

Annual Environmental Report 2015

Agglomeration Name:	Castleblayney
Licence Register No.	D0205-01



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Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for **D0205-01, Castleblayney**, in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration.

The agglomeration is served by a wastewater treatment plant with a Design PE of 12960. The treatment process includes the following:-

- Preliminary Treatment (Screens & Grit removal)
- Secondary Treatment (Aeration)
- Chemical dosing for phosphorus removal

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:-

- Total P (mg/l)

175,552kgs sludge (as dry solids) was removed from the wastewater treatment plant in 2015 as dewatered sludge cake. Sludge was transferred from Monaghan WWTP to Biocore Sludge Treatment Centre (lime stabilisation), Co. Meath (SSF-COR-MH-13-0001-02).

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

2.1.1 Monthly Influent Monitoring	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.	560	1213	430	12.6	65.6	5808	24,789
Annual Mean	235.17	523.09	190.16	5.31	38.876	1,939	9,633

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 less 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

2.2.1 Effluent Monitoring Summary	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total P (mg/l)	Ortho P (mg/l)	Total N (mg/l)	Ammonia NH3 (mg/l)	pH	Comments
WWDL ELV (Schedule A) where applicable	25	125	35	2	N/A			6 to 9	New ELVs from the 1 st January 2016: <ul style="list-style-type: none"> • 10 mg/L BOD • 0.3 mg/L Total phosphorus • 0.5 mg/L total Ammonia
ELV with Condition 2 Interpretation included	50	250	87.5	2.4	N/A			No allowable exceedances	
Number of sample results	12	12	12	12	12	12	12	12	
Number of sample results above WWDL ELV	0	0	0	2				0	
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	1				0	
Annual Mean (for parameters where a mean ELV applies)	4.24	28.33	6.07	1.22 (Annual Mean shall not exceed the ELV)	1.29	11.15	1.23	7.60	
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail				Pass	

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. There was 1 sample non-compliant with the ELV's in relation to Total Phosphorus. The non-compliance is due to the absence of phosphorus removal equipment at the time. The impact on receiving waters is assessed further in Section 2.3.

2.3. Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

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		
Upstream monitoring point	282870E 320196N	LS00600094 00 2800080	N	N	N	N	Unassigned	
Downstream monitoring point	283132E 319880N	LS06000940 2 800070	N	N	N	N	Unassigned	Yes, due to ortho phosphate and Total Phosphorus.

The results for the upstream and downstream monitoring are included in Appendix 7.2 Ambient Monitoring Results.

Significance of results

- The WWTP was non-compliant with the ELVs set in the wastewater discharge licence as detailed in Section 2.2.
- The discharge from the wastewater plant does have an observable negative impact on the water quality status.
- It is not currently possible to assess whether or not the discharge has an impact of the WFD status.

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 15/01/2016

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

The next PRTR is due in the 2016 AER i.e. February 2017.

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)
Influent mass loading (kg/year)	210,973	469,269	170,600	4,769	34,876
Effluent mass emission (kg/year)	3,203	21,400	4,689	810	8,446
% Efficiency (% reduction of influent load)	98%	95%	97%	83%	76%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	1,073,830
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	3,221,490
Hydraulic Capacity – Current loading (m3/year)	707,599
Hydraulic Capacity – Remaining (m3/year)	2,513,891
Organic Capacity - Design / As Constructed (PE)	12,960
Organic Capacity - Current loading (PE)	9,633
Organic Capacity – Remaining (PE)	3,327
Will the capacity be exceeded in the next three years? (Yes / No)	No

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 created 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 total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	Unknown
Load collected in the sewer network but discharges 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

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)
9266000	17/02/2015 11:44:00	Below Ground Waste Investigation Sewage Flooding	Blocked Sewer	Sewer jetted	Yes
42007128 16	15/05/2015 15:40:00	Below Ground Waste Investigation Sewage Flooding	Blocked Sewer	N/A: complaint assigned to wrong area	Yes
42007128 16	15/05/2015 15:40:00	Below Ground Waste Investigation Sewage Flooding	Blocked Sewer		Yes
42007128 16	15/05/2015 15:40:00	Below Ground Waste Investigation Sewage Flooding	Blocked Sewer		Yes

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
Emission	Breach of ELV	P removal required	1	P removal equipment installation commenced	No	Yes	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	1
Number of Incidents reported to the EPA via EDEN in 2015	1
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

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		N/A		
Industrial / Commercial Sludge	470	333	0.009	Y	Y	N
Landfill Leachate (delivered by tanker)	0	0	0.00%	N/A		
Landfill Leachate (delivered by sewer network)	0	0		N/A		
Other (specify)	0	0		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. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

The Storm Water Overflow Identification & Inspection report is included in Appendix 7.4. A summary of the significance and operation is included below. A summary of the significance and operation of SWO is included below.

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/Med/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
SW02	282499E 319728N	yes	Low	Unknown	12 (estimated by caretaker)	Unknown	Unknown	Estimated
SW03	282942E; 319957N	yes	High	Compliant	0	0	0	Measured
SW05	282401E 320112N	no	Low	Unknown	1 (estimated by caretaker)	Unknown	Unknown	Estimated
SW06	282841E 319258N	no	Low	Unknown	5 (estimated by caretaker)	Unknown	Unknown	Estimated

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 2013?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	No
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	Yes
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?	No

4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.

The Improvement Programme is included in Appendix 7.3.

The Improvement Programme report included in Appendix 7.3 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail other improvements identified through assessments required under the licence.

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
Waste water treatment plant and ancillary works	C	31/12/2015	Yes	(ii) At Planning Stage	0%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoEHLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C SWO assessment (Condition 4 & 5.2).	31/12/2015	Yes	2012 assessment works: (v) Complete. 2015 assessment works: (i) Not started.	2012 assessment works: 100%. 2015 assessment works: 0%.	Unknown	Works indicated in the 2012 Storm Water Overflows assessment are complete. The 2015 Assessment indicates that more works are required. The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

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 / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
Castleblayney Sewerage Scheme Phase 1 Wastewater Treatment Plant Upgrade	Installation of new ferric dosing system and submerged aerator	WWTP assessment (Condition 5.2).	95%	Unknown	Programme MN Castleblayney SS ph1 Submerged aerator installed in aeration tank 2.
	Remedial Works	Sewer Integrity Tool (Condition 5.2).	0		
	N/A	Secondary discharges assessment (Condition 5.2).	N/A	N/A	
	Upgrade of SWO to comply with DoEHLG criteria	SWO assessment (Condition 4 & 5.2).	2012 assessment works: 100%. 2015 assessment works: 0%.	Unknown	2012 assessment works are complete. -park road CSO was decommissioned -shercock rd CSO weir walls were raised. -Main st RAB (SW2) cso 6mm copa sac screen was added to capture influent. -monaghan rd cso was decommissioned. The 2015 Assessment indicates that more works are required. The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

	Assessment to investigate relocalisation of primary discharge point	Drinking Water Abstraction Point Risk Assessment (condition 4)	0%	Unknown	
	N/A	Pearl Mussel Impact Assessment (Condition 4)	N/A	N/A	
10007268	Flow Monitoring and Sampling MN	Improved Operational Control		01/06/2016	Critical Asset Programme

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	110	
Environmental Risk Assessment Score	Low	107	
Structural Risk Assessment Score	Medium	78.2125	
Operation & Maintenance Risk Assessment Score	Low	60	
Overall Risk Score for the agglomeration	High	355.2125	

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Never required by condition 5 in Licence	Required in this AER or outstanding from previous AER	Included in this AER / Remains outstanding	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	No	No	No	2012 AER
Drinking Water Abstraction Point Risk Assessment	No	No	No	2013 AER
Habitats Impact Assessment	Yes	N/A	N/A	N/A
Shellfish Impact Assessment	Yes	N/A	N/A	N/A
Pearl Mussel Report	Yes	N/A	N/A	N/A
Toxicity/Leachate Management	Yes	N/A	N/A	N/A
Toxicity of Final Effluent Report	Yes	N/A	N/A	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report	Status of Recommendations
Priority Substances Assessment	No	N/A	N/A
Drinking Water Abstraction Point Risk Assessment	Yes	Carry out assessment to investigate options to relocate the primary discharge point	No progress.

5.1 Priority Substances Assessment

The Priority Substances Assessment report is included in the 2012 AER. A summary of the findings of this report is included below.

Table 5.1 - Priority Substance Assessment Summary

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
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	Desk Top Study and Screening Analysis
Does the assessment include a review of Trade inputs to the works?	No
Does the assessment include a review of other inputs to the works?	No
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)	No
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?	No

5.2 Drinking Water Abstraction Point Risk Assessment.

The Drinking Water Abstraction Point Risk Assessment report is included in the 2013 AER. A summary of the findings of this report is included below.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
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	No
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)	Yes
What is the overall risk ranking applied by the licensee	L - M
Does the risk assessment consider the impacts of normal operation	Yes
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)	Yes
Does the risk assessment include control measures for each risk identified	Yes
Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator	Yes
Does the risk assessment include infrastructural control measures	No
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?	No

Where relevant, findings from this assessment should be considered under the Programme of Improvements required under Condition 5.

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?	Yes
List reason e.g. additional SWO identified	Storm water overflow SW06 was identified as part of this AER. SW05 was identified in previous AER, but no amendment was specifically requested.
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.)	No
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	Yes
List outstanding reports	

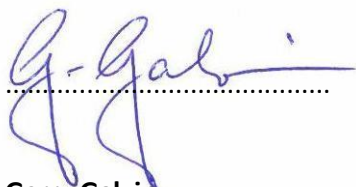
Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2015 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:



Gerry Galvin
Chief Technical Advisor

Date: 03/03/2016

Section 7. Appendix

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix 7.1 - Annual Statement of Measures

Appendix 7.2 - Ambient monitoring summary

Appendix 7.3 – Specified Improvement Programme

a) Specified Improvement Programme

b) Programme of Improvements

Appendix 7.4 - Storm water overflow identification and inspection report

Appendix 7.5 – Sewer integrity tool output

Appendix 7.1 Annual Statement of Measures

Risk /Description of issue	Risk Score	Mitigation Measure to be taken	Outcome	Action	Date for Completion
Meet lower Phosphorus ELV from 1 st Jan 2016	High	Commissioning of ferric dosing unit on site			The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Meet new Ammonia ELV from 1 st Jan 2016	High	Installation of an anoxic tank			The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
No record of SWO activating or measurement or flows.	Medium	Install SWO measurement/recorder device to measure flows/record no. times it activates			The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Improved Operational Control	Medium	Flow monitoring at WWTP	Improved Operational Control		Contractor Appointed , Site Survey and Design Underway

<p>Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoEHLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"</p>	<p>High</p>	<p>Upgrading storm overflows</p>	<p>Less spillages to Lough Muckno</p>	<p>Storm overflows upgraded</p>	<p>Works indicated in the 2012 Storm Water Overflows assessment are complete.</p> <p>The 2015 Assessment indicates that more works are required.</p> <p>The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.</p>
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Appendix 7.2 Ambient Monitoring Results

Castleblaney Upstream Monitoring Results										
Station	Sample Date	Sample Type	Temp oC	DO mg/l	Ammonia N mg/l	BOD, 5 days with Inhibition (Carbonaceous) mg/l	Ortho-Phosphate P mg/l	pH pH units	Total Nitrogen N mg/l	Total Phosphorus P mg/l
Castleblaney WWTP Upstream	27/01/2015	Grab	7.1	10.17	0.043	3	0.013	7.5	1.7	0.05
Castleblaney WWTP Upstream	17/02/2015	Grab			0.12	2	0.014	7.8	1.7	0.05
Castleblaney WWTP Upstream	11/03/2015	Grab	6.9	11.2	0.068	2	<0.009	8	< 1	0.05
Castleblaney WWTP Upstream	15/04/2015	Grab	10.4	10.21	0.29	3	0.017	7.6	1.3	0.07
Castleblaney WWTP Upstream	06/05/2015	Grab	10.2	9.35	0.09	3.5	0.014	7.5	1.5	0.09
Castleblaney WWTP Upstream	23/06/2015	Grab	18	8.96	0.1	2	0.01	7.9		
Castleblaney WWTP Upstream	08/07/2015	Grab	17.7	7.22	0.22	3	0.013	7.8	< 1	0.03
Castleblaney WWTP Upstream	11/08/2015	Grab	16.8	9.12	0.12	3	0.012	7.9	< 1	0.07
Castleblaney WWTP Upstream	01/09/2015	Grab	15.1	6.48	0.09	3	0.024	7.6	< 1	0.07
Castleblaney WWTP Upstream	06/10/2015	Grab	13	8.7	0.089	3	0.014	7.5	< 1	0.05
Castleblaney WWTP Upstream	03/11/2015	Grab	11.1	11.06	0.12	1	0.042	7.5	< 1	0.09
Castleblaney WWTP Upstream	01/12/2015	Grab	8.7	12.79	0.085	1.8	0.049	7.5	1.4	0.08
Average			13.5	9.24	0.119	2.52	0.019	7.68	1.26	0.06

Castleblaney Downstream Monitoring Results										
Station	Sample Date	Sample Type	Temp oC	Dissolved Oxygen mg/l	Ammonia N mg/l	BOD, 5 days with Inhibition (Carbonaceous) mg/l	Ortho-Phosphate P mg/l	pH units	Total Nitrogen N mg/l	Total Phosphorus P mg/l
Castleblaney WWTP Downstream	27/01/2015	Grab	4.6	10.69	0.048	3	0.016	7.5	1.4	0.05
Castleblaney WWTP Downstream	17/02/2015	Grab			0.096	2	0.024	7.8	1.7	0.06
Castleblaney WWTP Downstream	11/03/2015	Grab	6.4	11.2	0.074	2	<0.009	8	< 1	0.06
Castleblaney WWTP Downstream	15/04/2015	Grab	11.3	9.54	0.4	3	0.029	7.6	1.5	0.1
Castleblaney WWTP Downstream	06/05/2015	Grab	10.1	9.43	0.092	3.5	0.022	7.5	< 1	
Castleblaney WWTP Downstream	23/06/2015	Grab	18.7	8.3	0.11	2	0.181	7.9		
Castleblaney WWTP Downstream	08/07/2015	Grab	17.4	6.89	0.31	2	0.139	7.8	< 1	0.19
Castleblaney WWTP Downstream	11/08/2015	Grab	16.8	8.85	0.13	3	0.018	7.8	< 1	0.08
Castleblaney WWTP Downstream	01/09/2015	Grab	15.2	6.72	0.071	2	0.039	7.6	< 1	0.08
Castleblaney WWTP Downstream	06/10/2015	Grab	15.5	10.02	0.12	5	0.012	7.8	< 1	
Castleblaney WWTP Downstream	03/11/2015	Grab	11.1	10.6	0.2	< 1	0.044	7.5	< 1	0.08
Castleblaney WWTP Downstream	01/12/2015	Grab	8.2	12.92	0.079	2.3	0.05	7.5	1.7	0.08
Average			12.3	9.56	0.140	2.57	0.05	7.69	1.21	0.086

Appendix 7.3 Specified improvement programme

a) Specified Improvement Programme

As per condition 5 of the licence, 'a programme of infrastructural improvements to maximise the efficiency and effectiveness of the licence is required as part of the second AER'.

This report was submitted with the second 2012 AER for Castleblayney. An update on this report is provided as follows:

Under Schedule C.1 of the licence, 'Specified Improvement Programme', 'waste water treatment plant and ancillary works' are specified with completion date specified of 31st December 2015. In the initial discharge licence application in 2008, a large expansion of the Castleblayney WWTP was outlined to upgrade the design of the plant to 28,000 P.E. including major infrastructural works. However, since then, An Bord Pleanála have declared an upper limit of this expansion to the WWTP of 14,000 P.E. and only approved Stage 1 of the proposed works outlined as follows:

- Inlet pumping station
- 1 no. storm tank, 1,314m³ in volume
- Tertiary treatment units
- Picket fence thickener and
- New sludge dewatering building

Stage 1 proposed upgrading works for Castleblayney WWTP will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

Under schedule C.3 of the licence, upgrading of the Storm Water Overflows to comply with the criteria outlined in the DOEHLG 'Procedures and Criteria in relation to Storm Water Overflows, 1995' with completion date of 31st December 2015 specified. A detailed storm water and emergency overflow report is included in section appendix 7.4 of this report.

Under condition 5.2 (a) of the licence, the programme of infrastructural improvements shall include an assessment of the waste water treatment plant having regard to the effectiveness of the treatment provided by reference to the following:

(i) The existing level of treatment, capacity of treatment plant and associated equipment:

The existing level of treatment at the plant is secondary with dosing facilities on site for phosphorus reduction, currently, there is no operative dosing at the plant. There was 1 exceedance of the ELV (with condition 2 interpretation) for total phosphorus in 2015. Installation of a new ferric dosing system is due as a lower ELV limit for total phosphorus of 0.3mg/l will apply from 1st January 2016. A new ammonia ELV limit of 0.5mg/l will apply from this date also, for the effluent. A submerged aerator was added to both aeration basins at the plant in January 2015. Further upgrade works will be required,

(ii) The emission limit values specified in Schedule A: Discharges, of this licence:

There was 1 exceedance of the ELV for total phosphorus in 2015. There are new lower ELV's specified under Schedule A for the primary discharge point from 1st January 2016 for the parameters BOD, Total P and Ammonia. The ferric dosing system will be upgraded in 2016. In addition to the submerged aerators further upgrade to the plant will be required to meet the new ELV's for ammonia.

(iii) The designations of the receiving water body:

The outfall from the Castleblayney Waste Water Plant discharges to the Lough Muckno Lake via a small stream at National Grid Reference 283041E 319961N in the Town land of Drumillard Little, Castleblayney, Co Monaghan.

Lough Muckno is identified as 'sensitive' water in terms of the Urban Waste Water Treatment Regulations 2001. It is not designated Salmonid water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor designated as an SPA, SAC. It is a proposed Natural Heritage Area (pNHA). Lough Muckno is in the Neagh Bann river basin district with overall status classified as 'Bad' and at risk of not meeting good status by 2015, with overall objective to restore its status by 2021. The 'point risk source' and potential for impact from the Castleblayney WWTP discharge on the lake is categorised as '2b – not at risk' and the combined storm overflows (CSOs) categorised as '2b – not at risk', however the overall objectives relating to this water body is to upgrade WWTP discharges by 2021 (ref: WFD Ireland maps/website & reports.) The new lower ELV limits specified for the parameters BOD, ammonia and Total Phosphorus from January 2016 in the discharge licence concur with this objective. The ambient monitoring results for 2015 indicate that the BOD Environmental Quality Standards (Surface Water Reg's 2009) ('mean' EQS 1.5mg/l) are exceeded both upstream and downstream of the WWTP. Ortho Phosphorus average results are under the 'mean' EQS (0.035mg/l) for upstream but exceed it downstream. Total ammonia average figures exceed the 'mean' EQS (0.065mg/l) both upstream and downstream of the WWTP. There is currently no ELV for ammonia in the discharge licence, however, a new limit of 0.5mg/l is specified from 1st January 2016. Trends for Ammonia in the final effluent for 2015 indicate that this limit will not be achievable unless further upgrade works are carried out.

(iv) Downstream abstractions and uses of water:

Lough Muckno is a large lake in Castleblayney that is used for fishing and recreational activities. There are three drinking water abstraction points further downstream of Lough Muckno. The first drinking water abstraction point is by Northern Ireland Water, from Lough Ross some 3km downstream of Lough Muckno, at Carran hill water supply scheme, which supplies approximately 3600m³/day for the South Armagh area.

The second drinking water abstraction point is by Monaghan County Council, from the River Fane some 16km downstream of Lough Muckno, at Inniskeen Public Water Supply (PWS) water supply scheme, which supplies approximately 186m³/day for the Inniskeen area.

The third drinking water abstraction is located at Stephenstown in County Louth (Cavan Hill water supply scheme) approximately 26km downstream of Lough Muckno, supplying Dundalk town and parts of County Louth.

(v) Water quality objective for the receiving water body:

This item was addressed in point no. (iii) above.

(vi) The standards and volumetric limitations applied to any industrial waste water that is licensed to discharge to the waste water works:

Castleblayney WWTP can effectively treat section 16 discharge licences companies effluents that are licensed to discharge to the WWTP.

Under condition 5.2 (b) of the licence, the programme of infrastructural improvements shall include an assessment of the integrity of the waste water works having regard to:

(i) Capacity of the waste water works:

The capacity of the treatment plant is currently adequate as outlined in section 2.1 of this report.

(ii) Leaks from the waste water works:

There are no known leaks from the waste water works.

(iii) Misconnections between foul sewers and surface water drainage network:

Monaghan County Council’s Environment section monitor surface waters and investigate any misconnections highlighted. The more recent housing developments would have separate foul and surface water systems. Any misconnections brought to Monaghan County Council’s attention are investigated.

(iv) Infiltration by surface water/ground water:

A detailed survey was carried out of the Castleblayney network and treatment plant in 2008 by Consultants for Monaghan County Council. This survey highlighted deficiencies within the sewer network. The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis”

b) Programme of Improvements

Under condition 5.2 (c) of the licence, the programme of infrastructural improvements shall include an assessment of all storm water overflows associated with the waste water works to determine the effectiveness of their operation and in particular identify improvements necessary to comply with the requirements of this licence:

This item is addressed in the SWO/CSO detailed report included under appendix 2 of this report.

Condition 5.3 (a) and (b) of the licence, the programme of infrastructural improvements shall include a plan for implantation for each individual improvement identified:

This item is addressed in section 4.2 of this report and will be dependent on Irish Water funding.

Specified Improvement Programmes	Licence Schedule	Licence Completion date	Date Expired	Status of works	% Construction work completed	Licensee timeframe for completing work	Comments
Waste water treatment plant and ancillary works	C	31/12/2015	Yes	(ii) At Planning Stage	0%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a

							prioritised basis.
Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoEHLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C SWO assessment (Condition 4 & 5.2).	31/12/2015	Yes	2012 assessment works: (v) Complete. 2015 assessment works: (i) Not started.	2012 assessment works: 100%. 2015 assessment works: 0%.	Unknown	Works indicated in the 2012 Storm Water Overflows assessment are complete. The 2015 Assessment indicates that more works are required. The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

Appendix 7.4 Storm water overflow assessment

Storm Water Overflow Assessment

Agglomeration Name:	Castleblayney
Licence Register No.	D0205-01



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1 Introduction

This report has been prepared for D0205-01, Castleblayney, in County Monaghan in accordance with the requirements of Condition 4.12.1 of the wastewater discharge licence for the agglomeration. This report identifies storm water overflows within the agglomeration and assesses the compliance of the storm water overflows with the criteria set out in the DoEHLG document on ‘*Procedures and Criteria in Relation to Storm Water Overflows*’, 1995.

There are 2Nr. SWOs within the agglomeration. These are listed in Table 1. As there is no directory of cyprinid fisheries in Ireland, it will be considered in a conservative approach that Lough Muckno is a cyprinid fishery.

Table 1: Storm Water Overflows in the Agglomeration

Licence Code	Discharge Location		Receiving Water Name and WFD Code	WFD Status of Receiving Water	Other designation of receiving water
	Easting	Northing			
SW2	282879E	320154N	Lough Muckno NB-06-56	Bad	Nutrient Sensitive Lake, supposed cyprinid fishery
SW3	282942E	319957N	Lough Muckno NB-06-56	Bad	Nutrient Sensitive Lake, supposed cyprinid fishery
SW5	Not provided in 2012 Report.	Not provided in 2012 Report.	Lough Muckno NB-06-56	Bad	Nutrient Sensitive Lake, supposed cyprinid fishery

A storm water overflow assessment is required to comply with the requirements of the wastewater discharge licence condition as detailed below.

Condition 4.12- Storm Water Overflows

4.12.1 *The licensee shall, prior to the date for submission of the second AER (required under Condition 6.1 2), carry out an investigation for the identification and assessment of storm water overflows. A report on the storm water overflows shall be submitted to the Agency as part of the second AER. The assessment shall include a determination of compliance with the criteria for storm water overflows, as set out in the DoEHLG Procedures and Criteria in Relation to Storm Water Overflows’, 1995, and any other guidance as may be specified by the Agency.*

4.12.2 *The licensee shall carry out an assessment of storm water overflows at least once every three years thereafter and report to the Agency on each occasion as part of the AER. The assessment shall include a determination of compliance with the criteria for storm water overflows, as set out in the DoEHLG ‘Procedures and Criteria in Relation to Storm Water Overflows’, 1995, and any other guidance as may be specified by the Agency. The licensee shall maintain a written record of all assessments and remedial measures arising from the assessment.*

2 Storm Water Overflow Assessment

2.1 Description of SWOs

There are 4 overflows in the Castleblayney agglomeration:

- SW2 is the storm water overflow located at the Monaghan Road Roundabout. Excess flow discharges to a nearby separate storm water network over a 580 mm weir. There is also a gate valve located on the combined sewer that can be used to control overflow volumes. These excess flows are ultimately discharged to Lough Muckno via the storm water network. Following the storm water overflows assessment realised in 2012, this overflow was upgraded by extending the overflow wall by 200 mm up to 780 mm and by installing a 6 mm screen. This overflow is not known to cause any pollution.
- SW3 is the storm water overflow located at the Waste water treatment. Influent flows in excess of 3 DWF but lower than 6 DWF are held after screening at the inlet works in the storm water holding tank. In the event that the storm water holding tank is filled and the storm continues, the storm water holding tank discharges to Lough Muckno through the primary outfall pipe. Influent flows higher than 6 DWF directly discharge through the primary outfall pipe without being held into the storm water holding tank. This storm water overflow is not known to cause any pollution.
- SW5 is the storm water overflow located at Drumillard Green North (near Coogans). This storm water overflow was identified as part of the 2012 Storm water overflow assessment and is not identified in the Waste Water Discharge License. The overflow consists of overflow weir walls type. Unscreened excess flow discharges to Lough Muckno. It has to be noted that, during the inspection realised as part of the previous assessment, it was reported that no apparent discharge had ever occurred from this overflow.
- SW6 is the storm water overflow located on Dublin Road. This storm water overflow has been identified as part of the 2015 Annual Environmental Report and is not included in the Waste Water Discharge License. Excess flow discharges to Lough Muckno.

2.2 Assessment of Operating Criteria of SWOs

The following criteria for each SWO on the network have been examined in accordance with the assessment criteria set out in *Procedures and Criteria in Relation to Storm Water Overflows* in order to determine possible capacity constraints.

1. Does the SWO cause significant visual or aesthetic impact and public complaints
2. Does the SWO cause deterioration in water quality in the receiving water (i.e. is there a deterioration in ecological quality status attributable to the SWO)
3. Does the SWO gives rise to failure in meeting the requirements of national regulations on foot of EU Directives (e.g. bathing water quality standards, shellfish water quality standards, Water Framework Directive status etc.),
4. Does the SWO operate in dry weather.

Table 2: Assessment of Operating Criteria

CSO Ref	Causes significant visual or aesthetic impact and public complaints.	Causes deterioration in water quality in the receiving water	Gives rise to failure in meeting the requirements of national Regulations on foot of EU Directives.	Operates in dry weather	Compliant / Non-Compliant
SW2	No	Unknown	Unknown	No	Unknown
SW3	No	No	No	No	Compliant
SW5	No	Unknown	Unknown	No	Unknown
SW6	Unknown	Unknown	Unknown	Unknown	Unknown

2.3 Assessment of Design Criteria of SWOs

2.3.1 Compliance with Formula A

Formula A is used in the *Procedures and Criteria in Relation to Storm Water Overflows* as follows:-

$$\text{Formula A} = \text{DWF} + 1.36P + 2E \quad (\text{m}^3/\text{day})$$

P = design domestic population contributing to SWO (to be estimated)

E = design industrial effluent flow (estimated to be 20% of domestic PE unless otherwise by LA)

DWF = Dry weather flow m^3/day (dry weather flow of total PE, based on $0.175\text{m}^3/\text{PE}/\text{day}$)

The Annual Environmental Reports required by the Waste water discharge license for Castleblayney agglomeration provides estimations of the current loading of the plant. Table 3 gives a summary of the hydraulic loading of the plant between 2011 and 2014 based on a 175 L/PE/day ratio.

Table 3: Mean hydraulic loading of Castleblayney waste water treatment plant (Annual Environmental Reports)

Year of AER	Hydraulic loading
2011	6,000.00
2012	11,451.43
2013	13,217.14
2014	12,154.29

It can be noted that high hydraulic loadings have consistently been reported since 2012. Census data give an estimation of the population of Castleblayney over the years.

Table 4: Estimation of current Castleblayney population (Census data)

Year	Population	Change (%/annum)
1996	2,808	
2002	2,936	0.76%
2006	3,124	1.60%
2011	3,634	3.27%
Estimated 2014	3,990	Based on 2006 – 2011 growth rate
Estimated 2015	4,109	Based on 2006 – 2011 growth rate

Based on these data, the 2014 plant loading is considered to be composed of approximately 3,990 PE from domestic inputs and 7,424 PE from non-domestic inputs. Considering the estimated population growth between 2014 and 2015, and considering that this population growth also applies to the non-domestic inputs, the total hydraulic loading in 2015 is estimated to 11,750 PE, including 4,100 PE from domestic inputs and 7,650 PE from non-domestic inputs.

Using Geodirectory, an estimation of the number of addresses discharging to each storm water overflow has been realised. It has been supposed that the non-domestic inputs were distributed equally over the agglomeration. Table 5 provides an assessment of the domestic and industrial loading for each storm water overflow. For each type of loading (domestic or non-domestic), the loading at each storm water overflow is calculated by using the ratio between the numbers of addresses of this type connected to the storm water overflow to the total number of addresses of this type over the agglomeration. Each figure is rounded to the nearest 50 PE.

Table 5: Overflows loading estimation from Geodirectory data

SWO identification	Number of residential addresses	Domestic loading (PE)	Number of commercial addresses	Non-domestic loading (PE)	Total loading (PE)
SW02	860	2700	109	2850	5550
SW03	1312	4100	295	7650	11,750
SW05	161	500	3	100	600
SW06	85	300	21	550	850

Table 6 provide an assessment of the compliance of the existing overflows to the “Formula A” calculation based on the previous estimations.

Table 6: Formula A calculations

Designation	Formula A flow (L/s)	Spill setting (L/s)	Compliance to DOEHLG	Number of dilution
SW02	65.3	Unknown	Unknown	8.90
SW03	119.3	72.9 (6 DWF)	Yes ¹	1.26
SW05	9.49	Unknown	Unknown	24.69
SW06	8.67	Unknown	Unknown	17.42

2.3.2 Significance of Spill

In the 2014 Annual Environmental Report, it was estimated that SW02 was activated 12 times during the year and SW03 was activated 2 times during the year. No information concerning the duration

The significance of overflows to inland freshwaters has been assessed as follows:

<p>Low Significance: >8:1 Dilutions in Receiving water (average SWO DWF / 95%ile river flow) No interaction with other discharges</p>
<p>Medium Significance - only if all these criteria apply. Dilution < 8 : 1 Limited or no interaction with other discharges > 2,000 population equivalent Cyprinid fishery</p>
<p>High Significance - only if all these criteria apply. Dilution < 2 : 1 Interaction with other discharges > 10,000 population equivalent Cyprinid or salmonid fishery</p>

Table 7: Assessment of Significance

CSO Ref	Dilution	PE Range	Designation of Receiving Water	Significance
SW02	8.90	2,000 – 10,000	Nutrient Sensitive Lake, supposed cyprinid fishery	Low
SW03	1.26	>10,000	Nutrient Sensitive Lake, supposed cyprinid fishery	High
SW05	24.69	<2,000	Nutrient Sensitive Lake, supposed cyprinid fishery	Low
SW06	17.42	<2,000	Nutrient Sensitive Lake, supposed cyprinid fishery	Low

¹ This is a storm water overflow located at the waste water treatment plant. Provided that sufficient storage capacity is maintained, it is considered that this storm water overflow will be compliant.

2.4 Assessment of Requirement for Storage

The necessity for a storm tank within the sewer network has been assessed based on available dilution as detailed in Table 7 (from Procedures and Criteria in Relation to Storm Water Overflows) included as Table 8 below. The requirement for a storm tank at a wastewater treatment plant shall be based on an overflow setting of 3 DWF.

Table 8 – SDD Method Recommended Storage at Overflows¹

Dilution Factor ²	Overflow Setting	Storage Tank
> 8	Formula A	None
> 6	Formula A + 455 P or Formula A	None 40 l/PE
> 4	Formula A	40 l/PE
> 2	Formula A	80 l/PE
> 1	Formula A	120 l/PE

1. Table 3 extracted from Procedures and Criteria in Relation to Storm Water Overflows

2. Dilution factor = average DWF / 95%ile river flow.

Table 9 – Stormwater Storage within Agglomeration

CSO Ref	Dilution Factor ¹	Required Overflow Setting (l/s)	Actual Overflow Setting (l/s)	Required Storage Tank Volume (m ³)	Actual Storage Tank Volume (m ³)	Compliant / Non-Compliant
SW02	8.90	59.5	Unknown	None	Unknown	Unknown
SW03	1.26	103.8	72.9 (6 DWF)	514 (2 hours storage at 3 current DWF)	300	Compliant
SW05	24.69	9.29	Unknown	None	Unknown	Unknown
SW06	17.42	8.67	Unknown	None	Unknown	Unknown

2. Dilution factor = average DWF / 95%ile river flow

3 Remedial Measures to Ensure Compliance

3.1 Specified Improvement and Improvement Programme Works

The specified improvement works included in the licence for the agglomeration and improvement programme items identified in licence reports are listed in Table 10 below.

Table 10 – Specified Improvement Works

Specified Improvement / Improvement Programme Reference	Description	Current Status	License Reference:
C.3	Upgrading of SWO to comply with criteria outlined in DoEHLG 'procedures and criteria in relation to SWO's, 1995'	Completed in regard to assessment realised in 2012 AER	5.2 c

3.2 Additional Measures

The additional measures required, identified in this report are as follows:

- Assess the current spill setting for SW02, SW05 and SW06 to assess the compliance of these overflows to formula A spill setting
- Provide additional hydraulic and/or storage capacity to all overflows if required following the completion of the two previous assessments. It has to be noted that this assessment showed that SW03 has insufficient hydraulic and storage capacity and needs to be updated.

Appendix 7.5 Sewer integrity tool output

Section 1.1 Agglomeration Details						
Name		Castleblayney				
Licence Number		D0206-01				
Insert Name of Catchment if the Risk Assessment is for part of an agglomeration (only divide agglomeration where p.e. >6,000p.e. and where such division is warranted)		Castleblayney				
Date Licence Issued		02/02/2011				
Current Date		26/02/2018				
			Year	Year	Year	Year
Waste Water Works - Wastewater Treatment Plant Details		Unit	2015	2016	2017	2018
1.1 Is there an existing WWTP in operation?			Yes	Yes	Yes	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	1939000			
1.3	Average Daily Influent BOD or Average BOD Load from area served (if no measured data exists, insert estimated figure)	mg/l, measured	235.17			
1.4	Total BOD Load	kg/day	455.99463	0	0	0
1.5	Average Population Equivalent (@0.06kg/person/day)	p.e.	7600	0	0	0
1.6	Estimated (existing) Non-Domestic Load	p.e.	2734			
1.7	Estimated Domestic Load	p.e.	4866	0	0	0
1.8	Occupancy Rate for the Agglomeration	pop/house	2.46			
1.9	Estimated Number of Connected Properties	houses	1978	0	0	0
1.10	Number of properties within the agglomeration when compared with CSO Data or An Post Geodirectory	houses	1692			
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	16.72395833			
1.12	Estimated 3DWF	l/sec	50.17	0.00	0.00	0.00
1.13	Annual Average Peak Flow to WWTP or discharging from whole system if there is no existing WWTP	l/s, measured	52.14			
1.14	This Annual Average Peak as Multiples of Dry Weather Flow (Peaking Factor)	Nr	3.12	0.00	0.00	0.00
1.15	Highest Peak Flow Recorded (Insert UNKNOWN if no records exist)	l/s	67.2			
1.16	Does this Peak Flow (multiple of DWF) cause hydraulic capacity problems within the network ?	—	Yes			
1.17	Total Rainfall for Previous Year	mm	1269			
1.18	Comparison - Mean Annual Rainfall for the agglomeration	mm	1006.9			
1.18.1	Define the Weather Station Used		Ballyhaise			
1.19	If Storm Water Storage is available at the Wastewater Treatment plant, what is the volume of the storm tank ?	m ³	300			
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	Unknown			
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)		1 to 2 times per month			
Waste Water Works - Sewer Network Details		Unit	2015	2016	2017	2018
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	Hard Copy Drawings only	SUS 2002	SUS 2003
1.23.1	If other or combination of the above please describe	Describe	PDF and hard copy of drawings			
1.24	Total length of sewers (use drop down menus to define whether these figures are estimated or measured)	km Estimated	25.67	0.00	0.00	0.00
1.24.1	Total length of sewers > 450mm Diameter	km Estimated	0.00			
1.24.2	Total length of sewers > 300mm but ≤ 450mm in Diameter	km Estimated	0.82			
1.24.3	Total length of sewers > 225mm but ≤ 300mm in Diameter	km Measured	4.10			
1.24.4	Total length of sewers ≤ 225mm in Diameter	km Estimated	20.75			
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	0%			
1.25.2	What portion of the sewer network consists of Plastic Pipes	% Estimated	47%			
1.25.3	What portion of the sewer network consists of Clay materials	% Estimated	38%			
1.25.4	What portion of the sewer network consists of Brick Type Sewers	% Estimated	0%			
1.25.5	What portion of the sewer network consists of Other Materials	% Estimated	15%			
1.26	Total number of Storm Water Overflows	Nr	2			

1.27	What Screening or other mechanical devices are employed at the storm water overflows					
	SWO No. SW2 located at Monaghan Rd Roundabout	Describe	Overflow MH no screen			
	SWO No. SW3 located at Storm tank at WWTP	Describe	REM RGB800 mechanical band screen			
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)					
	SWO No. SW2 located at Monaghan Rd Roundabout	Describe	Q3-Q4			
	SWO No. SW3 located at Storm tank at WWTP	Describe	Q3-Q4			
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)					
	SWO No. SW2 located at Monaghan Rd Roundabout	Describe	N/A			
	SWO No. SW3 located at Storm tank at WWTP	Describe	N/A			
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.					
	SWO No. SW2 located at Monaghan Rd Roundabout	Describe	Sensitive			
	SWO No. SW3 located at Storm tank at WWTP	Describe	Sensitive			
1.28.4	With reference to the SWO's detailed above define are the receiving waters Protected Areas (designated or awaiting designation)					
	SWO No. SW2 located at Monaghan Rd Roundabout	Designation	Not Listed			
	SWO No. SW3 located at Storm tank at WWTP	Designation	Not Listed			
1.28.5	With reference to the SWO's detailed above define do the receiving waters have any other designations.					
	SWO No. SW2 located at Monaghan Rd Roundabout	Designation	Not Listed			
	SWO No. SW3 located at Storm tank at WWTP	Designation	Not Listed			
Section 1.6 Waste Water Works - Pumping Stations						
1.29	Number of Pumping Stations (operated by the Local Authority)	Nr	9			
1.30	Total Length of Rising Mains (operated by the Local Authority)	km	2.8			
1.31	Rising Main Material					
1.31.1	What portion of the rising mains consists of ductile iron pipes	% Measured	76%			
1.31.2	What portion of the rising mains consists of plastic pipes	% Measured	24%			
1.31.3	What portion of the rising mains consists of other materials	% Estimated	N/A			
1.32	Discharge Capacity of the Pump Set (s) at normal duty point					
	At Pump Station at Monaghan Road PS		12.5 l/s			
	At Pump Station at Muckno St PS		77.78 l/s			
	At Pump Station at Ashview Court PS		unknown			
	At Pump Station at Laurel Hill PS		unknown			
	At Pump Station at Crescent Hill PS		9.1 l/s			
	At Pump Station at Bree PS		27.3 l/s			
	At Pump Station at Kocktumagh PS		8.5 l/s			
	At Pump Station at Conabury Hill PS		unknown			

	At Pump Station at Dundalk Road PS		4.7 l/s			
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%)	%	66.67%			
1.34	Available Storage Capacity at Pump Stations (Include pump sump and any storm water/emergency overflow tanks)					
	At Pump Station at Monaghan Road PS	m ³	10.6			
	At Pump Station at Muckno St PS	m ³	23.7			
	At Pump Station at Ashview Court PS	m ³	2.2			
	At Pump Station at Laurel Hill PS	m ³	15.7			
	At Pump Station at Crescent Hill PS	m ³	27.4			
	At Pump Station at Bree PS	m ³	31.2			
	At Pump Station at Kocktumagh PS	m ³	10.2			
	At Pump Station at Conabury Hill PS	m ³	16.1			
	At Pump Station at Dundalk Road PS	m ³	15.5			
1.35	Total Number of "Licenced Secondary Discharge Points and Stormwater Overflows" at pumping stations	Nr	0			
1.36	Total Number of "Emergency Overflow Points" at pumping stations	Nr	2			
1.37	What Screening or other mechanical devices are employed at the secondary discharge points or emergency overflows ?					
	At Pump Station at Monaghan Road PS	Describe	unscreened			
	At Pump Station at Muckno St PS	Describe	unscreened			
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)					
	At Pump Station at Monaghan Road PS	Describe	N/A			
	At Pump Station at Muckno St PS	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)					
	At Pump Station __ at _____	Describe	N/A			
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.					
	At Pump Station at Monaghan Road PS		Not Listed			
	At Pump Station at Muckno St PS		Sensitive			

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) .					
	At Pump Station at Monaghan Road PS	Designation	n/a			
	At Pump Station at Muckno St PS	Designation	n/a			
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.					
	At Pump Station at Monaghan Road PS	Designation	n/a			
	At Pump Station at Muckno St PS	Designation	n/a			
1.39	Estimated Number of Private Pumping Stations within the agglomeration (not operated by the Local Authority)	Nr	0			
Section 1.8 Reporting						
Section 1.8.1 Reported Number of Sewer Related Complaints ('Complaint' as defined in the Discharge Licence)						
1.40	Number of Reported Complaints	Nr	4			
1.41	Number of Reported Complaints which have been rectified	Nr	4			
Section 1.8.2 Reported/Reordered/Estimated Number of Secondary Discharges						
1.42	Number of Reported Secondary Discharges	Nr	16			
1.43	Number of Reordered Secondary Discharges	Nr	0			
1.44	Estimated Total Number of Secondary Discharges	Nr	16	0	0	0
Section 1.8.3 Reported/Reordered/Estimated Number of Emergency Overflow Discharges from Pumping Stations						
1.45	Number of Reported Emergency Overflow Discharges	Nr	0			
1.46	Number of Reordered Emergency Overflow Discharges	Nr	0			
1.47	Estimated Total Number of Emergency Overflow Discharges	Nr	0	0	0	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 (The individual personnel shall not be named, only grade and level of training needs to be provided)					
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 Nr. Fulltime Caretaker			
1.48.2						
1.48.3						
1.48.4						
Waste Water Works - Investment Details						
Section 1.8 Capital Investment works carried out since most recent report (including works not included on WSIP Programme or not WSIP funded)		Unit	2015	2016	2017	2018
1.49	Sewers Upgraded or Replaced	m	0			
1.50	Sewers Rehabilitated	m	0			
1.51	Manholes Rehabilitated	Nr	0			
1.52	Local Repairs	Nr	0			
1.53	Total Length of sewers Upgraded, Replaced or Rehabilitated	m	0	0	0	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	Castleblaney Sewerage Scheme Phase 1 Wastewater Treatment Plant Upgrade					
1.56.2						
Section 1.8 Licence Specified Improvements Works						

1.57	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		2014 AER			
Section 1.10 Other Updates Since Last Report						
1.58	Installation of new ferric dosing system and submerged aerator was expected to be completed in 2016 (2014 AER). This upgrade is not due to be completed in 2016.					

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	<u>Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review)?</u>	Yes	0		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?	62%	10		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?	5 to 10	3		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented?	No	5		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?	Never	5		Select N/A response if no hydraulic performance assessment or design exists. For onging works select "less than 5".
2.2	<u>Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network?</u>	Yes	0		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	<u>Has a Manhole Survey been undertaken in accordance with WRo Documentation "Model Contract Document for Manhole Location Surveys, and the Production of Record Maps"?</u>	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?	N/A	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	<u>Has a Flow Survey been undertaken in accordance with WRo Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents for Short Term Sewer Flows"?</u>	Yes	0		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	<u>What was this Flow Survey Information Used for?</u>				
2.5.1	To Determine the extent of Problematic Sewer Catchments	No	10		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	No	10		Select N/A if no Flow Survey has been undertaken.
2.6	<u>Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network?</u>	Yes	0		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	<u>How many flood events resulting from surcharge in the network have occurred in the past 3 years?</u>	3 to 6	7		Flood events in this context means water/sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	<u>Are there deficiencies in performance criteria within the sewer network?</u>	Yes	20		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	<u>Have the causes of these deficiencies in the Performance Criteria been identified and rectified?</u>	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	<u>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?</u>	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	<u>Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration?</u>	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)			110		
2.12	<u>Prepare Assessment of Needs & Sewer Upgrade Implementation Plan</u>	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	<u>What Environmental or Discharge Quality Data is available with regard to the sewer network?</u>	largely anecdotal	20		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	<u>Do trade effluents discharge to the sewer network?</u>	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	<u>Are there Storm Water Overflows within the network?</u>	Yes	20		If the answer is No, proceed to Query 3.1.3. If the answer is Yes, Proceed to Query 3.3
3.1.3	<u>Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?</u>	No	0		If the answer is No, proceed to Query 3.1.4.
3.1.4	<u>Is there any evidence that exfiltration is occurring from the network?</u>	Unknown	20		If the answer is No, does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If Yes, Proceed to Query 3.6
3.2	<u>If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer?</u>	81 - 90%	2		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	<u>Are all licenced trade Discharges compliant with their relevant licence and associated conditions?</u>	Yes	0		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 Licencees. If the answer is Yes, no further action is needed.
3.2.2	<u>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)?</u>	N/A	0		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	<u>In accordance with the DoPHLO paper "Procedures & Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?</u>	100%	0		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	<u>Have samples from any Secondary Discharges within the system been analysed?</u>	N/A	0		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	<u>What percentage of discharges from the system are known to cause environmental pollution of the receiving waters?</u>	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	<u>In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been undertaken?</u>	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. If the answer is Yes, proceed to Query 3.6
3.6.1	<u>If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.2	<u>If Answer to Query 3.6.1 is "Yes", state the classification of groundwater aquifer identified in the area?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.3	<u>In relation to Query 3.6.1, is the aquifer used as a source for Public, Private, or Ground Water Supply Schemes?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.7	<u>Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoPHLO paper "Procedures & Criteria in relation to Storm Water Overflows" including setting performance criteria?</u>	Yes	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	<u>What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?</u>	> 80%	10		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	<u>Have the causes of these Capacity Deficiencies (storm water overflows & Secondary Discharges) been identified?</u>	No	15		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
Total Risk Assessment Score (RAS)			127		
3.10	<u>Prepare Assessment of Needs & Sewer Upgrade Implementation Plan</u>	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 WRo 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?	Yes	0		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)	1%	2		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)	5%	6		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	Only 60% of the sewer network was surveyed. Of this, 93.6% was reported as < Grade 4	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	Only 60% of the sewer network was surveyed. Of this, 93.6% was reported as < Grade 4	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	Only 60% of the sewer network was surveyed. Of this, 93.6% was reported as < Grade 4	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%			28		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)			78		
4.7	Prepare Assessment of Needs & Sewer Rehabilitation Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

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>	Once/yr	4		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>	Twice/yr	8		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>	3 times/yr	8		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>	More than 5 times/yr	20		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>	Twice/yr	4		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>	0.1 - 0.25/km/yr	16		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)			80		
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	110	High Risk	73%	150
Section 3.1 Environmental Risk Assessment	127	Low Risk	25%	500
Section 4.1 Structural Risk Assessment	78.2125	Medium Risk	52%	150
Section 5.1 O&M Risk Assessment	60	Low Risk	30%	200
Total RAS for Network	375.2125	High Risk	38%	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"