

# Comhairle Contae Chorcaí Cork County Council



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Co. Chorcaí.  
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Administration,  
Environmental Licensing Programme,  
Office of Climate -Licensing & Resource Use,  
Environmental Protection Agency,  
Headquarters,  
PO Box 3000,  
Johnstown Castle Estate,  
Co. Wexford.

January 2011



**RE: Regulation 24 Compliance Requirements –Bridesbridge & Environs A0333-01**

1. Please find attached Flow diagram, which indicates that appropriate assessment is required.
2. The design PE of the WWTP is 500.  
The existing PE, estimated by house count taken in 2010, was determined to be 181. The results of the house count are as follows;

Existing Development						Existing Total
no. of houses	school	Pub	Shop	Other		
72	0	1	1	0	181	

There are no significant public gathering events in the village that should be considered in the calculation of the contributing PE.

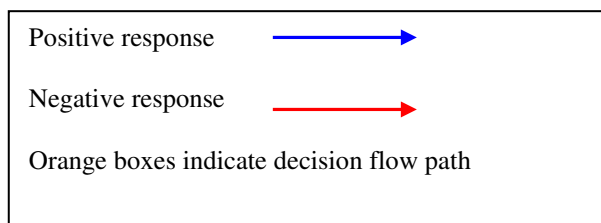
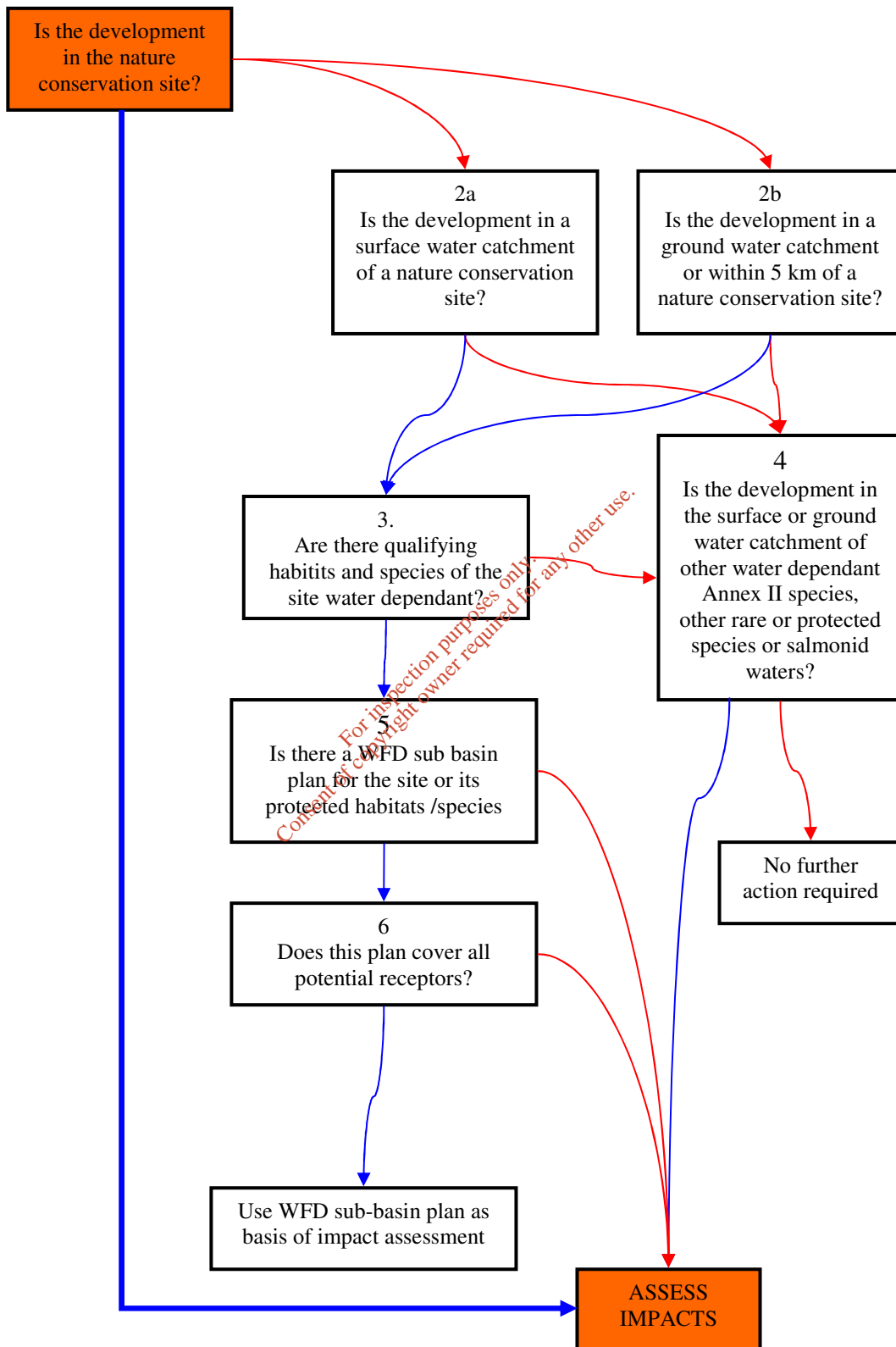
3. The COA has been amended to omit all references of the discharge from Conna Regional Water Treatment Plant. Amended application form and drawings are included on the CD attached.

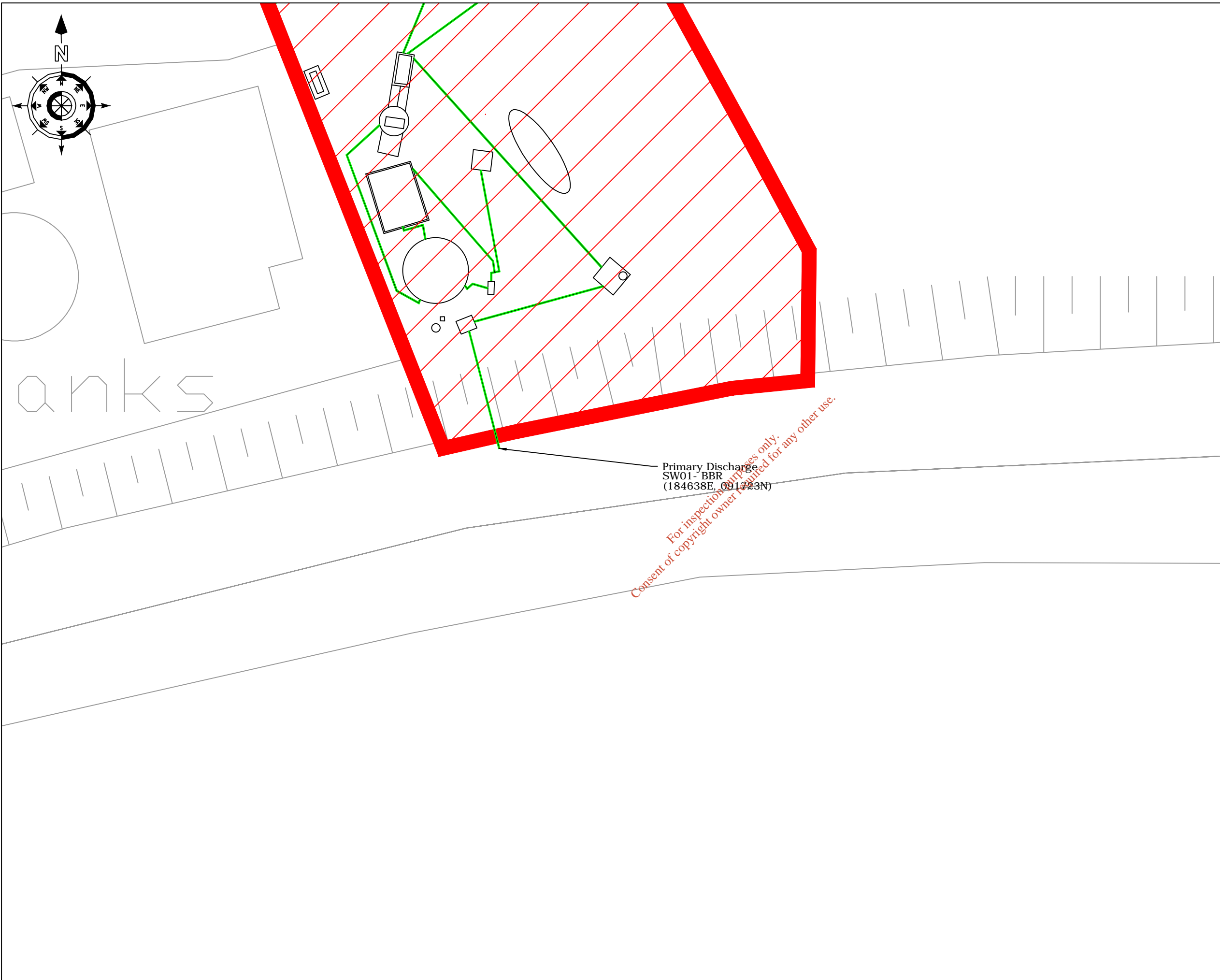
  
Paddy O'Friel  
S/Senior Engineer – Water Services  
ENVIRONMENTAL PROTECTION AGENCY  
31 JAN 2011

Email: [paddy.ofriel@corkcoco.ie](mailto:paddy.ofriel@corkcoco.ie)  
Direct Line: 022-30441



## Bridesbridge WWTP Natura 2000 Screening Protocol





**NOTES**

1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
2. This drawing is to be read in conjunction with the Specification.
3. This drawing is to be read in conjunction with all other contract drawings.

No.	Date	Drawn	Surv	Chkd	Revision	Description

Cork County Council,  
Northern Division.

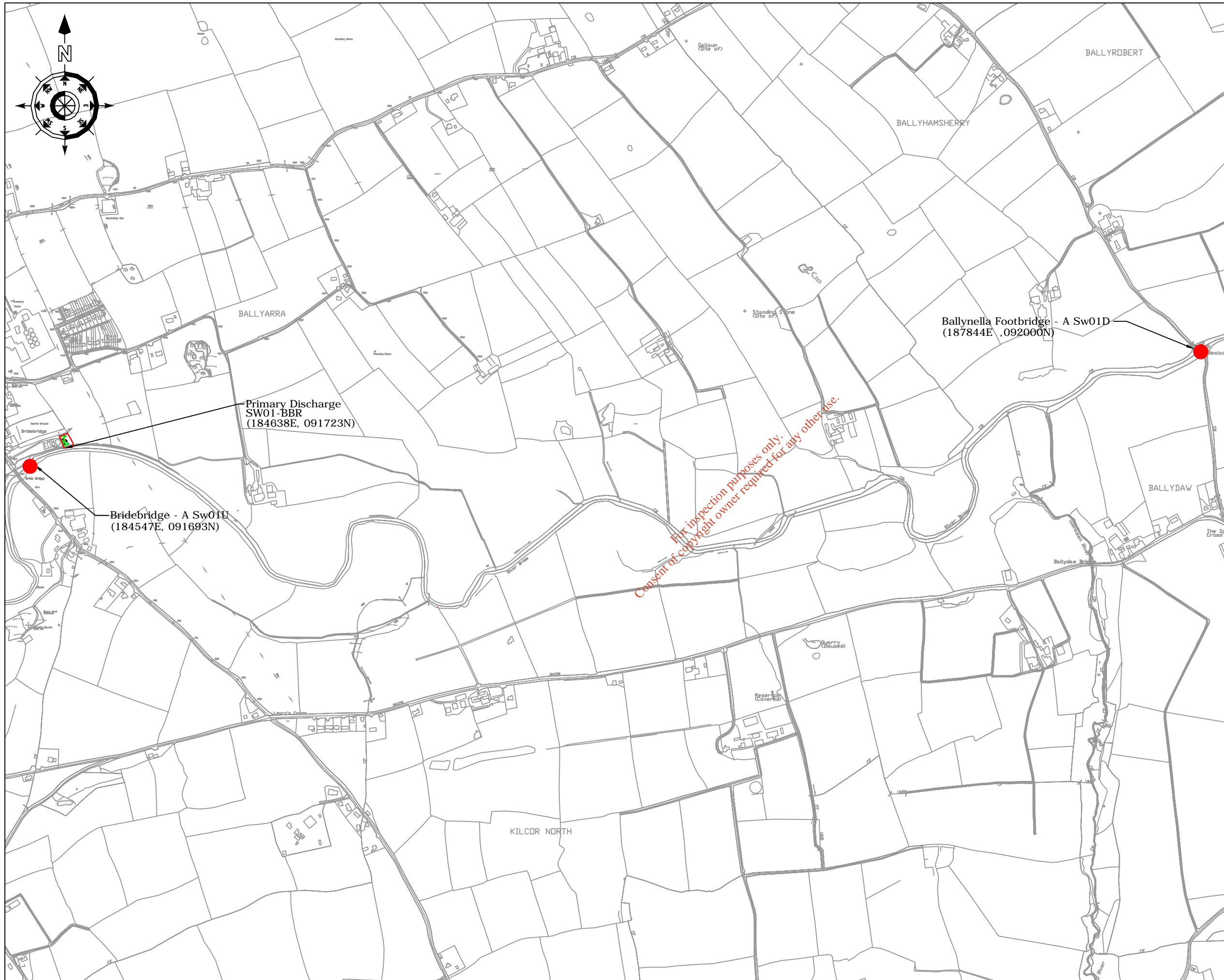


N. O'KEEFFE, B.E.,  
COUNTY ENGINEER,  
COUNTY HALL,  
CORK.

Job Title:  
Bridesbridge & Environs  
Waste Water Discharge  
Licence Application

Drawing Title:  
Location of Primary Discharge  
Point SW01 - BBR  
Attachment B3 - Map 6

Scales: 1:500 @ A3	Surveyed by: D.L.	Drawn by: D.L.
Designed by: E.M.	Checked by: P.O.F	Date: December 2009
Drawing number: B3 - Map 6	Rev: -	



- NOTES**
1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
  2. This drawing is to be read in conjunction with the Specification.
  3. This drawing is to be read in conjunction with all other contract drawings.

No.	Date	Drawn	Survey	Checked	Revision	Description

Cork County Council,  
Northern Division.

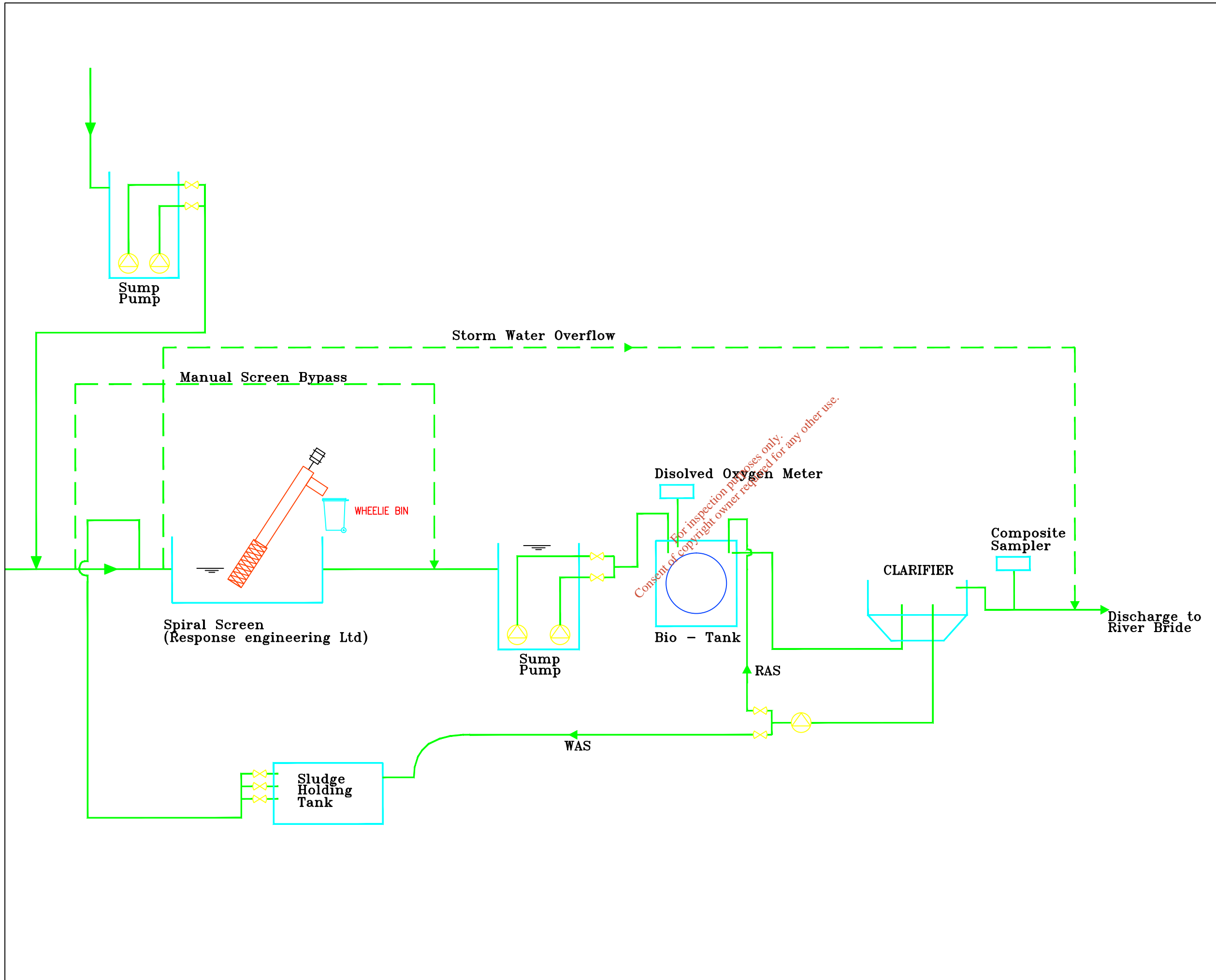


N. O'KEEFE, B.E.,  
COUNTY ENGINEER,  
COUNTY HALL,  
CORK.

Job Title:  
Bridesbridge & Environs  
Waste Water Discharge  
Licence Application

Drawing Title:  
Locations of sampling points  
Attachment B3 - Map 7

Scales: 1:10,000 @ A3	Surveyed by: D.L.	Drawn by: D.L.
Designed by: E.M.	Checked by: P.O.F.	Date: December 2009
Drawing number: B3 - Map 7	Rev:	-



- NOTES**
1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
  2. This drawing is to be read in conjunction with the Specification.
  3. This drawing is to be read in conjunction with all other contract drawings.

No.	Date	Drawn	Surv	Chkd	Revision	Description

Cork County Council,  
Northern Division.



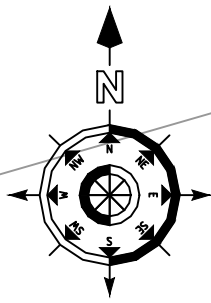
N. O'KEEFFE, B.E.,  
COUNTY ENGINEER,  
COUNTY HALL,  
CORK.

Job Title:  
Bridesbridge & Environs  
Waste Water Discharge  
Licence Application

Drawing Title:  
Schematic showing Existing  
Treatment Plant Process  
Attachment C1 - Drawing 1

Scales: 1:5000 @ A3	Surveyed by: D.L.	Drawn by: D.L.
Designed by: E.M.	Checked by: P.O.F	Date: December 2009
Drawing number: C1 - Drawing 1	Rev: -	





Inlet pumping Station

Control kiosk

Stahlermatic Tank

Clarifier

Inlet Manhole

Inlet Screen

Underground Septic Tank

Storm Overflow Manhole

Outfall Manhole

Primary Discharge  
SW01-BBR  
(184638E, 091723N)

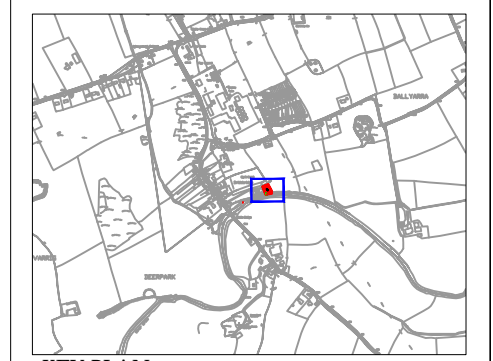
Waste Water Treatment plant  
(184637E, 091747N)

Sludge Holding Tank

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**NOTES**

1. Dimensions are not to be scaled from drawing.  
For any discrepancies found consult with the design office.
2. This drawing is to be read in conjunction with the Specification.
3. This drawing is to be read in conjunction with all other contract drawings.



KEY PLAN

No.	Date	Drawn	Surv	Chkd	Revision	Description

Cork County Council,  
Northern Division.



N. O'KEEFE, B.E.,  
COUNTY ENGINEER,  
COUNTY HALL,  
CORK.

Job Title:  
Bridesbridge & Environs  
Waste Water Discharge  
Licence Application

Drawing Title:  
Waste Water Treatment Plant  
Site Layout  
Attachment C1 - Map 8

Scales: 1:500 @ A3	Surveyed by: D.L.	Drawn by: D.L.
Designed by: E.M.	Checked by: P.O.F	Date: December 2009
Drawing number: C1 - Map 8		Rev: -

This is a draft document and is subject to revision.



# Waste Water Discharge Certificate of Authorisation Application Form

EPA Ref. N<sup>o</sup>:  
(Office use only)

**Environmental Protection Agency**  
PO Box 3000, Johnstown Castle Estate, Co. Wexford  
Lo Call: 1890 335599 Telephone: 053-9160600 Fax: 053-9160699  
Web: [www.epa.ie](http://www.epa.ie) Email: info@epa.ie

**Tracking Amendments to Draft Application Form**

<b>Version No.</b>	<b>Date</b>	<b>Amendment since previous version</b>	<b>Reason</b>
V. 1.	12/06/2009	N/A	
V.2.	17/06/2009	<p>Delete reference to Design Build and Operate</p> <p>Delete the requirement to provide contact information for the associated waste water treatment plant</p> <p>Replace references to the Water Services investment Programme with the Small Schemes Programme</p> <p>Update references to new legislation</p> <p>Inclusion of the requirement to submit information on private WWTPs within the agglomeration.</p>	<p>To accurately reflect the information required for the small schemes programme</p> <p>To accurately reflect the information required and the scale of the waste water works</p> <p>To accurately reflect the information required for the small schemes programme</p> <p>To reflect changes in legislation</p> <p>To obtain an overview of all discharges within the agglomeration.</p>

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Environmental Protection Agency  
Application for a Waste Water Discharge Certificate of Authorisation  
Waste Water Discharge (Authorisation) Regulations, 2007.

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<b>SECTION I: JOINT DECLARATION</b>	ERROR! BOOKMARK NOT DEFINED.

## ABOUT THIS APPLICATION FORM

This form is for the purpose of making an application for a Waste Water Discharge Certificate of Authorisation under the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) or for the review of an existing Waste Water Discharge Certificate of Authorisation.

The Application Form **must** be completed in accordance with the instructions and guidance provided in the *Waste Water Discharge Certificate of Authorisation Application Guidance Note*. The Guidance Note gives an overview of Waste Water Certificates of Authorisation, outlines the certification application process (including the number of copies required) and specifies the information to be submitted as part of the application. The Guidance Note and application form are available to download from the licensing page of the EPA's website at [www.epa.ie](http://www.epa.ie).

A valid application for a Waste Water Discharge Certificate of Authorisation must contain the information prescribed in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Regulation 24 of the Regulations sets out the statutory requirements for information to accompany a Certificate of Authorisation application. The application form is designed in such a way as to set out these questions in a structured manner and not necessarily in the order presented in the Regulations. In order to ensure a legally valid application with respect to Regulation 24 requirements, please complete the Regulation 24 Checklist provided in the following web based tool:  
[http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/)

This Application Form does not purport to be and should not be considered a legal interpretation of the provisions and requirements of the Waste Water Discharge (Authorisation) Regulations, 2007. **While every effort has been made to ensure the accuracy of the material contained in the Application Form, the EPA assumes no responsibility and gives no guarantee, or warranty concerning the accuracy, completeness or up-to-date nature of the information provided herein and does not accept any liability whatsoever arising from any errors or omissions.**

Should there be any contradiction between the information requirements set out in the Application Form and any clarifying explanation contained in the accompanying Guidance Note, then the requirements in this Application Form shall take precedence.

## PROCEDURES

The procedure for making and processing of applications for waste water discharge Certificates of Authorisation, and for the processing of reviews of such Certificates, appears in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) and is summarised below. The application fees that shall accompany an application are listed in the Third Schedule to the Regulations.

An application for a Certificate of Authorisation must be submitted on the appropriate form (available from the Agency website – <http://www.epa.ie/whatwedo/licensing/wwda/>) with the correct fee, and should contain relevant supporting documentation as attachments. The application should be based on responses to the form and include supporting written text and the appropriate use of tables and drawings. Where point source emissions occur, a system of unique reference numbers should be used to denote each discharge point. These should be simple, logical, and traceable throughout the application.

The application form is divided into a number of sections of related information. The purpose of these divisions is to facilitate both the applicant and the Agency in the provision of the information and its assessment. **Please adhere to the format as set out in the application form and clearly number each section and associated attachment, if applicable, accordingly.** Attachments should be clearly numbered, titled and paginated and must contain the required information as set out in the application form. Additional attachments may be included to supply any further information supporting the application. Any references made should be supported by a bibliography.

**All questions should be answered. Where information is requested in the application form, which is not relevant to the particular application, the words "not applicable" should be clearly written on the form. The abbreviation "N/A" should not be used.**

Additional information may need to be submitted beyond that which is explicitly requested on this form. Any references made should be supported by a bibliography. The Agency may request further information (under notices provided for in the Regulations) if it considers that its provision is material to the assessment of the application. Advice should be sought from the Agency where there is doubt about the type of information required or the level of detail.

Information supplied in this application, including supporting documentation will be put on public display and be open to inspection by any person.

Applicants should be aware that a contravention of the conditions of a waste water discharge Certificate of Authorisation is an offence under the Waste Water Discharge (Authorisation) Regulations, 2007.

**The provision of information in an application for a waste water discharge Certificate of Authorisation which is false or misleading is an offence under Regulation 35 of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007).**

Note: Drawings. The following guidelines are included to assist applicants:

- All drawings submitted should be titled and dated.
- All drawings should have a unique reference number and should be signed by a clearly identifiable person.
- All drawings should indicate a scale and the direction of north.
- All drawings should, generally, be to a scale of between 1:20 to 1:500, depending upon the degree of detail needed to be shown and the size of the facility. Drawings delineating the boundary can be to a smaller scale of between 1:1000 to 1:10560, but must clearly and accurately present the required level of detail. Drawings showing the waste water treatment plant location, if such a plant exists, can be to a scale of between 1:50 000 to 1:126 720. All drawings should, however, be A3 or less and of an appropriate scale such that they are clearly legible. Provide legends on all drawings and maps as appropriate.
- In exceptional circumstances, where A3 is considered inadequate, a larger size may be requested by the Agency.

**It should be noted that it will not be possible to process or determine the application until the required documents have been provided in sufficient detail and to a satisfactory standard.**

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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, where applicable, 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:  
***Bridesbridge Village is located on the L1519, 7 Km South of Fermoy town. The waste water from the agglomeration is currently treated by a package treatment plant prior to been discharged.***

A description of:

A description of:

- the waste water works and the activities carried out therein,  
***Bridesbridge wastewater treatment plant (WWTP) was constructed in 2005. The design PE of the plant is 600.***

***The main elements of the WWTP are;***

- 1. Screening***
- 2. Secondary treatment: Activated Sludge (Aeration Tank and Clarifier)***
- 3. Discharge to the River Bride***

- the sources of emissions from the waste water works,  
***The WWTP treats municipal sewerage only.***

- 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 wastewater treatment plant treats only municipal waste water from Village and it environs via the sewerage collection system.***

***The final effluent is treated to a 25/35 standard or better prior to been discharged to the River Bride.***

***The discharge from the treatment plant is circa 75-90m<sup>3</sup>/d.***

- the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works,  
***The treatment works consists of the following elements:***
  - ***Primary Screening (Automated with manual bypass)***
  - ***Aeration Tank .***
  - ***Hopper bottom clarifier with sludge return pumps.***
  - ***Sludge holding tank***

- further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused;

*The WWTP is operated by the staff of Cork County Council whose duties also involve the maintenance of a number of other small WWTP's in the area. The caretaker is on duty from 8.00am to 5.30pm Monday – Saturday.*

- measures planned to monitor emissions into the environment.

*The Cork County Council Environmental Laboratory carries out sampling of the influent and effluent biannually. Sampling, Monitoring and analysis of the wastewater sludge is also undertaken by the Environmental Laboratory.*

*The Cork County Council Laboratory located in Mallow takes samples from the River Bride upstream and downstream of the wastewater treatment plant approximately 2 times per year. Samples of the influent and effluent are also taken at these times.*

*The EU Water Framework Directive Monitoring Programme is to be fully operational by the year 2012. This monitoring programme was prepared by the EPA to meet the requirements of the EU Water Framework Directive (2000/60/EC) and National Regulations implementing the Water Framework Directive (S.I. No. 722 of 2003) and National Regulations implementing the Nitrates Directive (S.I. No. 788 of 2005).*

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

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## SECTION B: GENERAL

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

### B.1 Agglomeration Details

<b>Name of Agglomeration:</b> <i>Bridesbridge &amp; Environs</i>
--

#### 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 Certificate of Authorisation application relates. It should have the boundary of the agglomeration to which the Certificate of Authorisation application relates clearly marked in red ink.

<b>Name*:</b>	<i>Cork County Council</i>
<b>Address:</b>	<i>Northern Division</i>
	<i>Annabella</i>
	<i>Mallow</i>
	<i>Co. Cork</i>
<b>Tel:</b>	<i>022 21123</i>
<b>Fax:</b>	<i>022 21983</i>
<b>e-mail:</b>	

\*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.

<b>Name*:</b>	<i>Frank Cronin</i>
<b>Address:</b>	<i>Northern Division</i>
	<i>Annabella</i>
	<i>Mallow</i>
	<i>Co. Cork</i>
<b>Tel:</b>	<i>022 21123</i>
<b>Fax:</b>	<i>022 21983</i>
<b>e-mail:</b>	<i>Frank.cronin@corkcoco.ie</i>

\*This should be the name of person nominated by the Water Services Authority for the purposes of the application.

#### Co-Applicant's Details

<b>Name*:</b>	<i>Not applicable</i>
<b>Address:</b>	<i>Not applicable</i>
<b>Tel:</b>	<i>Not applicable</i>
<b>Fax:</b>	<i>Not applicable</i>
<b>e-mail:</b>	<i>Not applicable</i>

\*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 Certificate of Authorisation application.

**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.

<b>Name*:</b>	<i>Flannan Grouke</i>
<b>Address:</b>	<i>Charleville Area Office</i>
	<i>Cork County Council</i>
	<i>Charleville</i>
	<i>Co. Cork</i>
<b>Grid ref (6E, 6N)</b>	<i>184637E, 091747N</i>
<b>Level of Treatment</b>	<i>Secondary</i>

\*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.

<b>Discharge to</b>	<i>River Bride</i>
<b>Type of Discharge</b>	<i>Point source</i>
<b>Unique Point Code</b>	<i>SW01-BBR</i>
<b>Location</b>	<i>Ballyarra, Bridesbridge</i>
<b>Grid ref (6E, 6N)</b>	<i>184638E, 091723N</i>

**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.

<b>Discharge to</b>	<i>Not applicable</i>
<b>Type of Discharge</b>	<i>Not applicable</i>
<b>Unique Point Code</b>	<i>Not applicable</i>
<b>Location</b>	<i>Not applicable</i>
<b>Grid ref (6E, 6N)</b>	<i>Not applicable</i>

\*Where a septic tank is in existence simultaneous to a package plant within an agglomeration, discharges from the septic tank shall be considered as a secondary discharge.

**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.

<b>Type of Discharge</b>	<i>Point</i>
<b>Unique Point Code</b>	<i>SW01-BBR</i>
<b>Location</b>	<i>Within WWTP compound</i>
<b>Grid ref (6E, 6N)</b>	<i>184638E,091723N</i>

**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.

<b>Attachment included</b>	<b>Yes</b>	<b>No</b>
		✓

### 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.

<b>Name:</b>	<i>Cork County Council</i>
<b>Address:</b>	<i>Planning Department</i>
	<i>County Hall</i>
	<i>Carriagrohane Road</i>
	<i>Cork</i>
<b>Tel:</b>	<i>021 4276891</i>
<b>Fax:</b>	<i>021 4867007</i>
<b>e-mail:</b>	<i>Planninginfo@corkcoc.ie</i>

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

<i>has been obtained</i>	<i>is being processed</i>	
<i>is not yet applied for</i>	<i>is not required</i>	

<b>Local Authority Planning File Reference N<sup>o</sup>:</b>	
---	--

**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

### 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
		✓

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.

<b>Name:</b>	<i>Health Service Executive</i>
<b>Address:</b>	<i>North Cork Area Headquarters Gouldhill Mallow, Co. Cork</i>
<b>Tel:</b>	<i>022 30200</i>
<b>Fax:</b>	<i>022 30211</i>
<b>e-mail:</b>	<i>Gerry.oconnell@hse.ie</i>

### B. 8(i) Population Equivalent of Agglomeration

**TABLE B.8.1 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.

<b>Population Equivalent</b>	<i>490</i>
<b>Data Compiled (Year)</b>	<i>2009</i>
<b>Method</b>	<i>House count</i>

### B.8 (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,

*House count (plus school and shop/pub)  
Planned Development*

*200PE*

*There are no outstanding planning permissions which will contribute to the WWTP*

- the percentage of the projected p.e. to be contributed by the non-domestic activities, and

*Not Applicable*

- the ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving waters.

*The WWTP is operating within its hydraulic and organic loading limitations.*

**B.8 (iii) FEES**

State the relevant Class of waste water discharge as per Regulation 5, 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 €)
<i>Discharges from agglomerations with a PE of 500.</i>	<i>€3000</i>

*\*please see copy of attached letter sent by registered post to Mr F. Clinton ,Programme Manager , Licencing Unit EPA on December 18th 2009*

Appropriate Fee Included	Yes	No

**B.9 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 small schemes programme) 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.

*There is no proposed programme of works prioritised for the WWTP or the Network under the WSIP 2007-2009.*

**Attachment B.9** 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.

Attachment included	Yes	No
		√

**B.10 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.10** should contain a summary of any relevant correspondence issued in relation to a Section 63 notice.



Attachment included	Yes	No
		√

**B.11 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.11** 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
		√

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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.

*The combined sewer gravitates to the WWTP compound.*

*The flow is initially screened by a Khun spiral sieve rake. The Screen has a 5mm diameter holes, throughput of circa 15l/s. The compacted screenings are wasted to a bin for landfill disposal. There is a storm water overflow in the screen chamber.*

*The screen flow collects in a forward feeding pump sump which is fitted with duty/standby pumps. The operation of the pumps is controlled by floating switches.*

*The aeration tank uses the stahlermatic treatment process. In the tank, the effluent undergoes treatment by a combination of both the activated sludge process and the fixed film process. Associated with rotating biological contactors. Refer to the Attachment C for more details of the process used.*

*The rotation of the contactor is controlled by a Dissolved Oxygen monitor via a Variable speed drive.*

*The effluent from the biotank is settled in a seperate clarifer prior to discharge.*

*A 8000 Gal sludge holding tank is located adjacent to the clarifer. Waste activated sludge is wasted from the Clarifer to the tank and supernatant decants back into the influent stream.*

*The sludge holding tank is desludged periodically as required.*

*Post secondary treatment, the effluent is discharged directly to the River Bride.*

<i>Operating Volume of Aeration Tank</i>	<i>= unknown</i>
<i>Operating Volume of Clarifer</i>	<i>= unknown</i>
<i>Operation capacity of storm water overflow</i>	<i>=unknown.</i>

### 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.

***An SWO is facilitated at the inlet screen. The SWO joins the treated water stream prior to discharge point SW-01. There is no flow data for the SWO.***

### 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.

***There are 2 pump stations within the Waste water works, both within the WWTP compound.***

#### ***Inlet pump sump***

- ***The pump sump lifts sewerage to the screen***
- ***There is no emergency overflow from the sump.***
- ***2 no pumps, duty/standby arrangement***
- ***High level and low level float controls***

#### ***Forward feeding pump sump***

- ***The pump sump lifts sewerage to the biotank.***
- ***There is no emergency overflow from the sump.***
- ***2 no pumps, duty/standby arrangement***
- ***High level and low level float controls***

**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.

<b>Attachment included</b>	<b>Yes</b>	<b>No</b>
	√	

**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 discharges 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/](http://78.137.160.73/epa_wwd_licensing/). The applicant should address in particular all discharge points where the substances outlined in Tables 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions' 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(i) 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/](http://78.137.160.73/epa_wwd_licensing/). Tables 'Discharge Point Details', 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions', should be completed for the primary discharge point from the agglomeration and for **each** secondary discharge point, where relevant. Table 'Discharge Point Details' 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 waste water treatment plant this data should also be provided in response to Section D.1(i).

Supporting information should form **Attachment D.1(i)**

Attachment included	Yes	No
	✓	

## D.1(ii) Discharges to Groundwater

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/](http://78.137.160.73/epa_wwd_licensing/). Tables 'Discharge Point Details', 'Emissions to Surface/Groundwaters and 'Dangerous Substances Emissions', should be completed for the primary discharge point from the agglomeration and for **each** secondary discharge point, where relevant. Table 'Discharge Point Details' 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 waste water treatment plant this data should also be provided in response to Section D.1(ii).

Supporting information should form **Attachment D.1(ii)**

<b>Attachment included</b>	<b>Yes</b>	<b>No</b>
		√

## D.1 (iii) Private Waste Water Treatment Plants

Provide information on all independently owned/operated private waste water treatment plants operating within the agglomeration. Submit a copy of the Section 4 discharge licence issued under the Water Pollution Acts 1977 to 1990, as amended for each discharge.

**Not applicable**

## 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
<i>SW01-BBR</i>	<i>Primary</i>	<i>Cork County Council</i>	<i>River</i>	<i>Bride</i>	<i>SAC 002170</i>	<i>184638E</i>	<i>091723N</i>

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](http://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.

## 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 'Discharge Point Details' via the following web based link: [http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/).

*Refer to Weblink submission, attached.*

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 'Discharge Point Details' via the following web based link: [http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/).

*Not applicable*

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 monitoring.

*An electronic flow meter is located on the inlet to the aeration tank.*

*A composite sample is in place at the outlet manhole.*

### 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 discharge and its effect on the receiving environment should be considered.

**Cork County Council Water Services Laboratories sample and monitor in accordance with 'Sampling Methods for examination of water and wastewater' 18th edition 1992. Sampling is carried out on a Bi-annual basis**

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 application	Point Type (e.g., Primary, Secondary, Storm Water Overflow)	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
<i>SW01-BBR</i>	<b>Primary</b>	<b>S</b>	<i>184638E</i>	<i>091,723N</i>	N
<i>A Sw01U</i>		<b>S</b>	<i>184,547E</i>	<i>091,693N</i>	N
<i>A Sw01D</i>		<b>S</b>	<i>187,844E</i>	<i>092,000N</i>	N

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](http://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 24(i) of the Waste Water Discharge (Authorisation) Regulations 2007 requires all applicants in the case of an existing discharge 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 24(m) 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
	✓	

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

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

Clear and concise 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) and/or the ambient environmental conditions of the groundwater upgradient and downgradient of any discharges.

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. Impact on Receiving Surface water or Groundwater**

- Details of monitoring of the receiving surface water should be supplied via the following web based link: [http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/). Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' 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 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details'. Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.  
**Refer to Weblink submission, attached.**
- Details of monitoring of the receiving ground water should be supplied via the following web based link: [http://78.137.160.73/epa\\_wwd\\_licensing/](http://78.137.160.73/epa_wwd_licensing/). Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' should be completed for the primary discharge point. Ground water monitoring locations upgradient and down gradient of the discharge point shall be screened for those substances listed in Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details'. Monitoring of ground water shall be carried out at not less than two points, one upgradient from the discharge location and one downgradient.  
**Not applicable.**
- For discharges from secondary discharge points Tables 'Monitoring Details', 'Monitoring Test Details', 'Dangerous Substances Monitoring Details' and 'Dangerous Substances Monitoring Test Details' should be completed.  
**Not applicable.**
- 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 surface or groundwater.

There are no EPA monitoring stations on this tributary of the Awbeg River to which this WWTP discharges to. We have included the monitoring station most immediate downstream of the discharge point.

The water quality in the river is designated as Q 4 upstream Q3-4 downstream of the discharge point.

Station Code	Station Name	EPA Biological Quality Rating (Q values)			
		1995-1997	Target 2007	2001-2003	EPA* (ENVision)
18B050300	Br south of Rathcormac	4	4	4	4
18A050430	0.3Km d/s of Bridge Br	4	4	4	3-4

Note

Data from Cork County Council Environmental Map viewer.

\* Source EPA maps online, 'ENVision', November 2009

Designation of River in relation to

Shellfish Regulations Not designated  
S.I.200:1994;

Bathing Water Regulations S.I. Not designated  
178:1998

Salmonid Water Regulations Not designated  
S.I. 293: 1998

Special Area of Conservation Designated. SAC 002170, Blackwater  
(SAC)

Special Protection Area (SPA); Not Designated, however the Blackwater estuary is designated.

Sensitive Area (Urban Waste Not designated  
water  
Treatment Regulations  
S.I.254:2001)

The River Blackwater is included in the draft Management Plan for the South Western River Basin District (Dec 2008). This can be downloaded at the following address;

<http://www.swrbd.ie/downloads/Web/South%20Western%20RBD%20RMBP.pdf>.

- 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.

***There is no evidence to suggest that there are sources within the agglomeration or in the discharge itself which would lead to emissions of the main polluting substances (as defined in the***

***dangerous substances Regulations SI 12:2001) at levels which would likely to impair the environment.***

- In circumstances where drinking water abstraction points exist downstream/down gradient 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.

***Not applicable***

- 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/EEC<sup>1</sup> 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/EEC<sup>2</sup>;

<sup>1</sup>Council 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)

<sup>2</sup>Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ No. L 103, 25.4.1979)

***The development is in the surface water catchment of the River Blackwater, SAC 002170. In accordance with EPA Circular L8/08 Appendix 1, the project must be screened for its impacts. However, due to financial constraints, Cork County Council does not have the resources for the foreseeable future to assess the impacts in accordance with the EPA document, 'Waste Water discharge Licence – Appropriate Assessment'.***

- This section should also contain details of any modelling of discharges from the agglomeration. Any other relevant information on the receiving environment should be submitted as **Attachment F.1**.  
*There is no modelling of the sewer network to date.*

<b>Attachment included</b>	<b>Yes</b>	<b>No</b>
		✓

**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.

<b>ABS_CD</b>	<b>AGG_SERVED</b>	<b>ABS_VOL</b>	<b>PT_CD</b>	<b>DIS_DS</b>	<b>EASTING</b>	<b>NORTHING</b>	<b>VERIFIED</b>
Abstraction Code	Agglomeration served	Abstraction Volume in m <sup>3</sup> /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](http://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.

## 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,
- Bathing Water Directive 76/160/EEC, and
- Shellfish Waters Directive (2006/113/EC).

*Not applicable, currently there is no programme of improvements to the waste water treatment works.*

**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 the European Communities Environmental Objectives (Surface Waters) Regulations 2009

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 European Communities Environmental Objectives (Surface Waters) Regulations 2009 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 previously identified as the principal sources of pollution under the Phosphorous Regulations (S.I. No. 258 of 1998).

*Not applicable, currently there is no programme of improvements to the waste water treatment works.*

**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.

*Not applicable, currently there is no programme of improvements to the waste water treatment works.*

**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 Overflows

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.

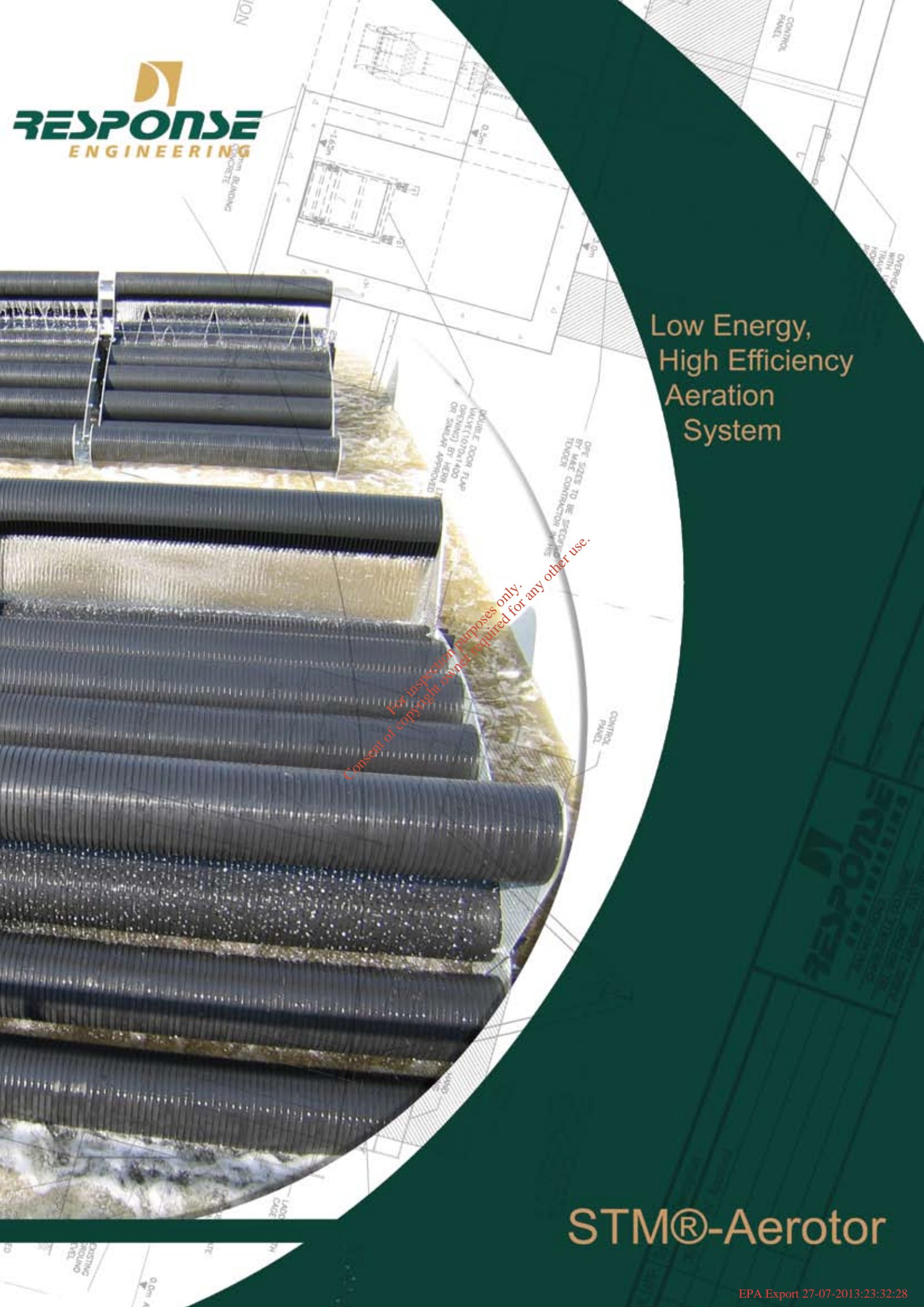
*Not applicable, currently there is no programme of improvements to the waste water treatment works.*

**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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# Low Energy, High Efficiency Aeration System

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## STM®-Aerator



## STAHERMATIC®

### The combine wastewater treatment process

The “combined process” method for the biological treatment of wastewater is a combination of the submerged fixed film process and the activated sludge system.

The STAHLERMATIC® process of wastewater treatment is effected on the one side by suspended activated sludge in the mixed liquor, and on the other hand by fixed micro-organisms in the biofilm on the surface of the contactors. This combines the advantages of both the activated sludge and the fixed film processes in a single stage. The system works like a conventional activated sludge system with activated biological in the mixed liquor with sludge return. The efficiency of the typical activated sludge system is enhanced by working with higher concentrations in the suspended sludge than normal, and by the additional effect on the biofilm.

The STM® system can be used in the same process combinations as conventional activated sludge systems, but with higher efficiency. Advanced nitrification and de-nitrification as well as effective biological P-elimination are carried out simultaneously and safely in a single vessel.

The immersed STM® – Aerator is a wheel of cage design mounted on a central shaft. The plates and discs in the contact aerators are formed with a special surface profile in order to assure maximum oxygen transfer. With only one mechanical drive a geared motor mounted above the liquid level rotates the contact aerator. This dissolves atmospheric air into the mixed liquor to supply the activated sludge with sufficient quantities of oxygen. The biofilm on the contact aerators is oxygenated when the contactors emerge above water level. During the downward travel the air is trapped in the chambers by the plates and discs of the contactors and forced into mixed liquor. As the contactor moves downwards towards the bottom of the biotank the air is compressed more and more. The biofilm is supplied with oxygen during the rotation of the wheel, when exposed to the atmosphere and in the mixed liquor, the trapped air also helps to reduce power requirements by virtue of increased buoyancy, which helps ensure exceptional consumption of the system.

**The STM® – Aerator gives the benefits of an efficient aeration system with lowest possible consumption.**

## Mode of Operation

In principal the method of operation is identical for both kinds of contact aerators: the cell-segment type and the pipe-type.

The oxygen supply for the micro-organism is achieved by rotating the STM® –Aerotors slowly by an inverter controlled geared motor mounted above liquid level. As soon as a segment emerges above water level during rotation, the mixed liquor inside the chambers flows out. The segment will then be filled with atmospheric air. The necessary oxygen for the biofilm dissolves onto the wet surfaces of the fixed bed biofilm. Because this very large surface area is contacted directly by the partial pressure of the air, an immediate saturation of the oxygen concentration results.

When the segments are submerged again **the air cannot escape and is trapped** inside the segments. In the course of the rotation, the **trapped air is forced to the bottom** of the biotank and compressed to a higher level. During the downward travel quantities of air can escape. **The bubbles travelling with the rotation of the wheel result in a homogeneous mixing** of biotank. In addition, the activated sludge in the mixed liquor is **always effectively supplied with oxygen**.

During upwards travel of the contact aerator the partially **air-filled segments** provide buoyancy and significantly reduce the power requirement of the unit. The fixed film on the surface areas within the segments are also **supplied with oxygen up to saturation point when emerging into the atmosphere**. The forced air contacts all inner surface areas of the plate or discs in the segments during rotation. By this means also all the **micro-organisms in the fixed film are fully supplied with oxygen** during rotation in the mixed liquor.

The forced air contacts the specially profiled surfaces of the plates and discs. The unique design of these profiles results in the continuous formation of countless new transition zones for the transfer of oxygen. **This result in the achievement of the recommended oxygen supply for both parts of the process, the fixed biofilm and the suspended activated sludge.**

### Waste water Treatment Plant “Nieder-/Oberzeuzheim”



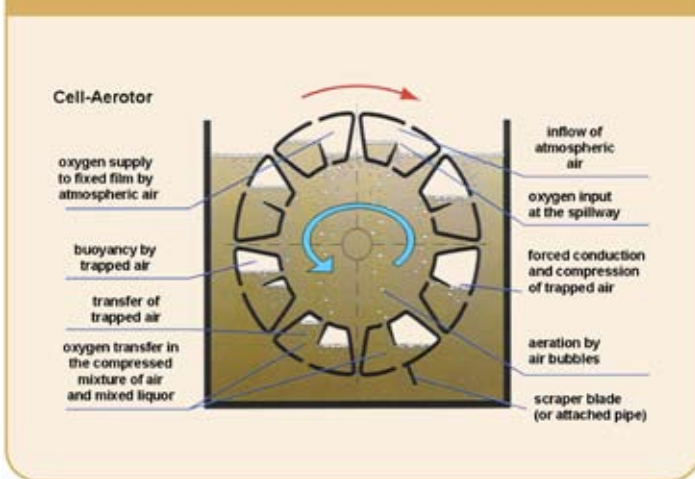
Constructed	1989
Degree of Purification	Advanced nitrification (control value <10mg N H4-N/1, Temperature > 12C < 0.7kg BOD5 / (M3 X D)
Volume load	<3 mg BOD5/1
Effluent Quality	<33mg COD/1 <4mg NH4 – N/1 <4mg NO3- N/1
No Chemical Treatment	<1 mg P / 1

### Waste water Treatment Plant Shannon Airport

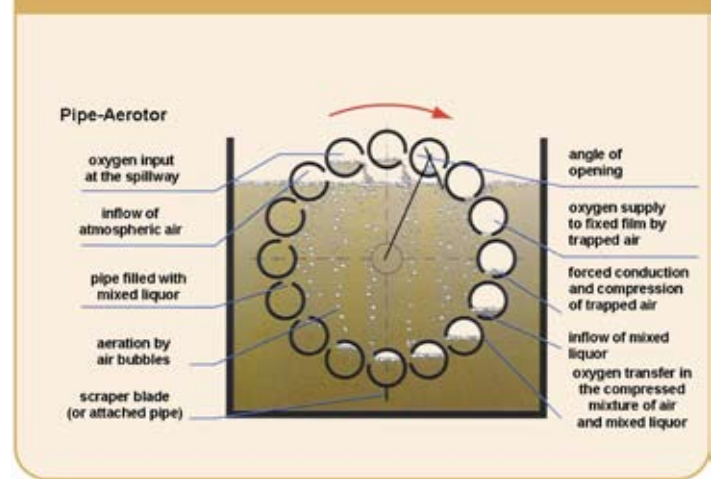


Kind of Wastewater	Municipal Wastewater
Population equivalent	7,500
Started	2006
Effluent Quality	<25mg/l BOD <35mg/l SS <2mg/l P <5mg/l NH4

## Cell-Segments Contact Aerator (ZR) Direction of rotation



## Cell-Segments Contact Aerator (ZR) Direction of rotation



## Design Features

The characteristic properties of the STM® – system are the high degradation efficiency, high quality effluent standards and a high flexibility caused by the combination of the advantages of the biological processes in a true hybrid system. These advantages are added to by lower than normal running costs, smaller plant footprints and low noise levels. The plants are suitable for permanent installation in any size. Temporary plants can be container mounted or modular constructed units. Specific sizes and design features are dictated by the requirements of the application.

The materials used are chosen specifically to guarantee a long service life. The simple and solid construction results in a long service life, low maintenance costs, and exceptionally lower power consumption while still meeting all international Health & Safety standards. The STAHLERMATIC® contact aerators can be supplied in the cell-segment style, according to requirements.

All STM® – contact aerator construction complies with DIN 19569 – 3 -1995 – 01 (equipment for waste water facilities) standards and come with CE marking.

The cell-segment contact aerator (ZR) consists of several segments, each with two air pockets. The segments are constructed as a series of Polypropylene plates, to provide large growth areas for the fixed film biomass, and to create air pockets for oxygen supply. Sufficient oxygen transfer is guaranteed for any pollution load. In principle, the pipe-segment contact aerator is identical in function and operation to the cell-segment contact aerator although the growth surfaces for the fixed film and the volume of the air pockets are smaller. This system is used for special requirements or to meet specific application needs. Parallel to the shaft several cylindrical hollow sections in the form of pipes are radially arranged as the contact aerators. The pipes are constructed in turn from a series of Polypropylene discs. Both kinds of contact aerators can be equipped with a scraper. If required the contact aerators can be equipped with a nine attached pipes. They increase both the active surface area and the oxygen input.

## Waste water Treatment Plant Ballysadare



Kind of Wastewater	Municipal Wastewater
Population equivalent	2,500
Started	2007
Effluent Quality	<25mg/l BOD <35mg/lSS <3mg/l P

## Paper Mill "Kohler – Oberkirch"



Waste Source	Manufacturing waste waters from a paper mill
Population equivalents	12.000
Construction	1984
Volume Load	0,5-0,7kg BOD5/(M3-D)
Effluent quality	<5 mg BOD5/1 <70 mg COD/1



## Application fields

The STM® process is suitable for

- New Wastewater treatment facilities
- Plant upgrades - treatments standards
- Plant upgrades - population increases

The contact aerator can be installed in a biotank built of concrete or steel in permanent installations. For temporary installations the STM® system can be built in a variety of completely equipped steel –constructed versions: container-units, packaged units, modular constructed units etc.

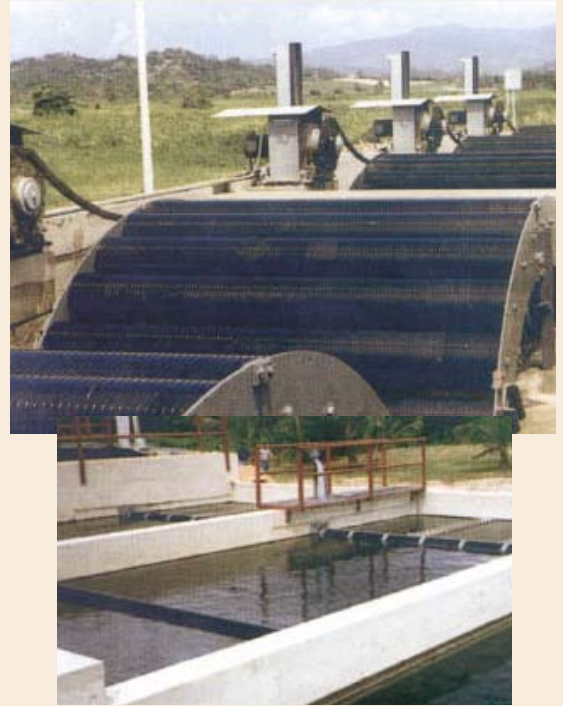
## Applications Fields

- Treatment of domestic wastewater in all sizes of facility – single step or multi step wastewater treatment plants
- Treatment of domestic wastewater with industrial waste streams
- Treatment of organically loaded wastewater direct from industry, manufacturing, trade etc.
- \* STM® biological treatment facilities coupled with
  - Conventional activated sludge systems
  - Denitrification facilities
  - N-elimination facilities
  - P-elimination facilities
  - Sewage lagoons or polishing ponds
  - Treatment facilities for fecal sludge
- Aerobic sludge stabilisation
  - Primary sludge
  - Excess sludge
  - Fecal sludge
- Biological treatment of leachate from sanitary landfill
- Treatment of liquid manure partial, basic treatment
- Aquaculture systems: intensive fish farming in closed warm-water circuits

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## Waste Water Treatment Plant

with separate aerobic sludge stabilisation  
“Palmas Del Mar, Puerto Rico”



Operating since	1987
Waste source	Holiday resort
Population Equivalents	26.000
Degree of treatments	Biological degradation with separate aerobic sludge stabilisation
Effluent Quality	<5mg BOD 5/1 <10 mg/1 Filterable solids

## WASTE WATER TREATMENT PLANT “SIRIRAJ HOSPITAL MAHIDOL UNIVERSITY” BANGKOK, THAILAND

Wastewater is controlled from the hospital and all university buildings in the Shirraj campus and flow to the wastewater treatment plant. The solids are separated before treatment in a subsequently process. The wastewater is treated biologically with the STAHLERMATIC® – system.

The STAHLERMATIC® – system is equipped with 12 pipe-segments-contact-aerator RR 4, 3 x 2, 5

The excess sludge is stabilised simultaneously. The sludge is biologically and sanitarly clean and is pressed, dried, packed into bags and used as fertiliser.

The table shows figures for the efficiency of the plant. Sanitary investigations of germs in the effluent water, in the sludge and in the air near the biological stage that hygienically the plant works with no problem as far as hygiene is concerned.

Influent flow (m3/d)	BOD5 (mg/l)		Suspended solids (mg/l)	
	Effluent	Standards	Effluent	Standards
4.000-5.000	5-8	20	10-15	30



## Recommended sizing data

The ATZ-guidelines are basic for all dimensionings, document in the papers A 122, A 126, A 131, A 135, A 257 and H 254. Other information is given in the report of the ATV-workshop 2.6.4 "Combined waste water treatment techniques". The following recommended data is based on practical experience by operating more than 500 well established SPAHLERMATIC® facilities worldwide. This recommended data has to be used in the dimensioning instructions in accordance with the Guidelines mentioned above.

## Combined Waste water Treatment Techniques

The data specified in the guidelines mentioned above can be used in principle for the dimensioning of Stahlermatic wastewater treatment facilities.

An indication of the method used for the dimensioning of STAHLERMATIC®-systems can be found in these guidelines: The influent load is divided into different proportions for the suspended activated sludge and for the fixed film. For both components the degradation efficiency has to be proofed separately in accordance with the guidelines. As a rule this method is used for a wastewater treatment plants with a design capacity of not more than 10,000 population equivalent. Other information is given in the ATV-Guidelines A131 and H 254.

THE EFFLUENT STANDARDS ARE GUARANTEED  
INDEPENDENT OF TEMPERATURE (Summer / Winter)

Concentration of the Mixed Liquor Suspended Solids (MLSS) in kg/m <sup>3</sup>	With Preliminary Setting	Without Preliminary Setting
Standard degradation	4,0 - 6,0	4,5 - 7,0
Degradation with nitrification and with denitrification	4,0 - 7,0	5,0 - 8,0
Simultaneous aerobic stabilisation of sludge with advanced nitrification / denitrification and with advanced biological P-uptake	-----	5,0 - 9,0
<b>Sludge Volume Index (ml/g)</b> sludge loading ration (SLR)	SLR > 0,05	SLR < 0,05
Wastewater with lower concentrations of organic industrial components	40 - 100	40 - 80
Wastewater with higher concentrations of organic industrial components	50 - 120	50 - 100
<b>Fixed Biofilm</b>		
Effective dry solids concentration of the fixed biofilm	20 - 25	g DS/m <sup>2</sup>
BOD-degradation of the fixed biofilm		
- biological standard degradation	10 - 16	g BOD/(m <sup>2</sup> .d)
- biological degradation with nitrification	8 - 12	g BOD/(m <sup>2</sup> .d)
- biological degradation with nitrification & with simultaneous aerobic sludge stabilisation	4 - 8	g BOD/(m <sup>2</sup> .d)
Rate of nitrification of the fixed film	4 - 8	g N/(m <sup>2</sup> .d)

## Biological Leachate Treatment Plant The Sanitary Landfill "Hengelo, Netherlands"



The aim of this facility is the advanced degradation of nitrogen through simultaneous nitrification, denitrification and P-elimination in a single treatment process. This was accomplished in 1995 in one year pilot project. The Hengeio facility into full scale production in early 1997

Elimination Rate				
COD	BOD <sub>5</sub>	NH <sub>4</sub> -N	N-kj	P Total
>60%	>95%	>96%	>90%	>85%



# Flexibility of volume adaption and the dimensioning of the oxygen supply

The STM® system offers various possibilities in the design:  
Variation of the oxygen supply by

- **Changing the number of revolutions of the contact aerators (for adapting to changing operation conditions) by using an infinitely variable geared motor or a frequently regulated motor**
- **Assembling additional pipes: Increasing the total oxygen transfer and the degradation efficiency**
- **Adaption of the volume of the biotank**

## Volume of the biotank

If the tank has to be completely aerobic, e.g. for advanced nitrification, smaller sizes of biotank are recommended. The biotank volume is then always sufficiently supplied with oxygen. A high nitrification efficiency is always guaranteed.

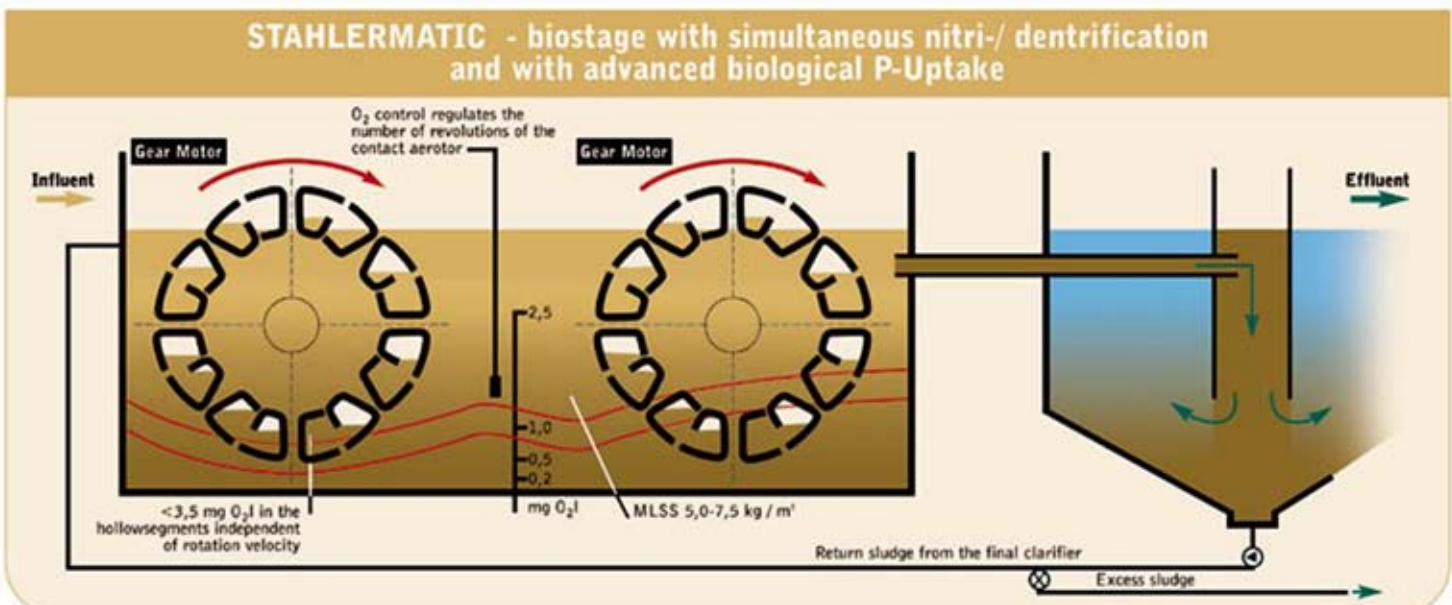
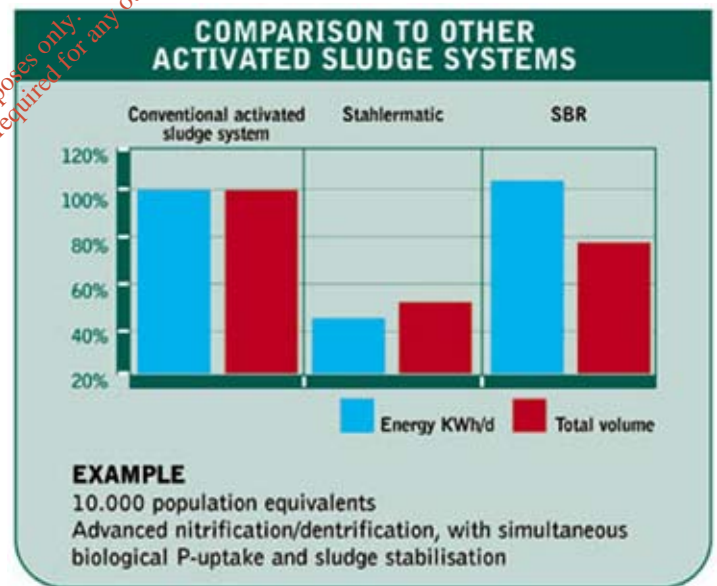
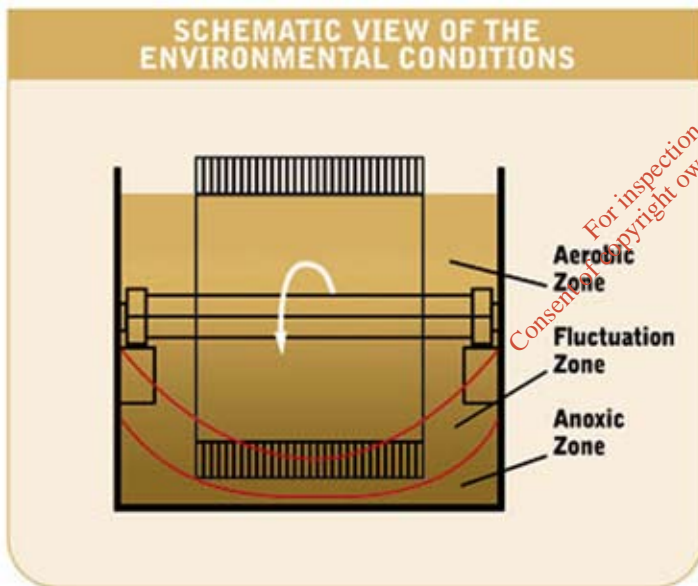
Choosing a larger size of the biotank equipped with the same contact aerator (expanding the biotank volume) results in a larger treatment volume. Consequently the anoxic environmental zones are increased, so that simultaneous de-nitrification takes place. The anoxic zones are mainly beneath the contact aerators. By expanding the biotank volume a continuously aerobic environment in the centre and right next to the contact aerator is guaranteed.

High nitrification efficiency is achieved independent of the number or revolutions of the contact aerator. The sizes of the zones with different oxygen environments are not fixed. The extension of the zones will change depending upon the number of revolutions, the oxygen demand and depending upon the required degradation and the hydraulic loading rate of the tank.

The conditions for high nitrification efficiency are always maintained. Oxygen control in combination with operation control will keep nearly-constant oxygen conditions in the different environmental zones. Advanced nitrification and simultaneous de-nitrification will always work with a high efficiency.

With the option to equip the contact aerators with additional pipes or to choose different sizes of biotank, the STM can comply with all requirements of degradation: advanced biodegradation of the organic carbon components, advanced nitrification and simultaneous de-nitrification.

Phosphate is extensively eliminated by biological uptake as the STM –system will work with higher concentrations of the biomass compared to more conventional systems. In an expanded biotank the suspended activated sludge changes continuously from one oxygen environment into another (aerobic –anoxic). By this the P-uptake will be enhanced. Nevertheless the efficiency of the other degradation processes remains unchanged





WWTW Carney, Ireland for 2500 P.E.



Brewery Puerto Rico, India for 20,000 P.E



WWTW Doonbeg, Ireland for 1500 P.E.



WWTW Coolaney, Ireland for 2500 P.E.



WWTW Shanagary, Ireland for 600 P.E

## ADVANTAGES

### STABLE PROCESS PERFORMANCE

High process stability and flexibility even under high loadings, by combining the activated sludge and fixed film processes. Even the strictest effluent standards can be met consistently.

### SOLID AND SIMPLE CONSTRUCTION

Quality System assured construction, including long-life polypropylene media, simple low-maintenance drive train, and nylon-lined support bearings for extended life.

### LOWEST CAPITAL COST

Tank volume is reduced by 40% over conventional aeration by the STM-Aerator's process efficiency.

### LOWEST ENERGY USAGE

The STM-Aerator, which is 75% submerged, operates at slow speeds driven by a low-powered motor. This provides great savings in energy. Only 45% of the necessary energy compared with Fine Bubble Aeration is used.

### ADVANCED BIOLOGICAL NUTRIENT REMOVAL

The STM-Aerator can provide consistent simultaneous nitrification / de-nitrification, as well as biological phosphorous removal, in a single basin.

### NO NOISE OR ODOUR PROBLEMS

Simple slow-speed operation reduces operating noise. The STM-Aerator process operates with virtually zero problem-causing odours.

### IMPROVED SLUDGE QUALITY

Better settling characteristics (lowers sludge volume index) better dewaterability, and smaller volumes of waste sludge





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