Croom WWTP

Waste Water Discharge Licence Application

February 2009

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Issue and Revision Record

Rev	Date	Originator	Checker	Approver	Description
A	Feb 2009	E. Bennett D. Gallagher	B. Sharkey	F. McGivern	Licence Application

This is a draft document and is subject to revision.

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Waste Water Discharge Licence Application Form

EPA Ref. Nº: *(Office use only)*	

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Tracking Amendments to Draft Application Form

Version No.	Date	Amendment since previous version	Reason
V. 1.	11/10/07	N/A	
V. 2.	18/10/07	Inclusion of a Note 1 superscript for Orthophosphate in Tables D.1(i)(b) & D.1(ii)(b).	To highlight the requirement for filtered samples in measurement of O-Phosphate for waste water discharges.
V.3.	13/11/07	Amend wording of Section F.2 to include 'abstraction'. Amend wording of Checklist in Annex to reflect wording of Regulation 16(5) of S.I. No. 684 of 2007. Inclusion of unique point code for each point of discharge and storm water overflow.	To accurately reflect the information required To accurately reflect the Regulations and to obtain the application documentation in appropriate format. To aid in cross-referencing of application documentation.
V.4	18/04/08	Inclusion of requirement to provide name of agglomeration to which the application relates. Amend wording of Section B.7. (iii) to reflect the title of Water Services Authority. Addition of new Section B.9 (ii) in order to obtain information on developments yet to contribute to the waste water works. Addition of sub-sections C.1.1 & C.1.2 in order to clarify information required for Storm water overflow and pumping stations within the works. Amend Section D.1 to include a requirement for monitoring data for influent	To accurately determine the agglomeration to be licensed. To accurately reflect the Water Services Act, 2007. To obtain accurate population equivalent figures for the agglomeration. To obtain accurate information on design and spill frequency from these structures. To acquire information on the population loading onto the plant and to provide information on performance rates within

		to waste water treatment plants, where available. Amend wording of Section E.1 to request information on composite sampling/flow monitoring provisions.	the plant. To acquire accurate information on the sampling and monitoring provisions for discharges from the works.
V.5	07/07/2008	Amend wording of B.7 (iii) to include reference to Water Services Authorities. Amend Section G.1 to include Shellfish Waters Directive.	To accurately reflect the Water Services Act, 2007 requirements.
V.6	26/08/2008	Amendments to Section D to reflect new web based reporting. Amended requirements for reporting on discharges under E.1 Waste Water Discharge Frequency and Quantities. Amendment to Section F.1 to specify the type of monitoring and reporting required for the background environment. Removal of Annexes to application form.	To clarify the reporting requirements. To streamline reporting requirements. To clarify the reporting requirements for ambient monitoring. To reflect the new web based reporting requirements.

Environmental Protection Agency
Application for a Waste Water Discharge Licence
Waste Water Discharge (Authorisation) Regulations 2007.

CONTENTS

		Page
TRACKING AMENDMENTS TO DRAFT APPLICATION FORM		**2**
ABOUT THIS APPLICATION FORM		**6**
PROCEDURES		**7**
SECTION A:	**NON-TECHNICAL SUMMARY**	**9**
SECTION B:	**GENERAL**	**11**
B.1	AGGLOMERATION DETAILS	11
B.2	LOCATION OF ASSOCIATED WASTE WATER TREATMENT PLANT(S)	12
B.3	LOCATION OF PRIMARY DISCHARGE POINT	13
B.4	LOCATION OF SECONDARY DISCHARGE POINT(S)	13
B.5	LOCATION OF STORM WATER OVERFLOW POINT(S)	14
B.6	PLANNING AUTHORITY	14
B.7	OTHER AUTHORITIES	15
B.8	NOTICES AND ADVERTISEMENTS	16
B.9	POPULATION EQUIVALENT OF AGGLOMERATION	16
B.10	CAPITAL INVESTMENT PROGRAMME	18
B.11	SIGNIFICANT CORRESPONDENCE	19
B.12	FORESHORE ACT LICENCES.	19
SECTION C:	**INFRASTRUCTURE & OPERATION**	**20**
C.1	OPERATIONAL INFORMATION REQUIREMENTS	20
C.2	OUTFALL DESIGN AND CONSTRUCTION	22

SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT 23

D.1 DISCHARGES TO SURFACE WATERS 23

D.2 TABULAR DATA ON DISCHARGE POINTS 24

SECTION E: MONITORING 25

E.1 WASTE WATER DISCHARGE FREQUENCY AND QUANTITIES – EXISTING & PROPOSED 25

E.2 MONITORING AND SAMPLING POINTS 25

E.3 TABULAR DATA ON MONITORING AND SAMPLING POINTS 26

E.4 SAMPLING DATA 26

SECTION F: EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S) 27

F.1 ASSESSMENT OF IMPACT ON RECEIVING SURFACE OR GROUND WATER 27

F.2 TABULAR DATA ON DRINKING WATER ABSTRACTION POINT(S) 34

SECTION G: PROGRAMMES OF IMPROVEMENTS 35

G.1 COMPLIANCE WITH COUNCIL DIRECTIVES 35

G.2 COMPLIANCE WITH WATER QUALITY STANDARDS FOR PHOSPHORUS REGULATIONS (S.I. NO. 258 OF 1998). 37

G.3 IMPACT MITIGATION 37

G.4 STORM WATER OVERFLOW 37

SECTION H: DECLARATION 39

SECTION I: JOINT DECLARATION 40

ANNEX 1: TABLES / ATTACHMENTS

ANNEX 2: CHECKLIST

ABOUT THIS APPLICATION FORM

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

The Application Form **must** be completed in accordance with the instructions and guidance provided in the *Waste Water Discharge Licensing Application Guidance Note.* The Guidance Note gives an overview of Waste Water Licensing, outlines the licence 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 Licence must contain the information prescribed in the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Regulation 16 of the Regulations sets out the statutory requirements for information to accompany a licence 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 in respect of Regulation 16 requirements, please complete the Regulation 16 Checklist provided in Annex 2.

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

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

PROCEDURES

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

Prior to submitting an application the applicant must publish (within the two weeks prior to date of application) in a newspaper circulating in the area, and erect at the point nearest to the waste water treatment plant concerned or, if no such plant exists, at a location nearest the primary discharge point, a notice of intention to apply. An applicant, not being the local authority in whose functional area the relevant waste water discharge, or discharges, to which the relevant application relates, takes place or is to take place, must also notify the relevant Local Authority, in writing, of their intention to apply.

An application for a licence must be submitted on the appropriate form (available from the Agency) 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 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 licence is an offence under the Waste Water Discharge (Authorisation) Regulations, 2007.

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

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

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

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

SECTION A: NON-TECHNICAL SUMMARY

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

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

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

A description of:

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

Supporting information should form **Attachment Nº A.1**

Croom is a town with an estimated population of 1,103 people. It is located approximately 22 km south of Limerick City. The town is predominately located on the eastern bank of the River Maigue. Until the 2001 opening of the by-pass, the N20 national primary road from Limerick to Cork passed through the town.

Croom has a public sewerage network that is predominantly combined in nature and serves all of the existing development within the town. There are a total of 2 pumping stations in Croom. The vast proportion of the waste water is delivered to the waste water treatment plant by a pumping station located within the town near Main Street, followed by a gravity section of 300mm diameter pipeline. A second pumping station is located at the N20 junction for Croom town. This pump station takes flows from east of the N20 and pumps them to the collection system in the town. The existing system was constructed in 1987 for a population equivalent of 2,000.

The existing Croom waste water treatment plant was built in the mid-1980's on a level site 150m from the River Maigue, approximately 1.1km to the North of Croom and is operated by Limerick County Council.. The area of the treatment plant site is approximately 0.4133 Ha. (4,133 m^2).

The existing waste water treatment process comprises inlet coarse screening followed by a conventional activated sludge system (with one aeration tank), followed by a settlement tank. The sludge produced is thickened and dewatered by a belt press on site. This plant was designed with a treatment capacity of 2,000 p.e. (120 kg BOD/day) and with a design Dry Weather Flow (DWF) of approximately 300m^3/day.

The final effluent treatment standard is as follows:

BOD = 25.0mg/l
SS = 35.0mg/l

The treated effluent discharges to the River Maigue approximately 150m from the treatment plant. The River Maigue flows in a south to north direction and enters the Shannon Estuary near the townland of Mellon.

There is an estimated existing domestic population of 1,103 in Croom. A general non-domestic load equal to 16% of the domestic load was adopted. This percentage is based on studies of large population centres in Ireland. Added to this is Croom Hospital, the only identified significant non-domestic contribution.
The current (2009) loading to Croom WWTP is 1,848 population equivalent (p.e.).

Croom's population is expected to grow to 1,676 by 2015, based on planning applications received by Limerick County Council.
The future (2015) p.e. for Croom waste water treatment plant is therefore estimated at 2,513 which is above the design p.e. of the waste water treatment plant of 2,000 p.e.

An Environmental Impact Statement was not completed for the Croom WWTP. The primary discharge from the WWTP discharges into the River Maigue. There are two emergency discharges from pumping stations, one of which discharges into the River Maigue and the second discharges into an unnamed stream.

The River Maigue is not designated as a sensitive water under the Urban Waste Water Treatment Regulations, the Quality of Salmonid Waters Regulations, the Habitats Directive or the Birds Directive.

Surface water is abstracted for human consumption approximately 3.8 km downstream of the primary discharge at Adare. In accordance with the Drinking Water Regulations monitoring of the drinking water is conducted by Limerick County Council.

Water quality in the River Maigue is monitored by the EPA and Limerick County Council. Approximately 1.4 km upstream of the primary discharge in Croom at station code 24M010700, a Q rating of 3-4 was achieved in 2002 which is classified as slightly polluted.

As part of this licence application, sampling of the primary discharge and the upstream and downstream river water quality was undertaken. Based on the single grab samples taken, the resultant concentrations of BOD, ammonia and orthorphosphate are elevated when compared with the proposed EQS limits. However, it should be noted that the upstream concentrations are elevated and these calculations are based on single grab samples.

It is intended to upgrade the WWTP in Croom in order to improve treatment standards and provide additional capacity in the plant, which will result in improved effluent quality being discharged into the River Maigue.

SECTION B: GENERAL

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

B.1 Agglomeration Details

Name of Agglomeration:	Croom

Applicant's Details

Name and Address for Correspondence

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

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

Name*:	Limerick County Council
Address:	County Hall
	Dooradoyle
	Co. Limerick
Tel:	061-496000
Fax:	061-496001
e-mail:	

*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*:	Trevor McKechnie
Address:	Limerick County Council
	County Hall
	Dooradoyle
	Co. Limerick
Tel:	061-496000
Fax:	061-496001
e-mail:	trevorm@limerickcoco.ie

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

Co-Applicant's Details

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

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

Design, Build & Operate Contractor Details

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

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

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

Attachment included	Yes	No
	✓	

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

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

Name*:	Croom WWTP
Address:	Croom
	Co. Limerick
Grid ref (6E, 6N)	150870E 142070N
Level of Treatment	Secondary
Primary Telephone:	None
Fax:	None
e-mail:	None

*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
	✓	

B.3 Location of Primary Discharge Point

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

Type of Discharge	Non-return flap valve
Unique Point Code	SW1
Location	River Maigue
Grid ref (6E, 6N)	150779E 141926N

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
	✓	

B.4 Location of Secondary Discharge Point(s)

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

Type of Discharge	Open Pipe
Unique Point Code	SW2
Location	River Maigue
Grid ref (6E, 6N)	151257E 141182N

Type of Discharge	Open Pipe
Unique Point Code	SW3
Location	River Maigue
Grid ref (6E, 6N)	151188E 140504N

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
	✓	

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	None
Unique Point Code	
Location	
Grid ref (6E, 6N)	

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
		✓

B.6 Planning Authority

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

Name:	Limerick County Council
Address:	County Hall
	Dooradoyle
	Co. Limerick
Tel:	061-496000
Fax:	061-496001
e-mail:	planning@limerickcoco.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***	✓

The construction of Croom WWTP pre-dates current Planning Legislation.

Local Authority Planning File Reference Nº:	

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

Attachment included	**Yes**	**No**
		✓

B.7 Other Authorities

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

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

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

Within the SFADCo Area	**Yes**	**No**
	✓	

B.7 (ii) Health Services Executive Region

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

Name:	Regional Health Office, HSE West
Address:	Merlin Park
	Galway
Tel:	091-775262
Fax:	091-771318
e-mail:	rho.galway@hse.ie

B.7 (iii) Other Relevant Water Services Authorities

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

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

Relevant Authority Notified	Yes	No
		✓

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

Attachment included	Yes	No
		✓

B.8 Notices and Advertisements

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

Attachment B.8 should contain a copy of the site notice and an appropriately scaled drawing (≤A3) showing its location. **The original application must include the original page of the newspaper in which the advertisement was placed**. The relevant page of the newspaper containing the advertisement should be included with the original and one (1) copy of the application.

Attachment included	Yes	No
	✓	

B.9 (i) Population Equivalent of Agglomeration

TABLE B.9.1 POPULATION EQUIVALENT OF AGGLOMERATION

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

Population Equivalent	**1,848**
Data Compiled (Year)	**2009**
Method	**As shown below**

Using the Municipal and Industrial Regulations study population growth figures and the 2006 census figures, there is an estimated existing domestic population of 1,103 in Croom. A general non-domestic load equal to 16% of the domestic load was adopted. This percentage is based on studies of large population centres in Ireland. Added to this is Croom Hospital, the only identified significant non-domestic contribution. As there is no flow data available, the infiltration was set at the normal allowance rate of 50 l/h/day.

The current (2009) loading to Croom WWTP is 1,848 population equivalent (p.e.) as shown in the table below.

Summary of Current Flows and Loads in Croom

Contributing Sector	Flow (m^3/d)	BOD (kg/d)	p.e.
Domestic	165.5	66.2	1,103
General Non Domestic	26.5	10.6	176
Significant Non-Domestic	85.3	34.1	569
Infiltration	55.2	0	0
Total	**332.4**	**110.9**	**1,848**

B.9 (ii) Pending Development

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

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

A review of current and recent applications for planning permission was carried out as well as consultation with relevant staff in Limerick County Council. A summary of the most relevant planning applications are summarised below:

- 174 no. dwellings and creche
- 800 pupil school
- 55 no. dwellings

This amounts to 229 dwelling units, 1 creche, and 1 school. This equates to a domestic population increase of 573 persons (using 2.5 persons per house) in the domestic sector. This would result in a total population of **1,676**.

It is considered appropriate to adopt the Planning Application population of 1,676 for the purposes of this application. The non-domestic sector is taken to grow by a similar proportion and infiltration has been maintained at it's current level as it is not anticipated that this will be reduced in the next 6 years.

In relation to future non-domestic loads an allowance of an additional 200 p.e. specifically for the 800 pupil school has been allowed. This is deemed appropriate to cover the non-domestic loads over and above the allowance for general non-domestic growth.

Future (2015) Waste water Contributions in Croom

Contributing Sector	Flow (m^3/d)	BOD (kg/d)	p.e.
Domestic	251.40	100.56	1,676.00
General Non Domestic	40.20	16.08	268.00
Significant Non-Domestic	115.35	46.14	769.00
Infiltration	55.20	0.00	0.00
Total	**462.15**	**162.78**	**2,713.00**

The future (2015) p.e. for Croom waste water treatment plant is 2,713 which is above the design p.e. of the waste water treatment plant of 2,000 p.e.

B.9 (iii) FEES

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

Class of waste water discharge	Fee (in €)
1,001 – 2,000	€15,000.00

Appropriate Fee Included	Yes	No
	✓	

B.10 Capital Investment Programme

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

There is currently no capital investment project planned for the Croom waste water works.

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

Attachment included	Yes	No
		✓

B.11 Significant Correspondence

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

There has been no Section 63 notice issued in relation to Croom waste water works.

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

Attachment included	Yes	No
		✓

B.12 Foreshore Act Licences.

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

There has been no Foreshore Licence required in relation to Croom waste water works.

Attachment B.12 should contain the most recent licence issued under the Forsehore 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
		✓

SECTION C: INFRASTRUCTURE & OPERATION

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

C.1 Operational Information Requirements

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

The existing Croom waste water treatment plant was built in the mid-1980's on a level site 150m from the River Maigue, approximately 1.1km to the North of Croom. The area of the treatment plant site is approximately 0.4133 Ha. (4,133 m^2).

The existing waste water treatment process comprises inlet coarse screening followed by a conventional activated sludge system (with one aeration tank), followed by a settlement tank. The sludge produced is thickened and dewatered by a belt press on site. This plant was designed with a treatment capacity of 2,000 p.e. (120 kg BOD/day) and with a design Dry Weather Flow (DWF) of approximately 300m^3/day.

The final effluent treatment standard is as follows:

BOD = 25.0mg/l
SS = 35.0mg/l

The layout of the existing treatment plant is shown in Attachment B2 – Map 3.

Inlet Works / Preliminary Treatment & Emergency Outfall

All waste water flows reaching the waste water treatment plant receive coarse (50mm) screening in a manually raked bar screen. Immediately upstream of this screen is an emergency overflow pipe (without screening) which joins the treated effluent pipeline and is directed to the outfall in the River Maigue.

Screened waste water continues directly into a pair of Archimedes screw pumps. These raise the influent into the aeration tank.

Aeration Tanks

The aeration tank (13.45m x 13.45m x 3.3m liquid depth) has a capacity of approximately 600m^3 liquid volume. The aeration tank is aerated by a surface aerator. There is no ferric dosing and there are no Dissolved Oxygen probes.

Clarifier

The mixed liquor from the aeration tank gravitates to a single circular clarifier with an internal diameter of 9.15m. This is fitted with a rotating half bridge scraper system with a peripheral drive unit. Sludge settles to the bottom of the tank and the clarified effluent overflows a peripheral v-notch weir plate into a decanting channel. Surface scum and floating materials are directed to a scum

collection chamber by a surface skimming blade attached to the rotating half bridge.

Sludge Treatment

The settled sludge in the bottom of the clarifier is removed by RAS / WAS pumps (2 no.). The RAS / WAS sludge pumps convey sludge back to aeration tank or to the Sludge Belt Press. This sludge press is located in a tool house / sludge building to the North of the site. Here the sludge is dewatered to an estimated 10% Dry Solids and sent directly to a skip for removal off-site.

The regional Sludge Management Plan for Clare and Limerick recommends that sludge from Croom be transported directly to a hub-centre in Limerick City.

Outfall

The treated effluent from the clarifier gravitates to the outfall via a 300mm diameter pipe. The outfall to the River Maigue is located approximately 150m from the waste water treatment plant site and is fitted with a non-return flap valve.

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.

Not 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.

There are 2 pumping stations in operation in Croom. The main pumping station is located near the centre of the town, off Main Street and caters for the combined flows from the town. It comprises of 2 Nr. Duty/Standby foul pumps with a foul sump (5.5m x 2.5m x 2.8m). In storm conditions, the flows can overflow to a storm sump which discharges through a 375mm diameter outfall pipe to the River Maigue. There is no backup generator facility at the pumping station.

A second pumping station is located at the N20 junction for Croom town. This pump station takes foul only flows from east of the N20 and pumps them to the

collection system in the town. There is an emergency overflow pipe which allows for flows, in the case of pump failure, to discharge to the River Maigue through an existing storm sewer. There is no backup generator facility at the pumping station.

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

Attachment included	Yes	No
	✓	

C.2 Outfall Design and Construction

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

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

The 300mm diameter outfall pipe for the primary discharge pipe is approximately 150m long.
The 375mm diameter outfall pipe for the secondary discharge (SW2), an emergency overflow from the main pumping station, is approximately 10m long.
The outfall pipe for the secondary discharge (SW3), an emergency overflow from the N20 junction pumping station, is approximately 420m long (including 400m section of existing storm sewer).
There are no record drawings available for outfalls.

Attachment included	Yes	No
		✓

SECTION D: DISCHARGES TO THE AQUATIC ENVIRONMENT

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

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

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

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

D.1 Discharges to Surface Waters

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

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

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

Attachment included	Yes	No
	✓	

D.2 Tabular Data on Discharge Points

Applicants should submit the following information for each discharge point:

Table D.2:

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

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

SECTION E: MONITORING

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

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

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

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

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

Table E.1(i) and Table E.1(ii) have been uploaded to the EPA server and a hardcopy is included in this application.
There are currently no plans or timescales for the provision of composite sampling or continuous flow meters.

E.2. Monitoring and Sampling Points

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

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

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

Limerick County Council conduct effluent sampling at a minimum of 4 times per annum. River Water Quality is monitored by Limerick County Council under the Water Framework Directive at operational monitoring stations.

Grab samples of the primary discharge effluent and the upstream and downstream river water quality was undertaken as part of this application. Accreditation data is contained within Attachment E.2.

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

Attachment included	Yes	No
	✓	

E.3. Tabular data on Monitoring and Sampling Points

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

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

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

E.4 Sampling Data

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

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

Attachment E.4 should contain any supporting information.

Attachment included	Yes	No
	✓	

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

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

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

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

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

- Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

The WWTP in Croom has been operational since 1987 and was designed to treat a PE of 2000. The current PE of Croom is estimated as 1,848 and the estimated DWF from the WWTP is 332.4 m^3/day. Secondary treatment is provided in the WWTP and the design criteria area 25:35 mg/l (BOS:SS).

The primary discharge from the Croom WWTP is to the River Maigue, EPA code 24M01. The River Maigue discharges into the Shannon Estuary near the townland of Mellon. There are two emergency secondary discharges from two pumping stations, one of which discharges into the River Maigue and the second discharges into an unnamed stream.

The closest upstream hydrometric station is located in Croom (station code 24001) and is an automatic recorder. The station is active and the DWF and 95%ile flows at this station are 0.6m^3/sec and 1.05m^3/sec, respectively.

An Environmental Impact Assessment was not completed for the construction and operation of the WWTP and associated discharges, and no flora or fauna reports were completed prior to the construction and operation of the WWTP.

- Details of all monitoring of the receiving water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables F.1(i)(a) & (b) should be completed for the primary discharge point. Surface water monitoring locations upstream and downstream of the discharge point shall be screened for those substances listed in Tables F.1(i)(a) & (b). Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.

- For discharges from secondary discharge points Tables F.1(ii)(a) & (b) should be completed. Furthermore, provide summary details and an assessment of the impacts of any existing or proposed emissions on the surface water or ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made.

An Environmental Impact Assessment was not completed for the construction and operation of the WWTP and associated discharges, and no flora or fauna reports were completed prior to the construction and operation of the WWTP.

- Provide details of the extent and type of ground emissions at the works. For larger discharges to groundwaters, e.g., from Integrated Constructed Wetlands, large scale percolation areas, etc., a comprehensive report must be completed which should include, inter alia, topography, meteorological data, water quality, geology, hydrology, and hydrogeology. The latter must in particular present the aquifer classification and vulnerability. The Geological Survey of Ireland Groundwater Protection Scheme Dept of the Environment and Local Government, Geological Survey of Ireland, EPA (1999) methodology should be used for any such classification. This report should also identify all surface water bodies and water wells that may be at risk as a result of the ground discharge.

There are no emissions to groundwater at the WWTP.

- Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. Submit a copy of the most recent water quality management plan or catchment management plan in place for the receiving water body. Give details of any designation under any Council Directive or Regulations that apply in relation to the receiving water.

The River Maigue is not designated as a sensitive water under the Urban Waste Water Treatment Regulations and is not designated under the Quality of Salmonid Waters Regulations.

At the location of the primary discharge, the River Maigue is not designated as a conservation site, however, downstream of the primary discharge at Adare Bridge, the River Maigue and Estuary are designated as a SAC under the EU Habitats Directive (Lower River Shannon SAC, site code: 002165). Further downstream at Ferry Bridge, the River Maigue is designated a SPA (River Shannon and River Fergus Estuaries SPA, site code: 004077).

The Environmental Protection Agency (EPA) developed a biological rating system for river water quality based on the presence, quantity and diversity of different macroinvertebrates present in rivers. The species present reflects the water quality within the river and they are divided into five indicator groups based on their sensitivity/tolerance to pollution: sensitive forms; less sensitive forms; tolerant forms; very tolerant forms; and most tolerant forms. Based on the biological information collected, a five-point Q rating system is used to describe the river in terms of pollution. The Q rating system and river water quality class system (McGarrigle *et al*, 2002) are presented in the table below.

BIOLOGICAL RIVER QUALITY CLASSIFICATION AND RIVER WATER QUALITY CLASS SYSTEM

'Q' value	Community Diversity	Water Quality	Condition*	Status	Quality
Q5	High	Good	Satisfactory	Unpolluted	Class A
Q4	Reduced	Fair	Satisfactory	Unpolluted	Class A
Q3-4	Much Reduced	Doubtful	Unsatisfactory	Slightly Polluted	Class B
Q3	Low	Doubtful	Unsatisfactory	Moderately Polluted	Class C
Q2-3	Low	Doubtful	Unsatisfactory	Moderately Polluted	Class C
Q2	Very low	Poor	Unsatisfactory	Seriously Polluted	Class D
Q1	Very Low	Bad	Unsatisfactory	Seriously Polluted	Class D

* 'Condition' refers to the likelihood of interference with beneficial or potential beneficial use.

Water quality in the River Maigue is monitored by the EPA and Limerick County Council. Approximately 1.4 km upstream of the primary discharge in Croom at station code 24M010700, a Q rating of 3-4 was achieved in 2002 which is classified as slightly polluted. Approximately 4 km downstream of the primary discharge, at station 24M010900 in Castleroberts / Derryvinane, Q 4 was recorded in 2006, which is classified as unpolluted. The downstream station, 24M010900 is an operational monitoring site under the Water Framework Directive.

The 1998 Phosphorous Regulations set targets for phosphorus levels and biological quality (Q values) for rivers and lakes. Where water quality is satisfactory it must be maintained and where water quality is unsatisfactory it must be improved. For levels of phosphorous the baseline Q value determines the median molybdate-reactive phosphorus (MRP) to be achieved. A Q value of 4 was recorded in 2006 at station 24M010900 and based on this result, a Q value of 4 must be maintained or a median MRP concentration of 30 µg P/l.

The water quality management plan for the Lower Shannon Catchment, published in 1990, is included in Attachment F.1. Water quality results for the River Maigue are also presented in Attachment F.1.

As part of this licence application, sampling of the primary discharge and the upstream and downstream river water quality was undertaken. The assimilative capacity calculations are presented in the table below and based on the single grab samples taken, the resultant concentrations of BOD, ammonia and orthorphosphate are elevated when compared with the proposed EQS limits. However, it should be noted that the upstream concentrations are elevated and these calculations are based on single grab samples.

River DWF[1]	0.60
River Median Flow[2]	7.31
River 95%ile Flow[3]	1.05

WWTP DWF	0.0038472

Parameter	River Upstream Concentration[4]		Flow Data Used	Effluent Concentration[4]		Resulting Concentration		Proposed EQS Freshwater	Unit
pH	8.100			7.900				Hardness ≥100mg/l CaCO3 → 4.5 < pH < 9.0; Hardness > 100mg/l CaCO3 → 6 < pH < 9.0	pH unit
Temperature	5.700			8.800				< 1.5°C rise in ambient temp d/s of discharge	°C
Electrical Conductivity (@25 °C)	473.000			700.000				2,500	µS/cm (DW Dir)
Hardness (as CaCO3)	280.285			311.600				No EQS	mg/l
Biochemical Oxygen Demand	2.000	mg/l	95%ile	6.000	mg/l	**2.015**	mg/l	≤ 1.3 (mean) or ≤ 2.2 (95%ile) - High Status ≤ 1.5 (mean) or ≤ 2.6 (95%ile) - Good Status	mg/l
Chemical Oxygen Demand	8.000	mg/l	95%ile	10.000	mg/l	8.007	mg/l	No EQS	mg/l
Dissolved Oxygen	11.000	mg/l	95%ile	9.030	mg/l	10.993	mg/l	95%ile > 80% saturation and 95%ile < 120% saturation	mg/l
Nitrite (as N)	0.023	mg/l	95%ile	0.208	mg/l	0.024	mg/l	No EQS	mg/l
Nitrate (as N)	1.180	mg/l	95%ile	7.800	mg/l	1.204	mg/l	No EQS (50 mg/l DW Dir)	mg/l
Total Nitrogen	2.000	mg/l	95%ile	9.000	mg/l	2.026	mg/l	No EQS (0.5 mg/l DW Dir)	mg/l
Ammonia	0.137	mg/l	95%ile	0.054	mg/l	**0.137**	mg/l	High Status ≤0.04 (mean) or ≤0.09 (95%ile) Good Status ≤0.065 (mean) or ≤0.14 (95%ile)	mg/l
Suspended Solids	12.000	mg/l	95%ile	1.000	mg/l	11.960	mg/l	No EQS	mg/l
Total Phosphorus (as P)	0.160	mg/l	95%ile	0.800	mg/l	0.162	mg/l	No EQS	mg/l
Orthophosphate (as P) - unfiltered *	0.034	mg/l	Median	0.644	mg/l	**0.034**	mg/l	≤ 0.025 (mean) or ≤ 0.045 (96%ile) - High Status ≤ 0.035 (mean) or ≤ 0.075 (95%ile) - Good Status Phosphorus Regulations – 0.03 required	mg/l
Sulphate	11.200	mg/l	95%ile	28.100	mg/l	11.262	mg/l	No EQS (250 mg/l DW Dir)	
Phenols	0.500	µg/l	DWF	0.500	µg/l	0.500	µg/l	AA - 8; MAC - 46	µg/l
Atrazine	0.010	µg/l	DWF	0.010	µg/l	0.010	µg/l	AA - 0.6; MAC - 2.0	µg/l
Dichloromethane	5.000	µg/l	DWF	5.000	µg/l	5.000	µg/l	AA - 20; MAC - N/A	µg/l
Simazine	0.010	µg/l	DWF	0.010	µg/l	0.010	µg/l	AA - 1; MAC - 4	µg/l
Toluene	0.100	µg/l	DWF	0.100	µg/l	0.100	µg/l	AA - 10; MAC - N/A	µg/l
Tributyltin[5]	0.020	µg/l	DWF	0.020	µg/l	**0.020**	µg/l	AA - 0.0002; MAC - 0.0015	µg/l
Xylenes	0.100	µg/l	DWF	0.100	µg/l	0.100	µg/l	AA - 10; MAC - N/A	µg/l
Arsenic	0.541	µg/l	DWF	1.000	µg/l	0.544	µg/l	AA - 25	µg/l
Chromium	1.000	µg/l	DWF	1.000	µg/l	1.000	µg/l	Chromium III AA - 4.7; MAC - 32 Chromium VI AA - 3.4; MAC - N/A	µg/l
Copper	3.000	µg/l	DWF	6.100	µg/l	3.020	µg/l	AA - 5 (hardness ≤ 100; 30 (hardness > 100 mg/l CaCO3	µg/l
Cyanide	5.000	µg/l	DWF	5.000	µg/l	5.000	µg/l	AA - 10; MAC - N/A	µg/l
Fluoride	0.100	mg/l	DWF	0.100	mg/l	0.100	mg/l	AA - 500; MAC - N/A	µg/l
Lead	0.300	µg/l	DWF	0.300	µg/l	0.300	µg/l	AA - 7.2; MAC - N/A	µg/l
Nickel	1.593	µg/l	DWF	0.600	µg/l	1.587	µg/l	AA - 20; MAC - N/A	µg/l
Zinc	3.569	µg/l	DWF	15.200	µg/l	3.643	µg/l	AA - 8 (hardness ≤10 mg/l); MAC - N/A 50 (hardness > 10 ≤ 100 mg/l); MAC - N/A 100 (> 100 mg/l); MAC - N/A	µg/l
Boron	0.020	mg/l	DWF	0.030	mg/l	0.020	mg/l	No EQS (1000 in DW Regs)	µg/l

Cadmium	0.100	µg/l	DWF	0.100	µg/l	0.100	µg/l	≤ 0.08 (hardness <40mg/l); MAC ≤ 0.45 0.08 (hardness 40 to <50); MAC - 0.45 0.09 (hardness 50 to <100); MAC - 0.6 0.15 (hardness 100 to < 200); MAC - 0.9 0.25 (hardness ≥ 200); MAC - 1.5	µg/l
Mercury[5]	0.200	µg/l	DWF	0.200	µg/l	**0.200**	µg/l	AA - 0.05; MAC - 0.07	µg/l
Selenium	0.433	µg/l	DWF	0.900	µg/l	0.436	µg/l	No EQS (10 in DW Regs)	µg/l
Barium	52.040	µg/l	DWF	20.400	µg/l	51.838	µg/l	No EQS (500 DW Regs); 100 SW Regs)	µg/l

[1] Published DWF (EPA)
[2] Published median (EPA)
[3] Published 95%ile flow (EPA).
[4] Results below the limit of detection (< LOD) are presented as the value
[5] The AA and MAC are below the LOD

- 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.

As part of this licence application, Limerick County Council has monitored for Dangerous Substances in the primary discharge and upstream and downstream of the discharge. Based on the grab samples taken, dangerous substances were not found to be elevated in the River Maigue, with the exception of mercury, and tributyltin. However, the limits of detection for the analyses of mercury and tributyltin (0.2 µg/l) are above the EQS annual average and maximum allowable concentration values and therefore these results do not reflect the actual concentration of mercury and tributyltin in the River Maigue.

- In circumstances where water abstraction points exist downstream of any discharge describe measures to be undertaken to ensure that discharges from the waste water works will not have a significant effect on faecal coliform, salmonella and protozoan pathogen numbers, e.g., Cryptosporidium and Giardia, in the receiving water environment.

Surface water is abstracted for human consumption approximately 3.8 km downstream of the primary discharge at Adare, abstraction code: SH_ABS0890.

A Cryptosporidium risk assessment was completed for the abstraction point and the score achieved was 139. In accordance with the Drinking Water Regulations monitoring of the drinking water is conducted by Limerick County Council. In 2008, four audits and ten checks were conducted.

There is no disinfection at the WWTP in Croom.

- Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –

  (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) —

    (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,

    (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or

    (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,

  (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC[1] in accordance with the procedures laid down in Article 21 of that Directive,

(c) a special area of conservation within the meaning of the Natural Habitats Regulations, or

(d) an area classified pursuant to Article 4(1) or 4(2) of Council Directive 79/409/EEC[2];

[1]Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ No. L 206, 22.07.1992)

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

The River Maigue is not designated for conservation at the discharge location. However, the River Maigue and Maigue Estuary downstream of Adare Bridge is designated as a SAC under the EU Habitats Directive (Lower River Shannon SAC, site code: 002165) and as a SPA under the EU Birds Directive (River Shannon and River Fergus Estuaries SPA, site code: 004077).

The Lower River Shannon SAC is selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the EU Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter.

A good number of Red Data Book species are also present, including populations of Triangular Club-rush. A number of species listed on Annex I of the EU Birds Directive are also present, either wintering or breeding. The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the EU Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

Site synopses of the SAC and SPA are presented in Attachment F.1.

- Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.

Not Applicable

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

Modelling of the discharges was not conducted prior to the operation of the WWTP in Croom.

Attachment included	**Yes**	**No**
	✓	

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

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

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

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

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

Attachment F.2 should contain any supporting information.

Attachment included	Yes	No
	✓	

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,

Limerick County Council have monitored for Dangerous Substances in the discharge from the WWTP and at upstream and downstream locations in the River Maigue as part of this application. The results of the monitoring are presented in Section F.1 of this application. There is no programme of improvements with respect to the Dangerous Substances Directive.

- Water Framework Directive 2000/60/EC,

The objectives of the Water Framework Directive (WFD) are to protect all high status waters, prevent further deterioration of all waters and to restore degraded surface and ground waters to good status by 2015.

The River Maigue is monitored by Limerick County Council under the Phosphorus Regulations and the Water Framework Directive. The water quality section of Limerick County Council currently monitor at a designated operational site (24M010900), approximately 4 km downstream of the WWTP primary discharge.

- Birds Directive 79/409/EEC,

The Directive aims to conserve and manage populations of wild birds throughout Europe by part through the designation of Special Protection Areas (SPA) for birds and their habitats. The WWTP site and discharge point are not located within a SPA. However, the River Maigue and Estuary downstream of Adare Bridge is designated as a SPA under the EU Birds Directives.

There is no programme of improvements with respect to the Birds Directive.

- Groundwater Directives 80/68/EEC & 2006/118/EC,

Not Applicable as there are no emissions to groundwater.

- Drinking Water Directives 80/778/EEC,

Surface water is abstracted approximately 3.8 km downstream of the WWTP primary discharge. Limerick County Council has conducted a risk assessment and monitors drinking water as per the requirements of the Drinking Water Regulations.

There is no programme of improvements for the WWTP with respect to the Drinking Water Directives.

- Urban Waste Water Treatment Directive 91/271/EEC,

Under the Urban Waste Water Treatment Directive for agglomerations of less than 2,000 PE, 'waste water entering a collecting system shall before discharge be subject to appropriate treatment'. At Croom WWTP secondary treatment is provided and the design criteria are 25:35 mg/l (BOD:SS). It is intended to upgrade the WWTP in Croom in order to improve treatment standards and provide additional capacity in the plant, which will result in improved effluent quality being discharged into the River Maigue.

- Habitats Directive 92/43/EEC,

The River Maigue is not designated under the EU Habitats Directive at the discharge location, however, downstream of Adare Bridge the River Maigue and Estuary is designated as a SAC under the Directive.

There is no programme of improvements for the WWTP with regard to the Habitats Directive.

- Environmental Liabilities Directive 2004/35/EC,

It is intended to upgrade the WWTP in Croom in order to improve treatment standards and provide additional capacity in the plant, which will result in improved effluent quality being discharged into the River Maigue.

There is no additional programme of improvements for the WWTP with regard to the Environmental Liabilities Directive.

- Bathing Water Directive 76/160/EEC, and

There is no programme of improvements with respect to the Bathing Water Directive as there are no designated bathing waters in the vicinity of the discharge. The closest designated bathing water is located at Cappagh Pier, Kilrush.

- Shellfish Waters Directive (79/923/EEC).

There are no designated shellfish waters within the vicinity of the WWTP discharge. Waters designated under the Shellfish Waters Directive within the Shannon catchment are as follows: West Shannon Carrigaholt; West Shannon Rinevella; West Shannon Poulnasherry Bay and West Shannon Ballylongford.

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

Attachment included	**Yes**	**No**
		✓

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

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

Approximately 4 km downstream of the primary discharge, at station 24M010900 in Castleroberts / Derryvinane, a Q value of 4 was recorded in 2006 and based on this result, a Q value of 4 must be maintained or a median MRP concentration of 30 µg P/l.

Priority 3 in the Phosphorus Measures Implementation Report is to maintain the Q4 status. Attachment G.2 details the measures, targets and actions to be taken to achieve this.

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

Attachment included	Yes	No
	✓	

G.3 Impact Mitigation

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

It is intended to upgrade the WWTP in Croom in order to improve treatment standards and provide additional capacity in the plant, which will result in improved effluent quality being discharged into the River Maigue. Attachment G.2 details the programme of measures to be taken to ensure compliance with the Phosphorus Regulations.

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

Attachment included	Yes	No
		✓

G.4 Storm Water Overflow

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

There is no programme of improvements with respect to storm water overflows.

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**
		✓

SECTION H: DECLARATION

Declaration

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

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

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

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

Signed by : _____ **Date :** 23rd Feb. 2009.
(on behalf of the organisation)

Print signature name: PAUL CROWE

Position in organisation: DIRECTOR, TRANSPORTATION AND WATER SERVICES.

SECTION I: JOINT DECLARATION

Joint Declaration [Note1]

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

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

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

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

Lead Authority

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

Print signature name: _____

Position in organisation:_____

Co-Applicants

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

Print signature name: _____

Position in organisation:_____

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

Print signature name: _____

Position in organisation:_____

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

Agglomeration details

Leading Local Authority	Limerick County Council
Co-Applicants	
Agglomeration	Croom
Population Equivalent	1848
Level of Treatment	Secondary
Treatment plant address	Croom WWTP Croom Co. Limerick
Grid Ref (12 digits, 6E, 6N)	150870 / 142070 (Verifed using GPS)
EPA Reference No:	

Contact details

Contact Name:	Trevor McKechnie
Contact Address:	Limerick County Council County Hall Dooradoyle Co. Limerick
Contact Number:	061-496000
Contact Fax:	061-496001
Contact Email:	trevorm@limerickcoco.ie

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

Discharge Point Code: SW-1

Local Authority Ref No:	SW1	
Source of Emission:	Croom WWTP	
Location:	Skagh	
Grid Ref (12 digits, 6E, 6N)	150779 / 141926 (Verifed using GPS)	
Name of Receiving waters:	River Maigue	
Water Body:	River Water Body	
River Basin District	Shannon IRBD	
Designation of Receiving Waters:	Not designated	
Flow Rate in Receiving Waters:	0.6	$m^3.sec^{-1}$ Dry Weather Flow
	1.05	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	No information available on pump rates and maximum flows	

Emission Details:

(i) Volume emitted			
Normal/day	332.4 m^3	Maximum/day	0 m^3
Maximum rate/hour	0 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.003847 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	= 7.9	
Temperature	°C	Grab	= 8.8	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 700	
Suspended Solids	mg/l	Grab	= 1	3.324
Ammonia (as N)	mg/l	Grab	= 0.054	0.179496
Biochemical Oxygen Demand	mg/l	Grab	< 6	19.944
Chemical Oxygen Demand	mg/l	Grab	= 10	33.24
Total Nitrogen (as N)	mg/l	Grab	= 9	29.916
Nitrite (as N)	mg/l	Grab	= 0.208	0.691392
Nitrate (as N)	mg/l	Grab	= 7.8	25.9272
Total Phosphorous (as P)	mg/l	Grab	= 0.8	2.6592
OrthoPhosphate (as P)	mg/l	Grab	= 0.644	2.140656
Sulphate (SO_4)	mg/l	Grab	= 28.1	93.4044
Phenols (Sum)	µg/l	Grab	< 0.5	0.001662

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	0.00003324
Dichloromethane	µg/l	Grab	< 0.01	0.01662
Simazine	µg/l	Grab	< 0.01	0.00003324
Toluene	µg/l	Grab	< 0.1	0.0003324
Tributyltin	µg/l	Grab	< 0.02	0.00006648
Xylenes	µg/l	Grab	< 0.1	0.0003324
Arsenic	µg/l	Grab	= 1	0.003324
Chromium	µg/l	Grab	< 1	0.003324
Copper	µg/l	Grab	= 6.1	0.0202764
Cyanide	µg/l	Grab	< 5	0.01662
Flouride	µg/l	Grab	< 100	0.3324
Lead	µg/l	Grab	< 0.3	0.0009972
Nickel	µg/l	Grab	= 0.6	0.0019944
Zinc	µg/l	Grab	= 15.2	0.0505248
Boron	µg/l	Grab	= 30	0.09972
Cadmium	µg/l	Grab	< 0.1	0.0003324
Mercury	µg/l	Grab	< 0.2	0.0006648
Selenium	µg/l	Grab	= 0.9	0.0029916
Barium	µg/l	Grab	= 20.4	0.0678096

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(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS (Secondary Discharge Point)

Discharge Point Code: SW-2

Local Authority Ref No:	SW2	
Source of Emission:	Main Pumping Station - Emergency Overflow	
Location:	Skagh	
Grid Ref (12 digits, 6E, 6N)	151257 / 141182 (Verifed using GPS)	
Name of Receiving waters:	River Maigue	
Water Body:	River Water Body	
River Basin District	Shannon IRBD	
Designation of Receiving Waters:	Not designated	
Flow Rate in Receiving Waters:	0.6	$m^3.sec^{-1}$ Dry Weather Flow
	1.05	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	No information available on the frequency or quantity of the discharge; no monitoring data available as the discharge is frequent	

Emission Details:

(i) Volume emitted			
Normal/day	0 m^3	Maximum/day	0 m^3
Maximum rate/hour	0 m^3	Period of emission (avg)	0 min/hr 0 hr/day 0 day/yr
Dry Weather Flow	0 m^3/sec		

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

Discharge Point Code: SW-2

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	Grab	= 0	
Temperature	°C	Grab	= 0	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 0	
Suspended Solids	mg/l	Grab	= 0	0
Ammonia (as N)	mg/l	Grab	= 0	0
Biochemical Oxygen Demand	mg/l	Grab	= 0	0
Chemical Oxygen Demand	mg/l	Grab	= 0	0
Total Nitrogen (as N)	mg/l	Grab	= 0	0
Nitrite (as N)	mg/l	Grab	= 0	0
Nitrate (as N)	mg/l	Grab	= 0	0
Total Phosphorous (as P)	mg/l	Grab	= 0	0
OrthoPhosphate (as P)	mg/l	Grab	= 0	0
Sulphate (SO_4)	mg/l	Grab	= 0	0
Phenols (Sum)	µg/l	Grab	= 0	0

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(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Secondary Discharge Point)

Discharge Point Code: SW-2

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	Grab	= 0	0
Dichloromethane	µg/l	Grab	= 0	0
Simazine	µg/l	Grab	= 0	0
Toluene	µg/l	Grab	= 0	0
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	= 0	0
Arsenic	µg/l	Grab	= 0	0
Chromium	µg/l	Grab	= 0	0
Copper	µg/l	Grab	= 0	0
Cyanide	µg/l	Grab	= 0	0
Flouride	µg/l	Grab	= 0	0
Lead	µg/l	Grab	= 0	0
Nickel	µg/l	Grab	= 0	0
Zinc	µg/l	Grab	= 0	0
Boron	µg/l	Grab	= 0	0
Cadmium	µg/l	Grab	= 0	0
Mercury	µg/l	Grab	= 0	0
Selenium	µg/l	Grab	= 0	0
Barium	µg/l	Grab	= 0	0

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(ii)(a): EMISSIONS TO SURFACE/GROUND WATERS (Secondary Discharge Point)

Discharge Point Code: SW-3

Local Authority Ref No:	SW3	
Source of Emission:	Minor Pumping Station - Emergency Overflow	
Location:	Croom	
Grid Ref (12 digits, 6E, 6N)	151188 / 140504 (Verifed using GPS)	
Name of Receiving waters:	Unnamed Stream	
Water Body:	River Water Body	
River Basin District	Shannon IRBD	
Designation of Receiving Waters:	Not designated	
Flow Rate in Receiving Waters:	0	$m^3.sec^{-1}$ Dry Weather Flow
	0	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	No information available on the frequency or quantity of the discharge or the flow in the stream; no monitoring data available as the discharge is infrequent	

Emission Details:

(i) Volume emitted			
Normal/day	0 m^3	Maximum/day	0 m^3
Maximum rate/hour	0 m^3	Period of emission (avg)	0 min/hr 0 hr/day 0 day/yr
Dry Weather Flow	0 m^3/sec		

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

Discharge Point Code: SW-3

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	Grab	= 0	
Temperature	°C	Grab	= 0	
Electrical Conductivity (@ 25°C)	µS/cm	Grab	= 0	
Suspended Solids	mg/l	Grab	= 0	0
Ammonia (as N)	mg/l	Grab	= 0	0
Biochemical Oxygen Demand	mg/l	Grab	= 0	0
Chemical Oxygen Demand	mg/l	Grab	= 0	0
Total Nitrogen (as N)	mg/l	Grab	= 0	0
Nitrite (as N)	mg/l	Grab	= 0	0
Nitrate (as N)	mg/l	Grab	= 0	0
Total Phosphorous (as P)	mg/l	Grab	= 0	0
OrthoPhosphate (as P)	mg/l	Grab	= 0	0
Sulphate (SO_4)	mg/l	Grab	= 0	0
Phenols (Sum)	µg/l	Grab	= 0	0

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(ii)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Secondary Discharge Point)

Discharge Point Code: SW-3

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	Grab	= 0	0
Dichloromethane	µg/l	Grab	= 0	0
Simazine	µg/l	Grab	= 0	0
Toluene	µg/l	Grab	= 0	0
Tributyltin	µg/l	Grab	= 0	0
Xylenes	µg/l	Grab	= 0	0
Arsenic	µg/l	Grab	= 0	0
Chromium	µg/l	Grab	= 0	0
Copper	µg/l	Grab	= 0	0
Cyanide	µg/l	Grab	= 0	0
Flouride	µg/l	Grab	= 0	0
Lead	µg/l	Grab	= 0	0
Nickel	µg/l	Grab	= 0	0
Zinc	µg/l	Grab	= 0	0
Boron	µg/l	Grab	= 0	0
Cadmium	µg/l	Grab	= 0	0
Mercury	µg/l	Grab	= 0	0
Selenium	µg/l	Grab	= 0	0
Barium	µg/l	Grab	= 0	0

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 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	121325.999999999
SW-2	0	0
SW-3	0	0

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

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)	150720 / 141954 (Verifed using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/01/09						
pH	= 8.1				Grab	0.3	Meter
Temperature	= 6.4				Grab	0	Meter
Electrical Conductivity (@ 25°C)	= 481				Grab	5	Meter
Suspended Solids	= 8				Grab	1	Gravimetric
Ammonia (as N)	= 0.105				Grab	0.009	AQ2-spectrometer
Biochemical Oxygen Demand	< 2				Grab	3	5-day
Chemical Oxygen Demand	< 8				Grab	8	spectrometer
Dissolved Oxygen	= 11				Grab	1	meter
Hardness (as $CaCO_3$)	= 283				Grab	3	ICP-MS
Total Nitrogen (as N)	= 4				Grab	1	Colorimetry
Nitrite (as N)	= 0.024				Grab	0.043	AQ2-spectrometer
Nitrate (as N)	= 1.42				Grab	0.153	AQ2-spectrometer
Total Phosphorous (as P)	= 0.11				Grab	0.03	Colorimetry
OrthoPhosphate (as P)	= 0.071				Grab	0.009	AQ2-spectrometer
Sulphate (SO_4)	= 10.2				Grab	1	AQ2-spectrometer
Phenols (Sum)	< 0.5				Grab	0.5	Solid Phase Extraction GC-MS

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:	

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)	150720 / 141954 (Verifed using GPS)

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/01/09						
Atrazine	< 0.01				Grab	0.01	Solid Phase Extraction GC-MS
Dichloromethane	< 5				Grab	5	Purge & Trap GC-MS
Simazine	< 0.01				Grab	0.01	Solid Phase Extraction GC-MS
Toluene	< 0.1				Grab	0.1	Purge & Trap GC-MS
Tributyltin	< 0.02				Grab	0.02	GC-MS
Xylenes	< 0.1				Grab	0.1	Purge & Trap GC-MS
Arsenic	= 0.6				Grab	0.2	ICP-MS
Chromium	< 1				Grab	1	ICP-MS
Copper	= 7				Grab	3	ICP-MS
Cyanide	< 5				Grab	0.005	AQ-2 Spectrometer
Flouride	< 100				Grab	40	IC
Lead	= 0.4				Grab	0.3	ICP-MS
Nickel	= 2.3				Grab	0.5	ICP-MS
Zinc	= 9.9				Grab	1	ICP-MS
Boron	< 20				Grab	20	ICP-MS
Cadmium	< 0.1				Grab	0.1	ICP-MS
Mercury	< 0.2				Grab	0.02	ICP-MS
Selenium	= 0.4				Grab	0.2	ICP-MS
Barium	= 52.7				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)	150830 / 141895 (Verifed using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/01/09						
pH	= 8.1				Grab	0.3	Meter
Temperature	= 5.7				Grab	0	Meter
Electrical Conductivity (@ 25°C)	= 473				Grab	5	Meter
Suspended Solids	= 12				Grab	1	Gravimetric
Ammonia (as N)	= 0.137				Grab	0.009	AQ2-spectrometer
Biochemical Oxygen Demand	< 2				Grab	3	5-day
Chemical Oxygen Demand	< 8				Grab	8	spectrometer
Dissolved Oxygen	= 11				Grab	1	meter
Hardness (as $CaCO_3$)	= 280.285				Grab	3	ICP-MS
Total Nitrogen (as N)	= 2				Grab	1	Colorimetry
Nitrite (as N)	= 0.023				Grab	0.043	AQ2-spectrometer
Nitrate (as N)	= 1.18				Grab	0.153	AQ2-spectrometer
Total Phosphorous (as P)	= 0.16				Grab	0.03	Colorimetry
OrthoPhosphate (as P)	= 0.034				Grab	0.009	AQ2-spectrometer
Sulphate (SO_4)	= 11.2				Grab	1	AQ2-spectrometer
Phenols (Sum)	< 0.5				Grab	0.5	Solid Phase Extraction GC-MS

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:	

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)	150830 / 141895 (Verifed using GPS)

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	23/01/09						
Atrazine	< 0.01				Grab	0.01	Solid Phase Extraction GC-MS
Dichloromethane	< 5				Grab	5	Purge & Trap GC-MS
Simazine	< 0.01				Grab	0.01	Solid Phase Extraction GC-MS
Toluene	< 0.1				Grab	0.1	Purge & Trap GC-MS
Tributyltin	< 0.02				Grab	0.02	GC-MS
Xylenes	< 0.1				Grab	0.1	Purge & Trap GC-MS
Arsenic	= 0.541				Grab	0.2	ICP-MS
Chromium	< 1				Grab	1	ICP-MS
Copper	< 3				Grab	3	ICP-MS
Cyanide	< 5				Grab	0.005	AQ-2 Spectrometer
Flouride	< 100				Grab	40	IC
Lead	< 0.3				Grab	0.3	ICP-MS
Nickel	= 1.593				Grab	0.5	ICP-MS
Zinc	= 3.569				Grab	1	ICP-MS
Boron	< 20				Grab	20	ICP-MS
Cadmium	< 0.1				Grab	0.1	ICP-MS
Mercury	< 0.2				Grab	0.02	ICP-MS
Selenium	= 0.433				Grab	0.2	ICP-MS
Barium	= 52.04				Grab	1	ICP-MS

Additional Comments:	

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

Secondary Discharge Point

Discharge Point Code:	SW-2
MONITORING POINT CODE:	aSW-2a
Grid Ref (12 digits, 6E, 6N)	000000 / 000000 (Verifed using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
pH	= 0				Grab	0.3	Meter
Temperature	= 0				Grab	0	Meter
Electrical Conductivity (@ 25°C)	= 0				Grab	5	Meter
Suspended Solids	= 0				Grab	1	Gravimetric
Ammonia (as N)	= 0				Grab	0.009	AQ2-spectrometer
Biochemical Oxygen Demand	= 0				Grab	3	5-day
Chemical Oxygen Demand	= 0				Grab	8	spectrometer
Dissolved Oxygen	= 0				Grab	1	meter
Hardness (as $CaCO_3$)	= 0				Grab	3	ICP-MS
Total Nitrogen (as N)	= 0				Grab	1	Colorimetry
Nitrite (as N)	< 0				Grab	0.043	AQ2-spectrometer
Nitrate (as N)	= 0				Grab	0.153	AQ2-spectrometer
Total Phosphorous (as P)	= 0				Grab	0.03	Colorimetry
OrthoPhosphate (as P)	= 0				Grab	0.009	AQ2-spectrometer
Sulphate (SO_4)	= 0				Grab	1	AQ2-spectrometer
Phenols (Sum)	< 0				Grab	0.5	Solid Phase Extraction GC-MS

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:	

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

Secondary Discharge Point

Discharge Point Code:	SW-2
MONITORING POINT CODE:	aSW-2a
Grid Ref (12 digits, 6E, 6N)	000000 / 000000 (Verifed using GPS)

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
Atrazine	< 0				Grab	0.01	Solid Phase Extraction GC-MS
Dichloromethane	< 0				Grab	5	Purge & Trap GC-MS
Simazine	< 0				Grab	0.01	Solid Phase Extraction GC-MS
Toluene	< 0				Grab	0.1	Purge & Trap GC-MS
Tributyltin	< 0				Grab	0.02	GC-MS
Xylenes	< 0				Grab	0.1	Purge & Trap GC-MS
Arsenic	= 0				Grab	0.2	ICP-MS
Chromium	< 0				Grab	1	ICP-MS
Copper	= 0				Grab	3	ICP-MS
Cyanide	< 0				Grab	0.005	AQ-2 Spectrometer
Flouride	< 0				Grab	40	IC
Lead	= 0				Grab	0.3	ICP-MS
Nickel	= 0				Grab	0.5	ICP-MS
Zinc	= 0				Grab	1	ICP-MS
Boron	< 0				Grab	20	ICP-MS
Cadmium	< 0				Grab	0.1	ICP-MS
Mercury	< 0				Grab	0.02	ICP-MS
Selenium	= 0				Grab	0.2	ICP-MS
Barium	= 0				Grab	1	ICP-MS

Additional Comments:	

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

Secondary Discharge Point

Discharge Point Code:	SW-3
MONITORING POINT CODE:	aSW-3a
Grid Ref (12 digits, 6E, 6N)	000000 / 000000 (Verifed using GPS)

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
pH	= 0				Grab	0.3	Meter
Temperature	= 0				Grab	0	Meter
Electrical Conductivity (@ 25°C)	= 0				Grab	5	Meter
Suspended Solids	= 0				Grab	1	Gravimetric
Ammonia (as N)	= 0				Grab	0.009	AQ2-spectrometer
Biochemical Oxygen Demand	= 0				Grab	3	5-day
Chemical Oxygen Demand	= 0				Grab	8	spectrometer
Dissolved Oxygen	= 0				Grab	1	meter
Hardness (as $CaCO_3$)	= 0				Grab	3	ICP-MS
Total Nitrogen (as N)	= 0				Grab	1	Colorimetry
Nitrite (as N)	< 0				Grab	0.043	AQ2-spectrometer
Nitrate (as N)	= 0				Grab	0.153	AQ2-spectrometer
Total Phosphorous (as P)	= 0				Grab	0.03	Colorimetry
OrthoPhosphate (as P)	= 0				Grab	0.009	AQ2-spectrometer
Sulphate (SO_4)	= 0				Grab	1	AQ2-spectrometer
Phenols (Sum)	< 0				Grab	0.5	Solid Phase Extraction GC-MS

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:	

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

Secondary Discharge Point

Discharge Point Code:	SW-3
MONITORING POINT CODE:	aSW-3a
Grid Ref (12 digits, 6E, 6N)	000000 / 000000 (Verifed using GPS)

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/01/09						
Atrazine	< 0				Grab	0.01	Solid Phase Extraction GC-MS
Dichloromethane	< 0				Grab	5	Purge & Trap GC-MS
Simazine	< 0				Grab	0.01	Solid Phase Extraction GC-MS
Toluene	< 0				Grab	0.1	Purge & Trap GC-MS
Tributyltin	< 0				Grab	0.02	GC-MS
Xylenes	< 0				Grab	0.1	Purge & Trap GC-MS
Arsenic	= 0				Grab	0.2	ICP-MS
Chromium	< 0				Grab	1	ICP-MS
Copper	= 0				Grab	3	ICP-MS
Cyanide	< 0				Grab	0.005	AQ-2 Spectrometer
Flouride	< 0				Grab	40	IC
Lead	= 0				Grab	0.3	ICP-MS
Nickel	= 0				Grab	0.5	ICP-MS
Zinc	= 0				Grab	1	ICP-MS
Boron	< 0				Grab	20	ICP-MS
Cadmium	< 0				Grab	0.1	ICP-MS
Mercury	< 0				Grab	0.02	ICP-MS
Selenium	= 0				Grab	0.2	ICP-MS
Barium	= 0				Grab	1	ICP-MS

Additional Comments:	

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,		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,		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,		Yes
(d)	state the population equivalent of the agglomeration to which the application relates,		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,		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.	F.2	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,	B.3	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,	E.4	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,		Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	F.2	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,		Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,		Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.		Yes
(n)	Any other information as may be stipulated by the Agency.		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,	B.8	Yes
(b)	where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,		No
(c)	Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -	B.1, B.2	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	B.3, B.4	Yes
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,	B.3	No
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.		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.		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.		Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		Yes
3	1 CD of geo-referenced digital files provided.		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		No
2	2 hardcopies of EIS provided if applicable.		No
3	2 CD versions of EIS, as PDF files, provided.		No

ATTACHMENT	MAP NUMBER	ATTACHMENT NAME
B.1	1	CROOM AGGLOMERATION
B.2	2	CROOM WWTP SITE LOCATION MAP
B.2	3	CROOM WWTP SITE LAYOUT
B.3	4	PRIMARY DISCHARGE POINT (SW1)
B.4	5	SECONDARY DISCHARGE POINT (SW2)
B.4	6	SECONDARY DISCHARGE POINT (SW3)
B.8	6	SITE NOTICE LOCATION
B.8	TEXT	SITE NOTICE & NEWSPAPER ADVERT
C.1	8	CROOM WWTP PROCESS FLOW DIAGRAM
D.2	TEXT	TABLE D2
E.2	TEXT	LABORATORY DETAILS
E.3	TEXT	TABLE E3
F.1	TEXT	Site Synopsis: Lower River Shannon SAC, site code 002165;
F.1	TEXT	Site Synopsis: River Shannon and River Fergus Estuaries SPA, site code 004077
F.1	9	CROOM : DESIGNATED SITES
F.1	TEXT	Correspondence sent to the National Parks and Wildlife Service
F.1	TEXT	Water Quality Management Plan for the Lower Shannon Catchment
F.1	TEXT	River Water Quality Data
F.2	10	WATER ABSTRACTION LOCATION
F.2	11	WATER ABSTRACTION ZONE OF CONTRIBUTION
G.2	TEXT	Relevant Excerpts from the Phosphorus Measures Implementation Report

ATTACHMENT B.1
MAP 1

LEGEND

AGGLOMERATION

Scale 1:10,000

Approved : _____

Mott MacDonald

MAP 1 - CROOM AGGLOMERATION

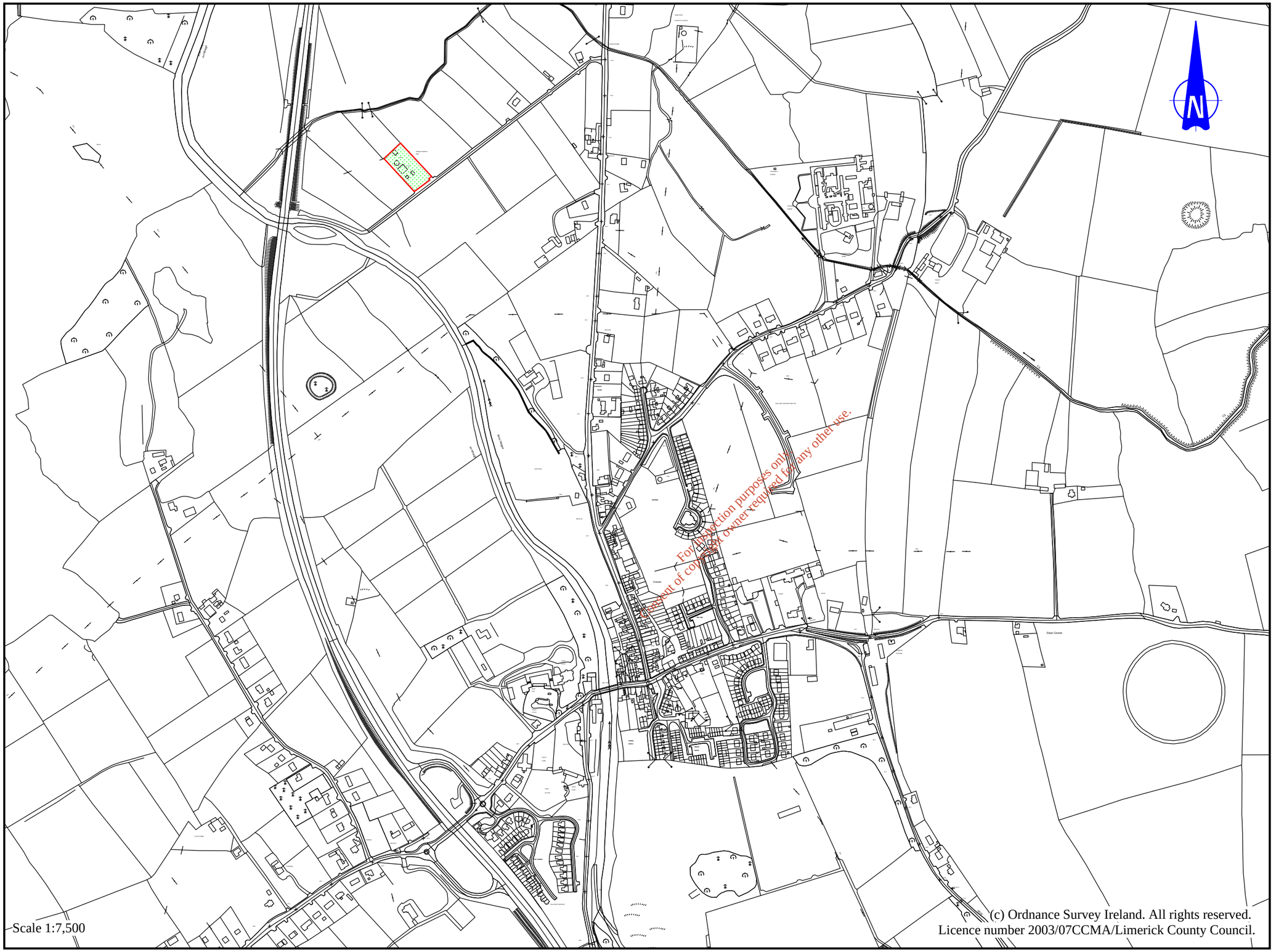
REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
P:\Cork\Design\acad\Mapinfo\253740\Croom\Workspaces\MAP_1.wor

ATTACHMENT B.2
MAP 2

LEGEND

WWTP SITE



Approved : _____

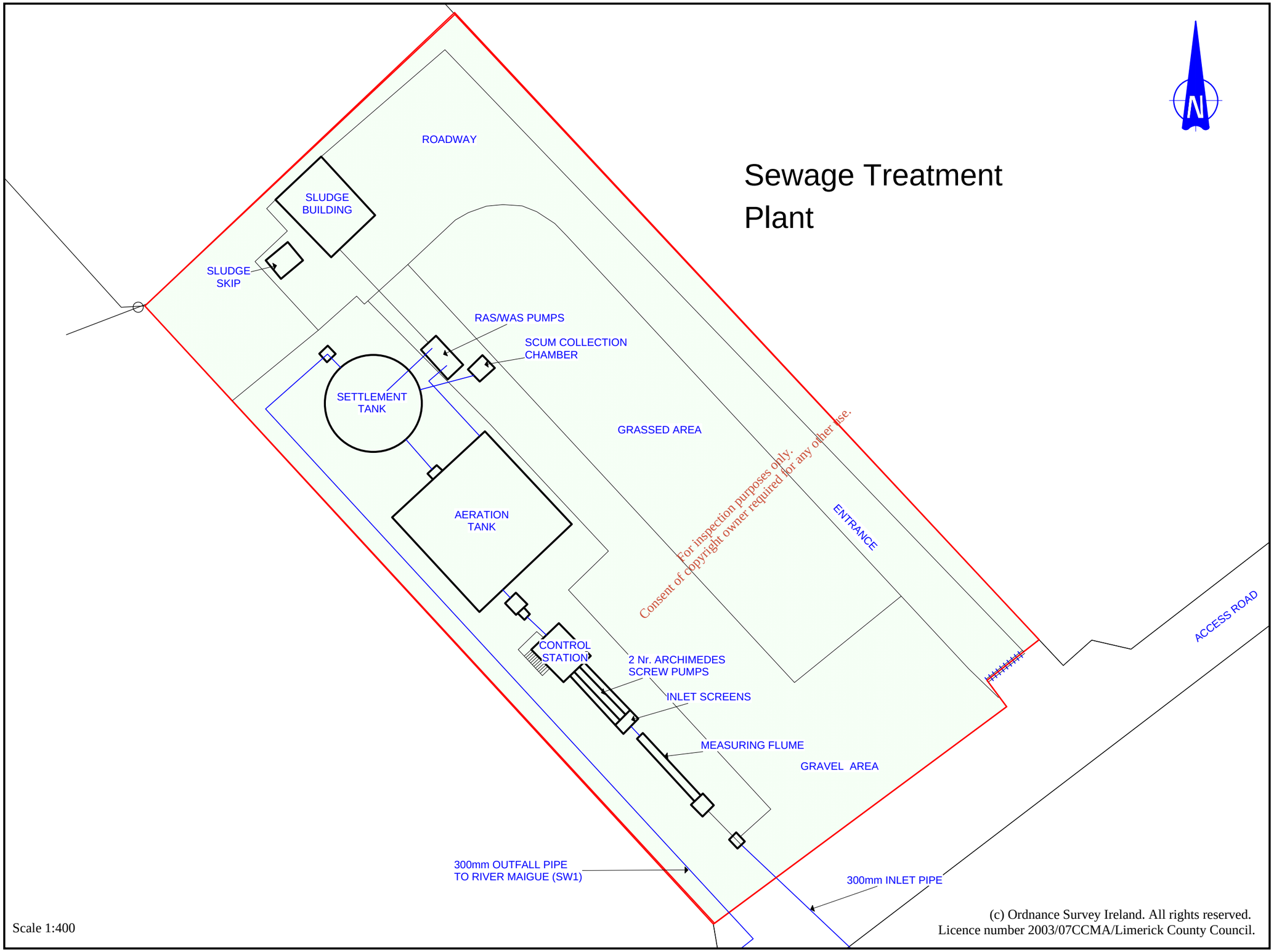
Mott MacDonald

MAP 2 - CROOM WWTP LOCATION MAP

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
P:\Cork\Design\acad\Mapinfo\253740\Croom\Workspaces\MAP_2.wor

ATTACHMENT B.2
MAP 3



Sewage Treatment Plant

LEGEND

WWTP SITE

Scale 1:400

Approved : _____

Mott MacDonald

MAP 3 - CROOM WWTP SITE LAYOUT

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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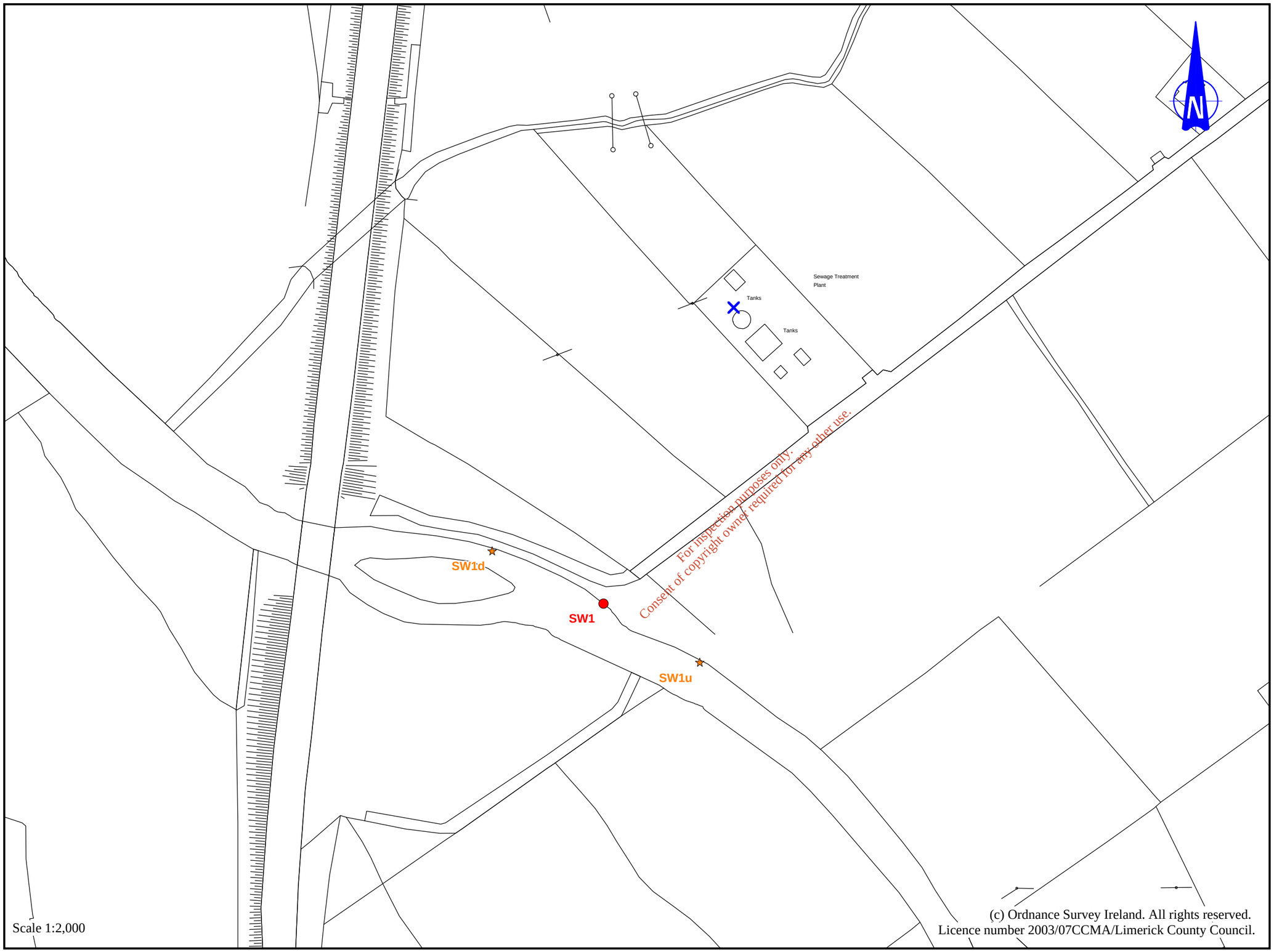
ATTACHMENT B.3
MAP 4



LEGEND

- PRIMARY DISCHARGE POINT
- MONITORING LOCATION

Point	Easting	Northing
SW1	150779	141926
SW1u	150830	141895
SW1d	150720	141954

Discharge Sample taken from Outlet Manhole at E150848 N142083

Approved : _____

Mott MacDonald

MAP 4 - PRIMARY DISCHARGE POINT (SW1)

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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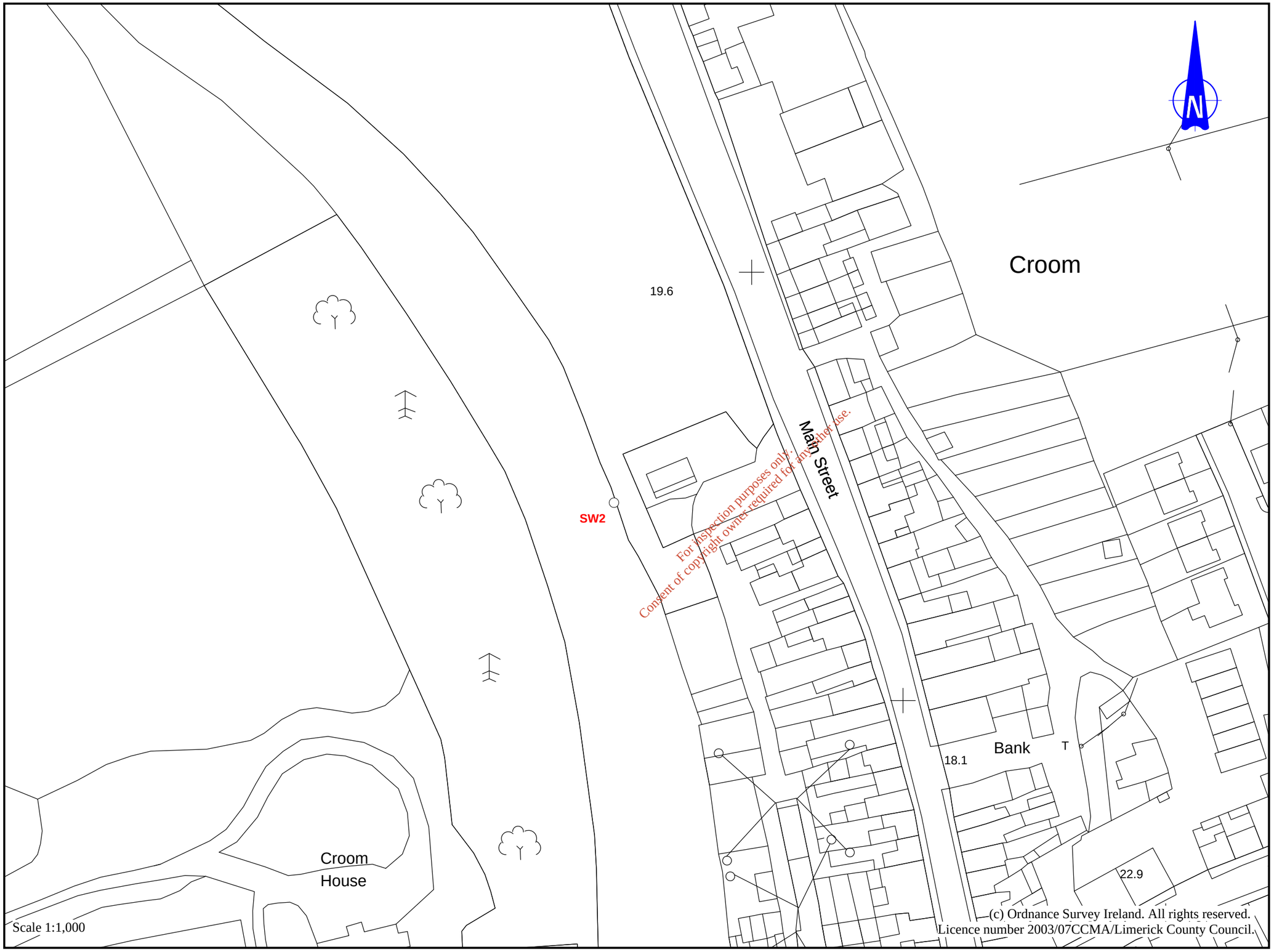
ATTACHMENT B.4
MAP 5



LEGEND

SECONDARY DISCHARGE POINT

Point	Easting	Northing
SW2	150779	141926

Approved : _____

Mott MacDonald

MAP 5 - SECONDARY DISCHARGE POINT (SW2)

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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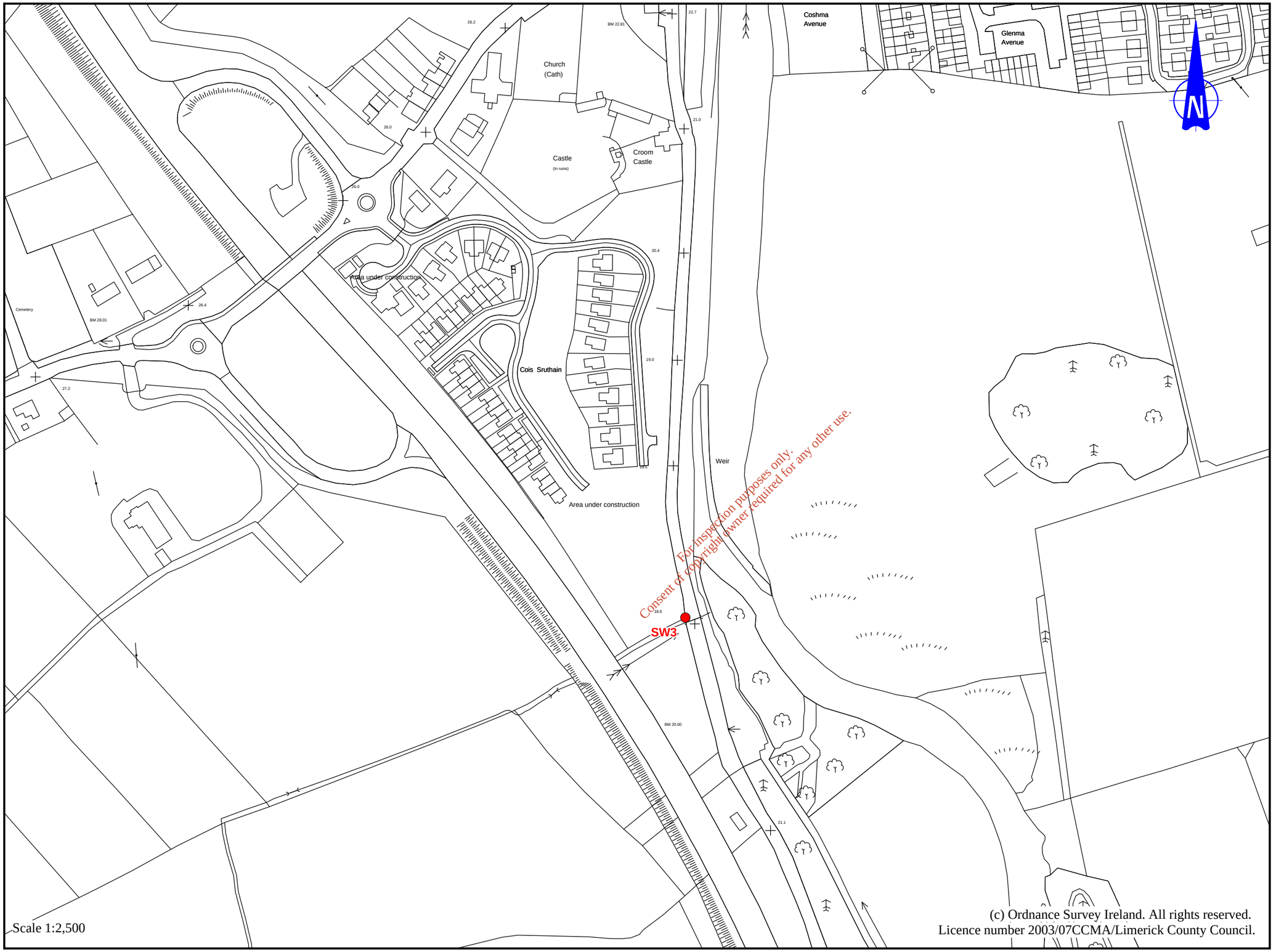
ATTACHMENT B.4
MAP 6



LEGEND

SECONDARY DISCHARGE POINT

Point	Easting	Northing
SW3	151234	140530

Scale 1:2,500

Approved : _____

Mott MacDonald

MAP 6 - SECONDARY DISCHARGE POINT (SW3)

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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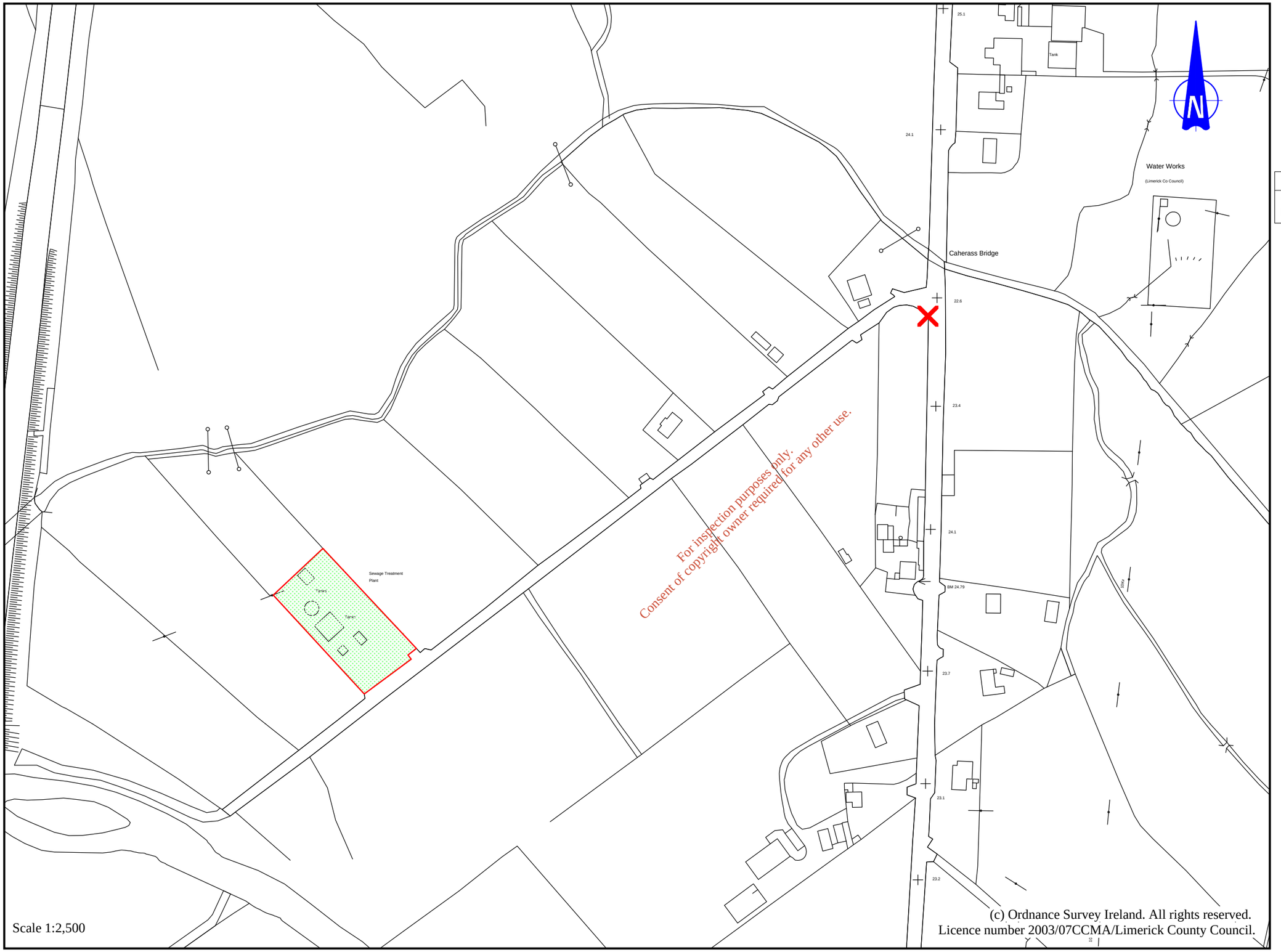
ATTACHMENT B.8
MAP 7



Description	Easting	Northing
SITE NOTICE LOCATION	151260	142270

Scale 1:2,500

Approved : _____

Mott MacDonald

MAP 7 - SITE NOTICE LOCATION

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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LIMERICK COUNTY COUNCIL

SITE NOTICE

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Limerick County Council, County Hall, Dooradoyle, Co. Limerick is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of Croom at the following locations:

Plant Name	Location	National Grid Ref.
Croom WWTP	Croom	E150870 N142070

The Croom WWTP provides preliminary and secondary treatment to sewage from Croom and environs.

Discharge	Function	Townland	Receptor	Grid Reference
Primary	**Main**	**Skagh**	**River Maigue**	**E150779 N141926**
Secondary	**Emergency**	**Skagh**	**River Maigue**	**E151257 N141182**
Secondary	**Emergency**	**Croom**	**Stream**	**E151188 N140504**

A copy of the application for the Waste Water Discharge Licence and such further information relating to the application as may be furnished to the Agency in the course of the Agency's consideration of the Application shall as soon as is practicable after receipt by the Agency be available for inspection or purchase at the

- **Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1890 335599 Telephone: 053-9160600 Fax: 053-9160699 Email:info@epa.ie**

and at

- **Limerick County Council Offices, County Hall, Dooradoyle, Co. Limerick, Telephone: 061-496000 Fax: 061-496001**

Submissions in relation to the application may be made to the Environmental Protection Agency at its headquarters described above.

Classifieds/Planning Notices

CARS FOR SALE

Robert Hogan Car Sales, Drombanna, Kilmallock Road, Limerick. 061 312998 or 087 2569234. 2005 Peugeot 206, 3dr, black, €6,950; 2004 - 2003 Opel Zafiras, 7 seater, from €8,950; 2006 Citroen Berlingo van €6,750; 2002 BMW316, Coupe, auto, €8,500; 2002 Volvo S40, automatic, €4,950; 2005 Ford Mondeo, T-Diesel, €12,500; 2003 Hyundai Getz, sport; 2001 Toyota Corolla, 5dr, €3,950; 2005 Peugeot Partner van, fully refrigerated; 1998 Landrover Discovery, Comm., Jeep, €2,750; 1999 Ford Fiesta, only 40k, NCT-11; 2003 Mazda crew cab, jeep, 65k, €8,950; 2003 Toyota Hiace van; 2004 Opel Astra coupe, 1.8, €9,950. Many more.

SSANGYONG REXTON '05, black in colour, black windows, chrome steps, 7 seater, leather upholstery, beautiful jeep, 100,000 miles on clock. €18,000 must be seen. genuine reason for selling. (086) 8787380

97 TOYOTA Landcruiser, 8 seater, nct 04/10. Call 087 2277280

96 MITSUBISHI Colt green 89k miles, 1 lady owner, nct 08/09. €850. Call 087 2858685

CARAVANS

Brown's Mobile Homes, Fermoy, Co. Cork (025) 32167 (087) 2635795. Massive savings on all Mobile Homes. Top trade in prices on your own Mobile Homes Mobile Homes to clear. Selection of '07 Mobile Homes 28x10 2 bedroom, 32x12 2 bedroom D/G & C/H. Also selection of 35x12 2&3 bedrooms and 37x12 3 bedroom D/G & C/H pitch roof. Top price given on your old mobile home. Free Delivery, sites available in Ballymacoda, East Cork, Garryvoe, East Cork, Ballybunion, Kerry. Mobile homes to clear for house builders from €500

CHILDCARE

ARE YOU a Childminder? Are you interested in setting up as a Childminder? Grants and Training now available. Contact the Childminding Advisor Worker for Limerick on 061 314111.

COMMERCIAL VEHICLES

JEEP COMMERCAL 1997, in very good condition, NCT, hitch, 2.5 turbo diesel, €2,500, 086 2564111.

DANCING

DANCE STUDIO to rent, city centre. Tel 061-318288

DOGS

CORGI DOGS Male. Call 087 2068697

WESTY X Cairn, 6 months, vacc and wormed, both parents family pets. (087) 6768081

DRIVING TUITION

DRIVING SCHOOLS Dooradoyle School Of Motoring. Approved by the road safety authority. Excellent tuition from beginners to test standard. Phone 086 8695904

EDUCATION & TUITION

CMIT – DISTANCE Learning and eLearning courses Accredited Diplomas / Certificates. Courses in Psychology, Counselling, Childcare, Management, Finance, HR, Marketing, Computer and Web Design, Interior Design, Life Coaching. Full Tutor Support. CMIT is registered with FETAC to offer programmes leading to FETAC awards in the National Framework of Qualifications in Ireland. www.cmit.ie 01-2865783 email info@cmit.ie

COLLEGE STUDENT available to give Irish & French Grinds. Call 086 1650889

DANCE CLASSES for Beginners, Ballroom, Lation, Argentine Tango, Jive & Swing at Pery Hotel, Mon , Tues & Fridays website: www.shallwedance.ie Contact Bridget Harte 086-3811065

Fountain of Knowledge Learning Centre, Castletroy. Now enrolling Senior infants to Leaving Certificate. Small groups, experienced teachers. Academic Assessment. Telephone 061 334414 / 085 1481252 www.learningcentre.ie

GRIND WANTED in 1st year Chemisty and Physics in preparation for GAMSAT medical exam, Call, 086-3166610

LEAVING CERT Economics tuition in Parteen, experienced qualified teacher, exam orientated. Call 086 8301738

EDUCATION/ TEACHING

ACCOUNTANCY GRINDS to Honours Leaving and College. Also, Mid Term/Easter Revision Courses. Accountant & Lecturer. Group discounts. Office in NCW, Janet 069 59872/087-1351100

NEWLY/RECENTLY qualified primary teacher? Interested in giving grinds? Phone 085-7344001

STUDY FRENCH of the Riviera this Summer. The French language school Ennis is now offering courses for secondary students in the south of France this Summer. Contact Le Livre d'Or at 087 9333131 or www.french-school.ie

FARM & GARDEN

CALF SCOUR - use 4 in 1 or Crypto. Cell Count - use Cell Meter. Spillanes Waterford 087 2573645

DANGEROUS TREES Removed, Tree Topping, Hedges trimmed, Full Landscaping, Patios, Garden Walks, Ground Work, Clearing removed. Full Insurance. Phone 087-2820621.

ESCALLONIA, GRISELENIA green beech,golden privot and green privot. Contact 087 2926550/ 062 55450

GARDENERS GOLD Organic Compost. Mushroom compost with horse and chicken manure. Composted over 2 years. No smells. Recommended by Teagasc. in 20kg Bags. Buy 10 for €55 get 2 bags free, loose bulk available. Can deliver. See www.gardenersgold.ie. Info at gardenersgold.ie. (052)-37986/ (086)-4032510 anytime.

GARDENERS GOLD We now make and erect raised vegetable and flower beds filled with compost and topsoil mixed to customers requirements. See www.gardenersgold.ie. 086-4032510 anytime

GARDENERS GOLD old oak half whiskey barrells €50 each, buy two get six bags of compost free. see www.gardenersgold.ie 086-4032510 anytime. Can deliver.

GRAZING 100 Acres approx, Fedamore area. Term 1st Dec. Top class land. Phone (087) 2963336 Brendan Hayes

LARGE TREES and Hedging for Sale. Trees include: varieties of Maple, Alder, Mountain Ash, Golden Ash, Willow, Oak, Silver Birch, White Himalayan Birch, etc. All 9 - 10ft. tall, strong trunks from only €20 each. 6ft. Bush Fruit trees, Apple, Pear, Plum, Cherry - only €12 each. 6ft. + Fast Growing evergreen Conifer Specimens for shelter and privacy. Whitethorn (Hawthorn) 3ft. tall strong, well-rooted plants suitable for REPS Scheme only €45 per 100 plants. Order now, for planting Mid-November. Green Beech 2-5ft. from only €80/100 plants. Copper Beech 3ft. only €250/100 plants, 4 1/2-5ft. only €350/100 plants. All above hedging and trees excellent quality well-rooted plants available mid-November onwards. All are bare-root, mid-November is start of season. Enquiries now are welcome. The following hedging available now: Escallonia and Olearia for exposed or seaside planting. Laurel, Leylandii (green or gold), Photinia Red Robin etc. All are potted and strong, excellent quality. Best prices nationwide for hedging. Don't delay, call today to Hillview Nursery, Sixmilebridge, Co. Clare. Nursery Open: Monday-Saturday, 9.30am-6.00pm; Sunday 2.00pm-6.00pm; 100 yards from square in Sixmilebridge up Clonlara road, next door to the "Auction Rooms." Telephone 087 4128507.

ROUND BALES of hay for sale, 2007 crop, reasonably priced. Call 086 8395899

TONY BARRY Garden & Maintenance A variety of spring garden services offered including hedge trimming, prunning, preparing of flower beds, powerwashing, cleaning, clearing & removal, laying of patios, pathways, shrubberies and all types of fencing. We also do maintenance contracts on gardens & properties. Call 087 2725308 / 061 351153

GARDEN BARK Mulch (Weed suppresser), special offer on garden bark mulch, graded in bulk. Free delivery. Lorry loads of moss peat, loose. Tel: (086) 2664605

FARM MACHINERY & EQUIPMENT

O'CONNORS GARAGE Knocknagoshel, Abbeyfeale, Co. Kerry. 068-46142 Fax: 068 46548. 2006 Valtra T160 + suspensions; 2005 Valta 6350 Hi Tech; 2004 Valtra T130, 3500 HRS; 2002 Valtra 6400 + loader; 2000 Valtra 8150, Hi Tech; 2004 JD 6520, TLS; 2003 JD 64205, TLS; 1997 JD 6900, choice; 1997 JD 6600 + Rossmore loader; 1996 JD 6300; 2002 JD 6310; 2000 JD 6210; 2002 New Holland TS90, 3000 HRS, mint; 1998 Case 4240XL + Quicke loader; 1990 Case 5130, clean; 1992 Lamborghini 77480, clean; 1995 Landini 10,000 + loader, 3000 HRS; 2001 MF 4255; 1996 MF 3095. Tractors to clear: 1982 Ford 7600, new type engine, MK3; 1980 Ford 4600, clean; Ford 3600, new tyres; 1990 MF 3085, 4x4; 2002 JCB 2CX, Quick Att., + Swivel Bucket; 2000 JCB 2CX, with compressor; Keenan Diet, Feeder 100, Classic, wash + chop, clean; 2000 Benford, Swivel Dumper.

FIAT 880 with rossmore fl 80 loader, €5,500 ono. Call 087 6758567

YANMARA 5 tonne digger, €5,500 ono. Call 087 6758567

FARM SERVICES

FOR ALL farm buildings Slatted tanks silage slabs, retaining walls, ground work undertaken with digger. Phone Joe Lynch (086) 8221642, (061) 923112, (087) 7807172

Suir Vale Harriers -Prompt collection of dead or disabled animals, covering East Limerick and North/South Tipperary area. Phone office-0504 54224, Gerry Kennedy - 087 7772675, and Seamus O' Dwyer-087 6481897.

FOR SALE

CAR BOOT Sale. Barrigtons Car Park, Limerick (opposite the absolute hotel). Sundays @ 10am - 2pm, selling? arrive @9.00am, €10 per pitch. Entrance fee: €1 per adult, children free. Right of Admission Reserved.

FIREWOOD LOGS, dry, hardwoods and softwoods, delivered in various quantities. Contact Adare area. Phone 087-8347676

NEW OR Used Shipping Containers ex Limerick. We deliver or you collect. Perfect condition. Aqua-Trans Shipping 061/372500

RECESSION BUSTING BARGAIN 2 new marble fireplaces. Dublin Corbel and Lisburn. Cost 1,200 euro each. First 550 euro each secures. (086) 8208899

GARDENING & LANDSCAPING

CONTRACT LAWN Mowing Service available, residential estates cut and maintained, 12 month contract, special off season rate. Tel 086-6858383

SPRINGTIME SPECIALS at Granagh Nurseries Award Winning Garden Centre

HAY & SILAGE

150 BALES of Silage, Murroe area. Call 087 6758567

30 ROUND bales of silage for sale, excellent quality, Ballyneety area. €20 each. Call 087 2598498

40 ROUND BALES of silage for sale. Kildimo area. Phone 0877704214

50 BALES of good silage for sale. Phone 087-2554364

EXCELLENT QUALITY round bales of silage delivered. Call 087 6177999

FOR SALE round bales of hay suitable for horses and cattle. Also round bales of silage and haylage. Phone 086 2365212/061-397362

LARGE QUANTITIES of chopped round bales of silage. Delivered/collected. Phone 086-8339459

HAY & STRAW

1000 SQUARE bales of hay for sale, excellent quality, no rain. For collection at weekends only. Ballyneety area. 087 0650843

BIG SQAURE Bales of bedding barley straw, deliverd. Call 086 6858383

Dry baled wood shavings for sale, delivered. Call 086 8196016

FOR SALE round bales of hay and haylage -Adare area. tel;061396443

GOOD QUALITY hay and haylage for sale, can deliver. Call 086 2326234

ROLLED BARLEY for sale €160 per tonne. Contact Thomas O'Neill Grain Merchants, Castleconnell. Phone 087-6738687 or 061-372088

ROUND BALES of barley oaten and wheaten straw also round bales of good quality hay. Delivered. Contact Aidan Martin 052/62463 or 087/1363729

ROUND BALES of hay and straw for sale, delivered. Phone 086-2530720

SMALL SQUARE bales of hay and straw for sale. 087 2557999

HEALTH

SPIRITUAL HEALING in Limerick for appointment contact aebhanne o'callaghan MNFSH on 087 9192311'

HOLIDAYS GENERAL

BALLYBUNION AT Easter/Summer, lovely comfortable 4 s tar approved house ideally located, private gardens. Call 087 9834739

KILKEE, NEW 3 bed house in town centre, all mod cons, fully furnished, parking. Call 087 2541915

SPAIN, AVAIL of low cost flights to Malaga.Beachfront 2 bed apartment for rent in Duquesa Costa Del Sol, all mod cons, sleeps up to 6. 1 min walk to Port with bars, shops & restaurants. Complex includes 4 pools, gym, tennis courts. Close to top golf courses inc. Finca Cortesin, Sotogrande & Valderama. Prices from €300 per wk. Contact 086-8192105 or view www.duquesabreaks.com

HOME SERVICES

PROPERTY CLAIM DIRECT, Damage from Storm, Plumbing Leaks, Fire, Flood, Oil, Burglary. Making an Insurance Claim.We Act for You No Win No Fee 1st Survey Free.1890711711/ 0876860768 www.property-claimsdirect.ie

HOME SERVICES

POWER WASHING Service, house, paths, patios and driveways power washed. Keen rates. Call Noel 087 9226529.

HOSTING ENTERTAINING SERVICES

WHY NOT book yourself a fun, free girls' night in and take advantage of loads of hostess benefits such as 10% off all sales generated, exclusive hostess gifts and of course your chance to use your 10% off voucher. Alternatively please contact me if you would like to see a catalogue as I also do a mail order service with free delivery. Finally I would like to make you aware we do have Party Organiser positions in this area so if you would like to know more about how I earn €150+ by having fun please contact me on 085-1271228.

HYPNOTHERAPY

HYPNOSIS LIMERICK Feeling stressed, not coping? Help with stress, phobias, nerves, fears, blushing, shyness, lack of confidence, low self-esteem, personal problems, stammering, insomnia, eating disorders, motivation, slimming, stop smoking. For further information or appointment contact Michael Payne, Hypnotherapy Centre, 62, Catherine Street, Limerick. Established 1985. Telephone (061) 413500.

INDUST & COMM PROP TO LET

OFFICE TO rent in O'Connell St, Limerick, large office with reception area optional. Also offices to share in O'Connell St, kitchen and toilet facilities included in both. Reduced rents. Phone Declan at (061) 404472

WAREHOUSE TO let, 20ft x 60ft, quiet secure area, 10 mins from city (086) 2579304 (087) 2579304

YARD TO LET Secure yard, quiet area, 10 mins from city. (086) 2579304 (087) 2579304

INSULATION

BIOFOAM INSULATION Spray foam insulation for attics, commercial or domestic. Phone 065-6829994 or 085-7175399

LAND & DEVELOPMENT

WANTED, FARM land to rent, Clare/Limerick area, anything considered. Phone 087-8551685

WANTED, ½ - ¾ acre site adjacent to N21 Newcastlewest to Croagh area, common sense money available. Call 087 0628577

LIVESTOCK GENERAL

ANGUS BULLS Limerick Foynes Road, pedigree breather, top breathing lines. Call 087 2678720

PAINTING & DECORATING

PAINTER FOR Hire. Interior & Exterior, good references, (087) 9699618

PATHS & DRIVES

PAVING CONTRACTOR Available. Registered and fully insured. Residential and Commercial. Driveways, patios, kerbing etc. 25 years experience, very reasonable rates. No job too big or too small. Contact 087-8311776

PLASTERERS

PLASTERING CONTRACTOR Available for private houses, site work etc. C2 VAT Reg. Tel (086) 8796730

PROPERTY

BUILD A home to your own design from as little as €220,000, selection of one off sites to choose from, builders contract also available. Call 087 7979928

SITUATIONS VACANT

A SUCCESSFUL company looking for self-motivated, hard-working individuals for a distributor/sales position. Great financial rewards from the start. Full training and vehicle provided. Clean B driving licence. Contact 093 52827 - Office Hours.

DEBT COLLECTORS/ Agents required for Limerick area. Previous experience in a similar role an advantage. Reply with CV to: brendan.keogh@everydayfinance.ie

FEELING THE pinch?Would an extra €100-€150 per week for 8-10 hours work help? Betterware are now recruiting part time catalogue distributors and collectors in this area, no cash outlay, immediate start. Ring Mary 085 8258371

General Worker required with driving licence. Duties include working in garage, washing and cleaning coaches/bus's. Please apply to Hynan Coach Services on 061 381700.

NURSE REQUIRED for City Centre General Practive, full or part time position considered, Please reply with cv to Box Number RLI112 Limerick Leader, 54 O'Connell Street, Limerick.

OPPORTUNITY BECKONS IN 2009 International Company has a New Sales Career for you. Car owners will earn circa 1K per week. Contact Michael @ 061 633394

SITUATIONS VACANT

HAVE YOU BEEN RECENTLY MADE REDUNDANT? WANT A CAREER CHANGE?,000 €1,000 (ote) plus per week with no upper limit. Interested? Calling to an existing client base in the Limerick area, the successful candidate will receive a full 3 week training programme with the opportunity of moving into a management position within 12 months based on reaching agreed targets, call James@087-2306063 to arrange interview.

QUALIFIED STYLIST required full/part-time position. Contact The Hair Shop, Castletroy, 061-337961

WORK from home , genuine business Contact 0879383616.

SOCIAL & INTRODUCTIONS

AT EURO INTRODUCTIONS Today is the first day of the rest of your life. Romance, Friendship. Phone: 021 4315180 or 087 2902320. Everyone met locally.

USEFUL SERVICES

SERVICED OFFICES virtual offices, training rooms available. Call 061-502000 or visit www.officeireland.ie

TARMACADAM SPECIALLISTS All types of Driveways; Kerbing; Tar and Chip; Block Paving. For FREE QUOTATION, contact phone 087-2820621.

WANTED

WANTED All kinds of scrap metal, steel etc, small and largre amounts collected, Phone 087-2820621

WELDING

FITTER / WELDER available. Replies to box no: 220

PLANNING NOTICES

APPLICATION TO PLANNING AUTHORITY

Limerick County Council: Application is being made to Limerick Co. Council by Ann-Marie Keyes, C/o Gilleece McDonnell O'Shaughnessy Ltd, for planning permission to construct a dwellinghouse, detached garage, waste water treatment system (Envirocare), entrance and associated site works at Ballycahane, Manister, Croom, Co. Limerick.
The planning application may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of the planning authority during its public opening hours and a submission or observation in relation to the application may be made to the authority in writing on payment of the prescribed fee within the period of five weeks beginning on the date of receipt by the authority of the application.

APPLICATION TO PLANNING AUTHORITY

Limerick County Council: I, John English, am applying to Limerick County Council for full planning permission for dwellinghouse, garage, entrance, proprietary treatment system and associated site works at Castlelerkin, Pallasgreen, Co. Limerick.
The planning application may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of the planning authority during its public opening hours and a submission or observation in relation to the application may be made to the authority in writing on payment of the prescribed fee within the period of five weeks beginning on the date of receipt by the authority of the application.

PLANNING NOTICES

APPLICATION TO PLANNING AUTHORITY

Limerick County Council: We, Michael & Helen Hayes, wish to apply to the above named authority for permission to construct a dwelling, garage, entrance, waste water treatment system and all ancillary site works at Templeathea West, Athea, Co. Limerick. The planning application may be inspected, or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of the planning authority during its public opening hours and a submission or observation in relation to the application may be made to the authority in writing on payment of the prescribed fee within the period of 5 weeks beginning on the date of receipt by the authority of the application.

APPLICATION TO PLANNING AUTHORITY

Limerick County Council
Planning permission sought to close up an existing vehicular entrance to a dwelling house and to construct a new entrance to include the demolition of a disused pump house and all ancillary site works at Castleroberts, Adare, Co. Limerick. Signed: Martin O'Farrelly. This planning application may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of Limerick County Council, during its public opening hours, and a submission or observation in relation to the application may be made to the authority in writing on payment of the prescribed fee within the period of 5 weeks beginning on the date of receipt by the authority of the application.

Limerick County Council | Comhairle Chontae Luimnigh

PUBLIC NOTICES

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Limerick County Council, County Hall, Dooradoyle, Co. Limerick is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of **Caherconlish** at the following locations:

Plant Name	Location	National Grid Ref.
Caherconlish WWTP	Caherconlish	E168250 N149700

The Caherconlish WWTP provides preliminary, secondary and tertiary treatment and nutrient removal to sewage from Caherconlish and environs.

Discharge	Function	Townland	Receptor	Grid Reference
Primary	Main	Hundredacres East	Groody River	E168303 N149754
Secondary	Emergency	Hundredacres East	Groody River	E168222 N149713

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Limerick County Council, County Hall, Dooradoyle, Co. Limerick is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of **Cappamore** at the following locations:

Plant Name	Location	National Grid Ref.
Cappamore WWTP	Cappamore	E177620 N151300

The Cappamore WWTP provides preliminary and secondary treatment and nutrient removal to sewage from Cappamore and environs.

Discharge	Function	Townland	Receptor	Grid Reference
Primary	Main	Gortnascarry	Mulkear River	E177583 N151275
Secondary	Emergency	Turagh	Mulkear River	E177477 N151325
Secondary	Emergency	Dromsallagh	Stream	E176452 N151288

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Limerick County Council, County Hall, Dooradoyle, Co. Limerick is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of **Croom** at the following locations:

Plant Name	Location	National Grid Ref.
Croom WWTP	Croom	E150870 N142070

The Croom WWTP provides preliminary and secondary treatment to sewage from Croom and environs.

Discharge	Function	Townland	Receptor	Grid Reference
Primary	Main	Skagh	River Maigue	E150779 N141926
Secondary	Emergency	Skagh	River Maigue	E151257 N141182
Secondary	Emergency	Croom	Stream	E151188 N140504

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Limerick County Council, County Hall, Dooradoyle, Co. Limerick is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of **Doon** at the following locations:

Plant Name	Location	National Grid Ref.
Doon WWTP	Doon	E182950 N150220

The Doon WWTP provides preliminary, secondary and tertiary treatment and nutrient removal to sewage from Doon and environs.

Discharge	Function	Townland	Receptor	Grid Reference
Primary	Main	Kilmoylan Lower	Doon Stream	E182919 N150229
Secondary	Minor	Cooga Upper	Doon Stream	E182996 N150339

A copy of the applications for each of the above Waste Water Discharge Licences and such further information relating to the applications as may be furnished to the Agency in the course of the Agency's consideration of the Applications shall as soon as is practicable after receipt by the Agency be available for inspection or purchase at the:

- **Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1890 335599 Telephone: 053-9160600 Fax: 053-9160699 Email:info@epa.ie**

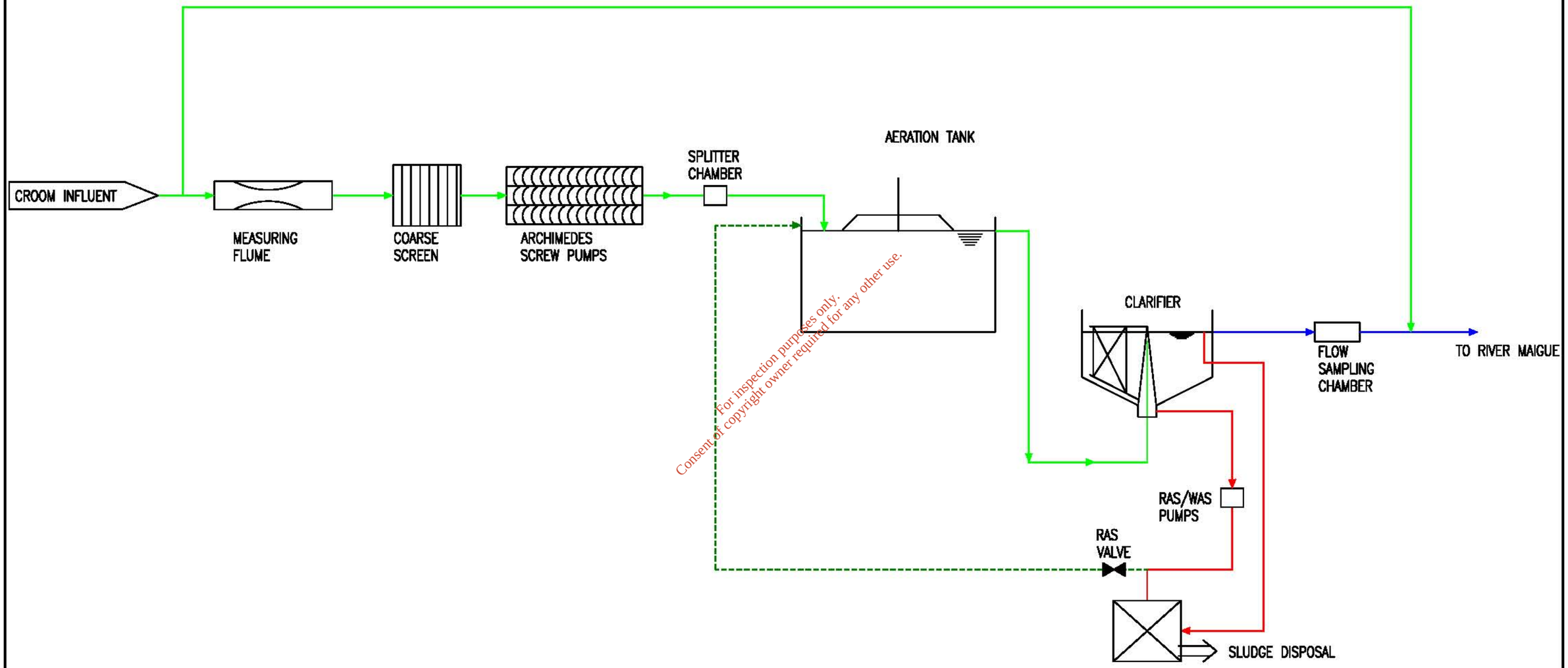
and at

- **Limerick County Council Offices, County Hall, Dooradoyle, Co. Limerick, Telephone: 061-496000 Fax: 061-496001**

Submissions in relation to the applications may be made to the Environmental Protection Agency at its headquarters described above.

ATTACHMENT C.1

MAP 8



SLUDGE
SCREENINGS
WASTEWATER
SLUDGE LIQUOR / WASHWATER
TREATED EFFLUENT
FERRIC SULPHATE

Mott MacDonald

MAP 8 – CROOM WWTP PROCESS FLOW DIAGRAM

REVISION : A
DATE : FEBRUARY 2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
JOB NR. 253740
DRG NR. 253740FG301

Table D2 - Croom

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING	VERIFIED
SW1	PRIMARY	LIMERICK COUNTY COUNCIL	RIVER	RIVER MAIGUE	NONE	150779	141926	Y
SW2	SECONDARY	LIMERICK COUNTY COUNCIL	RIVER	RIVER MAIGUE	NONE	151257	141182	Y
SW3	SECONDARY	LIMERICK COUNTY COUNCIL	RIVER	STREAM	NONE	151188	140504	N

Attachment E.2

- Environmental Laboratory Services Ltd.
  - Company Profile
  - Quality Control Arrangements
  - Accreditation

Environmental Laboratory Services Limited
Acorn Business Campus
Mahon Industrial Park, Blackrock
Cork, Ireland

Tel: +353 (0)21 453 6141
Fax: +353 (0)21 453 6149
Email: brendan@elsltd.com

COMPANY PROFILE

Environmental Laboratory Services Ltd is one of Ireland's leading laboratories providing independent testing services for industry, professional consultants and local authorities.

An Irish owned company in operation since 1998, ELS employs fourteen analytical and sampling staff in a purpose built facility in Cork.

Our success stems from our dedication to excellent service and unrivalled emphasis on quality and reliability.

We have an extensive range of ISO17025 INAB accredited tests, which we are continually expanding in line with customer demands.

Our testing service includes:

- ***Waste water analysis***
- ***Surface Water analysis***
- ***Ground water and surface water analysis***
- ***Potable (drinking) water analysis***
- ***Waste landfill licence compliance for local authorities***
- ***Sludge and sludge leachate testing***
- ***Soil analysis***

We have two QA personnel fulfilling internal auditing and QC inspection roles.

By employing the latest technologies, we are in a position to process large numbers of samples efficiently and therefore offer fast turnaround times and high customer service levels.

For further information please contact:

Brendan Murray
Sales Manager
Environmental Laboratory Services Ltd
Mobile +353 (0)87 2273077
elsbrendan@eircom.net
www.elsltd.com

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 111T

ELS — COMMITTED TO CUSTOMER SERVICE

Environmental Laboratory Services Limited
Acorn Business Campus
Mahon Industrial Park, Blackrock
Cork, Ireland

Tel: +353 (0)21 453 6141
Fax: +353 (0)21 453 6149
Email: brendan@elsltd.com

QUALITY CONTROL ARRANGEMENTS

Quality Control Arrangements

The ELS Ltd Quality System is ILAB, ISO17025 accredited. See attached accreditation summary sheet.

Proficiency Schemes

ELS participate in the EPA Interlaboratory Proficiency Scheme for anion, cation and metal analysis.
ELS also participate in the Aquacheck and Accustandard Proficiency Scheme for VOC,SVOC pesticides and PAH compounds by GC/MS .

Test Methods

In compliance with internal procedure QP14, all tests performed by ELS Ltd are in accordance with internationally accepted validated methods such as APHA Standard Methods, USEPA Methods.

It is ELS policy to monitor the validity of tests undertaken.

- This monitoring shall include some or all of the following where applicable:
- Use of Certified Reference Materials (CRM's) or internal quality control using secondary reference materials.
- Testing of Quality Control Check Samples and generation of control charts.
- Participation in interlaboratory proficiency schemes
- Introduction of Blind Samples for Analysis per GLP16
- Final Quality Control Checks on completed reports
- Review and QC Check of analysis data by the Technical manager and QA Co-Ordinator
- Comparison of results with other laboratories
- Spike recovery measurement
- Replicate tests using the same or different methods
- Retesting of retained items
- Correlation of results for different characteristics of an item
- Generation of calibration curves and calibration standard response tracking
- Analysis of samples in duplicate

Onsite Sampling Protocol

The following requirements apply to site sampling:

- Trained and experience personnel only are used
- Sample kits are made up with required container and preservative for each test required
- The sample must record the sample name, date, time, location ,grid references and conditions
- The ELS sample submission and chain of custody accompanies all samples
- All samples are clearly labelled to agree with the submission sheet
- Grab sampling is done use a 3m sample pole at the specified location
- ELS Ltd require Irish grid reference for all samples before proceeding with a project
- Caretakers are notified in advance of visits to treatment plants
-

For further information please contact:

Brendan Murray
Sales Manager
Environmental Laboratory Services Ltd
Mobile +353 (0)87 2273077
elsbrendan@eircom.net
www.elsltd.com

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 111T

ELS — COMMITTED TO CUSTOMER SERVICE

ELS LTD INAB ACCREDITATION SCHEDULE SUMMARY SHEET

Miscellaneous (P,G,W,S)
Ammonia/Ammonium 0.007-1mg/l N EW003
Chloride 2.6-250 mg/l EW015
COD 8-1500 mg/l EW094
Nitrate 0.12-50 mg/l N EW034
Nitrite 0.013-1 mg/l N EW035
pH 4 – 10 pH Units EW138
Phosphate 0.009-1 mg/l P EW007
Total Phosphorous 0.03-1 mg/l P EW002
Total Nitrogen 1.0 - 150mg/l N EW022

Miscellaneous (P,G,S)
Bromate 1 to 50ug/l BRO3 (EW137)
Colour 2.5-50mg/l PtCCo (EW021)
Dissolved Oxygen 1 to 10 mg/l (EW043)
Sulphate 1-250mg/l SO4(EW016)
Suspended Solids 1-1000mg/l (EW013)
Total Dissolved Solids 1-1000mg/l (EW046)
Total Hardness 3-330mg/l CaCO3 (EM099)
Total Oxidised Nitrogen 0.138-51mg/l N (EW051)

Metals EM130 (P,G,S)
Aluminium 5.0 – 500 µg/l
Antimony 0.1 – 10µg/l
Arsenic 0.2 - 20µg/l
Barium 1.0 - 100µg/l
Boron 0.02 – 2mg/l
Cadmium 0.1 – 10µg/l
Calcium 1.0 – 100mg/l
Chromium 1.0 - 100µg/l
Cobalt 1.0 - 100µg/l
Copper 3 - 4000µg/l
Iron 5.0 - 500µg/l
Lead 0.3 - 30µg/l
Magnesium 0.3 – 20mg/l
Manganese 1.0 - 100µg/l
Mercury 0.02 - 2µg/l
Molybdenum 1.0 - 100µg/l
Nickel 0.5 - 50µg/l
Potassium 0.2 – 20mg/l
Selenium 0.2 - 20µg/l
Sodium 0.5 – 50mg/l
Strontium 1.0 - 100µg/l
Tin 1.0 - 100µg/l
Vanadium 1.0 - 100µg/l
Zinc 1.0 - 100µg/l

SI439 Potable Water VOCs & THM
EO025 (P,G,S)
Benzene 0.1-35 µg/l
1.2-Dichloroethane 0.1-35 µg/l
Tetrachloroethene 0.1-35 µg/l
Trichloroethene 0.1-35 µg/l
Chloroform 1.0-150 µg/l
Bromoform 1.0-35 µg/l
Dibromochloromethane 1.0-35 µg/l
Bromodichloromethane 2.0-35 µg/l

Other VOC's EO025 (P,G,S)
Bromomethane 0.5 - 35 µg/l
Ethyl Ether/Diethyl Ether0.5 - 35 µg/l
11 Dichloroethene0.5 - 35 µg/l
Iodomethane/Mehyl Iodide 0.5 - 35 µg/l
Carbon Disulphide 0.5 - 35 µg/l
Allyl Chloride0.5 - 35 µg/l
Methylene Chloride/DCM 5.0 - 35 µg/l
2-Propenenitrile/Acrylonitrile 2.0 - 35 µg/l
Chlormethyl Cyanide 0.5 - 35 µg/l
Hexachlorobutadiene0.5 - 35 µg/l
Trans-1,2 Dichloroethene0.5 - 35 µg/l
MtBE0.5 - 35 µg/l
11 Dichloroethane0.5 - 35 µg/l
22 Dichloropropane0.5 - 35 µg/l
Cis-12 Dichloroethene0.5 - 35 µg/l
Methyl Acrylate5.0 - 35 µg/l
Bromochloromethane0.5 - 35 µg/l
Tetrahydrofuran5.0 - 35 µg/l
111 Trichloroethane0.5 - 35 µg/l
1-Chlorobutane0.5 - 35 µg/l
Carbon Tetrachloride0.5 - 35 µg/l
11 Dichloropropene0.5 - 35 µg/l
12 Dichloropropane0.5 - 35 µg/l
Dibromomethane0.5 - 35 µg/l
Methyl Methacrylate0.5 - 35 µg/l
13 Dichloropropene, cis2.0 - 35 µg/l
MIBK/4 Methyl 2 Pentanone 2.0 - 35 µg/l
Toluene0.5 - 35 µg/l
13 Dichloropropene,trans2.0 - 35 µg/l
Ethyl Methacrylate2.0 - 35 µg/l
112 Trichloroethane0.5 - 35 µg/l
13 Dichloropropane0.5 - 35 µg/l
2 Hexanone1.0 - 35 µg/l
12 Dibromoethane0.5 - 35 µg/l
Chlorobenzene0.5 - 35 µg/l
1112 Tetrachloroethane2.0 - 35 µg/l
Ethyl Benzene0.5 - 35 µg/l
m & p Xylene0.5 - 35 µg/l
O Xylene0.5 - 35 µg/l
Stryene2.0 - 35 µg/l
Isopropyl Benzene0.5 - 35 µg/l
Bromobenzene0.5 - 35 µg/l
1122 Tetrachloroethane0.5 - 35 µg/l
123 Trichloropropane2.0 - 35 µg/l
Propyl Benzene0.5 - 35 µg/l
2-Chlorotoluene0.5 - 35 µg/l
4 Chlorotoluene0.5 - 35 µg/l
135 Trimenthylbenzene0.5 - 35 µg/l
Tert Butyl Benzene0.5 - 35 µg/l
124 Trimethlbenzene0.5 - 35 µg/l
Sec Butyl Benzene0.5 - 35 µg/l
13 Dichlorobenzene0.5 - 35 µg/l
P Isopropyltoluene0.5 - 35 µg/l
14 Dichlorobenzene0.5 - 35 µg/l
12 Dichlorobenzene0.5 - 35 µg/l
N Butyl Benzene0.5 - 35 µg/l
Hexachloroethane5.0 - 35 µg/l
12 Dibromo 3Chloropropane 2.0 - 35 µg/l
124 Trichlorobenzene0.5 - 35 µg/l
123 Trichlorobenzene0.5 - 35 µg/l

PAH EO129 (P,G,S)
Range 0.01 - 0.2 µg/l
Acenaphthene
Benzo (a) Anthracene
Benzo (a) Pyrene
Benzo (b) Fluoranthene
Benzo (ghi) Perylene
Benzo (k) Fluoranthene
Chrysene
Dibenzo (ah) Anthracene
Fluoranthene
Fluorene
Indeno (123-cd) Pyrene
Phenanthrene
Pyrene

Acid Herbicides (P,G,S)
Range 0.01 - 0.2 µg/l
2,4,5-T H
2,4-D H
2,4-DB H
MCPA H
Picloram H

Organophosphorus Pesticides(P,G,S)
Range 0.01 - 0.2 µg/l
Famphur OP
Methyl Parathion OP
Parathion OP
Phionazin OP

Organochlorine Pesticides (P,G,S)
Range 0.01 - 0.2 µg/l
Aldrin
BHC Alpha isomer OC
BHC Beta isomer OC
BHC Delta isomer OC
Dieldrin OC
Endosulphan Alpha isomer OC
Endosulphan Beta isomer OC
Endosulphan Sulphate OC
Endrin OC
Heptachlor Epoxide OC
Heptachlor OC
Lindane OC
P,P' DDE OC
P,P'-DDD OC
P,P'-DDT OC

Notes
1.Sample Matrix:P=Potable Water (Drinking) , G=Ground Water , S=Surface Water, W=Waste Water

Table E3 - Croom

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SW1	PRIMARY	MONITORING	150779	141926	Y
aSW1u	PRIMARY	SAMPLING	150830	141895	Y
aSW1d	PRIMARY	SAMPLING	150720	141954	Y

Attachment F.1

- Site Synopsis: Lower River Shannon SAC, site code 002165;
- Site Synopsis: River Shannon and River Fergus Estuaries SPA, site code 004077;
- Correspondence sent to the National Parks and Wildlife Service
- Map 9 – Croom: Designated Sites
- Water Quality Management Plan for the Lower Shannon Catchment
- River Water Quality Data

SITE SYNOPSIS

SITE NAME : LOWER RIVER SHANNON

SITE CODE : 002165

This very large site stretches along the Shannon valley from Killaloe to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The Shannon and Fergus flow through Carboniferous limestone as far as Foynes, but west of Foynes Namurian shales and flagstone predominate (except at Kerry Head, which is formed from Old Red Sandstone). The eastern sections of the Feale catchment flow through Namurian Rocks and the western stretches through Carboniferous Limestone. The Mulkear flows through Lower Palaeozoic Rocks in the upper reaches before passing through Namurian Rocks, followed by Lower Carboniferou Shales and Carboniferous Limestone. The Mulkear River itself, immediately north of Pallas Green, passes through an area of Rhyolites, Tuffs and Agglomerates. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarriff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.

The site is a candidate SAC selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter.

The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g. the Deel River, Mulkear River, and Maigue River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulnasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River Estuary.

Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats, but have their own unique characteristics, e.g. Poulnasherry Bay is stony and unusually rich in species and biotopes. Plant species are typically scarce on the mudflats, although there are some Eel-grass beds (*Zostera* spp.) and patches of green

algae (e.g. *Ulva* sp. and *Enteromorpha* sp.). The main macro-invertebrate community, which has been noted from the inner Shannon and Fergus estuaries, is a *Macoma-Scrobicularia-Nereis* community.

In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate: swards of Common Cord-grass (*Spartina anglica*) frequently occur in the upper parts of the estuaries. Less common are swards of Glasswort (*Salicornia europaea* agg.). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and Club-rushes (*Scirpus maritimus, S. tabernaemontani* and *S. triquetrus*). In addition to the nationally rare Triangular Club-rush (*Scirpus triquetrus*), two scarce species are found in some of these creeks (e.g. Ballinacurra Creek): Lesser Bulrush (*Typha angustifolia*) and Summer Snowflake (*Leucojum aestivum*).

Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus Estuary and at Ringmoylan Quay. The dominant type of saltmarsh present is Atlantic salt meadow occurring over mud. Characteristic species occurring include Common Saltmarsh Grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*), Saltmarsh Rush (*Juncus gerardi*), Long-bracted Sedge (*Carex extensa*), Lesser Sea-spurrey (*Spergularia marina*) and Sea Arrowgrass (*Triglochin maritima*). Areas of Mediterranean salt meadows, characterised by clumps of Sea Rush (*Juncus maritimus*) occur occasionally. Two scarce species are found on saltmarshes in the vicinity of the Fergus Estuary: a type of robust Saltmarsh-grass (*Puccinellia foucaudii*), sometimes placed within the compass of Common Saltmarsh-grass (*Puccinellia maritima*) and Hard-grass (*Parapholis strigosa*).

Saltmarsh vegetation also occurs around a number of lagoons within the site. The two which have been surveyed as part of a National Inventory of Lagoons are Shannon Airport Lagoon and Cloonconeen Pool. Cloonconeen Pool (4-5 ha) is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by overwash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat. The adjacent shore features one of the best examples of a drowned forest in Ireland. Aquatic vegetation in the lagoon includes typical species such as Beaked Tasselweed (*Ruppia maritima*) and green algae (*Cladophora* sp.). The fauna is not diverse, but is typical of a high salinity lagoon and includes six lagoon specialists (*Hydrobia ventrosa, Cerastoderma glaucum, Lekanesphaera hookeri, Palaemonetes varians, Sigara stagnalis* and *Enochrus bicolor*). In contrast, Shannon Airport Lagoon (2 ha) is an artificial saline lake with an artificial barrier and sluiced outlet. However, it supports two Red Data Book species of Stonewort (*Chara canescens* and *Chara cf. connivens*).

Most of the site west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs. The cliffs in the outer part of the site are sparsely vegetated with lichens, Red Fescue, Sea Beet (*Beta vulgaris*), Sea Campion (*Silene maritima*), Thrift and Plantains (*Plantago* spp.). A rare endemic Sea Lavender (*Limonium recurvum* subsp.

pseudotranswallinum) occurs on cliffs near Loop Head. Cliff-top vegetation usually consists of either grassland or maritime heath. The boulder clay cliffs further up the estuary tend to be more densely vegetated, with swards of Red Fescue and species such as Kidney Vetch (*Anthyllis vulneraria*) and Bird's-foot Trefoil (*Lotus corniculatus*).

The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna. Species richness increases as conditions become more sheltered. All shores in the site have a zone of sand hoppers at the top and below this each of the shores has different characteristic species giving a range of different shore types in the pcSAC.

The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore. Well developed lichen zones and littoral reef communities offering a high species richness in the sublittoral fringe and strong populations of *Paracentrotus lividus* are found. The communities found are tolerant to sand scour and tidal streams. The infralittoral reefs range from sloping platforms with some vertical steps to ridged bedrock with gullies of sand between the ridges to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. Kelp is very common to about 18m. Below this it becomes rare and the community is characterised by coralline crusts and red foliose algae.

Other coastal habitats that occur within the site include the following:

- stony beaches and bedrock shores – these shores support a typical zonation of seaweeds (*Fucus* spp., *Ascophyllum nodosum* and kelps).
- shingle beaches - the more stable areas of shingle support characteristic species such as Sea Beet, Sea Mayweed (*Matricaria maritima*), Sea Campion and Curled Dock (*Rumex crispus*).
- Sandbanks which are slightly covered by sea water at all times – there is a known occurrence of sand/gravel beds in the area from Kerry Head to Beal Head.
- sand dunes - a small area of sand dunes occurs at Beal Point. The dominant species is Marram Grass (*Ammophila arenaria*).

Flowing into the estuaries are a number of tidal rivers.

Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon being broad, generally slow-flowing and naturally eutrophic; the Fergus being smaller and alkaline; while the narrow, fast-flowing Cloon is acid in nature. The Feale and Mulkear catchments exhibit all the aspects of a river from source to mouth. Semi-natural habitats, such as wet grassland, wet woodland and marsh occur by the rivers, however, improved grassland is most common. One grassland type of particular

conservation significance, *Molinia* meadows, occurs in several parts of the site and the examples at Worldsend on the River Shannon are especially noteworthy. Here are found areas of wet meadow dominated by rushes and sedges and supporting a diverse and species-rich vegetation, including such uncommon species as Blue-eyed Grass (*Sisyrinchium bermudiana*) and Pale Sedge (*Carex pallescens*).

Floating river vegetation characterised by species of Water-crowfoot (*Ranunculus* spp.), Pondweeds (*Potamogeton* spp.) and the moss *Fontinalius antipyretica* are present throughout the major river systems within the site. The rivers contain an interesting bryoflora with *Schistidium alpicola* var. *alpicola* recorded from in-stream boulders on the Bilboa, new to county Limerick.

Alluvial woodland occurs on the banks of the Shannon and on islands in the vicinity of the University of Limerick. The woodland is up to 50m wide on the banks and somewhat wider on the largest island. The most prominent woodland type is gallery woodland where White Willow (*Salix alba*) dominates the tree layer with occasional Alder (*Alnus glutinosa*). The shrub layer consists of various willow species with sally (*Salix cinerea* ssp. *oleifolia*) and what appear to be hybrids of *S. alba* x *S. viminalis.* The herbaceous layer consists of tall perennial herbs. A fringe of Bulrush (*Typha* sp.) occurs on the riverside of the woodland. On slightly higher ground above the wet woodland and on the raised embankment remnants of mixed oak-ash-alder woodland occur. These are poorly developed and contain numerous exotic species but locally there are signs that it is invading open grassland. Alder is the principal tree species with occasional Oak (*Quercus robur*), Elm (*Ulmus glabra, U. procera*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and the shrubs Guelder-rose (*Viburnum opulus*) and willows. The ground flora is species-rich.

Woodland is infrequent within the site, however Cahiracon Wood contains a strip of old Oak woodland. Sessile Oak (*Quercus petraea*) forms the canopy, with an understorey of Hazel and Holly (*Ilex aquifolium*). Great Wood-rush (*Luzula sylvatica*) dominates the ground flora. Less common species present include Great Horsetail (*Equisetum telmateia*) and Pendulous Sedge (*Carex pendula*).

In the low hills to the south of the Slievefelim mountains, the Cahernahallia River cuts a valley through the Upper Silurian rocks. For approximately 2km south of Cappagh Bridge at Knockanavar, the valley sides are wooded. The woodland consists of Birch (*Betula* spp.), Hazel, Oak, Rowan (*Sorbus aucuparia*), some Ash (*Fraxinus excelsior*) and Willow (*Salix* spp.). Most of the valley is not grazed by stock, and as a result the trees are regenerating well. The ground flora feature prominent Greater wood-rush and Bilberry (*Vaccinium myrtillus*) with a typical range of woodland herbs. Where there is more light available, Bracken (*Pteridium aquilinum*) features.

The valley sides of the Bilboa and Gortnageragh Rivers, on higher ground north east of Cappamore, support patches of semi-natural broadleaf woodland dominated by Ash, Hazel, Oak and Birch. There is a good scrub layer with Hawthorn, Willow, Holly and Blackthorn (*Prunus spinosa*) common. The herb layer in these woodlands is often open with a typically rich mixture of woodland herbs and ferns. Moss species diversity is high. The woodlands are ungrazed. The hazel is actively coppiced in places.

There is a small area of actively regenerating cut away raised bog at Ballyrorheen. It is situated approx. 5km north west of Cappamore Co. Limerick. The bog contains some wet areas with good moss (*Sphagnum*) cover. Species of particular interest include the Cranberry (*Vaccinium oxycoccos*) and the White Sedge (*Carex curta*) along with two other regionally rare mosses including *S. fimbriatum*. The site is being invaded by Birch (*Betula pubescens*) scrub woodland. Both commercial forestry and the spread of rhododendron has greatly reduced the overall value of the site.

A number of plant species that are Irish Red Data Book species occur within the site - several are protected under the Flora (Protection) Order, 1999:

- Triangular Club-rush (*Scirpus triquetrus*) - in Ireland this protected species is only found in the Shannon Estuary, where it borders creeks in the inner estuary.
- Opposite-leaved Pondweed (*Groenlandia densa*) - this protected pondweed is found in the Shannon where it passes through Limerick City.
- Meadow Barley (*Hordeum secalinum*) - this protected species is abundant in saltmarshes at Ringmoylan and Mantlehill.
- Hairy Violet (*Viola hirta*) - this protected violet occurs in the Askeaton/Foynes area.
- Golden Dock (*Rumex maritimus*) - noted as occurring in the River Fergus Estuary.
- Bearded Stonewort (*Chara canescens*) - a brackish water specialist found in Shannon Airport lagoon.
- Convergent Stonewort (*Chara connivens*) - presence in Shannon Airport Lagoon to be confirmed.

Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar-tailed Godwit (476; 1995/96). In the past, three separate flocks of Greenland White-fronted Goose were regularly found but none were seen in 1993/94.

Other wintering waders and wildfowl present include Greylag Goose (216; 1995/96), Shelduck (1,060; 1995/96), Wigeon (5,976; 1995/96); Teal (2,319; 1995-96); Mallard (528; 1995/96), Pintail (45; 1995/96), Shoveler (84; 1995/96), Tufted Duck (272; 1995/96), Scaup (121; 1995/96), Ringed Plover (240; 1995/96), Grey Plover (750; 1995/96), Lapwing (24,581; 1995/96), Knot (800; 1995/96), Dunlin (20,100; 1995/96), Snipe (719, 1995/96), Black-tailed Godwit (1062; 1995/96), Curlew (1504; 1995/96), Redshank (3228; 1995/96), Greenshank (36; 1995/96) and Turnstone (107; 1995/96). A number of wintering gulls are also present, including Black-headed Gull (2,216; 1995/96), Common Gull (366; 1995/96) and Lesser Black-backed Gull (100; 1994/95). This is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank.

A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4010 individuals at Loop Head, 1987)

There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary consisting of at least 56-68 animals (1996). This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. Otter, a species also listed on Annex II of this directive, is commonly found on the site.

Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon while the Mulkear catchment excels as a grilse fishery though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of Lamprey.

Two additional fish of note, listed in the Irish Red Data Book, also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). Only the former has been observed spawning in the Shannon.

Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River.

There is a wide range of landuses within the site. The most common use of the terrestrial parts is grazing by cattle and some areas have been damaged through over-grazing and poaching. Much of the land adjacent to the rivers and estuaries has been improved or reclaimed and is protected by embankments (especially along the Fergus Estuary). Further, reclamation continues to pose a threat as do flood relief works (e.g. dredging of rivers). Gravel extraction poses a major threat on the Feale.

In the past, Cord-grass (*Spartina* sp.) was planted to assist in land reclamation. This has spread widely, and may oust less vigorous colonisers of mud and may also reduce the area of mudflat available to feeding birds.

Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory - except in the upper estuary, reflecting the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences by industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats.

Fishing is a main tourist attraction on the Shannon and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The River Feale is a designated Salmonid Water under the

E.U. Freshwater Fish Directive. Other uses of the site include commercial angling, oyster farming, boating (including dolphin-watching trips) and shooting. Some of these may pose threats to the birds and dolphins through disturbance. Specific threats to the dolphins include underwater acoustic disturbance, entanglement in fishing gear and collisions with fast moving craft.

This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitat lagoon, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

17.05.2005

SITE SYNOPSIS

SITE NAME: RIVER SHANNON AND RIVER FERGUS ESTUARIES SPA

SITE CODE: 004077

The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises all of the estuarine habitat west from Limerick City and south from Ennis, extending west as far as Killadysert and Foynes on the north and south shores respectively of the River Shannon (a distance of some 25 km from east to west). Also included are several areas in the outer Shannon estuary, notably Clonderalaw Bay and Poulnasherry Bay, as well as the intertidal areas on the south shore of the Shannon between Tarbert and Beal Point.

The site has vast expanses of intertidal flats. The main macro-invertebrate community present is a *Macoma-Scrobicularia-Nereis* community which provides a rich food resource for the wintering birds. Other species occurring include Common Cockle (*Cerastoderma edule*), Lugworm (*Arenicola marina*), the polychaete *Nepthys hombergii*, the gastropod *Hydrobia ulvae* and the crustacean *Corophium volutator*. Eelgrass (*Zostera* spp.) is present in places, along with green algae (e.g. *Ulva* spp. and *Enteromorpha* spp.). Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Characteristic species occurring include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*) and Saltmarsh Rush (*Juncus gerardi*). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and club-rushes (*Scirpus maritimus, S. lacustris* subsp. *tabernaemontani)*. Also found is the nationally rare Triangular Club-rush (*Scirpus triqueter*). Elsewhere in the site the shoreline comprises stony or shingle beaches.

The site is the most important coastal wetland site in the country and regularly supports in excess of 50,000 wintering waterfowl (mean of 59,183 for the 4 seasons 1996-97 to 1999/00), a concentration easily of international importance. The site has internationally important populations of Dunlin (14,987), Black-tailed Godwit (706) and Redshank (1,983) - all figures are average peaks for 3 of the 5 seasons in the 1995/96-1999/00 period. A further 16 species have populations of national importance, i.e. Cormorant (148), Whooper Swan (141), Greylag Goose (88), Shelduck (895), Wigeon (3,025), Teal (1,558), Pintail (40), Shoveler (56), Scaup (76), Golden Plover (4,073), Grey Plover (564), Lapwing (13,007), Knot (686), Bar-tailed Godwit (481), Curlew (1,231) and Greenshank (33). The site is among the most important in the country for several of these species, notably Dunlin (11% of national total), Grey Plover (7.5% of total), Lapwing (6.5% of total), Redshank (6% of total) and Shelduck (6.0% of total). The site is also used by Oystercatcher (363), Ringed Plover (70), Brent Goose (135), Great Crested Grebe (47), Red-breasted Merganser (14), Mallard (247), Turnstone (71), Mute Swan (54), Grey Heron (25), Black-headed Gull (1,233) and Common Gull (194).

The Shannon / Fergus system was formerly frequented by a Greenland White-fronted Goose population but this declined during the 1980s and 1990s and the birds now appear appear to have abandoned the area. The site provides both feeding and roosting areas for the wintering birds. Habitat quality for most of the estuarine habitats is good. Some species, particularly Whooper Swan and Greylag Goose, utilise areas outside of the site for feeding.

Apart from the wintering birds, large numbers of some species also pass through the site whilst on migration in spring and/or autumn. Regular species include Black-tailed Godwit, Whimbrel and Greenshank.

Much of the land adjacent to the rivers and estuaries has been reclaimed and improved for agriculture and is protected by embankments (especially along the River Fergus estuary). Further reclamation, especially near to the urbanised and industrial areas continues to pose a threat. The site receives pollution from several sources, including industry and agriculture, but it is not known if this has any significant impacts on the wintering birds. Aquaculture occurs in some areas of the site – future increases in this activity could cause disturbance to the habitats and the associated birds. Common Cord-grass (*Spartina anglica*) is well-established and may threaten some of the estuarine habitats. Some disturbance occurs from boating activities.

This site is of great ornithological interest, being of international importance on account of the numbers of wintering birds it supports. It also supports internationally important numbers of three species, i.e. Dunlin, Black-tailed Godwit and Redshank. In addition, there are 16 species that have populations of national importance. For several of the bird species, it is the top site in the country. Also of note is that three of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover and Bar-tailed Godwit. The site is most effectively censused from the air and this is carried out in most winters.

Mott MacDonald

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Dr. Jervis Good
Divisional Ecologist
NPWS Regional Offices (Southern Division)
7 Eastgate Avenue
Eastgate
Little Island
Co. Cork

9 February 2009

Re: Waste Water Discharge Licence Applications

Dear Dr. Good,

Please be advised that Limerick County Council is currently preparing Waste Water Discharge Licence Applications for seven towns, three of which discharge directly to Natura 2000 sites:

Cappamore WWTP – discharge to Bilboa River which is contained within the Lower River Shannon SAC, site code: 002165

Murroe WWTP – discharge to Dooglasha River which is contained within the Lower River Shannon SAC, site code: 002165

Pallaskenry WWTP – discharge to the Upper Shannon Estuary which is designated a SAC and SPA under the EU Habitats Directive (Lower River Shannon SAC, site code: 002165; River Shannon and River Fergus Estuaries SPA, site code: 004077).

The remaining four WWTPs - Croom WWTP, Caherconlish WWTP, Doon WWTP and Kilfinnane WWTP, do not discharge directly to a designated SAC/SPA, however, the waterbodies discharge into the Lower River Shannon SAC and/or the River Shannon and River Fergus Estuaries SPA, further downstream.

As part of the licence application, Mott MacDonald Pettit Ltd. are consulting with the NPWS on behalf of Limerick County Council with regard to determining whether discharges from the seven WWTPs will have a significant effect on the Natura 2000 sites.

Could you please advise, as soon as possible, as to your determination of whether the discharges are likely to have a significant effect on the Lower River Shannon SAC and/or the River Shannon and River Fergus Estuaries SPA.

If you require any additional information, please do not hesitate in contacting the undersigned.

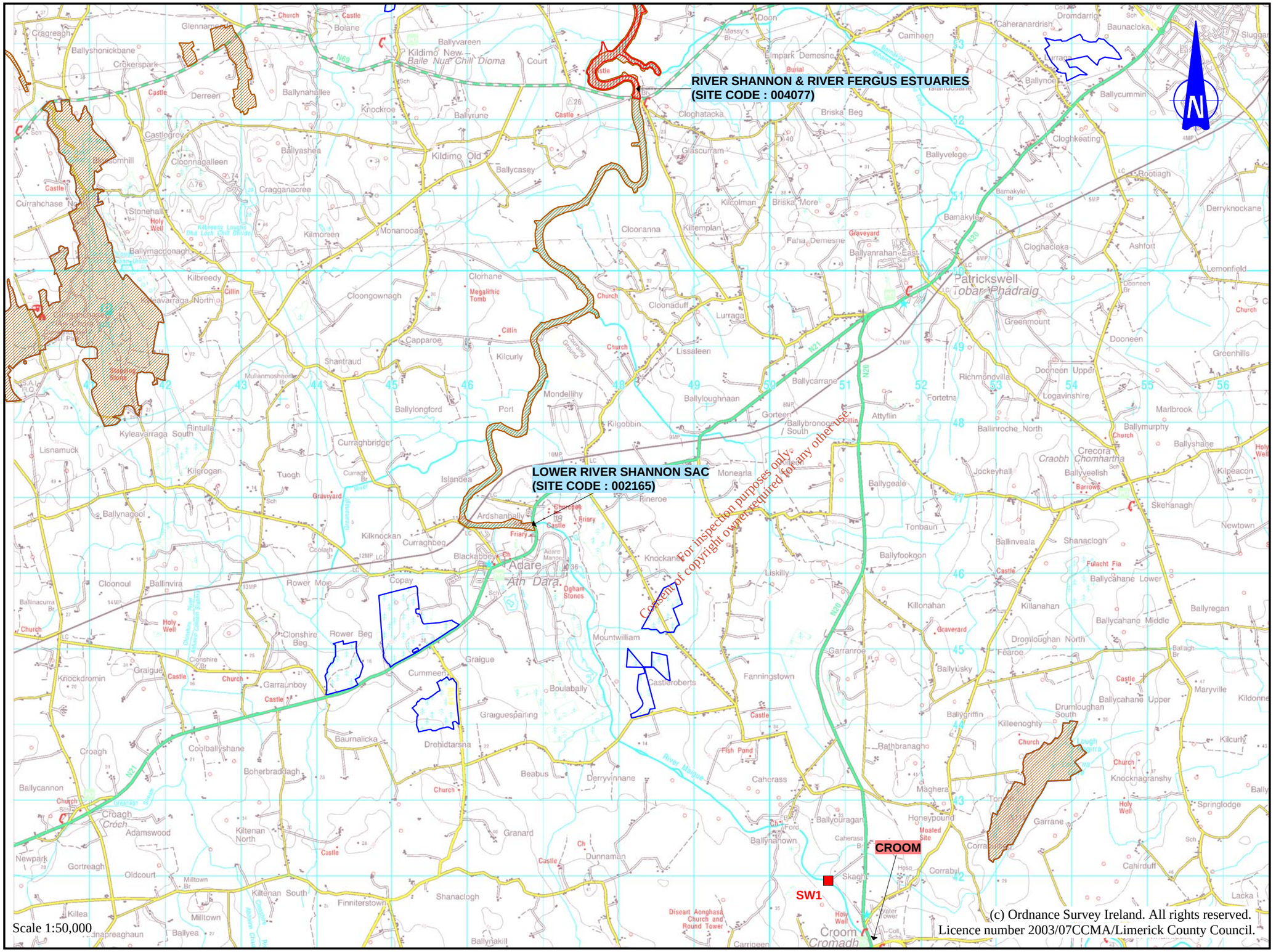
Yours sincerely,
For & on behalf of Mott MacDonald Pettit

Elaine Bennett

Dr. Elaine Bennett

c.c. Mr. Trevor M^{c}Kechnie, Executive Engineer, Limerick County Council

Encl. 253740\Caherconlish\Workspaces\MAP_8.wor – Cappamore: Designated Sites
253740\Croom\Workspaces\MAP_9.wor – Croom: Designated Sites
253740\Doon\Workspaces\MAP_8.wor – Doon: Designated Sites
253740\Kilfinane\Workspaces\MAP_9.wor – Kilfinane: Designated Sites
253740\Murroe\Workspaces\MAP_9.wor – Murroe: Designated Sites
253740\Pallaskenry\Workspaces\MAP_9.wor – Pallaskenry: Designated Sites



Scale 1:50,000

ATTACHMENT F.1
MAP 9

LEGEND

- PRIMARY DISCHARGE POINT
- SAC
- SPA
- NHA
- PNHA

Approved : _____

Mott MacDonald

MAP 9 - CROOM : DESIGNATED SITES

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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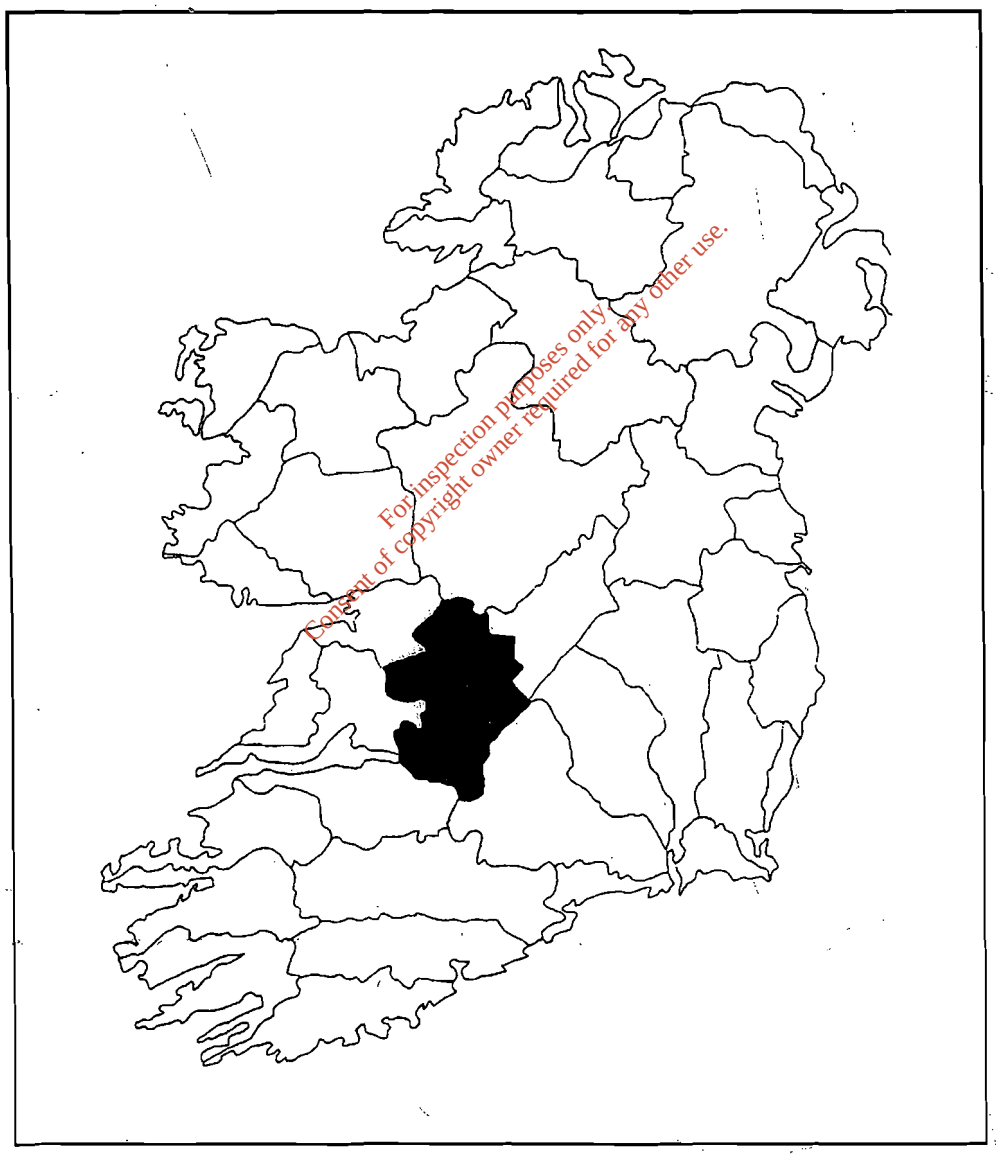
Water Quality Management Plan

for the

LOWER SHANNON CATCHMENT



Clare County Council, Galway County Council, Limerick Corporation,
Limerick County Council, Tipperary (N.R.) County Council.

Water Quality Management Plan

for the

LOWER SHANNON CATCHMENT

Prepared in accordance with Section 15
of the
Local Government (Water Pollution) Act, 1977.

March 1990

Clare County Council, Galway County Council, Limerick Corporation,
Limerick County Council, Tipperary (N.R.) County Council.

This document is based on Volume 1 of a five volume draft report prepared by An Foras Forbartha at the request of the local authorities involved. The titles of the five volumes, some of which are referred to in this document, are as follows:

Volume 1, Main Report
Volume 2, Summary of Water Resources
Volume 3, Abstractions and Discharges
Volume 4, Beneficial Uses and Water Quality Criteria
Volume 5, Water Quality

ACKNOWLEDGEMENTS

The assistance of the following during the investigations described in this report is gratefully acknowledged: the individual members of the local authorities; the Midwest Regional Development Organisation; the Electricity Supply Board; the Office of Public Works; the Geological Survey Office; the Industrial Development Authority; the Institute for Industrial Research and Standards (now EOLAS); Bord na Mona; Bord Failte; An Comhairle Oiliuna Talmhaiochta and An Foras Taluntais (now amalgamated as Teagasc); the Central Statistics Office; the Departments of Agriculture, Environment and Fisheries and Forestry (now Marine); the Shannon Regional Fisheries Board and also various boat hire organisations, angling clubs and tourism associations in the Catchment.

Maps contained in this report are based on Ordnance Survey by permission of the Government (O.S. Ref. 3324).

TABLE OF CONTENTS

		Page No
List of Tables and Figures		(xii)
CHAPTER ONE	GENERAL INTRODUCTION	
	INTRODUCTION	1
	THE CONCEPT OF WATER QUALITY MANAGEMENT	2
	OBJECTIVES OF THE WATER QUALITY MANAGEMENT PLAN	3
	METHODOLOGY ADOPTED IN PREPARING DRAFT PLAN	4
	MAIN ELEMENTS OF DRAFT PLAN	5
	SCOPE OF DRAFT PLAN	6
CHAPTER TWO	THE LOWER SHANNON CATCHMENT	
	INTRODUCTION	7
	THE LOWER SHANNON	7
	RAINFALL	11
	RESOURCES	11
	LOUGH DERG	15
	HYDROGEOLOGY	15
	POPULATION TRENDS	16
	AGRICULTURAL AND INDUSTRIAL ACTIVITY	17
	FUTURE INDUSTRIAL DEVELOPMENT	19
	ADDITIONAL DATA REQUIREMENTS	19
CHAPTER THREE	WATER QUALITY	
	INTRODUCTION	21
	RIVERS AND STREAMS	
	Quality Assessment: General	22
	Quality Assessment: Biological	22
	Quality Assessment: Physicochemical	24
	Lower Shannon: River/Stream Quality Status	25

Page

LOUGH DERG 32

Introduction 32

Water Quality Investigation 34

Surveys of 1921-23 34

A.F.F. Survey - 1972 and 1974 34

A.F.F. Survey of 1975 35

A.F.F. Survey of 1976-78 35

A.F.F. Surveys of 1982 and 1984 38

Nutrient Inputs of Lough Derg 38

The Trophic Status of Lough Derg 41

CHAPTER FOUR BENEFICIAL USES

INTRODUCTION 45

WATER ABSTRACTION 45

FISHERIES 46

Angling 46

Monetary Value of Angling 47

Commercial Fishing 47

Spawning of Game Fish 48

PLEASURE CRUISING 48

RECREATION AND AMENITY 48

WATER POWER GENERATION 49

AREAS OF SCIENTIFIC INTEREST 49

OTHER ACTIVITIES 49

Peat Silt 49

Drainage 49

CHAPTER FIVE WATER QUALITY CRITERIA AND STANDARDS

INTRODUCTION 51

SPECIFIC RECOMMENDATIONS ON WATER QUALITY STANDARDS 52

General Comments 52

Dissolved Oxygen (D.O.) 53

Biochemical Oxygen Demand (B.O.D.) ... 54

Ammonia 55

Page No.

Oxidised Nitrogen (Nitrate and Nitrite) ... 56
Phosphorus (Total and Orthophosphate) ... 56
Rivers 57
Lakes 58
Other Parameters 59

AESTHETIC QUALITIES 60
MIXING ZONES 60

CHAPTER SIX. WASTE ASSIMILATION CAPACITY IN THE LOWER SHANNON CATCHMENT

RIVERS 73
General Comments 73
THE DETERMINATION AT WASTE ASSIMILATION CAPACITY 74
ASSIMILATION CAPACITY OF IMPORTANT LOCATIONS ON RIVERS IN THE LOWER SHANNON CATCHMENT 78
LAKES 78

CHAPTER SEVEN WASTE LOADS AND WATER ABSTRACTIONS

INTRODUCTION 91
ESTIMATED EXISTING WASTE LOADS 91
ESTIMATED FUTURE WASTE LOADS 92
EXISTING WATER ABSTRACTIONS 95

CHAPTER EIGHT EFFLUENT TREATMENT CONSIDERATIONS

INTRODUCTION 96
RIVERS 96
General Considerations 96
Discharges to Rivers 99
Nenagh 99
Castleconnell 100
Killaloe 100
Scarriff 100
Borrisokane 101
Newport 101
Cappamore 102

EntityName	StationName	SampleLabCode	SampleDate	Alkalinity	Ammonium as N	BOD	Chloride	Coliform Bacteria	Colour	Conductivity @ 20°C	Dissolved Oxygen % Saturation	Escherichia Coli (E.Coli)	Faecal Streptococci	Hardness	Nitrates (NO3)	Nitrates(N)	Nitrites(N)	Ortho-phosphate (P)	pH	Salinity	Temperature	Total Oxidised Nitrogen	Total Phosphorus	Total Suspended Solids	Transparency
				mg/l	mg/l	mg/l	mg/l	No/100ml	Hazen	µS/cm		No/100ml	No/100ml	mg/l	mg/l	mg/l	mg/l	mg/l			Deg C	mg/l	mg/l	mg/l	m
MAIGUE	Adare Br	053700056	10/01/2005		0.047	2.05			<40	540	99			235.6		3.61	0.06	0.07	8.2		7.6	3.67		5	
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MAIGUE	Br in Croom	063701991	17/10/2006		0.023	<2		517			99	30	1		1.22				8.3	27.2	17.1				1.5
MAIGUE	Br in Croom	063702306	27/11/2006		0.047	2.05			<50	537	100			289		2.34	0.16	0.071	8.2		6.1	2.49			
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MAIGUE	Br u/s Ballybane br MC 16	073700631	20/03/2007		0.110	<2	23.57			487	109.6				10.41			0.039	8.1		15				
MAIGUE	Br u/s Ballybane br MC 16	073701050	15/05/2007		<0.03	<2	26.06			495	101				10.91			0.039	8.1		15.5				
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MAIGUE	Br u/s Ballybane br MC 16	073701664	10/07/2007		<0.03	2.15	22.1			443	91.9				7.58			0.063	8.2		11.1				
MAIGUE	Br u/s Ballybane br MC 16	073701756	17/07/2007	280	0.040	<3	21			401	79				8.44			0.092	7.9		10				
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MAIGUE	Br u/s Ballybane br MC 16	073702315	18/09/2007	270	0.007	<3	22.7			490	97				10.88			0.042	8.4		5.1				
MAIGUE	Br u/s Ballybane br MC 16	073702455	08/10/2007	250	<0.09	<2	16.81			204	110				4.92			0.032	8.3		10				
MAIGUE	Br u/s Ballybane br MC 16	073703156	10/12/2007	213	0.480	<2	38.86			446	94								8.3		12.1				
MAIGUE	Br u/s Ballybane br MC 16	083700275	21/01/2008		0.160	<2				497	107				11.34			0.038	8.3		15.5				
MAIGUE	Br u/s Ballybane br MC 16	083701007	04/03/2008		0.200	<2				510	137				10.1			0.074	8.3		15.1				
MAIGUE	Br u/s Ballybane br MC 16	083701165	11/03/2008	160	0.150	2.71				499	108				9.39			0.051	8.3		14.3				
MAIGUE	Br u/s Ballybane br MC 16	083701478	07/04/2008	354	<0.03	<2	25.84			394	85				10.81			0.08	7.8		13.9				

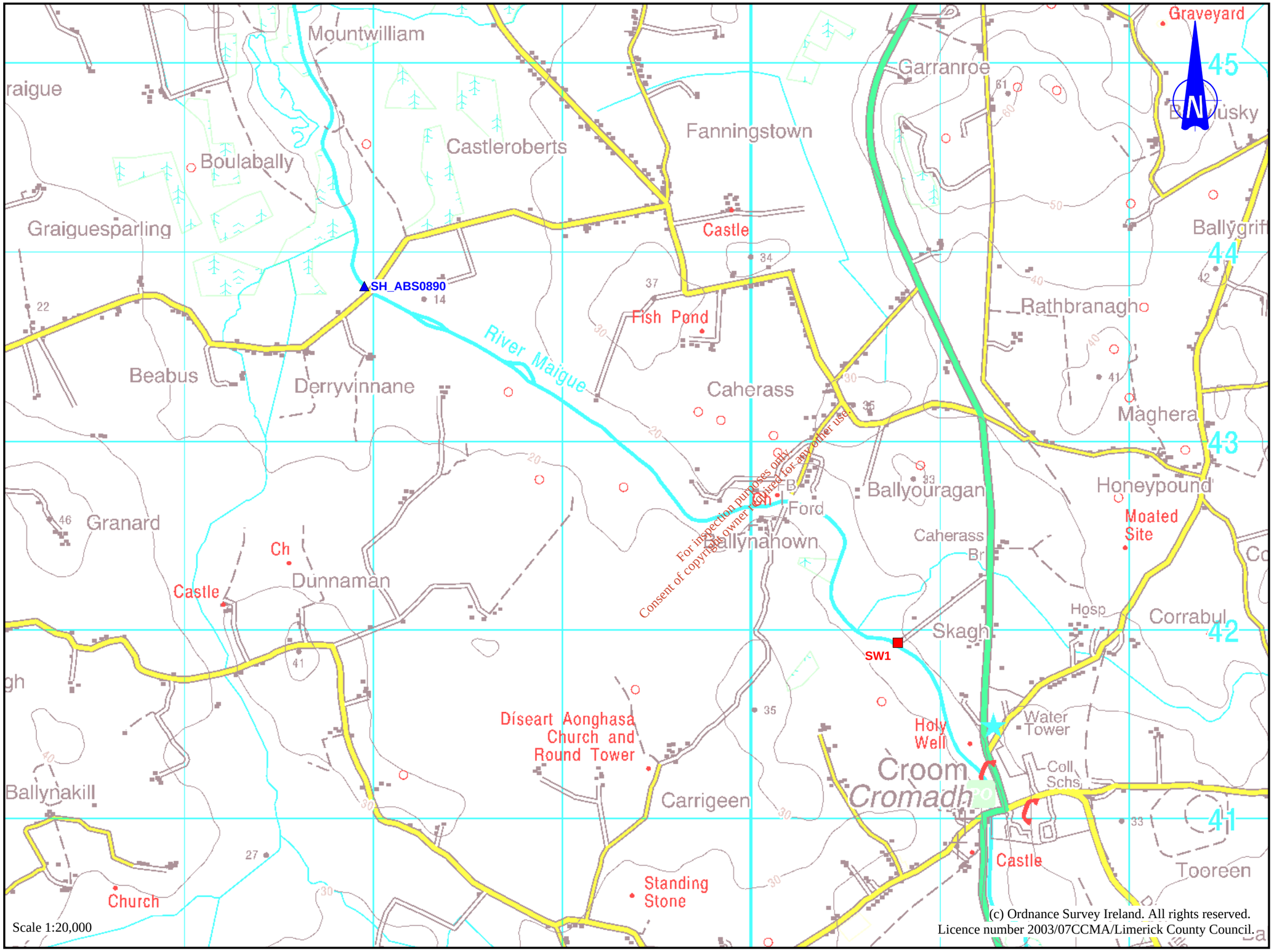
MAIGUE	Br u/s Ballybane br MC 16	083701798	06/05/2008	309	<0.03	3.38	29.62			461	108			10.5			0.11	8.1		12.6				
MAIGUE	Br u/s Ballybane br MC 16	083702295	03/06/2008	236	<0.03	2.07	26.19			353	94			10.23			0.078	8		9.1				
MAIGUE	Br u/s Ballybane br MC 16	083702841	08/07/2008	263	0.070	2.07	22.73			428	102			10.01			0.078	8.1		6.1				
MAIGUE	Br u/s Ballybane br MC 16	083703266	19/08/2008	228.9	0.110	3.05				544	102			0.1			0.053	8.4		7.7				
MAIGUE	Br u/s Ballybane br MC 16	083703732	02/09/2008	352.8	<0.03	>8.13				571	103			13.43			0.052	8.4		6.3				
MAIGUE	Br u/s Ballybane br MC 16	083704243	07/10/2008	189	0.290	5.88	19.9			555	109.1			10.63			0.047	8.4		11.1				
MAIGUE	Br u/s Ballybane br MC 16	083704609	11/11/2008	167.8	0.160	<2	18.39			543	136			11.95			0.002	8.5		11.4				
MAIGUE	Br u/s Ballybane br MC 16	083704880	09/12/2008			<				567	128.2			13.01			0.053	8.3		15				
MAIGUE	Bruree Bridge	053700062	10/01/2005		0.124	<2				408	108			5.57			0.153	8.4		15.7				
MAIGUE	Bruree Bridge	053700303	07/02/2005		0.039	<2			147.7	350	74		175		0.88	0.03	0.134	7.7		14.9	0.91			
MAIGUE	Bruree Bridge	053700521	07/03/2005		0.054	<2			16.5	605			289.3		3.22	<0.013	0.029	8.5		10.8	3.22	0.09		
MAIGUE	Bruree Bridge	053700852	26/04/2005		0.078	<2			<40	517	96		261.8		3.49	<0.02	0.082	8.2		7.6	3.49		11	
MAIGUE	Bruree Bridge	053700942	16/05/2005			<2				569	94.5			13.81			0.05	8.1		14.9				
MAIGUE	Bruree Bridge	053701241	20/06/2005		<0.023	<2				158	95			3.3			0.013	7.8		13.1				
MAIGUE	Bruree Bridge	053701442	19/07/2005		0.023	<2		1300			103	45	1	2.28				8.4	24.2	17.6				<1
MAIGUE	Bruree Bridge	053701757	23/08/2005		0.062	<2				610	93			5.47			0.149	8.3		12				
MAIGUE	Bruree Bridge	053702140	03/10/2005	297	<0.023	<2				163	84			4.6			0.013	7.8		9.2				
MAIGUE	Bruree Bridge	063700112	17/01/2006		0.093	<2				570	122			7.26			0.07	8.5		16.6				
MAIGUE	Bruree Bridge	063700300	20/02/2006		0.078	<2			28	482	97		253.23		2.81	0.04		8.2		10.2	2.85			
MAIGUE	Bruree Bridge	063700640	18/04/2006		<0.023	<2				219	98			6.31			0.019	7.9		5.8				
MAIGUE	Bruree Bridge	063700816	16/05/2006		0.373	4.56			20	429	102		236		2.43	0.15	0.039	8.3		6	2.58			
MAIGUE	Bruree Bridge	063700992	12/06/2006	266	0.031	<2			119	305	84		156		1.28	<0.003	0.07	7.4		13.7	1.26	0.127		
MAIGUE	Bruree Bridge	063701341	08/08/2006		0.039	<2			76	469	86		253		1.52	<0.003	0.075	8.1		15.1	1.5	0.423		
MAIGUE	Bruree Bridge	063701545	28/08/2006		<0.015	<2				409	93.3			11.12			0.072	7.9		8.1				
MAIGUE	Bruree Bridge	063701769	25/09/2006		0.039	<2			21.7	497			243.9		1.65	<0.013	0.032	8.6		12.6	1.65	0.04		
MAIGUE	Bruree Bridge	063701994	17/10/2006		0.047	<2			<30	546			207		1.35	0.02	0.007	8.3		13	1.37			
MAIGUE	Bruree Bridge	063702309	27/11/2006		0.062	2.19				537	97.4			13.86			0.117	8.2		8				
MAIGUE	Castleroberts Bridge	053700057	10/01/2005		0.054	<2			100	583	101		265		0.29	0.018	0.306	8.3		13	0.31	0.346		
MAIGUE	Castleroberts Bridge	053700298	07/02/2005		<0.023	<2				245	95			5.57			0.014	8		6.7				
MAIGUE	Castleroberts Bridge	053700516	07/03/2005		0.031	<2			17.7	383	97		180.1		1.99	0.016	0.029	8.3		10.7	2.006	0.25		
MAIGUE	Castleroberts Bridge	053700847	26/04/2005		<0.023	<2				279	96			5.34			0.013	8		5.5				
MAIGUE	Castleroberts Bridge	053700937	16/05/2005			<2				556	95			12.13			0.122	8.3		14.2				
MAIGUE	Castleroberts Bridge	053701236	20/06/2005		0.023	<2		38			101	7	0	1.15				8.2	28.3	17				2
MAIGUE	Castleroberts Bridge	053701437	19/07/2005		0.023	<2		38			99	6	0	0.91				8.3	30.3	16				3
MAIGUE	Castleroberts Bridge	053701752	23/08/2005		<0.023	<2				256	101.9			4.37			0.012	8.1		10.9				
MAIGUE	Castleroberts Bridge	053702135	03/10/2005	307	<0.023	<2				286	103.1			3.94			0.057	8.4		11.5				
MAIGUE	Castleroberts Bridge	063700107	17/01/2006		0.047	<2			30	520	106				0.29	0.01	0.042	8.2		18.7	0.3			
MAIGUE	Castleroberts Bridge	063700295	20/02/2006		0.156	<2			140	228	95.3		110.4		0.82	0.09	0.03	7.9		12.8	0.91			
MAIGUE	Castleroberts Bridge	063700636	18/04/2006		<0.023	<2				276	102.4			4.03			0.007	7.8		15.6				
MAIGUE	Castleroberts Bridge	063700812	16/05/2006		0.202	2.89																		
MAIGUE	Castleroberts Bridge	063700988	12/06/2006	258	0.023	<2		64			100	3	1	1.4				8.3	26.1	17.3				1.5
MAIGUE	Castleroberts Bridge	063701337	08/08/2006		0.039	<2			34	549	108		261		1.2	0.014	0.063	8.4		12.8	1.21	0.106		
MAIGUE	Castleroberts Bridge	063701541	29/08/2006		<0.023	<2				281	89.8			3.27			0.013	7.9		16.7				
MAIGUE	Castleroberts Bridge	063701765	25/09/2006		0.039	<2			63	459	85.9		270		1.88	0.019	0.106	7.9		6.5	1.9	0.157		
MAIGUE	Castleroberts Bridge	063701990	17/10/2006		0.054	<2			93	437	93		243		0.68	0.024	0.181	8		6.7	0.7	0.212		
MAIGUE	Castleroberts Bridge	063702305	27/11/2006		0.054	2.63			125	361	90.7				0.73	0.007	0.22	7.9		9.2	0.74			
MAIGUE	Cherrygrove Br MC 14	073700197	30/01/2007	265	0.030	<2	22.64			552	101.8			9.14			0.086	8.3		11.3				
MAIGUE	Cherrygrove Br MC 14	073700405	27/02/2007	342	<0.1	<2	33.44			446	91			9.22			0.116	8		10.2				
MAIGUE	Cherrygrove Br MC 14	073700629	20/03/2007		0.110	<2	25.32			476	96.4						0.097	8.2		7				
MAIGUE	Cherrygrove Br MC 14	073701048	15/05/2007		<0.03	<2	48.52			559	100			11.48			0.048	8.5		5.2				
MAIGUE	Cherrygrove Br MC 14	073701341	12/06/2007		<0.03	<2	29.47			459	103			11.91			0.046	8.4		9.8				
MAIGUE	Cherrygrove Br MC 14	073701662	10/07/2007		0.080	2.63	22.3			505	100							8.5		12.1				
MAIGUE	Cherrygrove Br MC 14	073701754	17/07/2007	200	0.100	10	14.5			553	101			12.14			0.041	8.3		15.1				
MAIGUE	Cherrygrove Br MC 14	073701942	07/08/2007	239	<0.09	<2	15.67			562	139			12.71			0.081	8.2		14.3				
MAIGUE	Cherrygrove Br MC 14	073702313	18/09/2007	252	0.009	<3	26.2			553	104			11.83			0.066	8.2		13.9				
MAIGUE	Cherrygrove Br MC 14	073702453	08/10/2007	210	<0.09	<2	27.28			488	94			12.8			0.091	8		13.9				
MAIGUE	Cherrygrove Br MC 14	073703154	10/12/2007	197	0.540	<2	33.04			538	114			17.1			0.007	8.2		12.7				
MAIGUE	Cherrygrove Br MC 14	083700273	21/01/2008		0.090	<2				382	96			11.42			0.088	7.9		9.5				
MAIGUE	Cherrygrove Br MC 14	083701005	04/03/2008		0.110	<2			80	414	93				1.94	0.17	0.079	7.6		6.5	2.11			
MAIGUE	Cherrygrove Br MC 14	083701163	11/03/2008	164	0.140	2.83			<40	521	97		218.2		3.11	0.04	0.06	8.3		7	3.15		9	
MAIGUE	Cherrygrove Br MC 14	083701476	07/04/2008	291	<0.03	<2	23.08		42	469	98.6		252.99		2.93	0.03		8.2		9.5	2.96			
MAIGUE	Cherrygrove Br MC 14	083701796	06/05/2008	265	<0.03	2.06	26.69		<40	483	100		271		2.17	0.14	0.05	8.2		6.4	2.31			
MAIGUE	Cherrygrove Br MC 14	083702293	03/06/2008	258	<0.03	<2	36.34		20	542	119		271		3.16	0.04	0.039	8.4		12	3.2			
MAIGUE	Cherrygrove Br MC 14	083702839	08/07/2008	262	0.050	2.01	19.75		<40	570	86.8				3.91	0.019	0.09	8.1		13.6	3.93			
MAIGUE	Cherrygrove Br MC 14	083703264	19/08/2008	263	0.040	<2			100	425	92		233.3		1.3	<0.07	0.126	7.6		12.7	1.3			
MAIGUE	Cherrygrove Br MC 14	083703730	02/09/2008	296.9	<0.03	<2			47	504	99		258.9		1.44	0.013	0.075	8.1		13.6	1.453			
MAIGUE	Cherrygrove Br MC 14	083704241	07/10/2008	272	0.090	2.03	22.6		79	454	92		248		1.44	<0.003	0.084	7.6		13.8	1.42	0.426		
MAIGUE	Cherrygrove Br MC 14	083704607	11/11/2008	237	0.070	<2	17.91		11.3	574	98.6		265.6		3.24	<0.013	0.045	8.3		9.7	3.24	0.16		
MAIGUE	Cherrygrove Br MC 14	083704878	09/12/2008			<			21	571	92		274		2.83	0.026	0.056	8.2		12.1	2.86	0.09		
MAIGUE	Cherrygrove Bridge	053700059	10/01/2005		0.342	2.77			23	422	101		228.96		2.9	0.03		8.2		10.2	2.93			
MAIGUE	Cherrygrove Bridge	053700300	07/02/2005		0.023	<2		64			99	2	3	1.4				8.3	26.5	17.3				1.5
MAIGUE	Cherrygrove Bridge	053700518	07/03/2005		0.031	<2			30	361	90		188		2.04	0.026	0.035	8.1		11.9	2.069	0.059		
MAIGUE	Cherrygrove Bridge	053700849	26/04/2005		<0.023	<2				155	94			0.96			0.041	7.8		15.5				
MAIGUE	Cherrygrove Bridge	053700939	16/05/2005			2.17			61	435	99		248		1.76	0.013	0.096	7.8		6.5	1.77	0.151		
MAIGUE	Cherrygrove Bridge	053701238	20/06/2005		0.031	<2			96.4	257	91		129		1.3	0.01	0.081	7.6		6.2	1.31	0.135		
MAIGUE	Cherrygrove Bridge	053701439	19/07/2005		<0.023	2.58				210	100.1			3.12			0.012	7.8		11.1				
MAIGUE	Cherrygrove Bridge	053701754	23/08/2005		<0.023	<2				183	95			3.67			0.017	7.7		9.4				
MAIGUE	Cherrygrove Bridge	053702137	03/10/2005	299	<0.023	<2				157	95.7						0.024	7.9		6.8				
MAIGUE	Cherrygrove Bridge	063700109	17/01/2006		0.070	<2				459	112.7			5.29			0.002	8.5		13.6				
MAIGUE	Cherrygrove Bridge	063700297	20/02/2006		0.039	<2			80	438	86.9				1.75	0.013	0.114	7.9		9.7	1.76			
MAIGUE	Cherrygrove Bridge	063700638	18/04/2006		<0.023	<2				255	96.1			5.39			0.011	8.2		4.6				
MAIGUE	Cherrygrove Bridge	063700814	16/05/2006		0.202	4.05				480	93.8			12.84			0.109	8		8.3				
MAIGUE	Cherrygrove Bridge	063700990	12/06/2006	270	0.023	2.55		19			100	1	0	0.92				8.3	30.2	16				3

MAIGUE	Cherrygrove Bridge	063701339	08/08/2006		0.062	4.33			597	102		13.05			0.087	8.4	4.8				
MAIGUE	Cherrygrove Bridge	063701543	28/08/2006		<0.023	<2			247	98		4.3				8.1	9.8				
MAIGUE	Cherrygrove Bridge	063701767	25/09/2006		0.054	2.19		60	546	96.5			0.89	0.008	0.145	8.3	5.9	0.9			
MAIGUE	Cherrygrove Bridge	063701992	17/10/2006		<0.069	<2		50	431	98	248		1.18	<0.002	0.047	7.9	8.2	1.18			
MAIGUE	Cherrygrove Bridge	063702307	27/11/2006		0.070	2.41			497	131.4		4.4			0.072	8.4	17.5				
MAIGUE	Creggane Bridge	053700061	10/01/2005		0.226	2.52			510	103		9.82			0.046	7	7.3				
MAIGUE	Creggane Bridge	053700302	07/02/2005		0.070	<2			496	130		3.16			0.099	8.5	17				
MAIGUE	Creggane Bridge	053700520	08/03/2005		0.086	<2															
MAIGUE	Creggane Bridge	053700851	26/04/2005		0.086	<2			524	95.4		11.89			0.154	7.9	8.9				
MAIGUE	Creggane Bridge	053700941	16/05/2005			<2		90	393	86			1.54	0.008	0.1	8.2	10	1.55			
MAIGUE	Creggane Bridge	053701240	20/06/2005		0.031	<2		90	230	99.6			1.17	<0.002	0.07	8.3	10.1	1.17			
MAIGUE	Creggane Bridge	053701441	19/07/2005		0.031	<2		100	292				1	<0.002	0.043	8	4.7	1			
MAIGUE	Creggane Bridge	053701756	23/08/2005		0.047	<2		70	541	93.4	288.4		1.4	<0.07	0.162	8.1	13.4	1.4			
MAIGUE	Creggane Bridge	053702139	03/10/2005	335	<0.023	<2			212	95						7.9	12.7				
MAIGUE	Creggane Bridge	063700111	17/01/2006		0.202	<2			534	102		11.21			0.056	8.3	6.3				
MAIGUE	Creggane Bridge	063700299	20/02/2006		0.101	<2		30	535	122	254		1.02	0.08	0.141	8.3	14	1.1			
MAIGUE	Howardstown br MC 11	073700195	30/01/2007	260	0.040	<2	24.12	<70	482				1.75	0.004	0.061	8.3	5.5	1.75			
MAIGUE	Howardstown br MC 11	073700403	27/02/2007	290	<0.1	3	23.2	80	425	93	236		1.4	<0.002	0.071	8.5	7	1.4			
MAIGUE	Howardstown br MC 11	073700627	20/03/2007		0.160	<2	26.29	30	557	108	353		2.47	<0.002	0.041	8.3	7.3	2.47			
MAIGUE	Howardstown br MC 11	073701046	15/05/2007		<0.03		48.41	30	547	123	347		2.46	0.005	0.034	8.5	13.2	2.47			
MAIGUE	Howardstown br MC 11	073701339	12/06/2007		<0.03	<2	31.82	30	572	93	334		2.78	0.012	0.08	8.2	12.4	2.79			
MAIGUE	Howardstown br MC 11	073701660	10/07/2007		0.130	3.09	22.8	<90	492	98	298		1.13	<0.002	0.107	8.1	13	1.13			
MAIGUE	Howardstown br MC 11	073701752	17/07/2007	222	0.160	<3	17.3	125	414	92.5	233		0.81	<0.002	0.096	8	14.6	0.81			
MAIGUE	Howardstown br MC 11	073701940	07/08/2007	265	<0.09	<2	17.28	40	554	99.2	299		2	<0.002	0.07	8.32	12.7	2			
MAIGUE	Howardstown br MC 11	073702311	18/09/2007	260	0.015	<3	30.7	80	454	100	261		1.01	<0.002	0.084	8	11	1.01			
MAIGUE	Howardstown br MC 11	073702451	08/10/2007	208	<0.09	<2	37.43	50	457	99	259		0.99	<0.002	0.051	7.9	7.4	0.99			
MAIGUE	Howardstown br MC 11	073703054	10/12/2007	211	0.590	<2	34.18														
MAIGUE	Howardstown br MC 11	083700271	21/01/2008		0.110	<2		40	441	92			3.11	0.07	0.071	7.3	10.7	3.18			
MAIGUE	Howardstown br MC 11	083701003	04/03/2008	254.89	0.490	3.23		<40	477	99	247.8		3.15	0.04	0.06	8.2	7.8	3.19		5	
MAIGUE	Howardstown br MC 11	083701161	11/03/2008	80	0.250	2.68		23	455	100	246.57		2.78	0.03		8.2	10.2	2.81			
MAIGUE	Howardstown br MC 11	083701474	07/04/2008	292	0.030	<2	26.87	<30	469	97	261		2.35	0.15	0.062	8.3	6.3	2.5			
MAIGUE	Howardstown br MC 11	083701794	06/05/2008	262	<0.03	2.29	34.23	10	450		240		1.57	0.03	0.028	8	13	1.6			
MAIGUE	Howardstown br MC 11	083702291	03/06/2008	254	<0.03	<2	50.91	<20	469	100			0.9	0.01		8	16.5	0.91			
MAIGUE	Howardstown br MC 11	083702837	08/07/2008	259	0.070	<2	24.6	100	405	81.7	215.6		1.07	<0.07	0.13	7.8	13	1.07			
MAIGUE	Howardstown br MC 11	083703262	19/08/2008	260.5	0.070	<2		84.6	427	91.6	223		1.22	0.03	0.114	7.9	14.9	1.25			
MAIGUE	Howardstown br MC 11	083703728	02/09/2008	286.5	0.030	<2		58	459	96	249		1.55	<0.003	0.087	7.7	15	1.54	0.38		
MAIGUE	Howardstown br MC 11	083704239	07/10/2008	264	0.100	2.41	28.3	10.3	458	108	222.4		1.86	<0.013	0.037	8.2	12.2	1.86	0.08		
MAIGUE	Howardstown br MC 11	083704605	11/11/2008	226.6	0.100	<2	20.37	18	503	93.5	242		2.73	0.024	0.062	8	13.1	2.76	0.099		
MAIGUE	Howardstown br MC 11	083704876	09/12/2008			<		37.5	466	91.7	272		2.15	0.021	0.086	7.9	7.5	2.17	0.12		
MAIGUE	Howardstown Bridge	053700060	10/01/2005		0.615	3.47		36	424	93.8	246		2.08	0.017	0.07	7.9	7.2	2.1	0.106		
MAIGUE	Howardstown Bridge	053700301	07/02/2005		0.039	<2		30	559	104			1.99	<0.002	0.06	8.4	5.1	1.99			
MAIGUE	Howardstown Bridge	053700519	07/03/2005		0.054	<2		125	367	95.7	183		0.66	0.002	0.162	8	7.9	0.66			
MAIGUE	Howardstown Bridge	053700850	26/04/2005		0.047	<2		114	408	89	211.6		1.47	0.02	0.11	7.9	14.6	1.49			
MAIGUE	Howardstown Bridge	053700940	16/05/2005			<2		50	465	90.8			2.33	0.012	0.088	8	9.7	2.34			
MAIGUE	Howardstown Bridge	053701239	20/06/2005		<0.023	<2			284	119		4.2			0.006	8.3	15.3				
MAIGUE	Howardstown Bridge	053701440	19/07/2005		<0.023	<2			285	113		3.18			0.014	8.1	17.2				
MAIGUE	Howardstown Bridge	053701755	23/08/2005		<0.023	<2			227	92		2.16			0.008	8.1	15				
MAIGUE	Howardstown Bridge	053702138	03/10/2005	289	<0.023	<2			152	92		3.06			0.013	7.8	13.4				
MAIGUE	Howardstown Bridge	063700110	17/01/2006		0.078	<2		<50	496	98	268		2.19	0.16	0.096	8.3	5.8	2.35			
MAIGUE	Howardstown Bridge	063700298	20/02/2006		0.062	<2			527	112		9.26			0.011	8.6	11				
MAIGUE	Howardstown Bridge	063700639	18/04/2006		<0.023	<2			233	112		4.03			0.19	7.8	12.2				
MAIGUE	Howardstown Bridge	063700815	16/05/2006		0.296	4.84			460			4.61			0.078	8	15.4				
MAIGUE	Howardstown Bridge	063700991	12/06/2006	269	0.023	<2			397	97		9.37			0.022	8.4	6.4				
MAIGUE	Howardstown Bridge	063701340	08/08/2006		0.039	2.08		100	386	91.5	205		1.21	<0.002	0.15	7.8	7	1.21			
MAIGUE	Howardstown Bridge	063701544	29/08/2006		<0.023	<2			161	100		4.22			0.015	7.8	9				
MAIGUE	Howardstown Bridge	063701768	25/09/2006		0.039	2.17		30	553	115	345		1.74	<0.002	0.022	8.4	7.5	1.74			
MAIGUE	Howardstown Bridge	063701993	17/10/2006		0.086	<2			660	99.4		12.28			0.091	8.3	4.9				
MAIGUE	Howardstown Bridge	063702308	27/11/2006		0.062	2.82			527	89		7.66				8.3	14.1				

Attachment F.2

- Map 10 – Water Abstraction Location
- Map 11 – Water Abstraction Zone of Contribution

ATTACHMENT F.2
MAP 10



Scale 1:20,000

LEGEND

- PRIMARY DISCHARGE POINT
- WATER ABSTRACTION LOCATION

Point ▲	Easting	Northing
SH_ABS0890	147953	143814

Approved : _____

Mott MacDonald

MAP 10 - WATER ABSTRACTION LOCATION

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
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ATTACHMENT F.2
MAP 11

ADARE

SH_ABS0890

CROOM

KILMALLOCK

CHARLEVILLE

N

LEGEND

ZONE OF CONTRIBUTION

WATER ABSTRACTION LOCATION

Point ▲	Easting	Northing
SH_ABS0890	147953	143814

Scale 1:125,000

Approved : _____

Mott MacDonald

MAP 11 - WATER ABSTRACTION ZONE OF CONTRIBUTION

REVISION : A
DATE : FEB.2009

CROOM WASTE WATER DISCHARGE LICENCE APPLICATION
LIMERICK COUNTY COUNCIL
PROJECT Nr. 253740
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