

Replies ①
Revise

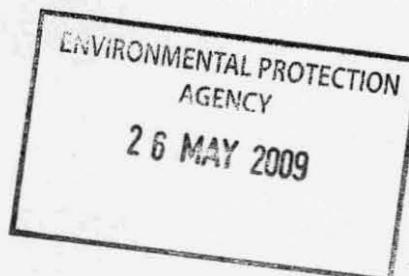
Comhairle Contae Chorcaí
Cork County Council

Water Services,
Courthouse,
Skibbereen,
Co. Cork.
Tel No: (028)21299
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Web: <http://www.corkcoco.com/>

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



22nd May 2009

**Re: Re: D0166-01 - Skibbereen Waste Water Discharge Licence Application –
Revised Reply to Notice in accordance with Regulation 20(1) of the Waste Water
Discharge (Authorisation) Regulations 2007**

The Environmental Protection
Agency

27 MAY 2009

CORK

Dear Sir/Madam,

In the course of the preparation of the reply to Notice in accordance with Regulation 20(1), Clonakilty was referred to in error in the reference heading instead of Skibbereen. Enclosed please find amended reply and cover letter to reply, along with the other files, in hard copy (original and copy) and pdf electronic files (2 no.) to replace those sent on 14/5/09.

Yours sincerely,

Declan Groarke
Senior Executive Engineer
Water Services

Enclosures

Comhairle Contae Chorcaí
Cork County Council

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14th May 2009

**Re: D0166-01 - Skibbereen Waste Water Discharge Licence Application – Reply to
Notice in accordance with Regulation 20(1) of the Waste Water Discharge
(Authorisation) Regulations 2007**

Attached please find reply to Notice in accordance with Regulation 20(1) of the Waste Water Discharge (Authorisation) Regulations 2007 including sampling and monitoring data files.

Please copy future correspondence concerning this application and others in the West Cork Division of Cork County Council to:

Moira Murrell,
Director of Services,
Cork County Council,
Kent St.,
Clonakilty,
Co. Cork

Yours Sincerely,

Declan Groarke
Senior Executive Engineer,
Water Services

Comhairle Contae Chorcaí
Cork County Council

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Courthouse,
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Administration,
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Office of Climate, Licensing & Resource Use,
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PO Box 3000,
Johnstown Castle Estate,
County Wexford

14th May 2009

Re: D0166-01 - Skibbereen Waste Water Discharge Licence Application – Reply to Notice in accordance with Regulation 20(1) of the Waste Water Discharge (Authorisation) Regulations 2007

For the attention of: Marie O'Connor, Inspector, Office of Climate, Licensing & Resource Use

Dear Ms. O'Connor,

I refer to your letter of the 16th April 2009 concerning the above. The following is my reply to your request for further information in accordance with Regulation 20(1):

Regulation 20(1) – Further Information, Particulars and Evidence

Non-Technical Summary

The Skibbereen Sewerage Scheme Collection System Contract has been underway for the last eighteen months and is nearing completion. Only one secondary discharge remains to be connected to this system and it is hoped to complete the work in the next six months.

Skibbereen Waste Water Treatment Plant is part of a bundle of four plants to be constructed and operated under a DBO scheme. Tenders for this scheme are being assessed

at present and it has been planned that work on this would commence next year with completion in June 2011. However this timeframe must be in doubt due to the current economic situation.

Until the WWTP is completed it is proposed to utilise the storm tank attached to the main pumping station in the Marsh area as a primary settlement tank with the effluent from this tank discharging to an adjacent percolation area. Work on this system is still in progress and some problems are being encountered such as pump blockages due to ragging and effectiveness of percolation leading to overflows to river. It is hoped to resolve these problems but it will be some time before the system will be fully reliable and functioning satisfactorily.

Monitoring data attached shows that river water quality is reasonably good and in compliance with most parameters apart from Phosphates which is slightly elevated. The River Ilen is classified as achieving good status under the Water Framework Directive.

Environmental Monitoring Data

Attached please find additional environmental monitoring information not previously forwarded to the Agency as part of the application.

In general the results for the river water quality of July of 2008 are reasonably good considering the samples were taken at a time when the collection system was in a transition phase of construction and not all of the disparate outfalls were intercepted and included in the main scheme. BOD levels in the river Ilen are less than 3 mg/l which is high status under Water Framework Directive. BOD levels in the Caol Stream which flows into the River Ilen in the middle of the town are somewhat higher and reflect the non-collection of some discharges. Similar results for Phosphorus were evident with Ortho-Phosphate in the River Ilen samples less and Caol Stream more than 60 ug/l recommended in the draft Environmental Objectives Regulations for transitional waters of between 0 to 17 % salinity.

The screening undertaken on 11/09/08 post collection system with single point discharge resulted in the following on that occasion of sampling:

Except for Ortho Phosphate there were no breaches of any parameters where there is a limit proposed under 2000/60/EC and 2006/11/EC in the draft Environmental Objectives Regulations.

The Ortho Phosphate result was 70 ug/l while the limit value 60ug/l is recommended in the draft Environmental Objectives Regulations for transitional waters of between 0 to 17 % salinity.

There are no limits for ammonia, inorganic nitrogen in transitional waters however the TN result was 1mg/l which is a combination of organic and inorganic nitrogen and is a low value of Nitrogen.

Extensive screening for Dangerous Substances has not yielded any evidence of exceedance for these substances. (Actual results for Lead – 10 ug/l and Copper – 25 ug/l were in compliance).

Main Pumping Station (Interim Primary) Discharge

The main thrust of the proposals for the Interim Primary treatment remain the same as those outlined in the application with the Storm Tank acting as a primary settlement tank prior to discharge to adjacent percolation area. This is the interim proposal until the Waste Water Treatment Plant is constructed and commissioned as shown in application.

The attached table named “E4 Skibbereen Discharge Outlet” gives results for effluent from the Interim Primary discharge as well as from upstream and downstream river samples.

The effluent results reflect the fact that on the 11/9/08 the interim treatment system was working well with BOD of 2.4 mg/l while on the 12/3/09 the BOD was a good deal higher at 122 mg/l. This was due to the problems that are being encountered in the proper operation of the pumping/settlement tank/percolation system and these are still ongoing. Problems have been encountered with blocking of pumps due to ragging and the effectiveness of the proposed percolation area. Efforts are being made to resolve these problems but it will be some time before the system will be fully reliable and functioning satisfactorily.

Collection System Improvement Works

Only one secondary discharge point remains to be connected in the collection system. This discharge upstream of Market Street Bridge caters for septic tank effluent from recent developments at the Gortnaclohy Link Road. It is hoped to connect this discharge to the collection system within the next two months.

New WWTP and Temporary Treatment System

As outlined in the Waste Water Discharge Licence Application for Skibbereen it is proposed that the Waste Water Treatment Plant will be constructed and operated under a Design, Build and Operate contract along with three other plants for West Cork towns (Baltimore, Schull and Dunmanway).

Tenders for this DBO bundle have been received and are currently being assessed. It was hoped that construction could begin early in 2010 with completion of works by June 2011. However it must be considered that this may be liable to delay due to the current economic situation.

The Interim Primary treatment proposal for the storm tank in the Marsh area remains the same as those outlined in the application with the Storm Tank acting as a primary settlement tank prior to discharge to adjacent percolation area. This is the interim proposal until the Waste Water Treatment Plant outlined in application is constructed and commissioned.

Problems are being encountered in the proper operation of the pumping/settlement tank/percolation system and these are still ongoing. Problems have been encountered with blocking of pumps due to ragging and the effectiveness of the proposed percolation area. Efforts are being made to resolve these problems but it will be some time before the system will be fully reliable and functioning satisfactorily.

Files on sampling/monitoring attached to this letter in hard and electronic copy comprise as follows:

1. Extra Info Estuarine Results from EPA 2007 Survey
2. E4 Extra Info Skibbereen Ilen River Sampling 2007-2009
3. E4 Extra Info Skibbereen New Discharge Sampling
4. E4 Extra Info Skibbereen Preliminary Survey Discharges 2008
5. E4 Extra Info Skibbereen River Sampling July 2008
6. E4 Extra Info Skibbereen River Sampling Preliminary Survey 2008

Yours sincerely,



Moira Murrell
Director of Services
Western Division

Ilen Estuary												WQI 2003-2007				WFD Criteria			
Secchi	S.S.	DO %	B.O.D.	TON	NH3	Free NH3	DAIN	PO4	TON/NH3	DAIN/PO4	Chlorophyll a	GM	HG	Value					
(mg/l)	Surface	(mg/l)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	S mg/m³								
0.9	0	58.4	1.0	0.01	0.020	0.0002	0.030	10	1.1	0.0	0.50	0.633	0.2407	0.304	GOOD				
2.2	#NUM!	94	1.5	0.20	0.061	0.0013	0.304	22	96.9	0.0	3.30	47	26.76	22	high				
34.2	0	116	8.9	2.72	1.080	0.0304	2.903	98	8235.1	0.1	28.00	11.7	5.85	3.30	high				
36	0	94	49	99	99	99	99	99	99	99	97	23.3	11.65	14.06	GOOD				
1.0	#NUM!	80	2.1	1.41	0.19	0.0047	1.756	42	4.2	0.0	14.06	77	83.24	80	GOOD				
5.2	#NUM!	108	2.5	2.17	0.248	0.0057	2.394	46	4290.8	0.1	18.68	123	116.76	108	high				
1	0	1	1	24	2	18	25	23	0	99	17	5	3	2.5	HIGH				
0	0	0	0	0	1	1	0	0	99	0	0	5	3.3	3.332	GOOD				
2.8	#DIV/0!	1.1	2.0	24.2	2.0	18.2	25.3	23.2	0.0	100.0	17.5	Temp annual MAX		96.4	TAV				
	#DIV/0!	0.0	0.0	0.0	1.0	1.0	0.0	0.0	100.0	0.0	0.0	Temp 'Ambient'		14.58495					
<1	<70	<70	>4	>1	>0.3	>0.004	>1	>30	<1	<10	>10								
	>120	>120	>3	>3	>0.8	>0.020	>3	>100	>=1	>22	>30								

Counter	Station No	Sample Label	Secchi m	DO % Sat	B.O.D. mg/l O2	TON mg/l N	NH3 mg/l N	Free NH3 mg/l N	DIN mg/l N	PO4 µg/l P	TON:NH3	DIN:PO4 µMol	Chlorophyll a mg/m	Si_est µg/l Si	Lab. Number	Location	Floor Volts	Floor Chla	
Ilen Estuary	TW2																		
IN000	IN000	IN000S	VOB	94	1.3	2.25	0.272	0.0006685	2.522	30	3365.950727	0.084067	3.2	2550	270261	Ilen Bridge			
	IN000	IN000S	NR		1.6	1.38	0.053	0.0002315	1.433	27	5962.29659	0.053074	0.7	3400	270972	PLEASE RECORD SALINITY			
	IN000	IN000S	VOB	93.2	1.3	1.27	0.037	0.0002758	1.307	36	4605.088486	0.036306	0.499	3120	271396				
	IN000	IN000S		58.4	8.9	1.3	1.08	0.0056734	2.38	98	229.1395812	0.024286	18.2	717	271679	Bridge at Skibbereen			
	IN000	IN000SR		92.6	1.7	1.38	0.244	0.002169	1.624	28	636.2265095	0.058	9.1	778	271678	Bridge at Skibbereen			
Ilen Estuary	TW2																		
IN010	IN010	IN010S	NR	0		2.04	0.258	0.0006826	2.298	27	2988.726655	0.085111	2	2530	270260	Bridge d/s of Skibbereen			
	IN010	IN010RS	VOB	93.3		2.54	0.11	0.0003484	2.65	30	7289.841228	0.088333	3.8	2700	270270	Bridge d/s of Skibbereen			
	IN010	IN010S	NR		1.9	1.35	0.053	0.0002537	1.403	27	5321.314424	0.051963	1.8	29.99	270971	PLEASE RECORD SALINITY			
	IN010	IN010S	VOB	84.9	1.2	1.3	0.051	0.0003608	1.351	24	3602.651113	0.056292	1.1	2780	271395				
	IN010	IN010SR	VOB	98.4	1.2	1.22	0.054	0.0005139	1.274	37	2373.894587	0.034432	1.8	2730	271397				
	IN010	IN010SR		74.3	2.1	1.27	0.226	0.0025804	1.496	43	492.1735776	0.034791	14.9	551	271680	Bridge DS of Skibbereen			
	IN010	IN010S		80.8	2.7	0.483	0.162	0.0031241	0.645	9.9	154.6064807	0.065152	20.6	63	271681	Bridge DS of Skibbereen			
Average				86.27	1.82	1.4576	0.1306	0.00112	1.5881	28.27143	3174.744009	0.05944	6.5714	1626.284					
Median				84.9	1.6	1.38	0.11	0.005139	1.403	27	2143	0.05944	2	2530					
95%percentile				75.6	1.2					14.13			1.31						
90%percentile				76.9	1.2								1.52						
5%percentile				97.38	2.58								18.89						
Ilen Estuary	TW2																		
IN015	IN015	IN015S	VOB	87.2	0.99	2.16	0.081	0.0002623	2.241	25	8235.114265	0.08964	3	2270	270259	Quay at Deenish			
	IN015	IN015RS	NR	94.4		2.72	0.147	0.0006391	2.867	36	4255.933367	0.079639	11.1	2650	270269	Quay d/s Bridge			
	IN015	IN015BR		100.8	1.8	0.297	0.022	0.0010864	0.319	9.9	273.3802775	0.032222	2	584	270994				
	IN015	IN015SR		105.3	2.1	0.654	0.0199	0.0010588	0.6739	9.9	617.6703338	0.068071	7.2	597	270993	DEENISH PIER			
	IN015	IN015S	VOB	114.2	1.1	1.23	0.0199	0.0005264	1.2499	20	2336.732879	0.062495	3.2	2360	270983	51. 33.000. DEENISH			
	IN015	IN015S	1.75	77.8		1.23	0.069	0.0003632	1.299	26	3386.866352	0.049962	2.1	2400	271372	Deenish Pier			
	IN015	IN015B		83.8		0.863	0.082	0.0008831	0.945	20	977.184832	0.04725	10.5	2070	271373				
	IN015	IN015SR	VOB	105		1.21	0.052	0.0007429	1.262	34	1628.853362	0.037118	2.3	2650	271394	Deenish Pier			
	IN015	IN015S	1.75	73.7	1.9	1.05	0.109	0.0019193	1.159	39	547.0639991	0.029718	9.2	179	271664	Deenish Quay			
	IN015	IN015B		76	2.2	0.273	0.177	0.0051966	0.45	46	52.53408642	0.009783	10.6	32	271665				
	IN015	IN015SR	VOB	83.1	3.1	1.15	0.148	0.0018454	1.298	19	623.169587	0.068316	28	385	271677	Deenish Quay			
Ilen Estuary	TW2																		
IN020	IN020	IN020RS	NR	86.3	0.99	2.48	0.108	0.0005864	2.588	24	4229.129995	0.107833	7.1	2710	270268	Pontoon at Boatyard			
	IN020	IN020S	1.25	86.4	0.99	2.1	0.19	0.0009947	2.29	25	2111.172383	0.0916	3.3	2420	270257	Pontoon at Boatyard			
	IN020	IN020B		87.6	0.99	1.57	0.247	0.0025232	1.817	25	622.2310209	0.07268	3.2	1440	270258				
	IN020	IN020B		101.5		0.138	0.0199	0.0011118	0.1579	9.9	124.1252918	0.015949	3.6	39	270982	09. 19.351			
	IN020	IN020S	1.6	94.2		0.754	0.025	0.0006806	0.779	9.9	1107.891599	0.078687	4.3	781	270981	51. 32.041. OPP. BOATYARD			
	IN020	IN020BR		111.11		0.048	0.0199	0.0012622	0.0679	9.9	38.02978748	0.006859	1.8	29.99	270992				
	IN020	IN020SR	1.5	115.8		0.292	0.0199	0.0012389	0.3119	9.9	235.6872087	0.031505	1.8	354	270991	BOATYARD			
	IN020	IN020BR		85.3		0.599	0.04	0.0010148	0.639	15	590.2874379	0.0426	6.8	1470	271393				
	IN020	IN020SR	1.6	87.4		0.954	0.027	0.0003295	0.981	29	2895.45295	0.033828	7.1	2630	271392	D/S Boatyard			
	IN020	IN020S	0.9	92.8	1.6	0.57	0.037	0.0010184	0.607	14	559.687933	0.04357	11.3	1410	271374	D/S Boatyard			
	IN020	IN020B		94.3	1.2	0.252	0.052	0.0019525	0.304	12	129.0635266	0.025338	6.1	853	271375				
	IN020	IN020C	1.5	82.4		0.065	0.097	0.0034513	0.162	27	18.83333545	0.006	11.2	29.99	271666	Opp. Boatyard			
	IN020	IN020C		84		0.065	0.097	0.0035049	0.162	27	18.54543726	0.006	11.2	29.99	271666				
	IN020	IN020BR		86.8		0.16	0.128	0.0049615	0.288	17	32.2484045	0.016941	17.8	29.99	271676				
	IN020	IN020SR	1.25	92		0.227	0.146	0.0056856	0.373	49	39.92508122	0.007612	18	29.99	271675	Opp. Boatyard			
Ilen Estuary	TW2																		
IN030	IN030	IN030S	1	90.3		1.05	0.137	0.0020028	1.187	26	624.2700958	0.045654	2.9	1400	270255	Inishbeg Bridge			
	IN030	IN030RS	NR	92.1		0.527	0.074	0.0014883	0.601	28	354.0992391	0.027318	23.6	811	270267	Inishbeg Bridge			
	IN030	IN030B		93.9		0.828	0.132	0.0024909	0.96	32	332.4163488	0.03	2.9	1090	270256				
	IN030	IN030RS				0.527	0.074	0.000704	0.601	28	748.5838747	0.027318	23.6	811	270267	DO in air 100.3			
Ilen Estuary	TW2																		
IN040	IN040	IN040S	NR	91.1	0.99	1.55	0.191	0.0022711	1.741	25	682.4771909	0.06964	1.2	1400	270262	Pontoon at Glebe			
	IN040	IN040BR		105.1	1.7	0.0099	0.0199	0.0009868	0.0298	9.9	10.03266385	0.00301	1.3	29.99	270990				
	IN040	IN040B		106.1	1.3	0.022	0.0199	0.0010573	0.0418	9.9	20.80746929	0.004232	2	29.99	270980	09. 21.911			
	IN040	IN040S	2	108.4	1.7	0.129	0.0199	0.0011606	0.489	9.9	111.1523398	0.01504	2.3	58	270979	51. 31.573. GLEBE HOUSE PONTOON			
	IN040	IN040SR	3.6	110.2	1.2	0.0099	0.0199	0.0010805	0.0298	9.9									

Parameter	Total Coliform	E. coli	Faecal Strept	pH	Conductivity	BOD	Dissolved O ₂	Phosphorous	Nitrite	Ammonium	Nitrate	Suspended S	Colour	Manganese	Sulphate	Chloride	Dissolved I	Dissolved Oxy	Appearance	Temp	Odour	Copper	Zinc			
						O ₂	O ₂	P ₂ O ₅	NO ₂	NH ₄	NO ₃		Hz	Mn	SO ₄	Cl	Fe					Cu	Zinc			
Max.	25000	5000	2000	9	1000	5	15	0.7	--	1.5	--	--	--	50	200	250	200	150	--	--	--	2	--			
Target	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Min.	--	--	--	5.5	--	--	5	--	--	--	--	--	--	--	--	--	--	50	--	--	--	--	--			
Project	Location	Sample Date	Comments	MPN/100ml	MPN/100m	cfu/100ml	pH units	µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	Hazen	µg/l	mg/l	mg/l	µg/l	% O ₂	Descriptive	Degrees C	Descriptive	mg/l	µg/l		
Skibbereen	at plant	4-Dec-07	Ballyhilty Bridg	1274	1203	66	7.4	165	< 1	8.1		0.035		< 1	50		10.5	25.2		74	Good	11	No			
Skibbereen	at plant	30-Apr-08		4880	600	38	7.7	154	< 1	12	0.008		< 0.026	6.09	< 1		< 20		24.2		112		10.6		< 0.005	< 20
Skibbereen	at plant	30-Jul-08	Ballyhilty Bridg	54750	7540	> 1200	7.1	126	2.2	7.2	0.085	0.037	0.1	4.71	5.6		72			228	73		15.7		0.002	< 20
Skibbereen	at plant	14-Apr-09	Ballyhilty Bridge			36	7.4	131	< 1	10.2	0.022	0.013	<0.026	4.14	1.5	51	33.239	7	19	130	98	clear	10.9	none	0	<20

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Attachment E4 Skibbereen Discharge Outlet Table E4								
Sample Date	11/9/2008	12/3/2009					11/9/2008	11/9/2008
Sample	Effluent	Effluent	Average	Kg/Day	Kg/year		Ilen River Upstream	Ilen River Downstream
Sample Code	GS907	GT334*					GT905	GT906
Flow M ³ /Day	*	*	3240				*	*
pH	7.2	*	7.2	not applicable	not applicable		7.1	6.9
Conductivity @ 20°C	134	*	134	not applicable	not applicable		125	277
SS mg/L	6	104	55	178.2	65043		4	23
NH ₃ mg/L	<0.1	*	<0.1	<0.324	<118.26		<0.1	0.4
BOD mg/L	2.4	122	62.2	200.88	733212		2.44	3.64
COD mg/L	30	133	81.5	264.06	96381.9		33	<21
TN mg/L	Not available	*					<1	1
TP mg/L	<0.3	*	<0.3	<0.972	<354.78		<0.20	<0.20
O-PO4-P mg/L	<0.05	*	<0.05	<0.162	<59.13		<0.05	0.07
SO4 mg/L	Not available	*	*				Not available	Not available
Phenols µg/L	<0.5	*	<0.5	<0.00162	<0.5913		<0.5	<0.5
Atrazine µg/L	<0.01	*	<0.01	<0.000324	<0.011826		<0.01	<0.01
Dichloromethane	<5.0	*	<5.0	<0.0162	<5.913		<5.0	<5.0
Simazine µg/L	<0.01	*	<0.01	<0.000324	<0.011826		<0.01	<0.01
Toluene µg/L	<0.1	*	<0.1	<0.000324	<0.11826		<0.1	<0.1
Tributyltin µg/L	Not available	*	*	*	*		*	*
Xylenes µg/L	<0.1	*	<0.1	<0.000324	<0.11826		<0.1	<0.1
Arsenic µg/L	<2.0	*	<2.0	<0.00648	<2.3652		<2.0	<2.0
Chromium ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Copper ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Cyanide µg/L	<5.0	*	<5.0	<0.0162	<5.913		<5.0	<5.0
Fluoride µg/L	44	*	*	0.14256	52.034		40	34
Lead ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Nickel ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Zinc ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Boron ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Cadmium ug/L	<20	*	<20	<0.0648	<23.652		<20	<20
Mercury µg/L	<0.2	*	<0.2	<0.000648	<0.23652		<0.2	<0.2
Selenium µg/L	<2.0	*	<2.0	<0.00648	<2.3652		<2.0	<2.0
Barium ug/L	<20	*	<20	<0.0648	<23.652		<20	65

*note sample not representative of usual discharge as maintenance work was underway at time of sampling

3240 m3/day - estimated volume used in calculations

Attachment E4 Skibbereen Preliminary Survey of Agglomeration on 22nd April 2008

Location No.	1	2	4	5	6	8	9	10	11	12	13	14	15	16	17/18	21	23	24	25
Flow M ³ /Day	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available
pH	7.9	9.0	7.2	7.5	7.5	7.2	8.1	7.0	7.3	7.0	7.5	7.1	7.0	7.3	7.0	7.1	7.1	7.6	11.9
Cond 20°C	345	835	526	271	522	543	70	229	374	133	129	168	127	127	247	70	101	300	2000
SS mg/L	17	957	1068	16	396	19	169	888	28	73	742	491	70	16	6505	458	57	66	162
NH ₃ mg/L	<0.1	51	19.7	6.1	13.2	1.1	0.4	5.3	8.2	1.9	0.3	2.7	3.4	1.1	1.3	<0.1	0.7	11.6	2.4
BOD mg/L	<1.0	142	269	8.1	100	<1.0	7.4	303	24	112	124	125	53	8.1	1086	52	7.8	78	25
COD mg/L	<21	571	760	29	176	<21	65	1419	62	218	422	567	107	33	1391	360	22	138	126
TN mg/L	3.5	112	38	8.6	15	5.5	11	36	13.2	12.1	2.3	12	8.4	3.4	45	4.1	2.6	26	12
TP mg/L	<0.20	7.05	8.53	1.95	3	<0.20	0.22	7.2	1.61	10.18	3.93	3.63	1.28	0.29	13.85	2.38	0.4	2.17	0.44
O-PO4-P mg/L	<0.05	2.53	*	1.53	0.51	0.06	<0.05	1.62	0.81	3.45	0.14	0.24	0.32	0.1	0.64	<0.05	0.12	0.81	<0.05

Location 3 no sample no access to pipe
 Location 7 no sample no access to pipe
 Location 20 no sample no access to pipe
 Location 22 no sample no access to pipe

 Location 19 sewer clogged with fat

Key To Locations

Location 1	Cork Road Outfall
Location 2	Convent Hill Outfall
Location 3	N/A
Location 4	North St Outfall near Credit Union
Location 5	North St Outfall @ O'Leary's porch
Location 6	Levis Quay Outfall
Location 7	N/A
Location 8	Car Park Outfall
Location 9	Market St (Warners Lane) Outfall
Location 10	Market St (Fachtna's) Outfall
Location 11	Baltimore Rd Outfall
Location 12	Townshend St (Roycroft's) Outfall
Location 13	Townshend St (Crowley's porch) Outfall
Location 14	Townshend St (Clerke's Lane) Outfall
Location 15	Townshend St (Crowley's porch) Outfall
Location 16	Bridge St (Thornhill's) Outfall
Location 17	Outfall Pipe
Location 18	Outfall Pipe
Location 19	Ilen St, Eldon Hotel Outfall Tank
Location 20	N/A
Location 21	Outfall Pipe
Location 22	N/A
Location 23	Riverdale East Outfall
Location 24	Riverdale West Outfall
Location 25	Glencurragh West St

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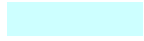
Attachment E4 Skibbereen Survey 2 on 30th July 2008

Sample Date	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008	30/07/2008
Sample	River U/S	River	River	River	Outfall*	Discharge*	River	River	River	River	River
Sample Code	GS724	GS725	GS726	GS727	GS728	GS729	GS730	GS731	GS732	GS733	GS734
Location	Ballykilty Bdg	Curragh Bdg	Old Bridge@Ilen	New bridge @ Ilen	Cork Marts	Union Hall Fis	Caol Stream	Caol stream @ Caravan Pk Rear	Gortnaclohy Stream @ Levis Quay	Caol Stream @ Bridge @ Supervalu	Caol Stream @ Baltimore Rd D/S
Location Number	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
Flow M ³ /Day	*	*	*	*	*	*	*	*	*	*	*
pH	7	7	7	7	7.5	4.5	7.5	7.3	7.2	7.2	7.1
Temperature °C	*	*	*	*	*	*	*	*	*	*	*
Conductivity @ 20 °C	122	128	129	134	907	2.3	259	243	246	246	249
SS mg/L	7	5	5	7	39	6	7	4	16	11	4
NH ₃ mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	10.8	<0.1	<0.1	0.1	0.1	0.3
BOD mg/L	1.99	2.24	1.89	2.6	14.4	1.7	1.23	3.09	5.45	4.04	5.89
COD mg/L	35	39	34	35	112	28	23	21	30	30	31
TN mg/L	<2.232	<2.147	2.302	5.686	29.633	50.276	<2.637	4.0158	<2.488	<2.67	3.876
Nitrite mg/L	0.0116	0.0171	0.012	0.0128	0.013	0.0358	0.00683	0.0198	0.0284	0.0303	0.0364
Nitrate mg/L	1.22	1.13	1.17	1.193	28.5	45.2	1.63	1.756	1.46	1.64	1.6
TP mg/L	<0.2	<0.2	<0.2	<0.2	11.43	6.9	<0.2	<0.2	0.21	<0.20	0.22
O-PO4-P mg/L	<0.05	<0.05	<0.05	<0.05	10.18	6.29	<0.05	0.05	0.07	0.07	0.11
SO4 mg/L	<30	<30	<30	<30	39.1	88.8	<30	<30	<30	<30	<30
Phenols µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Atrazine µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichloromethane µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Simazine µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tributyltin µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylenes µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic µg/L	1	1	1	1	1	1	1	1	1	1	1
Chromium ug/L	<10	<20	<10	<20	10.2	<20	<20	<20	<20	<20	<20
Copper ug/L	<30	<20	<30	<20	405	216	<20	<20	<20	<20	<20
Cyanide µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride µg/L	40	40	50	70	310	450	50	50	53	56	75
Lead ug/L	<3	<20	<3	<20	<3	39	21	<20	<20	23	<20
Nickel ug/L	<5	<20	<5	<20	<5	<20	<20	<20	<20	<20	<20
Zinc ug/L	<10	<20	<10	<20	177.8	117	<20	<20	<20	<20	<20
Boron ug/L	<20	21	<20	<20	200	60	<20	<20	32	<20	<20
Cadmium ug/L	<1	<20	<1	<20	<0.001	<20	<20	<20	<20	<20	<20
Mercury µg/L	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Selenium µg/L	<0.74	<0.74	1	<0.74	1	14	1	1	1	1	<0.74
Barium ug/L	56.4	42	65.6	39	23.7	28	29	33	33	31	23

Legend For Locations

- S1 Skibbereen at Ballykilty Bridge (Ilen river) S1
- S2 Skibbereen at Curragh Bridge at R.F.C. (Ilen River) S2
- S3 Skibbereen at 'Old Bridge' (Ilen River) S3
- S4 Skibbereen 'New Bridge' (Ilen River) S4
- S5 Skibbereen Cork Marts Section 4 licence discharge
- S6 Skibbereen Union Hall Co-Op S6 Section 4 licence discharge
- S7 Skibbereen Rear of R565 Industrial Estate (Caol Stream) S7
- S8 Skibbereen Rear of Hideaway Caravan Park (Caol Stream) S8
- S9 Skibbereen at Levis Quay (Gortnaclohy Stream) S9
- S10 Skibbereen at Bridge at Supervalu (Caol Stream) S10
- S11 Skibbereen at Baltimore Road D/S (Caol Stream) S11

Note: TN Values recorded as < as Kjeldahl Nitrogen result was less than <1.0mg/l



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Attachment E4 Skibbereen - Preliminary Survey -Rivers

Sample Date	22/4/2008	22/4/2008	
Location	llen River at Drimloeague Bridge	llen River at Schull Road Bridge	
Sample	Upstream	Downstream	
Flow M ³ /Day	Not available	Not available	
pH	8.4	7.7	
Cond 20 °C	162	2660	
SS mg/L	3	13	
NH ₃ mg/L	<0.1	<0.1	
BOD mg/L	1.7	2.1	
COD mg/L	<21	25	
TP mg/L	<0.20	*	
O-PO4-P mg/L	<0.05	<0.05	

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