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This memo has been cleared for submission to the Director by Senior Inspector, Patrick Byrne

Signed: Sony Smith Date: 15/04/2014

## INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

<b>To:</b>	Dara Lynott, Director	
<b>From:</b>	Loretta Joyce	Environmental Licensing Programme
<b>Date:</b>	15 <sup>th</sup> April 2014	
<b>RE:</b>	Application for a Waste Water Discharge Licence from Irish Water for the <b>Ballineen/Enniskeane</b> agglomeration, Co. Cork, Reg. No. D0472-01.	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1000
Licence application received:	22/06/2009
Notices under Regulation 18(3)(b) issued:	20/04/2010
Information under Regulation 18(3)(b) received:	21/06/2010, 26/08/2010
Site notice check:	10/07/2009
Site visit:	16/10/2013
Submissions Received:	None

### 1. Agglomeration

This application relates to the Ballineen/Enniskeane agglomeration in County Cork. The application was originally made by Cork County Council and subsequently transferred to Irish Water on 1<sup>st</sup> January 2014 under the Water Services (No. 2) Act 2013.

The Ballineen/Enniskeane agglomeration had a population equivalent (p.e.) of 840 in 2012 and the design capacity of the waste water treatment plant (WWTP) is 660p.e. A projected increase to 950 p.e. is used in the mass balance calculations below. There are no identified sources of industrial waste water in the agglomeration. Grainger Sawmills Ltd., Reg. No. P0594-02, is located in the agglomeration but there are no process emissions to water or sewer from the installation.

The agglomeration is served by a secondary level WWTP, located at Ballineen. The plant consists of an inlet screen, oxidation ditch, final settling tank and a sludge storage tank. The oxidation ditch is operating as an activated sludge plant rather than an extended aeration plant as it only has an approximate volume of 100m<sup>3</sup>. There is no phosphorus removal system at the plant. There is no flow meter or final effluent composite sampler in place at the WWTP.

The applicant has prepared a preliminary report for an upgraded WWTP on the same location as the current WWTP. The proposed WWTP would consist of a second oxidation ditch and a second settling tank, a storm water retention tank and a picket

fence thickener. Ballineen/Enniskeane Sewerage Scheme is not listed on the Water Services Investment Programme 2010 – 2012.

## 2. Discharges to waters

### Primary Discharge

The primary discharge (SW001) is the outfall from the WWTP to a tributary of the Bandon River, adjacent to the WWTP, located 40m upstream of the Bandon River. The current receiving water has limited flow and therefore limited capacity to receive the effluent discharge. The RL, in the Specified Improvement Programme, requires that the primary discharge outfall is relocated to the Bandon River by 31<sup>st</sup> December 2019. At 95<sup>th</sup> percentile flow in the Bandon River (0.89 m<sup>3</sup>/sec), there are approximately 286 dilutions available for the projected normal waste water discharge (0.0031 m<sup>3</sup>/day). The 95<sup>th</sup> percentile river flow was provided by the Office of Environmental Assessment. The applicant's 2012 treated effluent monitoring results are shown in Table 1, along with the WWTP design standards. The results show that the WWTP performs to a reasonable standard.

**Table 1. WWTP monitoring results 2012 (average based on 6 samples)**

Parameter	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Ammonia (mg/l)	Orthophosphate (mg/l)
Average effluent	14.5	54	18	-	-
WWTP Design standards	25	125	35	-	-

### Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

### Storm water overflows

There are two storm water overflows, one at the WWTP pre-screening (SW002) which discharges to the tributary of the Bandon River, 20m upstream of SW001. While SW002 discharges to a tributary of limited flow, the discharge will only occur during storm events if the storm water overflow complied with DoECLG criteria for SWOs.

The other SW003 is on the sewer network and discharges to the Bandon River at Enniskeane Bridge. Condition 4 of the RL requires the SWO to comply with DoECLG criteria for SWOs.

### Emergency overflows

There are two pumping stations, at Enniskeane and at Ballineen with emergency overflows in the agglomeration. Condition 5 of the RL requires an assessment of all emergency overflows to determine the effectiveness of their operation.

## 3. Receiving waters and impact

The receiving water is the Bandon River which is located in the South Western River Basin District. The following table summarises the main considerations in relation to the receiving waters.

**Table 2. Receiving waters**

Characteristic	Description	Comment
Receiving water name and type	Bandon River IE_SW_20_2230_1	SW001 discharges into a tributary, 40m upstream of the Bandon River
Relevant designations within 10km	None.	

Drinking water abstraction within 10 km d/s	None identified	
EPA monitoring stations & Biological quality rating (Q value)	Upstream station RS20B020400 located 7.3km u/s (tributaries converge downstream of this station)  Downstream station RS20B020550 located 1.4km d/s (tributary converges upstream of this station)	Upstream Q4 in 2012  Downstream Q3-4 in 2012
WFD status	Moderate	2009
WFD Risk Category	1a, water body at significant risk of failing objectives.	2008
WFD Objective	Restore good status	2021
WFD protected areas	RPA drinking water groundwater	

Ambient water quality monitoring data for the Bandon River supplied by the applicant in the licence application is summarised in Table 3 below. The results show that BOD, Orthophosphate and Ammonia levels upstream and downstream of the primary discharge comply with the good status water quality standards in the Environmental Objectives Regulations 2009, as amended.

**Table 3. Water Quality in the Bandon River in 2008-2009 (average based on 1-5 samples)**

Parameter (mg/l)	aSW-1u, 300m u/s of SW001	aSW-1d, 4.75km d/s of SW001	Water Quality Standards <sup>Note 1</sup>
BOD	1	1	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	0.0197	0.0205	≤ 0.035 mg/l (mean)
Ammonia (as N)	0.0425	0.0427	≤ 0.065 mg/l (mean)

**Note 1:** Good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Table 4 below summarises the mass balance calculations which show the impact of the primary discharge on the receiving water (Bandon River) at a projected loading of 950 p.e. The calculations use the 'notionally clean river' approach (a hypothetically clean stretch of river) provided by the Office of Environmental Assessment.

**Table 4. Mass Balance Calculations**

Parameter (mg/l)	Proposed ELVs for Primary discharge	Contribution from primary discharge	Contribution from notionally clean background <sup>Note 1</sup>	Predicted Downstream concentration	Water Quality Standards <sup>Note 2</sup>
BOD	25	0.09	0.26	0.35	≤ 2.6

Orthophosphate (as P)	5	0.17	0.005	0.022	≤ 0.075
Ammonia (as N)	5 (from 31 <sup>st</sup> December 2019)	0.017	0.008	0.025	≤ 0.14

**Note 1:** The notionally clean background concentrations are 0.26 mg/l BOD, 0.005 mg/l ortho-phosphate (as P) and 0.008 mg/l ammonia (as N).

**Note 2:** Good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

The calculations show that the predicted downstream concentrations of BOD, Orthophosphate as P and Ammonia (Total as N), based on the ELVs included in the RL would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended.

The RL proposes an ELV of 25mg/l BOD from date of grant of licence, which is the design limit of the WWTP. The average BOD in the effluent was 14.5mg/l in 2012, indicating that this ELV can be achieved.

The RL proposes an ELV of 5mg/l Orthophosphate as P from date of grant of licence. Orthophosphate as P in the effluent was 1.6mg/l in 2009 (one sample only). There is no chemical dosing for phosphorus removal at the WWTP and is not likely to be necessary to achieve the proposed ELV.

The RL proposes an ELV of 5mg/l Ammonia- Total (as N) from 31<sup>st</sup> December 2019. Ammonia as N in the effluent was 13.5mg/l in 2008-2009 (two samples only) indicating that plant improvement/upgrade will be required to achieve this ELV. Conventional activated sludge plants can achieve 2 to 5 mg/l Ammonia.

The RL requires the primary discharge to be re-located to the Bandon River (approximately 40metres downstream) by 31<sup>st</sup> December 2019 as there is limited flow in the existing receiving water (tributary of the Bandon River).

#### 4. Site Visit

I visited the Ballineen/Enniskeane agglomeration on 16/10/2013 and met with a representative of Cork County Council. I visited the WWTP and observed the primary discharge point and receiving waters.

#### 5. Ambient Monitoring

*Schedule B.2 Receiving Water Monitoring* of the RL specifies quarterly monitoring of the Bandon River for a number of specified parameters.

- **Upstream:** The location identified by Cork County Council is aSW-1u (grid ref. 134370E, 053893N) located approximately 300m upstream of SW001, is already a National Monitoring Station (Station Code: RS20B020500), and it has been included in *Schedule B.2* of the RL.

**Downstream:** The location identified by Cork County Council is aSW-1d (grid ref. 138108E, 054110N) approximately 4.75km downstream of SW001, this is considered to be unrepresentative of the waste water discharge. The National Monitoring Station (Station Code: RS20B020550), located 1.4km downstream is not considered to be a suitable monitoring location as a tributary converges upstream of this station.

Condition 4.20 of the RL requires the licensee to submit a proposal for a suitable downstream ambient monitoring point to the Agency for agreement within three months of grant of licence.

## 6. Programme of Improvements

The applicant has prepared a proposal for an upgraded WWTP as discussed above. Plant improvement will be required to achieve an ELV of 5mg/L Ammonia from 31<sup>st</sup> December 2019.

## 7. Compliance with EU Directives

In considering the application, regard was had to the requirements of Regulation 6(2) of the Waste Water (Discharge) Authorisation, Regulations 2007 as amended, notably:

**Table 5. Compliance with EU Directives / Regulations**

<b>Compliance with Directives/Regulations</b>	<b>Description and Conditions in RL</b>
Urban Waste Water Treatment Directive [91/271/EEC]	Appropriate treatment was required by 31st December 2005.
Water Framework Directive [2000/60/EC]	Restore Good Status
EC Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009), as amended	Schedule A of RL sets ELVs to contribute towards achieving good status water quality standards
Drinking Water Abstraction Regulations	No drinking water abstractions present.
EC Freshwater Fish Directive [2006/44/EC]	Not a designated salmonid river
Bathing Water Directive [2006/7/EC]	No bathing waters present
Shellfish Waters Directive [2006/113/EC]	No shellfish waters present
Dangerous Substances Directive [2006/11/EC]	Condition 4 requires screening for priority substances.
Environmental Impact Assessment Directive [85/337/EEC]	An EIS was not required for Ballineen/Enniskeane WWTP.
Environmental Liability Directive	Condition 7.2 of RL

## 8. Habitats Directive [92/43/EEC] & Birds Directive [79/409/EEC]

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on a European Site(s). The Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of a European Site and that it can be excluded on the basis of objective scientific information, that the activity, individually or in combination with other plans or projects, will have a significant effect on a European site, and accordingly the Agency determined that an Appropriate Assessment of the activity is not required.

It has been determined that the activity does not have the potential for significant effects on any European Site due to the distance from the points of discharge to a European Site and the significant dilution available in the receiving water.

## **9. Submissions**

No submissions were received in relation to this licence application.

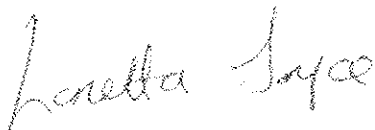
## **10. Charges**

The RL sets an annual charge for the agglomeration at €7,113.78 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

## **11. Recommendation**

I recommend that a Final Licence be issued subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed



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Loretta Joyce  
Inspector  
Environmental Licensing Programme



**Figure 1.0. Ballineen/Enniskeane Agglomeration D0472-01**

