ANNUAL ENVIRONMENTAL REPORT

For

BALLYNACARRICK LANDFILL SITE

Co. Donegal

Waste Licence Reference W0024-4

Reporting Period: January 2011 to December 2011

By

Donegal County Council

To

Environmental Protection Agency

March 2012

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1. INTRODUCTION & REPORTING PERIOD

1.1 This Annual Environmental Report (AER) has been prepared to meet the requirements of Condition 11.11 of Waste Licence W0024-4 for Ballynacarrick Landfill and includes the information listed in Schedule G of the Waste Licence.

1.2 Ballynacarrick Landfill Site has been in operation since 1980. In 2000 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 7th of December 2000 the Environmental Protection Agency granted the Council a Waste Licence (registration number 24-1) for the facility, in accordance with the Third Schedule of the Waste Management Act, 1996.

1.3 An application to review the Waste Licence (ref. W0024-1) for Ballynacarrick Landfill Site was made to the Agency in November 2003. This review of the licence was completed in December 2004 and a new licence (ref. W0024-2) granted for an extension to the Site. The new licence was granted on 10th December, 2004, and was active from this date. In December 2007 an application was made to the Agency to review Licence W0024-2 in order to regularise tonnage. A Preliminary Decision for Licence W0024-3 was issued on 26th September 2008 and a Final Decision on 27th November 2008. During 2009 the Agency instigated a further review of all waste licences in Ireland. A Preliminary Decision for W0024-4 was issued to Donegal County Council on 19th October 2009. A Final Decision was granted on 24th March 2010.

1.4 The site is located at Ballynacarrick, Ballintra, Co Donegal and occupies an area of approximately 9 hectares. The facility, as shown on Drawing no. IBR0125/051, is located in a rural setting and surrounding land use is agricultural. The site lies approximately 3km southeast of Ballintra and 7 km south of Laghey. The site is located in a low-lying position in an area of marginal hill land and is bounded by chain link fencing and a 2.0m high security fence. The current site layout is shown on Drawing no. IBL0125/054.

1.5 This report covers the period from January to December 2011.

2. WASTE ACTIVITIES CARRIED OUT AT THE FACILITY

2.1 The licensed waste disposal activities, in accordance with the Third Schedule of the Waste Management Act, 1996 to 2008 are restricted to those listed as follows

- **Class 5 - Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.**
- **Class 6 - Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10 of this Schedule.**
- **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.**.

2.2 Licensed waste recovery activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996 to 2008. are restricted to those listed as follows:

- **Class 2 - Recycling or reclamation of organic substances, which are not used as solvents (including composting and other biological transformation processes).**
- **Class 3 - Recycling or reclamation of metals and metal compounds.**
- **Class 4 - Recycling or reclamation of other inorganic materials.**
- **Class 13 – Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.**

2.3 The maximum tonnage of individual waste types for disposal is listed in Schedule A of the Waste Licence with a total tonnage of 35,000 tonnes per annum.

2.4 Access to site is controlled by the Site Manager. All persons availing of the site must report to the site office at the time of entering and leaving the landfill site. Access is restricted to those times when staff are on duty and out of operating hours the site is secured to prevent unauthorised entry.

3. CALCULATED REMAINING CAPACITY OF THE FACILITY AND THE YEAR IN WHICH FINAL CAPACITY IS EXPECTED TO BE REACHED

3.1 A site survey and estimate of remaining void capacity was conducted in 29th August 2011 (this was forwarded to the Agency under separate cover). Using this information it has been estimated that from January 2012 there remains 17,925 cubic metres of waste capacity (excluding cover) in the landfill.

3.2 Filling rates have fluctuated over recent years, and in particular during the second half of this period, but assuming the total gate receipts for 2012 will be comparable to those for 2011, then the landfill will be filled to capacity by the end of quarter 1, 2013.

4. METHODS OF DEPOSITION OF WASTE

4.1 Waste is accepted at the landfill facility between 08.30 to 17.00 hours Monday to Friday and 09.00 to 13.00 hours on Saturdays with the exception of Bank Holidays.

4.2 The landfill is being filled in accordance with the system illustrated on Drawing no. IBR0125/054. Cell 2C in Phase 2 is currently being filled and the current filling plan brings the facility to its end of life profile.

4.3 All waste loads are directed to the working face where the waste is infilled within a designated area under the direction of the machine operator. The waste is inspected and, if acceptable for disposal, spread and compacted.

4.4 At the end of the working day the waste is covered to reduce the incidence of nuisance. Imported clay / subsoil is used to cover waste on a daily basis and an interim cover of depth not less than 150mm is applied at the end of each week.

5. REPORT ON RESTORATION OF COMPLETED CELLS / PHASES

5.1 No further restoration of the site was carried out during 2011. The older part of the site (a total area of 41,000m^2) has been fully restored (except for the area beneath the Civic Amenity Site). The next completed area currently being restored covers approximately Phase 1 and Cells 2A and 2B of the extension, and the area beneath the former civic amenity site. Drg nos. IBR0148/202 and IBR0148/215 show the extent of the area currently being restored. This covers an area of approximately 21,000m^2. This restoration contract commenced work on site in February 2012 and is due for completion in August 2012. When complete this will leave an area of approximately 16,000m^2 to be restored under the final restoration contract.

6. EMISSIONS FROM THE FACILITY (INCLUDING RESULTS SUMMARY AND INTERPRETATION OF ENVIRONMENTAL MONITORING)

6.1 This section considers emissions of mainly leachate or landfill gas from the Ballinacarrick facility into the environment. The monitoring data, the results of which are contained in Appendix A**,** has been reviewed, and leachate and gas emissions considered generally in terms of ammonia levels (mg/l) and methane levels (%v/v) respectively.

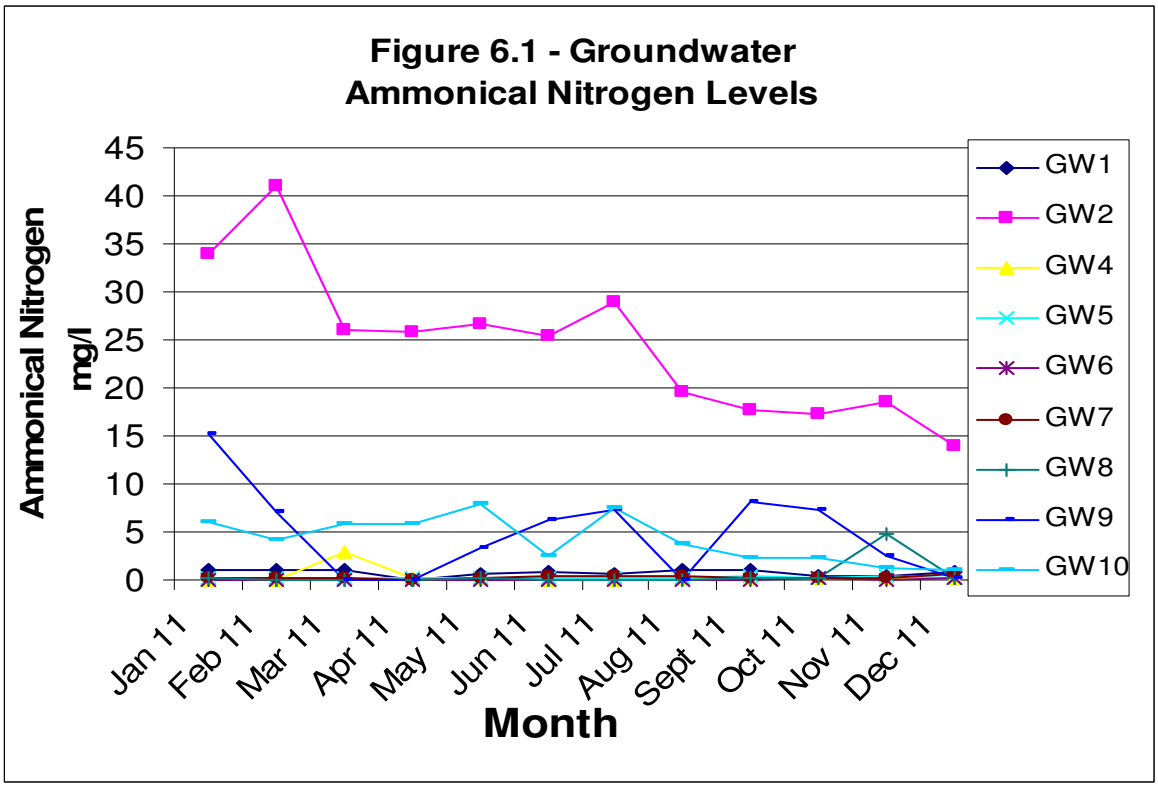
Monitoring locations referred to are shown on drg IBR0125/053.

6.2 Leachate Emissions

Levels of ammonia in both surface and groundwater downstream of the facility have been considered relative to baseline levels upstream of the landfill and relative to levels detected during the previous period.

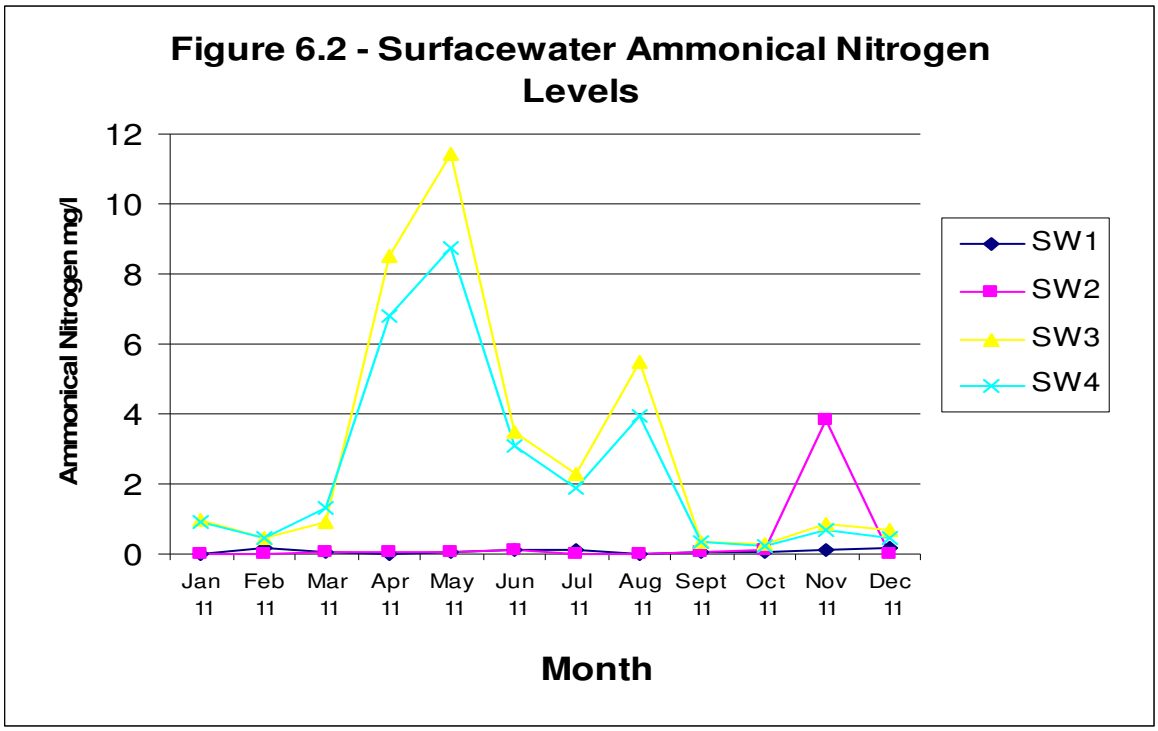
6.2.1 To Groundwater

Groundwater is monitored at nine locations, one upstream, three downstream and five wells installed around the perimeter of the site at the request of the Agency in September 2009 (GW1, GW2, GW4, GW5, GW6, GW7, GW8, GW9 and GW10 respectively). All monitoring data and graphical presentations are contained in Appendix A**.** Results indicate that baseline upstream groundwater is contaminated. Levels downstream indicate that leachate is still being released into the environment from the unengineered part of the site. Levels of ammonia in groundwater can be seen to have reduced when compared to those reported during the last period. This is due to the impact on containment of leachate of the groundwater chamber and the introduction of increased leachate pumping capacity. Ammonia levels detected are shown graphically in Figure 6.1 below.



6.2.2 To Surface Water

Surface water is monitored at four locations, one upstream and three downstream (SW2 & SW1, SW3 , SW4 respectively). All monitoring data and graphical presentations are contained in Appendix A. Results indicate that baseline surface water upstream of the facility is slightly contaminated. Levels downstream indicate that, as with the groundwater, leachate is still being released from the unengineered part of the site into downstream surface water. Levels of ammonia detected in surface water have reduced when compared with those in the previous period. This is attributable to the increased leachate pumping capacity introduced in July 2011. Ammonia levels detected are shown graphically in Figure 6.2.



6.2.3 Leachate Quality

Leachate results for 2011 are presented in Appendix A and some of the characteristic parameters of the raw leachate are listed in Table 6.1.

Raw leachate results have been compared to "Typical Leachate Composition of 30 Samples from UK/Irish Landfills accepting mainly Domestic Waste" (Landfill Operational Practices). Parameters are within the minimum and maximum concentrations stated and generally show similar levels to those detected during the last reporting period.

Table 6.1 Raw Leachate Concentrations 2011

	Ballynacarrick 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)	5.0	264	<0.2	1700	491
BOD	<1.0	92	4.5	>4800	>834
COD	30	458	<10	33,700	3078
Chloride (mg/l)	65	445	27	3410	1256
Iron (mg/l)	<0.019	0.027	0.4	664	54.4
Potassium (mg/l)	27	162	2.7	1480	491
TON (mg/l N)	---	---	/	/	/
Conductivity (µS/cm)	<0.01	182	503	19,200	7789
pH (pH units)	834	4300	6.4	8.0	7.2

6.3 Gas Emissions

6.3.1 Gas Management Infrastructure

Gas emissions are managed by means of a gas collection network and a permanent flare that runs continuously. At the end of the reporting period there were a total of 57 wells across the site (including horizontal extraction points) from which gas can be extracted and delivered to the flare. In addition there are four location at which gas levels are monitored within the waste (at LG2, LG4, LG5 & LG6) and 10 perimeter monitoring wells (Labels LG8 to LG17) which determine whether gas is migrating off site or not. There is also a gas cut-off trench located along the north-eastern boundary near to the entrance gate.

6.3.2 Gas Wells in Waste

Gas levels within the waste body (all in the unlined part of the site) are monitored at locations LG2, LG4, LG5 & LG6 as shown on drawing no. IBR0125/053. The ranges of levels detected during the period are summarised in Table 6.2.

Table 6.2 Summary of Gas Levels in Waste

	2010		2011	
Parameter	Max	Min	Max	Min
Methane	88.1%	31.4%	85.6%	43.7%
Carbon Dioxide	38.5%	10.2%	36.4%	14.3%

6.3.3 Perimeter Gas Wells

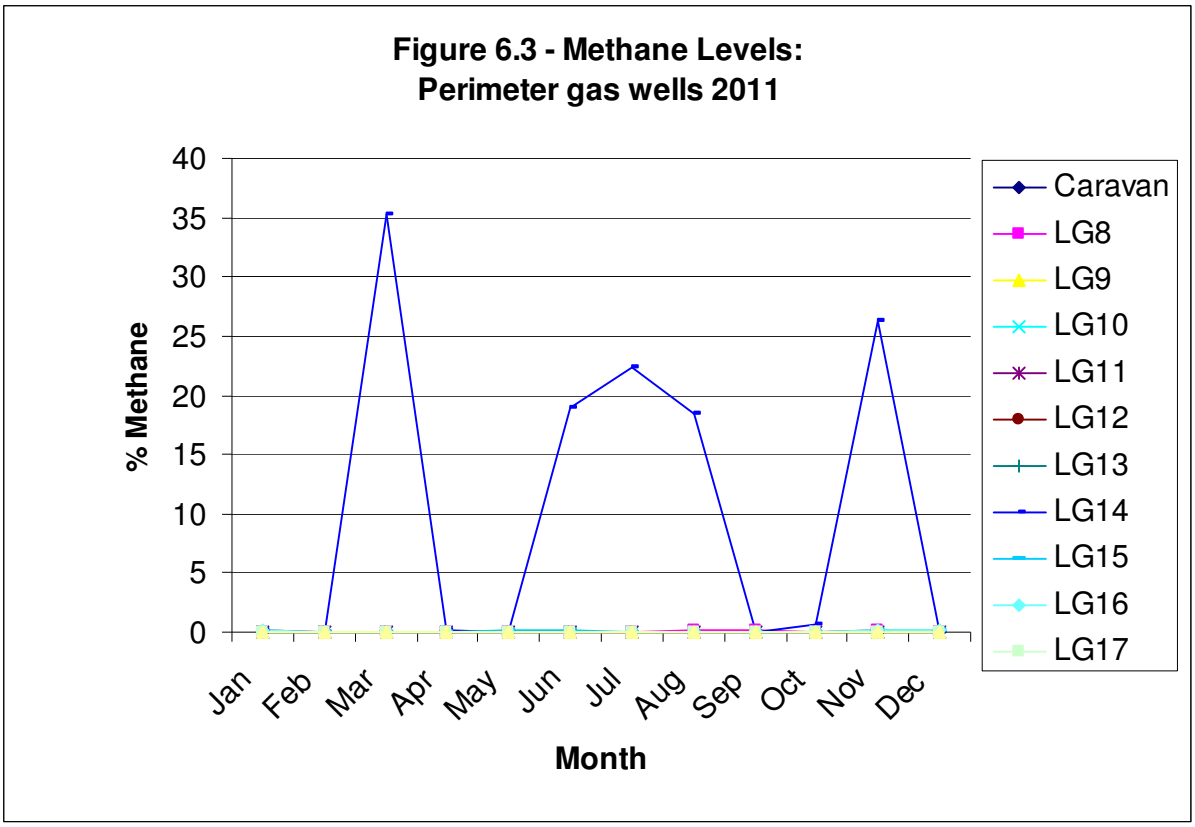
Perimeter wells were installed during 2005. Nine wells were initially installed labelled LG8 – LG16 inclusive. As described above a well was also installed at a later stage just outside the site boundary at LG17. All of these locations are shown on drawing no. IBR0125/053 – Monitoring Locations.

Results from these wells detected over the period are summarised in Table 6.3 as follows:

Table 6.3 Summary of Gas Levels in Perimeter Wells

	2011	
Parameter	Max	Min
Methane	35.2%	0%
Carbon Dioxide	20.0%	0%

Levels in perimeter wells are shown in Figure 6.2 below.



6.4 Dust Monitoring

Dust monitoring was carried out three times during the year at five monitoring locations. The results are shown in Table 6.4 below. No exceedances of the 350mg/m^2/day limit contained in the Waste Licence were recorded during monitoring.

Table 6.4 Results from dust monitoring analysis for 2011 (in mg/m^2/day)

Date Sampled:	Dust Point: DG1	Dust Point: DG2	Dust Point: DG3	Dust Point: DG4	Dust Point: DG5
February	142	104	140	158	168
May	153	108	132	172	180
July	148	106	151	193	207

7. FLOW DATA FOR WATER COURSE RECEIVING SURFACE WATER EMISSIONS

7.1 Condition 6.1 requires that the Council installs monitoring equipment and telemetry to monitor the surface water management system. As part of the on-going leachate infrastructure improvement works increased pumping capacity was introduced this period to improve containment and eliminate sources of contamination draining into the surface water system. Under Condition 6.19 the Council requested (DCC letter of 12/10/09) that the requirement to

install this equipment and telemetry be deferred until the need for it can be reviewed in the light of anticipated benefits to surface water quality accruing from the drainage improvement works. Results for this period show improvements to both the groundwater and surface water quality arising from the increased leachate pumping capacity and improved containment of contaminated groundwater.

8. ESTIMATED ANNUAL AND CUMULATIVE QUANTITIES OF LANDFILL GAS EMITTED FROM THE FACILITY

8.1 Modelling of waste inputs estimate the cumulative quantity of landfill gas emitted from the facility since 1980 at 62.2Mm^3. Current annual output is at a rate of c.550m^3/hour for the period totalling an estimated 4.8Mm^3 for 2011. See Appendix D for further details.

8.2 The modelling results using Gas Sim are presented in Appendix D.

9. VOLUME OF LEACHATE PRODUCED AND VOLUME OF LEACHATE TRANSPORTED / DISCHARGED OFF-SITE

9.1 The WBC (ref. Appendix C) indicates that 30,677m^3 of leachate should have been generated on this site given the recorded rainfall (Appendix F). As shown in Table 9.1 68,549m^3 of leachate was actually pumped, stored and tankered off-site to Letterkenny Wastewater Treatment Works. These figures do not compare well. This large volume of leachate was removed due to additional pumping capacity now being available, however further investigations are ongoing into the source of this leachate on foot of the hydregoelogical investigation completed in 2010 with a view to limiting potential for leachate being generated from shallow groundwater contributions.

Table 9.1 Leachate quantities removed from site during 2011

Month	Quantity of Leachate(m^3)
January	5363.86
February	6766.86
March	3582.20
April	3761.59
May	5591.90
June	4329.80
July	2648.26
August	3549.88
September	6765.54
October	10,257.46
November	6356.70
December	9574.80
TOTAL (m^3)	**68,548.85**

10. ANNUAL WATER BALANCE CALCULATION AND INTERPRETATION

10.1 The annual water balance calculation is contained in Appendix C. Based on weather station data for the site and recorded rainfall (see Appendix F) it is estimated that 30,677m^3 of water routes to ground / into engineered cells. As discussed in Section 9, this figure does not compare well with the 68,549m^3 of leachate that was tankered from the site during the reporting period. See Section 9 for further analysis.

11. WASTE MANAGEMENT RECORD

11.1 In accordance with Condition 5 of the waste licence only those wastes types and quantities listed in Schedule A shall be recovered or disposed of at the facility unless prior agreement of the Agency has been obtained. The maximum annual tonnage of individual waste categories for acceptance to the site is listed in Schedule A of the Waste Licence. The quantity of waste received at the facility (during the reporting period) and each previous year (back to 1997) are presented in Table 11.2 and Table 11.1 respectively. Waste data figures are currently derived from weighbridge records. Quantities of waste accepted under each EWC Code are provided in Table 11.3.

Table 11.1 Waste quantities accepted (tonnes)

Year	**1997**	**1998**	**1999**	**2000**	**2001**
Total	23,000	24,000	25,000	9,100	8,300
Year	**2002**	**2003**	**2004**	**2005**	**2006**
Total	17,189	16,872	37,746	36,141	32,908
Year	**2007**	**2008**	**2009**	**2010**	**2011**
Total	35,143	30,332	24,535	23,761#	16,170

- excludes 28,342 tonnes of repatriated waste imported from Northern Ireland under agreement of DEHLG and EPA.

Table 11.2 Waste quantities accepted per month during the reporting period

Month	**Quantity of waste (Tonnes)**
January	1563.18
February	1339.74
March	1425.86
April	1598.84
May	1367.40
June	2276.58
July	1591.52
August	1682.52
September	797.56
October	726.84
November	1014.70
December	785.36
Total	**16,170.10**

Table 11.3 Waste quantities per EWC Code in 2011

Waste Type	EWC Code	Total (tonnes)
Construction and Demolition (conc blocks, bricks, ceramics and tiles)	17 01 07	2.06
Construction and Demolition (soil and stones)	17 05 04	41.22
Sludges from water clarification	19 09 02	1069.80
Biodegradable kitchen and canteen waste	20 01 08	3.54
Mixed Municipal Waste	23 03 01	14,939.62
Street-cleaning residues	20 03 03	108.18
Bulky waste	20 03 07	5.68
Grand Total (tonnes)		**16,170.10**

12. WASTE RECOVERY REPORT

12.1 There was no waste recovery carried out on the site in the reporting period.

13. TOPOGRAPHICAL SURVEY

13.1 A site survey was carried on 29th August 2011. This was forwarded to the Agency under separate cover.

14. SLOPE STABILITY SURVEY

14.1 A slope stability survey was conducted in February-March 2011. Results were forwarded to the Agency under separate cover in March 2011.

15. RESOURCE CONSUMPTION SUMMARY

The consumption of electricity and fuel for the period is summarised as follows:

- Diesel consumption: 39,855 litres
- Electrical consumption: Currently unavailable due to supplier change.

16. COMPLAINTS SUMMARY

16.1 There were no complaints received during the reporting period.

17. SCHEDULE OF ENVIRONMENTAL OBJECTIVES AND TARGETS

Table 17.1 **Environmental Objectives and Targets**
Objective 1: Restoration of the facility.
Reason: To comply with the conditions of the waste licence. To return the site to an aesthetically acceptable landform with the potential for beneficial after use. To provide a comprehensive capping system that will ensure the effective long-term management of leachate and landfill gas.
Individual Targets: (a) Complete restoration of Phase 1 and 2A; (b) Procure and commence final restoration project.
Timescales for individual targets: 1. Year end 2012; 2. End Q1, 2013.
Personnel Responsible for implementation of targets Senior Executive Engineer (Capital) and appointed consultants
Estimated cost and funding available to implements objectives Estimated project cost of Restoration of Phase 1 and 2A = €989,400k (exc. VAT) Project cost estimate for restoration of remainder of the site = €548,800 (exc. VAT)
Payback from Project Restoration will reduce emissions to the surrounding environment and minimise the generation of leachate to be tankered. It will also improve the aesthetics of the local area.

18. ENVIRONMENTAL MANAGEMENT PROGRAMME – REPORT FOR PREVIOUS YEAR

Objective 1: **(a)** **Construction work for restoration commenced on site in February 2012. Scheduled for completion August 2012;**

(b) **Pre-qualification complete. Date for tender subject to date for final closure of site, currently scheduled for end 2012.**

19. ENVIRONMENTAL MANAGEMENT PROGRAMME – REPORT FOR CURRENT YEAR

19.1 Programme for 2012 outlined in Table 17.1.

20. POLLUTANT RELEASE TRANSFER REGISTER – REPORT FOR PREVIOUS YEAR

20.1 Not applicable.

21. POLLUTANT RELEASE TRANSFER REGISTER – PROPOSAL FOR CURRENT YEAR

21.1 Not applicable.

22. NOISE MONTORING SUMMARY REPORT

22.1 Noise monitoring was carried out in accordance with Schedule C of the Waste Licence. Results are shown in Table 22.1. The limit for daytime reading is 55 dB(A), therefore there were no exceedances recorded.

Table 22.1 Results from noise monitoring analysis in December 2011

	N 1	N 2	N 3
GPS Location	**IG 9385 6767**	**IG 9386 6754**	**IG 9336 6755**
L eq dB A 30 min.	42.1	40.9	42.4
L 90	40.1	40.1	40.7
L 10	42.5	41.3	42.9

23. METEOROLOGICAL DATA SUMMARY

23.1 The annual climatological summary from the weather station on the site is contained in Appendix F.

24. AMBIENT MONITORING SUMMARY, INCLUDING BIOLOGICAL ASSESSMENT

24.1 All results of the ambient monitoring are contained in Appendix A and these results have been summarised and discussed in Section 6 of this report.

24.2 Biological assessments were carried out in September and December. The report for the biological assessment is as follows:

- SW2 (upstream) could not be biologically assessed due to the nature of the water body bed;

- SW1 (downstream) could not be assessed because the sampling point is a lined lagoon that forms part of a piped system;
- SW3:- Kick sampling was carried out at this point over a two-minute period. The Q-Value recorded in September and December was Q3 (**Pollution Status**: Moderate pollution; **Condition**: Unsatisfactory);
- SW4 – no kick sampling was carried out due to the nature of the stream bed. The sediment had the appearance of a dark mud indicative of anaerobic conditions. Upstream of this point there is only a soil parent rock present therefore a survey could not be carried out, so a sample was taken further downstream at the next accessible point (500m further downstream from SW4). At this point the Q-Value recorded in both September and December was Q3 (**Pollution Status**: Moderate pollution; **Condition**: Unsatisfactory).

25. CURRENT MONITORING LOCATION REFERENCE DRAWING

25.1 Drawing ref. IBR0125/053 shows the layout of all monitoring locations for the site.

26. TANK, PIPELINE AND BUND TESTING AND INSPECTION REPORT.

26.1 Integrity testing of the leachate storage tanks was conducted in February and March of 2010 and the report was forwarded to the Agency in June 2010.

27. REPORTED INCIDENTS SUMMARY

27.1 There were no environmental incidents reported during the period.

28. ENERGY EFFICIENCY IMPLEMENTATION PROGRAMME

28.1 An Energy Audit Report was produced for the Council in 2007 and submitted to the Agency at that time. It concluded that there was limited scope for energy reduction on the site but that consideration should be given to:

(a) Harnessing energy from the flare in terms of energy generation and connection to the national grid;

(b) Improving metering and control systems;

(c) Changing electricity supplier.

29. ENERGY REVIEW AUDIT REPORT SUMMARY

29.1 After consideration of the scale of gas production required for cost effective electricity generation and grid connection the Council will not be seeking to generate electricity from from its flare because the operation is not sufficiently large scale.

29.2 The control systems on the site have been continuously developed and upgraded since the time of the Energy Audit Report. During 2011 additional meters were added to the leachate control infrastructure to allow for improved management of that system. Furthermore a data collection project was undertaken to analyse leachate flow data. The results of this will be assessed early in 2012.

29.3 The Council moved from the ESB to Airtricity for its electricity supply during in November 2009.

30. DEVELOPMENT INFRASTRUCTURE WORKS SUMMARY (COMPLETED PREVIOUS YEAR OF PREPARED FOR CURRENT YEAR)

Table 30.1 Development works undertaken during 2011

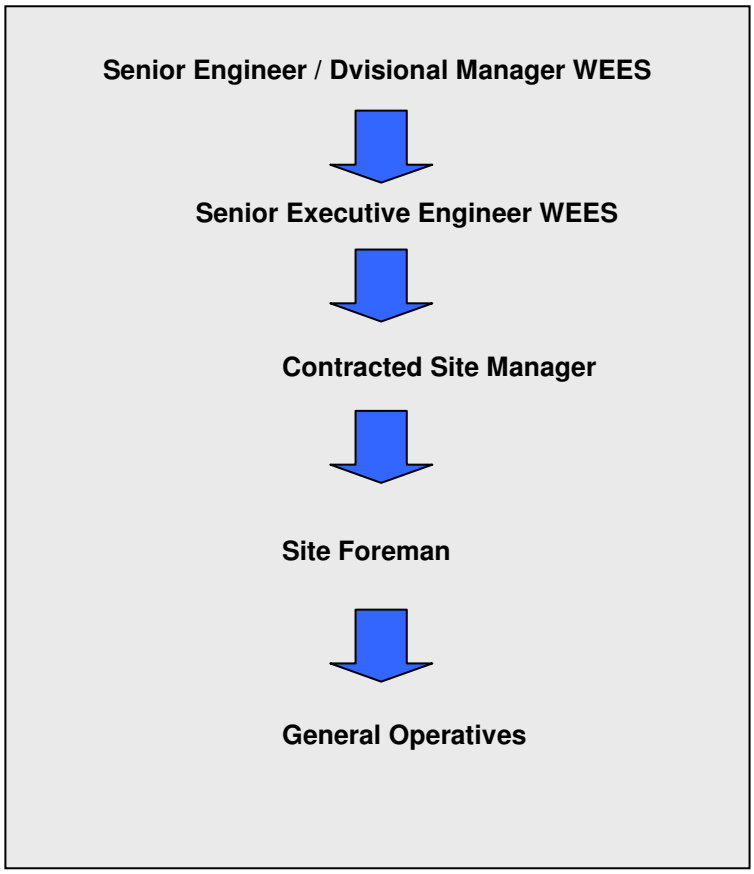
Project	Description and Date
Construction of new leachate pumping main	This project achieved a more than doubling of the leachate pumping capacity thereby removing pressure in the pumping system. Work carried out during June / July

Table 30.2 Development works proposed for 2011

Licence requirements	Timescale
Restoration of Phase 1 and Cell 2A	Completion by end Q3

31. REPORT ON MANAGEMENT AND STAFFING STRUCTURE OF THE INSTALLATION/FACILITY

31.1 Management Structure at Ballynacarrick Landfill site is as follows. This is the present status and maybe subject to change at a later stage.



Responsibility is as follows:

Senior Engineer: Overall responsibility for the management of the landfill activity and the implementation of the waste licence.

Senior Executive Engineer: Responsible for the ongoing management of the facility as directed by the Senior Engineer

Site Manager: Responsible for the day to day management of the landfill as per licence requirements and as directed by Senior Executive Engineer or Senior Engineer.

Site Foreman: Carry out daily landfill operations as per operational and management procedures

General Operatives: Carry out daily landfill operations as per operational and management procedures under direction of site manager and foreman.

Scientific Officers: Carry out inspections, environmental monitoring, analysis and reporting in accordance with licence requirements.

32. REPORT ON PROGRAMME FOR PUBLIC INFORMATION

32.1 A public information programme is in place in accordance with Condition 2 of the Waste Licence to ensure that information regarding the environmental performance is available from Council Headquarters in Lifford at all reasonable times. Details of this are contained in the Environmental Management System Manual.

33. REPORT ON FINANCIAL PROVISION MADE UNDER THIS LICENCE

33.1 Donegal County Council is a Local Authority and is committed to provide for the proper management, development and restoration of Ballynacarrick Landfill Site.

34. STATEMENT ON COSTS OF LANDFILL

Ballynacarrick Landfill AER 2011	
Statement of Account	
EXPENDITURE	
Operational Expenses	**€1,248,037**
Loan Repayments	**€547,895**
Landfill Levy Paid	**€500,843**
TOTAL EXPENDITURE	**€2,296,775**
INCOME	
Landfill Charges Accrued (incl VAT)	**€3,531,972**
BALANCE	**-€1,235,197**

35. REVIEW OF ENVIRONMENTAL LIABILITIES

35.1 Efforts are made on a continuous basis to contain leachate and gas emissions by means of extraction systems and treatment of pollutants to protect the local environment. In terms of leachate containment, the number of locations from which leachate is pumped has been increased along with the capacity to convey and store leachate. Gas continues to be continuously collected and flared.

35.2 The Council does not specifically underwrite environmental risks but as a Local Authority is committed to provide for the proper environmental management of the site.

36. ANY AMENDMENTS TO CRAMP

36.1 The CRAMP for Ballynacarrick Landfill Site was submitted to the Agency for approval in April 2010. There have been no amendments to the Plan since this time.

37. DETAILED STATEMENT, WITH MASS BALANCE, OF CONSTRUCTION AND DEMOLITION WASTES AND COMPOST USED IN CONSTRUCTION

37.1 No such wastes are used in construction at this site.

38. STATEMENT OF COMPLIANCE OF FACILITY WITH ANY UPDATES OF THE RELEVANT WASTE MANAGEMENT PLAN

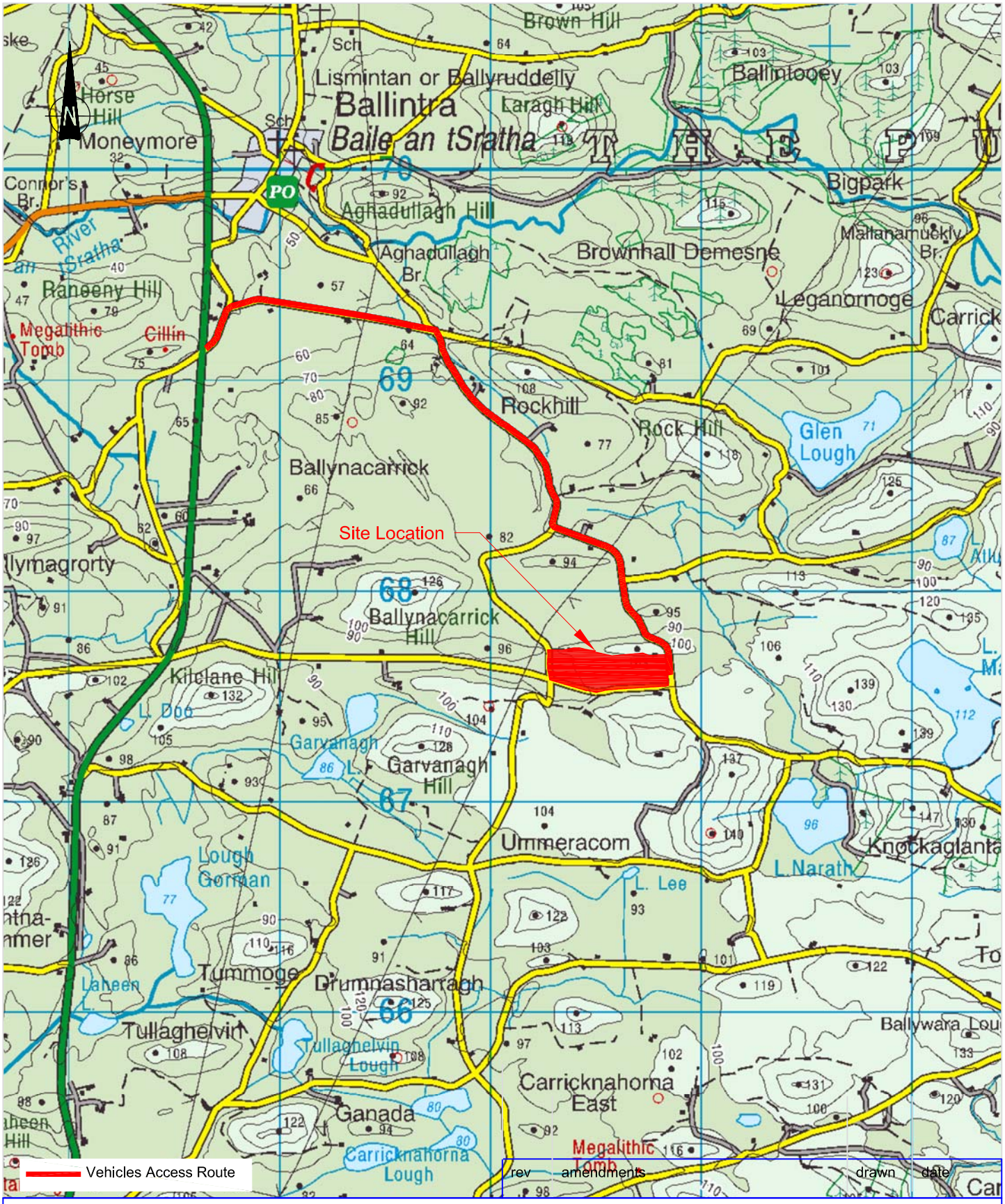
38.1 None applicable.

39. STATEMENT ON THE ACHIEVEMENT OF THE WASTE ACCEPTANCE AND TREATMENT OBLIGATIONS

39.1 Condition 8 of the Waste Licence requires that all waste accepted at the site has been subject to appropriate pre-treatment and that a reduction in BMW content to 47% by weight is achieved. The Council has submitted two quarterly BMW returns to date (October 2010 and January 2011). These reported the following as regards these criteria:

Table 39.1 – Statement on Achievement of Waste Acceptance and Treatment Obligations

Return Date	% of Waste Pre-Treated	% BMW
October 2010	94.1%	60.9%
January 2011	96.6%	60.3%
April 2011	96.0%	57.4%
July 2011	80.2%	53.2%
October 2011	98.4%	57.5%
January 2012	96.8%	58.6%

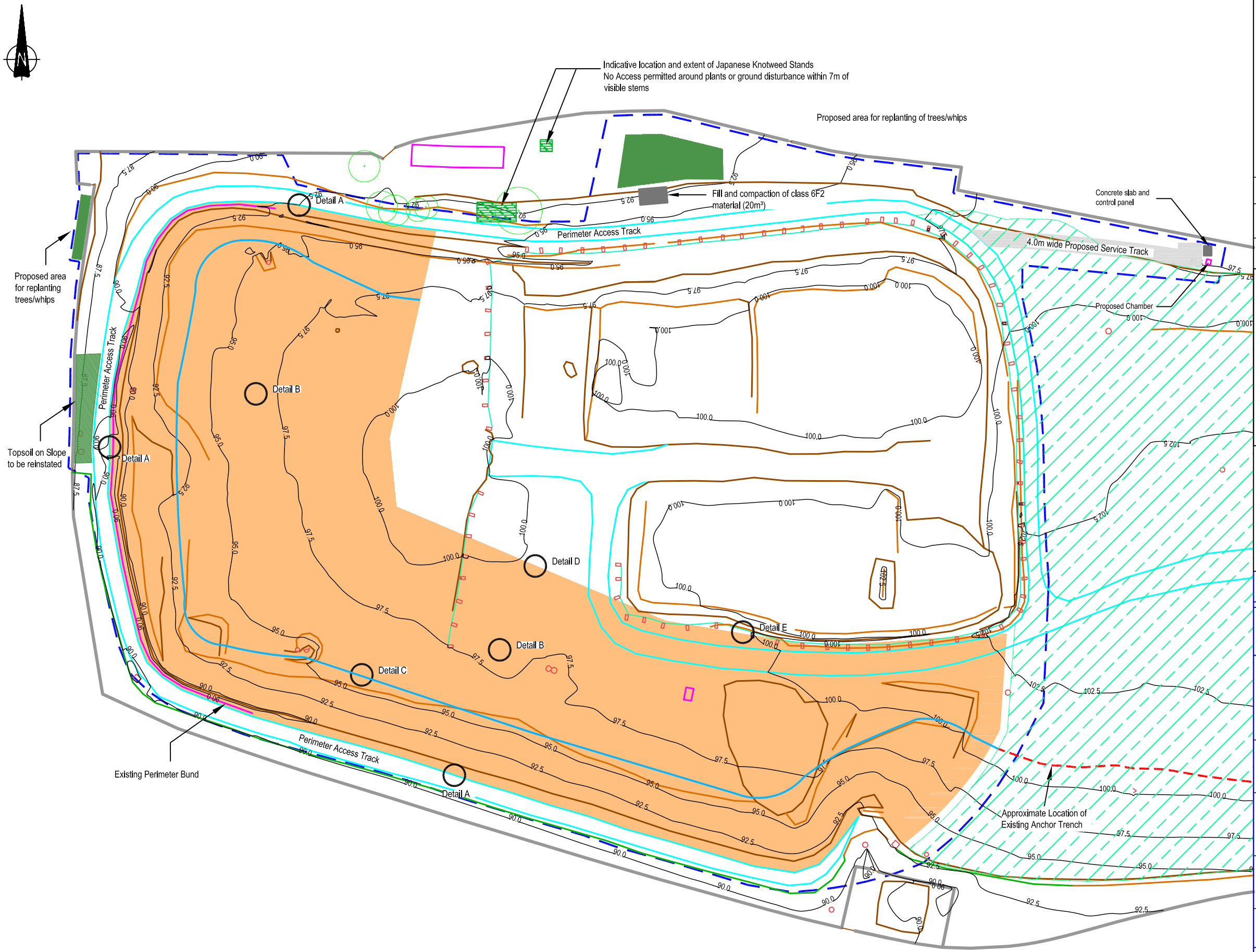


RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ
T +44 (0) 28 90 667914
F +44 (0) 28 90 668286
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Drawing Number	Rev
IBR0125/051	A

Project	Title
Ballynacarrick Landfill Site	Ballynacarrick Landfill Site Location
Client	**Architect**
Donegal County Council	

Drawing Status	Sheet Size	Drawing Scale	Project Leader	Drawn By	Date	Initial Review
Prelim	A4	1:25,000	DD	AMB	Mar '11	AMcG



NOTES

1. Verifying Dimensions.
   The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.
2. Existing Services.
   Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.
3. Issue of Drawings.
   Hard copies, dwf and pdf will form a controlled issue of the drawing. All other formats (dwg, dxf etc.) are deemed to be an uncontrolled issue and any work carried out based on these files is at the recipients own risk. RPS will not accept any responsibility for any errors arising from the use of these files, either by human error by the recipient, listing of un-dimensioned measurements, compatibility issues with the recipient's software, and any errors arising when these files are used to aid the recipients drawing production, or setting out on site.
4. Elevation in metres to OS Datum Malin Head (Irish Grid)
   Survey undertaken on 11 February 2011by ORICA BQS.
5. Access to Councils authorised vehicles and staff to be maintained at all times in accordance with the specification
6. Keys

- Proposed Capping Area
- Restored Area
- Main Works Area
- Fence
- Road
- Bank Top
- Existing Bund to be removed
- Approximate location of existing anchor trench
- Bank Bottom
- Vegetation
- Proposed Anchor Trench
- 97.5 Contour Prominent
- Concrete
- Hut
- Netting

For Details A-E please refer to Drawing IBR0148/204

rev	amendments	drawn date	checked date

RPS
Enterprise Fund Business Centre
Ballyraine, Letterkenny
Co. Donegal
T +353 74 9161927
F +353 74 9161928
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Client
Donegal County Council

Project
Ballynacarrick Landfill Site
Restoration Contract - Phase I

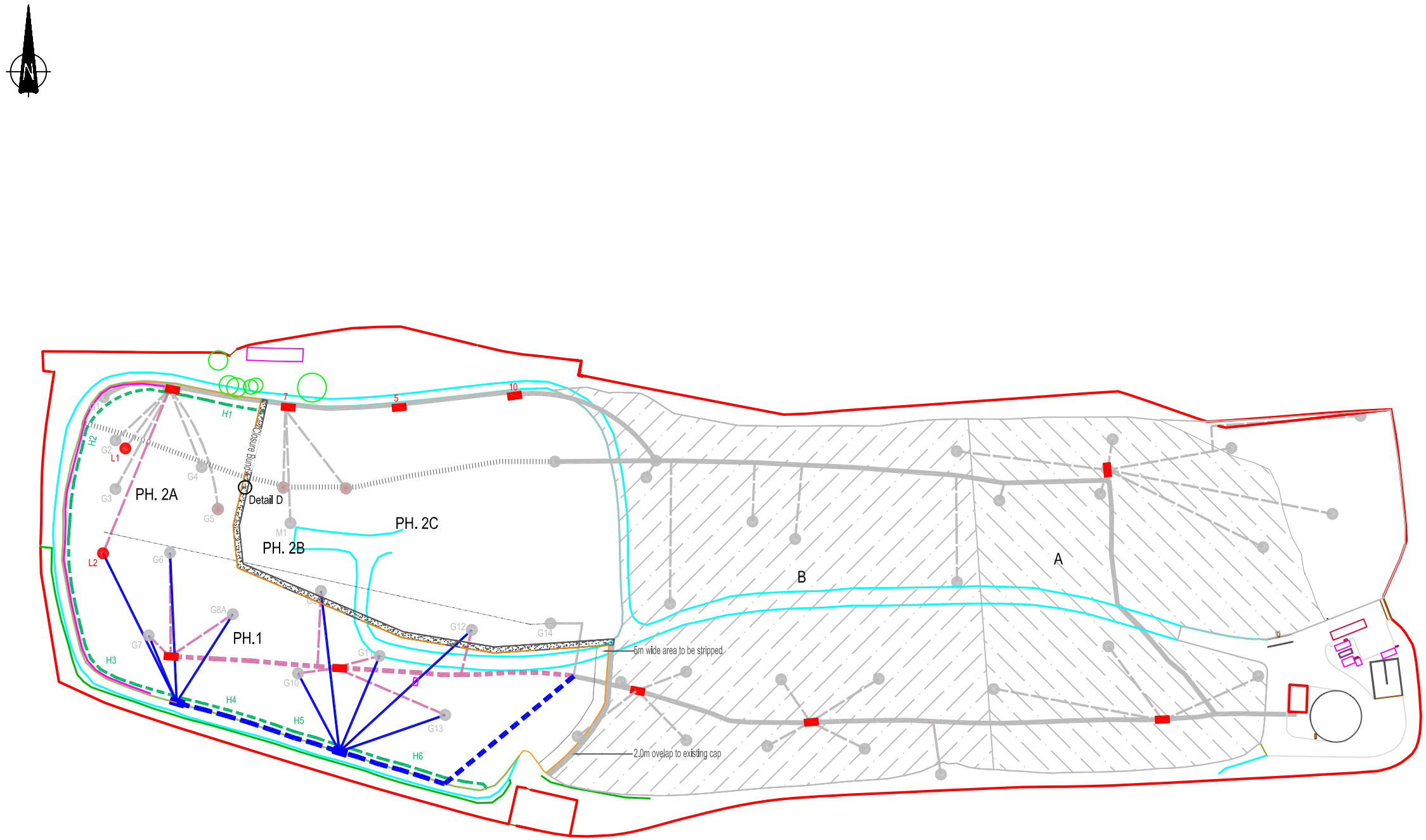
Title
Proposed Restoration Area (West)

Architect

Drawing Status	Sheet Size	Drawing Scale
Tender	A3	1:1,000

Drawing Number	Rev
IBR0148/202	0

Drawn By / Date		Checked By / Date		Approved By / Date	
AMB	Aug '11	NR	Aug '11	DD	Aug '11



10m SCALE 1:2000

NOTES

1. Verifying Dimensions.
The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.

2. Existing Services.
Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.

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4. Key:

- Site Fence
- Existing 250mm Dia Gas Main
- Existing 250mm Dia Gas Main to be removed
- Existing 90mm Dia OD HDPE Pipework to be removed
- Proposed 90mm Dia Perforated Horizontal Pipework
- Proposed250mm Dia OD HDPE Pipework
- Proposed 90mm Dia OD HDPE Pipework
- Existing 90mm Dia OD HDPE Pipework
- Existing 250mm Dia Leachate Collection Pipework
- Restored Area
- Existing Gas Wells
- Leachate Monitoring Tower to be extended
- 10 Number of Horizontal Well Connect to Manifold
- Proposed Manifolds (Phase I Restoration)

rev	amendments	drawn date	checked date

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Enterprise Fund Business Centre
Ballyraine, Letterkenny
Co. Donegal
T +353 74 9161927
F +353 74 9161928
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Client: Donegal County Council

Project: Ballynacarrick Landfill Site

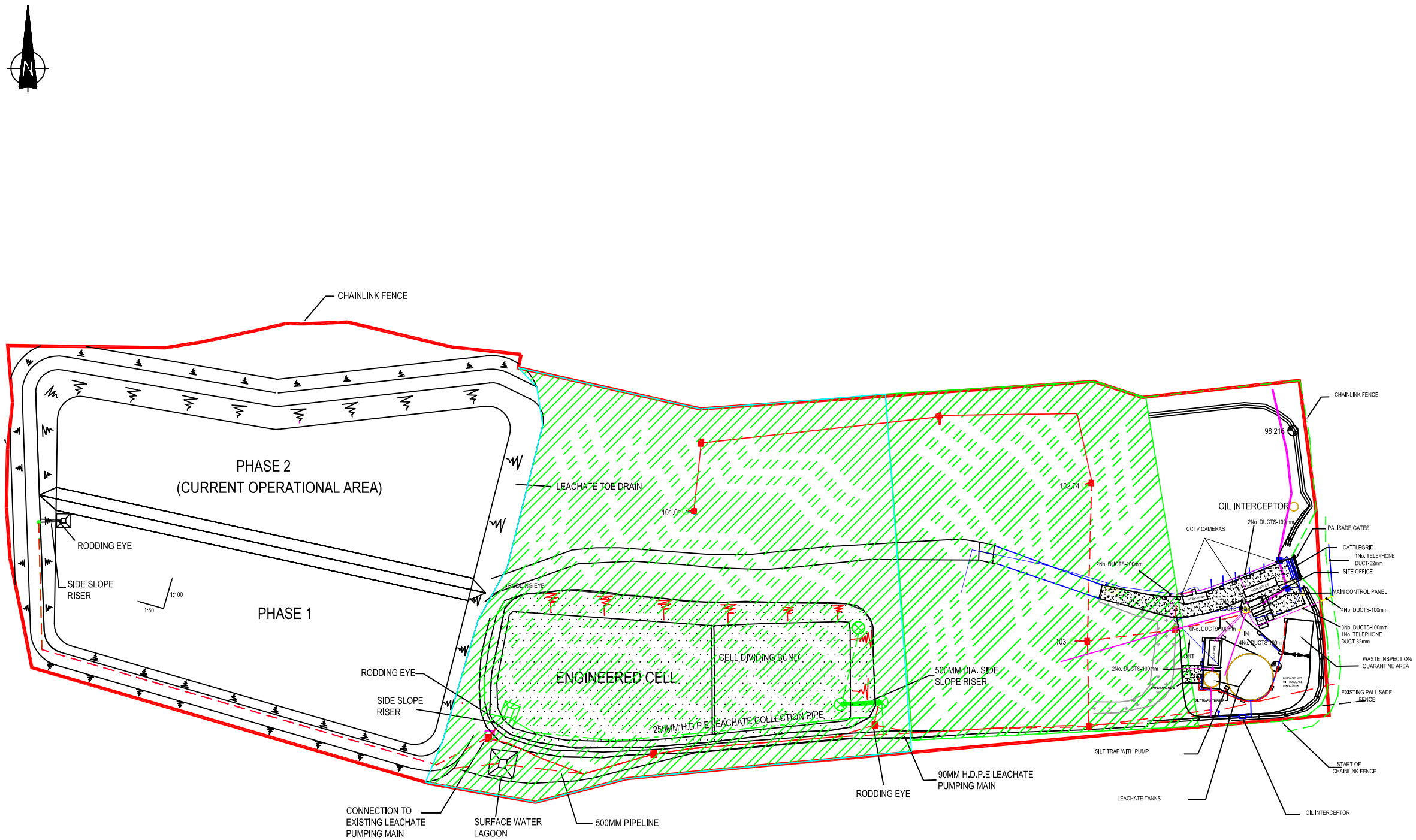
Title: Landfill Gas Management

Architect:

Drawing Status	Sheet Size	Drawing Scale
Prelim	A3	1:2,000

Drawing Number	Rev
IBR0125/056	0

Drawn By / Date		Checked By / Date		Approved By / Date	
AMB	Mar '11	AMcG	Mar '11	DD	Mar '11



10m SCALE 1:2000

NOTES

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2. Existing Services.
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5. DATUM:

ENGINEERED CELL
RESTORED AREA
CABLE DUCTS & CHAMBERS
3 PUMP NUMBER
MAIN ESB POWER LINE
CABLE DUCTS
ROAD LIGHTING CABLE DUCTS

rev	amendments	drawn date	checked date

RPS
Enterprise Fund Business Centre
Ballyraine, Letterkenny
Co. Donegal
T +353 74 9161927
F +353 74 9161928
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Client
DONEGAL COUNTY COUNCIL

Project
BALLYNACARRICK LANDFILL SITE

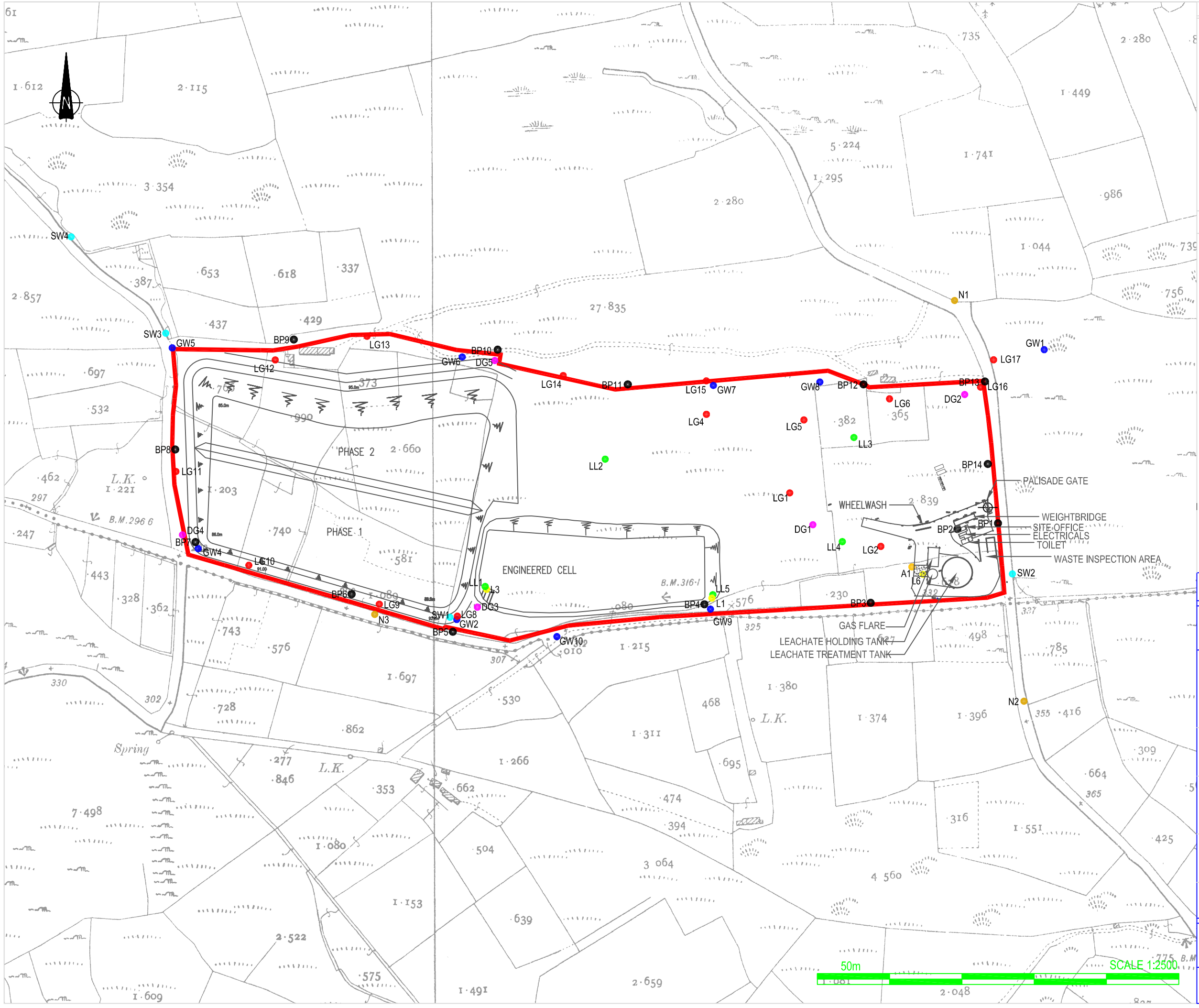
Title
Site Layout

Architect

Drawing Status	Sheet Size	Drawing Scale
Prelim	A3	1:2000

Drawing Number	Rev
IBR0125/054	0

Drawn By / Date		Checked By / Date		Approved By / Date	
AMB	FEB '10	NR	FEB '10	DD	FEB '10



NOTES

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The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.

2. Existing Services.
Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.

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4. DATUM:

5. KEYS

- SITE BOUNDARY
- LG1 — LANDFILL GAS MONITORING POINT
- DG1 — DUST MONITORING POINT
- N1 — NOISE MONITORING POINT
- SW1 — SURFACE WATER MONITORING POINT
- GW1 — GROUND WATER MONITORING POINT
- L1 — LEACHATE MONITORING POINT
- LL1 — LEACHATE LEVEL
- BP1 — BAIT POINT
- A1 — LANDFILL GAS FLARE

rev	amendments	drawn date	checked date

RPS
Enterprise Fund Business Centre
Ballyraine, Letterkenny
Co. Donegal
T +353 74 9161927
F +353 74 9161928
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Client: DONEGAL COUNTY COUNCIL

Project: BALLYNACARRICK LANDFILL SITE

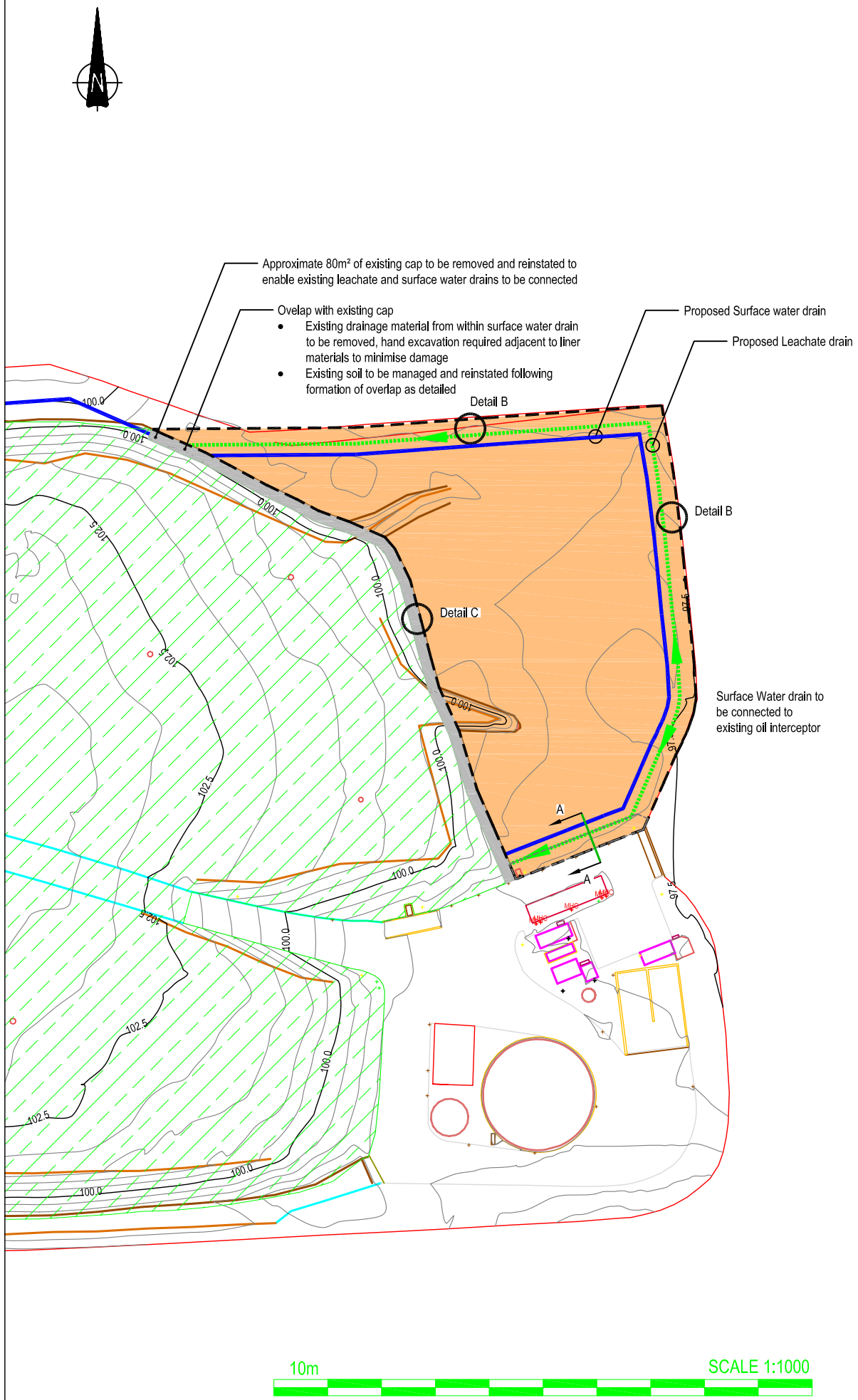
Title: Monitoring Locations

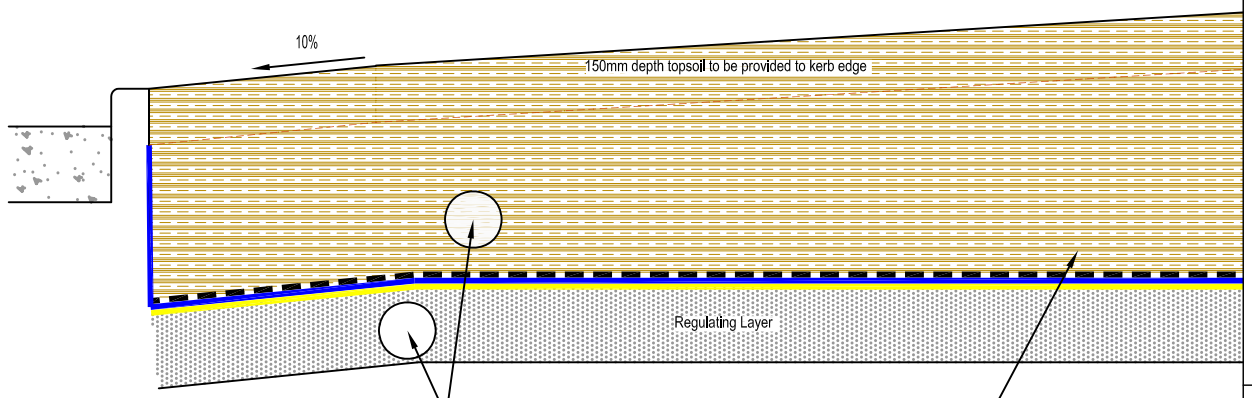
Architect:

Drawing Status	Sheet Size	Drawing Scale
Prelim	A3	AS SHOWN

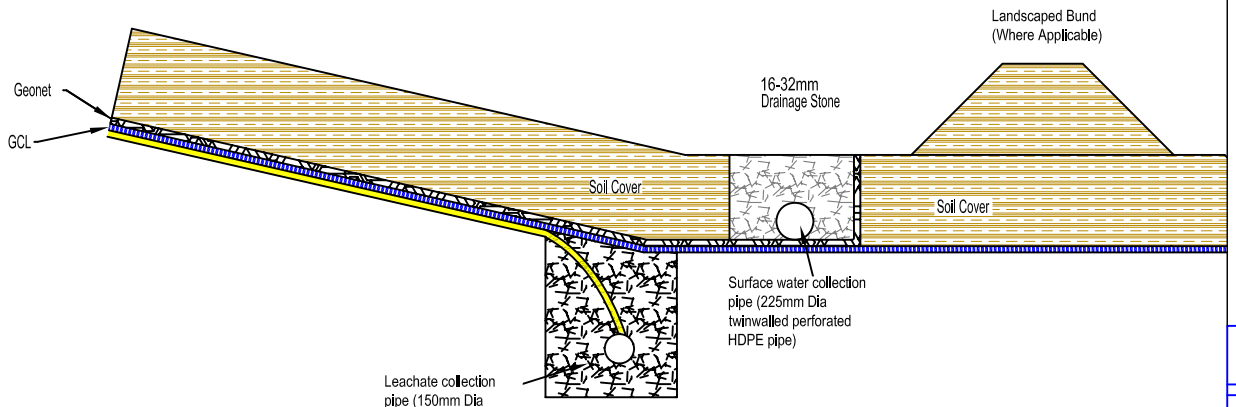
Drawing Number	Rev
IBR0125/053	0

Drawn By / Date	Checked By / Date	Approved By / Date
AMB JAN '10	NR JAN '10	DD JAN '10

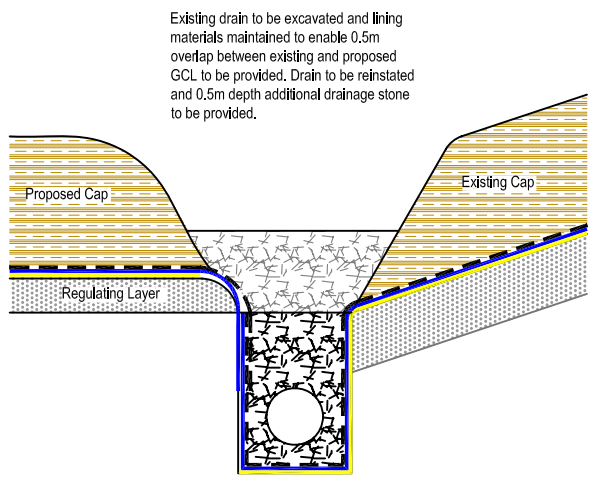




Section A-A (Not to Scale)



Detail B (Not to Scale)



Detail C (Not to Scale)

NOTES

1. Verifying Dimensions.
   The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.
2. Existing Services.
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4. Elevation in metres to OS Datum Malin Head (Irish Grid) Survey undertaken on 11 February 2011by ORICA BQS.
5. Access to Councils authorised vehicles and staff to be maintained at all times in accordance with the specification
6. Keys

- Proposed Capping Area
- Overlap with existing cap
- Restored Area
- Main Works Area
- Fence
- Road
- Bank Top
- Existing Bund to be removed
- Approximate location of existing anchor trench
- Bank Bottom
- Vegetation
- Proposed Archor Trench
- 97.5 Contour Prominent
- Concrete
- Hut
- Netting

rev	amendments	drawn date	checked date

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Co. Donegal
T +353 74 9161927
F +353 74 9161928
W www.rpsgroup.com/ireland
E ireland@rpsgroup.com

Client
Donegal County Council

Project
Ballynacarrick Landfill Site
Restoration Contract - Phase I

Title
Proposed Restoration Area (East)

Architect

Drawing Status	Sheet Size	Drawing Scale
Tender	A3	1:1,000

Drawing Number	Rev
IBR0148/215	0

Drawn By / Date		Checked By / Date		Approved By / Date	
JD	Aug '11	NR	Aug '11	DD	Aug '11

APPENDIX A

MONITORING DATA

Location		*Ballynacarrick, Ballintra,Co. Donegal*											
Sample Type		Surface water											
Site No		SW1											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1059	1359	2027	2570	2785	3428	3795	4288	5022	5610	6029	6465
pH		7.32	7.11	6.75	6.84	6.64	7.01	6.82	6.40	6.59	6.98	7.42	6.48
Temp	C	7.50	8.50	8.5	13.50	13.0	13.0	12.3	15.6	13.1	10.8	11.10	4.7
Electrical Conductivity	uS/cm	250	347	217	193	205	144	162	151	232	207	126	218
Ammonical Nitrogen	mg/l	0.02	0.16	0.06	<0.01	0.06	0.10	0.10	0.02	0.04	0.04	0.11	0.17
COD	mg/l	36	36	41	38	49	55	39	66	64	36	50	33
BOD	mg/l	1.28	1.52	0.89	1.13	1.32	0.60	1.97	1.02	1.93	0.74	0.85	1.0
Dissolved Oxygen	mg/l	9.15	10.50	11.16	8.91	8.63	9.84	9.75	9.32	9.4	9.4	10.44	12.31
SS	mg/l	4	10	4	3	3	1	3	1	1	33	1	1
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					6.7							
Chloride	mg/l	35	42	40	34	36	35	25	27	30	20	21	21
Chlorine	mg/l												
Copper	ug/l					3.0							
Cyanide	mg/l												
Dissolved Iron	ug/l												
Lead	ug/l					0.7							
Magnesium	ug/l					2.1							
Manganese	ug/l					16							
Mercury	ug/l					<0.01							
Nickel	ug/l												
Potassium	mg/l					<2.34							
Sodium	mg/l												
Sulphate	mg/l					<2							
Zinc	ug/l					6.1							
Total Alkalinity as CaCO3	mg/l					54							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l												
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

*** Insufficent Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Surface water											
Site No		SW2											
Date of Sample		Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Sept 10	Oct 10	Nov 10	Dec 10
Lab No		1060	1360	2028	2571	2786	3429	3796	4289	5023	5611	6030	6466
pH		7.22	7.08	6.79	6.44	6.4	7.07	6.6	6.2	6.6	6.8	6.54	6.15
Temp	C	7.50	8.50	8.5	14	12.5	12.8	12.4	14.9	13.0	10.7	11.00	3.8
Electrical Conductivity	uS/cm	198	286	180	178	199	120	169	151	120	197	102	82
Ammonical Nitrogen	mg/l	0.02	0.02	0.06	0.06	0.07	0.10	<0.01	0.02	0.08	0.14	3.83	<0.01
COD	mg/l	37	32	43	42	54	55	49	71	69	25	46	28
BOD	mg/l	1.3	1.3	0.92	1.1	1.14	0.6	0.5	1.2	1.2	0.7	1.2	0.7
Dissolved Oxygen	mg/l	8.43	9.86	9.76	5.6	6.29	5.8	6.94	2.86	7.79	7.04	7.37	9.99
SS	mg/l	2	3	2	4	2	1	4	9	1	4	10	1.0
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					6							
Chloride	mg/l	36	40	34	31	36	35	27	24	26	19	18	19
Chlorine	mg/l												
Copper	ug/l					3							
Cyanide	mg/l												
Dissolved Iron	ug/l					0.08							
Lead	ug/l					0.43							
Magnesium	ug/l					2.2							
Manganese	ug/l					6.4							
Mercury	ug/l					<0.01							
Nickel	ug/l												
Potassium	mg/l					<2.34							
Sodium	mg/l												
Sulphate	mg/l					<2							
Zinc	ug/l					5.5							
Total Alkalinity as CaCO3	mg/l					50							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l												
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.06							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

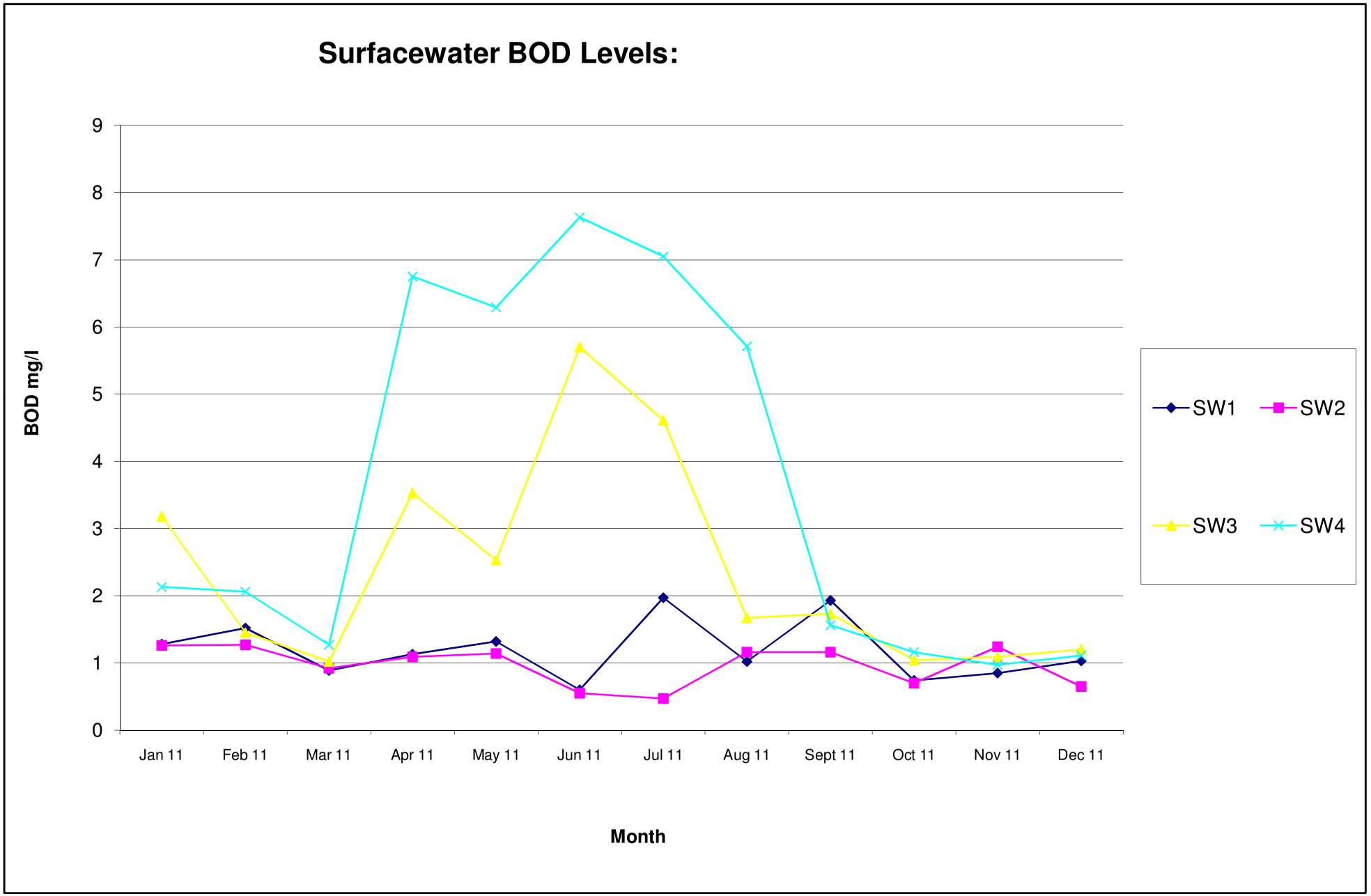
*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Surface water											
Site No		SW3											
Date of Sample		Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Sept 10	Oct 10	Nov 10	Dec 10
Lab No		1061	1361	2029	2572	2787	3430	3797	4290	5024	5612	6031	6467
pH		7.46	7.13	7.15	7.38	7.14	6.77	6.92	7.0	6.75	6.91	7.05	6.51
Temp	C	7.50	8.40	8.5	13.5	12.1	12.4	12.2	14.5	12.7	10.8	11.1	4.70
Electrical Conductivity	uS/cm	364	285	357	651	673	515	437	634	282	335	404	284
Ammonical Nitrogen	mg/l	0.96	0.48	0.90	8.49	11.4	4	2.30	5.47	0.35	0.26	0.88	0.7
COD	mg/l	31	41	21	29	45	34	53	38	65	36	38	27
BOD	mg/l	3.18	1.45	1.02	3.53	2.5	5.70	4.61	1.67	1.73	1.04	1.1	1.20
Dissolved Oxygen	mg/l	10.17	10.63	11.20	8.44	7.95	8.5	8.55	7.99	9.74	9.92	9.73	11.82
SS	mg/l	4	10	3	1	2	1	4	1	10	9	5	2
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					7.6							
Chloride	mg/l	35	38	40	46	52	34	30	45	34	20	26	24
Chlorine	mg/l												
Copper	ug/l					3.7							
Cyanide	mg/l												
Dissolved Iron	ug/l					0.1							
Lead	ug/l					0.3							
Magnesium	ug/l					7.9							
Manganese	ug/l					34							
Mercury	ug/l					<0.01							
Nickel	ug/l												
Potassium	mg/l					10.9							
Sodium	mg/l												
Sulphate	mg/l					15							
Zinc	ug/l					3.9							
Total Alkalinity as CaCO3	mg/l					240							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	0.17	0.3	0.36	0.4	0.30	0.68	0.3	0.38	0.59	0.41
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l												
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.06							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

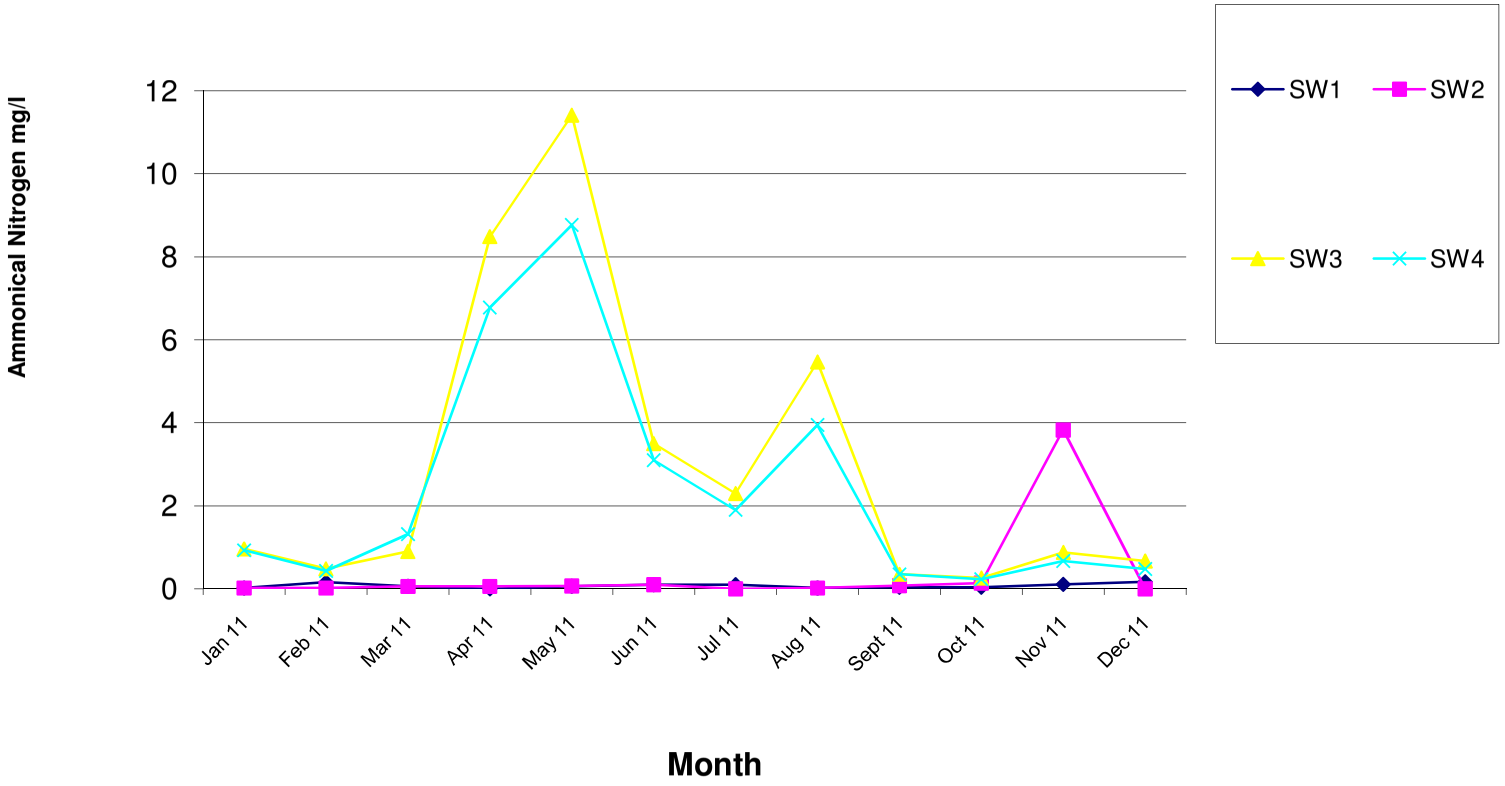
*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Surface water											
Site No		SW4											
Date of Sample		Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Sept 10	Oct 10	Nov 10	Dec 10
Lab No		1062	1362	2030	2573	2788	3431	3798	4291	5025	5613	6032	6468
pH		7.53	7.16	7.22	7.50	7.34	6.98	7.12	7.24	6.28	6.98	7.19	6.59
Temp	C	7.50	8.40	8.4	13.5	12.7	12.6	12.2	14.6	12.7	10.8	11.20	4.60
Electrical Conductivity	uS/cm	344	285	343	599	599	496	423	586	287	308	384	274
Ammonical Nitrogen	mg/l	0.93	0.43	1.3	6.8	8.8	3.1	1.90	3.95	0.35	0.23	0.67	0.48
COD	mg/l	34	37	28	29	45	40	54	41	64	36	38	27
BOD	mg/l	2.13	2.06	1.27	6.75	6.29	7.63	7.1	5.71	1.56	1.16	0.97	1.11
Dissolved Oxygen	mg/l	10	11	11.00	8.6	8.42	8.92	8.3	7.86	9.65	9.90	10.09	11.9
SS	mg/l	3	6	4	4	3	1	3	1	4	3	2	2
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					8.4							
Chloride	mg/l	36	39	36	43	52	40	30	58	33	21	27	25
Chlorine	mg/l												
Copper	ug/l					3.33							
Cyanide	mg/l												
Dissolved Iron	ug/l					<0.019							
Lead	ug/l					0.325							
Magnesium	ug/l					7.0							
Manganese	ug/l					4.6							
Mercury	ug/l					<0.01							
Nickel	ug/l												
Potassium	mg/l					9.2							
Sodium	mg/l												
Sulphate	mg/l					<2							
Zinc	ug/l					2.6							
Total Alkalinity as CaCO3	mg/l					190							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	0.44	0.3	0.21	0.5	0.46	0.4	0.40	1.1	0.35	0.36	0.59	0.42
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l												
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

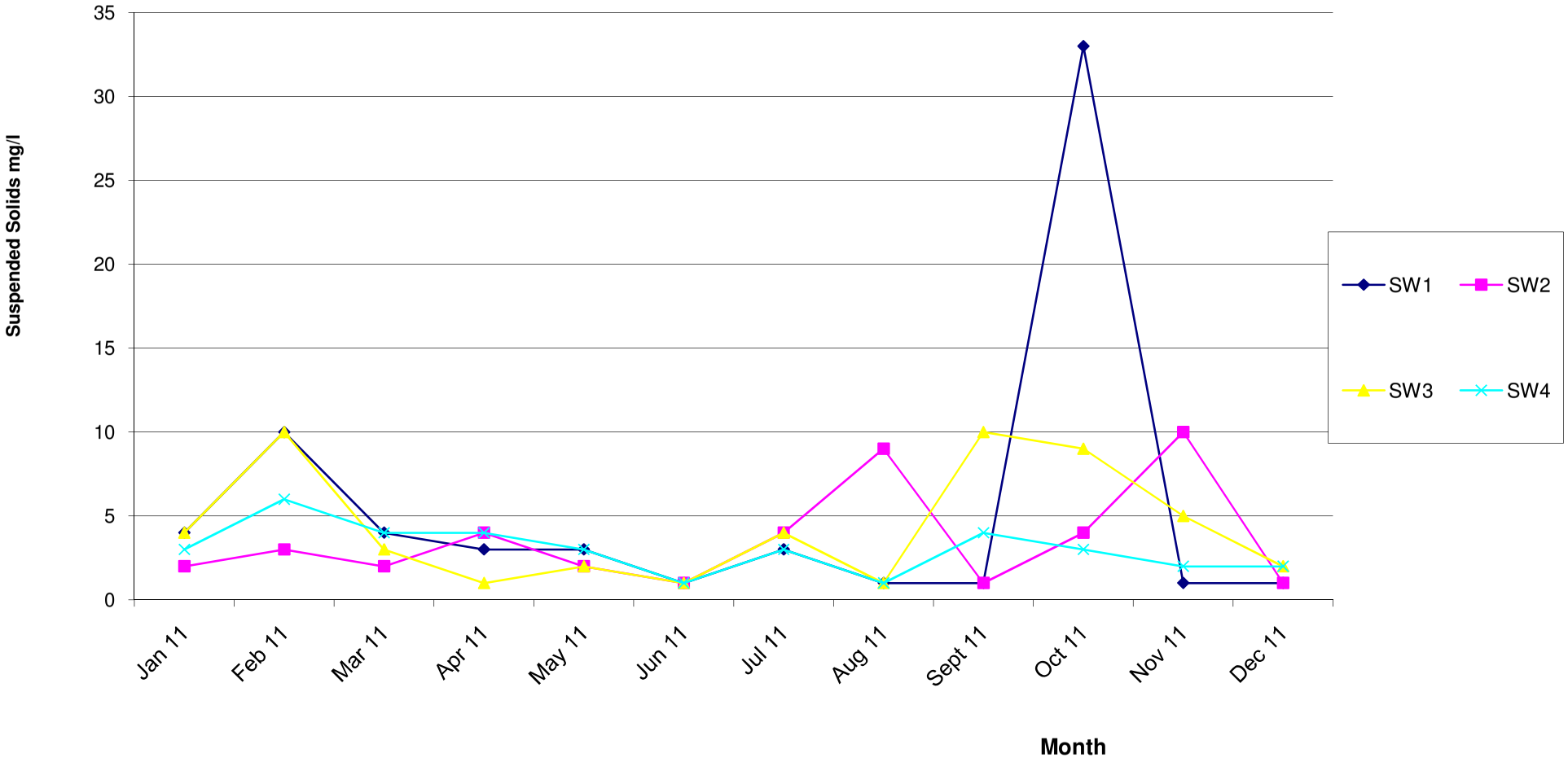
*** Insufficient Sample / No Access
--- Not Applicable


Surfacewater BOD Levels:
BOD mg/l
0
1
2
3
4
5
6
7
8
9
Jan 11
Feb 11
Mar 11
Apr 11
May 11
Jun 11
Jul 11
Aug 11
Sept 11
Oct 11
Nov 11
Dec 11
Month
SW1
SW2
SW3
SW4

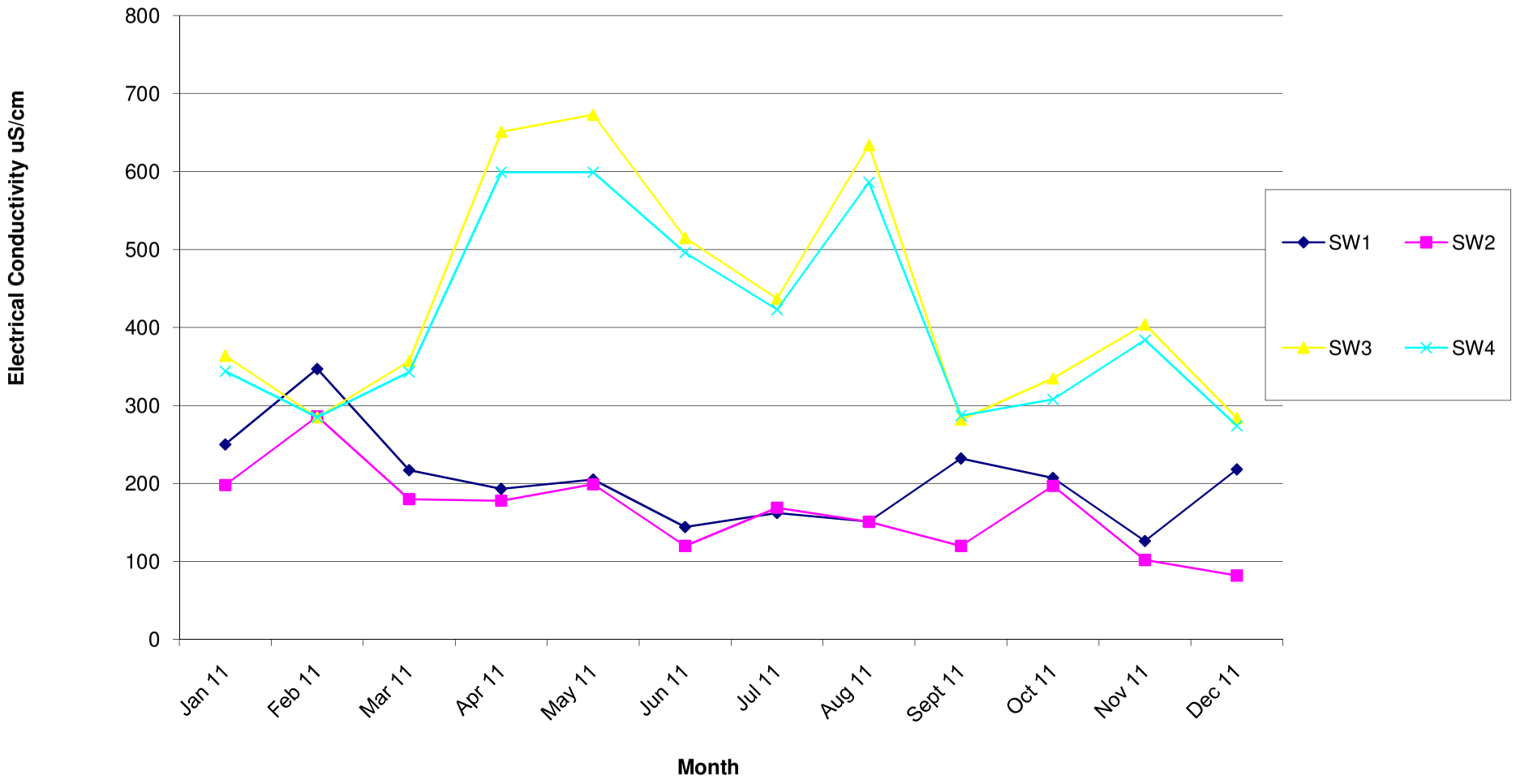
Surfacewater Ammonical Nitrogen Levels

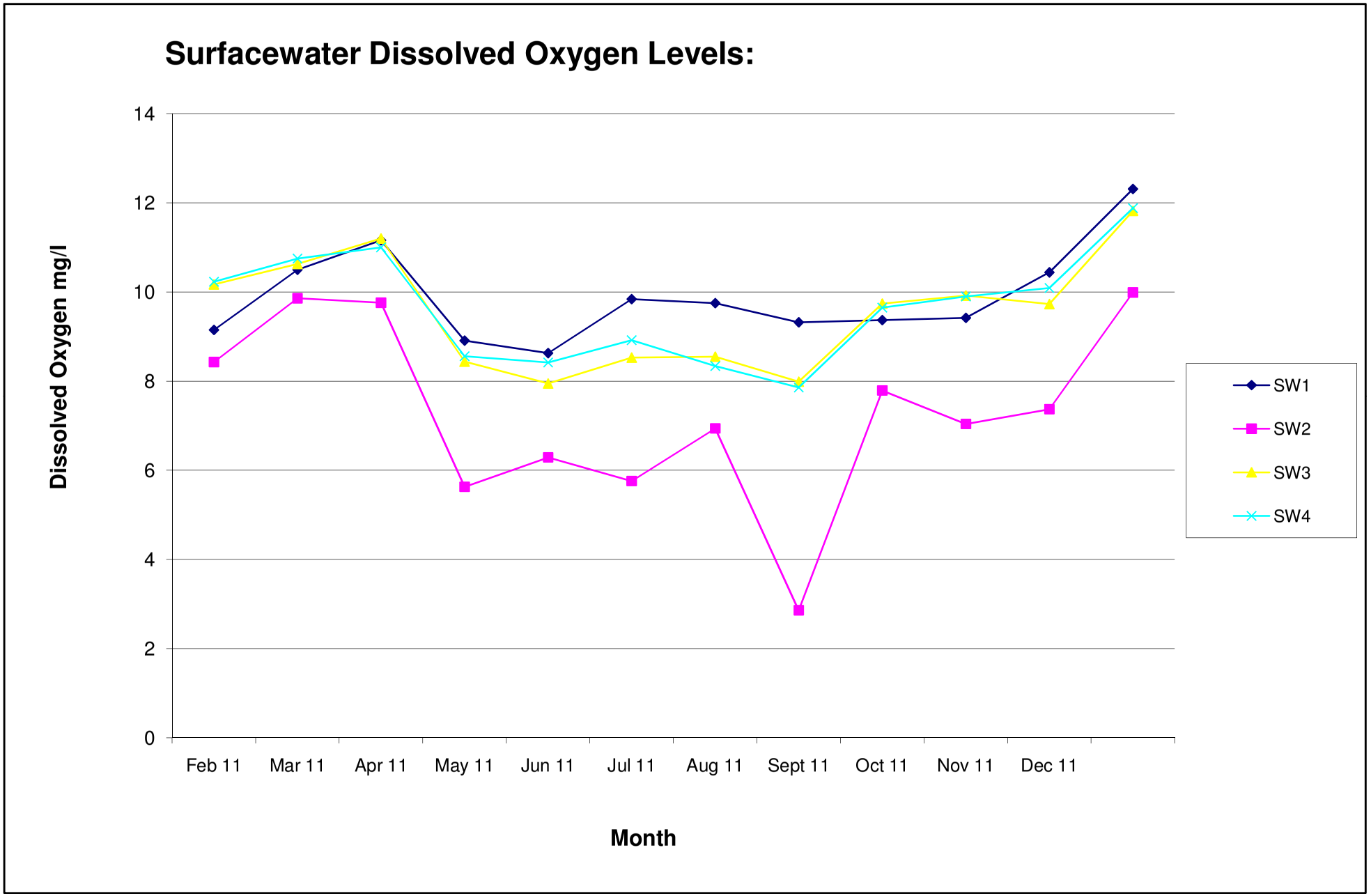


Surfacewater Suspended Solids Levels:



Surfacewater Electrical Conductivity Levels:




Surfacewater Dissolved Oxygen Levels:
Dissolved Oxygen mg/l
14
12
10
8
6
4
2
0
Feb 11
Mar 11
Apr 11
May 11
Jun 11
Jul 11
Aug 11
Sept 11
Oct 11
Nov 11
Dec 11
Month
SW1
SW2
SW3
SW4

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW1											
Date of Sample													
Lab No		1200	1479	2157	2498	2863	3687	4224	4267	5295	5718	6392	6681
pH		6.74	6.65	6.67	6.35	6.52	6.43	6.48	6.33	6.49	6.54	6.64	6.57
Temp	C	6.80	8.20	6.5	11.6	15	13	12.8	13.5	13.1	11.5	9.8	8.9
Electrical Conductivity	uS/cm	489	485	414	355	399	469	455	467	358	366	398	440
Ammonical Nitrogen	mg/l	1.02	0.99	1.0	0.06	0.6	0.80	0.60	1.06	1.02	0.42	0.52	0.90
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					4.2							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					<3							
Chloride	mg/l	28	26	26	27	26	25	26	29	26	32	28	31
Chlorine	mg/l												
Copper	ug/l					<0.85							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	0.020	0.214	0.041	0.061	<0.019	0.022	0.040	0.076	0.021	0.031	0.082	0.066
Lead	ug/l					0.044							
Magnesium	ug/l					2.2							
Manganese	ug/l					21.2							
Mercury	ug/l					<0.01							
Nickel	ug/l					0.871							
Potassium	mg/l					<2.34							
Sodium	mg/l												
Sulphate	mg/l					23							
Zinc	ug/l					1.0							
Total Alkalinity as CaCO3	mg/l					210							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	0.07	<0.01	0.49	0.30	<0.01	<0.01	0.15	0.99	0.94	0.50	0.20
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					<0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	3.3	2.2	4.2	2.1	2.8	2.3	2.8	2.8	2.2	3.5	2.4	2.5

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW2											
Date of Sample													
Lab No		1201	1480.00	2158	2499	2864	3688	4225	4268	5296	5719	6393	6682
pH		6.68	6.64	6.55	6.51	6.6	6.55	6.53	6.63	6.73	6.48	6.61	6.48
Temp	C	6.40	8.10	6.9	11.80	14.1	13.9	14.0	14.8	14	12	10	9
Electrical Conductivity	uS/cm	1545	1246.00	1227	1105	1008	865	985	808	777	718	749	856
Ammonical Nitrogen	mg/l	34.0	41.00	26.0	25.8	26.6	26	29	20	18	17	19	14
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					2.1							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					<3							
Chloride	mg/l	235	186	115	120	95	120	120	110	100	120	100	58
Chlorine	mg/l												
Copper	ug/l					<0.85							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	1.029	1.051	1.131	2.475	0.272	1.342	1.870	5.810	2.722	1.342	5.265	4.034
Lead	ug/l					0.104							
Magnesium	ug/l					12							
Manganese	ug/l					362							
Mercury	ug/l					<0.01							
Nickel	ug/l					2.6							
Potassium	mg/l					21							
Sodium	mg/l												
Sulphate	mg/l					26							
Zinc	ug/l					5.3							
Total Alkalinity as CaCO3	mg/l					630							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	0.02	<0.01	<0.01	0.50	0.7	0.5	<0.01	0.52	0.41	0.12	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					0.6130							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					<0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	1.9	1.3	1.1	1.1	1.6	1.3	1.4	1.3	1.2	1.4	1.4	1.5

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW4											
Date of Sample													
Lab No		1202	1481	2159	2500	2865	3689	4226	4269	5297	5720	6394	6683
pH		7.11	7.04	6.95	6.80	6.90	6.47	6.85	6.85	6.95	7.06	6.99	6.75
Temp	C	6.00	8.10	6.5	11.60	12.6	12.8	12.8	13.3	13.6	11.5	10.3	8.8
Electrical Conductivity	uS/cm	761	662	707	705	826	879	836	906	886	622	600	564
Ammonical Nitrogen	mg/l	0.06	0.02	2.83	0.26	0.20	0.1	0.10	0.13	0.13	0.12	0.24	0.21
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					3.8							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					<3							
Chloride	mg/l	18	16	28	19	18	20	22	20	18	20	16	22
Chlorine	mg/l												
Copper	ug/l					1.56							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	0.024	0.030	0.022	0.059	<0.019	0.021	0.050	0.096	0.025	0.033	0.016	0.020
Lead	ug/l					0.03							
Magnesium	ug/l					18							
Manganese	ug/l					4.0							
Mercury	ug/l					<0.01							
Nickel	ug/l					3							
Potassium	mg/l					<2.34							
Sodium	mg/l												
Sulphate	mg/l					289							
Zinc	ug/l					<0.41							
Total Alkalinity as CaCO3	mg/l					150							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	0.0300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	0.4200	0.26	0.20
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					1.07							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					<0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	4.8	3.4	3.4	3.2	4	3.4	3.7	3.2	3.5	4.0	3.0	3.6

*** Insufficient Sapmle / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW5											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1203	1482	2160	2501	2866	3690	4227	4270	5298	5721	6395	6684
pH		7.10	7.0	7.0	6.44	6.98	6.80	6.86	7.04	7.23	7.04	6.94	6.77
Temp	C	6.00	8.3	6.6	11.7	12.4	13.4	12.9	14.7	13.8	11.5	9.9	8.0
Electrical Conductivity	uS/cm	807	801	806	807	805	816	810	819	824	811	809	809
Ammonical Nitrogen	mg/l	0.20	0.17	0.26	0.26	0.30	0.20	0.20	0.20	0.39	0.31	0.34	0.30
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l												
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					<3							
Chloride	mg/l	70	18	95	71	70	76	72	100	100	94	85	70
Chlorine	mg/l												
Copper	ug/l					<0.85							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	0.02	0.05	0.24	0.70	<0.019	0.03	0.62	0.15	0.01	0.09	0.02	0.03
Lead	ug/l					0.046							
Magnesium	ug/l					42							
Manganese	ug/l					2							
Mercury	ug/l					<0.01							
Nickel	ug/l					1							
Potassium	mg/l					<2.34							
Sodium	mg/l					0.0000							
Sulphate	mg/l					<2							
Zinc	ug/l					2							
Total Alkalinity as CaCO3	mg/l					150							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					0.6130							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					<0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	1.70	1.20	0.90	1.10	1.10	1.10	1.10	1.40	1.20	1.40	1.20	1.10

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW6											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		***	***	***	***	***	***	***	***	***	5722	***	6685
pH											7.21		6.66
Temp	C										11.3		9.4
Electrical Conductivity	uS/cm										231		409
Ammonical Nitrogen	mg/l										0.16		0.30
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l										3.10		
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l												
Chromium	ug/l												
Chloride	mg/l										24		46
Chlorine	mg/l												
Copper	ug/l												
Cyanide	mg/l												
Dissolved Iron	mg/l										0.699		0.601
Lead	ug/l												
Magnesium	ug/l												
Manganese	ug/l												
Mercury	ug/l												
Nickel	ug/l												
Potassium	mg/l												
Sodium	mg/l												
Sulphate	mg/l												
Zinc	ug/l												
Total Alkalinity as CaCO3	mg/l												
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l										<0.01		<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l												
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l												
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m										7.80		7.00

*** Insufficient Sample / No Access

--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW7											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1205	1483	2161	2502	2868	3691	4228	4271	5299	5723	6396	6686
pH		6.69	6.5	6.5	6.58	6.46	6.44	6.48	6.61	6.68	6.58	6.64	6.52
Temp	C	6.50	8.5	6.5	11.7	12.1	13.2	13.0	14.2	13.8	11.6	10.2	9.2
Electrical Conductivity	uS/cm	700	691	705	706	728	668	700	671	638	667	662	649
Ammonical Nitrogen	mg/l	0.14	0.12	0.23	0.06	0.30	0.50	0.40	0.33	0.17	0.19	0.19	0.60
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					5.5							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.01							
Chromium	ug/l					3.15							
Chloride	mg/l	33	34	28	34	36	36	35	34	32	37	36	36
Chlorine	mg/l												
Copper	ug/l					2.42							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	0.444	0.422	2.241	5.625	<0.019	0.413	2.120	1.780	0.219	<0.002	0.102	0.138
Lead	ug/l					<0.02							
Magnesium	ug/l					7.3							
Manganese	ug/l					414							
Mercury	ug/l					<0.01							
Nickel	ug/l					5.0							
Potassium	mg/l					<2.34							
Sodium	mg/l												
Sulphate	mg/l					6.9							
Zinc	ug/l					0.4							
Total Alkalinity as CaCO3	mg/l					305							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<001	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.3	0.30	0.1
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					0.5390							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.10							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	3.88	2.60	2.80	2.90	3.40	3.50	3.50	3.10	2.90	3.10	2.80	2.80

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW8											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1206	1484	2162	2503	2868.00	3692	4229	4272	5300	5724	6397	6687
pH		6.80	6.9	6.8	6.80	6.78	6.68	6.70	6.83	6.76	6.72	6.69	6.62
Temp	C	6.50	8.5	6.6	11.8	11.9	12.6	12.8	13.3	13.6	11.7	10.0	8.6
Electrical Conductivity	uS/cm	484	567	608	624	638	665	654	690	600	563	647	602
Ammonical Nitrogen	mg/l	0.27	0.02	0.06	0.06	0.20	0.10	0.10	<0.01	0.17	0.17	4.80	0.20
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					3.5							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.01							
Chromium	ug/l					4.01							
Chloride	mg/l	56	50	66	58	62	64	64	90	70	85	65	49
Chlorine	mg/l												
Copper	ug/l					8.39							
Cyanide	mg/l					<0.05							
Dissolved Iron	mg/l	0.094	0.211	0.022	0.064	<0.019	0.079	0.060	0.061	0.173	0.063	0.379	0.330
Lead	ug/l					0.021							
Magnesium	ug/l					5.5							
Manganese	ug/l					2.9							
Mercury	ug/l					<0.01							
Nickel	ug/l					2.9							
Potassium	mg/l					10							
Sodium	mg/l												
Sulphate	mg/l					22							
Zinc	ug/l					<0.41							
Total Alkalinity as CaCO3	mg/l					122							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	0.1	1.01	1.2	0.4	0.5	<0.01	0.3	0.1	0.7	<0.01	0.6
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					<0.05							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	2.68	1.90	1.50	1.90	2.10	2.00	2.10	2.60	2.80	2.50	2.10	1.90

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW9											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1207	1485	***	***	2869	3693	4230	***	5301	5725	6398	6688
pH		6.65	6.6			6.52	6.47	6.50		6.61	6.58	6.72	6.64
Temp	C	6.50	9.0			12.3	12.7	13.0		13.6	11.8	10.4	8.6
Electrical Conductivity	uS/cm	1269	977			913	1008	982		1055	954	647	662
Ammonical Nitrogen	mg/l	15	7.1			3.3	6.3	7.3		8.2	7.4	2.5	0.2
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					3.6							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.01							
Chromium	ug/l					<3							
Chloride	mg/l	135	98			34	65	68		65	68	26	26
Chlorine	mg/l												
Copper	ug/l					2.40							
Cyanide	mg/l					<0.05							
Dissolved Iron	ug/l	0.182	0.170			<0.09	0.188	0.160		0.472	0.174	0.037	0.028
Lead	ug/l					0.076							
Magnesium	ug/l					7.5							
Manganese	ug/l					69							
Mercury	ug/l					<0.01							
Nickel	ug/l					4.1							
Potassium	mg/l					2.9							
Sodium	mg/l												
Sulphate	mg/l					31							
Zinc	ug/l					14							
Total Alkalinity as CaCO3	mg/l					375							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01			0.2	0.1	0.1		<0.01	<0.01	0.04	0.1
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.10							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	3.67	3.00			3.00	3.50	3.30		2.60	2.40	2.80	3.50

*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Groundwater											
Site No		GW10											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1208	1486	2163	2504	2870	3694	4231	4273	5302	5726	6399	6689
pH		6.72	6.6	6.5	6.48	6.51	6.40	6.43	6.57	6.60	6.69	6.54	6.51
Temp	C	6.60	9.0	6.7	11.8	13.6	12.9	13.1	13.6	13.4	11.9	11.2	10.0
Electrical Conductivity	uS/cm	522	492	570	505	632	454	508	489	408	446	460	357
Ammonical Nitrogen	mg/l	6.0	4.1	5.8	5.8	7.9	2.6	7.5	3.8	2.3	2.2	1.3	1.1
COD	mg/l												
BOD	mg/l												
Dissolved Oxygen	mg/l					3.1							
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.01							
Chromium	ug/l					<3							
Chloride	mg/l	30	28	36	35	41	50	51	50	28	50	27	24
Chlorine	mg/l												
Copper	ug/l					2.49							
Cyanide	mg/l					<0.05							
Dissolved Iron	ug/l	4.245	3.277	2.341	6.120	0.591	3.121	2.220	3.860	2.946	3.012	6.605	4.114
Lead	ug/l					0.298							
Magnesium	ug/l					8.9							
Manganese	ug/l					273							
Mercury	ug/l					<0.01							
Nickel	ug/l					3.4							
Potassium	mg/l					5.3							
Sodium	mg/l												
Sulphate	mg/l					9.3							
Zinc	ug/l					8.2							
Total Alkalinity as CaCO3	mg/l					385							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	0.02	<0.01	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l					<0.002							
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					2.60							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m	1.97	1.30	1.40	1.60	1.90	1.60	1.80	1.80	1.60	1.80	1.60	1.60

*** Insufficient Sample / No Access
--- Not Applicable

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW1**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW2**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		**ug/l**
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW4**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		**ug/l**
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW5**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW6**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane		**1,2-Dibromoethane**	
Chloromethane		**Tetrachloroethene**	
Vinyl Chloride		**1,1,1,2-Tetrachloroethane**	
Bromomethane		**Chlorobenzene**	
Chloroethane		**Ethylbenzene**	
Trichlorofluoromethane		**p/m-Xylene**	
trans-1,2-Dichloroethene		**Bromoform**	
Dichloromethane		**Styrene**	
Carbon disulphide		**1,1,2,2-Tetrachloroethane**	
1,1-Dichloroethene		**o-Xylene**	
1,1-Dichloroethane		**1,2,3-Trichloropropane**	
tert-butyl methyl ether		**Isopropylbenzene**	
cis-1,2-Dichloroethene		**Bromobenzene**	
Bromochloromethane		**2-Chlorotoluene**	
Chloroform		**Propylbenzene**	
2,2-Dichloropropane		**4-Chlorotoluene**	
1,2-Dichloroethane		**1,2,4-Trimethylbenzene**	
1,1,1-Trichloroethane		**4-Isopropyltoluene**	
1,1-Dichloropropene		**1,3,5-Trimethylbenzene**	
Benzene		**1,3-Dichlorobenzene**	
Carbontetrachloride		**1,4-Dichlorobenzene**	
Dibromomethane		**sec-Butylbenzene**	
1,2-Dichloropropane		**tert-Butylbenzene**	
Bromodichloromethane		**1,2-Dichlorobenzene**	
Trichloroethene		**n-Butylbenzene**	
cis-1,3-Dichloropropene		**1,2-Dibromo-3-chloropropane**	
trans-1,3-Dichloropropene		**1,2,4-Trichlorobenzene**	
1,1,2-Trichloroethane		**Naphthalene**	
Toluene		**1,2,3-Trichlorobenzene**	
1,3-Dichloropropane		**Hexachlorobutadiene**	
Dibromochloromethane			

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW7**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW8**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW9**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		ug/l
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

VOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW10**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/l		**ug/l**
Dichlorodifluoromethane	<7	**1,2-Dibromoethane**	<2.3
Chloromethane	<9	**Tetrachloroethene**	<1.5
Vinyl Chloride	<1.2	**1,1,1,2-Tetrachloroethane**	<1.3
Bromomethane	<2	**Chlorobenzene**	<3.5
Chloroethane	<2.5	**Ethylbenzene**	<2.5
Trichlorofluoromethane	<1.3	**p/m-Xylene**	<2.5
trans-1,2-Dichloroethene	<1.9	**Bromoform**	<3
Dichloromethane	<3.7	**Styrene**	<1.2
Carbon disulphide	<1.3	**1,1,2,2-Tetrachloroethane**	<5.2
1,1-Dichloroethene	<1.2	**o-Xylene**	<1.7
1,1-Dichloroethane	<1.2	**1,2,3-Trichloropropane**	<7.8
tert-butyl methyl ether	<1.6	**Isopropylbenzene**	<1.4
cis-1,2-Dichloroethene	<2.3	**Bromobenzene**	<2
Bromochloromethane	<1.9	**2-Chlorotoluene**	<1.9
Chloroform	<1.8	**Propylbenzene**	<2.6
2,2-Dichloropropane	<3.8	**4-Chlorotoluene**	<1.9
1,2-Dichloroethane	<3.3	**1,2,4-Trimethylbenzene**	<1.7
1,1,1-Trichloroethane	<1.3	**4-Isopropyltoluene**	<2.6
1,1-Dichloropropene	<1.3	**1,3,5-Trimethylbenzene**	<1.8
Benzene	<1.3	**1,3-Dichlorobenzene**	<2.2
Carbontetrachloride	<1.4	**1,4-Dichlorobenzene**	<2.7
Dibromomethane	<2.7	**sec-Butylbenzene**	<1.7
1,2-Dichloropropane	<3	**tert-Butylbenzene**	<2
Bromodichloromethane	<0.9	**1,2-Dichlorobenzene**	<3.7
Trichloroethene	<2.5	**n-Butylbenzene**	<2
cis-1,3-Dichloropropene	<1.9	**1,2-Dibromo-3-chloropropane**	<9.8
trans-1,3-Dichloropropene	<3.5	**1,2,4-Trichlorobenzene**	<2.3
1,1,2-Trichloroethane	<2.2	**Naphthalene**	<3.
Toluene	<1.4	**1,2,3-Trichlorobenzene**	<3.1
1,3-Dichloropropane	<2.2	**Hexachlorobutadiene**	<2.5
Dibromochloromethane	<1.7	**tert-Amyl methyl ether**	<3.5
		1,3,5-Trichlorobenzene	<10

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW1**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW2**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW4**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW5**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW6**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

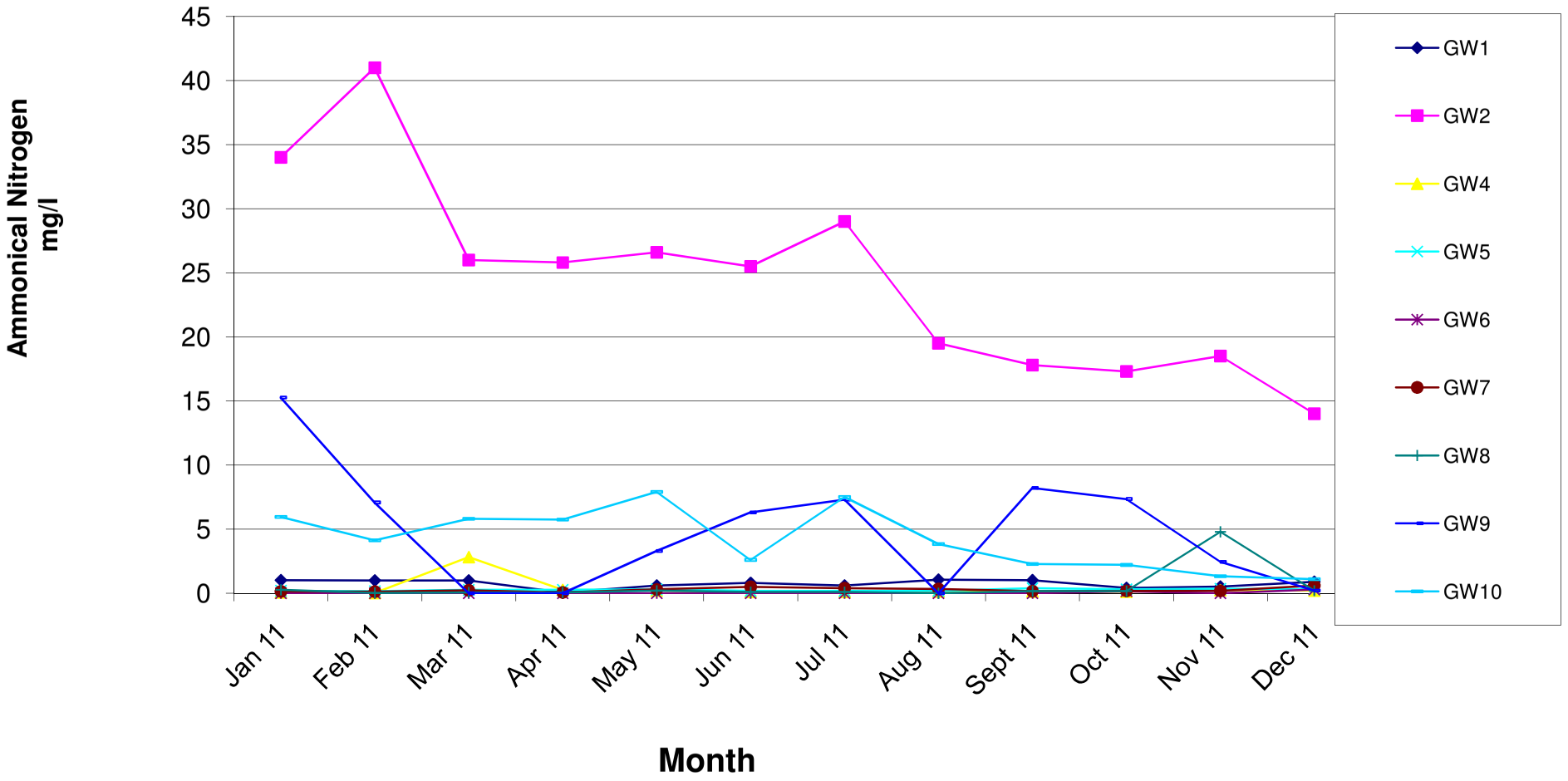
SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW7**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW8**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

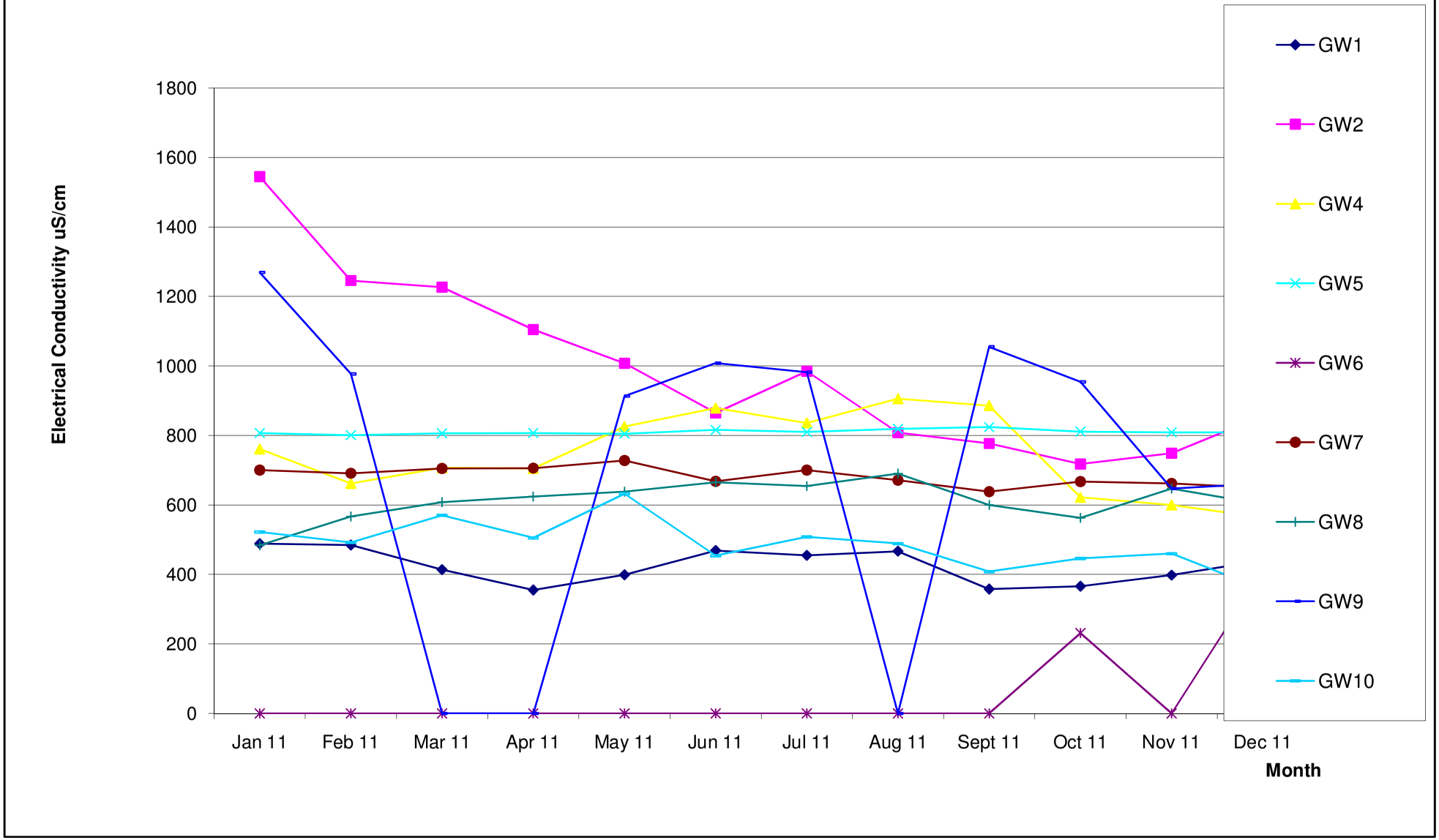
SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW9**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

SEMIVOLATILE ORGANIC COMPOUNDS		*Ballynacarrick Landfill Site Ballintra, Co.Donegal*	
Month:			
Location:	**GW10**		
Lab No:			
PARAMETERS	**UNITS**	**PARAMETERS**	**UNITS**
	ug/L		**ug/l**
Phenol	<0.1	**Bis(2-ethylhexyl)phthalate**	<2.0
2-Chlorophenol	<1.0	**Dimethyl phthalate**	<1.0
2-Methylphenol	<1.0	**Di-n-butylphthalate**	<1.0
4-Methylphenol	<1.0	**Di-n-octylphthalate**	<1.0
2-Nitrophenol	<1.0	**Hexachlorobutadiene**	<1.0
4-Nitrophenol	<1.0	**Indeno(1,2,3-cd)pyrene**	<1.0
2,4-Dichlorophenol	<1.0	**2-Methylnaphthalene**	<1.0
2,4-Dimethylphenol	<1.0	**2-Nitroanaline**	<1.0
4-Chloro-3-methylphenol	<1.0	**3-Nitroaniline**	<1.0
2,4,6-Trichlorophenol	<1.0	**4-Nitroaniline**	<1.0
2,4,5-Trichlorophenol	<1.0	**2,4-Dinitrotoluene**	<1.0
Pentachlorophenol	<1.0	**2,6-Dinitrotoluene**	<1.0
1,3-Dichlorobenzene	<1.0	**N-nitrosodi-n-propylamine**	<1.0
1,4-Dichlorobenzene	<1.0	**Acenaphthylene**	<1.0
1,2-Dichlorobenzene	<1.0	**Acenaphtene**	<1.0
1,2,4-Trichlorobenzene	<1.0	**Anthracene**	<1.0
Nitrobenzene	<1.0	**Benzo(a)anthracene**	<1.0
Azobenzene	<1.0	**Benzo(b)fluoranthene**	<1.0
Hexachlorobenzene	<1.0	**Benzo(a)pyrene**	<1.0
Naphthalene	<1.0	**Benzo(g,h,i)perylene**	<1.0
Benzo(k)fluoranthrene	<1.0	**Chrysene**	<1.0
Carbazole	<1.0	**Dibenzo(a,h)anthracene**	<1.0
Bis(2-chloroethyl)ether	<1.0	**Fluroanthene**	<1.0
Butylbenzylphthalate	<1.0	**Fluorene**	<1.0
Bis(2-chloroethoxy)methane	<1.0	**Hexachloroethane**	<1.0
2-Chloronaphthalene	<1.0	**Isophorone**	<1.0
4-Chloroaniline	<1.0	**Hexachlorocyclopentadien**	<1.0
4-Chlorophenylphenylether	<1.0	**Phenanthrene**	<1.0
Dibenzofuran	<1.0	**Indole(1,2,3-cd)pyrene**	<1.0
Diethyl phthalate	<1.0	**Pyrene**	<1.0

Figure 6.1 - Groundwater
Ammonical Nitrogen Levels



Groundwater Electrical Conductivity Levels:



Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Leachate											
Site No		L1											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1286	1520	1891	2408	2741	3648	4034	4658	5341	5633	6087	6483
pH		6.62	6.70	6.50	6.41	6.47	6.58	6.53	6.65	6.67	6.48	6.53	6.62
Temp	C	7.5	11.0	8.1	14.5	12.8	15.1	13.7	15.9	14.5	11.9	12.1	12.2
Electrical Conductivity	uS/cm	2670	2650	2570	2560	2960	2930	2570	2610	2520	2270	2750	2148
Ammonical Nitrogen	mg/l	139	110	100	120	125	149	123	68	90	85	22	143
COD	mg/l	117	182	112	121	160	135	120	63	115	88	114	102
BOD	mg/l	1.6	24.8	5.0	2.6	1.8	4.4	3.7	5.5	3.6	2.1	3.3	12.3
Dissolved Oxygen	mg/l												
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					11.1							
Chloride	mg/l	195	140	210	190	225	270	220	165	200	180	210	170
Chlorine	mg/l												
Copper	ug/l					<0.85							
Cyanide	mg/l												
Dissolved Iron	ug/l					<0.019							
Lead	ug/l					<0.02							
Magnesium	ug/l					35.7							
Manganese	ug/l					584							
Mercury	ug/l					<0.01							
Nickel	ug/l					4.71							
Potassium	mg/l					79							
Sodium	mg/l												
Sulphate	mg/l					<2							
Zinc	ug/l					1.93							
Total Alkalinity as CaCO3	mg/l					1272							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.20							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

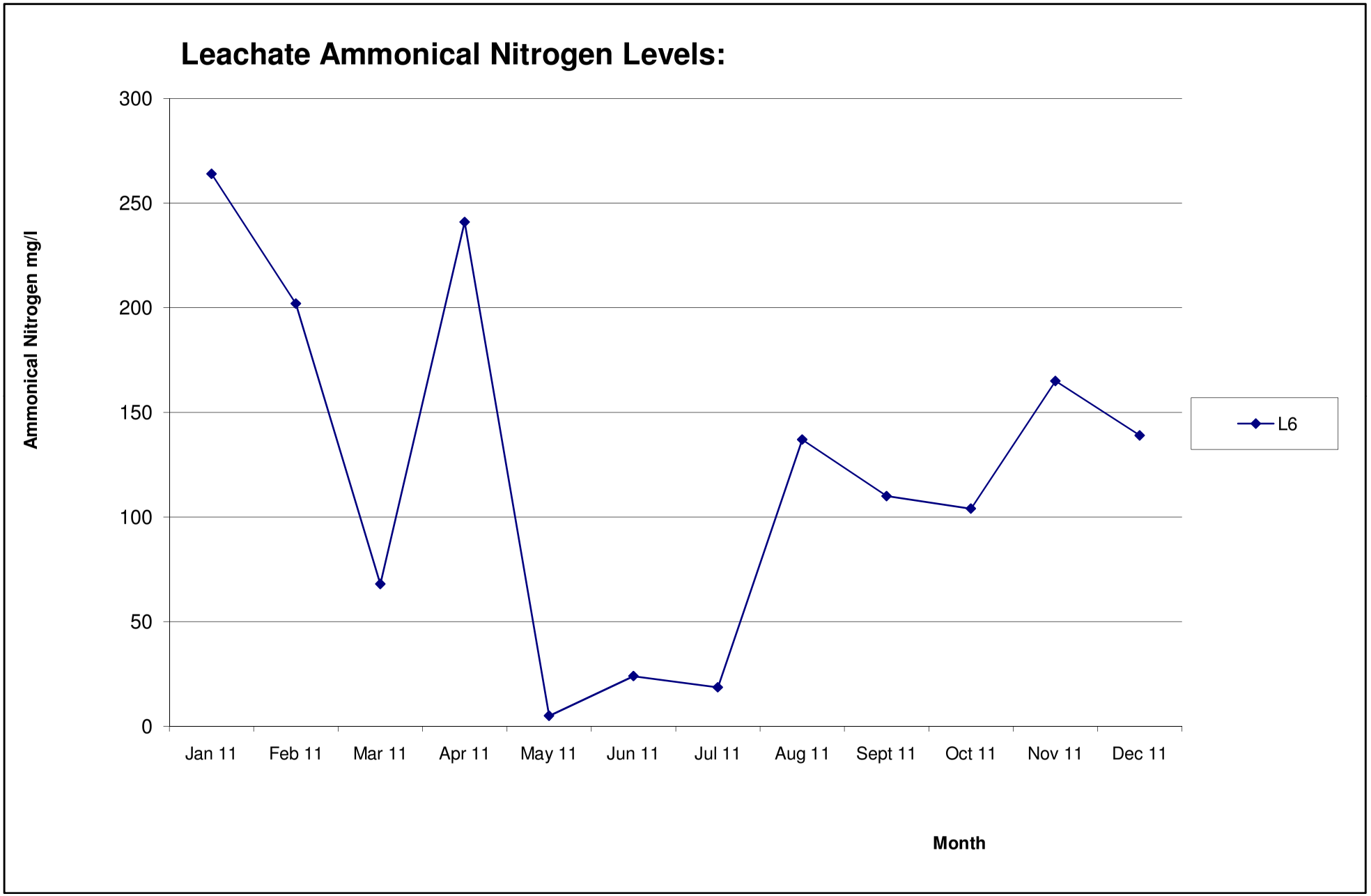
*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Leachate											
Site No		L6 Storage Tank											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1287	1521	1892	2410	2742	3649	4039	4659	5345	5638	6092	6488
pH		8.32	8.2	7.4	7.52	7.50	7.37	7.50	7.95	7.33	7.28	7.55	7.65
Temp	C	7.0	9.6	8.0	10.6	13.6	15.7	15.2	16.1	16.6	11.3	10.7	7.6
Electrical Conductivity	uS/cm	4300	3060	3110	3020	3080	2880	3170	3640	1308	2260	2540	1959
Ammonical Nitrogen	mg/l	264	202	68	241	5.0	24	19	137	110	104	165	139
COD	mg/l	364	390	271	451	271	358	248	168	458	250	390	247
BOD	mg/l	22	84	53	92	6	24.6	13	11	15	2	69	30
Dissolved Oxygen	mg/l												
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<01							
Chromium	ug/l					17.7							
Chloride	mg/l	445	310	310	350	440	390	330	445	330	230	270	200
Chlorine	mg/l												
Copper	ug/l					10.3							
Cyanide	mg/l												
Dissolved Iron	ug/l					0.027							
Lead	ug/l					0.235							
Magnesium	ug/l					56							
Manganese	ug/l					122							
Mercury	ug/l					<0.01							
Nickel	ug/l					39							
Potassium	mg/l					162							
Sodium	mg/l												
Sulphate	mg/l					51							
Zinc	ug/l					34							
Total Alkalinity as CaCO3	mg/l					900							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	0.05	7.1	0.24	180	174	118	182	0.4	2.1	19	11	0.2
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.04							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

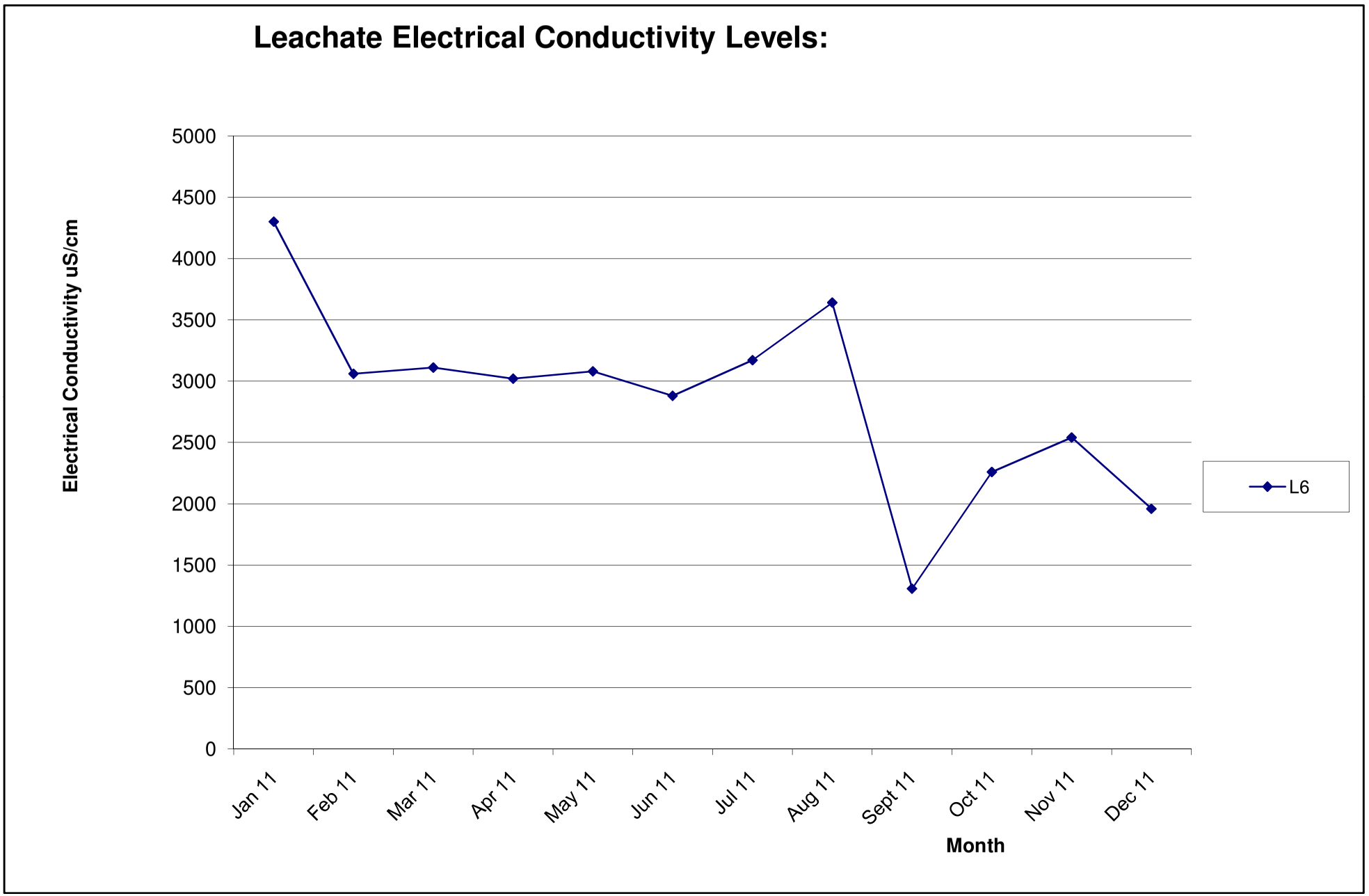
*** Insufficient Sample / No Access
--- Not Applicable

Location		*Ballynacarrick, Ballintra, Co. Donegal*											
Sample Type		Leachate											
Site No		L8											
Date of Sample		Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sept 11	Oct 11	Nov 11	Dec 11
Lab No		1288	1522	1893	2410.00	2743	3650	4038	4660	5345	5637	6091	6487
pH		7.73	7.8	7.6	7.31	7.63	7.11	7.27	7.30	7	7.15	7.42	7.02
Temp	C	10.6	11.1	8.0	9.8	12.5	16.3	15.4	16.3	17	12.8	12.3	11.3
Electrical Conductivity	uS/cm	1298	1238	1340	885	1498	1348	1273	1466	1308	985	1312	834
Ammonical Nitrogen	mg/l	27	21	34	6	33	29	19	18	25	13	25	7
COD	mg/l	53	45	47	48	59	62	51	43	135	30	54	53
BOD	mg/l	0.8	0.8	1.5	6.3	11.2	<1.0	<1.0	1.5	0.78	1.5	104	11
Dissolved Oxygen	mg/l												
SS	mg/l												
Residue on Evaporator	mg/l												
Calcium	ug/l												
Cadmium	ug/l					<0.1							
Chromium	ug/l					<3							
Chloride	mg/l	125	140	140	90	145	170	160	190	135	110	160	65
Chlorine	mg/l												
Copper	ug/l					1.47							
Cyanide	mg/l												
Dissolved Iron	ug/l					<0.019							
Lead	ug/l					<0.02							
Magnesium	ug/l					24							
Manganese	ug/l					361							
Mercury	ug/l					<0.01							
Nickel	ug/l					6							
Potassium	mg/l					27							
Sodium	mg/l												
Sulphate	mg/l					107							
Zinc	ug/l					1.4							
Total Alkalinity as CaCO3	mg/l					432							
Total Organic Carbon	mg/l												
Total Oxidised Nitrogen	mg/l	<0.01	<0.01	<0.01	0.8	0.2	0.4	0.9	0.4	1.2	1.1	1.24	0.6
Arsenic	mg/l												
Barium	mg/l												
Boron	ug/l												
Flouride	mg/l					<0.5							
Total Phenols	mg/l												
Phosphorous	mg/l												
Selenium	mg/l												
Silver	mg/l												
Mircrotox	Toxic Units												
Microtox	Toxic Units												
Nitrite	mg/l												
Nitrate	mg/l												
Phosphate - ORTHO	mg/l					0.04							
Phosphate - TOTAL	mg/l												
Total Coliforms													
Facel Coliforms													
Depth	m												

*** Insufficient Sample / No Access
--- Not Applicable


Leachate Ammonical Nitrogen Levels:
Ammonical Nitrogen mg/l
300
250
200
150
100
50
0
Jan 11
Feb 11
Mar 11
Apr 11
May 11
Jun 11
Jul 11
Aug 11
Sept 11
Oct 11
Nov 11
Dec 11
Month
L6

Leachate Electrical Conductivity Levels:



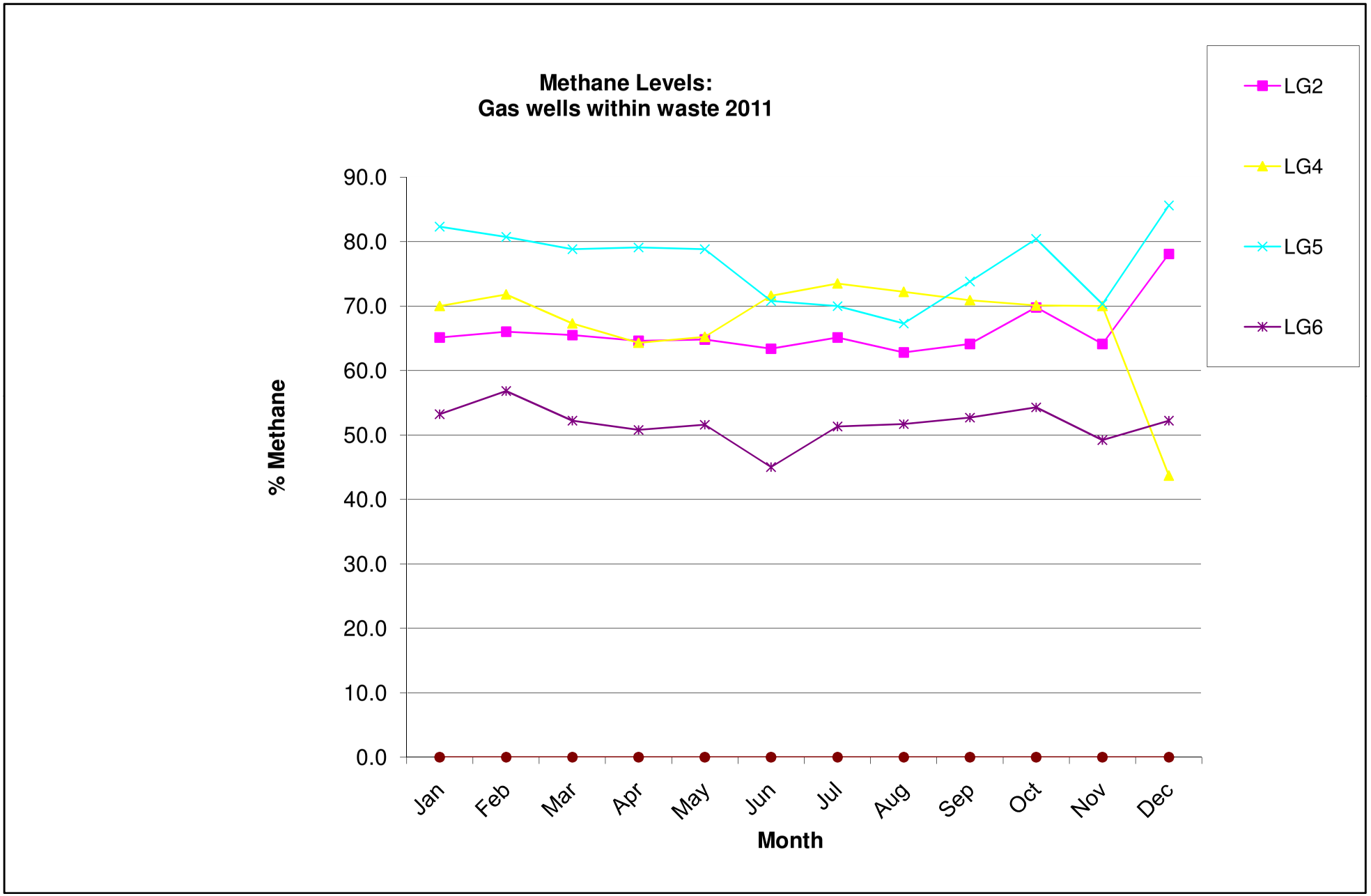
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG1											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Carbon Dioxide	**%**	Due to	Due to	Due to	Due to	Due to	Due to	Due to	Due to	Due to	Due to	Due to	Due to
Oxygen	**%**	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration	Resotration
Atm. Pressure	**mBar**	Works	Works	Works	Works	Works	Works	Works	Works	Works	Works	Works	Works

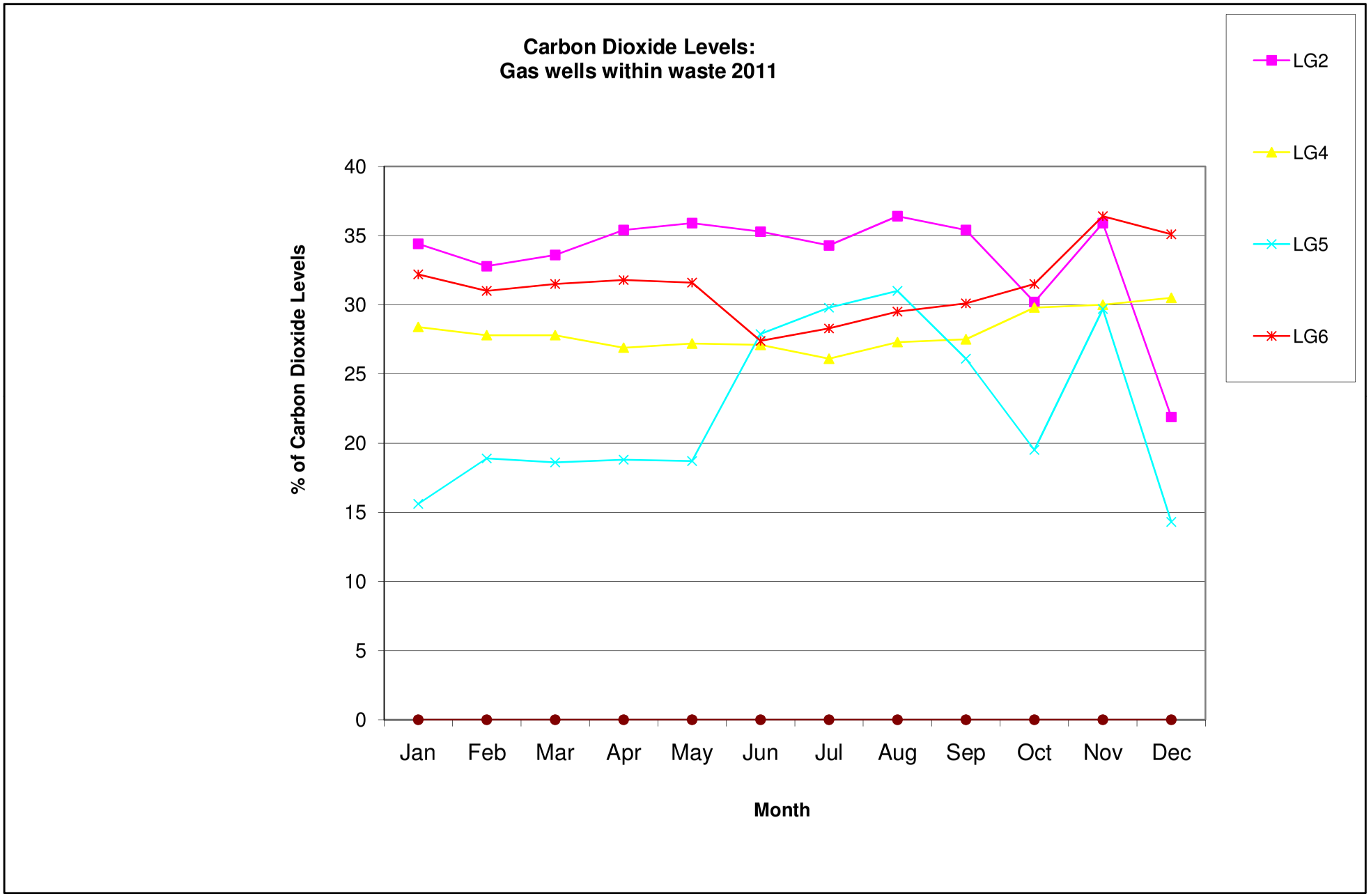
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG2											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	65.1	66.0	65.5	64.6	64.8	63.4	65.1	62.8	64.1	69.8	64.1	78.1
Carbon Dioxide	**%**	34.4	32.8	33.6	35.4	35.9	35.3	34.3	36.4	35.4	30.2	35.9	21.9
Oxygen	**%**	0.4	0.2	0.1	0.0	0.0	0.3	0.6	0.4	0.0	0.0	0.0	0.0
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	980	990	980

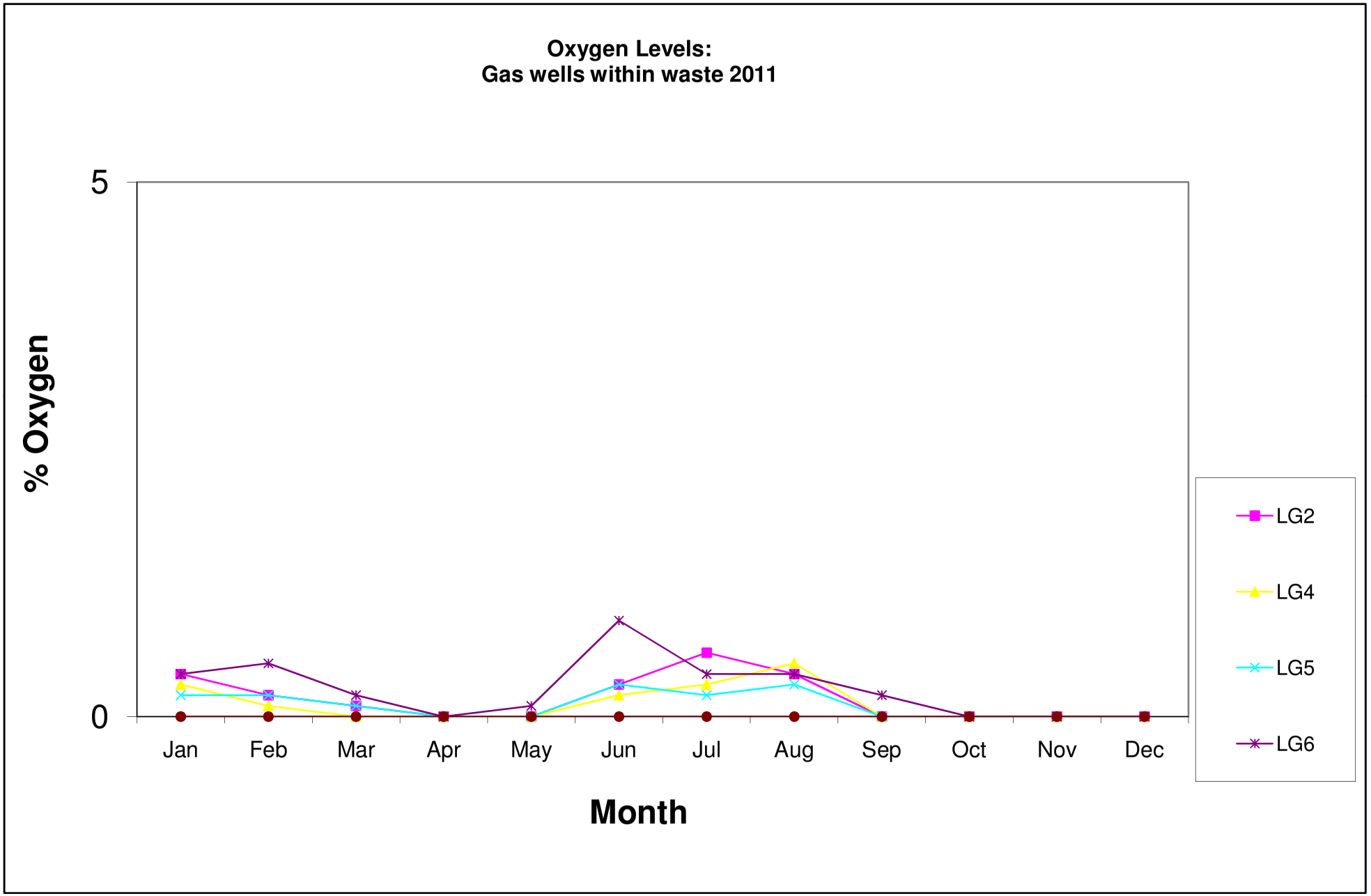
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG4											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	70.0	71.8	67.3	64.3	65.2	71.6	73.5	72.2	70.9	70.1	70.0	43.7
Carbon Dioxide	**%**	28.4	27.8	27.8	26.9	27.2	27.1	26.1	27.3	27.5	29.8	30.0	30.5
Oxygen	**%**	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.5	0.0	0.0	0.0	0.0
Atm. Pressure	**mBar**	995.0	999	994	992	1011	995	1002	998	1002	980	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG5											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	82.3	80.7	78.8	79.1	78.8	70.8	70.0	67.3	73.8	80.4	70.3	85.6
Carbon Dioxide	**%**	16	18.9	18.6	18.8	18.7	27.9	29.8	31.0	26.1	19.5	30	14.3
Oxygen	**%**	0.2	0.2	0.1	0.0	0.0	0.3	0.2	0.3	0.0	0.0	0.0	0.0
Atm. Pressure	**mBar**	995.0	999	994	992	1011	995	1002	998	1002	980	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG6											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	53.2	56.8	52.2	50.8	51.6	45.0	51.3	51.7	52.7	54.3	49.2	52.2
Carbon Dioxide	**%**	32.2	31.0	31.5	31.8	31.6	27.4	28.3	29.5	30.1	31.5	36.4	35.1
Oxygen	**%**	0.4	0.5	0.2	0.0	0.1	0.9	0.4	0.4	0.2	0.0	0.0	0.0
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	980	990	980


Methane Levels:
Gas wells within waste 2011
% Methane
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
LG2
LG4
LG5
LG6


Carbon Dioxide Levels:
Gas wells within waste 2011
% of Carbon Dioxide Levels
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
LG2
LG4
LG5
LG6


Oxygen Levels:
Gas wells within waste 2011
% Oxygen
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
LG2
LG4
LG5
LG6

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG8											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.0
Carbon Dioxide	**%**	2.3	0.8	2.9	3.3	4.8	3.5	4.4	1.4	1.4	1.8	5.7	1.8
Oxygen	**%**	18.5	20.0	17.4	17.0	13.7	17.6	17.2	19.7	19.2	20.0	14.7	19.8
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG9											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Mar	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Dioxide	**%**	0.1	0.2	0.3	0.1	0.1	0.3	0.4	0.0	0.0	0.1	0.4	0.1
Oxygen	**%**	20.8	20.7	20.2	20.9	20.8	20.7	20.5	20.9	20.9	20.8	20.5	20.8
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG10											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Dioxide	**%**	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Oxygen	**%**	20.9	20.9	20.8	20.9	20.8	21.0	20.9	20.9	20.9	20.8	20.8	20.8
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG11											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Dioxide	**%**	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Oxygen	**%**	20.8	20.9	20.8	20.9	20.8	21.0	20.9	20.8	20.9	20.9	20.8	20.9
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

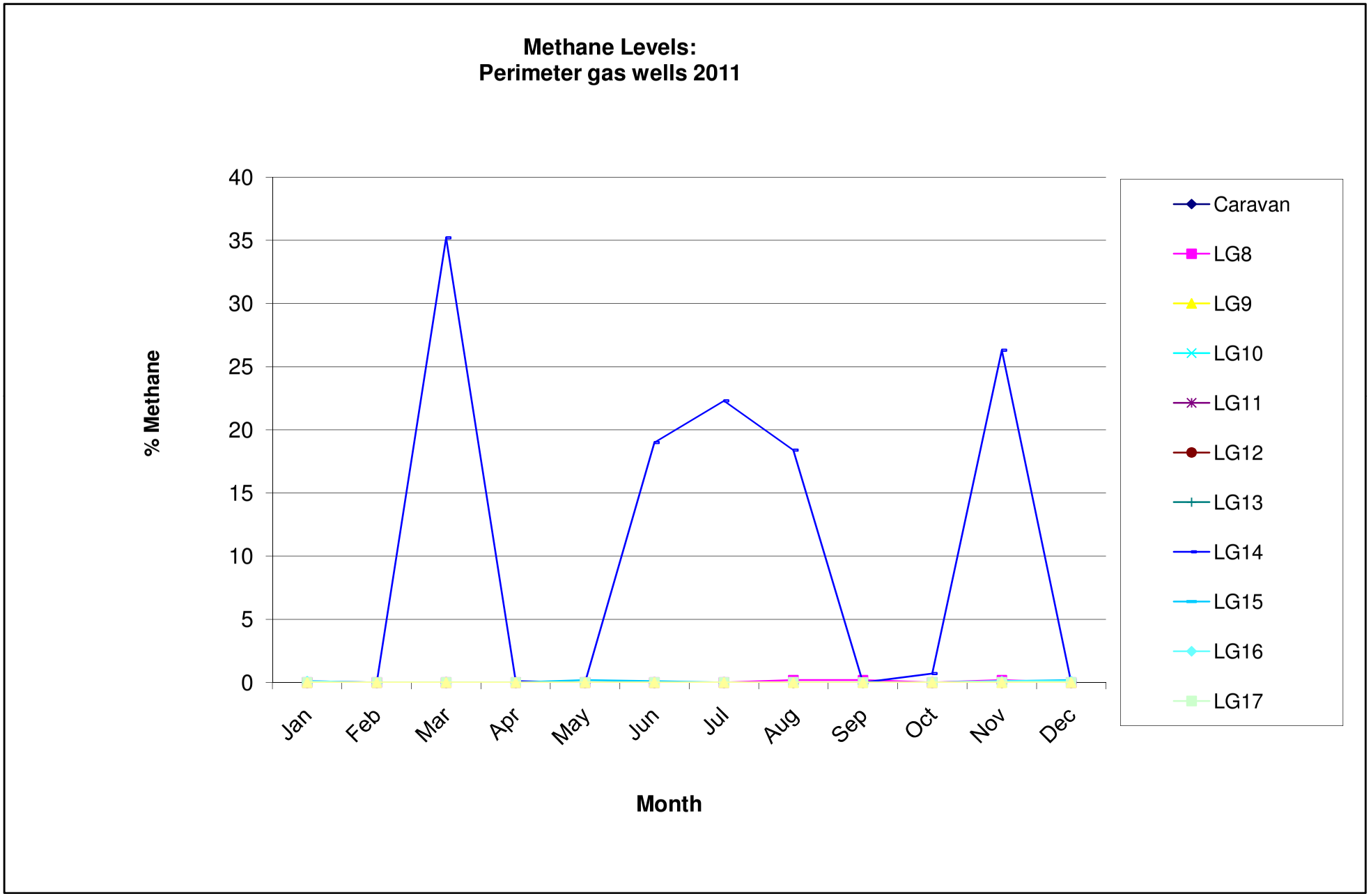
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG12											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Dioxide	**%**	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0	1.2	0.2	1.9	0.5
Oxygen	**%**	20.8	20.9	20.8	20.9	20.8	21.0	20.2	20.9	19.8	20.8	18.8	20.1
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

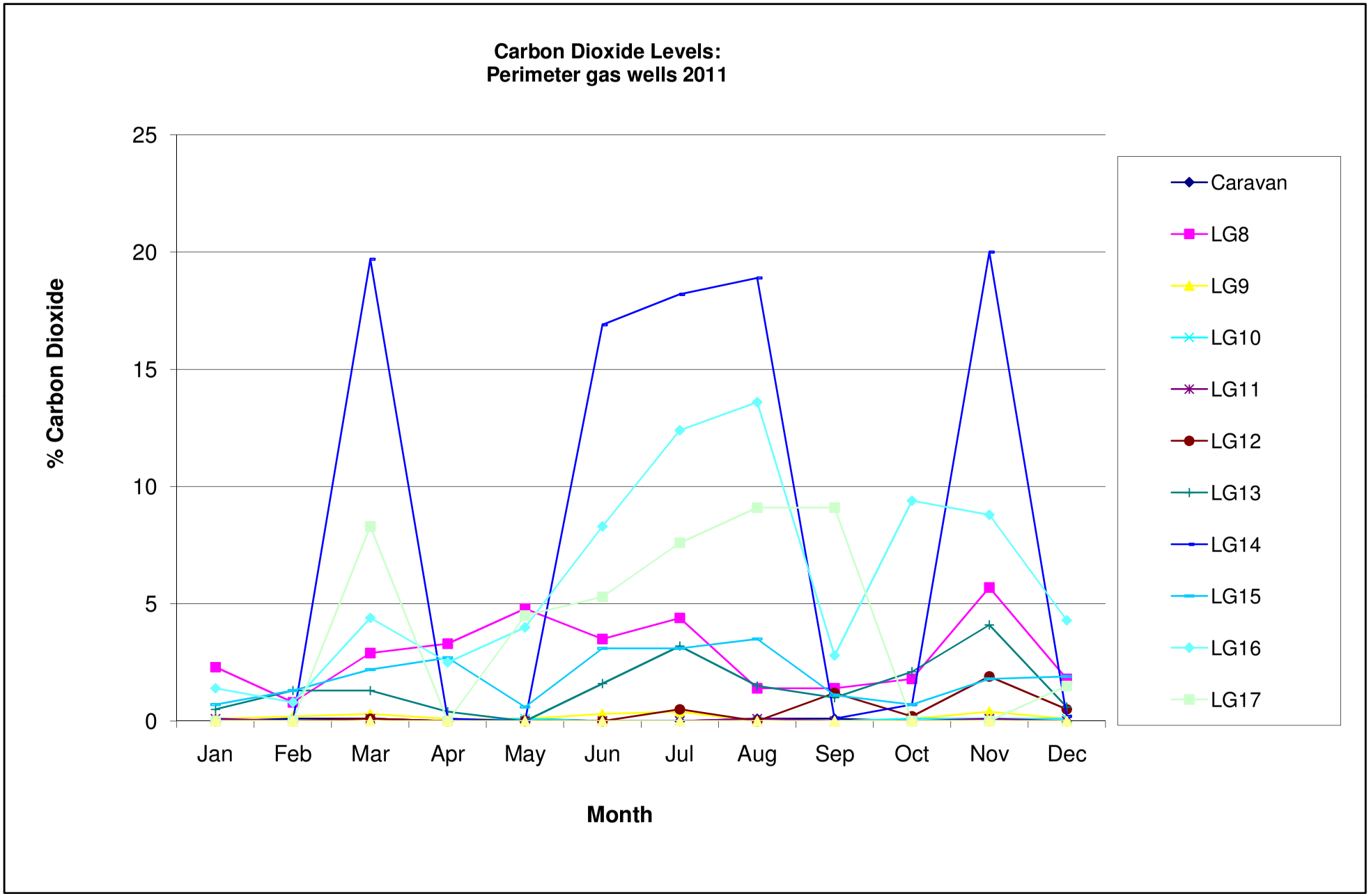
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG13											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carbon Dioxide	**%**	0.5	1.3	1.3	0.4	0.0	1.6	3.2	1.5	1.0	2.1	4.1	0.6
Oxygen	**%**	19.6	19.7	19.2	20.5	20.8	19.5	17.5	20.0	19.9	19.2	16.5	20.3
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

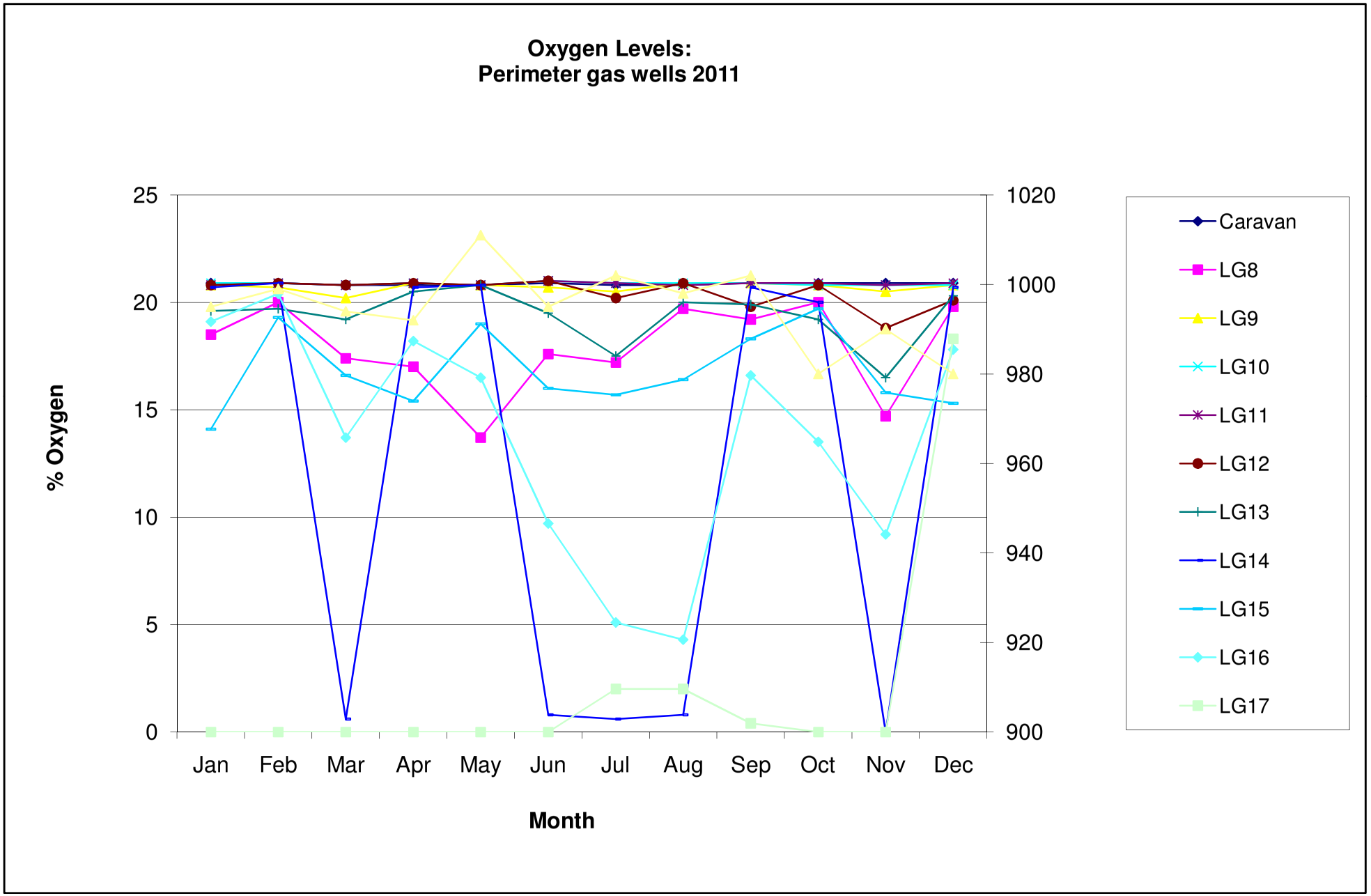
		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG14											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.1	0.0	35.2	0.1	0.0	19.0	22.3	18.4	0.0	0.7	26.3	0.0
Carbon Dioxide	**%**	0.0	0.0	19.7	0.1	0.0	16.9	18.2	18.9	0.1	0.7	20.0	0.2
Oxygen	**%**	20.7	20.9	0.6	20.7	20.8	0.8	0.6	0.8	20.7	20.0	0.0	20.7
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG15											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2
Carbon Dioxide	**%**	0.7	1.3	2.2	2.7	0.6	3.1	3.1	3.5	1.1	0.7	1.8	1.9
Oxygen	**%**	14.1	19.3	16.6	15.4	19.0	16.0	15.7	16.4	18.3	19.7	15.8	15.3
Atm. Pressure	**mBar**	995.0	999	994	992	1011	995	1002	998	1002	990	990	980

		Ballynacarrick, Ballintra, Co. Donegal											
		Gas Levels											
		LG16											
PARAMETERS	**UNITS**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**	**Date**
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Methane	**%**	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Carbon Dioxide	**%**	1.4	0.8	4.4	2.5	4.0	8.3	12.4	13.6	2.8	9.4	8.8	4.3
Oxygen	**%**	19.1	20.4	13.7	18.2	16.5	9.7	5.1	4.3	16.6	13.5	9.2	17.8
Atm. Pressure	**mBar**	995	999	994	992	1011	995	1002	998	1002	990	990	980


Methane Levels:
Perimeter gas wells 2011
% Methane
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
Caravan
LG8
LG9
LG10
LG11
LG12
LG13
LG14
LG15
LG16
LG17


Carbon Dioxide Levels:
Perimeter gas wells 2011
% Carbon Dioxide
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
Caravan
LG8
LG9
LG10
LG11
LG12
LG13
LG14
LG15
LG16
LG17


Oxygen Levels:
Perimeter gas wells 2011
% Oxygen
25
20
15
10
5
0
1020
1000
980
960
940
920
900
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
Caravan
LG8
LG9
LG10
LG11
LG12
LG13
LG14
LG15
LG16
LG17

APPENDIX B

MONITORING LOCATIONS, PARAMETERS AND FREQUENCIES

Table B1 Groundwater Monitoring Parameters & Frequencies

Monthly	Quarterly	Annually	
Groundwater Level	Visual Inspection/Odour	Dissolved Oxygen	Manganese
	Chloride	Cadmium	Mercury
	Ammonical Nitrogen	Nickel	Potassium
	TON	Chromium(Total)	Sulphate
	Electrical Conductivity	Copper	Total Alkalinity
	pH	Cyanide(Total)	Orthophosphate
	Temperature	Lead	Zinc
	Iron	List I & II Substances	Phenols
		Magnesium	

Table B2 Surface Water Monitoring Parameters & Frequencies

Weekly	Quarterly	Annually		Bi-Annually
Visual Inspection/ Odour	Chloride	Cadmium	Magnesium	Biological Assessment
	Dissolved Oxygen	Chromium(Total)	Manganese	
	pH	Copper	Mercury	
	Ammoniacal Nitrogen	Potassium	Sulphate	
	Electrical Conductivity	TON	Total Alkalinity	
	Temperature	Iron		
	COD	Orthophosphate		
	BOD	Zinc		
	TSS	Lead		

Table B3 Gas Monitoring Parameters & Frequencies

Parameter	Monitoring Frequency	
	Gas Wells	Site Office
Methane (CH4) %v/v	Monthly	Weekly
Carbon Dioxide (CO2) %v/v	Monthly	Weekly
Oxygen (O2) %v/v	Monthly	Weekly
Atmospheric Pressure	Monthly	Weekly
Temperature	Monthly	Weekly

Table B4 Leachate Monitoring Parameters & Frequencies

Quarterly	Annually	
Visual Inspection/Odour	Cadmium	Sulphate
Leachate Levels	Chromium(Total)	Orthophosphate
Chloride	Iron	Zinc
TON	Copper	
pH	Nickel	
Ammoniacal Nitrogen	Lead	
Electrical Conductivity	Potassium	
Temperature	Magnesium	
COD	Manganese	
BOD	Mercury	

Table B5 Grid Co-ordinates for Monitoring Locations

MONITORING POINTS	EASTING	NORTHING
Gas Piezometers		
LG1	193711	367620
LG2	193774	367583
LG4	193649	367673
LG5	193720	367670
LG6	193780	367685
LG8	193480	367535
LG9	193426	367543
LG10	193336	367570
LG11	193285	367635
LG12	193354	367712
LG13	193417	367728
LG14	193553	367701
LG15	193652	367697
LG16	193842	367693
LG17	193852	367712
Dust		
DG1	193727	367598
DG2	193832	367688
DG3	193495	367541
DG4	193291	367591
DG5	193506	367712
Surface Water Monitoring		
SW1	193476	367534
SW2	193865	367564
SW3	193276	367728
SW4	193213	367797
Boreholes		
GW1	193887	367719
GW2	193480	367532
GW4	193301	367581
GW5	193283	367720
GW6	193480	357717
GW7	193648	347697
GW8	193730	367702
GW9	193649	367538
GW10	193545	367523
Leachate		
L1	193656	367547
L3	193500	367553
L6	193802	367564
Noise		
N1	193825	367753
N2	193873	367476
N3	193424	367536
Bait Points		
BP1	193855	367599
BP2	193827	367595
BP3	193767	367544
BP4	193652	367543
BP5	193478	367524
BP6	193408	367550
BP7	193300	367586
BP8	193286	367650
BP9	193368	367726
BP10	193509	367719
BP11	193599	367695
BP12	193762	367695
BP13	193846	367697
BP14	193848	367640

APPENDIX C

WATER BALANCE CALCULATION

WATER BALANCE CALCULATION 2010 - BALLYNACARRICK LANDFILL

Period	Active Phase	Active Area A(m^2)	Waste Input t/year	Rainfall mm	Active Area Infilitration R(A)(m^3)	Liquid Waste LW(m^3)	Temporary Capped area	Temporary Capped area RCA m^2	Temporary Capped area infiltration IRCA(m^3)	Restored area	Restored area RCA m^2	Restored area infiltration IRCA(m^3)	Total Water	Cumulative Water	Absorptive Capacity aW(m^3)	Cumulative Absorptive Capacity	Cumulative leachate	Leachate produced Lo(m^3)
										Fully Capped area								
Jan	Phase 2C[3] Recycling and Infrastructural Area	12,800	1438.20	90	1,147	124.98	Phase 1 Extension Phase 2A, Phase 2B	22,590	607	Original Site	41,000	367	2,246	2,246	86	86	2,160	2,160
Feb	Phase 2C[3] Recycling and Infrastructural Area	12,800	1246.00	105	1,349	93.74	Phase 1 Extension Phase 2A, Phase 2B	22,590	714	Original Site	41,000	432	2,589	4,836	75	161	4,675	2,515
Mar	Phase 2C[3] Recycling and Infrastructural Area	12,800	1368.08	24	302	57.78	Phase 1 Extension Phase 2A, Phase 2B	22,590	160	Original Site	41,000	97	617	5,452	82	243	5,209	534
Apr	Phase 2C[3] Recycling and Infrastructural Area	12,800	1494.72	48	617	104.12	Phase 1 Extension Phase 2A, Phase 2B	22,590	327	Original Site	41,000	198	1,245	6,698	90	333	6,365	1,156
May	Phase 2C[3] Recycling and Infrastructural Area	12,800	1314.20	134	1,719	53.20	Phase 1 Extension Phase 2A, Phase 2B	22,590	910	Original Site	41,000	551	3,233	9,931	79	412	9,519	3,154
Jun	Phase 2C[3] Recycling and Infrastructural Area	12,800	2136.46	132	1,695	140.12	Phase 1 Extension Phase 2A, Phase 2B	22,590	897	Original Site	41,000	543	3,275	13,206	128	540	12,666	3,147
Jul	Phase 2C[3] Recycling and Infrastructural Area	12,800	1460.42	74	942	131.10	Phase 1 Extension Phase 2A, Phase 2B	22,590	499	Original Site	41,000	302	1,874	15,079	88	627	14,452	1,786
Aug	Phase 2C[3] Recycling and Infrastructural Area	12,800	1561.26	23	300	121.26	Phase 1 Extension Phase 2A, Phase 2B	22,590	159	Original Site	41,000	96	675	15,755	94	721	15,033	582
Sep	Phase 2C[3] Recycling and Infrastructural Area	12,800	698.90	65	832	98.66	Phase 1 Extension Phase 2A, Phase 2B	22,590	441	Original Site	41,000	267	1,638	17,392	42	763	16,629	1,596
Oct	Phase 2C[3] Recycling and Infrastructural Area	12,800	685.62	270	3,456	41.22	Phase 1 Extension Phase 2A, Phase 2B	22,590	1,830	Original Site	41,000	1,107	6,434	23,826	41	804	23,022	6,393
Nov	Phase 2C[3] Recycling and Infrastructural Area	12,800	798.38	112	1,428	216.32	Phase 1 Extension Phase 2A, Phase 2B	22,590	756	Original Site	41,000	458	2,859	26,685	48	852	25,833	2,811
Dec	Phase 2C[3] Recycling and Infrastructural Area	12,800	723.52	204	2,609	61.84	Phase 1 Extension Phase 2A, Phase 2B	22,590	1,381	Original Site	41,000	836	4,887	31,572	43	896	30,677	4,844
Total			**14,926**	**1,281**	**16,396**	**1,244**			**8,681**			**5,252**	**31,572**					**30,677**

Notes

1 - Phase 2A Operational from 31st March 2007

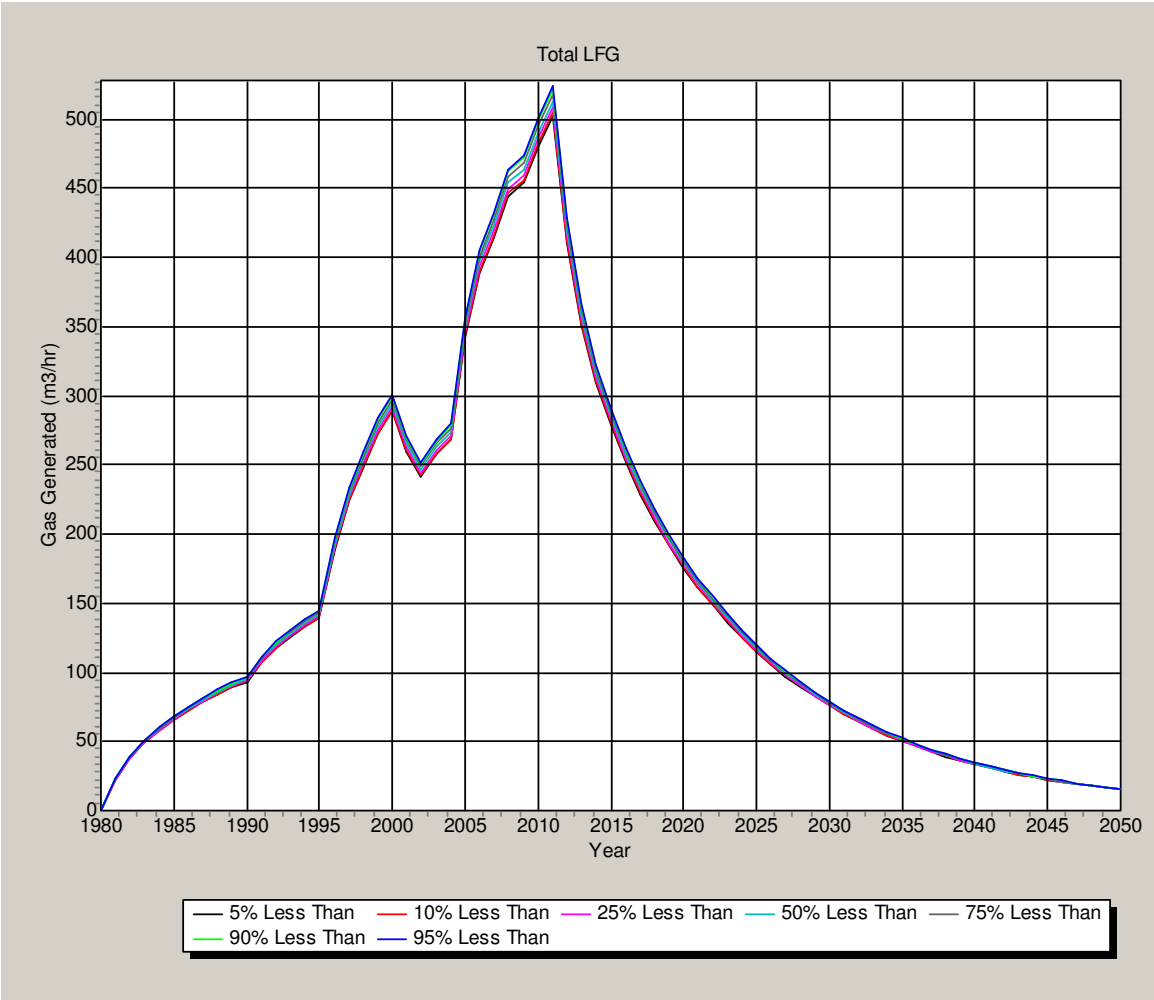
2 - Phase 2B Operational from 12th September 2007

3 - Phase 2C Operational from 9th April 2008

1. IRCA = Fully Capped/Restored area infiltration of rainfall estimated (2-10%)	10%	% of annual rainfall
Temporarily Capped/Restored area infiltration of rainfall estimated (25-30%)	30%	% of annual rainfall
2. Used actual rainfall R (m) for active cells and restored areas instead of Effective Rainfall (ER)		
3. Absorptive Capacity = Waste density of 0.8 tonnes/m^3. Estimated absorptive capacity (water per tonnes waste before leachate is produced)	0.06	t/m^3
4. Landfill Areas		
Extension		
Phase 1	15,400	m^2
Phase 2A	4,300	m^2
Phase 2B	2,890	m^2
Phase 2C	8,300	m^2
Exisitng site		
Original Site	41,000	m^2
Recycling Area	4,500	m^2
5. Rainfall taken from onsite met station March to December and from Malin Head for January and February	1,281	mm
6. Liquid Waste input (assumed 25% dry solids)	1,244	tonnes

APPENDIX D

GAS MODELLING


Total LFG
Gas Generated (m3/hr)
0
50
100
150
200
250
300
350
400
450
500
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Year
5% Less Than
10% Less Than
25% Less Than
50% Less Than
75% Less Than
90% Less Than
95% Less Than

YEAR	ANNUAL m^3/hr	ANNUAL OUTPUT m^3	ACCUM OUTPUT m^3
1980	0	0	0
1981	19	166440	166440
1982	30	262800	429240
1983	40	350400	779640
1984	60	525600	1305240
1985	70	613200	1918440
1986	75	657000	2575440
1987	84	735840	3311280
1988	90	788400	4099680
1989	95	832200	4931880
1990	100	876000	5807880
1991	105	919800	6727680
1992	110	963600	7691280
1993	120	1051200	8742480
1994	138	1208880	9951360
1995	140	1226400	11177760
1996	160	1401600	12579360
1997	200	1752000	14331360
1998	280	2452800	16784160
1999	340	2978400	19762560
2000	350	3066000	22828560
2001	360	3153600	25982160
2002	330	2890800	28872960
2003	340	2978400	31851360
2004	360	3153600	35004960
2005	370	3241200	38246160
2006	380	3328800	41574960
2007	400	3504000	45078960
2008	460	4029600	49108560
2009	470	4117200	53225760
2010	460	4029600	57255360
2011	550	4818000	62160960

APPENDIX E

E-PRTR Regulations
(AER Electronic Reporting System)

-----Original Message-----
From: aerreturns@epa.ie [mailto:aerreturns@epa.ie]
Sent: 01 March 2012 08:02
To: DON SMITH (LAB)
Subject: AER / PRTR Emissions Data VERIFICATION OF ACCEPTANCE (W0024_2011.xml)

Thank you,

Your AER / PRTR Emissions Data submission has been accepted by our data system.

You may now proceed to print your submitted emissions and waste transfers information for insertion into your Full AER report. The Full AER Report must be submitted in BOTH hardcopy (paper) form (Only Applicable to Urban Waste Water Treatment Plants) and electronic (PDF) form.

Please retain the receipt / tracking number below in case of future queries about this submission and in case a request is made by an authorised person in this regard.

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Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.13

REFERENCE YEAR	2011

1. FACILITY IDENTIFICATION

Parent Company Name	Donegal County Council
Facility Name	Ballynacarrick Landfill Site
PRTR Identification Number	W0024
Licence Number	W0024-04

Waste or IPPC Classes of Activity

No.	class_name
3.5	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.
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.
3.6	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.3	Recycling or reclamation of metals and metal compounds.
4.4	Recycling or reclamation of other inorganic materials.

Address 1	Ballynacarrick
Address 2	Ballintra
Address 3	County Donegal
Address 4	
	Donegal
Country	Ireland
Coordinates of Location	-8.44131 54.6298
River Basin District	GBNIIENW
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Don Smith
AER Returns Contact Email Address	don.smith@donegalcoco.ie
AER Returns Contact Position	environmental technician
AER Returns Contact Telephone Number	074 9122787
AER Returns Contact Mobile Phone Number	0876860295
AER Returns Contact Fax Number	074 9161304
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

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

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 ?	

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
					0.0	0.0	0.0	0.0
01	Methane (CH4)	C	OTH	GasSim 1.54	588903.0	588903.0	0.0	0.0
02	Carbon monoxide (CO)	C	OTH	GasSim 1.54	1620.0	1620.0	0.0	0.0
03	Carbon dioxide (CO2)	C	OTH	GasSim 1.54	5970000.0	5970000.0	0.0	0.0
07	Non-methane volatile organic compounds (NMVOC)	C	OTH	GasSim 1.54	11.2	11.2	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	C	OTH	GasSim 1.54	989.0	989.0	0.0	0.0
11	Sulphur oxides (SOx/SO2)	C	OTH	GasSim 1.54	1190.0	1190.0	0.0	0.0
04	Hydro-fluorocarbons (HFCs)	C	OTH	GasSim 1.54	0.0	0.0	0.0	0.0
86	Particulate matter (PM10)	C	OTH	GasSim 1.54	53.9	53.9	0.0	0.0

* 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
09	Perfluorocarbons (PFCs)	C	OTH	GasSim 1.54	0.0	0.0	0.0	0.0
15	Chlorofluorocarbons (CFCs)	C	OTH	GasSim 1.54	39.0	39.0	0.0	0.0
44	1,2,3,4,5,6-hexachlorocyclohexane(HCH)	C	OTH	GasSim 1.54	0.0	0.0	0.0	0.0
52	Tetrachloroethylene (PER)	C	OTH	GasSim 1.54	0.337	0.337	0.0	0.0
54	Trichlorobenzenes (TCBs)(all isomers)	C	OTH	GasSim 1.54	0.0297	0.0297	0.0	0.0
56	1,1,2,2-tetrachloroethane	C	OTH	GasSim 1.54	0.565	0.565	0.0	0.0
57	Trichloroethylene	C	OTH	GasSim 1.54	2.74	2.74	0.0	0.0
60	Vinyl chloride	C	OTH	GasSim 1.54	0.316	0.316	0.0	0.0
62	Benzene	C	OTH	GasSim 1.54	0.298	0.298	0.0	0.0
71	Phenols (as total C)	C	OTH	GasSim 1.54	0.0	0.0	0.0	0.0
73	Toluene	C	OTH	GasSim 1.54	1.27	1.27	0.0	0.0
78	Xylenes	C	OTH	GasSim 1.54	0.701	0.701	0.0	0.0

* 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
					0.0	0.0	0.0	0.0
210	Dust	M	OTH	DCC SOP	0.055	0.055	0.0	0.0
351	**Total Organic Carbon (as C)**	M	EN 1484:1997		16.4	16.4	0.0	0.0

* 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(otal) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Ballynacarrick Landfill Site

Please enter summary data on the quantities of methane flared and / or utilised			Method Used			
	T (Total) kg/Year	**M/C/E**	**Method Code**	**Designation or Description**	**Facility Total Capacity m3 per hour**	
Total estimated methane generation (as per site model)	1240000.0	C	OTH	GasSim 1.54	N/A	
Methane flared	651097.0	M	OTH	SCADA	500.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	588903.0	C	OTH	GasSim 1.54	N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only co

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					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
					0.0	0.0	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					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
					0.0	0.0	0.0	0.0

* 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 WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					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
					0.0	0.0	0.0	0.0

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

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					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
					0.0	0.0	0.0	0.0

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

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					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
					0.0	0.0	0.0	0.0

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

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					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
					0.0	0.0	0.0

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

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					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
					0.0	0.0	0.0

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

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	**19 07 03**	**No**	72023.0	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Donegal County Council,D0009-01	Letterkenny WWTP,Magheranan,Letterkenny,County Donegal,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Link to previous years waste data
Link to previous years waste summary data & percentage change

APPENDIX F

Annual Climatological Summary

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Ballynacarrick CITY: STATE:
ELEV: 103 m LAT: 54° 36' 00" N LONG: 8° 00' 00" E

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=32	MAX <=0	MIN <=0	MIN <=-18
11	1														
11	2	10.6	7.6	9.4	0.0	25	0	12.8	23	3.1	17	0	0	0	0
11	3	10.7	4.8	7.9	0.0	194	0	15.6	24	-0.7	15	0	0	3	0
11	4	14.6	8.1	11.3	0.0	66	0	18.8	9	5.1	2	0	0	0	0
11	5	12.6	7.4	10.0	0.0	130	0	14.8	17	5.8	30	0	0	0	0
11	6	15.4	8.5	11.9	0.0	181	1	21.1	2	5.7	20	0	0	0	0
11	7	17.2	10.5	13.7	0.0	97	1	21.1	4	6.5	23	0	0	0	0
11	8	16.7	12.9	15.0	0.0	43	0	19.7	20	9.8	31	0	0	0	0
11	9	15.9	12.8	14.5	0.0	39	1	21.9	28	9.9	30	0	0	0	0
11	10	13.2	8.8	11.1	0.0	191	0	15.7	14	3.6	17	0	0	0	0
11	11	11.3	7.0	9.4	0.0	185	0	13.9	2	1.7	22	0	0	0	0
11	12	8.2	4.0	6.1	0.0	322	0	13.1	26	0.2	15	0	0	0	0
		13.4	8.5	11.0	0.0	1472	3	21.9	SEP	-0.7	MAR	0	0	3	0

PRECIPITATION (mm)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER .2	OVER 2	OVER 20
11	1	0.0	0.0	0.0	1	0	0	0
11	2	2.2	0.0	1.6	26	2	0	0
11	3	23.6	0.0	7.4	31	13	5	0
11	4	48.2	0.0	11.2	5	7	6	0
11	5	134.3	0.0	24.2	16	16	14	2
11	6	132.4	0.0	46.6	5	22	12	2
11	7	73.6	0.0	28.6	7	13	6	1
11	8	23.4	0.0	5.4	15	16	5	0
11	9	65.0	0.0	10.6	30	16	11	0
11	10	270.8	0.0	51.8	17	30	22	5
11	11	111.6	0.0	19.0	23	17	11	0
11	12	203.8	0.0	21.6	6	31	26	1
		1088.8	0.0	51.8	OCT	183	118	11

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM DIR
11	1				
11	2	1.0	26.0	20	SSE
11	3	2.5	48.0	31	SSE
11	4	5.0	28.0	4	W
11	5	7.5	48.0	23	WSW
11	6	3.2	23.0	14	W
11	7	2.3	28.0	17	W
11	8	1.8	28.0	19	W
11	9	2.4	35.0	6	W
11	10	4.7	35.0	6	SSE
11	11	3.8	34.0	2	SE
11	12	5.9	39.0	13	W
		3.6	48.0	MAR	W

Total rainfall in millimetres for Malin_head

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2012	135.4	53.0											188.4
2011	89.6	105.4	59.0	66.2	100.4	84.5	49.9	79.0	133.0	177.1	103.7	184.2	1232.0
mean	114.2	76.6	86.5	57.5	58.9	65.0	71.8	91.6	102.1	118.7	114.7	102.9	1060.6