



Cork County Council

**Wastewater Discharge Licence Application under
S.I 684 of 2007 Regulations**

Scheme/Agglomeration: Macroom

Submission Date: 22nd September 2008

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This is a draft document and is subject to revision.



Waste Water Discharge Licence Application Form

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SECTION A: NON-TECHNICAL SUMMARY

Advice on completing this section is provided in the accompanying Guidance Note.

A non-technical summary of the application is to be included here. The summary should identify all environmental impacts of significance associated with the discharge of waste water associated with the waste water works. This description should also indicate the hours during which the waste water works is supervised or manned and days per week of this supervision.

The following information must be included in the non-technical summary:

A description of:

- the waste water works and the activities carried out therein,
- the sources of emissions from the waste water works,
- the nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment,
- the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works,
- further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused;
- measures planned to monitor emissions into the environment.

Supporting information should form **Attachment N° A.1**

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INTRODUCTION:

This application is in relation to the discharge from the Macroom Town Waste Water Treatment Plant, which serves the agglomeration of Macroom and includes Macroom Town and its Environs. This plant is under the administrative control of Macroom Urban District Council (Town Council) which also operates the plant. The plant is located at the eastern end of the town on the southern bank of the river Sullane. A pumping station at Masseytown serves the region to the west of the town; this pumping station is equipped with 2 No. Duty/Standby pumps and high level overflows to the River Sullane when necessary during heavy rainfall.

Macroom Town has developed along an East-West Axis, with development constrained to the south of the town by the topography, and to north by the River Sullane. The existing sewerage network comprises of approximately 19km of pipe-work. Flows from the east of the catchment gravitate directly to the WWTP while flows from the west gravitate to Masseytown where they are pumped east to a point where they can gravitate to the WWTP. There are three small pumping stations on the network servicing residential developments, none of which have emergency or storm overflows. The majority of the town consists of combined sewer with the exception of new developments which have recently been constructed in the last five years. The majority of the existing combined, foul and storm sewers are a mix between 150mm to 550mm pipes.

A DESCRIPTION OF THE WASTE WATER WORKS AND THE ACTIVITIES CARRIED OUT THEREIN: (SEE ATTACHMENT A.1 DRAWING 1 FOR DETAILS OF THE LAYOUT)

Located in Sleeven East, to the east of the town on the southern bank of the River Sullane, the treatment plant is at a very low elevation and its boundary is only 5m from the river (**See Attachment A.1. Map 1**). Treated effluent from the plant is discharged into the river. Storm overflow from the treatment plant discharges to the treated effluent outfall. The treatment plant occupies only a portion of a 2 acre site owned by the Town Council. The plant comprises an extended aeration activated sludge plant with preliminary treatment and sludge thickening and dewatering.

The Macroom WWTP was designed for a Population Equivalent (PE) of approximately 5,230PE. The maximum hydraulic capacity of the treatment plant is 47m³/hour.

The existing treatment plant was constructed in 1975 and comprises a inlet channel with high level storm overflow prior to the automated inlet screen which

has recently been replaced (2007) including a washing and compacting facility. Flows are then measured in the open channel venturi flume before gravitating into the activated sludge system comprising a single oxidation ditch with a secondary settlement tank and a return sludge system. The sludge thickening and dewatering facilities as well as a Phosphorus removal system were added in the late 1980's. Wastewater-flow through the treatment process is by gravity with no inter-stage pumping required. The treatment plant is currently near its design capacity and a Preliminary Report is currently being undertaken to assess the upgrading of the sewerage network and WWTP to cater for future predicted flows.

There are three buildings at the WWTP. These include a small control building (which also serves as an office) and a separate sludge dewatering building (which also houses the ferric and polymer dosing systems) and a shed used by Macroom Town Council for storage of their equipment.

Pre-Treatment

The aim of the pre-treatment is to remove as much inorganic load, and floating and suspended objects as possible before primary treatment. There are no facilities on site for the storage of storm water and in the event of storm conditions incoming storm flows overflow via a two-sided weir channel into the River Sullane. The storm water overflow is positioned upstream of the newly installed screening facility. There is no facility on site for measuring the flow rate of storm water discharge to the river. All flows which go forward to full treatment are screened to 6mm.

Secondary Treatment

The secondary treatment stage is an activated sludge system comprising a single oxidation ditch with a secondary settlement tank and a return sludge system.

The oxidation ditch is fitted with two horizontal shaft surface aerators which are mounted on floating supports due to the regular flooding of the site and the submergence of the oxidation ditch.

Flow from the oxidation ditch gravitates to a 15.2m diameter radial flow settlement tank fitted with a rotating half bridge scraper mechanism. Settled sludge from this tank gravitates to a nearby sludge chamber. A lifting wheel in the sludge chamber returns the activated sludge to the oxidation ditch.

Treated effluent which overflows from the secondary settlement tank combines with the storm water overflow and gravitates via an outfall pipe to the River

Sullane. 24 hour composite samples are collected for analysis up to 12 times per year from this chamber by Cork County Staff which are then analysed at the laboratory in Inniscarra. There is no facility on site for measuring the flow rate of treated effluent to the river.

A phosphorus removal facility, comprising a GRP ferric sulphate storage tank and dosing system, was installed in the late 1980's. However, this has not been operated for a number of years.

Sludge Management

Surplus sludge is pumped to a gravity sludge thickening tank. The sludge thickener is a flat bottomed fabricated steel tank, in which a submersible mixer is installed.

Thickened sludge is pumped to a double belt dewatering press. The press produces a dewatered cake at 17 % dry solids. This is stored in a skip until it is taken off-site. The press is generally operated for approximately 7 hours per day and five days per week. Currently one skip containing approximately 7 tonnes of sludge cake is transported off site to McGill Environmental System's site at Castletownroche, Co. Cork for composting.

Operation of the WWTP

The Macroom WWTP is currently operated by Macroom Town Council. The plant is manned during the week from 8.30am – 5.00pm (Monday – Friday) by a plant operator and a plant manager. Weekend cover is provided on both Saturday and Sunday for an hour's duration each day. There is no SCADA system or remote monitoring of the plant in place. Inflow is measured and recorded automatically.

Upgrading of Sewer Network and Treatment Plant

In 2006 Cork County Council advertised for the services of a Consulting Engineer to compile a Preliminary Report to assess the current waste water infrastructure in Macroom. In 2007, J.B. Barry & Partners, Consulting Engineers, commenced work on the Preliminary Report. The objective of this report is to establish how best to improve the existing system and make recommendations to Cork County Council. The eventual upgrading of the system (which is expected to be completed and operational by 2013) will improve the discharges from the treatment plant to the river by:

- Provision of additional storm storage and screen at Masseytown Pump Station;

- Removing the discharge of unscreened storm flows into the River Sullane at the WWTP and provide storm storage;
- Increasing capacity at the WWTP to cope with the predicted future increases in population;
- Protection of assets from flooding events;
- Provision of standby sludge dewatering facilities.

SOURCES OF EMISSIONS FROM THE WASTE WATER TREATMENT WORKS

The pollution load for the Macroom agglomeration arises from the following areas:

- The local population
- Local industries
- Cork Marts Macroom

The domestic population of Macroom has grown over the last three censuses owing to its development as a town within the Cork Metropolitan area. The population of Macroom has increased by approx. 4.4% per annum for the last 10 years. The most recent Census (2006) figures show that Macroom Town and its environs now have a domestic population in excess of 3550.

Other sources of influent that contribute to the sewage scheme would be:

- Commercial premises
- Schools
- Tourism
- Infiltration

The overall population equivalent of the town, commercial and domestic, has been calculated as 6,616.

NATURE AND QUANTITIES OF FORESEEABLE EMISSIONS FROM THE WASTEWATER WORKS INTO THE RECEIVING AQUEOUS ENVIRONMENT AS WELL AS IDENTIFICATION OF SIGNIFICANT EFFECTS OF THE EMISSIONS ON THE ENVIRONMENT:

The effluent discharged from the treatment plant to the receiving waters contains BOD, COD, Suspended Solids, Phosphorus, Ammonia and Nitrates. The use of poly-electrolyte, for sludge dewatering purposes, and Ferric Sulphate (if Phosphorus reduction is in operation) are also potential loadings from the treatment plant to the receiving waters. The treatment process employed in Macroom greatly reduces the levels of these parameters entering the aquatic

environment and the levels are below those indicated in the Urban Waste Water Directive. The treated effluent from the Macroom WWTP meets the required parameters.

Parameter	Concentration Limit	Concentration as Discharged (Macroom WWTP 2007)
Biological Oxygen Demand	25mg/l O ₂	20.8 mg/l O ₂
Chemical Oxygen Demand	125mg/l O ₂	76.1 mg/l O ₂
Total Suspended Solids	35mg/l	34.8 mg/l

Table A.1 Emission Limit Values for Discharges to non-Sensitive Waters

Receiving water

The final effluent discharge and stormwater overflow from the WWTP and Masseytown PS discharge into the River Sullane. The Sullane rises in the Derrynasaggart Mountains just past Coolea. It flows in a North-Easterly direction towards Ballyvourney on the main Cork / Kilarney Road. From Ballyvourney it follows close to the main road all the way to Macroom. As it reaches the Western outskirts of Macroom it becomes wider. The Sullane is joined by the Laney which flows from the North of Macroom just before it meets the Lee at the Two Mile Bridge.

The River Sullane is an important fishery and although it is not a designated salmonid river and there is no legislative requirement for the Sullane to comply with Salmonid Water Regulations, achievement of these standards is desirable to support existing fishing activities.

The 2005 EPA Water Quality Report indicated that the water quality in the River Sullane has remained satisfactory over the period of the last report. The Q-value upstream of Macroom Town at Linnamilla Bridge is 5; downstream of the town at the confluence with the River Laney the Q-value is 4 which denotes unpolluted conditions.

Drinking Water

The Sullane River is a tributary of the River Lee and drinking water is abstracted downstream of the outfall site at Inniscarra by Cork County Council. Council Directive 75/440/EEC 1975 and the associated EC (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations 1989 (SI No 294 of

1989) are applicable. Therefore, the treated effluent should not impact on the ability of the receiving water to reach the above standards.

The aim of this legislation is to reduce and prevent pollution of surface water intended for the abstraction of drinking water. Surface water intended for abstraction of drinking water is divided into three categories (A1, A2 & A3 waters) and different levels of water treatment are specified depending on the classification of the water body. The regulations set the following minimum quality requirements to be met by surface fresh water:

- parameters defining the physical, chemical and microbiological characteristics;
- limit values for these parameters;
- the minimum frequency of sampling and analysis; and
- common non-mandatory reference methods for measuring the parameters.

The following are some of the water quality standards are set out these regulations:

Table A.2 Surface Water Quality Standards

Parameter	A1	A2	A3
BOD (mg/l)	5	5	7
Total Suspended Solids (mg/l)	50	50	50
Total Ammonia (mg/l)	0.2	1.5	4.0
Nitrate (mg/l)	50	50	50
Phosphates (mg/l)	0.5	0.7	0.7

Inniscarra Water Treatment Plant has a full treatment process which includes sedimentation, filtration and disinfection which in accordance to Annex 1 of the Surface Water Directives that gives definitions of the method of treatment from surface water into drinking water the category is A2 – Normal physical treatment. Therefore the above parameters for category A2 apply to Macroom WWTP.

PROPOSED TECHNOLOGY AND OTHER TECHNIQUES FOR PREVENTING OR, WHERE THIS IS NOT POSSIBLE, REDUCING EMISSIONS FROM THE WASTE WATER WORKS:

The WWTP at Macroom floods on a regular basis due to its proximity to the Sullane River. The forthcoming Preliminary Report will make recommendations on the introduction of flood protection measures to ensure that the plant remains operational during high river flows.

The Preliminary Report will consider the following measures among others: -

- Installation of a storm water storage system;
- Raising the height/walls of the existing structures;
- Provision of standby diesel generators or generator sockets in control panels;
- Installation of final effluent Pumping Station to pump final effluent and storm flows into the river at high levels;
- Construction of additional process units to cope with the predicted future load.

These measures would be implemented to prevent untreated emissions from entering the receiving aqueous environment.

The Preliminary Report currently being undertaken on behalf of Cork County Council by J.B. Barry & Partners is to assess the various options available for the upgrading of the current treatment plant and sewerage network due to increased demand for wastewater infrastructure in Macroom in recent years. The report is to be completed by September 2008.

FURTHER MEASURES PLANNED TO COMPLY WITH THE GENERAL PRINCIPLE OF THE BASIC OBLIGATIONS OF THE OPERATOR, I.E., THAT NO SIGNIFICANT POLLUTION IS CAUSED:

Prevention of Pollution

Any alteration/upgrading of the existing infrastructure undertaken by Cork County Council shall not increase the potential to cause pollution in the environment. In particular any alterations to the wastewater treatment plant will be designed to enable any operator of the facility to prevent pollution of the environment by the following potential contaminants:

- Surface water run-off
- Spillages
- Solid Waste

Toxic Substances

Cork County Council shall insure that any modifications or alterations to the plant do not increase the impact by any toxic substances. All chemical and dangerous substances must be stored safely at all times and all appropriate safety measures must be taken to ensure against leakage and spillage in accordance with the relevant Health & Safety Legislation.

MEASURES PLANNED TO MONITOR EMISSIONS INTO THE ENVIRONMENT:

Macroom Town Council, as current operator has not developed procedures and processes for the sampling and analysis at the various stages of the processes.

Laboratory analysis is not carried out on site, samples are collected 6 – 12 times per year by Cork County Council staff and analysed at Cork County Council's laboratory at Inniscarra.

Cork County Council has water quality data from samples taken in the Sullane at Linnimella Bridge (Station No. 0480) which is upstream of Macroom Town (results date from 17/01/2007 to 07/08/2007). The results of this sampling indicate levels of Molybdate Reactive Phosphorus ranging between <0.006 and 0.024 mg/l. The mean level recorded over this period was 0.01mg/l P.

The Environmental Protection Agency (EPA) also has a water quality monitoring point here. The most recent EPA monitoring records in 2005 confirm a Q rating of 5 at this point. The last period for which chemical data is available is 1995-1997.

At the treatment plant Cork County Council undertakes sampling of the final effluent and also has monitoring and sampling points upstream and downstream of the discharge point. The upstream monitoring point is just upstream of the discharge point whereas the downstream sampling point is at Coachford Bridge. Analysis results from these points for 2006 indicate a slight deterioration in water quality downstream of the discharge. The mean Total Phosphorus result for the upstream point was 0.2 mg/l P and downstream was <0.318 mg/l P. The mean upstream BOD was 1.686 mg/l BOD and downstream this figure was 2.064 mg/l BOD.

CONCLUSION

The Waste Water Treatment Plant at Macroom provides treatment for the wastewater generated by the Macroom agglomeration. Cork County Council has engaged the services of a firm of Consulting Engineers to prepare a Preliminary Report on the upgrading of the Macroom Sewerage Network. The measures recommended by this report will ensure that the sewerage network and treatment plant in Macroom continue to meet the requirements of the Urban Waste Water Directive when the upgrade is completed (expected 2013) and other applicable directives and reduce the incidents and severity of stormwater overflows into the River Sullane.

SECTION B: GENERAL

B.1 Agglomeration Details

Name of Agglomeration: Macroom

Applicant's Details

Name and Address for Correspondence

Only application documentation submitted by the applicant and by the nominated person will be deemed to have come from the applicant.

Provide a drawing detailing the agglomeration to which the licence application relates. It should have the boundary of the agglomeration to which the licence application relates clearly marked in red ink.

Name*:	Cork County Council
Address:	Area Operations South
	Floor 5
	County Hall
	Cork
Tel:	021 - 4276891
Fax:	021 - 4276321
e-mail:	Corporate.affairs@corkcoco.ie

*This should be the name of the water services authority in whose ownership or control the waste water works is vested.

*Where an application is being submitted on behalf of more than one water services authority the details provided in Section B.1 shall be that of the lead water services authority.

Name*:	Patricia Power
Address:	Director of Services
	Area Operations South
	Floor 5
	County Hall
	Co. Cork
Tel:	021- 4285304
Fax:	021- 4342098
e-mail:	Patricia.Power@corkcoco.ie

*This should be the name of person nominated by the water services authority for the purposes of the application.

Co-Applicant's Details

Name*:	Not Applicable
Address:	
Tel:	
Fax:	
e-mail:	

*This should be the name of a water services authority, other than the lead authority, where multiple authorities are the subject of a waste water discharge (authorisation) licence application.

Design, Build & Operate Contractor Details

Name*:	Not Applicable
Address:	
Tel:	
Fax:	
e-mail:	

*Where a design, build & operate contract is in place for the waste water works, or any part thereof, the details of the contractor should be provided.

Attachment B.1 should contain appropriately scaled drawings / maps ($\leq A3$) of the agglomeration served by the waste water works showing the boundary clearly marked in red ink. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g., ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. These drawings should be provided to the Agency on a separate CD-Rom containing sections B.2, B.3, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	✓	

B.2 Location of Associated Waste Water Treatment Plant(s)

Give the location of the waste water treatment plant associated with the waste water works, if such a plant or plants exists.

Name*:	Faughna Keohane
Address:	Macroom WWTP
	Macroom
	Co. Cork
Grid ref (6E, 6N)	E134933 N672920
Level of Treatment	Secondary
Primary Telephone:	026-41047
Fax:	Not Available
e-mail:	Faughna.keohane@corkcoco.ie

*This should be the name of the person responsible for the supervision of the waste water treatment plant.

Attachment B.2 should contain appropriately scaled drawings / maps ($\leq A3$) of the site boundary and overall site plan, including labelled discharge, monitoring and sampling points. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g., ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. These drawings should be provided to the Agency on a separate CD-Rom containing sections B.1, B.3, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	✓	

B.3 Location of Primary Discharge Point

Give the location of the primary discharge point, as defined in the Waste Water Discharge (Authorisation) Regulation, associated with the waste water works.

Type of Discharge	Treated Effluent and Storm Water Overflow from WWTP
Unique Point Code	SW01MACR
Location	Outfall at Treatment Plant
Grid ref (6E, 6N)	E134945 N072932

Attachment B.3 should contain appropriately scaled drawings / maps ($\leq A3$) of the discharge point, including labelled monitoring and sampling points associated with the discharge point. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing the drawings and tabular data requested in sections B.1, B.2, B.4, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No

B.4 Location of Secondary Discharge Point(s)

Give the location of **all** secondary discharge point(s) associated with the waste water works. Please refer to Guidance Note for information on Secondary discharge points.

Type of Discharge	Emergency Overflow
Unique Point Code	SW02MACR
Location	Masseytown Pumping Station
Grid ref (6E, 6N)	E133875 N073186

Attachment B.4 should contain appropriately scaled drawings / maps ($\leq A3$) of the discharge point(s), including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	✓	

B.5 Location of Storm Water Overflow Point(s)

Give the location of **all** storm water overflow point(s) associated with the waste water works.

Type of Discharge	Storm Water Overflow
Unique Point Code	SW01MACR
Location	Outfall at Macroom Waste Water Treatment Plant
Grid ref (6E, 6N)	E134945 N072932

Type of Discharge	Storm Water Overflow
Unique Point Code	SW02MACR
Location	Masseytown Pumping Station
Grid ref (6E, 6N)	E133875 N073186

Attachment B.5 should contain appropriately scaled drawings / maps ($\leq A3$) of storm water overflow point(s) associated with the waste water works, including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
	✓	

B.6 Planning Authority

Give the name of the planning authority, or authorities, in whose functional area the discharge or discharges take place or are proposed to take place.

Name:	Macroom Town Council
Address:	Town Hall
	Macroom
	Co. Cork
Tel:	026 - 41545
Fax:	026 - 42178
e-mail:	info@macroom.ie

Planning Permission relating to the waste water works which is the subject of this application:- (tick as appropriate)

has been obtained		is being processed	
is not yet applied for		is not required	✓

Local Authority Planning File Reference N^o:	Not Applicable
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Attachment B.6 should contain **the most recent** planning permission, including a copy of **all** conditions, and where an EIS was required, copies of any such EIS and any certification associated with the EIS, should also be enclosed. Where planning permission is not required for the development, provide reasons, relevant correspondence, etc.

Attachment included	Yes	No
	Not Applicable	Not Applicable

B.7 Other Authorities

B.7 (i) Shannon Free Airport Development Company (SFADCo.) area

The applicant should tick the appropriate box below to identify whether the discharge or discharges are located within the Shannon Free Airport Development Company (SFADCo.) area.

Attachment B.7(i) should contain details of any or all discharges located within the SFADCo. area.

Within the SFADCo Area	Yes	No
	Not Applicable	Not Applicable

B.7 (ii) Health Services Executive Region

The applicant should indicate the **Health Services Executive Region** where the discharge or discharges are or will be located.

Name:	Health Service Executive
Address:	North Lee Local Health Office
	Floor 4
	Abbeycourt House
	Georges Quay
	Cork
Tel:	021 - 4965511
Fax:	021 - 4963822
e-mail:	info@hse.ie

B.7 (iii) Other Relevant Water Services Authorities

Regulation 13 of the Waste Water Discharge (Authorisation) Regulations, 2007 requires all applicants, not being the water services authority in whose functional area the relevant waste water discharge or discharges, to which the relevant application relates, takes place or is to take place, to notify the relevant water services authority of the said application.

Name:	Not Applicable
Address:	
Tel:	
Fax:	
e-mail:	

Relevant Authority Notified	Yes	No
	Not Applicable	Not Applicable

Attachment B.7(iii) should contain a copy of the notice issued to the relevant local authority.

Attachment included	Yes	No
	Not Applicable	Not Applicable

B.8 Notices and Advertisements

Regulations 10 and 11 of the Waste Water Discharge (Authorisation) Regulations, 2007 require all applicants to advertise the application in a newspaper and by way of a site notice. See *Guidance Note*.

Attachment B.8 should contain a copy of the site notice and an appropriately scaled drawing ($\leq A3$) showing its location. **The original application must include the original page of the newspaper in which the advertisement was placed.** The relevant page of the newspaper containing the advertisement should be included with the original and two copies of the application.

Attachment included	Yes	No
	✓	

B.9 (i) Population Equivalent of Agglomeration

TABLE B.9.1 POPULATION EQUIVALENT OF AGGLOMERATION

The population equivalent (p.e.) of the agglomeration to be, or being, served by the waste water works should be provided and the period in which the population equivalent data was compiled should be indicated.

The population equivalent of Macroom was determined to be 9,800 based on the BOD results of the influent (average BOD of 456mg/L).

The latest Geodirectory figures indicate that there are approximately 1,700 residential properties in Macroom in 2008. The non-domestic flow for Macroom is estimated at 345m³ from non-domestic metering data from Cork County Council. Using the 2006 CSO Census Report data for the average number of persons per private household in County Cork, the house occupancy rate for the Macroom

project has been identified as **2.9** persons. The per capita flow and load has been taken from the Environmental Protection Agency (EPA) publication, 'Treatment Systems for Small Communities, Business, Leisure Centres and Hotels' and is estimated as **225 litres per capita per day (including infiltration)** and **60 grammes BOD per capita per day.**

Using these figures the estimated population equivalent for Macroom using domestic and non-domestic flows is 6,616. This figure is much less than the figure obtained by using the average BOD load (9,800pe) which is above that expected from domestic sewage. This suggests that there is a considerable BOD load to the WWTP from non domestic sources.

Table B.9 (i) (a) Summary of Total estimated Current Flows and Loads

Description	Total Flow (m ³ /d)	Load (PE)
Domestic	1,108	4,925
Non-Domestic	345	1,691
TOTAL	1,453	6,616

The non-domestic pollution load in Macroom includes significant institutional, industrial and commercial enterprises ranging from engineering fabrication to milling and baking. The main 'wet' industry in Macroom is the livestock mart. The mart is understood to have screening but not flow balancing or monitoring. The impact of the mart on the WWTP is unknown.

Population Equivalent	6,616	9,800
Data Compiled (Year)	2008	2008
Method	Geodirectory/ Area Plans/ CSO	BOD loading

B.9 (ii) Pending Development

Where planning permission has been granted for development(s), but development has not been commenced or completed to date, within the boundary of the agglomeration and this development is being, or is to be, served by the waste water works provide the following information;

- information on the calculated population equivalent (p.e.) to be contributed to the waste water works as a result of those planning permissions granted,
- the percentage of the projected p.e. to be contributed by the non-domestic activities, and
- the ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving water habitat.

Table B.9 (ii) (a) Lands for Future Development from the 2003 Macroom Town Council Development Plan

Zoned Lands 2003			
Location	Dwellings/Ha	Area (Ha)	Dwellings (Approx)
Residential	25-30 per hectare	10	247
Residential	25 per hectare	5.5	109
Residential	20 per hectare	2.75	55
Residential	2 per hectare	5	10
Residential	12 per acre	1.5	44
Mixed Use	Mixed duplex, apartments and town houses	4	126
Subtotal		29	591
Existing Dwellings (2007)			1,160
Subtotal (dwellings)			1,751
Est. population (assuming 2.9)			5,078
Action Plan (lands within By-pass)	12.5 dwellings per Ha (assuming some lands not suitable for housing development)		800
Total (dwellings)			2,320
(Assuming occupancy 2.9)			(Pop. Est. 7,398)

According to figures obtained from the 2007 Geodirectory there were 1,160 residential properties inside the boundary of the Macroom Sewerage Scheme. Over the years 2003-2007 planning permission was granted for the construction of 767 dwellings. Latest figures from the Geodirectory indicate that there are now almost 1,700 dwelling in the agglomeration. It is understood that almost all of the houses granted planning permission in the years 2003-2007 are now included in the 2008 Geodirectory although development is not set to continue on a number of developments granted planning permission. It is not expected that the lands within the By Pass Action Plan area will not be developed during the lifetime of this licence.

A discharge licence with a PE of 9,800 is being applied for as current BOD loads suggest that this is the population equivalent being served by the WWTP at Macroom.

The WWTP at Macroom will accommodate this extra hydraulic and organic load by the upgrade of the Sewerage Scheme which is currently at the Preliminary Report Stage and is expected to be completed and operational by 2013.

B.9 (iii) FEES

State the relevant Class of waste water discharge as per Column 1 of the Second Schedule, and the appropriate fee as per Columns 2 or 3 of the Third Schedule of the Waste Water Discharges (Authorisation) Regulations 2007, S.I. No. 684 of 2007.

Class of waste water discharge	Fee (in €)
	€25,000

Appropriate Fee Included	Yes	No
	✓	

B.10 Capital Investment Programme

State whether a programme of works has been prioritised for the development of infrastructure to appropriately collect, convey, treat and discharge waste water from the relevant agglomeration. If a programme of works has been prioritised provide details on funding, (local or national), allocated to the capital project. Provide details on the extent and type of work to be undertaken and the likely timeframes for this work to be completed.

Water Services Investment programme 2007-2009.

Macroom Sewerage Scheme €5,150,000 (Approved Funding). The Preliminary Report is near completion and will be submitted once finished. The upgrade is expected to be completed and operational by 2013.

Attachment B.10 should contain the most recent development programme, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Water Services Investment Programme 2007-2009

Attachment included	Yes	No
	✓	

B.11 Significant Correspondence

Provide a summary of any correspondence resulting from a Section 63 notice issued by the Agency in relation to the waste water works under the Environmental Protection Agency Acts, 1992 and 2003, as amended by Section 13 of Protection of the Environment Act, 2003.

Attachment B.11 should contain a summary of any relevant correspondence issued in relation to a Section 63 notice.

Attachment included	Yes	No
	Not Applicable	Not Applicable

B.12 Foreshore Act Licences.

Provide a copy of the most recent Foreshore Act licence issued in relation to discharges from the waste water works issued under the Foreshore Act 1933.

Attachment B.12 should contain the most recent licence issued under the Foreshore Act 1933, including a copy of **all** conditions attached to the licence and any monitoring returns for the previous 12-month period, if applicable.

Attachment included	Yes	No
	Not Applicable	Not Applicable

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SECTION C: INFRASTRUCTURE & OPERATION

Advice on completing this section is provided in the accompanying Guidance Note.

C.1 Operational Information Requirements

Provide a description of the plant, process and design capacity for the areas of the waste water works where discharges occur, to include a copy of such plans, drawings or maps, (site plans and location maps, process flow diagrams), and such other particulars, reports and supporting documentation as are necessary to describe all aspects of the area of the waste water works discharging to the aquatic environment. Maps and drawings must be no larger than A3 size.

C.1.1 Storm Water Overflows

For each storm water overflow within the waste water works the following information shall be submitted:

- An assessment to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995 and any other guidance as may be specified by the Agency, and
- Identify whether any of the storm water overflows are to be decommissioned, and identify a date by which these overflows will cease, if applicable.

C.1.2 Pumping Stations

For each pump station operating within the waste water works, provide details of the following:

- Number of duty and standby pumps at each pump station;
- The measures taken in the event of power failure;
- Details of storage capacity at each pump station;
- Frequency and duration of activation of emergency overflow to receiving waters. Clarify the location where such discharges enter the receiving waters.

Attachment C.1 should contain supporting documentation with regard to the plant and process capacity, systems, storm water overflows, emergency overflows, etc., including flow diagrams of each with any relevant additional information. These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, D.2, E.3 and F.2.

Attachment included	Yes	No
	✓	

C.2 Outfall Design and Construction

Provide details on the primary discharge point & secondary discharge points and storm overflows to include reference, location, design criteria and construction detail.

Attachment C.2 should contain any supporting documentation on the design and construction of any and all discharge outfalls, including stormwater overflows, from the waste water works.

Attachment included	Yes	No
	✓	

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C.1 OPERATIONAL INFORMATION REQUIREMENTS

MACROOM WWT: DESCRIPTION OF PLANT, PROCESS AND DESIGN CAPACITY

The WWTP was designed for a Population Equivalent (PE) of approximately 5,233PE when it was constructed in 1975. There are significant institutional, industrial and commercial enterprises in Macroom ranging from engineering fabrication to milling and baking.

Current estimates of the capacity and loads to the plant are as follows:

- | | |
|-----------------------------|---|
| (i) Population Equivalent | 6,616 based on Geodirectory/ Water Metering
(9,800 based on BOD results) |
| (ii) Daily Dry Weather Flow | 1,102 m ³ /d |
| (iii) BOD | 397 kg/ day |
| (iv) Suspended Solids | 496 kg/ day |

The treatment process is an extended aeration activated sludge plant with preliminary treatment and sludge thickening. Chemical dosing with Ferric for the removal of Phosphorous was installed in the late 1980's however this has not been operational for a number of years.

Pre- Treatment

Flows from the east of the catchment arrive to the treatment plant via gravity, flows from the west gravitate to a pump station at Masseytown where they are pumped east to a point where they can gravitate to the WWTP.

In 2007 Cork County Council installed a new 6mm automated screening facility at the inlet works comprises washing and compacting facility. Incoming flows are then measured in the open channel venturi flume before gravitating to a single oxidation ditch. Storm flows are not screened prior to discharge at present.

Storm treatment

Currently there is no screening of storm overflows from the treatment plant into the River Sullane. The future upgrade of the treatment plant will recommend that a storm-water screening, overflow and storage facility being constructed. The storm overflow discharges via the treated effluent outfall pipe in the River Sullane.

Secondary Treatment

Secondary treatment at Macroom consists of an activated sludge system with a secondary settlement tank and a sludge return system. The oxidation ditch has a capacity of 1,240m³, which corresponds to a residence time of 31 hours at current dry weather flow (DWF). The oxidation ditch is fitted with two horizontal shaft surface aerators rated at 5.5kW each. The aerators are mounted on floating supports due to the regular flooding of the site and the submergence of the oxidation ditch. Based on previous analysis results the oxidation ditch typically operates at an F/M ratio of 0.085kg BOD/kg MLSS per day with an MLSS concentration of between 3,000 and 3500mg/l.

Flow from the oxidation ditch gravitates to a 15.2m diameter radial flow settlement tank fitted with a rotating half bridge scraper mechanism. Settled sludge from this tank gravitates to a nearby sludge chamber. A lifting wheel in the sludge chamber returns the activated sludge to the oxidation ditch.

Treated effluent from the secondary settlement tank combines with the storm overflow and gravitates via an outfall pipe in the River Sullane. 24 hour composite samples are collected for analysis 4-12 times per year from this chamber. There is no facility on site for measuring the flow rates of treated effluent or storm water discharge to the river.

Sludge Management

A submersible pump, installed in a sump adjacent to the sludge wheel chamber pumps surplus sludge to a gravity sludge thickening tank. The sludge thickener is a flat bottomed fabricated steel tank in which a submersible mixer is installed. In this tank sludge is thickened from less than 1% dry solids (DS) to approximately 2% DS.

Thickened sludge is pumped into the sludge dewatering building which contains a double belt dewatering press which was refurbished in 2004. Prior to dewatering, the sludge is pre-conditioned by polyelectrolyte to improve its dewatering ability. The press produces a dewatered cake of approximately 17 % dry solids. This is stored in an uncovered skip until it is taken off-site. The press is generally operated for approximately 7 hours per day and five days per week. Currently one skip containing approximately 7 tonne of sludge cake is then transport off site to McGill Environmental System's site at Castletownroche for composting.

Supernatant liquors that overflow from the sludge thickener and filtrate from the dewatering press gravitate to the oxidation ditch, where they combine with incoming wastewater and receive full biological treatment with the main process stream.

Current Treatment Capacity & Operational Performance Issues

The treatment capacity of each of the key stages of treatment at the WWTP is illustrated in **Table C.1 (a)** below, with the overall treatment capacity of the plant determined by the limiting stage in the process. The capacities of the individual process units are calculated using standard loading rates that are typical for similar systems.

Table C.1 (a)

<u>Design Data</u>	
Flow (DWF)	225 l/day
BOD	60 g/day
SS	75 g/day

<u>Screens</u>	
Maximum flow =	160 l/s
Therefore Maximum PE at Total peak flow to WWTP (6DWF)	
160 l/s =	$6 * PE * (225 / (24 * 60 * 60))$
160 l/s =	0.015625P
160/0.015625 =	P
PE =	10,240

<u>Oxidation Ditch</u>			
Volume of Tank =	1240 m ³	Flow	225 l/day
MLSS =	3,000 mg/l	BOD	60 g/day
Take F/M =	0.085	SS	75 g/day
M =	3720 kgs		
F (BOD) =	316.2 kgs		
PE =	5270		

<u>Clarifier</u>			
Plan Area	=	$((3.141 * 15.24^2)/4)$	
Plan Area	=	182.4 m ²	
Upward velocity	=	1 m/hour	
Maximum flow	=	182 m ³ /hour	(3 x DWF)
182	=	3 * (0.225/24) * PE	
PE	=	(182/0.0281)	
PE	=	6471	

<u>Sludge Storage</u>			
Existing PE	5,055		
	per PE	Total	
Flow (DWF)	225 l/day	1137.38 m ³ /day	
BOD	60 g/day	303.3 kg/day	
SS	75 g/day	379.125 kg/day	
	1 x DWF	= 1137.38 m ³ /day	
	3 x DWF	= 3,412 m ³ /day	
<u>Excess sludge production</u>	=	1	kg/kg BOD removed.
BOD in	=	303.3	kg/day
BOD out @ 25mg/l	=	28.4344	kg/day
BOD removed	=	274.866	kg/day
Excess sludge	=	274.866	kg/day dry solids
Sludge volume	=	27.4866	m ³ /day pre-thickening at 1% DS
Sludge volume	=	13.7	m ³ /day post-thickening at 2% DS
Existing Volume of Sludge Tank	=	26.5	m ³
Sludge storage	=	1.0	days

Sludge Dewatering			
Maximum PE		6,900	
		per PE	Total
Flow (DWF)	225 l/day	1552.5	m ³ /day
BOD	60 g/day	414	kg/day
SS	75 g/day	517.5	kg/day
		1 x DWF =	1552.5 m ³ /day
		3 x DWF =	4,658 m ³ /day
Hourly throughput 50kg/hr		DS =	375 kg/day dry solids
Excess sludge production =		1	kg/day BOD removed.
BOD in =		414	kg/day
BOD out @ 25mg/l =		38.8125	kg/day
BOD removed =		375.188	kg/day
Excess sludge =		375.188	kg/day dry solids

Table C.1 (b) Estimated Treatment Capacity Limitations

Element	Capacity (pe)	Limiting Criteria	Comment
Screen	10,240	Flow	Based on Peak flow of 6DWF
Oxidation ditch	5,270	BOD	At standard operating conditions for extended aeration
Final settlement tank	6,471	Peak Flow	Peak flow of 50.5 l/s
Sludge Storage	5,055	kg ds/day	Based on 1 days storage capacity for sludge
Dewatering press	6,900	kg ds/day	Based on 37.5 hours operation per week and 50 kg ds/hr

The limiting constraint in terms of the treatment capacity of the oxidation ditch is the oxygen transfer capacity of the two aerators. The treatment capacity of the final settlement tank is based on a maximum upward flow velocity of 1.0 m³/m²/hr at a peak flow of 3 DWF, i.e., a maximum flow of 50.5 l/s. The estimated treatment capacity of the settlement tank should be treated with caution on the basis of the reported poor settlement characteristics of the sludge.

The sludge thickening tank is of adequate size on the basis of solids loading, but has storage capacity for only 1 day current sludge production at the current plant loading.

The capacity of the dewatering press calculated above is based on an hourly throughput of 50 kg ds/hr. Greater quantities of sludge can be processed by extending the weekly hours of operation of the dewatering equipment.

Based on current plant loading of approximately 316 kg BOD/day (5,055 pe) it can be seen that the WWTP is currently operating at, or close to, its treatment capacity. During high loads, it is possible that the capacity of the plant is exceeded on some occasions. The limiting treatment stage is identified as the oxidation ditch, while the limited storage capacity in the sludge thickener reduces the operational flexibility of the plant.

If increased capacity is not provided in the oxidation ditch, then the quality of treated effluent discharged from the plant will deteriorate, and the discharge will exceed the concentration limits set in the Urban Wastewater Treatment Regulations as the population increases with the future development proposed within the area.

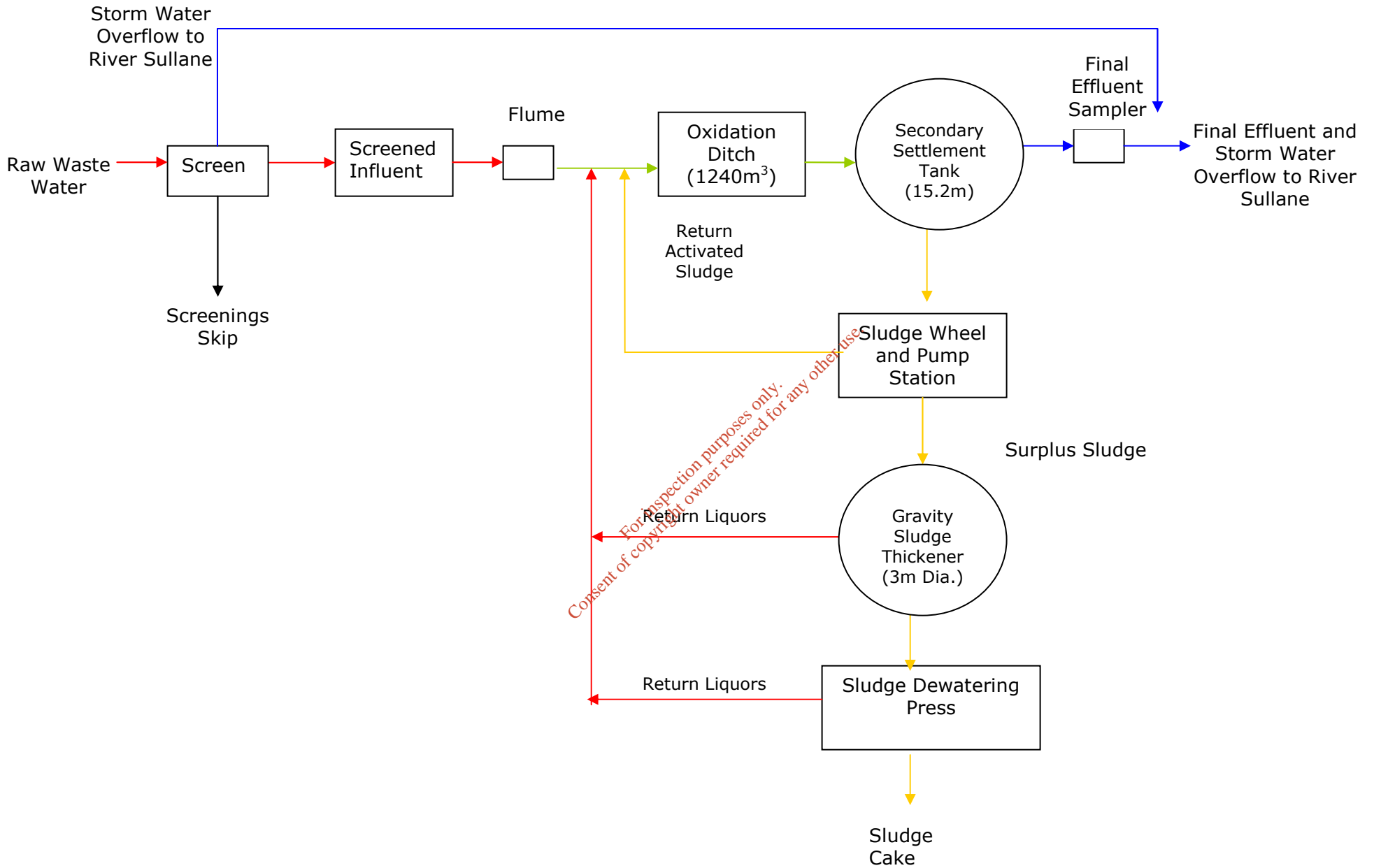
When high flows are experienced in the river, the majority of the site including the inlet channel (except for new screen structure and outfall sampling chamber) and main treatment tanks becomes flooded and completely submerged due to the low elevation of the site and low tank walls. This occurs at least twice per year. When this occurs, the floating aerators in the oxidation ditch float with their electrical components all remaining above water level. The electric motors of the settlement tank bridge and the sludge wheel are above most flood levels experienced on site.

When the flood abates, it usually takes the operator a couple of days to clean up the site, and remove the debris from the fencing and screening vegetation. It takes up to three weeks to restore the biological operation and performance of the treatment process following these flood conditions.

Despite the current operational problems at the treatment plant, the results of the analyses of the treated effluent samples are within the limits specified in the Urban Wastewater Treatment Regulations and other applicable directive.

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Macroom WWTP Schematic Diagram





Application Form Photography 1

Macroon Waste Water Treatment Plant, showing the proximity of the boundary from the River Sullane into which it discharges.

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C.1.1 Storm Water Overflows

A flow survey of selected sites in the Macroom area was commissioned and completed by Capital Water Systems Ltd. as part of the Preliminary Report on the upgrade of the Sewer Network and Treatment Plant. The findings of the flow survey, which was carried out from November 2007 to January 2008, were collected in order to assess the hydraulic characteristics and capacity of the sewer system. A total of 2 No. overflows were monitored. The storm overflows are situated at:

- Macroom WWTP, (Site 2)
- Masseytown Pumping Station. (Site 4)

Table C.1.1 (a) outlines the results of the flow survey for the storm overflow at the WWTP.

	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	01-Dec	02-Dec
Total Volume (m³)	0	0	85.5	0	104.5	18.5	4.8
Peak Flow (l/s)	0	0	80.7	0	27.8	27.5	11.4
	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec	08-Dec	09-Dec
Total Volume (m³)	0	29.1	100	0.1	126.8	3.8	0
Peak Flow (l/s)	0	19.4	88.8	0.5	88.2	4.7	0
	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec
Total Volume (m³)	0	0	0	0	0	0	0
Peak Flow (l/s)	0	0	0	0	0	0	0
	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
Total Volume (m³)	0	0	0	0	0	0	0
Peak Flow (l/s)	0	0	0	0	0	0	0
	24-Dec	25-Dec	26-Dec	27-Dec			
Total Volume (m³)	16.2	0	0	0			
Peak Flow (l/s)	18	0	0	0			
	28-Dec	29-Dec	30-Dec	31-Dec	01-Jan	02-Jan	03-Jan
Total Volume (m³)	0	0	0	13.8	0	0	0
Peak Flow (l/s)	0	0	0	16.6	0	0	0
	04-Jan	05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan
Total Volume (m³)	1041.6	0	0	31.2	434.8	1010.3	3512.3
Peak Flow (l/s)	421.1	0	0	40.7	278.9	151	386.1

As part of Cork County Council's Water Services Investment Programme a Preliminary Report is currently being carried out for the Planned Upgrade of the Macroom Sewerage Scheme. It is proposed to provide some storage in the event of storm event or mechanical breakdown of the WWTP. Currently a hydraulic model is being built to assess current and future storage requirements to limit the number and volume of storm overflow events into the Sullane.

It is proposed that a stormwater tank with 2 hours storage @3DWF will be recommended in this report as part of the upgrade. Flows above this storage capacity shall be screened to 6mm prior to discharge. This will reduce the load and frequency of overflow events into the River Sullane.

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C.1.2 Pumping Stations

The Pumping Station at Masseytown is equipped with the following: -

- 2 No. Foul Pumps Wet Well, Pedestal Mounted (1 duty/ 1 standby)
- 75m³ wet well storage
- Telemetry/ Dial out alarm system

The telemetry system will alert the operator in the event of pump failure in the pumping station. The overflow from the pumping station discharges into the River Sullane at Grid Reference E 133875 N073186.

A flow survey of selected sites in the Macrooom area was commissioned and completed by Capital Water Systems Ltd. as part of the Preliminary Report on the upgrade of the Sewer Network and Treatment Plant. The findings of the flow survey, which was carried out from November 2007 to January 2008, were collected in order to assess the hydraulic characteristics and capacity of the sewer system.

Table C.1.2. (a) below outlines the results of the flow survey for the storm overflow at the Masseytown PS giving volumes and approximate duration of flows.

	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	01-Dec	02-Dec
Total Volume (m³)	0	0	0	0	0	0	0
Duration	0		0	0	0	0	0
	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec	08-Dec	09-Dec
Total Volume (m³)	0	156.4	0	573.4	0	846	457.2
Duration	0	2.0hrs	0	2.0hrs	0	5.0hrs	3.5hrs
	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec
Total Volume (m³)	12	0	0	0	0	0	0
Duration	0.25hrs	0	0	0	0	0	0
	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
Total Volume (m³)	0	0	0	0	0	0	120.9
Duration	0	0	0	0	0	0	1.0hr
	24-Dec	25-Dec	26-Dec	27-Dec			
Total Volume (m³)	0	0	0	0			
Duration	0	0	0	0			
	28-Dec	29-Dec	30-Dec	31-Dec	01-Jan	02-Jan	03-Jan
Total Volume (m³)	0	0	0	14.3	0	0	0
Duration	0	0	0	0.5hrs	0	0	0
	04-Jan	05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan
Total Volume (m³)	321.7	0	0	13.7	739.9	959.9	1206.8
Duration	3.25hrs	0	0	1.0hr	2.0hrs	4.0hrs	5.0hrs

A number of regulations and guidelines govern the frequency and quality of storm water discharges from combined sewer systems into water courses. These principally include the Urban Waste Water Treatment Directive (UWWTD) and the DEHLG procedures on "criteria in relation to storm water overflows" following from the UWWTD.

The UWWTD in Annex 1(a) states that *"the design, construction and maintenance of collection systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding the limitation of pollution of receiving waters due to storm water overflows"* (BATNEC Principle)

However in the footnote to Annex 1, the Directive does acknowledge the impracticability of constructing collection systems and treatment plants such as to treat all waste water during situations such as unusually heavy rainfall. It therefore places responsibility on member states to decide on measures to limit pollution from storm water overflows. In response to this the DOELG have issued procedures on "criteria in relation to storm water overflows" which is intended to assist Local Authorities and Consulting Engineers in the evaluation of their requirements for implementation of this aspect of the UWWTD.

These criteria state the following:-

- Minimum setting for a storm overflow shall be flows above "formula A" $(1.36P + DWF + 2E)$ where P = Population, DWF = Dry Weather Flow, E = Industrial;
- Overflows should be designed for effective containment of detritus and floating debris;
- Overflow discharge points should be discretely located;

The paper states that the Urban Pollution Management (UPM) Steering Group in the UK have developed a criteria for the initial assessment of storm water discharges into freshwater which is shown in **Table C.1.2.(b)** on next page.

Table C.1.2. (b) SDD Method Recommended Storage at Overflows

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

In line with **Table C.1.2.(b)** it is recommended that the pass forward pumps be set at formula A to pass flows to the WWTP, however it is proposed to provide additional storage in the event of storm events or mechanical breakdown of the pumping station.

As part of Cork County Council’s Water Services Investment Programme a Preliminary Report is currently being carried out for the Planned Upgrade of the Macrooom Sewerage Scheme. Currently a hydraulic model is being built to assess current and future storage requirements to limit the number and volume of storm overflow events into the Sullane.

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C.2 Outfall Design and Construction

PROVIDE DETAILS ON THE PRIMARY DISCHARGE POINT & SECONDARY DISCHARGE POINTS AND STORM OVERFLOWS TO INCLUDE REFERENCE, LOCATION, DESIGN CRITERIA AND CONSTRUCTION DETAIL.

Primary Discharge Point

Macroon Waste Water Treatment Plant: Grid Reference E 134961 N 072946

The final effluent and storm water overflow discharge via 1 No. 525mm concrete pipe from the treatment plant at Sleveen East directly into the River Sullane. There are no drawings available for the Primary discharge point.

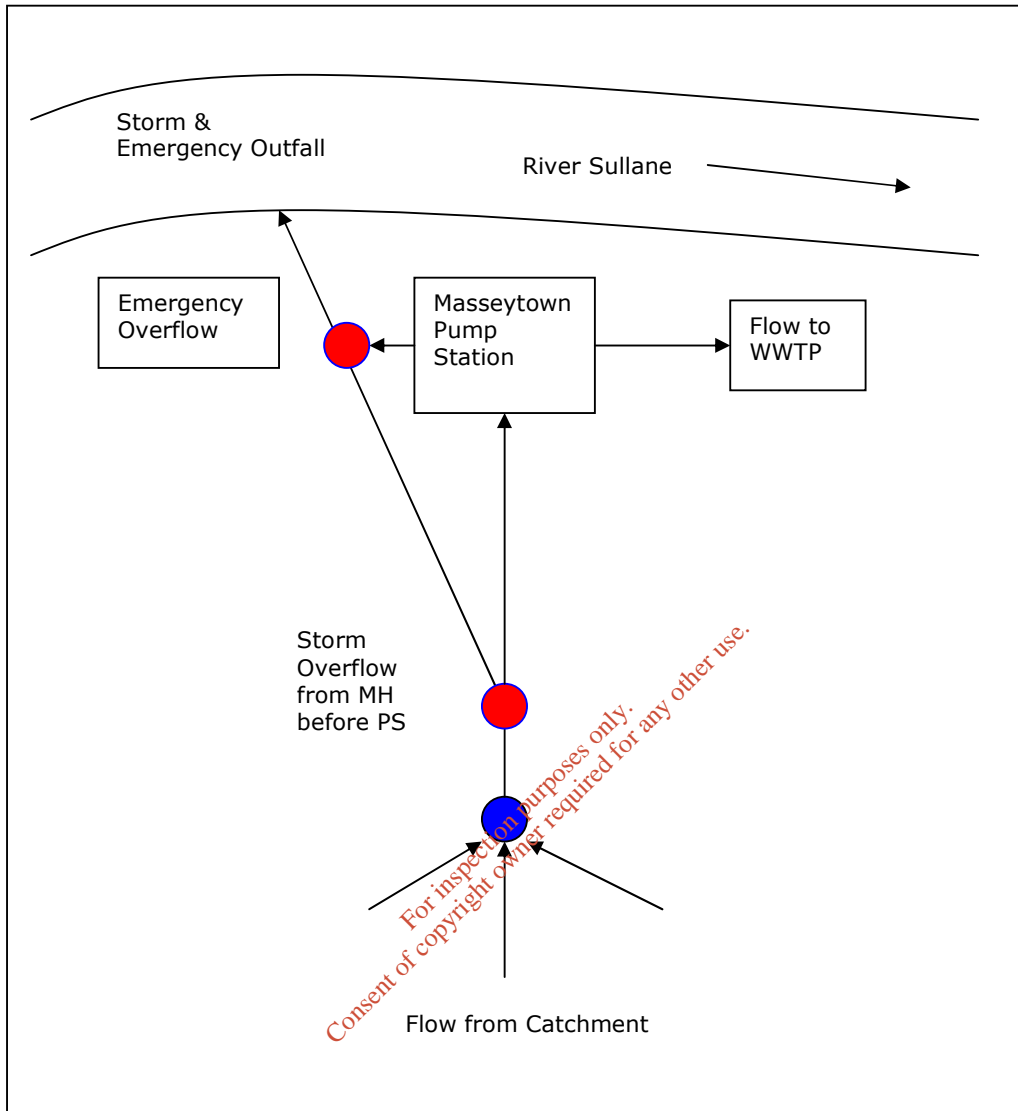
Secondary Discharge Point

Masseytown Pumping Station: Grid Reference E 133875 N073186

The Pumping Station at Masseytown consists of 1 No. emergency overflow. This 300mm concrete pipe overflows to the 600mm storm water overflow pipe which is situated at a manhole upstream of the pump station. There is one discharge point in the river from the emergency and storm water overflow. See overleaf for a Schematic of the Overflow.

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Schematic of Overflow from Masseytown Pumping Station to the River Sullane



SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT

Advice on completing this section is provided in the accompanying Guidance Note.

Give particulars of the source, location, nature, composition, quantity, level and rate of discharges arising from the agglomeration and, where relevant, the period or periods during which such emissions are made or are to be made.

Details of all discharges of waste water from the agglomeration should be submitted via the following web based link: http://78.137.160.73/epa_wwd_licensing/. The applicant should address in particular all discharge points where the substances outlined in Tables D.1(i), (b) & (c) and D.1(ii), (b) & (c) of Annex 1 are emitted.

Where it is considered that any of the substances listed in Annex X of the Water Framework Directive (2000/60/EC) or any of the Relevant Pollutants listed in Annex VIII of the Water Framework Directive (2000/60/EC) are being discharged from the waste water works or are seen to be present in the receiving water environment downstream of a discharge from the works (as a result of any monitoring programme, e.g., under the Water Framework Directive Programme of Measures) the applicant shall screen the discharge for the relevant substance.

D.1 Discharges to Surface Waters

Details of all discharges of waste water from the agglomeration should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables D.1(i)(a), (b) & (c), should be completed for the primary discharge point from the agglomeration and Tables D.1(ii)(a), (b) & (c) should be completed for **each** secondary discharge point, where relevant. Table D.1(iii)(a) should be completed for **each** storm water overflow. Individual Tables must be completed for each discharge point.

Where monitoring information is available for the influent to the plant this data should also be provided in response to Section D.1.

Supporting information should form **Attachment D.1**

Attachment included	Yes	No
	✓	

D.2 Tabular Data on Discharge Points

Applicants should submit the following information for each discharge point:

Table D.2:

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING
Point Code Provide label ID's	Point Type (e.g., Primary/Secondary/Storm Water Overflow)	Local Authority Name (e.g., Donegal County Council)	Receiving Water Body Type (e.g., River, Lake, Groundwater, Transitional, Coastal)	Receiving Water Body Name (e.g., River Suir)	Protected Area Type (e.g., SAC, candidate SAC, NHA, SPA etc.)	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference

An individual record (i.e. row) is required for each discharge point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A Standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, E.3 and F.2.

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SECTION E: MONITORING

Advice on completing this section is provided in the accompanying Guidance Note.

E.1 Waste Water Discharge Frequency and Quantities – Existing & Proposed

Provide an estimation of the quantity of waste water likely to be emitted in relation to all primary and secondary discharge points applied for. This information should be included in Table E.1(i) via the following web based link: http://78.137.160.73/epa_wwd_licensing/.

Provide an estimation of the quantity of waste water likely to be emitted in relation to all storm water overflows within the agglomeration applied for. This information should be included in Table E.1(ii) via the following web based link: http://78.137.160.73/epa_wwd_licensing/.

Indicate if composite sampling or continuous flow monitoring is in place on the primary or any other discharge points. Detail any plans and timescales for the provision of composite sampling and continuous flow meters.

E.2. Monitoring and Sampling Points

Programmes for environmental monitoring should be submitted as part of the application. These programmes should be provided as Attachment E.2.

Reference should be made to, provision of sampling points and safe means of access, sampling methods, analytical and quality control procedures, including equipment calibration, equipment maintenance and data recording/reporting procedures to be carried out in order to ensure accurate and reliable monitoring.

In determining the sampling programme to be carried out, the variability of the emission and its effect on the receiving environment should be considered.

Details of any accreditation or certification of analysis should be included.

Attachment E.2 should contain any supporting information.

Attachment included	Yes	No
	✓	

E.3. Tabular data on Monitoring and Sampling Points

Applicants should submit the following information for each monitoring and sampling point:

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
Point Code Provide label ID's assigned in section E of	Point Type (e.g., Primary, Secondary, Storm	Monitoring Type M = Monitoring S = Sampling	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used

application	Water Overflow)				
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An individual record (i.e., row) is required for each monitoring and sampling point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, D.2 and F.2.

E.4 Sampling Data

Regulation 16(1)(h) of the Waste Water Discharge (Authorisation) Regulations 2007 requires all applicants in the case of an existing waste water treatment plant to specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application.

Regulation 16(1)(l) of the regulations requires applicants to give details of compliance with any applicable monitoring requirements and treatment standards.

Attachment E.4 should contain any supporting information.

Attachment included	Yes	No
	✓	

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E.1 Waste Water Discharge Frequency and Quantities – Existing & Proposed

There is a 24 hour composite sampler located at the outfall. It is proposed that the Preliminary Report will recommend a continuous flow meter and composite sampler be installed at the influent and effluent flumes.

E2 Monitoring in respect of Macroom Wastewater Licence Application

Cork County Council operates a composite sampler on the primary discharge outlet from the treatment plant to the river. The plant is currently monitored by the Environment Directorate of Cork County Council on a 6 times per year basis to measure compliance with the requirements of the Urban Wastewater Directive. Samples are also collected upstream and downstream of the discharge location at this time. The river Sullane, which is the receiving water body, is monitored in terms of the Freshwater Fish Directive, the Phosphorus Regulations by the Water laboratory of Cork County Council and in recent times the Water Framework Directive as part of the River basin project. The water quality section of Cork County Council currently monitor at a designated operational site (under WFD 19S020480) upstream of the discharge location at Linimella Bridge from both the treatment plant and the discharge from an IPPC licenced facility and downstream from the treatment plant (under WFD 19S020400). It is proposed to continue with this multi-faceted approach to monitoring the treatment plant and the impacts of the discharge to waters.

The Inniscarra lake is also monitored at the waterworks intake for the Cork County Council drinking water plant by Cork County Council on a scheduled programme as part of the of the Abstraction directive. The raw water intake location is also monitored currently on a weekly basis by Cork County Council for both Cryptosporidium and Giardia and the results are acceptable. Samples from the treatment plant discharge are analysed for BOD, COD, Ammonia, pH, Suspended Solids, Total Nitrogen, Total Phosphorus, Sulphate, Ortho phosphate (in recent times) and Metals (in recent times). Upstream and downstream samples were analysed in accordance with the urban waste water directive requirements for river samples

General Laboratory Information

The wastewater Laboratory of Cork County Council are accredited for a number of analytical tests under the Irish National Accreditation Board (INAB) under the ISO

17025 international standard. Details of the Accreditation can be found in Attachment E.2. We currently are accredited for the following parameters under the ISO 17025 system

pH

Biochemical Oxygen Demand

Chemical Oxygen Demand

Suspended Solids

Ammonia

Ortho Phosphate

Total Phosphate

Chloride

Sulphate

The laboratory perform a number of analytical tests e.g. Fats Oil, Grease & Metals using an ICP-OES system and while we are not currently accredited for extra tests the analytical procedures and protocol are adhered to by the laboratory as if the tests are accredited,. The laboratory also participates in proficiency testing schemes which measure the accuracy of results and performance of the laboratory in both the EPA scheme and the WRC Aquacheck scheme from the UK. The performance of the laboratory in these schemes is excellent and the non-accredited tests are within the performance criteria for the schemes as evaluated by the scheme coordinators.

E.3 Tabular data on Monitoring and Sampling Points

Available in Attachment E.3

E.4 Sampling data

Available in Attachment E.4

SECTION F: EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S)

Advice on completing this section is provided in the accompanying Guidance Note.

Detailed information is required to enable the Agency to assess the existing receiving environment. This section requires the provision of information on the ambient environmental conditions within the receiving water(s) upstream and downstream of any discharge(s).

Where development is proposed to be carried out, being development which is of a class for the time being specified under Article 24 (First Schedule) of the Environmental Impact Assessment Regulations, the information on the state of the existing environment should be addressed in the EIS. **In such cases, it will suffice for the purposes of this section to provide adequate cross-references to the relevant sections in the EIS.**

F.1. Assessment of Impact on Receiving Surface or Ground Water

- Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.
- Details of all monitoring of the receiving water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables F.1(i)(a) & (b) should be completed for the primary discharge point. Surface water monitoring locations upstream and downstream of the discharge point shall be screened for those substances listed in Tables F.1(i)(a) & (b). Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.
- For discharges from secondary discharge points Tables F.1(ii)(a) & (b) should be completed. Furthermore, provide summary details and an assessment of the impacts of any existing or proposed emissions on the surface water or ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made.
- Provide details of the extent and type of ground emissions at the works. For larger discharges to groundwaters, e.g., from Integrated Constructed Wetlands, large scale percolation areas, etc., a comprehensive report must be completed which should include, inter alia, topography, meteorological data, water quality, geology, hydrology, and hydrogeology. The latter must in particular present the aquifer classification and vulnerability. The Geological Survey of Ireland Groundwater Protection Scheme Dept of the Environment and Local Government, Geological Survey of Ireland, EPA (1999) methodology should be used for any such classification. This report should also identify all surface water bodies and water wells that may be at risk as a result of the ground discharge.
- Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. Submit a copy of the most recent water quality management plan or catchment management plan in place for the receiving water body.

Give details of any designation under any Council Directive or Regulations that apply in relation to the receiving water.

- Provide a statement as to whether or not emissions of main polluting substances (as defined in the *Dangerous Substances Regulations S.I. No. 12 of 2001*) to water are likely to impair the environment.
 - In circumstances where water abstraction points exist downstream of any discharge describe measures to be undertaken to ensure that discharges from the waste water works will not have a significant effect on faecal coliform, salmonella and protozoan pathogen numbers, e.g., Cryptosporidium and Giardia, in the receiving water environment.
 - Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –
 - (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) –
 - (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,
 - (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or
 - (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,
 - (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC¹ in accordance with the procedures laid down in Article 21 of that Directive,
 - (c) a special area of conservation within the meaning of the Natural Habitats Regulations, or
 - (d) an area classified pursuant to Article 4(1) or 4(2) of Council Directive 79/409/EEC²;
- ¹Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ No. L 206, 22.07.1992)
- ²Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ No. L 103, 25.4.1979)
- Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.

- o This section should also contain full details of any modelling of discharges from the agglomeration. Full details of the assessment and any other relevant information on the receiving environment should be submitted as **Attachment F.1.**

Attachment included	Yes	No
	✓	

F.2 Tabular Data on Drinking Water Abstraction Point(s)

Applicants should submit the following information for each downstream or downgradient drinking water abstraction point. The zone of contribution for the abstraction point should be delineated and any potential risks from the waste water discharge to the water quality at that abstraction point identified.

ABS_CD	AGG_SERVED	ABS_VOL	PT_CD	DIS_DS	EASTING	NORTHING	VERIFIED
Abstraction Code	Agglomeration served	Abstraction Volume in m ³ /day	Point Code Provide label ID's	Distance Downstream in meters from Emission Point to Abstraction Point	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used

Note: Attach any risk assessment that may have been carried out in relation to the abstraction point(s) listed.

An individual record (i.e. row) is required for each abstraction point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, D.2 and E.3.

Attachment F.2 should contain any supporting information.

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F.1. ASSESSMENT OF IMPACT ON RECEIVING SURFACE OR GROUND WATER

Existing Receiving water

The River Sullane rises in the Derrynasaggart Mountains just past Coolea. It flows in a North-Easterly direction towards Ballyvourney on the main Cork / Killarney Road. From Ballyvourney it follows close to the main road all the way to Macroom. As it reaches the Western outskirts of Macroom it becomes wider. The Sullane is joined by the River Larne which flows from the North of Macroom just before it meets the River Lee at the Two Mile Bridge at the confluence known as the Sullane Delta.

The river is within the catchment drained by the River Lee (Hydrometric Area 19 – Lee, Cork Harbour and Youghal Bay). The River Sullane is an important fishery and is known to support Salmonid fish. According to the Ecological Scoping & Constraints Report commissioned by J.B. Barry & Partners Ltd. and carried out by Limosa Environmental, the South Western Regional Fisheries Board confirmed the presence of Salmon, Brown Trout and potentially Eels and referred to the Sullane as a 'significant brown trout river' with a good spawning nursery.

The 2005 EPA Water Quality Report indicated that the water quality in the River Sullane has remained satisfactory over the period of the last report. The biological water quality data for Station 0400 upstream of Macroom Town at Linnamilla Bridge has a consistent Q5 value (unpolluted waters) since records began in 1971. Downstream of the town, at the confluence with the River Laney at station 0480, the biotic index-value has been recorded as Q4 for the past 5 sampling years which denote unpolluted conditions.

Under the Third Schedule of the Urban Waste Water Treatment Regulations, 2001 & 2004 the River Sullane is not designated a Sensitive Area. Despite the presence of Salmonids in the river it is not designated under the EU Freshwater Fish Directive (78/659/EEC). The River Lee, which the Sullane is a tributary of, is designated under this directive and also under S.I No. 293/1988 EU (Quality of Salmonid Waters) Regulations, 1988.

According to the EPA's ENVision Online Map viewer, the River Sullane downstream of Macroom Town is a designated RPA Drinking Water River. No other designations apply to the River Sullane.

There are no studies available on the modelling or dispersion of the effluent emission.

A Special Area of Conservation, The Gearagh, is located 1.5km south of Macroom Town, the effluent from the Macroom WWTP does not impact on this area as the confluence of the two Rivers is downstream of Macroom and the River Lee flows east towards Cork City. The Gearagh is an area where the River Lee has broken into a series of channels which make their way through a series of wooded islands. As part of the Ecological Scoping & Constraints Report, Limosa Environmental addresses the issues of the effects of the discharge on this European site. Details about the area and correspondence between Limosa Environmental and the various bodies involved can be found in the Report in **Attachment F.1.**

Details of the Assimilative Capacity of the River Sullane are available on the next page.

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F.1. (i) Waste Assimilative Capacity of Receiving Waters

Assimilative Capacity

Receiving waters should have a capacity to assimilate effluent discharges without showing signs of pollution. It is desirable that any effluent discharge to the River Sullane should not;

- increase the BOD₅ level by more than 1mg/l;
- increase the overall BOD₅ in the water to more than 4mg/l (ideally 3mg/l);
- increase the Ortho Phosphate level in the water to more than 0.03mg/l;

The estimated water quality of the River Sullane before and after discharge for a PE of 7,398 and of 9,800 has been calculated as shown in **Tables F.1 (a)** and **F.1 (b)** below. The figure for the 95%ile flow was taken from data supplied by the Lee Catchment Risk Assessment and Management Study (LeeCFRAMS) taken at station 19031 (ESB). A copy of the flow graph can be found in **Attachment F.1.**

Table F.1 (a) River Sullane Water Quality Before and After Discharge for Current (plus future Action Plan Lands) of 7,398

	Parameter	Units	Treated Effluent	Sullane River before Discharge	Sullane River after Discharge
	PE		7,398		
	Flow	m ³ /head/day	0.225		
	Total Flow	m ³ /day	1,664.55		
	95%ile Flow	m ³ /day		261,740	263,405
	Median Flow	m ³ /day		991,267	992,932
Concentrations	BOD ₅	mg/l	25	1.67	1.82
	SS	mg/l	25	3.5	3.64
	Total Ammonium	mg/l - NH ₄	15	0.03	0.12
	Total Nitrogen	mg/l - N	15	2.76	2.84
	Nitrate(NO ₃)	mg/l - NO ₃	25	5.13	5.26
	Nitrite(NO ₂)	mg/l- NO ₂	0.5	0.014	0.02
	Ortho Phosphates*	mg/l - PO ₄	2	0.01	0.013
Total Loads	BOD ₅	mg/l	41,614	437,106	478,720
	SS	mg/l	41,614	916,090	957,704
	Total Ammonia	mg/l - NH ₄	24,968	7,852	32,820
	Total Nitrogen	mg/l - N	24,968	722,402	747,371
	Nitrate(NO ₃)	mg/l NO ₃	41,613.8	1,342,726	1,384,340
	Nitrite(NO ₂)	mg/l- NO ₂	832.275	3,664	4,497
	Ortho Phosphates*	mg/l - PO ₄	3,329.1	9,913	13,242

* Calculated on Median flow

F.1 (b) River Sullane Water Quality Before and After Discharge for 9,800

Parameter	Units	Treated Effluent	Sullane River before Discharge	Sullane River after Discharge	
PE		9,800			
Flow	m ³ /head/day	0.225			
Total Flow	m ³ /day	2205			
95%ile Flow	m ³ /day		261,740	263,945	
Median Flow	m ³ /day		991,267	993,472	
Concentrations	BOD ₅	mg/l	25	1.67	1.86
	SS	mg/l	25	3.5	3.68
	Total Ammonium	mg/l - NH ₄	15	0.03	0.16
	Total Nitrogen	mg/l - N	15	2.76	2.86
	Nitrate(NO ₃)	mg/l - NO ₃	25	5.13	5.30
	Nitrite(NO ₂)	mg/l- NO ₂	0.5	0.014	0.02
	Ortho Phosphates*	mg/l - PO ₄	2	0.01	0.014
Total Loads	BOD ₅	mg/l	56,125	437,106	492,231
	SS	mg/l	56,125	916,090	971,215
	Total Ammonia	mg/l - NH ₄	33,075	7,852	40,927
	Total Nitrogen	mg/l - N	33,075	722,402	755,477
	Nitrate(NO ₃)	mg/l NO ₃	55,125	1,342,726	1,397,851
	Nitrite(NO ₂)	mg/l- NO ₂	1,102.5	3,664	4,767
	Ortho Phosphates*	mg/l - PO ₄	4,410	9,913	14,323

* Calculated on Median flow

Table F.1 (c) Treated Effluent Standards for Macroom WWTP

Parameter	Limit	Units
BOD₅	25	mg/l
SS	25.0	mg/l
COD	125.0	mg/l
Total Nitrogen	15.0	mg/l - N
Nitrate(NO₃)	25	mg/l NO ₃
Nitrite(NO₂)	0.5	mg/l- NO ₂
Total Ammonium (NH₄)	15.0	mg/l - NH ₄
Ortho Phosphates	1.0	mg/l

SECTION G: PROGRAMMES OF IMPROVEMENTS

Advice on completing this section is provided in the accompanying Guidance Note.

G.1 Compliance with Council Directives

Provide details on a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the;

- Dangerous Substances Directive 2006/11/EC,
- Water Framework Directive 2000/60/EC,
- Birds Directive 79/409/EEC,
- Groundwater Directives 80/68/EEC & 2006/118/EC,
- Drinking Water Directives 80/778/EEC,
- Urban Waste Water Treatment Directive 91/271/EEC,
- Habitats Directive 92/43/EEC,
- Environmental Liabilities Directive 2004/35/EC, and
- Bathing Water Directive 76/160/EEC,
- Shellfish Waters Directive 79/923/EEC.

Attachment G.1 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
	✓	

G.2 Compliance with Water Quality Standards for Phosphorus Regulations (S.I. No. 258 of 1998).

Provide details on a programme of improvements, including any water quality management plans or catchment management plans in place, to ensure that improvements of water quality required under the Water Quality Standards for Phosphorous Regulations (S.I. No. 258 of 1998) are being achieved. Provide details of any specific measures adopted for waste water works specified in Phosphorus Measures Implementation reports and the progress to date of those measures. Provide details highlighting any waste water works that have been identified as the principal sources of pollution under the P regulations.

Attachment G.2 should contain the most recent programme of improvements and any associated documentation requested under Section G.3 of the application.

Attachment included	Yes	No
	✓	

G.3 Impact Mitigation

Provide details on a programme of improvements to ensure that discharges from the agglomeration will not result in significant environmental pollution.

Attachment G.3 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
	✓	

G.4 Storm Water Overflow

Provide details on a programme of improvements to ensure that discharges other than the primary and secondary discharges comply with the definition of 'storm water overflow' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007.

Attachment G.4 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

Attachment included	Yes	No
	✓	

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G.1 Compliance with Council Directives

Under the Water Services Investment Programme 2007-2009 funding has been secured for the upgrade of the WWTP in Macroom. It is expected that this upgrade will be completed and operational by 2013. Recommendations made for the upgrade in the forthcoming Preliminary Report will be in compliance with Council Directives listed on page 55 of the Application Form.

G.2 Compliance with Water Quality Standards for Phosphorus Regulations (S.I. No. 258 of 1998).

Attachment G.2 Contains a Cork County Council Report on The Implementation of the Phosphorus Regulations. From this it can be seen that the River Sullane is compliant with the Regulations.

G.3 Impact Mitigation

Water Services Investment Programme 2007-2009. It is expected that this upgrade will be completed and operational by 2013.

G.4 Storm Water Overflow

Water Services Investment Programme 2007-2009. It is expected that this upgrade will be completed and operational by 2013.

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Phosphorus Regulations 1998

The Local Government (Water Pollution) Act 1977 (Water Quality Standards for Phosphorus) Regulations 1998 (SI No. 258 of 1998) were introduced to counter eutrophication observed throughout Irish watercourses and also to comply with the 1976 Dangerous Substances Directive.

The Regulations oblige Local Authorities to maintain or improve the water quality at any part on a river, by 2007, by reference to the biotic indices/Q-rating or to the concentration of molybdate-reactive phosphate (MRP) although the Q-rating is seen as a better indicator of long term water quality than the MRP. No deterioration in water quality is allowed. The target values are as indicated in **Table G.1 (a)** below;

Table G.1 (a) Phosphorus Regulations Target Values

Existing Q Value	Target Q-Value	Target MRP ($\mu\text{gP/l}$)
5	5	15
4/5	4/5	20
4	4	30
3/4	4	30
3	3/4	50
2/3	3/4	50
<2	3	70

In the context of River Sullane it would indicate that the Target Q Value is 4/5. To achieve this, the maximum allowable **BOD₅** of the receiving waters following discharge is **3mg/l** and the annual average level of Ortho Phosphate of the receiving waters following discharge must be no greater than **0.03mg/l**.

SECTION H: DECLARATION

Declaration

I hereby make application for a waste water discharge licence/revised licence, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website.

This consent relates to this application itself and to any further information or submission, whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Signed by : 
(on behalf of the organisation)

Date : Sept 18th 08

Print signature name: Patricia Power

Position in organisation: Director of Services

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SECTION I: Joint DECLARATION

NOT APPLICABLE

Joint Declaration ^{Note1}

I hereby make application for a waste water discharge licence/revised licence, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website.

This consent relates to this application itself and to any further information or submission whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Lead Authority

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Co-Applicants

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Signed by : _____ **Date :** _____
(on behalf of the organisation)

Print signature name: _____

Position in organisation: _____

Note 1: In the case of an application being lodged on behalf of more than a single water services authority the following declaration must be signed by all applicants.