UISCE ÉIREANN : IRISH WATER

Annual Environmental Report 2015

Agglomeration Name:	**Ennis North**
Licence Register No.	**D0048-01**

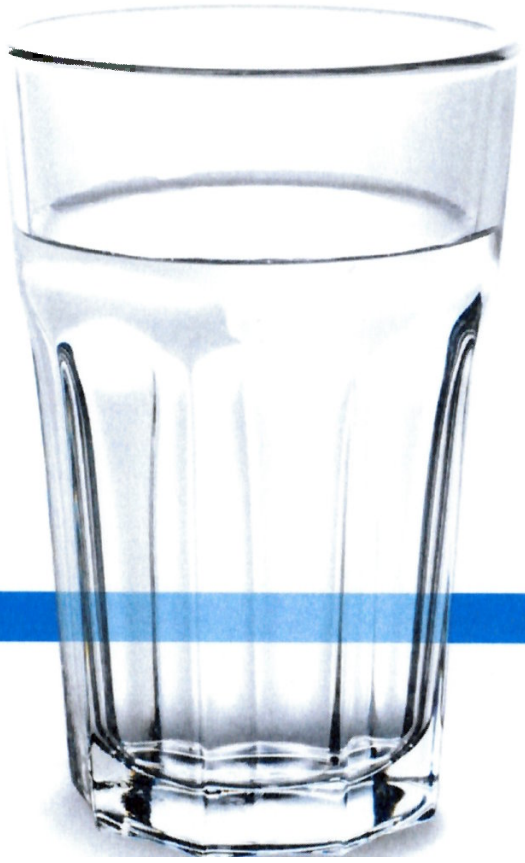

Table of Contents

Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary report on 2015

This Annual Environmental Report has been prepared for D0048-01, Ennis North, in County Clare in accordance with the requirements of the wastewater discharge licence for the agglomeration.

Specified reports are included as an appendix to the AER as follows:

- Habitats Impact Assessment Report

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 17,000. The treatment process includes the following:

- Preliminary treatment including screening and grit removal
- Primary treatment
- Secondary treatment – extended aeration activated sludge

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2015.

The following parameters exceeded the emission limit values in 2015:

- Orthophosphate
- Ammonia as N

308,600 Kgs (as 21.7% dry solids) were removed from the wastewater treatment plant as dewatered sludge cake. Sludge was transferred by Biocore Environmental to Ballivor, Co. Meath and Tulsk, Co. Roscommon, under contract between Biocore & IW/CCC.

The following capital improvement works was undertaken during 2015 with completion expected to be in Q2 of 2016:

- Rehabilitation & capacity increase of storm balance tanks,
- upgrade of inlet works
- Upgrade of treatment capacity of current aerator and clarifier tanks to cater for existing increase in wastewater loading
- Installation of tertiary treatment systems

An Annual Statement of Measures is included in **Appendix 7.1.**

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 - Influent Monitoring Summary

	BOD (mg/l)	COD (mg/l)	SS (mg/l)	TP (mg/l)	TN (mg/l)	Ammonia as N (mg/l)	pH	Hydraulic Loading (m3/d)	Organic Loading (PE/day)
Number of Samples	12	12	12	12	12	1	10		
Annual Max.	251	514	292	11	41	33	7.75	52,934	37,521
Annual Mean	85.0	241	103	4.5	22	33	N/A	13,011	17,394

Significance of results

The annual mean hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring Summary

	BOD (mg/l)[2]	COD (mg/l)[2]	TSS (mg/l)[2]	PO4 as P (mg/l)	NH3 as N (mg/l)	TN (mg/l)	TP (mg/l)	pH	Comment
WWDL ELV (*Schedule A*)	10	125	35	1	1	15	2	7-9	
ELV with Condition 2 Interpretation included	10	*250*	87.5	1.2	1.2	18	2.4	7-9	
Number of sample results	12	12	12	12	12	12	12	12	
Number of sample results above WWDL ELV/not achieving min % reduction [1,2]	**0**	**0**	**0**	**6**	**1**	**0**	**0**	**N/A**	
Number of sample results above ELV with Condition 2 Interpretation included	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**N/A**	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Fail	Pass	Pass	Pass	

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. There were 6 samples non-compliant with the ELV's in relation to Orthophosphate (5) and Ammonia as N (1). The non-compliance is due to treatment inefficiencies which are currently being addressed. However, it should be noted that 75.2% of the flow pumped from the pump stations to the WWTP discharges untreated via SW2. The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient monitoring summary

The discharge drains to the River Fergus Code SH_27_F01. For the reporting period 2015, monitoring of the receiving waters was carried out upstream and downstream of the discharge point SW1, and also upstream and downstream of SW3 (storm overflow from Francis Street Pumping Station). Access to the monitoring points listed in the licence has proven to be extremely hazardous as they are only accessible during low tide conditions. The monitoring points are subject to ongoing flooding hence they are not suitable as locations for regular monitoring. Alternative monitoring locations have been identified at the bridges upstream and downstream of the WWTP and Pump Station. The proposed monitoring locations are included in the Water Framework Directive (WFD) monitoring programme, which promotes effective use of resources within the Council. Clare County Council, on behalf of IW, is in correspondence with the Agency with regard to amending the ambient monitoring locations.

Table 2.3 - Ambient Monitoring Report Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation(Y/N)**				**WFD Status**	**Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**		
aSW1u & aSW3d Br near Clonroad House Code: SH_27_F01_0700	E134520 N177880		N	N	N	N	Poor	n/a
aSW1d Br SW of Doora Code: SH_27_F01_0720	E134888 N176809		N	N	N	N	Poor (River Status) Moderate (Transitional status)	Yes – for parameter NH3 (N)
aSW3u Club Bridge (upstream Francis St Pump Station) Code: SH_27_F01	E133876 N177677		N	N	N	N	Poor	No observable negative impact.

The results for the upstream and downstream monitoring used are included as in Appendix 7.2.

Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence for ammonia and ortho-P as detailed in Section 2.2.

- The discharge from the wastewater treatment plant may be contributing to the poor water quality status of the receiving waters.
- The discharge from the wastewater treatment plant may have a negative impact on the Water Framework Directive status (which is assigned Poor status for River Water body Status 2010-2012, and Moderate status for Transitional Water body Status 2010-2012).

2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive

The reporting requirement under the Urban Wastewater Directive is completed by electronic submission of data was completed in February 2016.

2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required this year as the agglomeration is less than 100,000 p.e. A PRTR will be due for completion in February 2017 for the 2016 reporting period.

Section 3 Operational Reports Summary

3.1 Treatment Efficiency Report

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

Table 3.1 - Treatment Efficiency Report Summary

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)	Comment
Influent mass loading (kg/year)	380,936	1,082,673	463,361	20,451	99,811	
Effluent mass emission (kg/year)	3,467	20,281	6,721	1,189	8,438	
% Efficiency (% reduction of influent load)	99%	98%	99%	94%	92%	

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	1,365,100
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	4,095,300
Hydraulic Capacity – Current loading (m3/year)	4,748,906
Hydraulic Capacity – Remaining (m3/year)	0
Organic Capacity - Design / As Constructed (PE)	17,000
Organic Capacity - Current loading (PE)	17,394
Organic Capacity – Remaining (PE)	0
Will the capacity be exceeded in the next three years? (Yes/ No)	Yes

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and treated in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended):

Table 3.3 - Extent of Agglomeration Summary Report

	% of p.e. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	**100%**
Load collected in the agglomeration that enters treatment plant	**Unknown**
Load collected in the sewer network but discharged without treatment	**Unknown**

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

The data in Table 3.3 is estimated based on influent monitoring as detailed in Section 2.1 above.

3.4 Complaints Summary

Of complaints received during 2015, there were 10 complaints of an environmental nature related to the operation of Ennis North Waste Water Treatment Plant Licence No: D0048-01.

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

Table 3.4 - Complaints Summary Table:

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
WO22656127	28/01/2015	Sewage overflowing	Blocked sewer	Unblocked sewer	Y
WO22698323	06/02/2015	Sewer overflowing from manhole	Blocked sewer	Unblocked sewer	Y
WO22705711	05/02/2015	Drains overflowing near Restaurant	Poorly constructed pipe work.	Old manhole reconstructed to alleviate problem.	Y
WO22718976	06/02/15	Sewer overflowing onto street.	Blocked sewer	Unblocked sewer	Y
WO22767471	19/02/2015	Sewage overflowing from manhole.	Blocked sewer	Unblocked sewer	Y
WO22883930	04/03/2015	Sewage overflowing from manhole.	Blocked sewer	Unblocked sewer	Y
WO22958722	20/03/2015	Sewage coming up through garden.	Blocked sewer	Unblocked sewer	Y

WO22969112	19/03/2015	Sewage overflowing onto road.	Blocked sewer	Unblocked sewer	Y
WO23115792	23/04/2015	Sewage overflowing onto footpath.	Blocked sewer	Unblocked sewer	Y
W23800070	21/12/2015	Sewage overflowing onto lane.	Combined foul sewer during extreme weather event.	Checked regularly.	Y

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	**Incident Description**	**Cause**	**No. of incidents**	**Corrective Action**	**Authorities Contacted** Note 1	**Reported to EPA (Yes/No)**	**Closed (Y/N)**
Breach of ELV	ELV exceedance for parameter Ammonia as N	WWTP overloaded	1	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter Ortho-phosphate	WWTP overloaded	5	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Uncontrolled Release	Uncontrolled release of effluent from storm tanks at Francis St Pumping Station to River Fergus	Extreme rainfall event	1	Limited corrective action due to Ennis town centre having a combined sewer.	Fisheries Ireland	Yes INCI006932	Yes
Emergency Overflow	Storm pumps at	Extreme rainfall	1	Over pumped	Fisheries Ireland	Yes INCI009165	No

	Francis St Pump Station were restricted.	event		from intake to storm sump within Francis St PS during extreme event.			
Emergency Overflow	Difficulty experienced with sewers by nearby large business	Extreme rainfall event	1	Over pumped from Gort Road Pumping Station to River Fergus Minor to prevent flooding of property.	Fisheries Ireland	Yes INC009218	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2015	No. of 9
Number of Incidents reported to the EPA via EDEN in 2015	No. of 3
Explanation of any discrepancies between the two numbers above	All results of monitoring submitted as quarterly reports to the Agency in compliance with CI000012.

3.6 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs[1,2]

Input type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0	0	N/A	N/A	N/A
Industrial / Commercial Sludge	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by tanker)	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by sewer network)	0	0	0	N/A	N/A	N/A
Other (specify)	0	0	0	N/A	N/A	N/A

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant **not** included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to influent monitoring point and therefore already reported in S.2.1 *Influent Monitoring Summary*, then clarify this to avoid duplication and over-reporting of PE.

Section 4. Infrastructural Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

A full assessment of storm overflows, including the investigation, identification and assessment of storm water overflows as required under Condition 4.11 has not been undertaken. However, arising from the combined sewer network design within the Ennis North agglomeration, it is acknowledged that storm water management is a major contributor to the hydraulic load to both the collection system and the WWTP. Storm overflows from the sewer network take place from Francis Street and Tulla Road Pumping Stations. These overflows are both located upstream of the Ennis North discharge point. A storm overflow from the Ennis North WWTP is

also located approximately 50 metres upstream of the treated wastewater discharge. Monitoring of the River Fergus downstream of these discharges provides information on impact of the discharges on the receiving waters.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2015 (No. of events)	Total volume discharged in 2015(m3)	Total volume discharged in 2015(P.E.)	Estimated /Measured data
SW2	E134859 N177469	No	Not yet assessed	Not yet assessed	Continuous	3,572,271	15,529	Estimated
SW3	E134355 N177744	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A
SW4	E134675 N178004	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2015?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment includes the requirements of Schedule A3 & C3	N/A
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.

See Table 4.2.1 below for a progress summary on the improvement works specified under Schedules A3 and C of the WWDL.

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	Timeframe for Completing the Work	Comments
Ennis North WWTP • Rehabilitation and capacity increase of storm balance tanks • Upgrade of inlet works • Upgrade of treatment capacity of current aeration and clarifier tanks to cater for existing increase in wastewater loading. • Installation of tertiary treatment systems.	C A.3	31/12/2010	Yes	Works currently under construction	88%	Q2 2016	
Collection System • Upgrade of satellite	C A.3	31/12/2010	Yes	Not Started	0%	TBC	

pump station overflows • Separation of known surface water connections from the main combined sewer where feasible • Rehabilitation of sewers with high levels of infiltration							
SW2 discharge to be upgraded to SWO Discharge SW2 to revert to performance standards and comply with specifications for a Storm Water Overflow	A.2 A.3	01/01/2011	Yes	Not Started	0%	TBC	

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

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
N/A	N/A	*WWTP assessment (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*Sewer Integrity Tool (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*Secondary discharges assessment (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*SWO assessment (Condition 4 & 5.2).*	N/A	N/A	N/A
N/A	N/A	*Drinking Water Abstraction Risk Assessment (Condition 4)*	N/A	N/A	N/A
N/A	N/A	*Shellfish Impact Risk Assessment (Condition 5)*	N/A	N/A	N/A

N/A	**N/A**	*Pearl Mussel Impact Assessment (Condition 4)*	**N/A**	**N/A**	**N/A**
N/A	**N/A**	*Improved Operational Control*	**N/A**	**N/A**	**N/A**
N/A	**N/A**	*Incident Reduction*	**N/A**	**N/A**	**N/A**
N/A	**N/A**	*Elimination/Reduction of Priority Substances*	**N/A**	**N/A**	**N/A**

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	***Risk Assessment Rating (High, Medium, Low)***	***Risk Assessment Score***	***Comment***
Hydraulic Risk Assessment Score	*High*	*150*	*Refer to 2014 AER*
Environmental Risk Assessment Score	*Low*	*115*	
Structural Risk Assessment Score	*High*	*150*	
Operation & Maintenance Risk Assessment Score	*High*	*200*	
Overall Risk Score for the agglomeration	*High*	*615*	*Scores may not be a true reflection of the agglomeration due absence of survey*

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in AER or outstanding from previous AER	Report Included in AER	*Reference to relevant section of AER (e.g. Appendix 2 Section4.*
Priority Substances Assessment	No	No	Already submitted as Attachment 4 of 2011 AER.
Drinking Water Abstraction Point Risk Assessment	No	No	
Habitats Impact Assessment	yes	yes	Appendix 7.3
Shellfish Impact Assessment	No	No	
Pearl Mussel Report	No	No	
Toxicity/Leachate Management	No	No	
Toxicity of Final Effluent Report	No	No	

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	N/A	Refer to attachment 4 of 2011 AER
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Habitats Impact Assessment	no	Ensure capacity of WWTP is not exceeded and continued monitoring of the WWTP.
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A

5.1 Priority Substances Assessment

A Priority Substances Assessment report is not required.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desktop Study
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	N/A

5.2 Drinking Water Abstraction Point Risk Assessment.

A Drinking Water Abstraction Point Risk Assessment report is not required.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Drinking Water Abstraction Risk Assessment required in the AER (or outstanding from a previous AER)	No
Does the Drinking Water Abstraction Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction	N/A
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)	N/A
What is the overall risk ranking applied by the licensee	N/A

Does the risk assessment consider the impacts of normal operation	N/A
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)	N/A
Does the risk assessment include control measures for each risk identified	N/A
Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator	N/A
Does the risk assessment include infrastructural control measures	N/A
Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?	N/A

5.3 Shellfish Impact Assessment Report.

A Shellfish Impact Assessment Report is not required.

Table 5.3 - Preferred format for Shellfish Impact Assessment Summary

Is a Shellfish Impact assessment required in the AER (or outstanding from a previous AER)?	No
List prescribed organisations consulted when preparing the assessment (BIM, SFPA, MI)	
Does the assessment consider the impact of all discharges from the works?	N/A
Does the assessment identify that any of the discharges from the works are impacting on the microbiological quality of the shellfish?	N/A
Does the assessment recommend that there is a requirement to install UV/other disinfection equipment on any of the discharges?	N/A
Provide details on disinfection system to be employed	N/A
Has this been completed?	N/A
If not yet complete what is the expected date for completion?	N/A
Where disinfection is required, is there a programme in place to demonstrate the efficiency of any disinfection system in place?	N/A
What is the demonstrated efficiency of the disinfection system?	N/A
Is there a shellfish monitoring programme in place?	N/A
Does the shellfish or shellfish water monitoring programme include results generated by other organisations	N/A
List organisations contributing data to the assessment	N/A
Does the Improvement Programme for the agglomeration include the findings and recommendations of the shellfish impact risk assessment?	N/A

5.4 Toxicity / Leachate Management

A Toxicity / Leachate Management Assessment report is not required.

Table 5.4 - Toxicity / Leachate Management Report Summary

Is a Toxicity / Leachate Management Report required in the AER (or outstanding from previous AER)	No
What % of the total influent for the year is leachate?	N/A
Does leachate addition exceed 4% ((volume) of the influent load at any time?	N/A
Maximum leachate loading rate	N/A
Does the leachate study identify any constituents of the material that present an environmental risk?	N/A
List leachate constituent identified and impact *(insert a row for each constituent)*	N/A
Has the WWTP suitability to treat the leachate been assessed?	N/A
What are the results of the assessment (Suitable / Not Suitable / Suitable subject to improvement programme works completion)	N/A
Has the study identified the max and operational loadings (mass, volume and rate of addition) for leachate to the WWTP?	N/A
Is there a monitoring programme for the priority substances identified above?	N/A
Have trigger and action levels for the concentration of identified leachate constituents been established to prevent impact on the receiving water?	N/A
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of leachate acceptance on the operation of the wwtp?	N/A

5.5 Toxicity of the Final Effluent Report

A Toxicity / Leachate Management Assessment report is not required.

Table 5.5 - Toxicity of the Final Effluent Assessment Summary

Is a Toxicity report required? (Condition 4)	No
Has the study been carried out against 4 species in 3 trophic levels?	N/A
Does the report identify that the discharge is toxic to any of the species in the study?	N/A
List species impacted	N/A
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the toxicity of the final discharge?	N/A

5.6 Pearl Mussel Measures Report

A Pearl Mussel Sub Basin Management Report is not required.

Table 5.6 - Pearl Mussel Measure Report Summary

Is a progress report on implementation of the findings of Pearl Mussel Protection Measures report[1]required in the 2015 AER (or outstanding from previous AER)	No
Is there a Pearl Mussel Protection Measures Report for the receiving water body?	N/A
Include hyperlink to internet location of report	N/A
Does this report identify measures relevant to discharges from the waste water works as having a potential impact on the Pearl Mussel habitat?	N/A
List measures relevant to discharges from the waste water works	N/A
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharge on pearl mussel habitat / populations?	N/A
List Condition 5 Improvement Programme reference	N/A

5.7 Habitats Impact Assessment Report

A Habitats Impact Assessment Report is attached in Appendix 7.3.

Table 5.7 - Habitats Impact Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Habitats Assessment required in the AER (includes outstanding assessments from previous years)?	Yes – Attached as Appendix 7.3
Was the scope of the study agreed in advance with NPWS	Yes
Does the report include a Stage 1 screening assessment?	Yes
Does the screening identify that discharges are causing an impact on listed sites?	Potentially

[1]Pearl Mussel Protection Measures report = Pearl mussel sub basin management plan

Does the report require a Stage 2 Appropriate assessment?	Yes
Does the report identify any European Sites (e.g. SPA, SAC, NHA) that discharges from the works could have an impact on?	Yes – Lower River Shannon SAC
List European sites identified (insert a line for each site identified)	Lower River Shannon SAC River Shannon & River Fergus Estuary SPA
Does the report include mitigation measures for each identified impact?	Yes
Does each measure explain how the adverse impact will be avoided/reduced?	Yes
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharges on a listed site (NHA, SAC, SPA)?	Yes

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

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 *(insert lines as required)*	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	Yes
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements *(insert lines as required)*	Change to upstream ambient monitoring point
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	Yes. Requested amendment to ambient monitoring locations. Awaiting response from the EPA.
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports *(insert lines as required)*	N/A

Declaration by Irish Water

The AER contains the following;

- Introduction and background to AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

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

Signed: _____ Date: 22/03/16

Gerry Galvin
Chief Technical Advisor

Section 7. Appendices

The following appendices are attached to this AER:

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary
Appendix 7.3 – Natura Impact Statement

Appendix 7.1 Annual Statement of Measures

The following capital improvement works was undertaken during 2015 with completion expected to be in Q2 of 2016:

- Rehabilitation & capacity increase of storm balance tanks,
- upgrade of inlet works
- Upgrade of treatment capacity of current aerator and clarifier tanks to cater for existing increase in wastewater loading
- Installation of tertiary treatment systems

No additional measures have been taken in 2015 in relation to prevention of environmental damage. The need for measures to prevent environmental damage will be reviewed on an annual basis.

Appendix 7.2 Ambient Monitoring Summary

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2015

Ennis North aSW3u **Club Bridge** E133876 N177677

SampleDate	NH3(N)	BOD	Do % Sat	DO(Meas)	Ortho-Phosphate (P)	pH	TN (N)	Total Phosphorus (P)
20/01/2015	0.01	1	92.3	11.8	0.005	7.87	1.15	0.12
11/02/2015	0.011	1	88.6	11.3	0.005	8.01	1.14	0.025
11/03/2015	0.05	1	95	10.8	0.005	8.05	0.729	0.025
15/04/2015	0.01	1	90.8	9.87	0.005	8.07	0.84	0.025
12/05/2015	0.01	1	94.7	9.73	0.005	7.99	0.78	0.06
10/06/2015	0.021	1	98	10.01	0.005	8.17	0.699	0.025
08/07/2015	0.06	2.7	84	8.55	0.02	7.82	1.08	0.13
23/09/2015	0.01	1	82.1	8.44	0.017	7.86	0.53	0.025
20/10/2015	0.027	1	84.4	9.4	0.011	8.88	0.87	0.025
18/11/2015	0.01	1	87.5	9.64	0.015	8.02	0.97	0.025
Average	**0.022**	**1.2**	**89.740**	**9.954**	**0.009**	**8.074**	**0.88**	**0.049**
95%ile	**0.056**	**2.1**	**96.95**	**11.63**	**0.019**	**8.14**	**1.15**	**0.127**
	H	**H***	**H**		**H**			

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2015
aSW1u &
aSW3d
Bridge near
Clonroad
House – 0700

						E134520	N177880	
SampleDate	**NH3(N)**	**BOD (O2)**	**DO % Sat**	**DO (Meas)**	**Ortho-Phosphate (P)**	**pH**	**TN (N)**	**TP (P)**
20/01/2015	0.01	1	92.1	11.8	0.005	7.84	1.15	0.025
11/02/2015	0.027	1	89.2	11.41	0.011	7.98	1.04	0.025
11/03/2015	0.034	1	95.2	11.1	0.005	8.06	0.749	0.025
15/04/2015	0.01	1	91.2	9.92	0.005	8.05	0.749	0.025
12/05/2015	0.01	1	95.2	10.1	0.005	8.08	0.793	0.06
10/06/2015	0.01	1	98.1	10.07	0.005	8.17	1.49	0.05
08/07/2015	0.05	2.1	81.5	8.28	0.02	7.81	1.04	0.14
23/09/2015	0.01	1	83.2	8.59	0.013	7.84	0.58	0.025
20/10/2015	0.022	1	82.3	9.2	0.014	8.09	0.775	0.025
18/11/2015	0.026	1	87.1	9.63	0.016	8.05	1.16	0.025
Average	**0.021**	**1.1**	**89.51**	**10.01**	**0.010**	**8.00**	**0.95**	**0.04**
95%ile	**0.043**	**1.6**	**96.795**	**11.62**	**0.018**	**8.13**	**1.3415**	**0.104**
	H	**H***	**H**		**H**			

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2015

aSW1d
Bridge S.W.
of Doora -
0720

E134888 N176809

SampleDate	NH3(N)	BOD (O2)	DO % Saturation	DO (Measurement)	Ortho-Phosphate (P)	pH	TN (N)	TP (P)	
20/01/2015	0.024	1	91.4	11.7	0.005	7.81	1.15	0.025	
10/02/2015	*0.089*	1	86.1	11.2	0.016	7.88	1.22	0.025	
11/03/2015	0.042	1	93.9	11	0.016	8.03	0.789	0.05	
14/04/2015	*0.064*	2.3	85.7	9.2	0.02	8.01	0.879		No TP available
12/05/2015	*0.069*	1	92.2	9.7	0.018	7.91	0.858	0.07	
09/06/2015	*0.079*	1	*88.5*	9.5	*0.013*	8.09	0.801	0.025	
08/07/2015									Not reported - Saline sample as tide in
23/09/2015	*0.046*	1	*81.3*	8.5	*0.014*	7.86			
20/10/2015	*0.496*	1	80	*8.4*	0.116	*8.03*			
17/11/2015	*0.028*	1	*83.2*	9.2	*0.018*	7.86	1.18	0.025	
Average	**0.104**	**1.1**	**86.9**	**9.82**	**0.026**	**7.94**	**0.98**	**0.04**	
95%ile	**0.333**	**1.8**	**93.2**	**11.50**	**0.078**	**8.07**	**1.21**	**0.07**	
	F	**H***	**H**		**G**				

Limit of detection for BOD is 2mg/l hence the average and 95%ile cannot be calculated
Results for nutrients cannot be accepted where samples indicate hide tide saline location

Appendix 7.3 Habitat Impact Assessment Report (Natura Impact Statement) for Ennis North WWTP (D0048-01)

Annual Environmental Report 2016

Agglomeration Name:	**Ennis North**
Licence Register No.	**D0048-01**

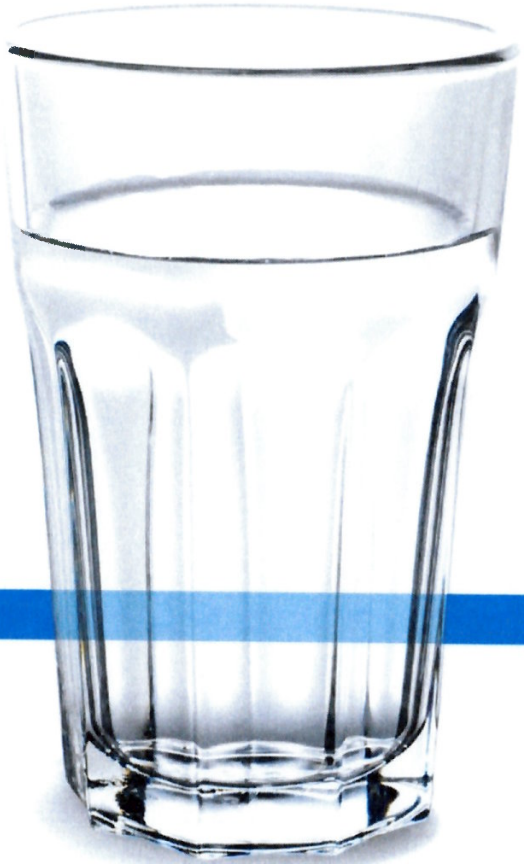

Table of Contents

Section 1. Executive Summary and Introduction to the 2016 AER

1.1 Summary report on 2016

This Annual Environmental Report has been prepared for D0048-01, Ennis North, in County Clare in accordance with the requirements of the wastewater discharge licence for the agglomeration.

No specified reports are included as an appendix to the AER.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of circa 30,150 (please note this is not verified since the upgrade contract is not concluded). The treatment process includes the following:

- Preliminary treatment including screening and grit removal
- Primary treatment
- Secondary treatment – extended aeration activated sludge

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2016.

The following parameters exceeded the emission limit values in 2016:

- cBOD
- Suspended Solids
- Total Nitrogen
- Total Phosphorus
- Orthophosphate
- Ammonia as N

1,274,360 Kgs (as 16.1% dry solids) were removed from the wastewater treatment plant as dewatered sludge cake. Sludge was transferred by Biocore Environmental to Tulsk, Co. Roscommon, under contract between Biocore and Irish Water/Clare County Council. In addition, 382,020 Kgs of liquid sludge was removed and transferred to Limerick Main Drainage.

The following capital improvement works was undertaken during 2016 with completion expected to be in Q1 of 2017:

- Rehabilitation & capacity increase of storm balance tanks,
- upgrade of inlet works
- Upgrade of treatment capacity of current aerator and clarifier tanks to cater for existing increase in wastewater loading
- Installation of tertiary treatment systems

An Annual Statement of Measures is included in **Appendix 7.1.**

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 - Influent Monitoring Summary

	BOD (mg/l)	COD (mg/l)	SS (mg/l)	TP (mg/l)	TN (mg/l)	Hydraulic Loading (m3/d)	Organic Loading (PE/day)
Number of Samples	12	12	12	12	12		
Annual Max.	216	1273	888	27	46	25,423	31,176
Annual Mean	89	312	202	5	21	12,562	17,239

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring Summary

	cBOD (mg/l)[2]	COD (mg/l)[2]	TSS (mg/l)[2]	PO4 as P (mg/l)	NH3 as N (mg/l)	TN (mg/l)	TP (mg/l)	pH	Comment
WWDL ELV (*Schedule A*)	10	125	35	1	1	15	2	7-9	
ELV with Condition 2 Interpretation included	10	*250*	87.5	1.2	1.2	18	2.4	7-9	
Number of sample results	12	12	12	12	12	12	12	12	
Number of sample results above WWDL ELV/not achieving min % reduction [1,2]	**3**	**0**	**3**	**1**	**3**	**1**	**2**	**0**	
Number of sample results above ELV with Condition 2 Interpretation included	**3**	**0**	**1**	**1**	**3**	**1**	**1**	**0**	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Overall Compliance (Pass/Fail)	Fail	Pass	Fail	Fail	Fail	Fail	Fail	Pass	

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. There were 10 samples non-compliant with the ELV's in relation to cBOD (3), Total Suspended Solids (1), Orthophosphate (1), Ammonia as N (3), Total Nitrogen (1) and Total Phosphorus (1). The non-compliances are due to treatment inefficiencies which are currently being addressed. The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient monitoring summary

The discharge drains to the River Fergus Code SH_27_F01. For the reporting period 2016, monitoring of the receiving waters was carried out upstream and downstream of the discharge point SW1, and also upstream and downstream of SW3 (storm overflow from Francis Street Pumping Station). Access to the monitoring points listed in the licence has proven to be extremely hazardous as they are only accessible during low tide conditions. The monitoring points are subject to ongoing flooding hence they are not suitable as locations for regular monitoring. Alternative monitoring locations have been identified at the bridges upstream and downstream of the WWTP and Pump Station. The proposed monitoring locations are included in the Water Framework Directive (WFD) monitoring programme, which promotes effective use of resources within the Council. Clare County Council, on behalf of IW, is in correspondence with the Agency with regard to amending the ambient monitoring locations.

Table 2.3 - Ambient Monitoring Report Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation(Y/N)**				**WFD Status**	**Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**		
aSW1u & aSW3d Br near Clonroad House Code: SH_27_F01_0700	E134520 N177880		N	N	N	N	Poor	No observable negative impact
aSW1d Br SW of Doora Code: SH_27_F01_0720	E134888 N176809		N	N	N	N	Poor (River Status) Moderate (Transitional status)	No observable negative impact.
aSW3u Club Bridge (upstream Francis St Pump Station) Code: SH_27_F01	E133876 N177677		N	N	N	N	Poor	No observable negative impact.

The results for the upstream and downstream monitoring used are included as in Appendix 7.2.

Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence for cBOD, TSS, TN, TP, Ammonia as N and Orthophosphate as P as detailed in Section 2.2.
- Based on this year's results, the discharge from the wastewater treatment plant does not appear to have a negative impact on the receiving waters.

- The discharge from the wastewater treatment plant may have a negative impact on the Water Framework Directive status (which is assigned Poor status for River Water body Status 2010-2012, and Moderate status for Transitional Water body Status 2010-2012).

2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive

The reporting requirement under the Urban Wastewater Directive is completed by electronic submission of data was completed in February 2017.

2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required this year as the agglomeration is less than 100,000 p.e.

Section 3 Operational Reports Summary

3.1 Treatment Efficiency Report

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

Table 3.1 - Treatment Efficiency Report Summary

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)	Comment
Influent mass loading (kg/year)	377,529	1,320,689	853,471	21,732	90,511	
Effluent mass emission (kg/year)	21,332	121,979	68,250	4,514	28,133	
% Efficiency (% reduction of influent load)	94%	91%	92%	79%	69%	

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (m3/day) DWF	6,784
Hydraulic Capacity – Design / As Constructed (m3/day) Peak	20,352
Hydraulic Capacity – Current loading (m3/day	12,562
Hydraulic Capacity – Remaining (m3/day)	-
Organic Capacity - Design / As Constructed (PE)	30,150
Organic Capacity - Current loading (PE)	17,239
Organic Capacity – Remaining (PE)	-
Will the capacity be exceeded in the next three years? (Yes / No)	-

It should be noted that the plant design capabilities cannot be verifed as the upgrade contract has not yet concluded.

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and treated in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended):

Table 3.3 - Extent of Agglomeration Summary Report

	% of p.e. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	**100%**
Load collected in the agglomeration that enters treatment plant	**Unknown**
Load collected in the sewer network but discharged without treatment	**Unknown**

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

The data in Table 3.3 is estimated based on influent monitoring as detailed in Section 2.1 above.

3.4 Complaints Summary

Of complaints received during 2016, there were 10 complaints of an environmental nature related to the operation of Ennis North Waste Water Treatment Plant Licence No: D0048-01.

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

Table 3.4 - Complaints Summary Table:

Number of Complaints	**Nature of Complaint**	**Number Open Complaints**	**Number Closed Complaints**	**Comment**
22	Sewer overflowing	0	22	
1	Sewer overflowing	0	1	COM005575. Not taken in charge by IW.

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Breach of ELV	ELV exceedance for parameter cBOD	WWTP overloaded	3	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter TSS	WWTP overloaded	1	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter Ammonia as N	WWTP overloaded	3	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter Ortho-phosphate	WWTP overloaded	1	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter Total Nitrogen	WWTP overloaded	1	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Breach of ELV	ELV exceedance for parameter Total Phosphorus	WWTP overloaded	1	Upgrading of Ennis North WWTP	No	Yes	No CI000012 open
Uncontrolled Release	Uncontrolled release from Pump Station	Pump Overheated	1	Reset and brought online.	Fisheries Ireland	Yes INCI009657	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2016	No. of 11
Number of Incidents reported to the EPA via EDEN in 2016	No. of 1
Explanation of any discrepancies between the two numbers above	All results of monitoring submitted as quarterly reports to the Agency in compliance with CI000012.

3.6 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs[1,2]

Input type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0	0	N/A	N/A	N/A
Industrial / Commercial Sludge	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by tanker)	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by sewer network)	0	0	0	N/A	N/A	N/A
Other (specify)	0	0	0	N/A	N/A	N/A

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant **not** included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to influent monitoring point and therefore already reported in S.2.1 *Influent Monitoring Summary*, then clarify this to avoid duplication and over-reporting of PE.

Section 4. Infrastructural Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

A full assessment of storm overflows, including the investigation, identification and assessment of storm water overflows as required under Condition 4.11 has not been undertaken. However, arising from the combined sewer network design within the Ennis North agglomeration, it is acknowledged that storm water management is a major contributor to the hydraulic load to both the collection system and the WWTP. Storm overflows from the sewer network take place from Francis Street and Tulla Road Pumping Stations. These overflows are both located upstream of the Ennis North discharge point. A storm overflow from the Ennis North WWTP is also located approximately 50 metres upstream of the treated wastewater discharge. Monitoring of the River Fergus downstream of these discharges provides information on impact of the discharges on the receiving waters.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016(m3)	Total volume discharged in 2016(P.E.)	Estimated /Measured data
SW2	E134859 N177469	No (in A3)	Not yet assessed	Not yet assessed	Continuous	1,896,188	9,143	Estimated
SW3	E134355 N177744	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A
SW4	E134675 N178004	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment includes the requirements of Schedule A3 & C3	N/A
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.

See Table 4.2.1 below for a progress summary on the improvement works specified under Schedules A3 and C of the WWDL.

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	Timeframe for Completing the Work	Comments
Ennis North WWTP • Rehabilitation and capacity increase of storm balance tanks • Upgrade of inlet works • Upgrade of treatment capacity of current aeration and clarifier tanks to cater for existing increase in wastewater loading. • Installation of tertiary treatment systems.	C A.3	31/12/2010	Yes	Works complete	100%	Q1 2017	
Collection System • Upgrade of satellite pump station overflows	C A.3	31/12/2010	Yes	Not Started	0%	TBC	

• Separation of known surface water connections from the main combined sewer where feasible • Rehabilitation of sewers with high levels of infiltration							
Tulla Road & Francis St Pump Stations • Repair of grit traps • Replacement of pumps and improving pump controls • Diversion of surface water flows away from pump stations • Upgrade of combined sewer overflow regime at pump stations.	C1	31/12/2010	Yes	Works ongoing Part completed Ennis Flood Relief Scheme Phases 1 and 2	90%	April 2017 2009 and 2014 TBC	Not yet operational. Foul pumps replaced in both pump stations. Small sections of Ennis Town centre completed. CSO Pumps not yet upgraded.
SW2 discharge to be upgraded to SWO Discharge SW2 to revert to performance standards and comply with specifications for a Storm Water Overflow	A.2 A.3	01/01/2011	Yes	Works Complete	100%	Q4 2016	

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

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
N/A	N/A	*WWTP assessment (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*Sewer Integrity Tool (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*Secondary discharges assessment (Condition 5.2).*	N/A	N/A	N/A
N/A	N/A	*SWO assessment (Condition 4 & 5.2).*	N/A	N/A	N/A
N/A	N/A	*Drinking Water Abstraction Risk Assessment (Condition 4)*	N/A	N/A	N/A
N/A	N/A	*Shellfish Impact Risk Assessment (Condition 5)*	N/A	N/A	N/A
N/A	N/A	*Pearl Mussel Impact Assessment (Condition 4)*	N/A	N/A	N/A
N/A	N/A	*Improved Operational Control*	N/A	N/A	N/A
N/A	N/A	*Incident Reduction*	N/A	N/A	N/A
N/A	N/A	*Elimination/Reduction of Priority Substances*	N/A	N/A	N/A

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	***Risk Assessment Rating (High, Medium, Low)***	***Risk Assessment Score***	***Comment***
Hydraulic Risk Assessment Score	*High*	*150*	*Refer to 2014 AER*
Environmental Risk Assessment Score	*Low*	*115*	
Structural Risk Assessment Score	*High*	*150*	
Operation & Maintenance Risk Assessment Score	*High*	*200*	
Overall Risk Score for the agglomeration	*High*	*615*	*Scores may not be a true reflection of the agglomeration due absence of survey*

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in AER or outstanding from previous AER	Report Included in AER	*Reference to relevant section of AER (e.g. Appendix 2 Section4.*
Priority Substances Assessment	No	No	Already submitted as Attachment 4 of 2011 AER.
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	Already submitted as Appendix 7.3 of 2015 AER.
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	No	No	N/A
Toxicity of Final Effluent Report	No	No	N/A
Small Streams Risk Score	No	No	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	No	Refer to attachment 4 of 2011 AER
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Habitats Impact Assessment	Yes	Ensure capacity of WWTP is not exceeded and continued monitoring of the WWTP.
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A
Small Streams Risk Score	N/A	N/A

5.1 Priority Substances Assessment

A Priority Substances Assessment report is not required.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desktop Study
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	N/A

5.2 Habitats Impact Assessment Report

A Habitats Impact Assessment Report is not required in the AER. It was submitted as Appendix 7.3. as per 2015 AER.

Table 5.2 - Habitats Impact Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Habitats Assessment required in the AER (includes outstanding assessments from previous years)?	No
Was the scope of the study agreed in advance with NPWS	N/A
Does the report include a Stage 1 screening assessment?	N/A
Does the screening identify that discharges are causing an impact on listed sites?	Potentially

Does the report require a Stage 2 Appropriate assessment?	Yes
Does the report identify any European Sites (e.g. SPA, SAC, NHA) that discharges from the works could have an impact on?	Yes – Lower River Shannon SAC
List European sites identified (insert a line for each site identified)	Lower River Shannon SAC River Shannon & River Fergus Estuary SPA
Does the report include mitigation measures for each identified impact?	Yes
Does each measure explain how the adverse impact will be avoided/reduced?	Yes
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharges on a listed site (NHA, SAC, SPA)?	Yes

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

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 *(insert lines as required)*	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	Yes
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements *(insert lines as required)*	Change to upstream ambient monitoring point
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	Yes. Requested amendment to ambient monitoring locations. Awaiting response from the EPA.
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports *(insert lines as required)*	N/A

Declaration by Irish Water

The AER contains the following;

- Introduction and background to AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

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

Signed: _____ Date: _28/02/2017_____

Elizabeth Arnett
Head of Corporate Affairs & Environmental Regulation

Section 7. Appendices

The following appendices are attached to this AER:

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary

Appendix 7.1 Annual Statement of Measures

The following capital improvement works was undertaken during 2016 with works completed in Q4 of 2016:

- Rehabilitation & capacity increase of storm balance tanks,
- upgrade of inlet works
- Upgrade of treatment capacity of current aerator and clarifier tanks to cater for existing increase in wastewater loading
- Installation of tertiary treatment systems

No additional measures have been taken in 2016 in relation to prevention of environmental damage. The need for measures to prevent environmental damage will be reviewed on an annual basis.

Appendix 7.2 Ambient Monitoring Summary

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2016

Ennis North aSW3u	**Club Bridge**			E133876		N177677	
SampleDate	**NH3(N)**	**BOD**	**Do % Sat**	**DO(Meas)**	**Ortho-Phosphate (P)**	**pH**	**TN (N)**	**Total Phosphorus (P)**
27-Jan-2016	< 0.02	1	89.6	9.7	0.031	8.06	0.82	0.09
24-Feb-2016	< 0.02	1	92.7	11.18	0.005	8.28	0.68	0.07
10-Mar-2016	< 0.02	1	92.7	11.34	0.005	8.17	0.5	0.025
20-Apr-2016	0.031	1	94.3	10.6	0.004	8.09	1.08	0.025
18-May-2016	0.087	1	102.3	9.9	0.03	8.2	0.25	0.025
15-June-2016	< 0.02	1	98.3	98.3	0.007	8.13	0.25	0.025
13-July-2016	0.02	1	92.4	8.87	0.005	8.14	0.64	0.05
7-Sep-2016	0.036	1	90	8.36	0.009	7.83	1.28	0.07
5-Oct-2016	0.028	1	90.2	9.37	0.012	7.86	1.11	0.05
15-Nov-2016	0.035	1	92.4	9.88	0.014	7.85	0.83	0.025
Average	**0.040**	**1.0**	**93.490**	**18.750**	**0.012**	**8.061**	**0.74**	**0.046**
95%ile	**0.074**	**1.0**	**100.90**	**67.86**	**0.031**	**8.25**	**1.21**	**0.083**
	H	**H**	**H**		**H**			

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2016
aSW1u &
aSW3d
Bridge near
Clonroad
House – 0700

E134520 N177880

SampleDate	NH3(N)	BOD (O2)	DO % Sat	DO (Meas)	Ortho-Phosphate (P)	pH	TN (N)	TP (P)
27-Jan-2016	0.03	1	91.3	10.4	0.041	7.99	0.72	0.08
24-Feb-2016	0.011	1	92.7	11.38	0.005	8.28	0.52	0.025
10-Mar-2016	0.01	1	91.8	11.26	0.01	8.15	0.25	0.025
20-Apr-2016	0.027	1	96	10.46	0.003	8.08	0.89	0.025
18-May-2016	0.044	1	101.3	10.1	0.02	8.17	0.25	0.025
15-June-2016	0.01	1	104.3	9.7	0.014	8.23	0.52	0.025
13-July-2016	0.023	1	89.6	8.87	0.005	8.11	0.61	0.06
7-Sep-2016	0.033	1	90.2	8.52	0.008	7.82	0.91	0.15
5-Oct-2016	0.029	1	90.3	9.41	0.013	7.88	1.05	0.025
15-Nov-2016	0.034	1	89.3	9.9	0.013	7.86	1.56	0.025
Average	**0.025**	**1.0**	**93.68**	**10.00**	**0.013**	**8.06**	**0.73**	**0.05**
95%ile	**0.040**	**1.0**	**102.95**	**11.33**	**0.032**	**8.26**	**1.3305**	**0.1185**
	H	**H**	**H**		**H**			

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2016

aSW1d Bridge S.W. of Doora -0720 E134888 N176809

SampleDate	NH3(N)	BOD (O2)	DO % Saturation	DO (Measurement)	Ortho-Phosphate (P)	pH	TN (N)	TP (P)
27-Jan-2016	0.036	1	90	10.2	0.035	7.95	0.82	0.09
24-Feb-2016	*0.08*	1	90.5	11.37	0.005	8.28	0.63	0.05
10-Mar-2016	0.044	1	78.4	9.59	0.005	8.12	0.7	0.025
20-Apr-2016	*0.141*	1	90.7	9.49	0.094	8.04	1.42	0.09
18-May-2016	*0.062*	1	87.3	8.7	0.018	8	0.56	0.06
15-June-2016	*0.097*	1	*83.4*	7.84	*0.053*	8	1.18	0.08
13-July-2016	0.037	*1*	86.9	8.61	0.011	8.08	0.96	0.1
7-Sept-2016	*0.05*	1	*81.5*	7.72	*0.19*	7.72	1.95	0.07
5-Oct-2016	*0.036*	1	*85.9*	9.07	*0.017*	7.83	1.08	0.07
15-Nov-2016	*0.092*	1	89.3	*9.9*	0.024	*7.86*	1.02	0.06
Average	**0.068**	**1.0**	**86.4**	**9.25**	**0.028**	**7.99**	**1.03**	**0.07**
95%ile	**0.121**	**1.0**	**90.6**	**10.84**	**0.076**	**8.21**	**1.71**	**0.10**
	G	**H**	**H**		**G**			

Annual Environmental Report 2017

Agglomeration Name:	**Ennis North**
Licence Register No.	**D0048-01**

Table of Contents

Section 1. Executive Summary and Introduction to the 2017 AER

1.1 Summary report on 2017

This Annual Environmental Report has been prepared for D0048-01, Ennis North, in County Clare in accordance with the requirements of the wastewater discharge licence for the agglomeration.

No specified reports are included as an appendix to the AER.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 30,150. The treatment process includes the following:

- Preliminary treatment including screening and grit removal
- Primary treatment
- Secondary treatment – extended aeration activated sludge

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2017.

The following parameters exceeded the emission limit values in 2017:

- Suspended Solids
- Total Phosphorus
- Orthophosphate
- Ammonia as N

1,545,640 Kgs (as 16.1% dry solids) were removed from the wastewater treatment plant as dewatered sludge cake, and transferred by Biocore Environmental to Tulsk, Co. Roscommon, under contract between Biocore and Irish Water/Clare County Council. In addition, 130,230 Kgs of liquid sludge was removed and transferred to Limerick Main Drainage.

The handover certificate was issued by JBB Consulting Engineers to the contractor, Response/Ward & Burke, on 12 December 2017 and, thus, operational control reverted to Irish Water/Clare County Council thereafter.

An Annual Statement of Measures is included in **Appendix 7.1.**

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 - Influent Monitoring Summary

	BOD (mg/l)	COD (mg/l)	SS (mg/l)	TP (mg/l)	TN (mg/l)	Hydraulic Loading (m3/d)
Number of Samples	12	12	12	12	12	
Annual Max.	186.4	529	377	6.4	34.8	21,765
Annual Mean	102.9	278.27	180.23	3.75	21.25	13,000.2

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring Summary

	cBOD (mg/l)[2]	COD (mg/l)[2]	TSS (mg/l)[2]	Ortho P/MRP (mg/l)	Ammonia as N (mg/l)	Total N (mg/l)	Total P (mg/l)	pH (Range)	Comment
WWDL ELV (*Schedule A*)	10	125	35	1	1	15	2	7-9	
ELV with Condition 2 Interpretation included	10	*250*	87.5	1.2	1.2	18	2.4	7-9	
Number of sample results	12	12	12	12	12	12	12	12	
Number of sample results above WWDL ELV	**0**	**0**	**1**	**4**	**4**	**0**	**1**	**0**	
Number of sample results above ELV with Condition 2 Interpretation	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Fail	Pass	Pass	Pass	

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. There were 8 results which were non-compliant with the ELV's in relation to Orthophosphate (4) and Ammonia as N (4). The non-compliances are due to treatment inefficiencies including ferric dosing and blower controls which have been addressed by the contractor. The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient monitoring summary

The discharge drains to the River Fergus Code IE_SH_27_F010700. For the reporting period 2017, monitoring of the receiving waters was carried out upstream and downstream of the discharge point SW1; and upstream and downstream of SW3 (storm overflow from Francis Street Pumping Station). Access to the monitoring points listed in the licence has proven to be extremely hazardous as they are only accessible during low tide conditions. The monitoring points are subject to ongoing flooding hence they are not suitable as locations for regular monitoring. Alternative monitoring locations have been identified at the bridges upstream and downstream of the WWTP and Pump Station. The proposed monitoring locations are included in the Water Framework Directive (WFD) monitoring programme, which promotes effective use of resources within the Council. Clare County Council, on behalf of IW, is in correspondence with the Agency regarding the amendment of the ambient monitoring locations.

Table 2.3 - Ambient Monitoring Report Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	*Irish Grid Reference*	EPA Feature Coding Tool code	Receiving Waters Designation(Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
aSW1u & aSW3d Br near Clonroad House Code: IE_SH_27_F01_0700	E134520 N177880		N	N	N	N	Poor
aSW1d Br SW of Doora Code: IE_SH_27_F01_0720	E134888 N176809		N	N	N	N	Poor (River Status) Moderate (Transitional status)
aSW3u Club Bridge (upstream Francis St Pump Station) Code: IE_SH_27_F01	E133876 N177677		N	N	N	N	Poor

Table 2.3.2 Ambient Impact Assessment Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	0-Phosphate (as P)	Ammonia (as N)	Total Nitrogen (N)	Total Phosphorus (P)
Upstream Monitoring Point (aSW1u) Br near Clonroad House	Poor	1.3	0.020	0.067	0.7	0.1
Downstream Monitoring Point (aSW1d) Br S.W. Doora	Poor (River Status) Moderate (Transitional status)	1.5	0.030	0.064	0.79	0.08
Upstream Monitoring Point (aSW3u)	Poor	1.3	0.020	0.067	0.7	0.1

Club Bridge						
Downstream Monitoring (aSW3d) Br near Clonroad House		1	0.016	0.031	0.7	0.07
Difference between Upstream and Downstream		**0.2**	**+0.010**	**-0.003**	**0.09**	**-0.02**
Difference between Upstream and Downstream #2		**-0.3**	**-0.004**	**-0.036**	0	**-0.03**
EQS		2.6	0.075	0.140		
% of Eqs		0.077%	0.133%	-0.021%		
% of Eqs #2		-0.115%	0.053%	-0.257		

The results for the upstream and downstream monitoring for both the main discharge (SW1) and SW3 from Clare County Council are included in Appendix 7.2.

Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence for TSS, Ammonia as N and Orthophosphate as P as detailed in Section 2.2.
- Based on this year's results, the discharge from the wastewater treatment plant does not appear to have a negative impact on the receiving waters.
- Based on these monitoring results, the discharge from the wastewater treatment plant has no observable negative impact on the Water Framework Directive status.

2.4 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required this year as the agglomeration is less than 100,000 p.e.

Section 3 Operational Reports Summary

3.1 Treatment Efficiency Report

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

Table 3.1 - Treatment Efficiency Report Summary

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)
Influent mass loading (kg/year)	453,453.0	1226451.5	794332.1	16526.5	93674.3
Effluent mass emission (kg/year)	13,111.89	99,174.82	51,961.70	3,598.23	31,316.46
% Efficiency (% reduction of influent load)	97%	92%	93%	78%	67%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (m3/day) DWF	6,784
Hydraulic Capacity – Design / As Constructed (m3/day) Peak	16,272
Hydraulic Capacity – Current loading (m3/day)	13,000
Hydraulic Capacity – Remaining (m3/day)	-
Organic Capacity - Design / As Constructed (PE)	30,150
Organic Capacity - Current loading (PE)	24,478
Organic Capacity – Remaining (PE)	5,672
Will the capacity be exceeded in the next three years? (Yes / No)	Yes

The plant is hydraulically overloaded due to infiltration into the foul sewer combined network and hydraulic restrictions at the plant that were not envisaged as part of the recent upgrade works. In addition, capacity of the plant is restricted by its existing sludge dewatering unit.

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and treated in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended):

Table 3.3 - Extent of Agglomeration Summary Report

	% of p.e. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	**100%**
Load collected in the agglomeration that enters treatment plant	**Unknown**
Load collected in the sewer network but discharged without treatment	**Unknown**

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

The data in Table 3.3 is estimated based on influent monitoring as detailed in Section 2.1 above.

3.4 Complaints Summary

Of complaints received during 2017, there were 19 complaints of an environmental nature related to the operation of Ennis North Waste Water Treatment Plant Licence No: D0048-01.

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

Table 3.4 - Complaints Summary Table:

Number of Complaints	**Nature of Complaint**	**Number Open Complaints**	**Number Closed Complaints**
18	Investigation Sewage Flooding - Below Ground Waste Water	0	18
1	Investigation Pollution Incident - Below Ground Waste Water	0	1

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Breach of ELV	ELV exceedance for parameter Ammonia as N	WWTP overloaded	2	Upgrading of Ennis North WWTP	No	Yes INCI012098 and CI000012	Yes
Breach of ELV	Ferric dosing pump overheated	Pump Overheated	1	Larger pump installed	Fisheries Ireland	Yes INCI013222	Yes
Uncontrolled release	Surcharging Sewer	Blocked sewer	1	Jetted and unblocked		Yes INCI-12104	Yes
Non-compliance	Belt press auger broke	Equipment breakdown at plant	1	Repair undertaken		Yes INCI012830	Yes
Breach of ELV	Biological sludge issue	Electrical power drop	1	Re-set all pumps	Fisheries Ireland	Yes INCI013482	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2017	6
Number of Incidents reported to the EPA via EDEN in 2017	6
Explanation of any discrepancies between the two numbers above	N/A

3.6 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs[1,2]

Input type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0	0	N/A	N/A	N/A
Industrial / Commercial Sludge	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by tanker)	0	0	0	N/A	N/A	N/A
Landfill Leachate (delivered by sewer network)	0	0	0	N/A	N/A	N/A
Other (specify)	0	0	0	N/A	N/A	N/A

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant **not** included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to influent monitoring point and therefore already reported in S.2.1 *Influent Monitoring Summary*, then clarify this to avoid duplication and over-reporting of PE.

Section 4. Infrastructural Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

A full assessment of storm overflows, including the investigation, identification and assessment of storm water overflows as required under Condition 4.11 has not been undertaken. However, arising from the combined sewer network design within the Ennis North agglomeration, it is acknowledged that storm water management is a major contributor to the hydraulic load to both the collection system and the WWTP. Storm overflows from the sewer network take place from Francis Street and Tulla Road Pumping Stations. These overflows are both located upstream of the Ennis North discharge point. A storm overflow from the Ennis North WWTP is also located approximately 50 metres upstream of the treated wastewater discharge. Monitoring of the River Fergus downstream of these discharges provides information on impact of the discharges on the receiving waters.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2017 (No. of events)	Total volume discharged in 2017(m3)	Total volume discharged in 2017(P.E.)	Estimated /Measured data
SW2	E134859 N177469	No (in schedule A3)	Not yet assessed	Not yet assessed	Continuous	1,197,756	Unknown	Measured
SW3	E134355 N177744	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A
SW4	E134675 N178004	Yes	Not yet assessed	Not yet assessed	Unknown	Unknown	Unknown	N/A

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2017?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment includes the requirements of Schedule A3 & C3	N/A
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.

See Table 4.2.1 below for a progress summary on the improvement works specified under Schedules A3 and C of the WWDL.

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	Timeframe for Completing the Work	Comments
Ennis North WWTP • Rehabilitation and capacity increase of storm balance tanks • Upgrade of inlet works • Upgrade of treatment capacity of current aeration tanks and new clarifier provided to cater for existing increase in wastewater loading. • Installation of tertiary treatment systems.	C A.3	31/12/2010	Yes	Works complete	100%	Completed Q1 2017	
Collection System • Upgrade of satellite pump station overflows	C A.3	31/12/2010	Yes	Not Started	0%	TBC	

• Separation of known surface water connections from the main combined sewer where feasible • Rehabilitation of sewers with high levels of infiltration							
Tulla Road & Francis St Pump Stations • Provided new grit removal system and repaired grit traps • Replacement of pumps and improving pump controls • Diversion of surface water flows away from pump stations • Upgrade of combined sewer overflow regime at pump stations.	C1	31/12/2010	Yes	Works ongoing Part completed Ennis Flood Relief Scheme Phases 1 and 2	100%	Dec 2017 TBC 2009 and 2014 TBC	VSDs installation underway. Foul pumps overhauled. Small sections of Ennis Town centre completed. CSO Pumps not yet upgraded.
SW2 discharge to be upgraded to SWO Discharge SW2 to revert to performance standards and comply with specifications for a Storm Water Overflow	A.2 A.3	01/01/2011	Yes	Works Complete	100%	Q4 2016	

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
N/A					

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	*Risk Assessment Rating (High, Medium, Low)*	*Risk Assessment Score*	*Comment*
Hydraulic Risk Assessment Score	*High*	*150*	*Refer to 2014 AER*
Environmental Risk Assessment Score	*Low*	*115*	
Structural Risk Assessment Score	*High*	*150*	
Operation & Maintenance Risk Assessment Score	*High*	*200*	
Overall Risk Score for the agglomeration	*High*	*615*	*Scores may not be a true reflection of the agglomeration due absence of survey*

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in AER or outstanding from previous AER	Report Included in AER	*Reference to relevant section of AER (e.g. Appendix 2 Section4.*
Priority Substances Assessment	No	No	Already submitted as Attachment 4 of 2011 AER.
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	Already submitted as Appendix 7.3 of 2015 AER.
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	No	No	N/A
Toxicity of Final Effluent Report	No	No	N/A
Small Streams Risk Score	No	No	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	None: Refer to attachment 4 of 2011 AER
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Habitats Impact Assessment	Yes	Ensure capacity of WWTP is not exceeded and continued monitoring of the WWTP.
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A
Small Streams Risk Score	N/A	N/A

5.1 Priority Substances Assessment

A Priority Substances Assessment report is not required.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desktop Study
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	N/A

5.2 Habitats Impact Assessment Report

A Habitats Impact Assessment Report is not required in the AER. It was submitted as Appendix 7.3. as per 2015 AER.

Table 5.2 - Habitats Impact Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Habitats Assessment required in the AER (includes outstanding assessments from previous years)?	No
Was the scope of the study agreed in advance with NPWS	N/A
Does the report include a Stage 1 screening assessment?	N/A
Does the screening identify that discharges are causing an impact on listed sites?	Potentially
Does the report require a Stage 2 Appropriate assessment?	Yes
Does the report identify any European Sites (e.g. SPA, SAC, NHA) that discharges from the works could have an impact on?	Yes – Lower River Shannon SAC
List European sites identified (insert a line for each site identified)	Lower River Shannon SAC River Shannon & River Fergus Estuary SPA
Does the report include mitigation measures for each identified impact?	Yes
Does each measure explain how the adverse impact will be avoided/reduced?	Yes
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharges on a listed site (NHA, SAC, SPA)?	Yes

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

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 *(insert lines as required)*	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	Yes
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements *(insert lines as required)*	Change to upstream ambient monitoring point
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	Yes. Requested amendment to ambient monitoring locations. Awaiting response from the EPA.
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports *(insert lines as required)*	N/A

Declaration by Irish Water

The AER contains the following;

- Introduction and background to 2017 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

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

Signed: _____ Date: 21/02/2018

Michael O'Leary
Acting Head of Environmental Regulation

Section 7. Appendices

The following appendices are attached to this AER:

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary

Appendix 7.1 Annual Statement of Measures

No additional measures have been taken in 2017 in relation to prevention of environmental damage. The need for measures to prevent environmental damage will be reviewed on an annual basis.

Appendix 7.2 Ambient Monitoring Summary

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2017

Ennis North aSW3u **Club Bridge** E133876 N177677

SampleDate	NH3(N)	BOD	Do % Sat	DO (Meas)	Ortho-Phosphate (P)	pH	TN (N)	Total Phosphorus (P)	Comments
25-Jan-2017	0.023	1	95.3	10.74	0.011	7.81	0.65	< 0.05	None
15-Feb-2017	0.01	1	105	12.39	0.09	8.02	0.94	< 0.05	
14-Mar-2017	0.01	1	106.4	11.67	0.002	8.11	0.61	< 0.05	OK
20-Apr-2017	0.021	1	95.6	9.88	0.006	7.98	0.57	< 0.05	clear - low flow
17-May-2017	0.01	1	107.2	11.06	0.003	8.14	< 0.5	0.15	Clear
14-June-2017	0.01	1	108.2	10.89	0.008	8.02	0.55	< 0.05	Clear
19-July-2017	0.023	1	94.9	8.73	0.007	7.98	< 0.5	0.05	OK
9-Aug-2017	0.01	1	100.9	9.57	0.004	7.92	0.57	< 0.05	Clear
6-Sep-2017	0.026	1	93	9.35	0.021	7.98	0.55	< 0.05	Clear
11-Oct-2017	0.557	4.5	92.7	9.64	0.046	7.94	1.25	0.1	
15-Nov-2017	0.041	1	89.8	10.2	0.017	8.01	0.78	< 0.05	ok
Average	**0.067**	**1.3**	**99.0**	**10.4**	**0.020**	**8.0**	**0.7**	**0.1**	
95%ile	**0.299**	**2.8**	**107.7**	**12.0**	**0.068**	**8.1**	**1.1**	**0.1**	
	F	H	H		G				

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2017
aSW1u &
aSW3d
Bridge near
Clonroad
House – 0700

E134520 N177880

SampleDate	NH3(N)	BOD (O2)	DO % Sat	DO (Meas)	Ortho-Phosphate (P)	pH	TN (N)	TP (P)	comments
25-Jan-2017	0.021	1	95	10.53	0.01	7.95	0.9	< 0.05	Clear
15-Feb-2017	0.01	1	107.3	12.82	0.09	7.96	0.9	0.05	
14-Mar-2017	0.01	1	105.6	11.61	0.002	8.11	0.65	< 0.05	OK
20-Apr-2017	0.01	1	101.9	10.01	0.005	8.02	0.55	< 0.05	clear
17-May-2017	0.01	1	99.1	10.22	0.005	8.07	< 0.5	0.06	Clear
14-June-2017	0.01	1	114	11.27	0.005	8.04	< 0.5	< 0.05	Clear
19-July-2017	0.028	1	90.7	8.33	0.009	7.77	< 0.5	< 0.05	OK
9-Aug-2017	0.037	1	100.6	9.58	0.003	8.02	0.52	< 0.05	Clear
6-Sep-2017	0.025	1	92.9	9.3	0.017	8.05	0.54	0.09	ok
11-Oct-2017	0.141	1	93.4	9.53	0.016	7.95	0.82	< 0.05	OK
15-Nov-2017	0.035	1	91.2	10.5	0.019	8.04	0.72	< 0.05	ok
Average	**0.031**	**1.0**	**99.25**	**10.34**	**0.016**	**8.00**	**0.70**	**0.07**	
95%ile	**0.089**	**1.0**	**110.65**	**12.22**	**0.055**	**8.09**	**0.9**	**0.087**	
	H	H	H		H				

Appendix 7.2 Ambient Monitoring Summary (continued)

Ambient monitoring data for Ennis North WWTP (D0048-01) Year Jan - Dec 2017

aSW1d Bridge S.W. of Doora -0720

E134888 N176809

SampleDate	NH3(N)	BOD (O2)	DO % Saturation	DO (Measurement)	Ortho-Phosphate (P)	pH	TN (N)	TP (P)	Comments
25-Jan-2017	0.074	1	90.9	10.08	0.03	7.9	1.13	0.06	None
15-Feb-2017	0.029	1	104.6	12.56	0.01	7.81	0.97	< 0.05	Clear
14-Mar-2017	0.033	1	100.4	11.1	0.005	8.05	0.78	< 0.05	OK
20-Apr-2017	0.038	1	94.6	10.02	0.012	8.01	0.62	< 0.05	clear
17-May-2017	0.088	1	102	10.39	0.034	8.09	0.69	0.06	Clear
14-June-2017	0.082	1	100	9.83	0.035	7.92	0.57	0.09	Clear
19-July-2017	0.154	1	89.5	8.19	0.106	8.04	1.09	0.12	ok
9-Aug-2017	0.024	1	97.2	9.56	0.015	8.06	0.53	< 0.05	OK
6-Sep-2017	0.01	6.5	93.1	8.99	0.053	8.02	0.62	0.07	Clear
11-Oct-2017	0.066	1	87.9	9.1	0.01	7.96	0.77	< 0.05	
15-Nov-2017	0.104	1	99	99	0.025	8.02	0.91	0.05	ok
Average	**0.064**	**1.5**	**96.3**	**18.07**	**0.030**	**7.99**	**0.79**	**0.08**	
95%ile	**0.129**	**3.8**	**103.3**	**55.78**	**0.080**	**8.08**	**1.11**	**0.11**	
	G	G	H		G				

Annual Environmental Report

2019

UISCE ÉIREANN : IRISH WATER

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	31/01/2011	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	84.2	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	< 2	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	5.6	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	2.8	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
																< 2	Clear

Annual Environmental Report

2020

Ennis North

D0048-01