This is a draft document and is subject to revision.

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Waste Water Discharge Certificate of Authorisation Application Form

EPA Ref. Nº: *(Office use only)*	

Environmental Protection Agency
PO Box 3000, Johnstown Castle Estate, Co. Wexford
Lo Call: 1890 335599 Telephone: 053-9160600 Fax: 053-9160699
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Tracking Amendments to Draft Application Form

Version No.	Date	Amendment since previous version	Reason
V.1.	12/06/2009	N/A	
V.2.	17/06/2009	Delete reference to Design Build and Operate	To accurately reflect the information required for the small schemes programme
		Delete the requirement to provide contact information for the associated waste water treatment plant	To accurately reflect the information required and the scale of the waste water works
		Replace references to the Water Services investment Programme with the Small Schemes Programme	To accurately reflect the information required for the small schemes programme
		Update references to new legislation	To reflect changes in legislation
		Inclusion of the requirement to submit information on private WWTPs within the agglomeration.	To obtain an overview of all discharges within the agglomeration.
V.3.	14/05/2012	Amended Section B.6 and Section F.1 to take account of the requirements of European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) in terms of Appropriate Assessment under Article 6(3) of the Habitats Directive (92/43/EEC).	To accurately reflect the Habitats Regulations 2011 (S.I. No. 477 of 2011) requirements.
		Update references to new legislation	To reflect changes in legislation

Environmental Protection Agency

Application for a Waste Water Discharge Certificate of Authorisation Waste Water Discharge (Authorisation) Regulations, 2007, as amended.

CONTENTS

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, as amended 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.

A valid application for a Waste Water Discharge Certificate of Authorisation must contain the information prescribed in the Waste Water Discharge (Authorisation) Regulations, 2007, as amended. 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/.

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, as amended. **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, as amended, 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. <u>The abbreviation "N/A" should not be used</u>.

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, as amended.

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, as amended.

Note: <u>Drawings.</u> 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.

Application Form

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:

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 Nº A.1**

SECTION B: GENERAL

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

B.1 Agglomeration Details

Name of Agglomeration:	Grenagh

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.

Name*:	Cork County Council
Address:	Water Services
	Floor 11
	County Hall
	Cork
Tel:	021 4285285
Fax:	021-4346254
e-mail:	cccwastewater@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*:	Mr. Noel O'Keeffe, County Engineer
Address:	Floor 10
	County Hall
Tel:	021-4285383
Fax:	021-4348236
e-mail:	Noel.okeeffe@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 Certificate of Authorisation application.

Attachment B.1 should contain appropriately scaled drawings / maps (≤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**
	Y	

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*:	Mr. Jack McCarthy, Senior Executive Engineer
Address:	Grenagh
	Co. Cork
Grid ref (6E, 6N)	158,817E, 084,754N
Level of Treatment	Secondary

*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 (≤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**
	Y	

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.

Discharge to	Surface Water
Type of Discharge	Point Source, outfall pipe
Unique Point Code	SW-01
Location	See Drawing
Grid ref (6E, 6N)	158,833E, 084,980N

Attachment B.3 should contain appropriately scaled drawings / maps (≤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**
	Y	

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.

Discharge to	Not Applicable
Type of Discharge	
Unique Point Code	
Location	
Grid ref (6E, 6N)	

*****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 (≤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**
		N

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	Point Source, outfall pipe
Unique Point Code	SW-01
Location	See Drawing

Grid ref (6E, 6N)	158,833E, 084,980N

Attachment B.5 should contain appropriately scaled drawings / maps (≤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**
	Y	

B.6 Planning Authority and/or Public 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:	Cork County Council
Address:	Floor 1
	County Hall
	Cork
Tel:	021-4276891
Fax:	021-4276321
e-mail:	planninginfo@corkcoco.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 Nº:	

Attachment B.6 should contain ***the most recent*** planning permission, including a copy of ***all*** conditions, a copy of the planning inspector's report 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.*

Where applicable, provide a copy of any screening for Appropriate Assessment report and Natura Impact Statement (NIS) that was prepared for consideration by any planning/public authority as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) in relation to the waste water works which is the subject of this application. Where a determination that an Appropriate Assessment is required has been made by any planning/public authority in relation to the waste water works, a copy of that determination and any screening report and NIS, and any supplemental information furnished in relation to any such report or statement,

which has been provided to the planning/public authority for the purposes of the Appropriate Assessment, shall be included in **Attachment B.6.**

Attachment included	**Yes**	**No**
		N

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**
		N

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:	HSE EHA North Lee
Address:	Floor 3
	26 South Mall
Tel:	021-4921801
Fax:	021-4921824
e-mail:	Miriam.cashell@hse.ie

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.

Population Equivalent	**441**
Data Compiled (Year)	**2011/2012**
Method	**Mass Balance**

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,
- 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 waters.

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, as amended.

Class of waste water discharge	Fee (in €)
<500	€3000

Appropriate Fee Included	Yes	No
	Y	

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.

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
	Y	

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 to 2011.

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

Attachment included	Yes	No
		N

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**
		N

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
	Y	

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/. ***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/. 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)** **See Annex 1**

Attachment included	**Yes**	**No**
	Y	

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/. 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)**

Attachment included	**Yes**	**No**
		N

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.

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
SW-01	Primary	Cork County Council	River	River Martin	None	158,833E	084,980N

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.

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/.

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/.

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.

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.

Details of any accreditation or certification of analysis should be included.
Attachment E.2 should contain any supporting information.

Attachment included	**Yes**	**No**
	Y	

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
aSW-1u	Upstream Sampling Point	Sampling Point	158,824E	084,996N	N
aSW-1d	Downstream Sampling Point	Sampling Point	158,952E	084,741N	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. 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, as amended, 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. **See Annex 1**

Attachment included	Yes	No
	Y	

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/. 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.

- 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/. 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.

- 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.

- 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.

- 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 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.

- 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 European Site, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011). Undertake a screening for Appropriate Assessment and state whether the discharge(s), individually or in combination with other plans or projects, is likely to have a significant effect on a European Site(s), in view of best scientific knowledge and the conservation objectives of the site(s). Where it cannot be excluded, on the basis of objective scientific information, following screening for Appropriate Assessment, that the discharge(s), either individually or in combination with other plans or projects, will have a significant effect on a European Site, the applicant shall provide a Natura Impact Statement. Where based on screening it is considered that an Appropriate Assessment is not required, a reasoned response should be provided. 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.**

Attachment included	Yes	No
	Y	

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
19L03	89,000	36363 m^3/day	RS19L030800	22,000 m	164800 E	071400 N	N

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.

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).

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
	Y	

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.

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
	Y	

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**
	Y	

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, as amended.

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**
	Y	

SECTION H: DECLARATION

Declaration

I hereby make application for a waste water discharge Certificate of Authorisation/revised Certificate of Authorisation, pursuant to the provisions of the Waste Water Discharge (Authorisation) Regulations, 2007, as amended.

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 or any person acting on the Applicant's behalf.

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

Print signature name: _____

Position in organisation:_____

Annex 1 & 2 (submitted online)

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Grenagh
Population Equivalent	441
Level of Treatment	secondary treatment
Treatment plant address	Grenagh Co Cork
Grid Ref (12 digits, 6E, 6N)	158817 / 084774
EPA Reference No:	

Contact details

Contact Name:	Gillian Vaughan
Contact Address:	Water Services Floor 11 Co. hall Cork
Contact Number:	021-4285285
Contact Fax:	021-4346254
Contact Email:	cccwastewater@corkcoco.ie

Table D.1(i)(a): EMISSIONS TO SURFACE/GROUND WATERS (Primary Discharge Point)

Discharge Point Code: SW-1

Local Authority Ref No:	SW01Grenagh	
Source of Emission:	primary discharge	
Location:	Grenagh	
Grid Ref (12 digits, 6E, 6N)	158833 / 084980	
Name of Receiving waters:	River Martin	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	none at discharge location	
Flow Rate in Receiving Waters:	0.05	$m^3.sec^{-1}$ Dry Weather Flow
	0.1	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Note 95% flow evaluated on previous occasion as 0.10m3/sec, ungauged catchment figure varies from this however actual hyromteric data used for assessment purposes	

Emission Details:

(i) Volume emitted			
Normal/day	130 m^3	Maximum/day	200 m^3
Maximum rate/hour	8.3 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.00039 m^3/sec		

Table D.1(i)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	Grab	= 5.3	
Temperature	°C	Grab	= 25	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 641	
Suspended Solids	mg/l	Grab	= 180	23.4
Ammonia (as N)	mg/l	Grab	= 9.3	1.209
Biochemical Oxygen Demand	mg/l	Grab	= 51	6.63
Chemical Oxygen Demand	mg/l	Grab	= 346	44.95
Total Nitrogen (as N)	mg/l	Grab	= 54.04	7.0252
Nitrite (as N)	mg/l	Grab	= 0.237	0.03081
Nitrate (as N)	mg/l	Grab	= 8.473	1.10149
Total Phosphorous (as P)	mg/l	Grab	= 10.98	1.4274
OrthoPhosphate (as P)	mg/l	Grab	= 7.44	0.9672
Sulphate (SO_4)	mg/l	Grab	= 57.4	7.462
Phenols (Sum)	µg/l	Grab	< 0.1	0.000013

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Table D.1(i)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	Grab	< 0.01	0.0000013
Dichloromethane	µg/l	Grab	< 5	0.00065
Simazine	µg/l	Grab	< 0.01	0.0000013
Toluene	µg/l	Grab	< 0.54	0.0000702
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	< 0.7	0.000091
Arsenic	µg/l	Grab	= 0.699	0.00009087
Chromium	µg/l	Grab	= 1.28	0.0001664
Copper	µg/l	Grab	= 154.8	0.020124
Cyanide	µg/l	Grab	< 5	0.00065
Flouride	µg/l	Grab	= 270	0.0351
Lead	µg/l	Grab	= 5.126	0.00066638
Nickel	µg/l	Grab	= 3.865	0.00050245
Zinc	µg/l	Grab	= 220.1	0.028613
Boron	µg/l	Grab	= 101.9	0.013247
Cadmium	µg/l	Grab	= 0.161	0.00002093
Mercury	µg/l	Grab	< 0.04	0.0000052
Selenium	µg/l	Grab	< 2.12	0.0002756
Barium	µg/l	Grab	= 15.84	0.0020592

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Table D.1(iii)(a): EMISSIONS TO SURFACE/GROUND WATERS (Storm Overflow)

Discharge Point Code: SW-2

Local Authority Ref No:	SW01Grenagh	
Source of Emission:	storm water overflow	
Location:	Grenagh	
Grid Ref (12 digits, 6E, 6N)	158833 / 084980	
Name of Receiving waters:	River Martin	
Water Body:	River Water Body	
River Basin District	South Western RBD	
Designation of Receiving Waters:	none at discharge location	
Flow Rate in Receiving Waters:	0.05	$m^3.sec^{-1}$ Dry Weather Flow
	0.1	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	Note. In the event of a stormwater overflow, the stormwater discharges along with the effluent from the plant at outfall SW-01.	

Emission Details:

(i) Volume emitted			
Normal/day	0 m^3	Maximum/day	13 m^3
Maximum rate/hour	0.54 m^3	Period of emission (avg)	60 min/hr 1 hr/day 5 day/yr
Dry Weather Flow	2.5E-05 m^3/sec		

TABLE E.1(i): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Primary and Secondary Discharge Points

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m^3/annum)
SW-1	365	47450

TABLE E.1(ii): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Storm Water Overflows

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m^3/annum)	Complies with Definition of Storm Water Overflow
SW-2	5	0	Yes

TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	158952 / 084741

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/12	17/05/12	05/06/12				
pH		= 7.7	= 7.2		Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 182	= 183		Grab	0.5	electrochemical
Suspended Solids		< 2.5			Grab	0.5	Gravimetric
Ammonia (as N)		= 0.036			Grab	0.02	Colorimetric
Biochemical Oxygen Demand		= 1.2			Grab	0.06	elelectrochemical
Chemical Oxygen Demand	= 0				Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0.2	ISE
Hardness (as $CaCO_3$)			= 72		Grab	1	titrimetric
Total Nitrogen (as N)		= 4.59			Grab	0.5	digestion+colorimetric
Nitrite (as N)		= 0.008			Grab	0.1	Colorimetric
Nitrate (as N)		= 5.114			Grab	0.5	Colorimetric
Total Phosphorous (as P)		< 0.05			Grab	0.2	digestion+colorimetric
OrthoPhosphate (as P)		= 0.041			Grab	0.02	Colorimetric
Sulphate (SO_4)		< 30			Grab	30	Turbidimetric
Phenols (Sum)			< 0.1		Grab	0.01	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default of 01/01/2012 and 0 where results are not available

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	158952 / 084741

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/12	05/06/12					
Atrazine		< 0.01			Grab	0.96	HPLC
Dichloromethane		< 5			Grab	1	GC MS1
Simazine		< 0.01			Grab	0.01	HPLC
Toluene		< 0.53			Grab	0.02	GC MS1
Tributyltin	= 0				Grab	0.02	GC MS1
Xylenes		< 0.73			Grab	1	GC MS1
Arsenic		= 0.173			Grab	0.96	ICP-MS
Chromium		= 0.811			Grab	1	ICP-MS
Copper		= 12.66			Grab	1	ICP-MS
Cyanide		< 5			Grab	5	Colorimetric
Flouride		= 60			Grab	100	ISE
Lead		= 3.172			Grab	1	ICP-MS
Nickel		= 1.374			Grab	1	ICP-MS
Zinc		= 11.98			Grab	1	ICP-MS
Boron		= 108.2			Grab	1	ICP-MS
Cadmium		= 0.03			Grab	1	ICP-MS
Mercury		< 0.03			Grab	0.2	ICP-MS
Selenium		< 0.54			Grab	0.74	ICP-MS
Barium		= 14.74			Grab	1	ICP-MS

Additional Comments:	

TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	158824 / 084996

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/12	17/05/12					
pH		= 7.7			Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 181			Grab	0.5	electrochemical
Suspended Solids		< 2.5			Grab	0.5	Gravimetric
Ammonia (as N)		= 0.025			Grab	0.02	Colorimetric
Biochemical Oxygen Demand		< 1			Grab	0.06	elelectrochemical
Chemical Oxygen Demand	= 0				Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0.2	ISE
Hardness (as $CaCO_3$)	= 0				Grab	1	titrimetric
Total Nitrogen (as N)		= 4.83			Grab	0.5	digestion+colorimetric
Nitrite (as N)		= 0.006			Grab	0.1	Colorimetric
Nitrate (as N)		= 3.314			Grab	0.5	Colorimetric
Total Phosphorous (as P)		< 0.05			Grab	0.2	digestion+colorimetric
OrthoPhosphate (as P)		= 0.017			Grab	0.02	Colorimetric
Sulphate (SO_4)		< 30			Grab	30	Turbidimetric
Phenols (Sum)	= 0				Grab	0.1	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default of 01/01/2012 and 0 where results are not available

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	158824 / 084996

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/12						
Atrazine	= 0				Grab	0.96	HPLC
Dichloromethane	= 0				Grab	1	GC MS1
Simazine	= 0				Grab	0.01	HPLC
Toluene	= 0				Grab	0.02	GC MS1
Tributyltin	= 0				Grab	0.02	GC MS1
Xylenes	= 0				Grab	1	GC MS1
Arsenic	= 0				Grab	0.96	ICP-MS
Chromium	= 0				Grab	1	ICP-MS
Copper	= 0				Grab	1	ICP-MS
Cyanide	= 0				Grab	5	Colorimetric
Flouride	= 0				Grab	100	ISE
Lead	= 0				Grab	1	ICP-MS
Nickel	= 0				Grab	1	ICP-MS
Zinc	= 0				Grab	1	ICP-MS
Boron	= 0				Grab	1	ICP-MS
Cadmium	= 0				Grab	1	ICP-MS
Mercury	= 0				Grab	0.2	ICP-MS
Selenium	= 0				Grab	0.74	ICP-MS
Barium	= 0				Grab	1	ICP-MS

Additional Comments:	default of 01/01/2012 and 0 where results are not available

Annex 2: Check List For Regulation 16 Compliance

Regulation 16 of the waste water discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007) sets out the information which must, in all cases, accompany a discharge licence application. In order to ensure that the application fully complies with the legal requirements of regulation 16 of the 2007 Regulations, all applicants should complete the following.

In each case, refer to the attachment number(s), of your application which contains(s) the information requested in the appropiate sub-article.

Regulation 16(1) **In the case of an application for a waste water discharge licence, the application shall -**		**Attachment Number**	**Checked by Applicant**
(a)	give the name, address, telefax number (if any) and telephone number of the applicant (and, if different, of the operator of any treatment plant concerned) and the address to which correspondence relating to the application should be sent and, if the operator is a body corporate, the address of its registered office or principal office,	not applicable	Yes
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,	not applicable	Yes
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the waste water treatment plant and/or the waste water discharge point or points to which the application relates,	not applicable	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	not applicable	Yes
(e)	specify the content and extent of the waste water discharge, the level of treatment provided, if any, and the flow and type of discharge,	not applicable	Yes
(f)	give details of the receiving water body, including its protected area status, if any, and details of any sensitive areas or protected areas or both in the vicinity of the discharge point or points likely to be affected by the discharge concerned, and for discharges to ground provide details of groundwater protection schemes in place for the receiving water body and all associated hydrogeological and geological assessments related to the receiving water environment in the vicinity of the discharge.	not applicable	Yes
(g)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and, if Regulation 17 does not apply, provide details of the likely environmental consequences of any such discharges,	not applicable	Yes
(h)	in the case of an existing waste water treatment plant, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,	not applicable	Yes
(i)	describe the existing or proposed measures, including emergency procedures, to prevent unintended waste water discharges and to minimise the impact on the environment of any such discharges,	not applicable	Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	not applicable	Yes
(k)	give details, and an assessment of the effects, of any existing or proposed emissions on the environment, including any environmental medium other than those into which the emissions are, or are to be made, and of proposed measures to prevent or eliminate or, where that is not practicable, to limit any pollution caused in such discharges,	not applicable	Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	not applicable	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	not applicable	Yes
(n)	Any other information as may be stipulated by the Agency.	not applicable	Yes
Regulation 16(3) **Without prejudice to Regulation 16 (1) and (2), an application for a licence shall be accompanied by -**		**Attachment Number**	**Checked by Applicant**
(a)	a copy of the notice of intention to make an application given pursuant to Regulation 9,	not applicable	Yes
(b)	where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,	not applicable	Yes
(c)	Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -	application form	Yes
(c) (i)	the point or points, including storm water overflows, from which a discharge or discharges take place or are to take place, and	application form	Yes
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,	application form	Yes
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	application form	Yes

Regulation 16(4) An original application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under Regulation 16(3) in hardcopy or in an electronic or other format as specified by the Agency.		Attachment Number	Checked by Applicant
1	An Original Application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under regulation 16(3) in hardcopy or in electronic or other format as specified by the agancy.	application form	Yes
Regulation 16(5) **For the purpose of paragraph (4), all or part of the 2 copies of the said application and associated documents and particulars may, with the agreement of the Agency, be submitted in an electronic or other format specified by the Agency.**		**Attachment Number**	**Checked by Applicant**
1	Signed original.	application form	Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.	application form	Yes
3	1 CD of geo-referenced digital files provided.	application	Yes
Regulation 17 **Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, in addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency**		**Attachment Number**	**Checked by Applicant**
1	EIA provided if applicable	not applicable	Yes
2	2 hardcopies of EIS provided if applicable.	not applicable	Yes
3	2 CD versions of EIS, as PDF files, provided.	not applicable	Yes
Regulation 24 **In the case of an application for a waste water discharge certificate of authorisation, the application shall –**		**Attachment Number**	**Checked by Applicant**
(a)	give the name, address, telefax number (if any) and telephone number of the applicant and the address to which correspondence relating to the application should be sent and, if the operator of the waste water works is a body corporate, the address of its registered office or principal office	application form	Yes
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,	application form	Yes
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the discharge point or points to which the application relates,	application form	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	application form	Yes
(e)	in the case of an application for the review of a certificate, specify the reference number given to the relevant certificate in the register,	not applicable	Yes
(f)	specify the content and extent of the waste water discharge, the level of treatment provided and the flow and type of discharge,	application form	Yes
(g)	give details of the receiving water body, its protected area status, if any, and details of any sensitive areas or protected areas, or both, in the vicinity of the discharge point or points or likely to be affected by the discharge concerned,	application form	Yes
(h)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and of the likely environmental consequences of any such discharges,	application form and attachment B	Yes
(i)	in the case of an existing discharge, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,	attachment E	Yes
(j)	describe the existing or proposed measures, including emergency procedures, to prevent unauthorised or unexpected waste water discharges and to minimise the impact on the environment of any such discharges,	application form	Yes
(k)	give particulars of the location of the nearest downstream drinking water abstraction point or points to the discharge point or points associated with the waste water works,	application form	Yes
(l)	give details of any designation under any Council Directive or Regulations that apply in relation to the receiving waters,	application form	Yes
(m)	give details of compliance with any applicable monitoring requirements and treatment standards,	application form	Yes
(n)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work,	application form	Yes
(o)	give any other information as may be stipulated by the Agency, and	application form	Yes
(p)	be accompanied by such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	application form	Yes

Attachment A.1 Non-Technical Summary

A.1 NON-TECHNICAL SUMMARY

A.1.0 Introduction

Grenagh, is a substantial village with a large residential element consisting mainly of estate housing around a small original core, is located approximately 16 kilometres north of Cork City and west of the N20 Cork-Mallow road and railway line. The village is surrounded by a large rural hinterland, which forms part of the designated rural Housing Control Zone, where it is an objective generally to restrict individual urban generated houses.

A.1.1 Background Details

Cork County Council is the Water Services Authority serving Grenagh. The WWTP is currently operated by Electrical Pumping Services Ltd. (EPS) for Cork County Council as of October of last year. The WWTP was handed over to Wastewater Operations (Zone 3 Wastewater Treatment & Pumping) in January 2012.

Prior to this the WWTP was operated by D+J Builders (Cork) Ltd. As the treatment plant was only recently taken in charge by Cork County Council there is a limited amount of data available to compile this application.

See the following Attachment A1 Map1 which shows the WWTP Site layout.

The PE for the plant is 441 and was calculated from data provided by EPS, from late last year. The role of EPS is to Operate and Maintain the WWTP.

The treated wastewater generated from Grenagh currently discharges to the River Martin, which is a tributary of the River Blarney. The River Martin is part of the Lower Lee Owenboy Water Management Unit in the South West River Basin District.

There is one discharge point from the WWTP namely a Primary Discharge (SW-01). There is also a stormwater overflow which discharges at the Primary Discharge Point (SW-01).

A.1.2 Upgrade

In the mean time Cork County Council is planning to upgrade the existing plant, which is in need of refurbishing and also to cater for a proposed motorway service station to serve the planned M20 Cork to Limerick Motorway to be located approximately 5km further north of Rathduff. The effluent from the proposed motorway services is to be pumped to the treatment plant at Grenagh.

Attachment B

B.0 Maps

B.1 Agglomeration Boundary (Map 2)

The agglomeration boundary can be seen on Map B.1 and primarily consists of housing estates built by D+J Builders and a number of commercial units including a petrol station.

B.2 Site Location Map (Map 3)

B.3 Primary Discharge Location (Map 4)

B.5 Storm Water Overflow (Map 5)

GH NORTH

SOUTH

Pound Bridge

Grenagh

Access Road

Wetlands

Additional land for future expansion.

Grenagh Treatment Plant Site
(158,817 084,754)

Treatment Plant

Agglomeration Area

N

Legend

Cork County Council
Zone 3

Project
Grenagh Wastewater Discharge Certificate

Title
Agglomeration Area
Attachment B1 Map 2

Figure

N.O'Keeffe, B.E.
County Engineer,
County Hall,
Cork

Issue Details

Drawn: L.L.		**Project No.** xxxx	
Checked: R.O.D.		**File Ref.**	
Approved: xxxx		xxxx	
Scale: 1:5000	**Drawing No.** B1 Map2	**Rev.** xxxx	
Date: June 2012			

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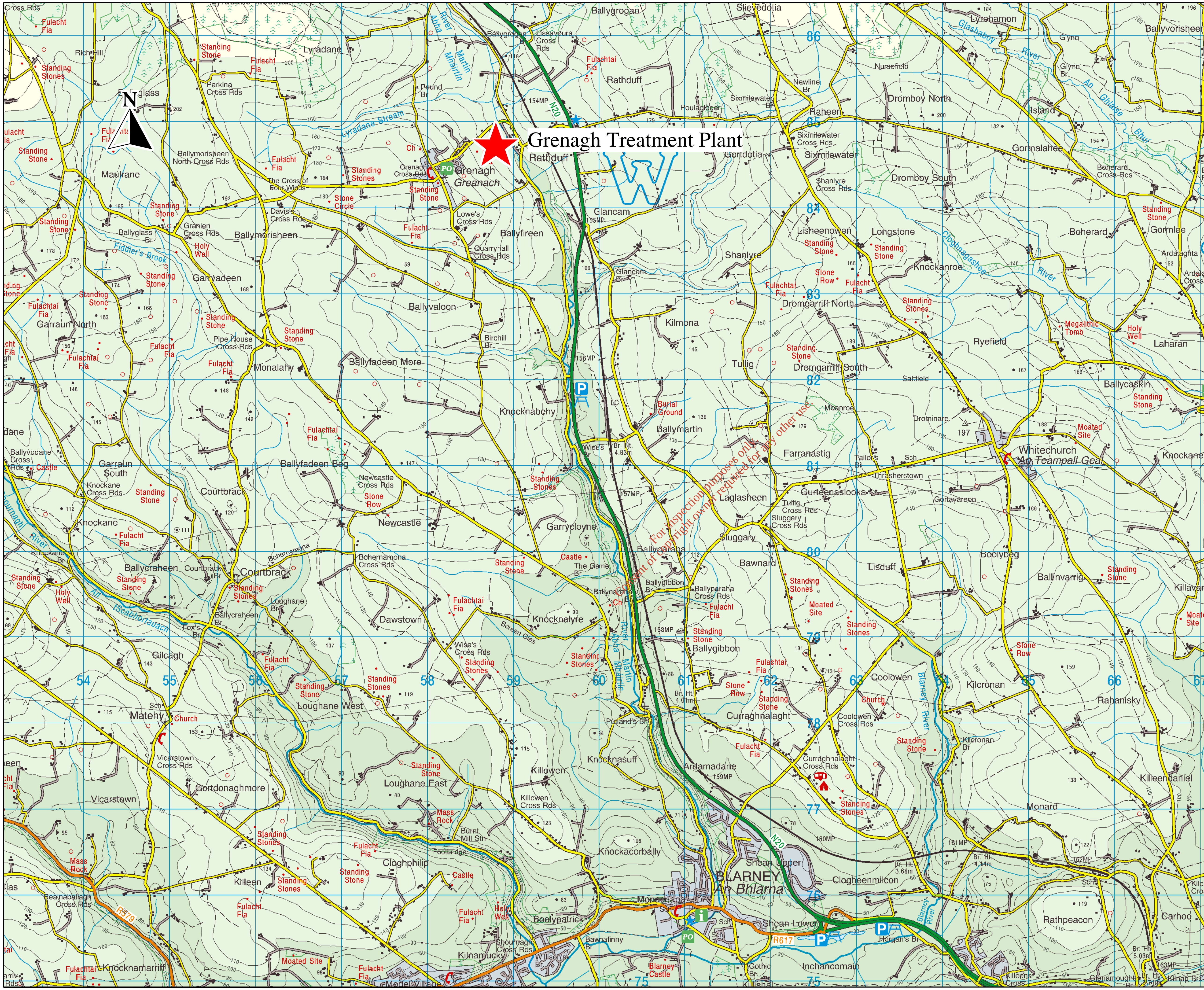
2. All levels are referred to Ordnance Datum, Malin Head.



Legend

Cork County Council Zone 3

Project
Grenagh Wastewater Discharge Certificate

Title
Site Location
Attachment B2 Map 3

Figure

N.O'Keeffe, B.E.
County Engineer,
County Hall,
Cork

Issue Details

Drawn:	L.L.	Project No.	xxxx
Checked:	R.O.D.	File Ref.	
Approved:	xxxx	xxxx	
Scale:	1:50,000	Drawing No.	Rev.
Date:	June 2012	B2 Map 3	xxxx

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2. All levels are referred to Ordnance Datum, Malin Head.

Primary Discharge Point
(158,833 084,980)

Great Southern Railways

Access Road

Wetlands

Additional land for future expansion.

Grenagh Treatment Plant Site
(158,817 084,754)

Treatment Plant

Gleann Dara

Fulacht Fiadh

Spring

Well

UND

FF

FW

CR

Legend

Cork County Council
Zone 3

Project
Grenagh Wastewater Discharge Certificate

Title
Primary Discharge Location Attachment B3 Map 4

Figure

N. O'Keeffe B.E.
County Engineer
County Hall,
Cork

Issue Details

Drawn:	L.L.	**Project No.**	xxxx
Checked:	R.O.D.	**File Ref.**	
Approved:	xxxx	xxxx	
Scale:	1:2,500	**Drawing No.**	**Rev.**
Date:	June 2012	B3 Map 4	xxxx

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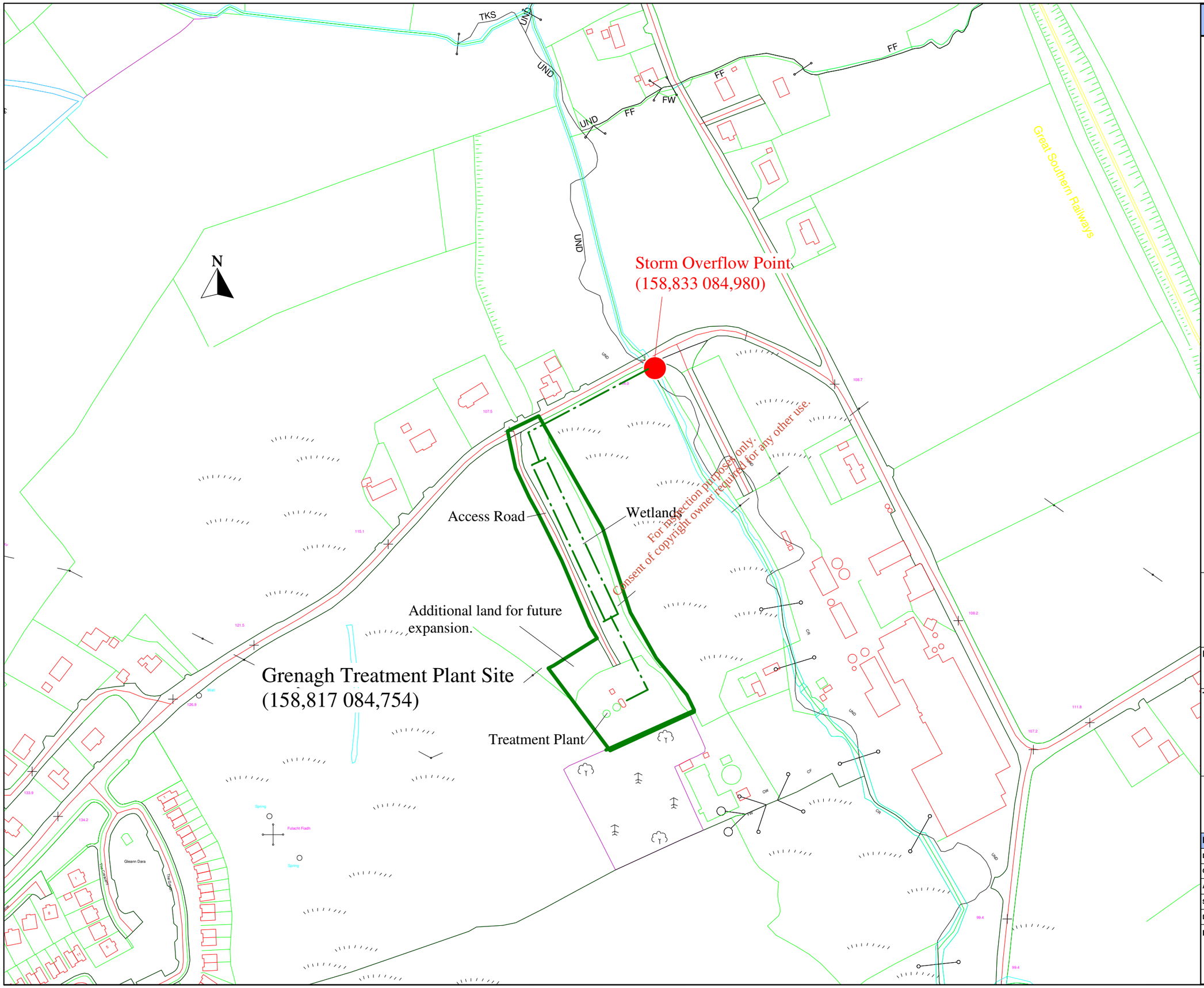

Legend

Cork County Council
Zone 3

Project
Grenagh Wastewater Discharge Certificate

Title
Storm Water Overflow
Attachment B5 Map 5

N. O'Keeffe, B.E.
County Engineer
County Hall
Cork

Issue Details			
Drawn: L.L.		**Project No.** xxxx	
Checked: R.O.D.		**File Ref.**	
Approved: xxxx		xxxx	
Scale: 1:2,500		**Drawing No.**	**Rev.**
Date: June 2012		B5 Map 5	xxxx

Notes
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2. All levels are referred to Ordnance Datum, Malin Head.

B.9 Population Equivalent of Agglomeration

Average BOD = 203.58mg/l
Average flow = 130m^3/day

→ $$PE = \frac{(130x\ 1000)\ x\ 203.58}{60\ x\ 1000}$$

→ PE = 441

Attachment C Infrastructure & Operation

C.1 Operation Information Requirements

C.1.1 General Description

The treatment plant at Grenagh has gravity flow through the works.

All tanks consist of precast concrete. All internal roads are concrete.

The treatment process includes:

Mechanical Inlet Screening.
Gravity overflow to underground storm water storage with pumped return.
A secondary treatment process based on dual streamed activated sludge.
Fine bubbled diffused aeration system.
Dual secondary clarifiers complete with rotating half bridge scrapers systems.
Single sludge storage tank.
Block built control building.

See accompanying drawings.

C.1.2 Inlet Screen

Incoming effluent passes through an automatic inlet screen. The screenings are extracted by a screw conveyor and deposited in a skip. The operation of the screen and screw conveyor is controlled by an ultrasonic level sensor. Two levels are programmed on the level sensor, high and high high.

A solenoid valve will be fixed to the screening unit. The solenoid valve will wash the screenings from the screen as it is running

Sequence of Operation

Inlet screen will start when a high level is detected by the ultrasonic.
Screen will run continuously while a high level is present, and will continue to run for a further 5 minutes once the level drops below the high level.
Screw Conveyor will run while screen runs.
The solenoid will open and close on a cycle while the inlet screen runs. It will open for 3 seconds and then close for 6 seconds to give a pulsed wash cycle.

C.1.3 Aeration

After the effluent has been screened, it passes into an aeration tank. The effluent is aerated via 2 number air blowers arranged in a duty/standby configuration. If the duty blower fails then the standby blower will automatically start. The duty blower will be selectable from a three-position switch located on the control panel. The switch will select the duty blower in the following manner:

Position 1: Blower 1 Duty
Position 2: Blower 2 Duty
Position 3: Cycle

The cycle position will allow automatic duty selection, which will select a different blower to run every second day. In normal operation of the plant the duty blower will run continuously.

Each blower will be fitted with a VSD. A dissolved oxygen monitor fitted in the aeration tank will control the speed of the blower via the VSD. This monitor will provide the VSD with a 4-20mA signal. A potentiometer will be mounted on the panel door to control the speed of the pumps in manual.

Each blower will be fitted with an acoustic hood c/w and an acoustic hood fan. This fan will start automatically with the blower.

C.1.4 Storm Tank

In the event of a high incoming flow to the plant, effluent will flow into the storm tank. The storm tank will have two submersible pumps fitted to return effluent for treatment after a high incoming flow has subsided. The pumps are arranged in a duty/standby configuration. If the duty pump fails then the standby pump will automatically start. The duty pump will be selectable from a three-position switch located on the control panel. The switch will select the duty pump in the following manner:

Position 1: Pump 1 duty
Position 2: Pump 2 duty
Position 3: Cycle

The cycle position will allow automatic duty selection, which will select a different pump to run every second day.

A float switch will be fitted in the storm tank. In the event of a low float condition the duty pump will be inhibited. If a float condition exists the duty pump will be enabled. The duty pump will continue to pump until a low float condition exists in the storm tank or until a high-high level is sensed at the inlet screen.

The speed of the duty motor will be controlled by a VSD. The VSD will adjust the speed according to a 4-20mA signal received from the inlet screen ultrasonic level

sensor. A potentiometer will be mounted on the panel door to control the speed of the pumps in manual.

The storm water tank will be periodically washed down utilising wash water from an adjacent sump. The cleaning system solenoid valve opens for a set amount of time (set at commissioning). When the cleaning time has elapsed, the solenoid valve is closed.

C.1.5 Clarifier

In the normal operation of the plant the clarifier will run continuously. A manual stop/start button will be provided at the control panel for the clarifier.

C.1.6 RAS/WAS Pumps

As part of the biological treatment process, sludge drawn from the bottom of the clarifier is recycled back into the aeration tank. Two RAS/WAS pumps arranged in a duty/standby configuration will return the sludge from the sludge chamber. If the duty pump fails then the standby pump will automatically start. The duty pump will be selectable from a three-position switch located on the control panel. The switch will select the duty pump in the following manner:

Position 1: Pump 1 duty
Position 2: Pump 2 duty
Position 3: Cycle

The cycle position will allow automatic duty selection, which will select a different pump to run every second day. Under normal plant operating conditions, the duty pump will run continuously.

The speed of the duty pump will be controlled by a VSD. A potentiometer will be mounted on the panel door to control the speed of the pumps (pot position to be determined at commissioning).

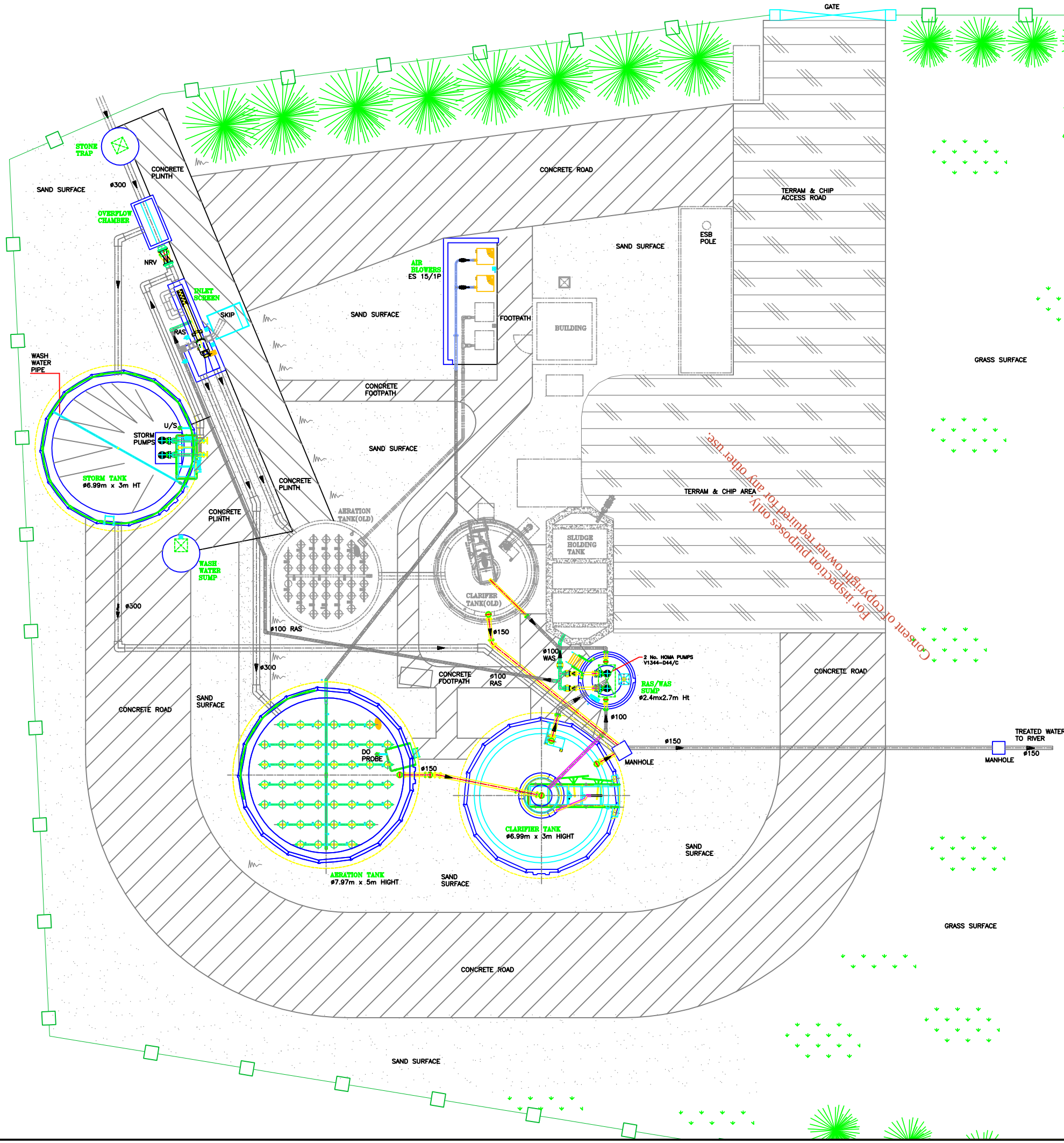
A low-low float will monitor the level of the sludge in the sludge chamber. If a low-low level exists in the chamber, the RAS pumps will be inhibited.

C.1.7 WAS Pumping

By altering the valve arrangement the RAS/WAS pumps can be utilised as WAS pumps and will remove sludge from the sludge chamber to the sludge holding tank for removal from site.
The WAS pumps will be set-up to waste sludge from the sludge chamber once a day for a set time period.

Attachment C.1 Plant Details

IF IN DOUBT ASK DO NOT SCALE OFF THIS DRAWING



REFERENCE DRAWINGS

DRAWING NUMBER:	REV.

SCHEDULE OF BUILDERSWORK OPES & LEVELS

Centerline of ope on plan equals centerline of corresponding pipe passing through unless noted otherwise.

Ref:	Pipeø	Size (W x H)	Invert Level	Qty.

HAZARDOUS ZONE RATINGS:

GENERAL NOTES:

1. All power ducts to be 150ø unless noted otherwise.
2. All telem ducts to be 100ø unless noted otherwise.
3. All power and telem ducts to be separated by a minimum distance of 725mm center to center where practical.
4. All pipe invert levels taken from underside of outside diameter unless noted otherwise.

Rev	Drn	Ckd	Apd	Date	Description
A	ST	JL	JL	15.12.09	AS BUILT

Drawing Status:
AS BUILT

Pumping & Treatment Systems
Industrial Estate, Quarterlands, Mallow, Co. Cork., Phone: 022-21200 Fax: 022-21290 Email: controls@epsireland.com
Ballyhaunis, Co. Mayo, Phone: 0907-30226 Fax: 0907-30761
Mountrath, Co. Laois, Phone: 0502-32379 Fax: 0502-32518

Contract:
GRENAGH WASTE WATER TREATEMENT WORKS UPGRADE

Client:
D & J BUILDERS

Consultant:

Drawing Title:
SITE LAYOUT & MAIN INLET WORKS

Scale: 1:100	Plot: A1 @ 1:1
Drawn By: AW	Date: 24.11.04
Revision Suffix: A	
Job No.: PC523	
Drg No.: PC523-01	SHEET 1 OF 2
Workshop No.:	

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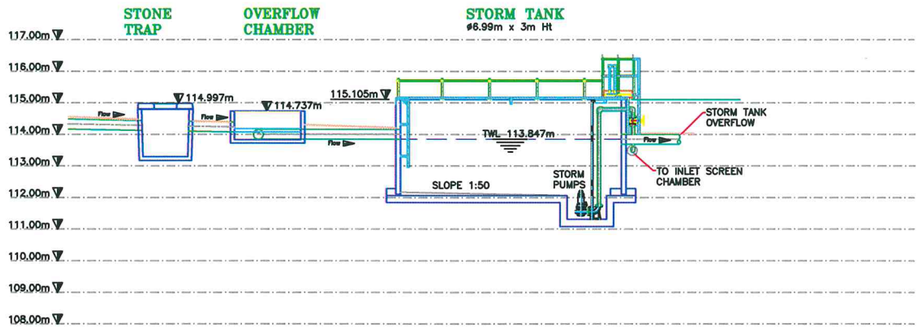
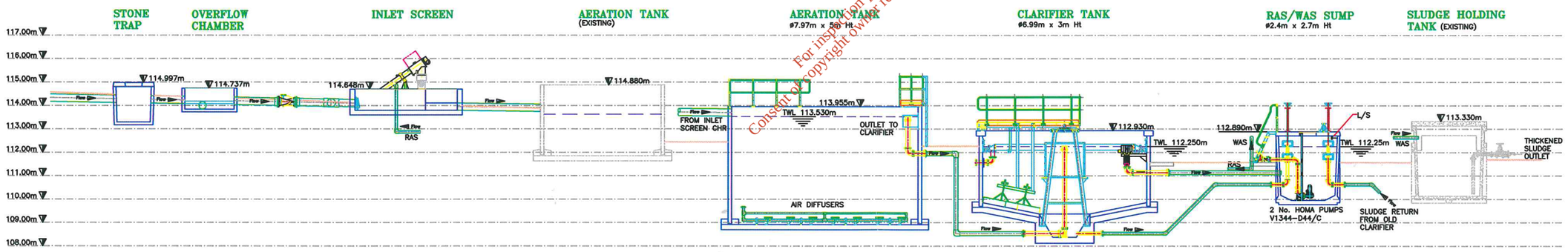


HYDRAULIC PROFILE
SCALE 1:100
(FOR TRUE ORIENTATION SEE PLAN)



HYDRAULIC PROFILE
SCALE 1:100
(FOR TRUE ORIENTATION SEE PLAN)

REFERENCE DRAWINGS

DRAWING NUMBER:	REV.

SCHEDULE OF BUILDERSWORK OPES & LEVELS

Centerline of ope on plan equals centerline of corresponding pipe passing through unless noted otherwise.

Ref:	Pipeø	Size (W x H)	Invert Level	Qty.

HAZARDOUS ZONE RATINGS:

GENERAL NOTES:

1. All power ducts to be 150ø unless noted otherwise.
2. All telem ducts to be 100ø unless noted otherwise.
3. All power and telem ducts to be separated by a minimum distance of 725mm center to center where practical.
4. All pipe invert levels taken from underside of outside diameter unless noted otherwise.

Rev	Drn	Ckd	Apd	Date	Description
A	ST	JL	JL	15.12.09	AS BUILT

Drawing Status:
AS BUILT

E.P.S. Pumping & Treatment Systems
Industrial Estate, Castlerlara, Mallow, Co. Cork. Phone: 022-31200 Fax: 022-31250 Email: eps@eircom.net
Ballyhaunis, Co. Mayo. Phone: 0907-30226 Fax: 0907-30781
Mountrath, Co. Laois Phone: 0502-32279 Fax: 0502-32518

Contract:
GRENAGH WASTE WATER TREATEMENT WORKS UPGRADE

Client:
D & J BUILDERS

Consultant:

Drawing Title:
HYDRAULIC PROFILE

Scale: 1:100	Plot: A1 @ 1:1
Drawn By: AW	Date: 24.11.04
Revision Suffix: A	
Job No.: PC523	
Drg No.: PC523-01	SHEET 2 OF 2
Workshop No.:	

Attachment E Monitoring

E.2 Monitoring and Sampling Points

No monitoring to date has been carried out at this location by Cork County Council or by EPA.

E.2.1 General Laboratory Information

The Wastewater Laboratory of Cork County Council is accredited for a number of analytical tests under the Irish National Accreditation Board (INAB) under the ISO 17025 international standard. The Wastewater Laboratory of Cork County Council is currently accredited for the following parameters under the ISO 17025 system:

pH
Biochemical Oxygen Demand
Chemical Oxygen Demand
Suspended Solids
Ammonia
Ortho Phosphates
Total Phosphates
Chloride
Sulphate

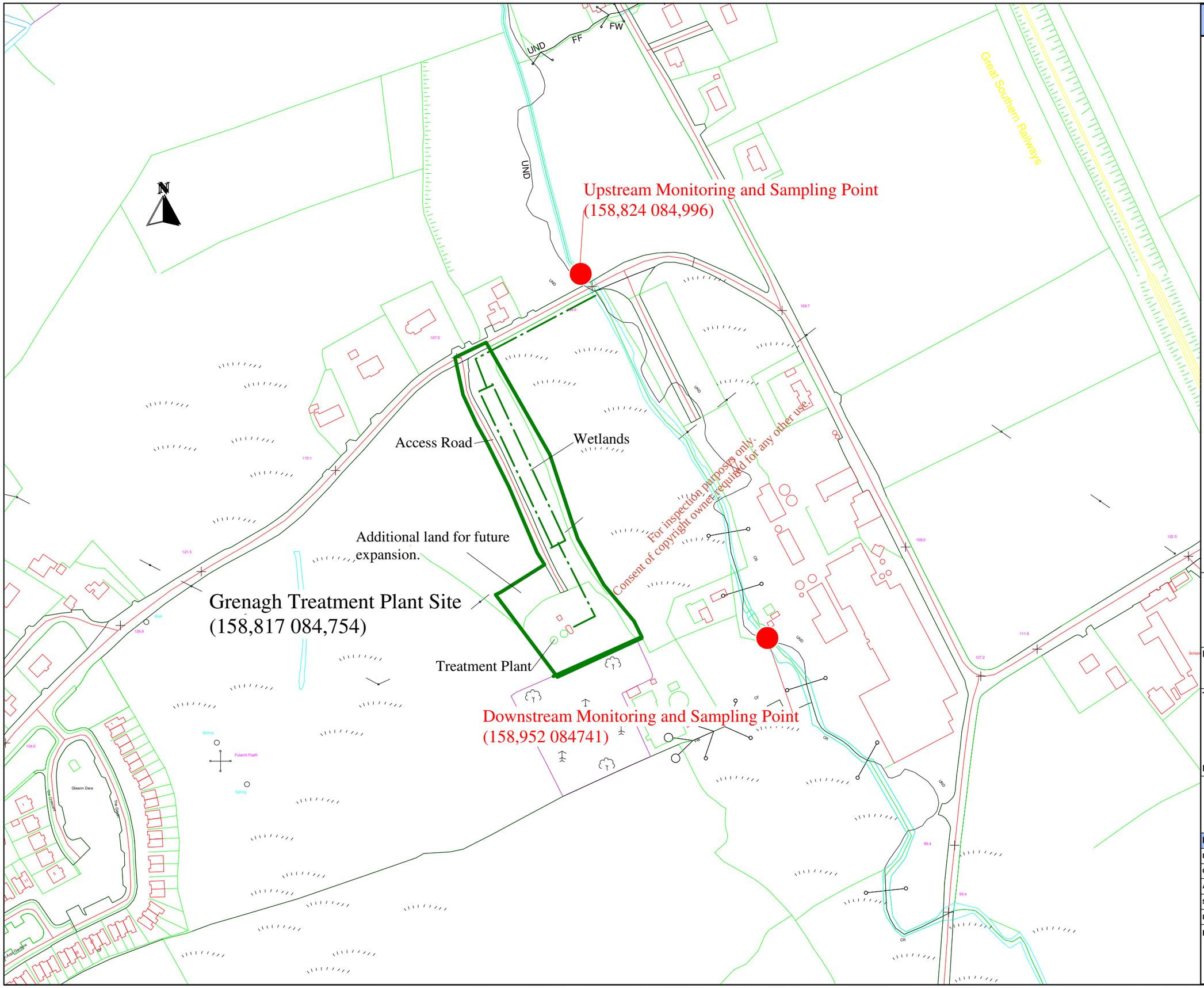
The laboratory performs a number of analytical tests e.g. fats, oil , grease and metals using an ICP-OES system and while the Wastewater Laboratory of Cork County Council is not currently accredited for extra tests the same analytical procedures and protocol are adhered to by the laboratory as would be required if the tests were accredited.

The laboratory also participates in proficiency testing schemes which measure the accuracy of the 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.

See Attachment E.2 for location of monitoring and sampling points.

Attachment E.2 Monitoring and Sampling Points



Legend

Cork County Council
Zone 3

Project
Grenagh Wastewater Discharge Certificate

Title
Monitoring and Sampling Points
Attachment E2 Map 6

Figure

N.O'Keeffe, B.E.
County Engineer,
County Hall,
Cork

Issue Details

Drawn:	L.L.	**Project No.**	xxxx
Checked:	R.O.D.	**File Ref.**	
Approved:	xxxx	xxxx	
Scale:	1:2,500	**Drawing No.**	**Rev.**
Date:	June 2012	E2 Map 6	xxxx

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2. All levels are referred to Ordnance Datum, Malin Head.

Attachment F Existing Environment & Impact of the Discharge(s)

Attachment F.1 (a) Cryptosporidium Risk Assessment at Lee Road Waterworks

Cryptosporidium Risk Assessment

At

Lee Road Waterworks

Revision Control Table

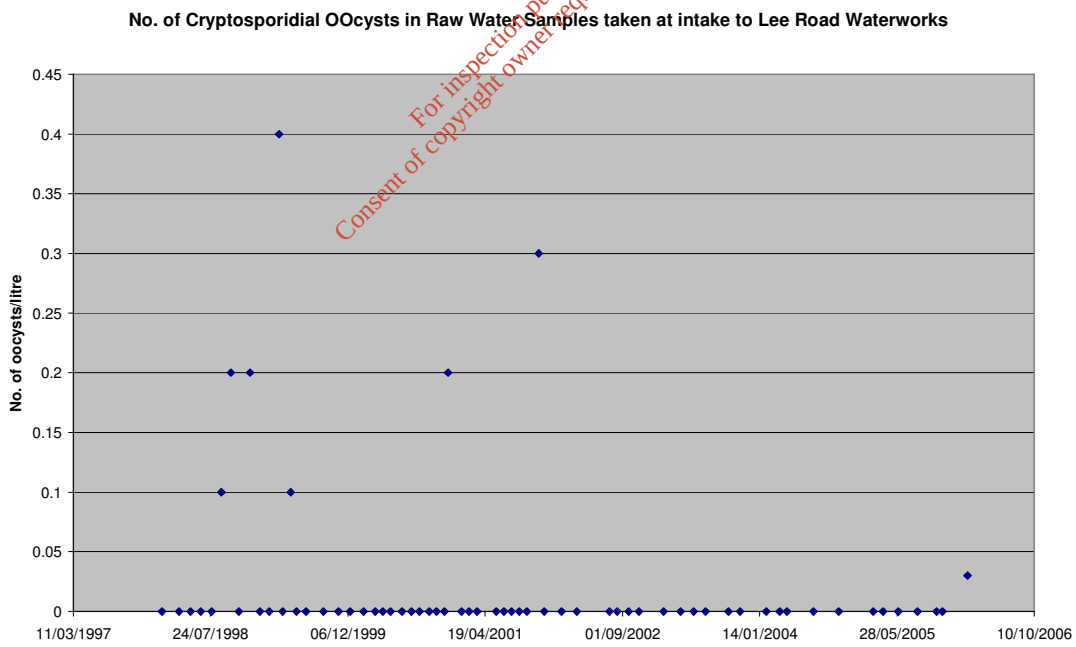
Revision No.	Description of changes	Prepared by	Date
4	Revised score to source type – 8 instead of 4	BG	31/3/2006
3	Scottish model 2003 Directions. Entire document reviewed.	BG	11/10/2005
2	Once monthly continuous monitoring introduced	BG	19/08/2005
1	Blarney sewage treatment plant included in assessment risk.	BG	24/02/2004
0	Final draft – 1st issue	BG/KOD	14/11/2002

Background

This document is based on the Scottish Model – *The Cryptosporidium (Scottish Water) Directions 2003* as recommended by the EPA. This methodology with some modifications to the text is outlined in Appendix 6 of the document *European Communities (Drinking Water) Regulations, 2000 (S.I. 439 of 2000) A Handbook on Implementation for Sanitary Authorities* published by the EPA. The text of this document is reproduced in Appendix 1 of this document. Use has also been made of a template spreadsheet for risk assessment developed by Michael Lavelle of Cork County Council.

Cryptosporidium Monitoring at the Lee Road Waterworks

Sampling of both the raw water and treated water at the Lee Road has been ongoing since 1998. One grab sample is taken each month from the intake and treated water leaving the plant and sent to Dublin for analysis. Since March 2005 a Filta Max filter system has been in place for monitoring the final water outflow of the plant and a similar system has now been setup for the Raw Water since February 2006. Todate, no cryptosporidum has been detected in the treated water. However, it has been found in the raw water as follows:



As can be seen, there are some shows though most results show zero concentrations. It should be noted that most of these individual samples represent a snapshot in time and place and are unrepresentative. Nothing had been found for a number of years since 31/10/2001 but the first run of the Filta Max in February 2006 found 3 oocysts in 100 litres.

Risk Assessment Scoring:

Supply Classification	Risk Assessment Score	Action to be taken by water authorities on completion of a risk assessment
Very High Risk	>100	Improve treatment process to reduce the risk to lower risk category. Implement continuous monitoring of treated water for Cryptosporidium.
High Risk	76-100	Improve treatment process to reduce the risk to lower risk category. Implement continuous monitoring of treated water for Cryptosporidium.
Moderate Risk	50-75	Improve treatment process to reduce the risk to lower risk category. Implement continuous monitoring of treated water for Cryptosporidium.
Low Risk	<50	No need to monitor supplies unless there is an outbreak of cryptosporidiosis occurs within the supply area.

Assessment

Scheme **Lee Road Waterworks**

Enter the Scheme name in the box above and on the Tab and enter the name of the source in the box below.

Source **River Lee**

Enter the assessed score in the shaded boxes on the right of the table. The excel sheet will do all of the calculations.

SURFACE WATER RISK ASSESSMENT (CATCHMENT RISK SCORE)

Animals within the Catchment

Item No.	Risk Factor	Item Scores	Score
1.1	Cattle/calves at less than or equal to one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	6	**12**
1.2	Cattle/calves at more than one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	12	
1.3	Sheep/lambs at less than or equal to one animal per hectare of forage area.If density not known assume more than one animal per hectare of forage area.	6	**6**
1.4	Sheep/lambs at more than one animal per hectare of forage area.If density not known assume more than one animal per hectare of forage area.	12	
1.5	Wild or farmed deer	2	**0**
1.6	Pig farms	2	**2**
1.7	Animals have direct access to water sources including feeder streams	4	**4**
1.8	Fencing prevents access to water sources including feeder streams	-1	
1.9	High numbers of birds	2	**0**
1,10	Any other farmed animal or bird	1	**0**
	SCORE FOR SECTION 1;		**24**

Agricultural Practices within the Catchment

2.1	Slurry spraying	6	**6**
2.2	Dung spreading	3	**3**
2.3	Slurry or dung stores	3	**3**
2.4	Sheep pens or cattle byres	6	**6**
2.5	Lambing or calving on the catchment	8	**8**
	SCORE FOR SECTION 2;		**26**

Discharges to the Catchment / Water Source

3.1	Population served by all septic tanks = 100	4	**6**
3.2	Population served by all septic tanks > 100	6	
3.3	Population equivalent served by all sewage works <100	4	**7**
3.4	Population equivalent served by all sewage works 500 to 5,000	5	
3.5	Population equivalent served by all sewage works 5,001 to 20,000	6	
3.6	Population equivalent served by all sewage works 20,001 to 50,000	7	
3.7	Population equivalent served by all sewage works > 50,000	8	
3.8	Storm sewage overflows (Regardless of number)	2	**2**
3.9	Abattoirs/livestock markets (Regardless of number)	2	**2**
	SCORE FOR SECTION 3;		**17**

Water Source Type

4.1	Secure natural springs – vulnerable soil/hydrogeology	4	**8**

4.2	Secure natural springs – non-vulnerable soil/hydrogeology	1	
4.3	Other shallow underground sources - vulnerable soil/hydrogeology	4	
4.4	Other shallow underground sources – non-vulnerable soil/hydrogeology	2	
4.5	Upland reservoir	2	
4.6	Lowland long term storage reservoir	4	
4.7	Upland river or stream – direct abstraction	6	
4.8	Lowland river or stream – direct abstraction or bankside storage	8	
	SCORE FOR SECTION 4;		**8**

Raw Water Aquaducts

5.1	Raw water aqueduct known or suspected to be vulnerable to contamination from farmland	8	**0**
5.2	Raw water aqueduct proven to be secure contamination from farmland within past five years	0	
5.3	No Aquaduct bringing water from source to treatment plant	0	
	SCORE FOR SECTION 5;		**0**

Catchment Inspections

6.1	Catchment inspections carried out at least monthly	-3	**-3**
6.2	Catchment inspections carried out less frequently	6	
6.3	Procedures in place to deal with irregularities on the catchment	-3	**-3**
6.4	No procedures in place to deal with irregularities on the catchment	0	
	SCORE FOR SECTION 6;		**-6**

Raw Water Intake Management for Direct Abstraction

7.1	No turbidity monitor on intake	3	**-2**
7.2	Turbidity monitor on intake that is alarmed and connected to telemetry	-2	
7.3	Automatic intake shut down when poor water quality	-4	**-1**
7.4	Manual intake shut down when poor water quality	-1	
7.5	No intake shut down when poor water quality	3	
	SCORE FOR SECTION 7;		**-3**

Surface Water Catchment Risk Score (Sections 1 to 7) 66

WATER TREATMENT PROCESSES

8.1	Disinfection only	10	**-10**
8.2	Microstraining	10	
8.3	Simple sand filtration (not slow sand filtration)	8	
8.4	Coagulation followed by DAF/sedimentation and filtration	-10	
8.5	Coagulation followed by rapid gravity or pressure filtration (no flotation or sedimentation)	-7	
8.6	Slow sand filtration	-9	
8.7	Membrane filtration (on Scottish Executive or DWI list)	-16	
8.8	Membrane filtration (not on Scottish Executive or DWI list	-2	
8.9	Cartridge/Kalsep filtration	-2	
8,10	Filtamat or similar filtration system	-2	
	SCORE FOR SECTION 8;		**-10**

For section 9 below complete only the relevant section. Ignore the other 2.

Treatment Works Monitoring of Coagulation and Filtration

Rapid gravity and pressure filters

9.1	Turbidity meter on each filter with alarm on telemetry	-5	**2**
9.2	Turbidity meter on each filter but no alarm on telemetry	0	
9.3	One turbidity meter shared by more than one filter with alarm on telemetry	-2	

9.4	One turbidity meter shared by more than one filter but no alarm on telemetry	2	
9.5	No turbidity meters monitoring filter performance	10	
9.6	Final water turbidity meter with alarm on telemetry	-2	**2**
9.7	Final water turbidity meter but no alarm on telemetry	2	
9.8	No final water turbidity meter	5	
9.9	Particle counter used continuously to monitor filter performance	-5	**0**
9,10	Continuous residual coagulant monitor on combined filtrate or works outlet with alarm	-5	**5**
9.11	Continuous residual coagulant monitor on combined filtrate or works outlet but no alarm	-1	
9.12	No continuous residual coagulant monitor on combined filtrate or works outlet	5	
9.13	Routine discrete monitoring of treated water for turbidity/residual coagulant	-2	**-2**
9.14	No routine discrete monitoring of treated water for turbidity/residual coagulant	2	
9.15	Turbidity of backwash supernatant monitored when recycled	-2	**0**
9.16	Turbidity of backwash supernatant not monitored when recycled	2	
	9.1 to 9.16		**7**

Slow sand filters

9.17	Turbidity meter on each filter with alarm on telemetry	-5	**0**
9.18	Turbidity meter on each filter but no alarm on telemetry	0	
9.19	One turbidity meter shared by more than one filter with alarm on telemetry	-2	
9,20	One turbidity meter shared by more than one filter but no alarm on telemetry	2	
9.21	No turbidity meters monitoring filter performance	10	
9.22	Final water turbidity meter with alarm on telemetry	-2	**0**
9.23	Final water turbidity meter but no alarm on telemetry	2	
9.24	No final water turbidity meter		
9.25	Particle counter used continuously to monitor filter performance	-5	**0**
9.26	Filters matured and filtrate analysed for turbidity, coliforms and Cryptosporidium during maturation	-4	**0**
9.27	Filters matured but no analysis carried out on filtrate	5	
9.28	Filters not matured	15	
	9.17 to 9.28		**0**

Membrane filters

9.29	Plant monitored and alarmed for integrity	-3	**0**
9,30	Plant monitored for integrity but not alarmed	0	
9.31	Plant not monitored for integrity	10	
9.32	Particle counter used continuously to monitor filter performance	-5	**0**
	9.29 to 9.32		**0**
	SCORE FOR SECTION 9 [9.1 to 9.16] or [9.17 to 9.28] or [9.29 to 9.32];		**7**

Rapid Gravity and Pressure Filter Works Performance

10.1	Final water turbidity increases by more than 50%, excluding normal backwash period	4	**0**
10.2	Treated water turbidity increases by less than 50%, excluding normal backwash period	0	
10.3	Media loss from any filter has brought media depth below design level	6	**0**

10.4	Media depth above minimum design level with audit trail maintained	-2	
10.5	Signs of media cracking on any filter	4	4
10.6	All filters have been drained, inspected and any necessary remedial action taken within last year	-2	0
10.7	Air scour and backwash maintained and operating efficiently as per maintenance manual	-2	-2
	SCORE FOR SECTION 10;		**2**

Treatment works Operation

11.1	Process control manuals specific to works available	-1	-1
11.2	Process control manuals specific to works not available	1	
11.3	Auditable action plans available for dealing with deviations in quality	-1	1
11.4	Auditable action plans not available for dealing with deviations in quality	1	
11.5	Slow start facility on filters operational	-4	-4
11.6	No slow start facility on filters, or slow start facility not operational	4	
11.7	Filters run to waste for appropriate period after backwash	-6	4
11.8	Filters run to head of works for a period following backwash	-4	
11.9	Filters not run to waste or head of works for a period following backwash	4	
11,10	Backwash water and/or sludge supernatant has to be recycled	2	-2
11.11	Other disposal route available for backwash water and sludge supernatant	-2	
11.12	Water flow through works when operating has not varied by >10% in <30 minutes in last 12 months	-2	2
11.13	Water flow through works when operating has varied by >10% in <30 minutes in last 12 months	2	
11.14	Flow through works above design flow for >10% of time in last 12 months	4	4
11.15	Flow through works above design flow for =10% of time in last 12 months	0	
	SCORE FOR SECTION 11;		**4**

Surface Water Treatment and Supply Risk Score (Sections 8, 9, 10 and 11) 3

Final Weighted Surface Water Risk Assessment Score (Sections 1 to 11) 69

Population Criterion

The population weighting factor is 0.4 x log10 (population served by the supply). The final weighted surface water risk assessment score is the final surface water risk assessment score x the population weighting factor.		
Insert the population at risk in the shaded box on the next line		
Population Served	**90,000**	
Log to the base 10 of the population served	4.95	
0.4 (Log to the base 10 of pop served)	**1.98**	
Cryptosporidium Risk Score	**137**	

Comments / notes concerning peculiarities of this scheme or this evaluation

Insert Name of Assessor and Date of the Assessment (Date Month and Year e.g.13/04/2005)) in the blue boxes below

Assessment undertaken by

Brendan Goggin, Cork City Council

Date 31/03/2006

Improvements in the existing plant to reduce the risk.

Items 1 – 5	Reduce Score by:
It is not possible to change the first 4 categories – thus the score for these will remain the same. (These are the Animals on the Catchment, Agricultural Practices on the Catchment, Discharges into the Catchment/ Water Source, Water Source Type and Raw Water Aqueducts.	0
Item 6: Catchment Inspections	
Already have the maximum score possible here.	0
Item 7: Raw Water Intake Management for Direct Abstractions	
Automatic shutdown would be expensive and may not even be desirable. No change.	0
Item 8: Water Treatment Processes	0
Already have maximum score here.	
Item 9: Treatment Works Monitoring of Coagulation and Filtration.	
Putting a turbidity meter on each filter, at a cost of €36,000, would reduce the score by 3. Alarm on final water turbidity would reduce score by 4. This is almost complete – already is on telemetry. This should be in place by next year. Reasonable expectation – reduce score by 4.	4
Item 10: Rapid Gravity and Pressure Filter Works Performance	
There is severe cracking on all filters. Probably all require a filter media replacement at this stage. This would be very costly and in view of the proposed upgrade probably wasteful. The filters are also overloaded.	0
Item 11: Treatment works operation	
Filters could be left run to waste for a while after backwash. This is not easily done at this stage as the wash sequence was programmed into a PLC over 20 years ago and the entire system is delicate to say the least. This system may have to be looked at if the improvement project does not go ahead in the short term. This could reduce the score by 10. If the winter peak was eliminated, the variation in flow through the plant could be kept within 10%. This would reduce the score by 4. This not desirable Reasonable expectation (optimistic) – reduce score by 10	10
Total:	**14**

Conclusions and Recommendations

Based on the recommended risk assessment procedure, i.e. The Scottish Model, the waterworks plant at Lee Road is at ***Very High Risk*** of allowing Cryptosporidium into the water distribution network. Even if moderate improvements were made to the existing plant, the Plant would remain in the ***Very High Risk Category (137-14=123)***. The recommended procedure is to either put in place measures which will bring the risk down to the ***Low Risk*** category and in the meantime to put in place continuous monitoring. In view of the imminent plant upgrade, it would not be economically viable to put these measures in place and thus the latter solution of implementing continuous monitoring has been partly put in place.

Appendix 1

EPA Guidance Document to Drinking Water Regulations RISK ASSESSMENT FOR CRYPTOSPORIDIUM

INTRODUCTION

A specific risk assessment methodology for *Cryptosporidium* is given below as an example of the application of the above general principles set out in Section 9.

One of the most significant drinking water and public health issues in recent years in the United Kingdom and elsewhere has been outbreaks of cryptosporidiosis related to drinking water supplies. A UK Group of Experts on *Cryptosporidium* in water supplies has published three reports giving comprehensive advice to water suppliers and other organisations. One of the recommendations of the Group of Experts is that water suppliers should carry out risk assessments for each of their water supplies, although the methodology to be used is not specified in any detail.

The Drinking Water Inspectorate has published a methodology for water suppliers in England and Wales to use to meet the requirement in Regulations to carry out risk assessments for *Cryptosporidium.* This methodology sets out the factors that water suppliers are required to take into account. Where the water supplier has found a significant risk the Regulations require it to install treatment to meet the treatment standard of an average of less than one oocyst per 10 litres and to monitor the treated water continuously to establish whether the treatment standard is met. The water supplier uses the professional judgement of its scientists to decide when there is a significant risk. The methodology does not include any quantification of the risks such as a scoring system.

The Scottish Executive has published a similar methodology for Scottish Water to use to meet the requirement in the Directions to carry out risk assessments for *Cryptosporidium.* The original Directions were made in 2000. The Scottish Executive has reviewed these Directions in the light of experience of their use and has proposed new Directions. The new Directions are “The *Cryptosporidium* (Scottish Water) Directions 2003”. This methodology, in addition to setting out the factors that Scottish Water is required to take into account, sets out a quantitative scoring system for each factor to enable Scottish Water to determine whether each supply is high, medium or low risk. The new 2003 Directions specify the frequency of sampling of both raw water and treated water at each treatment works. The frequency for raw water depends on the catchment risk score and the maximum design flow of the works and ranges between no samples per year for small works and low risk catchments to 52 samples per year for large works and high risk catchments. The frequency for treated waters depends on the catchment plus treatment risk score and the maximum design flow of the works and ranges from 12 samples per year for small, low risk works to 365samples per year for large, high risk works. Each sample must be taken continuously and for frequencies of less than 365 samples per year the period over which each sample is taken must be a minimum of 24 hours and a maximum of 36 hours. The National Disease Surveillance Centre in its draft report on a waterborne outbreak of cryptosporidiosis

prepared by a sub-committee of its Scientific Advisory Committee has included the *Cryptosporidium* risk assessment methodology published by the Scottish Executive in the original 2000 Directions.

An assessment has been made of these two risk assessment methodologies to decide which one would be most appropriate for sanitary authorities and private water suppliers in Ireland. It is considered that a methodology relying on a quantitative scoring system rather than professional judgement is more appropriate for the sanitary authorities and private water suppliers. Therefore it is recommended that sanitary authorities and private water suppliers use the Scottish methodology in the new 2003 Directions involving a relatively simple quantitative scoring system that assesses the risk by identifying the factors for the potential for *Cryptosporidium* being present in water supplies. The higher the score, the greater the potential risk. The methodology involves assessing surface water supplies separately from groundwater supplies. For both types of supply a catchment risk score and a treatment/supply risk score is calculated separately and then the two scores for each type are added and population weighted to give a final risk score. This methodology, with some modifications to the text, is given in the paragraphs below.

SURFACE WATER RISK ASSESSMENT (CATCHMENT RISK SCORE)

Surface water is defined as water that is open to the atmosphere and subject to surface run off. It includes rivers, streams, lakes, loughs, reservoirs (impounding and pumped long term and bankside storage), springs and shallow underground sources (such as river gravels). Where there is more than one source supplying a treatment works, each source should be assessed individually and the highest score used to calculate the combined catchment and treatment and supply score, and the final, population weighted score.

Animals within the Catchment

Sheep and cattle, particularly when lambing or calving, are significant sources of *Cryptosporidium.* The higher the density of animals in the forage area the higher the potential risk. Forage areas are defined as grass, open woodland, rape for stock feed, rough grazing, turnips/swedes for stock feed and other crops for stock feed. Deer (also when high numbers in the wild) and pigs, particularly if farmed close to water sources, can also be a source of *Cryptosporidium*. The risk is higher when animals have direct access to water. High numbers of birds, particularly when roosting on or near water sources, can also be a source of *Cryptosporidium*. The total score for item 1 is the sum of the scores from items 1.1 **or** 1.2, 1.3 **or** 1.4, 1.5, 1.6, 1.7 **or** 1.8, 1.9 and 1.10.

Item No.	Risk Factor	Score
1.1	Cattle/calves at less than or equal to one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	6
1.2	Cattle/calves at more than one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	12

1.3	Sheep/lambs at less than or equal to one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	6
1.4	Sheep/lambs at more than one animal per hectare of forage area. If density not known assume more than one animal per hectare of forage area.	12
1.5	Wild or farmed deer	2
1.6	Pig farms	2
1.7	Animals have direct access to water sources including feeder streams	4
1.8	Fencing prevents access to water sources including feeder streams	-1
1.9	High numbers of birds	2
1,10	Any other farmed animal or bird	1

Agricultural Practices within the Catchment

Slurry spraying and dung spreading, particularly the former, pose a high risk of *Cryptosporidium* contamination of water sources. Although well kept and managed slurry stores can kill oocysts, there is no way of knowing how effectively they are being operated and therefore a risk should be assumed. Sheep pens and cattle byres and lambing or calving on the catchment present a potential risk. The total score for Item 2 is the sum of the scores for each of the risk factors in the table below that is taking place on the catchment.

Item No.	Risk Factor	Score
2.1	Slurry spraying	6
2.2	Dung spreading	3
2.3	Slurry or dung stores	3
2.4	Sheep pens or cattle byres	6
2.5	Lambing or calving on the catchment	8

Discharges to the Catchment / Water Source

Sewage works and septic tanks may not remove oocysts if there is cryptosporidiosis in the community, so there could be oocysts in the sewage works or septic tank effluent and that effluent could enter a raw water source. The impact of septic tanks and sewage works is scored separately on the basis of the total population served by **all** tanks or works in the catchment. Storm sewage overflows (outlets) and abattoirs/livestock markets are also a potential source of *Cryptosporidium* and each should be scored only once even when there is more than one of each discharging into the catchment. The total score for item 3 is the sum of the scores from items 3.1 **or** 3.2, 3.3 **or** 3.4 **or** 3.5 **or** 3.6 **or** 3.7, 3.8 and 3.9.

Item No.	Risk Factor	Score
3.1	Population served by all septic tanks ≤ 100	4
3.2	Population served by all septic tanks > 100	6
3.3	Population equivalent served by all sewage works <100	4

3.4	Population equivalent served by all sewage works 500 to 5,000	5
3.5	Population equivalent served by all sewage works 5,001 to 20,000	6
3.6	Population equivalent served by all sewage works 20,001 to 50,000	7
3.7	Population equivalent served by all sewage works > 50,000	8
3.8	Storm sewage overflows (Regardless of number)	2
3.9	Abattoirs/livestock markets (Regardless of number)	2

Water Source Type

Surface water sources present the highest risk from *Cryptosporidium,* particularly when there is direct abstraction from a river or stream. Lowland rivers present a greater risk than upland reservoirs. The risk from springs and shallow underground sources depends on hydrogeological factors, particularly their vulnerability to contamination from activities on the surface. The total score for item 4 consists of one score from the list of sources in the table below (no adding of scores).

Item No.	Risk Factor	Score
4.1	Secure natural springs – vulnerable soil/hydrogeology	4
4.2	Secure natural springs – non-vulnerable soil/hydrogeology	1
4.3	Other shallow underground sources - vulnerable soil/hydrogeology	4
4.4	Other shallow underground sources - non-vulnerable soil/hydrogeology	2
4.5	Upland reservoir	2
4.6	Lowland long term storage reservoir	4
4.7	Upland river or stream – direct abstraction	6
4.8	Lowland river or stream – direct abstraction or bankside storage	8

Raw Water Aquaducts

If the raw water is transferred to the treatment works in an aqueduct, this item should be scored. The total score for item 5 is the score from items 5.1 **or** 5.2.

Item No.	Risk Factor	Score
5.1	Raw water aqueduct known or suspected to be vulnerable to contamination from farmland	8
5.2	Raw water aqueduct proven to be secure contamination from farmland within past five years	0

Catchment Inspections

Regular catchment inspections and procedures to deal with any identified irregularities reduce the risk from *Cryptosporidium*. The total score for item 6 is the sum of the scores

Item No.	Risk Factor	Score

6.1	Catchment inspections carried out at least monthly	-3
6.2	Catchment inspections carried out less frequently	6
6.3	Procedures in place to deal with irregularities on the catchment	3

Raw Water Intake Management for Direct Abstraction
This item should only be scored if the raw water is abstracted directly from a river or stream and for lowland rivers with direct abstraction into a short-term bankside storage reservoir. Risk is reduced when turbidity monitors are installed at the intake and further reduced when the monitors are alarmed and the intake shut when poor water quality conditions are detected. The total score for item 7 is the sum of the scores from items 7.1 **or** 7.2 and 7.3 **or** 7.4 **or** 7.5.

Item No.	Risk Factor	Score
7.1	No turbidity monitor on intake	3
7.2	Turbidity monitor on intake that is alarmed and connected to telemetry	-2
7.3	Automatic intake shut down when poor water quality	-4
7.4	Manual intake shut down when poor water quality	-1
7.5	No intake shut down when poor water quality	3

Surface Water Catchment Risk Score
Calculate the surface water catchment risk score by adding the scores from items 1, 2, 3, 4, 5, 6 (if applicable) and 7 (if applicable).

Surface Water Risk Assessment (Treatment and Supply Risk Score)
If there is more than one treatment process stream at the water treatment works, each treatment process stream should be scored separately and the highest scoring treatment process stream should be used to calculate the treatment and supply risk score and the combined catchment and treatment and supply risk score and the final population weighted score.

Water Treatment Processes
It is well established that some treatment processes are much more effective in removing *Cryptosporidium,* and therefore reducing the risk, than others. The most effective processes are those that use membrane filtration or coagulation followed by sedimentation or dissolved air flotation and filtration. Membrane filtration is particularly effective when the membrane is capable of removing or retaining particles greater that one micron diameter – the Scottish Executive and the Drinking Water Inspectorate publish lists of membrane products that achieve this performance. Simple disinfection and microstraining do not reduce the risk from *Cryptosporidium.* The total score for item 8 is one of the scores from the risk factors in the table below based on the principal treatment at the works.

Item No.	Risk Factor	Score
8.1	Disinfection only	10

8.2	Microstraining	10
8.3	Simple sand filtration (not slow sand filtration)	8
8.4	Coagulation followed by DAF/sedimentation and filtration	-10
8.5	Coagulation followed by rapid gravity or pressure filtration (no flotation or sedimentation)	-7
8.6	Slow sand filtration	-9
8.7	Membrane filtration (on Scottish Executive or DWI list)	-16
8.8	Membrane filtration (not on Scottish Executive or DWI list	-2
8.9	Cartridge/Kalsep filtration	-2
8,10	Filtamat or similar filtration system	-2

Treatment Works Monitoring of Coagulation and Filtration

This section only applies when coagulation and filtration or filtration only is part of the water treatment process. Turbidity meters provide a good indication of filtration efficiency. Where turbidity meters are fitted and are alarmed so action can be taken, the risk from *Cryptosporidium* is reduced. Similarly a residual coagulant monitor on the outlet of the works, particularly when alarmed, provides an indication of the efficiency of the coagulation and filtration process. When membrane filters have an alarm to monitor the integrity of the membrane or have particle counters to monitor performance, the risk from *Cryptosporidium* is reduced. Routine discrete monitoring of treated water quality is also important. For **rapid gravity or pressure filters** the total score for item 9 is the sum of the scores for items 9.1 **or** 9.2 **or** 9.3 **or** 9.4 **or** 9.5, 9.6 **or** 9.7 **or** 9.8, 9.9, 9.10 **or** 9.11 **or** 9.12, 9.13 **or** 9.14, and 9.15 **or** 9.16. For **slow sand filters** the total score for item 9 is the sum of the scores for items 9.17 **or** 9.18 **or** 9.19 **or** 9.20 **or** 9.21, 9.22 **or** 9.23 **or** 9.24, 9.25, and 9.26 **or** 9.27 **or** 9.28. For **membrane filters** the total score for item 9 is the sum of the scores for items 9.29 **or** 9.30 **or** 9.31, and 9.32.

Rapid gravity and pressure filters

Item No.	Risk Factor	Score
9.1	Turbidity meter on each filter with alarm on telemetry	-5
9.2	Turbidity meter on each filter but no alarm on telemetry	0
9.3	One turbidity meter shared by more than one filter with alarm on telemetry	-2
9.4	One turbidity meter shared by more than one filter but no alarm on telemetry	2
9.5	No turbidity meters monitoring filter performance	10
9.6	Final water turbidity meter with alarm on telemetry	-2
9.7	Final water turbidity meter but no alarm on telemetry	2
9.8	No final water turbidity meter	5
9.9	Particle counter used continuously to monitor filter performance	-5
9,10	Continuous residual coagulant monitor on combined filtrate or works outlet with alarm	-5
9.11	Continuous residual coagulant monitor on combined filtrate or works outlet but no alarm	-1
9.12	No continuous residual coagulant monitor on combined filtrate or works outlet	5

9.13	Routine discrete monitoring of treated water for turbidity/residual coagulant	-2
9.14	No routine discrete monitoring of treated water for turbidity/residual coagulant	2
9.15	Turbidity of backwash supernatant monitored when	-2
9.16	Turbidity of backwash supernatant not monitored when recycled	2

Slow sand filters

9.17	Turbidity meter on each filter with alarm on telemetry	-5
9.18	Turbidity meter on each filter but no alarm on telemetry	0
9.19	One turbidity meter shared by more than one filter with alarm on telemetry	-2
9,20	One turbidity meter shared by more than one filter but no alarm on telemetry	2
9.21	No turbidity meters monitoring filter performance	10
9.22	Final water turbidity meter with alarm on telemetry	-2
9.23	Final water turbidity meter but no alarm on telemetry	2
9.24	No final water turbidity meter	5
9.25	Particle counter used continuously to monitor filter performance	-5
9.26	Filters matured and filtrate analysed for turbidity, coliforms and Cryptosporidium during maturation	-4
9.27	Filters matured but no analysis carried out on filtrate	5
9.28	Filters not matured	15

Membrane filters

9.29	Plant monitored and alarmed for integrity	-3
9,30	Plant monitored for integrity but not alarmed	0
9.31	Plant not monitored for integrity	10
9.32	Particle counter used continuously to monitor filter performance	-5

Rapid Gravity and Pressure Filter Works Performance

This item only applies to treatment works with rapid gravity or pressure filters. Final water turbidity is a good indicator of filter performance. Filter condition, particularly loss of filter media and cracking of filter bed, the effect of filter backwashing on final water turbidity, and filter maintenance are also relevant. The total score for item 10 is the sum of the scores for items 10.1 **or** 10.2, 10.3 **or** 10.4, 10.5, 10.6 and 10.7.

Item No.	**Risk Factor**	**Score**
10.1	Final water turbidity increases by more than 50%, excluding normal backwash period	4
10.2	Treated water turbidity increases by less than 50%, excluding normal backwash period	0
10.3	Media loss from any filter has brought media depth below design level	6
10.4	Media depth above minimum design level with audit trail maintained	-2
10.5	Signs of media cracking on any filter	4

10.6	All filters have been drained, inspected and any necessary remedial action taken within last year	-2
10.7	Air scour and backwash maintained and operating efficiently as per maintenance manual	-2

Treatment Works Operation

When a treatment works is operated in accordance with good practice with quality assured procedures, the risk from *Cryptosporidium* is reduced, particularly when there are auditable action plans to deal with any deviations from expected quality. The methods of returning filters to service following backwashing (following skimming and cleaning in the case of slow sand filters) and dealing with filter backwash water have an effect on the risk. Other relevant factors are significant short-term variations in flow through the works and whether the works has operated above its design flow.The total score for item 11 is the sum of the scores from items 11.1 **or** 11.2, 11.3 **or** 11.4, 11.5 **or** 11.6 (if relevant), 11.7 **or** 11.8 **or** 11.9 (if relevant), 11.10 **or** 11.11 (if relevant), 11.12 **or** 11.13 and 11.14 **or** 11.15.

11.1	Process control manuals specific to works available	-1
11.2	Process control manuals specific to works not available	1
11.3	Auditable action plans available for dealing with deviations in quality	-1
11.4	Auditable action plans not available for dealing with deviations in quality	1
11.5	Slow start facility on filters operational	-4
11.6	No slow start facility on filters, or slow start facility not operational	4
11.7	Filters run to waste for appropriate period after backwash	-6
11.8	Filters run to head of works for a period following backwash	-4
11.9	Filters not run to waste or head of works for a period following backwash	4
11,10	Backwash water and/or sludge supernatant has to be recycled	2
11.11	Other disposal route available for backwash water and sludge supernatant	-2
11.12	Water flow through works when operating has not varied by >10% in <30 minutes in last 12 months	-2
11.13	Water flow through works when operating has varied by >10% in <30 minutes in last 12 months	2
11.14	Flow through works above design flow for >10% of time in last 12 months	4
11.15	Flow through works above design flow for ≤10% of time in last 12 months	0

Surface Water Treatment and Supply Risk Score

The surface water treatment and supply risk score is the sum of the scores for items 8, 9 (if relevant and for the relevant treatment process), 10 (if relevant) and 11.

Final Weighted Surface Water Risk Assessment Score

The final surface water risk assessment score is the sum of the surface water

catchment risk score and the surface water treatment and supply risk score. This score is then weighted according to the population served by the supply. The population weighting factor is 0.4 x log10 (population served by the supply). The final weighted surface water risk assessment score is the final surface water risk assessment score x the population weighting factor.

WATER SUPPLY RISK CLASSIFICATION

The classification depends on the final risk assessment score. It should be noted that the high risk assessment classification used by the Scottish Executive has been renamed very high risk and the moderate risk classification split into two classifications – high risk and moderate risk.

Water Supply Risk Classification	Final Risk Assessment Score
Very high risk	>100
High risk	76-100
Moderate risk	50-75
Low risk	<50

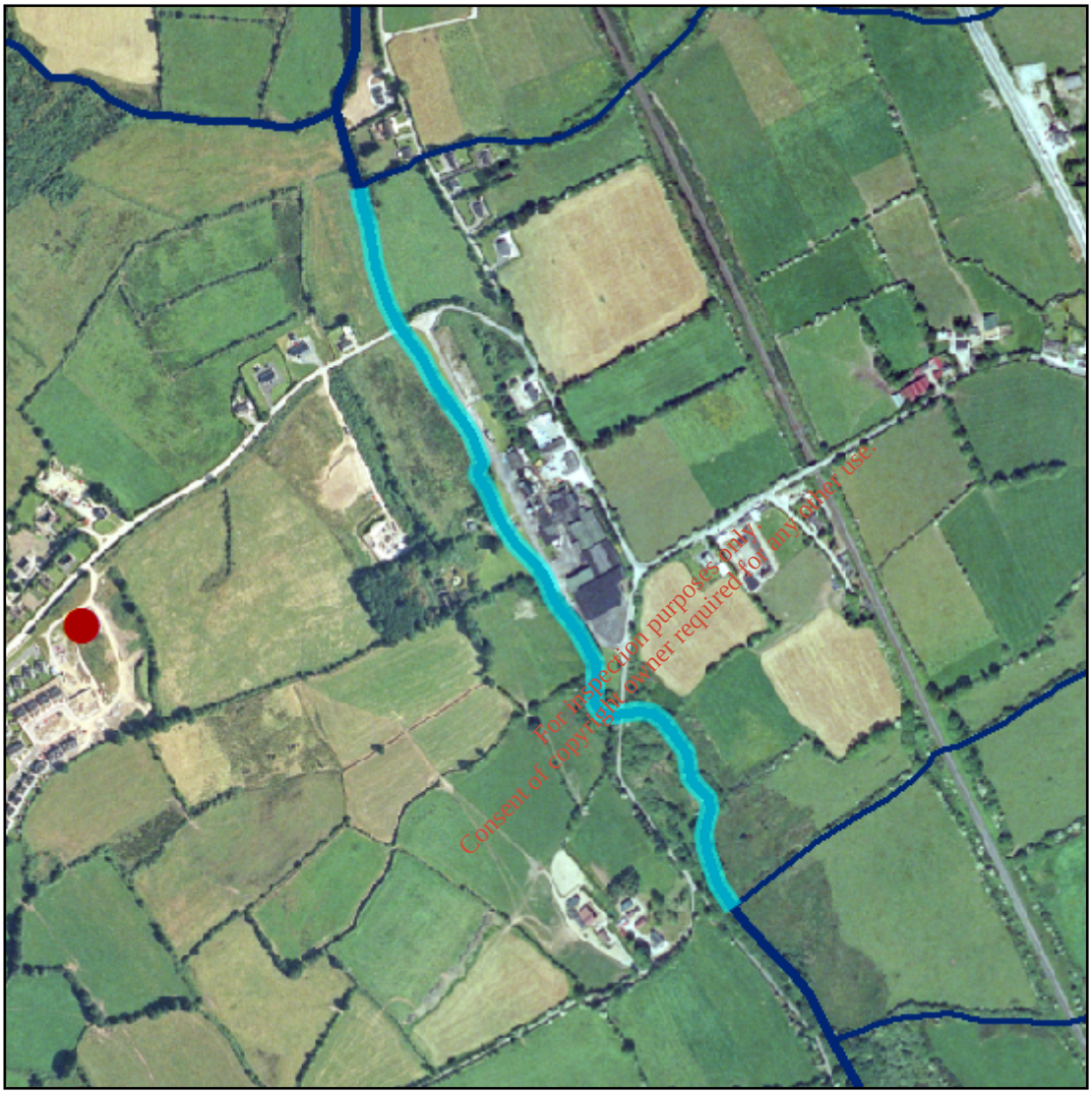
Attachment F.1 (b) Estimation of Flow Duration Curve for Ungauged Catchment

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

River Name	Martin (River)(19_193)
XY Location	159020,84666 (ING)

River Segment Map



Disclaimer
The source hydrometric data used to estimate the flow duration curve ordinates for ungauged catchments was obtained from (1) water level data and (2) the rating curve(s) generated for each hydrometric station. The Environmental Protection Agency and the Office of Public Works used these data, respectively, to calculate daily mean flows. The daily mean flows were then used by the Environmental Protection Agency to prepare flow duration curves for each station. Neither body accepts any liability for the subsequent handling of the data.

Disclaimer

The source of hydrometric data used to estimate the flow duration curve ordinates for ungauged catchments was obtained from (1) water level data and (2) the rating curve(s) generated for each hydrometric station. The Environmental Protection Agency and the Office of Public Works used these data, respectively, to calculate daily mean flows. The daily mean flows were then used by the Environmental Protection Agency to prepare flow duration curves for each station. Neither body accepts any liability for the subsequent handling of the data.

The user should familiarise himself/herself with the catchment being studied and confirm that the ungauged site is in a natural catchment where flows conditions are suitable for the use of the model.

It is strongly recommended that the user examine the catchment descriptors contained in the report produced and confirm that the percentages of the various constituent elements are comparable to a natural catchment.

If the flow in a catchment is not entirely natural, the estimation of flows using the model in these catchments could be affected due to:

- existence of local conduit karst within the catchment;
- the selected location itself is on local conduit karst;
- regulation of the river flow on the river channel (e.g. power station, sluice gates etc)
- impacts of abstractions upstream of the selected location or the impact of the discharge associated with the abstraction into the same/different catchment;
- estimates of flow being sought at locations effected by storage effects at, or near, lake outfalls;
- lack of similar catchments with observed flows, ie where catchment descriptors lie outside the range of available gauging station catchments (e.g. the catchment area is under 5 km²);
- any other special circumstances that may affect river flows.

Expert judgement will be required to ensure that the estimate of flow is not unduly affected by any of these influences.

Please note that the model does not provide estimates of flood peaks and, specifically, should not be used for that purpose.

The EPA has also prepared estimates of DWF and long term 95 percentile flows which are also presented on the EPA web site. These data are presented at http://www.epa.ie/whatwedo/monitoring/water/hydrometrics/data/

The data produced by the model for specific stations should be compared to the data contained in this file of DWF and long term 95percentile flows.

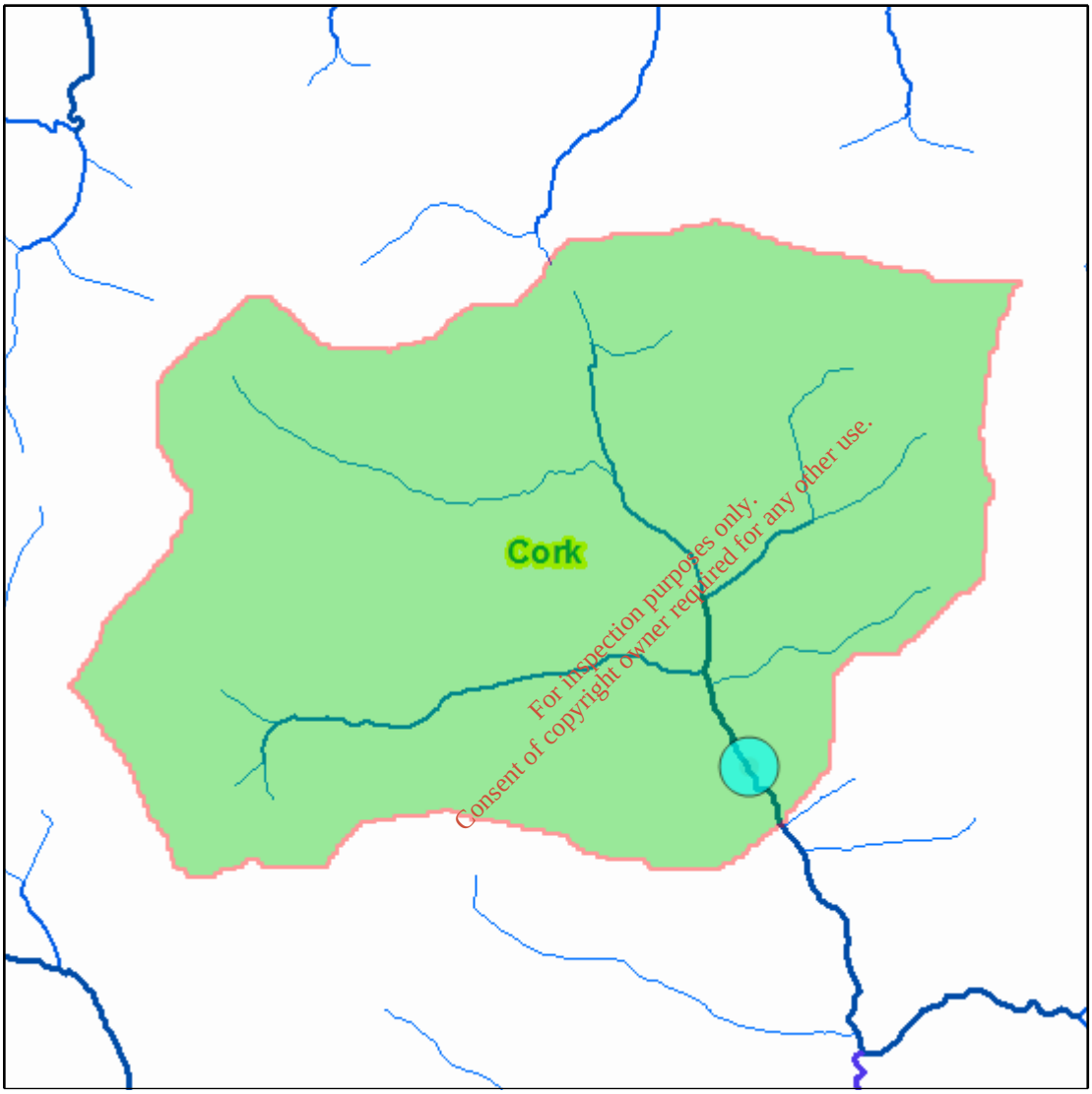
Disclaimer
The source hydrometric data used to estimate the flow duration curve ordinates for ungauged catchments was obtained from (1) water level data and (2) the rating curve(s) generated for each hydrometric station. The Environmental Protection Agency and the Office of Public Works used these data, respectively, to calculate daily mean flows. The daily mean flows were then used by the Environmental Protection Agency to prepare flow duration curves for each station. Neither body accepts any liability for the subsequent handling of the data.

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

River Name	Martin (River)(19_193)
XY Location	159020,84666 (ING)

Nested Catchment Map

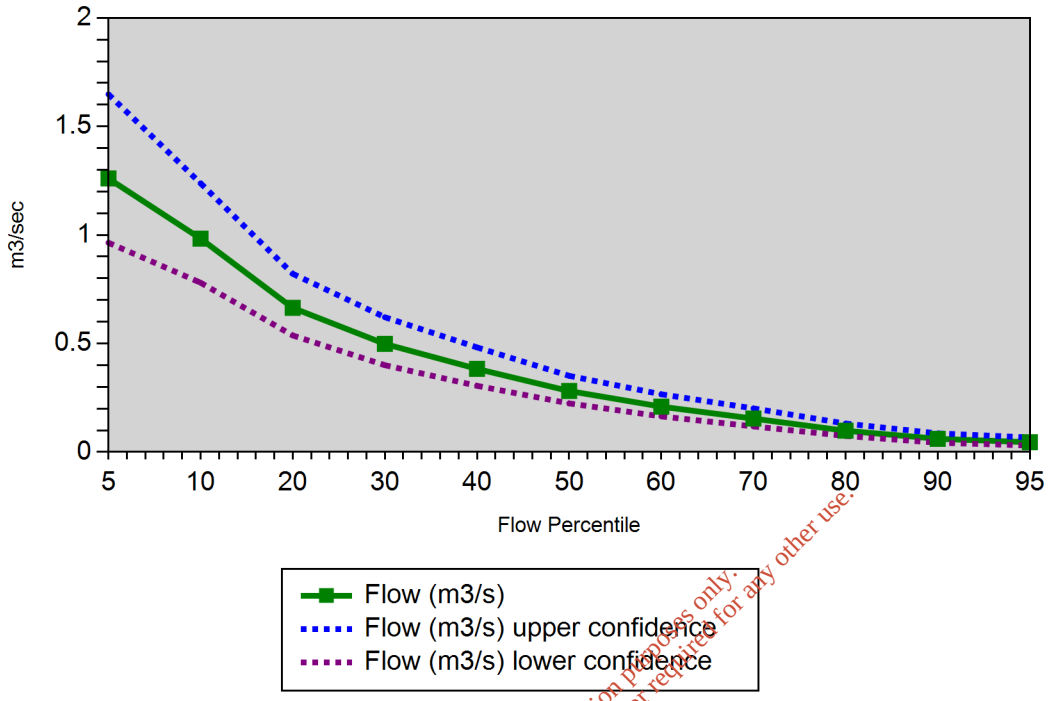


Disclaimer
The source hydrometric data used to estimate the flow duration curve ordinates for ungauged catchments was obtained from (1) water level data and (2) the rating curve(s) generated for each hydrometric station. The Environmental Protection Agency and the Office of Public Works used these data, respectively, to calculate daily mean flows. The daily mean flows were then used by the Environmental Protection Agency to prepare flow duration curves for each station. Neither body accepts any liability for the subsequent handling of the data.

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

Flow Duration Curve (Flow in m3/sec)



%ile	flow(m3/sec)	upper 95% confidence limit m3/sec	lower 95% confidence limit m3/sec
5	1.26	1.648	0.964
10	0.983	1.238	0.78
20	0.664	0.821	0.537
30	0.498	0.621	0.4
40	0.383	0.482	0.305
50	0.281	0.351	0.224
60	0.209	0.266	0.164
70	0.154	0.201	0.118
80	0.098	0.131	0.074
90	0.061	0.086	0.043
95	0.045	0.067	0.03

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

Catchment Descriptors		
General		
Descriptor	**Unit**	**Value**
Area	sq km	15.4
Average Annual Rainfall (61-90)	mm/yr	1228
Stream Length	km	14.9
Drainage Density	Channel length (km)/catchment area (sqkm)	1
Slope	Percent Slope	6.1
FARL	Index (range 0:1)	1

Soil	
Code	**% of Catchment**
Poorly Drained	2
Well Drained	96.6
Alluvmin	1.3
Peat	0.2
Water	0
Made	0

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

Subsoil Permeability		
Code	**Explanation**	**% of Catchment**
H	High	0
M	Moderate	78.5
L	Low	0
ML	Moderate/Low	0
NA	No Subsoil/Bare Rock	21.5

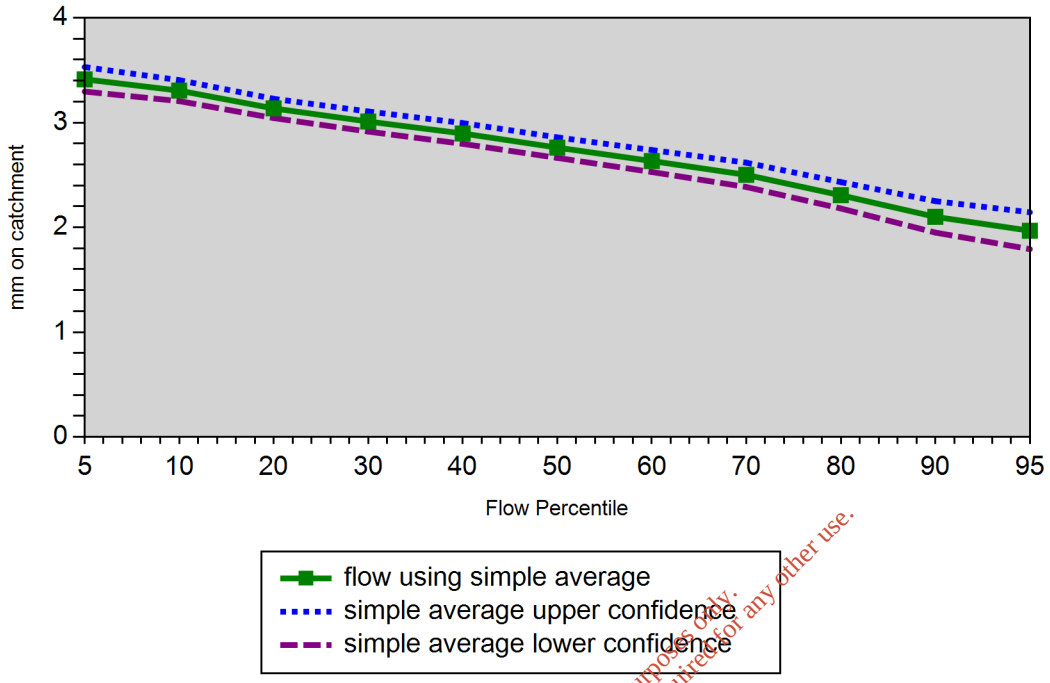
Aquifer		
Code	**Explanation**	**% of Catchment**
LG_RG	LG:Locally important sand-gravel aquifer RG: Regionally important sand-gravel aquifer	0
LL	Locally important aquifer which is moderately productive only in local zones	100
LM_RF	LM: Locally important aquifer which is generally moderately productive RF: Regionally important fissured bedrock aquifer	0
PU_PL	PU: Poor aquifer which is generally unproductive PL: Poor aquifer which is generally unproductive except for local zones	0
RKC_RK	Regionally important karstified aquifer dominated by conduit flow	0
RKD_LK	Regionally important karstified aquifer dominated by diffuse flow	0

Stations in Pooling group			
%ile Flow	**Station 1**	**Station 2**	**Station 3**
5	19044	19032	19009
10	19044	19032	19009
20	19044	19032	19009
30	19044	19032	19009
40	19044	19032	19009
50	19044	19032	18001
60	19044	19032	18001
70	19044	19032	18001
80	19044	19032	19009
90	19044	19032	19009
95	19044	19032	19009

Environmental Protection Agency

Estimation of Flow Duration Curve for Ungauged Catchment

Flow Duration Curve (mm on catchment)



Log Flow (mm on catchment)			
%ile	mm	upper 95% confidence limit	lower 95% confidence limit
5	3.413	3.53	3.296
10	3.305	3.405	3.205
20	3.135	3.227	3.043
30	3.01	3.106	2.914
40	2.896	2.995	2.797
50	2.761	2.859	2.663
60	2.633	2.738	2.528
70	2.501	2.617	2.385
80	2.306	2.432	2.18
90	2.1	2.25	1.95
95	1.968	2.144	1.792

Attachment G Programme of Improvements

G.1 Compliance with Council Directives

G.1.1 Dangerous Substances Directive 2006/11/EC

The wastewater entering Grenagh WWTP is mostly domestic with some non-domestic element. Details of dangerous substances are outlined in Annex 1, which is included in this report and was submitted on line.

G.1.2 Water Framework Directive 2000/60/EC

The Water Framework Directive 2000/60/EC seeks to ensure "high" status for all waters within member states by 2015.

The wastewater serving Grenagh discharges to the River Martin has a "moderate" status, but also has a Q4 rating. A copy of the Lower Lee – Owenboy Water Management Unit Action Plan is included in attachment G.1. As mentioned before this plant was only taken in charge by Cork County Council Operations in January 2012 and an improvement plan to upgrade the WWTP is currently being prepared.

G.1.3 Birds Directive 79/409/EEC

SPAs have been designated as a result of the Birds Directive 79/409/EEC in order to protect certain habitats. There are no SPAs effected by emissions from the Grenagh Agglomeration.

G.1.4 Groundwater Directives 80/68/EEC & 2006/118/EC

Non Applicable

G.1.5 Drinking Water Directives 80/778/EEC

The nearest drinking water abstraction point is located at the Lee Road Waterworks in Cork City, 22 km downstream. It will not be affected. A Cryptosporidium Risk Assessment for the Lee Road Waterworks is included in Attachment F.1 (a).

G.1.6 Urban Waste Water Treatment Directive 91/271/EEC

The Urban Waste Water Treatment Directive 91/271/EEC requires that appropriate levels of waste water treatment are achieved. At present a programme to improve the WWTP is being prepared as stated previously

G.1.7 Habitats Directive 92/43/EEC

There are no SAC's affected by emissions from Grenagh Agglomeration.

G.1.8 Environmental Liabilities Directive 2004/35/EC

Cork County Council attempts to limit pollution by the routine inspection and maintenance of Grenagh WWTP. As stated previously a programme to improve the plant is currently being prepared.

G.1.9 Bathing Water Directive 76/160/EEC

There are no designated bathing waters on the River Martin.

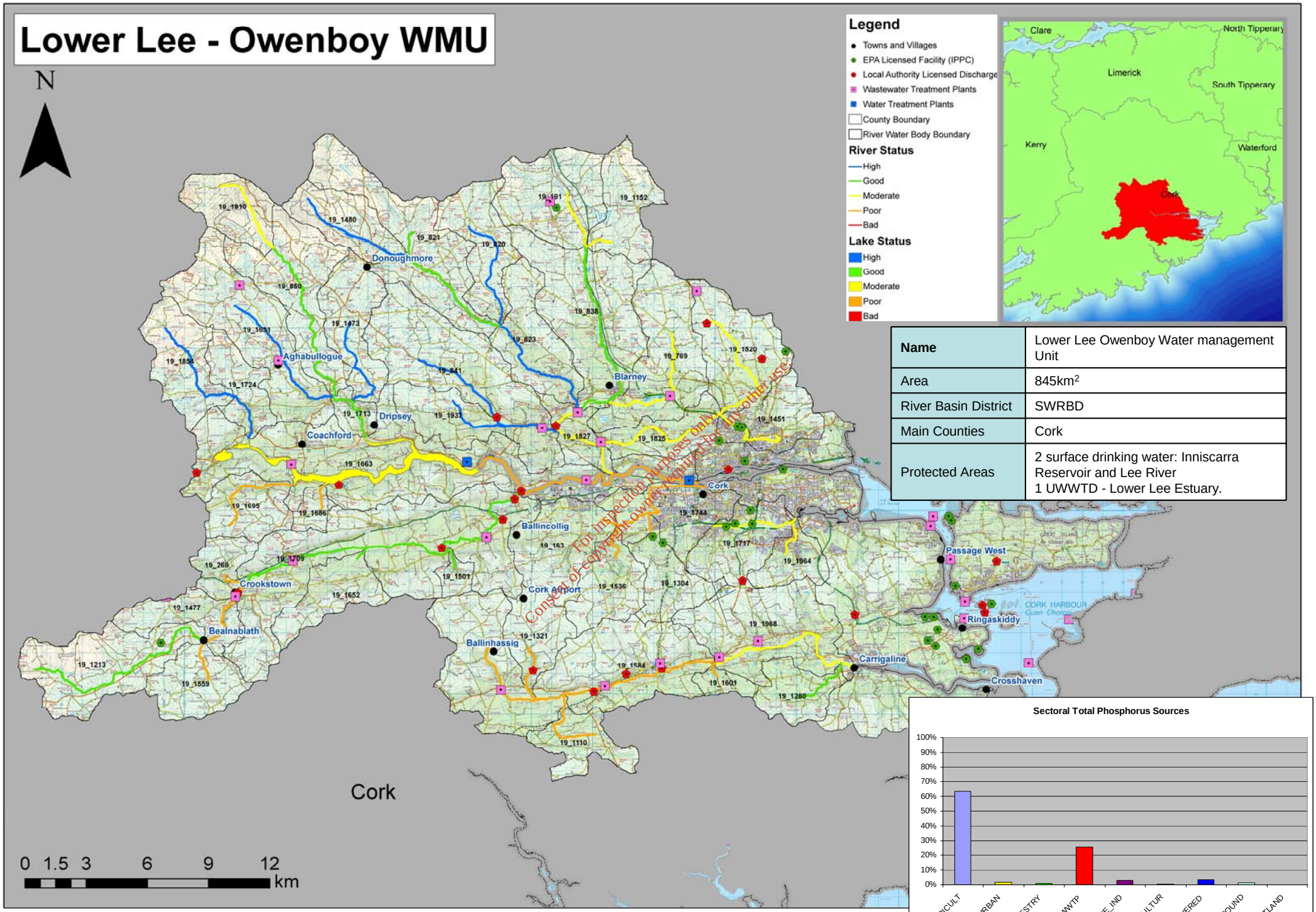
G.1.10 Shellfish waters Directive 2006/113/EC

There are no designated shellfish waters on the River Martin.

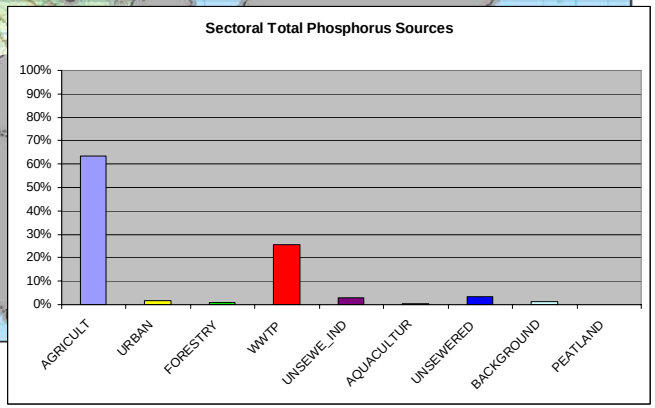
Attachment G.1

Lower Lee - Owenboy Water Management Unit Action Plan

Lower Lee - Owenboy WMU



Name	Lower Lee Owenboy Water management Unit
Area	845km^2
River Basin District	SWRBD
Main Counties	Cork
Protected Areas	2 surface drinking water: Inniscarra Reservoir and Lee River 1 UWWTD - Lower Lee Estuary.



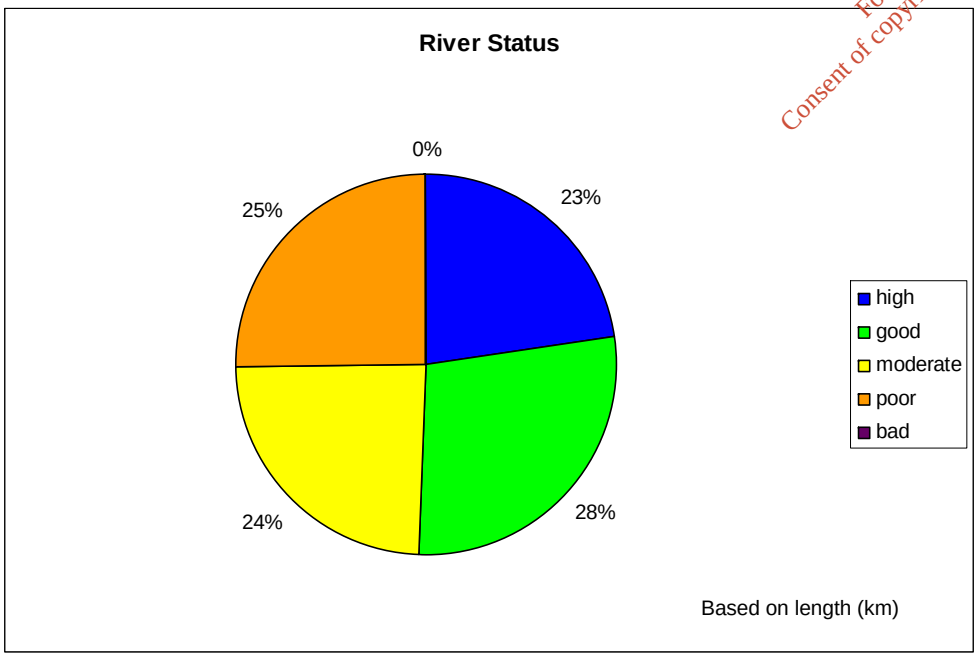
Calculated in accordance with OSPAR HARP Guidelines.
Not an indication of risk, rather an indication of potential to cause risk.

Lower Lee Owenboy Water Management Unit Action Plan

STATUS/IMPACTS	
Overall status	There are 43 river water bodies in this WMU - 9 High, 9 Good, 11 Moderate, 14 Poor Status.
Status elements	2 Poor water bodies are dictated by Q Score, and 2 are dictated by Fish Status. 3 moderate water bodies are dictated by Q score and 3 are dictated by Physchem. Both Q and Physchem and Good / High for the good/high status water bodies that have been monitored. Lake status is dictated by macrophytes, chlorophyll and fish.
Possible Impacts - EPA Water Quality	AUGHNABOY (CORK) – SW_19_1584 2005 – With deterioration, to slightly polluted condition, recorded at the lowermost location (0300) in August 2005 the overall quality reverted to 1999 status. 2008 – Good ecological quality at the only scheduled sampling location. . Status of WB 2009: Poor status dictated by Q score (physchem high). BLARNEY – SW_19_769 2008 – Good quality recorded in successive surveys - prior to 2005 had been less than satisfactory. . Status of WB 2009: Moderate status dictated by PHYSCHEM. BRIDE (LEE) – SW_19_1213; SW_19_1477; SW_19_1709 2008 – Satisfactory throughout with high ecological quality at three of the sites. Significant improvement was recorded at Crookstown (0610) where high ecological quality was recorded but the hydromorphological condition of the site was only moderate. Some artificial siltation was recorded along right-hand margin of river at the final location (1600) but overall quality was satisfactory. . SW_19_1213 Status of WB 2009: Good status dictated by Q score. SW_19_1477 Status of WB 2009: Moderate status dictated by physchem status SW_19_1709 Status of WB 2009: Good status dictated by Q score. SHOURNAGH – SW_19_821; SW_19_823; SW_19_1827 2005 - No change. Continuing mostly satisfactory but again slightly polluted at Tower Bridge 2008 - Satisfactory throughout with high status at two of the locations. SW_19_821 Status of WB 2009: Good status dictated by Q score. SW_19_823 Status of WB 2009: High status dictated by Q score. SW_19_1827 Status of WB 2009: Moderate status dictated by Q score. DRIPSEY – SW_19_1910; SW_19_850; SW_19_1713 2001 - Satisfactory apart from uppermost location (0010) where large crops of filamentous algae were recorded downstream of forestry plantation. 2005- No change since previous survey. Satisfactory except at upper location (0010) where again slightly polluted. 2008 - No change with good quality at two of the three locations and the uppermost one continuing in high status. SW_19_1910 Status of WB 2009: Moderate status dictated by Q score. SW_19_850 Status of WB 2009: Good status dictated by Q score SW_19_1713 Status of WB 2009: Good status dictated by Q score LEE (CORK) – SW_19_1663 2001- No significant change. Satisfactory apart from Inishcarra Bridge (0600) where again highly eutrophic. The protected pearl mussel has apparently become scarce in the river in the past two decades. 2005- Major disruption to fauna at first location, upstream of Gouganebarra Lake (0010), where salmonid parr and other age classes had been killed. The pH of the water was 10.66 on the day, outside the limit of tolerance for these fish, which resulted from concreting work on a small bridge upstream of the sampling site. Further downstream the water quality status was the same as that of the previous survey with highly eutrophic conditions again recorded at Inishcarra Bridge (0600). 2008- Satisfactory apart from at Inishcarra Bridge where again poor ecological quality was recorded. SW_19_1663 Status of WB 2009: Poor status dictated by Q score MARTIN – SW_19_838; SW_19_191 2001 - No change since last survey with the first and final location (0100, 0600) again unsatisfactory due respectively to moderate and slight pollution effects. The sources of the pollution are suspected to be agricultural at the former and domestic (Blarney) at the latter. 2005- Satisfactory throughout, for only the second time since surveys began in 1971, following improvements in condition at the uppermost (0100) and lowermostv(0600) locations. 2008 - Satisfactory apart from uppermost location where only moderate status. . SW_19_838 Status of WB 2009: Good status dictated by Q score and physchem SW_19_191 Status of WB 2009: Moderate status dictated by Q score OWENBOY (CORK) – SW_19_1321; SW_19_1584; SW_19_1968 2005 - Deterioration, to moderately polluted conditions, at two locations (0200, 0600) since previous survey in 2003. Continuing slightly polluted at lowermost location (1400). 2008 - Continuing with only moderate ecological quality at final location but otherwise satisfactory with good status. SW_19_1321 Status of WB 2009: Good status, dictated by Q score SW_19_1584 Status of WB 2009: Poor status dictated by Q score SW_19_1968 Status of WB 2009: Moderate status dictated by Q score

Lower Lee Owenboy Water Management Unit Action Plan

PRESSURES/RISKS	
Nutrient sources	Main source of TP is from unsewered industry (64%) and agriculture (26%).
Point pressures	24 WWTP - ghabullogue, Ballincollig New WWTP, Ballinhassig, Ballygarvan, Blarney/Tower WWTP, Cloghroe WWTP, Cloughduv, Coachford WWTP, Crookstown, Crossbarry, Dripsey WWTP, Five Mile Bridge, Grenagh, Half Way, Kerrypike, Killeens, Kilumney, Rylane, Whitechurch, Carrigrenan, Cobh, North Cobh, Passage/Monkstown, Ringaskiddy; 2 WTP (Inniscarra Pws, Lee Rd. Water Works); 21 Section 4s 26 IPPC's 1 contaminated site
WWTP risks	The following WWTPs are causign risk: Ballincollig New WWTP Ballygarvan Blarney/Tower WWTP Carrigrenan Cloghroe WWTP Coachford WWTP Cobh Crookstown Crossbarry Dripsey WWTP Killeens Passage/Monkstown Ringaskiddy Ringaskiddy Carrigaline Crosshaven Whitechurch



PRESSURES/RISKS	
Quarries, Mines & Landfills	14 quarries and 5 landfills. 3 WB at risk from quarries - SW_19_1663, SW_19_1584, SW_19_1968.
Agriculture	39 WBs at risk - SW_19_1520, SW_19_769, SW_19_1827, SW_19_1709, SW_19_1304, SW_19_1321, SW_19_1110, SW_19_1744, SW_19_1968, SW_19_1601, SW_19_163, SW_19_1451, SW_19_1964, SW_19_1825, SW_19_1717, SW_19_820, SW_19_191, SW_19_1652, SW_19_841, SW_19_1473, SW_19_838, SW_19_1480, SW_19_850, SW_19_823, SW_19_1713, SW_19_1663, SW_19_1213, SW_19_1477, SW_19_821, SW_19_1651, SW_19_1501, SW_19_1536, SW_19_1559, SW_19_269, SW_19_1686, SW_19_1280, SW_19_1584, SW_19_1695, SW_19_1937.
On-site systems	There are 15275 septic tanks in this WMU. 963 of these are located in areas of very high or extreme risk.
Forestry	Significant area of SW_19_1910 is under forestry
Dangerous substances	None at risk
Morphology	3 WBs at risk - SW_19_1663, SW_19_1744, SW_19_1825 - Water Regulation and Impoundments - Inniscarra Reservoir is a HMWB. (the local authority also note some drainage & channelisation of WB 19-1584 in the past particularly between Ballinhassig & Halfway when road was realigned, also some drainage upstream of Halfway in 2006)
Abstractions	1 WB at risk - SW_19_1663
Other	Local authority note possible impact of Bride confluence with Lee upstream of Inniscarra Bridge due to different chemistry of river waters (19-1663)

Future Pressures and Developments

Throughout the river basin management cycle future pressures and developments will need to be managed to ensure compliance with the objectives of the Water Framework Directive and the Programme of Measures will need to be developed to ensure issues associated with these new pressures are addressed.

Lower Lee Owenboy Water Management Unit Action Plan

SELECTED ACTION PROGRAMME *NB All relevant basic measures and general supplementary measures/surveys apply*	
Point Sources	Section 4 & IPPC licensed facilities – review licenses See below for WWTP action programme.
Diffuse Sources	AGRICULTURE - Good Agricultural Practice Regulations and Enforcement FORESTRY – investigate impact of forestry on SW_19_1910 Septic Tanks: At Risk septic tanks are to be prioritised for inspections. Subsequent upgrade or connection to municipal systems depends on inspection and economic tests.
Other	Protection of drinking water, abstraction control and future licensing. Ensure licensing of quarries under Section 4 of Water Pollution Act 1977. MORPHOLOGY - Investigation into the impact of historical channelisation on morphological and fish status between Ballinhassig & Halfway. Carry out impassable barriers investigation at SW_19_1663, SW_19_1744, SW_19_1825.

Discharge		Measures							Waterbody	
Point Source Discharge	County	Plants Requiring Capital Works	Agglomerations Requiring Further Investigation Prior to Capital Works	Plants Required to Commence Implementation of Pollution Reduction Programmes for Shellfish Waters	Plants Requiring the Implementation of an Appropriate Performance Management System	Plants Requiring the Investigation of CSO's	Plants Required to Ensure Capacity of Treatment Plant is not Exceeded	Extended Timescale for Measure Implementation	Waterbody Code	Extended Deadline to Achieve Waterbody Objective
Ballincollig New WW	Cork South	Yes						No	SW_19_1663	Yes
Ballygarvan	Cork South						Yes	No	SW_19_1968	No
Blarney/Tower WWT	Cork South					Yes	Yes	Yes	SW_19_1827	Yes
Carrigrenan	Cork City	Yes		Yes				Yes	SW_060_0750	Yes
Cloghroe WWTP	Cork South				Yes		Yes	No	SW_19_841	No
Coachford WWTP	Cork South		Yes				Yes	Yes	SW_19_1663	Yes
Cobh	Cork South	Yes	Yes	Yes				Yes	SW_060_0750	Yes
Crookstown	Cork South		Yes					No	SW_19_1477	No
Crossbarry	Cork South					Yes		No	SW_19_1584	No
Dripsey WWTP	Cork South				Yes			No	SW_19_1713	No
Killeens	Cork South	Yes						No	SW_19_769	No
Passage/Monkstown	Cork South	Yes	Yes	Yes				Yes	SW_060_0750	Yes
Ringaskiddy	Cork South		Yes					Yes	SW_060_0000	Yes
Ringaskiddy Carrigali	Cork South	Yes	Yes	Yes				Yes	SW_060_0000	Yes
Whitechurch	Cork South						Yes	No	SW_19_1520	No

OBJECTIVES	
Good status 2015	Protect 18 waterbodies.
Alternative Objectives	Restore 25 waterbodies by 2021(SW_19_1110, SW_19_1152, SW_19_1304, SW_19_1321, SW_19_1451, SW_19_1477, SW_19_1520, SW_19_1536, SW_19_1559, SW_19_1584, SW_19_1601, SW_19_163, SW_19_1663, SW_19_1686, SW_19_1695, SW_19_1717, SW_19_1744, SW_19_1825, SW_19_1827, SW_19_191, SW_19_1910, SW_19_1964, SW_19_1968, SW_19_269, SW_19_769) – extended deadline for nitrogen losses to surface water via groundwater. (Two of which are also extended to allow wastewater infrastructure to be put in place (SW_19_1827 and SW_19_1663)

Transitional Status – Refer to separate transitional waters action programme
Groundwater Status – Refer to separate groundwater action programme

Lower Lee Owenboy Water Management Unit Action Plan - Rivers

IE_SW_LowerLee/Owenboy																		
			Biological Elements				Supporting Elements						Protected Areas					
Member State Code	Monitored Y (Extrapolated N)	Donor Waterbody	Macroinvertebrates (Q)	FreshWater Pearl Mussel	Fish	Phytobenthos (Diatoms)	Morphology	Specific Polutants	Physio-chemical	Ecological Status	Chemical Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters	Drinking Water	Objective	Date objective to be achieved
SW_19_1110	N	SW_19_1584								P						GES	2021
SW_19_1152	N	SW_18_2169								M						GES	2021
SW_19_1213	Y		G							G						GES	2009
SW_19_1280	N	SW_20_1209								G						GES	2009
SW_19_1304	N	SW_19_1536								P						GES	2021
SW_19_1321	Y		P						G	P						GES	2021
SW_19_1451	N	SW_19_755								M						GES	2021
SW_19_1473	N	SW_19_1480								H						HES	2009
SW_19_1477	Y		P						M	P						GES	2021
SW_19_1480	Y				H					H						HES	2009
SW_19_1501	N	SW_19_1709								G						GES	2009
SW_19_1520	N	SW_19_755								M						GES	2021
SW_19_1536	Y				P					P						GES	2021
SW_19_1559	N	SW_19_1875								P						GES	2021
SW_19_1584	Y		P						H	P						GES	2021
SW_19_1601	N	SW_19_1793								P						GES	2021
SW_19_163	N	SW_19_1744								P						GES	2021
SW_19_1651	N	SW_19_1480								H						HES	2009
SW_19_1652	N	SW_20_1209								G						GES	2009
SW_19_1663	Y		P						H	P					Y	GES	2021
SW_19_1686	N	SW_19_1875								P						GES	2021
SW_19_1695	N	SW_19_1875								P						GES	2021
SW_19_1709	Y		G						H	G						GES	2009
SW_19_1713	Y		G						G	G						GES	2009

Lower Lee Owenboy Water Management Unit Action Plan - Rivers

IE_SW_LowerLee/Owenboy																		
			Biological Elements				Supporting Elements					Protected Areas						
Member State Code	Monitored Y (Extrapolated N)	Donor Waterbody	Macroinvertebrates (Q)	FreshWater Pearl Mussel	Fish	Phytobenthos (Diatoms)	Morphology	Specific Polutants	Physio-chemical	Ecological Status	Chemical Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters	Drinking Water	Objective	Date objective to be achieved
SW_19_1717	N	SW_19_1968								M						GES	2021
SW_19_1724	N	SW_19_1880								H						HES	2009
SW_19_1744	Y				P					P						GES	2021
SW_19_1825	N	SW_19_755								M						GES	2021
SW_19_1827	Y		G						M	M						GES	2021
SW_19_1854	N	SW_19_1880								H						HES	2009
SW_19_191	Y		M						G	M						GES	2021
SW_19_1910	Y		M						G	M						GES	2021
SW_19_1937	N	SW_19_1480								H						HES	2009
SW_19_1964	N	SW_19_1968								M						GES	2021
SW_19_1968	Y		M						H	M						GES	2021
SW_19_269	N	SW_19_1477								P						GES	2021
SW_19_769	Y		G						M	M						GES	2021
SW_19_820	N	SW_19_1480								H						HES	2009
SW_19_821	Y		G							G						GES	2009
SW_19_823	Y		H							H						HES	2009
SW_19_838	Y		G						G	G						GES	2009
SW_19_841	N	SW_19_1480								H						HES	2009
SW_19_850	Y		G						H	G						GES	2009

Lower Lee Owenboy Water Management Unit Action Plan - Lakes

IE_SW_LowerLee/Owenboy																		
			Biological Elements			Supporting Elements					Protected Areas							
Member State Code	Name	Monitored Y (Extrapolated N)	Macrophytes	Chlorophyll	Fish	Morphology	Nutrient Enrichment	Physico Chemical	Ecological Status	Chemical Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters	Bathing Water	Drinking Water	Objective	Date objective to be achieved
SW_19_138	Inniscarra Reservoir	Y	M	M			G	G	M						Y	GEP	2015