	8.23	15.7	0.8	< 2	0.013	7.88	< 0.12	2.8	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-1802	18-Sep-2019	-	-	0.041	***73.3***	7.64	14.4	0.8	< 2	0.026	7.92	< 0.12	< 2	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-1993	16-Oct-2019	-	-	0.044	81.1	8.57	12.2	1.2	< 2	0.018	7.84	< 0.12	2	Clear
Bridge S.W. Of Doora -0720	Clare Co Co New Rd	RS27F010720	19-2192	13-Nov-2019	-	-	0.041	83.4	9.95	6.9	0.9	< 2	0.018	8.03	< 0.12	< 2	Clear