Comhairle Contae Dhún na nGall
Donegal County Council

ANNUAL ENVIRONMENTAL REPORT

For

BALBANE LANDFILL SITE
Co. Donegal

Waste Licence Reference: W0090-1

By
Donegal County Council
For
Environmental Protection Agency

Reporting Period:

January to December 2013

May 2014

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1 INTRODUCTION

1.1 This Annual Environmental Report (AER) has been prepared to meet the requirements of Condition 11.5 of Waste Licence 90-1 for Balbane Landfill Site, and includes the information listed in Schedule F of the Licence.

1.2 Balbane Landfill Site is located approximately 6.5 km north of Killybegs, in the townland of Balbane, County Donegal. The landfill covers an area of approximately 2.9 hectares. The landfill site was developed to operate on the dilute and disperse principle whereby leachate generated by rainfall was allowed to disperse into the surrounding environment.

1.3 Donegal County Council submitted an application to the Environmental Protection Agency for the continued operation of the landfill site, as required by the Waste Management (Licensing) Regulations 1997. On the 13th of November 2001 the Environmental Protection Agency granted the Council a Waste Licence (registration number 90-1) for the facility, in accordance with the Third Schedule of the Waste Management Act, 1996. The site closed in January 2004.

2 REPORT PERIOD

2.1 The report period for this Annual Environmental Report (AER) is from January to December 2013.

3 WASTE ACTIVITIES CARRIED OUT AT THE FACILITY

3.1 In accordance with Condition 1 of the waste licence only those waste types and quantities of waste listed in Schedule A shall be disposed of at the facility unless the prior agreement of the Agency has been obtained. The maximum annual tonnage of individual waste types for disposal is listed in Schedule A of the Waste Licence at 7,500 tonnes from the date of grant of licence for municipal waste and 70,000 tonnes of inert material of the purpose of restoration.

3.2 The licensed waste disposal activities in accordance with the Third Schedule of the waste Management Act, 1996 are restricted to those listed as follows:

- **Class 1:** Deposit on, in or under land (including landfill).
  This activity is limited to deposition of municipal and inert waste.
- **Class 4:** Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons. This activity is limited to leachate collection and treatment.
- **Class 13:** Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced. This activity is limited to leachate collection and storage prior to treatment.

3.3 When operational, access to site was controlled by the Site Manager. All persons availing of the site had to report to the site office at the time of entering and leaving the landfill site. Access was restricted to those times when staff were on duty and the site is now secured to prevent unauthorised entry.

4 QUANTITY AND COMPOSITION OF WASTE RECEIVED AND DISPOSED OF DURING THE REPORTING PERIOD AND EACH PREVIOUS YEAR.

4.1 A temporary computerised weighbridge was installed at the site in 2002 and this was used to record waste data figures until the facility closed in January 2004. No waste has been received at the site since closure. Annual figures for the period 1998-2013 are shown in Table 4.1.

Table 4.1 Waste Quantities Accepted (tonnes)

Waste Types	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Municipal Waste (20 03 01)	3228	3716	4721	4107	5069	2790	187	0	0	0
Street Cleanings (20 03 03)						57	3	0	0	0
	2008	**2009**	**2010**	**2011**	**2012**	**2013**				
Municipal Waste (20 03 01)	0	0	0	0	0	0				
Street Cleanings (20 03 03)	0	0	0	0	0	0				

5 SUMMARY REPORT ON EMISSIONS, RESULTS AND INTERPRETATION OF ENVIRONMENTAL MONITORING

5.1 ENVIRONMENTAL MONITORING REQUIREMENTS

The locations, frequencies and parameters which are required to be monitored at Balbane Landfill Site are specified in Schedule F of the Waste Licence. Details of these are shown on Drawing Nos 5234.40 /107 and 5234.40/06 and are given in Appendix A.

5.2 MONITORING RESULTS

Results of monitoring for the period for surface water, groundwater, leachate and gas are contained in tabular and graphical format in Appendix B.

5.3 GROUNDWATER

5.3.1 Results are assessed against the Maximum Admissible Concentrations (MAC's) set out in the EC Quality of Water for Human Consumption Regulations 1988, the EC Drinking Water Regulations 2000 and the EPA Interim Report, Towards Setting Guideline Values for the Protection of Groundwater in Ireland. Groundwater locally flows in a south-easterly direction and GW1 reflects baseline conditions up-gradient of the site. GW4 & GW2 are down-gradient but in / adjacent to waste. It should be noted that BH2 is also located within waste and is considered to be a leachate well.

5.3.2 Results from this period indicate low levels of baseline contamination up-gradient and that leachate continues to be released from the waste body into the local groundwater environment. The close proximity of GW2 to waste, and the location of GW4 within waste must be taken into account when considering down-gradient levels of contamination for an unlined facility. Levels are comparable to those detected in the last reporting period except for a peak in all levels (up and down-gradient) in Q3, this remains unexplained.

5.4 SURFACE WATER

5.4.1 Surface water results are assessed against the Surface Water Quality Standards (SWQS) as laid out in the EC Quality of Surface Water Intended for the Abstraction of Drinking Water Regulations 1989. S1 is upstream of the site, whilst S4 – S7 inclusive are downstream. S2 and S3 were relocated and relabelled at the request of the EPA.

5.4.2 Surface water results indicate that leachate continues to be released into the environment at levels comparable to those detected during the last period. There is generally on-going evidence of low-level upstream contamination. Surface water levels improve rapidly

downstream and appear to be dependent upon rainfall conditions (probably reflective of the size of the baseflow in the watercourse). As with the previous period contamination levels peak during summer / drier months.

5.5 LEACHATE

5.5.1 Leachate quality varies during the lifetime of a landfill depending on the stage of decomposition of waste. Results from BH2, the leachate well are presented in Appendix B. Some characteristic parameters have been compared with those of 'typical' raw leachate in Table 5.1 below.

Table 5.1 Raw Leachate Concentrations 2013

	Balbane Landfill Site		From 30 samples from UK/Irish landfills accepting domestic waste Results in mg/l		
PARAMETER	**Min.Conc**	**Max.Conc**	**Min.Conc**	**Max.Conc**	**Mean**
Ammonia (mg/N)	7.48	16	<0.2	1700	491
BOD	4	6.62	4.5	>4800	>834
COD	29	96	<10	33,700	3078
Chloride (mg/l)	84	220	27	3410	1256
Iron (mg/l)	n/a	n/a	0.4	664	54.4
Potassium (mg/l)	n/a	n/a	2.7	1480	491
Sodium (mg/l)	n/a	n/a	12	3000	904
TON (mg/l N)	<0.01	0.56	/	/	/
Conductivity (µS/cm)	580	1207	503	19,200	7789
pH (pH units)	6.37	8.2	6.4	8.0	7.2

5.5.2 Table 5.1 compares raw leachate concentrations detected at Balbane with 'typical leachate composition from 30 samples from UK/Irish Landfills accepting mainly domestic waste' (taken from EPA Manual for Landfill Operational Practices). Parameters measured are all consistent with typical leachate ranges shown and with the results issued last period. The leachate is relatively weak.

5.6 PERIMETER GAS MONITORING

The gas monitoring peizometers on the site at Balbane are located within waste, and are not perimeter wells. The results (as contained in Apendix B) are indicative of methanogenic gas processes that would be occurring under anaerobic conditions. Results are similar to previous periods with levels of methane production being relatively low.

5.7 DUST MONITORING

As previously agreed with the Agency, monitoring of dust ceased when the site closed. When any activity commences, such as restoration works for example, a dust-monitoring programme will be resumed.

5.8 METEOROLOGOCAL MONITORING

Meteorological data is contained in Appendix C.

6 VOLUME OF LEACHATE PRODUCED AND VOLUME OF LEACHATE TRANSPORTED DISCHARGED OFF SITE

6.1 A water balance calculation has been undertaken and is presented in Appendix C. It estimates that 8433m^3 of leachate will have been generated from this waste body during the period. Due to a lack of collection infrastructure there is no leachate transported off site. Correspondingly it is assumed that all leachate generated disperses into the surrounding environment.

7 REPORT ON DEVELOPMENT WORK UNDERTAKEN DURING THE REPORTING PERIOD, AND A TIME SCALE FOR THOSE PROPOSED DURING THE COMING YEAR.

7.1 The restoration of this landfill has been delayed due to lack of funds available to Donegal County Council as a result of the removal of grant funding for such projects. The Council met with the Agency in November 2009 and discussed this issue. The Agency requested that the Council investigate the viability of carrying out some focused works to address leachate emissions, this being the significant environmental risk from the site. This was carried out and a proposal for leachate treatment submitted to the Agency for consideration in 1st June 2010. The Council received a response from the Agency in May 2011 citing Condition 6.4.1 of the Licence and requesting a demonstration that leachate discharges will have no significant impact on receiving waters. This remains under consideration due to the complexities associated with fulfilling this request. Since this time the Council has been investigating the viability of bio-technologies as engineering techniques to remediate landfills. A counter-proposal was outlined to the Agency on 6th November 2012 proposing recirculation of leachate through willow planted over the waste body. The Agency has requested that an SEW be prepared and submitted. Work on this is on-going in conjunction with proposals to bio-remediate Churchtown Landfill Site which is now likely to be remediated before Balbane LS as an SEW has been approved for the site. The viability of routing leachate through a constructed wetland is currently being investigated in order that an SEW can be submitted. Experience that will hopefully be acquired at Churchtown LS should be of assistance in this regard.

8 REPORT ON RESTORATION OF COMPLETED CELLS / PHASES

8.1 The Restoration and Aftercare Plan was submitted to the Agency in October 2004 and approved in November 2004.

8.2 Of Donegal County Council's five closed landfill sites Balbane was scheduled for restoration fourth and next. See also comments in Section 7 above.

9 SITE SURVEY SHOWING EXISTING LEVELS OF THE FACILITY AT THE END OF THE REPORTING PERIOD

9.1 A topographical survey of the site was last carried out in December 2002. This was included in the 2002 AER.

10 ANNUAL WATER BALANCE CALCULATION AND INTERPRETATION

A water balance calculation has been undertaken and is presented in Appendix C. The calculation for monthly water balance is as follows

Lo = [ER (A) + LW + IRCA + ER (I)] –[aW]

Where

Lo = leachate produced (m^3)

ER = effective rainfall

A = area of cell (m^3)

LW = liquid waste

IRCA = infiltration through restored areas and capped areas (m)

a = absorptive capacity of waste (m^3/t)

W = weight of waste deposited

l = surface area of lagoons (m^2)

11 REPORTED INCIDENTS AND COMPLAINTS SUMMARIES.

11.1 Other than the reporting of on-going emissions exceedances detected in the routine monitoring programme, no incidents occurred during the monitoring period and no complaints were received.

12 REVIEW OF NUISANCE CONTROLS

12.1 As the facility is no longer operational, all areas formerly used for the placement of municipal waste have been covered by clay and topsoil. There has been a reduction in the incidence of nuisances resulting from this. However, precautionary measures are employed to ensure the detection and appropriate management of any nuisances that may arise. As part of the Environmental Management System for the site a procedure has been developed to provide for regular inspections of the site as part of the quarterly monitoring programme. Should this inspection reveal the incidence of any type of nuisance (vermin, litter, dust, birds or odours) then appropriate action is initiated.

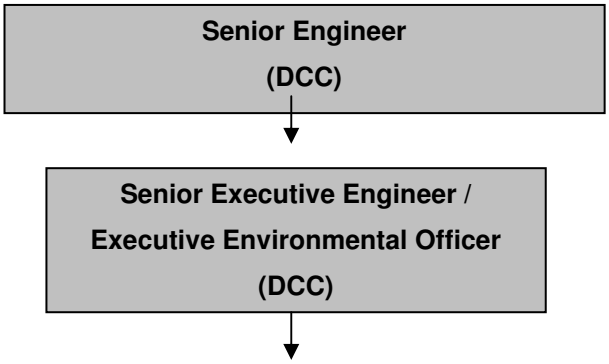
13 REPORT ON FINANCIAL PROVISIONS MADE UNDER THIS LICENSE, MANAGEMENT AND STAFFING STRUCTURE OF THE FACILITY AND A PROGRAMME FOR PUBLIC INFORMATION

13.1 Donegal County Council being a local authority is able to provide the necessary finances to ensure the proper management, development and restoration of Balbane Landfill Site.

13.2 Overall responsibility for the ongoing operations and development of the landfill site is held by the Senior Engineer. The Senior Engineer is assisted by a Senior Executive Engineer and an Executive Environmental Officer assigned to the Environment Section of Donegal County Council.

13.3 As part of the Environmental Management System (EMS) for the site, a communication programme (in accordance with Condition 2.8 of waste licence) is provided in Section 2 of the EMS to ensure that members of the public can obtain information concerning the environmental performance of the facility at all reasonable times.

13.4 The Management Structure at Balbane Landfill site is set out below.



Scientific Officer (DCC)

14 REPORT ON STAFF TRAINING

14.1 No training has been undertaken as the facility is now closed and there are no operational personnel on the site.

15 RESOURCES AND ENERGY CONSUMPTION SUMMARY

15.1 No energy was consumed on the site during the reporting period.

16 REPORT ON ENVIRONMENTAL MANAGEMENT PROGRAMME

16.1 An Environmental Management Programme (EMP) was revised in 2004 to take into consideration the closure of the site and was submitted in to the Agency in December 2004 for its agreement. A public communication programme has been initiated in accordance with Condition 2 of the Waste Licence to ensure that information concerning the environmental performance is available at reasonable times. The public may view environmental records at the Donegal County Council headquarters. Details regarding this are contained in Section 2 of the Environmental Management System Manual.

Table A1 Grid References of Monitoring Points

Monitoring Points	Easting	Northing
Boreholes		
GW1	171246.5649	383193.1516
GW2	171427.2239	383055.9240
GW4 Note 1	171503.0898	383048.6637
Surface Water Monitoring		
S1	171187	363215
S4	171657	382720
S5	171658	382673
S6 Note 2	171949	382314
S7 Note 2	171965	382297
Gas Piezometers		
BH1	171300.3033	383157.7656
BH2	171339.4609	383110.6149
BH3	171475.8577	383135.7863
Dust		
D1	171384.5481	383176.7779
D2	171314.6629	383128.5125
D3	171538.3837	383137.6433
Leachate		
BH2	171339.4609	383110.6149

NOTE 1 – GW3 WAS REPLACED BY GW4 WHEN THELANDFILL MASS EXTENDED PAST THE LOCATION OF GW3

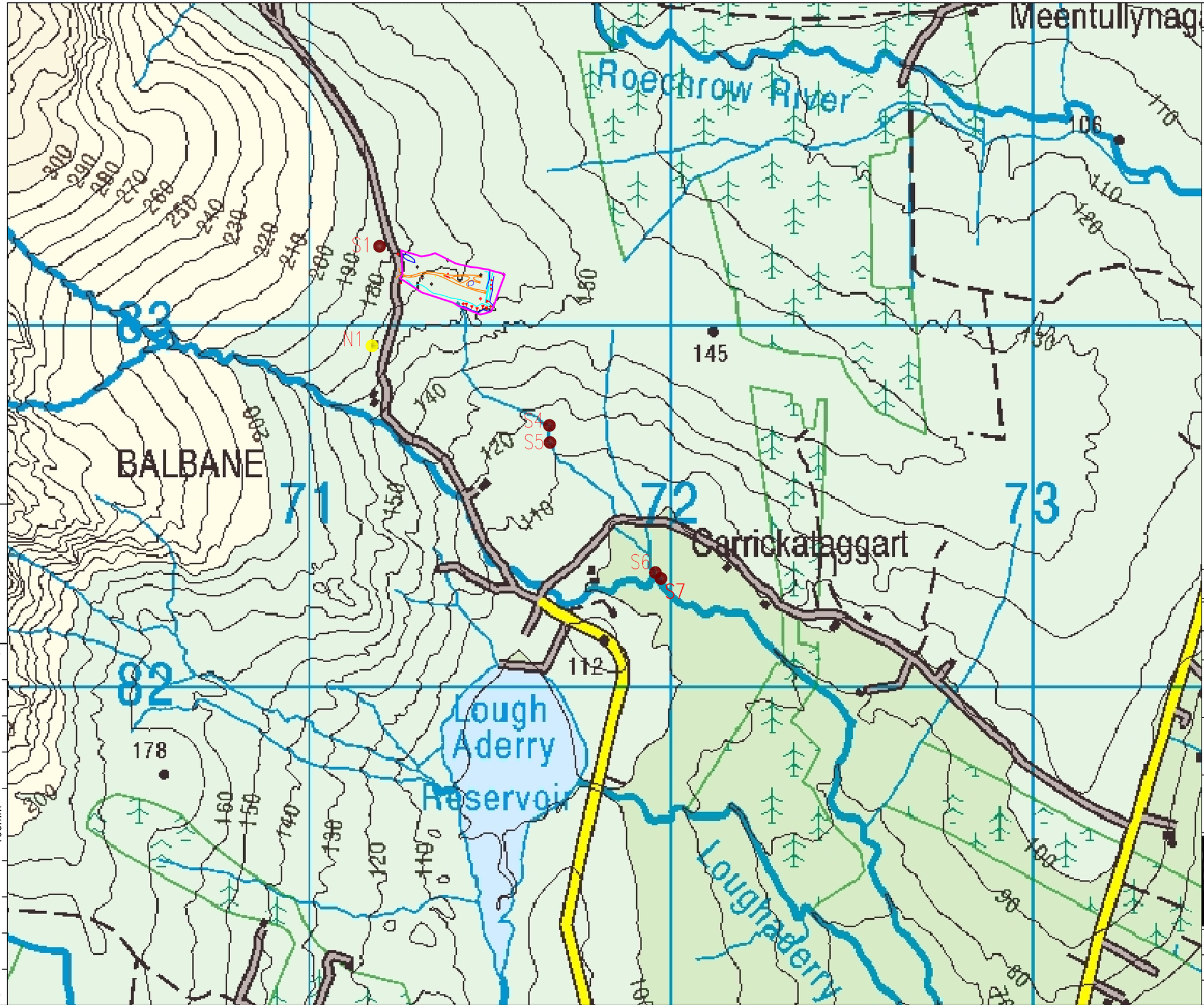
NOTE 2 – SW2 AND SW3 WERE REPLACED BY SW6 AND SW7

Table A2 Groundwater Parameters and Monitoring Frequencies

Quarterly		Annually	
Temperature	Chloride	Boron	Magnesium
Groundwater Level	Dissolved Oxygen	Cadmium	Manganese
	Sodium	Calcium	Mercury
	TON	Chromium	Orthophosphate
	TOC	Copper	Zinc
	Phenols	Cyanide	
	Ammoniacal Nitrogen	Fluoride	
	Electrical Conductivity	Lead	
	pH	List I/II substances	
	Iron	Sulphate	
	Potassium		

Table A3 Surface Water Parameters Monitoring Frequencies

Quarterly		Annually	
Temperature	Chloride	Iron	Magnesium
pH	Dissolved Oxygen	Cadmium	Manganese
Ammoniacal Nitrogen	COD	Calcium	Mercury
BOD		Chromium	Orthophosphate
Electrical Conductivity		Copper	Zinc
TSS		Sodium	Potassium
		Fluoride	TON
		Lead	Sulphate
		List I/II substances	



NOTES

SITE BOUNDARY

S1 SURFACE WATER MONITORING POINT

N1 NOISE MONITORING POINT

MONITORING TYPE	REF NO	GRID REFERENCE
SURFACE WATER	SW1	171187 363215
	SW4	171657 382720
	SW5	171658 382673
	SW6	171949 382314
	SW7	171965 382297
NOISE	N1	171166 382940

REV	DESCRIPTION	BY DATE	CHECK DATE
A	UPDATED GRID COORDINATES	JD JULY 05	AMcG JULY 05

DRAWN BY AMcG DATE SEPT 2004	CHECK BY AMcG DATE SEPT 2004	APPROVED DD DATE SEPT 2004
PLOT SCALE 1:10,000	SCHEDULES	SHEET SIZE A3

CLIENT

DONEGAL COUNTY COUNCIL

PROJECT

BALBANE LANDFILL SITE

TITLE

SURFACE WATER MANAGEMENT

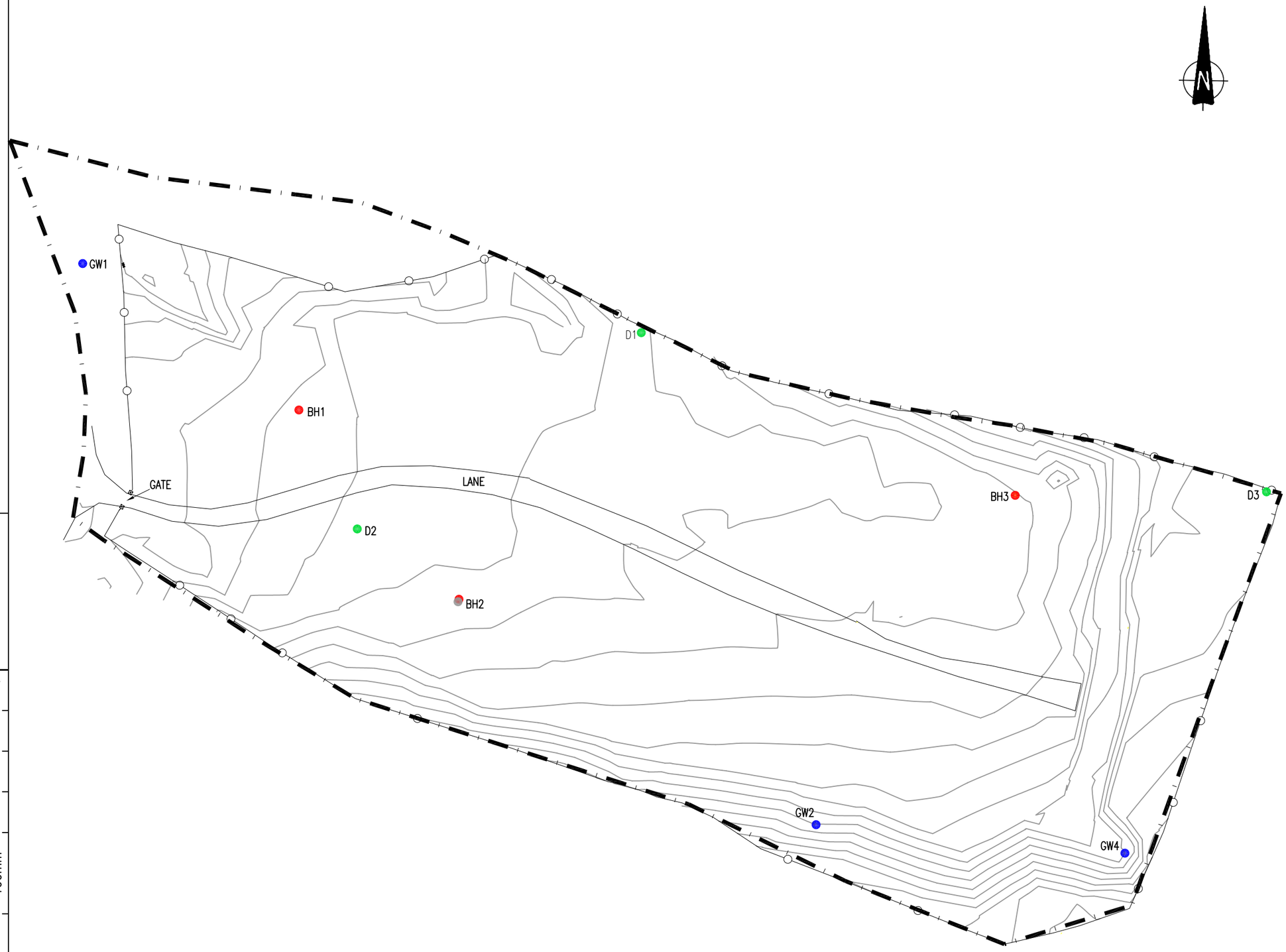
RPS Kirk McClure Morton
CONSULTING ENGINEERS
TEL: 074 91 61927 Email: info@kmm.eu.com FAX: 074 91 61928
THE ENTERPRISE FUND BUSINESS CENTRE BALLYRAINE LETTERKENNY CO.DONEGAL

ARCHITECT

DRAWING No. 5234.40/107

REVISION A

DWG. STATUS	
PRELIM.	●
TENDER	
CONST.	
RECORD	



NOTES

KEY

- SITE BOUNDARY
- GW GROUNDWATER MONITORING POINT
- BH LEACHATE MONITORING POINT
- D DUST MONITORING POINT
- BH LANDFILL GAS MONITORING POINT

MONITORING TYPE	REF NO	GRID REFERENCE
LEACHATE & GAS	BH1	171300 383157
	BH2	171339 383110
	BH3	171476 383136
GROUNDWATER	GW1	171246 383193
	GW2	171427 383055
	GW4	171503 383048
DUST	D1	171384 383176
	D2	171314 383128
	D3	171538 383137

GRID COORDINATES DETERMINIED FROM SITE SURVEY

REV	DESCRIPTION	BY DATE	CHECK DATE
A	UPDATED GRID COORDINATES SITE BOUNDARY ADDED	JD JULY 05	AMcG JULY 05

DRAWN BY JD DATE AUG 2003	CHECK BY KAD DATE AUG 2003	APPROVED DD DATE AUG 2003
PLOT SCALE 1:1000	SCHEDULES	SHEET SIZE A3

CLIENT

DONEGAL COUNTY COUNCIL

PROJECT

BALBANE LANDFILL SITE

TITLE

MONITORING LOCATIONS

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THE ENTERPRISE FUND BUSINESS CENTRE BALLYRAINE LETTERKENNY CO.DONEGAL

ARCHITECT	
DRAWING No.	5234.40/06
REVISION	A

DWG. STATUS	
PRELIM.	●
TENDER	
CONST.	
RECORD	

100mm

100mm

APPENDIX B

RESULTS OF MONITORING

Station Name	Sample Date	Ammonia (as N)	BOD	COD	Chloride	Conduct'y @ 20℃	DO (Measure't)	Nitrate (as N)	Nitrite (as N)	Ortho-phosphate	pH	SS	Temp
Balbane S 1	07/02/2013	0.11	1.1	9	54	141	12.12	0.025	0.02	0.06	5.11	2	6.6
Balbane S 4	07/02/2013	0.36	0.47	23	51	152	12.06	0	0.003	0	6.59	4	6.8
Balbane S 5	07/02/2013	0.32	0.6	21	51	156	12.13	0.11	0.03	0	6.64	3.4	6.7
Balbane S 6	07/02/2013	0.16	0.49	17	49	134	10.97	0.19	0.03	0	6.87	1	6.8
Balbane S 7	07/02/2013	0.06	0.55	20	46	127	11.06	0.07	0.002	0.002	6.83	1.2	6.8
Balbane S 1	19/04/2013	0.094	1.22	13	25	61	11.26	<0.100	<0.010	0.03	6.7	2	9.2
Balbane S 4	19/04/2013	0.476	1.1	23	31	113	11.69	0.641	<0.010	0.038	7.3	4.2	9.9
Balbane S 5	19/04/2013	0.376	1.24	22	30	108	11.75	0.517	<0.010	0.02	7.41	4.6	10.1
Balbane S 6	19/04/2013	0.193	1.07	22	28	92	11.79	0.295	<0.010	0.039	7.18	2.2	9.5
Balbane S 7	19/04/2013	0.082	1.3	12	27	75	12.06	<0.100	<0.010	0.034	7.02	22	9.5
Balbane S 1	20/09/2013	0.11	0.64	13	23	63	10.08	<0.100	<0.010	0.044	6.13	1	13.7
Balbane S 4	20/09/2013	5.26	0.77	16	36	194	10.51	0.66	<0.010	0.043	7.68	1	13.8
Balbane S 5	20/09/2013	3	0.75	18	35	179	10.52	0.59	<0.010	0.048	7.75	4	10.52
Balbane S 6	20/09/2013	1.96	0.91	14	32	151	10.49	0.527	<0.010	0.053	7.76	1	13.4
Balbane S 7	20/09/2013	0.466	0.8	14	24	79	10.77	<0.100	<0.010	0.038	7.45	1	13.6
Balbane S 1	29/11/2013	0	0.59	13	30	75	12.3	2.20	0.02	0.00	6.84	9	7.5
Balbane S 4	29/11/2013	2.67	0.54	15	37	152	12.38	0.83	0.03	0.00	7.4	1	7.5
Balbane S 5	29/11/2013	2.33	0.49	13	35	146	12.53	0.00	0.03	0.00	7.48	7	7.6
Balbane S 6	29/11/2013	1.51	0.78	13	34	129	12.36	0.01	0.03	0.00	7.5	1	7.6
Balbane S 7	29/11/2013	0	0.47	12	26	78	12.42	0.00	0.02	0.00	7.4	1	7.6

StationName	SampleDate	Ammonia (as N)	Chloride	Conductivity @ 20°C	Depth	Dissolved Oxygen (Measurement)	Iron	pH	Phenols	Potassium	Sodium	Temp	TOC	TON
Balbane GW 1	24/01/2013	0.19	16	282	0.4	5.01	0.019	6.72	0.016	2.8	16.6	4.4	3	0.05
Balbane GW 2	24/01/2013	3.96	20	92	3	3.47	0.019	6.8	0.016	2.34	15.6	5.1	3	0.01
Balbane GW 4	24/01/2013	20	220	1404	3.1	2.46	0.019	6.6	0.016	11.1	22	9.2	4.75	0.01
Balbane GW 1	23/04/2013	0.097	19	328	0.3	3.46	<0.02	7.25	<0.02	4	23	11.2	10	0.125
Balbane GW 2	23/04/2013	3.03	20	120	3.4	4.21	<0.02	7.3	<0.02	<2.34	10	12.3	<3	<0.1
Balbane GW 4	23/04/2013	26	294	1753	3.2	1.76	<0.02	6.71	<0.02	23	130	12	15	<0.1
Balbane GW 1	20/09/2013	6	19	499	0.4	2.44	6.78	6.82	<0.025	3.6	40.3	12.8	20	<0.01
Balbane GW 2	20/09/2013	4.13	21	452	3	4.15	0.202	6.9	<0.025	1.38	21.3	13.1	4	<0.01
Balbane GW 4	20/09/2013	25.3	204	1206	3.4	2.95	4.4	6.93	<0.025	34.1	120	14.2	16	0.85
Balbane GW 1	29/11/2013	0.62	19	403	0.3	5.1	<0.019	7	<0.025	2.65	38.4	8.4	8	0.35
Balbane GW 2	29/11/2013	1.46	42	193	2.8	5.02	0.107	7.82	<0.025	8.74	28.6	7.9	6	0
Balbane GW 4	29/11/2013	20.4	205	1066	3.1	1.04	<0.019	7.04	0.025	39.5	114	9.2	13	0.41

StationName	Sample Date	Atm Pressure	Carbon Dioxide	Methane	Oxygen
BH1 (Gas)	27/02/2013	1008	8.6	0.1	14.8
BH2 (Gas)	27/02/2013	1008	1.1	0.5	20.3
BH3 (Gas)	27/02/2013	1008	19.5	11.7	2
BH1 (Gas)	04/04/2013	995	11.8	11.1	2
BH2 (Gas)	04/04/2013	995	2.5	5.8	19.1
BH3 (Gas)	04/04/2013	995	21.5	13.4	0.5
BH1 (Gas)	29/07/2013	978	19.3	20.7	0.6
BH2 (Gas)	29/07/2013	978	0.5	0.2	20.5
BH3 (Gas)	29/07/2013	978	10.9	0.1	6.7
BH1 (Gas)	20/09/2013	988	4.5	0	16
BH2 (Gas)	20/09/2013	988	0.8	0.3	20.4
BH3 (Gas)	20/09/2013	988	20.1	24.4	0
BH1 (Gas)	29/11/2013	1001	6.4	0	13.3
BH2 (Gas)	29/11/2013	1001	1.2	0.4	19.4
BH3 (Gas)	29/11/2013	1001	21.5	16.9	0

Station Name	SampleDate	Ammonia (as N)	BOD	COD	Chloride	Conductivity @ 20°C	Depth	pH	Temp	TON
Balbane BH 2 (Leachate)	24/01/2013	16	6.62	96	193	1083	4	6.39	5	0.01
Balbane BH 2 (Leachate)	23/04/2013	11.4	4	29	202	1207	4.8	6.37	13.1	0.11
Balbane BH 2 (Leachate)	20/09/2013	12.5	4.18	38	220	1005	5.1	6.39	12	<0.01
Balbane BH 2 (Leachate)	29/11/2013	7.48	4.28	39	84	580	3.7	8.2	8.9	0.56

APPENDIX C

WATER BALANCE CALCULATION AND METEOROLOGICAL DATA

BALBANE WATER BALANCE CALCULATION

Year	Status	Rainfall (mm)	Restored area	Temp Restored area RCA(m^2)	Temp Restored area infiltration IRCA(m3)	Total Water	Leachate produced Lo(m3)
2013	Closed	1,144	0	29,500	8,433	8,433	8,433
Total							8,433

Assumptions

IRCA=	Temp restored area infiltration of rainfall estimated % (25-30% of annual rainfall,EPA Manual)	30%	%
Temporary restored area	Area of landfill site temporary restored, site closed in Jan 2004	29,500	m2
Rainfall Data	Data taken from Ballynacarrick Weather Station. Evaporation los	1,144	mm

APPENDIX D

E-PRTR Return

(AER Electronic Reporting System)

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.18

REFERENCE YEAR	2013

1. FACILITY IDENTIFICATION

Parent Company Name	Donegal County Council
Facility Name	Balbane Landfill Site
PRTR Identification Number	W0090
Licence Number	W0090-01

Waste or IPPC Classes of Activity

No.	class_name
3.1	Deposit on, in or under land (including landfill).
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
3.4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.
Address 1	Balbane
Address 2	Killybegs
Address 3	Co Donegal
Address 4	
	Donegal
Country	Ireland
Coordinates of Location	-8.44483 54.6955
River Basin District	GBNIIENW
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Julie McMahon
AER Returns Contact Email Address	julie.mcmahon@donegalcoco.ie
AER Returns Contact Position	Executive Engineer
AER Returns Contact Telephone Number	0749122787
AER Returns Contact Mobile Phone Number	0872861096
AER Returns Contact Fax Number	074
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	1
User Feedback/Comments	Unmanned site.
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(d)	Landfills
5(c)	Installations for the disposal of non-hazardous waste

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE

Guidance on waste imported/accepted onto site

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	

This question is only applicable if you are an IPPC or Quarry site

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	Methane (CH4)				0.0	165012.0	0.0	165012.0
03	Carbon dioxide (CO2)				0.0	0.0	0.0	452754.0
02	Carbon monoxide (CO)				0.0	0.0	0.0	80.68
07	Non-methane volatile organic compounds (NMVOC)				0.0	0.0	0.0	1063.9
55	1,1,1-trichloroethane				0.0	0.0	0.0	1.32

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
56	1,1,2,2-tetrachloroethane				0.0	3.8	0.0	3.8
34	1,2-dichloroethane (EDC)				0.0	0.0	0.0	0.83
62	Benzene				0.0	0.0	0.0	3.05
58	Trichloromethane				0.0	0.0	0.0	0.07
35	Dichloromethane (DCM)				0.0	0.0	0.0	24.47
65	Ethyl benzene				0.0	0.0	0.0	10.05
73	Toluene				0.0	0.0	0.0	73.95
60	Vinyl chloride				0.0	0.0	0.0	9.39
78	Xylenes				0.0	0.0	0.0	26.21
57	Trichloroethylene				0.0	0.0	0.0	7.57

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
247	Acetone				0.0	8.37	0.0	8.37

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Balbane Landfill Site

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)					N/A	
Methane flared					0.0	(Total Flaring Capacity)
Methane utilised in engine/s					0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)					N/A	