

# Annual Environmental Report 2016

<b>Agglomeration Name:</b>	<b>Knockaconny</b>
<b>Licence Register No.</b>	<b>D0463-01</b>



# Contents

<b>Section 1. Executive Summary and Introduction to the 2016 AER</b>	<b>2</b>
1.1 Summary Report on 2016	3
<b>Section 2. Monitoring Reports Summary</b>	<b>4</b>
2.1 Summary report on monthly influent monitoring	4
2.2 Discharges from the agglomeration	5
2.3.1. Ambient Monitoring Summary	7
2.4 Data collection and reporting requirements under the UWWTD	7
2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year	7
<b>Section 3. Operational Reports Summary</b>	<b>8</b>
3.1 Treatment Efficiency Report	8
3.3 Extent of Agglomeration Summary Report	8
3.4 Complaints Summary	9
3.5 Reported Incidents Summary	10
3.6 Sludge / Other inputs to the WWTP	11
<b>Section 4. Infrastructure Assessments and Programme of Improvements</b>	<b>12</b>
4.1 Storm water overflow identification and inspection report	12
4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.	13
<b>Section 5. Licence Specific Reports</b>	<b>16</b>
5.1 Priority Substances Assessment	17
5.2 Drinking Water Abstraction Point Risk Assessment	18
<b>Section 6. Certification and Sign Off</b>	<b>19</b>
<b>Section 7. Appendices</b>	<b>20</b>
Appendix 7.1 – Statement of Measures / Improvement Programme	
Appendix 7.2 – Ambient Monitoring	
Appendix 7.3 – Sewer Integrity Risk Assessment 2016	
Appendix 7.4 - Drinking water risk assessment 2016	

## Section 1. Executive Summary and Introduction to the 2016 AER

### 1.1 Summary Report on 2016

This Annual Environmental Report has been prepared for **D0463-01, Knockaconny**, in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified assessments are included as an appendix to the AER as follows:

- Sewer Integrity Risk Assessment in **Appendix 7.3**
- Drinking water risk assessment in **Appendix 7.4**

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 1000. The treatment process includes the following:-

- Preliminary Treatment (Screens)
- Secondary Treatment (Aeration)
- Nutrient Removal (Chemical Dosing for Phosphorus Removal)

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

The following parameters exceeded the emission limit values in 2016:-

- Ammonia NH<sub>3</sub> (mg/l)

No sludge was removed from the wastewater treatment plant in 2016. Sludge was transferred to sludge drying beds onsite. A flow meter was installed on the WAS (waste activated sludge) in 2016. The volume of sludge removed to sludge beds will be available for AER 2017.

There were no major capital or operational changes undertaken in 2016

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

<b>2.1.1 Monthly Influent Monitoring</b>	<b>BOD (mg / l)</b>	<b>COD (mg / l)</b>	<b>SS (mg / l)</b>	<b>TP (mg / l)</b>	<b>TN (mg / l)</b>	<b>Hydraulic Loading (m3/d)</b>	<b>Organic Loading (PE/Day)</b>
<b>Number of Samples</b>	6	6	6	0	0		
<b>Annual Max.</b>	759	3390	1065	0	0	280.8	430
<b>Annual Mean</b>	210.15	688.59	418.88			66.10	274.36

Other inputs, where relevant, are detailed in Section 3.6.

#### 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 design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

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 less than the Treatment Plant Capacity as detailed further in Section 3.2.

## 2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

<b>2.2.1 Effluent Monitoring Summary</b>	<b>BOD (mg/l)</b>	<b>COD (mg/l)</b>	<b>TSS (mg/l)</b>	<b>Ortho P (mg/l)</b>	<b>Ammonia NH3 (mg/l)</b>	<b>pH</b>
<b>WWDL ELV (Schedule A) where applicable</b>	20.00	125.00	35.00	3.00	5.00	6 to 9
<b>ELV with Condition 2 Interpretation included</b>	40.00	250.00	87.50	3.60	6.00	No allowable exceedances
<b>Interim % Reduction (Schedule A)</b>						
<b>Number of sample results</b>	6	6	6	6	6	6
<b>Number of sample results above WWDL ELV</b>	0	0	0	0	2	0
<b>Number of sample results above ELV with Condition 2 Interpretation</b>	0	0	0	0	0	0
<b>Annual Mean (for parameters where a mean ELV applies)</b>						
<b>Overall Compliance (Pass/Fail)</b>	Pass	Pass	Pass	Pass	Fail	Pass

### Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. The non-compliance was due to 2 exceedances of the ELV 1 for ammonia on the 03/02/16 and the 10/05/16, the ELV with condition 2 interpretation was not exceeded. The suspected cause of the exceedances was a shock load to the WWTP. Aeration was fully operational at all times. Compliance samples taken in July, October and November 2016 were compliant with licence ELV 's. The impact on receiving waters is assessed further in Section 2.3.

### 2.3.1. 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	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Upstream Monitoring Point	268906E 335795N	RS03B010640					Poor
Downstream Monitoring Point	269003E 335758N	RS03B010641	No	No	No	No	Poor

The results for the upstream and downstream monitoring and/or additional monitoring data sets from Irish Water are included in Appendix 7.2.

#### Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence as detailed in Section 2.2.
- The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.
- The discharge from the WWTP doesn't have an observable negative impact on the Water Framework Directive status.
- Other potential causes of deterioration in water quality relevant to this area are unknown

### 2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 11/01/2017

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

A PRTR is not required as the PE is < 2000

## 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)	6,009	19,688	11,976		
Effluent mass emission (kg/year)	113	690	371	58	589
% Efficiency (% reduction of influent load)	98%	96%	97%		

<b>Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)</b>	227
<b>Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)</b>	681
<b>Hydraulic Capacity – Current loading (m3/day)</b>	66
<b>Hydraulic Capacity – Remaining (m3/day)</b>	615
<b>Organic Capacity - Design / As Constructed (PE)</b>	1,000
<b>Organic Capacity - Current loading (PE)</b>	274
<b>Organic Capacity – Remaining (PE)</b>	726
<b>Will the capacity be exceeded in the next three years? (Yes / No)</b>	No
<b>Is an upgrade or expansion of the WWTP proposed? (i.e. if on Minor Programme or CIP) (Yes/No)</b>	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**

	<b>% of P.E. load generated in the agglomeration</b>	<b>Estimated / Measured</b>
<b>Load generated in the agglomeration that is collected in the sewer network</b>	Unknown	Estimated
<b>Load collected in the agglomerations that enters treatment plant</b>	100%	Estimated
<b>Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)</b>	0%	Estimated

**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.

### 3.4 Complaints Summary

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

**Table 3.4 - Complaints Summary Table**

<b>Number of Complaints</b>	<b>Nature of Complaint</b>	<b>Number Open Complaints</b>	<b>Number Closed Complaints</b>
None			

### 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	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
Non Compliance	Breach of ELV 1 (5mg/l N) for Ammonia on 2 occasions. Condition B3 of the WWDA only permits 1 exceedance of ELV 1.	Suspected shock load to the WWTP. July, October and November Compliance samples were all within WWDL ELV's	1	No	Dissolved Oxygen levels monitored will continue to be monitored on a daily basis.	IFI	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**

<b>Number of Incidents in 2016</b>	1
<b>Number of Incidents reported to the EPA via EDEN in 2016</b>	1
<b>Explanation of any discrepancies between the two numbers above</b>	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	P.E.	% of load to WWTP	Included in Influent Monitoring? (Y/N)	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		N/A			No
Industrial / Commercial Sludge	0		N/A			No
Landfill Leachate (delivered by tanker)	0		N/A			No
Landfill Leachate (delivered by sewer network)	0		N/A			No
Other (specify)	0		N/A			No

## Section 4. Infrastructure Assessments and Programme of Improvements

### 4.1 Storm water overflow identification and inspection report

The Stormwater Overflow Assessment was submitted previously in AER 2014. A summary of the significance and operation 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 2016 (No. of events)	Total volume discharged in 2016 (m3)	Total volume discharged in 2016 (P.E.)	Estimated / Measured data
SWO002	268917E 335781N	Yes	Low	Compliant	Unknown	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 2016?	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 report included in Appendix 7.1 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
None							

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
Implement a Phosphorus Removal System	Installation of a ferric dosing system to lower ortho P levels discharging from the WWTP	WWTP assessment (Condition 5.2)	100%		Completed in 2015
Mechanical Screener at inlet works	To remove screenings at inlet works to prevent them going forward into treatment process.	WWTP assessment (Condition 5.2)	100%		Complete 2016
10007268	Flow monitoring and sampling MN	Improved Operational Control	100%		Complete 2016

No record or measurement of outflows or flows into river	Install magmeter flow measurement recorder device to measure flows	SWO assessment	100%		Event recorder installed 2016
--	--	----------------	------	--	-------------------------------

**Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary**

<b>The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:</b>	<b>Risk Assessment Rating (High, Medium, Low)</b>	<b>Risk Assessment Score</b>	<b>Reference to relevant section of AER (e.g. Appendix 2 Section 4.</b>	<b>Specified improvements</b>	<b>Comment</b>
<b>Hydraulic Risk Assessment Score</b>	High	120	2016		
<b>Environmental Risk Assessment Score</b>	Low	145	2016		
<b>Structural Risk Assessment Score</b>	High	140	2016		
<b>Operation &amp; Maintenance Risk Assessment Score</b>	Low	52	2016		
<b>Overall Risk Score for the agglomeration</b>	High	457	2016		

## 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	Required	No	No	AER 2014
Drinking Water Abstraction Point Risk Assessment	Required	Yes	Yes	Appendix 7.4: Drinking Water Risk Assessment
Shellfish Impact Assessment	Not Required			
Pearl Mussel Report	Not Required			
Toxicity/Leachate Management	Not Required			
Toxicity of Final Effluent Report	Not Required			
Small Stream Risk Score Assessment	Not Required			
Habitats Impact Assessment	Not Required			

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	No further screening required
Drinking Water Abstraction Point Risk Assessment	Yes	There were no recommendations
Shellfish Impact Assessment	No	
Pearl Mussel Report	No	
Toxicity/Leachate Management	No	
Toxicity of Final Effluent Report	No	
Small Stream Risk Score Assessment		
Habitats Impact Assessment	No	



## 5.1 Priority Substances Assessment

The Priority Substances Assessment was submitted previously in AER 2014 and is summarised below:

<b>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</b>	Desktop Study and Screening Analysis
<b>Does the assessment include a review of Trade inputs to the works?</b>	Yes
<b>Does the assessment include a review of other inputs to the works?</b>	No
<b>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)</b>	Yes
<b>Does the assessment identify that priority substances may be impacting the receiving water?</b>	No
<b>Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?</b>	No
<b>Recommendations</b>	No further screening required
<b>Status of any improvement measures required</b>	

## 5.2 Drinking Water Abstraction Point Risk Assessment

The Drinking Water Risk Assessment is included in Appendix 7.4. A summary of the significance and operation is included below:

**Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary**

<b>Is a Drinking Water Abstraction Risk Assessment required in the 2016 AER (or outstanding from a previous AER)</b>	Outstanding from a previous AER
<b>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?</b>	No
<b>Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)?</b>	No
<b>What is the overall risk ranking applied by the licensee?</b>	Low
<b>Does the risk assessment consider the impacts of normal operation?</b>	Yes
<b>Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)?</b>	Yes
<b>Does the risk assessment include control measures for each risk identified?</b>	N/A
<b>Does the risk assessment consider operational control measures?</b>	N/A
<b>Does the risk assessment include infrastructural control measures?</b>	N/A
<b>Recommendations</b>	There were no recommendations
<b>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?</b>	N/A
<b>Status of any improvement measures required.</b>	N/A

## Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	N/A
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)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	Yes
Ensure the following reports are included	Sewer Integrity Risk Assessment 2016 Drinking water risk Assessment 2016

### Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2016 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

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

Signed:  Date: 24/02/2017

**Elizabeth Arnett**  
Head of Corporate Affairs and Environmental Regulation

## Section 7. Appendices

### Appendix 7.1 Statement of Measures

1	Issue	Implement a phosphorus removal system to lower ortho P levels discharging from the WWTP
	Mitigation Measure	Install a ferric dosing system
	Status	Complete 2015. No breaches of ELV for orthophosphate in 2016
2	Issue	Screenings by passing hand raked screen
	Mitigation Measure	Fit mechanical screener at inlet works
	Status	Complete 2016.
3	Issue	No record of SWO outflows to river
	Mitigation Measure	Install recorder device
	Status	Event monitor on SWO installed 2016

### Specified Improvement Programme

#### a) Improvement Programme

Report below details progress made and proposals being developed to meet the improvement programme requirements

*As per condition 5.1 of the licence, a programme of infrastructural improvements to maximise the efficiency and effectiveness of the waste water works shall be prepared and submitted:*

In the licence, under schedule C, there are no specified improvements. There were 2 exceedances of the ELV for Ammonia in 2016. A shock load to the plant was the suspected cause. This will continue to be monitored in 2017. Phosphorus removal was installed at the plant in 2015, there were no breaches of ELV for ortho p in 2016.

The treatment capacity is addressed in section 3, with adequate remaining capacity at the WWTP.

*Under condition 5.2.1 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:*

There is adequate capacity at the treatment plant.

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

There were 2 breaches of ELV 1 in 2016. Neither of these values were above the ELV with condition 2 interpretation 6mg/l however it was a reportable incident based on the requirements of Schedule A4 of the licence.

*(iii) The designations of the receiving water body:*

Under the Blackwater water management unit (WMU) action plan, Knockaconny WWTP is not suggested to be having an impact on the receiving water as there is adequate dilution in the river at that location. The receiving Blackwater River is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988), but it is identified in part, as sensitive water, at this location, from the confluence of the River Shambles to Newmills Bridge, in terms of the Urban Waste Water Treatment Regulations 2001. The river is not designated as an SPA, SAC or NHA. The Blackwater Water River is in the Neagh Bann river basin district with overall status classified as 'Good' but deemed '1a- at risk' with overall objective to protect its status. The 'point risk source' and potential for impact from the WWTP discharge on the river is categorised as 'not at risk', and the Blackwater Water Management Unit Action Plan (WMU) does not list the WWTP as impacting on the Blackwater River (Ref. WFD website & reports). Ambient monitoring results were assessed in this report and it is concluded that there is no significant impact from the discharge of the agglomeration on the receiving water quality. Results indicate some water quality issues at this location may be due to upstream sources.

*(iv) Water quality objective for the receiving water body:*

Knockaconny WWTP discharges to waterbody XB\_03\_5 which has been classified as poor and has an objective of restore 2021 in the Neagh Bann International River Basin Management Plan.

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

There are no industries licensed to discharge to the waste water works.

*Under condition 5.2.2 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:*

There is adequate capacity at the treatment plant (section 3.2 Treatment Capacity Report).

*(ii) Leaks from the waste water works:*

There are no known leaks at the WWTP site.

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

There are no known misconnections on the Knockaconny network.

*(iv) Infiltration by surface water/ground water:*

The network is a separate system, therefore during storm conditions/periods of extensive rainfall, inflows into the WWTP don't increase greatly.

**b) Programme of Improvements**

*Under condition 5.2.3 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:*

An assessment of the SWO from a storm tank at the WWTP in relation to the 'Procedures and criteria in relation to Storm Water Overflows', 1995 document, was addressed in section 4.1 of this report. A SWO event recorder was installed at Knockaconny in 2016.

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

There are no specified improvement works under schedule C1 or C2 of the discharge licence.

## Appendix 7.2 Ambient Monitoring Results

Entity	Date	Station	DO mg/l	Temp °C	BOD mg/l	Ortho Phosphorus mg/l P	Ammonia mg/l N	pH units
Knockaconny	03/02/2016	Upstream	13.1	6.3	<1	0.059	0.089	7.8
Knockaconny	05/04/2016	Upstream	10.19	7.6	2.1	0.041	0.06	8
Knockaconny	10/05/2016	Upstream	8.43	13.8	2.6	0.056	0.22	8.1
Knockaconny	13/07/2016	Upstream	8.4	14.7	1.6	0.094	0.027	7.9
Knockaconny	05/10/2016	Upstream	7.92	17.4	1.6	0.065	0.1	8.1
Knockaconny	28/11/2016	Upstream	13.04	6.9	1.4	0.034	0.036	8
				<b>Average</b>	<b>1.71</b>	<b>0.058</b>	<b>0.089</b>	<b>7.98</b>
Entity	Date	Station	DO mg/l	Temp °C	BOD mg/l	Ortho Phosphorus mg/l P	Ammonia mg/l N	pH units
Knockaconny	03/02/2016	Downstream	13.1	6.2	<1	0.078	0.086	7.8
Knockaconny	05/04/2016	Downstream	10.23	7.8	2.4	0.043	0.061	8
Knockaconny	10/05/2016	Downstream	8.1	13.5	2.7	0.057	0.23	8.1
Knockaconny	13/07/2016	Downstream	8.59	14.7	1.7	0.085	0.024	8
Knockaconny	05/10/2016	Downstream	7.03	17.7	1.6	0.065	0.1	8.2
Knockaconny	28/11/2016	Downstream	13.04	6.5	1.3	0.037	0.036	8
				<b>Average</b>	<b>1.78</b>	<b>0.061</b>	<b>0.09</b>	<b>8.01</b>

## Appendix 7.3 Sewer Integrity Risk Assessment 2016



Section 1.1 Agglomeration Details						
Name		Knockaconny				
Licence Number		D0463-01				
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)		Knockaconny				
Date Licence Issued		04/09/2013				
Current Date		13/02/2017				
Waste Water Works - Wastewater Treatment Plant Details		Unit	Year	Year	Year	Year
			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	81000	66000		
1.3	Average Daily Influent BOD or Average BOD Load from area served (If no measured data exists, insert estimated figure)	mg/l, measured	165.12	210.15		
1.4	Total BOD Load	kg/day	13.37472	13.8699	0	0
1.5	Average Population Equivalent (@0.06kg/person/day)	p.e.	223	231	0	0
1.6	Estimated (existing) Non-Domestic Load	p.e.				
1.7	Estimated Domestic Load	p.e.	223	231	0	0
1.8	Occupancy Rate for the Agglomeration	pop/house	2.7	2.7		
1.9	Estimated Number of Connected Properties	houses	83	86	0	0
1.10	Number of properties within the agglomeration when compared with CSO Data or An Post Geodirectory	houses	99	99		
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	2.04	0.475694444		
1.12	Estimated 3DWF	l/sec	6.12	1.43	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	3.055555556	3.17		
1.14	This Annual Average Peak as Multiples of Dry Weather Flow (Peaking Factor)	Nr	3.00	6.66	0.00	0.00
1.15	Highest Peak Flow Recorded (Insert UNKNOWN if no records exist)	l/s	Unknown	3.17		
1.16	Does this Peak Flow (multiple of DWF) cause hydraulic capacity problems within the network ?	---	No	No	Yes	Yes
1.17	Total Rainfall for Previous Year	mm	1269	891		
1.18	Comparison - Mean Annual Rainfall for the agglomeration	mm	1006.9	1006.9		
1.18.1	Define the Weather Station Used		Ballyhaise	Ballyhaise		
1.19	If Storm Water Storage is available at the Wastewater Treatment plant, what is the volume of the storm tank ?	m <sup>3</sup>	Unknown	Unknown		
1.20	Is the capacity of the storm tank sufficient to capture and retain all overflows to the tank ?	---	No	No	No	No
1.21	Total monthly average volume of Storm Water Stored or Returned for Treatment within the Waste Water Treatment Plant	m <sup>3</sup> per month	Unknown	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)		N/A	N/A	1 to 2 times per month	< 1 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				
1.24	Total length of sewers (use drop down menus to define whether these figures are estimated or measured)	km Estimated	0.59	0.59	0.00	0.00
1.24.1	Total length of sewers > 450mm Diameter	km Estimated	0.07	0.07		
1.24.2	Total length of sewers > 300mm but ≤ 450mm in Diameter	km Estimated	0.36	0.36		
1.24.3	Total length of sewers > 225mm but ≤ 300mm in Diameter	km Measured	0.16	0.16		
1.24.4	Total length of sewers ≤ 225mm in Diameter	km Estimated	0.00	0.00		
1.24.5	Other	km Estimated				
1.25	Pipeline Material					
1.25.1	What portion of the sewer network consists of Concrete Pipes	% Estimated	0%	0%		
1.25.2	What portion of the sewer network consists of Plastic Pipes	% Estimated	0%	0%		
1.25.3	What portion of the sewer network consists of Clay materials	% Estimated	0%	0%		
1.25.4	What portion of the sewer network consists of Brick Type Sewers	% Estimated	0%	0%		
1.25.5	What portion of the sewer network consists of Other Materials	% Estimated	100%	100%		
1.26	Total number of Storm Water Overflows	Nr	1	1		

1.27	What Screening or other mechanical devices are employed at the storm water overflows					
	SWO02 located at WWTP at 268917E 335781N	Describe	low to R. Blackwater	low to R. Blackwater		
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)					
	SWO02 located at WWTP at 268917E 335781N	Describe	Q2-Q3	Q2-Q3		
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)					
	SWO02 located at WWTP at 268917E 335781N	Describe	N/A	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.					
	SWO02 located at WWTP at 268917E 335781N	Describe	Sensitive	Sensitive		
1.28.4	With reference to the SWO's detailed above define are the receiving waters Protected Areas (designated or awaiting designation)					
	SWO02 located at WWTP at 268917E 335781N	Designation	Not Listed	Not Listed		
1.28.5	With reference to the SWO's detailed above define do the receiving waters have any other designations.					
	SWO02 located at WWTP at 268917E 335781N	Designation	Not Listed	Not Listed		
<b>Section 1.5 Waste Water Works - Pumping Stations</b>						
1.29	Number of Pumping Stations (operated by the Local Authority)	Nr	0	0		
1.30	Total Length of Rising Mains (operated by the Local Authority)	km	NA	NA		
1.31	Rising Main Material					
1.31.1	What portion of the rising mains consists of ductile iron pipes	% Measured	NA	NA		
1.31.2	What portion of the rising mains consists of plastic pipes	% Measured	NA	NA		
1.31.3	What portion of the rising mains consists of other materials	% Estimated	NA	NA		
1.32	Discharge Capacity of the Pump Set (s) at normal duty point					
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%	0.00%		
1.34	Available Storage Capacity at Pump Stations (include pump sump and any storm water/emergency overflow tanks)					
1.35	Total Number of " <b>Licensed Secondary Discharge Points and Stormwater Overflows</b> " at pumping stations	Nr	0	0		
1.36	Total Number of " <b>Emergency Overflow Points</b> " at pumping stations	Nr				
1.37	What Screening or other mechanical devices are employed at the secondary discharge points or emergency overflows ?					
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)					
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)					
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.					
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) .					
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.					
1.39	Estimated Number of Private Pumping Stations within the agglomeration (not operated by the Local Authority)	Nr	0	0		
<b>Section 1.6 Reporting</b>						
<b>Section 1.6.1 Reported Number of Sewer Related Complaints</b> (‘Complaint’ as defined in the Discharge Licence)						
1.40	Number of Reported Complaints	Nr	0	0		
1.41	Number of Reported Complaints which have been rectified	Nr	0	0		
<b>Section 1.6.2 Reported/Recorded/Estimated Number of Secondary Discharges</b>						
1.42	Number of Reported Secondary Discharges	Nr	0	0		
1.43	Number of Recorded Secondary Discharges	Nr	0	0		
1.44	Estimated Total Number of Secondary Discharges	Nr	0	0	0	0
<b>Section 1.6.3 Reported/Recorded/Estimated Number of Emergency Overflow Discharges from Pumping Stations</b>						
1.45	Number of Reported Emergency Overflow Discharges	Nr	0	0		
1.46	Number of Recorded Emergency Overflow Discharges	Nr	0	0		
1.47	Estimated Total Number of Emergency Overflow Discharges	Nr	0	0	0	0
<b>Section 1.7 Operational Staff</b>						
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 <i>(The individual personnel shall not be named, only grade and level of training needs to be provided)</i>					
1.48.1	Caretaker 5 is responsible for the maintenance and operation of the Knockaconny network and WWTP. The caretaker is also responsible for the Clontibret and Thyholland conglomerations.					
1.48.2	Caretaker operates under the supervision of a Line Manager Technician					
1.48.3	The Line Manager Technician is supervised by the Senior Executive Engineer					
1.48.4						
<b>Waste Water Works - Investment Details</b>		<b>Unit</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Section 1.8 Capital Investment works carried out since most recent report (including works not included on WSIP Programme or not WSIP funded)</b>						
1.49	Sewers Upgraded or Replaced	m	0	0		
1.50	Sewers Rehabilitated	m	0	0		
1.51	Manholes Rehabilitated	Nr	0	0		
1.52	Local Repairs	Nr	0	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	0		

1.55	WWTW operated by Local Authority Upgraded or Replaced	Nr	0	0		
1.56	In the following two cells describe the actual Capital Investment undertaken in the reporting period.					
1.56.1	<i>Ferric Dosing was installed at the plant in 2015. An Annual Statement of Measures is included in AER Report 2015 - Appendix 7.1.</i>					
1.56.2						
	<b>Section 1.9 Licence Specified Improvements Works</b>					
1.57	<i>2015 AER, Appendix 7.3</i>					
	<b>Section 1.10 Other Updates Since Last Report</b>					
1.58						
1.59						

## 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	<a href="#">Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review) ?</a>	No	40		If the answer is <b>No</b> 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 <b>Yes</b> 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 onging works select "less than 5".
2.2	<a href="#">Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network ?</a>	No	10		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	<a href="#">Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of Record Maps" ?</a>	No	10		If the answer is <b>No</b> assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is <b>Yes</b> 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	<a href="#">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" ?</a>	No	20	Install magmeter flow measurement/recorder	If the answer is <b>No</b> assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. . If answer is <b>Yes</b> Proceed to Query 2.5
2.5	<a href="#">What was this Flow Survey Information Used for ?</a>				
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	<a href="#">Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network ?</a>	No	10		If the answer is <b>No</b> assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.8
2.7	<a href="#">How many flood events resulting from surcharge in the network have occurred in the past 3 years?</a>	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	<a href="#">Are there deficiencies in performance criteria within the sewer network ?</a>	N/A	0		If the answer is <b>No</b> , Proceed to Query 2.10 and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.9
2.9	<a href="#">Have the causes of these deficiencies in the Performance Criteria been identified and rectified ?</a>	No	10		If the answer is <b>No</b> , consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.10
2.10	<a href="#">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</a>	No	10		If the answer is <b>No</b> , consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.11
2.11	<a href="#">Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration ?</a>	No	10		If the answer is <b>No</b> , 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. .
<b>Total Risk Assessment Score (RAS)</b>			<b>120</b>		
2.12	<a href="#">Prepare Assessment of Needs &amp; Sewer Upgrade Implementation Plan</a>	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>	No	0		If the answer is <b>No</b> , proceed to Query 3.1.2. If the answer is <b>Yes</b> , Proceed to Query 3.2
3.1.2	<u>Are there Storm Water Overflows within the network ?</u>	Yes	20		If the answer is <b>No</b> , proceed to Query 3.1.3. If the answer is <b>Yes</b> , 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 <b>No</b> , 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 <b>No</b> , does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If <b>Yes</b> , 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>	N/A	0		Select N/A if answer to Query 3.1.1 is <b>No</b> . 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>	N/A	0		Answer N/A if none of the trade effluents are licenced. Answer <b>No</b> if this information is unknown. If the answer is <b>Unknown</b> or <b>No</b> , consider issuing a direction to the relevant Licencee. If the answer is <b>Yes</b> , 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 <b>N/A</b> if answer to Query 3.2.1 is <b>Yes</b> . If <b>N/A</b> is selected as answer to Query 3.2.2
3.3	<u>In accordance with the DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?</u>	N/A	0		If the answer is <b>No</b> , consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is <b>Yes</b> , proceed to Query 3.6
3.4	<u>Have samples from any Secondary Discharges within the system been analysed ?</u>	No	30		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is <b>No</b> , consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the answer is <b>Yes</b> , proceed to Query 3.5
3.5	<u>What percentage of discharges from the system are known to cause environmental pollution of the receiving waters ?</u>	N/A	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>	N/A	0		Select <b>N/A</b> if answer to Query 3.4 is <b>No</b> . If the answer is <b>No</b> , consider undertaking ground water risk analysis and complete Query 3.12 If the answer is <b>Yes</b> , 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 <b>N/A</b> 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 <b>N/A</b> 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 Group Water Supply Schemes?</u>	N/A	0		Select <b>N/A</b> 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 DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows" including setting performance criteria?</u>	No	40		If the answer is <b>No</b> , consider assessing the risk category of the receiving waters. If the answer is <b>Yes</b> , 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>	N/A	0		Select <b>N/A</b> if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. <b>(Risk Score is locked at 0 if no SWOs in system is stated in Agglomeration Details)</b>
3.9	<u>Have the causes of these Capacity Deficiencies (storm water overflows &amp; Secondary Discharges) been identified ?</u>	No	15		Select <b>N/A</b> if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. If the answer to Query 3.9 is <b>No</b> , consider further examination of the environmental model in the AER.
<b>Total Risk Assessment Score (RAS)</b>			<b>145</b>		
3.10	<u>Prepare Assessment of Needs &amp; 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	<u>Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?</u>	No	10		If the answer is <b>No</b> assess the need and benefit of undertaking CCTV Survey. If <b>Yes</b> Proceed to Query 4.2
4.1.1	How many years has it been since the completion of the CCTV Survey?	N/A	0		If no CCTV has been undertaken, select "N/A" response
4.2	<u>What was this CCTV Survey Information Used for?</u>	N/A	10		Select N/A if answer to Query 4.1 is NO.
4.3	<u>Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?</u>	No	5		If no CCTV has been undertaken, select "No" response. If the answer is <b>No</b> assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is <b>Yes</b> proceed to Q
4.4	<u>Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?</u>	No	5		If the answer is <b>No</b> , 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 <b>Yes</b> proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	unknown	30		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)	unknown	25		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
<b>If all % lengths are known, Check Total Length = 100%</b>			<b>75</b>		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	<u>What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?</u>	N/A	35		Select N/A if answer to Query 4.4 is <b>No</b> . If the answer is <b>No</b> , Proceed to Query 4.6 If the answer is <b>Yes</b> , what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	<u>Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?</u>	N/A	0		If the answer is <b>No</b> , consider further examination of the sewer network, the structural loading conditions, gradients and possible H <sub>2</sub> S Formation. If Yes completed Query 4.7
<b>Total Risk Assessment Score (RAS)</b>			<b>140</b>		
4.7	<u>Prepare Assessment of Needs &amp; Sewer Rehabilitation Implementation Plan</u>	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>	No	20		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>	3 times/yr	8		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>	Once/yr	4		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.
<b>Total Risk Assessment Score (RAS)</b>			<b>52</b>		
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	145	Low Risk	29%	500
Section 4.1 Structural Risk Assessment	140	High Risk	93%	150
Section 5.1 O&M Risk Assessment	52	Low Risk	26%	200
<b>Total RAS for Network</b>	<b>457</b>	<b>High Risk</b>	<b>46%</b>	<b>1000</b>

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"

## Appendix 7.4 Drinking water risk assessment

# Drinking Water Risk Assessment

<b>Agglomeration Name:</b>	<b>Knockaconny</b>
<b>Licence Register No.</b>	<b>D0463</b>



## Table of Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Tabular Details of Agglomeration and Drinking Water Abstractions</b>	<b>1</b>
2.1	Wastewater Treatment Plant Details	1
2.2	Discharges from the Agglomeration	2
<b>3</b>	<b>Risk Assessment</b>	<b>1</b>
3.1	Level of Treatment and Capacity of WWTP	1
3.2	Discharge Compliance and Level of Dilution	1
3.3	Receiving waters / Abstracted Water Quality	<b>Error! Bookmark not defined.</b>
3.4	Impact of Discharges During Normal and Abnormal Operations	<b>Error! Bookmark not defined.</b>
<b>4</b>	<b>Overall Risk and Recommendations</b>	<b>1</b>

### **Appendix 1 – Location Map**

## **1 Introduction**

This report has been prepared for D0463 Knockaconny, in County Monaghan in accordance with the requirements of Condition 4.16 of the wastewater discharge licence for the agglomeration. This report assesses the potential impacts on drinking water abstractions.

The risk from the discharges from the agglomeration has been assessed under four separate headings with an overall risk ranking applied in conclusion.

- (1) Level of treatment and capacity of WWTP
- (2) Discharge compliance and level of dilution
- (3) Receiving waters / abstraction water quality
- (4) Impact of discharges during normal and abnormal operation

## 2 Tabular Details of Agglomeration and Drinking Water Abstractions

### 2.1 Wastewater Treatment Plant Details

The wastewater treatment plant details are summarised in Table 2.1 below.

**Table 2.1 – Wastewater Treatment Plant**

1	Type of treatment (primary, secondary, tertiary)	Secondary with nutrient removal
2	Hydraulic Capacity – Design / As Constructed (dry weather flow) (m <sup>3</sup> /year)	82,851
3	Hydraulic Capacity – Design / As Constructed (peak flow) (m <sup>3</sup> /year)	248,565
4	Hydraulic Capacity – Current loading (m <sup>3</sup> /year)	24,125
5	Hydraulic Capacity – Remaining (m <sup>3</sup> /year)	224,440
6	Organic Capacity - Design / As Constructed (PE)	1000
7	Organic Capacity - Current loading (PE)	274
8	Organic Capacity – Remaining (PE)	726
9	Will the capacity be exceeded in the next three years? (Yes / No)	No
10	Are ELV's compliant with licence ? (Yes / No)	No
11	If answer to No. 10 above is <b>Yes</b> , list parameters not in compliance	Ammonia

## 2.2 Discharges from the Agglomeration

A list discharges from the agglomeration is summarised in Table 2.2 below.

**Table 2.2 – List of Discharges from the Agglomeration**

Discharge	Type of Discharge	Receiving Waters	Level of Dilution (DWF vs 95 percentile river flow)	Easting	Northing	Frequency of Discharge (if known)	Compliant (if Yes / No)
<b>Licenced Discharges</b>							
SW001	Primary	Blackwater Monaghan RS03B10641	The nearby abstraction point is a ground water supply source	268917	335781	Primary discharge	No

**Table 2.3 – List of Nearby Drinking Water Abstractions**

Abstraction Code	Agglomeration Served	Abstraction Volume (m <sup>3</sup> /day)	Groundwater Source Within ZOC	Type of Treatment	Easting	Northing
Borewell No 7, Silverstream Borewell	Monaghan PWS	0m3/day	There are a number of Monaghan PWS borewells within the area however Knockaconny WWTP is not located within the ZOC for these wells. See Map in Appendix 1 of this report	N/A	E270073	N335915

### 3 Risk Assessment

#### 3.1 Level of Treatment and Capacity of WWTP

Knockaconny WWTP consists of secondary treatment with nutrient removal. The plant is currently operating within capacity.

#### 3.2 Discharge Compliance and Level of Dilution

Knockaconny WWTP was non compliant with ELV's for Ammonia in 2016.

### 4 Overall Risk and Recommendations

There are a number of borewells which supply Monaghan PWS. Knockaconny is not located within the Zone of Contribution for these borewells. The closest downstream borewell is Silverstream Borewell it is located at grid reference E270073 N335915 (refer to Appendix 1). This well is currently not used by Monaghan PWS.

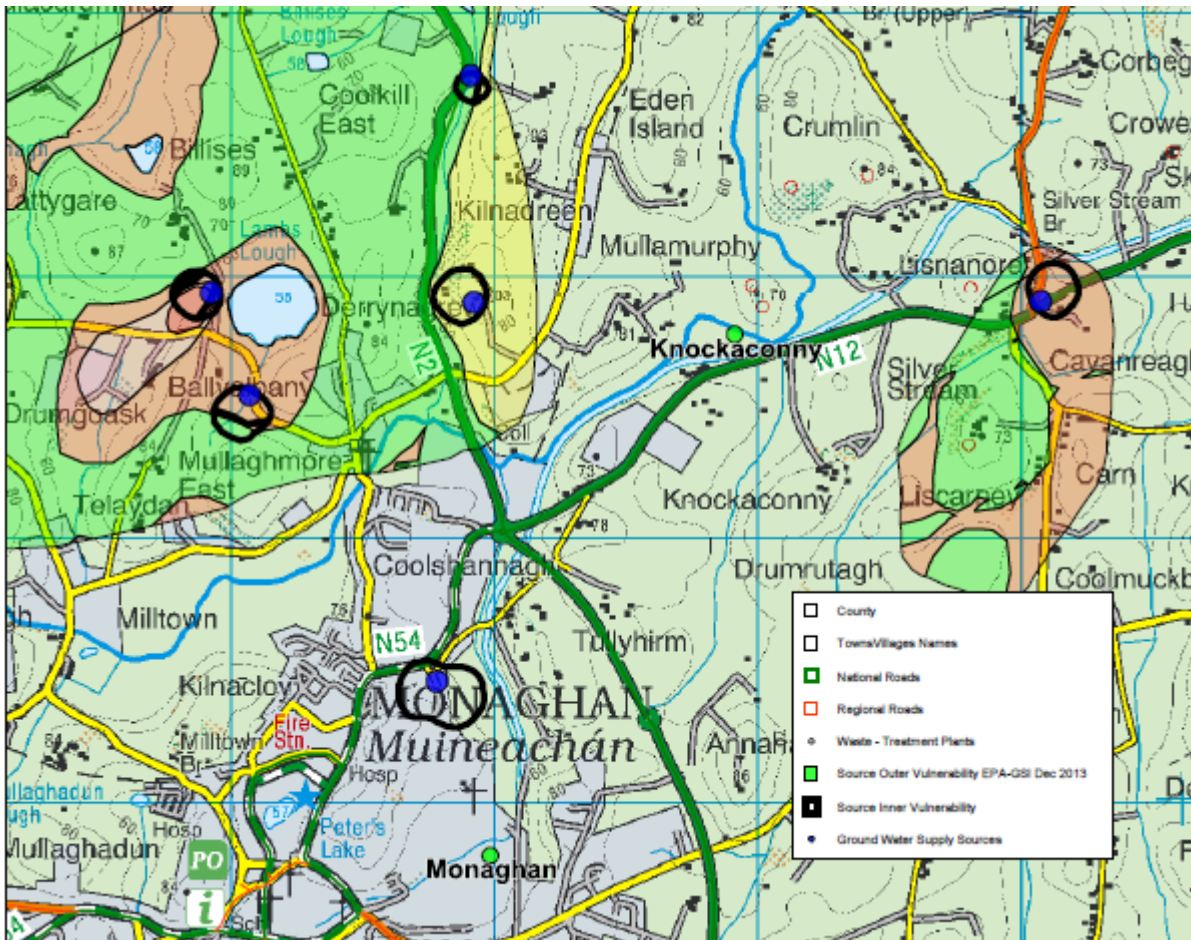
Low risk: Drinking water quality unlikely to be impacted.

#### Drinking Water Abstraction Point Risk Assessment Summary

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
<b>Is a Drinking Water Abstraction Risk Assessment required in the 2015 AER (or outstanding from a previous AER)</b>	Outstanding from previous AER
<b>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</b>	No
<b>Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)</b>	No
<b>What is the overall risk ranking applied by the licensee</b>	L
<b>Does the risk assessment consider the impacts of normal operation</b>	Yes
<b>Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)</b>	Yes
<b>Does the risk assessment include control measures for each risk identified</b>	N/A
<b>Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator</b>	N/A
<b>Does the risk assessment include infrastructural control measures</b>	N/A
<b>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?</b>	No



## Appendix 1 – Location Map



© Ordnance Survey Ireland. All rights reserved. Licence number 2010/03 CCMA/Monaghan County Council, 2017

