SECTION E – MONITORING

Attachment E1: Wastewater Discharge Frequency & Quantities – Existing & Proposed

- **Table E.1(i): Waste Water Frequency and Quantity of Discharge Primary and Secondary Discharge Points**
  (NOTE: There is no Secondary Discharge Point)

- **Table E.1(ii): Waste Water Frequency and Quantity of Discharge Storm Water Overflows**
  (NOTE: There is no Storm Water Overflow Discharge Point)

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	12191

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

SECTION E – MONITORING

Attachment E2: Monitoring & Sampling Points

- Programme for Environmental Monitoring
- Drawing No. 5270-2755

PROGRAMME FOR ENVIRONMENTAL MONITORING

The 'Programme for Environmental Monitoring' is proposed to continue in much the same way as it has done for the last 2 years. This will involve monitoring of the Influent to the Waste Water Treatment Plant and the Effluent from the Waste Water Treatment Plant (i.e. Primary Discharge Outlet Effluent Sampling Location) on a monthly basis for the following parameters: BOD, COD, Total Suspended Solids (TSS), Total Phosphorus as P & Total Nitrogen as N.

The Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) requests water sampling of the aquatic environment into which the Primary and Secondary Discharges occur, in order to monitor the impact of the discharges on the ambient environment.

The Primary Discharge Point (SW1) discharges to a stream tributary of the Athboy River. The stream meets the Athboy River, ca. 800m downstream of the Primary Discharge Point. For the last number of years, the County Council have carried out monthly monitoring upstream and downstream of the stream confluence with the Athboy River, at the EPA Station Locations 07A010020 and 07A010050, as shown on Drawing No. 5270-2755 (overleaf). The results of this analysis for 2007 & 2008 are presented in Attachment E.4. This sampling includes analysis for: Dissolved Oxygen (DO), Temperature, pH, Electrical Conductivity, BOD, Suspended Solids, Ammonia, Total Nitrogen, Nitrate, Chloride, Alkalinity, Hardness & Colour.

It is proposed to continue this monitoring upstream and downstream of the discharge points in the Athboy River, but to replace the EPA sampling locations with locations aSW1u and aSW1d, as shown on Drawing No. 5270-2755 (overleaf).

All sampling points proposed above have a safe means of access. Samples will be tested for DO, Temperature, pH & Electrical Conductivity by the sampler at the time of sampling, using fully calibrated and serviced equipment. The remainder of analysis will be carried out by an independent fully quality-controlled laboratory.

EPA STATION
07A010020

aSW1u
UPSTREAM SAMPLING LOCATION

PRIMARY DISCHARGE OUTLET
EFFLUENT SAMPLING LOCATION

ATHBOY RIVER

aSW1d
DOWNSTREAM SAMPLING LOCATION

EPA STATION
07A010050

LEGEND

WWTP SITE
BOUNDARY

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE

3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES

4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd.
A	17.06.09	ISSUE TO MEATH CO. CO.	R.K.	M.H.

Client:
MEATH COUNTY COUNCIL

Project:
CROSSAKEEL WASTE WATER DISCHARGE LICENCE APPLICATION

Title:
ALL MONITORING & SAMPLING POINTS

(SECTION / ATTACHMENT E.2)

Scale @ A3: 1 : 20,000

Prepared by:	Checked:	Date:
R.K.	M.H.	MAY 09

Project Director: M.F.G.

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Drawing No.: 5270-2755

Revision: A

J:\Projects\5270pp Meath Discharge Licence Applications\06-Drawings\02-TOBIN Drawings\Crossakeel\5270-2755.dwg, 2755, 18/06/2009 12:25:40, ray kelly

SECTION E – MONITORING

Attachment E3: Tabular Data on Monitoring and Sampling Points

– **Table E3: Tabular Data on Monitoring & Sampling Points**

Table E3

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
Primary Discharge Outlet Effluent Sampling Location	Primary	Monitoring / Sampling	264542	274294	No
aSW-1d	Primary	Sampling	263727	273553	No
aSW-1u	Primary	Sampling	263219	274065	No

SECTION E – MONITORING

Attachment E4: Sampling Data

- **Sampling Data Pertaining to the Existing Waste Water Treatment Plant for Previous 12 Months**

- **Details of Compliance with Any Applicable Monitoring Requirements and Treatment Standards**

SAMPLING DATA PERTAINING TO THE EXISTING WASTE WATER TREATMENT PLANT FOR PREVIOUS 12 MONTHS

As stated in Attachment E.2 above - *'Programme for Environmental Monitoring'*, monitoring of the Influent to the Waste Water Treatment Plant and the Effluent from the Waste Water Treatment Plant (i.e. Primary Discharge Point) have been carried out on a monthly basis for the last number of years. Monitoring results for the 'Influent' to the WWTP (2007 & 2008) were attached in Attachment D.1. Monitoring results for the 'Effluent' from the WWTP (2007 & 2008) are attached overleaf.

Also, as stated in Attachment E.2 above - *'Programme for Environmental Monitoring'*, for the last number of years, the County Council have carried out monthly monitoring upstream and downstream of the of the stream confluence with the Athboy River, at the EPA Station Locations 07A010020 and 07A010050, as shown on Drawing No. 5270-2755. Monitoring results for these stations for 2007 & 2008 are attached overleaf.

CROSSAKEEL 'EFFLUENT' MONITORING 2007										
Plant Name	Sample	Date of Sampling	Sample Type	BOD mg/l	COD mg/l	TSS mg/l	Total P mg/l P	Ortho P mg/l P	Total N mg/l N	NH3-N mg/l N
Crossakeel	Final Effluent	25/05/2007	G	6.1	58.8	14	-	-	-	-
	Final Effluent	11/07/2007	G	1	12.4	1.2	0.714	-	0.65	-
	Final Effluent	08/11/2007	G	4.7	43.6	19.2	2.37	-	6.47	-
	Final effluent	13/11/2007	G	3.2	36.5	4.8	2.19	-	15.7	-

CROSSAKEEL ' EFFLUENT' MONITORING 2008							
	04-Mar-08	02-May-08	02-Jul-08	06-Aug-08	10-Sep-08	25-Nov-08	11-Dec-08
Parameter	Eff			Eff	Eff	Eff	Eff
BOD mg/l	2.52	3.5	3.65	14.4	2.85	2.66	4
COD mg/l	24.7	31.9	29.6	26.8	25.2	24.1	33
TSS mg/l	6.4	4	5.2	9.6			8.8
Tot P mg/l	0.754	1.75	2.14	1.36	1.14	0.661	1.26
Tot N mg/l	1.88	5.28	11.3	13.7	5.07	4.1	

SampleCode	EPA_Site_Code	SampleDate	SampleTime	SampleMethod	EmployeeID	DO_Sat_(%Sat)	DO_(mg/L)	Temperature_(degC)	pH_Units	Conductivity_(uS/cm,25DegC)	BOD_(mg/L)	Suspended_Solids_(mg/L)	NH4_(mgN/L)	MRP_(mgP/L)	TON_(mgN/L)	NO2_(mgN/L)	Chloride_(mgCl/L)	Alkalinity_(mg/LCaCO3)	Total Hardness_(mg/LCaCO3)	Colour_(Pt/CoUnits)	Cu_(mg/L)	Zn_(mg/L)
07990072	07A010020	18/01/2007	2:30:00 PM	Grab	9911	89.3	10.31	7.4	7.79	505			0.080	0.055	2.97	0.031		240	260			
07990235	07A010020	26/02/2007	2:15:00 PM	Grab	9911	94.5	10.91	8.9	8.09	607			0.050	0.018	3.51	0.018				16		
07990309	07A010020	15/03/2007	2:15:00 PM	Grab	9911	96.0	11.01	9.3	7.87	584	0.86		0.018	0.013	3.67	0.008	11.9	286	304	12		
07990438	07A010020	18/04/2007	3:50:00 PM	Grab	9915	101.9	10.41	13.7	8.21	630			0.026	0.017	3.50	0.014						
07990564	07A010020	16/05/2007	2:45:00 PM	Grab	9911	101.0	10.81	11.8	8.16	640	1.08		0.016	0.018	2.69	0.011	11.5	360	332	4		
07990638	07A010020	21/06/2007	2:20:00 PM	Grab	9911	97.1	9.73	14.4	8.09	620			0.044	0.039	1.98	0.021						
07990804	07A010020	19/07/2007	1:10:00 PM	Grab	9911	100.4	10.42	13.6	7.92	645			0.011	0.023	2.44	0.010						
07990931	07A010020	28/08/2007	1:10:00 PM	Grab	9916	102.1	10.52	13.1	7.97	645	0.50		0.010	0.013	2.82	0.004	10.7	320	324	13		
07991025	07A010020	26/09/2007	12:45:00 PM	Grab	9911	98.5	11.29	9.5	8.07	661			0.008	0.013	2.83	0.004						
07991164	07A010020	25/10/2007	12:40:00 PM	Grab	9916	96.4	11.62	7.3	8.18	673			0.008	0.017	2.68	0.005						
07991260	07A010020	22/11/2007	1:05:00 PM	Grab	9911	89.0	10.37	7.9	8.01	691	1.30		0.020	0.027	2.04	0.011	11.9	348	364	31		
07991372	07A010020	13/12/2007	3:10:00 PM	Grab	9916	89.3	10.33	9.3	7.84	592			0.021	0.025	3.37	0.008						
08990014	07A010020	24/01/2008	2:45:00 PM	Grab	9916	91.4	10.69	7.0	7.81	537			0.021	0.037	3.33	0.009						
08990153	07A010020	21/02/2008	2:20:00 PM	Grab	9911	95.3	10.93	8.9	8.11	617	1.01		0.027	0.021	3.36	0.012	12.1	304	316	9		
08990304	07A010020	24/04/2008	12:40:00 PM	Grab	9911	104.7	11.53	10.9	8.26	627			0.014	0.014	2.82	0.006						
08990370	07A010020	21/05/2008	12:10:00 PM	Grab	9916	107.7	11.82	10.6	8.26	648	1.00		0.016	0.014	2.89	0.012	11.1	304	340	5		
08990522	07A010020	17/07/2008	12:40:00 PM	Grab	9911	93.9	9.80	12.9	8.07	652			0.020	0.021	3.04	0.011						
08990672	07A010020	21/08/2008	11:45:00 AM	Grab	9916	85.7	8.51	15.3	7.69	556	1.05		0.026	0.037	2.30	0.009	10.9	274		23		
08990813	07A010020	25/11/2008	12:35:00 PM	Grab	9916	89.0	10.59	8.0	7.65	633	0.67		0.023	0.015	2.16	0.006	10.8	320	336	16		

SampleCode	EPA_Site_Code	SampleDate	SampleTime	SampleMethod	EmployeeID	DO_Sat_(%Sat)	DO_(mg/L)	Temperature_(degC)	pH_Units	Conductivity_(uS/cm,25DegC)	BOD (mg/L)	Suspended_Solids_(mg/L)	NH4_(mgN/L)	MRP_(mgP/L)	TON_(mgN/L)	NO2_(mgN/L)	Chloride_(mgCl/L)	Alkalinity_(mg/LCaCO3)	Total Hardness_(mg/LCaCO3)	Colour_(Pt/CoUnits)	Cu_(mg/L)	Zn_(mg/L)
07990073	07A010050	18/01/2007	2:40:00 PM	Grab	9911	91.3	10.60	7.4	7.69	512			0.078	0.052	3.09	0.033		236	264			
07990236	07A010050	26/02/2007	2:25:00 PM	Grab	9911	96.9	11.28	8.5	8.20	636			0.023	0.019	3.81	0.013				13		
07990310	07A010050	15/03/2007	2:30:00 PM	Grab	9911	97.8	11.33	9.0	8.10	617	0.79		0.020	0.017	3.86	0.009	12.6	304	328	9		
07990439	07A010050	18/04/2007	4:05:00 PM	Grab	9915	107.1	11.32	12.4	8.24	635			0.021	0.017	3.86	0.009						
07990565	07A010050	16/05/2007	3:00:00 PM	Grab	9911	96.2	10.38	11.4	8.20	653	0.94		0.023	0.028	3.13	0.018	13.2	348	344	5		
07990639	07A010050	21/06/2007	3:10:00 PM	Grab	9911	93.3	9.41	14.1	8.10	649			0.015	0.052	2.35	0.019						
07990805	07A010050	19/07/2007	1:55:00 PM	Grab	9911	94.8	9.77	13.9	8.01	670			0.024	0.037	2.32	0.013						
07990932	07A010050	28/08/2007	12:50:00 PM	Grab	9916	96.9	10.09	12.9	8.03	666	0.70		0.014	0.022	2.98	0.006	11.7	332	340	10		
07991026	07A010050	26/09/2007	12:30:00 PM	Grab	9911	94.4	10.87	9.4	8.00	670			0.012	0.023	2.99	0.005						
07991165	07A010050	25/10/2007	12:20:00 PM	Grab	9916	90.6	10.99	7.2	8.07	679			0.012	0.021	2.68	0.009						
07991261	07A010050	22/11/2007	12:55:00 PM	Grab	9911	87.8	10.32	7.8	8.12	715	1.52		0.034	0.033	2.10	0.020	12.6	352	376	14		
07991373	07A010050	13/12/2007	2:55:00 PM	Grab	9916	91.8	10.67	9.3	7.96	639			0.034	0.027	3.39	0.011						
08990015	07A010050	24/01/2008	2:10:00 PM	Grab	9916	94.0	11.46	6.9	7.90	577			0.027	0.033	3.38	0.011						
08990154	07A010050	21/02/2008	2:55:00 PM	Grab	9911	95.0	11.01	8.7	8.16	638	0.60		0.026	0.023	3.52	0.011	13.2	308	324	8		
08990305	07A010050	24/04/2008	12:55:00 PM	Grab	9911	99.7	11.16	10.1	8.24	649			0.023	0.024	2.90	0.011						
08990371	07A010050	21/05/2008	11:55:00 AM	Grab	9916	99.9	11.07	10.3	8.01	659	1.08		0.032	0.029	3.11	0.020	12.3	328	344	9		
08990523	07A010050	17/07/2008	12:55:00 PM	Grab	9911	93.2	9.73	13.0	8.09	684			0.026	0.031	2.82	0.011						
08990673	07A010050	21/08/2008	11:30:00 AM	Grab	9916	87.1	8.66	15.2	7.82	600	1.03		0.030	0.035	2.48	0.011	11.5	294		21		
08990814	07A010050	25/11/2008	12:20:00 PM	Grab	9916	90.1	10.82	7.7	7.82	661	0.78		0.027	0.019	2.33	0.011	11.5	332	344	16		

DETAILS OF COMPLIANCE WITH ANY APPLICABLE MONITORING REQUIREMENTS AND TREATMENT STANDARDS

The existing treatment works at Crossakeel provides effluent treatment to the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) standards.

Final effluent from Crossakeel WWTP is discharged to a stream tributary of the Athboy River. The stream meets the Athboy River, ca. 800m downstream of the Primary Discharge Point. The Athboy River is not classified as nutrient sensitive under the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001). Nonetheless, the plant is consistently producing final effluent with concentrations of Total Phosphorous at/below 2mg/l.