

Comhairle Contae Thiobraid Árann Thuaidh
North Tipperary County Council



Borrisokane Agglomeration

Waste Water Discharge Licence Register No. D0326-01

3rd Annual Environmental Report

Reporting Period

1 January 2013 to December 2013

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1.0 Introduction and Executive Summary

1.1 Introduction

The Environmental Protection Agency granted North Tipperary Co. Council a Wastewater Discharge Licence (Register No. D0326-01) on 19 October 2011, in respect of the Agglomeration named Borrisokane. One of the provisions of the Licence (Condition 6.8) is that North Tipperary Co. Council submit to the Agency at the end of the year an “Annual Environmental Report” (AER) to provide a summary of the activities relevant to the discharges for that year. This is the third AER for Borrisokane and includes the information specified in Schedule D of the licence.

This AER has been prepared in accordance with the EPA document:- “Guidance on the Preparation & Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences for 2013”

Borrisokane Waste Water Plant is located on the western edge of Borrisokane and discharges to the Ballyfinboy River. The plant was constructed in the 1970’s with no major upgrades in the intervening period. It is designed for a biological capacity of 1,500 p.e. The current loading (comprising both domestic and non-domestic waste water sources), is estimated at 1,138. There is no significant industrial source.

Borrisokane WWTP provides secondary treatment with phosphorus removal. The waste water treatment system is an activated sludge process system. The sewer network collection system in Borrisokane is a combined system.

This AER details the environmental performance of Borrisokane WWTP. The AER details the monitoring reports for influent and effluent loading at the WWTP along with the ambient upstream and downstream monitoring of the receiving water.

No Pollutant Release and Transfers Register(PRTR) Report is required for Borrisokane as it p.e. is below the threshold of 2,000 p.e.

1.2 Executive Summary

Borrisokane WWTP has continued to operate effectively in this reporting period. The WWTP is operated and managed by North Tipperary Co. Council.

A review of the final effluent results and compliance with the Emission Limit Values as set out in the Licence shows that Borrisokane WWTP is by and large compliant with its licence. The only exception to this is the Ammonia parameter. Borrisokane WWTP breached its ELV for this parameter. The total wastewater inflow to Borrisokane WWTP for the year 2013 was 105,616.40m³, while the current flow weighted average influent cBOD to Borrisokane WWTP is 235.93mg/l, giving a current Population Equivalent (P.E.) of 1138.

Borrisokane is operating within its hydraulic and treatment capacities.

A review of the ambient monitoring results for upstream and downstream of Borrisokane WWTP's Primary Discharge Point is having no significant adverse impact on the quality of the receiving waters.

The percentage reductions shown in the WWTP efficiency report (Table No.11) show that Borrisokane WWTP is an efficient plant, with reductions of 98.68%, 96.41%, 96.89%, 94.11% and 78.21% for cBOD, COD, Suspended Solids, Ammonia and Orthophosphate respectively.

Appendix A is a Sewer Integrity Risk Assessment Report. The sewer network of Borrisokane Agglomeration is classed as having a High Risk Status.

2.0 Monitoring Reports Summary

2.1 Summary Report on Monthly Influent Monitoring

Table 1 below is a tabular presentation of the wastewater treatment plant influent monthly monitoring results for cBOD, COD, Suspended Solids, Ammonia (as N), Orthophosphate (as P) and pH. Also set out below is the calculation of the p.e. equivalent load and the flow weighed average BOD load for the WWTP.

Table 1: Waste Water Treatment Plant Influent Monitoring Results for 2013

SampleDate	Flow m3/day	Ammonia as N (mg/l as N)	cBOD (mg/l O2)	Chemical Oxygen Demand (mg/l O2)	O-Phos (mg/l PO4 as P)	pH (pH units)	Suspended Solids (mg/l)	Organic Loading (PE/day)
15/01/2013	248	29.04	218	478	2.98	8.5	214	901.07
12/02/2013	469	13.93	103	249	1.6	8.13	95	805.12
05/03/2013	214	38.32	317	667	4.08	8.49	310	1130.63
16/04/2013	248	38.02	276	583	3.68	8.09	252	1140.8
25/04/2013	273	36	232	564	3.49	8.08	253	1055.6
23/05/2013	147	43.46	212	534	3.98	8.49	212	519.4
20/06/2013	157	42.02	309	631	4.1	8	260	808.55
25/07/2013	248	30.78	368	745	6.4	7.81	413	1521.07
22/08/2013	173	45.49	267	630	4.47	8.02	525	769.85
19/09/2013	205	44.77	250	642	4.19	8.12	274	854.17
24/10/2013	355	23.09	138	330	2.04	8.43	154	816.5
26/11/2013	211	34.66	309	779	3.34	7.92	376	1086.65
12/12/2013	282	41.62	272	619	4.11	8.09	275	1278.4
Average		35.48	251.62	573.15	3.73	8.17	277.92	976
Annual Max	469	45.49	368	779	6.4	8.49	525	1521.07

Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2013 was 105,616.4m³ per Table No.5 below

The flow weighed average influent cBOD as calculated per Table 2 below is 235.93mg/l

The Borrisokane population equivalent was determined by the following formula:

Total Influent Flow for 2013 x flow weighed averaged influent BOD divided by (0.06x365x1000)

Therefore the p.e. = (105,616.4x235.93)/(0.06x365x1000) = 1137.81

Table 2: Calculation of the Flow Weighed Average cBOD for 2013

	Influent (m ³ /day)	cBOD (mg/l)	BOD (kg/day)
15/01/2013	248	218	54.06
12/02/2013	469	103	48.31
05/03/2013	214	317	67.84
16/04/2013	248	276	68.45
25/04/2013	284	232	65.42
23/05/2013	209	212	44.31
20/06/2013	195	309	60.26
25/07/2013	248	368	91.26
22/08/2013	173	267	46.19
19/09/2013	205	250	51.25
24/10/2013	355	138	48.99
26/11/2013	211	309	65.2
12/12/2013	282	272	76.7
Total	3341		788.24

The flow weighed average BOD is 788.24Kg x 1000/ 3341m³ = 235.93mg/l

2.2 Discharges from the agglomeration

Presented below in Table 3 are the primary discharge point monitoring results for the parameters as set out in Schedule 8 of the licence and a summary of the effluent monitoring and overall compliance with the licence Emission Limit Values (ELVs).

Table 3: Tabular presentation of Borrisokane WWTP effluent monitoring results together with the associated Emission Limit Values (ELVs)

Sample Date	Outflow M3/day	Ammonia (mg/l as N)	cBOD (mg/l O2)	Chemical Oxygen Demand (mg/l O2)	O-Phos (mg/l PO4 as P)	pH (units)	Suspended Solids (mg/l)
ELVs		5	12	125	2	6-9	35
15/01/2013	225	6.25	4	15	1.08	7.92	9.2
12/02/2013	438	0.021	1.1	6	0.636	7.87	4.4
05/03/2013	182	0.396	3	17	0.949	7.93	12.8
16/04/2013	225	1.83	6	35	0.2	7.85	11.2
25/04/2013	273	0.118	3	18	0.668	7.72	8.4
23/05/2013	147	3.92	3	26	0.46	7.88	8.8
20/06/2013	157	0.237	3	21	0.465	7.92	4.8
25/07/2013	182	3.36	6	33	0.05	7.93	8.8
22/08/2013	155	19.66	5	24	0.589	7.83	9.2
19/09/2013	188	0.309	2	19	0.607	7.84	4.4
24/10/2013	525	0.028	2.8	20	1.18	7.87	8.8
26/11/2013	186	1.41	4	25	1.21	7.71	13.2
12/12/2013	260	0.01	4	30	1.84	7.87	15.2
Average		2.89	3.61	22.23	0.76	7.86	9.17

Table 4: Summary of Effluent monitoring and Compliance

	cBOD (mg/l)	COD (mg/l)	TSS (mg/l)	Orthophosphate as P (mg/l)	pH Units	Ammonia (mg/l)
WWDL ELV (Schedule A)	12	125	35	2	6-9	5
ELV with Condition 2 Interpretation included	24	250	87.50	2.4		6
Number of sample results	13	13	13	13	13	13
Number of sample results above WWDL ELV	0	0	0	0	0	2
Number of sample results above ELV with Condition 2 Interpretation included	0	0	0	0	0	2
Annual Mean (for parameters where a mean ELV applies)						
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Fail
Comment						Annual Mean within ELV values

Comment:

As Table 4 above shows Borrisokane WWTP exceeded its ELV for Ammonia on two occasions. In mitigation, the annual mean concentration for ammonia was within ELV values.

Table 5: Summary of Borrisokane WWTP Primary Discharge Point Daily Flow Recordings (m3/day) for 2013 - as required under Schedule B (Monitoring) of the Discharge Licence.

Total Annual Flow at Primary Discharge Point (PDP)	98046.3 m3/annum
Minimum Discharge Flow at PDP	102 m3/day
Maximum Discharge Flow at PDP	1387 m3/day
Average Daily Discharge Flow at PDP	268.62 m3/day

As part of the Primary Waste Water Discharge Monitoring in Schedule B.1., North Tipperary Co. Council sampled for the possible presence of priority substances in 2013 in the Primary Waste Water Discharge , in accordance with “Guidance on the Screening for Priority Substances for Waste Water Discharge Licences” issued by the Agency (see Table 6 below).

From the Table below it can be clearly seen that Borrisokane Agglomeration does not discharge significant quantities of priority substances or pollutants. This is expected as there is no major industry discharging into Borrisokane Agglomeration. The wastewater discharged into Borrisokane is domestic wastewater or commercial wastewater that is essentially domestic in character.

**Table 6 : Priority Substances Screening of Borrisokane
Primary Waste Water Discharge
(sampled on 25/7/2013)**

Ammonia as N (mg/l as N)	3.36
Ammonia NH4 (mg/l NH4)	4.32
Arsenic (ug/l As)	0.7
Atrazine (ug/l)	<0.05
Barium (ug/l Ba)	7
BOD (mg/l O2)	6
Boron (ug/l B)	0.03
Cadmium (ug/l Cd)	0.1
Chemical Oxygen Demand (mg/l O2)	33
Chloride (mg/l Cl)	150.9
Chromium (ug/l Cr)	<1
Conductivity @ 20°C (uS/cm)	1214
Copper (ug/l Cu)	8
Cyanide (ug/l Cn)	<25
Dichloromethane (ug/l)	<5
Fluoride (ug/l)	440
Hardness (mg/l CaCO3)	371
Lead (ug/l Pb)	<0.3
Mercury (ug/l Hg)	<0.02
Nickel (ug/l)	3.8
Nitrates (mg/l NO3 as N)	0.09
Nitrites (mg/l NO2 as N)	0.026
O-Phos (mg/l PO4 as P)	0.05
O-Phos (mg/l PO4)	0.153
pH (pH units)	7.93
Phenols (ug/l)	<150
Selenium (ug/l Se)	<0.2
Simazine (ug/l)	<0.05
Sulphate (mg/l SO4)	67.6
Suspended Solids (mg/l)	8.8
Temperature (oC)	18.7
Toluene (ug/l)	<0.5
Total Nitrogen (mg/l as N)	8
Total Oxidised Nitrogen (mg/l TON as N)	0.12
Total Phosphorus (mg/l as P)	0.24
Xylenes (ug/l)	<1
Zinc (ug/l Zn)	7.5

2.3 Ambient Monitoring Summary

The ambient monitoring results for the parameters as set out in Schedule B of the licence is presented in Table No.7 (upstream) and Table No.8 (downstream) below. Also presented in Table 11 is a summary of the ambient monitoring . The monitoring results show that the discharge is not having any significant impact on the quality of the receiving water.

Table 7: Ambient Monitoring at aSW1u at E191050 N194167

Station Location	Sample Date	pH	DO (ppm O2)	BOD mg/l	Temperature (oC)	O-Phos (mg/l PO4 as P)	Total Nitrogen (mg/l as N)	Ammonia
	15/01/2013	8.12	11.62	1.5	5	0.019	3.2	0.018
	05/03/2013	8.18	12.03	1.7	5	0.017	3.7	0.021
	23/05/2013	8.21	12.17	1.4	11.3	0.006	2.6	0.007
	25/07/2013	8.08	9.08	2.1	16.1	0.034	3.8	0.031
	19/09/2013	8.05	9.48	1.1	12.1	0.009	3.6	0.003
	26/11/2013	8.09	10.61	1.3	7.7	0.032	2.9	0.00
	Average	8.12	10.83	1.52	9.5	0.0195	3.3	0.013
	Maximum	8.21	12.17	2.1	16.1	0.034	3.8	0.031

Table 8: Ambient Monitoring at aSW1d at E190972 N194126

Station Location	Sample Date	pH	DO (ppm O2)	BOD mg/l	Temperature (oC)	O-Phos (mg/l PO4 as P)	Total Nitrogen (mg/l as N)	Ammonia
	15/01/2013	8.13	11.57	1.4	5.2	0.022	3.3	0.039
	05/03/2013	8.18	12.01	1.7	4.7	0.027	3.7	0.022
	23/05/2013	8.23	12.03	1.6	10.4	0.01	2.6	0.013
	25/07/2013	8.01	8.27	1.9	17.5	0.021	5.1	0.284
	19/09/2013	8.03	8.89	2	12.4	0.024	3.9	0.01
	26/11/2013	8.06	10.71	1.2	7.8	0.023	2.8	0.00
	Average	8.11	10.58	1.63	9.67	0.021	3.57	0.061
	Maximum	8.23	12.03	2	17.5	0.027	5.1	0.284

Ambient monitoring summary

In 2013, ambient sampling consisted of 6 grab samples taken for both upstream and downstream of the primary discharge point (Tables 7 and 8).

The ambient monitoring samples were compared to the criteria for calculating surface water ecological status and ecological potential as set out under Schedule 5 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (see Table 9 below).

The grab samples upstream of Borrisokane WWTP, were classified as having a “less than good” water status, by comparing the Total Ammonia, BOD and Orthophosphate parameters to the parameters set out in Schedule 5. Similarly, the grab sample taken downstream classified as having a “less than good” water status, by comparing the Total Ammonia, cBOD and Orthophosphate parameters to the parameters set out in Schedule 5. See Table 10.

Using the EPA’s Envision Mapping System, Ecological Standards (Q values) for the Ballyfinboy River were identified upstream and downstream of Borrisokane WWTP. The Q value for an upstream location (Location Code 25B02-0400) following an ecological survey carried out by the EPA in 2011 was Q3-4 (Moderate Status).

The Q value for a downstream location (Bridge near Ballyfinboy Castle- Location Code 25B02-0600) following an ecological survey carried out by the EPA in 2011 was Q3-4 (Moderate Status).

The discharge does not appear to have any significant adverse effect either chemically or ecologically on the Ballyfinboy River.

Table 9: Schedule 5 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009

Parameter	Value	Status
BOD	<1.3 (mean) or <2.2 (95%ile)	High
BOD	<1.5(mean) Or <2.6(95%ile)	Good
Total Ammonia	<0.040 (mean) or <0.090 (95%ile)	High
Total Ammonia	<0.065 (mean) or <0.140 (95%ile)	Good
MRP	<0.025(mean) or <0.045 (95%ile)	High
MRP	<0.035 (mean) or <0.075 (95%ile)	Good

Table 10: Ecological Status of Ballyfinboy River (upstream and downstream of Cloughjordan WWTP)

Parameter	Upstream	Status	Overall Status for Upstream	Downstream	Status	Overall Status for Downstream
BOD	1.52(mean)	Less than good	Less than good	2	Less than good	Less than Good
Total Ammonia	0.013(mean)	High		0.013	Less than good	
Orthophosphate	0.0195(mean)	High		0.027	Good	

Table 11: Ambient Monitoring Summary Table

Ambient Monitoring Point from WWDL	Irish Grid Reference	EPA Feature Coding Tool Code	Is discharge impacting on water quality
Upstream	E211235 N156066	TBC	No
Downstream	E210817 N155955	TBC	No

As part of Ambient Monitoring in Schedule B.4., North Tipperary Co. Council sampled for the possible presence of priority substances in 2013 upstream and downstream of the Primary Discharge Point, in accordance with “Guidance on the Screening for Priority Substances for Waste Water Discharge Licences” issued by the Agency (see Table 12 below).

From the Table below it can be clearly seen that Borrisokane Agglomeration does not discharge significant quantities of priority substances or pollutants, as there is little significant difference between the test values of the upstream samples and the downstream samples. This is expected as there is no major industry discharging into Borrisokane Agglomeration. The wastewater discharged into Borrisokane is domestic wastewater or commercial wastewater that is essentially domestic in character.

Table 12- Ambient monitoring (Priority substances in Ballyfinboy River)

Date	25/07/2013	25/07/2013
	Downstream	Upstream
Ammonia as N (mg/l as N)	0.284	0.031
Arsenic (ug/l As)	0.9	1.1
Atrazine (ug/l)	<0.01	<0.01
Barium (ug/l Ba)	27.6	29.3
BOD (mg/l O2)	1.9	2.1
Boron (ug/l B)	<20	<20
Cadmium (ug/l Cd)	<0.1	<0.1
Chemical Oxygen Demand (mg/l O2)	7	2
Chloride (mg/l Cl)	29.31	23.46
Chromium (ug/l Cr)	<1	<1
Conductivity @ 20°C (uS/cm)	668	635
Copper (ug/l Cu)	<3	3
Cyanide (ug/l Cn)	<5	<5
Dichloromethane (ug/l)	<0.5	<0.5
Dissolved Oxygen (% Saturation)	85.4	93.5
Dissolved Oxygen (ppm O2)	8.27	9.08
Fluoride (ug/l)	<100	<100
Hardness (mg/l CaCo3)	349	357
Lead (ug/l Pb)	<0.3	<0.3
Mercury (ug/l Hg)	<0.02	<0.02
Nickel (ug/l)	<0.5	<0.5
Nitrates (mg/l NO3 as N)	2.34	2.48
Nitrites (mg/l NO2 as N)	0.016	<0.01
O-Phos (mg/l PO4 as P)	0.021	0.034
O-Phos (mg/l PO4)	0.066	0.105
pH (pH units)	8.01	8.08
Phenols (ug/l)	<150	<150
Selenium (ug/l Se)	0.5	0.4
Simazine (ug/l)	<0.01	<0.01
Sulphate (mg/l SO4)	18.06	16.41
Suspended Solids (mg/l)	<0.4	0.4
Temperature (oC)	17.5	16.1
Toluene (ug/l)	<0.5	<0.5
Total Nitrogen (mg/l as N)	5.1	3.8
Total Oxidised Nitrogen (mg/l TON as N)	2.35	2.48
Total Phosphorus (mg/l as P)	0.08	0.04
Xylenes (ug/l)	<1	<1
Zinc (ug/l Zn)	3.5	7.8

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

It is confirmed that the annual urban wastewater information for agglomerations and treatment plants with a population equivalent greater than 500 for the year 2013 was submitted to the EPA in electronic form in 2013.

2.5 Pollutant Release and Transfer Register (PRTR)

No PRTR Report has been completed for 2013 as Borrisokane is below the 2,000 p.e. threshold for PRTR Reporting.

3.0 Operational Reports Summary

3.1 Treatment Efficiency Report

Presented below is a summary of the efficiency treatment process including information for all the parameters specified in the discharge in the discharge licence.

Table 13: Treatment Efficiency Report Summary Table

	cBOD	COD	SS	Ammonia	Orthophospahte
Influent Mass Loading (kg/day)	68.27	155.49	77.22	9.51	1.01
Effluent Mass Loading (kg/day)	0.90	5.58	2.40	0.56	0.22
% Efficiency Reduction	98.68	96.41	96.89	94.11	78.21

3.2 Treatment Capacity Report

Presented below is a summary of the current and remaining treatment capacity of the treatment process

Table 14: Treatment Capacity Report Table

Hydraulic Capacity – Design/As Constructed (m3/day)	
Hydraulic Capacity – Current Loading (m3/day)	289 (average)
Hydraulic Capacity – Remaining (m3/day)	
Organic Capacity – Design (pe)	1500
Organic Capacity – Current loading (pe)	1138
Organic Capacity – Remaining (pe)	1500
Will the capacity be exceeded in the next 3 years? (Yes/No)	No

3.3 Complaints Summary

There were no complaints received about the activities carried out in Borrisokane during 2013. There were also no complaints of an environmental nature relating to the discharge from Borrisokane WWTP.

3.4 Reported Incidents Summary

There were Two recorded incidents in relation to Borrisokane WWTP in 2013.

Table 15: Incidents Summary

Date and Time	Incident Description	Incident Type(e.g. Non-Compliance, Emission, Spillage, Pollution Incident)	Cause	Corrective Action	Authorities Contacted	Reported to EPA	Closed (Y/N)
15/1/13	Ammonia levels in final discharge exceeded Ammonia ELV	Non-compliance Emission			None	Yes	
23/8/13	Ammonia levels in final discharge exceeded Ammonia ELV	Non-compliance Emission			None	Yes	

Table 16: Summary of the Incident Details as required in the EPA Reporting Guidelines

No. Of Incidents in 2013	2
Number of Incidents reported to the EPA via EDEN in 2013	2(all reported by Aidan Delaney, Executive Scientist)
Explanation of any discrepancies between the Two numbers above.	N/A

3.5 Sludge/Other inputs to the WWTP

Table 17: Sludge/Other Inputs to Borrisokane WWTP

Input Type	m3/year	PE/year	% of load
Domestic/Septic Tank Sludge	0	0	0
Industrial/Commercial Sludge	0	0	0
Landfill Leachate (delivered by tanker)	0	0	0
Landfill Leachate (delivered by sewer network)	0	0	0
Other (specify)	0	0	0

4.0 Infrastructural Assessment & Programme of Improvements

4.1 Storm Water Overflow Identification and Inspection Report

Borrisokane Agglomeration contains no stormwater overflows.

4.2 Report on progress made and proposals being developed to meet the Improvement Programme Requirements.

A process and optimisation review is underway in order to examine if improved compliance with the Orthophosphate ELV can be achieved utilising the existing infrastructure.

4.3 Sewer Integrity Risk Assessment

The sewer integrity risk assessment for Borrisokane Agglomeration is attached in Appendix C.

A Summary of the Risk Assessment is presented below in Table 18 below

Table 18: Summary of Sewer Integrity Risk Assessment

Element	Risk Assessment Score	Risk Category	% Risk Score	Max Risk Score
Section 2.1 Hydraulic Risk Assessment	120	High Risk	80%	150
Section 3.1 Env Risk Assessment	185	Low Risk	37%	500
Section 4.1 Structural Risk Assessment	75	Medium Risk	50%	150
Section 5.1 O&M Risk Assessment	20	Low Risk	10%	200
Total RAS for Network	400	High Risk	40%	1000

5.0 Licence Specific Reports

Table 19- Summary of Licence Specific Reports

Licence Specific Report	Required in 2013 AER or outstanding from previous AER	Included in 2013 AER	Comments
Priority Substances Assessment	Yes	Yes	No issue with Priority Substances. See Table 6.
Drinking Water Abstraction Point Risk Assessment	N/A	N/A	Not applicable to Borrisokane
Habitats Impact Assessment	N/A	N/A	Not applicable to Borrisokane
Shellfish Impact Assessment	N/A	N/A	Not applicable to Borrisokane
Pearl Mussel Report	N/A	N/A	Not applicable to Borrisokane
Toxicity/Leachate management	N/A	N/A	Not applicable to Borrisokane
Toxicity of Final Effluent Report	N/A	N/A	Not applicable to Borrisokane

Table 20 : Specified Improvement Programme (Schedule A and C) Summary Report

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	Licensee Timeframe for Completing the Work
Installation of primary screening	C	31 December 2019	N	(iv) Commissioning Stage	50%	31 December 2014
Installation of storm water holding tank	C	31 December 2019	N	Not Started	0	31 December 2019
Measures so that the discharges from Borrisokane Agglomeration assist the Ballyfinboy River (WFD River Segment Code: SH_25_3530) in achieving good water status by 2021. This includes reduction in the Ammonia (as N) ELV from 5 mg/l to 0.8 mg/l and also a reduction in the Orthophosphate as P ELV from 2mg/l to 0.4 mg/l	C	1/1/2021	N	(iii) Phosphate removal is currently employed at Borrisokane WWTP.		1/1/2021. Borrisokane WWTP to achieve Discharge ELV of 0.8 mg/l for Ammonia as N by 31/12/19, and also an ELV of 0.4mg/l for Orthophosphate as P by 1/1/2020

Comment:

6.0 Certification & Sign Off

I certify that this Annual Environmental Report (AER) for the reporting period 2013 for the Waste Water Discharge Licence No. D0326-01 in respect of Borrisokane Agglomeration is representative and accurate.

Signed:

Dated:



27 Feb. 2014.

Mr. Jim McGuire,

Senior Engineer,

Water Services,

North Tipperary Co. Council.

Appendix A:
Sewer Integrity Risk
Assessment

Section 1.1 Agglomeration Details						
Name		Borrisokane				
Licence Number		D0326-01				
Insert Name of Catchment if the Risk Assessment is for part of an agglomeration (only divide agglomeration where p.e. >5,000p.e. and where such division is warranted)		Borrisokane				
Date Licence Issued		19/10/2011				
Current Date		20/01/2014				
			Year	Year	Year	Year
			2013	2015	2018	2021
Waste Water Works - Wastewater Treatment Plant Details		Unit				
1.1	Is there an existing WWTP in operation?		Yes			
Section 1.2 BOD Loading & Population Equivalent						
1.2	Average Daily Influent Flow or Average Total Flow in system (If no measured data exists, insert estimated figure)	l/day, measured	289360			
1.3	Average Daily Influent BOD or Average BOD Load from area served (If no measured data exists, insert estimated figure)	mg/l, measured	235.93			
1.4	Total BOD Load	kg/day	68.2687048			
1.5	Average Population Equivalent (@0.06kg/person/day)	p.e.	1138			
1.6	Estimated (existing) Non-Domestic Load	p.e.	100			
1.7	Estimated Domestic Load	p.e.	1038			
1.8	Occupancy Rate for the Agglomeration	pop/house	2.92			
1.9	Estimated Number of Connected Properties	houses	355			
1.10	Number of properties within the agglomeration when compared with CSO Data or An Post Geodirectory	houses				
Section 1.3 Hydraulic Details						
1.11	Average Dry Weather Flow arriving at WWTP OR Total Average DWF in system (If no measured data exists insert estimated figure)	l/s, measured	1.96			
1.12	Estimated 3DWF	l/sec	5.88			
1.13	Annual Average Peak Flow to WWTP or discharging from whole system if there is no existing WWTP	l/s, measured	9.6			
1.14	This Annual Average Peak as Multiples of Dry Weather Flow (Peaking	Nr	4.90			
1.15	Highest Peak Flow Recorded (Insert UNKNOWN if no records exist)	l/s	15.75			
1.16	Does this Peak Flow (multiple of DWF) cause hydraulic capacity problems within the network ?	---	No			
1.17	Total Rainfall for Previous Year	mm	808			
1.18	Comparison - Mean Annual Rainfall for the agglomeration	mm	804			
1.18.1	Define the Weather Station Used		Gurteen			
1.19	If Storm Water Storage is available at the Wastewater Treatment plant, what is the volume of the storm tank ?	m ³	e has no stormwater tank			
1.20	Is the capacity of the storm tank sufficient to capture and retain all overflows to the tank ?	---	No			
1.21	Total monthly average volume of Storm Water Stored or Returned for Treatment within the Waste Water Treatment Plant	m ³ per month	n/a			
1.22	If the answer to 1.20 above is No, What is the estimated frequency of Overflows from the Storm Tank ? (N/A if no overflow)		N/A			
Waste Water Works - Sewer Network Details		Unit	2013	2015	2018	2021
Section 1.4 Waste Water Works - Gravity Sewer Details						
1.23	What database is used to maintain records of the sewer network	Hard Copy Drawings only				
1.23.1	If other or combination of the above please describe	Describe				
1.24	Total length of sewers (use drop down menus to define whether these figures are estimated or measured)	km Estimated	0.00	0.00	0.00	0.00
1.24.1	Total length of sewers > 450mm Diameter	km Estimated				
1.24.2	Total length of sewers > 300mm but ≤ 450mm in Diameter	km Estimated				
1.24.3	Total length of sewers > 225mm but ≤ 300mm in Diameter	km Measured				
1.24.4	Total length of sewers ≤ 225mm in Diameter	km Estimated				
1.24.5	Other	km Estimated	Unknown			
1.25	Pipeline Material					
1.25.1	What portion of the sewer network consists of Concrete Pipes	% Estimated				
1.25.2	What portion of the sewer network consists of Plastic Pipes	% Estimated				
1.25.3	What portion of the sewer network consists of Clay materials	% Estimated				
1.25.4	What portion of the sewer network consists of Brick Type Sewers	% Estimated				
1.25.5	What portion of the sewer network consists of Other Materials	% Estimated				
1.26	Total number of Storm Water Overflows (Enter '1' if none and state under Item 1.27 that there are no SWOs in the network; do not leave blank)	Nr	1			
1.27	What Screening or other mechanical devices are employed at the storm water overflows					
1.27.1	There are no SWOs in the network	Describe				

1.28	Water Quality at the receiving waters				
1.28.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)				
	There are no SWOs in the network	Describe			
1.28.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)				
	There are no SWOs in the network	Describe			
1.28.3	With reference to the SWO's detailed above define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.				
	There are no SWOs in the network	Describe			
1.28.4	With reference to the SWO's detailed above define are the receiving waters Protected Areas (designated or awaiting designation) .				
	SWO 1 located at Main Street	Designation			
1.28.5	With reference to the SWO's detailed above define do the receiving waters have any other designations.				
	There are no SWOs in the network	Designation			
Section 1.5 Waste Water Works - Pumping Stations					
1.29	Number of Pumping Stations (operated by the Local Authority)	Nr	3		
1.30	Total Length of Rising Mains (operated by the Local Authority)	km			
1.31	Rising Main Material				
1.31.1	What portion of the rising mains consists of ductile iron pipes	% Measured			
1.31.2	What portion of the rising mains consists of plastic pipes	% Measured			
1.31.3	What portion of the rising mains consists of other materials	% Estimated			
1.32	Discharge Capacity of the Pump Set (s) at normal duty point	l/sec			
1.33	What percentage of the pumping stations have recorded flow data (i.e. if all pumping stations have flow meters on the rising mains then this would read 100%)	%	0.00%		
1.34	Available Storage Capacity at Pump Stations				
	At Pump Station 1	m ³			
1.35	Total Number of " Licensed Secondary Discharge Points and Stormwater Overflows " at pumping stations	Nr			
1.36	Total Number of " Emergency Overflow Points " at pumping stations	Nr	1		
1.37	What Screening or other mechanical devices are employed at the secondary discharge points or emergency overflows ?				
	Town Park Pumping Station	Describe			
1.38	Water Quality at the receiving waters at each pumping station location				
1.38.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)				
	Town Park Pumping Station	Describe	Q3-Q4		
1.38.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)				
	N/A	Describe			
1.38.3	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.				
	Town Park Pumping Station		Not Listed		
1.38.4	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, are the receiving waters Protected Areas (designated or awaiting designation) .				

	Town Park Pumping Station	Designation	None			
1.38.5	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, do the receiving waters have any other designations.					
	Town Park Pumping Station	Designation	Not Listed			
1.39	Estimated Number of Private Pumping Stations within the agglomeration (not operated by the Local Authority)	Nr	0			
Section 1.6 Reporting						
Section 1.6.1 Reported Number of Sewer Related Complaints						
1.40	Number of Reported Complaints	Nr	0			
1.41	Number of Reported Complaints which have been rectified	Nr	0			
Section 1.6.2 Reported/Recorded/Estimated Number of Secondary Discharges						
1.42	Number of Reported Secondary Discharges	Nr	0			
1.43	Number of Recorded Secondary Discharges	Nr	0			
1.44	Estimated Total Number of Secondary Discharges	Nr	0			
Section 1.6.3 Reported/Recorded/Estimated Number of Emergency Overflow Discharges from Pumping Stations						
1.45	Number of Reported Emergency Overflow Discharges	Nr	0			
1.46	Number of Recorded Emergency Overflow Discharges	Nr	0			
1.47	Estimated Total Number of Emergency Overflow Discharges	Nr	0			
Section 1.7 Operational Staff						
1.48	In the four boxes below, describe the extent of operation staff employed by the Local Authority to maintain and operate the sewer network and pumping stations					
1.48.1	For example, 1 Nr. Fulltime Caretaker employed at General Operative Level (with basis H&S training) to operate & maintain the sewer network. 1 Nr. Part-time Caretaker employed as a Mechanical Fitter (FETAC Level 5) to operate & maintain the pumping stations.					
1.48.2	<i>1 Caretaker who spends part of his day in Borrisokane</i>					
1.48.3						
1.48.4						
Waste Water Works - Investment Details		Unit	2013	2015	2018	2021
Section 1.8 Capital Investment works carried out since most recent report (including works not included on WSIP Programme or not WSIP funded)						
1.49	Sewers Upgraded or Replaced	m				
1.50	Sewers Rehabilitated	m				
1.51	Manholes Rehabilitated	Nr				
1.52	Local Repairs	Nr				
1.53	Total Length of sewers Upgraded, Replaced or Rehabilitated	m	0			
1.54	Pumping Stations Operated by Local Authority Upgraded or Repaired	Nr	0			
1.55	WWTW operated by Local Authority Upgraded or Replaced	Nr	0			
1.56	In the following two cells describe the actual Capital Investment undertaken in the reporting period.					
1.56.1	<i>For example : Sewer Rehabilitation Contract Works being undertaken under the WSIP</i>					
1.56.2						
Section 1.9 Licence Specified Improvements Works						
1.57	<i>The Local Authority is required to report on the extent of Improvement Works which have been specified under the Licence as issued by the EPA. Reference which AER contains this information</i>					
Section 1.10 Other Updates Since Last Report						
1.58	<i>For example : 50% of the sewer network is currently being upgraded under the WSIP with an investment of €1.5m in 2010.</i>					
1.59	<i>For example : 2% of the sewer network is currently being replaced under the Local Authorities Annual Maintenance Fund</i>					
1.60						
1.61						
1.62						
1.63						

Section 2.1 Hydraulic Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review) ?	No	40		If the answer is No assess the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is Yes proceed to Queries 2.1.1 to 2.1.4 inclusive
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment ?	N/A	0		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER "0".
2.1.2	How many years has it been since the completion of the hydraulic assessment ?	N/A	0		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented ?	N/A	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the outcomes of the hydraulic assessment have been implemented ?	N/A	0		Select N/A response if no hydraulic performance assessment or design exists. For ongoing works select "less than 5".
2.2	Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network ?	No	10		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of Record Maps" ?	No	10		If the answer is No assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is Yes proceed to Query 2.2.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	more than 10	0		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents for Short Term Sewer Flows" ?	No	20		If the answer is No assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. If answer is Yes Proceed to Query 2.5
2.5	What was this Flow Survey Information Used for ?				
2.5.1	To Determine the extent of Problematic Sewer Catchments	N/A	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	N/A	0		Select N/A if no Flow Survey has been undertaken.
2.6	Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network ?	No	10		If the answer is No assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is Yes proceed to Query 2.8
2.7	How many flood events resulting from surcharge in the network have occurred in the past 3 years?	None	0		Flood events in this context means water/sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	Are there deficiencies in performance criteria within the sewer network ?	No	0		If the answer is No , Proceed to Query 2.10 and complete Query 2.12. If the answer is Yes proceed to Query 2.9
2.9	Have the causes of these deficiencies in the Performance Criteria been identified and rectified ?	No	10		If the answer is No , consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is Yes proceed to Query 2.10
2.10	Can the Hydraulic Assessment (defined in Query 2.1 above) be used to determine the benefit of reducing the contributory Impermeable Areas or extent of surface water contributions	No	10		If the answer is No , consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is Yes proceed to Query 2.11
2.11	Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration ?	No	10		If the answer is No , consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12.
Total Risk Assessment Score (RAS)			120		
2.12	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
2.13	In the AER provide Summary of Proposed Works or Direction to be taken to improve hydraulic efficiency				

Section 3.1 Environmental Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
3.1	What Environmental or Discharge Quality Data is available with regard to the sewer network ?	up-to-date electronic or paper database exists	0		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	Do trade effluents discharge to the sewer network?	Yes	20		If the answer is No , proceed to Query 3.1.2. If the answer is Yes , Proceed to Query 3.2
3.1.2	Are there Storm Water Overflows within the network ?	Yes	20	Stormwater overflow	If the answer is No , proceed to Query 3.1.3. If the answer is Yes , Proceed to Query 3.3
3.1.3	Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?	No	0		If the answer is No , proceed to Query 3.1.4.
3.1.4	Is there any evidence that exfiltration is occurring from the network ?	Unknown	20		If the answer is No , does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? Yes , Proceed to Query 3.6
3.2	If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer ?	0 - 10%	40		Select N/A if answer to Query 3.1.1 is No . If not all trade effluents are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	Are all licenced trade Discharges compliant with their relevant licence and associated conditions	N/A	0	Discharge licences	Answer N/A if none of the trade effluents are licenced. Answer No if this information is unknown. If the answer is Unknown or No , consider issuing a direction to the relevant Licence. If the answer is Yes , no further action is needed.
3.2.2	If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that non-compliance led to enforcement action)	0 - 10%	5		Select N/A if answer to Query 3.2.1 is Yes. If N/A is selected as answer to Query 3.2.2
3.3	In accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?	N/A	0	SWOs in Borrisok	If the answer is No , consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is Yes , proceed to Query 3.6
3.4	Have samples from any Secondary Discharges within the system been analysed ?	No	30		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is No , consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the answer is Yes , proceed to Query
3.5	What percentage of discharges from the system are known to cause environmental pollution of the receiving waters ?	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been undertaken ?	No	20		Select N/A if answer to Query 3.1.4 is NO. If the answer is No , consider undertaking ground water risk analysis and complete Query 3.12
3.6.1	If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.2	If Answer to Query 3.6.1 is "Yes", state the classification of groundwater aquifer identified in the area?	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.3	In relation to Query 3.6.1, is the aquifer used as a source for Public, Private or Group Water Supply Schemes?	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.7	Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows" including setting performance criteria?	N/A	0		If the answer is No , consider assessing the risk category of the receiving waters. If the answer is Yes , proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?	N/A	30		Select N/A if answer to Query 3.7 is No or if there are no SWOs in system. (Risk Score is locked at 0 if no SWOs in system is stated in Agglomeration Details)
3.9	Have the causes of these Capacity Deficiencies (storm water overflows & Secondary Discharges) been identified ?	N/A	0		Select N/A if answer to Query 3.7 is NO or if there are no SWOs in system. If the answer to Query 3.9 is No , consider further examination of the environmental model
Total Risk Assessment Score (RAS)			185		
3.10	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
3.11	Provide Summary Details (in the AER) of records upstream and downstream of licenced discharges with regard to Environmental Performance of the network. These details can be included as part of the AER submitted for the agglomeration.				

Section 4.1 Structural Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
4.1	Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?	Yes	0		If the answer is No assess the need and benefit of undertaking CCTV Survey. If Yes Proceed to Query 4.2
4.1.1	How many years has it been since the completion of the CCTV Survey?	5 to 10	5		If no CCTV has been undertaken, select "N/A" response
4.2	What was this CCTV Survey Information Used for?	Determine full extent of Sewer Rehab Works to be undertaken within Network	0		Select N/A if answer to Query 4.1 is NO.
4.3	Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?	Yes	0		If no CCTV has been undertaken, select "No" response. If the answer is No assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is Yes proceed to Q
4.4	Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?	No	5		If the answer is No , enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is Yes proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	0%	0		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 5 collapse, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)	0%	0		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 4 condition, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)	unknown	10		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)	unknown	5		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 2 feature, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)	unknown	5		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
If all % lengths are known, Check Total Length = 100%			20		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automatically set at the maximum of 140.
4.5	What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?	0 - 10%	35		Select N/A if answer to Query 4.4 is No . If the answer is No , Proceed to Query 4.6 If the answer is Yes , what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?	No	10		If the answer is No , consider further examination of the sewer network, the structural loading conditions, gradients and possible H ₂ S Formation. If Yes completed Query 4.7
Total Risk Assessment Score (RAS)			75		

4.7	Prepare Assessment of Needs & Sewer Rehabilitation Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
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Section 5.1 O&M Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	<u>Are complaints of an environmental nature recorded and held in a central database?</u>	Yes	0		Consider setting up Central Database for Complaints
5.2	<u>Is there an emergency response procedure in place?</u>	Yes	0		Consider setting up target response times for dealing with Complaints
5.3	<u>What has been the highest frequency of flooding in the network due to hydraulic inadequacy, over the past 5 years?</u>	None	0		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	<u>What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?</u>	None	0		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	<u>What has been the highest frequency of surcharging of critical sewers in the network, over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.6	<u>What has been the highest frequency of reportable incidents in the network, over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.7	<u>What has been the highest frequency of reportable incidents due to discharges, for whatever reason, from Pumping Station Emergency Overflows in the network, over the past 5 years?</u>	None	0		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	<u>What has been the highest frequency of blockages in sewers in the network over the past 5 years?</u>	unknown	20		Select the highest number of events per km of sewer network in any 12 month period.
5.9	<u>What has been the highest frequency of collapses in sewers in the network over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
5.10	<u>What has been the highest frequency of bursts in rising mains in the network over the past 5 years?</u>	None	0		Select the highest number of events in any 12 month period.
Total Risk Assessment Score (RAS)			20		
5.11	<u>Prepare Up Dated Operational and Maintenance Plan</u>				

Section 6.1 Summary of Risk Assessment Scores

Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	120	High Risk	80%	150
Section 3.1 Environmental Risk Assessment	185	Low Risk	37%	500
Section 4.1 Structural Risk Assessment	75	Medium Risk	50%	150
Section 5.1 O&M Risk Assessment	20	Low Risk	10%	200
Total RAS for Network	400	High Risk	40%	1000

If the total RAS is greater than 750, or if any of the individual RASs are greater than 75% of the Maximum Available Score, the Risk category for the Network is graded "High Risk"