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ATTACHMENT B

NEWSPAPER NOTICE



APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE LICENCE

Meath County Council, County Hall, Railway Street, Navan, Co. Meath intends to apply to the Environmental Protection Agency for a Waste Water Discharge Licence for an existing discharge at the Wastewater Treatment Plant in the townland of **Hilltown Little, Bellewstown**, County Meath (National Grid Reference 308,465E, 267,122N). The treatment process consists of rotating biological contactors.

The application relates to the following discharge point:

The primary discharge point PSW1 – 308,436E, 267,168N (Receiving Water – Duleek Groundwater Body)

A copy of the following documents shall, as soon as is practicable after receipt by the Agency, be available for inspection or purchase at the headquarters of the Environmental Protection Agency, P.O. Box 3000, Johnstown Castle Estate, Co. Wexford and at Meath County Council, County Hall, Railway Street, Navan, Co. Meath

- (i) the application for a waste water discharge licence
- (ii) 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.

Submissions in relation to the application may be made to the Environmental Protection Agency at its headquarters at P.O. Box 3000, Johnstown Castle Estate, Co. Wexford.

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ATTACHMENT D



JENNINGS O'DONOVAN
& PARTNERS
CONSULTING ENGINEERS

Finisklin Business Park
Sligo

T: 071-91 61416 / 071-91 29292
F: 071-91 61080

E: Info@jodireland.com
W: www.jodireland.com

4654/122/001/YMcM

12th November 2009

Ms. Mary Boothman,
Development Application Unit,
Department of the Environment,
Dùn Scéine,
Hardcourt Lane,
Dublin 2.

Re: EPA Waste Water Discharge Licence for 16 Villages in County Meath

Dear Mary,

Jennings O'Donovan & Partners are preparing EPA Waste Water Discharge Certificates Applications for Meath sewerage schemes in County Meath listed below:

1. Ardcah Sewerage Scheme (discharge to groundwater)
2. Ballinabrackey Sewerage Scheme (discharges to surface water)
3. Batterstown Sewerage Scheme (discharges to surface water)
4. Bellewstown Sewerage Scheme (discharges to Groundwater)
5. Bohermeen Sewerage Scheme (discharges to surface water)
6. Castletown Sewerage Scheme (discharges to surface water)
7. Clonalvy Sewerage Scheme (discharges to groundwater)
8. Camaross Sewerage Scheme (discharges to groundwater)
9. Cortown Sewerage Scheme (discharges to groundwater)
10. Dunderry Sewerage Scheme (discharges to surface water)
11. Hill of Tara Sewerage Scheme (discharges to groundwater)
12. Kilberry Sewerage Scheme (discharges to surface water)
13. Lloyd, Kells Sewerage Scheme (discharges to surface water)
14. Lobinstown Sewerage Scheme (discharges to surface water)
15. Robinstown Sewerage Scheme (discharges to surface water)
16. Skryne Sewerage Scheme (discharges to surface water)

Please find enclosed site location drawings together with the local designated areas at the sixteen Wastewater Treatment Plants.



Section F of the application relating to the NPWS, requires us to give details of any designation that applies to the receiving water. After consultation with the EPA they advised us to get in contact with you to get a clear picture of the boundary of the SAC and SPA and in addition we require a letter from the NPWS stating whether the discharge is deemed impact the receivers waters or if an "Appropriate Assessment" is to be carried out.

We would be grateful for your input at your earliest convenience as the applications have to be submitted to the EPA by the 22nd of December 2009. If you have any questions regarding the above or wish to discuss the application, please do not hesitate to contact this office.

Yours sincerely,



Yvonne McMonagle
for: Jennings O'Donovan & Partners

Encl.

c.c. Mr. Gerry Boyle, Meath County Council

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AttachmentD.1 RBD_Office

From: Yvonne McMonagle
Sent: 12 November 2009 17:15
To: 'info@erbd.ie'
Subject: Meath Villages Wastewater Certificates License Application

Dear Sir/ Madame,

I am currently completing 16 discharge certificates application for Meath County Council as listed below:

1. Ardcath Sewerage Scheme (discharge to groundwater)
2. Ballinabrackey Sewerage Scheme (discharges to surface water)
3. Batterstown Sewerage Scheme (discharges to surface water)
4. Bellewstown Sewerage Scheme (discharges to Groundwater)
5. Bohermeen Sewerage Scheme (discharges to surface water)
6. Castletown Sewerage Scheme (discharges to surface water)
7. Clonalvy Sewerage Scheme (discharges to groundwater)
8. Carnaross Sewerage Scheme (discharges to groundwater)
9. Cortown Sewerage Scheme (discharges to groundwater)
10. Dunderry Sewerage Scheme (discharges to surface water)
11. Hill of Tara Sewerage Scheme (discharges to groundwater)
12. Kilberry Sewerage Scheme (discharges to surface water)
13. Lloyd, Kells Sewerage Scheme (discharges to surface water)
14. Lobinstown Sewerage Scheme (discharges to surface water)
15. Robinstown Sewerage Scheme (discharges to surface water)
16. Skryne Sewerage Scheme (discharges to surface water)

A specification of the license application is to get in contact with the local RBD office about the need to monitor certain substances listed in Annex X and XIII of the Water Framework Directive in the receiving waters. Please find attached the associated drawings showing the location of the waste water treatment plants and discharge points.

The section of the application which relates to the monitoring of the substances listed in Annex 8 and 10 are in section D. After consultation with the EPA they advised us to get in contact with yourselves and to see if any of these 69 substances are present in this receiving water and if there is a need for us to monitor some of these parameters. We also require a letter from yourselves to confirm your findings.

According to the EPA they have been in contact with yourselves about this issue and that you will be aware what is needed for the application. If you have any questions about this section you can contact the EPA ring or if there is someone else in the ERBD office I could get in contact with to gather the data.

Looking forward to hearing from you.

Regards,
Yvonne McMonagle,
Jennings O'Donovan & Partners,
Consulting Engineers,
Finisklin Business Park,
Sligo.
Tel.: 071 9161416
Fax: 071 9161080
Email: ymcmonagle@jodireland.com

AttachmentD.1 RBD_Office

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RPS Group Plc web link: <<http://www.rpsgroup.com>>

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ATTACHMENT D.1



MEATH VILLAGES EFFLUENT DISCHARGE SURVEY

EXECUTIVE SUMMARY

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Client:

Meath County Council

Consulting Engineers:

Jennings O'Donovan & Partners
Consulting Engineers
Finisklin
Sligo



Unit 9, Block A,
Centrepont Business Park
Oak Road
Dublin 12
Tel: (01) 4605912
Fax: (01) 4605913

Issued 24th November 2009

Bellewstown

Site 1

Average Volume - 0.54 M3/Day @225/h/day - = 2 pe
 Maximum Volume - 2.9 m3/Day @225/h/day - = 13 pe
 Maximum Rate of Discharge - 1.2 l/s
 Method of flow measurement - Area velocity flow monitor

Influent Sampling Point: Inlet to treatment works
 Effluent Sampling Point: Inlet to sump before percolation area

Table 1: Site 1 Sample Analysis Results for the 9th November

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous (as P) mg/l	T. Nitrogen (as P) mg/l	Ammonia mg/l
Influent	144	7.1	54	98	4.44	34.25	15.426
Effluent	60	7.2	31	44	0.8	37.545	11.865

Table 2: Site 1 Sample Analysis Results for the 10th November 2009

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous (as P) mg/l	T. Nitrogen (as P) mg/l	Ammonia mg/l
Influent	264	6.4	122	231	2.0	12.45	3.524
Effluent	35	7.2	20	36	2.76	31.38	12.594

Summary: Daily Volumes (m3).

Date	MaxFlow Time	MaxFlow (l/s)	MinFlow Time	MinFlow (l/s)	AveFlow (l/s)	TotVolume (m3)
4-NOV-09	16:24	0.2	11:32	0.0	0.0	0.2
5-NOV-09	15:44	0.1	0:00	0.0	0.0	0.6
6-NOV-09	16:50	0.2	0:00	0.0	0.0	0.1
7-NOV-09	8:24	0.0	0:00	0.0	0.0	0.0
8-NOV-09	10:54	0.0	0:00	0.0	0.0	0.1
9-NOV-09	13:56	0.1	0:00	0.0	0.0	0.4
10-NOV-09	11:16	1.9*	0:00	0.0	0.0	0.4
11-NOV-09	23:10	0.6	0:00	0.0	0.0	1.6
12-NOV-09	0:00	0.1	0:30	0.0	0.0	0.2
13-NOV-09	20:58	1.2	0:00	0.0	0.0	2.9
14-NOV-09	10:56	0.1	0:02	0.0	0.0	0.2
15-NOV-09	12:28	0.1	0:00	0.0	0.0	0.1
16-NOV-09	8:16	0.2	0:00	0.0	0.0	0.5
17-NOV-09	14:08	0.1	0:00	0.0	0.0	0.1
18-NOV-09	11:30	2.6*	0:00	0.0	0.1	
-NOV-		2.6		0.0	0.0	7.5

*Crew on site during highlighted peak flows. These readings should be ignored

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ATTACHMENT D.2

[illegible]

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ATTACHMENT E.2



MEATH VILLAGES EFFLUENT DISCHARGE SURVEY

EXECUTIVE SUMMARY

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Client:

Meath County Council

Consulting Engineers:

Jennings O'Donovan & Partners
Consulting Engineers
Finisklin
Sligo



Unit 9, Block A,
Centrepont Business Park
Oak Road
Dublin 12
Tel: (01) 4605912
Fax: (01) 4605913

Issued 24th November 2009

Bellewstown

Site 1

Average Volume - 0.54 M3/Day @225/h/day - = 2 pe
 Maximum Volume - 2.9 m3/Day @225/h/day - = 13 pe
 Maximum Rate of Discharge - 1.2 l/s
 Method of flow measurement - Area velocity flow monitor

Influent Sampling Point: Inlet to treatment works
 Effluent Sampling Point: Inlet to sump before percolation area

Table 1: Site 1 Sample Analysis Results for the 9th November

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous (as P) mg/l	T. Nitrogen (as P) mg/l	Ammonia mg/l
Influent	144	7.1	54	98	4.44	34.25	15.426
Effluent	60	7.2	31	44	0.8	37.545	11.865

Table 2: Site 1 Sample Analysis Results for the 10th November 2009

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous (as P) mg/l	T. Nitrogen (as P) mg/l	Ammonia mg/l
Influent	264	6.4	122	231	2.0	12.45	3.524
Effluent	35	7.2	20	36	2.76	31.38	12.594

Summary: Daily Volumes (m3).

Date	MaxFlow Time	MaxFlow (l/s)	MinFlow Time	MinFlow (l/s)	AveFlow (l/s)	TotVolume (m3)
4-NOV-09	16:24	0.2	11:32	0.0	0.0	0.2
5-NOV-09	15:44	0.1	0:00	0.0	0.0	0.6
6-NOV-09	16:50	0.2	0:00	0.0	0.0	0.1
7-NOV-09	8:24	0.0	0:00	0.0	0.0	0.0
8-NOV-09	10:54	0.0	0:00	0.0	0.0	0.1
9-NOV-09	13:56	0.1	0:00	0.0	0.0	0.4
10-NOV-09	11:16	1.9*	0:00	0.0	0.0	0.4
11-NOV-09	23:10	0.6	0:00	0.0	0.0	1.6
12-NOV-09	0:00	0.1	0:30	0.0	0.0	0.2
13-NOV-09	20:58	1.2	0:00	0.0	0.0	2.9
14-NOV-09	10:56	0.1	0:02	0.0	0.0	0.2
15-NOV-09	12:28	0.1	0:00	0.0	0.0	0.1
16-NOV-09	8:16	0.2	0:00	0.0	0.0	0.5
17-NOV-09	14:08	0.1	0:00	0.0	0.0	0.1
18-NOV-09	11:30	2.6*	0:00	0.0	0.1	
-NOV-		2.6		0.0	0.0	7.5

*Crew on site during highlighted peak flows. These readings should be ignored

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ATTACHMENT E.3

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ATTACHMENT E.4

For Quality and Excellence in Laboratory Analysis



Quality Systems and Laboratory Services

P.O. Box 27,
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Rosslare Road,
Wexford
Tel/Fax 053 9145600
Email: info@qlab.ie

Test Report

Customer: Jennings O'Donovan & Pa
Consulting Engineers
Finisklin Business Park
Sligo
Co. Sligo
Account.: 9413

Report No.: 51730
Report Date: 02/12/2009
Received Date: 11/11/2009
Analysis Date: 12/11/2009
Order No.:
Page: 1 of 2
Revision:
Date:

Sample ID: 77294

Description: Final Effluent Sample taken @ Bellewstown 11.11.09 12:40hrs by Conor (Q-Lab)

Ref No:

ID	Test	SOP	Results
<input type="checkbox"/> 77294	Total Nitrogen as N, mg/l	STM-C-13.1.0	40.0
<input type="checkbox"/> 77294	Copper as Cu, mg/l	Subcontracted	0.070
<input type="checkbox"/> 77294	Chromium as Cr mg/l	Subcontracted	0.0026
<input type="checkbox"/> 77294	Arsenic as As mg/l	Subcontracted	0.0181
<input type="checkbox"/> 77294	Sulphates as SO ₄ , mg/l	STM-C-18.2.0	108
<input type="checkbox"/> 77294	Ortho Phosphates (as mg P/L)	STM-C-20.2.0	3.5
<input type="checkbox"/> 77294	Total Phosphorous as P, mg/l	STM-C-19.2.0	4.2
<input checked="" type="checkbox"/> 77294	pH value	STM-C-3.1.00	7.55
<input type="checkbox"/> 77294	Nitrites as NO ₂ , mg/l	STM-C-8.2.04	8.7
<input type="checkbox"/> 77294	Zinc as Zn mg/l	Subcontracted	0.0359
<input type="checkbox"/> 77294	Dissolved oxygen, mg/l	STM-C-10.3.0	7.81
<input checked="" type="checkbox"/> 77294	COD mg/l	STM-C-11.2.0	195
<input checked="" type="checkbox"/> 77294	BOD, mg/l	STM-C-10.2.0	119
<input type="checkbox"/> 77294	Ammonia as NH ₃ -N, mg/l	STM-C-7.2.04	31.8
<input checked="" type="checkbox"/> 77294	Suspended Solids, mg/l	STM-C-2.1.00	25
<input checked="" type="checkbox"/> 77294	Conductivity, uS/cm @ 20°C	STM-C-4.1.00	1605
<input checked="" type="checkbox"/> 77294	Nitrates as NO ₃ mg/l	STM-C-9.3.08	<0.5
<input type="checkbox"/> 77294	Simazine ug/l	Subcontracted	
<input type="checkbox"/> 77294	Xylenes ug/l	Subcontracted	<0.5
<input type="checkbox"/> 77294	Tributyltin ug/l	Subcontracted	<0.02
<input type="checkbox"/> 77294	Boron as B mg/l	Subcontracted	0.05
<input type="checkbox"/> 77294	Nickel as Ni mg/l	Subcontracted	0.0021

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Test Report

Customer: Jennings O'Donovan & Pa
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Finisklin Business Park
Sligo
Co. Sligo

Account.: 9413

Report No.: 51730
Report Date: 02/12/2009
Received Date: 11/11/2009
Analysis Date: 12/11/2009
Order No.:
Page: 2 of 2
RevisionDate:

<input type="checkbox"/>	77294	Fluoride as F, mg/l	Subcontracted	<0.1
<input type="checkbox"/>	77294	Phenols, ug/l	Subcontracted	
<input type="checkbox"/>	77294	Cyanide mg/l	Subcontracted	<0.005
<input type="checkbox"/>	77294	Toluene ug/l	Subcontracted	<0.5
<input type="checkbox"/>	77294	Lead as Pb, mg/l	Subcontracted	0.0008
<input type="checkbox"/>	77294	Dichloromethane ug/l	Subcontracted	<5.0
<input type="checkbox"/>	77294	Atrazine ug/l	Subcontracted	
<input type="checkbox"/>	77294	Barium as Ba mg/l	Subcontracted	0.0021
<input type="checkbox"/>	77294	Selenium as Se mg/l	Subcontracted	0.0007
<input type="checkbox"/>	77294	Mercury as Hg mg/l	Subcontracted	<0.00002
<input type="checkbox"/>	77294	Cadmium as Cd mg/l	Subcontracted	<0.0001
<input checked="" type="checkbox"/>	77294	Total Hardness as CaCO ₃ , mg/l	STM-C-6.1.00	142
<input type="checkbox"/>	77294	Temperature, °C	STM-C-41.1.0	12.0

Comments:

Report Authorised By:

Peter O'Byrne

Peter O'Byrne Chem. Lab. Manager

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Test Report
Copy

Customer: Jennings O'Donovan & Pa
Consulting Engineers
Finisklin Business Park
Sligo
Co. Sligo
Account.: 9413

Report No.: 51731
Report Date: 01/12/2009
Received Date: 11/11/2009
Analysis Date: 12/11/2009
Order No.:
Page: 1 of 2
Revision Date:

Sample ID: 77295

Description: Groundwater Sample taken @ Bellewstown 11.11.09 12.00hrs by Conor (Q-Lab)

Ref No:

ID	Test	SOP	Results
<input type="checkbox"/> 77295	Dichloromethane ug/l	Subcontracted	<5.0
<input type="checkbox"/> 77295	Tributyltin ug/l	Subcontracted	<0.02
<input type="checkbox"/> 77295	Boron as B mg/l	Subcontracted	0.03
<input type="checkbox"/> 77295	Nickel as Ni mg/l	Subcontracted	0.0020
<input type="checkbox"/> 77295	Fluoride as F, mg/l	Subcontracted	<0.1
<input type="checkbox"/> 77295	Phenols, ug/l	Subcontracted	<0.5
<input type="checkbox"/> 77295	Temperature, °C	STM-C-41.1.0	10.7
<input type="checkbox"/> 77295	Lead as Pb, mg/l	Subcontracted	0.0005
<input type="checkbox"/> 77295	Simazine ug/l	Subcontracted	<0.01
<input checked="" type="checkbox"/> 77295	pH value	STM-C-3.1.00	7.06
<input type="checkbox"/> 77295	Atrazine ug/l	Subcontracted	<0.01
<input type="checkbox"/> 77295	Barium as Ba mg/l	Subcontracted	0.0013
<input type="checkbox"/> 77295	Selenium as Se mg/l	Subcontracted	<0.0002
<input type="checkbox"/> 77295	Mercury as Hg mg/l	Subcontracted	0.00028
<input type="checkbox"/> 77295	Cadmium as Cd mg/l	Subcontracted	<0.0001
<input type="checkbox"/> 77295	Zinc as Zn mg/l	Subcontracted	0.0117
<input type="checkbox"/> 77295	Toluene ug/l	Subcontracted	<0.5
<input type="checkbox"/> 77295	Total Nitrogen as N, mg/l	STM-C-13.1.0	2.2
<input type="checkbox"/> 77295	Copper as Cu, mg/l	Subcontracted	0.006
<input type="checkbox"/> 77295	Chromium as Cr mg/l	Subcontracted	<0.001
<input type="checkbox"/> 77295	Arsenic as As mg/l	Subcontracted	0.0093
<input type="checkbox"/> 77295	Sulphates as SO ₄ , mg/l	STM-C-18.2.0	<2

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Test Report Copy

Customer: Jennings O'Donovan & Pa
Consulting Engineers
Finisklin Business Park
Sligo
Co. Sligo

Account.: 9413

Report No.: 51731
Report Date: 01/12/2009
Received Date: 11/11/2009
Analysis Date: 12/11/2009
Order No.:
Page: 2 of 2
Revision Date:

<input type="checkbox"/>	77295	Ortho Phosphates (as mg P/L)	STM-C-20.2.0	0.15
<input type="checkbox"/>	77295	Total Phosphorous as P, mg/l	STM-C-19.2.0	0.15
<input type="checkbox"/>	77295	Xylenes ug/l	Subcontracted	<0.5
<input type="checkbox"/>	77295	Nitrites as NO ₂ , mg/l	STM-C-8.2.04	<0.010
<input checked="" type="checkbox"/>	77295	Total Hardness as CaCO ₃ , mg/l	STM-C-6.1.00	126
<input type="checkbox"/>	77295	Dissolved oxygen, mg/l	STM-C-10.3.0	8.10
<input checked="" type="checkbox"/>	77295	COD mg/l	STM-C-11.2.0	<3
<input checked="" type="checkbox"/>	77295	BOD, mg/l	STM-C-10.2.0	<0.5
<input type="checkbox"/>	77295	Ammonia as NH ₃ -N, mg/l	STM-C-7.2.04	<0.02
<input checked="" type="checkbox"/>	77295	Suspended Solids, mg/l	STM-C-2.1.00	<3
<input checked="" type="checkbox"/>	77295	Conductivity, uS/cm @ 20°C	STM-C-4.1.00	354
<input type="checkbox"/>	77295	Cyanide mg/l	Subcontracted	<0.005
<input checked="" type="checkbox"/>	77295	Nitrates as NO ₃ mg/l	STM-C-9.3.08	9.2

Comments:

Report Authorised By:

Peter O'Byrne

Peter O'Byrne Chem. Lab. Manager

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ATTACHMENT F.1

Response Matrices

You will need to print a

Vulnerability Map

Aquifer Map

Source Protection Area map

for your calculations.

Groundwater Protection Zones

Groundwater Protection Responses for Landfills

The IPC Landspreading of Organic Wastes

The On-site Wastewater Treatment Systems for Single Houses

e.g. Septic Tank Systems

For further information please [click here](#)

Disclaimer

The entire data set is designed for general information and strategic planning usage.

The Geological Survey of Ireland (GSI) makes no warranties on its fitness for any other purpose.


The burden for determining fitness for other uses lies with the user. Information supplied is based on the material available in GSI at the time of production and should not be regarded as complete data on the elements or areas being considered. Furthermore, uncertainty is an inherent element in drawing geological boundaries and local details are generalised to fit the original mapping and interpretation scale of 1:50,000. Evaluation of specific sites and circumstances will normally require further and more detailed assessments, and will often require site investigations.

It is intended that statutory authorities should apply a scheme in decision-making on the basis that the best available data are being used. The onus is then on a developer to provide new information which would enable the zonation to be altered and improved and, in certain circumstances, the planning or regulatory response to be changed.


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Matrix of Groundwater Protection Zones

VULNERABILITY RATING	SOURCE PROTECTION ZONES		RESOURCE PROTECTION ZONES					
			Regionally Important Aquifers		Locally Important Aquifers		Poor Aquifers	
	<i>Inner (SI)</i>	<i>Outer (SO)</i>	<i>Rk</i>	<i>Rf/Rg</i>	<i>Lm/Lg</i>	<i>LI</i>	<i>PI</i>	<i>PU</i>
Extreme (E)	SE-E	SO-E	Rk-E	Rf-E	Lm-E	LI-E	PI-E	PU-E
High (H)	SE-H	SO-H	Rk-H	Rf-H	Lm-H	LI-H	PI-H	PU-H
Moderate (M)	SE-M	SO-M	Rk-M	Rf-M	Lm-M	LI-M	PI-M	PU-M
Low (L)	SE-L	SO-L	Rk-L	Rf-L	Lm-L	LI-L	PI-L	PU-L



 Arrows indicate direction of decreasing risk



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Groundwater Protection Responses for Landfills – Summary

Response Matrix for Landfills

VULNERABILITY RATING	SOURCE PROTECTION AREA		RESOURCE PROTECTION Aquifer Category					
			Regionally Important (R)		Locally Important (L)		Poor Aquifers (P)	
	Inner	Outer	Rk	R/Rg	Lm/Lg	Li	P1	Pu
Extreme (E)	R4	R4	R4	R4	R3 ²	R2 ²	R2 ²	R2 ¹
High (H)	R4	R4	R4	R4	R3 ¹	R2 ¹	R2 ¹	R1
Moderate (M)	R4	R4	R4	R3 ¹	R2 ²	R2 ¹	R2 ¹	R1
Low (L)	R4	R3 ¹	R3 ¹	R3 ¹	R1	R1	R1	R1

In all cases standards prescribed in the EPA Landfill Site Design Manual (EPA 1999) or conditions of a waste licence will apply

- R1** Acceptable subject to guidance in the EPA Landfill Design Manual or conditions of a waste licence
- R2¹** Acceptable subject to guidance outlined in the EPA Landfill Design Manual or conditions of a waste licence
- Special attention should be given to checking for the presence of high permeability zones. If such zones are present then the landfill should only be allowed if it can be proven that the risk of leachate movement to these zones is insignificant. Special attention must be given to existing wells down-gradient of the site and to the projected future development of the aquifer
- R2²** Acceptable subject to guidance outlined in the EPA Landfill Design Manual or conditions of a waste licence
- Special attention should be given to checking for the presence of high permeability zones. If such zones are present then the landfill should only be allowed if it can be proven that the risk of leachate movement to these zones is insignificant. Special attention must be given to existing wells down-gradient of the site and to the projected future development of the aquifer
 - Groundwater control measures such as cut-off walls or interceptor drains may be necessary to control high water table or the head of leachate may be required to be maintained at a level lower than the water table depending on site conditions
- R3¹** Not generally acceptable unless it can be shown that:
- the groundwater in the aquifer is confined or
 - there will be no significant impact on the groundwater and
 - it is not practicable to find a site in a lower risk area
- R3²** Not generally acceptable unless it can be shown that:
- there is a minimum consistent thickness of 3 metres of low permeability subsoil present
 - there will be no significant impact on the groundwater and
 - it is not practicable to find a site in a lower risk area
- R4** Not acceptable
- This guidance is for the siting of landfills for non-hazardous wastes
 - New landfills should not generally be developed on regionally important aquifers
 - The siting, design, operation and monitoring of landfills must comply with the guidelines outlined in the EPA's Landfill manuals except where facilities hold a waste licence issued by the EPA
 - it is recommended that all landfills be located in, or as near as possible to, the zone in the bottom right hand corner of the matrix
 - Special attention should be given to checking for the presence of more permeable zones such as faults particularly in fractured bedrock

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Groundwater Protection Responses for Landspreading – Summary

Response Matrix for Landspreading

VULNERABILITY RATING	SOURCE PROTECTION AREA		RESOURCE PROTECTION Aquifer Category					
			Regionally Important (R)		Locally Important (L)		Poor Aquifers (P)	
	Inner	Outer	R _k	R/R _g	L _m /L _g	L _i	P _i	P _u
Extreme (E)	R ₄	R ₄	R ₃ ²	R ₃ ²	R ₃ ¹	R ₃ ¹	R ₃ ¹	R ₃ ¹
High (H)	R ₄	R ₂ ¹	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁
Moderate (M)	R ₃ ¹	R ₂ ¹	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁
Low (L)	R ₃ ¹	R ₂ ¹	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁

R₁ Acceptable, subject to normal good practice

R₂¹ Acceptable subject to a maximum organic nitrogen load (including that deposited by grazing animals) not exceeding 170 kg/hectare/yr

R₃¹ Not generally acceptable, unless a consistent minimum thickness of 1 m of soil and subsoil can be demonstrated

R₃² Not generally acceptable, unless a consistent minimum thickness of 2 m of soil and subsoil can be demonstrated

R₃³ Not generally acceptable, unless no alternative areas are available and detailed evidence is provided to show that contamination will not take place

R₄ Not acceptable

- If contamination by nitrate (or other contaminants) is a problem in any particular area then more restrictive responses may be necessary. Monitoring carried out under any Local Authority or Agency authorisation will assist in determining whether or not a variation in any of these responses is required.
- The total nitrogen (organic and inorganic) load applied should not exceed Teagasc's nutrient recommendations for growing crops.
- No spreading should be allowed within 50 m of groundwater sources.
- In karst limestone areas features such as swallow holes, caves and streams connected to karst systems must be taken into account. Landspreading should not occur within 30 m of karst features.
- Landspreading should coincide with the growing season so that the nutrients applied will be utilised by the growing crop.
- Landspreading should be avoided when soil conditions prevent infiltration or when heavy rain is forecast within 48 hours. It is generally unacceptable to carry out landspreading during the period November to February inclusive. Operators who are considering landspreading during this period should consult the relevant authority.
- Site investigations (e.g. trial pits, auger holes, boreholes) should reach sufficient depths to show that the minimum required subsoil thickness is present. In extreme vulnerability areas or within source protection areas there should be at least one investigation point per hectare. In all other cases the sampling points should be at a minimum frequency of one per 5 hectares.

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Groundwater Protection Responses for On-site Wastewater Systems for Single Houses - Summary

The potential suitability of a site for the development of an on-site system is assessed using the methodology outlined in *Wastewater Treatment Manual: Treatment Systems for Single Houses* (EPA 2000). The groundwater protection responses set out below should be used during the desk study assessment of a site to give an early indication of the suitability of a site for an on-site system. Information from the on-site assessment should be used to confirm or modify the response.

Response Matrix for On-site Treatment Systems

VULNERABILITY RATING	SOURCE PROTECTION AREA *		RESOURCE PROTECTION <i>Aquifer Category</i>					
			Regionally Important		Locally Important		Poor Aquifers	
	Inner (SI)	Outer (SO)	R1	R2	L1	L2	P1	P2
Extreme (E)	R2 ¹	R3 ¹	R2 ¹	R2 ¹	R2 ¹	R2 ¹	R2 ¹	R2 ¹
High (H)	R2 ¹	R2 ¹	R2 ¹	R1	R1	R1	R1	R1
Moderate (M)	R2 ¹	R2 ¹	R1	R1	R1	R1	R1	R1
Low (L)	R2 ¹	R1	R1	R1	R1	R1	R1	R1

For public group scheme or industrial water supply sources where protection zones have not been delineated the arbitrary distances given in DILG/EPA/GSI (1999) of 300 m for the Inner Protection Area (SI) and 1000 m for the Outer Protection Area (SO) should be used as a guide up-gradient of the source.

- R1** Acceptable subject to normal good practice (i.e. system selection, construction, operation and maintenance in accordance with EPA (2000)).
- R2¹** Acceptable subject to normal good practice. Where domestic water supplies are located nearby, particular attention should be given to the depth of subsoil over bedrock such that the minimum depths required (EPA 2000) are met and that the likelihood of microbial pollution is minimised.
- R2²** Acceptable subject to normal good practice and the following additional condition:
1) There is a minimum thickness of 2 m unsaturated soil/subsoil beneath the invert of the percolation trench of a conventional septic tank system.
- OR**
- 1) A treatment system other than a conventional septic tank system as described in EPA (2000) is installed with a minimum thickness of 0.6 m unsaturated soil/subsoil with P/T values from 1 to 50 (in addition to the polishing filter which should be a minimum depth of 0.6 m) beneath the invert of the polishing filter (i.e. 1.2 m in total for a soil polishing filter).
- R2³** Acceptable subject to normal good practice, condition 1 above and the following additional condition:
2) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely.
- R2⁴** Acceptable subject to normal good practice, conditions 1 and 2 above and the following additional condition:
3) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- R3¹** Not generally acceptable, unless: A conventional septic tank system is installed with a minimum thickness of 2 m unsaturated soil/subsoil beneath the invert of the percolation trench (i.e. an increase of 0.6 m from the EPA manual).

OR

A treatment system other than a conventional septic tank system, as described in EPA (2000), is installed with a minimum thickness of 0.6 m unsaturated soil/subsoil with P/T values from 1 to 50 (in addition to the polishing filter which should be a minimum depth of 0.6 m), beneath the invert of the polishing filter (i.e. 1.2 m in total for a soil polishing filter).

* The SI and SO distances are given in DILG/EPA/GSI (1999) as 300 m and 1000 m respectively. These distances are given as a guide up-gradient of the source. The SI and SO distances are given in DILG/EPA/GSI (1999) as 300 m and 1000 m respectively. These distances are given as a guide up-gradient of the source.

AND

subject to the following conditions

- 1) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely
- 2) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- 3) A management and maintenance agreement is completed with the systems supplier.

- R3² Not generally acceptable unless: A treatment system other than a conventional septic tank system as described in EPA (2000), is installed with a minimum thickness of 1.2 m unsaturated soil/subsoil with P/T values from 1 to 50 (in addition to the polishing filter which should be a minimum depth of 0.6 m) beneath the invert of the polishing filter (i.e. 1.8 m in total for a soil polishing filter)

AND

subject to the following conditions

- 1) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely
- 2) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- 3) A management and maintenance agreement is completed with the systems supplier.

Additional Requirements for the Location of On-site Treatment Systems Adjacent to Receptors at Risk, such as Wells and Karst Features

Table 1 below provides recommended distances between receptors and percolation area or polishing filters, in order to protect groundwater. Use of the depths and distances in this table does not guarantee that pollution will not be caused, rather it will reduce the risk of significant pollution occurring.

Table 1. Recommended Minimum Distance between a Receptor and a Percolation Area or Polishing Filter

T or P Values	Type of soil/subsoil*	Depth of soil/subsoil (m) above bedrock (see note 1,3,3.1)	Minimum distance (m) from receptor to percolation area or polishing filter***				
			Public Water Supply	Karst features	Down-gradient domestic well or flow direction is unknown (see note 2)	Domestic well alongside (no gradient)	Up-gradient domestic well
>30	CLAY; silty, sandy CLAY (e.g. clayey till); CLAY/SILT.	1.2 >3.0	60 60	15 15	40 30	25	15
10-30	SANDY SILT; clayey, silty SAND; clayey, silty GRAVEL (e.g. sandy till).	1.2 >6.0	60	15	45 30	25	15
<10	SAND; GRAVEL; silty SAND	2.0 2.0*** >8.0***	60	15	60 40 30	25	15

* BS5630 descriptions

** water table 1.2-2.0m

*** water table >2.0m

— The distance from the percolation area or polishing filter means the distance from the periphery of the percolation area or polishing filter and not the centre.

Notes:

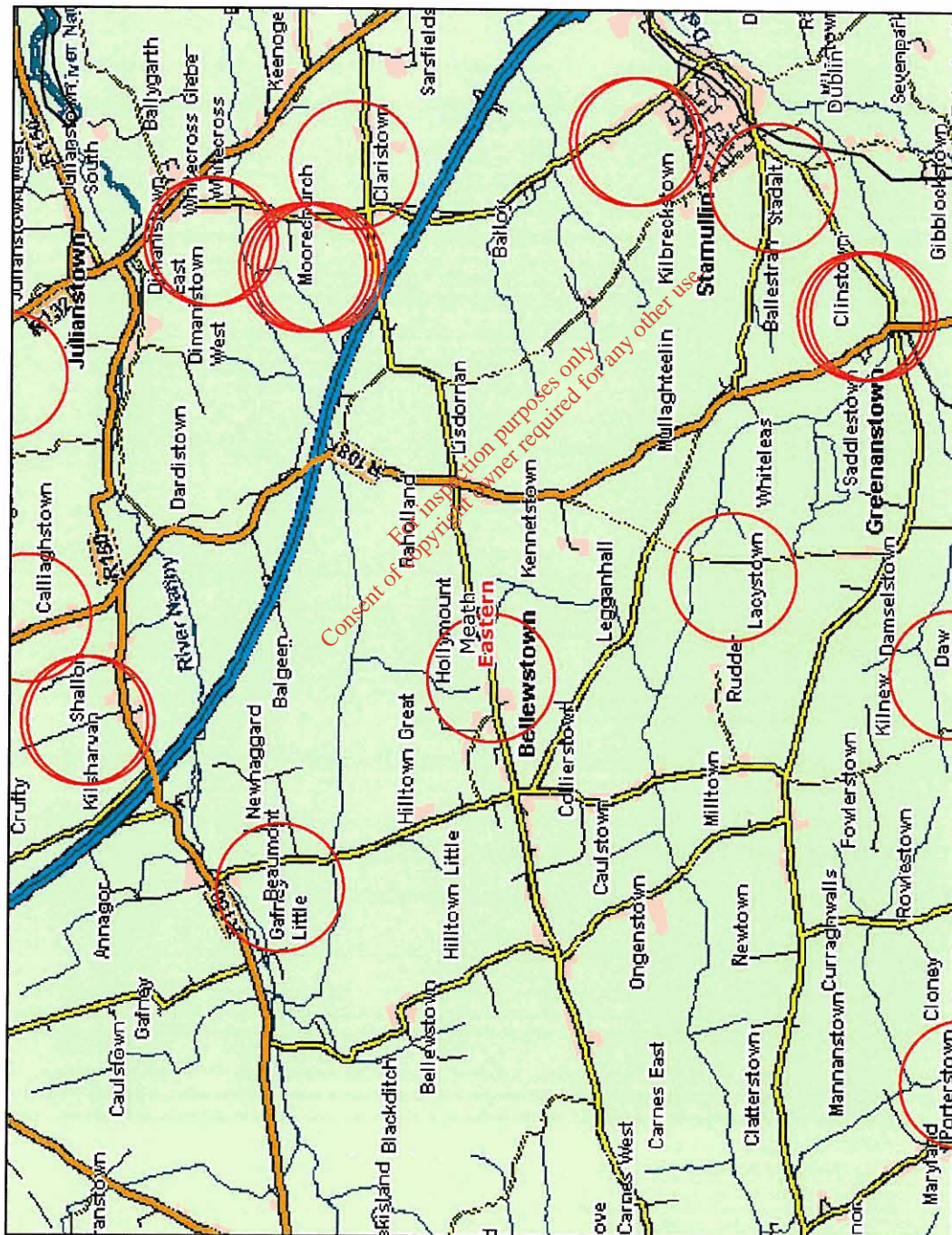
- 1 Depths are measured from the invert level of the percolation trench
- 2 Depths and distances can be related by interpolation e.g. where the thickness of silty sandy CLAY is 1.2 m the minimum recommended distance from the well to percolation area is 40 m, where the thickness is 3.0 m, the distance is 30 m. Distances for intermediate depths can be approximated by interpolation.
- 3 Where bedrock is shallow (<2 m below invert of the trench) greater distances may be necessary where there is evidence of the presence of preferential flow paths (e.g. cracks, roots) in the subsoil.
- 4 Where the minimum subsoil thicknesses are less than those given above, site improvements and systems other than conventional systems as described in EPA (2000) may be used to reduce the likelihood of contamination.
- 5 If effluent and bacteria enter bedrock rapidly (within 1-2 days) the distances given may not be adequate where the percolation area is in the zone of contribution of a well. Further site specific evaluation is necessary.
- 6 Where bedrock is known to be karstified or highly fractured, greater depths of subsoil may be advisable to minimise the likelihood of contamination.

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[For further information please click here](#)



Bellewstown - Well Accuracy Within 1Km Map



- Legend**
- Wells Accuracy within 1km
 - RBD Boundaries
 - County Boundaries

Scale: 1:49,846

Map center: 310626, 267506

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Snapshot Date: 21-Oct-2009

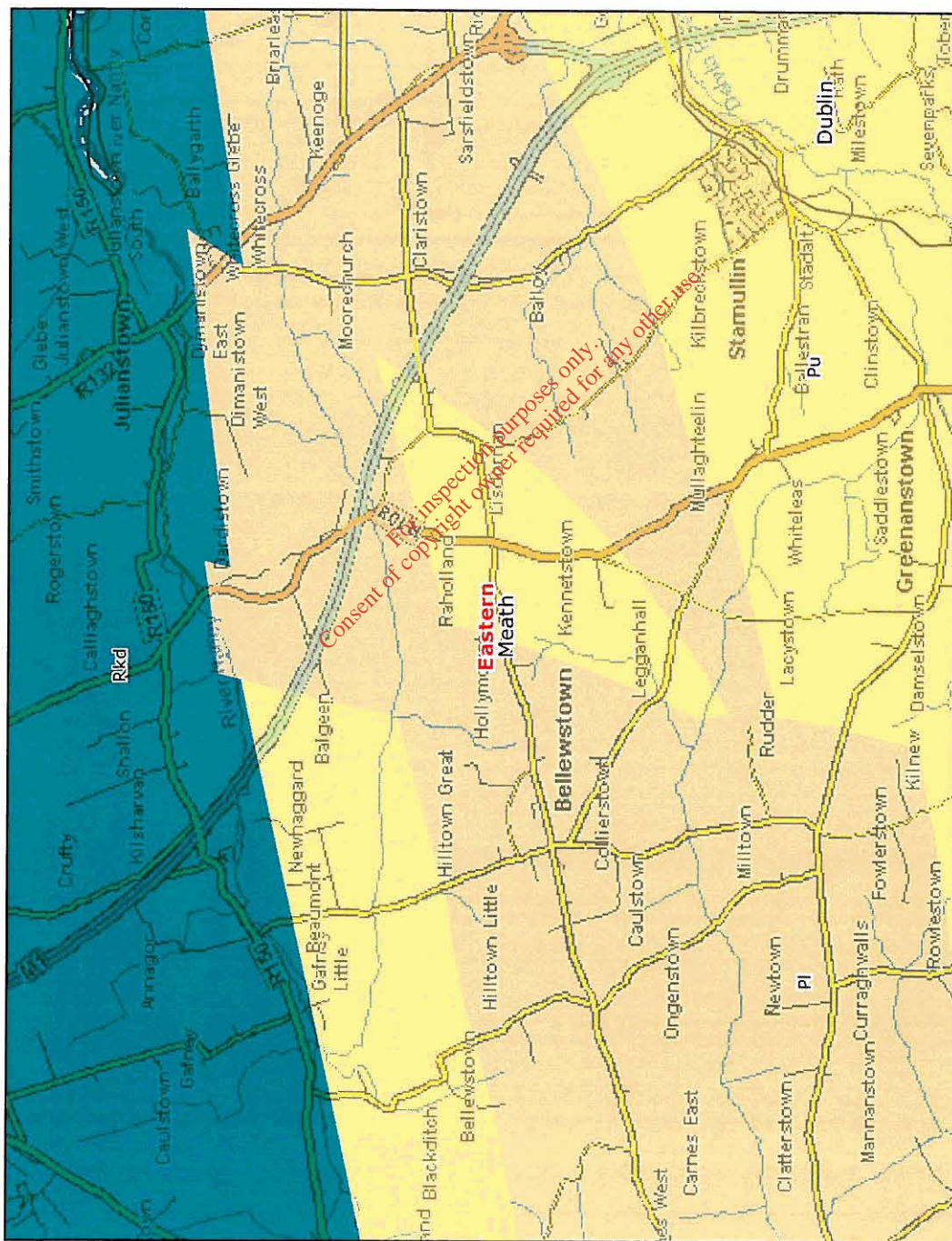


Bellewstown - Draft Bedrock Aquifer Map



Legend

- National Draft Bedrock Aquifer Map
- RI - Regionally Important Aquifer - Fissured bedrock
 - Rk - Regionally Important Aquifer - Karstified
 - Rkd - Regionally Important Aquifer - Karstified (diffuse)
 - Rkc - Regionally Important Aquifer - Karstified (conduit)
 - Ln - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
 - Lk - Locally Important Aquifer - Karstified
 - Li - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
 - Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
 - Pu - Poor Aquifer - Bedrock which is Generally Unproductive
 - Unclassified
 - RED Boundaries
 - County Boundaries



0 1300 2600 3900 m.

Map center: 311060, 267812

Scale: 1:51,028

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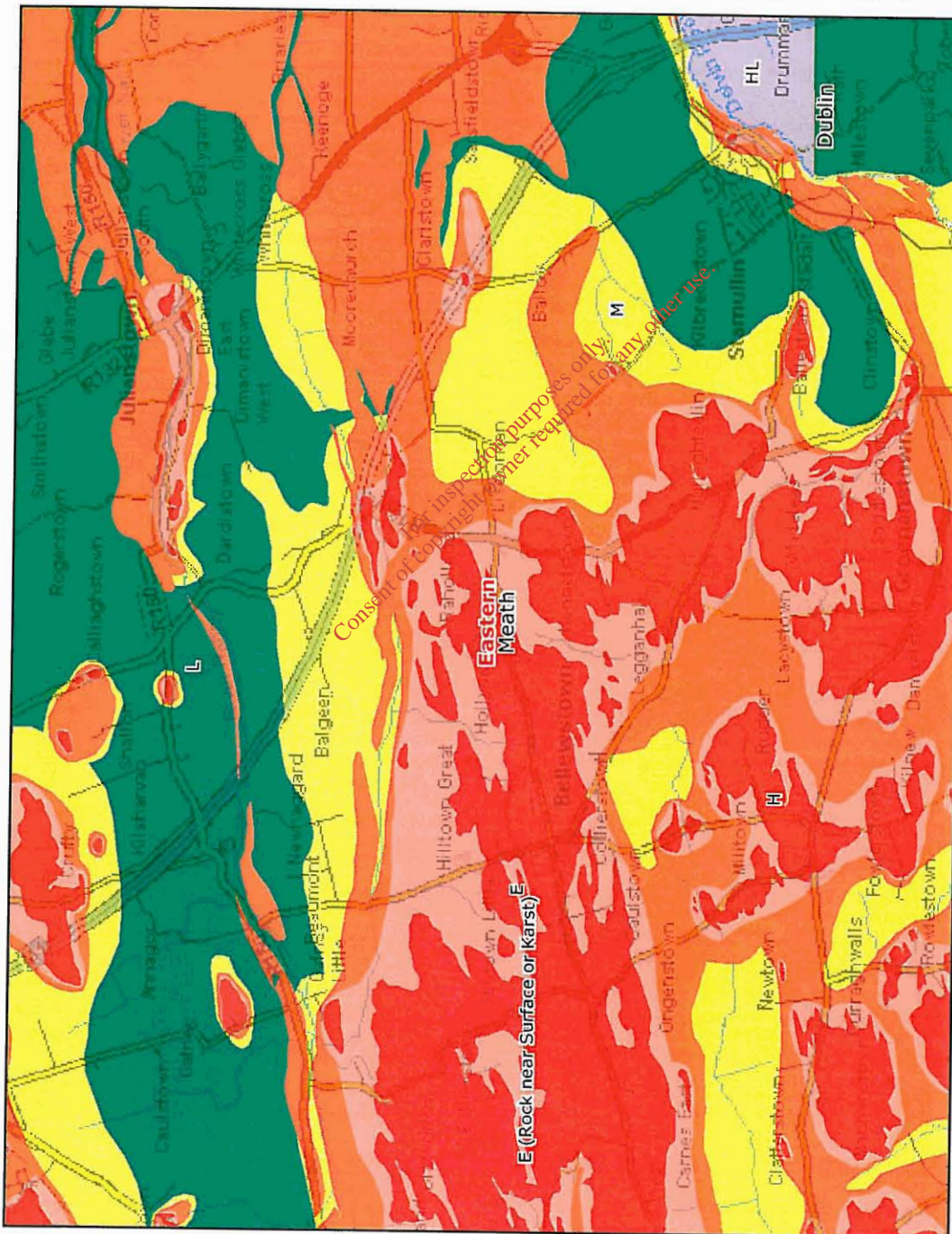
Snapshot Date: 21-Oct-2009



Bellewstown - Vulnerability Data Map



- Legend**
- Eastern Interim Vulnerability
- E (Rock near Surface or Karst)
 - E - Extreme
 - H - High
 - M - Moderate
 - L - Low
 - HL - High to Low. Only an interim study took place.
 - Water
 - RBD Boundaries
 - County Boundaries



0 1300 2600 3900 m.

Map center: 311060, 267812

Scale: 1:51,028

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

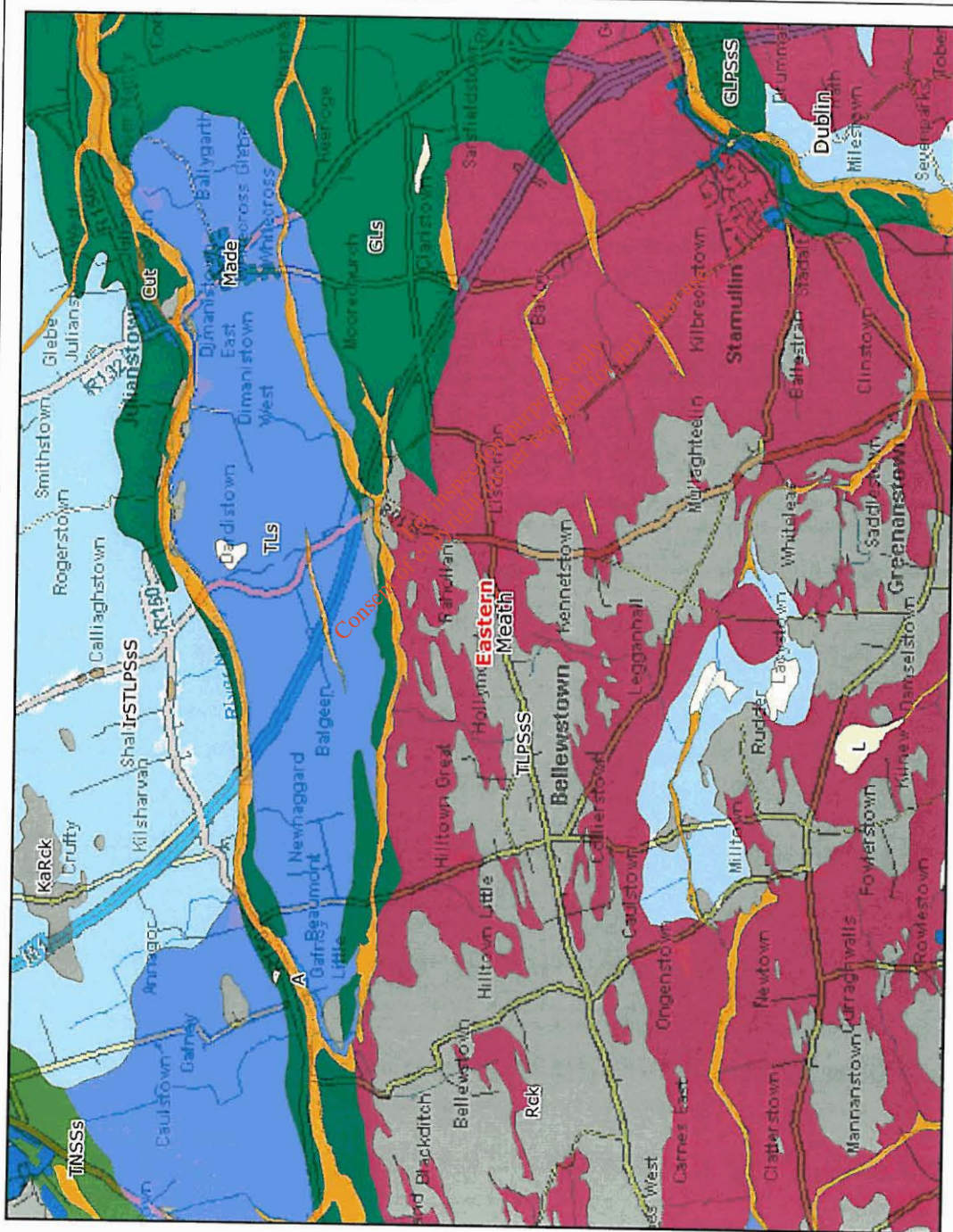
Snapshot Date: 21-Oct-2009



Legend

- Eastern RBD Subsoils
- Alluvium
Beach sands and gravels
Bedrock outcrop and subcrop
Esker sands and gravels
Glaciofluvial sands and gravels
Irish Sea till
Lake sediments
Made ground
Marine/estuarine silts and clays
Marsh
Peat
Screen
Till derived chiefly from Cambrian sandstones and shales
Till derived chiefly from Devonian sandstones
Till derived chiefly from Lower Palaeozoic rocks
Till derived chiefly from Namurian rocks
Till derived chiefly from basic igneous rocks
Till derived chiefly from cherts
Till derived chiefly from granite
Till derived chiefly from limestone
Till derived chiefly from metamorphic rocks
Water
Windblown sands
RBD Boundaries
County Boundaries

Scale: 1:51,028



Map center: 311060, 267812

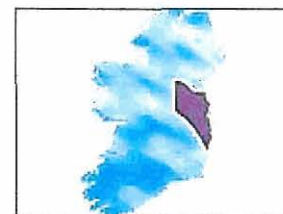
Snapshot Date: 21-Oct-2009

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Waterbody Report for Duleek Ground Waterbody

Report Creation Date: 21 October 2009

Waterbody Category: Ground Waterbody
Waterbody Name: Duleek
Waterbody Code: IE_EA_G_012
Area (km2): 114,129.65
RBD Name: Eastern River Basin District
Overall Risk Result: **1B** Probably at significant risk
Test Date: 01 January 2005



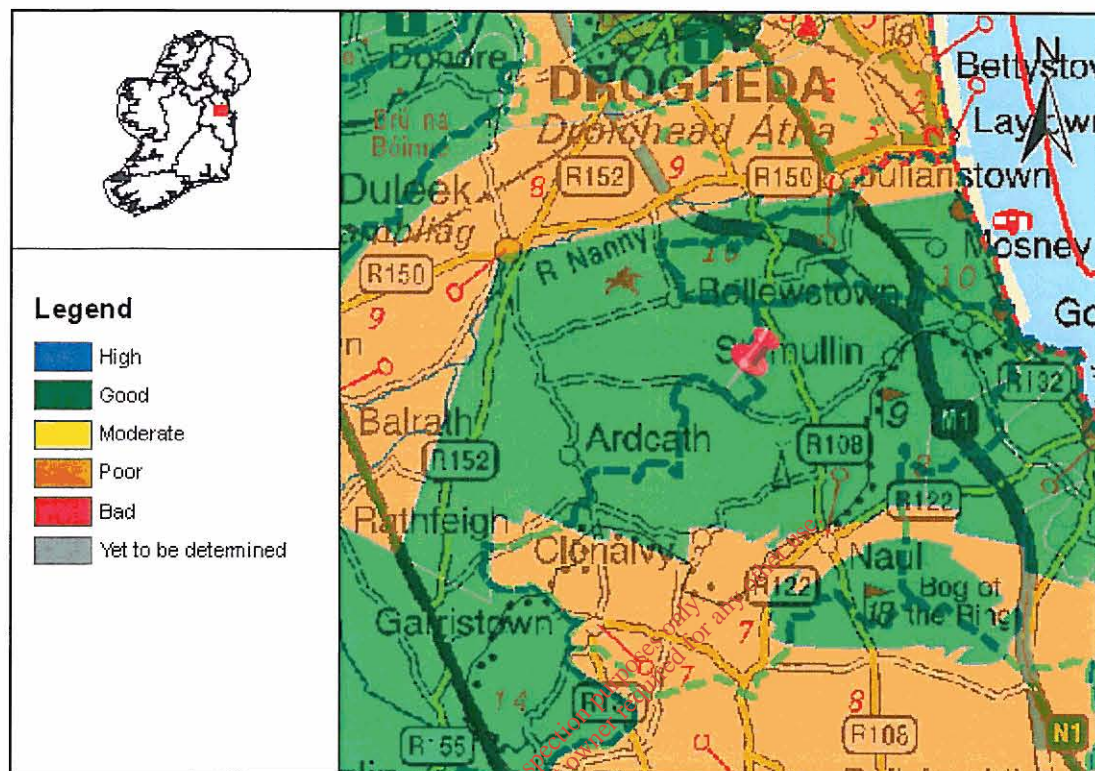
Risk Test Description

Risk Test Result

Abstraction	Groundwater balance	2b	Not at significant risk
	Intrusion	2b	Not at significant risk
Diffuse	Mobile chemicals	1B	Probably at significant risk
	Mobile nutrients (NO3)	2A	Probably not at significant risk
	Clustered onsite systems & leaking urban sewerage systems	2B	Not at significant risk
DWPA Diffuse	Mobile chemicals	1B	Probably at significant risk
	Mobile nutrients (NO3)	2A	Probably not at significant risk
GWDW Abstraction	Water balance	2b	Not at significant risk
GWDW Diffuse	Clustered onsite systems & leaking urban sewerage systems (NO3)	2B	Not at significant risk
	Clustered onsite systems & leaking urban sewerage systems (PO4)	2B	Not at significant risk
	Less mobile nutrients (PO4)	2B	Not at significant risk
	Mobile chemicals	2B	Not at significant risk
	Mobile nutrients (NO3)	2B	Not at significant risk
GWDW Point	Mining	2b	Not at significant risk
Point Source	Contaminated land	2b	Not at significant risk
	Landfills	2b	Not at significant risk
	Mining	2b	Not at significant risk
	Oil industry infrastructure	2b	Not at significant risk
	Quarries	2b	Not at significant risk
	Trade effluent discharges	2b	Not at significant risk
	Urban waste water discharges	2b	Not at significant risk
Risk Abstraction	Risk result for water balance and intrusion (worst case):	2b	Not at significant risk
	Risk result for water balance and intrusion (worst case):	2b	Not at significant risk
Risk Diffuse	Risk result for all diffuse sources of pollution (worst case):	1b	Probably at significant risk
	Risk result for all diffuse sources of pollution (worst case):	1b	Probably at significant risk
	Risk result for all diffuse pressures on GWDWB (worst case):	2b	Not at significant risk
	Risk result for clustered onsite systems & leaking urban sewerage systems:	2b	Not at significant risk
Risk Point Source	Risk result for all point sources of pollution (worst case):	2b	Not at significant risk
	Risk result for all point sources of pollution (worst case):	2b	Not at significant risk
Risk Result Overall	Risk result for all tests carried out on this waterbody (worst case):	1b	Probably at significant risk
	Risk result for all tests carried out on this waterbody (worst case):	1b	Probably at significant risk
	Risk result for all tests carried out on GWDWB (worst case):	2b	Not at significant risk

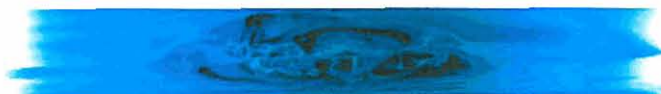


Full Report for Waterbody Duleek



Date Reported to Europe: 22/12/2008

Date Report Created 30/11/2009



Summary Information:

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

WaterBody Code: IE_EA_G_012

Overall Status: Good

Overall Objective: Protect

Overall Risk: 2a Probably Not At Risk

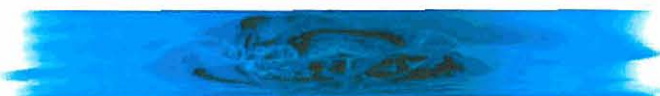
Applicable Supplementary Measures: Unsewered;

Report data based upon Draft RBMP, 22/12/2008.

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Date Reported to Europe: 22/12/2008

Date Report Created 30/11/2009



Chemical and Quantitative Status Report

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

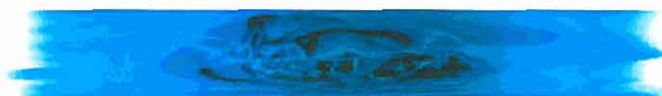
WaterBody Code: IE_EA_G_012

Overall Status Result: Good

	Status Element Description	Result
Groundwater Quality		
WB	Water Balance Status	GS-HC
INT	Saline Intrusions Status	GS-HC
DW	Drinking Waters Status	GS-HC
DIF	Diffuse Elements (General) Status	GS-HC
Groundwater Quality (Point Source)		
CL	Contaminated Land Status	GS-HC
MI	Mine Status	GS-HC
UR	Urban Status	GS-HC
PTO	Overall Point Source Status	GS-HC
Groundwater Quality (General)		
GQ	General Groundwater Quality Status	GS-HC
Surface Water		
TC	Transitional & Coastal Status	GS-LC
SWO	Surface Water Quality Overall Status	GS-LC
SWQ	Surface Water Quantity Overall Status	GS-HC
Groundwater Dependent Terrestrial Ecosystems		
TE	GWDTE Status	GS-HC
Overall		
QUO	Overall Quantitative Status	GS-HC
O	Final Status Classification	Good

Date Reported to Europe: 22/12/2008

Date Report Created 30/11/2009



Risk Report

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

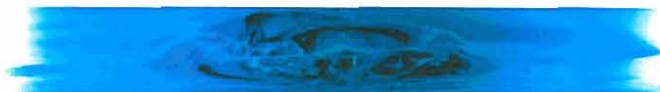
WaterBody Code: IE_EA_G_012

Overall Risk Result: 2a Probably Not At Risk

Risk Test Description		Risk	
Groundwater Quality			
WB	Water Balance Risk	2b	Not At Risk
INT	Intrusions Risk	2b	Not At Risk
DW	Drinking Waters Risk	2b	Not At Risk
DIF	Diffuse Elements (General) Risk	2a	Probably Not At Risk
Groundwater Quality (Point Risk)			
LF	Landfill Risk	2b	Not At Risk
QY	Quarry Risk	2b	Not At Risk
UW	UWWT Risk	2b	Not At Risk
CL	Contaminated Land Risk	2b	Not At Risk
MI	Mine Risk	2b	Not At Risk
UR	Urban Risk	2b	Not At Risk
Groundwater Quality (General)			
GQ	General Groundwater Quality Risk	2a	Probably Not At Risk
Surface Water			
RV	River Risk	2a	Probably Not At Risk
TC	Transitional & Coastal Risk	2a	Probably Not At Risk
SWO	Surface Water Quality Overall Risk	2a	Probably Not At Risk
SWQ	Surface Water Quantity Overall Risk	2b	Not At Risk
Groundwater Dependent Terrestrial Ecosystems			
TE	GWDTE Risk	2b	Not At Risk
Overall Risk			
RA	Overall Risk	2a	Probably Not At Risk

Date Reported to Europe: 22/12/2008

Date Report Created 30/11/2009



Objectives Report

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

WaterBody Code: IE_EA_G_012

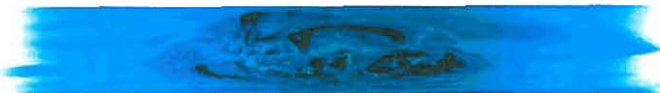
Overall Objective: Protect

Objectives Description		Result
Objectives		
OB1	Groundwater Quantitative Objective	Protect
OB2	Groundwater Chemical Objective	Protect
OBO	Overall Objective	Protect
Deadline		
EX	Revised Objective Deadline	2015
OBO	Overall Objective and Deadline	Protect

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Basic Measures Report

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

WaterBody Code: IE_EA_G_012

Basic Measures Description		Applicable
Key Directives		
BA	Bathing Waters Directive	Yes
BI	Birds Directive	No
HA	Habitats Directive	No
DW	Drinking Waters Directive	Yes
SEV	Major Accidents and Emergencies (Seveso) Directive	Yes
EIA	Environmental Impact Assessment Directive	Yes
SE	Sewage Sludge Directive	Yes
UW	Urban Waste Water Treatment Directive	Yes
PL	Plant Protection Products Directive	Yes
NI	Nitrates Directive	Yes
IP	Integrated Pollution Prevention Control Directive	Yes
Other Stipulated Measures		
CR	Cost recovery for water use	Yes
SU	Promotion of efficient and sustainable water use	Yes
DWS	Protection of drinking water sources	Yes
AB	Control of abstraction and impoundments	Yes
PT	Control of point source discharges	Yes
DI	Control of diffuse source discharges	Yes
GWD	Authorisation of discharges to groundwater	Yes
PS	Control of priority substances	No
MOR	Control of physical modifications to surface waters	No
OA	Controls on other activities impacting on water status	Yes
AP	Prevention or reduction of the impact of accidental pollution incidents	Yes

Date Reported to Europe: 22/12/2008

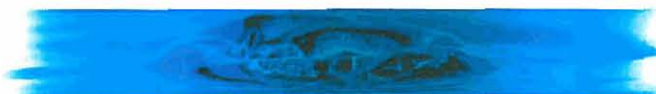
Date Report Created 30/11/2009



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Unsewered Properties Supplementary Measures Report

WaterBody Category: Groundwater Waterbody

WaterBody Name: Duleek

WaterBody Code: IE_EA_G_012

	Supplementary Measures for Unsewered Properties	Applicable
SP1	Amend building regulations	Yes
SP2	Establish certified expert panels for site investigation and certification of installed systems	Yes
SP3	Assess applications for new unsewered systems by applying risk mapping/decision support systems and codes of practice	Yes
SP4	Carry out an inspection programme in prioritised locations for existing systems and record results in an action tracking system	Yes
SP5	Enforce requirements for percolation	following inspection
SP6	Enforce requirements for de-sludging	Yes
SP7	Consider connection to municipal systems	Where feasible

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ATTACHMENT F.2

