Lismore Agglomeration

ANNUAL ENVIRONMENTAL REPORT FOR 2012

Licence Register Number: D0176-0 1

Waterford County Council,
Civic Offiices,
Davitts Quay,
Dungarvan,
Co. Waterford.

Issue and revision record

Issued By: Water Services Section

Date 27th February 2013

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Checker N/A

Revision	Description	Date
0	Final Version	27/02/2013

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Executive Summary

This Annual Environmental Report is prepared in accordance with EPA guidance documents to cover the period October 2012 to December 2012.

The report relates to the Lismore Agglomeration which is subject of Discharge Licence No. D0172-01 as issued by the EPA on the 24th October 2012. The content of the report relates primarily to the performance of the Wastewater treatment plant and also the plans for improvements to the Agglomeration in order to satisfy the extensive area of environmental legislation.

Lismore is served by a Waste Water Treatment Plant (WWTP) that was constructed in 1986. The WWTP provides secondary treatment to the wastewater from the agglomeration. The capacity of the WWTP is 2,167p.e. and the current loading is 1,867p.e. As the town grew, the collection system was extended in phases to meet the needs of the new developments in the town. The WWTP is situated just east of Lismore Castle adjacent to Lady Louisa's Walk and it discharges to the River Blackwater at SW001. [SW001 is located at 204885E, 098754N]. The collection system associated with the agglomeration is a largely combined system. A stormwater overflow exists at the last manhole before the WWTP and this discharges to the River Blackwater at SW002 (204855E, 098725N). It operates during periods of heavy rainfall. There are no immediate plans to provide a new stormwater network to separate storm flows from the current combined flows. In order to increase the capacity of the WWTP, it is intended that a new Storm Holding Tank and associated inlet works will be constructed to enable hydraulic control of the wastewater going to the secondary treatment processes. This will increase the capacity of the WWTP to approximately 3,000p.e. Nutrient removal will also be provided as part of the upgrade and will entail the removal of phosphorous from the wastewater to meet the licence requirements.

The catchment served by the combined system consists of residential and commercial developments on Main Street, West Street, Parks Road, South Mall, Chapel Street and New Street and also a number of residential housing estates on the outskirts of the town. All of the wastewater flows by gravity to the WWTP, which then discharges to the River Blackwater. There is no pump station for the public sewage network in the agglomeration.

There are no water abstraction points downstream of SW001.

The monitoring and analysis carried out during 2012 indicate that the agglomeration is not having any significant deleterious effect on the receiving waters at present, but the programme of improvement works must be advanced to ensure that the environmental impacts of the wastewater from the Lismore Agglomeration are mitigated as far as possible to protect and improve the water quality in the receiving waters. The WWTP is operating at 86.4% capacity in hydraulic terms but it is highly unlikely that there will be any significant development in the agglomeration in the short-to-medium term.

1 Introduction

The Lismore Agglomeration currently has a secondary treatment WWTP located adjacent to the River Blackwater on the northern boundary of the town. The WWTP discharges to the River Blackwater from the Primary Discharge Point (SW001). The WWTP was constructed in 1986 and was designed for a population equivalent of 1,500p.e. This design p.e. was based on a conservative estimate of 230l/person/day and the actual hydraulic capacity of the plant based on current estimates of 155l/person/day indicate a capacity of 2,161p.e. The current p.e. loading for the plant is calculated to be 1,867. However, in periods of heavy rainfall the stormwater overflow at SW002 is activated since the collection system for the agglomeration is a combined network. All flows above 6DWF currently discharge untreated to the River Blackwater at SW002. In order to improve this situation, it is planned to upgrade the WWTP.

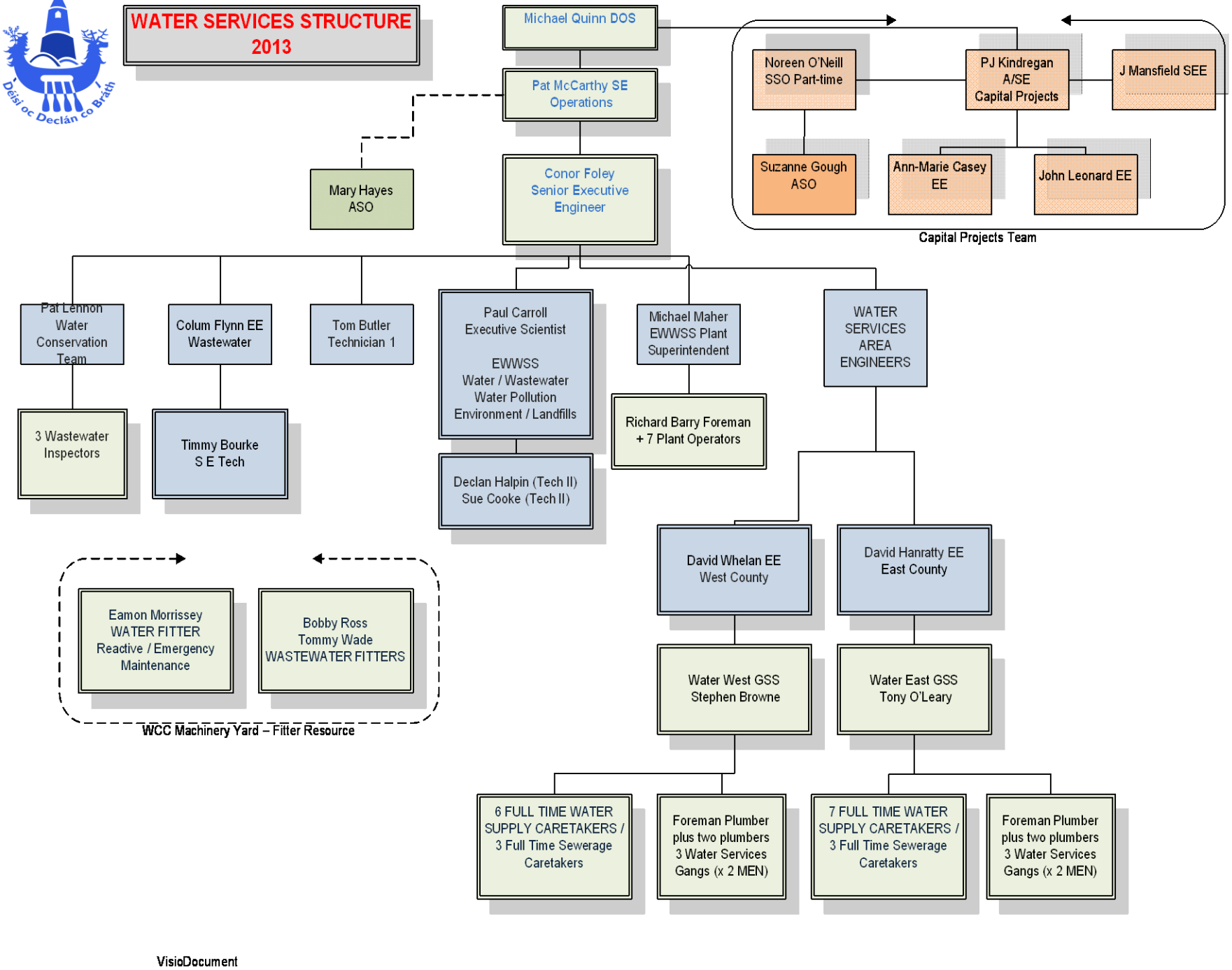
The future proposals for the improvement of the Lismore Agglomeration's environmental performance are the construction of a new Stormwater Holding Tank and associated Inlet Screening Works. The WWDA Licence has also placed limits on the discharge of treated wastewater for Ammonia and ortho-Phosphorous. While the existing plant can provide for the treatment of Ammonia, a nutrient removal process will need to be incorporated in the proposed upgrade works. These works are being advanced as part of the DoECLG's Water Services Investment Programme 2010-2013 and these are due to commence construction in late 2013.

Waterford County Council is committed to environmental protection and improvement as part of its role in Local Government and its statutory obligations. It does not have a specific environmental policy as all such policies are included in the Councils Strategic plan, but not in a format suitable for extraction to this document. Overleaf is the Organisation Structure for Water Services in County Waterford who are responsible for delivering all the statutory services required in the County.

Following an organisational restructuring within the Transport and Infrastructure Directorate, a new structure was developed in 2012. Waterford County Council has divided Water Services into two separate teams, namely the Operations Team and the Capital Projects Team. The make-up of this new structure is outlined below. It should be noted that there are now dedicated Operations & Maintenance (O&M) groups for the east and west of the county under the control of the Water Services Area Engineers who are responsible for the daily O&M of both water supply and wastewater schemes.

All of the listed team members have duties in other areas of work under the umbrella of Water Services Operations & Maintenance.

WATER SERVICES STRUCTURE 2013



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2 Summary Information

2.1 Summary Report on Monthly Influent Monitoring

There is no influent monitoring available for this licence because there is no influent monitoring chamber in place. Thus, influent flow monitoring is currently not possible. The proposed works for the upgrade of the WWTP include for the installation of a flowmeter and composite sample and once these are in place, it will be possible to accurately monitor the influent to the WWTP.

The catchment does not have any significant trade effluent and therefore the influent to the WWTP is purely domestic-type sewage. As the influent is 100% domestic-type sewage, it is assumed to have the same properties as domestic sewage. Thus, it is assumed that there is 60g BOD/person/day and 180 litres/person/day (including 25l/person/day for infiltration) entering the network.

As there is no influent monitoring, it is not possible to assess the amount of stormwater entering the network prior to discharge to the River Blackwater. However, there is only one Stormwater Overflow and there are no CSO's Lismore, so a flow of up to 2,016m³/day (6DWF) of wastewater discharges to the River Blackwater through SW001. Any flows in excess of 6DWF will overflow to the River Blackwater through SW002. However, since stormwater will only serve to dilute the domestic effluent, it has no impact on total BOD load (kg/year) or any other constituent of the effluent going to the WWTP.

2.2 Discharges from the Agglomeration.

The discharges from the Agglomeration in 2012 are mostly as existing at the time of application for licence, as detailed in the licence and are largely unchanged in character and type. The only change has been to the population equivalent for the agglomeration. This has increased by 60p.e to 1,867p.e. based on the most recent census data.

While Lismore is a tourist town, it have doesn't have any significant seasonal variations in the number of people served by the agglomeration since there is little available accommodation for tourists in the town. The year-round population is estimated to be 1,867 p.e.

Utilising the 180 l/person/day for flow and 60g BOD/person/day for load, the population produces 336m³ per day and 112kg BOD per day. This gives a total estimated flow of 122,976 m³ and 40,992 kg BOD for 2012. It should be noted that the total estimated flow excludes flows due to rainwater, since these cannot be measured in the existing network.

The licence requires that 6 samples per year are taken and analysed from the discharge from the septic tank. The samples were taken by the grab method in 2012. It is intended that, in accordance with licence conditions 4.3 and 4.17, automatic composite samplers will be installed on the discharge in 2013 and on the influent in early 2014 as part of the proposed upgrade works.

Five samples were taken in the period post-licence issue and the following table summarises the analyses of these five samples.

Sample Date	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Ammonia (as N) (mg/l)	Ortho-phosphate (mg/l)	pH
03/12/12	3.0	16	7	0.054	2.409	Not measured
10/12/12	4.1	20	<2	0.01	2.8	7.1
13/12/12	4.6	23	<2	0.01	2.8	7.3
17/12/12	4.2	18	<2	0.01	2.9	7.3
19/12/12	5.3	21	<2	0.01	2.8	7.2

Table 2.1 Annual Monitoring Results from SW001 in 2012

Since the licence was only issued in late October 2012, on a pro-rata basis there would only be a requirement for 1 sample for the remainder of 2012. The foregoing results show that the treated effluent discharge from SW001 fully complies with the ELVs for the licence and that the plant is currently not having a deleterious effect on the receiving waters. As can be seen, the results for ortho-Phosphorous are approaching the licence limit of 3mg/l. The plant is not currently designed for phosphorous removal and in order to ensure continued compliance with the Schedule A1 licence conditions, the proposed upgrade to the WWTP will incorporate a phosphorous removal step.

The receiving water body for the Lismore Discharge is the River Blackwater. The receiving waters are not designated as Sensitive in the immediate vicinity of the discharge, but the estuary commences approximately 1km downstream of SW001 and this is designated as Sensitive. However, there is no evidence of a deleterious effect on the river water quality that is attributable to the discharge from the Lismore WWTP.

In accordance with the Agency's most recent guidance document for the preparation of the AER, the following table sets out the compliance of the discharge with the licence ELVs.

	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total P (mg/l)	Total N (mg/l)	Ammonia (as N) (mg/l)	Ortho-phosphate (mg/l)	pH	Comment
WWDL ELV (Schedule A)	20	125	35	N/A	N/A	5	3	6-9	
ELV with Condition 2 Interpretation included	40	250	87.5	N/A	N/A	6	3.6	6-9	
Number of sample results	5	5	5	N/A	N/A	5	5	4	Only 1 result required for 2012 as licence only issued on 24th October 2012.
Number of sample results above WWDL ELV	0	0	0	N/A	N/A	0	0	0	
Number of sample results above ELV with Condition 2 Interpretation included	0	0	0	N/A	N/A	0	0	0	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	N/A	N/A	Pass	Pass	Pass	

Table 2.2 Compliance Summary for Annual Monitoring Results from SW001 in 2012

2.4 Treatment Capacity Report

The existing WWTP in Lismore is capable of meeting most of the current wastewater treatment demands from the agglomeration. The exception to this is for removal of ortho-Phosphorous. As stated earlier, it is expected that the upgrade of the WWTP, which will commence in late 2013, will provide the necessary treatment step to provide for this nutrient removal. The following table summarises the current situation.

Hydraulic Capacity – Design / As Constructed (m3/day)	2,334
Hydraulic Capacity – Current loading (m3/day)	2,016
Hydraulic Capacity – Remaining (m3/day)	318
Organic Capacity - Design / As Constructed (PE)	2,161
Organic Capacity - Current loading (PE)	1,867
Organic Capacity – Remaining (PE)	294
Will the capacity be exceeded in the next three years? (Yes / No)	No

Table 2.3 Treatment Capacity for 2012

As can be seen from the foregoing, there is still sufficient capacity within the WWTP to meet the hydraulic and organic loads that currently exist. The WWTP is operating at 86.4% capacity.

The proposed upgraded WWTP will have a capacity of 3,000 p.e which, given a current p.e. loading of 1,867, should provide a remaining capacity of 1,133p.e. or 37.77%. It is unlikely that this will be exceeded in the short to medium term future given the current economic downturn.

2.5 Ambient Monitoring Summary.

The Licence requires Ambient Monitoring at two locations in Lismore, both on the River Blackwater. SW001u is located just upstream of the WWTP at Lismore Bridge while SW001d is located approximately 1km downstream of the WWTP at Bullsod Island. The Licence requires 6 samples be taken annually. However, as the licence was only issued on the 24th October 2012, there would only be a pro-rata requirement to perform one such analysis for 2012. These monitoring points are analysed as part of the Agency's annual river water quality monitoring. The following tables present the results of the Ambient Monitoring for 2012.

Date	pH	Dissolved Oxygen (% saturation)	BOD mg/l	Temp °C	ortho-P mg/l	TON (as NO_3) mg/l	Ammonia mg/l
07/06/12	7.5	97	3.1	13.7	0.05	2.06	0.1
22/08/12	7.7	93	1.1	15.8	0.05	2.87	0.01
25/10/12	7.7	100	<1	12.3	0.04	3.55	0.02

Table 2.4 SW001u Ambient Monitoring Results for 2012

Date	pH	Dissolved Oxygen (% saturation)	BOD mg/l	Temp °C	ortho-P mg/l	TON (as NO_3) mg/l	Ammonia mg/l
07/06/12	7.4	94	2.8	13.6	0.05	1.8	0.09
19/07/12	7.8	104	<1	16	0.03	3.43	0.01
22/08/12	7.8	94	1	16.8	0.05	2.91	0.02
03/10/12	7.9	111	<1	11.9	0.02	3.61	0.01
25/10/12	7.7	100	<1	12.3	0.03	3.44	0.02
28/11/12	7.6	97	<1	6.1	0.03	3	0.02

Table 2.5 SW001d Ambient Monitoring Results for 2012

The above ambient monitoring results show that there is no noticeable impact on the receiving waters by the current discharges from the Lismore Agglomeration with respect to the Surface Water Regulations (2009) for any of the parameters measured. Any issues with the water quality would appear to originate from other point or diffuse sources upstream of Lismore. Assuming all results which are below the limit of detection (LOD), signified by a < sign, can be assumed to be half the LoD, then the average BOD result is 1.167mg/l which is within the mean limit for High status. The average ortho-Phosphorous result is 0.0388mg/l which is outside the mean limit for Good status, but the 95%-ile limit of 0.075mg/l for Good status has not been exceeded. The average Ammonia result is 0.0333mg/l and this is within the mean limit for High Status. The average Total Oxidisable Nitrogen result is 2.963mg/l. The temperature results from the corresponding analyses upstream and downstream show no impact by the agglomeration. The results for pH also show that there is no significant increase resulting from the discharges from the agglomeration. While the overall water quality results for the River Blackwater may not fully satisfy the requirements of the aforesaid Regulations, it is clear from the foregoing that the Lismore WWTP is not having a deleterious effect on the water quality in the River Blackwater.

The following table summarises the Ambient Monitoring in the format preferred by the Agency. I can confirm that all existing ambient monitoring locations have been assigned a unique code using the EPA's Feature Coding Tool.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	*Irish Grid Reference*	EPA Feature Coding Tool code	Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality
SW001u	204832E, 98672N	RS18B022600	No
SW001d	206647E, 98827N	RS18B022700	No

Table 2.6 Ambient Monitoring Point Locations

An assessment in accordance with the '*Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*' is required to be carried out. However, as the licence was only issued on 24th October 2012, the assessment will be carried out in 2013 and reported in the AER for 2013. However, in order to minimise the impacts of the wastewater from the agglomeration on the receiving waters, it is acknowledged and proposed that the upgrade to the WWTP is required to be constructed.

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

The Council can confirm that the 2012 monitoring data and information on the agglomeration will be uploaded to the EDEN system by 28th February 2013, as required.

2.7 Pollutant Release and Transfer Register Report for 2012

As the WWDA Licence was only issued in late October 2012, the Agency informed Waterford County Council that there was no requirement to submit a PRTR for 2012 for this agglomeration. A PRTR will be prepared for all future AERs.

2.8 Pollutant Release and Transfer Register Proposals for 2013

There are no new proposals for PRTR reporting in 2012. The proposed upgrade to the WWTP will commence construction in 2013, but may not be completed by the end of 2013. The Agency will be consulted regarding any PRTR requirements for 2013.

3 Management of the Activity

3.1 Complaints summary

There have been no complaints in relation to the discharge during 2012. There are no historical complaints for the Lismore Agglomeration that remain unresolved.

3.2 Reported Incidents Summary

There were no reported incidents in 2012.

4 Infrastructural Assessments and Programme of Improvements

4.1 Storm Water Overflow Identification and Inspection

Condition 4.11.1 of the Licence requires that, prior to the submission of the second AER, the Council should carry out an investigation for the identification and assessment of stormwater overflows. This is the first AER associated with the Lismore Agglomeration. This report will be prepared in 2013 and submitted as part of the AER for 2013.

4.2 Report on Progress Made and Proposals being Developed to Meet the Improvement Programme Requirements

An Improvement Programme to maximise the effectiveness and efficiency of the works is required as part of the second AER, in accordance with Condition 5.1 of this licence. As this is the first AER for the Lismore Agglomeration, the programme will be prepared in 2013 and included with the AER for 2013.

A summary of the status of improvements identified under Schedules A3 and C of the licence is shown below:

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Completed	Licensee Timeframe for Completing the Work	Comments
Upgrade to WWTP	C.1	31/03/2014	No	At Planning Stage	40%	31/03/2014	Tender Documents to be finalised in March 2013
Provision of Stormwater Holding Tank and Upgrade of SW002	C.1	31/03/2014	No	At Planning Stage	40%	31/03/2014	Tender Documents to be finalised in March 2013

Table 4.1 Schedules A3 and C Improvement Programme Summary Report

The provision of an upgrade to the WWTP in Lismore is included in the DoECLG's Water Services Investment Programme 2010-2013 as a Serviced Land Initiative Scheme. The Tender Documents are due to be finalised in March 2013 with Tendering to commence in April 2013. The current programme indicates that construction would start in October 2013 with a 6 month period for construction and commissioning. This means that the date of 31st March 2014 outlined in Schedule C of the WWDA Licence should be complied with, barring unforeseen circumstances.

As part of the licence requirements for the second AER, an assessment of the integrity of the sewer network has been carried out. This is the first AER associated with the Lismore Agglomeration. This assessment will be prepared in 2013 and submitted as part of the AER for 2013.

4.3 Development/Infrastructural works summary

There were no development/infrastructural works carried out in the Lismore agglomeration in 2012. It is planned to tender for and commence construction of the proposed upgrade works at the WWTP in 2013.

4.4 Issues with 2011 AER

As the licence was only issued on 24th October 2012, there were no previous AERs for this agglomeration.

5 Environmental Liability and Financial Provisions

5.1 Statement of Measures

Condition 7.2.1 of the Licence requires that an Annual Statement be prepared with respect to Environmental Liabilities for the agglomeration. An Environmental Liabilities Risk Assessment is not required until the second AER which will be in February 2014. The measures to be undertaken by Waterford County Council with respect to the prevention of environmental damage by the discharges from the agglomeration are the provision of an upgrade to the WWTP at Lismore. The status of these works is outlined in section 4.2 of this report.

On the issue of underwriting costs, Waterford Co. Council intends to tender a Design & Build contract for the WWTP upgrade and is committed to financing the same. The contract is also part funded by the Dept. Of the Environment, Community and Local Government as part of the Water Services Investment Programme 2010-2013. The Council is also committed to operating and maintaining the plant in 2013 and beyond. Local authorities are state bodies and dependant on Government for funding. Financial provisions for remedial works, if required, would come from current annual revenue funds, as far as these would be available. However, much of the foregoing may be subject to change with the advent of Irish Water and the fact that Irish Water will take ownership of all public wastewater infrastructure in 2014.

5.2 Environmental Liabilities Risk Assessment

As part of the licence requirements for the second AER, an Environmental Liabilities Risk Assessment must be prepared. This assessment will be prepared in 2013 and submitted as part of the AER for 2013.

6 Licence Specific Reports

There are is only one licence specific report required for this licence. It is summarised as follows:

Licence Specific Report	Required in 2012 AER or outstanding from previous AER	Included in 2012 AER	*Reference to relevant section of AER (e.g. Appendix 2 Section4.*
Priority Substances Assessment	No	No	Will be prepared as part of 2013 AER

Table 6.1 Licence Specific Reports Summary

7 Certification and Sign Off

As part of the requirements of the Licence, the licensee shall ensure that the AER report is **certified** as accurate and is representative by the Director of Services or a nominated, suitably qualified and experienced deputy.

The 2012 AER contain the followings;

- Introduction and background to 2012 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Environmental Liability and Financial Provision.
- Licence specific reports.
- Certification and Sign Off

The following table provides a checklist of the items required and states whether or not they are included in the AER for 2012.

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
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
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	N/A

Table 7.1 Summary of AER Requirements

I certify that contents of this AER are accurate and representative of the activities governed by Licence No. D0176-01 for the Lismore Agglomeration

Signed: Pat McCarthy

Acting Director of Services, Transport & Infrastructure

Date: 27/2/13.

END OF REPORT.

Prepared by:

Waterford County Council,

Water Services Section,

27/02/2013