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Annual Environmental Report 2009

for

**Lawlor Brothers (Waste Disposal) Ltd. T/a Access Waste Recycling
Unit 28 JFK Industrial Estate, Naas Road, Dublin 12.**

W0227-01

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1.0 Introduction

Under Condition 11, Section 11.8 of our waste licence W0227-01, an Annual Environmental Report (AER) must be prepared by Lawlor Brothers (Waste Disposal) Ltd. (hereafter referred to as LBWD) and submitted to the EPA for their agreement.

This AER details the activities carried out at the facility at Unit 28, JFK Industrial Estate, Dublin 12, in the period January 1st 2009 to December 31st 2009.

2.0 Waste Activities

The LBWD facility is licenced to handle a maximum of 95,000 tonnes of waste per annum(tpa). The company is licenced to carry out the following activities on-site:

- Shred, crush, bale and repackage waste;
- Non-hazardous construction and demolition waste recovery including crushing, screening, sorting and blending;
- Store waste;
- Recover dry recyclables;
- Store waste electrical and electronic equipment (WEEE)

2.1 Waste Types

Commercial and Industrial (EWC codes 15 01, 20 01 and 20 03)

Both mixed and segregated non hazardous commercial and industrial waste is collected from commercial outlets throughout Dublin, Wicklow and Kildare regions. Commercial waste is delivered to the facility by third party hauliers and LBWD vehicles. Recyclable material is segregated where possible from the waste stream and the remaining residual waste is transferred to licensed landfills.

Construction and Demolition Waste (EWC 17 09 and 17 05)

Construction and demolition material arrives on-site in skips of varying sizes and comprises mixed construction and demolition wastes, soil and stone. Deliveries are made by third party hauliers and LBWD vehicles. The waste loads are inspected, segregated and recyclable materials are extracted from the waste for re-use or recycling prior to the transfer of residual materials to licensed landfill.

Household Waste (EWC 15 01, 20 01 and 20 03)

Household kerbside waste collections are offered throughout the Wicklow area, where two wheelie bins are provided to the customer, one for mixed dry recyclables and one for residual waste. Dry recyclables accepted for collection are newspaper, magazines, clean steel or tin cans, aluminium drinks cans, clean tetrapak, plastic bottles and cardboard packaging. Dry recyclables are transferred directly to a third party facility for sorting. Skip hire is offered for larger, bulkier items.

2.2 Processes

Waste Sorting:

Mixed waste delivered on-site is tipped in the waste processing building. Waste is inspected and then it is first pre-sorted by two Fuchs 360 grabs, removing metals, bulky items etc. The rest of the waste is loaded into the waste processing machinery which consists of a trommel, wind shifters, magnetic separators and screens. The final stream

passes through a sorting shed where materials are manually sorted. The following waste streams are segregated;

- Ferrous and non-ferrous metals
- Soils/minerals (Fines)
- Concrete/bricks/stone
- Wood
- Light materials

The soils/minerals are further screened to separate it into size fractions. These segregated waste streams are transferred for further recycling process. The residual waste is transferred to licensed landfill.

3.0 Waste Quantities and Composition

3.1 Waste report

The facility is licensed to handle up to 95,000 tonnes of waste per annum. The quantities of material handled in the period 1st January 2009 to 31st December 2009 are presented in Table 3.1.

Table 3.1 Waste quantities handled in 2009

EWC CODE	WASTE TYPE	WASTE IN (Tonnes)	WASTE OUT (Tonnes)	DESTINATION	ACTIVITY
130208	Waste Oil		0.620	Enva Ireland, Clonminam Ind. Est., Portlaoise, Co. Laois. W0184-1	Recycling
130507	Water/Oil Mixture		3.700	Thorntons Recycling, Killeen Road, Dublin 10. W0044-02	Disposal
150101	Paper/Cardboard	299.830	174.180	Greyhound Recycling, Station Road, Clondalkin, D22. W0205-01	Recycling
			3500	Ash Animal Rescue, Cornan, Kiltegan, Co. Wicklow	Re-use
			97.600	Irish Packaging Recycling(Panda), Ballymount Road, Walkinstown, D12. WPR021/2	Recycling
150103	Wood Packaging	122.500			
150104	Metallic Packaging	3.420			
150106	Mixed Packaging	935.100	3.400	Greyhound Recycling, Station Road, Clondalkin, D22. W0205-01	Recycling
			2.720	Irish Packaging Recycling(Panda), Ballymount Road, Walkinstown, D12. WPR021/2	Recycling
160103	End of life Tyres	8.740	35.260	Crumbubber, Mooretown, Dromiskin, Dundalk, Co.Louth. WP2007/01	Recycling
160505	Gas Bottles	0.260	5.320	Calor Gas c/o Eurohaul, Greenhills Road, Tallaght, D24	Re-use
			1.080	Various Gas distributors/drinks industries	Re-use
170107	Bricks and Concrete	41.320	68.840	Roadstone Recycling, Belgard, Tallaght, D24	Recycling

170201	C+D Wood	341.960	65.200	Ballynagran Landfill, Coolbeg Cross, Co. Wicklow W0165-01	Landfill Engineering
170202	Glass	10.980			
170401	Copper		0.180	National Recycling, Station Road, Clondalkin, D22. WPR 045	Recycling
170402	Aluminium	0.300	8.480	National Recycling, Station Road, Clondalkin, D22. WPR 045	Recycling
170405	Iron and Steel	56.150			
170411	Mixed Cables		3.760	National Recycling, Station Road, Clondalkin, D22. WPR 045	Recycling
170504	Soil and Stone	1496.600	18.360	Delahunt Brothers, Corballis, Rathdrum, Co. Wicklow. WP/163	Recycling
170802	Gypsum	18.020	1.980	Recycleworks/Sandyhill Environmental Services, St. Margarets, Co. Dublin. WPT 112	Recycling
170904	Mixed C+D	24735.940			
180104	Non-infectious HC	61.080			
191202	Ferrous Metal		10.860	MSM, Harbour Street, Mountmellick, Co. Laois. WMP 02/2008	Recycling
			1652.200	National Recycling, Station Road, Clondalkin, D22. WPR 045	Recycling
191203	Non-ferrous metal	1.500	80.480	National Recycling, Station Road, Clondalkin, D22. WPR 045	Recycling
191204	Plastic and Rubber		1.200	Greyhound Recycling, Station Road, Clondalkin, D22. W0205-01	Recycling
191205	Glass		6.380	Glassco, Unit 4 Osberstown Ind. Park, Caragh Road, Naas, Co. Kildare. WP 247/2006	Recycling
191207	Wood	6.980	4287.220	Ballynagran Landfill, Coolbeg Cross, Co. Wicklow W0165-01	Landfill Engineering

			568.740	BNM Drehid Facility, Carbury, Co. Kildare W0201-01	Recycling
			22.000	Thorntons Recycling, Killeen Road, Dublin 10. W0044-02	Recycling
			59.060	Pat Conanne, Ladytown, Newbridge, Co. Kildare	Re-use
191209	Minerals	7.080	1322.680	BNM Drehid Facility, Carbury, Co. Kildare W0201-01	Landfill Engineering
			169.720	Delahunt Brothers, Corballis, Rathdrum, Co. Wicklow. WP/163	Recycling
			274.560	Rampere Landfill, Baltinglass, Co. Wicklow. W0066-02	Landfill Engineering
			7019.260	Ballynagran Landfill, Coolbeg Cross, Co. Wicklow W0165-01	Landfill Engineering
			584.800	Knockharley Landfill, Kentstown, Co. Meath. W0146-01	Landfill Engineering
			1047.240	Glassco, Unit 4 Osberstown Ind. Park, Caragh Road, Naas, Co. Kildare. WP 247/2006	Engineering
			63.940	Pat Conanne, Ladytown, Newbridge, Co. Kildare	Re-use
			7388.070	Roadstone Recycling, Belgard, Tallaght, D24. WPR 025/3	Recycling
			7251.820	KTK Landfill, Brownstown, Kilcullen, Co. Kildare. W0081-03	Landfill Engineering
191210	Refuse Derived Fuel		140.660	Greyhound Recycling, Station Road, Clondalkin, D22. W0205-01	Re-use
191212	Mixed dry general waste	21.740	596.080	Thorntons Recycling, Killeen Road, Dublin 10, W0044-02	Recycling
			58.580	BNM Drehid Facility, Carbury, Co. Kildare W0201-01	Landfill Engineering
			188.400	Ballynagran Landfill, Coolbeg Cross, Co. Wicklow W0165-01	Landfill Engineering
			22.380	Rampere Landfill, Baltinglass, Co. Wicklow. W0066-02	Landfill Engineering

200123	Fridge Freezer	1.340	31.400	Rehab Recycle, Unit 77 Broomhill Road, Tallaght, Dublin 24. WPR033/2	Recycling
200135	WEEE	75.240	15.260	Rehab Recycle, Unit 77 Broomhill Road, Tallaght, Dublin 24. WPR033/2	Recycling
			5.140	NWP Recycling, 1A Tassagh Road, Keady, Co. Armagh WNP-0324	Recycling
200139	Plastics	0.600	0.700	Greyhound Recycling, Station Road, Clondalkin, D22. W0205-01	Recycling
			1.600	Irish Packaging Recycling(Panda), Ballymount Road, Walkinstown, D12. WPR021/2	Recycling
200201	Green Park Waste	85.510			
200301	Mixed Municipal	9506.900	1419.460	BNM Drehid Facility, Carbury, Co. Kildare W0201-01	Landfill
			8458.560	Ballynagran Landfill, Coolbeg Cross, Co. Wicklow W0165-01	Landfill
			65.140	Scotch Corner Landfill, Annyalla, Castleblaney, Co. Monaghan. W0020-01	Landfill
			447.400	Rampere Landfill, Baltinglass, Co. Wicklow. W0066-02	Landfill
200303	Street Cleaning Residue	481.920			
200307	Bulky Waste	7991.340			
TOTAL					
		46,290.610	43,770.490	% of total	
		TOTAL DISPOSED	10,348.800	23.5	
		TOTAL RECYCLED/RE-USED	33,421.690	76.5	

3.2 Discussion

In 2008, there was a significant discrepancy between the quantities of waste accepted at the facility and that transferred off-site. This discrepancy was reduced in 2009 after measures were taken, although a discrepancy of approximately 2500 tonnes still remains.

This can be most likely explained by

- the inclusion of driver and passenger weights in third party loads
- high moisture content in some wastes being lost when on site
- inaccuracies in weighbridge on small loads coming into facility are more significant than those on bulk loads leaving the facility

An increase in the percentage of waste going to landfill can also be noted compared to 2008. This increase is due to the change in composition of wastes between the two years. 2009 saw less construction and demolition waste enter the site, and an increase in the proportion of mixed municipal/bulky waste. With less opportunity for recycling from this latter waste, the inevitable consequence is an increase in the proportion of waste being transported to landfill, and a reduction in the proportion recoverable on-site.

4.0 Environmental Monitoring and Emission data

Monitoring of surface water, foul water and noise was carried out in accordance with criteria set out in W0227-01 during 2009. Ambient dust monitoring was also carried out during three four intervals during 2009.

Original laboratory results for water, dust and noise are presented in Appendices A, B and C respectively.

Monitoring locations for water sampling, dust monitoring and noise monitoring locations are provided in Appendix D.

4.1 Surface and Foul Water Monitoring

4.1.1 Description of monitoring

Quarterly samples were taken from sampling points FW9 and SW1 and transferred to Alcontrol Laboratories, Blanchardstown, Co. Dublin for analysis. One sample was taken at FW9 – the foul or sewer emissions point, and another sample was taken at SW1 – the storm water emissions point. The location of these sampling points is contained in Appendix D.

The FW9 water quality results have been compared with Emission Limit Values (ELV) as set out in Schedule B3 ‘Emissions to Sewer’ and both FW9 and SW1 have been compared with the Environmental Quality Standard (EQS) values for surface water as outlined in the EPA Document ‘*Environmental Quality and Environmental Quality Standards: The Aquatic Environment – A Discussion Document*’ (1996b).

Table 4.1 Sampling Points

Sample Point	Location
SW1	Northwest corner of site, immediately before the line joins South Dublin County Council storm water drain running across the north end of the site.
FW1	North end of the site, before the foul sewer connects with the South Dublin County Council foul water line.

As required by Schedule C.2.3, samples from SW1 were taken weekly, if possible to do so given flow rates, and monitored for pH, conductivity and suspended solids. In cases of unusual levels, the site was inspected for possible sources and the yard swept by the roadsweeper to remove any excess mud/dust.

4.1.2 Results

Results for quarterly water monitoring are presented in Table 4.2

Parameter	Units	W0227-01 ELV*	EQS Values^	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
				FW9	SW1	FW9	SW1	FW9	SW1	FW9	SW1
Temperature	°C	42		-	-	-	-	-	-	-	-
pH	pH units	6-10		7	7	8.2	8.4	6.8	8.8	7.1	6.4
Conductivity	µS/cm		1000		1040	600	630	450	950	880	1390
COD	mg/L	3000		85	142	233	53.7	22.2	190	71.5	371
BOD	mg/L	1000		23	N/A	37	N/A	1.59	N/A	8.67	N/A
SS	mg/L	1000		60	163	57	15.5	<6	97	9	55.3
Mineral Oils	mg/L	10	0.01	0.082	0.14	<10	<1	<0.01	0.808	0.139	0.167
Phosphates	mg/L	100		0.06	N/A	0.428	N/A	0.485	N/A	0.256	N/A
Detergents as MBAS	mg/L	100		0.5	N/A	0.16	N/A	0.0726	N/A	0.329	N/A
Oils, Fats Grease	mg/L	100		4	N/A	3.02	N/A	<1	N/A	<1	N/A
Total Ammonia as NH3*	mg/L		0.02	N/A	2.7	N/A	0.597	N/A	1.34	N/A	3.68

* Emission Limit Values for foul water effluent as stipulated in EPA waste licence W0227-01

^ Environmental Quality Standard values for surface water as outlined in the EPA document "Environmental Quality and Environmental Quality Standards: The Aquatic Environment - A Discussion Document"

Results:

During the year 2009, there were no breaches of licence ELV from quarterly samples from foul water discharge.

On ten occasions, weekly conductivity measurements of storm water samples were measured above EQS value. Subsequent to these readings, the yard was thoroughly swept with the road sweeper to remove excess dust or mud. Readings returned to normal levels.

4.2 Dust monitoring**4.2.1 Description**

Under licence W0227-01, Lawlor Brothers (Waste Disposal) Ltd. are required to carry out dust monitoring during three intervals during each calendar year. Dust monitoring was carried out at three locations around the site as shown in Appendix D.

Dust jars were exposed for 30 days and subsequently analysed to determine total dust deposition per day per square meter.

Testing was carried out by LBWDL with samples sent to Alcontrol Laboratories, 18a Rosemount Business Park, Ballycoolin, Dublin 11.

4.2.2 Sampling periods

Dust monitoring was carried initially during the following periods:

- 25th February to 27th March
- 10th June to 10th July
- 20th July to 19th August

4.2.3 Results

All dust results are presented below in Table 4.3.

Monitoring Period	D1	D2	D3
30 Days	mg/m ² /d	mg/m ² /d	mg/m ² /d
25/02/2009	1000	290	200
27/03/2009			

Monitoring Period	D1	D2	D3
30 Days	mg/m ² /d	mg/m ² /d	mg/m ² /d
10/06/2009	1263	262	132
10/07/2009			

Monitoring Period	D1	D2	D3
30 Days	mg/m ² /d	mg/m ² /d	mg/m ² /d
20/07/2009	2460	296	336
19/08/2009			

4.2.4 Discussion

As can be seen from the results, high levels of dust were measured at point D1 during the course of the year, particularly during the summer period. Each breach of emission limit values was reported to the EPA as an incident.

Particular attention is being paid to dust levels in 2010, with plans in place to effectively reduce the level of dust generation and spread in the yard with improved dust suppression systems and changes in processing activities.

It is envisaged that dust deposition levels will be reduced to below emission limit values.

4.3 Noise Monitoring

4.3.1 Details

Noise monitoring was carried out to comply with Condition 8 and Schedule D of waste licence W0227-01. Day-time surveys were carried out on behalf of LBWDL by ORS Environmental Consultants of Marlinstown Office Park, Marlinstown, Mullingar, Co. Westmeath, on 16th December, 2009. A full copy of their report can be found in Appendix C.

Noise monitoring was carried out at a single location, designated N4, on the nearby Killeen Road, as stipulated in licence W0227-01 and described in Table 4.4.

SITE ID	DESCRIPTION	CLASSIFICATION
N4	Outside a number of bungalows on the Killeen Road.	Private Residence

4.3.2 Results

Noise monitoring results are given in Table 4.5

Location Reference	Sampling Interval	Duration (minutes)	L _{Aeq}	L _{A90}	L _{A10}	Comments
N4 (NSL)	DAY					
	15:25 – 15:55	30	70	62	74	Road Traffic continuous. No audible impact from the site.

4.3.3 Summary

Overall it can be concluded that the recorded noise levels indicate a breach of the limits as set-out in the waste permit conditions. However, the site does not exceed limits due to on-site activities but rather as a result of the existing noise climate at the sensitive location. It must also be noted that the site is located within a busy industrial estate and the existing ambient noise climate is already above the specified threshold limits.

5.0 Resources and Energy Consumption

Details of major resources and products used in 2009 are detailed below in Table 5.1:

Resources:

Resource	Amount consumed in 2008 (Litre)	Amount consumed in 2009 (Litre)
Green Diesel	111,689	71,359
Red Diesel	380,846	280,944
Kerosene	7064	4793

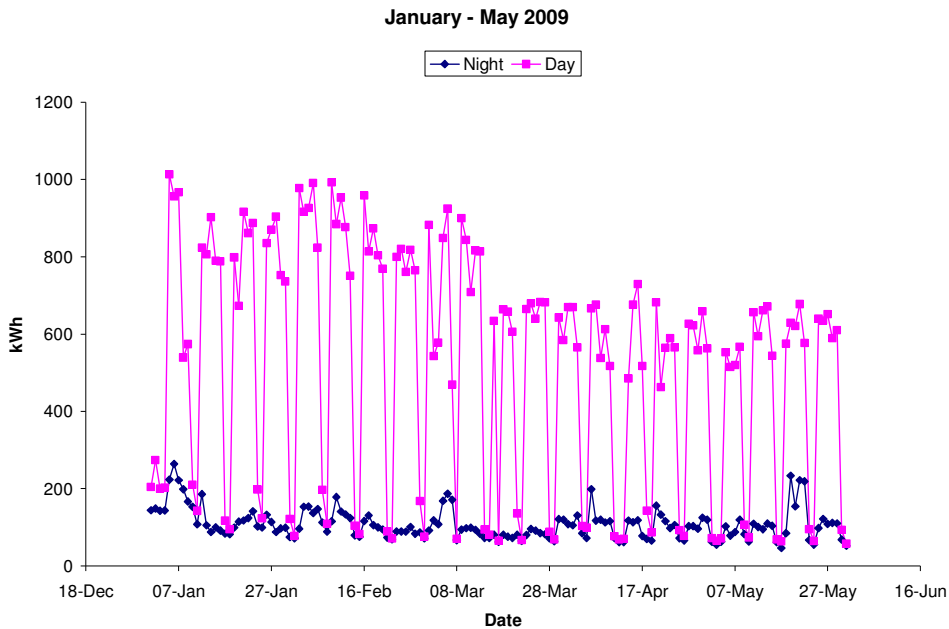
A significant decrease in fuel usage has been achieved in comparison with 2008. This is partly due to a reduction in our fleet numbers and the amount of waste collected, attributable to a down-turn in business. However changes in on-site processing procedures allowed for a reduction in on-site machinery and thus lower levels of green diesel usage.

Closer attention was paid to office heating also and the usage dropped over the course of the year as seen by a massive reduction in kerosene usage.

Electricity:

The total electricity used in 2009 amounted to 207,145 kWh. This figure shows a significant reduction in electricity usage compared to 2008 (235,997 kWh). This reduction is partly due to reduced operating hours, but also due changes in processing procedures implemented from 15th March, 2009, as demonstrated in Figure 1 below.

Figure 1. Day and night electricity usage January to May, 2009



In 2009, LBWDL used the electricity supply company Airtricity as their supplier due to the level of the renewable energy sources used by this company.

6.0 2009 and 2010 Environmental Objectives and targets and Environmental Management Plans

The schedule of Environmental Objectives and Targets for the year 2009 is presented below in Table 6.1

The report on the Environmental Management Programme for the year 2009 is presented afterwards.

The schedule of Environmental Objectives and Targets for the year 2009 is presented below in Table 6.1

Objectives	No.	Targets	Responsibility	Timescale
Improve Staff Training and Awareness	1	To incorporate health and safety and energy efficiency into training program	Mary Lawlor-King, Robert Kane	Continuous
To improve waste processing rates and reduction to landfill	2	To develop building 1 to increase performance and variety of waste streams	Niall Lawlor, Michael Lawlor, Gemma Crennan	2009-2011
To improve environmental protection	3	To cover waste quarantine area	Brian King	June 2009
	4	Investigate further dust reduction surrounding woodchipping	Brian King	2009
Improve efficiency of raw materials usage	5	Control use of diesel - put locks on all diesel tanks	Brian King	March 2009
	6	Electricity - Arrange energy audit	Michael Lawlor	March 2009
	7	Reduction in water usage - develop detailed procedures for those who use water	Brian King, Mary Lawlor-King	March 2009
	8	Reduction in water usage - Develop rainwater collection system	Brian King	2009
Improve site/facility	9	To plant trees/shrubs in front of site	Brian King	Summer 2009
Improve performance indicators	10	To develop electricity usage monitoring	Robert Kane	January 2009
	11	To develop diesel usage monitoring	Robert Kane	January 2009
Improve energy efficiency	12	To develop energy management system	Robert Kane	June 2009

Environmental Management Programme 2009

1. Improve Staff Training

Staff training is the responsibility of Mary Lawlor-King and Robert Kane. Staff training in environmental compliance will continue for all new employees. In 2009, the training will be modified to include energy efficiency in the training as well as, possibly health and safety.

Progress at end of 2009:

Procedures for site activities were drawn up. Training was carried out for all picking line staff. Training for drivers and machine operators was near completion at end of 2009.

2. Development of Building 1

The development of building 1 will be the responsibility of Niall Lawlor, Michael Lawlor and Gemma Crennan.

Building 1 will be developed over the next few years to improve the efficiency and capacity of the company including expanding the variety of waste streams to be collected and recovered on-site. Through this development, increased levels of waste can be diverted from landfill. It is hoped that this development could be completed by end of 2011.

Progress at end of 2009:

Given financial status of company, there have been no developments on this objective

3. Transfer of material from Building 3 to building 2,

The cost efficiency of installing a conveyor system to transfer fines material from building 3 to building 2 will be investigated. This will be the responsibility of Brian King. It is envisaged that, by removing the need to transport material by shovel between buildings, there will be less material escaping into the storm water system. The yard will be cleaner and less dust will be created. This target will remain for the duration of 2009

Progress at end of 2009:

Investigations into this development demonstrated no real financial gain would arise from it. Given the current financial situation this objective must be placed on hold

4. To cover waste quarantine area

Storage area for WEEE, gas bottles and other quarantined areas to be covered in line with storage requirements of WEEE regulations. Brian King will be responsible for investigating this. The target date for this is June 2009.

Progress at end of 2009:

Due to financial constraints and availability of site staff this was not completed. Dimensions were recorded and materials were being collected for construction

5. Further dust control measures

Following on from dust monitoring results from 2008 indicating high dust levels from wood chipping activities, further dust suppression measures for that area will be investigated. This will be carried out by Brian King and Robert Kane and should be completed by end 2009.

Progress at end of 2009:

Offsite dust monitoring was carried out to determine ambient influence, but was unsuccessful due to tampering. On-site processing procedures were altered, particularly loading of woodchip to improve dust suppression, but was unsuccessful. Further measures have been identified and will be implemented during 2010.

6. Control the use of diesel

In order to control and reduce the use of diesel, locks will be fitted to diesel tanks and keys will remain with the plant manager. Brian King will be responsible for implementing this. This is scheduled to be completed by March 2009.

Progress at end of 2009:

Lock has been fitted to green diesel tank with users required to sign for key at weighbridge. Eco-driving information booklets were printed in English and Polish and distributed to drivers during training. Fuel efficiency of each vehicle was also monitored.

7. Carry-out energy audit

In order to facilitate the reduction in electricity usage, an energy audit will be arranged to be carried out. This is the responsibility of Michael Lawlor. Based on the results of this audit, specific targets for the reduction of energy usage will be set out and included in the objectives and targets. This is scheduled to be completed by March 2009.

Progress at end of 2009:

An energy assessment was carried out by Sustainable Energy Ireland on 3rd February 2009, with the subsequent report issued on 6th March.

8. Reduction in Water Usage

Brian King and Mary Lawlor-King will be responsible for investigating ways to reduce water usage.

Detailed procedures will be drawn up for processes and staff members that use large amounts of water. This is scheduled to be completed by March 2009.

Progress at end of 2009:

It was decided that procedures relating solely to water usage were not needed. Rain water harvesting is the most effective source of water usage reductions.

9. Collection of Rainwater

Installation of a rainwater collection system will be investigated for buildings 2 and 3. If judged as feasible, the system will be installed, with water used for spraying the yard on dry days. This system will be the responsibility of Brian King and a decision or design should be developed by June 2009.

Progress at end of 2009:

Brian investigated collection systems. Many suppliers are reluctant to supply materials without installation, which was prohibitive due to increased costs. It was decided to construct the system from existing materials, however, manpower constraints delayed any start on this project. This objective will be carried over to 2010.

10. Improve site/facility appearance

Brian King will be responsible for improving the site appearance. Trees/bushes will be planted at the North boundary of the facility. This is scheduled to be completed by summer 2009.

Progress at end of 2009:

Plants were added to front border by July, 2009

11. Improve Performance Indicators

Robert Kane will be responsible for developing electricity usage monitoring. This will be based on any energy audit carried out. These indicators will be used to map and reduce energy consumption and will be incorporated into an energy management system. This should be completed by March 2009.

Progress at end of 2009:

Electricity usage monitoring was underway from March, 2009. The SEI Energy assessment identified several areas where potential reductions in energy usage could be realised. These measures among others were implemented during March and an energy usage reduction of 15-20% was achieved.

12. Diesel usage monitoring indicators

Robert Kane will be responsible for developing indicators for diesel usage. These will be used as part of an energy management system and used to identify areas to reduce the amount of diesel used. These should be established by March 2009.

Current Progress:

Diesel usage monitoring for collection vehicles began on 16th March, 2009 and continued throughout the year. Baseline fuel efficiency was established for each vehicle. In 2010, priority can be given to the more fuel efficient vehicles.

13. Energy management system.

An energy management system will be developed parallel with the current environmental management system, based on results from an energy audit. This system will aim to manage the use of energy on-site and to minimise energy and raw material usage.

Robert Kane will be responsible for this. This system should be developed by June 2009.

Current Progress:

A separate energy management system was deemed unnecessary, after consultation with SEI and energy management would be incorporated into the EMS. Energy indicators and monitoring were incorporated into the EMS.

New SOP's included an relevant energy concerns

The schedule of Environmental Objectives and Targets for the year 2010 is presented below in Table 6.2

Objectives	No.	Targets	Responsibility	Timescale
Comply with WEEE Regulations	1	Cover in fridge storage area	Brian King	May-2010
To improve waste processing rates and reduction to landfill	2	To develop building 1 to increase performance and variety of waste streams	Niall Lawlor, Michael Lawlor, Gemma Crennan	2009-2011
	3	Reduce waste to landfill. Investigate alternative destinations for waste	Niall Lawlor/John Crennan	Continuous
To reduce environmental impact	4	Install further dust reduction measures surrounding woodchipping	Brian King	May-2010
	5	Increase litter netting around boundary	Brian King	May-2010
	6	Prioritise use of vehicles with higher fuel efficiency	Michael Lawlor/Robert Kane	June-2010
	7	Install Spill-kits on all vehicle	John Crennan	May-2010
Improve efficiency of raw materials	8	Reduction in water usage - Develop rainwater collection system	Brian King	Dec-2010
	9	Investigate installing own road diesel tank on-site	Michael Lawlor	June-2010
Improve energy efficiency	10	Investigate further energy reduction measures in office building	Robert Kane	July-2010

7.0 Incidents and Complaints

In the license period of 2009, there were three incidents reported to the EPA which are summarised below;

Incidents:

- 11/05/09 – Dust monitoring returned results which exceeded licence limits for the periods 25/02/09 to 27/03/09. EPA were notified by fax.
- 12/08/09 – Dust monitoring returned results which exceeded licence limits for the periods 10/06/09 to 10/07/09. EPA were notified by fax.
- 22/09/09 – Dust monitoring returned results which exceeded licence limits for the periods 20/07/09 to 19/08/09. EPA were notified by fax.

Complaints:

There were no complaints of an environmental nature made against the facility during 2009. It is hoped to maintain this record throughout 2010.

8.0 Management and Staffing Structure

The current management structure at LBWDL is detailed below in Figure 1 and Table 8.1.

Figure 2. Management structure of Lawlor Brothers (Waste Disposal) Ltd.

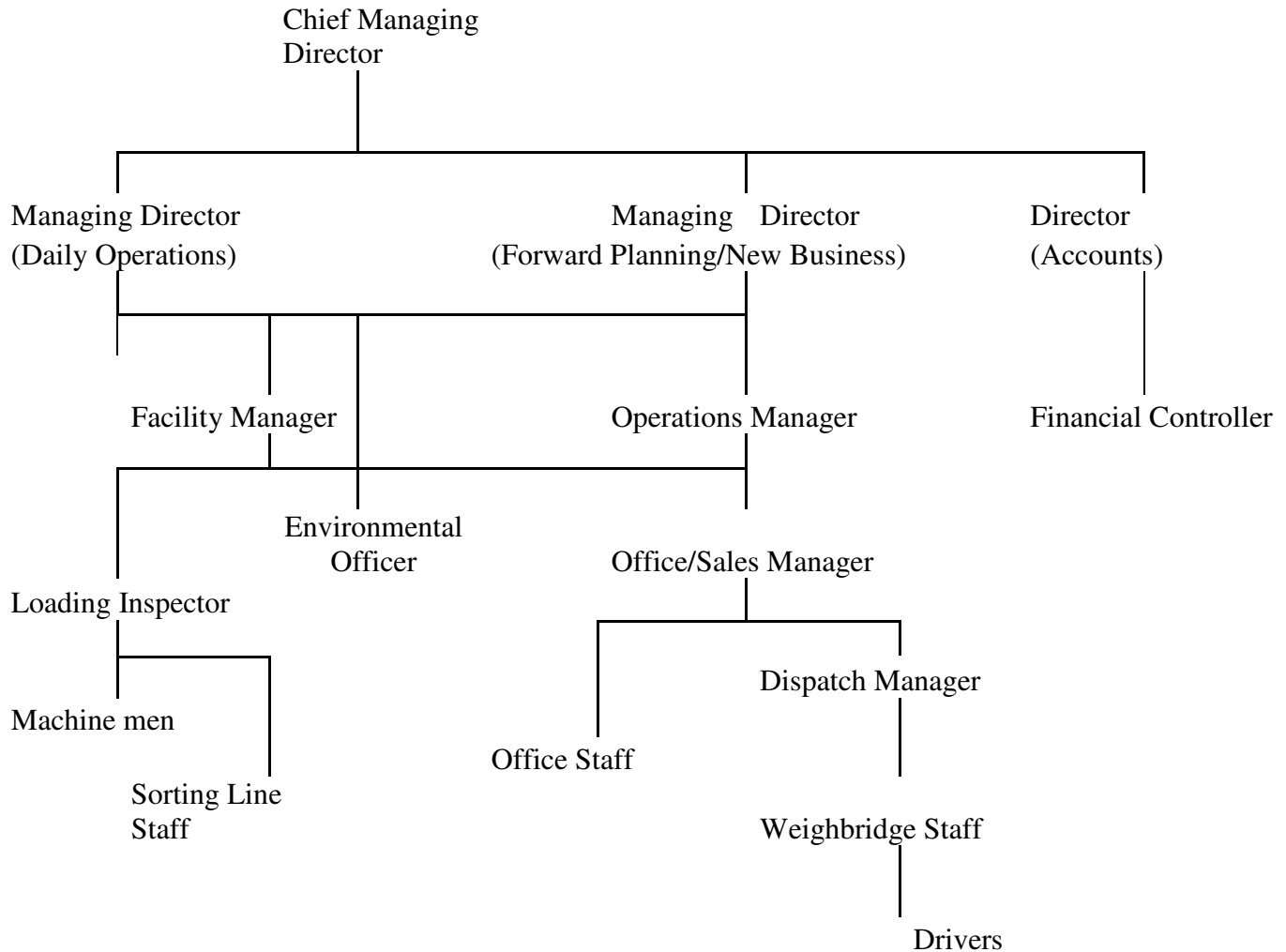


Table 8.1. Management Personnel at LBWDL.

Name	Position	Responsibilities	Experience	Alternative Contact
Michael Lawlor Snr.	Managing Director	Consultant	41 Years Waste Management	Francis Lawlor
Francis Lawlor	Director	Consultant	41 Years Waste Management	Michael Lawlor Snr.
Michael Lawlor Jnr.	General Manager	Overall Site Management, Drivers, Radios, Staff, Weighbridge	20 Years Waste Management, National Certificate of Competence in Road Haulage	Niall Lawlor
Niall Lawlor	New Business Manager	Overall Site Management, New Accounts, New Business, IT infrastructure	16 Years Waste Management, FAS Waste Management Certificate	Michael Lawlor Jnr.
Gemma Lawlor-Crennan	Admin Manager	Administration, Accounts Management	10 Years Waste Management, FAS Waste Management Certificate	Renata Zenevic
John Crennan	Operations Manager	Yard Staff, Machinery, Picking Line, Domestic Services	11 Years Waste Management	Brian King
Brian King	Site Manager	Ward Staff, Machinery, Picking Line, Site Infrastructure	17 Years Waste Management, FAS Waste Management Certificate, Health and Safety Certificate	Piotr Szkola
Andrius Staponkus	Weighbridge Operator	Weighbridge, Weight Records		Noel Hendrick
Robert Kane	Environmental Officer	Environmental records, EPA and Local authority liasing and compliance	2 Years Waste Management, BSc Environmental Science and Health	Niall Lawlor
Hugh Hannigan	Financial Controller	Payroll, Yearly Accounts	3 years audit practice with PKF O'Connor, Leady and Holmes Accountants	Gemma Lawlor

9.0 Financial Provision

As demonstrated by the annual turnover and profits for the company for the last three years, and given the extensive assets owned by the company, LBWDL is in very healthy financial situation, and would be capable of meeting any possible environmental liabilities. Given the extensive environmental protection measures in place on-site, and the non-hazardous nature of the waste processed on site, the extent of any possible environmental impact, and accompanying liability, is envisaged as being quite low.

The company insurance policy, covers the company for environmental/pollution liability of up to 6.5 million euro in respect of any one accident/any one period.

In the event of closure of the facility, the CRAMP for the facility will be followed and details of the financial provisions are contained within.

10.0 Program for Public Information

All information and correspondence supplied to the EPA (other than commercially sensitive information) and received from the EPA, is available to the public to view at the facility. This includes a copy of the waste licence, collection permits, all reports, monitoring results and interpretations required by the licence and other correspondence between the EPA and the facility. Copies of our waste licence and collection permits are contained on our website. Any member of the public may view the information on-site, by appointment, between the hours of 10.00 and 16.00 at the facility. A copy of this AER will also be available in the foyer of our administration building.

11.0 Environmental Protection Measures & CRAMP review

Environmental Protection Measures

Those environmental protection measures stipulated in the licence and as described in the site environmental impact statement continue to be carried out and implemented. These measures address the potential environmental impacts to air, water and ground media. Staff on-site are vigilant in identifying potential sources of environmental pollution and any issues raised will be addressed.

CRAMP Review

The CRAMP for the facility was drafted by environmental consultants White Young Green. The CRAMP was issued in March 2008 and so was not reviewed again during 2008 or 2009. The plan at this time does not require updating.

12.0 Review of Nuisance Controls

No changes to nuisance controls were deemed to be required during 2009. LBWDL use a third party contractor for maintenance of rodent control measures. As part of daily inspections the facility is inspected for evidence of nuisances. If present these will be dealt with immediately. In the event of nuisances regularly occurring, control measures will be re-evaluated.

Appendix A

Validated

ALcontrol Laboratories Analytical Services**Job:** D_ACCESSWR_DUB-1**Customer:** Access Waste Recycling**Client Reference:****Attention:** Robert Kane**Location:****Order No.:****Report No:** 57361**Table of Results****Ammonium**

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			SW1	
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)	
				25/05/2009	
				20/05/2009	
				090525-19	
				252387	
	LoD	Units	Method		
Ammoniacal Nitrogen as N	<0.2	mg/L as N	TM099	0.597	#

Anions by Kone

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			FW9	
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)	
				25/05/2009	
				25/05/2009	
				090525-19	
				252391	
	LoD	Units	Method		
Phosphate (ortho as PO4)	<0.08	mg/l	TM184	0.428	

BOD Unfiltered

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			FW9	
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)	
				25/05/2009	
				25/05/2009	
				090525-19	
				252391	
	LoD	Units	Method		
BOD	<1	mg/L O	TM045	37.0	#

COD Unfiltered

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			FW9	SW1
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)	Water(GW/SW)
				25/05/2009	25/05/2009
				25/05/2009	20/05/2009
				090525-19	090525-19
				252391	252387
	LoD	Units	Method		
COD	7	mg/L O	TM107	233	53.7

Validated

ALcontrol Laboratories Analytical Services

Job: D_ACCESSWR_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 57361

Total Suspended Solids

Results Legend

ISO17025 Accredited.
m MCERTS accredited.
* sub contracted test.

	Sample ID			FW9	SW1
	LoD	Units	Method		
				Water(GW/SW)	Water(GW/SW)
				25/05/2009	25/05/2009
				25/05/2009	20/05/2009
				090525-19	090525-19
				252391	252387
Total Suspended Solids	<2	mg/L	TM022	57.0	15.5

TPH by IR Oils and Greases

Results Legend

ISO17025 Accredited.
m MCERTS accredited.
* sub contracted test.

	Sample ID			SW1
	LoD	Units	Method	
				Water(GW/SW)
				25/05/2009
				20/05/2009
				090525-19
				252387
Mineral Oil	<1	mg/l	TM087	<1.00

Validated

ALcontrol Laboratories Analytical Services

Job: D_ACCESSWR_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 58151

Table of Results

Methylene blue active substances *

Results Legend ~~~~~ # ISO17025 Accredited. m MCERTS accredited. * sub contracted test.	Sample ID			FW1
	Depth(m)			
	Sample Type			Water(GW/SW)
	Sample received date			18/06/2009
	Sampled date			17/06/2009
SDG Ref			090618-62	
Sample Ref			291954	
	LoD	Units	Method	
MBAS	<0.05	mg/l		0.160

Mineral Oil C10-40 Aqueous (W)

Results Legend ~~~~~ # ISO17025 Accredited. m MCERTS accredited. * sub contracted test.	Sample ID			FW1
	Depth(m)			
	Sample Type			Water(GW/SW)
	Sample received date			18/06/2009
	Sampled date			17/06/2009
SDG Ref			090618-62	
Sample Ref			291954	
	LoD	Units	Method	
Mineral Oil (Aqueous)	<10	µg/l	TM172	<10.0

Total Suspended Solids

Results Legend ~~~~~ # ISO17025 Accredited. m MCERTS accredited. * sub contracted test.	Sample ID			SW1
	Depth(m)			
	Sample Type			Water(GW/SW)
	Sample received date			18/06/2009
	Sampled date			17/06/2009
SDG Ref			090618-62	
Sample Ref			291951	
	LoD	Units	Method	
Total Suspended Solids	<2	mg/l	TM022	489 #

TPH by IR Oils and Greases

Results Legend ~~~~~ # ISO17025 Accredited. m MCERTS accredited. * sub contracted test.	Sample ID			FW1
	Depth(m)			
	Sample Type			Water(GW/SW)
	Sample received date			18/06/2009
	Sampled date			17/06/2009
SDG Ref			090618-62	
Sample Ref			291954	
	LoD	Units	Method	
TPH / Oil & Greases	<1	mg/l	TM087	3.02 #

Job: D_ACCESSWR_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 62008

Table of Results

Ammonium

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID		SW1 (C) 2	
	Depth(m)		Water(GW/SW)	
	Sample Type		21/08/2009	
	Sample received date		20/08/2009	
	Sampled date		090821-74	
	SDG Ref		423001	
	Sample Ref			
	LoD	Units	Method	
Ammoniacal Nitrogen as N	<0.2	mg/l as N	TM099	1.34 #

Anions by Kone (w)

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID		FW9	
	Depth(m)		Water(GW/SW)	
	Sample Type		21/08/2009	
	Sample received date		090821-74	
	Sampled date		422994	
	SDG Ref			
	Sample Ref			
	LoD	Units	Method	
Phosphate (ortho as PO4)	<0.08	mg/l	TM184	0.485 #

BOD Unfiltered

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID		FW9	
	Depth(m)		Water(GW/SW)	
	Sample Type		21/08/2009	
	Sample received date		090821-74	
	Sampled date		422994	
	SDG Ref			
	Sample Ref			
	LoD	Units	Method	
BOD	<1	mg/l O	TM045	1.59 #

COD Unfiltered

Results Legend

 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID		FW9		SW1 (C)	
	Depth(m)		Water(GW/SW)		Water(GW/SW)	
	Sample Type		21/08/2009		21/08/2009	
	Sample received date		20/08/2009		20/08/2009	
	Sampled date		090821-74		090821-74	
	SDG Ref		422994		422991	
	Sample Ref					
	LoD	Units	Method			
COD	7	mg/l O	TM107	22.2 #	190	#

Job: D_ACCESSWR_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 62008

Dust in Water

Results Legend

~~~~~  
 # ISO17025 Accredited.  
 m MCERTS accredited.  
 \* sub contracted test.

|      | Sample ID |             |                      | DS1          | DS2          | DS3          |
|------|-----------|-------------|----------------------|--------------|--------------|--------------|
|      | Depth(m)  | Sample Type | Sample received date | Water(GW/SW) | Water(GW/SW) | Water(GW/SW) |
|      |           |             | 21/08/2009           | 21/08/2009   | 21/08/2009   | 21/08/2009   |
|      |           |             | 20/08/2009           | 20/08/2009   | 20/08/2009   | 20/08/2009   |
|      |           |             | 090821-74            | 090821-74    | 090821-74    | 090821-74    |
|      |           |             | 423005               | 423012       |              | 423023       |
|      | LoD       | Units       | Method               |              |              |              |
| Dust | <0.026    | mg/m2/day   | TM253                | 2460         | 296          | 336          |

## Methylene blue active substances

## Results Legend

~~~~~  
 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			FW9
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)
			21/08/2009	
				090821-74
			422994	
	LoD	Units	Method	
MBAS	<0.05	mg/l	TM249	0.0728

Mineral Oil C10-40 Aqueous (W)

Results Legend

~~~~~  
 # ISO17025 Accredited.  
 m MCERTS accredited.  
 \* sub contracted test.

|                       | Sample ID |             |                      | FW9          | SW1 (C)      |
|-----------------------|-----------|-------------|----------------------|--------------|--------------|
|                       | Depth(m)  | Sample Type | Sample received date | Water(GW/SW) | Water(GW/SW) |
|                       |           |             | 21/08/2009           | 21/08/2009   | 21/08/2009   |
|                       |           |             | 20/08/2009           | 20/08/2009   | 20/08/2009   |
|                       |           |             | 090821-74            | 090821-74    | 090821-74    |
|                       |           |             | 422994               | 422991       |              |
|                       | LoD       | Units       | Method               |              |              |
| Mineral Oil (Aqueous) | <10       | µg/l        | TM172                | <10.0        | 808          |

## Total Suspended Solids

## Results Legend

~~~~~  
 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

	Sample ID			FW9	SW1	SW1 (B)	SW1 (C)
	Depth(m)	Sample Type	Sample received date	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			21/08/2009	21/08/2009	21/08/2009	21/08/2009	21/08/2009
			24/07/2009	24/07/2009	12/08/2009	12/08/2009	20/08/2009
			090821-74	090821-74	090821-74	090821-74	090821-74
			422994	422980	422985		422991
	LoD	Units	Method				
Total Suspended Solids	<2	mg/l	TM022	<6.00 #	245 #	73.0 #	97.0 #

Validated

ALcontrol Laboratories Analytical Services

Job: D_ACCESSWR_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 62008

TPH by IR Oils and Greases

Results Legend

~~~~~

# ISO17025 Accredited.

m MCERTS accredited.

\* sub contracted test.

|                      |       |              |       |
|----------------------|-------|--------------|-------|
| Sample ID            |       | FW9          |       |
| Depth(m)             |       | Water(GW/SW) |       |
| Sample Type          |       | 21/08/2009   |       |
| Sample received date |       | 090821-74    |       |
| Sampled date         |       | 422994       |       |
| SDG Ref              |       |              |       |
| Sample Ref           |       |              |       |
| LoD                  | Units | Method       |       |
| <1                   | mg/l  | TM087        | #     |
| TPH / Oil & Greases  |       |              | <1.00 |



## **Appendix B**



Validated

# ALcontrol Laboratories Analytical Services

**Job:** D\_ACCESSWR\_DUB-1

**Customer:** Access Waste Recycling

**Client Reference:**

**Attention:** Robert Kane

**Location:**

**Order No.:**

**Report No:** 59277

## Table of Results

### Dust in Water

|                        |
|------------------------|
| Results Legend         |
| -----                  |
| # ISO17025 Accredited. |
| m MCERTS accredited.   |
| * sub contracted test. |

| Sample ID            | S0010 DS1           |       |        | S0011 DS2           |      |      | S0012 DS3           |  |  |
|----------------------|---------------------|-------|--------|---------------------|------|------|---------------------|--|--|
| Depth(m)             | Miscellaneous Solid |       |        | Miscellaneous Solid |      |      | Miscellaneous Solid |  |  |
| Sample Type          | 20/07/2009          |       |        | 20/07/2009          |      |      | 20/07/2009          |  |  |
| Sample received date | 10/07/2009          |       |        | 10/07/2009          |      |      | 10/07/2009          |  |  |
| Sampled date         | 090720-25           |       |        | 090720-25           |      |      | 090720-25           |  |  |
| SDG Ref              | 333515              |       |        | 333522              |      |      | 333532              |  |  |
| Sample Ref           | LoD                 | Units | Method |                     |      |      |                     |  |  |
| Total dust collected |                     | mg    |        | 241                 | 50.0 | 25.1 |                     |  |  |



Job: D\_ACCESSWR\_DUB-1

Customer: Access Waste Recycling

Client Reference:

Attention: Robert Kane

Location:

Order No.:

Report No: 62008

## Dust in Water

## Results Legend

~~~~~  
 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

Sample ID	DS1			DS2	DS3
	Depth(m)	Water(GW/SW)			Water(GW/SW)
Sample Type	21/08/2009			21/08/2009	21/08/2009
Sample received date	20/08/2009			20/08/2009	20/08/2009
Sampled date	090821-74			090821-74	090821-74
SDG Ref	423005			423012	423023
Sample Ref					
LoD	Units	Method			
Dust	<0.026	mg/m2/day	TM253		
			2460	296	336

Methylene blue active substances

Results Legend

~~~~~  
 # ISO17025 Accredited.  
 m MCERTS accredited.  
 \* sub contracted test.

| Sample ID            | FW9          |        |        |
|----------------------|--------------|--------|--------|
| Depth(m)             | Water(GW/SW) |        |        |
| Sample Type          | 21/08/2009   |        |        |
| Sample received date | 090821-74    |        |        |
| Sampled date         | 422994       |        |        |
| SDG Ref              |              |        |        |
| Sample Ref           |              |        |        |
| LoD                  | Units        | Method |        |
| MBAS                 | <0.05        | mg/l   | TM249  |
|                      |              |        | 0.0728 |

## Mineral Oil C10-40 Aqueous (W)

## Results Legend

~~~~~  
 # ISO17025 Accredited.
 m MCERTS accredited.
 * sub contracted test.

Sample ID	FW9		SW1 (C)
Depth(m)	Water(GW/SW)		Water(GW/SW)
Sample Type	21/08/2009		21/08/2009
Sample received date	20/08/2009		20/08/2009
Sampled date	090821-74		090821-74
SDG Ref	422994		422991
Sample Ref			
LoD	Units	Method	
Mineral Oil (Aqueous)	<10	µg/l	TM172
			<10.0
			808

Total Suspended Solids

Results Legend

~~~~~  
 # ISO17025 Accredited.  
 m MCERTS accredited.  
 \* sub contracted test.

| Sample ID              | FW9          | SW1    | SW1 (B)      | SW1 (C)      |
|------------------------|--------------|--------|--------------|--------------|
| Depth(m)               | Water(GW/SW) |        | Water(GW/SW) | Water(GW/SW) |
| Sample Type            | 21/08/2009   |        | 21/08/2009   | 21/08/2009   |
| Sample received date   | 24/07/2009   |        | 12/08/2009   | 20/08/2009   |
| Sampled date           | 090821-74    |        | 090821-74    | 090821-74    |
| SDG Ref                | 422994       |        | 422985       | 422991       |
| Sample Ref             |              |        |              |              |
| LoD                    | Units        | Method |              |              |
| Total Suspended Solids | <2           | mg/l   | TM022        |              |
|                        |              |        | <6.00        | #            |
|                        |              |        | 245          | #            |
|                        |              |        | 73.0         | #            |
|                        |              |        |              | 97.0         |

## **Appendix C**

DRAFT REPORT

**Environmental Noise Survey**

**Access Waste Recycling,  
 Unit 28 JFK Industrial Estate,  
 Naas Road,  
 Dublin 12**

**December 2009**

| <i>Client</i>                                                                                   | <i>Revision</i> | <i>Date</i>       | <i>Compiled</i> | <i>Checked</i> | <i>Approved</i> |
|-------------------------------------------------------------------------------------------------|-----------------|-------------------|-----------------|----------------|-----------------|
| <i>Access Waste Recycling,<br/>Unit 28 JFK Industrial Estate,<br/>Naas Road,<br/>Dublin 12.</i> | <i>D1</i>       | <i>21/12/2009</i> | <i>PD</i>       |                |                 |

## EXECUTIVE SUMMARY

Environmental noise was monitored at one noise sensitive location outside of the Access Waste Recycling plant N4 (NSL). Normal activities were in operation during the survey period. The main contributor of noise at the NSL location arose from the steady flow of traffic along the Killeen Road. Traffic was consistent along the Killeen Road during the 30 Minute sampling period. The Access Waste Recycling plant was not audible at this location.

Noise levels were compared to those as set out in Waste Permit number W0227-01 which states that ambient/daily noise levels should not exceed **55dB LAeq,30min** at noise sensitive locations.

The permit also states that there should be no clearly audible tonal or impulsive component in the noise emission from the activity at any noise sensitive location.

The monitoring location N4 (NSL) was deemed to fall above the threshold limits as per the Waste Licence Limits; however it must be noted that the recorded levels are not attributable to noise generation from the site. The majority of noise arises as a result of the high volumes of passing traffic on the Killeen Road which is a major contributing factor to elevated levels at N4. The access recycling plant and the NSL is separated by the Killeen Road as represented geographically in this report. The high level of background noise represented by the L90 and traffic noise represented by the L10 suggest the threshold limit set out in the Waste Licence Limits have been exceeded without any noise contribution from the Access Waste Recycling plant.

## INDEX

### EXECUTIVE SUMMARY

- 1.0 SCOPE
- 2.0 MONITORING LOCATIONS
- 3.0 ACTIVITIES ON SITE
- 4.0 DURATIONS & MEASUREMENTS OF SURVEYING
- 5.0 WEATHER CONDITIONS
- 6.0 INSTRUMENTATION AND METHODOLOGY
- 7.0 GLOSSARY OF TERMS
- 8.0 NOISE MEASUREMENT DATA
- 9.0 INTERFERENCES
- 10.0 EVALUATION OF MEASUREMENT DATA
- 11.0 CONCLUSIONS

### APPENDIX A NOISE MEASUREMENT GRAPHS

### APPENDIX B NOISE MONITORING LOCATIONS

### APPENDIX C CALIBRATION CERTIFICATES

## 1.0 SCOPE

ORS Environmental Consultants were commissioned by Robert Kane of Access Waste Recycle to conduct a day time broadband and one-third octave noise survey at one predetermined noise sensitive location along the Killeen Road adjacent to the plant. The monitoring was carried out on the 16<sup>th</sup> December 2009 as per Waste Permit number W0227-01 conditions. The Waste Permit states that noise emissions from the site shall not exceed L<sub>Aeq</sub> of 55dB(A) during the daytime. No tonal or impact noise components shall be audible.

The site operates from 07:00 to 17:00 Monday to Friday. The site currently does not operate on Saturdays and Sundays. Noise is produced on site from various activities such as vehicles entering / exiting the site, vehicles tipping waste material, plant movements in the recycling buildings and the general process noise from the recycling facility.

## 2.0 MONITORING LOCATIONS

Environmental noise monitoring was carried out at one noise sensitive location N4. The survey was conducted when the site was in full operation i.e. normal activities taking place. The monitoring location is detailed below in Table 1 and presented graphically in the attached map in Appendix B.

**Table 1: Noise Monitoring Locations**

| Monitoring Location | Description                                                                                                                                                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N4 (NSL)            | This point is located along the Killeen Road to the west of the Access Waste Recycling plant at a residential house located c.10 meters from the Killeen Road road edge. The monitor was situated on hard ground facing towards the Access Waste Recycling plant. |

\*All monitoring locations are located at least 2m from any reflective surfaces

## 3.0 ACTIVITIES ON SITE

Activities that take place on the site involve vehicle movements, recycling operations and plant on the site. Waste trucks enter the site to unload recyclable material which is sorted and processed prior to departure from the site. All machinery on the site is relatively modern and fitted with suitable silencers.

#### 4.0 DURATION AND MEASUREMENTS OF SURVEYING

The survey was carried out between 15:25 and 15:55 on Friday 16<sup>th</sup> December 2009. The following measurements were carried out at the noise sensitive location:

- Daytime Broadband measurements  $L_{Aeq}$ ,  $L_{A10}$ , and  $L_{A90}$ , over a 30 minute period.
- 1/3 octave band frequency analysis

#### 5.0 WEATHER CONDITIONS

Weather conditions were 'neutral' throughout the monitoring period.

Table 2: Met Eireann Data

| Date       | Rainfall (mm) | Max Temp (°C) | Min Temp (°C) | Sunshine (hours) | Gusts | Windspeed (MPH) | gmin |
|------------|---------------|---------------|---------------|------------------|-------|-----------------|------|
| 16/12/2009 | 0.6           | 6.9           | 1.4           | 1.9              | 0     | 7.9             | -0.6 |

#### 6.0 INSTRUMENTATION AND METHODOLOGY

The noise survey was carried out in accordance with the requirements of ISO 1996: Acoustics – Description and Measurement of Environmental Noise.

Measurements were made using a Bruel & Kjaer 2250 integrating sound level meter (SLM) with selective 1:1 or 1:3 octave band filters. Calibration was carried out on site using a Bruel & Kjaer acoustic calibrator at 94dBA. The meter was calibrated before and after the monitoring round. The meter is due for calibration in October 2011. Factory calibration certificates for the SLM and the acoustic calibrator, detailing equipment serial numbers, calibration traceability and recalibration dates are presented in Appendix C of this report.

The microphone was mounted on an outdoor microphone stand, at 1.5m above ground level. A sample period for the noise measurements was selected to be a 30 minute interval.

#### 7.0 GLOSSARY OF TERMS

**Ambient noise:** The totally encompassing sound in a given situation at a given time usually composed of sound from many sources, near and far.

**Background Noise Level:** The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 per cent of a given time interval, T. ( $L_{A90, T}$ ).

**Criterion Noise Level:** The long-term mean value of the noise level that must not be exceeded. This is generally stipulated in the IPC licence and it may be applied to a noise source, a boundary of the activity or to noise sensitive locations in the vicinity of the facility.

**1/3 Octave Band Analysis:** Frequency analysis of sound such that the frequency spectrum is subdivided into bands of one-third of an octave each. An octave is taken to be a frequency interval, the upper limit of which is twice the lower limit (the unit of frequency is the Hertz, Hz).

**dB (decibel):** The scale in which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20  $\mu$ Pa).

**dBA or dB(A):** An 'A-weighted decibel' - a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. 'A'-weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

**Facade Level:** Noise levels at locations 1m from the facade of a building are described by the term *Facade Levels* and are subject to higher noise levels than those in open areas (free-field conditions) due to reflection effects.

**Free-field Conditions:** These are conditions in which the radiation from sound sources is unaffected by the presence of any reflecting boundaries. In practice, it is a field in which the effects of the boundaries are negligible over the frequency range of interest. In environmental noise, true free-field measurement conditions are seldom achieved and generally the microphone will be positioned at a height between 1.2 and 1.5 metres above ground level. To minimise the influence of reflections, measurements are generally made at least 3.5 metres from any reflecting surface other than the ground.

**Hz (Hertz):** The unit of sound frequency in cycles per second

**Impulsive Noise:** A noise that is of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background. In determining whether a tonal adjustment applies, reference must be made to ISO 1996-2 (1987) - Section 4.1.

**Impulse Exponential - Time-Weighting:** This is a time-weighting which is available on some sound level meters and it represents an arbitrary compromise in an attempt to provide a means to measure the sound level of short-duration impulsive sounds. Impulse time-weighting has a design goal exponential-time constant of 35 ms for sound signals that increase with increasing time and 1.5 seconds for sound signals that decrease with increasing time.

**LAeq,T:** The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T.

**LAmx:** The maximum RMS, A-Weighted sound pressure level occurring within a specified time period; the time weighting fast or slow is usually specified.

**Noise:** Any sound, that has the potential to cause disturbance, discomfort or psychological stress to a subject exposed to it, or any sound, that could to cause actual physiological harm to a subject exposed to it, or physical damage to any structure exposed to it, is known as noise.



**Noise Sensitive Location:** Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

**Rating level ( $L_{Ar,T}$ ):** The specific noise level, plus any adjustment for the characteristic features of the noise.

**Residual noise:** The ambient noise remaining at a given position in a given situation when the specific source is suppressed to a degree such that it does not contribute to the ambient noise (residual noise level is measured in terms of  $L_{Aeq, T}$ ).

**Root Mean Square (RMS):** The RMS value of a set of numbers is the square root of the average of their squares.

**Sound Exposure Level (SEL or LAE):** This is the measure of the A-Weighted sound energy used to describe noise events such as the passing of a train or aircraft; it is the A-weighted sound pressure level if occurring over a period of 1 second, would contain the same amount of A-weighted sound energy as the event.

**Specific noise level:** A component of the ambient noise which can be specifically identified by acoustical means and may be associated with a specific source. In BS 4142, there is more precise definition as follows: 'the equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval ( $L_{Aeq, T}$ )'.

**Time-weighting:** One of the averaging times (Fast, Slow or Impulse) used for the measurement of RMS sound pressure level in sound level meters.

**Tonal Noise:** Noise which contains a clearly audible tone, i.e. a distinguishable, discrete or continuous note (whine, hiss screech or hum etc.). In determining whether a tonal adjustment applies, reference must be made to ISO 1996-2 (1987) - Section 4.1.

## 8.0 NOISE MEASUREMENT DATA

Table 3: Day-Time Noise Measurement Data

| Monitoring Location | Time          | $L_{Aeq,30min}$ dB(A) | $L_{A10,30min}$ dB(A) | $L_{A90,30min}$ dB(A) | Permit Limit      |
|---------------------|---------------|-----------------------|-----------------------|-----------------------|-------------------|
| N4 (NSL)            | 15:25 – 15:55 | 70                    | 74                    | 62                    | 55dB(A) $L_{Aeq}$ |

Table 4: Day-Time 1:3 Octave Band Analysis

| Monitoring Location | 1:3 Octave Band Analysis |       |        |        |        |        |        |        |        | Impulsive or Tonal qualities |
|---------------------|--------------------------|-------|--------|--------|--------|--------|--------|--------|--------|------------------------------|
|                     | 31 Hz                    | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1K KHz | 2K KHz | 4K KHz | 8K KHz |                              |
| N4 (NSL)            | 71                       | 77    | 65     | 62     | 60     | 62     | 58     | 51     | 46     | NONE                         |

## 9.0 INTERFERENCES

During the day time survey elevated noise levels from high volumes of traffic movements on the Killeen Road and to a certain degree on Nangor Road contributed to the readings recorded at N4 (NSL). General background sources from the surrounding area also contributed to the noise levels recorded.

During the day-time recordings other interferences included car horns and bird song.

## 10.0 EVALUATION OF MEASUREMENT DATA

Table 3 and 4 summaries the monitoring data for the location surveyed.

At monitoring location N4 (NSL) an  $L_{Aeq}$  of 70dB(A) was recorded during the daytime monitoring period. The main noise source audible at N4 was traffic on the Killeen Road located approximately 10m to the east of the monitoring location. There were continuous traffic movements in both directions. Traffic turning right to access the John F Kennedy Road from the Killeen Road did so via a right turning lane. This led to vehicles idling across from the monitoring location. Vehicles travelling south were also subject to idling at the Nangor Road junction which is governed by traffic signals. Site activities were not audible at this monitoring point. Based on traffic movement counts carried out over the duration of the monitoring period the volumes of traffic can be broken down as follows:

Table 5: Traffic Movements near N4

| Vehicles   | Killeen Road North | Killeen Road South | Duration (mins) |
|------------|--------------------|--------------------|-----------------|
| HGV's      | 51                 | 30                 | 30              |
| Cars       | 178                | 259                | 30              |
| OGV's      | 30                 | 35                 | 30              |
| Motorbikes | 3                  | 1                  | 30              |

On review of the one-third octave frequency analysis carried out there was no tonal noise qualities identified at monitoring location N4 (NSL) during the day time survey.

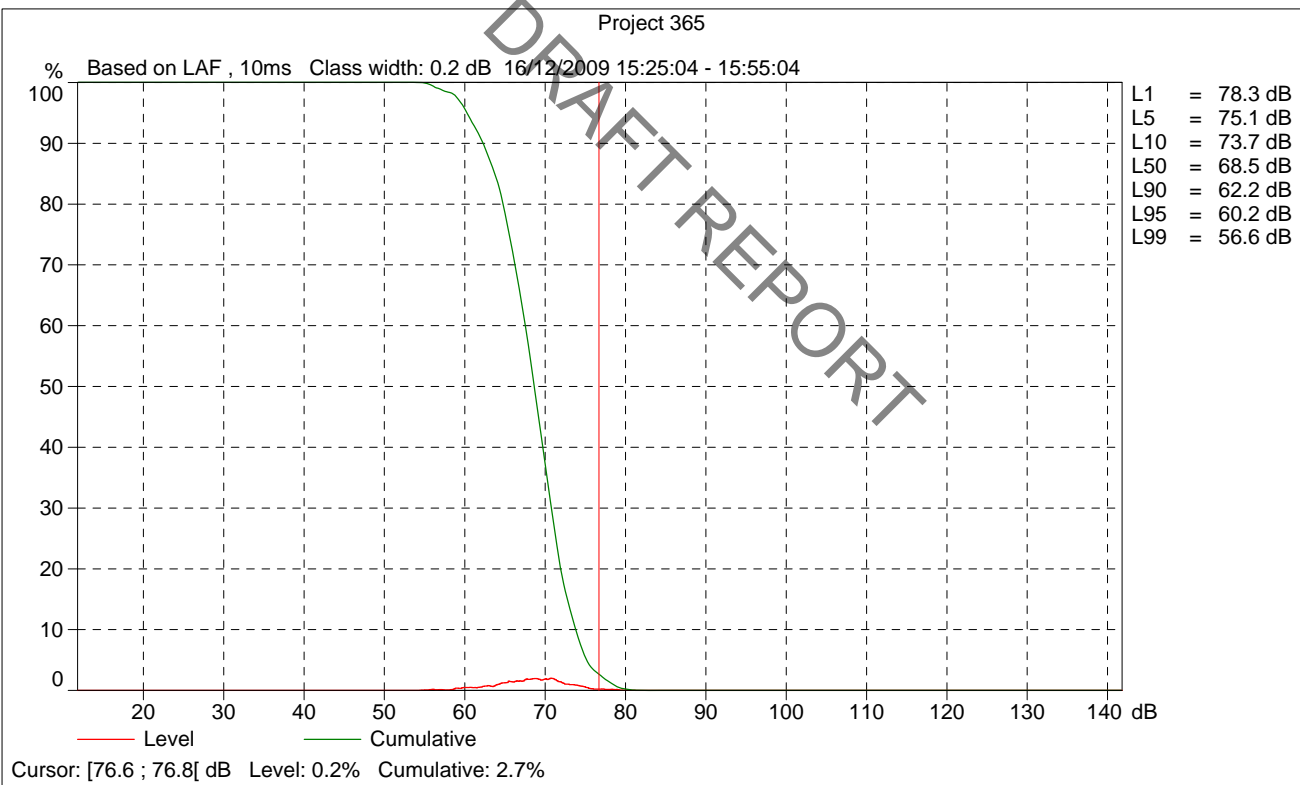
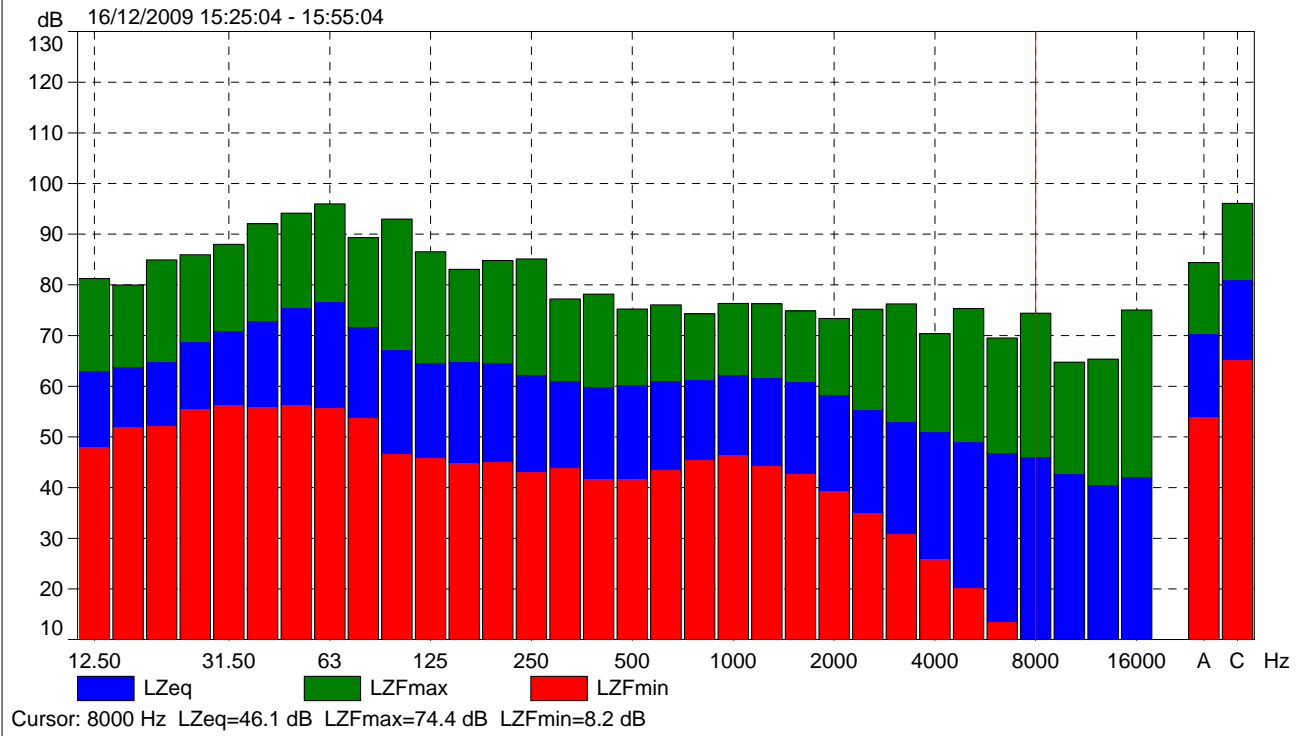
## 11.0 CONCLUSIONS

Overall it can be concluded that the recorded noise levels indicate a breach of the limits as set-out in the waste permit conditions. However, the site does not exceed limits due to on-site activities but rather as a result of the existing noise climate at the sensitive location. It must also be noted that the site is located within a busy industrial estate and the existing ambient noise climate is already above the specified threshold limits.

DRAFT REPORT

## Appendix A Noise Measurement Graphs

Project 365



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## Appendix B Noise Monitoring Locations



John F Kennedy Road

N4 (NSL)



Killean Road

Existing Site

Industrial Park

Access Recycling Plant

**LEGEND**

- Site Boundary
- Noise Monitoring Location

Access Skips  
Noise Monitoring Locations

Figure No. 1

Scale 1:500  
Drawn by: NLT

Scale  
1:500  
Date  
1/2007

DRAFT REPORT

## Appendix C Calibration Certificates



**CERTIFICATE OF CALIBRATION**

No.: C0908322

Page 1 of 3

**CALIBRATION OF:**

Calibrator 4231 No: 2605825  
Identification: Date of receipt: 2009-10-01

**CUSTOMER:**

ORS Consulting Engineers  
Marlinstown Office Park  
Mullingar  
Co. Westmeath  
Ireland

**CALIBRATION CONDITIONS:**

Preconditioning: 4 hours at 23° C ± 3° C  
Environment conditions: Air Temperature: 23° C ± 3° C  
Air Pressure: 101.3 kPa ± 5 kPa  
Relative Humidity: 50% RH ± 25% RH

**PROCEDURE:**

The instrument has been calibrated in accordance with the requirements as specified in Product Data and IEC 60942 : 2003 Class 1 and Class LS, using Calibration Procedure No. P4231A17


**RESULTS:**


- Initial calibration  Calibration prior to repair/adjustment  
 Calibration without repair/adjustment  Calibration after repair/adjustment

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA-4/02.

Date of Calibration: 2009-10-07

Certificate issued: 2009-10-07

  
Trine Madsen  
Calibration Technician

  
Susanne Jørgensen  
Approved signatory



**MEASURED VALUES:**

**1. Sound Pressure Level 94dB**

| Nominal Value<br>dB | Accept Level<br>Lower<br>dB | Accept Level<br>Upper<br>dB | Measured Value<br>dB | Measurement Uncertainty<br>dB |
|---------------------|-----------------------------|-----------------------------|----------------------|-------------------------------|
| 94,00               | 93,80                       | 94,20                       | 94,07                | 0,09                          |

**2. Sound Pressure Level 114dB**

| Nominal Value<br>dB | Accept Level<br>Lower<br>dB | Accept Level<br>Upper<br>dB | Measured Value<br>dB | Measurement Uncertainty<br>dB |
|---------------------|-----------------------------|-----------------------------|----------------------|-------------------------------|
| 114,00              | 113,80                      | 114,20                      | 114,09               | 0,09                          |

**3. Frequency**

| Nominal Value<br>Hz | Accept Level<br>Lower<br>Hz | Accept Level<br>Upper<br>Hz | Measured Value<br>Hz | Measurement Uncertainty<br>Hz |
|---------------------|-----------------------------|-----------------------------|----------------------|-------------------------------|
| 1000,0              | 999,0                       | 1001,0                      | 1000,0               | 0,1                           |

**4. Distortion (THD)**

Measured with bandwidth 20Hz to 20kHz ("Audio Band Pass", A-weighted).

| Level in<br>dB | Accept Limit<br>% | Measured Value | Measurement Uncertainty % |
|----------------|-------------------|----------------|---------------------------|
| 94             | 1,0               | 0,5            | 0,2                       |
| 114            | 1,0               | 0,2            | 0,2                       |

**CALIBRATION EQUIPMENT:**

| Description          | Type    | Serial No. |
|----------------------|---------|------------|
| Pistonphone          | 4228    | 2399336    |
| Measuring Amplifier  | 2636    | 812851     |
| Precision Attenuator | 5936    | 2058925    |
| Frequency Counter HP | 5316A   | 2632A10087 |
| Transducer Assembly  | 159545  | 006        |
| Dist. Ana. Hameg     | HM8027  | 03982      |
| Vaisala Barometer    | PTB100A | U2450020   |
| Voltmeter Agilent    | 34401A  | US36074161 |
| Sound Level Meter    | 2238    | 2231703    |

**CERTIFICATE OF CALIBRATION**

No: C0908326

Page 1 of 10

**CALIBRATION OF:**

|                      |                    |                     |             |
|----------------------|--------------------|---------------------|-------------|
| Sound Level Meter:   | Brüel & Kjær       | 2250-L              | No: 2602719 |
| Microphone:          | Brüel & Kjær       | 4950                | No: 2600864 |
| Preamplifier:        | Brüel & Kjær       | ZC-0032             | No: 6365    |
| Supplied Calibrator: | Brüel & Kjær       | 4231                | No: 2605825 |
| Software version:    | BZ7130 Version 2.1 | Instruction manual: | BE-1774-11  |
| Date of receipt:     | 2009-10-01         | Identification:     |             |
| Pattern Approval:    | PTB                | 1.72-4031982        |             |

**CUSTOMER:**

ORS Consulting Engineers  
Marlinstown Office Park  
Mullingar  
Co. Westmeath  
Ireland

**CALIBRATION CONDITIONS:**

Preconditioning: 4 hours at 23 °C  
Environment conditions: *see actual values in Environmental conditions sections*

**SPECIFICATIONS:**

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-3:2006 class 1. Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

**PROCEDURE:**

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 4.1 - DB: 4.10) and test collection 2250-L/M-4950

**RESULTS:**

|   |                                       |  |                                        |
|---|---------------------------------------|--|----------------------------------------|
|   | Initial calibration                   |  | Calibration prior to repair/adjustment |
| X | Calibration without repair/adjustment |  | Calibration after repair/adjustment    |

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor  $k = 2$  providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 2009-10-07

Certificate issued: 2009-10-07



Trine Madsen

Calibration Technician



Morten Høngaard Hansen

Approved signatory

## **Appendix D**



Killeen Road

John F Kennedy Road

- LEGEND**
- Site Boundary
  - Road
  - Building/Structure
  - SW Storm Water Sampling Point
  - FW Foul Sewer Monitoring Location
  - N Noise Monitoring Location
  - D Dust Monitoring Location

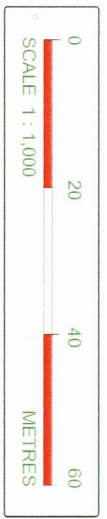
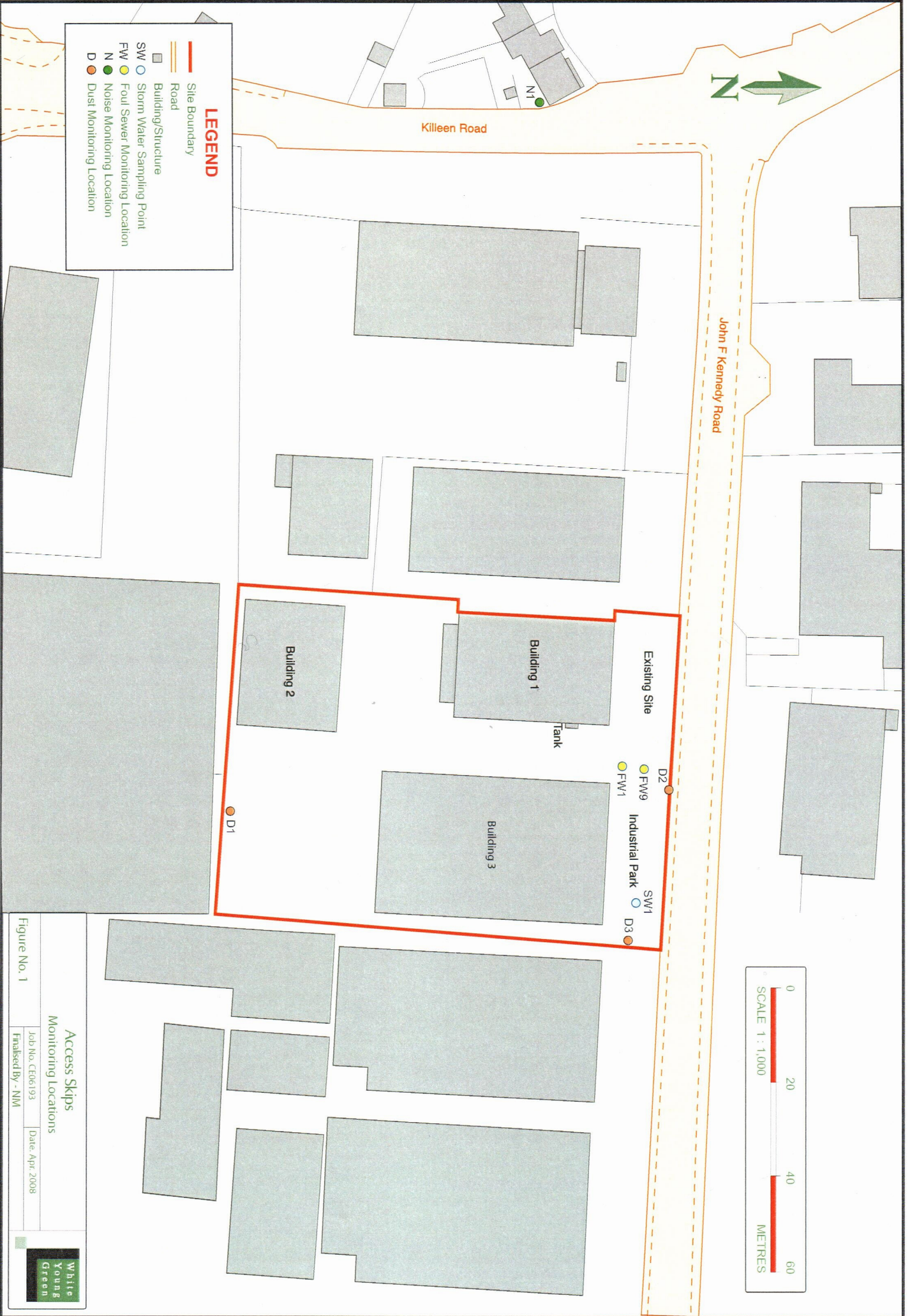


Figure No. 1

Access Skips  
Monitoring Locations

Job No. CE06193 Date: Apr 2008

Finalised By - NM

